ABINGTON TOWNSHIP

JUNE 13, 2024

BOARD OF COMMISSIONERS
REGULAR PUBLIC MEETING

TOWNSHIP OF ABINGTON

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

A G E N D A
June 13, 2024
7:00 PM

There are three ways for the public to participate in the meeting: in-person, online or by phone. Residents who wish to attend in person can do so in the Abington Township Board Room located at 1176 Old York Road, Abington, PA 19001, 2nd Floor. Alternative means of public participation are offered for those who do not wish to or are unable to attend the meetings in person. Residents who wish to participate in the meeting remotely can access the meeting online by a computer, iPad, iPhone, or Android at https://us06web.zoom.us/j/88216803878. This link will enable residents to hear the meeting, see presentations, and ask questions. There will be no video interaction capabilities. Residents, who are unable to join online, can listen to and participate in the meeting by calling 1-929-436-2866 and entering the meeting ID number 882-1680-3878 when prompted.

CALL TO ORDER

ROLL CALL, *BRODSKY, ROTHMAN, DIPLACIDO, LANEY-MARTIN, BROWNE, WINEGRAD, HENRY, ZAPPONE, YOUNG-GERTZ, SPIEGELMAN, BOLE, SCHREIBER, BOWMAN, VAHEY, HECKER*

PLEDGE OF ALLEGIANCE

BOARD PRESIDENT ANNOUNCEMENTS

PUBLIC COMMENT ON AGENDA ITEMS

CONSENT AGENDA

a. Motion to approve the Minutes from the Board of Commissioners Regular Meeting of May 9, 2024.

b. BOC-01-061324 Motion to approve the Township's 2024 CDBG Annual Action Plan and the associated resolution for submission to HUD.

c. BOC-02-061324 Motion to adopt Traffic Safety Ordinance No. 2214 amending ordinance Chapter 156 - "Vehicles and Traffic," Article II - "Traffic Regulations" Section 14 - "Stop Intersections," Article III - "Parking Regulations" Section 27 - "Parking Time Limited," and Article III - "Special Parking Zones" Section 28 - to add the following: a Stop sign northbound on Ridgeway Avenue at the intersection of Old Welsh Road; and eastbound and westbound on Elliot Avenue at the intersection of Fitzwatertown Road; 2-Hour parking on Charles Street, both sides, between Fern Avenue and Abington Avenue; and Handicapped Parking signs at 1410 Edgewood Avenue; and 640 Penn Avenue.

d. BOC-03-061324 Motion to approve a lease extension at Alverthorpe Manor for the Lubavitch of Abington effective August 1, 2024.

e. BOC-04-061324 Motion to adopt Resolution No. 24-023 authorizing the filing of an application for funds with the Department of Community and Economic Development (DCED), Commonwealth of Pennsylvania.

UNFINISHED BUSINESS

NEW BUSINESS

a. BOC-05-061324 Motion to approve the Final Major Land Development application LD-23-01 for the location at 711 Fox Chase Road, Jenkintown, PA 19046. (St. Basils).

b. BOC-06-061324 Motion to adopt Ordinance# 2215 amending the code of the Township of Abington at Part II [General Legislation], Chapter 162 [Zoning], By Amending and Restating Article III [R1 Low-Density Residential District], Article IV [R2 Low-Medium-Density Residential District], Article V [R3 Medium-Density Residential District], Article VI [R4 Medium-High-Density Residential District], and the Use Matrix Appendix to refine the Provision of the E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] Uses.

c. BOC-07-061324 Motion to authorize the Solicitor to advertise Ordinance No. 2216 amending Chapter 162, the Zoning Ordinance to regulate the size of billboards.

FINANCE COMMITTEE

a. FC-01-061324 Motion to approve the April 2024 expenditures in the amount of $2,730,234.25 and salaries and wages in the amount of $2,281,372.97 and authorizing the proper officials to sign and approve invoices and supporting documentation in payment of bills and contracts as they mature through the month of July 2024. (Click here to view supporting information for expenditures in April 2024)

(Motion & Roll Call)

PUBLIC COMMENT

ADJOURNMENT

BOARD POLICY ON PUBLIC PARTICIPATION

For Information Purposes Only

The Township shall conduct business in accordance with the Commonwealth of Pennsylvania Laws governing the conduct of public meetings and only establish guidelines that shall govern public participation at meetings consistent with the law.

Each commenter shall:

- Direct their comments to the Presiding Officer;
- Speak from the podium or into a microphone designated by the presiding officer;
- State their name for the record;
- Either orally or in writing provide their address for the record;
- Have a maximum of three minutes to make their comments. Each commenter when speaking to a specific agenda item, is to keep their comments relative to that identified agenda item;
- Speak one time per agenda item;
- When commenting on non-agenda items, the commenter is to keep their comments related to matters of the Township of Abington, Montgomery County, Pennsylvania.
- State a question to the Presiding Officer after all commenters have spoken, and;
- Be seated after speaking or upon the request of the presiding officer;
- Not engage in debate, dialogue or discussion;
- Not disrupt the public meeting, and;
- Exercise restraint and sound judgement in avoiding the use of profane language, and the maligning of others.

The stated meeting of the Board of Commissioners of the Township of Abington was held on Thursday, May 9, 2024 via webinar and in-person at the Township Administration Building, Abington, PA, with President Hecker presiding.

CALL TO ORDER: 7:01 p.m.

ROLL CALL: Present: Commissioners BRODSKY, ROTHMAN, DiPLACIDO, LANEY-MARTIN, BROWNE, WINEGRAD, HENRY, ZAPPONE, YOUNG-GERTZ, SPIEGELMAN, BOLE, SCHREIBER, BOWMAN, VAHEY, HECKER

Also Present: Township Manager Manfredi
Township Solicitor Clarke

PLEDGE OF ALLEGIANCE

BOARD PRESIDENT ANNOUNCEMENTS:

President Hecker announced that on Monday, May 6, 2024 the Board of Commissioners held an Executive Session to discuss a personnel matter.

Also, there has been interest expressed recently from residents and veterans about the Township commemorating the anniversary of D-Day, and we will be holding a ceremony at 10 a.m. on June 6th live casting the ceremony from the WWII Memorial in Washington D.C. and following that ceremony will be remarks from Congresswoman Madelein Dean and State Representative Ben Sanchez. Also, Mr. Sanchez will be holding an event for veterans at his office on Horace Avenue.

PUBLIC COMMENT ON AGENDA ITEMS:

Adele Kubel, resident, expressed concern that the minutes misrepresent her comments. Also, she was concerned that over 20 traffic lights were out on Old York Road creating safety issues; and that a five-year term on the EDC is too long, which "breeds corruption," and a two-year term would allow more people to express their viewpoint and it would give enough time to have a significant impact, so there should be a limit of two years.

Kathleen Driscoll, resident, commented that she is in support of the agenda item under New Business, which is authorizing an ordinance amending the code of the Township of Abington at Part II as listed, and she is grateful for the Board's consideration.

Joe Rooney, resident, asked who motivated the event on June 6th? Also, how many candidates attended the previous EDC meetings, and do they think it is a great idea to build 150 rowhomes at St. Basil's. Is there assurance that input from citizens and the Commissioners will not be taken away, and will the EDC meetings be open and videoed?

President Hecker replied they will be public meetings.

Nick Pillsbury, resident, said he is in favor of the resolution for dedication of the right-of-way on Washington Lane. It is important for our residents to have a safe sidewalk and for children to walk safely to school, so it is important this gets passed.

Bob Jasionowski, resident, commented that June 6th will be the 80th anniversary of D-DAY when his father-in-law landed at Omaha Beach to help Europe, and who was the only survivor in his platoon; also, his father took three bullets on Christmas Eve at the Battle of the Bulge, so we should be having something more than a video call for celebration.

George Celona, resident, thanked the entire Abington Police Department for their efforts in providing Police Academy classes for the citizens during March and April, and he gave special recognition to Police Dog Leo. He and his wife enjoyed the classes and encouraged others to enroll in next year's presentation.

Seth Cooley, resident, said he is a practicing attorney representing himself, and a vote in favor of Resolution No. 24-022 would be in violation of law, and if it is voted through, he will act accordingly beginning with the issuance a litigation hold letter following the meeting. This is a project costing hundreds of thousands of dollars without any formal demonstration of needs, so where there is blight and issues, that amount of money could have a great impact, and voting in favor, in his view without doing due diligence, is not responsible.

Charles Best, resident of Jenkintown, expressed concern about his granddaughters who live in Abington getting home safely from school, and he urged the Board to consider the resolution to install sidewalks on Washington Lane making it a safer and happier place.

Joe Silverstein, resident, commented that he agrees that sidewalks would benefit the neighborhood. He and his family like to walk on Washington Lane and into Jenkintown and cannot because it is dangerous. He thanked Commissioner Winegrad for his hard work and diligence on this project.

Adam Share, resident, commented that he has lived on Red Rambler Road for 22 years and walks everywhere but cannot walk into Jenkintown "without taking his life into his hands" because it is very dangerous to walk on Washington Lane, so he echoes that sidewalks are a good idea and long overdue.

Anastasia Gelashvili, resident, commented that she supports the sidewalks as it is dangerous to go in either direction, and not only will it benefit Jenkintown and Abington, but benefit accessibility of public transportation of the Rydal Train Station as well as our property values.

Nate Johnson, resident, commented that he is in favor of the sidewalk as it will be an enormous benefit from a safety perspective to the entire community as well as for connection. It is an enormous public health and safety issue right now as it is extremely dangerous to walk on Washington Lane.

Lora Lehmann, resident, commented that the Jenkintown Connections Project came in timely enough before the Jenkintown flats were built, and it would have been the responsibility of the developer to take care of the sidewalks and flooding issues, so she hopes they are contributing their fair share of the cost.

Also, she is concerned that the EDC is a "conflict of interest," including where the grant money goes as well as rezoning blight for the current owner and new speculator who will benefit from her tax dollars, and she hopes that anyone who has worked against the residents is not put on that Board.

Ross Able, resident, voiced his support for the connections plans as we desperately need sidewalks, pedestrian infrastructure, and traffic calming in our community. Projects such as this should be a top priority as so many new families are moving into the area and walking down Rydal Road from The Fairway near the train tracks. He requested positive affirmation for this project.

CONSENT AGENDA:

Vice President Vahey made a MOTION, seconded by Commissioner Spiegelman to approve Items a. - d. as listed under Consent Agenda as follows:

To approve the minutes from the Board of Commissioners Regular Meeting of April 11, 2024.

To approve Traffic Safety Ordinance No. XXXX amending Chapter 156 – "Vehicles and Traffic," Article II - "Traffic Regulations" Section 14 – "Stop Intersections," Article III – "Parking Regulations" Section 27 – "Parking Time Limited," and Article III – "Special Parking Zones," Section 28 – to add the following: a "Stop" sign northbound on Ridgeway Avenue at the intersection of Old Welsh Road; and eastbound and westbound on Elliot Avenue at the intersection of Fitzwatertown Road: 2-Hour Parking on Charles Street, both sides, between Fern Avenue and Abington Avenue; and "Handicapped Parking" signs at 1410 Edgewood Avenue; and 640 Penn Avenue.

To reapprove the agreement between Holy Redeemer Health System and the Abington Township Police Department.

Consideration of Settlement Agreement between Montgomery County Consortium of Recycling Communities and J.P. Mascaro & Sons.

President Hecker asked for any comments from Commissioners. There were none.

MOTION was ADOPTED 15-0.

UNFINISHED BUSINESS:

Item PW-02-081221:

Vice President Vahey made a MOTION, seconded by Commissioner Winegrad to adopt Resolution No. 24-022 of an offer of dedication on 646, 650, 700, 702, 706, 722, 730, 740, 748, and 760 Washington Lane and 1404 and 1405 Autumn Road.

President Hecker asked for any comments from Commissioners.

Commissioner Winegrad urged his colleagues to vote in favor of this. It will be a gamechanger for those in that neighborhood to connect sidewalks with existing sidewalks providing pedestrian safety, and an opportunity to help thousands of people.

Vice President Vahey asked how long has this project been in development?

Commissioner Winegrad replied it began before he became Commissioner. It started with State Representative Ben Sanchez (former Commissioner) in 2017 when Mr. Sanchez and Mr. Micciolo (former Director) began work on stormwater management and pedestrian safety, and this will be Phase I and III of the projects.

Vice President Vahey said this was thoroughly vetted for nearly a decade and he is satisfied with the work that was done, and he urged his colleagues to support it.

MOTION was ADOPTED 15-0.

NEW BUSINESS:

Item BOC-04-050924:

Vice President Vahey made a MOTION, seconded by Commissioner Spiegelman to appoint Cornelius Brown and John Dean for a five-year term and Denise Yarnoff for a three-year term to the Economic Development Corporation.

President Hecker asked for any comments from Commissioners. There were none.

MOTION was ADOPTED 15-0.

Item BOC-05-050924:

Vice President Vahey made a MOTION, seconded by Commissioner Schreiber to appoint Tara Wehmeyer, Assistant Township Manager/CHRO, as Interim Executive Director for the Economic Development Corporation.

President Hecker asked for any comments from Commissioners. There were none.

MOTION was ADOPTED 15-0.

Item BOC-06-050924:

Vice President Vahey made a MOTION, seconded by Commissioner Schreiber to appoint Richard Goldstone to the Planning Commission for an unexpired term ending 2025 as included in Exhibit A.

President Hecker asked for any comments from Commissioners. There were none.

MOTION was ADOPTED 15-0.

Item BOC-07-050924:

Vice President Vahey made a MOTION, seconded by Commissioner Spiegelman to authorize advertisement of an ordinance amending the code of the Township of Abington at Part II [General Legislation], Chapter 162 [Zoning], by amending and restating Article III [R-1Low Density Residential District], Article IV [R-2 Low Medium Density Residential District], Article V [R-3 Medium Density Residential District], Article VI [R-4 Medium High Density Residential District], and the Use Matrix Appendix to refine the provision of the E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] uses.

President Hecker asked for any comments from Commissioners.

Commissioner Winegrad asked what is the impetus for this?

President Hecker replied for the past six months, the Township has been battling a proposal to put a nursing home in the middle of a residential neighborhood that the neighbors objectively do not want, so why are we allowing conditional uses such as this in residential areas. If the conditional use standard is removed, it will give more power to the Board of Commissioners to regulate what is developed throughout the Township, but it will not preclude a developer from coming forward to request a text/map amendment proposal of this type.

Commissioner Winegrad clarified there are other communities in the Township for lifecare facilities and nursing homes. Is that correct?

President Hecker replied yes.

Solicitor Clarke noted this is not an absolute ban on these types of facilities in these districts. It is to remove it as a conditional use application, which has a much lower standard than requiring the applicant to apply to the Zoning Hearing Board for a use variance or a zoning change.

Commissioner Schreiber clarified that this change would not impact a facility that currently exists. Is that correct?

President Hecker replied that is correct.

Solicitor Clarke added that this would only impact future proposals.

Commissioner Spiegelman said there are many places where E-10 and E-12 uses would still be permitted as conditional uses. We do have an aging population and there are a significant number of resources for these types of facilities, so he will be voting in favor of it.

Commissioner Browne said he believes that our aging citizens belong in our community, and we need to have the power as a Board to choose the right facilities for the right communities, so if changing this ordinance provides that flexibility, he is in favor of it.

President Hecker clarified that this change would provide the Board with additional power to regulate it, and we agree these facilities are needed just not in the middle of a residential neighborhood.

Vice President Vahey said when you choose to buy a home in a residential neighborhood, you expect it to remain a residential neighborhood. A nursing home is a commercial enterprise with employees, deliveries, and traffic. To clear an entire lot for a nursing home by conditional use does not align with the rest of the code or the residents' expectations.

MOTION was ADOPTED 15-0.

Item BOC-08-050924:

Vice President Vahey made a MOTION, seconded by Commissioner Zappone to promote Sergeant Anthony Space to the rank of Probationary Lieutenant effective May 30, 2024 providing that he successfully completes the remaining portions of the promotional process.

President Hecker said Sergeant Space helped him with a credit card fraud issue and tracked down the perpetrators, which was exquisite work, and he is proud to see him being promoted.

MOTION was ADOPTED 15-0.

Item BOC-09-050924:

Solicitor Clarke said the motion would be to terminate employee #3606 as this matter was discussed in an Executive Session held by the Board of Commissioners.

Vice President Vahey made a MOTION, seconded by Commissioner Spiegelman to terminate employee #3606.

President Hecker asked for any comments from Commissioners. There were none.

MOTION was ADOPTED 15-0.

FINANCE COMMITTEE:

Item FC-01-050924:

Commissioner Winegrad made a MOTION, seconded by Commissioner Brodsky to approve the March 2024 expenditures in the amount of $2,896,855.17 and salaries and wages in the amount of $2,284,216.59 and authorize the proper officials to sign and approve invoices and supporting documentation in payment of bills and contracts as they mature through the month of June 2024.

Roll call resulted in motion being passed 15-0.

PUBLIC COMMENT:

Bob Jasionowski, resident, expressed concern that the D-Day celebration is being held remotely rather than in-person to honor those who served to liberate Europe and free the concentration camps. Why on the 80th anniversary will the pride flag be flown and not any other day? Was there a written request to fly the pride flag on June 6th D-Day, and is there a written copy of who approved it? Is there a limit to the type of flags that could be flown, and if other flags are flown that are not U.S., Township, or state, are we opening the Township to lawsuits.

Also, these types of events turn into political events where microphones, speakers and audio equipment are used for streaming on social media using the power outlet, so there should be rules that no one other than the Township can use the power source.

Joe Rooney, resident, thanked the police and the Chief for their great efforts. Also, he expressed concern that the anniversary of D-Day is being completely ignored and the political agenda is disappointing; and if any flag is flown other than what the legislature authorizes, it would be in violation of Section 1502.19 of the First-Class Code in which he read into the record, “and the Zoom thing is inadequate.”

George Celona, resident, commented that his father was there 80 years ago on June 6th, and he is no longer with us, and he is glad because the country he would see today is a "disgrace" to his memory. He expressed concern about disrespecting those who were there that day by the "shallow, uninspiring, and demeaning celebration."

Joseph Applegate, resident, commented that in his opinion, it is wrong and nothing more than a "political stump" to allow and approve the flying of a gay flag on June 6th at any public Township or government building. He believes it may be illegal to do so as national and state flags are the only ones that should be flown at public buildings.

On a day that has so much meaning in the history of the United States of America, and to fly any other flag is a "disgrace" to those who sacrificed, suffered, and died for this country. The gay flag should be permitted to be raised, but not on any government property on June 6th. If this is allowed to happen, he should have the right to raise any flag of his choosing on any government property, on any day, he so chooses.

Adele Kubel, resident, expressed concern that residents are not aware that sidewalks for Washington Lane are for the Galman's who will turn the pavilion into residential housing. All sidewalks in different locations are to bring in developers to build apartments that will be sky high.

She presented a petition signed by over 200 Abington residents regarding a new Roslyn Library in which she read into the record. The library is a mobile structure that should have been granted building space years ago, and expanding the population without significant additional resources is wrong.

Also, she read a statement made in 2021 by an Abington Police official who was interviewed by a television news reporter who stated, "you are much more likely to be injured in an auto accident or even killed in an auto accident than any other criminal action in our Township," and she expressed concern that since 2021 car crashes have continued to increase yearly, and the police are adamant about not riding bikes on the larger streets in Abington due to escalating collisions.

Paul Hisler, resident, commented that he is a United States Navy Veteran, and it appears that the message being sent is that June 6th will be about other political organizations and the pride flag, and that the veterans don't matter, and as a veteran he finds that to be insulting.

John Cochrane, resident, commented that he is shocked about this year's D-Day Anniversary of America's Win for Freedom. You are not celebrating the soldiers who fought for our freedom but instead sponsoring a promotional event for the homosexuality and LGBTQ+ issues that is an Abington Township pride flag raising followed by an LGBTQ+ workshop for adults and kids at the library. Was a survey of Abington Township residents undertaken to see how they would like to celebrate D-Day? Please reconsider what will be done for June 6th as an event related to the sacrifice made by our soldiers that day would be much more appropriate. Our Township should have events related to a wider audience that celebrates our Township's heritage and not private causes.

Ms. Ann, resident, commented that she has lived in Glenside with her wife for over 40 years, and she is a retired teacher teaching for over 35 years, and a proud citizen. We LGBTQ+ people deserve recognition and equal protection under the law, and currently there is no law that protects LGBTQ+ people in the workplace. There is an executive order, but no law. There is no law that protects LGBTQ+ youth from bullying, and raising the LGBTQ+ flag recognizes our existence, and we deserve the equality that all other Americans receive.

Ms. Lois, resident, commented that her father did not serve in WWII, but he worked 12-hour shifts, 7-days a week for 4 ½ years at Proctor Electric making the ejection mechanisms for fighter jets, and he considered that service and so did they. Her parents made it clear that their family fought for the belief that all men are created equal and endowed by their creator with the right to life, liberty, and the pursuit of happiness, and they believed that we should all love one another as we love ourselves. If her parents were alive, they would feel that raising a flag and honoring the struggle of the gay community would be how they wanted to celebrate D-Day, and the wide diversity that our country has come to honor and to admit.

Christine Hoff, resident, commented that her family has lived here for 29 years, and we love Abington because of its diversity, inclusion, and amazing sense of community. We need to stop the hate and she is tired of a small minority of extremely loud voices dictating to the majority of people who want an inclusive community. She supports our LGBTQ+ community and supports raising of the pride flag, and all are welcome here, and love is love.

Carol Fulforth, resident, said because she opposes raising the pride flag on D-Day does not make her intolerant or homophobic any more than promoting it makes you a cultural Marxist. Being "woke" means being alert to invisible injustices perpetuated against disempowered classes of people defined based on genetically inherent characteristics like race, gender, and sexual orientation.

It's the "woke" way or no way, and the "woke" has a right to attack and undermine the truth, but she also has the right to not live by lies. The antidote to "wokeism" is truth, and the truth of the history of June 6th in America is one of bravery and self-sacrifice. So, you can choose to take a knee and bow to the tyranny of the oppressor or stand on the side of truth, it's your choice, but remember a lot of people are affected by your choices and everyone should be treated with respect, dignity, and celebrated, not just a protected class.

Alex Eldridge, resident, commented that he sees no problem with having a ceremony honoring our brave soldiers and a ceremony honoring our LGBTQ+ people on the same day. He has relatives who fought in the French Resistance and his mother's stepbrother was killed in WWII, and they were fighting against a regime that believed in hate and the belief that some didn't deserve as much as others, and some were killed. In America, we try to live up to our ideal of justice for all and equality and we include everyone as Americans even if we do not live the way we do, so he fully supports the ceremony.

Theresa Deckebach, resident, commented that we have lived on Wharton Road for 25 years, and there are two traditions that we cherish; the first one is the Glenside Parade, which is about celebrating our freedoms, and the other is flying of the pride flag, and she hopes that tradition continues just as long as the parade. She thanked the Board for helping her teach her children to love and accept all people.

Max Dickerson, resident, commented that we are here tonight to support the LGBTQ+ community in Abington Township as well as support raising of the pride flag at the Township building during the month of June. By raising the pride flag shows our LGBTQ+ population that we honor their rights as humans and accept them for who they are as they are our neighbors, friends, brothers, sisters, parents, and children. By raising the flag, we not only recognize them but celebrate them, and this gesture helps them to feel seen, understood and walk safely and proudly down the streets of Abington.

He is proud to live in a community that honors our diverse population, which is the essence of Abington Township. Please continue to raise the pride flag because it sends the message of inclusivity, support, and love to the LGBTQ+ community who live in Abington and those who pass through.

Erica Bacich, resident, commented that she moved to Abington 14-15 years ago, and it was a hard decision for her wife and three children to leave a city and neighborhood where they felt accepted, but we wanted to join this community. One of the first things she saw was Highland Elementary School's sign that says, this is a "No Place for Hate" school, and it feels good to live and raise our children in this community, see its growth and be accepted, and she thanked the Commissioners for flying that flag.

Tess Eichenberger, resident, commented that she supports the Abington Township Board in raising the pride flag and our Abington LGBTQ+ community, and she rejects the hate. She chose to live in Abington for 42 years because of its many opportunities and the diversity of its families and schools. She is proud of the majority of residents who choose to let love and not hate and fear be their guide, and she is proud of the work that our Commissioners, School Board and Township officials are doing.

Lora Lehmann, resident, expressed concern that the minutes do not reflect everything she says. Also, the ordinance should not have been brought tonight about the lifecare facility and nursing home, it needs a full committee meeting with public input. She was also concerned about the amount of speaking time during the Galman presentation, and appointing the Bohler representative is one more "conflict of interest."

Commissioner Schreiber said she is so glad for this opportunity to address D-Day and the veterans regarding the June 6th Pride Flag Raising event.

It is the perfect segway for what I want to talk about tonight, and why we need to raise the pride flag along with American flag, which is to honor those who fought the Nazis and their hatred. One such veteran was a man by the name of Private First-Class Ferris LeBlanc who served his country honorably during WWII in the D-Day Invasion June 6, 1944.

But the credit due to him was denied thanks to the tragic circumstances of his death at the UpStairs Lounge fire of 1973. This fire, which was believed to be due to arson, was the deadliest fire on record in New Orleans city's history and the worst mass killing within the gay community until the 2016 Orlando nightclub shooting in which 49 people were murdered.

Only recently, the National WWII Museum located in New Orleans honored LeBlanc.

Private First-Class Ferris LeBlanc *"served his country honorably during WWII,"* the museum wrote in the online biography. *"But the credit due to him was denied thanks to the tragic circumstances of his death in the UpStairs Lounge fire."*

Ferris LeBlanc, an honorably discharged veteran who served in the European Theater and was buried without a flag ceremony or a grave marker alongside other unidentified fire victims. This is exactly what those brave men fought against on those beaches in Normandy.

According to the Holocaust Museum, over 100,000 gay people were arrested by the Nazis, tens of thousands were put in concentration camps, and many thousands were put to death.

There are many books that now tell the stories of these brave men and women who served the country, not only on D-Day, but for decades before and since.

One book excerpt says, “Among the 16 million Americans who served in the Armed Forces during WWII were hundreds of thousands of gay and lesbian miliary personnel who proudly served. In a war battle, being gay makes no difference.” As a married straight WWII Veteran of the Normandy Invasion said, “There were five gay guys in our unit on the beach that day, and I want you to know the German bullets did not discriminate. We all took care of each other.”

The raising of the pride flag with the American flag is the perfect way to remember what these brave men and women fought against: BLIND, BIGOTED, HATRED.

So, at this year’s Pride Flag Raising event, we will be fortunate to hear from retired Navy Captain Jon Cutler. Captain Cutler served honorably for 32 years before retiring. In 1991, he served with First Marine Expeditionary Force in Kuwait, and then from 2008 until 2009, he was with the 3rd Marine Airwing in Al-Asad, Iraq and Anbar Province, Iraq.

Captain Cutler is an openly gay man, and we will be fortunate to have him share his thoughts on both pride and celebrating our freedoms at this year’s event. Hope many of you will join us that day.

President Hecker recessed the meeting at 8:23 p.m. until 8:28 p.m.

President Hecker said regarding the ignorance and discrimination that was expressed both here this evening and in recent emails this week; hate speech is defined as “any kind of communication of speech, writing or behavior that attacks or uses pejorative or discriminatory language with reference to a person or group on the basis of their religion, ethnicity, nationality, race, color, descent, gender or sexual identity.” Forms of hate speech include scapegoating, stereotyping, stigmatization, and the use of derogatory language.

Hate speech not only causes harm at the personal level and can incite violence, but it is also an attack on inclusion, diversity, and human rights. It undermines social cohesion, and it erodes shared values setting back community stability and the fulfillment of basic rights for all. Hate speech has no place in this Township, and this Board will always stand up and defend the rights of all citizens in our community. To call a group of people ‘alphabet Nazis’ because their sexual orientation and/or gender identity differs from your own is both pathetic and weak. Boosting one’s ego or self-esteem through the belittling of others demonstrates fundamental insecurity and malignant character.

Much of the commentary this evening was sad, but the good news is that time and again this community has demonstrated that we will not buy what you are trying to sell. To the members of the LGBTQ+ community – we stand with you, and we look forward to celebrating the fundamental rights to express yourself honestly and to love whomever you choose to love on June 6th. We will also remember Private First-Class Ferris LeBlanc and the countless others who were unable to express themselves freely but still risked their lives for this country.

ADJOURNMENT: 8:31 p.m.

Respectfully submitted,

Liz Vile, Minutes Secretary

Resolution No. 24-022 was adopted by the Board of Commissioners on May 9, 2024.

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-01-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Community Development		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Adopt a Resolution for Program Year 2024 CDBG Annual Action Plan

EXECUTIVE SUMMARY:

Each year, the Township must decide how it will use the CDBG entitlement funds from HUD, following HUD guidelines. Additionally, the Township invites community partners to submit applications for funding to be considered under Township priorities and HUD eligibility guidelines.

The draft Annual Action Plan was advertised with budget information based on the anticipated PY2024 CDBG funds. Please note that the Township received notice of funds from HUD regarding the PY2024 entitlement amount in May 2024 and minor adjustments to the draft plan were made based on the finance committee recommendations. Because funding amounts are typically similar year over year, the PY2023 award amount was been used for planning purposes.

Abington's CDBG 2024 Program Year will begin on Oct. 1, 2024. In order to meet the various requirements from HUD for the CDBG program, the Community Development Department is following this schedule:

Jan. 15, 2024	Application Released to the Public
Jan. 22, 2024	Public training (delivered on-line live; recording posted soon after)
Feb. 15, 2024	Public Needs Hearing (Public Hearing #1)

Mar. 15, 2024	Application submission deadline (4pm EST)
April 2024	Applications reviewed for eligibility and scored according to rubric
April 18, 2024	Recommendations for funding circulated to Finance Committee/Board of Commissioners
May 1-31, 2024	Public Display of Draft Annual Action Plan
May 15, 2024	Public Hearing #2
June 13, 2024	Presentation of Final Plan for Approval by Board of Commissioners
August 15, 2024	Deadline for Submission to HUD

PREVIOUS BOARD ACTIONS:

Approval of previous HUD CDBG annual action plans, comprehensive plans, analyses of impediments, and associated substantial amendments.

RECOMMENDED BOARD ACTIONS:

Motion to approve the Township's 2024 CDBG Annual Action Plan and the associated resolution for submission to HUD.

MEMORANDUM

To: Richard J. Manfredi, Township Manager

From: Kimberly Hamm, Director of Community Development

CC: Ashley McIlvaine, Melissa Schofield

Date: March 27, 2024

Subject: PY 2024 CDBG Annual Action Plan Draft Subrecipient Grant Recommendations

Abington's CDBG 2024 Program Year will begin on Oct. 1, 2024. In order to meet the various requirements from HUD for the CDBG program, the Community Development Department has been following this schedule:

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August 15, 2024	Deadline for Submission to HUD

The Department of Community Development is recommending that the Board of Commissioners consider this draft plan budget and subrecipient awards for advertising and public comment:

Administration and Planning	$145,000
Public Service: Visiting Nurses Association of Abington Navigate Program	$25,000
Public Facility Improvement: Rockwell Park Playground	$275,000
Public Facility Improvement: Grove House Rehabilitation	$50,000
Owner-Occupied Rehabilitation Program	$200,000
Emergency Repairs Program	$20,000

Because of the delay in Congressional Budget approvals, HUD had not yet issued an allocation letter affirming the PY2024 entitlement allocation for the Township. As such, Community Development is working with the PY2023 allocation amount as our estimate in order to move forward in this process. Community Development expects a PY 2024 allocation letter from HUD in May and will make adjustments to the draft AAP as needed.

Department of Community Development

Kimberly Hamm, Director

Abington Township PY2024 CDBG

Application Scoring Rubric

Organization Name	Abington VNA
Project Name	Personal Navigator Project
Amount being requested (CDBG)	$25,000
Total Project Cost	$453,895
Is the proposed activity a public service (PS) or a construction project?	(PS) C
Is the proposed activity eligible for CDBG-CV funding?	N
Has the Township received:	
organization's mission statement	[redacted]
501(c)(3) non-profit designation by the IRS (Federal ID #)	Y
Valid SAM #	Y
Contact information for lead staff person and/or board chair	Y
short narrative explaining how these funds will be used	Y
Does the proposed project or activity meet a national objective (+1 point)?	[redacted]
Does the proposed project or activity serve a qualified beneficiaries (+1 point)?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in the 2020-2024 Consolidated Plan (+1 point)? Which one?	[redacted]
Does the proposed project or activity meet one of the Township priorities as outlined in other Township plans (+1 point)? Which one?	[redacted]
Will the proposed project or activity be ready to start on October 1, 2024 (+1 point)?	Y
Will the proposed project or activity be completed by October 1, 2025 (+1 point)?	Y
Total Points	
Notes:	

Project Awarded?	
Amount	
By	
Date	

TOWNSHIP OF ABINGTON
FY 2024 CDBG APPLICATION

Project Overview

Organization Name:	VNA-Community Services, Inc
One-line Description of Project:	Personal Navigator Program: Benefit Access to Improve Health and Wellness for Abington Township Residents
Address of Project Site:	1421 Highland Avenue, Abington, PA 19001
Federal ID #:	23-2363504
Chief Official's Name and Title:	Tammy Rhoades, CEO
Address 1:	1421 Highland Avenue
Address 2:	Abington, PA 19001
Phone:	814-659-1557
Email:	trhoades@connexushsn.org

Grant Administrator

Contact Person Name and Title:	Sandra Devine Saia, Director Personal Navigator & SOAR Programs
Address *(If different from above)*:	
Phone:	215-572-7880
Email:	sdevine@vnacs.org

Project Contact *(Complete only if different from above. May be engineering firm or consultant)*

Organization Name:		
Contact Name:		
Address:		
Phone:		Email:
Federal ID #:	23-2363504	
System for Award Management (SAM) Renewal Date:	W33CNKM9EHQ7	*(Applicants not registered on SAM should go to www.sam.gov*
DUNS number	624875977	

Budget Overview

CDBG 2024 Request:		$ 25,000
Other federal funds committed to project *(program and amt.)*	0	$ 0
State funds committed to project *(program and amt.)*	0	$ 0
Local funds committed to project *(program and amt.)*		$ 295,500
Private/other funds committed to project *(program and amt.)*		$ 63,000
Total Project Cost:		$ 453,855
Has this project received past Abington CDBG funds?	○ Yes ◉ No	Amount: $ 0

Expected Timeframe

Proposed Start Date of Activity: 10/01/2024

Proposed Completion Date: 09/30/2025

Project Eligibility Determination

All projects must meet at least one national objective. The application package describes the national objectives and how to determine low- and moderate-income (LMI) benefit.

A. Under which national objective will your project qualify? *Choose only one:*

- (•) Benefits residents with low or moderate incomes (LMI); or
- ( ) Aids in the elimination of slums and blight; or
- ( ) Meets community needs having a particular urgency because conditions pose an immediate threat to public health or welfare *(Use only in consultation with the Township);* or
- ( ) Is a planning or fair housing project.

B. If qualifying your project under the LMI national objective, how will you determine benefit to low and moderate income residents? *Choose only one:*

- ( ) The project serves an entire census block group in which 40.59% or more of residents have low or moderate incomes (If unsure, check with the Township). List census tract and block group # .
- ( ) The project serves an area that is smaller than a census block group. Call the Township for eligible census track information in order to demonstrate that 51% or more of residents have low or moderate incomes.
- (•) The project will serve a group of persons who are presumed eligible for assistance because they are in one of the following categories: seniors; adults with disabilities; homeless & homeless Veterans; battered spouses; abused/neglected children and youth; illiterate adults; migrant farm workers; persons with HIV/AIDS; and persons who use food banks or meals programs.
- ( ) The project will serve specific persons or households (i.e.: housing assistance). We will verify the incomes of individuals or households before approving their participation (see the application package for current income limits).

Project Beneficiaries

Provide the number of people who will benefit below:

For infrastructure/construction projects, list *total number of individuals* who will benefit:
(number of residents in census tract/block group or specific neighborhood to be served)

For public service projects, list *total number of individuals* who will be served: 300

For economic development projects, list *number of businesses* expected to be served:
and *number of jobs expected to be created/retained*, if applicable:

Will the project benefit primarily residents described as:

- Extremely low incomes (30% of area median income [AMI] or less)
- Very low incomes (50% of AMI or less)
- ■ Low/moderate incomes (80% of AMI or less)May
- Persons of Color
- Persons with Disabilities
- Senior Citizens
- Veterans
- Other Underserved Constituency (describe):

Must be completed by all applicants
Does your project affirmatively further fair housing choice?

Yes ○ **No** ◉

If yes, please explain:

N/A

1. **Project Narrative**
   Must be completed by all applicants

   Describe the project concisely and completely. You should answer the question: *How will this project improve the lives of people with low/moderate incomes?*

   Please address:

   ☒ The need for the project and the funding program applying for.
   ☒ The benefit to low-income residents
   ☒ A description of the project service area
   ☒ The activities to be undertaken, including the scope of work and timeframe (We will use this Scope of Work narrative in any Agreement) so please complete.
   ☒ The outcome(s) to be achieved

   Use the space below. Preferably submitted as a separate Word document.
   Attach additional sheets as necessary.

   See attached project narrative.

2. **Project Budget**
Must be submitted by all applicants

Submit a Sources and Uses budget breakdown including the status of all additional funding.

- ☒ For all construction projects, provide an itemized signed cost estimate from a qualified professional showing all costs, including engineering.
- ☒ If CDBG funds will support a portion of the total cost, describe which costs CDBG will support.
- ☒ For all force account or staffing costs, provide an itemization of costs by employee.
- ☒ List administrative costs on a separate budget sheet. Administrative costs refer to general accounting, payroll, or other overhead charged to the project. It does not include project management or oversight of project activities.

3. **Project Photos and Location**
Construction Projects Only

Submit materials showing the project's scope and location. *Not required for public service projects.*

- ☐ Submit at least one (1) but no more than eight (8) digital photo(s) of the project site
- ☐ Submit a FEMA Firm Panel map with the project area clearly marked
- ☐ Submit a census block group map with the project area clearly marked
- ☐ List the census tract and block group(s) in which the project will occur

List the percentage of low/moderate income residents in this block group:

Contact the Township for Census Tract and Block Group assistance if needed.

Labor Standards
Construction Projects Only

All construction projects above $2,000 that are funded in whole or in part with CDBG funds are subject to Davis-Bacon Federal Wage Rates. PA Prevailing Wages Rates are, therefore, superseded. Three exceptions are not subject to federal wage rates: Projects that use force account (municipality's own or another municipality's workforce); demolition projects; and housing projects under a certain threshold. *Choose one*:

- ☐ The project will go out to bid, subject to Davis-Bacon
- ☐ The project will be done by force account, or involves demolition or housing rehabilitation
- ☒ The project will not include construction

Procurement
Must be completed by all applicants

All projects must meet federal (as well as local) procurement guidelines when purchasing services, supplies, materials, or equipment. For engineering and other professional services, this means that CDBG funds may be used to pay these services ONLY if they will be procured competitively, separately from the process of selecting municipal services.

- ☐ The project requires engineering or other professional services, but we will NOT request CDBG reimbursement for these costs.
- ☒ The project requires engineering or other professional services, and we intend to meet competitive procurement requirements and request CDBG reimbursement for these costs.
- ☐ The project does not require engineering or other professional services.

6. **Environmental Review**
Construction Projects Only

All CDBG-funded projects are subject to an environmental review, which must be completed by the Township before funds may be committed. Issues requiring remediation would need to be completed, at the subrecipients expense, prior to the start of any project. Therefore, knowledge of any possible issues should be disclosed at this time. *Please check any that* may *apply to the proposed project, and describe these or any additional issues.* Use the space below. Preferably submitted as a separate Word document. Attach additional sheets as necessary.

☐ Project involves alteration, construction, or demolition of any building more than 50 years old. Describe:

N/A

☐ Project location is in a possible historic district
☐ Project is close to highways or commercial enterprises storing hazardous materials
☐ Endangered species have been identified in a nearby area
☐ The project is in a 100-or 500-year floodplain

Describe any potential environmental issues:

N/A

7. **Permits**
Construction Projects Only

List any permits that have been obtained or are anticipated to be needed for this project, including the status of current permit applications:

N/A

8. COVID-19 (OPTIONAL)

THIS SECTION IS ONLY APPLICABLE FOR PROJECTS THAT PRIMARILY ADDRESS COVID-19.

Abington Township received an allocation of CDBG-CV funds to prevent, prepare for, and respond to Coronavirus. Most projects do not meet HUD's requirements to be funded with CDBG-CV funds. If your project primarily addresses COVID-19, describe how your project will prevent, prepare for, and respond to Coronavirus. An organization receiving CDBG-CV assistance must agree to repay assistance that is determined to be duplicative. Duplication of benefits occurs when Federal financial assistance is provided to an organization through a program to address losses resulting from a Federally-declared emergency or disaster, and the organization has received (or would receive, by acting reasonably to obtain available assistance) financial assistance for the same costs from any other source (including insurance), and the total amount received exceeds the total need for those costs.

Certifications and Official Authorization

I, Tammy Rhoades, CEO , hereby certify that all parts of this application and all required attached documents are accurate to the best of my knowledge. I also certify that:

- ☑ I have read this Application and Application Guide in its entirety.
- ☑ I am authorized by the organization identified within to submit this application.
- ☑ If selected to receive Community Development Block Grant funds, the project will be operated in accordance with all applicable laws and regulations, including the CDBG Entitlement Grant Regulations at 24 CFR Part 570, Civil Rights Acts, the Fair Housing Act and the Americans with Disabilities Act.
- ☑ No laws of the jurisdiction or policies of my agency, as applicable, purport to require or permit any action that would be a discriminatory housing practice as contained within the Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C.A. §§ 3601-3631).
- ☑ I have read and understand the Township of Abington's Analysis of Impediments to Fair Housing Choice.
- ☑ The proposed project will not result in temporary or permanent displacement of any family, individual, business, non-profit organization or farm, or any of their personal property.
- ☑ Special assessments to recover capital costs of the proposed activity, either the CDBG funded or non-CDBG portion of costs, will not be made against properties owned and occupied by low and moderate-income persons.
- ☑ I understand that by submitting this application that our municipality or organization agrees to reimburse the Township of Abington for any expenditures paid that are found to be ineligible under CDBG program guidelines.

Tammy Rhoades	CEO
Name of Chief Official	**Title**
Signature of Chief Official	**Date**
Tammy Rhoades	3/5/24

The deadline for submitting a full application is Friday, March 15, 2024 @ 4:00 P.M

Description and Benefit to Low-Income Residents

When vulnerable and low-income individuals are connected with available resources to remove or mitigate negative social determinants of health, they and their families accelerate significantly toward improved health, economic stability, and quality of life. The Personal Navigator Program of VNA-Community Services, Inc. is an access and enrollment program that utilizes professional staff, technology, and a one-portal approach to connect and provide the guidance necessary for eligible residents to access and utilize up to 26 public benefits and supports that will help to improve their health and increase economic and food security.

Significant national research has shown that providing additional support through benefit access is an effective way to help vulnerable and low-income adults move out of poverty and towards improved health and self-sufficiency. Unfortunately, according to a report from the National League of Cities: "Lack of information about how and where to apply, the time required to enroll in multiple programs, and fears of not qualifying for significant benefits all discourage interested individuals from going through the application processes." The VNA Personal Navigator Program (PNP) simplifies this process by providing screening, application, access, and utilization support to those seeking help through the program.

Each year, millions of dollars are left on the table because people do not know they are eligible for public benefits or know how to access these benefits. The PNP is an evidenced-based best practice access and enrollment program with measurable results that provides seamless access to health care and other benefits that improve the health and wellness of those served and bring them closer to good health, stability, and self-sufficiency.

VNA-Community Services, Inc. is respectfully requesting $25,000 in Community Development Block Grant funds in support of the Personal Navigator Program.

Statement of Need

Over the last several years, the number of individuals in Abington Township and surrounding communities who are in need of access to available benefits and services has risen. According to the Self-Sufficiency Standard for Pennsylvania, many families in need do not earn self-sufficiency wages. Such families cannot afford health care, housing, food, and child care, much less other expenses, and as a result are forced to choose between basic needs. In Abington Township, low-income families can no longer afford or are having difficulty affording basic necessities due to higher inflation. This has been caused by post-COVID supply chain difficulties and demands for goods and services following the

re-opening of the economy. This has brought higher prices for food, transportation, health care, and housing. Low-income households are disproportionately affected because they spend a greater portion of their incomes on necessities than higher-income households (Brainard). Benefit access and support programs (such as the Personal Navigator Program) can help working families achieve health and stability without skimping on nutrition, living in overcrowded or substandard housing, or leaving children in unsafe or non-stimulating environments (Pearce).[1] Vulnerable individuals and families often do not know of resources until they face a particular need or seek a specific service. "Lack of information about how and where to apply, the time required enrolling in multiple programs, and fears of not qualifying for significant benefits all discourage interested individuals from going through application processes" (Coffey).[II] Significant research has shown that providing additional income and support, through benefit access, is an effective way to help vulnerable individuals move out of poverty and into independence and self-sufficiency.

Within Abington Township there are significant pockets of poverty where low-income individuals and families face barriers and inequities in accessing the health benefits and financial supports that can help them meet their full potential. By helping to navigate complex systems, the Personal Navigator Program of VNA Community Services, Inc. increases equitable access to quality health and human services and promotes healthy communities by providing access to care and connections to public benefits and supports. According to US Census Bureau Quick Facts, there are currently 4,150 low-income residents in Abington Township. The Personal Navigator Program of VNA Community Services, will address pockets of poverty within all township communities with an outreach focus on low-income neighborhoods, specifically pockets of North Hills, Willow Grove, and Roslyn.

Scope of Work & Outcomes

Located in Abington Township the Personal Navigator Program of VNA-Community Services Inc. utilizes professional staff members (Personal Navigators) to link 1,600 vulnerable adults and families annually throughout Montgomery County to a wide array of assistance programs by helping these individuals complete applications for programs that offer necessary medical, utility, financial, housing and social services. Since its inception in 2007, the Personal Navigator Program has connected over 26,000

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[1] Pearce, Diana – The Self-Sufficiency Standard for Pennsylvania 2010-2011- PathWays PA and Wider Opportunities for Women (May 2010)

II Coffey, Sean; Hughes Holsclaw, Abby; Bosland, Julie – Screening Tools to Help Families Access Public Benefits. National League of Cities – Institute for Youth, Education and Families, Washington, D.C. (June 2005)

III Brainard, Governor. "Speech by Governor Brainard on variation in the inflation experiences of households." *Board of Governors of the Federal Reserve System*, 5 April 2022, https://www.federalreserve.gov/newsevents/speech/brainard20220405a.htm. Accessed 26 February 2024.

Montgomery County residents to over $40M in public benefit dollars which are reinvested in local economies. Applications for public benefits are made efficiently and can be tracked through the utilization of proven web-based screening programs including COMPASS – Commonwealth of Pennsylvania Access to Social Services. As a Certified Application Counselors, VNA also utilizes the Pennsylvania Health Care Marketplace, Pennie.

Through this Abington Township-focused initiative the Personal Navigator Program screens for up to 26 benefits that low-income residents may be eligible to receive but are unable to apply for without assistance. Program applications will be made to the following: Medical Assistance, CHIP, ACA/Pennie, Low Income Subsidy/Extra Help, Medicare Savings Plan, Medicare Part D, Medicare Advantage, Medigap, PACE/PACENET, Rx Assistance Programs, Medical Assistance Transportation Program, One Sight for glasses and eye exams, SNAP, the school lunch program, Farmers Market Vouchers, Commodity Supplemental Food Program, Cash Assistance (TANF), Rent/Property Tax Rebates, LIHEAP, LIWAP, free cell phone programs, Affordable Connectivity, CCIS and other available financial, housing and utility assistance programs.

According to the US Census Bureau, there are currently 4,150 low-income residents in Abington Township. During the next year, with the support of Abington Township, VNA anticipates providing information on available benefits and supports to 150 individuals and families through outreach efforts and connecting 200-300 low-income residents of Abington Township with healthcare benefits, and services (including free/low-cost prescription medication and connection to the Healthcare Marketplace/PENNIE) as well as, income supports that are considered health-related social needs; benefits such as SNAP benefits, housing supports, utility assistance and financial assistance programs for which they are eligible but unable to apply without professional support. It is estimated that these benefits will be valued between $400,000 and $500,000, which is ultimately reinvested into the local economy.

Service Steps are as follows:

1. Individuals begin services with the Personal Navigator Program by calling a 1-800 number or enrolling via the program's online portal. These individuals may have heard of the program through referral agencies, collaborative partners, word of mouth, or through community outreach efforts.

2. During the initial telephone conversation or web-based enrollment, a screening tool is used to collect demographic and income verifications. Callers are then enrolled in the program.

3. An initial benefits review is conducted, where income is verified and an appointment is scheduled with VNA staff (Personal Navigators) in a format that is convenient for the participant (VNA has offices in Norristown and Abington, Montgomery County, and has secured donated workspace in the Western

and North Penn Regions of the County, as well as Phoenixville, Chester County.) Additionally, the VNA offers telephonic or web-based appointments, which are often taken advantage of by program participants who may be unable to get to an office location).

4. Based on the benefit review, enrollees are told what income verifications, supporting documents, and identification forms will be needed to apply for benefits. During the appointment:

- The client will work with the Personal Navigator to identify benchmarks that will relate to individual milestones and larger program outcomes. These milestones will focus on improving their life circumstances through: improved economic security; improved health outcomes;increased food and housing security, or a self-identified focus area.

- The Personal Navigators access web-based screening/application programs and begin the application process for the participant.

- Most applications will be submitted electronically and documents, including income verifications, are uploaded to the application. Other applications will be processed by email or fax as required.

5. VNA staff members then work with appropriate case workers or benefits providers to ensure that benefits are approved and the utilization of benefits is understood.

6. VNA Personal Navigator works with participants to ensure that benefits are accessed and, if necessary, handles appeal and renewal of benefits. For appeals that require legal assistance, VNA collaborates with Legal Aid of Southeastern Pennsylvania.

7. Renewals are processed for all public benefits within 6 or 12 months of application to maintain connection with benefits.

8. Six-month and one-year follow-up assessment surveys via telephone are conducted to measure progress and to collect customer service data on the participants' experience.

9. Information and Referral to community resources are available and made as needed

Program Evaluation & Success

The VNA Personal Navigator Program utilizes a pre-and post-evaluation tool that is modified after the Arizona Self-Sufficiency Matrix to address food insecurity, healthcare access, and economic stability through the lens of benefits access. By using this tool, we are able to determine changes over time and evaluate our program successes or make adjustments as needed.

- 91% reported improved household food security
- 90% reported improved access to healthcare
- 91% reported improved economic security
- 95% schedule a health encounter since their PNP visit
- 94% reported improved quality of life
- 99% were happy with the services they received

Additionally, participants complete a customer satisfaction survey and are able to answer the question, "What has receiving help through the Personal Navigator Program meant for you?" Below is a snapshot of the results of those who have shared their experiences.

"The benefits I received helped a great deal."

"It shows that someone cares and when a child needs medical help, it gives a parent peace of mind."

"It definitely took away financial stress."

"I could not financially afford my health care without the help."

"Thank you very much for all your help. With your assistance, I was able to remain stress-free during my wife's pregnancy. I will always be grateful for everything you have done for me."

VNA COMMUNITY SERVICES INC
ABINGTON TOWNSHIP, COMMUNITY DEVELOPMENT BLOCK GRANT
SOURCES AND USE BUDGET
2024 - 2025 PLAN YEAR

POSITION SALARY EXPENSES	TOTAL ANNUAL PROGRAM COSTS	SUPPORT FROM OTHER FUNDING SOURCES	REQUESTED FUNDING FROM CDBG
Director	75,000.00	67,500.00	7,500.00
SOAR Benefits Specialist - FT	60,000.00	60,000.00	
SOAR Benefits Specialist - PT	20,631.00	20,631.00	
SOAR Benfits Specialist - FT	55,000.00	55,000.00	
Navigator - Multi Cultural Coordinator	55,000.00	55,000.00	
Navigator - Outreach Coordinator	16,310.00	8,155.00	8,155.00
Navigator	45,000.00	45,000.00	
Administration - intake	15,600.00	12,285.00	3,315.00
Administration - accounting/payroll/billing	4,320.00	3,240.00	1,080.00
TOTAL SALARY EXPENSE	**346,861.00**	**326,811.00**	**20,050.00**
EMPLOYEE BENEFITS			
Employment Taxes	32,604.93	30,721.93	1,883.00
Staff Benefits	30,866.00	30,866.00	
TOTAL EMPLOYEE BENEFITS	**63,470.93**	**61,587.93**	**1,883.00**
AGENCY EXPENSES			
Auto Allowance/Clinical Evaluation Transport	1,500.00	1,000.00	500.00
Software Costs	4,377.00	4,377.00	
Membership	165.00	165.00	
Medical Record Fees	1,000.00	1,000.00	
IT/Cell Phone/Data/fax	3,522.00	3,042.00	480.00
Training/Conferences	500.00	500.00	
Office Supplies/Copier Usage/Postage	5,292.67	4,302.67	990.00
Marketing Materials for Programs	2,500.00	1,576.00	924.00
Program Support	24,666.34	24,493.34	173.00
TOTAL AGENCY EXPENSES	**43,523.01**	**40,456.01**	**3,067.00**
TOTAL PROJECT EXPENSES	**453,854.94**	**428,854.94**	**25,000.00**

ACQUISITION AND AUTHORIZATION OF EXPENDITURES

PURPOSE: The purpose of this policy is to ensure that goods and services purchased for the performance of a county, state, or federal grant are obtained in a cost-effective manner and in compliance with federal regulations. These standards are furnished to ensure that such materials and services are obtained in an effective manner and in compliance with the provisions of applicable Federal Statutes and executive orders.

SCOPE: This policy applies to Program Directors and any designees ("Buyer") authorized to initiate purchases on behalf of the VNA for county, state, or federal grants. This policy is not applicable to the general purchases of the agencies for other non-government programs.

RESPONSIBILITY: The Program Director is responsible for determining whether a purchase is allowable under the terms of the federal grant and will ensure purchases are in accordance with this policy. The Fiscal Director will provide decision support upon request, conduct the required three-bid process, and then provide the final procurement requisition to the Chief Executive Officer who will serve as the final approval for purchase transactions. The Fiscal Officer will be the final repository for purchasing records under federal grants.

POLICY: It is the intent of the organization to provide necessary supplies and equipment in a cost-effective manner. All purchase requisitions require administrative approval of the requesting employee's supervisor (Program Directors) and the Fiscal Officer. The Policy must meet federal guidelines as outlined.

OBJECTIVE: To establish a cost-effective system for the purchase and distribution of supplies and equipment necessary for efficient operations and to define lines of authority related to purchasing under county, state, or federal grants.

OVERVIEW: To promote compliance with federal regulations, the Agency requires "buyers" to perform some measure of cost/price analysis when making purchases under federal grants. However, all procurement transactions shall be conducted in a manner to provide, to the maximum extent practical, open, and free competition. The agents must also provide a clear and accurate description of the technical requirements for the material, product, or service to be procured and in competitive procurement; such a description shall not contain features that unduly restrict competition. The Program Directors and staff shall avoid purchasing unnecessary items. All vendor bids and quotations must be evaluated based on product quality, technical compliance with specifications, total cost, and the vendor's acceptance of the Agency's terms and conditions. The vendor selection process for goods and services valued at less than $3,000 need not be documented and stored as part of the transaction record. The vendor selection process for goods and services of more than $3,000 and up to $20,000 requires three competitive written quotes to be obtained. The vendor selection process for

goods and services of more than $20,000 requires a Request for Proposal (RFP) to be prepared and 3 written competitive bids obtained. A clear and accurate description of the technical requirements for the material, product, or service to be procured and in competitive procurement, such a description shall not contain features that unduly restrict competition.

CODE OF CONDUCT:

As representatives of the Agency, all employees are expected to conduct themselves in a professional and ethical manner, maintaining high standards of integrity and the use of good judgment. Employees are expected to be principled in their business interactions and act in good faith with individuals both inside and outside the Agency community. The Code of Conduct shall govern the performance, behavior, and actions of the Agency, including Board members, employees, directors, volunteers, or agents who are engaged in any aspect of procurement, including – but not limited to – purchasing goods and services; awarding contracts and grants; or the administration and supervision of contracts.

1. No employee, officer, director, volunteer, or agent of the VNA shall participate in the selection, award, or administration of a bid or contract supported by Federal funds if a conflict of interest is real or apparent to a reasonable person.

2. Conflicts of interest may arise when any employee, officer, director, volunteer, or agent of the Agency has a financial, family or any other beneficial interest in the vendor firm selected or considered for an award.

3. No employee, officer, director, volunteer, or agent of the Agency shall do business with, award contracts to, or show favoritism toward a member of his/her immediate family, spouse's family, or to any company, vendor or concern who either employs or has any relationship to a family member; or award a contract or bid which violates the spirit or intent of Federal, State and local procurement laws and policies established to maximize free and open competition among qualified vendors.

4. The Agency's employees, officers, directors, volunteers, or agents shall neither solicit nor accept gratuities, gifts, consulting fees, trips, favors, or anything having a monetary value, potential vendor, or from the family or employees of a vendor, potential vendor, or bidder or from any party to a sub-agreement or ancillary contract.

5. Competitive hiring of positions - All positions are subject to the civil service laws passed by Congress to ensure that applicants and employees receive fair and equal treatment in the hiring process.
In the competitive service, individuals must go through a competitive process (i.e. competitive examining) which is open to all applicants. This process may consist of a written test, an evaluation of the individual's education and experience, and/or an evaluation of other attributes necessary for successful performance in the position to be filled.

VENDOR SELECTION AND BIDDING PROCESS

Buyers shall consider the following before making a vendor selection:

- Does the vendor provide the best mix of quality, service, and price for the specified need? Federal regulations require that the lowest price has priority unless quality, service, or delivery time takes priority as needed.

- Does the vendor qualify as a small, disadvantaged, minority, or women-owned business? Qualifying vendors should be given preference to the extent practical and economically feasible.

- Does the vendor supply products and services that conserve natural resources, are energy efficient, and protect the environment? Vendors should be given preference, to the extent practical and economically feasible, for such products.

BID PROCESS DETERMINATION

Under $3,000.00 no formal bid is required but the use of catalogs and online sourcing to find the least cost provider is required. Minimum sources required: 3. Sources must be documented for reimbursement. Buyers are expected to conduct an informal cost/price analysis and select the vendor offering the best mix of quality, service, and price for the specified need. Reasonable efforts shall be made to ensure fair and competitive pricing. The Request must be signed by the Chief Executive Officer for final approval and payment.

$3,000 to $20,000 A minimum of two (2) bids, written or verbal, are required. Each vendor must be provided with the same precise and accurate description of the specifications and technical requirements for the item or service. Web price lists and catalog listings can be considered verbal bids. Buyers must document the vendor quotes on the SOAR Procurement Request form. A copy of the completed form must be attached to the selected vendor's invoice and submitted to the Procurement Office for approval by the Chief Executive Officer and then the Senior Accountant Office for payment.

$20,000 and Up A minimum of three (3) written bids are required. Each vendor must be provided with the same precise and accurate description of the specifications and technical requirements for the item or service. Written bids may be received by mail, fax, or email and should be signed/e-mailed by an authorized representative of the vendor. See Obtaining Competitive Bids below. Buyers must complete a SOAR Procurement Request Form. A copy of the completed form and all written bids must be attached to the selected vendor's invoice and submitted to the Chief Executive Officer for approval. When lease options are available, an analysis of the lease versus buy option must be performed to determine which alternative would be the most economical and practical form of procurement.

OBTAINING COMPETITIVE BIDS:

Solicitations for goods and services shall provide the following:

· A clear and accurate description of the technical requirements for the material, product, or Service desired. The description shall not be designed to limit competitive solicitation from multiple vendors.

· Requirements that the bidder must fulfill and all other factors to be used in evaluating bids and proposals.

· A description of the technical requirements in terms of functions to be performed or performance required, including the range of acceptable characteristics or minimum acceptable standards.

· The specific features of "brand name or equal" descriptions that bidders are required to meet.

· To the extent practical, products and services should be dimensioned in the metric system of measurement.

· Preference, to the extent practical and economically feasible, for products and services that conserve natural resources, protect the environment and are energy efficient.

Positive efforts shall be made to utilize small businesses, minority-owned firms, and women's business enterprises, whenever possible.

EXCEPTIONS NON-COMPETITIVE VENDOR SELECTION:

Occasionally, a buyer is unable or chooses not to competitively bid on the requirements. These situations are characterized as sole or single-source transactions.

Sole Source: No other vendor capable of fully meeting the requirements exists. Sole source procurement is a non-competitive vendor selection and should be used as a last resort, only when a buyer is unable to competitively bid on the requirements. In addition to a price/cost justification, sole source procurements always require the reason(s) for not completing the requirement, which must be documented on the Vendor Selection Form (Written documentation supporting the reason(s) chosen on the Procurement Request Form

Single Source: Alternative vendors exist in the competitive market, but the buyer chooses to solicit a bid from only one vendor because of technical requirements (precision, reliability) or past performance by other vendors (poor service, availability of parts).

Buyers must write a narrative justification for the non-competitive procurement. Additional information for justifying sole or single-source procurement can be found in the General Procurement Procedures below. All documentation should be written clearly so that anyone

reading it will understand the reason for the sole source procurement. At a minimum, each justification should contain sufficient facts and rationale to justify the use of the specific reason chosen including:

HAP SOAR PROCUREMENT PROCEDURES

1. First review the grant or contract to ensure that the goods or services to be purchased or contracted are allowable and that there are no additional procurement conditions, specific to that award, that supersede VNA's policies and procedures.

2. Determine if the transaction will be with a sub-grantee, or a vendor/subcontractor. Refer to the definition of sub-grantees in this document and consult with the Procurement Officer if the decision is not clear. Sub-grant agreements are not covered by these procurement policies and procedures.

3. Determine the price of the procurement and follow the appropriate procedures.

   · A purchase shall not be split into multiple smaller purchases to avoid the approval/ documentation process.

   · For larger purchases, such as subcontracts that are incrementally funded, the total anticipated amount of the purchase should be used to determine the approval and documentation process.

   For example, a contract is anticipated to have a total funding amount of $21,000 over a three-year period, and if the first year is only $7,000, the buyer should follow the procedure that applies to $25,000 procurements.

4. Positive efforts shall be made to utilize small businesses, small, disadvantaged businesses, small businesses that are woman-owned or veteran-owned or service-disabled veteran-owned, small business enterprises ("Small Businesses")

5. All correspondence (e-mails etc.) with vendors/subcontractors must be a part of and included in the Grant file.

6. Documentation Requirements for all procurements Small Purchases ≤ $3,000: Buyers shall solicit competitive bids to the maximum extent practicable at the discretion of the Program Director. Documentation is not required. Procurements ≥ $5,000: and ≤ $20,000: Quotations & and bids may be requested and received orally. A price analysis must be performed and documented using the Vendor Selection Form. Procurements ≥ $20,000: Quotations/ proposals must be requested in writing via a formal Request for

Quote (RFQ) or Request for Proposal (RFP) or equivalent that clearly sets forth all requirements to be evaluated. (A description of the essential elements of an RFQ or RFP are detailed in the. A price, cost, or proposal analysis must be completed. Requests for Quotes (RFQs) and Requests for Proposals (RFPs) RFQs are used for non-complex procurements (e.g., hourly rate consulting agreements, and procurements for materials) while RFPs are typically used for soliciting proposals for negotiated, complex contracts. The RFQ or RFP is prepared by the Program Director and should include:

- purpose
- general information, including any deadlines.
- Statement of work, specifications, requirements, milestones, and deliverables
- Bid/proposal preparation and submission instructions.
- evaluation criteria
- award notification
- instructions for budget and estimated pricing
- any special terms and conditions
- required vendor certifications.

7. Sole Source Procurements: A sole source procurement is a non-competitive vendor selection and should be used as a last resort only when a buyer is unable to competitively bid on the requirements. In addition to a price/cost justification, sole source procurements always require the reason(s) for not completing the requirement, which must be documented (Written documentation supporting the reason(s) chosen on the Procurement Form. Sole source procurements should only be made under the following circumstances. At least three quotations/proposals were requested and only one response was received. The justification must include a listing of the vendors/contractors who were solicited and their telephone numbers, and/or where it was posted. Solicitations ≥ $20,000 require a copy of the RFQ or RFP that was issued. Required by the Terms of the Sponsor's Written Solicitation or RFP — attach a copy of the relevant section. Unique or prior experience, expertise, or professional stature of key personnel —include: - A justification supporting why the chosen vendor/subcontractor is the only one capable of performing the required work or supplying the required materials; the justification must clearly relate to the statement of work (a list of the vendor's qualifications is not sufficient); Limited Qualified vendors: A description of the efforts made (if any) to find other vendors/subcontractors who may have been able to compete for this work. Proprietary item with unique requirements, or brand name – only item/source capable of meeting the VNA's requirements:

a) Proprietary items with unique requirements, no other known source exists. Include in the justification what unique experience, design, performance features, etc. this product or service has that are essential to the requirements, and why these features are essential. List the major features/capabilities of the product or service that are required.

b) A procurement that uses a brand name description or other purchase description to specify a particular brand name, product, or feature of a product peculiar to one manufacturer does not provide for full and open competition regardless of the number of sources solicited. Brand name justifications should indicate that the brand name procurement is essential to the contract or to the VNA's requirements, thereby precluding consideration of a product manufactured by another company. If more than one source for the brand is available, buyers should request multiple quotations and all bids/proposals should be considered Extreme Urgency — insufficient time to conduct a competitive source selection due to the extreme urgency of the requirement. The nature of the urgency must be fully documented. A shortened deadline caused by poor planning is not an acceptable reason.

CONTRACT PROVISIONS

The VNA includes all the following provisions, as applicable, in all contracts or subcontracts charged to federal awards (including small purchases) with vendors:

1. Equal Employment Opportunity: All contracts to be performed in the United States or to be performed with employees who were recruited in the United States shall contain a provision requiring compliance with E.O. 11246, "Equal Employment Opportunity", as amended by E.O.
2. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity", and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor".
3. Clean Air Act (42 U.S.C. 7401 et seq.) & the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), as amended: Contracts and subgrants to be performed in the United States of amounts in excess of $100,000 shall contain a provision that requires the recipient to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act (33 U.S.C.1251 et seq.), as amended. Violations shall be reported to the federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).
4. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352): For all contracts or subgrants of $100,000 or more, VNA shall obtain from the contractor or subgrantee a certification that

it will not and has not used federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant, or any other award covered by 31 U.S.C. 1352. Likewise, since each tier provides such certifications to the tier above it, VNA shall provide such certifications in all situations in which it acts as a sub-recipient of a subgrant of $100,000 or more.

5. Debarment and Suspension (E.O.s 12549 and 12689): For all contracts more than the small purchase threshold fixed at 41 U.S.C. 403(11) ($100,000 in 2005), VNA shall obtain from the contractor a certification that neither the contractor nor any of its principal employees are listed on the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs.
6. Remedies: All contracts more than the small purchase threshold fixed at 41 U.S.C. 403(11)($100,000 in 2005) shall contain contractual provisions or conditions that allow for administrative, contractual, or legal remedies in instances in which a contractor violates or breaches the contract terms.
7. Termination: All contracts more than the small purchase threshold fixed at 41 U.S.C. 403(11) ($100,000 in 2005) shall contain suitable provisions for termination by VNA, including how termination shall be affected and the basis for settlement. In addition, such contracts shall describe the conditions under which the contract may be terminated for default as well as conditions where the contract may be terminated due to circumstances beyond the control of the contractor.
8. Rights to Inventions Made Under a Contract or Agreement: Subcontracts for the performance of experimental, developmental, or research work shall provide for the rights of the federal government and VNA in any resulting invention in accordance with 37 CFR part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements", and any implementing regulations issued by the awarding agency.
9. Worker's Compensation Insurance: Contracts that require performance outside the United States shall contain a provision requiring Workers Compensation Insurance (42 U.S.C. 1651, et seq.).

The following provisions are required for construction contracts:

1. Copeland "Anti-Kickback" Act (18 U.S.C. 874 and 40 U.S.C. 276c): All contracts and subcontracts in excess of $2,000 for construction or repair to be performed in the United States awarded by VNA and its sub-recipients shall contain a provision for compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented by Department of Labor regulations 29 CFR part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States". This Act provides that each contractor or sub-recipient shall be prohibited from inducing,

by any means, any person employed in the construction, completion, or repair of public work to give up any part of the compensation to which s/he is otherwise entitled. VNA will report all suspected or reported violations to the federal awarding agency.

2. Davis-Bacon Act, as amended (40 U.S.C. 276a to a-7): If included in the federal agency's grant program legislation, all construction contracts to be performed in the United States of more than $2,000 awarded by VNA and its sub-recipients shall include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 276a to a-7) and as supplemented by Department of Labor regulations (29 CFR part 5, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction"). Under this Act, contractors are required to pay wages to laborers and mechanics at a rate not less than the minimum wages specified in a wage determination made by the Secretary of Labor. In addition, contractors shall be required to pay wages not less than once a week. VNA will place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation, and the award of a contract shall be conditioned upon the acceptance of the wage determination. VNA shall also obtain reports from contractors on a weekly basis to monitor compliance with the Davis-Bacon Act. VNA shall report all suspected or reported violations to the federal awarding agency.
3. Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333) [where applicable]: All contracts awarded by VNA in excess of $2,000 for construction contracts to be performed in the United States and in excess of $2,500 for other contracts that involve the employment of mechanics or laborers shall include a provision for compliance with Sections 102 and 107 of the Contract Works Hours and Safety Standards Act (40 U.S.C. 327-333), as supplemented by Department of Labor regulations (29 CFR part 5). Under Section 102 of the Act, each contractor is required to compute the wages of every mechanic and laborer based on a standard work week of 40 hours. Working more than the standard work week is permissible provided that the worker is compensated at a rate of not less than 1-1/2 times the basic rate of pay for all hours worked more than 40 hours in the work week. Section 107 of the Act applies to construction work and provides that no laborer or mechanic shall be required to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous. These requirements do not apply to the purchases of supplies, articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

NON-HAP-SOAR PURCHASING PROCEDURE:

RESPONSIBLE PERSONNEL: Chief Executive Officer, Program Directors

1. Purchases are made in accordance with expenditure levels established in the budget.

2. Items that were not considered during the budget process will be considered on an as-needed basis and require administrative approval prior to purchase.

3. Payment is made on a timely basis to take advantage of purchase discounts offered by vendors.

4. The managers of each program are responsible for identifying routine supplies and equipment needed for the efficient operation of the service area and requesting the same to be budgeted.

5. The Receptionist or the Program Directors require supplies as needed to maintain the established level of supplies in their operational area.

6. The Receptionist, in coordination with office staff, orders office supplies.

7. A purchase requisition is completed and sent to the Financial Officer or the Chief Executive Officer for approval prior to purchase.

8. As appropriate, a letter or verbal authorization is issued to the vendor.

9. A copy of the Purchase/Supply Requisition is forwarded to the Fiscal Officer where it is filed in an open Accounts Payable file in anticipation of receiving the vendor's invoice.

10. When the invoice is received by Accounts Payable, it is sent to the purchaser to verify the proper receipt of the order. The invoice must be approved and returned within one day of receipt.

The Fiscal Officer must be alerted to items ordered from specific vendors so that the invoice is verified and can be paid.

ACCOUNTS PAYABLE - ISSUANCE OF CHECKS AND AUTHORIZATION OF DISBURSEMENT

PURPOSE: To follow recommended accounting principles to ensure the authorized disbursement of agency financial resources

RESPONSIBLE PERSONNEL: Chief Executive Officer, Financial Officer, Administrative/Management staff with check signature authorization.

POLICY: To separate check or payment drafting and authorization from check signing approval and comply with recommended accounting principles and practices.

OBJECTIVE: To maintain accountability related to the prevention of fraud and theft.

PROCEDURE:

1. The Fiscal Officer shall not be authorized to sign checks.

2. The Fiscal Department is responsible for processing accounts payable checks and the Financial Officer is responsible for completing the monthly bank reconciliations.

3. Any check or payment in the amount of $500.00 or greater shall be signed by two authorized signers.

4. The agency shall have three approved check signers from Senior Management/Administrative Staff.

5. Routine expenditures must have receipts and must have either the signed petty cash receipt or the documentation for the prepared check, using a Request for Checks form.

6. Unanticipated or exceptional potential expenses must have a Purchase Requisition approved by the individual's supervisor and Financial Officer, followed by the associated documentation or receipts.

7. Petty cash reimbursements must have associated documentation or receipts verifying expenditure and associated signed acknowledgment of receipt of reimbursement from petty cash. (See Petty Cash and Expense Reimbursement Policy).

PETTY CASH AND EXPENSE REIMBURSEMENT POLICY

PURPOSE: It is the intent of the agency to have the resources available to assist staff and to have in place a reliable accounting, reconciliation, and replenishment procedure that meets expected accounting standards for internal control of cash and expense reimbursement.

RESPONSIBLE PERSONNEL: Financial Officer.

POLICY: The policy of the agency is to have petty cash available and to reimburse staff for personal expenditures approved in advance and made on behalf of agency-related business. It is the policy of the VNA to reimburse personal employee expenses spent on agency-related and approved business in accordance with applicable procedures.

OBJECTIVE: Except for unforeseen circumstances funds from petty cash or requests for expense reimbursement should be anticipated, requested in advance, presented shortly after the expense was incurred, or not expected on a last-minute basis.

PROCEDURE:

1. Requests for petty cash should be approved by the supervisor of the requesting employee and are made by completing a petty cash voucher submitted to the Senior Account or the Financial Officer.

2. Petty cash distributions must be signed for by the person to whom it is distributed.

3. Within two days the petty cash taken must be accounted for with receipts or other appropriate documentation.

4. If the documentation for the amount spent is for an amount more than what petty cash was distributed, reimbursement for the amount in excess of the petty cash disbursement will be issued one or two times during the month when payables are handled, or bills are paid.

5. Reimbursements due in an amount under $20.00 will generally be paid in cash; reimbursements due in amounts of $20.00 or greater will be paid by check to the appropriate employee at one of the two times during the month when payables are handled, or bills are paid.

Department of Community Development

Kimberly Hamm, Director

Abington Township PY2024 CDBG

Application Scoring Rubric

Organization Name	PRCS Dept.
Project Name	Rockwell Park
Amount being requested (CDBG)	~~$270K~~ $300K
Total Project Cost	~~$270K~~ $300K
Is the proposed activity a public service (PS) or a construction project?	PS (C)
Is the proposed activity eligible for CDBG-CV funding?	N
Has the Township received:	N/A
organization's mission statement	
501(c)(3) non-profit designation by the IRS (Federal ID #)	
Valid SAM #	
Contact information for lead staff person and/or board chair	
short narrative explaining how these funds will be used	
Does the proposed project or activity meet a national objective (+1 point)?	Y
Does the proposed project or activity serve a qualified beneficiaries (+1 point)?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in the 2020-2024 Consolidated Plan (+1 point)? Which one?	
Does the proposed project or activity meet one of the Township priorities as outlined in other Township plans (+1 point)? Which one?	Y. Strategic + Parks
Will the proposed project or activity be ready to start on October 1, 2024 (+1 point)?	procurement, yes construction, no
Will the proposed project or activity be completed by October 1, 2025 (+1 point)?	Yes (April 2025)
Total Points	

Notes:

~~2180~~ 2-12, swings, other (2-5 + 5-12), ADA equipment

Procurement will begin w/award; installation in March/April 2025

Project Recommended?	Yes
Project Awarded?	
Amount	
By	
Date	

Abington Township - Parks & Recreation Playground Equipment

Location	Year Installed	Replacement Year	Cost	Comments	Ward
ACEC: 2-5		2025			9
ACEC: 5-12		2030			9
Alverthorpe Park: Adventurthorpe 2 - 5		2029	$270,000	2 – 12 / Swings / other	3
Alverthorpe Park: Adventurthorpe 5 -12		2029	N/A		3
Alverthorpe Park: Adventurthorpe Swings/other		N/A		**Other =**	3
Alverthorpe Park: Preschool Area 2 - 5	2005	2028	$70,000		3
Alverthorpe Park: Swings / other				**Other =**	3
Ardsley Park: 2-5	2017	2032			9
Ardsley Park: 5-12	2002	2024	$215,000		9
Ardsley Park: Swings	2012	2032			9
Baderwood Park: 2- 5	2006	2026	$270,000	2 – 12 / Swings / other	11
Baderwood Park: 5 - 12	2006	2026	N/A		11
Baderwood Park: Swings/other	?	2026	N/A	**Other =**	11
Crestmont Park: 2 - 5	2002	2026			5
Crestmont Park: 5 - 12	?	2026	$200,000	Includes Swings	5
Crestmont Park: Swings/other	?	N/A		**Other =**	5
Elk Street Tot Lot: 2 - 5	2006	2026	$80,000	Includes Swings	13
Elk Street Tot Lot: Swings/other	?	N/A		**Other =** Rock Wall	13
Ethel Jordan: 2-12 / Swings / Tot Swings	2023	2038	$200,000		3
Evergreen Manor Park: 2-5	2012	2032			8
Evergreen Manor Park: 5-12	2012	2032			8
Evergreen Manor Park: Swings / other	2012	2032		**Other = Rockers**	8
Franklin Tot Lot: Swings					5
North Hills: 2-5	2010	2028	$70,000		6
North Hills: 2-5 Ship		2028	$70,000		6
North Hills: 5-12	2010	2028	$175,000		6
North Hills Swings/other		2028	$30,000	**Other =** see-saw / 2 to / 4 belt swings	6
Penbryn Park: 2-5	2002 ??	N/A			6
Penbryn Park: 5-12		2027	$270,000	2 – 12	6
Penbryn Park: Swings		2031	N/A		6
Rockwell Park: 2-5		2025	$270,000	2 – 12 / Swings / other	10
Rockwell Park: 5-12		2025	N/A		10
Rockwell Park: Swings/other		2025	N/A		10
Roslyn Park: 2-5	2007	2027	$70,000		15
Roslyn Park: 5-12	2004	2024	$202,000	HUD Funding / Includes other items	15
Roslyn Park: Swings/other	2004	2024	N/A		15
Roychester Park: 2-5 / 5-12 / Swings	2001	2024	$1.7mil	Inclusive Playground	10
Rubicam Park: 2-5		2024	$70,000	HUD Funding	5
Rubicam Park: 5-12 / Swings		2033			5

Abington Township - Parks & Recreation Playground Equipment

Location	Year Installed	Replacement Year	Cost	Comments	Ward
Ardsley Park: 5-12	2002	2024	$215,000		9
Roslyn Park: 5-12	2004	2024	$202,000	HUD Funding / Includes other items	15
Roslyn Park: Swings/other	2004	2024	N/A		15
Roychester Park: 2-5 / 5-12 / Swings	2001	2024	$1.7mil	Inclusive Playground	10
Rubicam Park: 2-5		2024	$70,000	HUD Funding	5
ACEC: 2-5		2025			9
Rockwell Park: 2-5		2025	$270,000	2 – 12 / Swings / other	10
Rockwell Park: 5-12		2025	N/A		10
Rockwell Park: Swings/other		2025	N/A		10
Baderwood Park: 2- 5	2006	2026	$270,000	2 – 12 / Swings / other	11
Baderwood Park: 5 - 12	2006	2026	N/A		11
Baderwood Park: Swings/other	?	2026	N/A	**Other =**	11
Crestmont Park: 2 - 5	2002	2026			5
Crestmont Park: 5 - 12	?	2026	$200,000	Includes Swings	5
Elk Street Tot Lot: 2 - 5	2006	2026	$80,000	Includes Swings	13
Penbryn Park: 5-12		2027	$270,000	2 – 12	6
Roslyn Park: 2-5	2007	2027	$70,000		15
Alverthorpe Park: Preschool Area 2 - 5	2005	2028	$70,000		3
North Hills: 2-5	2010	2028	$70,000		6
North Hills: 2-5 Ship		2028	$70,000		6
North Hills: 5-12	2010	2028	$175,000		6
North Hills Swings/other		2028	$30,000	**Other =** see-saw / 2 to / 4 belt swings	6
Alverthorpe Park: Adventurthorpe 2 - 5		2029	$270,000	2 – 12 / Swings / other	3
Alverthorpe Park: Adventurthorpe 5 -12		2029	N/A		3
Alverthorpe Park: Adventurthorpe Swings/other		N/A		**Other =**	3
ACEC: 5-12		2030			9
Penbryn Park: Swings		2031	N/A		6
Ardsley Park: 2-5	2017	2032			9
Ardsley Park: Swings	2012	2032			9
Evergreen Manor Park: 2-5	2012	2032			8
Evergreen Manor Park: 5-12	2012	2032			8
Evergreen Manor Park: Swings / other	2012	2032		**Other = Rockers**	8
Ethel Jordan: 2-12 / Swings / Tot Swings	2023	2038	$200,000		3
Elk Street Tot Lot: Swings/other	?	N/A		**Other** = Rock Wall	13
Alverthorpe Park: Swings / other		?		**Other =**	3
Franklin Tot Lot: Swings		?			5
Penbryn Park: 2-5	2002 ??	N/A			6
Rubicam Park: 5-12 / Swings	2011 - 2016	2033		Before 16 after 11	5

Department of Community Development

Kimberly Hamm, Director

Abington Township PY2024 CDBG

Application Scoring Rubric

Organization Name	CD Dept / Parks
Project Name	Grave House Rehab
Amount being requested (CDBG)	$50K
Total Project Cost	TBD
Is the proposed activity a public service (PS) or a construction project?	PS
Is the proposed activity eligible for CDBG-CV funding?	NO
Has the Township received:	
organization's mission statement	N/A
501(c)(3) non-profit designation by the IRS (Federal ID #)	
Valid SAM #	
Contact information for lead staff person and/or board chair	
short narrative explaining how these funds will be used	
Does the proposed project or activity meet a national objective (+1 point)?	Y
Does the proposed project or activity serve a qualified beneficiaries (+1 point)?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in the 2020-2024 Consolidated Plan (+1 point)? Which one?	Y Community Space
Does the proposed project or activity meet one of the Township priorities as outlined in other Township plans (+1 point)? Which one?	Y Community Space
Will the proposed project or activity be ready to start on October 1, 2024 (+1 point)?	Dec. 2024
Will the proposed project or activity be completed by October 1, 2025 (+1 point)?	Unlikely
Total Points	5
Notes: Seed money for construction on Grave House Rehab to create additional community space in Roslyn.	
Project Awarded?	
Amount	
By	
Date	

Department of Community Development

Kimberly Hamm, Director

Abington Township PY2024 CDBG

Application Scoring Rubric

Organization Name	CD Dept
Project Name	OORP
Amount being requested (CDBG)	300K
Total Project Cost	
Is the proposed activity a public service (PS) or a construction project?	PS (C)
Is the proposed activity eligible for CDBG-CV funding?	N
Has the Township received:	
organization's mission statement	N/A
501(c)(3) non-profit designation by the IRS (Federal ID #)	
Valid SAM #	
Contact information for lead staff person and/or board chair	
short narrative explaining how these funds will be used	
Does the proposed project or activity meet a national objective (+1 point)?	Y
Does the proposed project or activity serve a qualified beneficiaries (+1 point)?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in the 2020-2024 Consolidated Plan (+1 point)? Which one?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in other Township plans (+1 point)? Which one?	Y
Will the proposed project or activity be ready to start on October 1, 2024 (+1 point)?	Y
Will the proposed project or activity be completed by October 1, 2025 (+1 point)?	
Total Points	

Notes:

$300K spent on OORP in PY2022

$250K spent on OORP in first 1/2 of PY2023

Project Awarded?	
Amount	
By	
Date	

Department of Community Development

Kimberly Hamm, Director

Abington Township PY2024 CDBG

Application Scoring Rubric

Organization Name	CD Dept.
Project Name	ERP
Amount being requested (CDBG)	$30K
Total Project Cost	
Is the proposed activity a public service (PS) or a construction project?	PS (C)
Is the proposed activity eligible for CDBG-CV funding?	N
Has the Township received:	N/A
organization's mission statement	
501(c)(3) non-profit designation by the IRS (Federal ID #)	
Valid SAM #	
Contact information for lead staff person and/or board chair	
short narrative explaining how these funds will be used	
Does the proposed project or activity meet a national objective (+1 point)?	Y
Does the proposed project or activity serve a qualified beneficiaries (+1 point)?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in the 2020-2024 Consolidated Plan (+1 point)? Which one?	Y
Does the proposed project or activity meet one of the Township priorities as outlined in other Township plans (+1 point)? Which one?	Y
Will the proposed project or activity be ready to start on October 1, 2024 (+1 point)?	Y
Will the proposed project or activity be completed by October 1, 2025 (+1 point)?	Y
Total Points	6

Notes:

$41K spent in first 6 months of program (Oct. 2023-March 2024)
Projected $80K spend in PY2023; $12K remaining in program

Project Awarded?	
Amount	
By	
Date	

2024 DRAFT
CDBG Annual Action Plan

2024 Annual Action Plan Schedule

Date	Milestone
Jan. 15, 2024	Application Released to the Public
Jan. 22, 2024	Public Application Training
Feb. 15, 2024	Hearing #1 “Needs Hearing”
Mar. 15, 2024	Applications Due for Grant Consideration
April 2024	Applications Reviewed and Scored
April 18, 2024	Recommendations and Draft Presented to Finance Committee
May 1-31, 2024	Public Display of Draft
May 15, 2024	Public Hearing #2
June 13, 2024	Presentation of Final Plan for Approval by the Board of Commissioners
August 15, 2024	Deadline for Submission to HUD

Proposed PY2024
Annual Action Plan Activities

Activity	Amount
Administration (20% cap)	$144,000
Fair Housing	$1,000
Public Service: Visiting Nurses Association of Abington Navigate Program	$25,000
Public Facility Improvement: Rockwell Park Playground	$275,000
Public Facility Improvement: Grove House Rehabilitation	$50,000
Owner-Occupied Rehabilitation Program	$200,000
Emergency Repairs Program	$20,000
TOTAL *	$715,000*

*Estimated Allocation Based on 2023 Allocation

2024 Annual Action Plan Schedule

Date	Milestone
Jan. 15, 2024	Application Released to the Public
Jan. 22, 2024	Public Application Training
Feb. 15, 2024	Hearing #1 “Needs Hearing”
Mar. 15, 2024	Applications Due for Grant Consideration
April 2024	Applications Reviewed and Scored
April 18, 2024	Recommendations and Draft Presented to Finance Committee
May 1-31, 2024	Public Display of Draft
May 15, 2024	Public Hearing #2
June 13, 2024	Presentation of Final Plan for Approval by the Board of Commissioners
August 15, 2024	Deadline for Submission to HUD

Thank you

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CERTIFICATIONS

In accordance with the applicable statutes and the regulations governing the consolidated plan regulations, the jurisdiction certifies that:

Affirmatively Further Fair Housing --The jurisdiction will affirmatively further fair housing.

Uniform Relocation Act and Anti-displacement and Relocation Plan -- It will comply with the acquisition and relocation requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (42 U.S.C. 4601-4655) and implementing regulations at 49 CFR Part 24. It has in effect and is following a residential anti-displacement and relocation assistance plan required under 24 CFR Part 42 in connection with any activity assisted with funding under the Community Development Block Grant or HOME programs.

Anti-Lobbying --To the best of the jurisdiction's knowledge and belief:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of it, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, it will complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions; and

3. It will require that the language of paragraph 1 and 2 of this anti-lobbying certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

Authority of Jurisdiction --The consolidated plan is authorized under State and local law (as applicable) and the jurisdiction possesses the legal authority to carry out the programs for which it is seeking funding, in accordance with applicable HUD regulations.

Consistency with plan --The housing activities to be undertaken with Community Development Block Grant, HOME, Emergency Solutions Grant, and Housing Opportunities for Persons With AIDS funds are consistent with the strategic plan in the jurisdiction’s consolidated plan.

Section 3 -- It will comply with section 3 of the Housing and Urban Development Act of 1968 (12 U.S.C. 1701u) and implementing regulations at 24 CFR Part 75.

	June 13, 2024
Signature of Authorized Official	Date

President, Board of Commissioners

Title

Specific Community Development Block Grant Certifications

The Entitlement Community certifies that:

Citizen Participation -- It is in full compliance and following a detailed citizen participation plan that satisfies the requirements of 24 CFR 91.105.

Community Development Plan -- Its consolidated plan identifies community development and housing needs and specifies both short-term and long-term community development objectives that that have been developed in accordance with the primary objective of the CDBG program (i.e., the development of viable urban communities, by providing decent housing and expanding economic opportunities, primarily for persons of low and moderate income) and requirements of 24 CFR Parts 91 and 570.

Following a Plan -- It is following a current consolidated plan that has been approved by HUD.

Use of Funds -- It has complied with the following criteria:

1. Maximum Feasible Priority. With respect to activities expected to be assisted with CDBG funds, it has developed its Action Plan so as to give maximum feasible priority to activities which benefit low- and moderate-income families or aid in the prevention or elimination of slums or blight. The Action Plan may also include CDBG-assisted activities which the grantee certifies are designed to meet other community development needs having particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community, and other financial resources are not available (see Optional CDBG Certification).

2. Overall Benefit. The aggregate use of CDBG funds, including Section 108 guaranteed loans, during program year(s) 2024 [a period specified by the grantee of one, two, or three specific consecutive program years], shall principally benefit persons of low and moderate income in a manner that ensures that at least 70 percent of the amount is expended for activities that benefit such persons during the designated period.

3. Special Assessments. It will not attempt to recover any capital costs of public improvements assisted with CDBG funds, including Section 108 loan guaranteed funds, by assessing any amount against properties owned and occupied by persons of low and moderate income, including any fee charged or assessment made as a condition of obtaining access to such public improvements.

However, if CDBG funds are used to pay the proportion of a fee or assessment that relates to the capital costs of public improvements (assisted in part with CDBG funds) financed from other revenue sources, an assessment or charge may be made against the property with respect to the public improvements financed by a source other than CDBG funds.

In addition, in the case of properties owned and occupied by moderate-income (not low-income) families, an assessment or charge may be made against the property for public improvements financed by a source other than CDBG funds if the jurisdiction certifies that it lacks CDBG funds to cover the assessment.

Excessive Force -- It has adopted and is enforcing:

1. A policy prohibiting the use of excessive force by law enforcement agencies within its jurisdiction against any individuals engaged in non-violent civil rights demonstrations; and

2. A policy of enforcing applicable State and local laws against physically barring entrance to or exit from a facility or location which is the subject of such non-violent civil rights demonstrations within its jurisdiction.

Compliance with Anti-discrimination laws -- The grant will be conducted and administered in conformity with title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and the Fair Housing Act (42 U.S.C. 3601-3619) and implementing regulations.

Lead-Based Paint -- Its activities concerning lead-based paint will comply with the requirements of 24 CFR Part 35, Subparts A, B, J, K and R.

Compliance with Laws -- It will comply with applicable laws.

_____	June 13, 2024
Signature of Authorized Official	Date

President, Board of Commissioners

_____

Title

OPTIONAL Community Development Block Grant Certification

Submit the following certification only when one or more of the activities in the action plan are designed to meet other community development needs having particular urgency as specified in 24 CFR 570.208(c):

The grantee hereby certifies that the Annual Plan includes one or more specifically identified CDBG-assisted activities which are designed to meet other community development needs having particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community and other financial resources are not available to meet such needs.

N/A

Signature of Authorized Official Date

Title

Specific HOME Certifications

The HOME participating jurisdiction certifies that:

Tenant Based Rental Assistance -- If it plans to provide tenant-based rental assistance, the tenant-based rental assistance is an essential element of its consolidated plan.

Eligible Activities and Costs -- It is using and will use HOME funds for eligible activities and costs, as described in 24 CFR §§92.205 through 92.209 and that it is not using and will not use HOME funds for prohibited activities, as described in §92.214.

Subsidy layering -- Before committing any funds to a project, it will evaluate the project in accordance with the guidelines that it adopts for this purpose and will not invest any more HOME funds in combination with other Federal assistance than is necessary to provide affordable housing;

N/A

_____ _____

Signature of Authorized Official Date

_____

Title

Emergency Solutions Grants Certifications

The Emergency Solutions Grants Program recipient certifies that:

Major rehabilitation/conversion/renovation – If an emergency shelter's rehabilitation costs exceed 75 percent of the value of the building before rehabilitation, the recipient will maintain the building as a shelter for homeless individuals and families for a minimum of 10 years after the date the building is first occupied by a homeless individual or family after the completed rehabilitation.

If the cost to convert a building into an emergency shelter exceeds 75 percent of the value of the building after conversion, the recipient will maintain the building as a shelter for homeless individuals and families for a minimum of 10 years after the date the building is first occupied by a homeless individual or family after the completed conversion.

In all other cases where ESG funds are used for renovation, the recipient will maintain the building as a shelter for homeless individuals and families for a minimum of 3 years after the date the building is first occupied by a homeless individual or family after the completed renovation.

Essential Services and Operating Costs – In the case of assistance involving shelter operations or essential services related to street outreach or emergency shelter, the recipient will provide services or shelter to homeless individuals and families for the period during which the ESG assistance is provided, without regard to a particular site or structure, so long the recipient serves the same type of persons (e.g., families with children, unaccompanied youth, disabled individuals, or victims of domestic violence) or persons in the same geographic area.

Renovation – Any renovation carried out with ESG assistance shall be sufficient to ensure that the building involved is safe and sanitary.

Supportive Services – The recipient will assist homeless individuals in obtaining permanent housing, appropriate supportive services (including medical and mental health treatment, victim services, counseling, supervision, and other services essential for achieving independent living), and other Federal State, local, and private assistance available for these individuals.

Matching Funds – The recipient will obtain matching amounts required under 24 CFR 576.201.

Confidentiality – The recipient has established and is implementing procedures to ensure the confidentiality of records pertaining to any individual provided family violence prevention or treatment services under any project assisted under the ESG program, including protection against the release of the address or location of any family violence shelter project, except with the written authorization of the person responsible for the operation of that shelter.

Homeless Persons Involvement – To the maximum extent practicable, the recipient will involve, through employment, volunteer services, or otherwise, homeless individuals and families in constructing, renovating, maintaining, and operating facilities assisted under the ESG program, in providing services assisted under the ESG program, and in providing services for occupants of facilities assisted under the program.

Consolidated Plan – All activities the recipient undertakes with assistance under ESG are consistent with its consolidated plan.

Discharge Policy – The recipient will establish and implement, to the maximum extent practicable and where appropriate, policies and protocols for the discharge of persons from publicly funded institutions or systems of care (such as health care facilities, mental health facilities, foster care or other youth facilities, or correction programs and institutions) in order to prevent this discharge from immediately resulting in homelessness for these persons.

N/A

Signature of Authorized Official

Date

Title

Housing Opportunities for Persons With AIDS Certifications

The HOPWA grantee certifies that:

Activities -- Activities funded under the program will meet urgent needs that are not being met by available public and private sources.

Building -- Any building or structure assisted under that program shall be operated for the purpose specified in the consolidated plan:

1. For a period of not less than 10 years in the case of assistance involving new construction, substantial rehabilitation, or acquisition of a facility,

2. For a period of not less than 3 years in the case of assistance involving non-substantial rehabilitation or repair of a building or structure.

N/A

Signature of Authorized Official Date

Title

APPENDIX TO CERTIFICATIONS

INSTRUCTIONS CONCERNING LOBBYING CERTIFICATION:

Lobbying Certification
This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

TOWNSHIP OF ABINGTON
MONTGOMERY COUNTY, PENNSYLVANIA
RESOLUTION NO. 24-___

The Board of Commissioners of the Township of Abington, Montgomery County, Pennsylvania, approving the FY 2024 Annual Action Plan for the use of Federal CDBG Funds.

WHEREAS, under Title I of the Housing and Community Development Act of 1974, as amended, the Secretary of the U.S. Department of Housing and Urban Development is authorized to extend financial assistance to communities in the prevention or elimination of slums or urban blight, or activities which will benefit low- and moderate-income persons, or other urgent community development needs; and

WHEREAS, the U.S. Department of Housing and Urban Development has advised the Township of Abington that under Federal Fiscal Year 2024, the Township is eligible to apply for an entitlement grant under the Community Development Block Grant (CDBG) Program in the amount of $724,467; and

WHEREAS, the Township's Office of Community Development has prepared an Annual Action Plan for Federal Fiscal Year 2024, that the Township expects to initiate on October 1, 2024, which proposes how the entitlement grant funds will be expended to address the housing and community development needs identified in the Township's Five Year Consolidated Plan; and

WHEREAS, a draft of the FY 2024 Annual Action Plan was on public display from May 1, 2024 until May 31, 2024 and the Township held a series of public hearings on the said Plan and the comments of various agencies, groups, and citizens were taken into consideration in the preparation of the final document.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF ABINGTON, PENNSYLVANIA, AS FOLLOWS:

SECTION 1. That the Annual Action Plan for the Federal Fiscal Year 2024 CDBG Program is hereby in all respects APPROVED and the Township Manager is hereby directed to file a copy of said Annual Action Plan for Federal Fiscal Year 2024 with the Official Minutes of this Meeting of this Board.

SECTION 2. That the Township is COGNIZANT of the conditions that are imposed in the undertaking and carrying out of the Community Development Block Grant Program with Federal financial assistance, including those relating to (a) the relocation of site occupants, (b) the prohibition of discrimination because of race, color, age, religion, sex, disability, familial status, or national origin, and other assurances as set forth under the certifications.

SECTION 3. That the President of the Board of Commissioners, on behalf of the Township of Abington, Pennsylvania, is AUTHORIZED to file an Application for financial assistance with the U.S. Department of Housing and Urban Development which has indicated its willingness to make available funds to carry out the CDBG Program in the amount of $724,467 in CDBG funds attached as EXHIBIT A; and its further AUTHORIZED to act as the authorized representative of the Township of Abington to sign any and all documents in regard to these programs.

SECTION 4. That the President of the Board of Commissioners, on behalf of the Township of Abington, Pennsylvania, is AUTHORIZED to provide assurances and/or certifications as required by the Housing and Community Development Act of 1974, as amended; and any other supplemental or revised data which the U.S. Department of Housing and Urban Development may request in review of the Township's Application.

ADOPTED INTO A RESOLUTION THIS 13TH DAY OF JUNE 2024 BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF ABINGTON, PENNSYLVANIA

APPROVED:

ABINGTON TOWNSHIP
BOARD OF COMMISSIONERS

_____ _____
Date Thomas Hecker, President

ATTEST:

_____ **ADOPTED:** _____
Richard J. Manfredi, Township Manager

EXHIBIT A

The following CDBG activities are proposed for funding under the FY 2024 Annual Action Plan:

1. Administration $143,893
2. Fair Housing $1,000
3. Public Service: Visiting Nurses Association of Abington Navigate Program $25,000
4. Public Facility Improvement: Rockwell Park Playground $275,000
5. Public Facility Improvement: Grove House Rehabilitation $59,574
6. Owner-Occupied Rehabilitation Program $200,000
7. Emergency Repairs Program $20,000

TOTAL $724,467

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BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-02-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Police		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Traffic Safety Ordinance No. 2214

EXECUTIVE SUMMARY:

Over the last several months the Traffic Safety Unit has received the following requests:

2-Hour Parking	**Side**	**Location**
Charles Street	Both Sides	Between Fern Avenue and Abington Avenue

Name of Highway	**Authorized Purpose of Vehicle**	**Location**
Edgewood Avenue	Handicapped Parking	1410 Edgewood Avenue
Penn Avenue	Handicapped Parking	640 Penn Avenue

Name of Highway	**Authorized Purpose of Vehicle**	**Location**
Edgewood Avenue	Handicapped Parking	1410 Edgewood Avenue
Penn Avenue	Handicapped Parking	640 Penn Avenue

PREVIOUS BOARD ACTIONS:

n/a

RECOMMENDED BOARD ACTIONS:

Motion to adopt Traffic Safety Ordinance No. 2214 amending ordinance Chapter 156 - "Vehicles and Traffic," Article II - "Traffic Regulations" Section 14 - "Stop Intersections," Article III - "Parking Regulations" Section 27 - "Parking Time Limited," and Article III - "Special Parking Zones" Section 28 - to add the following: a Stop sign northbound on Ridgeway Avenue at the intersection of Old Welsh Road; and eastbound and westbound on Elliot Avenue at the intersection of Fitzwatertown Road; 2-Hour parking on Charles Street, both sides, between Fern Avenue and Abington Avenue; and Handicapped Parking signs at 1410 Edgewood Avenue; and 640 Penn Avenue.

TOWNSHIP OF ABINGTON
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 2214

AN ORDINANCE AMENDING
CHAPTER 156 – "VEHICLES AND TRAFFIC,"
ARTICLE II – "TRAFFIC REGULATIONS,"
SECTION 14 – "STOP INTERSECTIONS";
ARTICLE III – PARKING REGULATIONS";
SECTION 27 – "PARKING TIME LIMITED"; AND
SECTION 28 – "SPECIAL PURPOSE PARKING ZONES"

WHEREAS, the Township of Abington is a Township of the First Class, duly organized and existing pursuant to the applicable laws of the Commonwealth of Pennsylvania; and

WHEREAS, pursuant to section 1502.20 of the First Class Township Code of the Commonwealth of Pennsylvania, 53 P.S. §56579.20, the Board of Commissioners has the authority to enact and amend provisions of the Abington Township Code ("Code") at any time it deems necessary for the health, safety, morals, general welfare, cleanliness, beauty, convenience and comfort of the Township and the inhabitants thereof; and

WHEREAS, pursuant to section 1502.6 of the First Class Township Code of the Commonwealth of Pennsylvania, 53 P.S. §56579.6, the Board of Commissioners has the authority to take all needful means for securing the safety of persons or property within the Township; and

WHEREAS, pursuant to section 1502.49 of the First Class Township Code of the Commonwealth of Pennsylvania, 53 P.S. §56579.24, the Board of Commissioners has the authority to regulate traffic and parking; and

WHEREAS, the Board of Commissioners of the Township of Abington has determined that the Code of Ordinances of the Township of Abington shall be amended at Chapter 156 –

"Vehicles and Traffic," Article II – "Traffic Regulations," Section 14 - "Stop Intersections," and Article III – "Parking Regulations," Section 27 and "Special Purpose Parking Zones," Section 28 should be amended for the health, safety, morals, general welfare, cleanliness, beauty, convenience and comfort of the Township and the inhabitants thereof.

NOW, THEREFORE, the Board of Commissioners of the Township of Abington does hereby **ENACT** and **ORDAIN** as follows:

1. The Code of the Township of Abington is amended at Chapter 156 - "Vehicles and Traffic," Article II – "Traffic Regulations," at Section 14 – "Stop Intersections," to **add** the following restrictions:

Stop Sign On	Direction of Travel	At Intersection of
Ridgeway Avenue	Northbound	Old Welsh Road
Elliot Avenue	Eastbound and Westbound	Fitzwatertown Road

2. The Code of the Township of Abington is amended at Chapter 156 - "Vehicles and Traffic," Article III – "Parking Regulations," at Section 27 – "Parking Time Limited," to **add** the following restrictions:

2-Hour Parking	Side	Location
Charles Street	Both Sides	Between Fern Avenue and Abington Avenue

3. The Code of the Township of Abington is amended at Chapter 156 - "Vehicles and Traffic," Article III – "Parking Regulations," Section 28 – "Special Purpose Parking Zones" shall be amended to **add** the following restrictions:

Name of Highway	Authorized Purpose of Vehicle	Location
Edgewood Avenue	Handicapped Parking	1410 Edgewood Avenue
Penn Avenue	Handicapped Parking	640 Penn Avenue

4. All other ordinances, portions of ordinances, or any section of the Code inconsistent with this Ordinance are hereby repealed.

5. This Ordinance shall become effective five (5) days after enactment.

ORDAINED AND ENACTED this _____ day of _____, 2024.

TOWNSHIP OF ABINGTON
BOARD OF COMMISSIONERS

Attest:

_____ By: _____
Richard J. Manfredi, Thomas Hecker, President
Township Manager & Secretary

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-03-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Administration		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Lubavitch Lease Agreement Second Addendum

EXECUTIVE SUMMARY:

On May 5, 2017 the 1st Amendment to the 2012 lease for Lubavitch of Abington, Inc. was approved by the Board of Commissioners, this lease will expire the end of July 2024. The 2nd Amendment will renew for an additional 6 years with a gross annual rent of $23,286.31 as noted in the agreement.

PREVIOUS BOARD ACTIONS:

7-19-12- Lease agreement was approved by the Board of Commissioners.
5-5-2017 - First Addendum to Lease Agreement

RECOMMENDED BOARD ACTIONS:

Motion to approve a lease extension at Alverthorpe Manor for the Lubavitch of Abington effective August 1, 2024.

SECOND ADDENDUM TO LEASE AGREEMENT

THIS ADDENDUM TO LEASE AGREEMENT is made and entered into the _____ day of June, 2024, between the TOWNSHIP OF ABINGTON (hereinafter the "Lessor") and LUBAVITCH OF ABINGTON, INC. (hereinafter "Lessee"), and shall operate to supplement the terms of that certain Lease Agreement entered into between the Lessor and Lessee, dated the 19th day of July, 2012 (hereinafter the "Lease Agreement") and the First Addendum to Lease Agreement dated May 5th, 2017 (hereinafter the "First Addendum").

WHEREAS, Lessor is the owner of property located at 515 Meetinghouse Road, Abington Township, Montgomery County, Pennsylvania, known as Alverthorpe Manor (hereinafter "Premises"); and

WHEREAS, Lessor and Lessee entered into the Lease Agreement which provided for an initial lease term of one (1) year with a total of six (6) additional one (1) year renewals; and

WHEREAS, Lessor and Lessee entered into the First Addendum, which updated the annual rent and lease terms; and

WHEREAS, Lessor and Lessee desire to further extend the terms of the Lease Agreement as set forth herein.

NOW, THEREFORE, Lessor and Lessee, intending to be legally bound, do hereby agree as follows:

1. The terms of Section 2, subparagraph (a) of the Lease Agreement are amended to read as follows:

"2(a) Rent. The gross annual rent (not including utility payment identified in Section 2-b) payable by the LESSEE to LESSOR shall be TWENTY THREE THOUSAND TWO HUNDRED EIGHTY SIX DOLLARS AND THIRTY-ONE CENTS ($23,286.31), payable in monthly installments, in advance, on or before the first day of the month, during the term of this lease. The annual rent shall increase each year beginning August 1, 2025 by a percentage equal to the Philadelphia cost of living increase applicable to the preceding year as published in the bureau of labor and Statistics of the United States Department of Labor, over the rent paid in the preceding year.

In the event any such monthly payment is not received by the fifteenth (15lh) day of any month, LESSEE shall pay to LESSOR that month's rent plus a penalty of ten percent (10%) by the last day of the month. The failure of LESSEE to make any rent payment in accordance with the foregoing terms shall constitute a material breach of this Lease Agreement. At its sole discretion, LESSOR may extend the period for payment of any month's rent, and may impose an additional penalty not to exceed ten percent (10%) of the total rent for that month, including any penalty previously imposed. Nothing contained in this section or in this Lease Agreement shall be construed to limit LESSOR'S right to proceed in any manner provided for in law to collect any rent not paid on or before the fifteenth (15lh) day of any month, and to seek other remedies provided for in law, including, but not limited to, ejectment of LESSEE from the Demised Premises. All rent shall be payable without prior notice or demand at the office of the Bureau of Parks and Recreation, 515 Meetinghouse Road, Jenkintown, PA 19046."

2. The terms of Section 4 of the Lease Agreement are amended to read as follows:

> "4. Lease Term. The term of this lease shall be for a period of one (1) year with an additional six (6) one year renewal terms, commencing August 1, 2024 and ending July 31, 2031. This Lease Agreement shall automatically renew for each of the six (6) renewal terms, unless written notice of intent not to renew the Lease Agreement shall be provided to the other party hereto at least sixty (60) days prior to the expiration of the initial or then current renewal term."

3. **Remainder of Original 2012 Lease Agreement and 2017 First Addendum to Lease Agreement Unaffected**. Unless otherwise modified herein, the remainder of the Lease Agreement and the First Addendum, including the rights, obligations and duties of the parties as set forth therein, shall remain in full force and effect, and shall be unaffected by this Second Addendum to Lease.

[INTENTIONALLY LEFT BLANK; SIGNATURES ON NEXT PAGE]

NOW, THEREFORE, intending to be legally bound hereby, the parties do hereunto set their hands and seals on the date first above written.

Attest:

TOWNSHIP OF ABINGTON

_____
Richard J. Manfredi,
Township Manager & Secretary

_____
Thomas Hecker, President
Board of Commissioners

Attest: _____
Name: _____

_____
LUBAVITCH OF ABINGTON, INC.
By: _____
Title: _____

Carol T. DiJoseph, President
Peggy Myers, Vice President
Michael LeFevre, Manager
Jay W. Blumenthal, Treasurer

1176 Old York Road, Abington PA 19001-3713, www.abington.org

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To: Board of Commissioners

From: Michael LeFevre

Date: September 30, 2011

Re: Alverthorpe Manor

It is my understanding several members of the Board have raised questions regarding the temporary use of the Alverthorpe Manor by the Abington Lubavitch group for the Jewish holidays. In an attempt to clarify any misunderstanding, I've summarized below the events leading up to the decision to provide temporary access to our property.

Several months ago, the Board of Commissioners met in executive session to discuss "Township policy" regarding the use of Township owned facilities for religious use. The Abington Lubavitch congregation had approached the Township about renting a portion of the Alverthorpe Manor, previously occupied by the Settlement School.

You may recall the resident group responsible for group rentals of the municipal owned Roychester facility had agreed to lease that property for religious services over the summer without approval from Township officials. In addition, the Arts Center has had a history of hosting weddings of various religious denominations at the Alverthorpe property. The representatives of the Abington Lubavitch synagogue were well aware of the prior history at Roychester and Alverthorpe and raised that issue in their bid for access to Alverthorpe.

In executive session, the Township Solicitor explained the Township was under no obligation to authorize the use of municipal owned property for religious activity. However, Rex Herder stressed the Township must be consistent in its implementation of our policy. If the board decided to permit or prohibit religious use of township property, we would have to treat all religious organizations the same regardless of the organization's beliefs.

As a result of the above discussion, the Board directed the Solicitor to prepare a lease with the Abington Lubavitch representatives for a formal vote by the Board of Commissioners. Although close to completion, the Lubavitch lease was not yet ready for the October Committee agenda. Representatives of Abington Lubavitch requested permission to use the Manor site for services related to the Jewish holidays, which I granted. That decision was based on the following:

- **It was my impression from the Board's direction to the Solicitor to negotiate and prepare a lease for the Abington Lubavitch congregation; the majority of Board members were in favor of the use.**
- **I did not consider the possibility that some members of the Board by their silence were in fact opposed to the concept and will vote against the use when the lease is proposed at an upcoming public meeting.**
- **The decision to allow the temporary use was mine alone, for which I take full responsibility.**
- **Although not part of the decision process, it has been brought to my attention the Art Center has leased their portion of the Manor to a different Jewish congregation for services during this same period.**

If any member of the Board wished to discuss the above matter in greater detail, please feel free to contact me at any time (267-259-5508).

cc: Rex Herder, Esq.
Doug Wendell

LEASE AGREEMENT

THIS AGREEMENT, made this 19th day of July 2012, by and between the **TOWNSHIP OF ABINGTON,** hereinafter called **LESSOR,** and **LUBAVITCH OF ABINGTON, INC.,** hereinafter called the **LESSEE.**

WHEREAS, LESSOR owns that premises known as Alverthorpe Manor, located at 515 Meetinghouse Road, Abington Township, Montgomery County, Pennsylvania (hereinafter referred to as the "Premises"); and

WHEREAS, LESSEE desires to lease, for fair and *bona fide* consideration, certain portions of the Premises for the purposes of, among other things, carrying out religious services and holding meetings related to LESSEE'S affairs, and for use as office space to administer LESSEE'S affairs; and

WHEREAS, LESSOR desires to lease, for fair and *bona fide* consideration, certain portions of the Premises for the aforementioned purposes.

NOW, THEREFORE, LESSOR and **LESSEE,** intending to be legally bound, do hereby agree as follows:

WITNESSETH:

1. Demised Premises. LESSOR agrees to let unto the LESSEE those portions of the Premises known as Alverthorpe Manor as shown on the plan attached hereto as Exhibit "A" (the "Demised Premises"), which shall be made a part hereof and incorporated herein by reference.

2. Rent and Utilities.

(a) Rent. The gross annual rent payable by the LESSEE to LESSOR shall be NINETEEN THOUSAND SEVENTY-FOUR DOLLARS ($19,074.00), payable in monthly installments, in advance, on or before the first day of the month, during the term of this lease; provided that, the amount of annual rent for the first sixty (60) months of the lease term shall be reduced by the amount of $4,000 each year in consideration of restroom improvements, installation of a kitchenette, carpeting and painting all to be performed by Lessee. In the event any such monthly payment is not received by the fifteenth (15th) day of any month, LESSEE shall pay to LESSOR that month's rent plus a penalty of ten percent (10%) by the last day of that month. The failure of LESSEE to make any rent payment in accordance with the foregoing terms shall

constitute a material breach of this Lease Agreement. At its sole discretion, LESSOR may extend the period for payment of any month's rent, and may impose an additional penalty not to exceed ten percent (10%) of the total amount of total rent for that month, including any penalty previously imposed. Nothing contained in this section or in this Lease Agreement shall be construed to limit LESSOR'S right to proceed in any manner provided for in law to collect any rent not paid on or before the fifteenth (15^{th}) day of any month, and to seek other remedies provided for in law, including, but not limited to, ejectment of LESSEE from the Demised Premises. **All rent shall be payable without prior notice or demand at the office of the Bureau of Parks and Recreation, 515 Meetinghouse Road, Jenkintown, PA 19046.**

(b) Utilities. Lessor shall provide utilities including, without limitation, electricity, water and natural gas. Lessee shall pay ONE HUNDRED DOLLARS ($100.00) per month toward the cost of said utilities, said payment to be included with the rent payment. For the purposes of this paragraph the term "utilities" shall not include cable or satellite television or the provision of internet service. Lessee shall have the right to install and maintain, at Lessee's sole expense, cable or satellite television or internet service, subject to Lessor's approval of the location and means of installing any infrastructure for the provision of such services.

3. Lessee's Use of Demised Premises. LESSEE hereby covenants and warrants that the use of the demised premises shall be limited to, and LESSOR covenants and warrants that LESSEE shall have the right to use demised premises as and for, conducting LESSEE'S religious services and ceremonies, providing religious instruction, administering LESSEE'S affairs, and for such other purposes as may be legitimately related to LESSEE'S affairs. Any other use shall constitute a material breach of this lease. LESSEE shall not, without the advance written agreement of the Board of Commissioners, sublet or otherwise allow the use of the Demised Premises or any part thereof for any purpose or period of time, to any other person, organization or business entity. Additionally, LESSEE shall be permitted the reasonable use of the remainder of the Alverthorpe property for activities legitimately related to LESSEE'S affairs, subject to the prior approval of the Abington Township Director of Parks and Recreation, and provided that such use does not interfere with the use of the Alverthorpe property by the Township or others authorized by the Township to use the Alverthorpe property.

4. Lease Term. The term of this lease shall be for a period of one year commencing August 1, 2012. As of July 31, 2013, LESSEE shall have the option, upon the agreement of the LESSOR, to renew its Lease for an additional one year period. LESSEE shall have four (4) additional annual options to renew its Lease for one year periods, also upon the agreement of the

LESSOR. Nothing herein shall be construed to obligate LESSOR to agree to renew the Lease for any annual period. In the event that LESSOR elects not to renew the Lease for reasonable cause constituting breach of contract, the Township shall not be required to reimburse LESSEE for LESSEE'S costs in making any capital improvements to the Demised Premises. If, however, LESSOR elects not to renew the Lease other than for cause, LESSOR shall be obligated to refund LESSEE'S actual costs of capital improvements made to that time, reduced by the total amount of rent reductions made pursuant to Paragraph 2(a), above. If, at the time of termination by the LESSOR, LESSEE'S costs of capital improvements are less than FOUR THOUSAND DOLLARS ($4,000.00) per year in the aggregate, LESSEE shall pay to the LESSOR the difference between the actual costs of any capital improvements made and each FOUR THOUSAND DOLLAR ($4,000.00) reduction. For each annual renewal, the annual rent shall increase by a percentage equal to the Philadelphia Cost of Living Increase applicable to the preceding year as published in by the Bureau of Labor and Statistics of the United States Department of Labor, up to a maximum of 3% over the rent paid in the preceding year

5. Renovations by Lessee. LESSEE shall be responsible for renovating the Demised Premises, if necessary, to meet fire, safety and personal use codes, and the cost of all such renovations shall be borne by LESSEE.

6. Lessee's covenants and warrant; Lessee's Rights. LESSEE hereby covenants and warrants:

(a) That the LESSEE shall be as efficient as possible and use its best efforts to conserve the use of all energy and especially electricity and heat, by setting thermostats in all areas of the Demised Premises, other than storage rooms, to a maximum of sixty-eight (68) degrees Fahrenheit, and in storage rooms at sixty (60) degrees Fahrenheit or less when heating, and to a minimum of seventy-two (72) degrees Fahrenheit when air-conditioning.

(b) That any new, high electrical use equipment, such as large air-conditioners, ovens, and the like, installed by LESSEE in the Demised Premises, shall be assessed an additional and separate cost by the LESSOR for additional and excess electrical use based on the equipment's normal kilowatt consumption and the ongoing costs per kilowatt hour, and the LESSEE shall pay such additional and separate costs to the LESSOR without further demand being made upon it.

(c) That the elevator in the servant's wing (freight) elevator shall be used only for freight by the LESSEE and the Bureau of Parks and Recreation. However, in the event the LESSEE shall desire to convert the freight elevator in the servant's wing

for personal use, the LESSOR hereby grants the LESSEE the right to so convert said elevator upon the following terms and conditions:

(1) LESSOR shall have the right, privilege, option to disapprove any aspect of the conversion work, without incurring liability to LESSEE, or anyone else, and materials and design and, in the event the LESSOR shall disapprove of any portion of said conversion, then, and in any of such events, LESSEE shall modify the conversion in accordance with LESSEE'S determination.

(2) All expenses of the conversion of the elevator shall be borne by LESSEE.

(3) LESSEE shall not permit any liens, encumbrances or other security interest to be filed against any of the work.

(4) Once the conversion work shall have been commenced, LESSEE shall complete the project, or shall be liable to the LESSOR for the cost of the completion. All such costs may be added to and collected as rent.

(5) The acquisition and costs of acquiring all licenses, permits, inspections, and violations shall be the responsibility of LESSEE.

(6) All improvements shall become the property of the LESSOR upon the termination of the lease without any cost to the LESSOR.

(7) LESSEE shall obtain and maintain for the duration of the said elevator, LESSOR shall be responsible for the maintenance, repair, and replacement of the heating, plumbing, and electrical systems in the demised premises and the Building of which they are a part. LESSOR shall also be responsible for all structural repairs, including the roof and walls, and for all exterior maintenance and the care and maintenance of the grounds, including all grass cutting and snow removal, excepting, however, that LESSOR shall not be responsible for any maintenance and/or replacement of any structure or system installed by LESSEE or affected by LESSEE'S modification to the structure or use of the demised premises.

(d) That access to the boiler and adjoining rooms and air handler rooms shall be given, at any time upon demand, to the Parks and Recreation maintenance staff for repairs and inspections.

(e) That the on north side of the converted four (4) car garage two parking spaces shall be used only for handicapped parking. Further, a parking spot in front of the cottage garage shall remain as it is for the use of the Director of Parks and Recreation.

(f) That access to the twin room (bedroom #2, second floor) by LESSEE shall be made only through the corridor on the servants' side and not through the corridor that leads to the present Parks and Recreation office.

(g) That all bathrooms in the Demised Premises not presently in use, or which have heretofore been used as storage, and which are intended to be used by LESSEE as bathrooms, shall be placed in operable condition as bathrooms at LESSEE'S sole cost and expense.

(h) That all electrical, plumbing and structural improvements or alterations or remodeling in the Demised Premises desired by LESSEE shall be carried out only with the prior written approval of the Abington Township Director of Parks and recreation, and shall be carried out at LESSEE'S sole cost and expense, including the cost of obtaining any permits, licenses and the like in order to carry out such work. Any malfunctions or failures in any part of the Manor caused by any such work by LESSESS shall be corrected to LESSOR'S satisfaction and shall be paid for by the LESSEE. All future maintenance and repairs of any such work carried out by LESSEE shall be the sole and exclusive responsibility of the LESSEE.

(i) That the LESSEE shall be responsible for cleaning and light maintenance in the Demised Premises such as: mopping, vacuuming, supplying of soap, tissue paper, changing bulbs, and the like, etc.

(j) That the operation of any fireplace in any leased area shall be at the exclusive risk of and the complete responsibility of the LESSEE renting that particular area, and the said LESSEE shall indemnify and hold the LESSOR harmless for any injury or damage to persons or property attributable to or caused by the operation of any fireplace and it shall be the responsibility of said LESSEE to clean and maintain any fireplace if a LESSEE chooses to utilize any fireplace.

(k) That all rooms and areas not included in the Demised Premises shall remain under the jurisdiction and control and to the exclusive use of the Bureau of Parks and Recreation of Abington Township, provided that LESSEE may make use of that entrance formerly utilized by the Settlement Music School, as shown on a plan maintained by the Lessor, as a means of entry and egress to the Demised

Premises, and provided, further, that LESSEE shall reasonably cooperate with LESSOR to avoid conflicts in use of such areas between LESSEE and those vendors making deliveries of equipment supplies, caterers, and LESSOR and LESSOR'S guests, visitors, and business invitees.

(l) That all equipment to be removed from or dismantled in the Manor by the LESSEE such as bookshelves, cabinets, etc., shall become the property of the LESSOR unless the LESSOR declines its use.

(m) Pay all rent and any other charges that may be herein specified on the days and at the place the same are made payable without fail, and if LESSOR shall at any time or times accept said rent or rent charges after the same shall have become due and payable, such acceptance shall not excuse delay upon subsequent occasions, or constitute or be construed as a waiver of any of LESSOR'S rights. LESSEE agrees that any charge or payment herein reserved, included or agreed to be treated or collected as rent and/or any legal charges, expenses or costs herein agreed to be paid by the LESSEE may be proceeded for and recovered by the LESSOR by a legal process in the same manner as rent due and in arrears.

(n) Keep the demised premises clean and free from all ashes, dirt and other refuse matters; replace all broken windows, doors, etc.; keep all waste and drain pipes open; repair all damages to plumbing and to the demised premises; in general, keep the same as in good order and repair as they are at the beginning of the term of this lease, reasonable wear and tear expected. The LESSEE agrees to surrender the demised premises in the same condition which the LESSEE has herein agreed to keep the demised premises during the continuance of this lease.

(o) Comply with any requirements of any of the constituted public authorities, and with the terms of any State or Federal statute, or Township ordinance or regulation applicable to LESSEE or its use of the demised premises, and save LESSOR harmless from penalties, fines, costs, or damages resulting from failure to do so.

(p) Use every reasonable precaution against fire.

(q) Peaceably deliver up and surrender possession of the demised premises to the LESSOR at the expiration or sooner termination of this lease, promptly delivering to LESSOR at its office all keys for the demised premises utterly clean.

(r) Give LESSOR prompt written notice of any accident, fire or damage occurring on or to the demise premises.

(s) Indemnify and save LESSOR harmless from any or all loss occasioned by LESSE'S breach of any of the covenants, terms, or conditions of this lease, or caused by acts or omissions by the LESSEE'S, its guests, visitors, agents, invitees, licensee's, or employees.

7. Lessor's Obligation to Provide Heat. LESSOR agrees to furnish reasonable heat commencing not before the first day of October and continuing not later than the first day of May following, in each year. Should the LESSOR fail to supply same for any reason, LESSOR shall not be liable for any damage caused by any such failure unless due to gross negligence on the part of LESSOR, nor shall LESSOR be liable for any damage to property of LESSEE caused in any manner by fire, water, steam, or the lack thereof. LESSOR shall not be liable for any damage caused by any such failure, unless due to gross negligence on the part of the LESSOR. nor shall LESSOR be liable for any damage to property of LESSEE caused in any manner by fire, water or steam, or the lack thereof.

8. Additional Services Provided by Lessor. LESSOR may furnish additional service not herein provided, but any such service shall be gratuitous unless agreed and shall not be an obligation of the LESSOR or part of the consideration for rent.

9. Prohibited Activities. LESSEE covenants and agrees that it will do none of the following things without consent, in writing, of the LESSOR:

(a) Occupy the demised premises in any other manner or for any other purpose than as set forth herein.

(b) Assign, mortgage, or pledge this Lease or under or sub-lease the demised premises, or any part thereof, or permit any other person, firm or corporation to occupy the demised premises, or any part thereof; nor shall any assignee or sub-lease assign, mortgage or pledge this lease or such sub-lease without an additional consent by the LESSOR, and without such consent no such assignment, mortgage or pledge shall be valid. If the lessee becomes insolvent, or makes and assignment for the benefit of creditors, or if a petition in Bankruptcy is filed against the LESSEE and the same is not dismissed within sixty (60) days, or a Bill in Equity or other proceeding for the appointment of a receiver for the LESSEE is filed and the same is not dismissed within sixty (60) days, or if the real or personal property of the LESSEE shall be sold

or levied upon any Sheriff, Marshall or Constable, the same shall be a violation of this covenant.

(c) Place any stand, booth, sign or showcase upon the doorsteps, vestibules or outside walls or pavements of said premises, or paint, place, erect or cause to be painted, placed, or erected any sign, projection or device on or in any part of the premises without the express written consent of the LESSOR, which consent shall not be unreasonably withheld. LESSEE shall immediately remove any sign, projection or device painted, placed or erected if permission has not been granted and restore the walls, etc. to their former condition. In case of the breach of this covenant, in addition to all of the remedies given to the LESSOR in case of the breach of any conditions or covenants of this Lease, LESSOR shall have the privilege of removing any stand, booth, showcase, projection or device, and restoring said walls etc. to their former condition, and LESSEE, at LESSOR'S option, shall be liable to LESSOR for any and all expenses incurred by LESSOR. **EXCEPTION:** LESSEE shall be permitted, during the festival of Sukkot, to erect a Sukkah on the Premises, the size and location of the Sukkah to be approved by the Abington Township Director of Parks and Recreation.

(d) Make any alterations, improvements or additions to the Demised Premises, except as provided herein. All alterations, improvement, additions or fixtures, whether installed before or after the execution of this Lease shall remain on the premises at the expiration or sooner termination of this Lease and become property of the LESSOR, unless the LESSOR shall, prior to the termination of this Lease, have given written notice to LESSEE to remove the same, in which event the LESSEE shall remove such alterations, improvements and additions and restore the premises to the same good order and condition in which they are now. Should the LESSEE fail to do so, LESSOR may do so, collecting, at the LESSOR'S option, the cost and expense from the LESSEE as additional rent.

(e) Use or operate any machinery that, in the LESSOR'S opinion, is harmful to the building or disturbing to other tenants occupying other parts thereof.

(f) Place any weights in any portion of the demised premises beyond the safe carrying capacity of the structure.

(g) Do or suffer to be done any act, matter or thing objectionable to the fire insurance companies, whereby the fire insurance or any insurance not in force or hereafter to be placed on the demised premises, or any part thereof, or on the building of which the demised premises may be a part, shall become void or suspended, or whereby the

same shall be rated as more hazardous risk than at the date of the execution of this lease, or employ any person or persons objectionable to the fire insurance companies, or carry or have any benzine or explosive matter of any kind in and about the Demised Premises. In the case of a breach of this covenant, and in addition to all other remedies given to the LESSOR in case of a breach of any conditions or covenants of this Lease, LESSEE agrees to pay the LESSOR as additional rent any and all increase or increases of premiums on insurance carried by the LESSOR on the Demised Premises, or any part thereof, or on the building of which the demised premises may be a part, caused in any way by the occupancy of the LESSEE.

(h) Remove or attempt to remove LESSEE'S goods or property from or out of the Demised Premises, otherwise than in the ordinary and usual course of business, without having first paid and satisfied the LESSOR for all rent which may become due during the entire course of this Lease.

(i) Enter into any agreement, expressed or implied, with any other person or entity regarding the use of any area of the demised premises without the express written consent of the LESSOR.

10. Lessor's Rights With Regard to Demised Premises. LESSEE covenants and agrees that LESSOR shall have the right to do the following things and matters in and about the Demised Premises:

(a) At all reasonable times by itself or its duly authorized agent to go upon and inspect the demised premises and every part thereof, and/or at its option to make repairs, alterations and additions to the demised premises or the building of which the demised premises is a part.

(b) The LESSOR may discontinue all facilities furnished and services rendered by the LESSOR or any of them, not expressly covenanted for herein, its being expressly understood that they constitute no part of the consideration for this lease.

11. Destruction or Damage of Demised Premises by Fire or Other Casualty.

(a) In the event that the demised premises is totally destroyed or so damaged by fire or other casualty not occurring through the fault or negligence of the LESSEE or those employed by it or acting for it, that the same cannot be repaired or restored within a reasonable time, the lease shall absolutely cease and determine, and the rent shall abate for the balance of the term.

(b) If the damage caused as above be only partial and such that the premises can be restored to their former condition within a reasonable time, the LESSOR may, at its option, restore the same with reasonable promptness, reserving the right to enter the demised premises for that purpose. LESSOR will notify the LESSEE of the exercise of said option within forty-five (45) days after the occurrence of the fire or other casualty. LESSOR also reserves the right to enter upon the demised premises whenever necessary to repair damage caused by fire or other casualty to the building of which the demised premises is a part, even though the effect of such entry is to render the demised premises or a par thereof untenable. In either event, the rent shall be apportioned and suspended during the time the LESSOR is in possession, taking into account the portion of the demised premises rendered untenable and the duration of the LESSOR'S possession. If a dispute arises as to the amount of rent due under this clause, LESSEE agrees to pay the full amount claimed by the LESSOR. LESSEE shall, however, have the right to proceed by law to recover the excess payment, if any.

(c) LESSOR shall not be liable for any damage, compensation or claim by reason of inconvenience or annoyance arising from the necessity of repairing any portion of the building, the interruption of the use of the premises, or the termination of this lease by reason of the destruction of the premises.

12. Demised Premises – As Is Condition. The LESSOR has let the demised premises in its present condition and without any representation or express or implied warranties on the part of the LESSOR, its officers, employees, servant and/or agents. It is expressly understood and agreed that LESSOR is under no duty to make any repairs or alterations except as expressly specified herein at the time of letting or any time thereafter.

13. Future Improvements.

(a) No contract entered into or that may be subsequently entered into by the LESSOR with the LESSEE, relative to any alterations, additions, improvements or repairs, nor the failure of the LESSOR to make such alterations, additions, improvements or repairs as required by any such contract, nor the making by the LESSOR or its agents or contractors of any such alterations, additions, improvements or repairs, shall in any way affect payment of the rent or other charges at the time specified in this lease.

(b) It is hereby covenanted and agreed that any law, usage or custom to the contrary notwithstanding, the LESSOR shall have the right at all times to enforce the covenants and provisions of this lease in strict accordance with the terms hereof,

notwithstanding any conduct or custom of the LESSOR in refraining from doing so at any time or times; and further, that the failure of the LESSOR at any time or times to enforce its right under said covenants and provisions strictly in accordance with the same shall not be construes as having created a custom in any way or manner contrary to the specific terms, provisions and covenants to this lease or having any way or manner modified the same.

(c) This lease is granted upon the express condition that the LESSEE and employees, agents, invitee and licensees, shall not conduct themselves in a manner which the LESSOR, in its sole opinion, may deem improper or objectionable, and that if at any time during the term of this lease, LESSEE , its employees, agents, guests, invitees or licensees, shall have conducted himself, herself, or themselves in a manner in which the LESSOR, in its sole opinion, deems improper or objectionable, LESSEE shall be taken to have broken the covenants and conditions of this lease, and the LESSOR will be entitled to all rights and remedies granted and reserved herein, for the LESSEE'S failure to observe any of the conditions and covenants of this lease; provided, however that the use of the demised premises for the purpose stated in paragraph 3 hereof shall not be deemed improper or objectionable; and PROVIDED further, that LESSOR shall promptly provide LESSEE with written notice of any activity or condition constituting such breaking of the covenants and conditions of this Lease, whereupon LESSEE shall have a period of FIFTEEN (15) days to permanently cease any such activity or cure such condition, whereupon no further curative action shall be undertaken by LESSOR.

14. Lessee's Signage

(a) Temporary Signs. LESSEE shall have the right, subject to the approval of the Abington Township Director of Parks and Recreation, to place temporary signs on the Alverthorpe Manor premises, to announce LESSEE'S services and other events, and to provide directions to said events. In addition to being subject to the prior approval of the Director of Parks and Recreation, all temporary signs placed by LESSEE shall be placed not more than twenty-four hours prior to and removed not more than twenty-four hours after the event to which they relate.

(b) Permanent Signs. LESSEE shall not be permitted to place any signage on the Alverthorpe Manor premises, nor upon any building thereon, except with the prior written authorization of the Director of Parks of Recreation, and only to the extent that such permanent signage complies with the approved master plan for Alverthorpe Manor and with all applicable ordinance, regulations and rules of the

Township of Abington. LESSEE shall be permitted to place one (1) permanent sign on that pole located at the entrance to Alverthorpe Park on Meetinghouse Road, said sign not to be illuminated and to be of the same dimensions and general design as those signs located on said pole as of the date of the signing of this Lease. LESSEE shall be responsible for the removal of any permanent signage at the expiration or termination of this Lease Agreement.

15. Lessee's Obligation to Defend, Indemnify and Hold Lessor Harmless.

(a) LESSEE agrees to be responsible for and to relieve, and hereby relieves, the LESSOR from all liability by reasons of any injury or damage to any person or property in the demised premises, whether belonging to the LESSEE or any other person, caused by fire, breakage, or leakage in any part of the demised premises, or any part or portion of the building of which the demised premises is a part; or from water, rain or snow that may leak into, issue or flow from any part of said premises, or of the building of which the premises is a part, from the drains, pipes, or plumbing work of the same, or from any place or quarter, whether such breakage, leakage, injury or damage be caused by or result from the negligence of the LESSOR or its servants or agents or any person or persons whatsoever.

(b) LESSEE also agrees to be responsible for and to relieve, and hereby relieves, the LESSOR from all liability by reason of any damage or injury to any person or thing which may arise from or be due to the use, misuse, or abuse of any of the elevators, hatches, openings, stairways, hallways of any kind whatsoever which may exist or hereafter be erected or constructed on said premises, or from any kind of injury which may arise from any other cause whatsoever on said premises, or the building of which the demised premises is a part, whether such damage, injury, use, misuse or abuse caused or a result of the negligence of the LESSOR, its servants or agents or any other person or persons whatsoever.

(c) LESSE hereby agrees to indemnify, defend and in all way hold the LESSOR harmless from all liability by reason of any injury or damage to any person or property occurring on the demised premises due to any cause whatsoever. Any other provision of this lease notwithstanding, no maintenance or other work from time to time performed on the demised premises by the LESSOR or at the LESSOR'S direction shall be construed to increase or modify the LESSOR'S responsibility under this lease, nor to in any way act as a waiver or modification of the LESSEE'S obligation to indemnify, defend and hold the LESSOR harmless as set forth in this lease.

16. Lessee's Failure to Pay Rent – Lessor's Remedies. If rent and/or charges hereby reserved as rent and/or any other charges, payments, costs and/or expenses, including indemnification, shall remain unpaid on any day when the same should be paid, LESSEE hereby empowers any Prothonotary or any attorney of any court of record to appear for LESSEE in any and all actions which may be brought for rent and/or charges, payments, costs and expenses reserved as rent, or any charges, payments, costs and/or expenses agreed to be paid by the LESSEE including indemnification, and to sign for the LESSEE an Agreement for entering in any competent court an amicable action or actions for the recovery of rent or other charges or expenses, and in said suits or in said amicable action or actions to confess judgment against LESSEE for all or part of the rent specified in this lease and then unpaid, including, at the LESSOR'S option, the rent for the entire unexpired balance of the term of this lease. and/or other charges, payments, costs and expenses agreed to be paid by the LESSEE, and for interest and costs together with an attorney's commission of fifteen (15%) per cent. Such authority shall not be exhausted by one exercise thereof, but judgment may be confessed as aforesaid from time to time as often as any of said rent and/or other charges reserved as rent shall fall due or be in arrears, and such powers may be exercised as well after the expiration of the original term and/or during the extension or renewal of this lease.

17. Lessor's Right to Collect Unpaid Rent After Termination of Lease. All of the remedies hereinbefore given to the LESSOR and all of the rights and remedies by law and equity shall be cumulative and concurrent. No termination of this lease or the taking or recovering of the premises shall deprive the LESSOR of any of its remedies or actions against the LESSEE for rent due at any time or which, under the terms hereof, would in the future become due as if there had been no termination, or for the sums due at the time or which, under the terms hereof, would in the future become due as if there had been no termination, nor shall the bringing of any action or breach of covenant, or the resort to any other remedy herein provided for the recovery of rent, be construed as a waiver of the right to obtain possession of the premises.

18. Lessee's Obligation to Maintain Insurance.

(a) LESSEE shall secure and maintain, at its own expense, all risk (special form) property insurance which insures against direct physical loss of or damage to LESSEE'S personal property, fixtures and equipment located in or at the Premises, on a replacement cost valuation basis, with limits not less than 100% of the insurable replacement cost of all personal property, fixtures and equipment located therein. LESSEE shall also secure business income insurance satisfactory to protect its interests as a result of direct physical loss of or damage to LESSEE'S personal property, fixtures and equipment located in or on the

Premises. Any deductible amount(s) selected by LESSEE or imposed by LESSEE'S insurer(s) shall be the sole responsibility of LESSEE.

(b) LESSEE shall secure and maintain, at its own expense, commercial general liability insurance which insures against bodily injury, property damage, personal injury and advertising injury claims arising from the LESSEE'S occupancy of the Premises or operations incidental thereto, with a combined single limit of ONE MILLION DOLLARS ($1,000,000.00) per Occurrence and a general Aggregate limit of TWO MILLION DOLLARS ($2,000,000.00). Such insurance shall include Landlord and its elected or appointed volunteers as additional insureds.

(c) LESSEE shall secure and maintain at its own expense, workers' compensation and employers liability insurance. The workers compensation insurance must satisfy the LESSEE'S worker compensation obligation to its employees in the Commonwealth of Pennsylvania. Employers liability insurance must be secured with minimum limits of ONE MILLION DOLLARS ($1,000,000.00) for bodily injury by accident, each employee for ONE MILLION DOLLARS ($1,000,000.00) bodily injury by disease, and a ONE MILLION DOLLARS ($1,000,000.00) policy limit for bodily injury by disease.

(d) LESSEE shall furnish certificates of all insurance, acceptable to LESSOR, evidencing all policies required above at execution of this Agreement and prior to each renewal thereafter. Such insurance shall be written with insurers licensed to do business in the Commonwealth of Pennsylvania, with a current Best Insurance rating of "A-" "V II" or better, unless otherwise approved by LESSOR. Such policies shall be endorsed and such certificates shall provide that no cancellation, non-renewal or material reduction in coverage can take effect unless thirty (30) days prior written notice by registered mail is furnished to LESSOR. Liability policies required herein may not be written on a "claims made" basis without the prior written approval of LESSOR.

If LESSEE fails, refuses or neglects to secure and maintain any insurance required or to furnish satisfactory evidence of insurance, Landlord shall have the right to purchase such insurance. All such payments made by Landlord shall be recoverable by Landlord from LESSEE, together with interest thereon, as additional rent promptly upon being billed therefore.

19. Lessor's Failure to Enforce Rights Does Not Constitute Waiver. LESSOR shall have at all times, the right to enforce any or all of the covenants and provisions of this lease, notwithstanding the failure of the LESSOR at any previous time or times to enforce its rights under any of the covenants and provisions of this lease.

20. Giving of Notice; Addresses. Any notice required to be given under the terms of this Lease Agreement shall be addressed as follows:

If to LESSOR:

Director of Parks and Recreation
Township of Abington
515 Meetinghouse Road
Jenkintown, PA 19046

If to LESSEE:

Lubavitch of Abington, Inc.
515 Meetinghouse Road
Jenkintown, PA 19046

21. Integration. The LESSOR and LESSEE hereby agree that this lease sets forth all the promises, agreements, conditions and understandings between the LESSOR and any of its agents, officials, or employees and the LESSEE relative to the demised premises, and that there are no promises, agreements, conditions or understandings, either oral or written, between any and all of them, other than herein set forth and any subsequent alterations, amendments, changes or additions to this lease shall not be binding upon the LESSOR or the LESSEE unless reduced to writing and signed by them.

22. Severability. If any section, sub-section, sentence, clause, phrase or requirement of this lease is contrary to law or laws subsequently enacted, or should be found to law during the term or any renewal or extension thereof, the validity of the remaining portion shall not be affected thereby. The parties hereby agree that they would have agreed to each section, sub-section, sentences, clauses, phrases or requirements herein irrespective of the fact that one or more section, sub-sections, sentences, phrases or requirements were contrary to law or during the term or any renewal or extension thereof or are found to be contrary to law.

23. Lessee's Right to Quiet Enjoyment. LESSOR covenants that if, and so long as, LESSEE keeps and performs each and every term, covenant, agreement and provision herein contained on the part and on behalf of the LESSEE to be kept and performed, LESSEE shall quietly enjoy the demised premise without hindrance or molestation by LESSOR subject to the terms, covenants, agreements and provisions of this lease.

IN WITNESS WHEREOF, the parties hereto intending to be legally bound hereby, have hereunder set their hands and seals the day and year first written above

LUBAVITCH OF ABINGTON, INC.

Attest:

_____, Secretary

By: _____, President

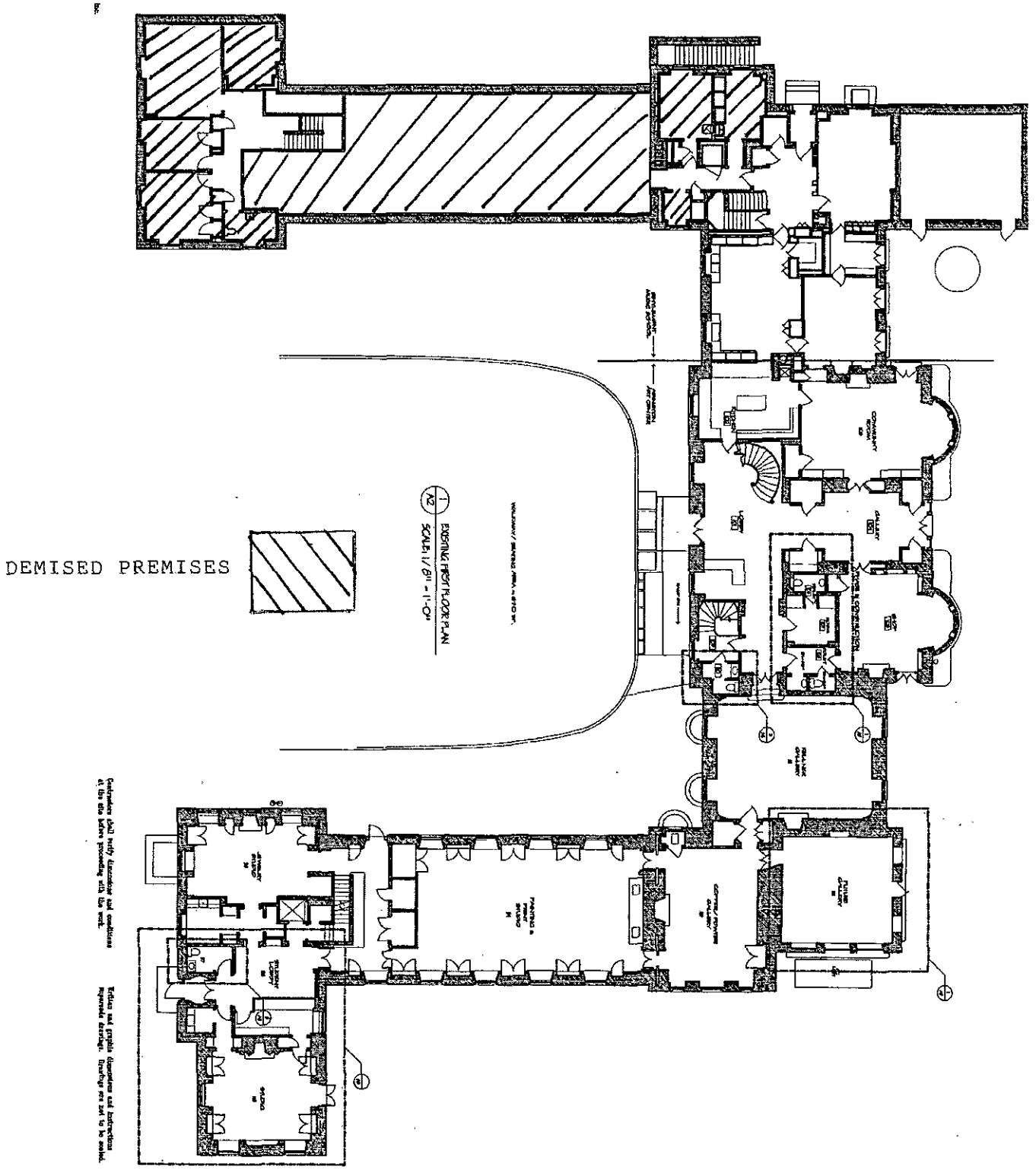
TOWNSHIP OF ABINGTON

Michael LeFevre, Secretary

Carol T. DiJoseph, President
Board of Commissioners

EXHIBIT A1

© 2009 Hendrixson Architects, Inc.



Contractors shall verify dimensions and conditions at the site before proceeding with the work.

Written and graphic dimensions and instructions supersede drawings. Drawings are not to be scaled.

All Rights

A2

PROPOSED ALTERATIONS FOR PHASE II CONSTRUCTION

ABINGTON ART CENTER

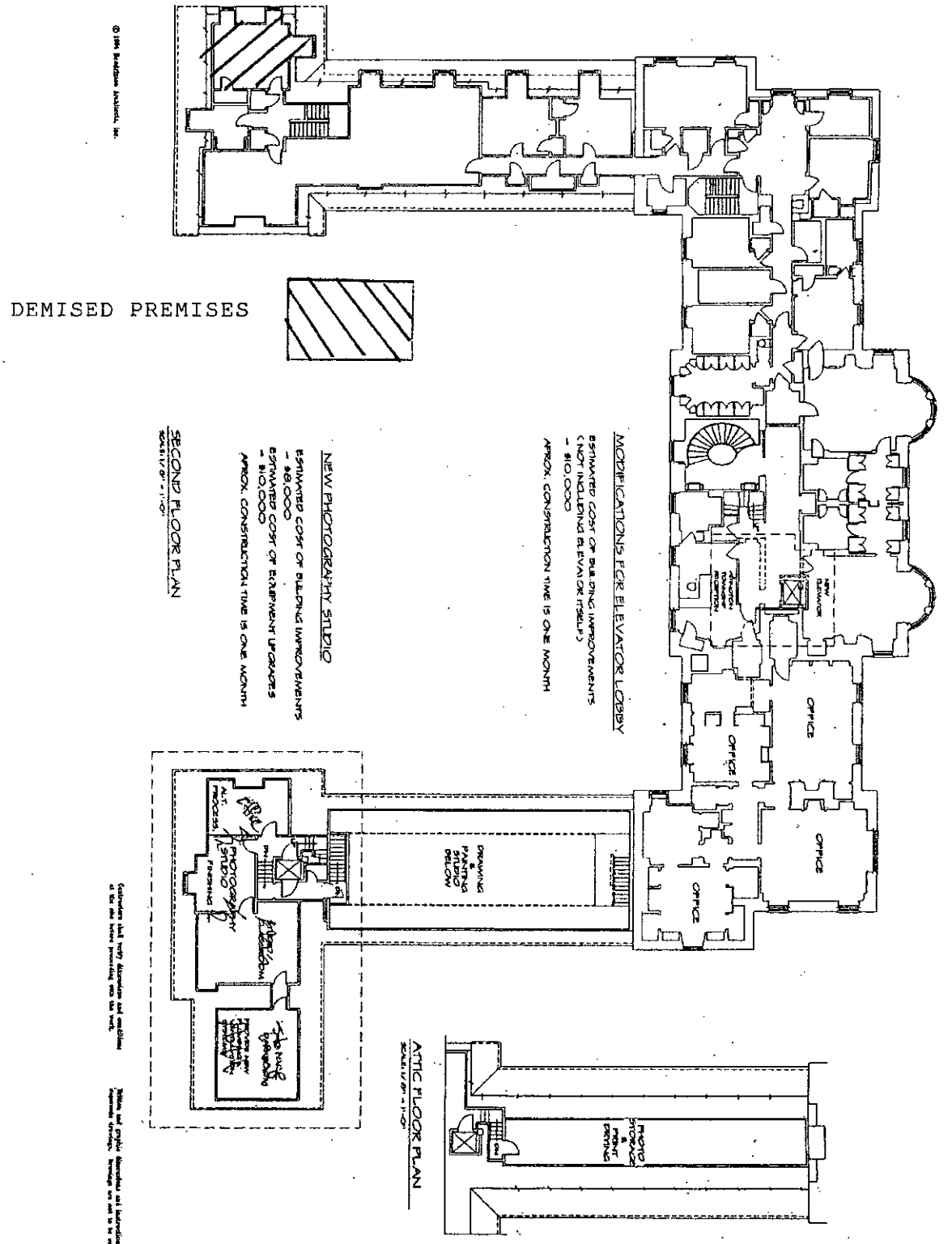
515 Meetinghouse Road
Jenkintown, PA 19046

FIRST FLOOR PLAN

ISSUE DATES:	REVISION DATES:
Issued for Permits: 11/9/09	

HENDRIXSON ARCHITECTS, INC.
Architecture • Planning • Interiors
707 Washington Lane • Jenkintown, PA 19046
(215) 576-0046 • FAX (215) 576-0938

EXHIBIT A2



A-6	PROPOSED ALTERATIONS FOR: Abington Arts Center, 515 Meetinghouse Road	SECOND FLOOR PLANS ISSUE DATES: 11/23/94, 12/07/94 REVISION DATES:	HENDRIXSON ARCHITECTS, INC. Architecture • Planning • Interiors

BOARD ACTION REQUEST
PUBLIC AFFAIRS

6-6-2012
Date

PA2
Agenda Item Number

DEPARTMENT	AGENDA ITEM	TOWNSHIP MANAGER
Parks & Recreation	Lubavitch of Abington Lease of Alverthorpe Manor	

PREVIOUS ACTIONS

None

RECOMMENDED BOARD ACTION

Motion to accept the lease for specified areas within Alverthorpe Manor by the group known as Lubavitch of Abington as detailed in the attached lease document.

COMMENTS

The Bureau and the Township Manager have discussed the various provisions of this lease with both the Township's Solicitor and Rabbi Gurevitz.

Due to the large amount of renovation work necessary before they can occupy the demised premises, Lubavitch of Abington is requesting forgiveness of rent as outlined in the attached lease document.

FIRST ADDENDUM TO LEASE AGREEMENT

THIS ADDENDUM TO LEASE AGREEMENT is made and entered into the 5th day of May, 2017, between the TOWNSHIP OF ABINGTON (hereinafter the "Lessor") and LUBAVITCH OF ABINGTON, INC. (hereinafter "Lessee"), and shall operate to supplement the terms of that certain Lease Agreement entered into between the Lessor and Lessee, dated the 19th day of July, 2012 (hereinafter the "Lease Agreement").

WHEREAS, Lessor is the owner of property located at 515 Meetinghouse Road, Abington Township, Montgomery County, Pennsylvania, known as Alverthorpe Manor (hereinafter "Premises"); and

WHEREAS, Lessor and Lessee entered into the Lease Agreement which provided for an initial lease term of one (1) year with a total of five (5) additional one (1) year renewals; and

WHEREAS, Lessor and Lessee desire to extend the terms of the Lease Agreement as set forth herein.

NOW, THEREFORE, Lessor and Lessee, intending to be legally bound, do hereby agree as follows:

1. The terms of Section 2, subparagraph (a) of the Lease Agreement are amended to read as follows:

   "2(a) Rent. The gross annual rent (not including utility payment identified in Section 2-b) payable by the LESSEE to LESSOR shall be TWENTY THOUSAND TWENTY-FIVE DOLLARS AND TWENTY-ONE CENTS ($20,025.21), payable in monthly installments, in advance, on or before the first day of the month, during the term of this lease. The annual rent shall increase each year beginning August 1, 2018

by a percentage equal to the Philadelphia cost of living increase applicable to the preceding year as published in the bureau of labor and Statistics of the United States Department of Labor, up to a maximum of 3% over the rent paid in the preceding year.

In the event any such monthly payment is not received by the fifteenth (15th) day of any month, LESSEE shall pay to LESSOR that month's rent plus a penalty of ten percent (10%) by the last day of the month. The failure of LESSEE to make any rent payment in accordance with the foregoing terms shall constitute a material breach of this Lease Agreement. At its sole discretion, LESSOR may extend the period for payment of any month's rent, and may impose an additional penalty not to exceed ten percent (10%) of the total rent for that month, including any penalty previously imposed. Nothing contained in this section or in this Lease Agreement shall be construed to limit LESSOR's right to proceed in any manner provided for in law to collect any rent not paid on or before the fifteenth (15th) day of any month, and to seek other remedies provided for in law, including, but not limited to, ejectment of LESSEE from the Demised Premises. All rent shall be payable without prior notice or demand at the office of the Bureau of Parks and Recreation, 515 Meetinghouse Road, Jenkintown, PA 19046."

2. The terms of Section 4 of the Lease Agreement are amended to read as follows:

"4. Lease Term. The term of this lease addendum shall be for a period of seven (7) years commencing August 1, 2017 and ending July 31, 2024;

3. **Remainder of Original 2012 Lease Agreement Unaffected.** Unless otherwise modified herein, the remainder of the Lease Agreement, including the rights, obligations and duties of the parties as set forth therein, shall remain in full force and effect, and shall be unaffected by this Addendum to Lease.

NOW, THEREFORE, intending to be legally bound hereby, the parties do hereunto set their hands and seals on the date first above written.

TOWNSHIP OF ABINGTON

Attest:

Michael LeFevre, Secretary

By: Wayne C. Luker

Wayne C. Luker, President
Board of Commissioners

LUBAVITCH OF ABINGTON, INC.

Attest:

Name: Neshama Gurevitz

By:

Name: Zushe Gurevitz
Title: Rabbi

Lubavitch of Abington – Lease Extension – Alverthorpe Manor

Commissioner Spiegelman made a MOTION, seconded by Commissioner Rothman to approve a seven (7) year lease extension at Alverthorpe Manor for the Lubavitch of Abington effective August 1, 2017 at a base rate of $20,025.21 annually with all other terms remaining the same.

Commissioner Spiegelman asked for any comments from Commissioners or staff.

Commissioner Schreiber clarified that initially this was not a seven year contract. Is that correct?

Manager LeFevre replied that is correct. Initially, it was a one-year contract with four, one-year renewals in which the Board approved subsequently each year. Their last contract expires this year in August and reps of the Synagogue have requested a seven year lease moving forward under the same terms.

Commissioner Rothman clarified that there is a set percentage that the lease will increase each year over seven years. Is that correct?

Manager LeFevre replied it is tied to the consumer price index and will increase accordingly.

Commissioner Spiegelman asked for any public comments.

Lora Lehmann, 1431 Bryant Lane, expressed concern about the "religious group who use this property and that many of them do not live in the Township, and the lease should be kept shorter."

MOTION was ADOPTED 5-0.

Policy on the Naming of Township Facilities

Commissioner Spiegelman made a MOTION, seconded by Commissioner Kalinoski to approve the adoption of the revised policy on the naming/renaming or dedication of municipal property, buildings, park elements, streets or other facilities.

Commissioner Spiegelman called on Manager LeFevre.

Manager LeFevre said last month, the Board discussed this topic in detail and he incorporated comments made at that meeting as well as other revisions into a revised draft and distributed it to the Board.

Commissioner Spiegelman asked for any comments from Commissioners or staff.

PUBLIC AFFAIRS COMMITTEE

BOARD ACTION REQUEST

March 1, 2017
DATE

PA 3
AGENDA ITEM NUMBER

DEPARTMENT	**AGENDA ITEM**	**TOWNSHIP MANAGER**
Administration	Lubavitch of Abington Lease Extension Alverthorpe Manor	

PREVIOUS ACTIONS

June 12, 2012 – The Board of Commissioners approved a one-year lease with the Lubavitch of Abington at Alverthorpe Manor. The lease provided for up to 4 additional one-year extensions which have been subsequently approved by the Board.

RECOMMENDED BOARD ACTION

Motion to approve a seven (7) year lease extension at Alverthorpe Manor for the Lubavitch of Abington effective August 1, 2017 at a base rate of $20,025.21 annually with all other terms remaining the same.

COMMENTS

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-04-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Community Development		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Resolution for the application of DCED HOME funds.

EXECUTIVE SUMMARY:

The Pennsylvania Department of Community and Economic Development (DCED) has recently opened applications for its HOME Program. During this round of funding, DCED is only accepting Existing Owner Occupied Housing applications. I recommend that the Township submits an application for $300,000 to further support the Township's Owner-Occupied Rehabilitation Program (OORP). There is no match requirement nor is there an application fee. A resolution from the Board of Commissioners is required to submit an application.

The Township's OORP is currently on a spending pace of almost $600,000 annually, serving approximately 10 low-income households per year to bring homes into code compliance. A successful application would allow the Township to make even faster progress toward catching up on the the household waiting list.

The proposed timeline for successful completion of this application is:

- May 19th: Notice of public hearing regarding the application appears in a local paper of record
- June 5th: Public hearing

- June 13th: Board of Commissioners considers a resolution to authorize the application
- June 28th: Application is due to DCED

It should be noted that the submission of an application is not a guarantee of award.

PREVIOUS BOARD ACTIONS:

The Board previously authorized the application for 2016 DCED HOME funds to support the Township's Owner-Occupied Rehabilitation Program. That grant was closed out in May 2023.

RECOMMENDED BOARD ACTIONS:

Motion to adopt Resolution No. 24-023 authorizing the filing of an application for funds with the Department of Community and Economic Development (DCED), Commonwealth of Pennsylvania.

ABINGTON TOWNSHIP
RESOLUTION NO. 24-023

A RESOLUTION OF ABINGTON TOWNSHIP, COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, AUTHORIZING THE FILING OF AN APPLICATION FOR FUNDS WITH THE DEPARTMENT OF COMMUNITY AND ECONOMIC DEVELOPMENT (DCED), COMMONWEALTH OF PENNSYLVANIA

WHEREAS, Abington Township ("Township") is a First Class Township duly organized and existing pursuant to the applicable laws of the Commonwealth of Pennsylvania; and

WHEREAS, the Township is desirous of obtaining funds from DCED for affordable housing activities fundable under Title II of the National Affordable Housing Act of 1990 (42 U.S.C. 12701 et. seq and the implementing regulations at 24 CFR Part 92); and

WHEREAS, the Township operates the Owner-Occupied Rehabilitation Program (OORP), which supports low-income households to bring homes into compliance with the local building code and provide special devices and ramps for the elderly and the physically disabled; and

WHEREAS, the Abington Township Board of Commissioners believes additional funding from the DCED's HOME Program would allow the Township to make even faster progress toward supporting more low-income households.

NOW, THEREFORE, BE IT RESOLVED, that a housing need exists that has been identified in the local or state Consolidated Plan and the OORP addresses this need; and

BE IT FURTHER RESOLVED, that the Township has conducted the required citizen participation process; and

BE IT FURTHER RESOLVED, that the Township will assure the provision of the other necessary funds to make the OORP feasible; and

BE IT FURTHER RESOLVED, that the Township will reimburse the commonwealth for any expenditures found by DCED to be ineligible; and

BE IT FURTHER RESOLVED, that the appropriate officer of the Township is directed to execute a certificate attesting to the adoption of this Resolution and to furnish a copy of this Resolution to DCED.

I HEREBY CERTIFY that this Resolution was adopted by Abington Township at its public meeting held on the 13th day of June, 2024.

ATTEST:

_____
Richard J. Manfredi
Township Manager and Secretary

ABINGTON TOWNSHIP

_____
Thomas Hecker, President
Board of Commissioners

M E M O R A N D U M

To: Richard J. Manfredi, Manager

From: Kimberly Hamm, Director of Community Development

CC: Ashley McIlvaine, Assistant Manager

Date: May 13, 2024

Subject: Application for DCED HOME Funds (supporting housing rehabilitation)

The Pennsylvania Department of Community and Economic Development (DCED) has recently opened applications for its HOME Program. During this round of funding, DCED is only accepting Existing Owner Occupied Housing applications. I recommend that the Township submits an application for $300,000 to further support the Township's Owner-Occupied Rehabilitation Program (OORP). There is no match requirement nor is there an application fee.

The Township's OORP is currently on a spending pace of almost $600,000 annually, serving approximately 10 low-income households per year to bring homes into code compliance. A successful application would allow the Township to make even faster progress toward catching up on the the household waiting list.

The proposed timeline for successful completion of this application is:

- May 19th: Notice of public hearing regarding the application appears in a local paper of record
- June 5th: Public hearing
- June 13th: Board of Commissioners considers a resolution to authorize the application
- June 28th: Application is due to DCED

It should be noted that the submission of an application is not a guarantee of award.

ATT: 2022 DCED HOME Fact Sheet
Sample Resolution

pennsylvania
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT

HOME INVESTMENT PARTNERSHIPS PROGRAM

SMART PARTNERSHIPS FOR HOUSING SOLUTIONS

The HOME Investment Partnerships (HOME) Program provides municipalities with grants and technical assistance to expand the supply of affordable housing for low and very-low income Pennsylvanians.

Mt. Carmel, PA

HOME funds can be used in a variety of ways to address critical housing needs in the commonwealth. The program can leverage other governmental, non-profit or private funds to supplement the HOME funds for a greater impact.

ELIGIBLE APPLICANTS

- Local governments on behalf of private, non-profit and for-profit housing development corporations
- HOME participating jurisdictions may apply under certain criteria *(see program guidelines on dced.pa.gov)*

ELIGIBLE USES

- Rehabilitation of substandard, owner-occupied housing
- Homebuyer assistance that helps people to acquire newly constructed or existing homes
- Development of affordable homebuyer or rental housing units, including opportunities for persons with disabilities and formerly homeless individuals and families
- Operational support for nonprofit groups that qualify as Community Housing Development Organizations (CHDOs)

The PA Department of Community and Economic Development (DCED) awards HOME funds on a competitive basis to projects which demonstrate that they aim to address housing needs, leverage other resources, and demonstrate significant community impact.

For more information including funding amounts and detailed guidelines, visit **dced.pa.gov/home**.

HOME funding is provided by the U.S. Department of Housing and Urban Development (HUD) and administered by DCED.

05/11/2022

Resolution of HOME Program Applicant

(Applicant must use DCED-provided template for resolution, including all of the aforementioned items.)

Resolution of the _____ (Name of Applicant) authorizing the filing of an Application for funds with the Department of Community and Economic Development (DCED), Commonwealth of Pennsylvania.

WHEREAS, the HOME Applicant is desirous of obtaining funds from DCED for affordable housing activities fundable under Title II of the National Affordable Housing Act of 1990 (42 U.S.C. 12701 et. seq and the implementing regulations at 24 CFR Part 92.

NOW, THEREFORE, BE IT RESOLVED that a housing need exists that has been identified in the local or state Consolidated Plan and the proposed housing activity addresses this need.

BE IT FURTHER RESOLVED, that the HOME Applicant has conducted the required citizen participation process.

BE IT FURTHER RESOLVED, that the HOME Applicant will assure the provision of the other necessary funds to make the activity feasible.

BE IT FURTHER RESOLVED, that the HOME Applicant will reimburse the commonwealth for any expenditures found by DCED to be ineligible.

BE IT FURTHER RESOLVED, that the appropriate officer of the HOME Applicant is directed to execute a certificate attesting to the adoption of this Resolution and to furnish a copy of this Resolution to DCED.

_____ _____

Signature, Chief Elected Official Date

_____

Typed Name and Title

Kimberly Hamm

From: Feher, Alyssa <afeher@pa.gov>
Sent: Friday, May 17, 2024 12:57 PM
To: Kimberly Hamm
Subject: Evidence of Grant Manager Discussion 5/16/24

Good afternoon Kimberly,

Thank you for contacting me regarding Abington Township's plans for applying for HOME Program funds. This email is "Evidence of Discussion with DCED HOME Program Grant Manger" as required for the HOME application. This document must be included in the application's - General Application section. If you have any questions please let me know.

The following is a recap of the 5/16/24 conference call.

Abington Township's last contract (C000071659) had effective dates from 2/14/19 through 5/13/23. Abington Township used over 90% of the previous grant's funds. Abington Township will submit an application for Existing Owner Occupied Housing Rehabilitation (EOOH) for the Spring 2024 HOME Program funding round. The county has a waitlist with at least 70 people and will need minimal program advertisement. The county will apply for $300,000 and based on prior performance, I do not have any concerns with applying for this amount of funding. The HOME Program is a competitive program with funding provided to applications that demonstrate the capacity to administer the program according to HUD HOME Regulations. The county has contractors in the pool that are lead certified and regularly bid on projects. The county has experience with labor and procurement procedures and has experience with lead-safe training and requirements.

If awarded, Abington Township will be required to adhere to DCED's HOME Guidelines and should ensure they are familiar with the requirements prior to applying. In moving forward, DCED encourages all parties involved to utilize the resources available on DCED's Federal Resource Library found on the DCED website. Utilization of the Federal Resource Library, along with trainings, webinars and technical assistance offered by the DCED HOME staff will help to build the local capacity needed to achieve compliance with the very complex and detailed HOME program regulations and requirements.

1) HUD Exchange Online Training (Bolded modules are relevant to EOOH):

https://www.hudexchange.info/trainings/building-home/
Module 1: Overview of the HOME Program
Module 2: HOME Program Requirements
Module 3: HOME Program Administrations
Module 4: Homeowner Rehab Programs
Module 5: Homebuyer Programs
Module 6: Rental Housing Activities
Module 7: Long-Term Compliance
Module 8: CHDOs
Module 9: TBRA
Module 10: HOME Match
Module 11: Reporting and IDIS
Module 12: Other Federal Requirements

2) Other Points of Reference:

- **CPD Monitoring Handbook – 6509.2**

- **https://www.hudexchange.info/resource/290/hud-community-planning-and-development-monitoring-handbook-65092-rev7/**
- **Chapter 7: is the HOME Program Exhibits**

- **HUD Monitoring guidelines for Subrecipient Written Agreements** - Exhibit 7-36 - Guide for Review of Subrecipient Written Agreements and Oversight
  - Note: Review to ensure agreement between 3rd party administration service agreement and Units of local government conform to requirements
  - https://www.hud.gov/program_offices/administration/hudclips/handbooks/cpd/6509.2
- **HUD Monitoring guidelines for Contractor Agreement** - Exhibit 7-34 - Guide for Review of Contractor Written Agreements
  - Note: Review to ensure contractor agreements contain the required HUD clauses

  https://www.hud.gov/program_offices/administration/hudclips/handbooks/cpd/6509.2

The deadline for this application round is June 28, 2024 at 5:00 pm. The HOME Program application will no longer be accessible after 5:00 pm Eastern Time on June 28, 2024 in ESA, and no additional applications will be accepted after that point.

Please let me know if you have any questions.

Thank you,

Alyssa

Alyssa Feher | HOME ARP Grant Manager
PA Department of Community & Economic Development
Center for Community & Housing Development
Commonwealth Keystone Building
400 North Street, 4th Floor | Harrisburg, PA 17120-0225
Phone: 717.720.1451 **|** afeher@pa.gov
dced.pa.gov | www.visitPA.com

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT
CENTER FOR COMMUNITY DEVELOPMENT & HOUSING

HOME PROGRAM COMPLIANCE CHECKLIST

HOME-Existing Owner-Occupied Housing Rehabilitation

HOME Program applicants must review and demonstrate compliance with all relevant sections of this checklist for the selected priority.

All proposed activities must be eligible, and not prohibited, as per *HOME Final Rule, effective July 24, 2013.*

GENERAL INFORMATION

APPLICANT NAME:		
Abington Township		
PROGAM:		
Existing Owner-Occupied Housing		
CONTACT PERSON:	PHONE:	EMAIL:
Kimberly Hamm	(267)536-1019	khamm@abingtonpa.gov

ALL PROJECTS

- ☒ Minimum $1,000 of HOME Program assistance
- ☒ Discussion with assigned DCED HOME grant manager
- ☒ This project has been reviewed to determine if any of the project is within the designated FLOODWAY using the best available data, and it has been determined **that it is** ☐ or **is not** ☒ located in the FLOODWAY.

  Identify FIRM MAP or other source used for this determination: FEMA Flood Map Service Center (MSC)

EXISTING OWNER-OCCUPIED HOUSING REHABILITATION

- ☒ Unit assisted is the principal residence of owner (documentation required)
- ☒ Inspections completed, and improvements identified which meet the minimum property standards as referenced in *DCED's Housing Rehabilitation Guidebook* and any additional locally enacted requirements
- ☒ Maximum amount of assistance not to exceed 95% valuation limits
- ☐ Manufactured housing must include ownership of property or lease term equal to or greater than affordability period

COMPLIANCE

As Chief Elected Official of the grantee, I certify compliance with the HOME Program requirements.

Signature, Chief Elected Official

June 13, 2024
Date

Thomas Hecker, President of the Board of Commissioners
Typed Name and Title

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT
CENTER FOR COMMUNITY DEVELOPMENT AND HOUSING

ASSURANCES AND SPECIAL CONDITIONS
HOME INVESTMENT PARTNERSHIPS PROGRAM

APPLICANT NAME:	FEDERAL ID:
Township of Abington	23-600025

The applicant hereby assures and certifies that:

1. It possessed legal authority to apply and to execute the proposed activity.
2. The applicant makes assurances that it will carry out its responsibilities under this Application in compliance with the following statutes, regulations or guidelines, as applicable:

   A. Labor Standards:

   (1) Davis-Bacon Act, P.L. 86-624, as amended (40 U.S.C. 276a-276a-5). (Please refer to PA-DCED - CD&H Alert of July-2016 on the applicability of Davis Bacon vs. State Prevailing wage rates)

   (2) Contract Work Hours and Safety Standards Act, P.L. 87-581 (40 U.S.C. 327 et. seq).

   (3) Section 3 of the Housing and Urban Development Act of 1958, P.L. 90-448 (12 U.S.C 1701u).

   (4) Copeland Anti-Kickback Act, P.L. 850800 (40 U.S.C. 276c).

   (5) DOL regulations at 29 CFR Parts 1, 3, 5, 6 and 7. These regulations implement the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act and the Copeland Act.

   (6) Section 286 of the Act of November 28, 1990 (P.L. 101-625) (42 USCS §12836), popularly known as the Cranston-Gonzales National Affordable Housing Act.

   (7) The PA Prevailing Wage Act of 1961 as amended (43 P.S. §§ 165-1 through 165-17) (Please refer to PA-DCED - CD&H Alert of July-2016 on the applicability of Davis Bacon vs. State Prevailing wage rates)

   B. Equal Opportunity:

   (1) Title VI of the Civil Rights Act of 1964 P.L. 88-352 (42 U.S.C. 2000d et seq.) and HUD regulations at 24 CFR Part 1.

   (2) Title VIII of the Civil Rights Act of 1968, P.L. 90.284 (42 U.S.C. 3601 et seq.) as amended by the Fair Housing Amendments Act of 1988, P.L. 100-430 (the Fair Housing Act).

   (3) Executive Order 11063, Equal Opportunity in Housing, November 20, 1962 (27 FR 11527), as amended by Executive Order 12259, December 21, 1980 (46 FR 1253) and HUD regulations at 24 CFR Part 107.

   (4) Section 109 of the Housing and Community Development Act of 1974, P.L. 93-383 (42 U.S.C. 5309) as amended.

   (5) Age Discrimination Act of 1975 P.L. 94-135 (42 U.S.C. 6101 et seq.).

   (6) Section 504 of the Rehabilitation Act of 1973, P.L. 95-602 (29 U.S.C. 794).

   (7) Executive Order 11246, Equal Opportunity in Federal Employment, September 24, 1965 (30 FR 12319), as amended by Executive Order 12086, October 5, 1978 (43 FR 46501) and HUD regulations 24 CFR Part 130 and 41 CFR chapter 60.

   (8) Executive Order 11625, Minority Business Enterprise, October 14, 1971 (36 FR 19967).

   (9) Executive Order 12138, Women's Business Enterprise May 18, 1979 (44 FR 29637).

   (10) Pennsylvania Human Relations Act, P.L. 47 (43 P.S. 951 et seq.)

   (11) Executive Order 13166 (Issued in the Federal Register 65 FR 50121 on August 16, 2000) - Limited English Proficiency (LEP).

C. Construction Standards:

(1) Title VI of the Lead-Based Paint Poisoning Prevention Act P.L. 91-695, as amended (42 U.S.C. 4831)

(2) Architectural Barriers Act of 1968 P.L. 90-480, as amended (42 U.S.C. 4151 et seq.).

(3) Section 6002 of the Resources Conservation and Recovery Act of 1976, P.L. 94-580, as amended (42 U.S.C. 6962), and regulations at 40 CFR Part 249.

(4) 24 CFR Part 39, Cost Effective Energy Conservation Standards.

(5) The Act of March 3, 1978 (P.L. 6, No. 3)(73 P.S. §1881 et. seq.), known as the Steel Products Procurement Act.

(6) Separate specifications for plumbing, heating, ventilating and electrical work; separate bids and contract, P.L. 546 (71 P.S. 1618).

(7) The Act of November 10, 1999 (P.L. 491, No. 45) (35 P.S. §7210.101 et. seq.), as amended, known as the Pennsylvania Construction Code Act, and the regulations that implement the Pennsylvania Construction Code Act, which regulations are known as the Uniform Construction Code (34 Pa Code Part XIV)."

D. Public Access to Records

(1) Recipients shall provide citizens reasonable access to records regarding the use of HOME funds, consistent with applicable State and local laws regarding privacy and obligations of confidentiality. However, in accordance with 2 CFR 200.336 public access to records held by Federal, State, local governmental entities or non-profit organizations are not subject to the Federal Freedom of Information Act (5 U.S.C. 552) and unless required by Federal, State, or local law, grantees and sub-grantees are not required to permit public access to their records.

(2) Both Units of General Local Government and Nonprofit Organizations are subject to requests for records made pursuant to the Pennsylvania Right-To-Know Law, 65 P.S. §§ 67.101-3104, when such requests relate to or arise out of the grant agreement into which the Units of General Local Government and Nonprofit Organizations have entered into with the Department of Community and Economic Development. The Pennsylvania Right-To-Know-Law provisions appear in Section (k) of Article V, Compliance with Applicable Statutes and Department Regulations of the grant agreement.

(3) It will provide reasonable access to citizens to all information regarding its HOME assisted activities and management.

E. Displacement:
It will minimize displacement of person because of activities assisted by HOME funds.

F. Violating Facilities List:
It will insure the facilities under its ownership, lease or supervision which shall be utilized in the accomplishment of a program are not listed on the Environmental Protection Agency's (EPA) list of Violating Facilities and that it will notify HUD of the receipt of any communication from the Director of EPA Office of Federal Activities indicating that a facility to be used in the project is under consideration for the listing by the EPA.

G. Section 102 of the HUD Reform Act:
It will comply with the requirements of Section 102 of the HUD Reform Act of 1989.

H. Acquisition/Relocation:
In the event that the project funded under the Application includes acquisition and/or relocation, the Applicant will comply with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, P.L. 91-646, as amended (42 U.S.C 4601 et seq.), HUD regulations at 24 CFR Part 92.634 and the Eminent Domain Code, Act of June 22, 1964, Special Session, P.L. 84, as amended, 26 P.S. 1-101 et seq.

I. Period of Affordability:

(1) As required by §92.504(c)(I)(iii) and not withstanding to Article II, this agreement remains in effect during the period for affordability under 24 CFR 92.252 or 92.254 as applicable.

(2) If the assisted housing does not meet the affordability requirements for the specified period, the Applicant must repay the funds.

J. Program Income, Repayments and Community Housing Development Organization (CHDO) Proceeds:

(1) In accordance with §92.504(c)(I)(iii), any proceeds, interest or other return on the investment of HOME funds, except as noted below, may be retained by the Applicant and used for HOME eligible project costs, including delivery costs. Program income may also be used for administrative costs, provided such administrative costs do not exceed 10% of the program income. DCED policy requires funding received by the grantee for Program Income and Recaptured Homebuyer must be reported to DCED.

(2) Program income is subject to all the requirements of the HOME Program and these Assurances and Special Conditions.

(3) The Applicant shall deposit program income in the local HOME account. Program income repaid funds and recaptured funds shall be accumulated by the Applicant through the program year (January through December).

(4) HOME funds that must be repaid due to the termination of a project before completion, or the failure of the housing to meet the affordability requirements shall be returned in accordance with the requirements of 24 CFR 92.503.

(5) An applicant may allow a subrecipient to retain program income pursuant to a written agreement in accordance with 24 CFR 92.503. Upon expiration of the written agreement, any program income on hand and any receivables must be returned to the applicant.

(6) An applicant may allow a CHDO to use CHDO proceeds for any affordable housing activity pursuant to a written agreement in accordance with 24 CFR 92.504 and 92.300.

K. Uniform Administrative Requirements:

The Applicant, whether a governmental entity (subrecipient or state recipient) or a non-profit organization must comply with the requirements of 2 CFR Part 200, as applicable.

L. Project Requirements:

As required by §92.504(c)(I)(v), the Applicant must comply with the project requirement of 24 CFR Part 92 Subpart F as applicable based on the type of project assisted. Areas covered by subpart F: Maximum per-unit subsidy, qualification as affordable housing and income targeting: Rental housing, tenant and participant protections, qualification as affordable housing: HOME ownership, mixed-income project, mixed use project, religious organizations, limitations on the use of HOME funds with FHA mortgage insurance.

M. Property Standards:

The owners of housing assisted with HOME funds must maintain the housing in compliance with applicable Housing Property Standards at 24 CFR 92.251 and state and or local housing code requirements for the duration of the affordability period.

DCED Housing Standards must be adopted by the applicant.

N. Other Program Requirements:

In accordance with §92.504(c)(I)(vi), the Applicant must carry out the activity in compliance with all federal laws and regulations described in 24 CFR part 92 subpart E, and H.

O. Affirmative Marketing:

Pursuant to §92.504(c)(I)(vii), the Applicant must adopt affirmative marketing procedures and requirements that meet the requirements of 24 CFR 92.351(a) and (b).

P. Conditions for Religious Organizations:
The Applicant, where applicable, must comply with the conditions prescribed in 24 CFR 92.257 for use of HOME funds by religious organizations.

Q. Request for disbursement of Funds:
As required by §92.504(c)(I)(viii), the Applicant may not request disbursement of funds under this agreement until the funds are needed for payment of eligible costs. The amount for each request must be limited to the amount needed.

R. Reversion of Assets:
Upon expiration of this Application the Applicant must transfer to the Commonwealth any HOME funds on hand at the time of expiration and any accounts receivable attributable to the use of HOME funds.

S. Resale and Recapture:
The Applicant must select and comply with the resale and/or recapture provisions in 92.254.

T. Records and Reports:
In accordance with §92.504(c)(I)(ix), at a minimum the Applicant must maintain the following records.

(1) Project Records:

(a) Records that demonstrate that each project meets the property standards in 24 CFR 92.251.

(b) Records that demonstrate that each rental housing project meets the requirements of 24 CFR 92.252 for the required period of affordability. Records must be kept for each family assisted.

(c) Records that demonstrate compliance with the requirements of 92.253 for tenant and participant protections.

(d) Records that demonstrate compliance with the requirements in 92.254 for affordable housing for each family assisted.

(e) Equal opportunity and fair housing records containing data on the extent to which each racial and ethnic group and single-headed households have applied for, participated in, or benefitted from, any program or activity.

(f) Documentation of actions taken to meet the requirements of 92.350.

(g) Documentation of the action taken to affirmatively further fair housing.

(h) Records indicating the affirmative marketing procedures and requirements under 92.351.

(i) Records indicating compliance with the environmental review requirements in 92.352 and Part 58.

(j) Records demonstrating compliance with 92.353 regarding displacement, relocation, and real property acquisition, including project occupancy lists.

(k) Records demonstrating compliance with Labor requirements in 92.354, including contract provisions and payroll records.

(l) Records concerning lead based paint under 92.355.

(m) Records supporting requests for waivers of the conflict of interest prohibition in 92.356

(n) Records of certifications concerning debarment and suspension required by 92.357

(o) Written agreements with subrecipients, for-profit and not-profit housing organizations, CHDOs, and homebuyers and homeowners receiving HOME assistance in accordance with 24 CFR 504.

(p) Records detailing the source and use of program income, as required by 24 CFR 92.508.

(q) The HOME program has income targeting requirements for the HOME program and for HOME

projects. Therefore, HOME applicants must determine each family is income eligible by determining the family's annual income as described in 24 CRF 92.203, 92.216 and 92.217

(r) The total administrative costs at closeout, shall not exceed 6% of the total draws under this application. If administrative expenditures exceed 6% of the total draws, the applicant will be required to reimburse the Grantor from non-federal funds.

(2) Performance Reports
Applicants must supply data and other information requested by the Grantor required to satisfy the reporting requirement in 92.509.

(3) Project Record Retention Requirements

(a) The Applicant must retain all program records for a five-year period from the date of final audit or closeout of this contract by the Grantor. Should any litigation, claim, negotiation, audit, monitoring, inspection or other action occur before the expiration of the required record retention period, records must be retained until completion of the action and resolution of all issues which arise from it, or until the end of the required period, whichever occurs later.

(b) The Applicant must retain project records on each HOME Unit assisted in accordance with the following:

i. **For homeowner rehabilitation projects:** Individual rehabilitation project files must be maintained for a five-year period beginning with the date the project completion as listed in the Cash and Management Information System (CMIS).

ii. **For homebuyer projects:** Individual homebuyer project files must be maintained for a five-year period beginning with the date of project completion as listed in CMIS. In addition, documents imposing resale or recapture provisions must be maintained for a period of five years after the affordability period ends.

iii. **For projects involving relocation and acquisition activities:** Records covering displacements and acquisition must be retained for five years after the date by which all persons displaced from the property and all persons whose property is acquired for the project have received the final payment to which they are entitled under federal regulations.

iv. **For rental housing projects:** Rehabilitation housing project files must be maintained for a five-year period beginning with the date of project completion as listed in CMIS. In addition, records of individual income verification, project rents and project inspections must be retained for the most recent five-year period, until five years after the affordability period terminates.

U. Enforcement of the Agreement:

(1) Applicant, to insure the intended beneficiaries benefit from the program or activity, must establish a means of enforcement that may include liens on real property or deed restrictions. The affordability requirements must be enforced by deed restrictions.

(2) In accordance with 2 CFR 200, suspension or termination may occur if the Applicant materially fails to comply with any terms of this contract, and the contract may be terminated for convenience in accordance with 2 CFR 200.

V. Period of Affordability:

The period of affordability required by 92.252 or 92.254 survives the expiration or termination of the HOME contract.

W. Monitoring:

(1) The Grantor will monitor the Applicant to assure compliance with the HOME program regulations and requirements and will take appropriate action when performance problems arise.

(2) For multi-family housing, Applicant must annually conduct on-site review of each unit to determine compliance with housing codes. For rental housing containing one to four dwelling units, an on-site review must be made once within each three-year period.

X. Environmental Review:

(1) The Applicant shall complete the environmental review record, complete actions under the NEPA of 1969, PL 91-190 (42USC 54321 et seq.), and comply with the Housing and Community Development regulations at 24 CFR Part 58.

Y. Fire Protection and Safety Standards:
It will comply with the provisions of the Fire Administration Authorization Act of 1992 (P.L. 102-522).

Z. Lower Tier Covered Transactions:
The Applicant will abide by Executive Order 12549 regarding debarment, suspension, ineligibility and voluntary exclusions.

3. CHDO Agreements: When the Applicant is providing HOME funds to a CHDO, the Applicant shall enter into a written agreement with the CHDO that complies with the requirements of 24 CFR § 92.504(c)(3). A copy of the agreement shall be provided to the Grantor, and shall include:

A. Use of the HOME funds. The agreement must describe the use of the HOME funds, including the tasks to be performed, a schedule for completing the tasks, and a budget. These items must be in sufficient detail to provide a sound basis for the Applicant and the Grantor to effectively monitor performance of the CHDO under the agreement.

B. Affordability. The agreement must require housing assisted with HOME funds to meet the affordability requirements of 24 CFR § 92.252 or § 92.254, as applicable, and must require repayment of the funds if the housing does not meet the affordability requirements for the specified time period. If CHDO is undertaking rental projects, the agreement must establish the initial rents and the procedures for rent increases. If the CHDO is undertaking homeownership projects for sale to homebuyers in accordance with § 92.254(a), the agreement must set forth the resale or recapture requirements, which must be imposed on the housing.

C, Project requirements. The agreement must require compliance with project requirements in 24 CFR Part 92 Subpart F, as applicable, in accordance with the type of project assisted.

D. Property standards. The agreement must require the housing to meet the property standards in 24 CFR § 92.251 and the lead-based paint requirements in 24 CFR Part 35, Subparts A, B, J, K, M and R of this title, upon project completion. The agreement must also require owners of rental housing assisted with HOME funds to maintain the housing compliance with § 92.251 for the duration of the affordability period.

E. Affirmative marketing. If the project contains 5 or more HOME-assisted units, the agreement must specify the CHDO's affirmative marketing responsibilities as enumerated by the participating jurisdiction in accordance with 24 CFR § 92.351.

F. Records and reports. The agreement must specify the particular records that must be maintained and the information or reports that must be submitted in order to assist the Applicant in meeting its recordkeeping and reporting requirements.

G. Enforcement of the agreement. The agreement must provide for a means of enforcement of the affordable housing requirements by the Applicant or the intended beneficiaries. This means of enforcement may include liens on real property, deed restrictions or covenants running with the land. The affordability requirements in 24 CFR § 92.252 must be enforced by deed restriction. In addition, the agreement must specify remedies for breach of the provisions of the agreement.

H. Requests for disbursement of funds. The agreement must specify that the CHDO may not request disbursement of funds under the agreement until the funds are needed for payment of eligible costs. The amount of each request must be limited to the amount needed.

I. Duration of the agreement. The agreement must specify the duration of the agreement. If the housing assisted under this agreement is rental housing, the agreement must be in effect through the affordability period required by the participating jurisdiction under 24 CFR § 92.252. If the housing assisted under this agreement is homeownership housing, the agreement must be in effect at least until completion of the project and ownership by the low-income family.

J. Conditions for religious organizations. Where applicable, the agreement must include the conditions prescribed in 24 CFR § 92.257 for the use of HOME funds by religious organizations.

K. If CHDO is using set-aside funds under 24 CFR § 92.300, the agreement must include the appropriate provisions under 24 CFR §§ 92.300 and 92.301.

4. Risk Analysis Evaluation

The Risk Analysis Evaluation for competitive HOME funds will be assessed at the time of the HOME application review. HOME applications will be evaluated on the following factors: risk, capacity and performance.

High Risk applicants will not be eligible for an award of competitive HOME funds.

Moderate Risk Applicants are eligible for an award of HOME funds as funding allows. Remote monitoring will be performed through monthly submissions of progress and expenditure reports. HOME compliance information will also be requested. Examples of HOME compliance information would include; Income eligibility methodology and documentation, local agreements with sub-recipients, Lead Base Paint certifications for contractors, Rehab Guidelines that include applicable property standards, maximum per unit subsidy limits, underwriting and homebuyer counseling policies, resale and or recapture provisions for homebuyer programs, homeownership value limits, rental leases, HOME rent determinations, etc.

Low Risk Applicants are eligible for an award of HOME funds as funding allows. Remote monitoring will be performed through semi-annual submissions of progress expenditure reports. HOME compliance information will also be requested. Examples of compliance information requested would include; Income eligibility methodology and documentation, local agreements with sub-recipients, Lead Base Paint certifications for contractors, Rehab Guidelines that include applicable property standards, maximum per unit subsidy limits, underwriting and homebuyer counseling policies, resale and or recapture provisions for homebuyer programs, homeownership value limits, rental leases, HOME rent determinations, etc.

Applicants will be notified in writing of their Risk designation after contract award. Notification will also be made to those High - Risk applicants who were not eligible for an award of competitive HOME funds.

5. Fair Housing and Civil Rights

A. Title VI of the Civil Rights Act of 1964, P.L. 88-352 (42 U.S.C. 2000d et. seq.) and the regulations issued pursuant thereto (24 CFR Part 1), which provides that no persons in the United States shall on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the applicant receives Federal financial assistance and will immediately take any measures necessary to effectuate this assurance. If any real property or structure thereon is provided with the aid of Federal financial assistance extended to the applicant, this assurance shall obligate the applicant or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits.

Title VI, states that:

"No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."

Section 1.4b(2)(i) of the regulations issued pursuant to Title VI requires that:

"A recipient in determining the types of housing accommodations, facilities, services, financial aid, or other benefits which will be provided under any such program or activity, the class of persons to whom,

or the situations in which, such housing, accommodation, facilities, services, financial aid, or other benefits will be provided under any such program or activity, or the class of persons to be afforded an opportunity to participate in any such program or activity, may not directly or through contractual or other arrangements, utilize criteria or methods of administration which have the effect of subjecting persons to discrimination because of their race, color, or national origin or have the effect of defeating or substantially impairing accomplishments of the objectives of the program or activity as respect to persons of a particular race, color, or national origin".

Title VI, Section 601 provides the Limited English Proficiency (LEP) Statutory Authority.

Executive Order 13166 (Issued in the Federal Register 65 FR 50121 on August 16, 2000) mandates improved access to federally assisted programs and activities for individuals who, as a result of national origin, are limited in their English proficiency.

Applicants are required to make reasonable efforts to provide language assistance to ensure meaningful access for LEP persons to the grantee's programs and activities that have any federal financial assistance.

B. Title VIII of the Civil Rights Act of 1968, as amended by Fair Housing Amendments Act of 1988 (42 U.S.C. 3601-20) which states that no person shall be subjected to discrimination because of race, color, religion, sex, handicap, familial status, or national origin in the sale, rental, or advertising of dwellings, in the provision of brokerage services, or in the availability of residential real estate-related transactions; and requires that applicants administer all programs and activities related to housing and community development in a manner to affirmatively further fair housing. Executive Order 11063 and the regulations contained in 24 CFR Part 107 requires that all action necessary and appropriate be taken to prevent discrimination because of race, color, religion (creed), sex, or national origin in the sale, rental, leasing, or other disposition of residential property and related facilities or in the use or occupancy thereof where such property or facilities are owned or operated by the Federal Government or provided with Federal assistance by HUD and in the lending practices with respect to residential property and related facilities of lending institutions insofar as such practices relate to loans insured, guaranteed or purchased by the Federal Government.

C. Section 109 of the Housing and Community Development Act of 1974, P.L. 93-383 (42 U.S.C. 5309) and the regulations issued pursuant thereto (24 CFR Part 570.602), which provide that no person in the United States shall, on the grounds of race, color, national origin, or sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds provided under this Part.

D. Age Discrimination Act of 1975, P.L. 94-135 (42 U.S.C. 6101 et. Seq

E. Section 504 of the Rehabilitation Act of 1973, P.L. 95-602 (29 U.S.C. 794) and HUD implementing regulations at 24 CFR Part 8.

F. Executive Order 11246, Equal Opportunity in Federal Employment, September 24, 1965 (30 FR 12319), as amended by Executive Order 12086, October 5, 1978 (43 FR 46501), and the regulations issued pursuant thereto (24 CFR Part 130 and 41 CFR Chapter 60), which provides that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the Performance of Federal or Federally assisted construction contracts. Contractors and subcontractors on Federal and Federally assisted construction contracts shall take affirmative action to ensure fair treatment in employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation and selection for training and apprenticeship.

G. Executive Order 11625, October 13, 1971 which prescribes additional arrangements for developing and coordinating a national program for Minority Business Enterprise (36 FR 19967). (2 CFR 200.321 Contracting with small and minority businesses, women's business enterprises and labor surplus area firms.)

H. Executive Order 12138, May 18, 1979 (44 FR 29637) which creates a National Women's Business Enterprise Policy. (2 CFR 200.321 Contracting with small and minority businesses, women's business enterprises and labor surplus area firms.)

I. Pennsylvania Human Relations Act of October 27, 1957, P.L. 744, (43 P.S. 951-963) which provides that no employee, applicant for employment, independent contractor, or any other person shall be discriminated against because of race, color, religious creed, ancestry, national origin, age, or sex.

J. The Violence Against Women Act (VAWA) requirements set forth in 24 CFR part 5, subpart L, apply to all HOME tenant-based rental assistance and rental housing assisted with HOME funds, as supplemented by this section (§ 92.359).

6. Conflict of Interest
It will establish safeguards to prohibit employees from using positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties. (2 CFR 200.112 Conflict of Interest)

7. Lobbying
No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal grant, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants and contracts under grants, loans and cooperative agreement) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure. (2 CFR 200.450 Lobbying)

8. Excessive Force
It has adopted and will enforce a policy prohibiting the use of excessive force by law enforcement agencies within its jurisdiction against any individuals engaged in nonviolent civil rights demonstrations and a policy of enforcing state and local laws against physically barring entrance to or exit from a facility or location which is the subject of such non-violent civil rights demonstrations within its jurisdiction.

9. Official Resolution
Its governing body has duly adopted or passed as an official act, a resolution, motion or similar action authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

	June 13, 2024
Signature, Chief Elected Official	Date

Thomas Hecker, President Abington Township Board of Commissioners

Typed Name and Title

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT
CENTER FOR COMMUNITY DEVELOPMENT & HOUSING

HOME PROGRAM
CERTIFICATION OF CAPACITY

The following information is required to evaluate the experience of the administration and/or development team associated with the proposed HOME project. Please complete the sections applicable to the type of project for which funding is being sought. **A staff directory or individual resumes are not to be submitted.** If any questions remain on which sections must be completed or clarification of the information being requested, please contact the assigned HOME Program grant manager. Include additional pages as necessary.

PROJECT ADMINISTRATOR

NAME:		TITLE:
Kimberly Hamm		Director, Community Development
ADDRESS: 1176 Old York Rd. Abington, PA 19001		
PHONE NUMBER: (267)536-1019	FAX NUMBER: (215)884-8271	EMAIL: khamm@abingtonpa.gov

AGENCY (COMPANY) OR MUNICIPALITY

Please list the last 3 HOME / Housing projects administered by above named individual, completed and /or currently in process, where HOME Program funding was secured through PA Department of Community and Economic Development (DCED) or HUD. In lieu of HOME specific projects, other project activity(ies) may be provided after consultation with assigned HOME Program grant manager. Include additional pages as necessary for other projects and/or other relevant project team members or partners.

PROJECT NAME (1-3)

TYPE OF PROJECT:		LOCATION:
Existing Owner-Occupied Home Rehabilitation		Abington Township
TOTAL FUNDING/PROJECT COST: $400,000/$232,354.49	NUMBER OF UNITS: 6	PROJECT STATUS: Complete

PROJECT DEVELOPER

NAME OF LEAD OR PRIMARY CONTACT:		TITLE:
Kimberly Hamm		Abington Twp Director of Community Development
ADDRESS: 1176 Old York Rd., Abington, PA 19001		
PHONE NUMBER: (267)536-1019	FAX NUMBER: (215)884-8271	EMAIL: khamm@abingtonpa.gov
EXPERIENCE CRITERIA: 3+ years managing HUD grant-funded home rehabilitation projects.		

HOUSING MANAGER / MANAGEMENT CONSULTANT

NAME OF LEAD OR PRIMARY CONTACT:		TITLE:
Kimberly Hamm		Director of Community Development
AGENCY (COMPANY): Abington Twp Director of Community Development		
ADDRESS: 1176 Old York Rd., Abington, PA 19001		
PHONE NUMBER: (267)536-1019	FAX NUMBER: (215)884-8271	EMAIL: khamm@abingtonpa.gov
EXPERIENCE CRITERIA: 3+ years managing HUD grant-funded home rehabilitation projects.		

CERTIFICATION

As Chief Elected Official of the grantee, I certify compliance with the Certification of Capacity requirements.

SIGNATURE, CHIEF ELECTED OFFICIAL:	
TYPED NAME AND TITLE: Thomas Hecker, President of the Board of Commissioners	DATE: June 13, 2024

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT
CENTER FOR COMMUNITY DEVELOPMENT & HOUSING

CITIZEN PARTICIPATION REPORT

APPLICANT NAME:
Township of Abington

Applicant should follow established Citizen Participation Plan. If applicant does not have a Citizen Participation Plan it can adopt the County's plan or contact DCED for direction on creating and adopting a plan.

HOME INFORMATION TO THE PUBLIC	DATE
Notice of public hearing:	May 19, 2024
Date of public hearing:	June 5, 2024

Describe the methods used to solicit participation of low to moderate income persons:

Notice was published in a newspaper of local circulation on May 19, 2024. Additionally, notices were posted on the Township social media channels, website, e-newsletter, and cable TV channel. Notices were also posted in the Township building (and other Township properties as available).
The hearing itself was held both in-person at the Township Building and virtually via Zoom.

Denote any adverse comments/complaints received and describe resolution:

None.

☐ In the case that the public hearing was held virtually, confirm that the local adopted Citizen Participation Plan allows for virtual hearings. This waiver for virtual hearings must be on file at the municipality.

Immediately following this page, attach the documents below in the order listed:

- Hearing Ad/Proof of Publications
- Sign-In Sheets
- Hearing Minutes
- Copy of response(s) to comments and/or complaints.

** HOME applicants are only required to conduct one public hearing*

I hereby certify, subject to the penalties of perjury, the above public hearing was conducted in accordance with all state and federal regulations.

_____ _____
Signature, Chief Elected Official Date

_____
Typed Name and Title:

21ST CENTURY media

MediaNews Group

PHILADELPHIA GROUP

AFFIDAVIT OF PUBLICATION

390 Eagleview Boulevard • Exton, PA 19341

ABINGTON TOWNSHIP
1176 OLD YORK RD
ABINGTON, PA 19001
Attention:

STATE OF PENNSYLVANIA,

The undersigned Richard L. Crowe, being duly sworn the he/she is the principal clerk of Times Chronicle & PublicSpirit, Montgomery News Digital, published in Montgomery County for the dissemination of local or transmitted news and intelligence of a general character, which are duly qualified newspapers, and the annexed hereto is a copy of certain order, notice, publication or advertisement of:

ABINGTON TOWNSHIP

Published in the following edition(s):

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05/19/24

TOWNSHIP OF ABINGTON, PA
NOTICE OF PUBLIC HEARING ON
APPLICATION FOR THE DCED HOME PROGRAM

Notice is hereby given that the Township of Abington, Montgomery County, Pennsylvania has prepared an application for the HOME Investment Partnerships Program (HOME). In accordance with the regulations and requirements of the U.S. Department of Housing and Urban Development (HUD), the Pennsylvania Department of Community and Economic Development (DCED), and Abington Township, a public hearing will be June 5, 2024 at 10:00 AM at the Township Building, 1176 Old York Road, First Floor Conference Room, Abington, PA 19001 and by virtual conference call. There are two ways for the public to virtually participate in the meeting. Residents can access the meeting online, by a computer, iPad, iPhone or Android at https://us06web.zoom.us/j/83951474515. This link will enable residents to hear the meeting, see presentations, and make public comments. There will be no video capabilities. Residents who are unable to join online can listen to the meeting by calling 1-929-436-2866 and entering the meeting ID number 839 5147 4515 when prompted.

Written or oral comments regarding the application will be accepted until June 13, 2024. Comments may be directed to Ms. Kimberly Hamm, Director of Community Development, 1176 Old York Road, Abington, PA 19001, or emailed to khamm@Abingtonpa.gov, or phone at (267) 536-1019.

Any person requiring an interpreter for the hearing impaired or the visually impaired should contact Ms. Hamm at least five-(5) calendar days prior to the meeting and an interpreter will be provided. In addition, hearing-impaired persons may call Pennsylvania Relay at 711. Any non-English speaking person wishing to participate the public hearing should contact Ms. Hamm at least five (5) calendar days prior to the meeting and a language interpreter will be provided. Cualquier persona que no habla Inglés que deseen asistir a la audiencia pública deben comunicarse con la Sra Hamm cinco (5) días calendario antes de la reunión y un intérprete de lenguaje se proporcionará.

The purpose of the public hearing is to present an application for the DCED HOME funds in the amount of $300,000 for the purposes of Existing Owner-Occupied Housing Rehabilitation. The Township intends to submit the application to DCED on or before June 28, 2024.

A resolution to submit the application will be submitted for consideration to the Township's Board of Commissioners on June 13, 2024 at 7:00 PM.

All interested persons, groups, and organizations are encouraged to attend this public hearing and will be given the opportunity to present oral or written testimony concerning the proposed plans and use of Federal funds.

Honorable Thomas Hecker, President Township of Abington Board of Commissioners
TC - May 19 -1a

Sworn to the subscribed before me this 5/20/24.

Maureen Schmid

Notary Public, State of Pennsylvania
Acting in County of Montgomery

Commonwealth of Pennsylvania - Notary Seal
MAUREEN SCHMID, Notary Public
Montgomery County
My Commission Expires March 31, 2025
Commission Number 1248132

Advertisement Information

Client Id: 883030 **Ad Id:** 2602440 **PO:** **Sales Person:** 093301

Ad ID: 2602440
Cost: $293.95
Start: 05/19/24
Stop: 05/19/24
Class: 1201, Legal Notices

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Honorable Thomas Hecker, President Township of Abington Board of Commissioners
TC - May 19 -1a

Ad ID: 2602163
Cost: $252.03
Start: 05/19/24
Stop: 05/19/24
Class: 1201, Legal Notices

PUBLIC NOTICE
TOWNSHIP OF ABINGTON
REQUESTS FOR PROPOSALS (RFP) FOR
Housing Rehabilitation Services

The Township of Abington, Montgomery County, Pennsylvania ("Township") is seeking proposals from qualified consultants and firms to provide professional, administrative, technical and other related services for the Abington Homeowner Occupied Rehabilitation Program and related community development projects including inspecting properties, providing rehabilitation specifications with cost estimates, inspecting contractor work and reviewing invoices. Funding for this program is provided by the Community Development Block Grant Program (CDBG) from the U.S. Department of Housing and Urban Development. Additional funding may be provided by a grant from the Pennsylvania Department of Community and Economic Development under the federally-funded HOME Investment Partnership Program (HOME).

The services requested by the Township are detailed in the RFP. Interested parties can obtain a copy of this RFP by visiting https://www.abingtonpa.gov/RFP.

The following criteria, in order of importance, will be used to select the consultant for this project:

The following criteria, in order of importance, will be used to select the consultant for this project:

1. Knowledge and understanding of HUD's HQS and local building codes.
2. Qualifications, certifications, and previous experience in managing a housing rehabilitation program, housing rehabilitation projects and other construction programs.
3. Cost of services.
4. Capacity of Respondent to complete services in a timely manner.
5. The number of hours of service to be provided for each task in terms of adequacy and efficiency.
6. MBE, WBE or SERB designation.

For questions or additional information, please call (267)536-1000 x5 or e-mail communitydevelopment@abingtonpa.gov.

Proposals are due by 3:00 PM on July 31, 2024.

All qualified proposers will receive consideration without regard to race, color, religious creed, ancestry, national origin, age, handicap, or sex. The Township of Abington is an equal opportunity agency.

Kimberly Hamm, Director
Office of Community Development
TC - May 19 -1a

ABINGTON TOWNSHIP
PUBLIC HEARING FOR APPLICATION OF DCED HOME FUNDS
June 5, 2024 @ 10am

Name	Address
Melissa Schofield	1624 Ridgeway Ave Willow Grove PA 1909

M E M O R A N D U M

To: FILE

From: Kimberly Hamm, Director of Community Development

CC:

Date: June 5, 2024

Subject: Public Hearing on Township's DCED HOME Application

A public hearing was held today regarding the Township submitting an application for DCED HOME funds to support Existing Owner-Occupied Home rehabilitation. The hearing was held both in-person at the Township building and virtually via Zoom.

One resident attended in-person; there were no virtual attendees.

The hearing began promptly at 10:00am EST.

A brief PowerPoint presentation was made on the application, the DCED HOME EOOH program, and the amount and purpose of the funds the Township intends to apply for.

The resident in attendance asked how the resident experience would change if HOME funds were used for residential rehabilitation activities. The response was given in the hearing that the resident experience would remain the same, including placements on the waiting list.

The hearing concluded at 10:05am EST.

ATT: 2024HOMEPublicHearingPresentation06052024.ppx

PUBLIC HEARING FOR PROPOSED APPLICATION FOR PENNSYLVANIA DCED HOME FUNDS JUNE 5, 2024

WHAT IS THE PENNSYLVANIA HOME PROGRAM?

- A federally funded program that provides municipalities with grant and loan assistance to expand and preserve the supply of decent and affordable housing for low- and very low-income Pennsylvanians.
- HOME funds can be used in a variety of ways to address critical housing needs in the Commonwealth.
- This round of funding has been restricted to Existing Owner-Occupied Housing Rehabilitation (EOOH)
- HOME Program funds are provided to DCED from the U.S. Department of Housing and Urban Development (HUD) through the annual entitlement appropriation process.

DCED HOME APPLICATION SCHEDULE

Date	Milestone
May 8, 2024	Applications opened
May 19, 2024	Notice of public hearing circulated
June 5, 2024	Public Hearing on Proposed Application
June 13, 2024	Consideration of resolution to authorize the application by the Board of Commissioners
June 28, 2024	Submission of Application to DCED (if approved by BoC)
Early Fall 2024	Anticipated notice of awards to applicants

PROPOSED DCED HOME APPLICATION

Existing Owner-Occupied Rehabilitation (EEOH)	$300,000

- There is no match requirement nor is there an application fee
- Funding would support the Township's Owner-Occupied Rehabilitation Program (OORP)
- Funding would support the completion of approximately 5 (up to 6) home rehabilitation projects

PUBLIC COMMENT

- Please raise your hand in Zoom or press #9 if calling in.
- All comments will be taken and included with the public participation documents.

DCED HOME APPLICATION SCHEDULE

Date	Milestone
May 8, 2024	Applications opened
May 19, 2024	Notice of public hearing circulated
June 5, 2024	Public Hearing on Proposed Application
June 13, 2024	Consideration of resolution to authorize the application by the Board of Commissioners
June 28, 2024	Submission of Application to DCED (if approved by BoC)
Early Fall 2024	Anticipated notice of awards to applicants

THANK YOU

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-05-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Administration		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Toll Mid-Atlantic LP Company, Inc. Application

EXECUTIVE SUMMARY:

Under this Final Land Development application, the Applicant is proposing to demolish the existing structures of the former St. Basil Academy School site; and construct a total of 150 age-restricted carriage homes as well as a clubhouse and pool on an existing parcel of land located within the newly created AR - Age Restricted Carriage Home Overlay District. The entire site consists of approx. 46.37 acres and is located within the CS - Community Service Zoning District. Other site improvements for this site include parking, curbing, sidewalk, landscaping, lighting, and sanitary and stormwater management facilities. Access to/from the site will be by way of one (1) proposed entrance off Fox Chase Road. In addition, an emergency access road is proposed off of Fox Chase Road on the northwestern corner of the site.

PREVIOUS BOARD ACTIONS:

08.12.22 - A revised Ordinance was sent to address the Planning Commissions comments from the August 4, 2022 meeting. This Ordinance is attached and marked Revised 08.12.22.
08.23.22 - The Planning Commission recommended moving forward to the Comprehensive Plan Consistency Committee on August 31, 2022 with the recommendations stated in the Executive Summary.
09.08.22 - Working Session - recommended to move to the next Board of Commissioners meeting on October 13, 2022
10.13.22 - The Board of Commissioners approved advertisement of amendment
11.10.22 - Ordinance # 2199 was adopted.
05.23.23 - The Planning Commission reviewed the Conditional Use Application.
07.13.23 - The Board of Commissioners approved the Conditional Use Application.

02-08-24 - Working Session - Presentation of the Preliminary application
03-14-24 - The Board of Commissioners approved the preliminary major LD application.
04-23-24 - The Planning Commission reviewed the Final application.
05-09-24 - Presentation to the Working Session for Final application approval.

RECOMMENDED BOARD ACTIONS:

Motion to approve the Final Major Land Development application LD-23-01 for the location at 711 Fox Chase Road, Jenkintown, PA 19046. (St. Basils).

April 3, 2024

ABINT130030

Mr. Richard Manfredi, Township Manager
Abington Township
1176 Old York Road
Abington, PA 19001

RE: LD-23-01-711 Fox Chase Road (St. Basil)
PARID: 30-00-22424-00-1/ TMID: 30059 025
PARID: 30-00-22424-00-5/ TMID: 30059 026
Final Major Subdivision and Land Development Plans Review (1st Submission)

Dear Mr. Manfredi:

We have received a copy of the " Preliminary/Final Major Subdivision and Land Development Plans" consisting of sixty-two (62) sheets dated March 24, 2023, revised March 22, 2024, and received on March 28, 2024, as prepared by ESE Consultants, Inc., located at 1140 Virginia Drive, in Fort Washington, PA for the above referenced project on behalf of the property owner, Sisters of St. Basil the Great, and the equitable owner, toll Mid-Atlantic, L.P Company, Inc. (the Applicant).

This project received preliminary major subdivision and land development plans approval from the Abington Township Planning Commission at their regular scheduled December 20, 2023 meeting, and from the Abington Township Board of Commissioners at their regular scheduled March 14, 2024 meeting.

This project is located within the CS – Community Service Zoning District with the newly created AR – Age Restricted Carriage Home Overlay District being an overlay for the underlying district. The site fronted by Fox Chase Road to the southwest; residential properties zoned in the R1 – Low Medium Density Residential Zoning District to the north or northeast; residential properties zoned in the R3 – Medium Density Residential Zoning District, as well as the RC – Recreation/Conservation Zoning District, to the southeast; and residential properties zoned in the R4 – High Density Residential Zoning District to the south. In addition, a tributary of the Pennypack Creek traverses from north to south within the eastern corner of the track.

Under this Final Major Subdivision and Land Development application, the Applicant is proposing to demolish the existing structures of the former St. Basil Academy School site; and construct a total of 150 age-restricted carriage homes as well as a clubhouse and pool on an existing parcel of land located within the newly created AR – Age Restricted Carriage Home Overlay District. The entire site consists of approx. 46.37 acres and is located within the CS – Community Service Zoning District. Other site improvements for this site include parking, curbing, sidewalk, landscaping, lighting, and sanitary and stormwater management facilities. Access to/from the site will be by way of one (1) proposed entrance off Fox Chase Road. In addition, an emergency access road is proposed off of Fox Chase Road on the northwestern corner of the site.

In accordance with the FEMA, Flood Insurance Rate Map (FIRM) Panel No.42091C0403G, effective March 2, 2016, the tract is identified to be primarily located within Zone X, an area outside the 0.2% chance flood and minimal flood hazard. However, the area where the Pennypack Creek tributary traverses the site is located within Flood Zone X, an area of 0.2% annual chance flood hazard, areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile. Therefore, based on the FEMA FIRM determination, this site is not located within the Floodplain Conservation District, and is therefore not subject to the floodplain regulations of the Floodplain Conservation District. However, per the Abington

Township Riparian Corridor Analysis Map, Figure 15.2, this parcel is identified as a parcel which is located within and intersecting the Riparian Corridor; and is therefore subject to the regulations of the Riparian Corridor Conservation District.

CONDITIONAL USE GRANTED

The Applicant appeared before the Abington Township Board of Commissioners at the Public Hearing held on July 13, 2023. The Applicant was granted the following conditional use approval from the Abington Township Zoning Code:

1. **§1503.B.2.b – Uses Permitted by Conditional Use, Zone 2** – A conditional use approval to allow for the installation of a central sewer line in Zone 2 of the Riparian Corridor Conservation District.

The conditional use approval shall be included on the Record Plan (Sheet 2).

WAIVERS GRANTED

At their March 14, 2024 meeting, the Abington Township Board of Commissioners granted the following waivers:

1. **§146-11.A.(4) – Property Identification Plans** – A waiver to not show all the information of the TMP, names of owners, the approx. acreage, and similar features within 400 feet.

2. **§146-11.B.(3) – Existing Features Plan** – A waiver is requested to not show the all the information of the location of property lines and names of owners, and similar features within 400 feet.

3. **§146-11.B.(7) – Existing Features Plan** – A waiver is requested to not show the all the information of the underground and above ground utilities, and similar features within 400 feet.

4. **§146-27.C – Sidewalks and Curbs - Location** – A waiver is requested for the sidewalk along Fox Chase Road. The existing locations of the sidewalk along portions of the road are within a few feet of the curb and roadway. The existing location will be repaired/replaced with a new sidewalk and extended along the entire frontage. The area between the sidewalk and the right-of-way (roughly 12'+) will be used for street tree plantings.

5. **§146-27.F – Sidewalks and Curbs** – A waiver is requested for the curbing on the interior roads to be constructed with 6" Belgian Block. The internal roadways will be privately maintained. This variation will help with the subdivision aesthetics and maintenance.

6. **§146-29.A – Blocks – Length** – A waiver is requested to allow for the internal roads C, D, F and G to have less than the 500' minimum length. All roads orientation and lengths have been affected by the layout and the extended buffer around the property.

7. **§146-33.I – Drainage** – A waiver is requested to not extend rood leaders to road gutter under sidewalk or connect to storm drains, but to instead allow roof drains to flow over lawn to allow pollutants to settler out and infiltrate into the topsoil. This section of the SALDO is also in conflict with 142-802.A of the Stormwater Management Ordinance.
   The Applicant shall show the roof drains and sump pumps (if any) for the proposed clubhouse building, as well as, for each of the proposed townhome dwellings on the plans. Stormwater Ordinance §142-802.A requires roof drains not to be connected to streets, sanitary or storm sewers, or roadside ditches, and shall discharge to infiltration areas or vegetative BMPs to the maximum extent practicable. The Applicant has requested a waiver from this Code Section to allow for roof drains to flow over the lawn areas and infiltrate instead of extending under the sidewalk to the gutter.

8. **§146-35.C.(2) – Design and construction of sewers – Size, grade and type –** A waiver is requested to modify the material of the sanitary sewer main to SDR-26 (plastic pipe) from ductile iron. The supply of the SDR-26 is more readily available.
   The Applicant is proposing 8-inch SDR-26 piping for the proposed sanitary sewer system to the site instead of ductile iron pipe per this Code Section. We defer to the Abington Township Wastewater Utilities department for any sewer related comments.

9. **§146-43.C.(3).(a) – Excavations and fills –** A waiver is requested to construct cut and fill slopes greater than 15% for the stormwater basin berms and allow basin slopes and slopes to ties into natural grade up to 33%. The steeper berms will limit the areas taken up by the berms while still adequately capturing and routing the stormwater from the site.

The "Waivers List" on Plan Sheet 2 only listed the waivers obtained for this project. The "Waivers List" shall be revised to "Waivers Approved," and a statement shall be added to indicate the following waivers were granted by the Abington Township Board of Commissioners at the regularly scheduled meeting held on March 14, 2024.

The following documents have been reviewed:

Title	Sheet	Dated	Revised
Land Development Plans			
Cover Sheet	1 of 62	03/24/23	03/22/24
Record Plans	2-5 of 62	03/24/23	03/22/24
General Notes	6 of 62	03/24/23	03/22/24
Existing Features Plans	7-10 of 62	03/24/23	03/22/24
Overall Site Plan	11 of 62	03/24/23	03/22/24
Grading Plans	12-19 of 62	03/24/23	03/22/24
Utility Plans	20-27 of 62	03/24/23	03/22/24
Road Plan & Profile	28-34 of 62	03/24/23	03/22/24
Easement Profiles	35-39 of 62	03/24/23	03/22/24
Construction Details	40-41 of 62	03/24/23	03/22/24
Storm Sewer Details	42-43 of 62	03/24/23	03/22/24
Sanitary Sewer Details	44-45 of 62	03/24/23	03/22/24
Water Details	46 of 62	03/24/23	03/22/24
Basin Details	47-53 of 62	03/24/23	03/22/24
Landscape & Lighting Plans	54-61 of 62	03/24/23	03/22/24
Landscape & Lighting Details & Notes	62 of 62	03/24/23	10/13/23
Stormwater Management Narrative	442 pages	July 2023	October 2024
Erosion and Sediment Control Narrative	144 pages	July 2023	March 2024

We have performed a review of the above referenced plans for compliance with the Zoning Ordinance (Chapter 162); Subdivision and Land Development Ordinance (Chapter 146); and Stormwater Management Ordinance (Chapter 142), and our previous review dated November 13, 2023. We offer the following outstanding comments for your consideration *(using the same numbering scheme as the prior reviews)*:

CHAPTER 146
SUBDIVISION & LAND DEVELOPMENT COMMENTS

39. ***Per §146-11.G.(1).(e),(f),&(h) – Utility Plan –*** *The utility plan shall show the electrical lines, junctions, vaults, telephone lines, cable television lines and other related appurtenances.*

The Applicant is showing the underground utilities running along the roadways within the development; however, the electrical, telephone, cable, etc. lines are not shown connecting to the proposed dwellings. The Applicant shall provide these connections on the Utility Plans. The Applicant shall also show the electrical lines connecting to the proposed streetlights.

There are multiple locations where a proposed fire hydrant is located directly on top of the underground electric line; i.e., the proposed fire hydrant adjacent to Unit 148 on Road B; adjacent to the side of Unit 118 on Road B; adjacent to the proposed clubhouse on Road A between inlets no. 206 and 212; adjacent to the side of Unit 50 on Road E. The plans show be updated to avoid any utility conflicts.

The fire hydrant adjacent to the proposed clubhouse between inlets 206 and 212 is still shown to be directly overtop the underground electric line. The plan shall be updated to avoid any utility conflicts.

Based on the Utility Plans (Sheets 20-27) and the Landscape and Lighting Plans (Sheets 54-61), electrical lines are still not shown on these plans for the proposed streetlights. The electrical lines shall be provided on the utility plans for the streetlights.

GENERAL COMMENTS

80. *Per the Existing Features Plans (Sheets 7 to 10), there are multiple locations where private fencing and structures are shown to be encroaching within the site boundaries from the abutting properties that front Forrest Avenue, Kirkwood Street, and Suffolk Road. The Applicant shall clarify if the private fences and structures are permitted to remain or be required to be removed outside the site boundaries. It is recommended that a written agreement to permit these encroachments for each of the properties should be provided to the Township.*

The Applicant has indicated that they are working with the Township and the neighboring properties that currently encroach the site boundary to remove the encroachments.

The Applicant has indicated that they are working to resolve the disposition of the encroachments. All encroachments shall be rectified prior to recording of the plans. Copies of written agreements shall be provided to the Township for encroachments to remain.

ADDITIONAL COMMENTS

1. Sufficient room for the signature and seal of the Township Engineer to ensure no text overwrites shall be provided on the Record Plan (Sheet 2).

We have received the following documents/permits/reviews:

- AQUA Will Serve Letter (January 29, 2021)
- Transportation Impact Assessment (February 10, 2023, last revised March 13, 2023)
- Conditional Use Application (March 27, 2023)
- MCPC Request for Review (March 27, 2023)
- Application for SALDO Review (March 27, 2023)
- Waivers Request (included w/ SALDO Application) (March 27, 2023)
- Post Construction Stormwater Management Report (March 2023)
- Updated Waiver Request Letter (July 25, 2024)
- TPD Traffic Review (August 16, 2022; April 29, 2023; November 10, 2023)
- Sanitary Sewer Review (May 12, 2023; November 9, 2023)
- STC Review (May 10, 2023; December 18, 2023)
- EAC Review (May 11, 2023)
- Fire Marshal Review (May 12, 2023 via email; November 9, 2023)

- MCPC Review (May 19, 2023; November 9, 2023)
- MCCD Incompleteness Review Letter (August 29, 2023)
- MCPC Request for Review (October 18, 2023)
- MCCD Withdrawal of Incomplete NOI Letter (January 11, 2024)
- MCPC Request for Review (March 22, 2024)
- Application for Final SALDO Review (March 26, 2024)

We have not received the following documents/permits/reviews:

- MCCD Approval
- Sanitary Sewer Availability Letter (pending historical downstream sewer capacity evaluation)
- Application for Sewage Facilities Planning Module Exemption Mailer
- NPDES Permit
- Financial Escrow
- LD Agreements
- Stormwater BMP O&M Agreement
- Legal Descriptions & Exhibits of all easements

SUMMARY

We recommend Final Major Subdivision and Land Development Plans approval conditioned that the Applicant addresses the above referenced comments and provides the required documents/permits/approvals prior to recording plan approval.

If you have any questions or comments with this submittal, please do not hesitate to contact me.

Sincerely,

PENNONI

Khaled R. Hassan, PE
Township Engineer

cc: Terry Castorina, Assistant to the Township Manager
Ashley McIlvaine, Assistant Township Manager & Assistant CAO

U:\ACCOUNTS\ABINT\ABINT130030 - LD-23-01 - 710 FOX CHASE RD (ST. BASIL)\ADMIN\4 - PLAN REVIEWS\4TH SUBMISSION FINAL 1\FR01040324 711FOXCHASEROAD.DOCX

APPLICATION FOR SUBDIVISION/LAND DEVELOPMENT

PROJECT NAME: Sisters of St. Basil

APPLICANT NAME: Toll Mid-Atlantic LP Company, Inc.

TO BE COMPLETED BY THE TOWNSHIP
Submission Information:

Application Number:_____ Date Complete:_____

Project Title:_____ 90 Day Date:_____

File Date:_____ Ward No.:_____

REQUIRED MATERIAL FOR ALL SUBDIVISION/LAND DEVELOPMENT APPLICATIONS:

1. This form **MUST** be completed and submitted.
2. A Subdivision/ Land Development Application MUST include all of the items listed in the application checklist in Section V to be considered complete.
3. Incomplete application will **NOT** be placed on the Planning Commission agenda. Incomplete applications will be returned to the applicant.
4. Complete applications must be received at least 45 DAYS (see schedule) prior to the Planning Commission meeting at which it will be heard.
5. Ten (10) full size paper copies, and one (1) 11x17 reduced copy of the plans, plus three (3) copies of each report or study are to be submitted in the initial submission of the complete application. A digital copy of all submitted documents must be included with the application.

   ***It is highly encouraged to submit applications in a digital format**

I. CONTACT INFORMATION

Applicant Information

Toll Mid-Atlantic LP Company, Inc.
Name

1140 Virginia Drive, Fort Washington, PA 19034
Address

(215) 938-8000 _____
Phone Fax

BThierrin@tollbrothers.com
Email Address

Property Owners Information (if different than applicant)

Sisters of St. Basil the Great
Name

710 Fox Chase Road, Jenkintown, PA 19046
Address

_____ _____
Phone Fax

_____
Email Address

Architect/ Planner

ESE Consultants, Inc.
Name

_____
Address

_____ _____
Phone Fax

_____
Email Address

Engineer/ Surveyor	ESE Consultants, Inc., Jeffrey Madden, PE Name 1140 Virginia Drive, Fort Washington, PA 19034 Address
Engineer/ Surveyor Cont'd	(215) 293-5441 Phone Fax JMadden@eseconsultants.com Email Address
Attorney	Alyson M. Zarro, Esquire, Riley Riper Hollin & Colagreco Name 717 Constitution Drive, Suite 201, Exton, PA 19341 Address (610) 458-4400 Phone Fax alyson@rrhc.com Email Address

II. PROJECT INFORMATION

Application Type:

_____Minor Subdivision _____Minor Land Develop. _____Preliminary Major SD & LD
_____Preliminary Major Subdivision _____Prelim. Major Land Develop. __X__Final Major SD & LD
_____Final Major Subdivision _____Final Major Land Develop.

Full street address of the property: 711 Fox Chase Road, Jenkintown, PA 19046

Tax Parcel No.: 30-00-22424-00-1 30-00-22420-00-5 County Deed Book No.: 1572 2573 Page No.: 209 467

Description of Proposed Work: Redevelopment of the property with 150 Age-Restricted Carriage Home Dwelling Units and accessory uses, including a clubhouse and pool.

Total Tract Acreage: +/- 46.37 acres Project Acreage: _____

Zoning District: AR - Age Restricted Carriage Home Overlay Existing Number of Lots: 2 Proposed Number of Lots: 150 Units

Existing Sewer Flows: Public Proposed Sewer Flows: Public

Proposed Land Use:

_____Single Family Detached __X__Single Family Attached _____Single Family Semi-Detached
_____Multi-Family _____Commercial _____Office _____Industrial
_____Other (Describe): _____

III. REVIEW

Please complete the following section by circling a response:

• Have you met with the Zoning Officer regarding this plan?	**Yes**	No
• Are there known variances/any zoning relief necessary for this project?*	Yes	**No**
• If YES, have you submitted an application to the Zoning Hearing Board?	Yes	No
• Has this plan been heard by the Zoning Hearing Board?	Yes	No
• Has this plan been submitted to, considered by, or received any formal action by the Planning Commission or Board of Commissioners in the past?	**Yes**	No

*Please be advised that if any variances are found to be necessary during the course of the review of this plan, you will be required to go to the Zoning Hearing Board prior to proceeding to the Planning Commission. In addition, you will be requested to grant the Township a waiver to the 90-day action period or an immediate denial of this application will be made, and you will be required to resubmit the application.

It is recommended that ALL Land Development and Major Subdivision applications have a pre-submission meeting to discuss the project prior to full application submittal.

Minor Subdivision applications may request a pre-submission meeting; if one is desired.

Meetings are typically held the fourth Tuesday of each month at the Township Administrative Offices.

Applicants assume responsibility of any fees associated with this meeting.

Applicant signature _____ 3/26/24
Date

To schedule a pre-submission meeting, please contact the Office of the Township Manager at 267-536-1003 or email TCastorina@abingtonpa.gov

IV. WAIVERS

List of Requested Waivers: Attach separate sheet if required.

Section/Requirement:	**Relief Requested:**
No requested waivers as part of this Final Subdivision and Land Development Application	

V. SUBMISSION

APPLICATION CHECKLIST

The applicant is responsible for the submission of a complete application. This checklist will aid both the applicant and staff in ensuring that all applications are complete. The following is a per item submission checklist for all Subdivision, Land Development and Conditional Use Applications for the Township of Abington.

- ✓ Application Form: completed and signed by the owner/applicant
- ✓ 10 (ten) copies of the proposed plan, folded to legal file size. Plan should not be smaller than 1" = 50' and not exceed a sheet size of 24"x 36"
- ✓ One (1) reduced copy of the proposed plan, no larger than 11"x17"
- 1 Two (2) sets of tentative architectural plans for all applications proposing construction or land development 1 Architecutral plans submitted with Preliminary Application, Applicant will submit more detailed plans when available.
- ✓ One (1) copy of the Recreation Facilities Plan (if required by §146-40)
- ✓ Letter of Sanitary Sewer availability from the Township Wastewater Treatment Department
- * Two (2) copies of Sewage Facilities Planning Module Applications
- * Letter of Water availability from AQUA PA *Submitted with Preliminary Application
- N/A One (1) copy of any previous Zoning Hearing Board decisions related to the subject property
- ✓ One (1) digital copy of all submitted documents
- ✓ Application Fee: Check made payable to the Township of Abington
- ✓ Escrow Fee: Check made payable to the Township of Abington. Separate check from application fee

VI. SIGNATURE

The undersigned represents that to the best of his/her knowledge and belief, all the above statements are true, correct, and complete.

Signature of Applicant — Date: 3/26/24

Signature of Property Owner (if different than applicant) — Date: 3/26/24

THE FOLLOWING IS FOR INTERNAL USE ONLY:

PAYMENT

__x___ Application Fee Amount: $___500 _____ Check No.: #__76131_____

____ Review Escrow Fee Amount: Check No.: #_____

DECISION INFORMATION $_____

Approval _____ Denial_____ Decision Date: _____

Comments/Conditions:_____

_____

_____

_____

_____

March 27, 2024

Abington Township
Richard Manfredi, Manager
1176 Old York Road
Abington, PA 19001

Dear Mr. Manfredi:

On behalf of the applicant, Toll Bros., Inc., please accept this response letter.

This response letter includes responses to the review letter by Pennoni Associates, dated November 13, 2023. Responses to review letters by the Abington Township Shade Tree Commission, dated December 18, 2023, Abington Township Environmental Advisory Council dated May 11, 2023, Township of Abington Fire Marshal, dated November 9, 2023, Traffic Planning & Design, dated November 10, 2023, Abington Township Wastewater Utilities Department, dated November 9, 2023, Montgomery County Planning Commission Review, dated November 9, 2023, and May 19, 2023.

Pennoni Associates, Inc, dated November 13, 2023

CONDITIONAL USE GRANTED

The Applicant appeared before the Abington Township Board of Commissioners at the Public Hearing held on July 13, 2023. The Applicant was granted the following conditional use approval from the Abington Township Zoning Code:

1. §1503.B.2.b – Uses Permitted by Conditional Use, Zone 2 – A conditional use approval to allow for the installation of a central sewer line in Zone 2 of the Riparian Corridor Conservation District.

ESE Response: No action required.

WAIVERS REQUESTED

The Applicant is requesting the following waivers from the Abington Township Subdivision and Land Development Code:

1. §146-11.A.(4) – Property Identification Plans – A waiver to not show all the information of the TMP, names of owners, the approx. acreage, and similar features within 400 feet.

   The Applicant has provided the property identification information for the immediately surrounding parcels abutting the site, and not the entire 400 feet distance per this Code Section.

   ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners. The waiver list has been added to sheet 2 of the planset.

2. §146-11.B.(3) – Existing Features Plan – A waiver is requested to not show the all the information of the location of property lines and names of owners, and similar features within 400 feet.

   The Applicant has provided the property lines and landowner information for the immediately surrounding parcels abutting the site and not the entire 400 feet distance per this Code Section.

   ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

3. §146-11.B.(7) – Existing Features Plan – A waiver is requested to not show the all the information of the underground and above ground utilities, and similar features within 400 feet.

The Applicant has provided the utility information immediately surrounding the parcel and not the entire 400 feet distance per this Code Section.

ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

4. §146-27.C – Sidewalks and Curbs - Location – A waiver is requested for the sidewalk along Fox Chase Road. The existing locations of the sidewalk along portions of the road are within a few feet of the curb and roadway. The existing location will be repaired/replaced with a new sidewalk and extended along the entire frontage. The area between the sidewalk and the right-of-way (roughly 12'+) will be used for street tree plantings.

   The Applicant is proposing to retain some portions of the existing curb and sidewalk and make repairs or replacement as needed along the site frontage on Fox Chase Road. The Applicant is proposing new 5 feet wide sidewalk primarily along the center portion of the site frontage which will be located approximately 24 feet to 27 feet from the property line along Fox Chase Road. In addition, the Applicant is proposing to plant street trees between the edge of the roadway and proposed new sidewalk.

   ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

5. §146-27.F – Sidewalks and Curbs – A waiver is requested for the curbing on the interior roads to be constructed with 6" Belgian Block. The internal roadways will be privately maintained. This variation will help with the subdivision aesthetics and maintenance.

   The Applicant is proposing 6-inch high Belgian Blocks along the interior roadways. The Township standard curb type is 6-inch-high cement concrete curb. The Applicant has requested a waiver from this Code Section to provide 6-inch high Belgian Blocks instead of the Township cement concrete curb standard since the internal roadways will be privately maintained and for aesthetics complementary to the land development.

   ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

6. §146-29.A – Blocks – Length – A waiver is requested to allow for the internal roads C, D, F and G to have less than the 500' minimum length. All roads orientation and lengths have been affected by the layout and the extended buffer around the property.

   The internal Road C has an approximate length of 360 feet between intersections; Road D has an approximate length of 470 feet between intersections; Road F has an approximate length of 410 feet between intersections; and Road G has an approximate length of 320 feet between intersections, all of which do not meet the minimum 500 feet length requirement per this Code Section.

   ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

7. §146-33.I – Drainage – A waiver is requested to not extend rood leaders to road gutter under sidewalk or connect to storm drains, but to instead allow roof drains to flow over lawn to allow pollutants to settler out and infiltrate into the topsoil. This section of the SALDO is also in conflict with 142-802.A of the Stormwater Management Ordinance.

   The Applicant shall show the roof drains and sump pumps (if any) for the proposed clubhouse building, as well as, *for each of the proposed townhome dwellings on the plans. Stormwater Ordinance §142-802.A requires roof drains not to be connected* to *streets, sanitary or storm sewers, or roadside ditches, and shall discharge* to *infiltration areas or vegetative BMPs* to *the maximum extent practicable. The Applicant has requested a waiver*

from this Code Section to *allow for roof drains* to *flow over the lawn areas and infiltrate instead of extending under the sidewalk* to *the gutter.*

The Applicant has added a typical dwelling unit to the sheet 40 to show possible locations of the roof drains or sump pump (if basement) and updated the sheet 16 to show the possible locations for the roof drains of the clubhouse. The Applicant is requesting a waiver from this Code Section to allow for roof drains to flow over the lawn areas and infiltrate instead of extending under the sidewalk to the gutter.

ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

8. §146-35.C.(2) – Design and construction of sewers – Size, grade and type – A waiver is requested to modify the material of the sanitary sewer main to SDR-26 (plastic pipe) from ductile iron. The supply of the SDR-26 is more readily available.

The Applicant is proposing 8-inch SDR-26 piping for the proposed sanitary sewer system to *the site instead of ductile iron pipe per this Code Section. We defer* to *the Abington Township Wastewater Utilities department for any sewer related comments.* The Applicant has received acceptance from the wastewater utilities department.

ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

9. §146-43.C.(3).(a) – Excavations and fills – A waiver is requested to construct cut and fill slopes greater than 15% for the stormwater basin berms and allow basin slopes and slopes to ties into natural grade up to 33%. The steeper berms will limit the areas taken up by the berms while still adequately capturing and routing the stormwater from the site.

The applicant is proposing grades of 3:1 or approximately 33% primarily for the stormwater basins to limit the earth disturbance on the site.

ESE Response: Waiver was granted on 3/14/2024 by the Abington Township Board of Commissioners.

The following documents have been reviewed:

Title	Sheet	Dated	Revised
Land Development Plans			
Cover Sheet	1 of 64	03/24/23	10/13/23
Record Plans	2-5 of 64	03/24/23	10/13/23
General Notes	6 of 64	03/24/23	10/13/23
Existing Features Plans	7-10 of 64	03/24/23	10/13/23
Overall Site Plan	11 of 64	03/24/23	10/13123
Grading Plans	12-19 of 64	03/24/23	10/13/23
Utility Plans	20-27 of 64	03/24/23	10/13123
Road Plan & Profile	28-34 of 64	03/24/23	10/13/23
Easement Profiles	35-39 of 64	03/24/23	10/13/23
Construction Details	40-41 of 64	03/24/23	10/13/23
Storm Sewer Details	42-43 of 64	03/24/23	10/13/23
Sanitary Sewer Details	44-45 of 64	03/24/23	10/13/23

Water Details	46 of 64	03/24/23	10/13/23
Basin Details	47-55 of 64	03/24/23	10/13/23
Landscape & Lighting Plans	56-63 of 64	03/24/23	10/13123
Landscape & Lighting Details & Notes	64 of 64	03/24/23	10/13/23
Stormwater Management Narrative	419 pages	Julv 2023	October

We have performed a review of the above referenced plans for compliance with the Zoning Ordinance (Chapter 162); Subdivision and Land Development Ordinance (Chapter 146); and Stormwater Management Ordinance (Chapter 142), and our previous review dated August 23, 2023 . We offer the following outstanding comments for your consideration:

8. Per §1711, Figure 17.2 - Dimensional Regulations - The minimum open space shall be the gross site area (in acres) x 0.40.

The Applicant has provided a building coverage percentage of 34.3% which is in compliance with this Code Section. The Applicant shall provide an open space calculation on the plans showing the total open space and the resulting percentages to ensure compliance with this Code Section.

The Applicant is showing the proposed open space on the Overall Site Plan (Sheet 11) and has provided the open space calculations on the Record Plan (Record Sheet 2 of 4). However, there is discrepancy between the open space calculated in the Area Tabulation (39.694 Ac) and the open space acreage given in the Zoning Table (22.6 Ac). The discrepancy shall be confirmed and revised to be consistent on both plan sheets.

The Applicant clarified that the open space calculated in the Area Tabulation (39.694 Ac) is all the area outside the road ROW's and the encroachment areas. The open space acreage in the Zoning Table (22.6 Ac) is the qualifying open space for the site. The applicant shall add the qualifying open space acreage at the end of the Area Tabulation to clarify the qualifying open space calculation.

ESE Response: The applicant has revised Sheet 3, RP50.02, to include a line item for the 22.60 AC. of Qualifying Open Space at the bottom of the Area Tabulation Chart. The qualifying open space is now consistent with the calculated open space in the Zoning Table located on Sheet 3, RP50.02.

18. *Per §2401.A.2.d.(1).(a) - Preservation and Protection of Existing Vegetation - Tree replacement shall occur when new impervious coverage exceeds 500 SF and a tree with a minimum caliper of six (6) inches is removed. In such* cases, *two new* trees, *each a minimum of 3-to-3.SN caliper, measured* 6" *above grade, shall be planted for each tree with a minimum caliper of 6N or greater that is removed.*

Based on the Existing Features Plan (Sheet 7), *the Applicant is indicating that they are removing* 67 *trees as part of this Land Development project. The trees shall be labeled with a diameter of the tree to be removed to confirm the required tree replacement. A tree replacement calculation shall be provided on the landscaping plan showing the total number of trees removed and the total number of trees proposed based on this code requirement. In addition, the Applicant shall label the trees that are proposed to* remain. *For example, on the Existing Features Plan (Sheet 7), the existing trees that are not labeled which are located between the trees labeled 44 and 45 and 48 and 49* as *not proposed to be removed; however, on the Utility Plan (Sheet 24) there is storm piping proposed directly underneath those trees which will require those trees* to *be removed. The Applicant shall clarify and confirm all trees* to *remain or to be removed and update the label on the Existing Features plan accordingly.*

The Applicant is indicating that they are subdividing the property and creating new lots; therefore

§2401.A.2.d.(1).(b) should be used for this project. The Applicant is indicating that no more than 25% of the existing tree canopy is being removed, and the tree replacement requirement does not apply. However, for the site, only the proposed individual homes will be lotted out but the entire site as a whole will be under a homeowners association or similar entity that will be operating and maintaining the common *areas and the Zoning Table is showing* a *total site area of 46.37-acres in the proposed condition for the existing 46.58- acre site area. Therefore, Section §2401.A.2.d.(1).(a) would be applicable to this site. Based on the existing tree chart provided on the Existing Features Plan (Sheet 8),* 66 *of the 100 trees on the list are being removed which will require tree replacement for trees with a 6-inch caliper or greater at a rate of 2:1. The tree replacement calculation and the proposed replacement trees shall be provided on the plans accordingly.*

The Applicant is proposing 67 trees to be removed which will require a tree replacement of 134 trees. As part of the landscaping proposed for the site, the Applicant is proposing 231 street trees, 70 buffer canopy trees, 175 buffer evergreen trees, and 70 buffer understory trees all of which would satisfy the tree replacement requirement as well as the street tree and buffer tree requirements. The Applicant shall provide a tree replacement calculation on the plans and indicate that the required replacement trees have been included under the street tree and buffer tree requirements. The street tree planting schedule and buffer canopy tree planting schedule shall be revised to reflect a minimum size of 3" to 3.5" to meet the tree replacement specifications.

ESE Response: Sheet 62 has been revised to show tree replacement requirement calculations. The street tree schedule has been updated to show which trees are part of the tree replacement and sizes have been updated.

CHAPTER 146
SUBDIVISION & LAND DEVELOPMENT COMMENTS

26. *Per §146-10.B.(5) – General Requirements – Once the Applicant confirms the submission type, the submission type in accordance with §146-9.D shall be indicated on all the plan sheets as either Preliminary Major Subdivision and Land Development" or "Preliminary/Final Major Subdivision and Land Development" and noted as land development application number "LD-23-01".*
The submission type is preliminary major subdivision and land development. The Applicant has revised the plans accordingly.

The submission type has been included on the plans; however, the application number "LD-23-01" has not been included on the plans. This application number should be included.

The Application number LD-23-01 shall be included on all plan sheets. Currently the application number is only shown on the Cover Sheet.

ESE Response: The applicant has revised all sheets in the plan set to include "Application Number LD-23-01" near the bottom right corner of all sheets.

39. *Per §146-11.G.(1).(e),(f),&(h) – Utility Plan – The utility plan shall show the electrical lines, junctions, vaults, telephone lines, cable television lines and other related appurtenances.*

The Applicant is showing the underground utilities running along the roadways within the development; however, the electrical, telephone, cable, etc. lines are not shown connecting to the proposed dwellings. The Applicant shall provide these connections on the Utility Plans. The Applicant shall also show the electrical lines connecting to the proposed streetlights.

There are multiple locations where a proposed fire hydrant is located directly on top of the underground electric line; i.e., *the proposed fire hydrant adjacent to Unit 148 on Road B; adjacent to the side of Unit 118 on Road B; adjacent to the proposed clubhouse on Road A between inlets no.* 206 *and 212; adjacent to the side of Unit 50 on Road E. The plans show be updated to avoid any utility conflicts.*

The fire hydrant adjacent to the proposed clubhouse between inlets 206 and 212 is still shown to be directly overtop the underground electric line. The plan shall be updated to avoid any utility conflicts.

ESE Response: The applicant revised the location of the electric, gas, and cable/telecommunication to avoid all fire hydrants and all storm inlets. Additionally, all streetlights have been updated with an electric lateral. The gas, electric, and cable/telecommunication laterals have been updated on the "Typical Utility Layout" located on Sheet 40, SD09.01, rather than on the Utility Plan Sheets to keep the plans more readable.

51. *Per §146-27.F – Sidewalks and Curbs – Curbs shall be the vertical type and constructed in accordance with Township specifications.*

Based on existing conditions, there is existing curbing along the northwestern and southwestern site frontage of Fox Chase Road. The Applicant is not proposing new curbing along the entire site frontage along Fox Chase Road. We recommend that curbing be provided along the entire site frontage to provide a safety barrier between the edge of roadway and new sidewalk, as well as, for consistency of the entire site. In addition, the Applicant is proposing 6-inch high Belgian Blocks along the interior roadways. The Township standard curb type is 6-inch-high cement concrete curb. The Applicant has requested a waiver from this Code Section to provide 6-inch high Belgian Blocks instead of the Township cement concrete curb standard since the internal roadways will be privately maintained and for aesthetics complementary to the land development.

The Applicant has indicated that they will discuss the curbing with the Township. We had recommended that curbing be provided along the entire site frontage to provide a safety barrier between the edge of roadway and new sidewalk, as well as, for consistency of the entire site.

This comment will remain open until the Applicant discusses the curbing along Fox Chase Road with the Township.

ESE Response: The Township Board of Commissions granted the waiver for the sidewalk along Fox Chase Road. The sidewalk will be placed 0.5' from the ROW and will be adjusted to be tied into the 2 edges of the property with the existing sidewalk located along the curb. The proposed road frontage of Fox Chase Road will have curb in the general locations as the existing locations. Curb will be constructed/ remain in the property edge near Kirkwood Avenue to the site entrance to the subdivision and also from the emergency access to the property edge near Forrest Avenue.

GENERAL STORMWATER MANAGEMENT COMMENTS

77. The emergency spillway for Basin 1 is shown on the plans to be directed towards Fox Chase Road. The emergency spillway for Basin 1 should be revised to minimize impacts to the main street. The Applicant may wish to redirect the overflow towards the open space across from the emergency access drive to allow for additional infiltration and/or extend the existing storm sewer located on Fox Chase Road adjacent to 777 Fox Chase Road (PARID No. 30-00-22428-00-6).

In the current resubmission, the Applicant has revised the emergency spillway for Basin 1 to discharge to internal Road A near the site entrance. The runoff from the emergency spillway will sheet flow from Basin 1 over the proposed sidewalk on Road A to be primarily captured by proposed inlet no. 804. However, the flows from

proposed inlet no. 804 will be discharged to the same manhole no. 802 and existing storm sewer system as the routed flows from Basin 1. The Applicant may wish to consider relocating the emergency spillway towards the emergency access end and evaluate the feasibility of directing flows onto the open space and tie into the existing storm sewer system at that end instead of discharging to the same storm sewer system on Fox Chase Road adjacent to the site entrance on Road A. The Applicant may also wish to consider moving the proposed inlets no. 804 and 806 closer to the stop sign on Road A to capture additional stormwater runoff prior to sheet flow onto Fox Chase Road. In addition, the Applicant should consider the feasibility of capturing the runoff from the emergency spillway of Basin 2 and direct the flows into the existing storm sewer that runs parallel to Fox Chase Road prior to sheet flow onto the existing sidewalk.

The Applicant has added additional inlets 808 and 810 to capture the stormwater flows from the emergency spillways of Basins 1 and 2, respectively. The Applicant also relocated proposed inlets 804 and 806 further upstream from the entrance intersection with Fox Chase Road. The Applicant may be able to avoid adding proposed inlet 808 at the Basin 1 emergency spillway by relocating proposed inlet 804 along proposed Road A further downstream of the emergency spillway, prior to the stop bar to capture the flows prior to leaving the site and flowing onto Fox Chase Road. We also recommend relocating proposed inlet 810 at the Basin 2 emergency spillway further down to the base of emergency spillway slope for higher efficiency in capturing the runoff and to allow infiltration prior to being conveyed by the proposed inlet.

ESE Response: The applicant revised the location of structures 804 through 810. Inlets 804 and 806 have been moved to the start of the intersection between Road A and Fox Chase Road to capture the potential runoff from the Basin 1 spillway. Inlet 808 (previously inlet 810) has been shifted 50' further downstream of the Basin 2 Spillway with a 6-inch berm to promote higher efficiency in capturing the runoff and allow more infiltration prior to being conveyed to the proposed inlet. Previous numbered Inlet 808 has been removed due to the new location of inlet 804 that will fully capture the runoff from the Basin 1 spillway.

GENERAL COMMENTS

80. Per the Existing Features Plans (Sheets 7 to 10), there are multiple locations where private fencing and structures are shown to be encroaching within the site boundaries from the abutting properties that front Forrest Avenue, Kirkwood Street, and Suffolk Road. The Applicant shall clarify if the private fences and structures are permitted to remain or be required to be removed outside the site boundaries. It is recommended that a written agreement to permit these encroachments for each of the properties should be provided to the Township.

The Applicant has indicated that they are working with the Township and the neighboring properties that currently encroach the site boundary to remove the encroachments.

The Applicant has indicated that they are working to resolve the disposition of the encroachments. All encroachments shall be rectified prior to recording of the plans. Copies of written agreements shall be provided to the Township for encroachments to remain.

ESE Response: The applicant will comply with this comment and continues to be in conversations and obtaining agreements. Copies of these agreements will be forwarded to the Township, when available.

82. The existing features shall be turned off on the proposed improvement plans.

For clarity, the existing features including but not limited to the existing trees, pavement, sidewalk, curbing, buildings, etc. which are labeled as "To Be Removed" shall not be shown on the proposed improvement plans.

In addition, sheets 52 and 54 are labeled as intentionally blank within the plan set. The Applicant shall clarify if information shall be provided on these plans. If no information is to be provided, these plan sheets can be removed from the plans set.

ESE Response: The applicant has revised proposed improvement plan on Sheets 11-39 and 54-61 to remove all existing trees, buildings, curbs, pavements, sidewalks, and existing utility laterals that are planned to be removed during construction. Additionally, the applicant has removed Sheet 52 and Sheet 54 that were labeled as Intentionally Blank from the Plan Set.

A detail of the proposed emergency access chain and bollards is provided on the Construction Details Plan (Sheet 41); however, the chain and bollard does not appear to be shown on the plans. The Applicant shall show the location of the chain and bollard for the proposed emergency access. The Applicant should provide no parking signs at the entrances to the emergency access in addition to the proposed "No Parking" sign located adjacent to Unit 100.

ESE Response: The applicant has updated sheet 12, SD05.01, with the bollard and chain object and callout. The bollard and chain is located along the Access Road connecting Fox Chase Road with Road B. Additionally, a "No Parking Sign" sign (Sign No. 5 in the Sheet 12 Legend) has been placed at the entrance along Fox Chase Road and internally along Road B. Lastly, the applicant has added a "Do Not Enter" sign (Sign No. 1 in the Sheet 12 Legend) along Road B and next to Unit 100.

As part of the emergency management/access for this site, vehicular circulation plans shall be provided showing the fire truck movement for the site to determine if the Abington Township fire truck can adequately maneuver throughout the site. A vehicular circulation plan for a refuse collection truck shall also be provided.

ESE Response: The applicant has updated Sheet 6, SD02.01, to include a vehicle circulation plan for an emergency vehicle (fire truck) and refuse collection truck.

We have received the following documents/permits/reviews:
AQUA Will Serve Letter (January 29, 2021)
Transportation Impact Assessment (February 10, 2023, last revised March 13, 2023)
Conditional Use Application (March 27, 2023)
MCPC Request for Review (March 27, 2023)
Application for SALDO Review (March 27, 2023)
Waivers Request (included w/ SALDO Application) (March 27, 2023)
Post Construction Stormwater Management Report (March 2023)
TPD Traffic Review (April 29, 2023; November 11, 2023)
Sanitary Sewer Review (May 12, 2023; November 9, 2023)
STC Review (May 10, 2023)
Fire Marshal Review (May 12, 2023 via email; November 9, 2023)
EAC Review (May 11, 2023)
MCPC Review (May 19, 2023; November 9, 2023)
MCCD Incompleteness Review Letter (August 29, 2023)
MCPC Request for Review (October 18, 2023)

We have not received the following documents/permits/reviews:
MCCD Approval
Sanitary Sewer Availability Letter (pending historical downstream sewer capacity evaluation)
Application for Sewage Facilities Planning Module Exemption Mailer
NPDES Permit

Financial Escrow
LD Agreements
Stormwater BMP O&M Agreement
Legal Descriptions & Exhibits of all easements

ESE Response: **The applicant will forward any additional documents to the Township, once received.**

Abington Shade Tree Commission, Inc, dated December 18, 2023

STC Comment 6: In the open spaces outside of the tree and shrub buffers there appears to be large areas unidentified and likely grass, which provides almost no value to wildlife or storm water absorption function. The STC strongly recommends expanding the tree and shrub buffers into these areas to reduce the amount of grass. Alternatively, well-defined sections within these areas could be seeded with native perennial grasses and wildflowers, providing ecological value to local wildlife and aesthetic value to the homeowners and visitors.

ESE Response**: The charette process with the neighboring community members, showed preference that the green area between the 40' medium intensity buffer and the adjacent parcels to remain as is (open lawn), which parties feel helps avoid unnecessary land disturbance.**

STC Response and Recommendations:

1. The STC would like to inquire if community members were presented with an option for expanding the tree and shrub buffer and reducing the amount of grass? If not, they should be provided with that option. If their preference "that the green area…remain…as open lawn…" is for purposes of recreation, the STC recommends that border strips be planted with native grasses or perennials such as wildflowers, leaving recreation space in the middle.

ESE Response: The community members were presented with a variety of options throughout the stages of the township approval process for how the open space would be developed. The community members were and are still addiment about the large amount of unobstructed grassed green area to remain as proposed.

2. As noted previously, grass provides little ecological value. Fertilized lawns are the preferred food for Canada geese, which are typically considered a nuisance in large numbers due to the amount of feces a flock will deposit on the lawn (https://www.humanesociety.org/sites/ default/files/docs/canada-goose-guide.pdf). One of the best ways to control geese is to modify the habitat, including replacing grass with other plantings or, if grass must remain, letting the grass naturalize.

ESE Response: The community members were presented with a variety of options throughout the stages of the township approval process for how the open space would be developed. The community members were and are still addiment about the large amount of unobstructed grassed green area to remain as proposed.

3. Planting trees and shrubs properly requires little land disturbance and is not considered a sufficient reason to refrain from planting additional trees and shrubs.

ESE Response: The community members during the township approval process were and are still addiment about the open space being developed with the buffers and grass areas that are currently proposed.

4. As noted previously, providing additional native shade trees and shrubs will increase property values, improve the aesthetics of the site, and provide ecological value to local wildlife. We repeat our recommendation to expand the tree and shrub buffers to decrease the amount of grass at the site. Alternatively, the lawn area should be naturalized to reduce the population of resident geese (https://www.ernstseed.com/product-category/grasses-grass-like-species/?_product_type=seed- mix).

ESE Response: The community members during the township approval process were and are still addiment about the open space being developed with the buffers and grass areas that are currently proposed.

Abington Township Environmental Advisory Council, dated May 11, 2023

1. Existing Features Plan - Sheet 8 of 64, Sheet 2 of 4
According to the construction designation chart showing existing trees of 10" diameter or more, Tags # 1 and #3 – are to remain. We recommend removal of these trees as these are Tree of Heaven, an invasive tree species known to be critical in the Spotted Lantern Fly life cycle. Tag 84 – indicates removal of a large beech tree for a sewer line easement – See also, Sheet 62. If this is a healthy tree, we request that placement of the easement be re- evaluated to avoid removal of this tree. Can the developer please explain the rationale for the proposed placement?

ESE Response: The existing features plans have been updated, tree #1 and #3 to be removed. Tree #84 will remain; the proposed drainage easement has been relocated to avoid tree removal. See sheet 8 of 64 for the existing tree chart and their designation whether to remain or to be removed.
The sewer line easement has been revised to avoid the removal of the large beech tree (tag #84).

2. Landscape Plans – Sheets 56-64
Plans note that 5 basins will be constructed to manage stormwater runoff. Please confirm that all basins will be designed as "naturalized" detention basin features as described in the draft PA DEP Post Construction Stormwater Manual (386-0300-001 / January 28, 2023 / DRAFT / Page 3-292). Naturalized detention basins are preferrable stormwater control measures to traditional grass basins as they provide both peak rate and water quality management benefits.

ESE Response: The applicants proposed basin seed is below:
Infiltration Basin Bottom: ERNST Seed Mix 126 (Or approved Equal) 20-40lbs per acre
Infiltration Basin Side Slopes: ERNST Seed Mix 183 (Or Approved Equal) 20lbs per acre
Detention Basin: ERNST Seed Mix 122 (Or Approved Equal) 20lbs per acre

3. Basin 1/Long Emergency Spillway – It appears that the emergency spillway would discharge directly out onto Fox Chase Rd. Can this be explained, especially the potential impacts to existing drainage capacity of the road?

ESE Response: The Basin 1 emergency spillway has been revised. The emergency spillway will direct flow into the open space adjacent to internal Road A.

4. Basin Long Term Operation and Maintenance. Plans indicate that development will be turned over to a Homeowner's Association who will be responsible for common area land management and maintenance of the proposed stormwater detention basins. The EAC requests that a strong O & M agreement be developed, providing the township with access to these facilities for regular inspection and if necessary, access to make any repairs.

ESE Response: An O&M agreement will be developed for the homeowner's association. The Homeowner Association documents, when completed, will be reviewed by the Township.

5. Invasive plants/trees in wooded area – In addition to strong O & M agreements for proper maintenance of stormwater control measures, we highly recommend that an invasive plant management plan be funded by the developer and conducted by either the township or specialized contractor for the existing wooded area. This plan should be included in any required long- term O&M agreements. For example, akebia is known to exist in the adjacent woodlands. This is considered a PA invasive vine that spreads/fruits throughout the wooded area preventing native plant growth.

ESE Response: An invasive plant management plan is included as part of the O & M agreement for the HOA, to address the significant invasive pressure in the wooded areas.

6. Green Areas, Open Space and Connectivity – It appears that a significant portion of the "green area" perimeter is proposed to be grass. The EAC strongly recommends minimizing lawn areas and instead provide additional native trees, shrubs, and deep-rooted warm season native grasses. These promote better water infiltration, require less mowing and less use of herbicides. As currently proposed, there are no cross access or walking trails proposed within these "green areas," missing an opportunity to build connectivity to the neighborhood, Alverthorpe Park and Crosswicks Sanctuary. Natural connective trails are desirable for both new residents and the surrounding neighborhood as they provide alternative non-motorized options for residents.

Related to the above, will the natural areas be protected from future infringements? We recommend placing conservation easements or deed restrictions in these areas to protect them in perpetuity. This comment is applicable to the common-owned "green areas" proposed to surround the development. These appear to be of sufficient depth and width to accommodate additional lots, especially since they could be connected to the existing street networks.

The EAC also recommends consideration of improving connectivity and pedestrian safety between the new development and Alverthorpe Park. We offer two potential options: 1) connect the sidewalk in front of the new development to existing sidewalks along Fox Chase Road to Forrest Ave, where there is an existing traffic light and crosswalk or 2) create a new crosswalk by the new access area. We feel this would likely become an informal crossing point to access the park so adding a pedestrian crosswalk at this mid-block location could help increase safety.

ESE Response: The proposed sidewalk along the new development has been connected to the existing sidewalk along Fox Chase Road leading up to Forrest Avenue.

7. Green Area and Open Space Calculationsi. As described in the plan, 65.7% or 29.53 acres are classified as "Green Area," while 50.5% or 22.6 acres are classified as open space. Since these two figures exceed the actual area of the site, we assume that the green areas include those considered as open space area. Can these calculations be confirmed by our zoning officer? We understand that open space cannot include required yard areas.

ESE Response: The qualifying open space is hatched on the overall site and phasing plan, on sheet 11, the hatched area does not include the required yard areas. The green area is an overall calculation subtracting the proposed impervious area from the gross site area, which includes the qualifying open space.

Additional comments/questions raised by EAC members.

8. Emergency access – There appears to be a main entrance and a secondary access way from Fox Chase Road. Please confirm if the secondary access point is considered an emergency access? How many emergency access points will be onsite?

ESE Response: The secondary access from Fox Chase Road is an emergency access point. There is a wide entrance road and a secondary access road. There are 2 emergency access points to access site.

9. Roadways in development – Street widths appear to be large enough for on-street parking. Is this amount of impervious roadway necessary? Would street parking be allowed on one or both sides? Have permeable pavement options been considered for areas designed for on-street parking?

ESE Response: Streets of this size are necessary for the development. The street width allows for one side on-street parking throughout sections the site (width 32' roads). The on-street parking is necessary to meet development standards for the number of parking spaces required. Options for permeable pavement have been considered.

10. We encourage the following sustainable building best practices:
a. Consider: Designed to Meet the Energy Star for new construction and Energy Star Portfolio Manager or another benchmarking tool for existing buildings greater than 10,000 sf
b. Low embodied carbon materials for construction and materials management
c. Building electrification for HVAC systems to avoid fossil fuels such as natural gas and support the Township's aspirations to be carbon neutral by 2050.
d. Rely on Renewable Energy sources and microgrids wherever possible.
e. Electric vehicle conduits or charging stations to reduce direct vehicle emissions and improve air quality.

ESE Response: All sustainable building best practices will be considered for the development of the site.

Township of Abington Fire Marshal, Inc, dated November 9, 2023

1. Withing the "Full Plan Set" document, on page SD02.01 (sheet 6 of 64), there is General Note 29-D2 which states "FIRE HYDRANTS SHALL BE SPACED IN A DEVELOPMENT SO THAT ALL PROPOSED BUILDING(S) WILL BE NO MORE THAN SIX HUNDRED (600) FEET FROM THE HYDRANT MEASURED ALONG TRAVEL WAYS."

Abington's Subdivision and Land Development Ordinance has specific requirements as it relates to water supply, specifically fire hydrant placement. SALDO 146-41 B(4)d requires a fire hydrant to be located within 500 feet of all buildings under construction. While it states all buildings under construction, hydrants are generally not a temporary solution, and my interpretation would be within 500 feet of all buildings constructed.

ESE Response: The applicant has updated Note 29 on Sheet 6, SD02.01, to state Fire hydrants shall be spaced in a development so that all proposed building(s) will be no more than five hundred (500) feet from the hydrant measured along travel ways.". This will keep the plans in compliance with SALDO 146-41 B(4)d as none of the fire hydrants proposed are temporary and are spaced as 500 feet of less per the requirement.

Traffic Planning & Design, Inc, dated November 10, 2023

Traffic Signal Design Review
The Applicant has indicated that it will implement modernization of the existing traffic signal and has submitted to PennDOT for review (received comments from 5/23). However, to date, TPD has not received any traffic signal plans or other correspondence related to the signals. Therefore, we defer our review on this item until receipt of these plans.

ESE Response: The signal permit plans will be provided for review.

Site Plan Review

Our initial review of this project recommended that separate left and right turn lanes should be provided on Fox Chase Road at its intersection with the Manor College driveway and the proposed site driveway. The Applicant responded that PennDOT was not requiring these lanes. The Township should comment on whether it desires that these lanes be constructed.

ESE Response: As discussed at the Planning Commission and Board of Commissioners meeting, the volume of traffic does not meet the turn lane criteria for installation of separate right- or left-turn lanes along Fox Chase Road. The volume of traffic making these turns at the subject intersection is lower than at the adjacent signalized intersections of Forrest Avenue and Cedar Road, where no turn lanes are provided.

Confirm that the need for streetlighting along the internal roads and along the property frontage on Fox Chase Road has been discussed with the Township. The applicant's response is that they would like to discuss this item during the Land Development phase.

ESE Response: The Township Board of Commissioners has approved the location of the streetlights shown on the land development plan. Luminaires will be provided on the traffic signal at Fox Chase Road and the new road accessing the development.

Confirm that the Township Fire Chief has reviewed the plan and approved the proposed circulation patterns. The applicant's response is that they would like to discuss this item during the Land Development phase.

ESE Response: The applicant has received comments from the Fire Marshal (included with this response letter). He has approved the internal roads, as the only comment remaining is the fire hydrant spacing note.

Based on the Land Development plans, curb is proposed to be replaced at the driveway tie-in. To the north of the driveway, there is no existing curb on Fox Chase Road (based on Streetview). We previously recommended that the Township consider requesting additional curb along the entire site frontage. The applicant's response is that they would like to discuss this item during the Land Development phase.

ESE Response: The Township Board of Commissions granted the waiver for the sidewalk along Fox Chase Road. The sidewalk will be placed 0.5' from the ROW and will be adjusted to be tied into the 2 edges of the property with the existing sidewalk located along the curb. The proposed road frontage of Fox Chase Road will have curb in the general locations as the existing locations. Curb will be constructed/ remain in the property edge near Kirkwood Avenue to the site entrance to the subdivision and also from the emergency access to the property edge near Forrest Avenue.

General

Since any modifications to the signalized intersection of Fox Chase Road, the Manor College driveway, and the proposed site driveway is subject to PennDOT review and approval, any correspondence to and from the Department must also be coordinated with our office and the Township, and evaluated and addressed accordingly in subsequent submissions.

ESE Response: The applicant will comply with this comment.

A response letter must be provided with the resubmission detailing how each comment above has been addressed, and where each can be found in the resubmission materials (i.e., plan sheet number(s), page number(s), etc.) to assist in the re-review process.

ESE Response: The applicant will comply with this comment.

Abington Township Wastewater Department letter dated November 9, 2023

Sheet 2 -Record Plan- General Note 11 should be revised to include ..."and new sanitary sewer pipe systems located in Right of Ways, Parcels, Lots, Open Spaces and Roadways".

ESE Response: The record plan, sheet 2, has been updated.

Sheet 2 -Record Plan- General Note 13 should be revised to the following: "Proposed Lots to be served by existing domestic and/or fire public water systems and existing public sanitary sewer systems".

ESE Response: The record plan, sheet 2, has been updated.

Sheets 20 through 27 - Utility Plans - A note should be added stating "Adjacent lateral wyes installed in an 8" diameter sanitary sewer main shall be located a minimum of 4 feet apart. Tee fittings are prohibited".

ESE Response: A note has been added to all the utility plans.

Sheets 20 through 27 - Utility Plans - The majority of 8" diameter sewers are proposed with slopes of 0.50%. A minimum slope of 0.70% should be utilized for sanitary sewers. Sanitary manholes with proposed invert in pipe connections less than 3.0 feet above the invert out should not be constructed as a drop manhole. The slope of the invert in pipe should be increased so that the pipe connects to the manhole 0.2 feet above the invert out elevation.

ESE Response: The applicant has revised the sanitary sewers on sheets 20 through 39 to increase the minimum slope to 0.70% on all sanitary pipes and adjust all manholes and pipe connections to comply with the specifications provided above.

Sheet 44- Sanitary Sewer Details - Detail No. 13 "Precast Sanitary Manhole Inside Drop Connection" should be added to the plans. (see enclosed)

ESE Response: Detail No. 13 "Precast Sanitary manhole Inside Drop Connection" has been included on Sheet 44.

Montgomery County Planning Commission letter dated November 9, 2023

The review letter does not appear to have any outstanding comments in the review comment section, but refers to the May 19, 2023 review.

ESE Response: See MCPC review letter below, dated May 19, 2023.

Montgomery County Planning Commission, dated May 19, 2023

RELEVANT COMMENTS FROM PREVIOUS REVIEW LETTER (FOR AGE-RESTRICTED CARRIAGE HOME OVERLAY DISTRICT, MCPC #22-0205-001)

A. Buffer Zone – We noted that the wide buffer zone surrounding the development with no landscaping seems like a lost opportunity for a landscaped open space.

ESE Response: A medium intensity buffer has been provided in the configuration shown on the Exhibit 'C' to

the Preliminary Plan response resolution.

B. Landscaping - Backyard Landscaping – We recommended that, where homes back to one another, that landscaping be added in between them to provide more privacy and visual interest (they might also provide passive cooling).

ESE Response: Proposed landscaping is limited within the rear yard of the townhomes to avoid impeding the homeowner's rear deck/patio options.

C. Property Line Buffer – We observed that the proposed open space does not seem to comply with the requirements of zoning [§2601.K. Open Space Standards].

ESE Response: Sheet 11 the overall site and phasing plan hatches the qualifying open space in accordance with the applicable zoning requirements.

D. Stormwater Basin – We noted that the basin along Fox Chase Road will be located in a prominent location and could serve as a prominent visual enhancement for the development, and recommended that all basins be sufficiently naturalized and landscaped.

ESE Response: The applicant will not be constructing naturalized basins; however, the applicant is providing landscaping around the perimeters of all the basins.

E. Transportation

1. Intersection Configuration – We suggested that the design of the proposed street intersections (where intersections would be located along curving roads, such as the intersection of Roads, D, B, and G; and the intersection of Roads A, F, and E) would be less confusing if traffic circles, rather than curves, were used to calm traffic. The applicant agreed to consider this, but design issues remain.

ESE Response: The applicant considered traffic circles but the configuration of such a design would have impacted other design aspects of the plan and the plan has been approved in the configuration as shown.

2. Guest Parking – We recommended that guest parking areas be provided in convenient locations.

ESE Response: The applicant has adjusted locations to be within the 32' wide road area.

3. Bus Shelter – Has the applicant communicated with SEPTA about the advisability of constructing a bus shelter and concrete waiting pad at this location? (*SEPTA's Bus Revolution initiative proposes doubling the frequency of bus service in this location*).

ESE Response: The applicant is coordinating with SEPTA. In the Nov 2023 Recommended Route Changes, the route along Fox Chase Road (Route 28) has been updated to provide a 60 max frequency. The existing bus pad has been connected to the proposed sidewalk along Fox Chase Road.

NEW COMMENTS (PREPARED FOR THE PLAN DATED MARCH 23, 2023):

APPLICABILITY OF COMMUNITY SERVICE DISTRICT

Since the Age-Restricted Overlay District does not clarify how to interpret the overlay zoning when and where it is in conflict with the underlying zoning district (CS Community Service District), we defer to the solicitor as to how the proposed plan conforms with the CS District requirements for cases where the CS Community Service District conflicts with, and has the stricter requirement than, the Age-Restricted Carriage-Home Overlay District. For example, the Community Service District has the following requirements that are stricter than the Overlay: minimum front yard (75

feet), minimum side yard (50 feet), and minimum sidewalk width on public streets (8 feet). *Note: see also ZONING TEXT Comment A. in our letter of #22-0205-001.*

ESE Response: No action required. The applicable zoning for the development is the Age-Restricted Carriage Home Overlay District.

OPEN SPACE

A. Open Space– The Age-Restricted Carriage Home Overlay District states that "Land preserved for open space purposes shall be in compliance with **Open Space Standards of the SALDO** for the Township Zoning Ordinance." The last part of the sentence is difficult to interpret (i.e., the zoning and SALDO are separate chapters—furthermore, does this mean that it need not comply with the open space standards of zoning?).
   1. A description and contract for the ownership, management and maintenance of open space shall be provided. Restrictive covenants governing the reservation and maintenance of undedicated open space shall be included. [§146-11.M]. The plan notes state that documents pertaining to the homeowners association will provided to the township solicitor for review with the final plan.

ESE Response: The information is within the O&M in the PCSM plans. The homeowners association documents will be provided to the Township under separate cover for review.

   2. If the open space standards of the zoning ordinance [§2601.K] do apply to development under the Age-Restricted Overlay District, the proposed land development does not comply with the requirement for: access (open space shall have safe and convenient pedestrian and maintenance access), visibility - it does not meet the requirement for open space to be visible from dwelling units and roadways, and being contiguous – it shall not consist of more than three non-contiguous areas to be counted towards the minimum required (it consists of at least four separate areas).

ESE Response: The open space has been adjusted to meet the requests of the Township and surrounding neighbors. The open space is located on the perimeter of the site.

   3. Open space is more usable and appealing when there are amenities. In addition to trails and paths, we suggest that—particularly in more central open space areas—the applicant consider providing amenities for future residents, such as benches, picnic tables, or gazebos. If proposed, these shall be shown, per §146-11.C.

ESE Response: Per Exhibit 'C' pf the Preliminary plan approval resolution, the Township Board of Commissioners approved the plan with the medium intensity buffer and lawn in the configuration as shown on the Final Plan. A clubhouse and pool are being provided for the residents as shown on the Final Plan.

B. Trail and Paths
   1. We suggest that the property line buffer be designed to allow for a trail corridor for use by the residents of the age-restricted carriage-home development, so that future residents could access and appreciate land on their own property (and that may also make them more likely to monitor and maintain it)

ESE Response: As discussed with the adjoining residents and the Township, the buffer area and lawn has been approved in the configuration as shown on the Final Plan and no trail is proposed.

      a. We suggest that the applicant consider adding pathways through open space areas #152, 153, and 154, outside of the utility easements, and through #151, connecting the two cul-de-sacs, provided that safe passage is practical in proximity to the stone stormwater management areas.

ESE Response: The plan has received approval from the Board of Commissioners in the configuration as shown and no additional pathways are proposed.

2. Open Space Lot 150 – The Area Tabulation states that "open space lot 150 includes carriage lots 1 through 110." Open space lot 150 is not labeled on the plan.

ESE Response: The tabulation has been adjusted to state open space 151.

3. Open Space Calculation – Open space "shall be substantially free of structures," as defined in the SALDO, and does not include required yards. Although there are no required yard areas in this overlay district, we suggest that the applicant show on the plans specifically which areas are being counted as open space, and show equivalent yard areas based on minimum separation distance between buildings and minimum distance from the curb; these types of areas are generally not counted towards meeting minimum open space requirements, nor should they be.

ESE Response: Sheet 11 the overall site and phasing plan hatches the qualifying open space, which does not include rear, side or front yards of the dwelling units.

LANDSCAPING

A. Street Trees
    1. Gaps. Street trees are required every 40 linear feet, although they do not need be evenly spaced. There are numerous gaps in street tree coverage of 100 linear feet or more. We feel that 100 linear foot spacing does not meet the intent of this section, nor the following sections of the Landscaping chapter's intent section:
        - "Improve the environment for pedestrians along streets, parking lots, and other pedestrian areas to provide cooling, encourage pedestrian activity, and reduce the urban heat island effect."
        - "Aesthetically improve the appearance and character of public and private streets."

ESE Response: Street trees do not need to be evenly spaced and we have included the required amount per zoning code. Street trees have been added in front of dwelling units where feasible due to utility connections, to improve the environment for pedestrians and aesthetically improve the appearance and character of private streets.

2. Trees in Front Homes. We recognize that the siting of the proposed homes' driveways directly in front of the townhomes, in conjunction with the location of utilities, makes it challenging to find a location to plant street trees in front of the homes. However, we suggest that locations for street trees in front of the homes might still be possible to find, particularly if the water lines could be relocated or driveways paired, thus creating larger contiguous green areas in front of the homes. See image above for example of trees planted in front of new townhomes (Location: Country View Way, Tylersport).

ESE Response: Street trees have been added in front of dwelling units where feasible due to utility connections.

3. Species. We do not feel that River Birch is an appropriate street tree.

ESE Response: River Birch can be found on the Abington Township Shade Tree Commission List of Recommended Plants.

B. Tree Protection and Replacement

1. Trees to be removed or preserved shall be marked as such on the plans [§2401.A].

ESE Response: Sheet 8 shows the existing tree chart and their designation whether to remain or to be removed.

2. On existing lots, tree replacement shall occur when new impervious coverage exceeds 500 s.f. and a tree with a minimum caliper of six inches (6") is removed. In such cases, two new trees, each a minimum of 3-to-3.5" caliper, measured 6" above grade, shall be planted for each tree with a minimum caliper of 6" or greater that is removed. Has the applicant calculated the tree replacement requirement? If so, where is it provided? [§2401. Preservation and Protection of Existing Vegetation].

ESE Response: Sheet 62 has been revised to show tree replacement requirement calculations. The street tree schedule has been updated to show which trees are part of the tree replacement and sizes have been updated.

C. Invasive Vegetation – Tree of Heaven is both invasive[2] and a favorite host of the spotted lantern fly. Please remove it from the planting schedule.

ESE Response: The tree of heaven is an existing tree that was shown to remain. The landscape plan has been updated to remove both trees tagged #1 and #3.

D. Property Line Buffer - Each buffer containing a wall or fence or other continuous element shall contain a 5- to 10-foot break at least once every 50 feet, for the purpose of pedestrian access, maintenance access, and/or to avoid creating a monolithic feature. The buffer does not have such breaks. For example, see the continuous buffer proposed behind units #32 through 37.

ESE Response: The landscape plan has been updated to include breaks approximately every 50' of the buffer landscaping for the purpose of pedestrian/maintenance access.

E. Site Element Screen - The pool shall be screened with a high-intensity site element screen, consistent with the requirement for "outdoor recreation, fields, and play areas, when adjacent to, or within 100' of a residential district or use." The plan states that there is a "proposed screening/landscape wall with security fence." A fence may be used as part of a high-intensity site element screen, as follows: "This shall consist of a 6-foot tall opaque fence surrounding the site element on at least three sides with additional plantings at a minimum rate of three shrubs (24" minimum height at time of planting) and two ornamental trees or large shrubs for each 10 linear feet of proposed fence, arranged formally or informally next to the fence."

ESE Response: The landscape plan has been updated to include, the High-Intensity Site Element Screen Type #6: Double Row of Evergreen Trees, between the clubhouse and the proposed dwelling units.

F. Foundation Landscaping –Building foundation landscaping shall be provided between (a) the foundations of nonresidential principal buildings' facades and (b) sidewalks, access drives, or parking areas. The clubhouse requires foundation landscaping [§2403.D]. We suggest planting shrubs and perennials around the neighborhood, visible from the street and fronts of homes, to provide more greenery, small stormwater management areas, and variety in plantings. Although the renderings provided by the applicant show clusters of shrubs and perennials around the bases of trees between rows of homes, and along the homes' foundations, they are not included in the landscape plans.

ESE Response: The landscape plan has been updated to show the foundation landscaping at the clubhouse.

We have also included a typical dwelling unit landscaping with plant list on sheet 54.

G. Off-Street Parking Areas – The island in the off-street parking area requires a deciduous or ornamental tree, and five percent of the area shall be landscaped [§146-39.B].

ESE Response: The site plan has been updated to remove the island in the off-street parking area.

ENVIRONMENTAL MANAGEMENT

A. Stone Stormwater Management Area - We recommend that a naturalized area be established around and over the stormwater management structure labeled "Stone BMP 2A.

ESE Response: The applicant continues to propose a lawn area over BMP 2A.

B. "Steep Slopes - The use of conservation easements on steep slopes shall be required to preserve the area in perpetuity. A conservation easement for the slope area required to be preserved shall be delineated on the plan.

ESE Response: A Conservation area is noted around the stream area in the back of the site where a majority of the steep slopes are located.

TRANSPORTATION

A. Proposed Intersections of Three Streets - Multiple intersections involving the junction of more than two streets shall be avoided [§146-25]. Note: see transportation comment in *Relevant Comments from previous review letter, above.*

ESE Response: The internal streets intersect at right angles or radial. There may be different street names, but the one street is a continuation of the connecting street.

B. Crosswalk - There is a crosswalk shown on the Construction Details Plan (p.41). Where will this be painted? (They do not appear on the plans). We recommend that, at a minimum, one of these be painted so as to continue the sidewalk along Fox Chase Road over the entrance to the proposed development (Road A) [§146-29.D]. The SALDO notes that crosswalks may be required where necessary to provide access to buildings of public assembly (adding them at the intersection of Roads A and B, at the Club House and Pool and close to Fox Chase Road seem like appropriate locations).

ESE Response: The intersection with Fox Chase Road has been updated to show full intersection crosswalks..

OTHER PLAN INFORMATION

A. Dimensional Criteria – Building setback lines from the face of the curb/edge of cartway (30 feet) shall be shown [§146-11.C].

ESE Response: The plans have been revised to show the 30' dwelling setback from the face of the curb.

B. Architectural Plans – Plans shall (in addition to façade elevations) provide side and rear elevations of buildings, and shall indicate whether a basement is proposed [§146-11.L]

ESE Response: Only a few lots will have basements, lots 6 to 15.

Enclosed are the following:

1. One (1) copy of the Abington Township Application for Subdivision/Land Development.
2. Ten (10) copies of the Preliminary/Final Major Subdivision and Land Development Plan for Sisters of St. Basil prepared by ESE Consultants, Inc. last revised March 22, 2024, consisting of sixty-two (62) sheets
3. One (1) copy of the Major Subdivision and Land Development Plan reduced to 11 x 17
4. Ten (10) copies of an Erosion Sedimentation Control Plan for Sisters of St. Basil prepared by ESE Consultants, Inc. dated March 18, 2024, consisting of nineteen (19) sheets.
5. One (1) copy of the Erosion and Sedimentation Control Plans reduced to 11 x 17.
6. Ten (10) copies of an Post Construction Stormwater Management Plan for Sisters of St. Basil prepared by ESE Consultants, Inc. dated March 18, 2024, consisting of Twenty-four (24) sheets.
7. One (1) copy of the Post Construction Stormwater Management Plan reduced to 11 x 17.
8. Three (3) copies of a Stormwater Management Narrative for Sisters of St. Basil prepared by ESE Consultants, Inc. last revised dated March 2024; which includes the drainage plans.
9. Three (3) copies of an Erosion and Sedimentation Control Narrative for Sisters of St. Basil prepared by ESE Consultants, Inc. last revised dated March 2024.
10. Three (3) copies of an NPDES Narrative for Sisters of St. Basil prepared by ESE Consultants, Inc. last revised dated March 2024.
11. PADEP Notice of Intent Form, dated March 18, 2024.
12. One (1) copy of the Montgomery County Planning Commission Act 247 Referral form;
13. A check in the amount of $500 made payable to Abington Township, for the final subdivision and land development application fee.

A copy of all the plans and documents will be forwarded to the Township thru an email link.

Thank you for your attention and anticipated cooperation regarding the above. Should you have any questions, comments, or require additional information please contact me at your convenience.

Sincerely,

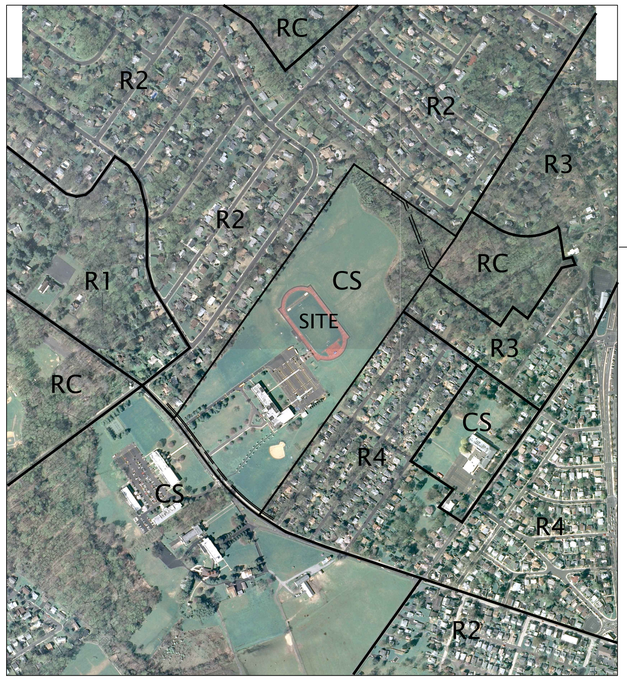
Jeff Madden

Jeff Madden, PE
Regional Director of Engineering
ESE Consultants, Inc.

PRELIMINARY/FINAL MAJOR SUBDIVISION AND LAND DEVELOPMENT PLANS FOR

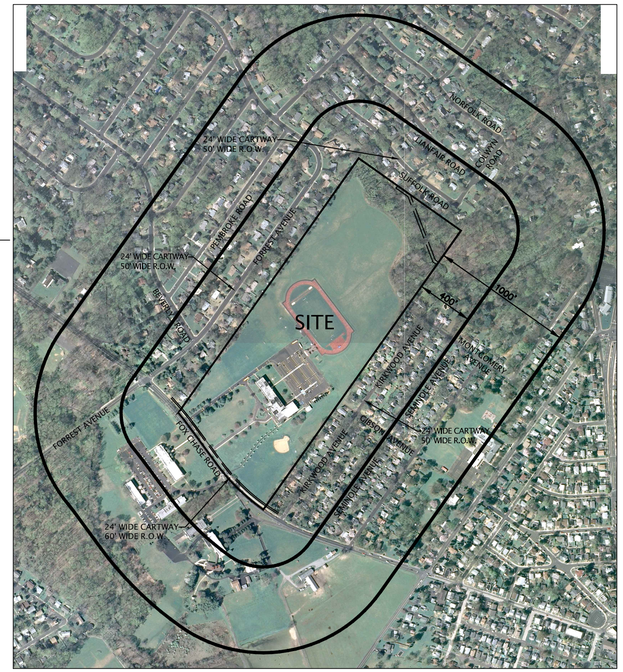
SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA
TAX MAP PARCELS: 30-00-22424-00-1, 30-00-22420-00-5



ZONING MAP
SCALE: 1"=500'

GRAPHIC SCALE
500 0 250 500 1000 2000
(IN FEET)
1 inch = 500 ft.



LOCATION MAP
SCALE: 1"=500'

GRAPHIC SCALE
500 0 250 500 1000 2000
(IN FEET)
1 inch = 500 ft.

TYPE OF WATER SUPPLY – PUBLIC WATER
TYPE OF SEWAGE DISPOSAL – PUBLIC SEWER

OWNER AND APPLICANT:

SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
JENKINTOWN, PA. 19046-4198

EQUITABLE OWNER AND APPLICANT:

TOLL MID-ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215) 938-8000

ENGINEER, SURVEYOR, PLANNER, LANDSCAPE ARCHITECT

ESE CONSULTANTS, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215) 914-2050

ARCHITECT:

TOLL ARCHITECTURE
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215) 938-8000

ATTORNEY:

ALYSON M. ZARRO, ESQ
RILEY RIPER HOLLIN & COLAGRECO
717 CONSTITUTION DRIVE, SUITE 201
EXTON, PA 19341
(610) 458-4400 EXT. 202

NOTE:
PUBLIC WATER TO BE SUPPLIED BY – AQUA, PA.
PUBLIC SEWER TO BE PROVIDED BY – ABINGTON SANITARY SEWER AUTHORITY

STREET INDEX	
PLAN IDENTIFICATION	STREET NAME
ROAD "A"	XXXXX
ROAD "B"	XXXXX
ROAD "C"	XXXXX
ROAD "D"	XXXXX
ROAD "E"	XXXXX
ROAD "F"	XXXXX
ROAD "G"	XXXXX

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP – CALL BEFORE YOU DIG

THIS MAP DEPICTS PHYSICAL FEATURES VISIBLE ON THE SURFACE. BELOW GROUND STRUCTURES ARE SHOWN FOR GRAPHIC REPRESENTATION PURPOSES ONLY. ALTHOUGH EFFORTS HAVE BEEN MADE TO ACCURATELY DEPICT THE BELOW GROUND STRUCTURES, EXACT LOCATIONS ARE TO BE VERIFIED BY AND ARE THE RESPONSIBILITY OF PERSON(S) USING THIS MAP.

ALL CONTRACTORS WORKING ON THIS PROJECT SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK AND SHALL COMPLY WITH THE REQUIREMENTS OF P.L. 852, NO. 287 DECEMBER 10, 1974 AS AMENDED ON DECEMBER 12, 1986, P.L. 1574, NO. 172. PA-ONE CALL SERIAL NUMBER FOR DESIGN PURPOSES ONLY.

PA ONE CALL WAS INITIATED 01-18-2023
SERIAL NO. 20230532913, 20230532932, 20230532933 AND 20230532937.

SHEET INDEX

SUBDIVISION PLANS

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6	SD02.01	GENERAL NOTES
7-10	SD03.01 – SD03.04	EXISTING FEATURES PLANS/ERSAM
11	SD04.01	OVERALL SITE PLAN
12-19	SD05.01 – SD05.08	GRADING PLANS
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ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

COVER SHEET

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-01-COVER
REF. NO.:	SD01.01
SHEET NO.:	1 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL'S\ENGDEPT\DRAWINGS\7662-S-01-COVER.DWG-Luke Piotrowicz-3/21/2024 12:46 PM

FINAL MAJOR SUBDIVISION AND LAND DEVELOPMENT PLANS FOR

SISTERS OF ST. BASIL

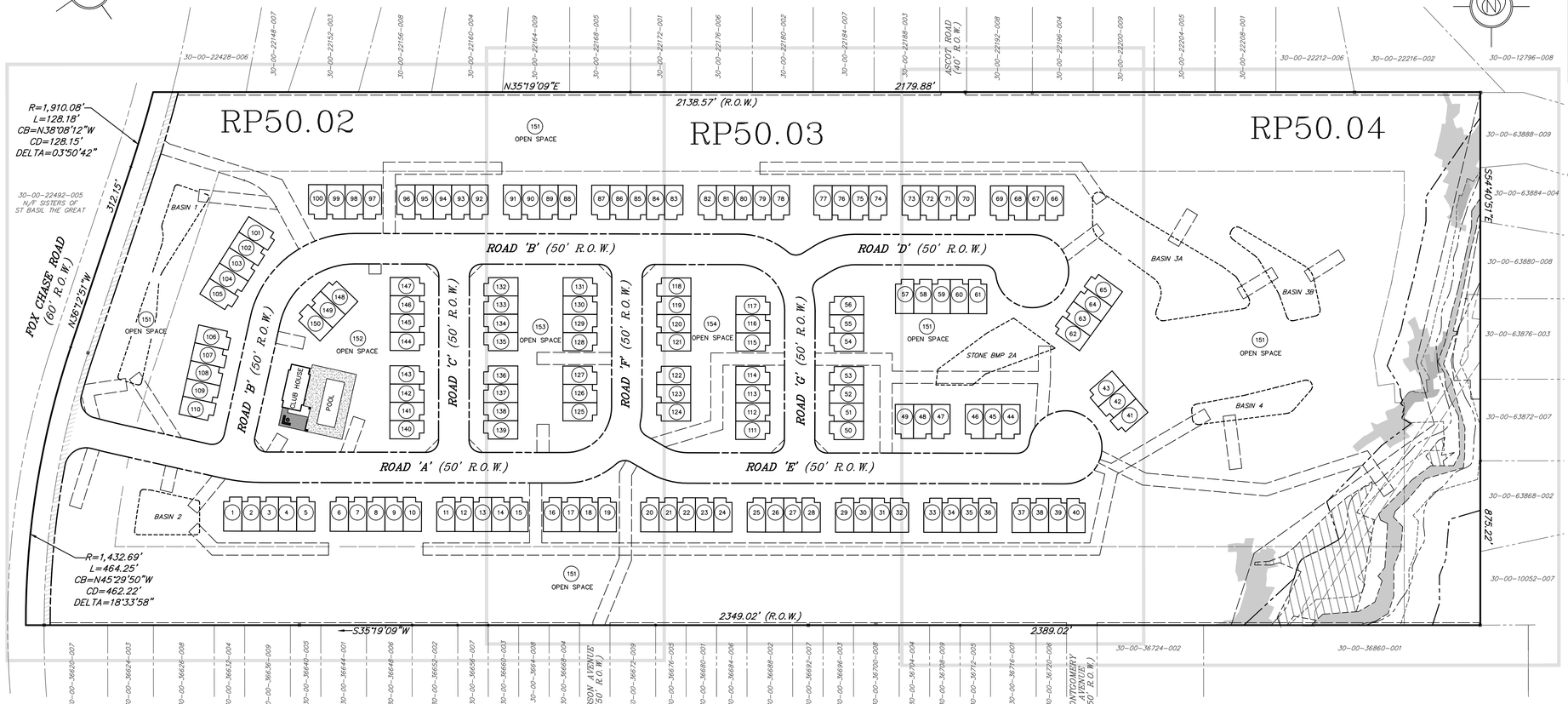
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

TAX MAP PARCELS: 30-00-22424-00-1 AND 30-00-22420-00-5

OWNER AND APPLICANT:
SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
ABINGTON, PA 19046-4198

EQUITABLE OWNER AND APPLICANT:
TOLL MID-ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215)938-8000

LOCATION MAP
SCALE: 1"=800'



GENERAL NOTES:

1. DESIGN ENGINEER, SURVEYOR, PLANNER, LANDSCAPE ARCHITECT:
   ESE CONSULTANTS, INC.
   1140 VIRGINIA DRIVE
   FORT WASHINGTON, PA. 19034
   215/914-2050
2. WETLANDS CONSULTANT:
   ESE CONSULTANTS, INC.
   1140 VIRGINIA DRIVE
   FORT WASHINGTON, PA. 19034
   215/914-2050
3. WETLAND PRELIMINARY JURISDICTION DETERMINATION WAS OBTAINED ON SEPTEMBER 1, 2022 (NAP-2022-00532-45).
4. FLOODPLAIN SHOWN ON THE PLAN HAS BEEN TAKEN FROM THE FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 42091C043G, EFFECTIVE DATE MARCH 2, 2016.
5. SOILS SHOWN WERE TAKEN FROM "SOIL SURVEY, MONTGOMERY COUNTY, PENNSYLVANIA", PREPARED BY THE NATURAL RESOURCE CONSERVATION SURVEY, DATED NOVEMBER 22, 2021.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT ABINGTON TOWNSHIP CODES, SPECIFICATIONS AND THE ENGINEERING AND CONSTRUCTION STANDARDS.
7. THE EXISTING LAND USE IS A PARKING LOT AND SCHOOL WITH ATHLETIC FIELDS. THE PROPOSED USE IS ONE HUNDRED FIFTY (150) AGE RESTRICTED CARRIAGE HOME DWELLING UNITS (SINGLE FAMILY ATTACHED), PROPOSED ROADS, UTILITIES AND OPEN SPACE PARCEL.
8. THESE PLANS WERE PREPARED PER ABINGTON TOWNSHIP, STORMWATER MANAGEMENT ORDINANCE, SUBDIVISION AND LAND DEVELOPMENT ORDINANCE AND THE ZONING AND PLANNED RESIDENTIAL DEVELOPMENT ORDINANCE, AS LAST AMENDED.
9. THE EXISTING LAND USE IS A SCHOOL WITH A PARKING LOT AND ATHLETIC FIELDS WITH ACCESSORY STRUCTURES AND OUTBUILDINGS. THE PROPOSED LAND USE IS FOR ONE HUNDRED AND FIFTY (150) CARRIAGE HOMES, PROPOSED ROADS, UTILITIES, CLUBHOUSE AND OPEN SPACE PARCELS.
10. FURTHER SUBDIVISION OF ANY OF THE LOTS, BOTH PRIVATE LOTS AND OPEN SPACE LOTS IN THIS SUBDIVISION IS PROHIBITED.
11. THE PROPOSED ROADS SHALL BE OWNED AND MAINTAIN BY THE HOMEOWNERS ASSOCIATION. ROADS TO BE BUILT TO TOWNSHIP STANDARDS. THE HOMEOWNER ASSOCIATION WILL MAINTAIN STORM SEWER, SIDEWALK, CURBING AND ROADS WITHIN THE RIGHT OF WAYS AND NEW SANITARY SEWER PIPE SYSTEMS LOCATED IN RIGHT OF WAYS, PARCELS, LOTS, OPEN SPACES AND ROADWAYS.
12. OFFER OF DEDICATION TO THE ULTIMATE RIGHTS-OF-WAY LINE ON FOX CHASE ROAD AND SHALL RUN IN PERPETUITY IN FAVOR OF THE APPLICABLE GOVERNMENT AUTHORITY.
13. PROPOSED LOTS TO BE SERVED BY EXISTING DOMESTIC AND/OR FIRE PUBLIC WATER SYSTEMS AND EXISTING PUBLIC SANITARY SEWER SYSTEMS.
14. THE LOCATION OF THE HOUSES AND DRIVEWAYS AS SHOWN ON THE PLAN ARE FOR ILLUSTRATION AND PLANNING PURPOSES ONLY. THE APPLICANT RESERVES THE RIGHT TO MODIFY THE HOUSE SIZE, SHAPE AND LOCATION AT THE TIME OF BUILDING PERMIT APPLICATION.
15. STATE OR TOWNSHIP ROAD OCCUPANCY PERMITS, AS APPLICABLE, TO BE OBTAINED AS NECESSARY
16. NO TREES, SHRUBS, FENCES, SIGNS, STRUCTURE OD ANY TYPE OR ANY OTHER OBSTRUCTION SHALL BE PLACED, PLANTED, SET OR PUT WITHIN THE AREA OF A EASEMENT. THE AREA SHALL BE KEPT AS LAWN.
17. SIGHT TRIANGLE:
    A. CLEAR SIGHT TRIANGLES SHALL BE PROVED AT ALL STREET INTERSECTIONS. WITHIN SUCH TRIANGLES, NO VISION OBSTRUCTING OBJECTS SHALL BE PERMITTED WHICH OBSCURES VISION ABOVE THE HEIGHT OF THIRTY (30) INCHES AND BELOW TEN (10) FEET MEASURED FROM THE CENTERLINE GRADE OF INTERSECTING STREETS.
18. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES RELATED TO THIS PROJECT ARE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION) STANDARDS.
19. THE DEVELOPER, ITS SUCCESSORS AND ASSIGNS, HEREBY RESERVES THE RIGHT TO ENTER UPON EACH AND EVERY LOT AND AREA OF THE SUBDIVISION/DEVELOPMENT DEPICTED HEREON, WHETHER PRIOR OR SUBSEQUENT TO CONVEYANCE OF ANY LOT, UNTIL EXPIRATION OF THE STATUTORY MAINTENANCE PERIOD FOLLOWING DEDICATION OF PUBLIC IMPROVEMENTS AS SET FORTH AT SECTION 509 OF THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, AS AMENDED, 53 P.S. 10509, FOR THE PURPOSE OF COMPLETING ANY LANDSCAPING AS REQUIRED BY THE MUNICIPALITY AND FURTHER TO MAKE SUCH MODIFICATIONS IN GRADING AND/OR DRAINAGE IMPROVEMENTS ON ANY LOT AS MAY BE NECESSARY IN THE DISCRETION OF THE DEVELOPER, ITS SUCCESSORS AND ASSIGNS AND/OR THE TOWNSHIP ENGINEER FOR SATISFACTORY STORM WATER MANAGEMENT.
20. THE SWM FACILITIES SHOWN ON THESE PLANS ARE A BASIC AND PERPETUAL PART OF THE STORM DRAINAGE SYSTEM OF ABINGTON, AND AS SUCH IS TO BE PROTECTED AND PRESERVED, IN ACCORDANCE WITH THE APPROVED FINAL PLANS BY THE OWNERS OF THOSE LANDS WHERE THE STRUCTURE(S) ARE LOCATED. WHERE THE MAINTENANCE OF STORMWATER RETENTION FACILITIES IS THE RESPONSIBILITY OF THE INDIVIDUAL LOT OWNER, A HOMEOWNERS ASSOCIATION OR SIMILAR ENTITY, AND IN THE EVENT THAT THE PARTY OR PARTIES RESPONSIBLE FOR THE MAINTENANCE OF THE STORMWATER RETENTION FACILITIES OR PRIVATE STREETS IN THE DEVELOPMENT FAIL TO PROPERLY MAINTAIN SAID FACILITIES, THE TOWNSHIP MAY, BUT SHALL NOT BE OBLIGATED TO, PROVIDE SAID PARTIES WITH 30 DAYS NOTICE OF THE TOWNSHIP'S INTENTION TO PERFORM SAID MAINTENANCE OR REPAIR. IN THE EVENT THAT SAID PARTIES DO NOT PERFORM OR COMMENCE TO PERFORM SAID MAINTENANCE OR REPAIR WITHIN THE 30 DAY NOTICE PERIOD, THE TOWNSHIP MAY, BUT SHALL NOT BE OBLIGATED TO, PERFORM SAID MAINTENANCE OR REPAIR AND CHARGE THE COST THEREOF, INCLUDING ANY FEES OF THE TOWNSHIP PROFESSIONALS, PROPORTIONATELY TO EACH OF THE HOMEOWNERS IN THE DEVELOPMENT AND MAY FILE A LIEN AGAINST THE PROPERTY OF THE HOMEOWNER UNTIL SUCH AMOUNTS ARE FULLY REIMBURSED TO THE TOWNSHIP.
21. THE PROPOSED SWM FACILITIES HAVE BEEN DESIGNED TO ACCOMMODATE THE MAX. ALLOWABLE (50%) IMPERVIOUS SURFACE FOR HOUSE BOX.
22. THE APPLICANT/OWNER OF THIS PROPERTY ACKNOWLEDGES THE REQUIREMENT TO COMPLY WITH ALL STATE AND FEDERAL REGULATIONS REGARDING THE DISTURBANCE OF WETLANDS. ANY IMPROVEMENTS WHICH CANNOT BE COMPLETED AS SHOWN SHALL BE AMENDED TO THE SATISFACTION OF THE TOWNSHIP AND SHALL BE DEPICTED ON REVISED PLANS WHICH SHALL BE SUBMITTED TO THE TOWNSHIP FOR REVIEW. THE APPLICANT/OWNER OF THIS PROPERTY ACCEPTS ALL RESPONSIBILITY WITH RESPECT TO STATE AND FEDERAL REGULATIONS.
23. ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS PROVIDED IN THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE OR OTHER SPECIFICATIONS OF THE TOWNSHIP, THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, PENNDOT PUBLICATION 408, AS AMENDED, AND THE PENNDOT ROAD CONSTRUCTION STANDARDS, AS AMENDED, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OR THE AUTHORITY HAVING JURISDICTION OVER SAID IMPROVEMENTS.
24. AN NPDES PERMIT IS REQUIRED FOR THIS PROJECT FROM THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.
25. THE SPEED LIMIT WITHIN THIS DEVELOPMENT IS TO BE POSTED AT 20 M.P.H.
26. THE APPLICANT RESERVES THE RIGHT TO CONSTRUCT LANDSCAPE TOPSOIL BERMS WITHIN OPEN SPACE AND BUFFER YARDS.
27. BLANKET EASEMENT FOR ALL STORMWATER MANAGEMENT FACILITIES.
28. A CONDITIONAL USE APPROVAL ON JULY 13, 2023 WAS RECEIVED FOR THE ZONE 2 DISTURBANCE TO CONNECT THE SITE SANITARY SEWER TO THE EXISTING SANITARY SEWER LINE.
29. THE BOARD OF ABINGTON TOWNSHIP COMMISSIONERS APPROVED THE PRELIMINARY LAND DEVELOPMENT PLAN ON MARCH 14, 2024.

AREA TABULATION - SISTERS OF ST. BASIL:

TOTAL SITE AREA:	2,019,856 SQ. FT. OR	46.370 ACRES
ROAD A ROW AREA:	45,565 SQ. FT. OR	1.046 ACRES
ROAD B ROW AREA:	55,766 SQ. FT. OR	1.280 ACRES
ROAD C ROW AREA:	15,798 SQ. FT. OR	0.363 ACRES
ROAD D ROW AREA:	28,461 SQ. FT. OR	0.653 ACRES
ROAD E ROW AREA:	45,345 SQ. FT. OR	1.041 ACRES
ROAD F ROW AREA:	16,073 SQ. FT. OR	0.369 ACRES
ROAD G ROW AREA:	16,225 SQ. FT. OR	0.372 ACRES
FOX CHASE ROAD LEGAL ROW AREA:	27,139 SQ. FT. OR	0.623 ACRES
FOX CHASE ROAD DEDICATED ROW AREA:	9,048 SQ. FT. OR	0.208 ACRES
TOTAL ENCROACHMENT AREA:	26,577 SQ. FT. OR	0.610 ACRES
OPEN SPACE LOT 151 AREA:	1,510,742 SQ. FT. OR	34.682 ACRES*
OPEN SPACE LOT 152 AREA:	82,151 SQ. FT. OR	1.886 ACRES**
OPEN SPACE LOT 153 AREA:	70,865 SQ. FT. OR	1.627 ACRES***
OPEN SPACE LOT 154 AREA:	70,101 SQ. FT. OR	1.609 ACRES****
TOTAL OPEN SPACE:	1,733,859 SQ. FT. OR	39.804 ACRES
QUALIFYING OPEN SPACE:	985,560 SQ. FT. OR	22.600 ACRES

*OPEN SPACE LOT 151 INCLUDES CARRIAGE LOTS 1 THROUGH 110
**OPEN SPACE LOT 152 INCLUDES CARRIAGE LOTS 140 THROUGH 150 AND CLUBHOUSE
***OPEN SPACE LOT 153 INCLUDES CARRIAGE LOTS 125 THROUGH 139
****OPEN SPACE LOT 154 INCLUDES CARRIAGE LOTS 111 THROUGH 124

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

CERTIFICATION OF ACCURACY

I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE PLAN SHOWN AND DESCRIBED HEREON IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE LAND SUBDIVISION REGULATIONS OF THE TOWNSHIP OF ABINGTON.

THOMAS B. HENDRICKS
PA LICENSE NO. SU-044552-E

SURVEYOR CERTIFICATION

I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA; THAT TO THE BEST OF MY KNOWLEDGE THIS IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE LAND SUBDIVISION REGULATIONS OF THE TOWNSHIP OF ABINGTON.

THOMAS B. HENDRICKS, P.L.S.
PA LICENSE NO. SU-044552-E

COUNTY RECORDER OF DEEDS:

RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS IN NORRISTOWN, PENNSYLVANIA, IN PLAN BOOK_____ PAGE NO._____ ON THIS____DAY OF_____, 2023.

COUNTY RECORDER OF DEEDS

FIRE HYDRANTS AND STREETLIGHTS ARE TO BE INSTALLED AT THE EXPENSE IF THE SUBDIVIDER/LAND DEVELOPER IN ACCORDANCE WITH THE TOWNSHIP STANDARDS AND WITH THE RECOMMENDATIONS OF THE RESPECTIVE UTILITY COMPANIES, SUBJECT TO THE APPROVAL OF THE BOARD OF COMMISSIONERS.

STREETLIGHTS AND STREET NAME SIGNS ARE TO BE INSTALLED AT THE EXPENSE OF THE SUBDIVIDER/LAND DEVELOPER IN ACCORDANCE WITH TOWNSHIP STANDARDS AND DEDICATED TO THE TOWNSHIP.

THE PHILADELPHIA ELECTRIC COMPANY AND BELL TELEPHONE COMPANY OF PENNSYLVANIA ARE GRANTED THE RIGHT TO CONSTRUCT, MAINTAIN AND REPAIR POLE LINES AND UNDERGROUND EQUIPMENT ON, UNDER AND ACROSS ALL HIGHWAYS IN THIS TRACT.

WHERE A PLAN REQUIRES ACCESS TO A HIGHWAY WHICH IS UNDER THE JURISDICTION OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, A HIGHWAY OCCUPANCY PERMIT IS REQUIRED BY SECTION 420 P.L. 1242, NO. 428 KNOWN AS THE STATE HIGHWAY LAW, BEFORE DRIVEWAY ACCESS TO A HIGHWAY IS PERMITTED OR CONSTRUCTED. WHERE A PLAN REQUIRES ACCESS TO A HIGHWAY WHICH IS UNDER THE JURISDICTION OF THE MONTGOMERY COUNTY, IT SHALL INCLUDE THE FOLLOWING NOTATION: "A DIVISION OF THE MONTGOMERY COUNTY PUBLIC WORKS BEFORE DRIVEWAY ACCESS TO A COUNTY HIGHWAY IS PERMITTED OR CONSTRUCTED."

WHEN THE INSTALLATION OF CURBS OR SIDEWALKS IS WAIVED FOR A PARTICULAR DEVELOPMENT PLAN, CURBS AND/OR SIDEWALKS MAY BE REQUIRED TO BE INSTALLED BY SUBSEQUENT LANDOWNERS AT THEIR EXPENSE, BY DIRECTION OF THE BOARD OF COMMISSIONERS.

OTHER NOTATIONS AS REQUIRED BY THIS CHAPTER AND THE BOARD OF COMMISSIONERS.

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF MONTGOMERY

EQUITABLE OWNER/CORPORATE CERTIFICATION:

I DO HEREBYCERTIFY THAT TOLL MID-ATLANTIC L.P. COMPANY, INC., A DELAWARE CORPORATION, IS THE REGISTERED EQUITABLE OWNER AND APPLICANT OF THE LAND HEREIN SUBDIVIDED, PROPOSED TO BE DEVELOPED AND THAT IT DOES ADOPT THIS PLAN AND DESIRE THE SAME TO BE RECORDED.

BY:_____
BRIAN THIERRIN
SENIOR VICE PRESIDENT

T.M.P. NO. 30-00-22424-00-1 AND 30-00-22420-00-5

WAIVER LIST:

1. **§146-11.A.(4) – Property Identification Plans –** A partial waiver from the requirement to show tract boundary information, including tax map parcel numbers, names of owners, and approximate acreage, within 400 feet.
2. **§146-11.B.(3) – Existing Features Plan –** A partial waiver from the requirement that existing features plan shall include property lines and names of landowners within 400 feet of the site.
3. **§146-11.B.(7) – Existing Features Plan –** A partial waiver from the requirement to provide all utility information within 400 feet of the subject property.
4. **§146-27.C – Sidewalks and Curbs – Location –** A partial waiver from the requirement to located sidewalks between the curb and right-of-way line, six inches from the property line.
5. **§146-27.F – Sidewalks and Curbs –** A partial waiver to permit the curbing on the interior roads to be constructed with 6" Belgian Block.
6. **§146-29.A – Blocks – Length –** A partial waiver for internal roads C, D, F, and G from the requirement that blocks have a minimum length of 500 feet.
7. **§1460-33.I – Drainage –** A waiver from the requirement to direct roof drains under the sidewalk and connect to storm drains.
8. **§146-35.C.(2) – Design and construction of sewers – Size, grade and type –** A partial waiver to permit modification of the material of the sanitary sewer main to SDR-26 (plastic pipe) from ductile iron within the development only. The ductile iron pipe will be required within the public Fox Chase Road right-of-way.
9. **§146-43.C.(3).(a) – Excavations and fills –** A partial waiver to permit cut and fill slopes greater than 15% for the stormwater basin berms and allow basin slopes and slopes to tie into natural grade up to 33%.

NOTARY PUBLIC
COMMONWEALTH OF PENNSYLVANIA
COUNTY OF MONTGOMERY

ON THE ___DAY OF_____,2024, BEFORE ME THE UNDERSIGNED NOTARY PUBLIC, PERSONALLY APPEARED BRIAN THIERRIN, WHO ACKNOWLEDGED HIMSELF TO BE SENIOR VICE PRESIDENT OF TOLL MID-ATLANTIC L.P. COMPANY, INC., A DELAWARE CORPORATION, AND HE AS SUCH OFFICER BEING AUTHORIZED TO DO SO, HAS EXECUTED THE FOREGOING PLAN BY SIGNING HIS NAME AS SUCH OFFICER.

IN WITNESS WHEREOF, I HEREUNDER SET MY HAND AND OFFICIAL SEAL.

NOTARY PUBLIC:_____

MY COMMISSION EXPIRES:_____

NOTE: SEE SHEET RP50.03 FOR ADJOINERS INFORMATION TABLE

CERTIFICATE OF MUNICIPAL APPROVAL

APPROVED BY THE BOARD OF COMMISIONERS OF THE TOWNSHIP OF ABINGTON.
THIS____DAY OF_____, 2024.

_____
PRESIDENT

ATTEST: _____
SECRETARY

MONTGOMERY COUNTY PLANNING COMMISSION

PROCESSED AND REVIEWED _____
A REPORT HAS BEEN PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE.
CERTIFIED THIS DATE:_____

_____
FOR THE DIRECTOR

TOWNSHIP ENGINEER CERTIFICATION

THIS PLAN HAS BEEN REVIEWED BY THE ABINGTON TOWNSHIP ENGINEER IN ACCORDANCE WITH THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE AT THE TIME OF SUBDIVISION.

_____ _____
ENGINEER DATE

CAUTION:
IF THIS DOCUMENT DOES NOT CONTAIN THE ORIGINAL SEAL AND SIGNATURE OF THE LAND SURVEYOR, IT IS NOT AN OFFICIAL DOCUMENT AND MAY HAVE BEEN ALTERED.

THOMAS B. HENDRICKS
PROFESSIONAL LAND SURVEYOR
PA LICENSE NO. SU-044552-E

ESE CONSULTANTS
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ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
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REV.	DATE	DESCRIPTION	
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	KMS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	KMS
1	7/24/23	TOWNSHIP REVIEW LETTERS	KMS
			DRAWN

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT—NOT TO BE RECORDED

RECORD PLAN
(RECORD SHEET 1 OF 4)

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

APPLICATION NUMBER LD-23-01

DATE: 03/24/23	SCALE: 1"=100'
DESIGN: JMM	DRAWN: KMS
JOB NO.: 7662	FILE NAME: RP50.01
REF. NO.:	RP50.01
SHEET NO.: JMM 2 OF 62	

ZONING TABLE:

TAX MAP PARCEL NO.: 30-00-22424-00-1 AND 30-00-22420-00-5
TOTAL TAX PARCEL AREA: 46.37 ACRES
ZONING DISTRICT: CS- COMMUNITY SERVICE WITH AR-AGE RESTRICTED CARRIAGE HOME OVERLAY DISTRICT
PROPOSED USE: H-13 AGE RESTRICTED CARRIAGE HOMES SINGLE FAMILY ATTACHED DWELLINGS

TOTAL SITE AREA:	46.37 ACRES
EXISTING ROW AREA:	0.62 ACRES
60' ROW DEDICATED AREA:	0.21 ACRES
ENCROACHMENT EASEMENT AREA:	0.62 ACRES
GROSS SITE AREA:	44.92 ACRES

TOTAL NUMBER OF PROPOSED UNITS: 150 SINGLE FAMILY ATTACHED (CARRIAGES)

	EXISTING	REQUIRED	PROVIDED
MINIMUM SITE AREA:	46.58 AC.	40.0 AC.	46.37 AC.
MINIMUM SETBACK FROM ULTIMATE ROW:	100'	100'	100'
MINIMUM SETBACK FROM OTHER TRACT BOUNDARY LINES	125'	125'	125'
DWELLING SETBACK FROM FACE OF CURB/ EDGE OF CARTWAY	>30'	30'	>30'
MAXIMUM BUILDING AREA*	<25%	25% (11.23 AC.)	19.8% (8.89 AC.)
MAXIMUM IMPERVIOUS*	<50%	50% (22.46 AC.)	35.6% (15.99 AC.)
MINIMUM GREEN AREA*	>50%	50% (22.46 AC.)	64.4% (28.93 AC.)
MINIMUM OPEN SPACE*	>40%	40% (17.97 AC.)	50.5% (22.60 AC.)
MAXIMUM DENSITY*	N/A	3.4 DU/AC.	3.34 DU/AC.
*USING GROSS SITE AREA			
PARKING REQUIREMENTS (2 PER UNIT) PLUS ½ SPACE/UNIT OVERFLOW		300 IN DRIVEWAYS 38 OVERFLOW	300 IN DRIVEWAYS 42 OVERFLOW**
CLUBHOUSE PARKING (USE A-6):	N/A	N/A	13 (INCL 2 H.C. SPACE)
MAXIMUM UNIT WIDTH:		6 UNITS	6 OR LESS UNITS
MINIMUM UNIT WIDTH:	N/A	3 UNITS	3 PLUS UNITS
BUILDING TO BUILDING SEPARATION:			
SIDE TO SIDE:	N/A	20'	>20'
MAX. HEIGHT:	N/A	35' MAX	<35'
MAX. CARRIAGE HOME LENGTH:	N/A	160'	<160'
AGE RESTRICTED CARRIAGE HOMES:			
MINIMUM WIDTH:	N/A	28'	28'
MINIMUM DEPTH:	N/A	50'	50'+

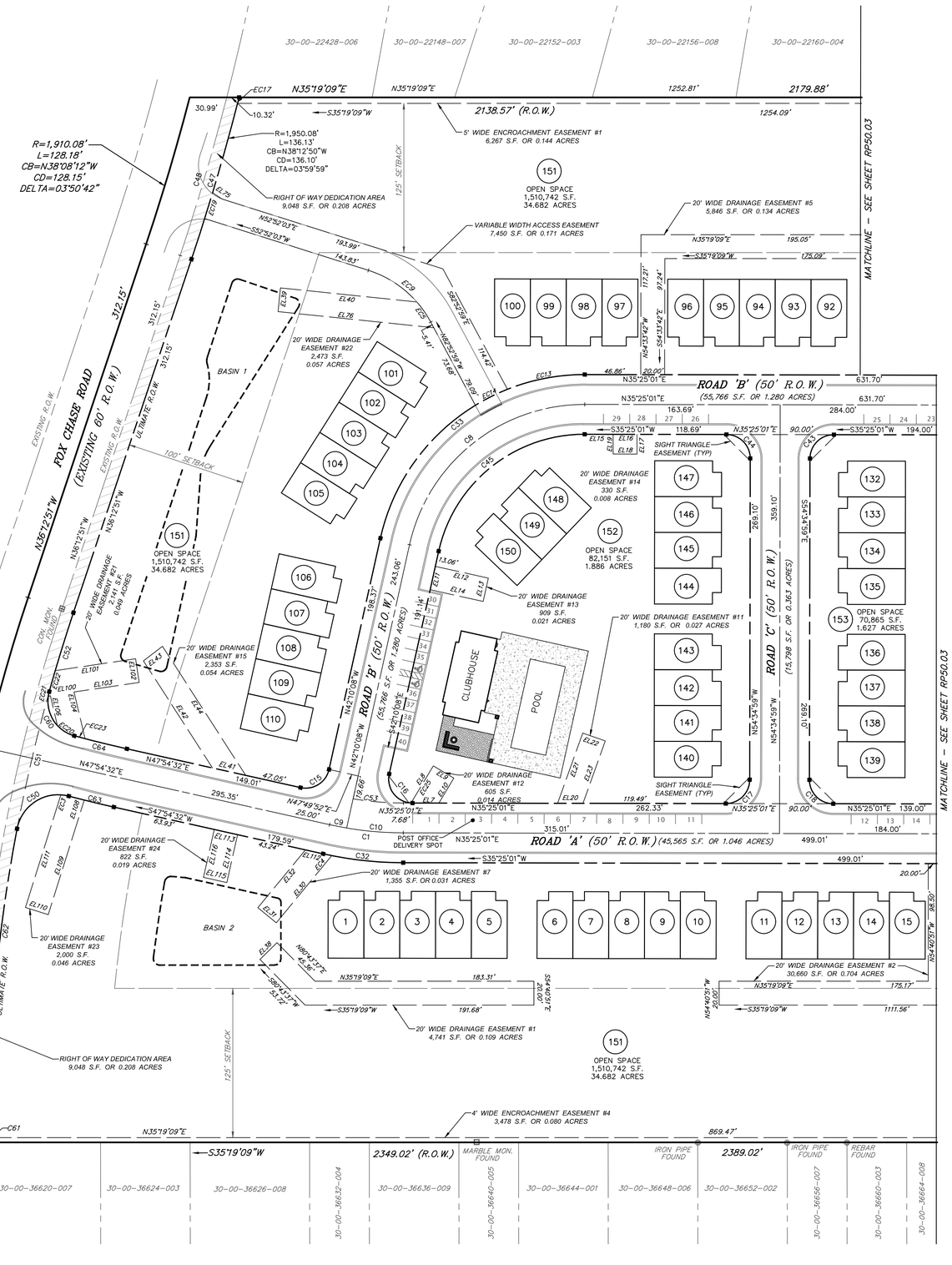
*PARKING PROVIDED FOR 2 VEHICLES IN GARAGE, 2 VEHICLES IN DRIVEWAY, AND ON-STREET STALLS. SINGLE CAR GARAGE MAY NOT BE UTILIZED AS REQUIRED PARKING SPACES, UNLESS A BASEMENT IS PROVIDED.

**OVERFLOW PARKING INCLUDES 39 PARKING SPACES, 2 HANDICAP SPACES AND 1 POST OFFICE SPOT.

LEGEND:

- MONUMENT TO BE SET
- MONUMENT FOUND
- IRON PIN/PIPE FOUND
- (50) PROPOSED LOT NUMBER
- BUILDING SETBACK LINE
- PROPOSED CENTER LINE
- STREAM LINE
- PROPOSED PROPERTY LINE
- PROPOSED R.O.W.
- OUTBOUND LINE
- ZONING BOUNDARY LINE
- PROPOSED EASEMENT
- TOWNSHIP RIPARIAN BUFFER – ZONE 1
- TOWNSHIP RIPARIAN BUFFER – ZONE 2
- STEEP SLOPES 15% TO 25%
- STEEP SLOPES > 25%
- WETLANDS LIMIT
- WATERS OF THE U.S.
- FLOODPLAIN (ZONE X)

EASEMENT LINE TABLE		
LINE	BEARING	DISTANCE
EL7	S35°25'01"W	22.05'
EL8	N23°45'18"W	36.20'
EL9	N66°14'42"E	20.00'
EL10	S23°45'18"E	24.30'
EL11	N42°10'08"W	20.00'
EL12	N47°49'52"E	45.47'
EL13	S42°10'08"E	20.00'
EL14	S47°49'52"W	45.47'
EL15	N35°25'01"E	23.82'
EL16	N35°25'01"E	20.00'
EL17	S54°34'59"E	16.50'
EL18	S35°25'01"W	20.00'
EL19	N54°34'59"W	16.50'
EL20	S35°25'01"W	21.23'
EL21	N35°01'11"W	62.43'
EL22	N54°22'19"E	20.00'
EL23	S35°01'11"E	55.54'
EL30	S15°12'51"E	72.93'
EL31	S74°47'09"W	20.00'
EL32	N15°12'51"W	62.69'
EL38	N09°16'23"W	20.00'
EL39	N48°46'46"W	20.00'
EL40	N41°13'14"E	114.75'
EL41	S47°54'32"W	28.49'
EL42	S87°29'39"W	106.67'
EL43	N02°13'44"W	20.07'
EL44	N87°29'39"E	128.61'
EL75	N68°58'58"E	9.45'
EL76	S41°13'14"W	131.10'
EL100	S25°04'45"W	1.83'
EL101	N26°54'34"E	68.06'
EL102	S63°05'25"E	20.00'
EL103	S26°54'34"W	55.10'
EL104	S67°57'35"E	40.14'
EL105	S47°54'32"W	13.45'
EL106	N67°57'35"W	25.52'
EL108	N47°54'32"E	13.33'
EL109	S37°14'05"E	100.61'
EL110	S52°45'55"W	20.00'
EL111	N37°14'05"W	98.94'
EL112	N47°54'32"E	15.17'
EL113	N47°54'32"E	20.00'
EL114	S41°59'05"E	41.09'
EL115	S48°00'55"W	20.00'
EL116	N41°59'05"W	41.06'

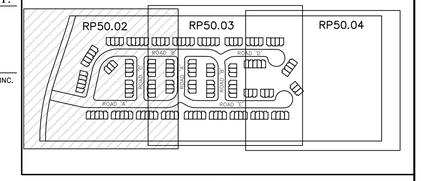


OWNER AND APPLICANT:

SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
ABINGTON, PA 19046-4198

EQUITABLE OWNER AND APPLICANT:

TOLL MID-ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215)938-8000



KEY MAP
N.T.S.

EASEMENT CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
EC3	25.00'	6.76'	6.75'	S44°32'39"W	11°04'24"	3.39'
EC4	310.00'	7.30'	7.30'	S47°14'05"W	1°20'54"	3.65'
EC5	90.00'	20.49'	20.45'	N89°24'18"W	13°02'38"	10.29'
EC9	90.00'	69.51'	67.79'	N74°59'32"E	44°14'58"	36.59'
EC13	175.00'	66.31'	65.92'	N24°33'41"E	21°42'40"	33.56'
EC14	175.00'	30.05'	30.01'	N08°47'12"E	9°50'18"	15.06'
EC17	1950.08'	5.16'	5.16'	S40°17'22"E	0°09'06"	2.58'
EC19	1950.08'	22.62'	22.62'	N37°35'50"W	0°39'53"	11.31'
EC20	30.00'	16.78'	16.56'	S66°35'51"W	32°02'48"	8.62'
EC21	30.00'	4.00'	4.00'	N42°52'47"W	7°38'47"	2.00'
EC22	1392.69'	19.81'	19.81'	N38°42'50"W	0°48'54"	9.90'
EC23	975.00'	9.31'	9.31'	S50°18'03"W	0°32'49"	4.65'
EC24	75.00'	0.90'	0.90'	N65°04'28"E	0°41'05"	0.45'
EC25	20.00'	1.22'	1.22'	N37°09'43"E	3°29'24"	0.61'

CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C1	285.00'	62.14'	62.01'	S41°39'46"W	12°29'32"	31.19'
C8	150.00'	203.12'	187.95'	S03°22'34"E	77°35'09"	120.57'
C9	285.00'	14.49'	14.49'	S46°27'09"W	2°54'47"	7.25'
C10	285.00'	47.65'	47.59'	S40°12'23"W	9°34'44"	23.88'
C15	20.00'	31.44'	28.30'	S02°52'12"W	90°04'40"	20.03'
C16	20.00'	35.75'	31.18'	S86°37'26"W	102°24'51"	24.88'
C17	20.00'	31.42'	28.28'	S09°34'59"E	90°00'00"	20.00'
C18	20.00'	31.42'	28.28'	S80°25'01"W	90°00'00"	20.00'
C32	310.00'	67.59'	67.45'	N41°39'46"E	12°29'32"	33.93'
C33	175.00'	236.97'	219.28'	S03°22'34"E	77°35'09"	140.67'
C43	20.00'	31.42'	28.28'	N09°34'59"W	90°00'00"	20.00'
C44	20.00'	31.42'	28.28'	N80°25'01"E	90°00'00"	20.00'
C45	125.00'	169.27'	156.63'	N03°22'34"W	77°35'09"	100.48'
C46	1392.69'	264.26'	263.87'	S49°20'50"E	10°52'19"	132.53'
C47	1950.08'	141.29'	141.26'	S38°17'23"E	4°09'05"	70.68'
C48	1940.08'	138.01'	137.98'	N38°15'07"W	4°04'33"	69.04'
C49	1402.69'	454.58'	452.59'	N45°29'54"W	18°34'06"	229.30'
C50	35.00'	57.42'	51.19'	S03°05'05"W	93°59'31"	37.53'
C51	1392.69'	118.00'	117.97'	S41°29'02"E	04°51'17"	59.04'
C52	1392.69'	69.09'	34.55'	S37°38'07"E	2°50'33"	34.55'
C53	260.00'	42.23'	42.18'	S40°04'12"W	9°18'22"	21.16'
C60	30.00'	47.32'	42.56'	S84°14'28"E	90°22'09"	30.19'
C61	1392.69'	4.00'	4.00'	S54°42'03"E	0°09'52"	2.00'
C62	1392.69'	260.26'	259.88'	N49°15'54"W	10°42'26"	130.51'
C63	1025.00'	38.85'	38.85'	S48°59'41"W	02°10'18"	19.43'
C64	975.00'	45.35'	45.35'	S49°14'30"W	02°39'55"	22.68'

AREA TABULATION - SISTERS OF ST. BASIL:

TOTAL SITE AREA:	2,019,856 SQ. FT. OR 46.370 ACRES
ROAD A ROW AREA:	45,565 SQ. FT. OR 1.046 ACRES
ROAD B ROW AREA:	55,766 SQ. FT. OR 1.280 ACRES
ROAD C ROW AREA:	15,798 SQ. FT. OR 0.363 ACRES
ROAD D ROW AREA:	28,461 SQ. FT. OR 0.653 ACRES
ROAD E ROW AREA:	45,345 SQ. FT. OR 1.041 ACRES
ROAD F ROW AREA:	16,073 SQ. FT. OR 0.369 ACRES
ROAD G ROW AREA:	16,225 SQ. FT. OR 0.372 ACRES
FOX CHASE ROAD LEGAL ROW AREA:	27,139 SQ. FT. OR 0.623 ACRES
FOX CHASE ROAD DEDICATED ROW AREA:	9,048 SQ. FT. OR 0.208 ACRES
TOTAL ENCROACHMENT AREA:	26,577 SQ. FT. OR 0.610 ACRES
OPEN SPACE LOT 151 AREA:	1,510,742 SQ. FT. OR 34.682 ACRES*
OPEN SPACE LOT 152 AREA:	82,151 SQ. FT. OR 1.886 ACRES**
OPEN SPACE LOT 153 AREA:	70,865 SQ. FT. OR 1.627 ACRES***
OPEN SPACE LOT 154 AREA:	70,101 SQ. FT. OR 1.609 ACRES****
TOTAL OPEN SPACE:	1,733,859 SQ. FT. OR 39.804 ACRES
QUALIFYING OPEN SPACE:	985,560 SQ. FT. OR 22.600 ACRES

*OPEN SPACE LOT 151 INCLUDES CARRIAGE LOTS 1 THROUGH 110
**OPEN SPACE LOT 152 INCLUDES CARRIAGE LOTS 140 THROUGH 150 AND CLUBHOUSE
***OPEN SPACE LOT 153 INCLUDES CARRIAGE LOTS 125 THROUGH 139
****OPEN SPACE LOT 154 INCLUDES CARRIAGE LOTS 111 THROUGH 124

GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

SURVEYOR CERTIFICATION

I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA; THAT TO THE BEST OF MY KNOWLEDGE THIS IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE LAND SUBDIVISION REGULATIONS OF THE TOWNSHIP OF ABINGTON.

THOMAS B. HENDRICKS, P.L.S.
PA LICENSE NO. SU-044552-E

CAUTION:
IF THIS DOCUMENT DOES NOT CONTAIN AN ORIGINAL SIGNATURE AND SEAL OF A LICENSED LAND SURVEYOR, IT IS NOT AN AUTHENTIC DOCUMENT (COPYRIGHT) AND MAY HAVE BEEN ALTERED.

THOMAS B. HENDRICKS
PROFESSIONAL LAND SURVEYOR
PA LICENSE NO. SU-044552-E

ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION	
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	KMS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	KMS
1	7/24/23	TOWNSHIP REVIEW LETTERS	KMS
			DRAWN

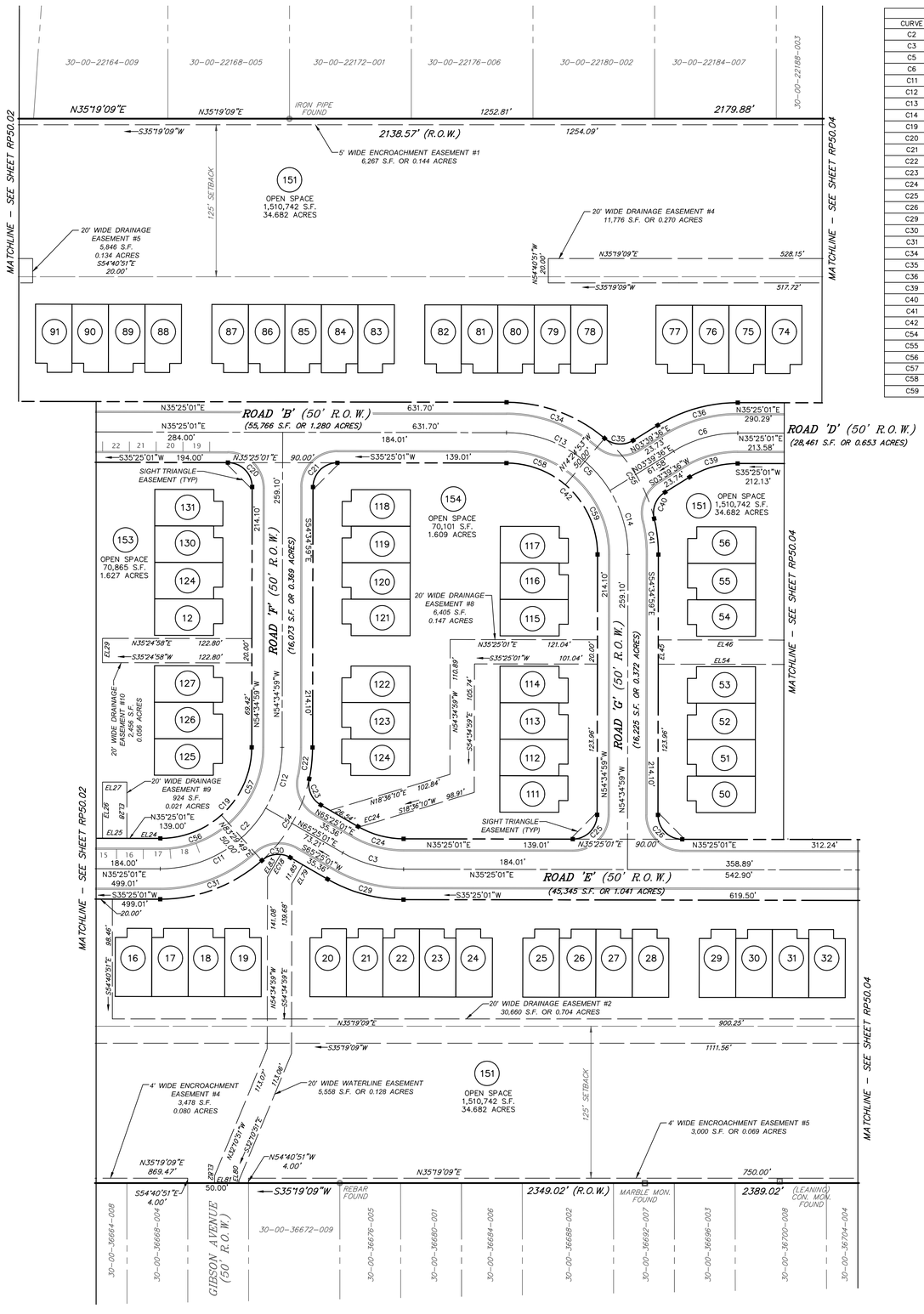
PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

RECORD PLAN
(RECORD SHEET 2 OF 4)

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03/24/23	SCALE: 1"=50'
DESIGN: JMM	DRAWN: KMS
JOB NO.: 7662	FILE NAME: RP50.02
REF. NO.:	RP50.02
SHEET NO.:	3 OF 62



CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C2	100.00'	157.08'	141.42'	S09°34'59"E	90°00'00"	100.00'
C3	100.00'	52.36'	51.76'	S50°25'01"W	30°00'00"	26.79'
C5	100.00'	157.08'	141.42'	N80°25'01"E	90°00'00"	100.00'
C6	100.00'	55.43'	54.72'	S19°32'18"W	31°45'25"	28.45'
C11	100.00'	104.72'	100.00'	S05°25'01"W	60°00'00"	57.74'
C12	100.00'	52.36'	51.76'	S39°34'59"E	30°00'00"	26.79'
C13	100.00'	101.67'	97.34'	S64°32'32"W	58°15'02"	55.72'
C14	100.00'	55.41'	54.71'	N70°27'28"W	31°44'58"	28.44'
C19	75.00'	117.81'	106.07'	S09°34'59"E	90°00'00"	75.00'
C20	20.00'	31.42'	28.28'	N80°25'01"E	90°00'00"	20.00'
C21	20.00'	31.42'	28.28'	N09°34'59"W	90°00'00"	20.00'
C22	125.00'	26.01'	25.96'	N48°37'23"W	11°55'12"	13.05'
C23	20.00'	25.10'	23.49'	N78°37'23"W	71°55'12"	14.51'
C24	75.00'	39.27'	38.82'	S50°25'01"W	30°00'00"	20.10'
C25	20.00'	31.42'	28.28'	S09°34'59"E	90°00'00"	20.00'
C26	20.00'	31.42'	28.28'	S80°25'01"W	90°00'00"	20.00'
C29	125.00'	65.45'	64.70'	N50°25'01"E	30°00'00"	33.49'
C30	20.00'	25.10'	23.49'	N29°27'25"E	71°55'12"	14.51'
C31	125.00'	91.46'	89.43'	N14°27'25"E	41°55'12"	47.88'
C34	125.00'	87.63'	85.85'	S55°30'04"W	40°10'06"	45.70'
C35	20.00'	25.11'	23.49'	S39°37'22"W	71°55'31"	14.51'
C36	125.00'	69.28'	68.40'	S19°32'18"W	31°45'25"	35.56'
C39	75.00'	41.57'	41.04'	N19°32'18"E	31°45'25"	21.33'
C40	20.00'	25.10'	23.49'	N32°17'50"W	71°54'53"	14.51'
C41	125.00'	29.83'	29.76'	N61°25'08"W	13°40'18"	14.98'
C42	75.00'	117.81'	106.07'	N80°25'01"E	90°00'00"	75.00'
C54	125.00'	78.89'	77.59'	S24°34'59"E	36°09'36"	40.81'
C55	125.00'	78.89'	77.59'	N86°20'05"W	36°09'36"	40.81'
C56	75.00'	54.87'	53.66'	S14°27'25"W	41°55'12"	28.73'
C57	75.00'	62.94'	61.11'	S30°32'35"E	48°04'48"	33.45'
C58	75.00'	52.58'	51.51'	S55°30'04"W	40°10'06"	27.42'
C59	75.00'	65.23'	63.19'	N79°29'56"W	49°49'54"	34.84'

EASEMENT CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
EC18	20.00'	8.39'	8.33'	N53°23'31"E	24°02'59"	4.26'
EC24	75.00'	0.90'	0.90'	N65°04'28"E	0°41'05"	0.45'

EASEMENT CURVE TABLE		
LINE	BEARING	DISTANCE
EL24	S35°25'01"W	27.54'
EL25	S35°25'01"W	20.00'
EL26	N54°40'54"W	46.20'
EL27	N35°19'06"E	20.00'
EL28	S54°40'54"E	46.24'
EL29	N54°35'02"W	20.00'
EL45	N54°34'59"W	20.00'
EL46	N35°25'01"E	126.88'
EL54	S35°25'01"W	106.86'
EL79	S24°34'59"E	17.99'
EL80	S54°40'51"E	2.01'
EL81	S35°19'09"W	20.00'
EL82	N54°40'51"W	5.99'
EL83	N24°34'59"W	21.61'

OWNER AND APPLICANT:

SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
ABINGTON, PA 19046–4198

EQUITABLE OWNER AND APPLICANT:

TOLL MID–ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
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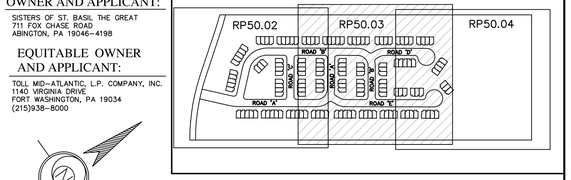

KEY MAP
N.T.S.

LEGEND:

- MONUMENT TO BE SET
- MONUMENT FOUND
- IRON PIN/PIPE FOUND
- (50) PROPOSED LOT NUMBER
- BUILDING SETBACK LINE
- PROPOSED CENTER LINE
- STREAM LINE
- PROPOSED PROPERTY LINE
- PROPOSED R.O.W.
- OUTBOUND LINE
- ZONING BOUNDARY LINE
- PROPOSED EASEMENT
- TOWNSHIP RIPARIAN BUFFER – ZONE 1
- TOWNSHIP RIPARIAN BUFFER – ZONE 2
- STEEP SLOPES 15% TO 25%
- STEEP SLOPES > 25%
- WETLANDS LIMIT
- WATERS OF THE U.S.
- FLOODPLAIN (ZONE X)

AREA TABULATION - SISTERS OF ST. BASIL:

TOTAL SITE AREA:	2,019,856 SQ. FT. OR	46.370 ACRES
ROAD A ROW AREA:	45,565 SQ. FT. OR	1.046 ACRES
ROAD B ROW AREA:	55,766 SQ. FT. OR	1.280 ACRES
ROAD C ROW AREA:	15,798 SQ. FT. OR	0.363 ACRES
ROAD D ROW AREA:	28,461 SQ. FT. OR	0.653 ACRES
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ROAD F ROW AREA:	16,073 SQ. FT. OR	0.369 ACRES
ROAD G ROW AREA:	16,225 SQ. FT. OR	0.372 ACRES
FOX CHASE ROAD LEGAL ROW AREA:	27,139 SQ. FT. OR	0.623 ACRES
FOX CHASE ROAD DEDICATED ROW AREA:	9,048 SQ. FT. OR	0.208 ACRES
TOTAL ENCROACHMENT AREA:	26,577 SQ. FT. OR	0.610 ACRES
OPEN SPACE LOT 151 AREA:	1,510,742 SQ. FT. OR	34.682 ACRES*
OPEN SPACE LOT 152 AREA:	82,151 SQ. FT. OR	1.886 ACRES**
OPEN SPACE LOT 153 AREA:	70,865 SQ. FT. OR	1.627 ACRES***
OPEN SPACE LOT 154 AREA:	70,101 SQ. FT. OR	1.609 ACRES****
TOTAL OPEN SPACE:	1,733,859 SQ. FT. OR	39.804 ACRES
QUALIFYING OPEN SPACE:	985,560 SQ. FT. OR	22.600 ACRES

*OPEN SPACE LOT 151 INCLUDES CARRIAGE LOTS 1 THROUGH 110
**OPEN SPACE LOT 152 INCLUDES CARRIAGE LOTS 140 THROUGH 150 AND CLUBHOUSE
***OPEN SPACE LOT 153 INCLUDES CARRIAGE LOTS 125 THROUGH 139
****OPEN SPACE LOT 154 INCLUDES CARRIAGE LOTS 111 THROUGH 124

GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

ADJOINERS INFORMATION TABLE

PARCEL NUMBER	OWNER	ADDRESS	ACREAGE
30-00-22148-007	ARDEN C. AND KEATHLEEN A. HANDER	615 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.44
30-00-22152-003	ARNOLD J. AND SANDRA BERSON	623 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.48
30-00-22156-008	ROY B. AND LESLIE G. PORTNER	631 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.44
30-00-22160-004	CHARLES T. AND GLORIA MCDERMOTT	637 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.38
30-00-22164-009	LAZAROS KARASAVAS	645 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.36
30-00-22168-005	LUCAS BURKE	653 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22172-001	THEODORE A. AND PATRICIA ZALEWSKI	661 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22176-006	KILE F. AND KATHLEEN T. WIDMAN	669 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22180-002	LISA A. HARKINS	677 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22184-007	BILL RAY AND PATRICIA ANN JACOBS	685 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22188-003	DENNIS JOHN AND NICOLE CYNTHIA LAURIA	693 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.38
30-00-22102-008	JOYCE M. AND DAVIS S. LEFF	707 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.38
30-00-22196-004	THOMAS P. DENNERY	715 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22200-009	PEARSE P. AND ELIZABETH V. KERR	723 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22204-005	HOWARD A. AND KATHLEEN A. WILSON	731 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22208-001	ROBERT W. AND KIMBERLYA. GEISLER	739 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22212-006	GLENN GRESSEN	747 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.39
30-00-22216-002	GEORGE H. JR. MORGAN	755 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.67
30-00-22428-006	SAMUEL AND NANCY KRENZEL	777 FOX CHASE ROAD, JENKINGTOWN, PA 19046	0.38
30-00-12796-008	SIMON AND TOBY GALAPO	803 DELENE ROAD, RYDAL, PA 19046	0.97
30-00-63888-009	JODY LIEBERMAN GOLDSBOROUGH	756 SUFFORK ROAD, RYDAL, PA 19046	0.47
30-00-63884-004	CHRISTINA BARTOSH	748 SUFFORK ROAD, RYDAL, PA 19046	0.36
30-00-63880-008	ROBERT AND ALBERINA DRIZA	742 SUFFORK ROAD, JENKINGTOWN, PA 19046	0.36
30-00-63876-003	ARBEN PROFKA	732 SUFFORK ROAD, JENKINGTOWN, PA 19046	0.35
30-00-63872-007	KOSTANDIN AND NEKIE TURTULLI	726 SUFFORK ROAD, JENKINGTOWN, PA 19046	0.35
30-00-63868-002	DIANE MEEHAN	716 SUFFORK ROAD, JENKINGTOWN, PA 19046	0.35
30-00-10052-007	SAIMIR AND JULINDA SHEHU	863 COLWYN ROAD, JENKINGTOWN, PA 19046	0.48
30-00-36620-007	ROBERT AND THERESA WAAS	608 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.28
30-00-36624-003	VINCENT J. AND JULIE A. KELLY	614 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36628-008	GREGORY J. POEHLMANN	622 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.27
30-00-36632-004	ROY A. AND CAROLE ANNE STEIN	626 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.14
30-00-36636-009	JOSEPH AND DOLORES HURLEY	632 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36640-005	MICHAEL GAZZARA AND JESSICA RUCH	636 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36644-001	MICHAEL S. AND LINDA TOBIN	642 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36648-006	STEVEN D. HUNTZINGER	648 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36652-002	FRANCES C. MCKEOWN AND MICHAEL P. BURNER	654 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36656-007	HARRY J. VANPELT AND LESLIE E. MAXWELL	658 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.14
30-00-36660-003	HARRY J. AND KAREN A. LOOBY	662 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.14
30-00-36664-008	JOHN A. AND ODARKA CHARAMBURA	666 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36668-004	ALEXANDRA L. STILES	670 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36672-009	JED K. MARGOLIS AND CARLEY M. TAYLOR	702 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36676-005	JOSEPH E. AND JAIME M. AVON	706KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36680-001	HUGH B. AND KATHLEEN A. MCHUGH	710 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36684-006	RAYMOND AND KATE VANDEGRIFT	714 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36688-002	RALPH AND ERMA F. YERKES	718 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36692-007	PAMELA M. JONES	724 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36696-003	WILLIAM F. AND PAMELA ANNE HAGERTY	728 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36700-008	GLEN E. AND LISA B. HEILMAN	734 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36704-004	FRANCIS N. AND CYNTHIA L. MAY	738 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36708-009	WALTER G. JR AND PATRICIA A. WYATT	742 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36712-005	VINCENT J. AND JEANETTE M. CALGIURI	746 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36716-001	JESSIE G. AND ELEZABETH M. GRAZIANI	752 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36720-006	LORRAINE ZWOLAK	756 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36724-002	DENNIS AND CHERYL D. CONARD	802 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.60
30-00-36860-001	ABINGTON TOWNSHIP	KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	12.00

SURVEYOR CERTIFICATION

I HEREBY CERTIFY THAT I AM A REGISTERED PROFESSIONAL LAND SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF PENNSYLVANIA; THAT TO THE BEST OF MY KNOWLEDGE THIS IS TRUE AND CORRECT TO THE ACCURACY REQUIRED BY THE LAND SUBDIVISION REGULATIONS OF THE TOWNSHIP OF ABINGTON.

THOMAS B. HENDRICKS, P.L.S.
PA LICENSE NO. SU-044552-E

CAUTION:
IF THIS DOCUMENT DOES NOT CONTAIN THE ORIGINAL SEAL AND SIGNATURE OF A LAND SURVEYOR, IT IS NOT AN ORIGINAL DOCUMENT AND MAY HAVE BEEN ALTERED.

THOMAS B. HENDRICKS
PROFESSIONAL LAND SURVEYOR
PA LICENSE NO. SU–044552–E

ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL

ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION	DRAWN
1	7/24/23	TOWNSHIP REVIEW LETTERS	KMS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	KMS
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	KMS

APPLICATION NUMBER LD–23–01

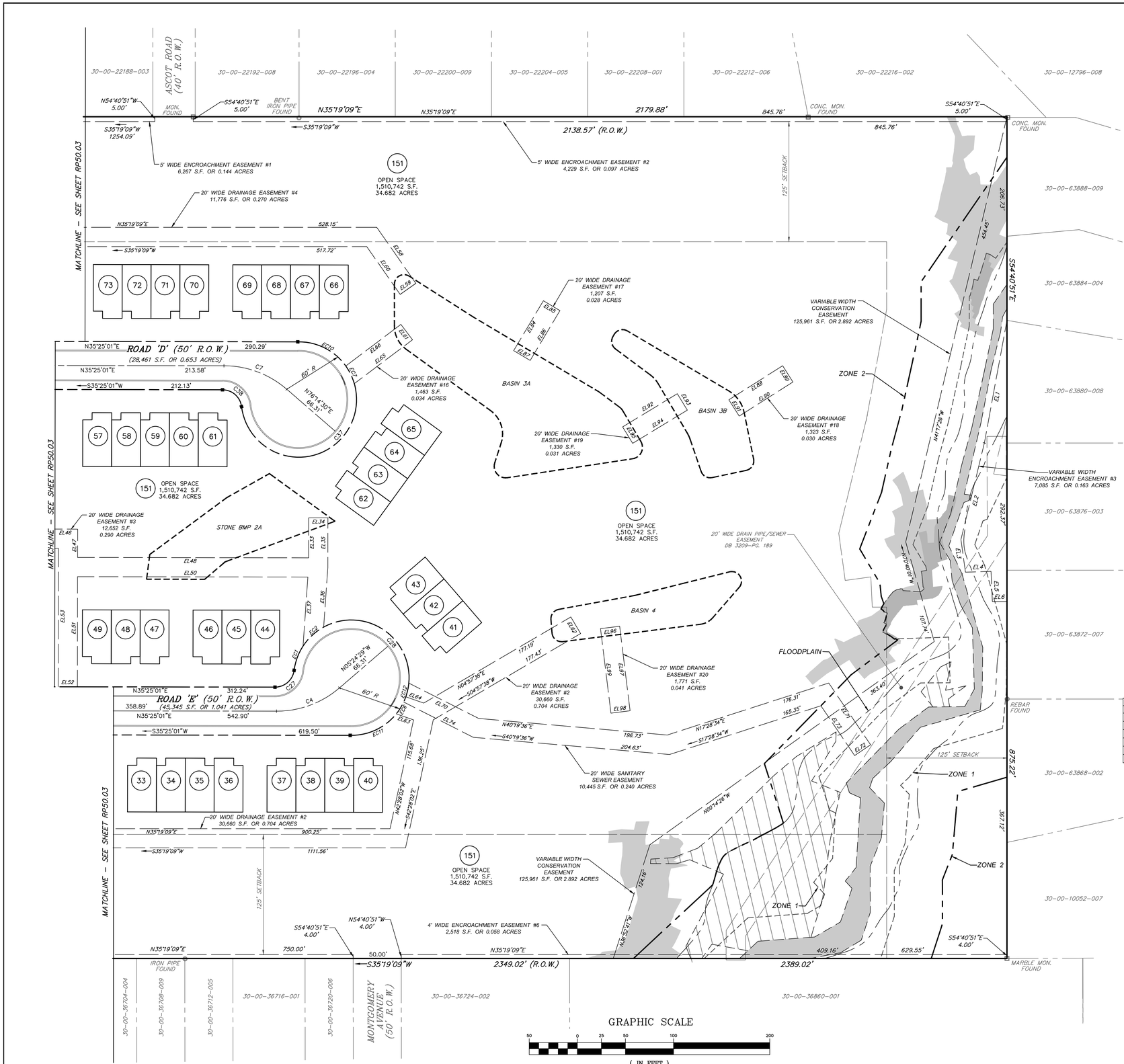
PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

RECORD PLAN
(RECORD SHEET 3 OF 4)

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03/24/23	SCALE: 1"=50'
DESIGN: JMM	DRAWN: KMS
JOB NO.: 7662	FILE NAME: RP50.03
REF. NO.: RP50.03	
SHEET NO.: 4 OF 62	



GRAPHIC SCALE

50 0 25 50 100 200

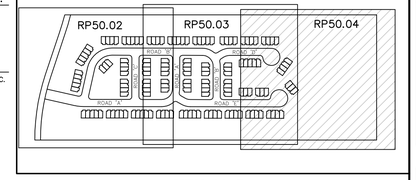
(IN FEET)
1 inch = 50 ft.

OWNER AND APPLICANT:

SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
ABINGTON, PA 19046-4198

EQUITABLE OWNER AND APPLICANT:

TOLL MID-ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215)938-8000



KEY MAP
N.T.S.

LEGEND:

- MONUMENT TO BE SET
- MONUMENT FOUND
- IRON PIN/PIPE FOUND
- (50) PROPOSED LOT NUMBER
- BUILDING SETBACK LINE
- PROPOSED CENTER LINE
- STREAM LINE
- PROPOSED PROPERTY LINE
- PROPOSED R.O.W.
- OUTBOUND LINE
- ZONING BOUNDARY LINE
- PROPOSED EASEMENT
- TOWNSHIP RIPARIAN BUFFER - ZONE 1
- TOWNSHIP RIPARIAN BUFFER - ZONE 2
- STEEP SLOPES 15% TO 25%
- STEEP SLOPES > 25%
- WETLANDS LIMIT
- WATERS OF THE U.S.
- FLOODPLAIN (ZONE X)

EASEMENT LINE TABLE		
LINE	BEARING	DISTANCE
EL1	S44°15'12"E	129.60'
EL2	S41°04'45"E	103.32'
EL3	S62°25'53"E	34.27'
EL4	N33°26'33"E	26.58'
EL5	S57°20'25"E	31.42'
EL6	N35°21'38"E	15.11'
EL33	N54°35'34"W	41.56'
EL34	N35°24'26"E	20.00'
EL35	S54°35'34"E	51.90'
EL36	S50°41'37"E	61.77'
EL37	N50°41'37"W	71.94'
EL46	N35°25'01"E	126.88'
EL47	S54°37'53"E	29.43'
EL48	N35°24'03"E	240.03'
EL49	S54°36'47"E	20.00'
EL50	S35°24'03"W	239.37'
EL51	S54°35'34"E	114.54'
EL52	S35°25'01"W	20.00'
EL53	N54°35'34"W	143.96'
EL58	S89°36'17"E	71.06'
EL59	S00°23'43"W	20.00'
EL60	N89°36'17"W	60.63'
EL61	N88°17'15"E	20.00'
EL62	S85°02'22"E	20.00'
EL63	S54°39'07"W	19.01'
EL64	N54°39'07"E	19.77'
EL65	S01°42'45"E	75.74'
EL66	N01°42'45"W	71.76'
EL70	N62°10'17"E	81.45'
EL71	S88°47'02"E	77.50'
EL72	S01°12'58"W	20.00'
EL73	N88°47'02"W	62.50'
EL74	S62°10'17"W	81.19'
EL84	N23°54'34"W	60.34'
EL85	N66°05'56"E	20.00'
EL86	S23°54'34"E	60.34'
EL87	S66°05'56"W	20.00'
EL88	N02°58'13"E	66.15'
EL89	S87°01'47"E	20.00'
EL90	S02°58'13"W	66.15'
EL91	N87°01'47"W	20.00'
EL92	N04°00'36"E	66.50'
EL93	S85°59'24"E	20.00'
EL94	S04°00'36"W	66.50'
EL95	N85°59'24"W	20.00'
EL96	N28°17'05"E	20.00'
EL97	S61°42'55"E	88.53'
EL98	S28°17'05"W	20.00'
EL99	N61°42'55"W	88.53'

EASEMENT CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
EC1	60.00'	27.15'	26.92'	S34°25'56"E	25°55'31"	13.81'
EC2	60.00'	29.46'	29.17'	S07°24'09"E	28°08'04"	15.03'
EC6	60.00'	20.39'	20.29'	S25°34'25"E	19°28'25"	10.30'
EC7	60.00'	20.49'	20.39'	S80°27'34"E	19°34'04"	10.35'
EC10	60.00'	58.12'	55.88'	S62°00'20"W	55°30'06"	31.57'
EC11	60.00'	54.78'	52.90'	S10°19'14"W	52°18'52"	29.47'
EC12	60.00'	20.52'	20.42'	S39°28'14"E	19°35'42"	10.36'

CURVE TABLE						
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C4	100.00'	71.25'	69.76'	S15°00'16"W	40°49'30"	37.21'
C7	100.00'	71.25'	69.76'	S55°49'45"W	40°49'30"	37.21'
C27	20.00'	28.91'	26.46'	S05°59'21"E	82°48'43"	17.64'
C28	60.00'	276.33'	89.27'	S84°32'29"W	263°52'22"	66.79'
C37	60.00'	276.43'	89.20'	N13°45'32"W	263°58'21"	66.67'
C38	20.00'	28.91'	26.46'	N76°49'19"E	82°48'37"	17.64'

AREA TABULATION - SISTERS OF ST. BASIL:

TOTAL SITE AREA:	2,019,856 SQ. FT. OR 46.370 ACRES
ROAD A ROW AREA:	45,565 SQ. FT. OR 1.046 ACRES
ROAD B ROW AREA:	55,766 SQ. FT. OR 1.280 ACRES
ROAD C ROW AREA:	15,798 SQ. FT. OR 0.363 ACRES
ROAD D ROW AREA:	28,461 SQ. FT. OR 0.653 ACRES
ROAD E ROW AREA:	45,345 SQ. FT. OR 1.041 ACRES
ROAD F ROW AREA:	16,073 SQ. FT. OR 0.369 ACRES
ROAD G ROW AREA:	16,225 SQ. FT. OR 0.372 ACRES
FOX CHASE ROAD LEGAL ROW AREA:	27,139 SQ. FT. OR 0.623 ACRES
FOX CHASE ROAD DEDICATED ROW AREA:	9,048 SQ. FT. OR 0.208 ACRES
TOTAL ENCROACHMENT AREA:	26,577 SQ. FT. OR 0.610 ACRES
OPEN SPACE LOT 151 AREA:	1,510,742 SQ. FT. OR 34.682 ACRES*
OPEN SPACE LOT 152 AREA:	82,151 SQ. FT. OR 1.886 ACRES**
OPEN SPACE LOT 153 AREA:	70,865 SQ. FT. OR 1.627 ACRES***
OPEN SPACE LOT 154 AREA:	70,101 SQ. FT. OR 1.609 ACRES****
TOTAL OPEN SPACE:	1,733,859 SQ. FT. OR 39.804 ACRES
QUALIFYING OPEN SPACE:	985,560 SQ. FT. OR 22.600 ACRES

*OPEN SPACE LOT 151 INCLUDES CARRIAGE LOTS 1 THROUGH 110
**OPEN SPACE LOT 152 INCLUDES CARRIAGE LOTS 140 THROUGH 150 AND CLUBHOUSE
***OPEN SPACE LOT 153 INCLUDES CARRIAGE LOTS 125 THROUGH 139
****OPEN SPACE LOT 154 INCLUDES CARRIAGE LOTS 111 THROUGH 124

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THOMAS B. HENDRICKS, P.L.S.
PA LICENSE NO. SU-044552-E

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ESE Consultants, Inc.
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T: 215-914-2050

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	KMS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	KMS
1	7/24/23	TOWNSHIP REVIEW LETTERS	KMS

APPLICATION NUMBER LD-23-01

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

RECORD PLAN
(RECORD SHEET 4 OF 4)

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03/24/23	SCALE: 1"=50'
DESIGN: JMM	DRAWN: KMS
JOB NO.: 7662	FILE NAME: RP50.04
REF. NO.: RP50.04	
SHEET NO.: 5 OF 62	

GENERAL NOTES:

1. DESIGN ENGINEER, SURVEYOR, PLANNER, LANDSCAPE ARCHITECT:
ESE CONSULTANTS, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA. 19034
215/914–2050

2. WETLANDS CONSULTANT:
ESE CONSULTANTS, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA. 19034
215/914–2050

3. WETLAND PRELIMINARY JURISDICTION DETERMINATION WAS OBTAINED ON SEPTEMBER 1, 2022 (NAP–2022–00532–45.

4. FLOODPLAIN SHOWN ON THE PLAN HAS BEEN TAKEN FROM THE FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 42091C043G, EFFECTIVE DATE MARCH 2, 2016.

5. SOILS SHOWN WERE TAKEN FROM "SOIL SURVEY, MONTGOMERY COUNTY, PENNSYLVANIA", PREPARED BY THE NATURAL RESOURCE CONSERVATION SURVEY, DATED NOVEMBER 22, 2021.

6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT ABINGTON TOWNSHIP CODES, SPECIFICATIONS AND THE ENGINEERING AND CONSTRUCTION STANDARDS.

7. THESE PLANS WERE PREPARED PER THE ABINGTON TOWNSHIP, STORMWATER MANAGEMENT ORDINANCE, SUBDIVISION AND LAND DEVELOPMENT ORDINANCE AND THE ZONING AND PLANNED RESIDENTIAL DEVELOPMENT ORDINANCE, AS LAST AMENDED.

8. THE EXISTING LAND USE IS A PARKING LOT, AND SCHOOL WITH ATHLETIC FIELDS. THE PROPOSED LAND USE IS FOR ONE HUNDRED FIFTY (150) AGE RESTRICTED CARRIAGE HOME DWELLING UNITS (SINGLE–FAMILY ATTACHED), PROPOSED ROADS, UTILITIES AND OPEN SPACE PARCELS.

9. FURTHER SUBDIVISION OF ANY OF THE LOTS, BOTH PRIVATE LOTS AND OPEN SPACE LOTS IN THIS SUBDIVISION IS PROHIBITED.

10. THE PROPOSED ROADS SHALL BE OFFERED FOR DEDICATION TO THE TOWNSHIP. ROADS TO BE BUILT TO TOWNSHIP STANDARDS. THE HOA WILL MAINTAIN STORM SEWER, SIDEWALK, CURBING AND ROADS WITHIN THE RIGHT OF WAYS, ONCE DEDICATED.

11. STATE OR TOWNSHIP ROAD OCCUPANCY PERMITS, AS APPLICABLE, TO BE OBTAINED AS NECESSARY.

12. PROPOSED LOTS TO BE SERVED BY PUBLIC WATER AND PUBLIC SEWER.

13. THE LOCATION OF THE HOUSES AND DRIVEWAYS AS SHOWN ON THE PLAN ARE FOR ILLUSTRATION AND PLANNING PURPOSES ONLY. THE APPLICANT RESERVES THE RIGHT TO MODIFY THE HOUSE SIZE, SHAPE AND LOCATION AT THE TIME OF BUILDING PERMIT APPLICATION.

14. GRADING:
   A. NO PLANTINGS, BUILDINGS, OR OTHER STRUCTURES, INCLUDING DRIVEWAYS, MAY BE PLACED IN OR ON DRAINAGE, UTILITY OR SANITARY SEWER EASEMENTS.
   B. MAXIMUM CUT AND FILL SLOPES SHALL BE 3 HORIZONTAL : 1 VERTICAL, UNLESS APPROVED BY THE TOWNSHIP.

15. DRIVEWAYS:
   A. PRIVATE DRIVEWAYS, EITHER INDIVIDUAL OR SHARED, SHALL BE PROVIDED FOR ALL RESIDENCES AND THE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF THIS SECTION IN ORDER TO PROVIDE SAFE ACCESS TO TOWNSHIP AND STATE ROADS AND TO ELIMINATE PROBLEMS OF STORMWATER RUNOFF.
   B. AT LEAST TWO (2) OFF–STREET PARKING SPACES WITH ACCESS TO A PUBLIC STREET SHALL BE PROVIDED FOR EACH PROPOSED DWELLING UNIT EITHER WITHIN A STRUCTURE OR IN THE OPEN. (DEPENDING ON SIZE OF GARAGE)

16. STATE OR TOWNSHIP ROAD OCCUPANCY PERMITS, AS APPLICABLE, TO BE OBTAINED AS NECESSARY.

17. NOTHING SHALL BE PERMITTED TO BE PLACED, PLANTED, SET OR PUT WITHIN THE AREA OF A UTILITY EASEMENT EXCEPT LAWNS, LOW GROUND COVER, OR OTHER LANDSCAPING THAT WILL NOT ADVERSELY AFFECT THE UTILITY OR THE EASEMENT.

18. SIGHT TRIANGLE:
   A. CLEAR SIGHT TRIANGLES SHALL BE PROVED AT ALL STREET INTERSECTIONS. WITHIN SUCH TRIANGLES, NO VISION OBSTRUCTING OBJECTS SHALL BE PERMITTED WHICH OBSCURES VISION ABOVE THE HEIGHT OF THIRTY (30) INCHES AND BELOW TEN (10) FEET MEASURED FROM THE CENTERLINE GRADE OF INTERSECTING STREETS.
   B. CLEAR SIGHT TRIANGLES OF 60 FEET ALONG RIGHT–OF–WAY LINES FROM THEIR POINTS OF JUNCTION SHALL BE PROVIDED AT ALL INTERSECTIONS; AND NO BUILDINGS, STRUCTURES, GRADES OR PLANTINGS HIGHER THAN THIRTY (30) INCHES OR LOWER THAN 10 FEET ABOVE THE CENTER LINES OF THE STREET SHALL BE PERMITTED WITHIN SUCH SIGHT TRIANGLES. ANY OBSTRUCTION TO SIGHT SHALL BE REMOVED AT THE TIME THE STREET IS GRADED OR AT A TIME A BUILDING OR STRUCTURE IS ERECTED, WHICHEVER SHALL FIRST OCCUR.

19. ALL CONTRACTORS WORKING ON THIS PROJECT SHALL BE RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES RELATED TO THIS PROJECT ARE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION) STANDARDS.

20. THE DEVELOPER, ITS SUCCESSORS AND ASSIGNS, HEREBY RESERVES THE RIGHT TO ENTER UPON EACH AND EVERY LOT AND AREA OF THE SUBDIVISION/DEVELOPMENT DEPICTED HEREON, WHETHER PRIOR OR SUBSEQUENT TO CONVEYANCE OF ANY LOT, UNTIL EXPIRATION OF THE STATUTORY MAINTENANCE PERIOD FOLLOWING DEDICATION OF PUBLIC IMPROVEMENTS AS SET FORTH AT SECTION 509 OF THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, AS AMENDED, 53 P.S. 10509, FOR THE PURPOSE OF COMPLETING ANY LANDSCAPING AS REQUIRED BY THE MUNICIPALITY AND FURTHER TO MAKE SUCH MODIFICATIONS IN GRADING AND/OR DRAINAGE IMPROVEMENTS ON ANY LOT AS MAY BE NECESSARY IN THE DISCRETION OF THE DEVELOPER, ITS SUCCESSORS AND ASSIGNS AND/OR THE TOWNSHIP ENGINEER FOR SATISFACTORY STORM WATER MANAGEMENT.

21. THE APPLICANT/OWNER OF THIS PROPERTY ACKNOWLEDGES THE REQUIREMENT TO COMPLY WITH ALL STATE AND FEDERAL REGULATIONS REGARDING THE DISTURBANCE OF WETLANDS. ANY IMPROVEMENTS WHICH CANNOT BE COMPLETED AS SHOWN SHALL BE AMENDED TO THE SATISFACTION OF THE TOWNSHIP AND SHALL BE DEPICTED ON REVISED PLANS WHICH SHALL BE SUBMITTED TO THE TOWNSHIP FOR REVIEW. THE APPLICANT/OWNER OF THIS PROPERTY ACCEPTS ALL RESPONSIBILITY WITH RESPECT TO STATE AND FEDERAL REGULATIONS.

22. ALL IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS PROVIDED IN THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE OR OTHER SPECIFICATIONS OF THE TOWNSHIP, THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION, PENNDOT PUBLICATION 408, AS AMENDED, AND THE PENNDOT ROAD CONSTRUCTION STANDARDS, AS AMENDED, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OR THE AUTHORITY HAVING JURISDICTION OVER SAID IMPROVEMENTS.

23. AN NPDES PERMIT IS REQUIRED FOR THIS PROJECT FROM THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.

24. THE SPEED LIMIT WITHIN THIS DEVELOPMENT IS TO BE POSTED AT 20 M.P.H.

25. THE APPLICANT RESERVES THE RIGHT TO CONSTRUCT LANDSCAPE TOPSOIL BERMS WITHIN OPEN SPACE AND BUFFER YARDS.

26. STORM SEWERS:
   A. ALL INLETS TO BE TYPE AS NOTED.
   B. DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHOP DRAWINGS FOR ALL STRUCTURES.
   C. PIPES THROUGH BASIN EMBANKMENTS SHALL BE O–RING GASKETED PIPE WITH ANTI–SEEP COLLARS. ALL JOINTS SHALL BE MORTARED.
   D. A MINIMUM OF 24" OF COVER OVER THE BELL OF PIPE IS PROPOSED.
   E. STORMWATER ROOF DRAINS AND SUMP PUMPS SHALL DISCHARGE TO LAWNS, MULCH BEDS, GRASSED SWALES, OR UNDERGROUND WATER QUALITY BMPs AND NOT TO PAVED IMPERVIOUS SURFACES AND SHALL NOT CONNECT DIRECTLY TO A STORM SEWER SYSTEM W/O PRIOR APPROVAL FROM THE TOWNSHIP ENGINEER.
   F. STORM SEWERS, AS REQUIRED, SHALL BE PLACED UNDER OR IMMEDIATELY IN FRONT OF THE CURB, WHEN PARALLEL TO A PUBLIC STREET AND WITHIN THE RIGHT–OF–WAY. WHEN LOCATED IN UNDEDICATED LAND, THEY SHALL BE PLACED WITHIN AN EASEMENT NOT LESS THAN TWENTY (20) FEET WIDE AS APPROVED BY THE TOWNSHIP ENGINEER.
   G. STORM SEWERS SHALL HAVE A MINIMUM DIAMETER OF FIFTEEN (15) INCHES, AND SHALL BE GASKETED REINFORCED CONCRETE PIPE OR GASKETED SMOOTH LINED CURROGATED HIGH DENSITY POLYETHYLENE PIPE. MINIMUM GRADE SHALL BE ONE HALF PERCENT (0.5%). CHANGES IN ALIGNMENT SHALL BE BY STRAIGHT SECTIONS CONNECTED BY INLETS OR MANHOLES.
   H. MANHOLES SHALL BE NOT MORE THAN THREE HUNDRED (300) FEET APART FOR PIPE DIAMETER UP TO TWENTY–FOUR (24) INCHES, AND NOT MORE THAN FOUR HUNDRED AND FIFTY (450) FEET APART FOR GREATER DIAMETERS. INLETS MAY BE SUBSTITUTED FOR MANHOLES UPON APPROVAL BY THE TOWNSHIP ENGINEER.
   I. INLETS, MANHOLES, COVERS, AND FRAMES SHALL CONFORM TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

28. SANITARY SEWER:
   A. SANITARY SEWERS SHALL BE DESIGNED AND CONSTRUCTED IN STRICT ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES STANDARDS AND ABINGTON SEWER AUTHORITY (ASA) SPECIFICATIONS.
   B. SANITARY SEWERS SHALL NOT BE USED TO CARRY STORMWATER.
   C. REQUIREMENTS NOT REFERENCED IN THIS DOCUMENT SHALL BE REFERRED TO THE PENNSYLVANIA DEP SEWERAGE MANUAL, LATEST EDITION.
   D. SHOP DRAWINGS MUST BE SUBMITTED TO AND APPROVED BY THE ASA FOR ALL MATERIALS, STRUCTURES, EQUIPMENT, PIPING AND APPURTENANCES FOR THE SEWER PRIOR TO ORDERING ANY OF THESE ITEMS.
   E. ALL SEWER WORK MUST BE REVIEWED BY THE ASA AS THE INSTALLATION PROGRESSES. WORK PERFORMED WITHOUT SUCH INSPECTION IS SUBJECT TO REJECTION. A MINIMUM OF 48 HOURS ADVANCE NOTICE TO THE BCWSA IS REQUIRED.
   F. ALL SANITARY SEWER PIPING MUST BE TESTED IN THE PRESENCE OF THE ASA USING THE ASA STANDARD PROCEDURES. A MINIMUM OF 48 HOURS ADVANCE NOTICE TO THE ASA IS REQUIRED.
   G. THE ABINGTON SEWER AUTHORITY IS TO BE CONTACTED ONE WEEK PRIOR TO SANITARY SEWER CONSTRUCTION, AND 72 HOURS PRIOR TO EXCAVATING NEAR OR CONNECTING INTO ANY EXISTING SEWER FACILITIES.
   H. CLEANOUTS SHALL BE PROVIDED FOR ALL SANITARY LATERALS AT THE EDGE OF THE RIGHT–OF–WAY AND AT ALL MAJOR CHANGES IN DIRECTION. ALL LATERALS SHOULD BE PROVIDED WITH MINIMUM TWO PERCENT (2%) SLOPE BETWEEN THE SEWER MAIN AND FIRST CLEANOUT. CLEANOUTS SHOULD BE CUT TO SIX INCHES ABOVE FINISHED GRADE AND PROVIDED WITH A RECESSED TYPE PLUG. CLEANOUTS WITHIN PAVED AREAS OR WITHIN THREE FEET OF PAVED AREAS SHOULD BE PROVIDED WITH A CLEANOUT PROTECTION SLEEVE.
   I. MANHOLES SHALL BE LOCATED AT INTERVALS OF 300 FEET AND AT EACH CHANGE OF LINE OR GRADE. IN EXCEPTIONAL CASES, THE INTERVAL MAY BE EXTENDED TO NOT MORE THAN 300 FEET.
   J. TEN FEET OF HORIZONTAL CLEARANCE OR 18 ONCHES OF VERTICAL CLEARANCE SHOULD BE PROVIDED BETWEEN THE SANITARY SEWER AND ALL OTHER UTILITIES. OTHERWISE, CONCRETE ENCASEMENT OF THE SANITARY SEWER SHOULD BE PROVIDED.
   K. PIPE MATERIAL TO BE SDR–26.
   L. TESTING THE SANITARY SEWER SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE STANDARDS OF THE TOWNSHIP OF ABINGTON AND SHALL BE APPROVED BY THE TOWNSHIP ENGINEER BEFORE BUILDINGS ARE PERMITTED TO BE CONNECTED TO THE LATERALS.

29. WATER SERVICE:
   A. ALL WATER SYSTEM DESIGN SHALL BE IN ACCORDANCE WITH DESIGN STANDARDS AND REGULATIONS.
   B. ADEQUATE AND POTABLE WATER SUPPLY SYSTEM(S) SHALL BE INSTALLED CONSISTENT WITH DESIGN PRINCIPLES AND REQUIREMENTS CONTAINED IN THIS ORDINANCE AND TOWNSHIP STANDARDS, WHICH ARE THE U.S. PUBLIC HEALTH CRITERIA FOR DRINKING WATER AS ADMINISTERED BY THE EXISTING ENVIRONMENTAL PROTECTION AGENCY SAFE–DRINKING WATER ACT.
   C. THE SUBDIVISION SHALL BE PROVIDED WITH A COMPLETE PUBLIC WATER DISTRIBUTION SYSTEM. THE DESIGN AND INSTALLATION OF SUCH PUBLIC SYSTEM SHALL BE SUBJECT TO THE APPROVAL OF THE TOWNSHIP; THE DESIGN AND INSTALLATION OF SUCH COMMUNITY DISTRIBUTION SYSTEM SHALL BE SUBJECT TO THE APPROVAL OF THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES AND SUCH SYSTEM SHALL BE FURTHER SUBJECT TO SATISFACTORY PROVISION FOR THE MAINTENANCE THEREOF.
   D. FIRE HYDRANTS SUITABLE FOR THE COUPLING OF EQUIPMENT SERVING THE TOWNSHIP SHALL BE INSTALLED AS SPECIFIED BY THE INSURANCE SERVICES OFFICES OF PENNSYLVANIA.
      (1) ALL FIRE HYDRANTS WILL BE LOCATED ON AN EIGHT (8) INCH LINE OR A LOOPED SIX (6) INCH LINE
      (2) FIRE HYDRANTS SHALL BE SPACED IN A DEVELOPMENT SO THAT ALL PROPOSED BUILDING(S) WILL BE NO MORE THAN FIVE HUNDRED (500) FEET FROM THE HYDRANT MEASURED ALONG TRAVELED WAYS.
      (3) ALL COMMUNITY WATER SYSTEMS MUST PROVIDE A MINIMUM OF FIVE HUNDRED (500) GPM AT A RESIDUAL PRESSURE OF TWENTY (20) PSI FOR A TWO (2) HOUR PERIOD.
   E. NO PLANTINGS OR STRUCTURES SHALL BE LOCATED WITHIN THE WATER MAIN EASEMENTS OR WITHIN 5 FEET OF THE PROPOSED WATER MAINS OR WATER SERVICES.
   F. WATER MAIN TO BE DEFLECTED, WITHOUT BENDS, AROUND INLETS.

30. ALL OTHER UTILITY LINES INCLUDING, BUT NOT LIMITED TO ELECTRIC, GAS, STREET LIGHT SUPPLY, CABLE TELEVISION, AND TELEPHONE SHALL BE PLACED UNDERGROUND. INSTALLATION OF ALL UTILITIES SHALL BE IN STRICT ACCORDANCE WITH THE ENGINEERING STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP AND PUBLIC UTILITY CONCERNED.

31. IN ACCORDANCE WITH THE PROVISIONS OF ACT 287, ALL DEVELOPERS, CONTRACTORS, ETC., WILL CONTACT ALL APPLICABLE UTILITIES AND ACCURATELY DETERMINE THE LOCATIONS AND DEPTH OF ALL UNDERGROUND UTILITIES WITHIN THE BOUNDARIES OF THE TRACT PROPOSED FOR DEVELOPMENT, PRIOR TO EXCAVATION. A LIST OF THE APPLICABLE UTILITIES AND THEIR PHONE NUMBERS SHALL APPEAR ON THE PLANS SUBMITTED FOR REVIEW AND PROOF SHALL BE PRESENTED TO THE TOWNSHIP PRIOR TO FINAL PLAN APPROVAL.

32. IT SHALL BE UNLAWFUL TO ALTER OR REMOVE ANY PERMANENT STORMWATER BMP REQUIRED BY AN APPROVED BMP OPERATIONS AND MAINTENANCE PLAN, OR ALLOW THE PROPERTY TO REMAIN IN A CONDITION WHICH DOES NOT CONFORM TO AN APPROVED BMP OPERATIONS AND MAINTENANCE PLAN, UNLESS AN EXCEPTION IS GRANTED IN WRITING BY THE TOWNSHIP.

33. HOME OWNERS ASSOCIATION:
   A. THE HOMEOWNERS ASSOCIATION MAY NOT BE DISSOLVED, NOR MAY IT DISPOSE OF THE OPEN SPACE BY SALE OR OTHERWISE, WITHOUT FIRST OFFERING TO DEDICATE THE SAME TO THE TOWNSHIP AT NO COST.
   B. THE HOMEOWNERS ASSOCIATION DOCUMENTS WILL CONTAIN AN OPEN SPACE MANAGEMENT PLAN TO PROTECT THE SIGNIFICANT NATURAL FEATURES OF THE PROPERTY.
   C. THE HOMEOWNERS ASSOCIATION DOCUMENTS SHALL BE SUBMITTED FOR REVIEW BY THE TOWNSHIP SOLICITOR AS PART OF THE FINAL SUBDIVISION AND LAND DEVELOPMENT APPROVAL.
   D. THE HOME OWNERS ASSOCIATION WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ENTRANCE SIGN, DECORATIVE WALLS, FENCES OR LANDSCAPE ASSOCIATED WITH THEM.

34. EASEMENTS SHALL BE ESTABLISHED IN CONNECTION WITH ANY REGULATED ACTIVITY FOR ALL PERMANENT BMP'S AND CONVEYANCES THAT WILL NOT BE DEDICATED TO OR OTHERWISE OWNED BY THE MUNICIPALITY, (INCLUDING ANY TO BE LOCATED ON ANY PROPERTY OTHER THAN THE PROPERTY BEING DEVELOPED BY THE APPLICANT), AND SHALL:
   A. INCLUDE ALL LAND AREA OCCUPIED BY EACH BMP OR CONVEYANCE;
   B. INCLUDE A TEN (10)–FOOT WIDE PERIMETER (OR OTHER WIDTH AS DETERMINED IN CONSULTATION WITH THE MUNICIPAL ENGINEER) SURROUNDING THE FEATURE(S);
   C. PROVIDE SUFFICIENT VEHICULAR INGRESS AND EGRESS FROM A PUBLIC RIGHT–OF–WAY AND ROADWAY;
   D. GRANT THE MUNICIPALITY THE RIGHT, BUT NOT THE DUTY, TO ACCESS EVERY BMP AND CONVEYANCE FROM A PUBLIC RIGHT–OF–WAY OR PUBLIC ROADWAY TO CONDUCT PERIODIC INSPECTIONS AND TO UNDERTAKE OTHER ACTIONS THAT MAY BE NECESSARY TO ENFORCE THE REQUIREMENTS OF THIS ORDINANCE, OR OF ANY APPLICABLE O&M PLAN OR O&M AGREEMENT; WHERE ROADWAYS WILL NOT BE DEDICATED TO THE MUNICIPALITY, THE MUNICIPALITY SHALL BE GRANTED ACCESS TO THE PRIVATE ROADWAYS AS NECESSARY TO ACCESS EVERY BMP AND CONVEYANCE;
   E. GRANT THE OWNER OF EACH BMP AND CONVEYANCE THE RIGHT TO ACCESS, INSPECT, OPERATE, MAINTAIN, AND REPAIR THE BMP OR CONVEYANCE WHEN THE FEATURE IS TO BE OWNED, OPERATED AND MAINTAINED BY A PERSON OTHER THAN THE MUNICIPALITY AND OTHER THAN THE OWNER OF THE PARCEL ON WHICH IT IS LOCATED;
   F. LAWN–NO TREES, FENCES, SIGNS, STRUCTURES OF ANY TYPE OR ANY OTHER OBSTRUCTION SHALL BE PLACED, PLANTED, SET OR PUT WITHIN THE AREA OF AN EASEMENT. THE AREA SHALL BE KEPT AS LAWN.

35. THE APPLICANT/DEVELOPER SHALL PROMPTLY GRADE AND STABILIZE SLOPES AND OPEN DITCHES AND PROVIDE CONSTRUCTION FENCING WHEN DEEMED NECESSARY BY THE TOWNSHIP ENGINEER.

36. REMAINING AREAS DESIGNED AS OPEN SPACE WILL BE USED FOR ACTIVE AND PASSIVE OPEN SPACE ONLY.

37. ALL EXISTING STRUCTURES AND UTILITIES TO BE REMOVED UNLESS OTHERWISE NOTED.

38. THE HOMEOWNERS ASSOCIATION WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ENTRANCE SIGNS, DECORATIVE WALLS, FENCES OR LANDSCAPE ASSOCIATED WITH THEM.

39. SIDEWALKS SHALL BE CONSTRUCTED OF CONCRETE WITH A MINIMUM TWENTY–EIGHT (28) DAY STRENGTH OF 4000 PS w/AIR, WITH A MINIMUM WIDTH OF FOUR (4) FEET AND A THICKNESS OF FOUR (4) INCHES EXCEPT AT DRIVEWAY CROSSINGS WHEN THE SIDEWALK THICKNESS SHALL BE INCREASED TO SIX (6) INCHES WITH REINFORCEMENT.

40. LIGHTING:
   A. ALL LIGHTING AND ACCESSORY EQUIPMENT SHALL BE STANDARD EQUIPMENT PROVIDED BY PECO OR VARIATIONS APPROVED BY PECO AND THE BOARD OF SUPERVISORS.
   B. ALL PERMITTED LIGHTING AND ALL EXTERNAL LIGHTING FIXTURES APPURTENANT TO A STRUCTURE SHALL BE SHIELDED FROM ALL RESIDENTIAL PROPERTIES AND FROM ALL ROWs SO AS TO ELIMINATE LIGHT GLARE BEYOND AN ANGLE OF THIRTY–FIVE (35) DEGREES FROM A VERTICAL PLANE.

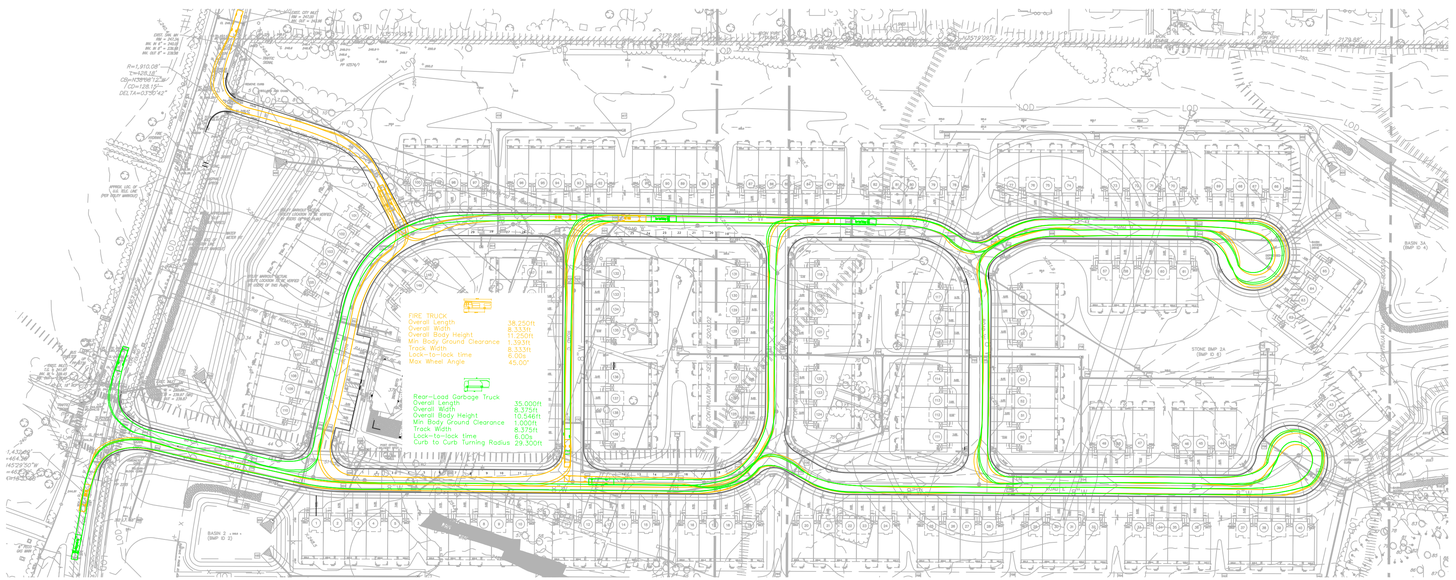
41. TRAFFIC NOTES:
   A. ALL TRAFFIC CONTROL SIGNS SHALL BE POSTED IN ACCORDANCE WITH THE 2009 MUTCD AND THE MOST RECENT VERSION OF PENNDOT PUBLICATION 236M, "HANDBOOK OF APPROVED SIGNS".
   B. TRAFFIC CONTROL SIGNS MUST BE POSTED ON PENNDOT APPROVED BREAKAWAY POSTS IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE TC–8700 SERIES IN PENNDOT PUBLICATION 111M."
   C. ALL PROPOSED PEDESTRIAN FACILITIES REFLECTED ON THESE PLANS SHALL BE CONSTRUCTED TO COMPLY WITH THE FOLLOWING STANDARDS:
      C.a. PENNDOT DESIGN MANUAL 2, CHAPTER 6.
      C.b. PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, PUBLICATION 72M, RC–67M.
      C.c. U.S. ACCESS BOARD, PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) AND ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES (ADAAG).

42. OBSTRUCTIONS IN RIGHT–OF–WAY – NO FENCES, HEDGES, TREES, SHRUBBERY, PLANTS, WALLS, SIGNS OR OTHER OBSTRUCTIONS SHALL BE LOCATED OR BE PERMITTED WITHIN THE RIGHT–OF–WAY.

43. ALL TREE/SHRUB LIMBS SHALL BE PRUNED OR TRIMMED BACK, AND ALL ABOVE GROUND UTILITY CABLE LINES AND FREE STANDING SIGNS SHALL BE INSTALLED SUCH THAT EVERY ACCESSWAY WILL HAVE A VERTICAL CLEARANCE OF AT LEAST 14 FEET.

ON JULY 13, 2023 TOLL MID–ATLANTIC WAS GRANTED CONDITIONAL USE FOR THE PROJECT

IMPERVIOUS COVERAGE BREAKDOWN WITHIN PROJECT	
ROAD AND ACCESS ROAD	3.78 ACRES
CLUBHOUSE BUILDING AND ACCESSORY AREA	0.27 ACRES
UNIT BUILDINGS (SHOWN)	8.29 ACRES
UNIT BUILDINGS/SERVICE WALK/DRIVEWAY,ETC. (NOT SHOWN)	0.32 ACRES
SERVICE WALK/DRIVEWAY	1.74 ACRES
SIDEWALK	1.09 ACRES
FOX CHASE ROAD R.O.W.	0.50 ACRES
TOTAL	15.99 ACRES



VEHICULAR CIRCULATION PLAN
Scale 1"=100'

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD–23–01

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JEFFREY M. MAUDER

GENERAL NOTES

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3–24–23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662–S–02–NOTES
REF. NO.:	SD02.01
SHEET NO.:	6 OF 62

N:\PROJECTS\PENNSYLVANIA\7662–RYDAL ST. BASIL\ENGDEPT\DRAWINGS\7662–S–02–NOTES.DWG–Luke Pietrowicz–3/21/2024 12:46 PM

SOILS LEGEND:

Map Unit Symbol	Map Unit Name	Rating
GnB	Glenig Silt Loam, 3 to 8 Percent Slopes	B
GsA	Glenville Silt Loam, Somewhat Poorly Drained, 0 to 3 Percent Slopes	C/D
GsB	Glenig Silt Loam, 3 to 8 Percent Slopes	C/D
Ha	Hatboro Silt Loam	B/D
MaB	Manor Loam, 3 to 8 Percent Slopes	B
MaC	Manor Loam, 8 to 15 Percent Slopes	B
MaD	Manor Loam, 15 to 25 Percent Slopes	B
UdsB	Udorthents, Schist and Gneiss 0 to 8 Percent Slopes	C
UgB	Urban Land, 0 to 8 Percent Slopes	
UugB	Urban Land–Udorthents, Schist and Gneiss Complex, 0 to 8 Percent Slopes	

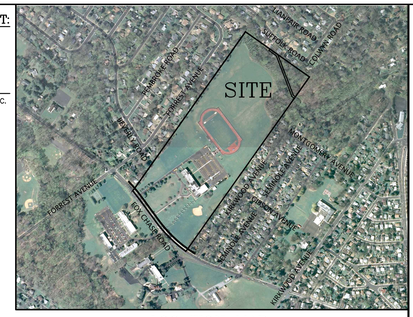
NATURAL RESOURCE CALCULATIONS:

	SITE AREA	PROTECTION %	REQUIRED PROTECTION	DESIGN PROTECTION
FLOODPLAIN:	N/A	100%	N/A	N/A
FLOODPLAIN SOILS:	3.19 AC.	100%*	3.19 AC.	3.15 AC.
WATERS OF THE US:	0.28 AC.	100%	0.28 AC.	0.28 AC.
WETLANDS:	0.51 AC.	100%	0.51 AC.	0.51 AC.
WOODLANDS:	3.64 AC.	75%	2.73 AC.	3.41 AC.
STEEP SLOPES: 15-25:	0.74 AC.	75%	0.56 AC.	0.58 AC.
STEEP SLOPES: >25:	0.07 AC.	85%	0.06 AC.	0.07 AC.
ZONE 1 BUFFER:	1.31 AC.	100%*	1.31 AC.	1.30 AC.
ZONE 2 BUFFER:	1.50 AC.	100%*	1.50 AC.	1.48 AC.

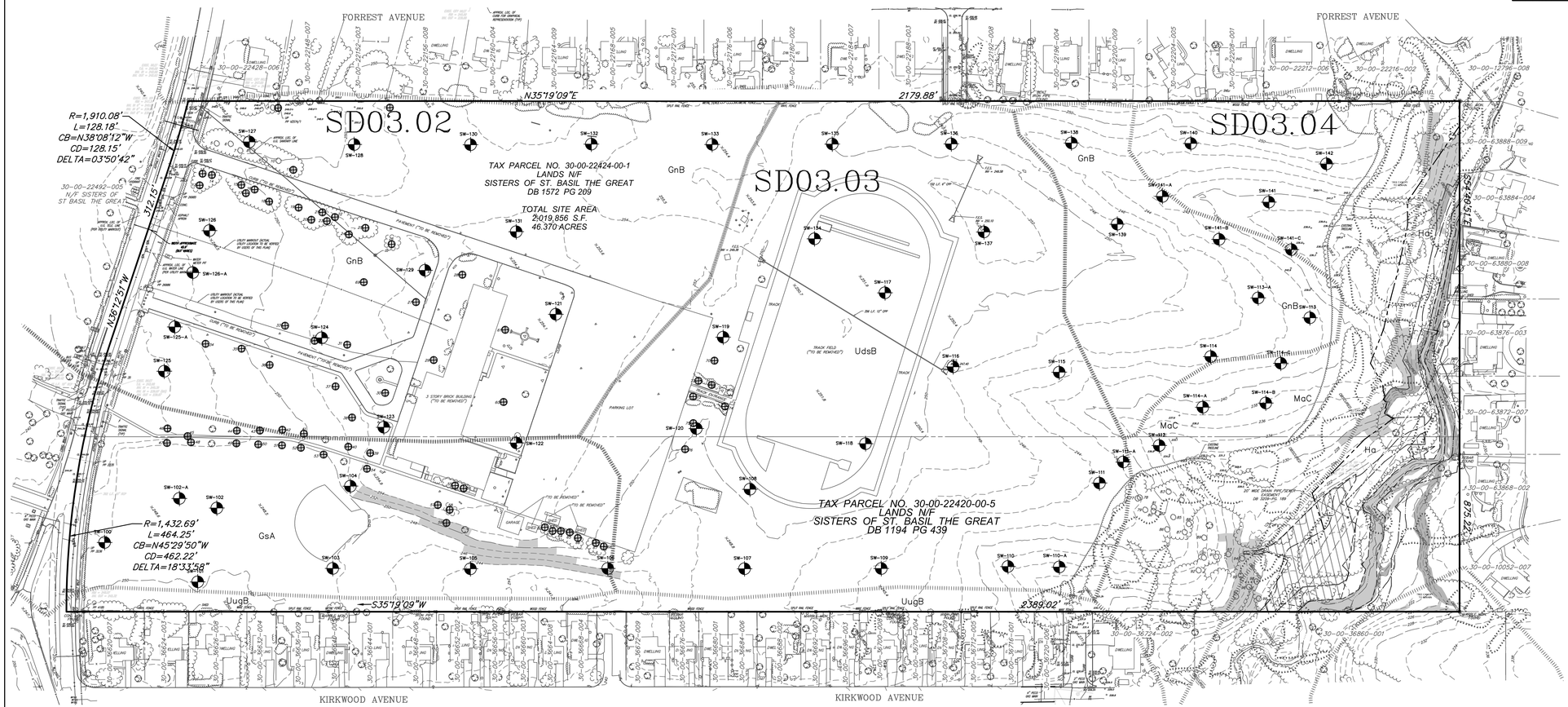
*CERTAIN USES WITHIN DISTRICT ARE ALLOWED TO DISTURB AREAS.

OWNER AND APPLICANT:
SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
ABINGTON, PA 19046–4198

EQUITABLE OWNER AND APPLICANT:
TOLL MID–ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215)938–8000



LOCATION MAP
SCALE: 1"=800'



NOTE: SEE SHEET SD03.04 FOR ADJOINERS INFORMATION TABLE
SEE SHEET SD03.02 FOR EXISTING TREE DESIGNATION CHART

NOTES:

1. PLANIMETRIC AND TOPOGRAPHIC FEATURES COMPILED BY ESE CONSULTANTS, INC. UTILIZING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY. AERIAL PHOTOGRAPHY PERFORMED BY KEYSTONE AERIAL PHOTOGRAPHY ON JANUARY 21, 2021 WITH A PHOTO SCALE OF 5cm GSD.
2. PHOTOGRAMMETRIC MAPPING HAS BEEN COMPILED IN ACCORDANCE WITH PROCEDURES THAT HAVE BEEN DEMONSTRATED TO COMPLY WITH THE AMERICAN SOCIETY OF PHOTOGRAMMETRY AND REMOTE SENSING (ASPRS) CLASS 1 STANDARD FOR A HORIZONTAL MAPPING SCALE OF 1"=50' AND A CONTOUR INTERVAL OF 1'..
3. FEATURES ARE LIMITED TO THOSE VISIBLE AT TIME OF THE PHOTOGRAPHY AND ARE SUBJECT TO FIELD VERIFICATION BY THE END USER. BUILDING OUTLINES REPRESENT APPROXIMATE ROOF LINE LOCATIONS AS SEEN ON THE AERIAL PHOTOGRAPHY. SUPPLEMENTED WITH VARIOUS FIELD DATA AS REQUESTED BY CLIENT.
4. DELINEATED AREAS DESIGNATED AS "OBSCURED" INDICATE THE GROUND IS OBSCURED BY VEGETATION OR SHADOWS. MAPPING WITHIN THESE AREAS MAY NOT MEET STANDARD ACCURACY.
5. THE VERTICAL DATUM SHOWN IS BASED ON NAVD88.
6. BOUNDARY INFORMATION TAKEN FROM A PLAN ENTITLED "PLAN OF SURVEY, LANDS N/F SISTERS OF ST. BASIL THE GREAT, DATED MARCH 22, 2021, LAST REVISED APRIL 14, 2021, PREPARED BY NAVE NEWELL, WAYNE, PA 19087.
7. WETLANDS INFORMATION SHOWN HEREIN TAKEN FROM A PLAN ENTITLED, "MAP OF WETLAND LOCATIONS, RYDAL ST. BASILS", DATED JUNE 16, 2022, LAST REVISED JULY 08, 2022. PREPARED BY ESE CONSULTANTS INC, FORT WASHINGTON PA 19034.
8. THE ABINGTON SEWER AUTHORITY VERTICAL DATUM IS 3.59' LOWER THAN THE VERTICAL DATUM USED.

LEGEND:

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING BOUNDARY LINE
- EXISTING EASEMENT
- MAJOR CONTOURS
- MINOR CONTOURS
- EXISTING SETBACK LINE
- OBSCURED
- EXISTING SPOT ELEVATION
- EXISTING TREE LINE
- EXISTING VEGETATION LINE
- EXISTING TREE PER AERIAL MAPPING
- EXISTING TREE 10" OR GREAT DIAMETER
- EXISTING SHRUB
- EXISTING SIGN
- EXISTING MAIL BOX
- EXISTING UTILITY POLE
- EXISTING INLET
- EXISTING MANHOLE
- SOILS LINE
- MINOR STREAM
- CONCRETE MONUMENT
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING STORM PIPE
- EXISTING WATER VALVES
- EXISTING HYDRANTS
- STREAM LIMIT OF ORDINARY HIGH WATER MARK
- WATERS OF THE U.S.
- FLOODPLAIN LINE (ZONE X)
- EXISTING 15–25% SLOPES
- EXISTING >25% SLOPES
- TOWNSHIP RIPARIAN BUFFER – ZONE 1
- TOWNSHIP RIPARIAN BUFFER – ZONE 2
- EXISTING TREES TO BE REMOVED
- SW–103 TEST PIT

Know what's below. Call before you dig.

Pennsylvania One Call System, Inc.
925 Irwin Run Road
West Mifflin, PA 15122-1078
1-800-242-1776
or 8-1-1
www.paonecall.org

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

INFILTRATION TESTING SUMMARY

Test Pit	Depth/Rock (in)	Redox (in)	Test Depth (in)	Infiltration Rate (in/hr)
SW-100	115+	26-48	82	0.75/4.5
SW-101	120+	23-50	TBD	TBD
SW-102	108R	-	76	1.0/1.5
SW-102A	100R	-	76	6.0/7.5
SW-103	125+	20-34	TBD	TBD
SW-104	115+	-	TBD	TBD
SW-105	125+	-	84	3.0/3.0
SW-106	126+	-	84	1.25/9.0
SW-106	126+	-	36	5.25/3.75
SW-107	122+	-	TBD	TBD
SW-108	101R	-	TBD	TBD
SW-109	126+	34-46	TBD	TBD
SW-110	122+	22-45	96	2.0/0.75
SW-110A	112R	35-68	72	8.25/9.0
SW-111	120+	35-48	TBD	TBD
SW-111A	92R	-	48	6.0/6.0
SW-112	128+	24-46	54	5.25/8.25
SW-113	52R	-	28	3.0/2.0
SW-113A	48R	-	24	0.25/1.25
SW-114	56R	-	26	3.0/2.5
SW-114A	108R	28-40	66	6.0/10.5
SW-114B	84R	-	60	8.25/10.5
SW-114C	50R	-	26	0.75/0.5
SW-115	104R	-	80	3.0/6.0
SW-116	122+	-	92	7.5/7.5
SW-117	126+	8-24	TBD	TBD
SW-118	116+	-	TBD	TBD
SW-119	108+	-	72	6.0/1.0
SW-120	125+	-	TBD	TBD
SW-121	101+			
SW-122	108+			
SW-123	120+	-	TBD	TBD
SW-124	108+	-	TBD	TBD
SW-125	120+	28-90	90	0.04/0.04
SW-125A	132+	28-48	102	2.0/2.0
SW-126	150+	-	120	2.0/7.5
SW-126A	132+	-	108	3.75/1.75
SW-127	102+	-	54/78	0/0
SW-128	118+	18-28	TBD	TBD
SW-129	115+	-	TBD	TBD
SW-130	106+	-	TBD	TBD
SW-131	108+	-	TBD	TBD
SW-132	76R	-	TBD	TBD
SW-133	112+	-	84	3.25/3.0
SW-134	120+	-	TBD	TBD
SW-135	117+	-	84	5.25/6.0
SW-136	120+	-	72	9.0/6.0
SW-137	78R	-	TBD	TBD
SW-138	108+	32-90+	TBD	TBD
SW-139	80R	-	24	3.0/3.0
SW-140	118+	28-60	TBD	TBD
SW-141	88+	27-60	24	0.0/0.02
SW-141A	114R	-	50	0.75/1.5
SW-141B	36R	-	12	1.25/1.5
SW-141C	60R	-	24	0.75/0.25
SW-142	45R	-	TBD	TBD

= Bedrock Limitations
= Feasible Reults
= Not Feasible Results

THOMAS B. HENDRICKS
PROFESSIONAL LAND SURVEYOR
PA LICENSE NO. SU–044552–E

CAUTION:
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REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	KMS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	KMS
1	7/24/23	TOWNSHIP REVIEW LETTERS	KMS

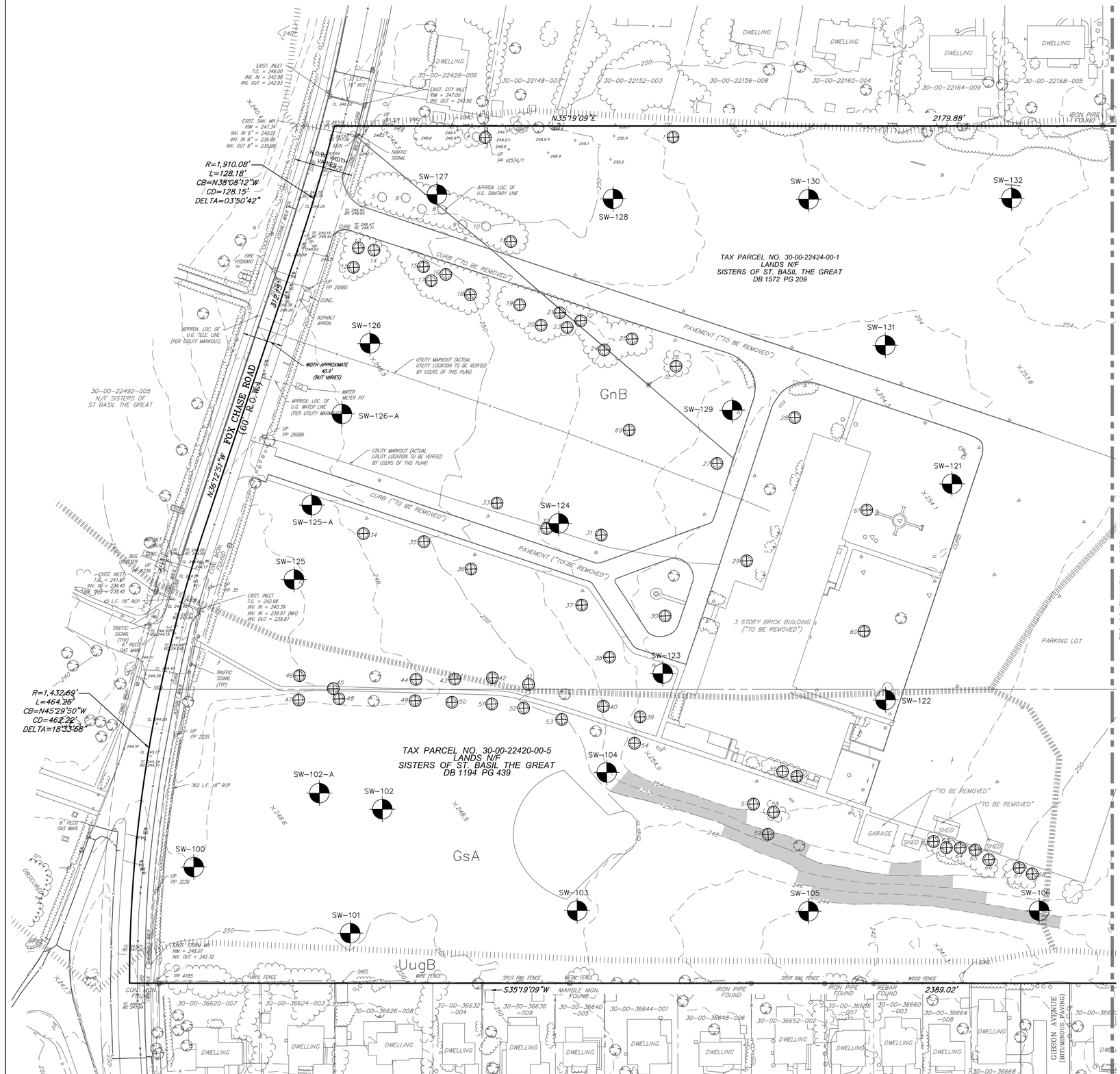
PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD–23–01

EXISTING FEATURES PLAN/ERSAM
(SHEET 1 OF 4)

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03/24/23
SCALE: 1"=100'
DESIGN: JMM
DRAWN: KMS
JOB NO.: 7662
FILE NAME: SD03.01
REF. NO.: SD03.01
SHEET NO.: 7 OF 62



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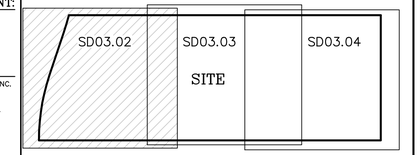

KEY MAP
N.T.S.

EXISTING TREE 10" OR GREATER IN DIAMETER CHART

EXISTING TREE CONSTRUCTION DESIGNATION CHART			
Tag	Code	Trunk	Designation
1	TREE OF HEAVEN	14	TO BE REMOVED
2	BLACK WALNUT	18	TO REMAIN
3	TREE OF HEAVEN	18	TO BE REMOVED
4	BLACK WALNUT	16	TO REMAIN
5	WHITE PINE	26	TO REMAIN
6	WHITE PINE	20	TO REMAIN
7	WHITE PINE	17	TO REMAIN
8	WHITE PINE	22	TO REMAIN
9	WHITE PINE	23	TO REMAIN
10	WHITE PINE	23	TO REMAIN
11	WHITE PINE	24	TO BE REMOVED
12	WHITE PINE	22	TO BE REMOVED
13	WHITE PINE	17	TO BE REMOVED
14	WHITE PINE	32	TO BE REMOVED
15	WHITE PINE	23	TO BE REMOVED
16	WHITE PINE	24	TO BE REMOVED
17	WHITE PINE	21	TO BE REMOVED
18	WHITE PINE	34	TO BE REMOVED
19	WHITE PINE	30	TO BE REMOVED
20	WHITE PINE	28	TO BE REMOVED
21	WHITE PINE	18	TO BE REMOVED
22	WHITE PINE	23	TO BE REMOVED
23	WHITE PINE	26	TO BE REMOVED
24	WHITE PINE	32	TO BE REMOVED
25	WHITE PINE	26	TO BE REMOVED
26	WHITE PINE	22	TO BE REMOVED
27	GRAY BIRCH	17	TO BE REMOVED
28	CRABAPPLE	14	TO BE REMOVED
29	CRABAPPLE	15	TO BE REMOVED
30	ORNAMENTAL CHERRY	14	TO BE REMOVED
31	ORNAMENTAL CHERRY	34	TO BE REMOVED
32	CRABAPPLE	10	TO BE REMOVED
33	ORNAMENTAL CHERRY	23	TO BE REMOVED
34	ORNAMENTAL CHERRY	27	TO BE REMOVED
35	CRABAPPLE	12	TO BE REMOVED
36	ORNAMENTAL CHERRY	34	TO BE REMOVED
37	ORNAMENTAL CHERRY	34	TO BE REMOVED
38	SAUCER MAGNOLIA	10	TO BE REMOVED
39	BRADFORD PEAR	11	TO BE REMOVED
40	BRADFORD PEAR	12	TO BE REMOVED
41	BRADFORD PEAR	12	TO BE REMOVED
42	BRADFORD PEAR	12	TO BE REMOVED
43	BRADFORD PEAR	10	TO BE REMOVED
44	BRADFORD PEAR	12	TO BE REMOVED
45	BRADFORD PEAR	12	TO BE REMOVED
46	BRADFORD PEAR	12	TO BE REMOVED
47	BRADFORD PEAR	12	TO BE REMOVED
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52	BRADFORD PEAR	11	TO BE REMOVED
53	BRADFORD PEAR	11	TO BE REMOVED
54	BRADFORD PEAR	13	TO BE REMOVED
55	CEDAR	11	TO BE REMOVED
56	CEDAR	12	TO BE REMOVED
57	CRABAPPLE	10	TO BE REMOVED
58	CRABAPPLE	16	TO BE REMOVED
59	NORWAY MAPLE	31	TO BE REMOVED
60	RED MAPLE	22	TO BE REMOVED
61	WEEPING CHERRY	18	TO BE REMOVED
62	CEDAR	10	TO BE REMOVED
63	CEDAR	12	TO BE REMOVED
64	CEDAR	13	TO BE REMOVED
65	CEDAR	13	TO BE REMOVED
66	CEDAR	13	TO BE REMOVED
67	CEDAR	11	TO BE REMOVED
68	CEDAR	10	TO BE REMOVED
69	RED MAPLE	20	TO BE REMOVED
70	RED MAPLE	17	TO BE REMOVED
71	ORNAMENTAL CHERRY	10	TO BE REMOVED
72	ORNAMENTAL CHERRY	11	TO BE REMOVED
73	ORNAMENTAL CHERRY	13	TO BE REMOVED
74	ORNAMENTAL CHERRY	13	TO BE REMOVED
75	RED MAPLE	18	TO BE REMOVED
76	RED MAPLE	20	TO BE REMOVED
77	RED OAK	20	TO REMAIN
78	SHAGBARK HICKORY	19	TO REMAIN
79	BEECH	20	TO REMAIN
80	RED OAK	14	TO REMAIN
81	RED MAPLE	10	TO REMAIN
82	RED OAK	27	TO REMAIN
83	BLACK CHERRY	13	TO REMAIN
84	BEECH	38	TO REMAIN
85	BEECH	25	TO REMAIN
86	TULIP POPLAR	23	TO REMAIN
87	TULIP POPLAR	27	TO REMAIN
88	TULIP POPLAR	18	TO REMAIN
89	BLACK CHERRY	14	TO REMAIN
90	RED OAK	17	TO REMAIN
91	RED OAK	22	TO REMAIN
92	TULIP POPLAR	28	TO REMAIN
93	TULIP POPLAR	12	TO REMAIN
94	BEECH	32	TO REMAIN
95	BEECH	34	TO REMAIN
96	BLACK CHERRY	17	TO REMAIN
97	RED OAK	30	TO REMAIN
98	RED MAPLE	12	TO REMAIN
99	RED MAPLE	23	TO REMAIN
100	SLIPPERY ELM	21	TO REMAIN

SOILS LEGEND:

Map Unit Symbol	Map Unit Name	Rating
GnB	Glenig Silt Loam, 3 to 8 Percent Slopes	B
GsA	Glenville Silt Loam, Somewhat Poorly Drained, 0 to 3 Percent Slopes	C/D
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Ha	Hatboro Silt Loam	B/D
MaB	Manor Loam, 3 to 8 Percent Slopes	B
MaC	Manor Loam, 8 to 15 Percent Slopes	B
MaD	Manor Loam, 15 to 25 Percent Slopes	B
UdsB	Udorthents, Schist and Gneiss 0 to 8 Percent Slopes	C
UgB	Urban Land, 0 to 8 Percent Slopes	
UugB	Urban Land–Udorthents, Schist and Gneiss Complex, 0 to 8 Percent Slopes	

LEGEND:

- EXISTING DIRT/GRAVEL ROAD
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- EXISTING SPOT ELEVATION (× 100.0)
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- EXISTING SHRUB
- EXISTING SIGN
- EXISTING MAIL BOX
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REV.	DATE	DESCRIPTION
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS
1	7/24/23	TOWNSHIP REVIEW LETTERS
		DRAWN: KMS KMS KMS

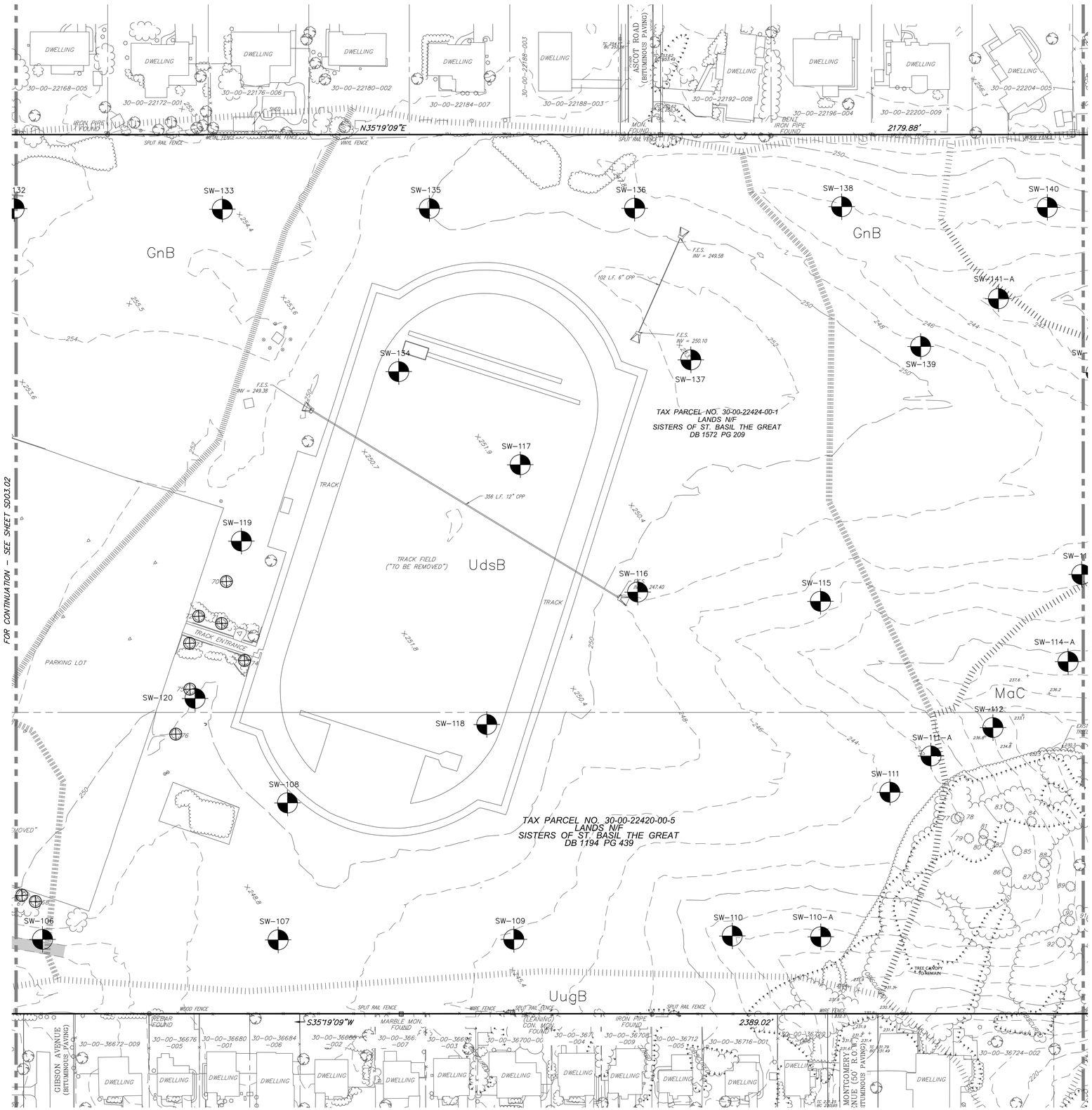
PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

EXISTING FEATURES PLAN/ERSAM
(SHEET 2 OF 4)

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03/24/23	SCALE: 1"=50'
DESIGN: JMM	DRAWN: KMS
JOB NO.: 7662	FILE NAME: SD03.02
REF. NO.:	**SD03.02**
SHEET NO.: 8 OF 62	

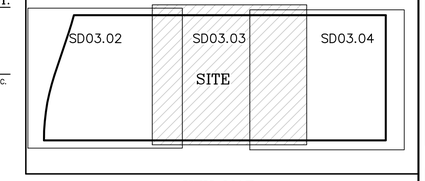


OWNER AND APPLICANT:

SISTERS OF ST. BASIL THE GREAT
711 FOX CHASE ROAD
ABINGTON, PA 19046-4198

EQUITABLE OWNER AND APPLICANT:

TOLL MID-ATLANTIC, L.P. COMPANY, INC.
1140 VIRGINIA DRIVE
FORT WASHINGTON, PA 19034
(215)938-8000



KEY MAP
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SOILS LEGEND:

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GnB	Glenig Silt Loam, 3 to 8 Percent Slopes	B
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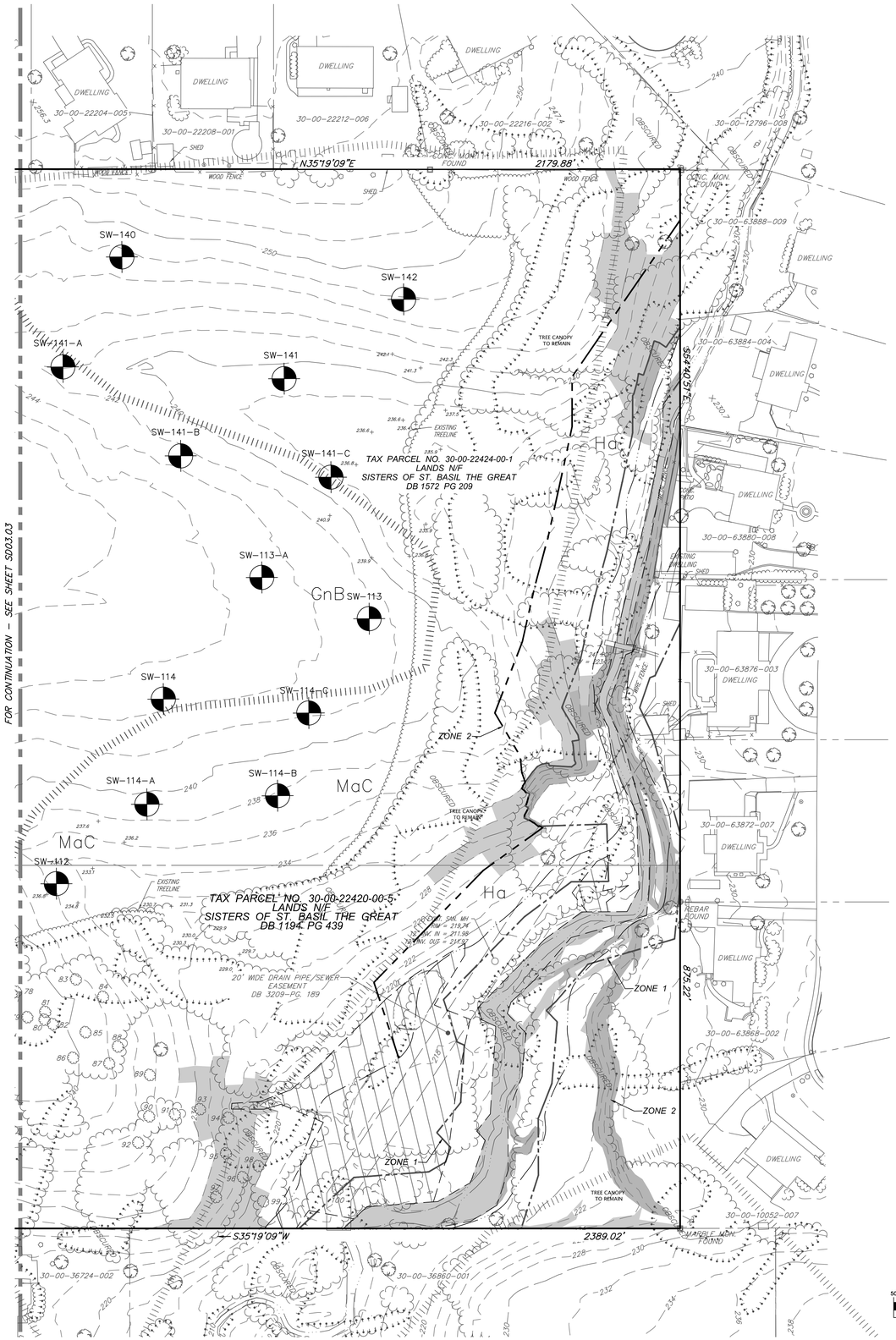

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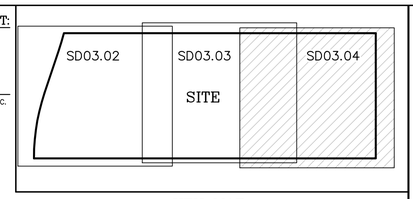

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- EXISTING UTILITY POLE
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- MINOR STREAM
- CONCRETE MONUMENT
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- EXISTING WATER LINE (W)
- EXISTING STORM PIPE
- EXISTING WATER VALVES
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GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

ADJOINERS INFORMATION TABLE

PARCEL NUMBER	OWNER	ADDRESS	ACREAGE
30-00-22148-007	ARDEN C. AND KEATHLEEN A. HANDER	615 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.44
30-00-22152-003	ARNOLD J. AND SANDRA BERSON	623 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.48
30-00-22156-008	ROY B. AND LESLIE G. PORTNER	631 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.44
30-00-22160-004	CHARLES T. AND GLORIA MCDERMOTT	637 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.38
30-00-22164-009	LAZAROS KARASAVAS	645 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.36
30-00-22168-005	LUCAS BURKE	653 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22172-001	THEODORE A. AND PATRICIA ZALEWSKI	661 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22176-006	KILE F. AND KATHLEEN T. WIDMAN	669 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22180-002	LISA A. HARKINS	677 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22184-007	BILL RAY AND PATRICIA ANN JACOBS	685 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22188-003	DENNIS JOHN AND NICOLE CYNTHIA LAURIA	693 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.38
30-00-22102-008	JOYCE M. AND DAVIS S. LEFF	707 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.38
30-00-22196-004	THOMAS P. DENNERY	715 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22200-009	PEARSE P. AND ELIZABETH V. KERR	723 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22204-005	HOWARD A. AND KATHLEEN A. WILSON	731 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22208-001	ROBERT W. AND KIMBERLYA. GEISLER	739 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.34
30-00-22212-006	GLENN GRESSEN	747 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.39
30-00-22216-002	GEORGE H. JR. MORGAN	755 FORREST AVEUNE, JENKINGTOWN, PA 19046	0.67
30-00-22428-006	SAMUEL AND NANCY KRENZEL	777 FOX CHASE ROAD, JENKINGTOWN, PA 19046	0.38
30-00-12796-008	SIMON AND TOBY GALAPO	803 DELENE ROAD, RYDAL, PA 19046	0.97
30-00-63888-009	JODY LIEBERMAN GOLDSBOROUGH	756 SUFFORK ROAD, RYDAL, PA 19046	0.47
30-00-63884-004	CHRISTINA BARTOSH	748 SUFFORK ROAD, RYDAL, PA 19046	0.36
30-00-63880-008	ROBERT AND ALBERINA DRIZA	742 SUFFORK ROAD, JENKINGTOWN, PA 19046	0.36
30-00-63876-003	ARBEN PROFKA	732 SUFFORK ROAD, JENKINGTOWN, PA 19046	0.35
30-00-63872-007	KOSTANDIN AND NEKIE TURTULLI	726 SUFFORK ROAD, JENKINGTON, PA 19046	0.35
30-00-63868-002	DIANE MEEHAN	716 SUFFORK ROAD, JENKINGTON, PA 19046	0.35
30-00-10052-007	SAIMIR AND JULINDA SHEHU	863 COLWYN ROAD, JENKINGTOWN, PA 19046	0.48
30-00-36620-007	ROBERT AND THERESA WAAS	608 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.28
30-00-36624-003	VINCENT J. AND JULIE A. KELLY	614 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36628-008	GREGORY J. POEHLMANN	622 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.27
30-00-36632-004	ROY A. AND CAROLE ANNE STEIN	626 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.14
30-00-36636-009	JOSEPH AND DOLORES HURLEY	632 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36640-005	MICHAEL GAZZARA AND JESSICA RUCH	636 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36644-001	MICHAEL S. AND LINDA TOBIN	642 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36648-006	STEVEN D. HUNTZINGER	648 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36652-002	FRANCES C. MCKEOWN AND MICHAEL P. BURNER	654 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36656-007	HARRY J. VANPELT AND LESLIE E. MAXWELL	658 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.14
30-00-36660-003	HARRY J. AND KAREN A. LOOBY	662 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.14
30-00-36664-008	JOHN A. AND ODARKA CHARAMBURA	666 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36668-004	ALEXANDRA L. STILES	670 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36672-009	JED K. MARGOLIS AND CARLEY M. TAYLOR	702 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36676-005	JOSEPH E. AND JAIME M. AVON	706KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36680-001	HUGH B. AND KATHLEEN A. MCHUGH	710 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36684-006	RAYMOND AND KATE VANDEGRIFT	714 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36688-002	RALPH AND ERMA F. YERKES	718 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36692-007	PAMELA M. JONES	724 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36696-003	WILLIAM F. AND PAMELA ANNE HAGERTY	728 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36700-008	GLEN E. AND LISA B. HEILMAN	734 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36704-004	FRANCIS N. AND CYNTHIA L. MAY	738 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36708-009	WALTER G. JR AND PATRICIA A. WYATT	742 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36712-005	VINCENT J. AND JEANETTE M. CALGIURI	746 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36716-001	JESSIE G. AND ELEZABETH M. GRAZIANI	752 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.20
30-00-36720-006	LORRAINE ZWOLAK	756 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.13
30-00-36724-002	DENNIS AND CHERYL D. CONARD	802 KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	0.60
30-00-36860-001	ABINGTON TOWNSHIP	KIRKWOOD AVENUE, JENKINGTOWN, PA 19046	12.00

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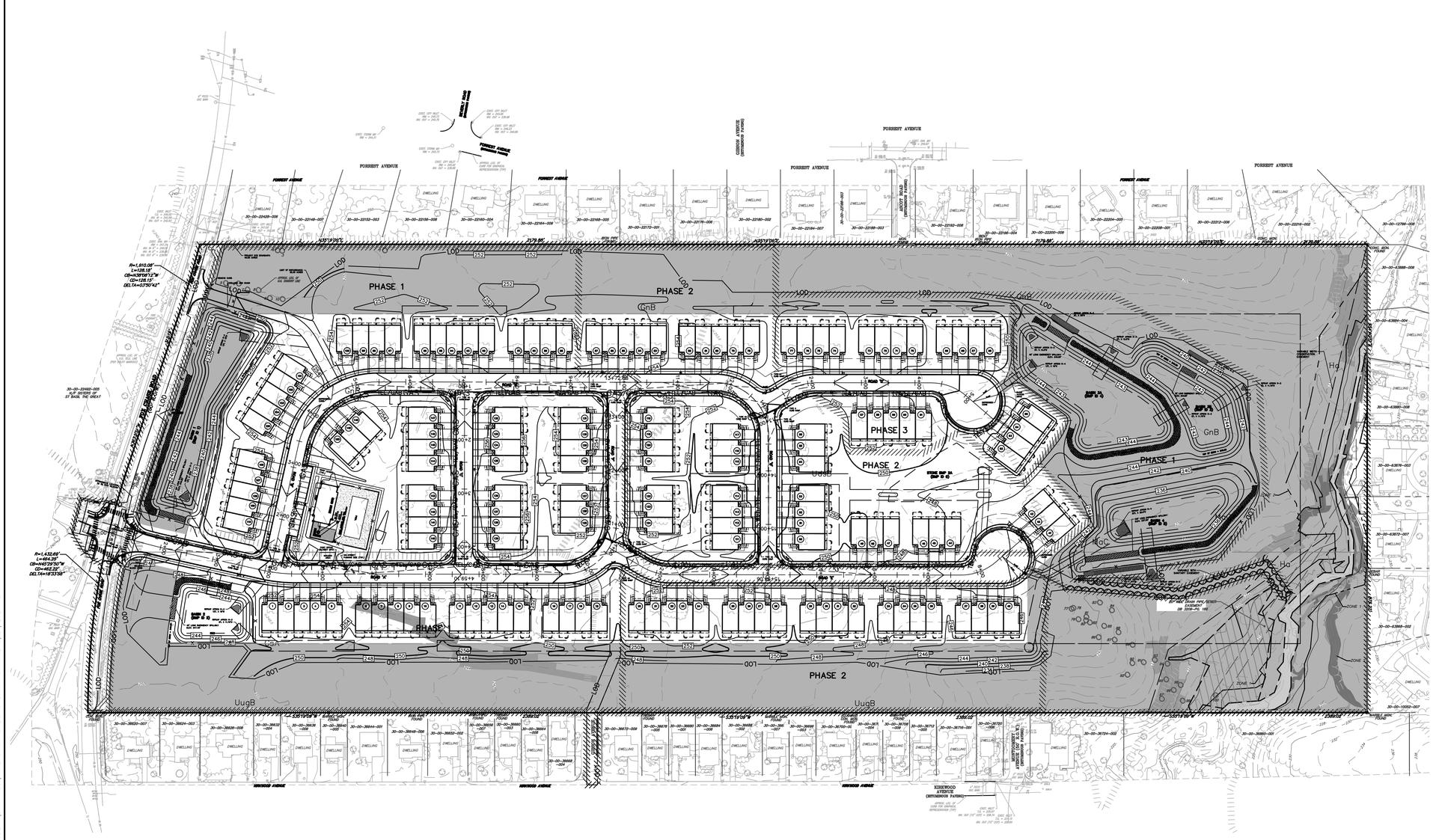
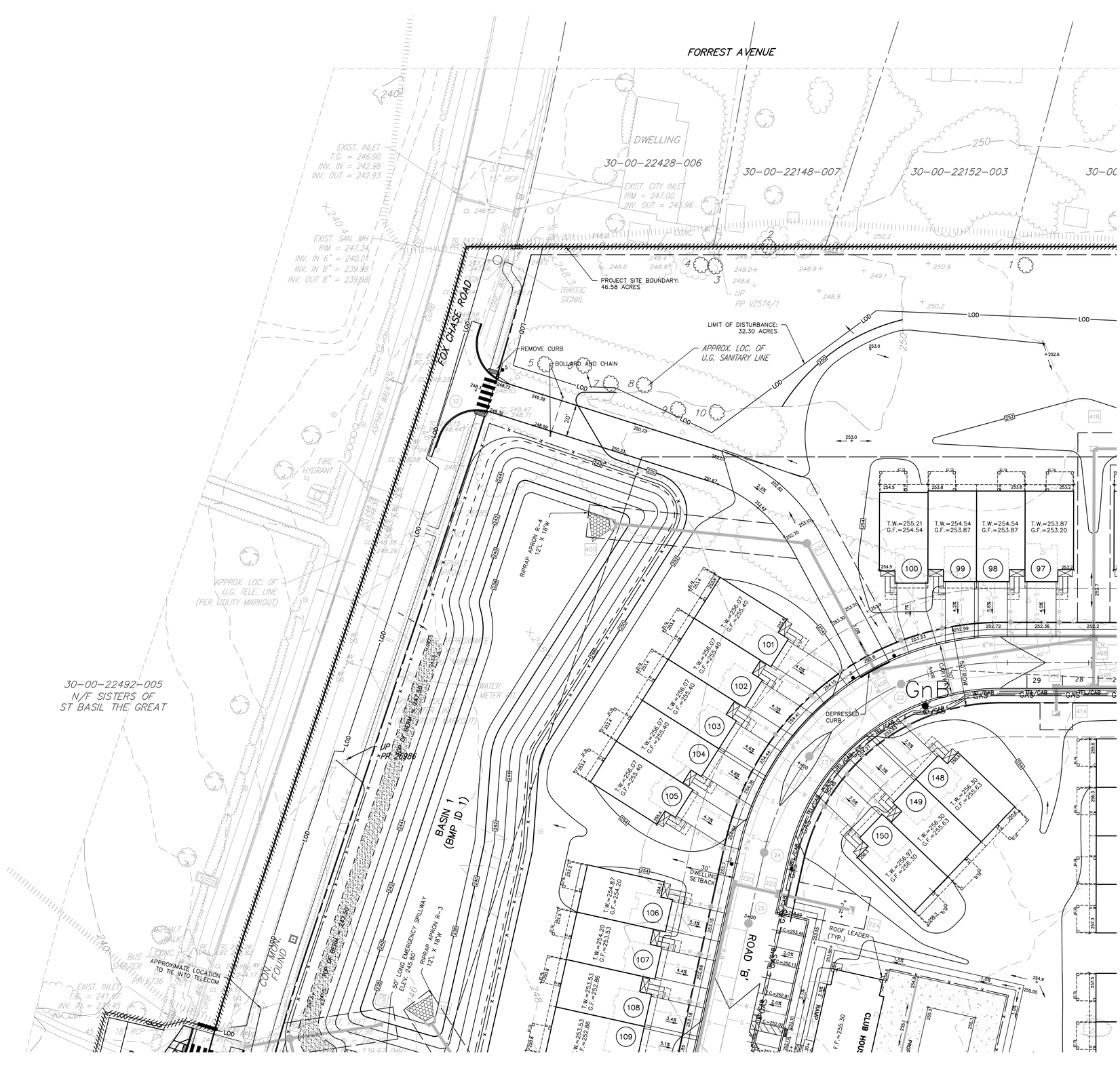
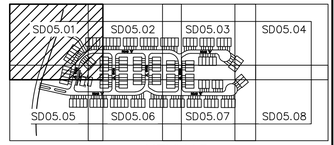
(SHEET 4 OF 4)

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 03/24/23	SCALE: 1"=50'
DESIGN: JMM	DRAWN: KMS
JOB NO.: 7662	FILE NAME: SD03.04
REF. NO.: **SD03.04**	
SHEET NO.: **10** OF **62**	


FOREST AVENUE
PHASE 1
PHASE 2
PHASE 3
ROAD 'A'
ROAD 'B'
ROAD 'C'
ROAD 'D'
ROAD 'E'
ROAD 'F'
ROAD 'G'
ROAD 'H'
ROAD 'I'
ROAD 'J'
ROAD 'K'
ROAD 'L'
ROAD 'M'
ROAD 'N'
ROAD 'O'
ROAD 'P'
ROAD 'Q'
ROAD 'R'
ROAD 'S'
ROAD 'T'
ROAD 'U'
ROAD 'V'
ROAD 'W'
ROAD 'X'
ROAD 'Y'
ROAD 'Z'
KIRKWOOD AVENUE (RETAINING PAVING)
GIBSON AVENUE (RETAINING PAVING)
ROCKY ROAD (RETAINING PAVING)
HUNTINGDON PIKE
N53°19'21"E 2179.85'
S53°19'21"W 2179.85'
R=1,910.08'
L=128.18'
CB=N39°08'12"W
CD=128.15'
DELTA=03°50'42"
R=1,432.69'
L=464.26'
CB=N42°39'50"W
CD=462.29'
DELTA=18°33'06"
LOD
252
250
248
246
244
242
240
238
GnB
UugB
Ho
KgC
Hg
GnA
BASIN 1
BASIN 2
BASIN 3
BASIN 4
BASIN 5
BASIN 6
BASIN 7
BASIN 8
BASIN 9
BASIN 10
BASIN 11
BASIN 12
BASIN 13
BASIN 14
BASIN 15
BASIN 16
BASIN 17
BASIN 18
BASIN 19
BASIN 20
BASIN





KEYMAP

LEGEND

TW=	TOP OF WALL ELEVATION
BF=	BASEMENT FLOOR ELEVATION
GF=	GARAGE FLOOR ELEVATION
	EXISTING STRUCTURE
	EXISTING DIRT/GRAVEL ROAD
	EXISTING STREET SIGN
	EXISTING UTILITY POLE
	EXISTING R.O.W.
	EXISTING CARTWAY
	STREAM LINE
	EXISTING CENTER LINE
	EXISTING BOUNDARY LINE
	SOILS LINE
	EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
	EXISTING CONCRETE MONUMENT
	EXISTING IRON PIN
	EXISTING SIGN
	EXISTING UTILITY POLE
	EXISTING INLET
x409.4	EXISTING SPOT ELEVATION
	EXISTING TREE
	TOWNSHIP RIPARIAN BUFFER – ZONE 1
	TOWNSHIP RIPARIAN BUFFER – ZONE 2
	STEEP SLOPES 15% TO 25%
	STEEP SLOPES > 25%
200	EXISTING CONTOURS
100	PROPOSED CONTOURS
+ 100.0	EXISTING SPOT ELEVATION
+ 100.00	PROPOSED SPOT ELEVATION
	EXISTING TREE LINE
	EXISTING VEGETATION
	PROPOSED TREE LINE
	EXISTING INLET W/ STORM SEWER
10	PROPOSED STORM SEWER W/ STRUCTURE NUMBER
11	PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
12	PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
U	PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
x x	PROPOSED SPLIT RAIL FENCE
	PROPOSED SIGHT TRIANGLE
W	PROPOSED WATER LATERAL
S	PROPOSED SANITARY LATERAL w/ CLEANOUT
	TREE PROTECTION FENCE
	RIP-RAP APRON
3	LOT NUMBER
	LIGHT POST
	STREET SIGN
1	DO NOT ENTER SIGN
2	SPEED LIMIT SIGN
3	PEDESTRIAN CROSSING SIGN
4	STOP SIGN 30"X30"
5	NO PARKING SIGN
	STOP BAR
	WETLANDS
	WATERS OF THE U.S.
6	SANITARY MAIN AND MANHOLE w/ STRUCTURE NUMBER
8"W	PROPOSED 8" WATERMAIN

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1140 Virginia Drive • Fort Washington, PA 19034
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REV.	DATE	DESCRIPTION	DRAWN
			ESE
			ESE
			ESE
			ESE
3	05/22/24	REVISIONS PER TOWNSHIP COMMENTS	
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	
1	7/24/23	TOWNSHIP REVIEW LETTER	

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

GRADING PLAN

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.: **SD05.01**	
SHEET NO.: **12** OF **62**	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-05-GRADE.DWG-Luke Pistrowicz-3/21/2024 12:47 PM

FORREST AVENUE

INV. OUT = 238.88

CURB FOR GRAPHICAL REPRESENTATION (TYP)

FORREST AVENUE

DWELLING

30-00-22152-003

30-00-22156-008

30-00-22160-004

30-00-22164-009

30-00-22168-005

30-00-22172-001

30-00-22176-006

30-00-22180-002

SHED

IRON PIPE FOUND

SPLIT RAIL FENCE

VINYL FENCE

LOD

GnB

ROAD 'B'

ROAD 'C'

ROAD 'F'

ROAD 'G'

30' CARTWAY

50' ROW

TYPE 4A CURB RAMP

DWELLING SETBACK

T.W.=254.54 G.F.=253.87

T.W.=254.54 G.F.=253.87

T.W.=253.87 G.F.=253.20

T.W.=253.96 G.F.=253.29

T.W.=254.63 G.F.=253.96

T.W.=254.63 G.F.=253.96

T.W.=255.30 G.F.=254.63

T.W.=255.97 G.F.=255.30

T.W.=256.60 G.F.=255.93

T.W.=257.27 G.F.=256.60

T.W.=257.27 G.F.=256.60

T.W.=257.27 G.F.=256.60

T.W.=257.27 G.F.=256.60

T.W.=256.60 G.F.=255.93

T.W.=256.60 G.F.=255.93

T.W.=255.93 G.F.=255.26

T.W.=255.26 G.F.=254.59

T.W.=254.77 G.F.=254.10

T.W.=254.10 G.F.=253.43

T.W.=254.10 G.F.=253.43

T.W.=253.43 G.F.=252.76

T.W.=253.43 G.F.=252.76

T.W.=256.30 G.F.=255.63

T.W.=256.30 G.F.=255.63

T.W.=256.80 G.F.=255.63

T.W.=256.97 G.F.=256.30

T.W.=256.97 G.F.=256.30

T.W.=256.13 G.F.=255.46

T.W.=256.80 G.F.=256.13

T.W.=256.80 G.F.=256.13

T.W.=257.97 G.F.=257.30

T.W.=257.47 G.F.=256.80

T.W.=257.47 G.F.=256.80

T.W.=258.17 G.F.=257.50

T.W.=257.50 G.F.=256.83

T.W.=257.47 G.F.=256.80

T.W.=256.14 G.F.=255.47

T.W.=255.14 G.F.=254.47

T.W.=255.14 G.F.=254.47

T.W.=254.47 G.F.=253.80

T.W.=253.97 G.F.=253.30

T.W.=252.97 G.F.=252.30

T.W.=255.37 G.F.=254.70

T.W.=254.70 G.F.=254.03

T.W.=254.70 G.F.=254.03

T.W.=254.03 G.F.=253.36

T.W.=253.47 G.F.=252.80

T.W.=252.83 G.F.=251.50 0.67' D.S.

T.W.=251.50 G.F.=250.83

T.W.=251.50 G.F.=250.83

T.W.=250.93 G.F.=250.26

T.W.=250.93 G.F.=250.26

T.W.=251.60 G.F.=250.93

KEYMAP

SD05.01 SD05.02 SD05.03 SD05.04

SD05.05 SD05.06 SD05.07 SD05.08

LEGEND

- TW= TOP OF WALL ELEVATION
- BF= BASEMENT FLOOR ELEVATION
- GF= GARAGE FLOOR ELEVATION
- EXISTING STRUCTURE
- EXISTING DIRT/GRAVEL ROAD
- EXISTING STREET SIGN
- EXISTING UTILITY POLE
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING CONCRETE MONUMENT
- EXISTING IRON PIN
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING INLET
- EXISTING SPOT ELEVATION
- EXISTING TREE
- TOWNSHIP RIPARIAN BUFFER - ZONE 1
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- STEEP SLOPES 15% TO 25%
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- PROPOSED SIGHT TRIANGLE
- PROPOSED WATER LATERAL
- PROPOSED SANITARY LATERAL w/ CLEANOUT
- TREE PROTECTION FENCE
- RIP-RAP APRON
- LOT NUMBER
- LIGHT POST
- STREET SIGN
- DO NOT ENTER SIGN
- SPEED LIMIT SIGN
- PEDESTRIAN CROSSING SIGN
- STOP SIGN 30"X30"
- NO PARKING SIGN
- STOP BAR
- WETLANDS
- WATERS OF THE U.S.
- SANITARY MAIN AND MANHOLE W/ STRUCTURE NUMBER
- PROPOSED 8" WATERMAIN

GRAPHIC SCALE

30 0 30 60

(IN FEET)
1" = 30 FEET

COMMONWEALTH OF PENNSYLVANIA JEFFREY M. MAUDER ENGINEER REGISTRY NUMBER

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T: 215-914-2050

REV	DATE	DESCRIPTION
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS
1	7/24/23	TOWNSHIP REVIEW LETTER
		DRAWN
		ESE
		ESE
		ESE
		ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

GRADING PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.:	SD05.02
SHEET NO.:	13 OF 62

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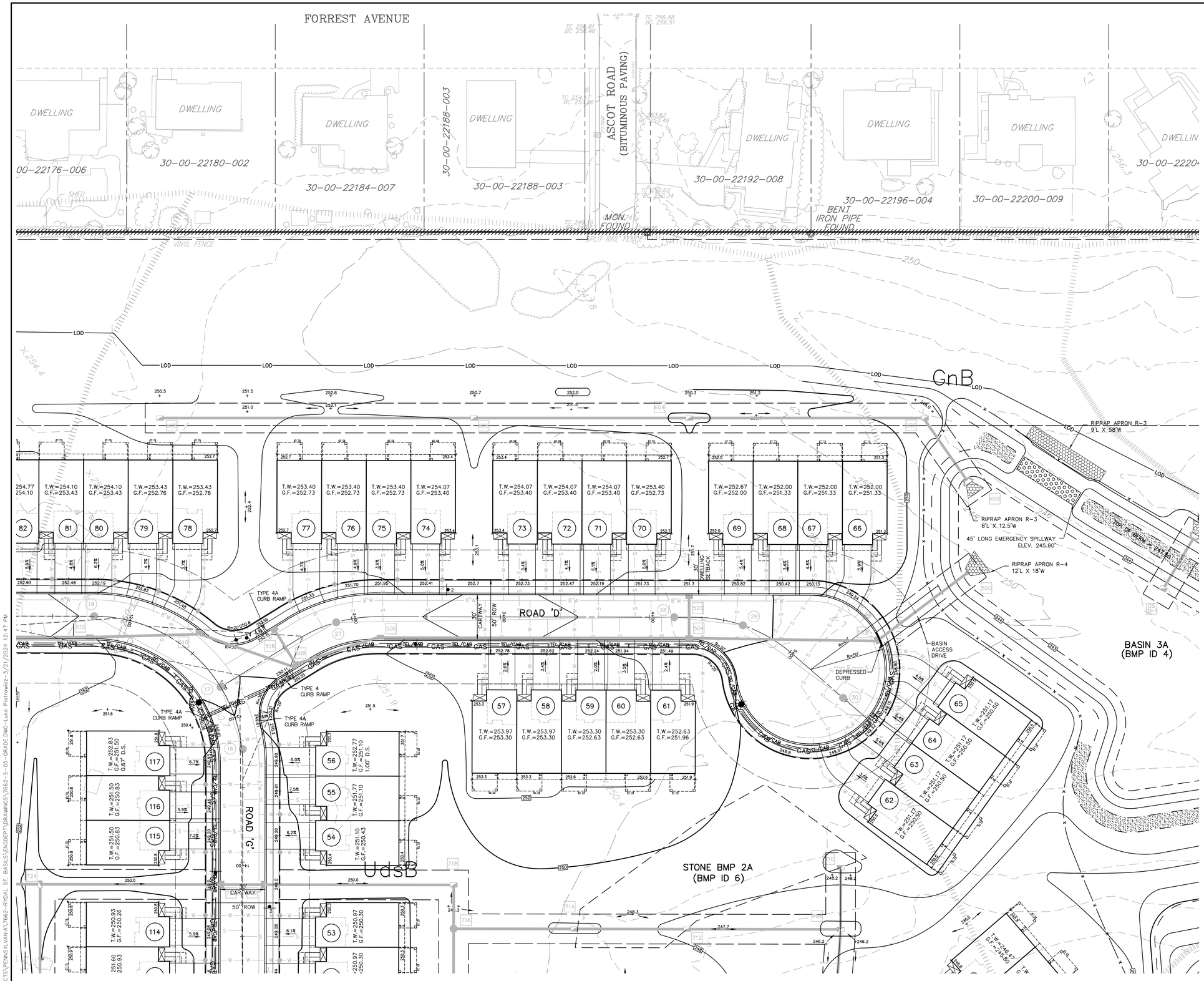

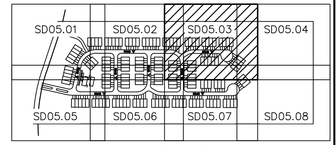

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GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — 084557 — REGISTERED PROFESSIONAL

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER COMMENTS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

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SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.:	SD05.03
SHEET NO.:	14 OF 62

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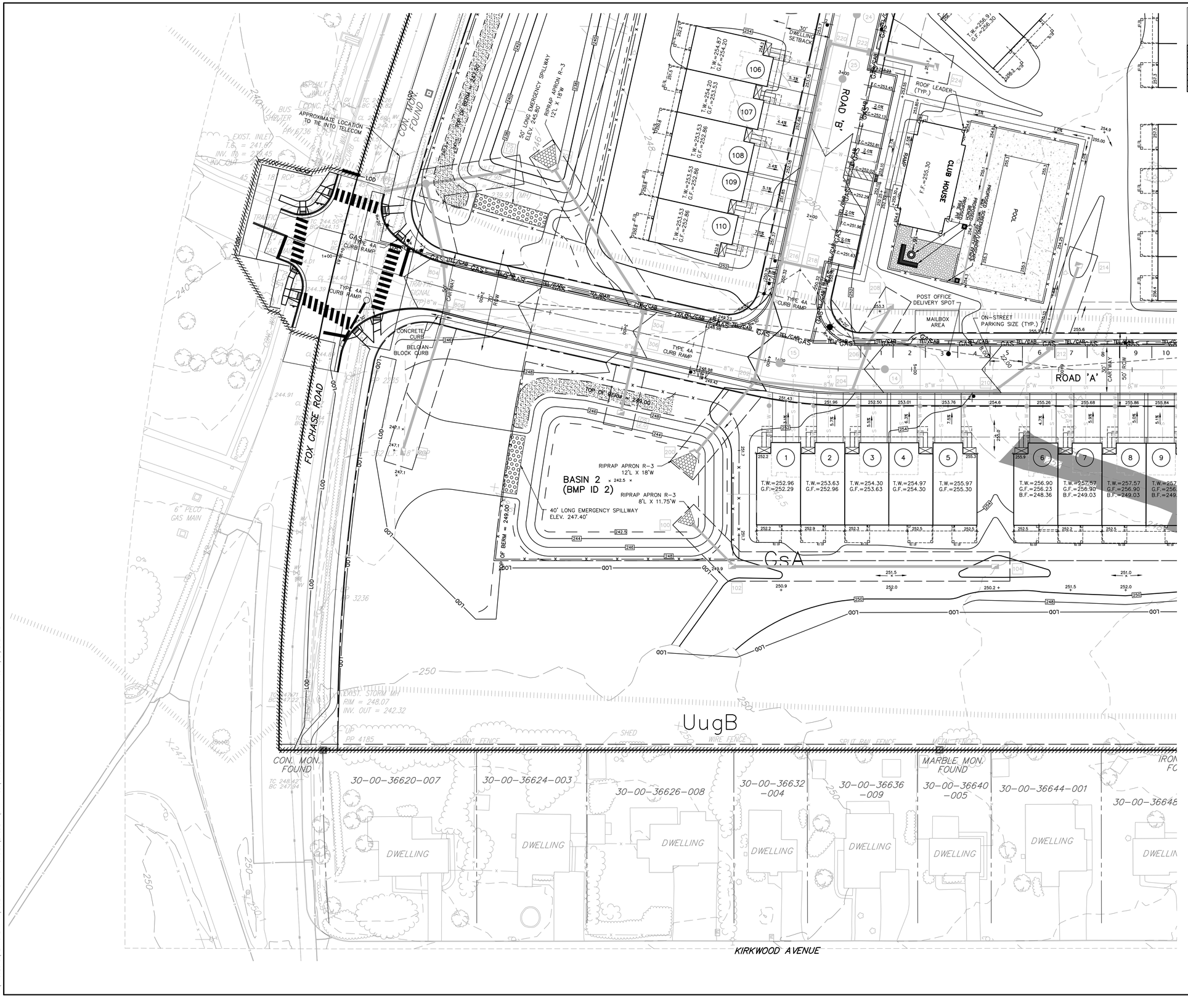
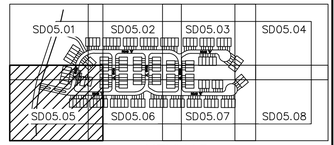
FORREST AVENUE

DWELLING
DWELLING
DWELLING
DWELLING
DWELLING
DWELLING
DWELLING
SHED
SHED
SHED





KEYMAP

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- NO PARKING SIGN
- STOP BAR
- WETLANDS
- WATERS OF THE U.S.
- SANITARY MAIN AND MANHOLE w/ STRUCTURE NUMBER
- PROPOSED 8" WATERMAIN

NOTE 1 CLUBHOUSE IS SCHEMATIC IN THE PLAN AND FINAL LAYOUT WILL BE HANDLED AT BUILDING PERMIT STAGE.

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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JEFFREY M. MAUDEN, ENGINEER, COMMONWEALTH OF PENNSYLVANIA

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
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PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

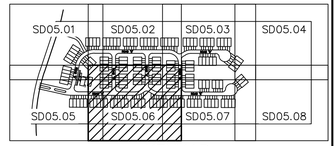
GRADING PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.:	SD05.05
SHEET NO.:	16 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-05-GRADE ENG-Luke Piotrowicz-3/21/2024 12:47 PM



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JEFFREY M. MAUDEN — ENGINEER — COMMONWEALTH OF PENNSYLVANIA

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT—NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

GRADING PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.:	SD05.06
SHEET NO.:	17 OF 62

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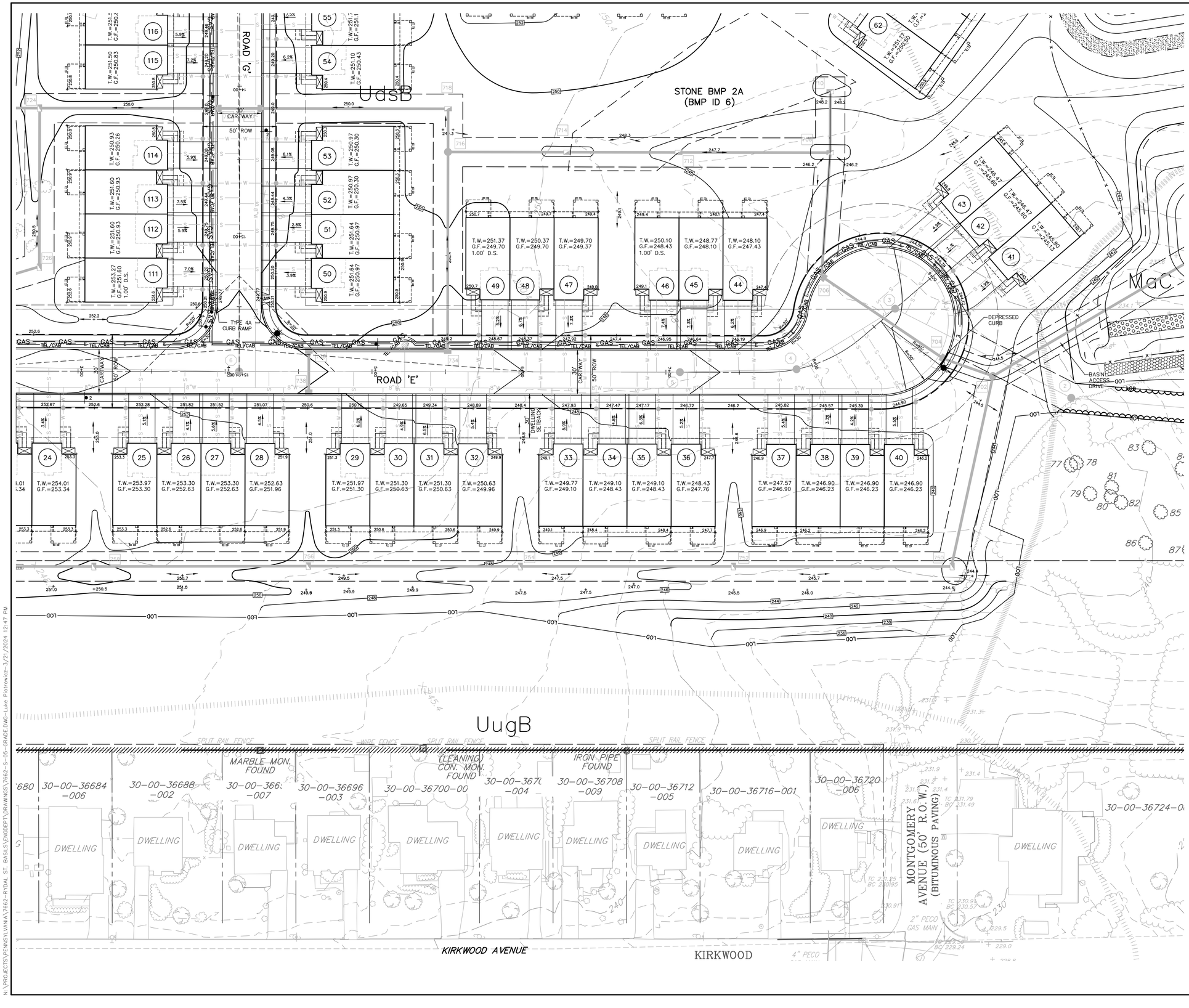

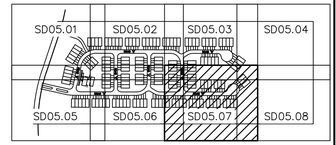

KEYMAP

LEGEND

- TW= TOP OF WALL ELEVATION
- BF= BASEMENT FLOOR ELEVATION
- GF= GARAGE FLOOR ELEVATION
- EXISTING STRUCTURE
- EXISTING DIRT/GRAVEL ROAD
- EXISTING STREET SIGN
- EXISTING UTILITY POLE
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING CONCRETE MONUMENT
- EXISTING IRON PIN
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING INLET
- EXISTING SPOT ELEVATION
- EXISTING TREE
- TOWNSHIP RIPARIAN BUFFER – ZONE 1
- TOWNSHIP RIPARIAN BUFFER – ZONE 2
- STEEP SLOPES 15% TO 25%
- STEEP SLOPES > 25%
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- PROPOSED SPLIT RAIL FENCE
- PROPOSED SIGHT TRIANGLE
- PROPOSED WATER LATERAL
- PROPOSED SANITARY LATERAL W/ CLEANOUT
- TREE PROTECTION FENCE
- RIP-RAP APRON
- LOT NUMBER
- LIGHT POST
- STREET SIGN
- DO NOT ENTER SIGN
- SPEED LIMIT SIGN
- PEDESTRIAN CROSSING SIGN
- STOP SIGN 30"X30"
- NO PARKING SIGN
- STOP BAR
- WETLANDS
- WATERS OF THE U.S.
- SANITARY MAIN AND MANHOLE W/ STRUCTURE NUMBER
- PROPOSED 8" WATERMAIN

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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JEFFREY M. MAUDER
ENGINEER
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

GRADING PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.: **SD05.07**	
SHEET NO.: **18** OF **62**	

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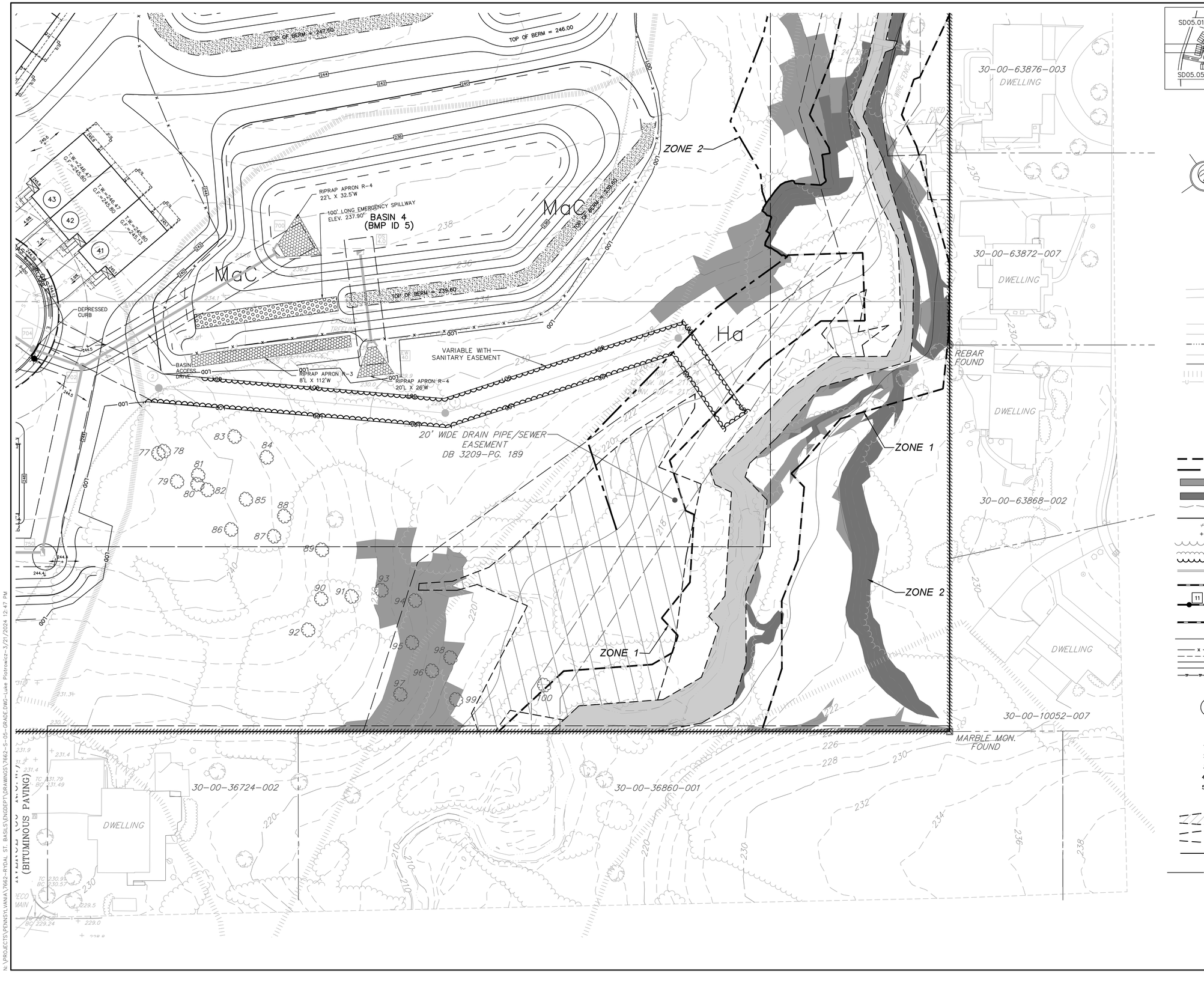

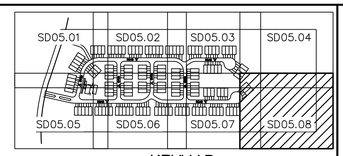

KEYMAP

LEGEND

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- BF= BASEMENT FLOOR ELEVATION
- GF= GARAGE FLOOR ELEVATION
- EXISTING STRUCTURE
- EXISTING DIRT/GRAVEL ROAD
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- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING CONCRETE MONUMENT
- EXISTING IRON PIN
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING INLET
- x 409.4 EXISTING SPOT ELEVATION
- EXISTING TREE
- TOWNSHIP RIPARIAN BUFFER - ZONE 1
- TOWNSHIP RIPARIAN BUFFER - ZONE 2
- STEEP SLOPES 15% TO 25%
- STEEP SLOPES > 25%
- 200 EXISTING CONTOURS
- 100 PROPOSED CONTOURS
- x 100.0 EXISTING SPOT ELEVATION
- + 100.00 PROPOSED SPOT ELEVATION
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 / 10 PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- U PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- x x PROPOSED SPLIT RAIL FENCE
- PROPOSED SIGHT TRIANGLE
- W PROPOSED WATER LATERAL
- S PROPOSED SANITARY LATERAL w/ CLEANOUT
- TREE PROTECTION FENCE
- RIP-RAP APRON
- 3 LOT NUMBER
- LIGHT POST
- STREET SIGN
- 1 DO NOT ENTER SIGN
- 2 SPEED LIMIT SIGN
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- WETLANDS
- WATERS OF THE U.S.
- 6 SANITARY MAIN AND MANHOLE w/ STRUCTURE NUMBER
- 8"W PROPOSED 8" WATERMAIN

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

COMMONWEALTH OF PENNSYLVANIA
JEFFREY M. MAUDER
ENGINEER
No. PE082170
Jeff Mauder

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PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

GRADING PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-05-GRADE
REF. NO.: **SD05.08**	
SHEET NO.: **19** OF **62**	

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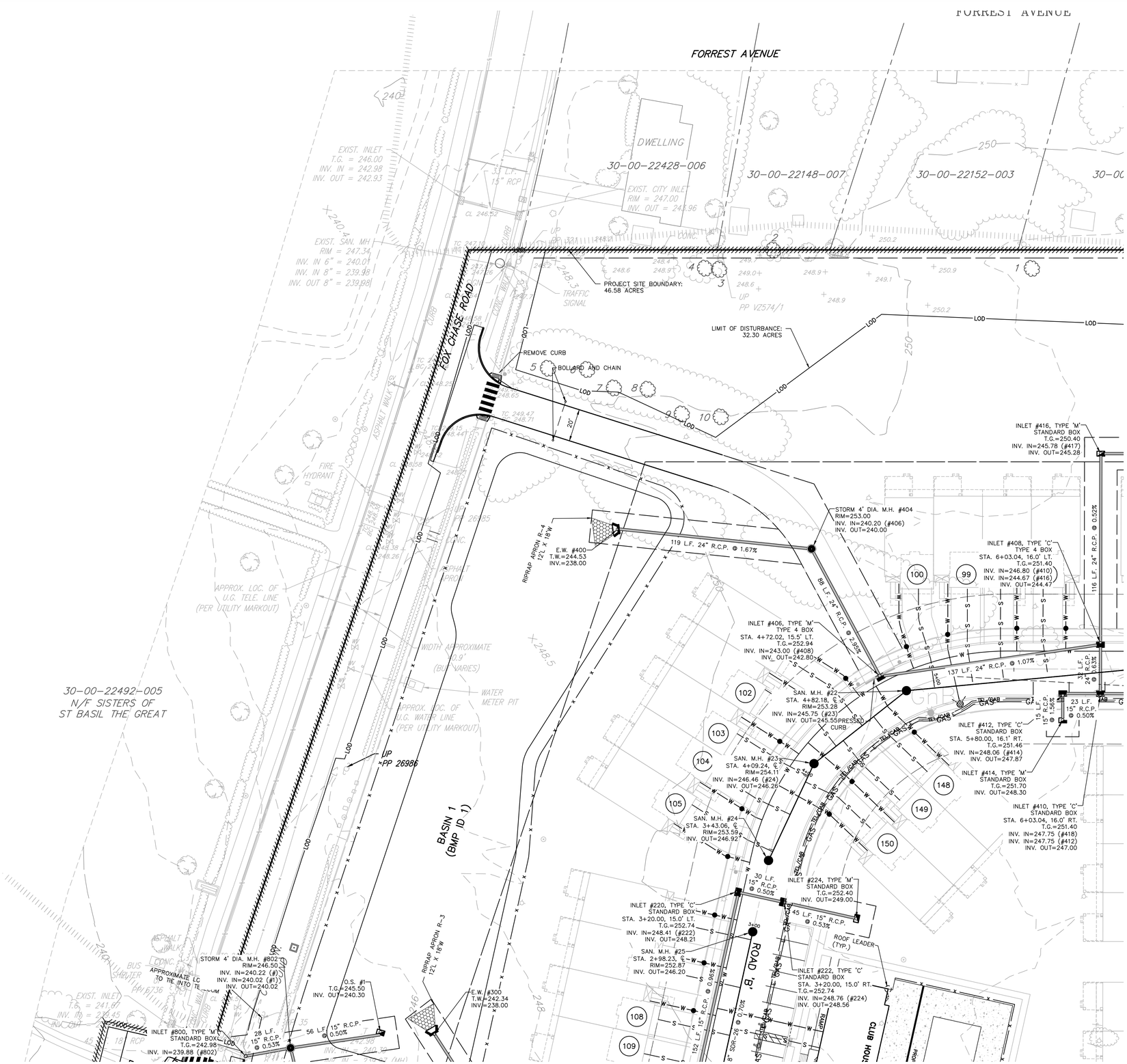

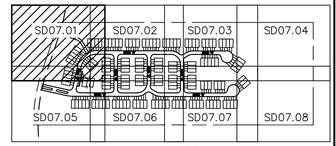

KEYMAP

NOTE: ALL WORK WILL BE PERFORMED IN STRICT COMPLIANCE WITH THE PROVISIONS OF PENNSYLVANIA STATE ACT 287, GOVERNING THE INSTALLATION OF PUBLIC UTILITIES.

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

UTILITY OWNERSHIP

GAS AND ELECTRIC	PECO
PHONE AND CABLE	VERIZON
WATER	AQUA

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
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- PROPOSED SANITARY LATERAL W/ CLEANOUT
- 3 — LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- 6 — SANITARY MAIN AND MANHOLE W/ STRUCTURE NUMBER
- 8"W — PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
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GRAPHIC SCALE
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1" = 30 FEET

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COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — No. PE082741

REC.	DATE	DESCRIPTION
3	05/22/24	REVISIONS PER TOWNSHIP COMMENTS
2	10/11/23	REVISIONS PER TOWNSHIP COMMENTS
1	7/24/23	TOWNSHIP REVIEW LETTERS
DRAWN		ESE
		ESE
		ESE
		ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

UTILITY PLAN

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.: SD07.01	
SHEET NO.: 20 OF 62	

APPLICATION NUMBER LD-23-01

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FORREST AVENUE

INV. OUT = 238.88

CURB FOR GRAPHICAL REPRESENTATION (TYP)

FORREST AVENUE

DWELLING

DWELLING

DWELLING

DWELLING

DWELLING

DWELLING

DWELLING

30-00-22152-003

30-00-22156-008

30-00-22160-004

30-00-22164-009

30-00-22168-005

30-00-22172-001

30-00-22176-006

30-00-22180-002

IRON PIPE FOUND

SHED

SPLIT RAIL FENCE

VINYL FENCE

LOD

INLET #416, TYPE 'M'
STANDARD BOX
T.G.=250.40
INV. IN=245.78 (#417)
INV. OUT=245.28

INLET #417, TYPE 'M'
STANDARD BOX
T.G.=250.00
INV. OUT=246.65

175 L.F. 18" R.C.P. @ 0.50%

INLET #608, TYPE 'M'
STANDARD BOX
T.G.=250.00
INV. OUT=246.70

GnB

INLET #408, TYPE 'C'
TYPE 4 BOX
STA. 6+03.04, 16.0' LT.
T.G.=251.40
INV. IN=246.80 (#410)
INV. IN=244.67 (#416)
INV. OUT=244.47

116 L.F. 24" R.C.P. @ 0.52%

SAN. M.H. #18
STA. 6+24.37, ℄
RIM=251.98
INV. IN=244.56 (#22)
INV. OUT=244.36

38 L.F.
15" R.C.P.
@ 0.82%

INLET #426, TYPE 'C'
STANDARD BOX
STA. 7+78.00, 16.0' LT.
T.G.=253.68
INV. OUT=250.29

SAN. M.H. #20
STA. 8+82.05, ℄
RIM=255.57
INV. IN=242.55 (#18)
INV. OUT=242.35

INLET #516, TYPE 'C'
STANDARD BOX
STA. 10+97.98, 15.0' LT.
T.G.=252.56
INV. OUT=249.06

SAN. M.H. #19
STA. 11+77.87, ℄
RIM=251.85
INV. IN=240.27 (#20)
INV. OUT=240.07

INLET #510, TYPE 'C'
STANDARD BOX
STA. 12+45.03, 14.9' LT.
T.G.=250.36
INV. IN=246.96 (#512)
INV. OUT=246.71

137 L.F. 24" R.C.P. @ 1.07%

258 L.F. 8" SDR-26 @ 0.70%

296 L.F. 8" SDR-26 @ 0.70%

30 L.F.
15" R.C.P.
@ 1.56%

75 L.F. 15" R.C.P.
@ 1.53%

97 L.F. 8" SDR-26
@ 1.52%

69 L.F. 18" R.C.P.
@ 0.51%

ROAD 'B'

INLET #412, TYPE 'C'
STANDARD BOX
STA. 5+80.00, 16.1' RT.
T.G.=251.46
INV. IN=248.06 (#414)
INV. OUT=247.87

INLET #414, TYPE 'M'
STANDARD BOX
T.G.=251.70
INV. OUT=248.30

23 L.F.
15" R.C.P.
@ 0.50%

93 L.F. 18" R.C.P. @ 1.38%

461 L.F. 15" R.C.P. @ 0.88%

STORM 4' DIA. M.H. #418
STA. 6+95.84, 15.4' RT.
RIM=252.63
INV. IN=249.23 (#424)
INV. IN=249.23 (#420)
INV. OUT=249.03

INLET #424, TYPE 'C'
STANDARD BOX
STA. 7+57.25, 16.0' RT.
T.G.=253.37
INV. IN=249.97 (#426)
INV. OUT=249.77

INLET #410, TYPE 'C'
STANDARD BOX
STA. 6+03.04, 16.0' RT.
T.G.=251.40
INV. IN=247.75 (#418)
INV. IN=247.75 (#412)
INV. OUT=247.00

INLET #420, TYPE 'C'
STANDARD BOX
STA. 1+81.89, 15.0' RT.
T.G.=253.70
INV. IN=250.15 (#422)
INV. OUT=249.94

67 L.F. 15" R.C.P.
@ 1.07%

30 L.F.
15" R.C.P.
@ 0.51%

INLET #422, TYPE 'C'
STANDARD BOX
STA. 1+81.89, 15.0' LT.
T.G.=253.70
INV. OUT=250.30

SAN. M.H. #26
STA. 1+91.89, ℄
RIM=254.39
INV. OUT=247.72

ROAD 'C'

INLET #744, TYPE 'M'
STANDARD BOX
T.G.=251.80
INV. OUT=248.30

SAN. M.H. #9
STA. 13+06.83, ℄
RIM=250.13
INV. OUT=243.46

INLET #514, TYPE 'C'
STANDARD BOX
STA. 10+97.96, 15.0' RT.
T.G.=252.56
INV. IN=248.91 (#516)
INV. OUT=248.71

INLET #512, TYPE 'C'
STANDARD BOX
STA. 11+75.00, 15.0' RT.
T.G.=251.60
INV. IN=248.30 (#514)
INV. OUT=248.10

SAN. M.H. #17
STA. 12+79.54, ℄
RIM=250.32
INV. IN=238.59 (#19)
INV. IN=238.59 (#27)
INV. OUT=238.39

SAN. M.H. #16
STA. 13+24.10, ℄
RIM=249.64
INV. IN=238.08 (#17)
INV. OUT=237.88

ROAD 'F'

INLET #742, TYPE 'C'
STANDARD BOX
STA. 11+93.00, 15.0' LT.
T.G.=251.35
INV. IN=247.69 (#744)
INV. OUT=247.49

INLET #740, TYPE 'C'
STANDARD BOX
STA. 11+93.00, 15.0' RT.
T.G.=251.35
INV. IN=247.34 (#742)
INV. OUT=246.59

INLET #724, TYPE 'M'
STANDARD BOX
T.G.=248.80
INV. IN=244.67 (#726)
INV. IN=244.41 (#740)
INV. OUT=243.91

INLET #722, TYPE 'C'
STANDARD BOX
STA. 14+15.10, 15.0' RT.
T.G.=248.05
INV. IN=243.30 (#724)
INV. OUT=243.10

ROAD 'G'

123 L.F. 15" R.C.P. @ 0.50%

30 L.F.
15" R.C.P.
@ 0.50%

133 L.F. 24" R.C.P. @ 1.64%

121 L.F. 30" R.C.P. @ 0.50%

30 L.F.
30" R.C.P.
@ 0.50%

08 L.F. 15" R.C.P. @ 0.50%

SDR-26 @ 0.70%

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

KEYMAP

SD07.01 | SD07.02 | SD07.03 | SD07.04
SD07.05 | SD07.06 | SD07.07 | SD07.08

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- EXISTING STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
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- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
- EXISTING TREE
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- 10 PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- PROPOSED SPLIT RAIL FENCE
- PROPOSED WATER LATERAL
- PROPOSED SANITARY LATERAL w/ CLEANOUT
- 3 LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- SANITARY MAIN AND MANHOLE w/ STRUCTURE NUMBER
- 6 8"W PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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UTILITY PLAN

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.:	SD07.02
SHEET NO.:	21 OF 62

FORREST AVENUE

ASCOT ROAD (BITUMINOUS PAVING)

DWELLING

30-00-22176-006

30-00-22180-002

30-00-22184-007

30-00-22188-003

30-00-22192-008

30-00-22196-004

30-00-22200-009

SHED

VINYL FENCE

MON. FOUND

BENT IRON PIPE FOUND

ROAD 'D'

ROAD 'G'

INLET #608, TYPE 'M' STANDARD BOX T.G.=250.00 INV. OUT=246.70

INLET #606, TYPE 'M' STANDARD BOX T.G.=250.20 INV. IN=245.65 (#608) INV. OUT=245.40

INLET #604, TYPE 'M' STANDARD BOX T.G.=249.80 INV. IN=244.68 (#606) INV. OUT=244.48

INLET #602, TYPE 'M' STANDARD BOX T.G.=248.50 INV. IN=243.69 (#604) INV. OUT=243.49

211 L.F. 15" PERFORATED PIPE @ 0.50%

145 L.F. 18" PERFORATED PIPE @ 0.50%

158 L.F. 18" R.C.P. @ 0.50%

50 L.F. 18" R.C.P. @ 0.98%

RIPRAP APRON R-3 9'L X 58'W

E.W. #600 T.W.=245.44 INV.=243.00

RIPRAP APRON R-3 8'L X 12.5'W

45' LONG EMERGENCY SPILLWAY ELEV. 245.80'

E.W. #10 T.W.=244.44 INV.=242.00

39 L.F. 18" R.C.P. @ 1.00%

O.S. #3A-1 T.G.=245.80 INV. OUT=242.50

RIPRAP APRON R-4 12'L X 18'W

E.W. #500 T.W.=245.71 INV.=243.00

INLET #502, TYPE 'C' STANDARD BOX STA. 5+39.59, 45.4' LT. T.G.=247.83 INV. IN=243.59 (#504) INV. OUT=243.39

75 L.F. 24" R.C.P. @ 0.52%

127 L.F. 24" R.C.P. @ 0.50%

BASIN ACCESS DRIVE

DEPRESSED CURB

BASIN 3A (BMP ID 4)

83 L.F. 8" SDR-26 @ 0.70%

INLET #518, TYPE 'C' STANDARD BOX STA. 1+51.00, 15.0' LT. T.G.=250.07 INV. OUT=246.57

SAN. M.H. #19 STA. 11+77.87, ℄ RIM=251.85 INV. IN=240.27 (#20) INV. OUT=240.07

INLET #510, TYPE 'C' STANDARD BOX STA. 12+45.03, 14.9' LT. T.G.=250.36 INV. IN=246.96 (#512) INV. OUT=246.71

30 L.F. 15" R.C.P. @ 0.53%

SAN. M.H. #27 STA. 1+89.29, ℄ RIM=251.12 INV. IN=239.41 (#28) INV. OUT=239.21

89 L.F. 8" SDR-26 @ 0.70%

75 L.F. 15" R.C.P. @ 1.53%

97 L.F. 8" SDR-26 @ 1.52%

69 L.F. 18" R.C.P. @ 0.51%

59 L.F. 18" R.C.P. @ 0.50%

INLET #512, TYPE 'C' STANDARD BOX STA. 11+75.00, 15.0' RT. T.G.=251.62 INV. IN=248.30 (#514) INV. OUT=248.10

SAN. M.H. #17 STA. 12+79.54, ℄ RIM=250.32 INV. IN=238.59 (#19) INV. IN=238.59 (#27) INV. OUT=238.39

INLET #508, TYPE 'C' STANDARD BOX STA. 1+51.00, 15.0' RT. T.G.=250.07 INV. IN=246.36 (#510) INV. IN=246.41 (#518) INV. OUT=246.26

INLET #506, TYPE 'C' STANDARD BOX STA. 2+19.42, 14.6' RT. T.G.=251.10 INV. IN=245.97 (#508) INV. OUT=245.77

SAN. M.H. #16 STA. 13+24.10, ℄ RIM=249.64 INV. IN=238.08 (#17) INV. OUT=237.88

227 L.F. 8" SDR-26 @ 0.70%

30 L.F. 15" R.C.P. @ 6.42%

46 L.F. 8" SDR-26 @ 0.71%

207 L.F. 18" R.C.P. @ 0.51%

INLET #504, TYPE 'C' STANDARD BOX STA. 4+26.75, 15.0' RT. T.G.=250.40 INV. IN=244.98 (#520) INV. IN=244.72 (#506) INV. OUT=244.22

SAN. M.H. #28 STA. 4+16.75, ℄ RIM=251.03 INV. IN=241.20 (#29) INV. OUT=241.00

SAN. M.H. #29 STA. 4+63.49, ℄ RIM=250.33 INV. IN=241.73 (#30) INV. OUT=241.53

SAN. M.H. #30 STA. 5+47.24, ℄ RIM=248.98 INV. OUT=242.31

28 L.F. 8" SDR-26 @ 0.70%

INLET #520, TYPE 'C' STANDARD BOX STA. 4+26.75, 15.0' LT. T.G.=250.40 INV. OUT=246.90

INLET #724, TYPE 'M' STANDARD BOX T.G.=248.80 INV. IN=244.67 (#726) INV. IN=244.41 (#740) INV. OUT=243.91

INLET #722, TYPE 'C' STANDARD BOX STA. 14+15.10, 15.0' RT. T.G.=248.05 INV. IN=243.30 (#724) INV. OUT=243.10

30 L.F. 30" R.C.P. @ 0.50%

INLET #720, TYPE 'C' STANDARD BOX STA. 14+15.10, 15.0' LT. T.G.=248.30 INV. IN=242.95 (#722) INV. OUT=242.75

121 L.F. 30" R.C.P. @ 0.50%

127 L.F. 30" R.C.P. @ 0.51%

108 L.F. 15" R.C.P. @ 0.50%

INLET #718, TYPE 'M' TYPE 4 BOX T.G.=248.30 INV. IN=242.10 (#720) INV. OUT=241.90

29 L.F. 30" R.C.P. @ 0.683%

STONE BMP 2A (BMP ID 2)

INLET #710, TYPE 'M' STANDARD BOX T.G.=247.80 INV. OUT=242.80

INLET #708, TYPE 'M' TYPE 4 BOX T.G.=245.80 INV. IN=240.20 (#712) INV. IN=240.20 (#710) INV. OUT=239.70

INLET #712, TYPE 'M' TYPE 4 BOX T.G.=247.80 INV. IN=242.44 (#714) INV. OUT=242.80

76 L.F. 24" PERFORATED @ 0.47%

103 L.F. 30" R.C.P. @ 2.52%

42 L.F. 30" R.C.P. @ 6.27%

81 L.F. 30" R.C.P. @ 0.62%

STORM 4' DIA. M.H. #716 RIM=249.00 INV. IN=241.70 (#718) INV. IN=243.50 (#734) INV. OUT=241.50

INLET #714, TYPE 'M' TYPE 4 BOX T.G.=247.70 INV. IN=241.00 (#716) INV. OUT=242.80

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

KEYMAP

SD07.01 SD07.02 SD07.03 SD07.04
SD07.05 SD07.06 SD07.07 SD07.08

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- EXISTING STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
- EXISTING TREE
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- 10 PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- U PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- x x x PROPOSED SPLIT RAIL FENCE
- W PROPOSED WATER LATERAL
- S PROPOSED SANITARY LATERAL W/ CLEANOUT
- 3 LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- 6 SANITARY MAIN AND MANHOLE W/ STRUCTURE NUMBER
- 8"W PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — PROFESSIONAL ENGINEER

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ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION
1	7/24/23	TOWNSHIP REVIEW LETTER COMMENTS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS

DRAWN: ESE, ESE, ESE, ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT—NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

UTILITY PLAN

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23
SCALE: 1" = 30'
DESIGN:
DRAWN: EJS
JOB NO.: 7662
FILE NAME: 7662-S-07-UTILITY
REF. NO.: SD07.03
SHEET NO.: 22 OF 62

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FORREST AVENUE

FORREST AVENUE

DWELLING
DWELLING
DWELLING
DWELLING
DWELLING
30-00-22200-009
30-00-22204-005
30-00-22208-001
30-00-22212-006
30-00-22216-002
30-00-12796-008
30-00-63888-009
30-00-63884-004
30-00-63880-008
30-00-63876-003
SHED
CONC. MON. FOUND
CONC. MON. FOUND
WOOD FENCE
WOOD FENCE
OBSCURED
OBSCURED
OBSCURED
OBSCURED
WIRE FENCE
EXISTING TREELINE
VARIABLE WIDTH CONSERVATION EASEMENT
LOD
RIPRAP APRON R-3 9'L X 58'W
30 L.F. 18" R.C.P. @ 0.5%
E.W. #600 T.W.=245.44 INV.=243.00
RIPRAP APRON R-3 8'L X 12.5'W
45' LONG EMERGENCY SPILLWAY ELEV. 245.80'
RIPRAP APRON R-4 12'L X 18'W
E.W. #500 T.W.=245.71 INV.=243.00
RIPRAP APRON R-3 8'L X 12.5'W
E.W. #10 T.W.=244.44 INV.=242.00
39 L.F. 18" R.C.P. @ 1.30%
O.S. #3A-1 T.G.=245.80 INV. OUT=242.50
RIPRAP APRON R-2 8'L X 41'W
RIPRAP APRON R-3 8'L X 11.75'W
E.W. #30 T.W.=238.44 INV.=236.00
45 L.F. 15" R.C.P. @ 2.25%
F.E.S. #20 INV.=242.00
45 L.F. 15" R.C.P. @ 1.12%
RIPRAP APRON R-3 8'L X 11.75'W
O.S. #3A-2 T.G.=245.80 INV. OUT=242.50
O.S. #3B T.G.=244.25 INV. OUT=237.00
BASIN 3A (BMP ID 4)
BASIN 3B (BMP ID 3)
ZONE 2
RIPRAP APRON R-4
GnB
65
100'
100'
100'
100'

SD07.01 SD07.02 SD07.03 SD07.04
SD07.05 SD07.06 SD07.07 SD07.08

KEYMAP

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
- EXISTING TREE
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- 10 PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- PROPOSED SPLIT RAIL FENCE
- PROPOSED WATER LATERAL
- PROPOSED SANITARY LATERAL w/ CLEANOUT
- 3 LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- SANITARY MAIN AND MANHOLE w/ STRUCTURE NUMBER
- 6 8"W PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

COMMONWEALTH OF PENNSYLVANIA JEFFREY M. MAUDER ENGINEER REGISTRY NUMBER

Jeff Mauder

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ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

UTILITY PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

APPLICATION NUMBER LD-23-01

DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.:	SD07.04
SHEET NO.: 23 OF	62

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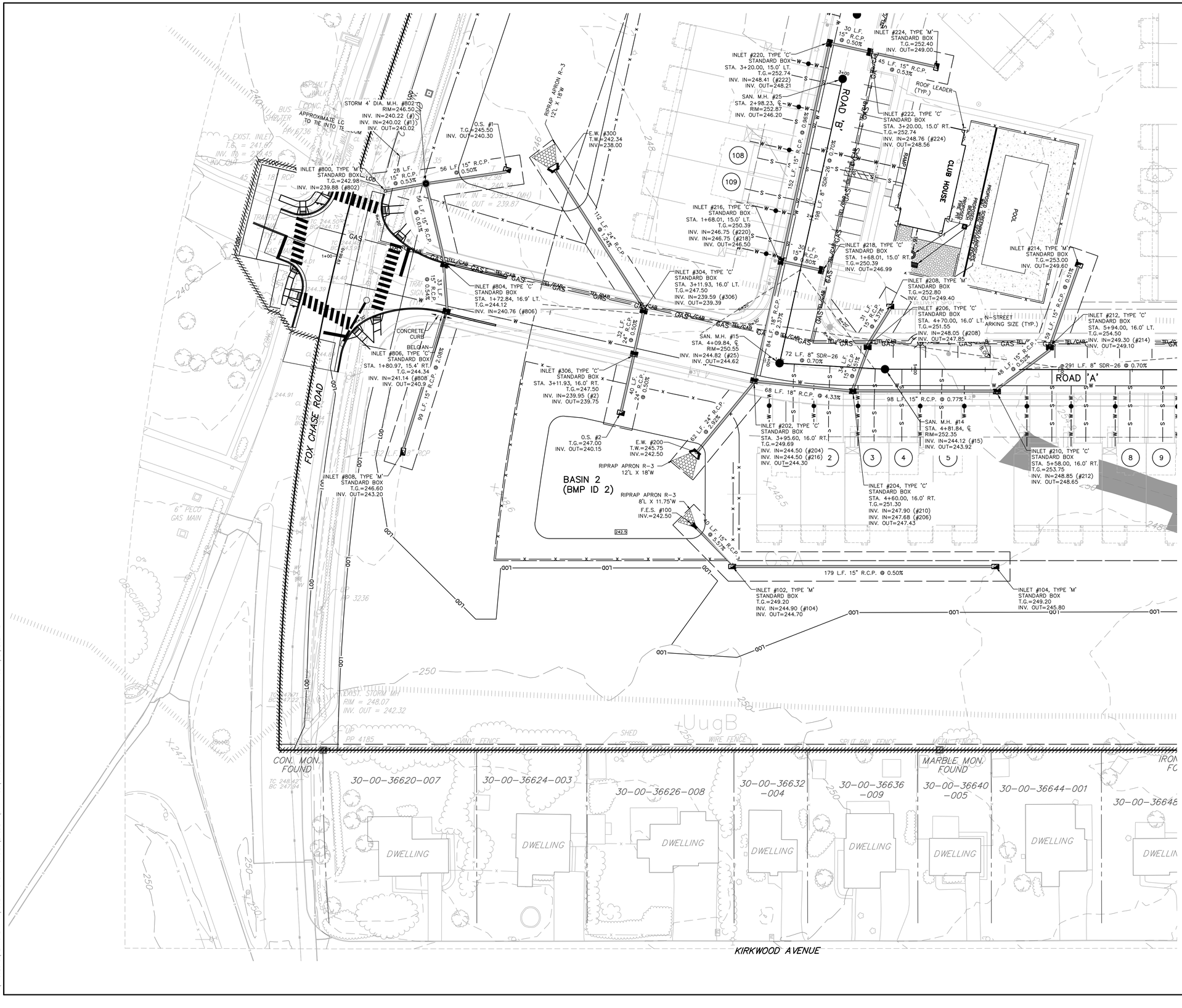

SD07.01 | SD07.02 | SD07.03 | SD07.04
SD07.05 | SD07.06 | SD07.07 | SD07.08

KEYMAP

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
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- PROPOSED SANITARY LATERAL w/ CLEANOUT
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- 6 8"W PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL ENGINEER — JEFFREY M. MAUDER — 078927 — REGISTERED

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/11/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

UTILITY PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.:	SD07.05
SHEET NO.:	24 OF 62

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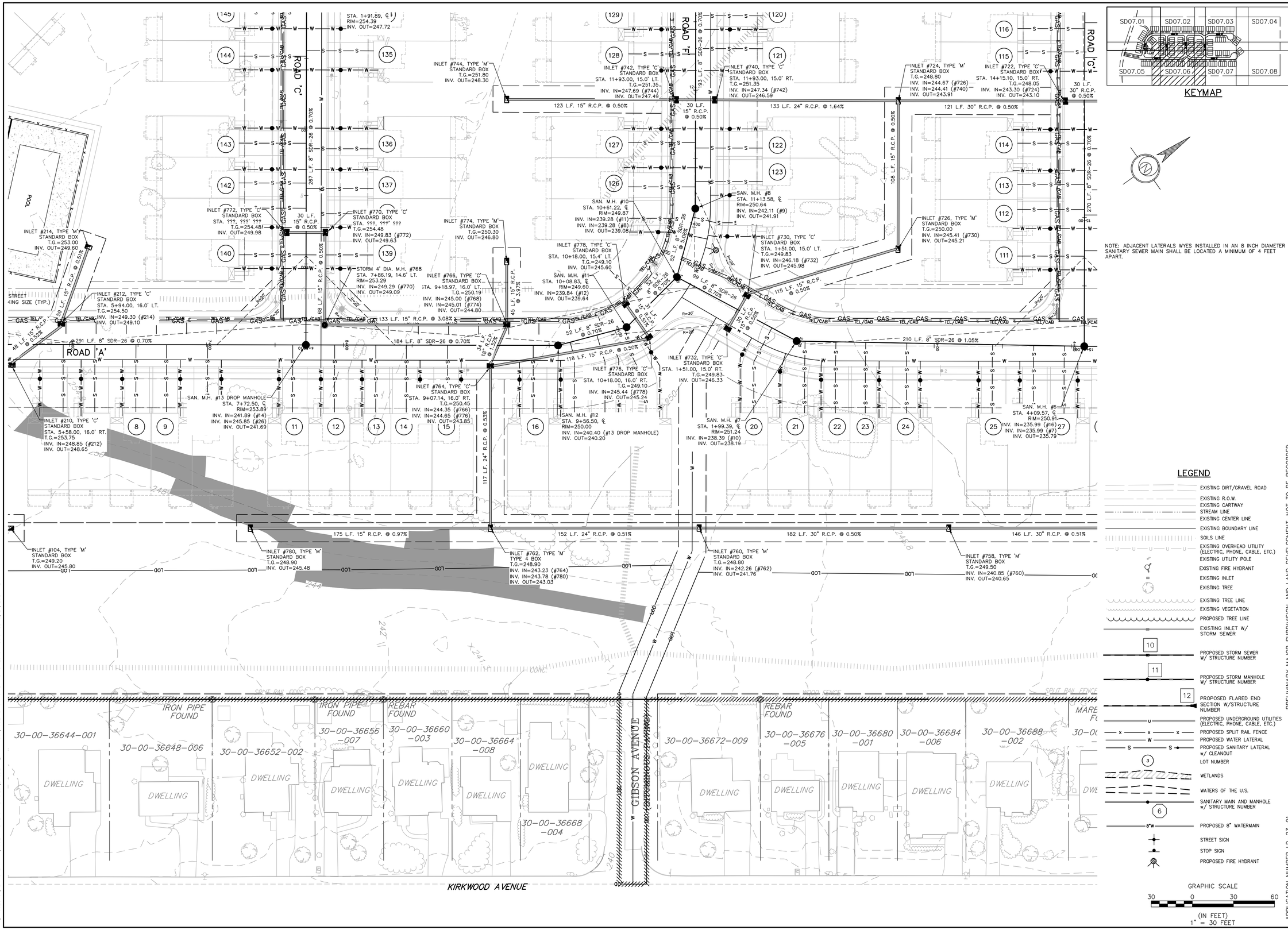

KEYMAP

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
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- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- 10 — PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 — PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 — PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- PROPOSED SPLIT RAIL FENCE
- PROPOSED WATER LATERAL
- PROPOSED SANITARY LATERAL w/ CLEANOUT
- 3 — LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- 6 — SANITARY MAIN AND MANHOLE w/ STRUCTURE NUMBER
- 8"W — PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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JEFFREY M. MAUDEN, ENGINEER, COMMONWEALTH OF PENNSYLVANIA

REV.	DATE	DESCRIPTION	DRAWN
3	05/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

UTILITY PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, Mmontgomery COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1"= 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.:	SD07.06
SHEET NO.:	25 OF 62

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INLET #724, TYPE 'M'
STANDARD BOX
T.G.=248.80
INV. IN=244.67 (#726)
INV. IN=244.41 (#740)
INV. OUT=243.91

INLET #722, TYPE 'C'
STANDARD BOX
STA. 14+15.10, 15.0' RT.
T.G.=248.05
INV. IN=243.30 (#724)
INV. OUT=243.10

INLET #720, TYPE 'C'
STANDARD BOX
STA. 14+15.10, 15.0' LT.
T.G.=248.05
INV. IN=242.95 (#722)
INV. OUT=242.75

INLET #718, TYPE 'M'
TYPE 4 BOX
T.G.=248.30
INV. IN=242.10 (#720)
INV. OUT=241.90

INLET #710, TYPE 'M'
STANDARD BOX
T.G.=247.80
INV. OUT=242.80

INLET #712, TYPE 'M'
TYPE 4 BOX
T.G.=247.80
INV. IN=242.44 (#714)
INV. OUT=242.80

INLET #708, TYPE 'M'
TYPE 4 BOX
T.G.=245.80
INV. IN=240.20 (#712)
INV. IN=240.20 (#710)
INV. OUT=239.70

STONE BMP 2A
(BMP ID

121 L.F. 30" R.C.P. @ 0.50%
127 L.F. 30" R.C.P. @ 0.51%
29 L.F. 30" R.C.P. @ 0.68%
76 L.F. 24" PERFORATED @ 0.47%
103 L.F. 30" R.C.P. @ 2.52%
42 L.F. 30" R.C.P. @ 6.27%
81 L.F. 30" R.C.P. @ 0.62%

STORM 4' DIA. M.H. #716
RIM=249.00
INV. IN=241.70 (#718)
INV. IN=243.50 (#734)
INV. OUT=241.50

INLET #714, TYPE 'M'
TYPE 4 BOX
T.G.=247.70
INV. IN=241.00 (#716)
INV. OUT=242.80

108 L.F. 15" R.C.P. @ 0.50%
270 L.F. 8" SDR-26 @ 0.70%
135 L.F. 15" R.C.P. @ 1.26%
85 L.F. 36" R.C.P. @ 1.09%

INLET #726, TYPE 'M'
STANDARD BOX
T.G.=250.00
INV. IN=245.41 (#730)
INV. OUT=245.21

INLET #706, TYPE 'C'
STANDARD BOX
STA. 8+45.62, 48.9' LT.
T.G.=244.38
INV. IN=238.78 (#708)
INV. OUT=238.58

100 L.F. 36" R.C.P. @ 1.04%

INLET #704, TYPE 'C'
STANDARD BOX
STA. 8+71.90, 47.4' RT.
T.G.=242.84
INV. IN=237.34 (#706)
INV. OUT=237.14

134 L.F. 8" SDR-26 @ 0.70%
156 L.F. 42" R.C.P. @ 1.84%

E.W. #700
T.W.=235.50
INV.=231.00

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

INLET #736, TYPE 'C'
STANDARD BOX
STA. 4+56.97, 15.0' LT.
T.G.=249.72
INV. IN=246.06 (#738)
INV. OUT=245.86

INLET #734, TYPE 'C'
STANDARD BOX
STA. 5+51.46, 15.0' LT.
T.G.=248.30
INV. IN=245.39 (#736)
INV. OUT=245.19

210 L.F. 8" SDR-26 @ 1.05%
94 L.F. 15" R.C.P. @ 0.50%
300 L.F. 8" SDR-26 @ 0.70%
79 L.F. 8" SDR-26 @ 0.71%
79 L.F. 8" SDR-26 @ 0.70%
35 L.F. 36" R.C.P. @ 3.36%
30 L.F. 15" R.C.P. @ 0.53%

SAN. M.H. #3
STA. 8+68.93, ℄
RIM=244.07
INV. IN=232.18 (#4)
INV. OUT=231.98

BASIN
ACI
DRI

SAN. M.H. #2
RIM=241.00
INV. IN=231.04 (#3)
INV. OUT=230.84

ROAD 'E'

INLET #738, TYPE 'C'
STANDARD BOX
STA. 4+56.97, 15.0' RT.
T.G.=249.72
INV. OUT=246.22

SAN. M.H. #6
STA. 4+09.57, ℄
RIM=250.91
INV. IN=235.99 (#16)
INV. IN=235.99 (#7)
INV. OUT=235.79

SAN. M.H. #5
STA. 7+09.57, ℄
RIM=246.41
INV. IN=233.69 (#6)
INV. OUT=233.49

SAN. M.H. #4
STA. 7+89.10, ℄
RIM=245.22
INV. IN=232.93 (#5)
INV. OUT=232.73

STORM 4' DIA. M.H. #702
RIM=244.50
INV. IN=235.95 (#704)
INV. IN=236.20 (#750)
INV. OUT=235.75

133 L.F. 30" R.C.P. @ 0.53%

146 L.F. 30" R.C.P. @ 0.51%
144 L.F. 30" R.C.P. @ 0.51%
145 L.F. 30" R.C.P. @ 0.50%
149 L.F. 30" R.C.P. @ 0.50%

INLET #758, TYPE 'M'
STANDARD BOX
T.G.=249.50
INV. IN=240.85 (#760)
INV. OUT=240.65

INLET #756, TYPE 'M'
STANDARD BOX
T.G.=249.00
INV. IN=239.90 (#758)
INV. OUT=239.70

INLET #754, TYPE 'M'
STANDARD BOX
T.G.=246.50
INV. IN=238.97 (#756)
INV. OUT=238.77

INLET #752, TYPE 'M'
STANDARD BOX
T.G.=244.60
INV. IN=238.04 (#754)
INV. OUT=237.84

INLET #750, TYPE 'M'
TYPE 4 BOX
T.G.=243.90
INV. IN=237.10 (#752)
INV. OUT=236.90

SPLIT RAIL FENCE
WIRE FENCE
MARBLE MON. FOUND
(LEANING) CON. MON. FOUND
IRON PIPE FOUND

30-00-36684-006
30-00-36688-002
30-00-36696-003
30-00-36700-00
30-00-36708-009
30-00-36712-005
30-00-36716-001
30-00-36720-006
30-00-36724-0

DWELLING

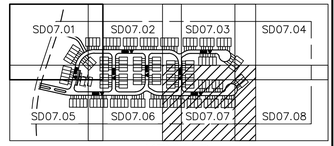
MONTGOMERY AVENUE (50' R.O.W.) (BITUMINOUS PAVING)

2" PECO GAS MAIN

4" PECO

KIRKWOOD AVENUE

KIRKWOOD



KEYMAP

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
- EXISTING TREE
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- 10 — PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 — PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 — PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- u — PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- x x x — PROPOSED SPLIT RAIL FENCE
- W — PROPOSED WATER LATERAL
- S S — PROPOSED SANITARY LATERAL W/ CLEANOUT
- 3 — LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- 6 — SANITARY MAIN AND MANHOLE W/ STRUCTURE NUMBER
- 8"w — PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE
30 0 30 60
(IN FEET)
1" = 30 FEET

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COMMONWEALTH OF PENNSYLVANIA
JEFFREY M. MAUDER
ENGINEER
No. PE082172

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

UTILITY PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.:	SD07.07
SHEET NO.:	26 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL\ENGDEPT\DRAWINGS\7662-S-07-UTILITY.DWG-Lake Plotrowicz-3/21/2024 12:47 PM

NOTE: ADJACENT LATERALS WYES INSTALLED IN AN 8 INCH DIAMETER SANITARY SEWER MAIN SHALL BE LOCATED A MINIMUM OF 4 FEET APART.

LEGEND

- EXISTING DIRT/GRAVEL ROAD
- EXISTING R.O.W.
- EXISTING CARTWAY
- STREAM LINE
- EXISTING CENTER LINE
- EXISTING BOUNDARY LINE
- SOILS LINE
- EXISTING OVERHEAD UTILITY (ELECTRIC, PHONE, CABLE, ETC.)
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING INLET
- EXISTING TREE
- EXISTING TREE LINE
- EXISTING VEGETATION
- PROPOSED TREE LINE
- EXISTING INLET W/ STORM SEWER
- 10 — PROPOSED STORM SEWER W/ STRUCTURE NUMBER
- 11 — PROPOSED STORM MANHOLE W/ STRUCTURE NUMBER
- 12 — PROPOSED FLARED END SECTION W/STRUCTURE NUMBER
- u — PROPOSED UNDERGROUND UTILITIES (ELECTRIC, PHONE, CABLE, ETC.)
- x x x — PROPOSED SPLIT RAIL FENCE
- W — PROPOSED WATER LATERAL
- S S — PROPOSED SANITARY LATERAL W/ CLEANOUT
- 3 — LOT NUMBER
- WETLANDS
- WATERS OF THE U.S.
- SANITARY MAIN AND MANHOLE W/ STRUCTURE NUMBER
- 6 — 8"W — PROPOSED 8" WATERMAIN
- STREET SIGN
- STOP SIGN
- PROPOSED FIRE HYDRANT

GRAPHIC SCALE

30 0 30 60

(IN FEET)
1" = 30 FEET

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ESE Consultants, Inc.
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T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/11/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

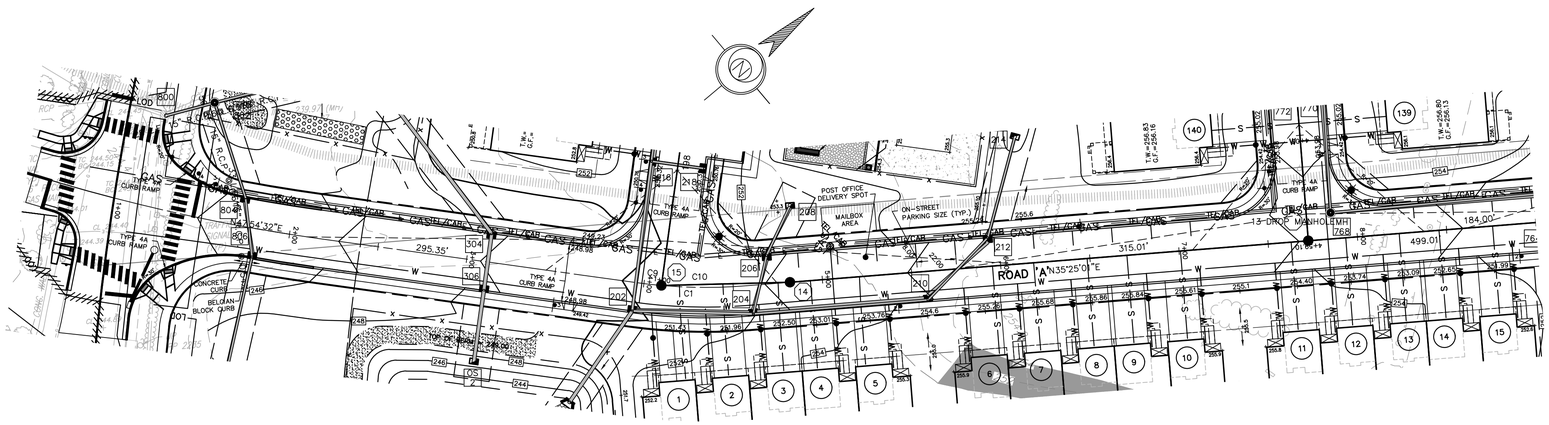
UTILITY PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

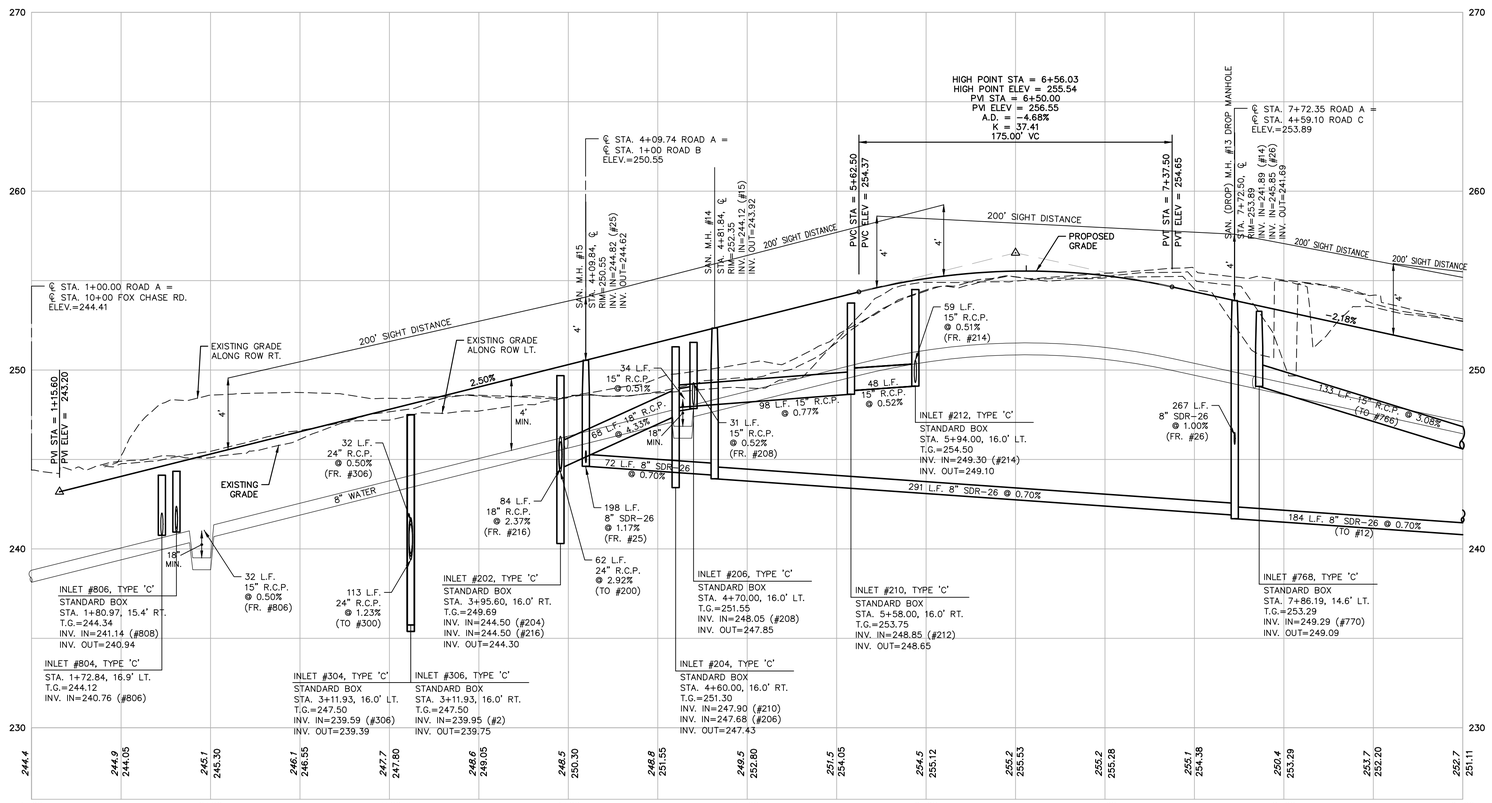
DATE: 3-24-23	SCALE: 1" = 30'
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-07-UTILITY
REF. NO.:	SD07.08
SHEET NO.:	27 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-07-UTILITY.DWG-Luke Piotrowicz-3/21/2024 12:47 PM



PLAN: ROAD 'A'
SCALE: 1"= 40'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C1	285.00'	62.14'	62.01'	S41°39'46"W	12°29'32"	31.19'
C9	285.00'	14.49'	14.49'	S46°27'09"W	2°54'47"	7.25'
C10	285.00'	47.65'	47.59'	S40°12'23"W	9°34'44"	23.88'



PROFILE: ROAD A
1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.

GRAPHIC SCALE
1 inch = 40 ft. Horizontal
FEET 40 0 20 40 80

GRAPHIC SCALE
1 inch = 4 ft. Vertical
FEET 8 4 2 0 4

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
ENGINEER
JEFFREY M. MAUDER
No. PE076705
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REC.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PLAN AND PROFILE
ROAD A STA 1+00 TO 9+00

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.: **SD08.01**	
SHEET NO.: **28** OF **62**	

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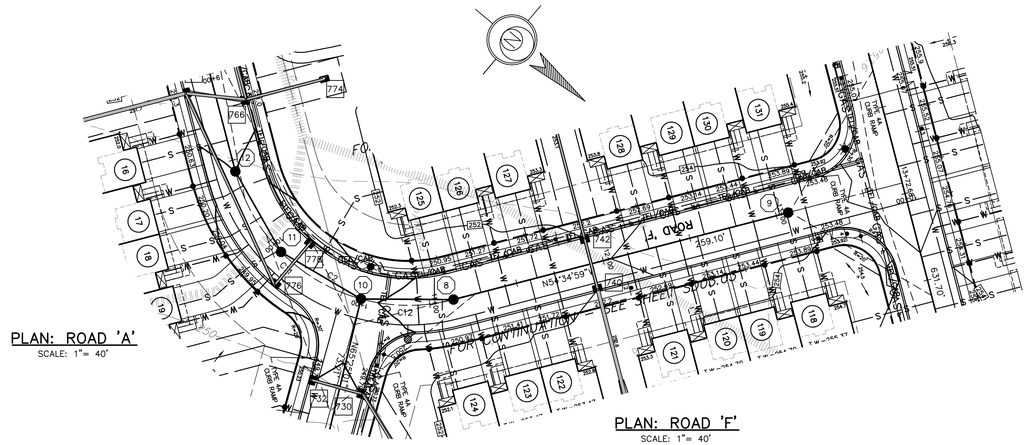
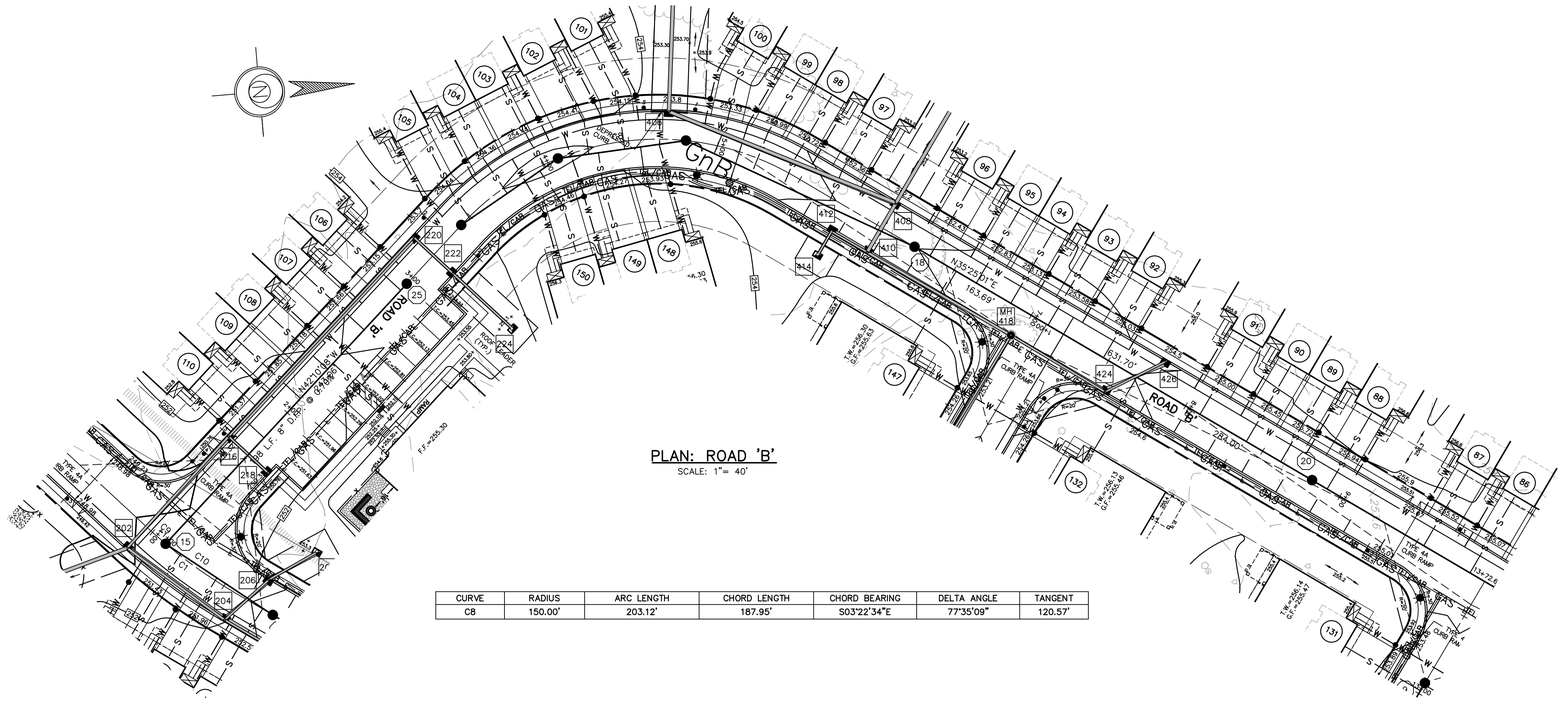

ROAD 'F'
ROAD 'A'
N64°34'59"E
159.10'
SEE SHEET SP08.01 FOR CONTINUATION
CURB RAMP
CURB RAMP
CURB RAMP



CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C8	150.00'	203.12'	187.95'	S03°22'34"E	77°35'09"	120.57'

PLAN: ROAD 'B'
SCALE: 1" = 40'

PROFILE: ROAD B
1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.

GRAPHIC SCALE
1 inch = 40 ft. Horizontal

GRAPHIC SCALE
1 inch = 4 ft. Vertical

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JEFFREY M. MAUDER
ENGINEER
No. PE079170

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REC.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

PLAN AND PROFILE
ROAD B STA 1+00 TO 10+00

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.:	SD08.03
SHEET NO.:	30 OF 62

APPLICATION NUMBER LD-23-01

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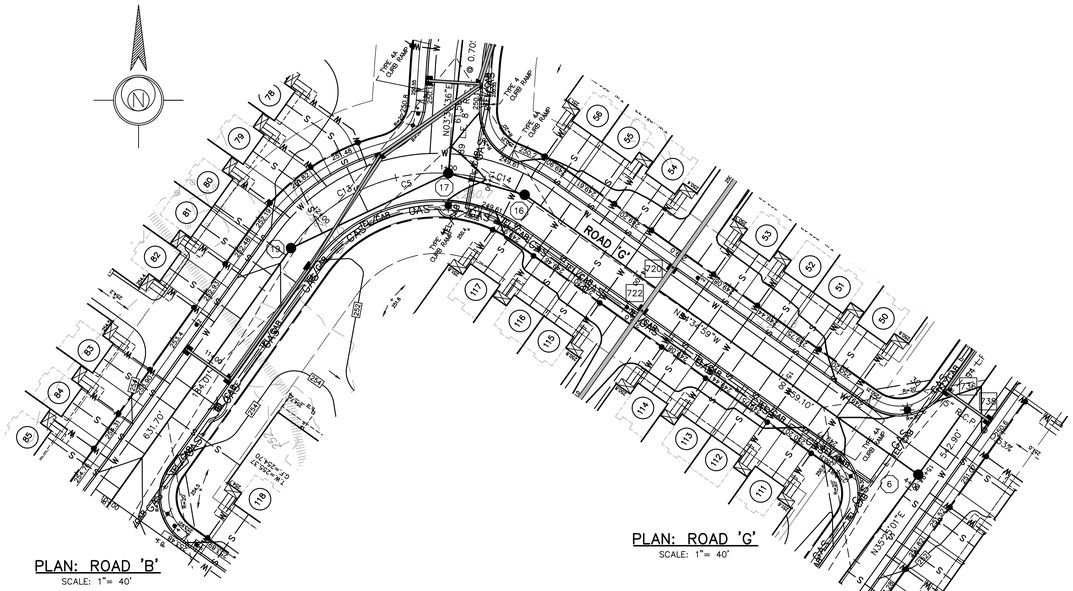
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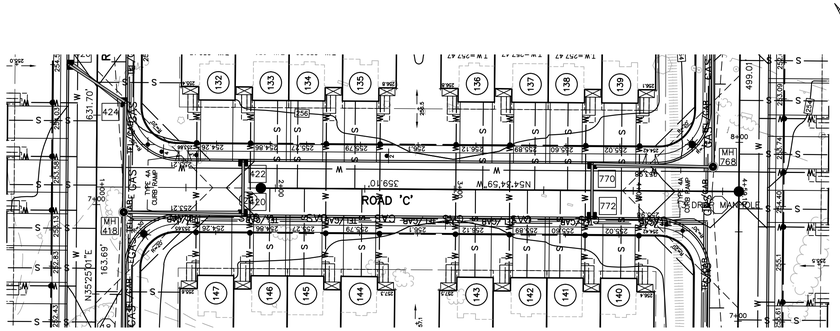
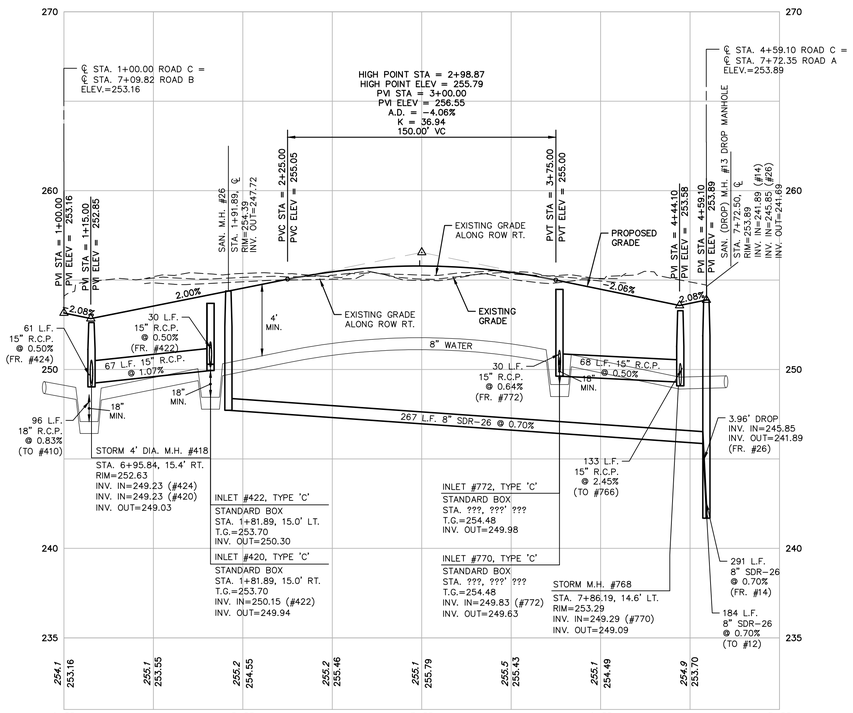
TYP. 6" DWB Radius
TYP. 8" DWB Radius
TYP. 10" DWB Radius
TYP. 12" DWB Radius
TYP. 15" DWB Radius
TYP. 18" DWB Radius
TYP. 24" DWB Radius
TYP. 30" DWB Radius
TYP. 36" DWB Radius
TYP. 42" DWB Radius
TYP. 48" DWB Radius
TYP. 54" DWB Radius
TYP. 60" DWB Radius
TYP. 66" DWB Radius
TYP. 72" DWB Radius
TYP.



PLAN: ROAD 'C'
SCALE: 1"= 40'



PROFILE: ROAD C
1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.

GRAPHIC SCALE
1 inch = 4 ft. Vertical

GRAPHIC SCALE
1 inch = 40 ft. Horizontal

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

REC.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ENGINEER — JEFFREY M. MAUDER — 049746 — COMMONWEALTH OF PENNSYLVANIA

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ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

PLAN AND PROFILE
ROAD C STA 1+00 TO 15+94.06

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.: **SD08.05**	
SHEET NO.: **32** OF **62**	

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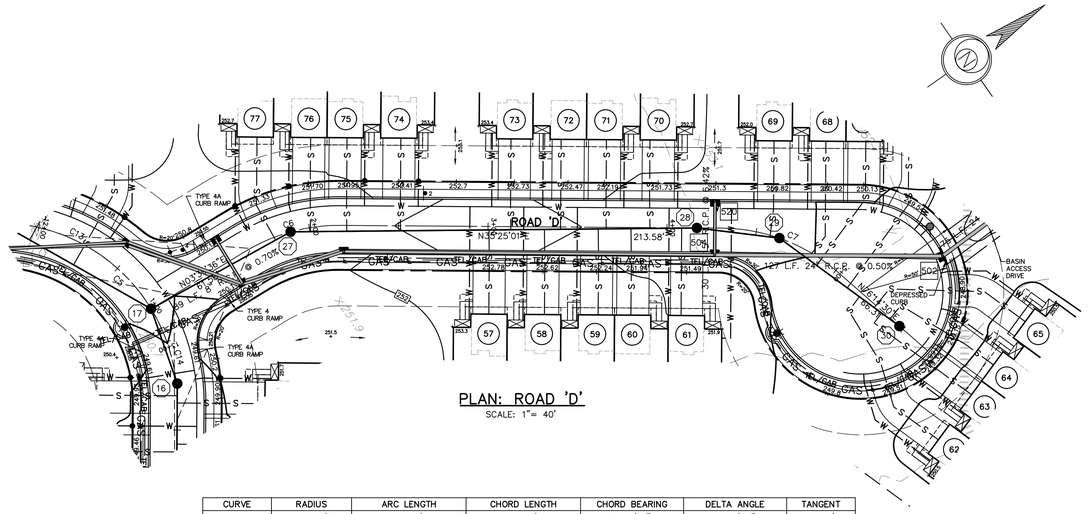
ROAD 'D'
N.15°25'01"E
213.58'
R=100.00'
L=127.24'
TYPE 4A CURB RAMP
TYPE 4 CURB RAMP
TYPE 4A CURB RAMP
TYPE 4A CURB RAMP
BASIN ACCESS DRIVE
DEPRESSED CURB
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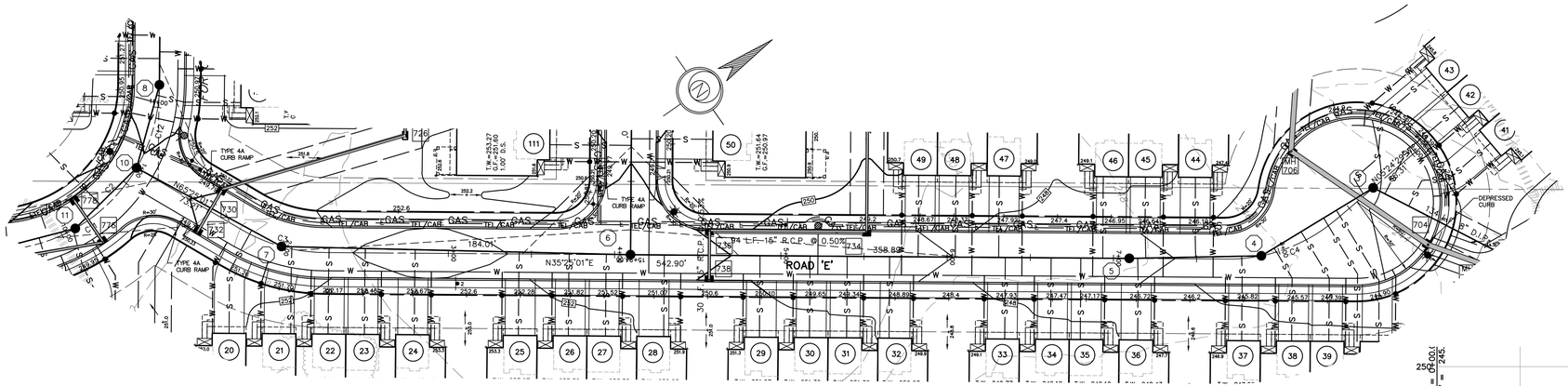
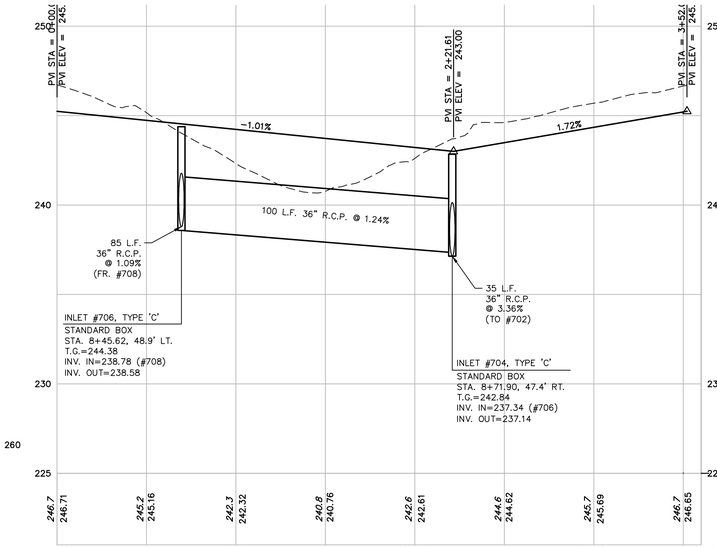
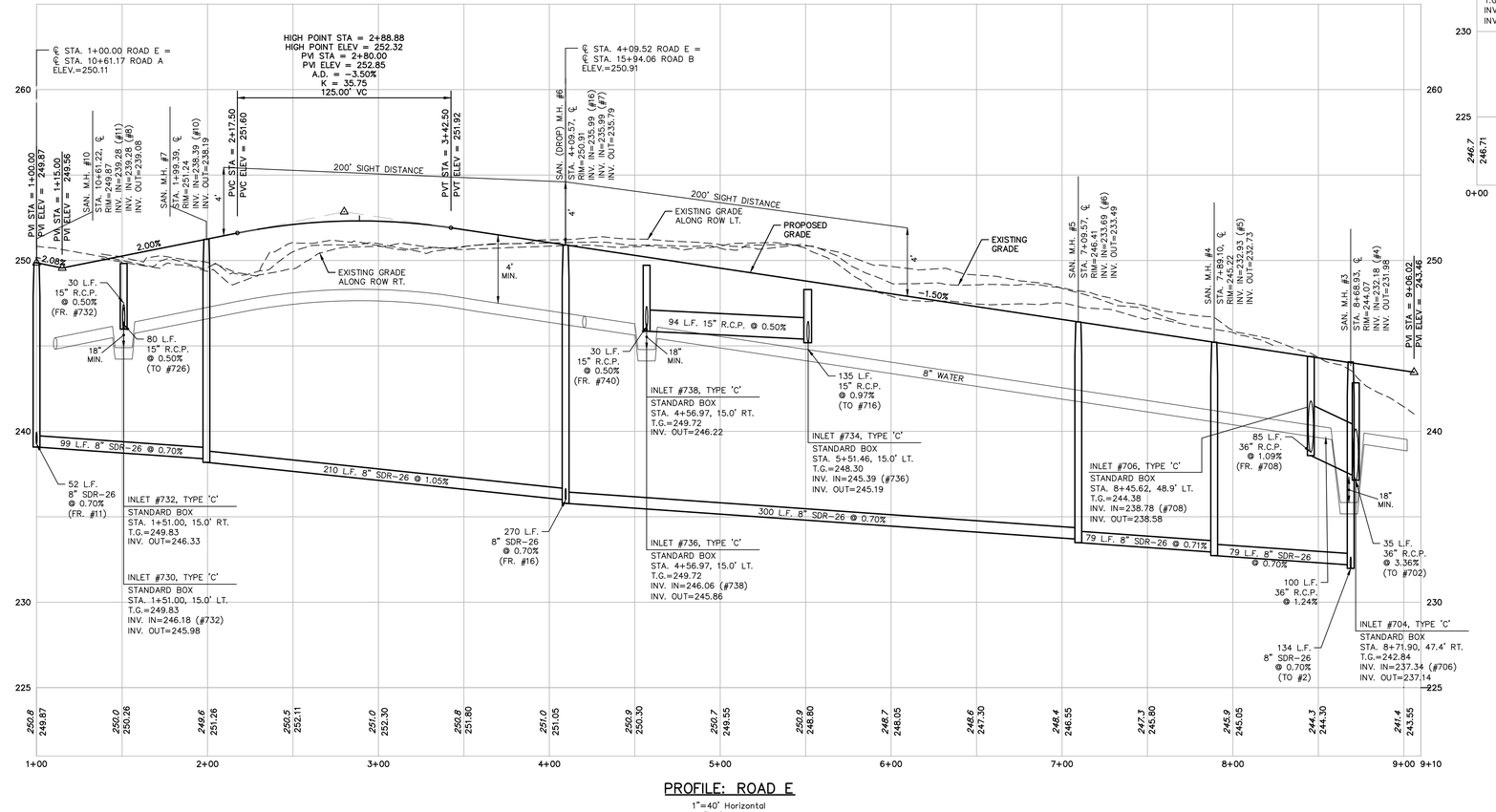


CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE	TANGENT
C3	100.00'	52.36'	51.76'	S50°25'01"W	30°00'00"	26.79'
C4	100.00'	71.25'	69.76'	S15°00'16"W	40°49'30"	37.21'

PLAN: ROAD 'E'
SCALE: 1" = 40'



PROFILE: CUL-DE-SAC E
1"=40' Horizontal
1"=4' Vertical



PROFILE: ROAD E
1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.

GRAPHIC SCALE
1 inch = 4 ft. Vertical

GRAPHIC SCALE
1 inch = 40 ft. Horizontal

COMMONWEALTH OF PENNSYLVANIA
REGISTERED
PROFESSIONAL
ENGINEER
JEFFREY M. MAUDER
ESE CONSULTANTS
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ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

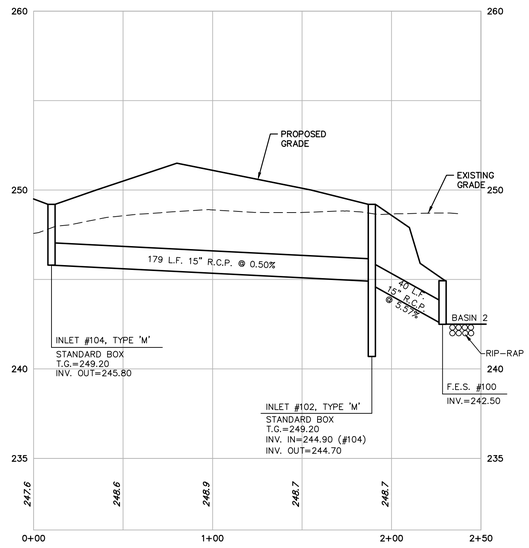
PLAN AND PROFILE
ROAD E STA 1+00 TO 9+06.02

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

APPLICATION NUMBER LD-23-01

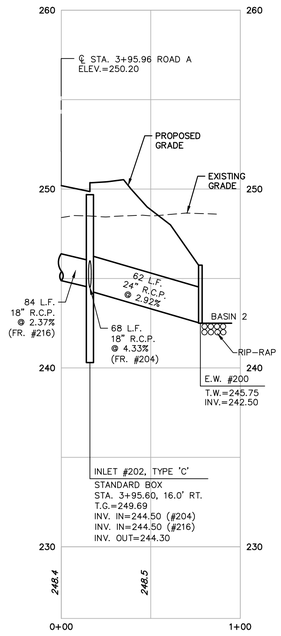
DATE:	SCALE:
3-24-23	AS NOTED
DESIGN:	DRAWN:
JMM	EJS
JOB NO.:	FILE NAME:
7662	7662-S-08-PROF
REF. NO.:	SD08.07
SHEET NO.:	34 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST BASIL'S\ENGDEPT\DRAWINGS\7662-S-08-PROF DWG-Luke Pistrowicz-3/21/2024 12:48 PM



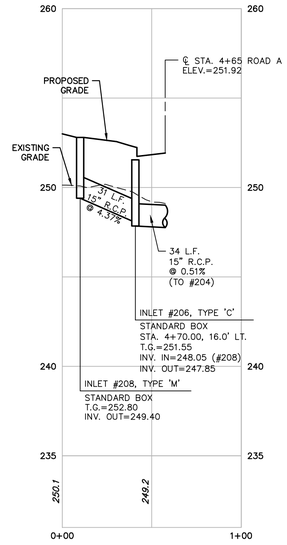
PROFILE: 104–100

1"=40' Horizontal
1"=4' Vertical



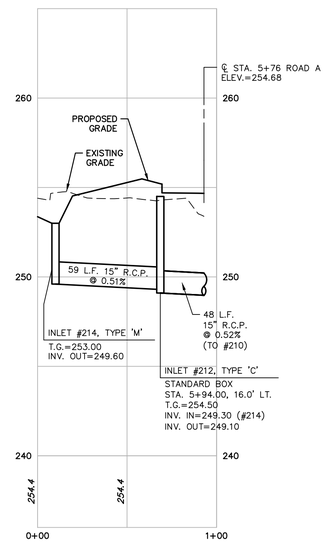
PROFILE: 202–200

1"=40' Horizontal
1"=4' Vertical



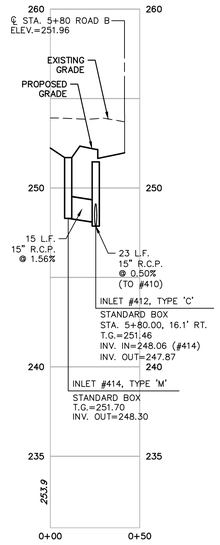
PROFILE: 208–204

1"=40' Horizontal
1"=4' Vertical



PROFILE: 214–210

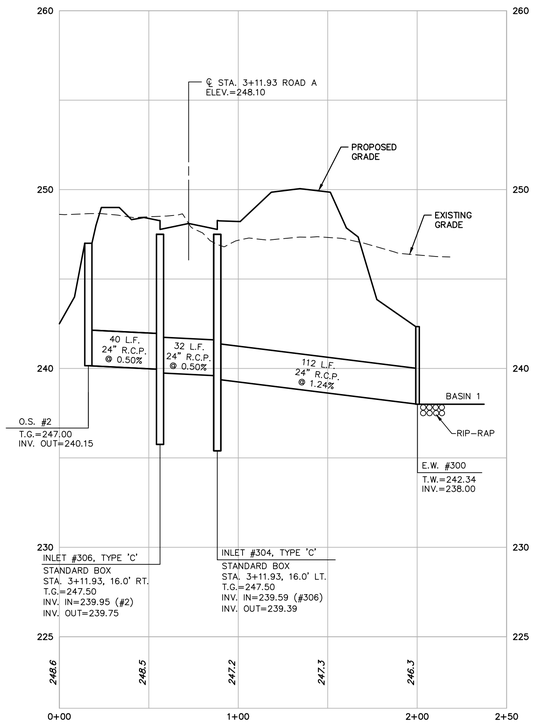
1"=40' Horizontal
1"=4' Vertical



PROFILE: 414–412

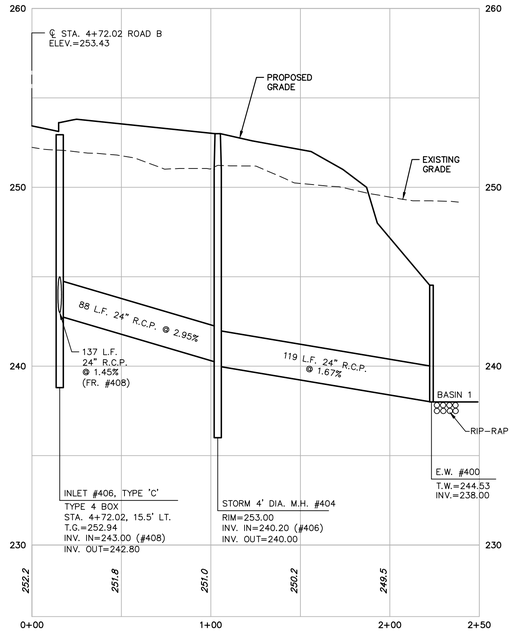
1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.



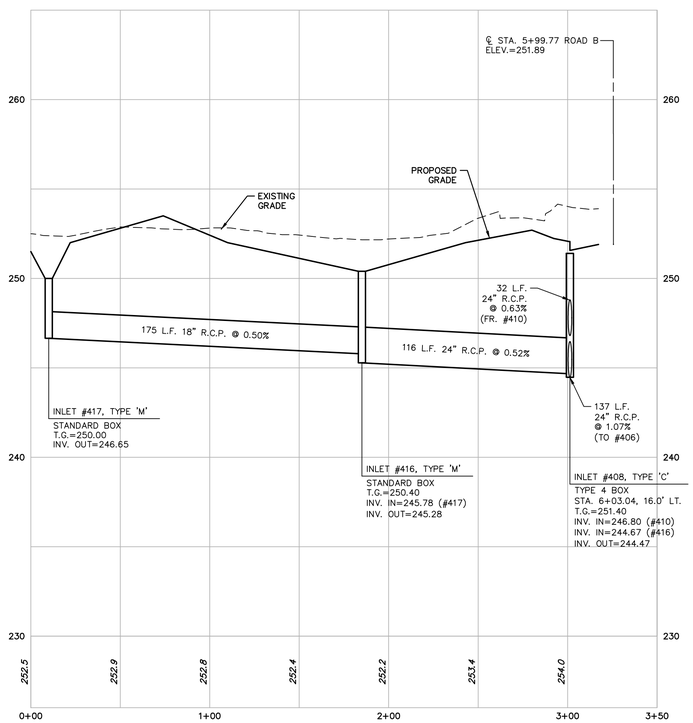
PROFILE: 308–300

1"=40' Horizontal
1"=4' Vertical



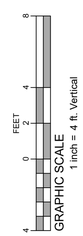
PROFILE: 406–400

1"=40' Horizontal
1"=4' Vertical

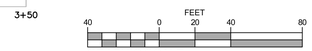


PROFILE: 428–408

1"=40' Horizontal
1"=4' Vertical



GRAPHIC SCALE
1 inch = 4 ft. Vertical



GRAPHIC SCALE
1 inch = 40 ft. Horizontal

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL
JEFFREY M. MAUDER
ENGINEER
PROJECT MANAGER

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REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/31/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

EASEMENT PROFILES

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.:	SD08.08
SHEET NO.:	35 OF 62

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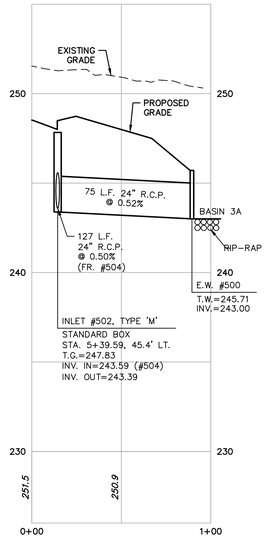
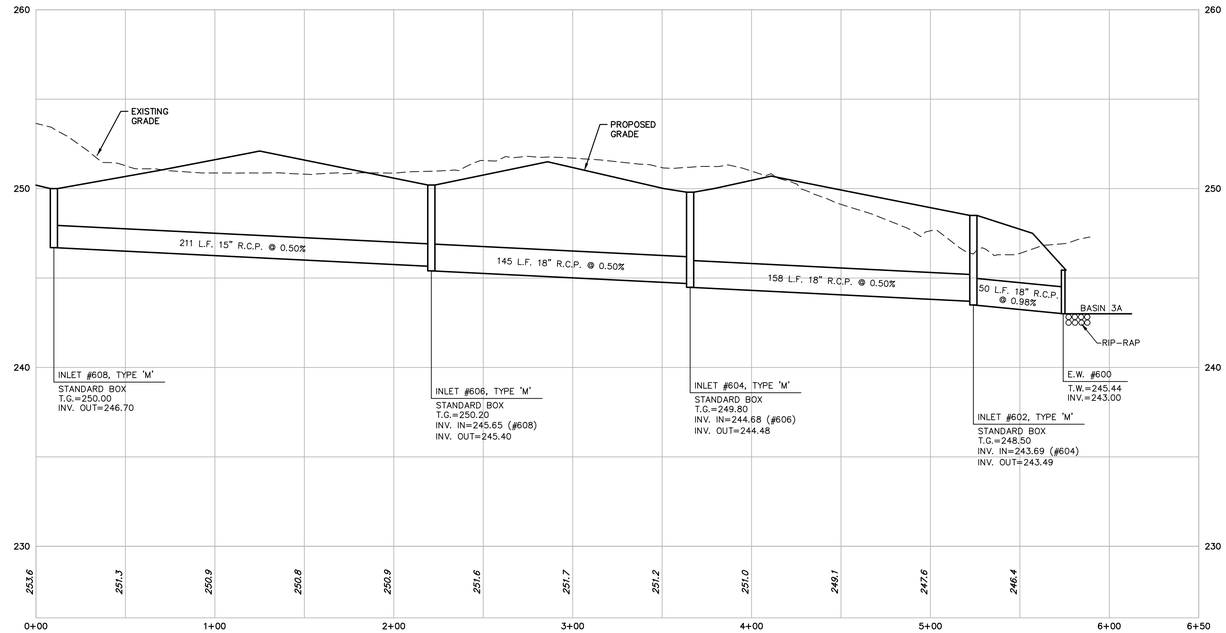


PROFILE: 502 to 500

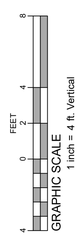
1"=40' Horizontal
1"=4' Vertical



PROFILE: 608 to 600

1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.



GRAPHIC SCALE
1 inch = 4 ft. Vertical

GRAPHIC SCALE
1 inch = 40 ft. Horizontal

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JEFFREY M. MAUDER

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

EASEMENT PROFILES

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.: **SD08.09**	
SHEET NO.: **36** OF **62**	

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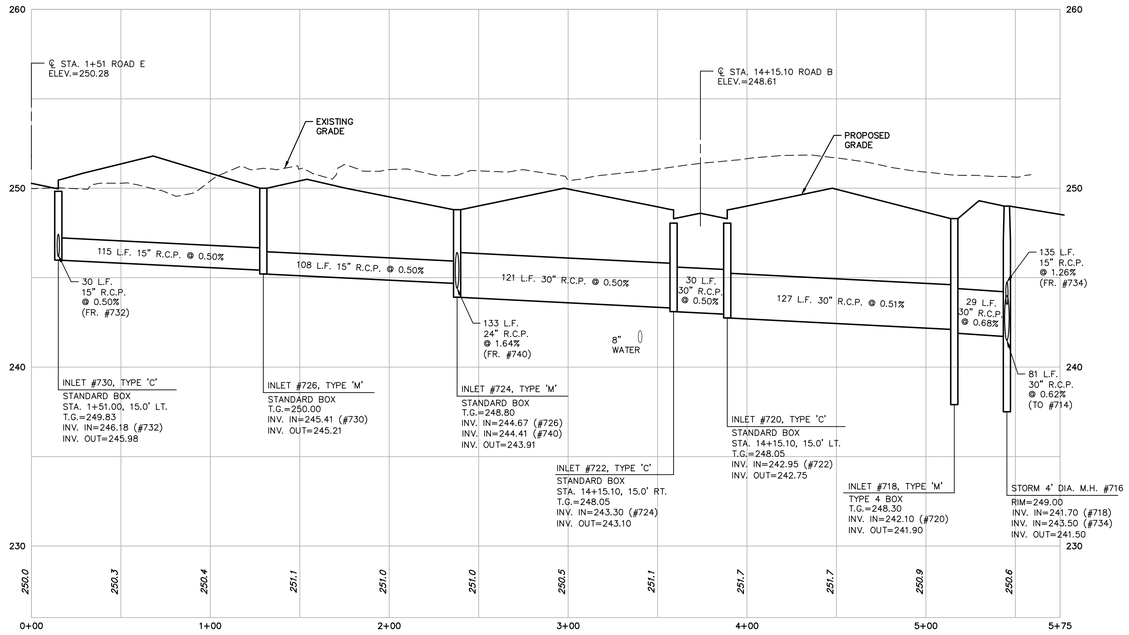
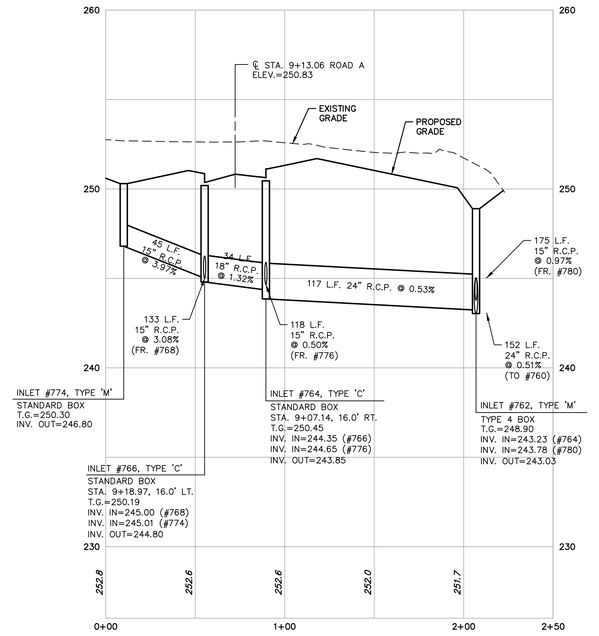


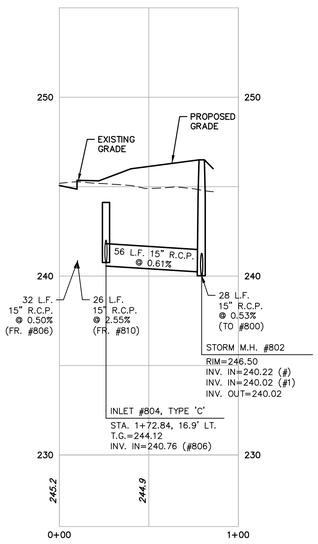
PROFILE: 728 to 716

1"=40' Horizontal
1"=4' Vertical



PROFILE: 774 TO 762

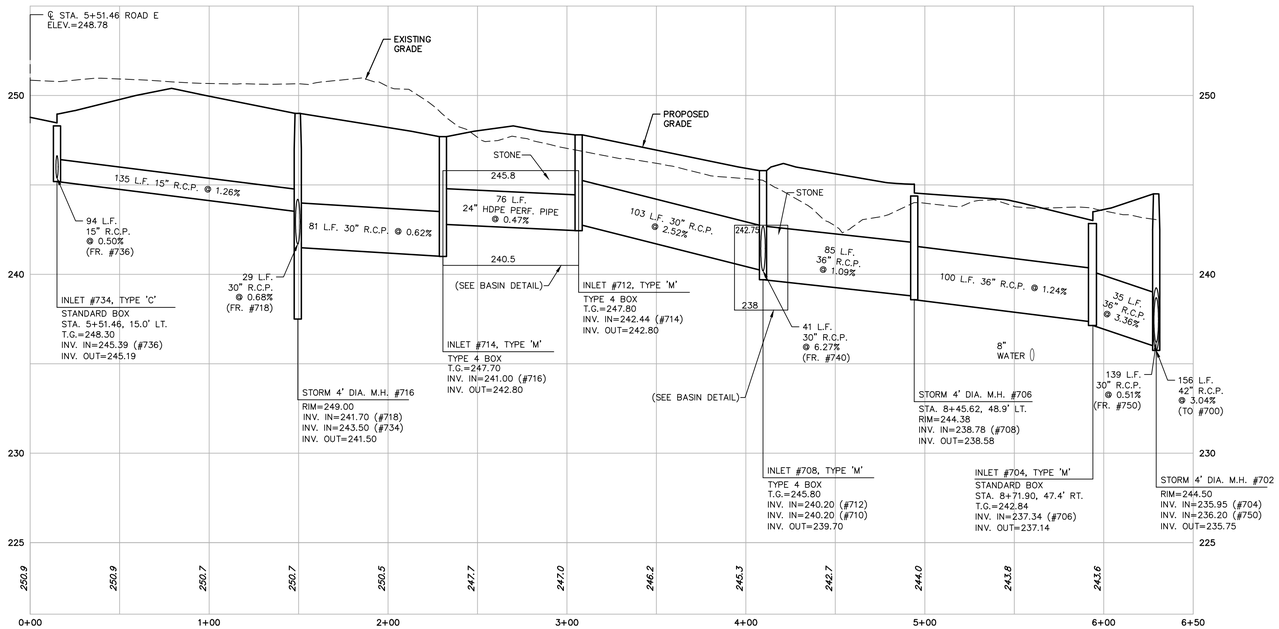
1"=40' Horizontal
1"=4' Vertical



PROFILE: 804-802

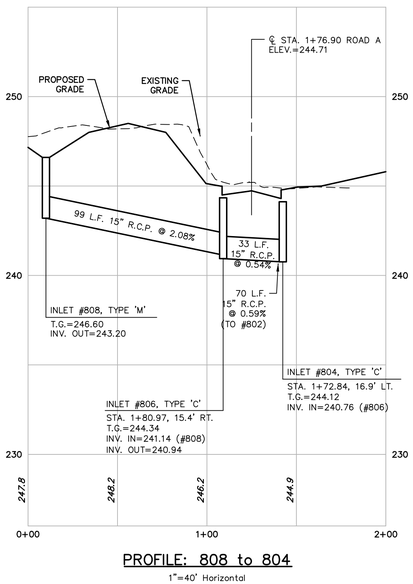
1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.



PROFILE: 716 to 702

1"=40' Horizontal
1"=4' Vertical



PROFILE: 808 to 804

1"=40' Horizontal
1"=4' Vertical

GRAPHIC SCALE
1 inch = 4 ft. Vertical

GRAPHIC SCALE
1 inch = 40 ft. Horizontal

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER JEFFREY M. MAUDER

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/11/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

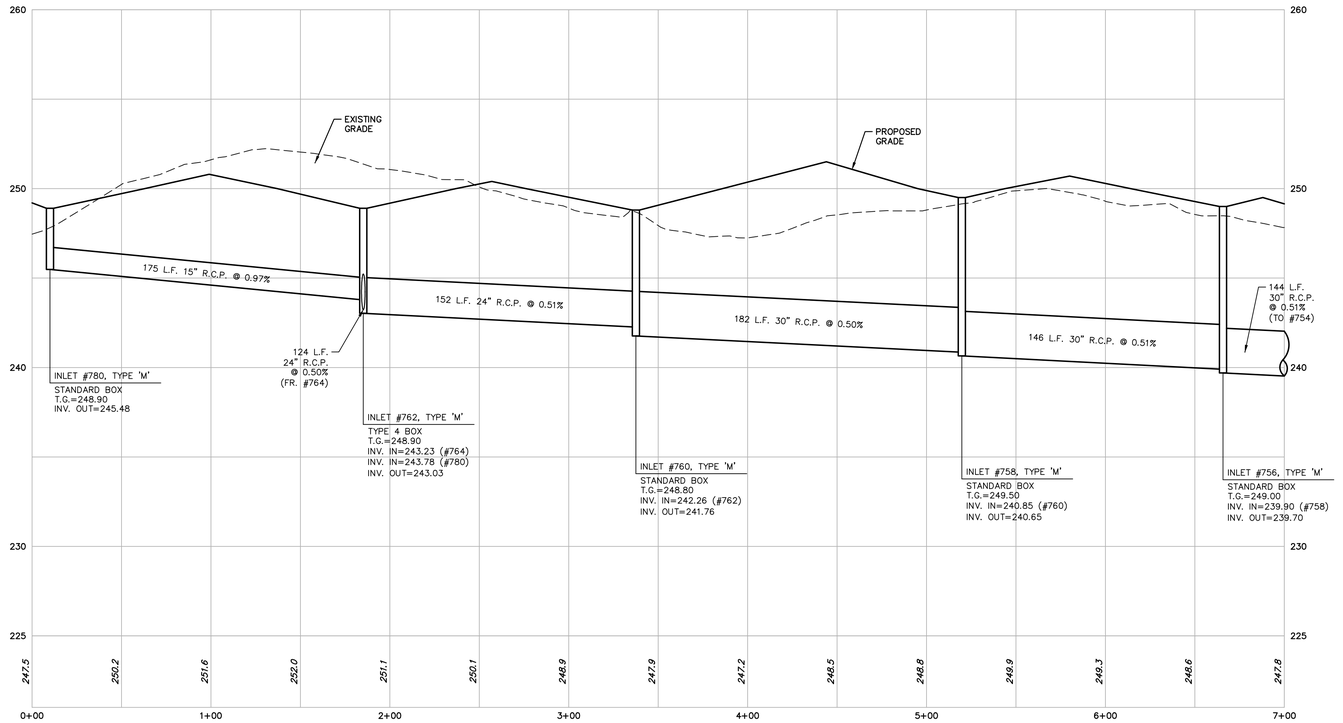
APPLICATION NUMBER LD-23-01

EASEMENT PROFILES

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

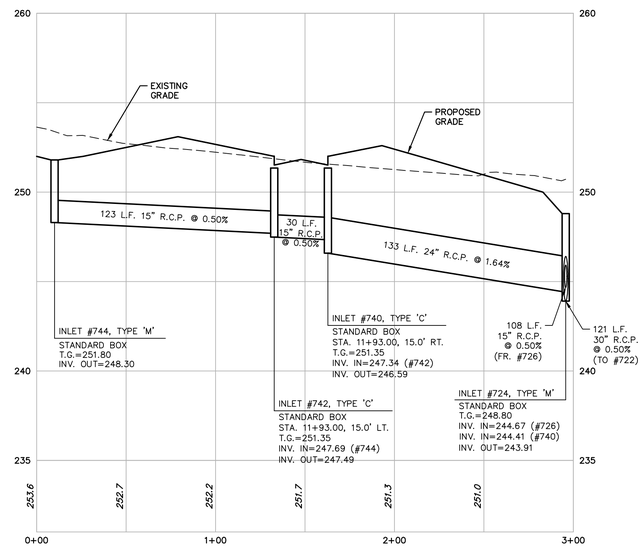
DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.: **SD08.10**	
SHEET NO.: **37** OF **62**	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-08-PROF DWG-Lee Piotrowicz-3/21/2024 12:49 PM



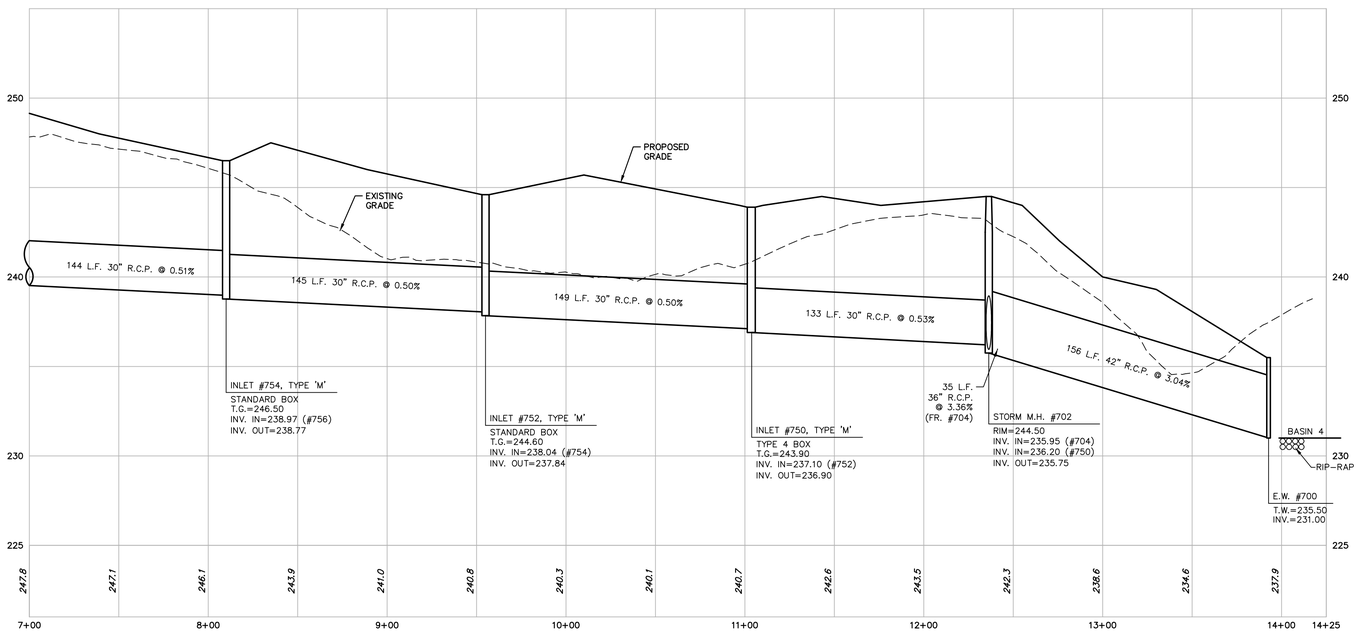
PROFILE: 780–700

1"=40' Horizontal
1"=4' Vertical



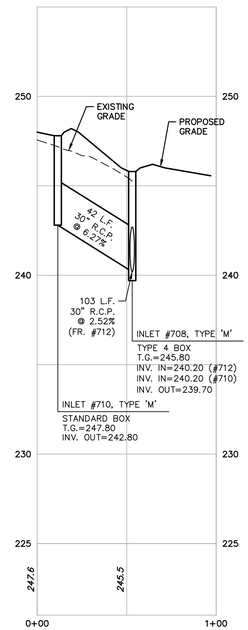
PROFILE: 744–724

1"=40' Horizontal
1"=4' Vertical



PROFILE: 780–700

1"=40' Horizontal
1"=4' Vertical



PROFILE: 710 to 708

1"=40' Horizontal
1"=4' Vertical

NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.

GRAPHIC SCALE
1 inch = 40 ft. Horizontal
FEET 40 0 20 40 80

GRAPHIC SCALE
1 inch = 4 ft. Vertical
FEET 8 4 2 0 4

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — ENGINEER — JEFFREY M. MAUDER — PROVIDENCE, RHODE ISLAND

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REC.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/12/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

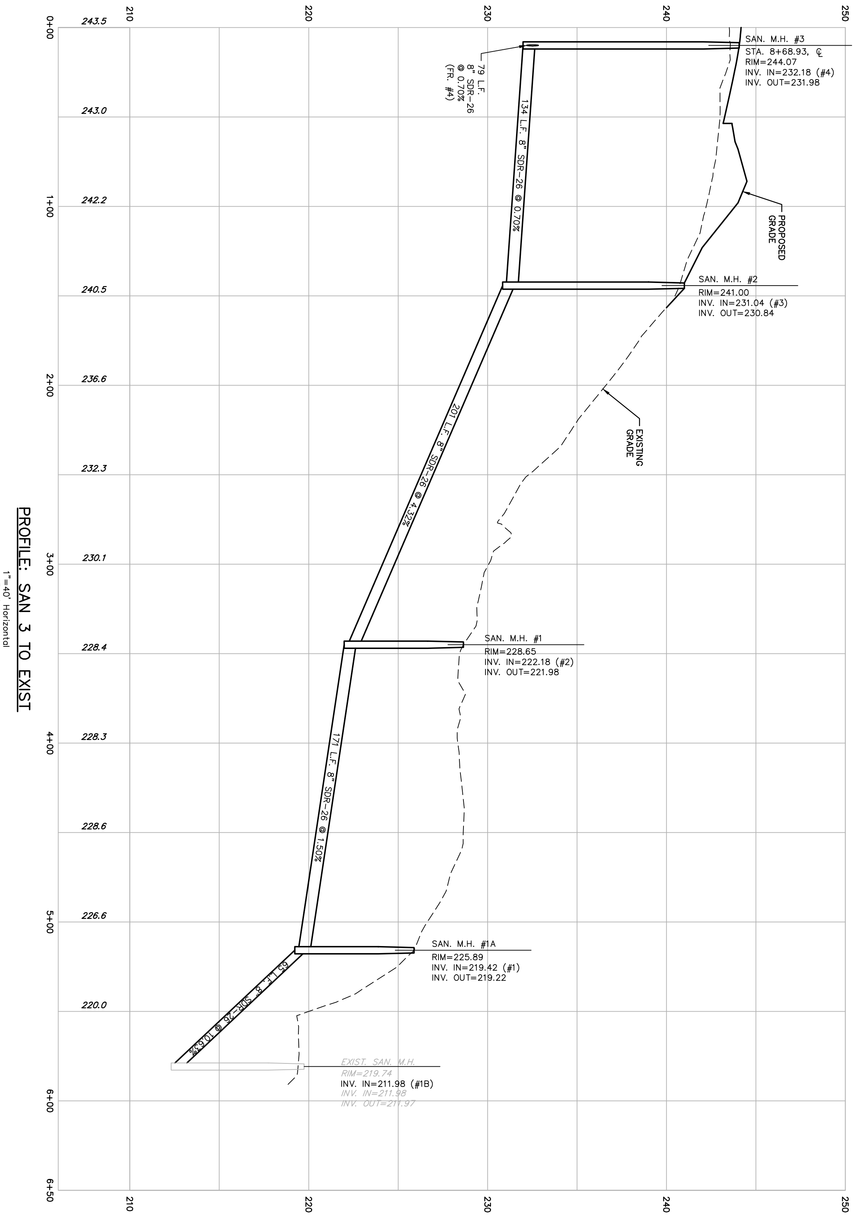
EASEMENT PROFILES

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

APPLICATION NUMBER LD-23-01

DATE: 3-24-23	SCALE: AS NOTED
DESIGN: JMM	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-08-PROF
REF. NO.: SD08.11	
SHEET NO.: 38 OF 62	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL\ENGDEPT\DRAWINGS\7662-S-08-PROF.DWG-Lee Piotrowicz-3/21/2024 12:49 PM



NOTE: SIZE OF THE INLETS AND MANHOLES MAY BE UPDATED BY CONTRACTOR DURING THE CONSTRUCTION PROCESS, AS THE SIZES ARE ONLY GUIDANCE AND MAY NOT BE REFLECTIVE OF THE PIPE ANGLES. GENERAL SIZE SHOP DRAWINGS WILL NEED TO BE REVIEWED BY TOWNSHIP PRIOR TO INSTALLATION.

GRAPHIC SCALE
1 inch = 40 ft. Horizontal
40 0 20 40 80 FEET

GRAPHIC SCALE
1 inch = 4 ft. Vertical
4 0 2 4 8 FEET

APPLICATION NUMBER LD-23-01

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

SHEET NO.: 39 OF 62

PROJECT NO.: SD08.12

JOB NO.: 7662

DESIGN: JMM

DRAWN: EJS

DATE: 3-24-23

SCALE: AS NOTED

FILE NAME: 7662-SP-PROF

EASEMENT PROFILES

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

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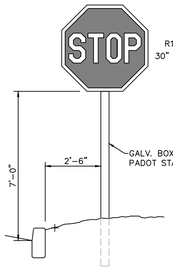
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
JEFFREY M. MADDEN
ENGINEER
No. PE070760

PEDESTRIAN CROSSING SIGN DETAIL
N.T.S.
(W11A-2)

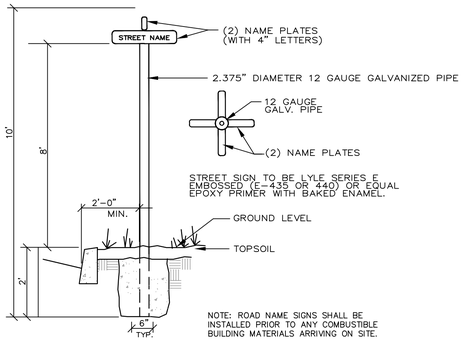
SPEED LIMIT SIGN DETAIL
N.T.S.
(R2-1)



INSTALLATION, DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS, SHIELDS AND ACCESORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGNS PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

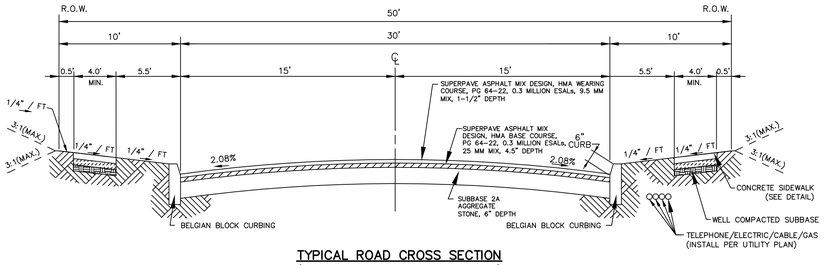
NOTE: ALL SIGNS SHALL BE IN ACCORDANCE WITH DEPT. OF TRANSPORTATION STANDARDS.

STOP SIGN LOCATION DETAIL
N.T.S.
(R1-1)

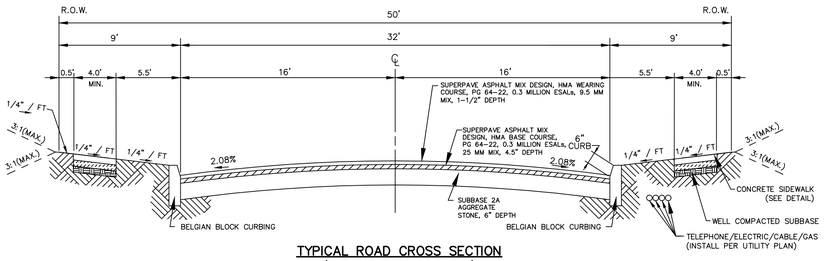


NOTE: ROAD NAME SIGNS SHALL BE INSTALLED PRIOR TO ANY COMBUSTIBLE BUILDING MATERIALS ARRIVING ON SITE.

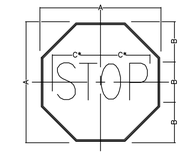
STREET SIGN
N.T.S.



TYPICAL ROAD CROSS SECTION
(INTERIOR ROADS WITHOUT PARKING)
N.T.S



TYPICAL ROAD CROSS SECTION
(INTERIOR ROADS PARKING)
ROAD A STA. 1+00 TO 10+00 ROAD B STA. 3+50 TO 9+50
N.T.S

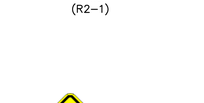


COLOR: LEGEND AND BORDER — WHITE (REFLECTORIZED)
BACKGROUND — RED (REFLECTORIZED)

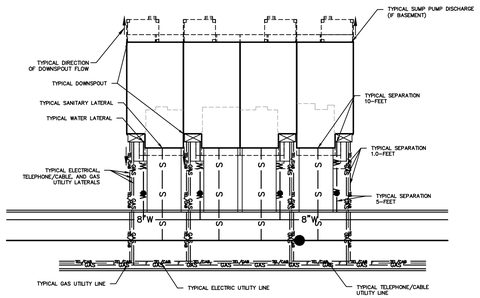
SIGN SIZE	DIMENSIONS A	B	C*	SERIES	BORDER	BLANK STUD
24 x 24	24	8	12	C	3/8	B1-24
30 x 30	30	12	12 3/16	C	3/4	B1-30
36 x 36	36	12	15	C	7/8	B1-36
48 x 48	48	16	20	C	1 1/4	B1-48

* REDUCE SPACING BY 40%

STOP SIGN DETAIL (*) (#1)
N.T.S.
(R1-1)

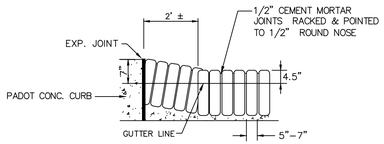


NO OUTLET SIGN DETAIL
N.T.S.
(W14-2)

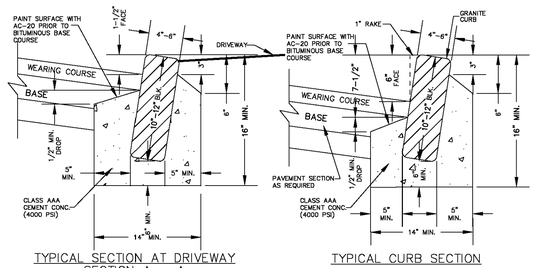


TYPICAL UTILITY LAYOUT
N.T.S.

NOTE: EROSION DISSIPATORS TO BE PLACED AT ALL DOWNSPOUT AND SUMP PUMP DISCHARGES.

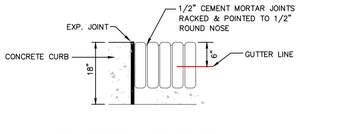


PADOT CURB TO BELGIAN BLOCK TRANSITION DETAIL
N.T.S.

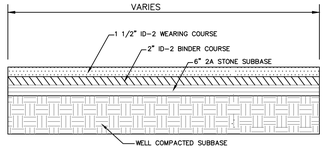


TYPICAL SECTION AT DRIVEWAY
SECTION A – A

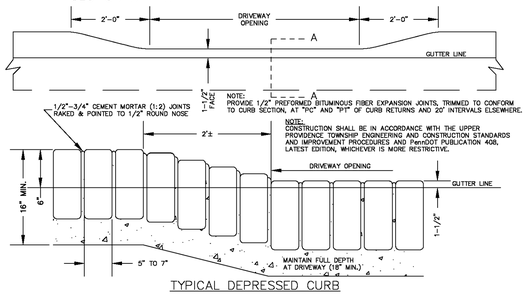
TYPICAL CURB SECTION



CONCRETE CURB TO BELGIAN BLOCK CURB TRANSITION DETAIL
N.T.S.

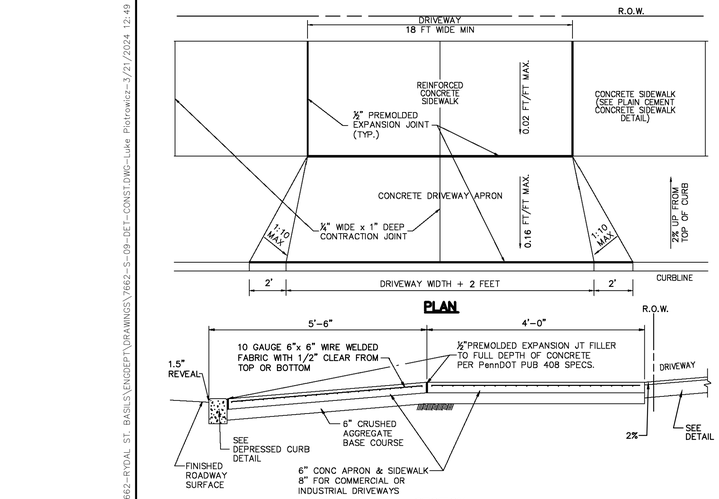


DRIVEWAY CROSS-SECTION DETAIL
N.T.S.



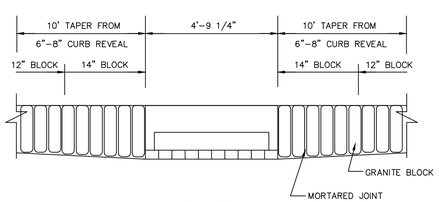
TYPICAL DEPRESSED CURB

BELGIAN BLOCK CURB DETAIL
N.T.S.



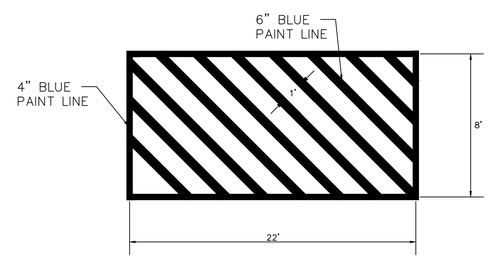
NOTES:
1. MAINTAIN SIDEWALK GRADE @ 2% ABOVE TOP OF FULL HEIGHT (6" REVEAL) CURB AS PROJECTED THROUGH DRIVEWAY.
2. CONCRETE SHALL HAVE A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH, AIR ENTRAINED WITH A MAXIMUM SLUMP OF 5".
3. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE UPPER PROVIDENCE TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARDS AND IMPROVEMENT PROCEDURES AND PennDOT PUBLICATION 408, LATEST EDITION, WHICHEVER IS MORE RESTRICTIVE.

CURB, APRON & DRIVEWAY DETAIL



ELEVATION

BELGIAN BLOCK CURB TRANSITION @ TYPE C INLET
N.T.S.



MAIL DELIVERY– PAINTED AREA (NO PARKING)
NOT TO SCALE

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ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JEFFREY M. MAUDER — PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/12/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

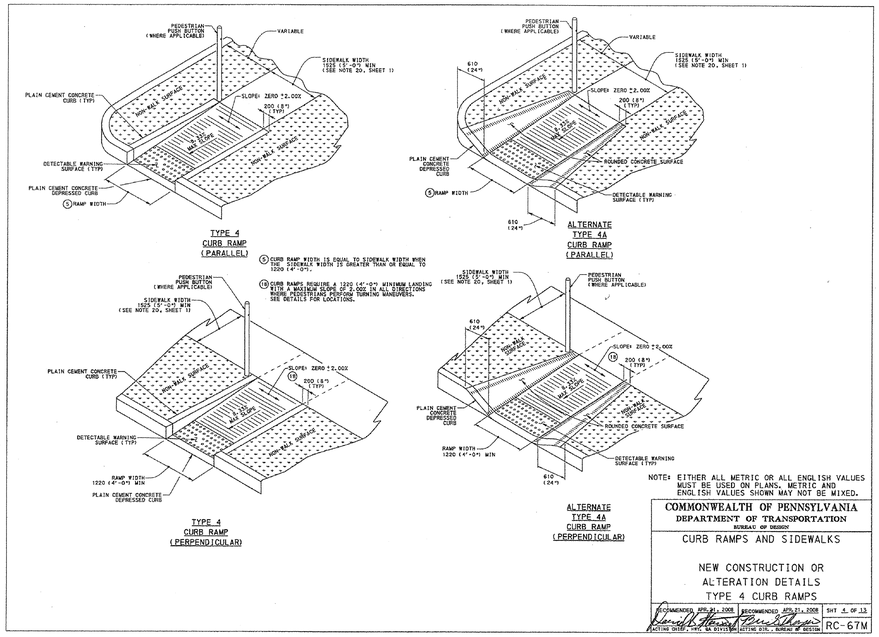
APPLICATION NUMBER LD-23-01

CONSTRUCTION DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-CONST
REF. NO.: SD09.01	
SHEET NO.: 40 OF 62	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL'S\ENGDEPT\DRAWINGS\7662-S-09-DET-CONST.DWG-Luke Pistrowicz-3/21/2024 12:49 PM



(5) CURB RAMP WIDTH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO 1220 (4'-0").

(12) CURB RAMPS REQUIRING A 1220 (4'-0") MINIMUM LANDING WITH A MAXIMUM SLOPE OF 2.00% IN ALL DIRECTIONS TO ACCOMMODATE TURNING MANEUVERS. SEE DETAILS FOR LOCATIONS.

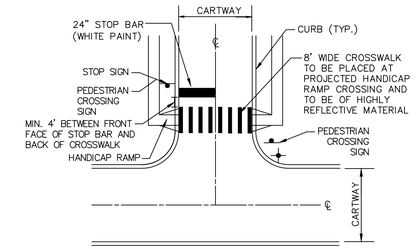
NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

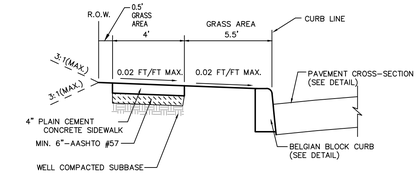
CURB RAMPS AND SIDEWALKS

NEW CONSTRUCTION OR ALTERATION DETAILS
TYPE 4 CURB RAMPS

RECOMMENDED: APR 21, 2008 — ACTING DIST. ENG. DIVISION
RECOMMENDED: APR 21, 2008 — ACTING DIV., BUREAU OF DESIGN
SHT 4 OF 13
RC-67M



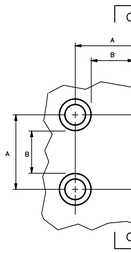
INTERSECTION STRIPING & SIGN DETAIL
N.T.S.



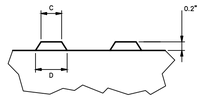
NOTES:

1. CONCRETE SHALL HAVE A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH, 6% AIR ENTRAINMENT WITH A MAXIMUM SLUMP OF 3".
2. ALL SIDEWALKS SHALL RECEIVE A BROOM FINISH UNLESS APPROVED OTHERWISE BY THE TOWNSHIP ENGINEER.
3. EXPANSION JOINTS SHALL BE EVERY 30', WITH CONTRACTION JOINTS EVERY 5', A MINIMUM OF 1" IN DEPTH. THE CONCRETE SHALL BE PLACED SO THAT THERE IS A SEPARATE JOINT EVERY 5' AND SHALL BE CONSTRUCTED SO THAT THE 5' SECTIONS ARE COMPLETELY SEPARATED FROM THE ADJACENT SECTIONS. A 0.5-INCH PREMOLDED EXPANSION JOINT SHALL BE PLACED WHERE THE CONCRETE SIDEWALK ABUTS A CONCRETE CURB. ADDITIONAL EXPANSION MATERIAL SHALL BE PLACED BETWEEN ANY CURB AND DRIVEWAY APRONS AND IN THE SIDEWALK AT THE DRIVEWAY LIMITS.
4. CONSTRUCTION SHALL BE IN ACCORDANCE WITH ABINGTON TOWNSHIP ENGINEERING AND CONSTRUCTION STANDARD AND IMPROVEMENT PROCEDURES AND PENNDOT PUBLICATION 408, LATEST EDITION, WHICHEVER IS MORE RESTRICTIVE.
5. ALL EDGES TO BE ROUNDED WITH A 1/4" TOOL.
6. 6" THICK @ DRIVEWAY CROSSINGS.

CONCRETE SIDEWALK DETAIL
N.T.S.



PLAN

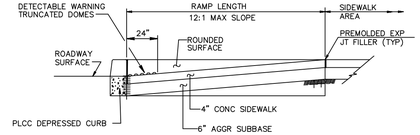


SECTION C–C

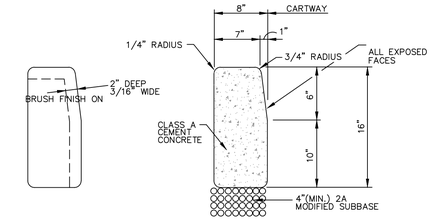
TRUNCATED DOME DIMENSIONS		
DIM	MIN	MAX
A	1.6"	2.4"
B	0.65"	1.5"
C	(13)	(13)
D	0.9"	1.4"

(13) THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAIL
NTS
Pa-DOT RC-67M

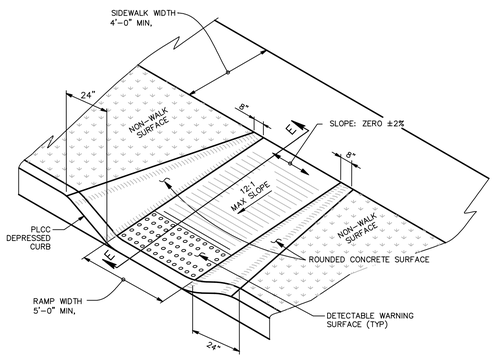


SECTION E–E

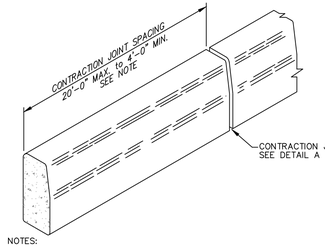


DETAIL A
CONTRACTION JOINT

TYPICAL CROSS SECTION



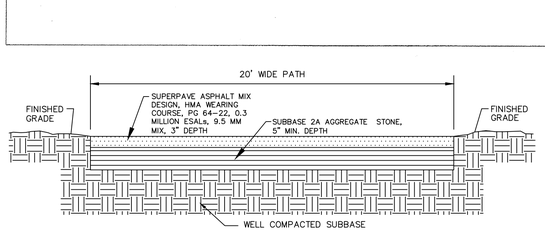
TYPE 4A CURB RAMP DETAIL
(PERPENDICULAR)
Pa-DOT RC-67M
NTS



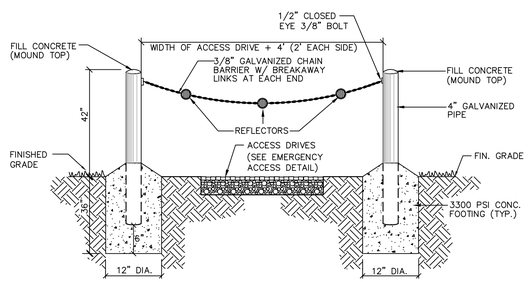
NOTES:

1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATIONS PUBLICATION 408, SECTION 630 FOR PLAIN CONCRETE CURB AND DEPRESSED CURB.
2. SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3. PLACE 3/4" PREMOLDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS-SECTIONAL AREA OF CURB.

6" CONCRETE CURB DETAIL
N.T.S.
(CONSTRUCT NEAR FOX CHASE ROAD)

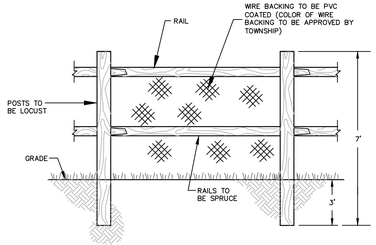


EMERGENCY ACCESS CROSS-SECTION DETAIL
N.T.S.



NOTES
1. THIS BARRIER IS SUBJECT TO REVIEW AND APPROVAL OF THE TOWNSHIP FIRE MARSHALL
2. SHOP DRAWINGS AND OR CUT SHEETS SHALL BE SENT TO TOWNSHIP PRIOR TO INSTALLATION OF THIS BARRIER
3. PROVIDE BREAKAWAY BOLLARDS AND CHAINS
4. TOWNSHIP FIRE MARSHAL TO BE PROVIDED WITH KNOX BOX PAD LOCK KEYS TO LOCKS ON CHAIN, AS USED IN TOWNSHIP.

ACCESS BOLLARDS AND CHAIN FOR EMERGENCY ACCESS
N.T.S.



NOTES:
1. ALL RAILS TO BE SPRUCE AND POSTS TO BE LOCUST WOOD.
2. WIRE MESH TO BE INSTALLED ON FENCES ABOVE WALLS AND SURROUNDING THE STORMWATER BASINS.
3. WIRE MESH TO BE INSTALLED 4" ABOVE GROUND SURFACE AND PVC COATED.
4. ANY RETAINING WALL THREE FEET OR MORE IN HEIGHT SHALL HAVE A FENCE APPROVED BY THE TOWNSHIP.

SPLIT-RAIL FENCE DETAIL
N.T.S.

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1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — 078437 — REGISTERED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS
1	7/24/23	TOWNSHIP REVIEW LETTER COMMENTS

DRAWN: ESE ESE ESE ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

CONSTRUCTION DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-CONST
REF. NO.:	SD09.02
SHEET NO.:	41 OF 62

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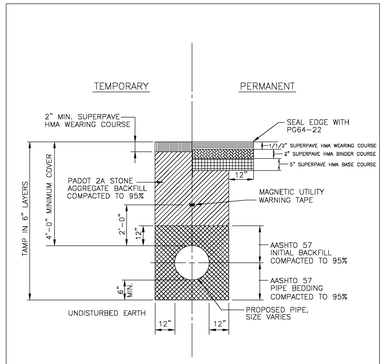
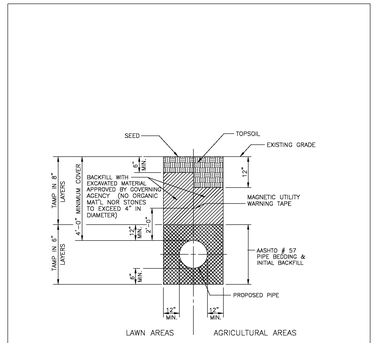


NOTES:
1. ALL MATERIALS AND CONSTRUCTION METHODS SHALL COMPLY WITH PADOT PUBLICATION 408 REGULATIONS.
2. CONTRACTOR SHALL PROVIDE UNIFORM GRADE FROM EXISTING POAVEMENT
3. TEMPORARY RESTORATION SHALL BE MAINTAINED FOR A MIN. 90 DAYS.

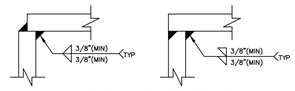
TRENCH BACKFILL AND PAVEMENT RESTORATION DETAIL FOR TOWNSHIP ROADS

Date: JUNE 2007
Detail: 1

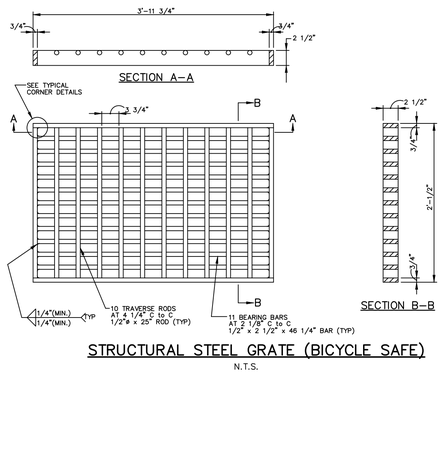


TRENCH RESTORATION LAWN / AGRICULTURAL AREAS

DATE: JUNE 2007
DETAIL: 2

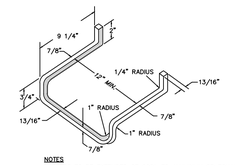


TYPICAL CORNER DETAILS



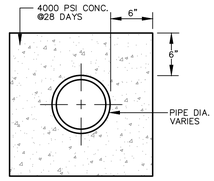
STRUCTURAL STEEL GRATE (BICYCLE SAFE)
N.T.S.

1. ALL PRE-CAST STRUCTURES SHALL BE DESIGNED AND MANUFACTURED AND INSTALLED IN ACCORDANCE WITH PENNDOT'S STANDARDS FOR ROADWAY CONSTRUCTION (APRIL 2000 EDITION, AS LAST REVISED) AND PENNDOT SPECIFICATIONS PUBLICATION 408/2000 (APRIL 2000 AS LAST REVISED.
2. THE CONTRACTOR SHALL ONLY USE PRE-CAST INLET BOXES SUPPLIED BY A MANUFACTURE LISTED IN PENNDOT'S BULLENTIN 15.
3. CLASS AA CONCRETE SHALL BE USED FOR ALL PRE-CAST INLET BOXES.
4. CLIMBING RUNGS ARE REQUIRED TO BE PROVIDED ON ALL STRUCTURES 5 FEET OR GREATER IN DEPTH. THE CLIMBING RUNGS SHALL BEGIN AT A MAXIMUM HEIGHT OF 24 INCHES FROM THE STRUCTURE INVERT, SHALL BE SPACED 12 INCHES ON CENTER, AND SHALL TERMINATE 12 INCHES FROM THE TOP OF THE STRUCTURE.
5. IN CASES WHERE COVER ADJUSTMENT SLABS AND CLIMBING RUNGS ARE REQUIRED, THE OPENING IN THE COVER ADJUSTMENT SLAB SHALL BE LOCATED APPROPRIATELY TO ACCOMMODATE THE STRUCTURE CLIMBING RUNGS. INACCESSIBLE INLETS WILL NOT BE ACCEPTED.
6. CONCRETE LOW FLOW CHANNELS (3300 PSI MINIMUM) SHALL BE POURED IN THE BASE OF ALL INLET STRUCTURES AFTER THE STRUCTURES AND ASSOCIATED PIPING ARE INSTALLED.
7. A MINIMUM OF 4 INCHES SHALL BE MAINTAINED BETWEEN THE TOP OF THE PIPE BLOCKOUTS AND THE TOP OF THE BASE OR RISER SECTION IN ACCORDANCE WITH PENNDOT RC STANDARDS. WHEN PROJECTS REQUIRE PIPE BLOCKOUTS TO BE FORMED WITHIN 4 INCHES FROM THE TOP OF THE INLET BOX OR RISER, THE MANUFACTURER SHALL AS A MINIMUM PROVIDE AN ADDITIONAL NO. 3 REINFORCEMENT BAR LOCATED 1-5/8 INCHES FROM THE TOP OF THE INLET BASE, FULL WIDTH ALONG THE INLET FACE. THE CONTRACTOR SHALL RENOVE ANY VISIBLE PORTION OF THE BAR, IF REQUIRED, DURING INSTALLATION AND PRIOR TO JOINING THE PIPE TO THE INLET. THE REINFORCING ROD SHALL BE PROVIDED ON THE SHOP DRAWING WHEN APPROPRIATE.
8. IF REINFORCED CONCRETE PIPE IS USED, THE PIPE BLOCKOUT MAY BE FORMED "FLUSH" WITH THE INLET BASE.
9. FOR ALL INLET BOXES, RISER SECTIONS, AND COVER ADJUSTMENT SLABS THAT ARE NOT MONOLITHIC, CONSTRUCTION JOINTS, AS SHOWN ON THE PENNDOT RC STANDARDS, SHALL BE PROVIDED.
10. ALL STRUCTURE SECTIONS, INCLUDING THE BOX TOPS SHALL BE SET ON A BUTYL SEAL (1"x 1" MINIMUM).
11. ALL PIPES SHALL BE SET FLUSH WITH THE INSIDE STRUCTURE FACE AND PARGED USING FIBROUS MORTAR IN ACCORDANCE WITH PENNDOT PUBLICATION 408/2000.
12. PRE-CAST RISER SECTIONS AND GRATE ADJUSTMENT RINGS SHALL BE USED TO ADJUST THE INLET GRATE. THE USE OF CONCRETE BLOCK/BRICK AND MORTAR IS NOT PERMITTED.
13. PIPE BLOCKOUT SIZES ARE LIMITED TO THOSE LISTED IN PENNDOT'S ROAD CONSTRUCTION STANDARDS. THIS INCLUDES PIPES WHICH ENTER INLET BOXES AT A SKEW ANGLE, ENCROACHMENT INTO THE CORNERS WILL NOT BE PERMITTED.
14. IN CASES WHERE ROADWAY SUBGRADE DRAINS DISCHARGE INTO PRE-CAST CONCRETE INLET BOXES, THE ROADWAY SUBGRADE DRAIN OPENING SHALL BE PRE-CAST OR CORE DRILLED INTO THE INLET STRUCTURE. ALL ROADWAY SUBGRADE DRAIN DISCHARGE OPENINGS SHALL BE PARGED WITH FIBROUS MORTAR IN ACCORDANCE WITH PENNDOT PUBLICATION 408/2000.
15. ALL PRE-CAST STRUCTURES SHALL BE DESIGNED TO WITHSTAND AN AASHTO HS-20 LIVE LOAD.
16. ALL STORM SEWER INLETS AND MANHOLES SHALL BE SET AND COMPLETELY BACKFILLED WITH 2-A MODIFIED STONE IN ACCORDANCE WITH THE APPROVED PLANS AND IN THE PRESENCE OF THE TOWNSHIP ENGINEER. THE AREA IMMEDIATELY AROUND THE INLET AND MANHOLE FACILITIES SHALL BE COMPACTED.
17. PRIOR TO INSTALLATION OF PRE-CAST STRUCTURES, 12" OF SUBBASE MATERIAL (2-A MODIFIED STONE) SHALL BE PLACED MEETING THE REQUIREMENTS OF PUBLICATION 408-200, SECTION 350.2, IN MAXIMUM LAYERS 4" THICK, AND COMPACTED TO A DENSITY SATISFACTORY TO THE TOWNSHIP ENGINEER.

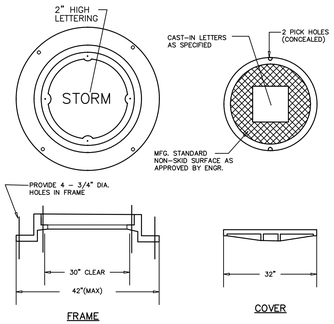


NOTES
1. STEPS TO BE EXTRUDED OF 6061-T6 ALUMINUM OR EQUAL.
2. STEPS SHALL BE PROVIDED AT 12" ON CENTER.

ALUMINUM STEP
N.T.S.



CONCRETE ENCASEMENT
N.T.S.



FRAME COVER

ALL MATERIAL GRAY CAST IRON, A.S.T.M. A-48, CL30 SUITABLE FOR HIGHWAY LOADING

ALL FRAMES & COVERS SHALL BE COATED WITH COAL TAR PITCH VARNISH.

VENT HOLES ARE REQUIRED IN COVERS FOR TERMINAL MANHOLES, AND WHERE SHOWN ON DRAWINGS.

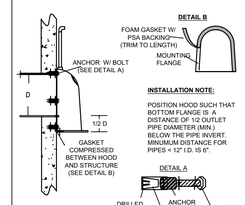
PROVIDE FOUR (4) ANCHOR BOLT HOLES, 3/4" DIA. MIN.

STANDARD MANHOLE FRAME & COVER
N.T.S.

NOTES:

1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE
   AS MANUFACTURED BY:
   BEST MANAGEMENT PRODUCTS, INC.
   9 MATHEWS DRIVE, UNIT A1-A2,
   EAST HADDAM, CT 06423
   TOLL FREE: (800) 504-8008 OR (888) 434-0277, FAX: (877) 434-3197
   WEB SITE: www.bmpinc.com
   OR PRE-APPROVED EQUAL
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH
   ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE,
   AND AN ANTI-SIPHON VENT PIPE AND ELBOW AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS
   PER MANUFACTURER'S RECOMMENDATION (SNOUT SIZE ALWAYS LARGER THAN PIPE SIZE).
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A MINIMUM DISTANCE EQUAL TO
   1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF
   12" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED
   SMOOTH AND FREE OF LOOSE MATERIAL AND PIPE SHALL BE FINISHED FLUSH TO WALL.
8. ALL STRUCTURE JOINTS SHALL BE WATERTIGHT.
9. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 8" STAINLESS
   STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE
   INSTALLATION DETAIL)
10. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED
    INSTALLATION KIT.
    INSTALLATION KIT SHALL INCLUDE:
    A. INSTALLATION INSTRUCTIONS
    B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
    C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
    D. 3/8" STAINLESS STEEL BOLTS
    E. ANCHOR SHIELDS

INSTALLATION DETAIL



HOOD SPECIFICATION FOR CATCH BASINS AND WATER QUALITY STRUCTURES

DESCRIPTION	DATE	SCALE
OIL- DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)	09/08/18	NONE
	DRAWING NUMBER	SP-SN

MAINTENANCE RECOMMENDATIONS:
- MONTHLY MONITORING FOR THE FIRST YEAR OF A NEW INSTALLATION AFTER THE SITE HAS BEEN STABILIZED IS A RECOMMENDED PRACTICE.
- MEASUREMENTS SHOULD BE TAKEN AFTER EACH RAIN EVENT OF .5 INCHES OR MORE, OR MONTHLY, AS DETERMINED BY LOCAL WEATHER CONDITIONS.
- CHECKING SEDIMENT DEPTH AND NOTING THE SURFACE POLLUTANTS IN THE STRUCTURE WILL BE HELPFUL IN PLANNING MAINTENANCE.
- THE POLLUTANTS COLLECTED IN SNOUT EQUIPPED STRUCTURES WILL CONSIST OF FLOATABLE DEBRIS AND OILS ON THE SURFACE OF THE CAPTURED WATER, AND GRIT AND SEDIMENT ON THE BOTTOM OF THE STRUCTURE.
- IT IS BEST TO SCHEDULE MAINTENANCE BASED ON THE SOLIDS COLLECTED IN THE SUMP.
- OPTIMALLY, THE STRUCTURE SHOULD BE CLEANED WHEN THE SUMP IS HALF FULL (E.G. WHEN 2 FEET OF MATERIAL COLLECTS IN A 4 FOOT SUMP, CLEAN IT OUT).
- STRUCTURES SHOULD ALSO BE CLEANED IF A SPILL OR OTHER INCIDENT CAUSES A LARGER THAN NORMAL ACCUMULATION OF POLLUTANTS IN A STRUCTURE.
- MAINTENANCE IS BEST DONE WITH A VACUUM TRUCK.

- INLETS AND MANHOLES TO HAVE SNOUTS INSTALLED: 102, 202, 204, 216, 304, 306, 404, 406, 716, AND 718.

SNOUT DETAIL
N.T.S.

TABLE A
DESIGN FOR MAX 2:1 SLOPES; MAX 3:1 SLOPES USED)

PIPE DIAMETER	SKEW b =90° TO 60° Φ = 30°			SKEW b = 55° Φ = 35°			SKEW b = 50° Φ = 40°			SKEW b = 45° Φ = 45°			SKEW b = 40° Φ = 50°			SKEW b = 30° Φ = 60°			SKEW b = 20° Φ = 70°			SKEW b = 10° Φ = 80°			
$D_{s\cdot w}$	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$L_{s\cdot w}$	ø	W_s	$A_{s\cdot w}$
(in.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(Ft.)	(in.)
36	5.8	0	4.6	6.0	.33	4.9	6.2	.5	5.2	6.5	.67	5.7	7.0	.75	6.2	8.3	1.33	8.0	11.1	1.75	11.7	19.6	5.0	23.0	4.6	12
42	6.3	0	5.8	6.6	.33	6.1	6.9	.5	6.5	7.3	.67	7.1	7.8	.75	7.8	9.3	1.33	10.0	12.5	1.75	14.6	22.5	5.0	28.8	5.8	12
48	6.9	0	6.9	7.2	.33	7.3	7.5	.5	7.8	8.0	.67	8.5	8.5	.75	9.4	10.3	1.33	12.0	14.0	1.75	17.5	25.3	5.0	34.6	6.9	12
54	7.5	0	8.0	7.8	.33	8.5	8.2	.5	9.1	8.7	.67	9.9	9.3	.75	10.9	11.3	1.33	14.0	15.5	1.75	20.5	28.2	5.0	40.3	8.0	12
60	8.1	0	9.2	8.4	.33	9.8	8.8	.5	10.4	9.4	.67	11.3	10.1	.75	12.5	12.3	1.33	16.0	16.9	1.75	23.4	31.1	5.0	46.0	9.2	15
72	9.2	0	11.5	9.6	.33	12.2	10.1	.5	13.0	10.8	.67	14.1	11.7	.75	15.6	14.3	1.33	20.0	19.8	1.75	29.2	36.9	5.0	57.6	11.5	15

$SD = \frac{D_{s\cdot w}}{\cos\Phi} = \frac{D_{s\cdot w}}{\sin \text{Skew } b}$

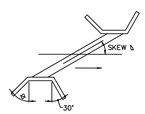
$L = SD + 2.3'$

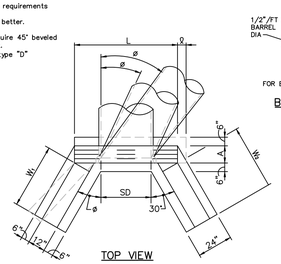
$W_s = \frac{2_{s\cdot w} - 2'}{\cos\Phi}$ (DESIGN FOR MAX 2:1 SLOPES, MAX 3:1 SLOPES USED)

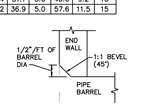
$W_s = \frac{X}{\cos\Phi}\ (D_{s\cdot w} - 0.5 - \frac{1.0}{X})$

(For variable slope when X equals horizontal dimension of the slope designation.)

NOTES
1. Construct in accordance with the requirements of Publication 408, Section 605.
2. Use Class A cement concrete or better.
3. Chamfer exposed edges one inch.
4. End Walls 13, 14, 15, AND 19 require 45° beveled edges as shown on detail at right.
5. Pipes smaller than 36" requires type "D" endwall (see detail).

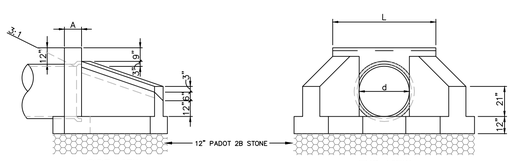






FOR EW#13, EW#14, EW#15, AND EW#19

BEVELED EDGE



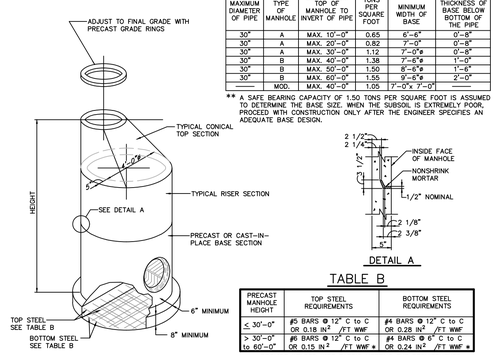
(SEE TABLE 'A' FOR DIMENSIONS NOT INCLUDED)

TYPE D-W ENDWALL
N.T.S.

TABLE A
BASE SLAB DIMENSIONS

MAXIMUM DIAMETER OF PIPE	TYPE OF MANHOLE	DEPTH FROM TOP OF MANHOLE TO INVERT OF PIPE	AS DESIGNED ** TONS PER SQUARE FOOT	AS DESIGNED ** MINIMUM WIDTH OF BASE	AS DESIGNED ** MINIMUM THICKNESS OF BASE BELOW BOTTOM OF THE PIPE
30"	A	MAX. 10'-0"	0.65	6'-6"	0'-8"
30"	A	MAX. 20'-0"	0.82	7'-0"	0'-8"
30"	A	MAX. 30'-0"	1.12	7'-0"ø	0'-8"
30"	B	MAX. 40'-0"	1.38	7'-6"ø	1'-0"
30"	B	MAX. 50'-0"	1.50	8'-6"ø	1'-6"
30"	B	MAX. 60'-0"	1.55	9'-6"ø	2'-0"
MOD.	MOD.	MAX. 40'-0"	1.05	7'-0"x 7'-0"	MOD.

** A SAFE BEARING CAPACITY OF 1.50 TONS PER SQUARE FOOT IS ASSUMED TO DETERMINE THE BASE SIZE. WHEN THE SUBSOIL IS EXTREMELY POOR, PROCEED WITH CONSTRUCTION ONLY AFTER THE ENGINEER SPECIFIES AN ADEQUATE BASE DESIGN.



PRECAST MANHOLE

DETAIL A

TABLE B

PRECAST MANHOLE HEIGHT	TOP STEEL REQUIREMENTS	BOTTOM STEEL REQUIREMENTS
≤ 30'-0"	#5 BARS @ 12" C to C OR 0.18 IN² /FT WWF	#4 BARS @ 12" C to C OR 0.28 IN² /FT WWF
> 30'-0" to 60'-0"	#6 BARS @ 12" C to C OR 0.15 IN² /FT WWF *	#4 BARS @ 6" C to C OR 0.24 IN² /FT WWF *

PROVIDE WELDED WIRE FABRIC MEETING THE REQUIREMENTS OF PUBLICATION 408 SPECIFICATIONS, SECTION 709.3

NOTE:
ALL MANHOLES IN NON-PAVED AREAS TO UTILIZE BOLTED COVER.

STORM MANHOLE DETAIL

ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

REV.	DATE	DESCRIPTION	DRAWN
3	05/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

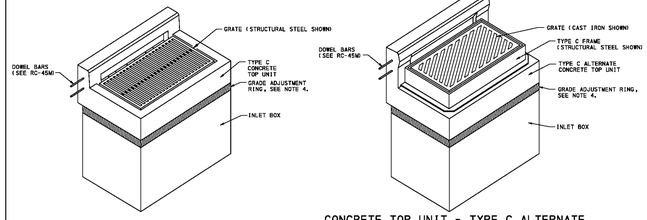
APPLICATION NUMBER LD-23-01

STORM SEWER DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

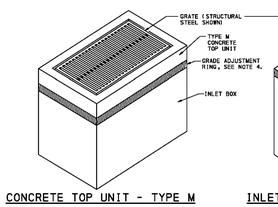
DATE: 1-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-STORM
REF. NO.: SD09.03	
SHEET NO.: 42 OF 62	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-09-DET-STORM.DWG-Luke Piotrowicz-3/21/2024 12:49 PM

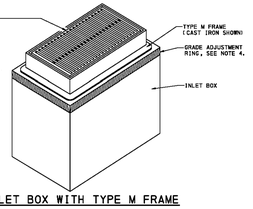


CONCRETE TOP UNIT - TYPE C

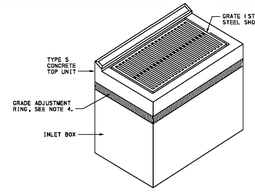
CONCRETE TOP UNIT - TYPE C ALTERNATE WITH TYPE C FRAME



CONCRETE TOP UNIT - TYPE M



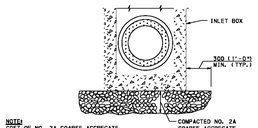
INLET BOX WITH TYPE M FRAME



CONCRETE TOP UNIT - TYPE S

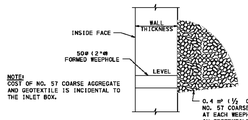
NOTES:

1. FOR ADDITIONAL NOTES, SEE SHEETS 1 - 3.
2. STANDARD INLET BOXES SHOWN, PROVIDE TOP SLABS FOR OTHER INLET BOX TYPES.
3. SEE RC-45W FOR DETAILS FOR THE CONCRETE TOP UNITS, FRAMES, AND GRATES.
4. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. SEE RC-45W FOR DETAILS.



NOTE: COST OF NO. 2A COARSE AGGREGATE IS INCIDENTAL TO THE INLET BOX.

INLET BOX SUBBASE PREPARATION DETAIL
(SEE FIELD CONSTRUCTION NOTES ON SHEET 1)



NOTE: COST OF NO. 57 COARSE AGGREGATE AND GEOTEXTILE IS INCIDENTAL TO THE INLET BOX.

WEEPHOLE DETAIL
(SEE GENERAL NOTE 15 ON SHEET 1)

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

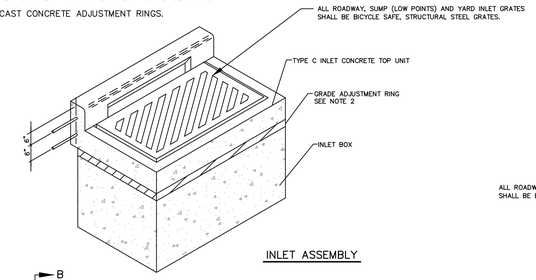
COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET BOXES
INLET ASSEMBLIES - 1

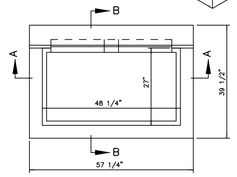
RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 4 OF 45
CHIEF, HWY. SA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-46M

NOTES

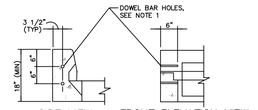
1) DOWEL INLET TOPUNIT WITH (2) #8 x 1'-0" DOWEL BARS AND PLACE 1/4" PREMOLDED EXPANSION JOINT FILLER WHEN CONNECTING TO ADJACENT CURB SECTIONS.
2) USE PRECAST CONCRETE ADJUSTMENT RINGS.



INLET ASSEMBLY

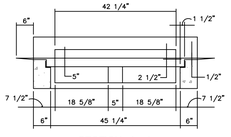


PLAN VIEW

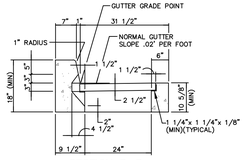


SIDE VIEW FRONT ELEVATION VIEW

DOWEL HOLE LOCATIONS

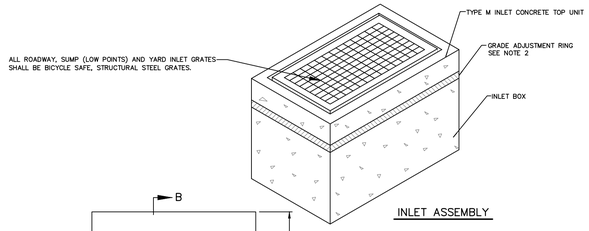


SECTION A-A

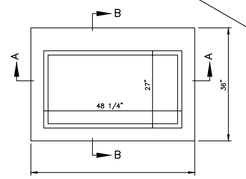


SECTION B-B

CONCRETE TOP UNIT
TYPE C INLET
N.T.S.

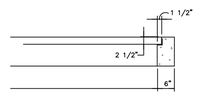


INLET ASSEMBLY

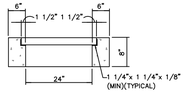


NOTES

1) USE PRECAST CONCRETE OR MASONRY GRADE ADJUSTMENT RINGS.

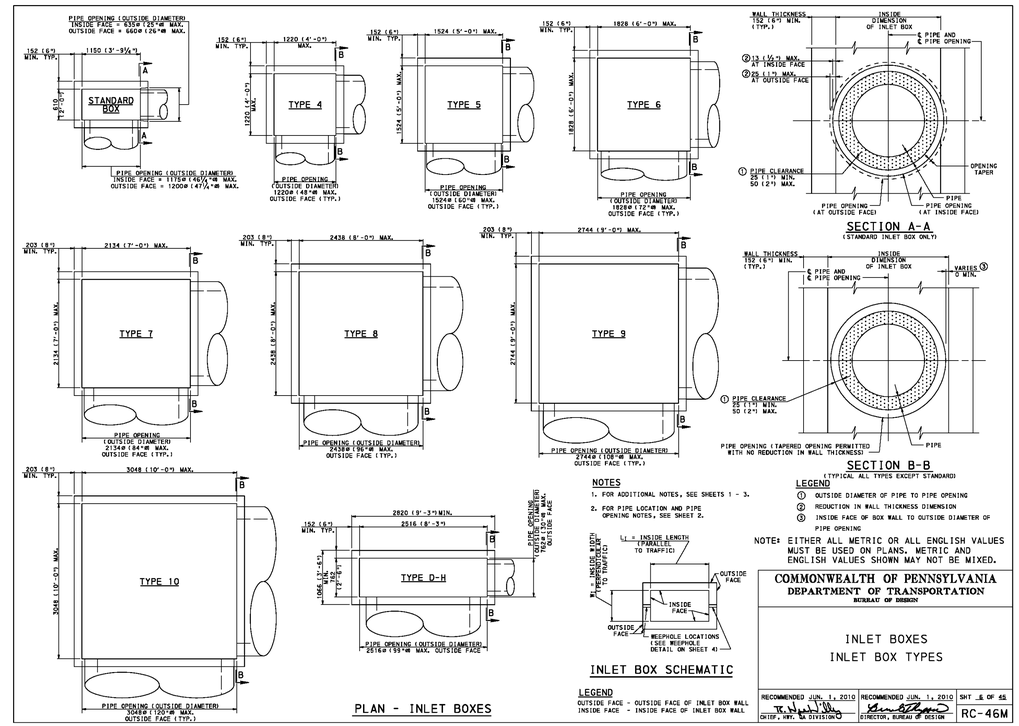


SECTION A-A



SECTION B-B

CONCRETE TOP UNIT
TYPE M INLET
N.T.S.



NOTES

1. FOR ADDITIONAL NOTES, SEE SHEETS 1 - 3.
2. FOR PIPE LOCATION AND PIPE OPENING NOTES, SEE SHEET 2.

LEGEND

① OUTSIDE DIAMETER OF PIPE TO PIPE OPENING
② REDUCTION IN WALL THICKNESS DIMENSION
③ INSIDE FACE OF BOX WALL TO OUTSIDE DIAMETER OF PIPE OPENING

INLET BOX SCHEMATIC

LEGEND

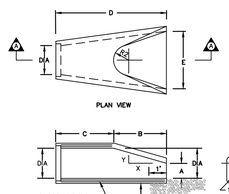
OUTSIDE FACE - OUTSIDE FACE OF INLET BOX WALL
INSIDE FACE - INSIDE FACE OF INLET BOX WALL

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET BOXES
INLET BOX TYPES

RECOMMENDED JUN. 1, 2010	RECOMMENDED JUN. 1, 2010	SHT 5 OF 45
CHIEF, HWY. SA DIVISION	DIRECTOR, BUREAU OF DESIGN	RC-46M

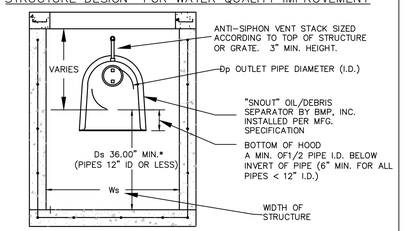


DIA	A	B	C	D	E	R1	R2	X:Y
15"	6"	2'-3"	3"-10"	6"-1"	2'-6"	12 1/2"	11"	3:1
18"	9"	2'-3"	3"-10"	6"-1"	3'-0"	15 1/2"	12"	3:1
21"	9"	2'-11"	3'-2"	6"-1"	3'-6"	16 1/8"	13"	3:1
24"	9 1/2"	3'-7.5"	3'-6"	6"-1.5"	4'-0"	16 13/16"	14"	3:1
27"	10 1/2"	4'-0"	3'-1.5"	6"-1.5"	4'-6"	18 3/16"	14 1/2"	3:1
30"	1'-0"	4'-6"	1'-7.75"	6"-1.75"	51-0"	18 1/2"	15"	3:1
36"	1'-3"	5'-3"	2'-10"	8"-1"	6'-0"	24 9/16"	20"	3:1
48"	2'-0"	6'-0"	2'-2"	8"-2"	7'-0"	28 1/2"	22"	3:1

THE ABOVE CHART IS FOR REFERENCE ONLY. DIMENSIONS MAY VARY WITH DIFFERENT MANUFACTURERS

FLARED END SECTION
N.T.S.

STRUCTURE DESIGN FOR WATER QUALITY IMPROVEMENT



RULE # 1- AT AN ABSOLUTE MINIMUM, STRUCTURE INTERNAL DIMENSIONS MUST BE AT LEAST LARGE ENOUGH TO ACCOMODATE EXTERNAL DIMENSIONS OF THE SNOUT, AND ALLOW FOR A PERSON TO INSTALL IT. REFER TO BMP, INC. CAD DETAILS FOR PART DIMENSIONS. BMP RECOMMENDS STRUCTURE WALL TO BE AT LEAST 12" WIDER THAN MAXIMUM SNOUT WIDTH. FOR TRASHSCREEN, STRUCTURE MUST BE AT LEAST 6" WIDER THAN TRASHSCREEN WIDTH.

RULE #2- USE ONLY "I" SERIES SNOUTS FOR RECTANGULAR OR SQUARE STRUCTURES, AVAILABLE IN 12", 18", 24", 30", 36", 48", 72" AND 96" SIZES. USE ONLY "R" SERIES SNOUTS FOR ROUND STRUCTURES, AVAILABLE IN 12", 18", 24", 30", 42", 52" AND 72" SIZES.

SIZING EXAMPLES:

OUTLET HOLE SIZE	SNOUT SIZE
11.9" O.D. OR LESS	12 F or R (R FITS 36"-48" DIAM STRUCTURE)
12.0"-17.9" O.D.	18 F or R (R FITS 48"-60" DIAM STRUCTURE)
18.0"-23.9" O.D.	24 F or R (R FITS 48"-60" DIAM STRUCTURE)
24.0"-29.9" O.D.	30 F or R (R FITS 60"-72" DIAM STRUCTURE)
30.0"-35.9" O.D.	36FTB
30.0"-41.9" O.D.	42RTB/60 (FITS 60" DIAM STRUCTURE ONLY)
30.0"-47.9" O.D.	48 FTB
30.0"-51.9" O.D.	52RTB/72 OR I84 (FITS 72" OR 84" DIAM STRUCTURE ONLY)
48.0"-71.9" O.D.	72FTB OR 72RTB/96 (FITS 96" DIAM STRUCTURE ONLY)
72"-95.9" O.D.	96 FTB OR 96FTBB

NPSNOUT (FOR PVC OR SMALL DIAM. STRUCTURE)

UP TO 12" PIPE IN 18" ID STRUCTURE NP1218
UP TO 15" PIPE IN 24" ID STRUCTURE NP1524
UP TO 18" PIPE IN 30" ID STRUCTURE NP1830
UP TO 18" PIPE IN 36-42" ID STRUCTURE NP1836
UP TO 24" PIPE IN 30" ID STRUCTURE NP 2430

BMP, INC.
9 MATHEWS DR. UNIT A1-A2, E. HADDAM, CT
(800) 504-8008 FAX: (877)434-3197

DESCRIPTION	DATE	SCALE
SNOUT SIZING CHART	09/09/18	NONE
	DRAWING NUMBER	SP-SI

NOTES:
1. INLETS OR MANHOLES TO HAVE SNOUTS INSTALLED: 102, 202, 204, 216, 304, 306, 404, 406, 716, AND 718.

ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JEFFREY M. MAUDER

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

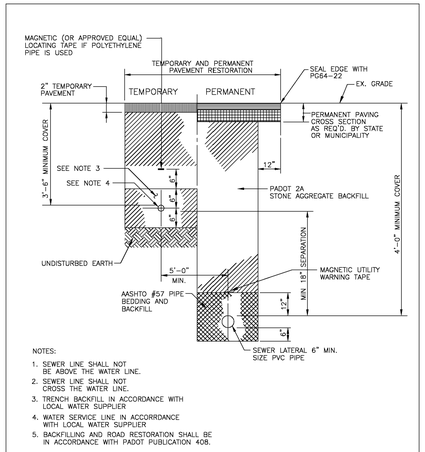
APPLICATION NUMBER LD-23-01

STORM SEWER DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-STORM
REF. NO.: SD09.04	
SHEET NO.: 43 OF 62	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL\ENGDEPT\DRAWINGS\7662-S-09-DET-STORM.DWG-Lee Piotrowicz-3/21/2024 12:49 PM



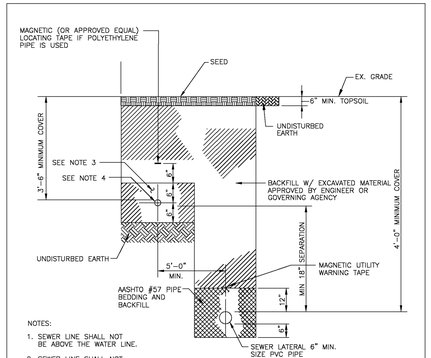
NOTES:

1. SEWER LINE SHALL NOT BE ABOVE THE WATER LINE.
2. SEWER LINE SHALL NOT CROSS THE WATER LINE.
3. TRENCH BACKFILL IN ACCORDANCE WITH LOCAL WATER SUPPLIER
4. WATER SERVICE LINE IN ACCORRDANCE WITH LOCAL WATER SUPPLIER
5. BACKFILLING AND ROAD RESTORATION SHALL BE IN ACCORDANCE WITH PADOT PUBLICATION 408.

(NOT REQUIRED FOR NEW ROADS)

COMBINED TRENCH DETAIL-SEWER LATERAL/ WATER SERVICE LINE STATE / TWP. ROADS

DATE: JUNE 2007
DETAIL: 3

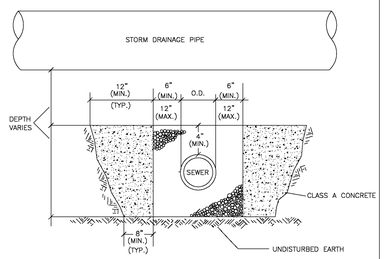


NOTES:

1. SEWER LINE SHALL NOT BE ABOVE THE WATER LINE.
2. SEWER LINE SHALL NOT CROSS THE WATER LINE.
3. TRENCH BACKFILL IN ACCORDANCE WITH LOCAL WATER SUPPLIER
4. WATER SERVICE LINE IN ACCORRDANCE WITH LOCAL WATER SUPPLIER

COMBINED TRENCH DETAIL-SEWER LATERAL/ WATER SERVICE LINE LAWN / AGRICULTURAL AREAS

DATE: JUNE 2007
DETAIL: 4

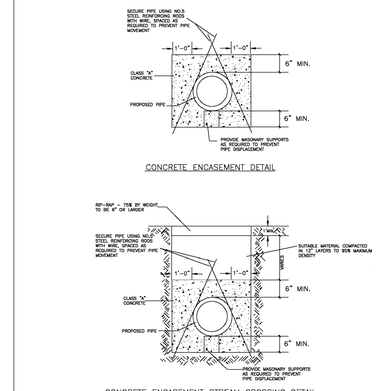


NOTES:

1. PIERS TO BE 5 FT. LONG CENTERED ON STORM DRAIN.
2. USE 3000 PSI CLASS A CONCRETE.
3. FORM PIERS AGAINST SOLID TRENCH WALLS.
4. PIERS REQUIRED WHEN CLEARANCE BETWEEN PIPES IS LESS THAN 18".
5. MAINTAIN SLOPE OF EACH UTILITY AT CROSSING.

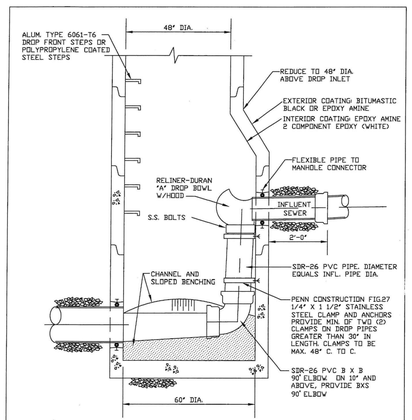
GRAVITY SEWER CROSSING DETAIL USING PIER SUPPORTS

DATE: JUNE 2007
DETAIL: 7



STANDARD CONCRETE ENCASEMENT DETAILS

DATE: JUNE 2007
DETAIL: 9

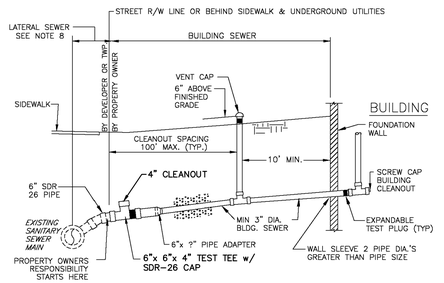


NOTES: 5' DIAMETER MANHOLE TO BE UTILIZED FOR INSIDE DROP MANHOLE PIPED DROP TO BE USED FOR VERTICAL ELEVATION CHANGE GREATER THAN 2 FT.

Township of Abington
STANDARD DETAIL - SEWER SYSTEM

PRECAST SANITARY MANHOLE INSIDE DROP CONNECTION (8" - 24" SEWERS)

DATE: NOVEMBER 2015
DETAIL: 13

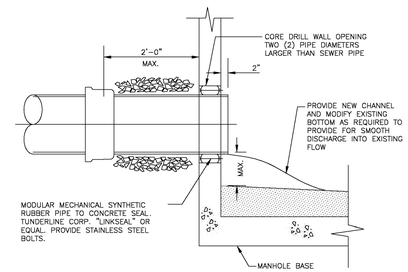


NOTES:

1) PROVIDE 6" OF AASHTO NO. 8 OR 57 STONE BELOW PIPE AND 12" ABOVE PIPE (TYPICAL ENTIRE LENGTH OF LATERAL).
2) MINIMUM SLOPE = 1% (1/8" PER FT.)
3) MINIMUM DEPTH OF COVER = 3 FT
4) PIPE MATERIALS AS PER THE PENNSYLVANIA CONSTRUCTION CODE ACT
5) TO CONDUCT AIR TESTING OF BLDG. SEWER INSTALL EXPANDABLE PLUGS AT LOCATIONS SHOWN. AIR TEST SHALL BE 5 LBS. FOR 15 MINS. AFTER COMPLETION OF AIR TESTING, SEAL TEST TEE.
6) NO SEWER SERVICE LINE VENT CAPS SHALL BE INSTALLED WITHIN A 100-YR FLOOD PLAIN OR WITHIN FLOOD PRONE AREAS.
7) NO VENT CAPS OR CLEANOUTS SHALL BE INSTALLED IN DRIVEWAYS OR OTHER PAVED AREAS, UNLESS SPECIFICALLY APPROVED BY THE TOWNSHIP.
8) THE LATERAL SEWER SHALL BE INSTALLED TO THE EDGE OF THE SEWER EASMENT FOR SEWERS LOCATED IN AN EASEMENT OR TO THE STREET RIGHT-OF WAY AS A MINIMUM; OR TO SUCH A POINT AS REQUIRED TO CLEAR STREET SIDEWALKS AND UNDERGROUND UTILITIES.

GRAVITY BUIDLING SEWER INSTALLATION DETAIL

DATE: OCTOBER 2007
DETAIL: 19



PIPE CONNECTION TO AN EXISTING MANHOLE
N.T.S.

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T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — 084511 — REGISTERED PROFESSIONAL

REV.	DATE	DESCRIPTION
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS
2	10/23/23	REVISIONS PER TOWNSHIP COMMENTS
1	7/24/23	TOWNSHIP REVIEW LETTER
DRAWN		ESE
		ESE
		ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

SANITARY SEWER DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-SAN
REF. NO.: SD09.05	
SHEET NO.: 44 OF 62	

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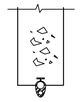
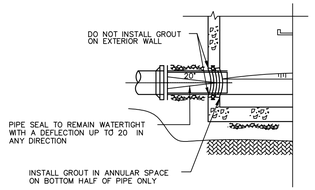
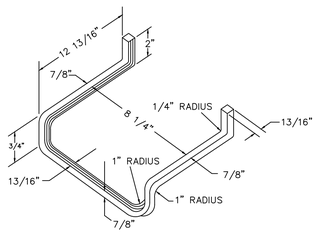


INTEGRAL PIPE GASKET
(BEFORE INSTALLATION)

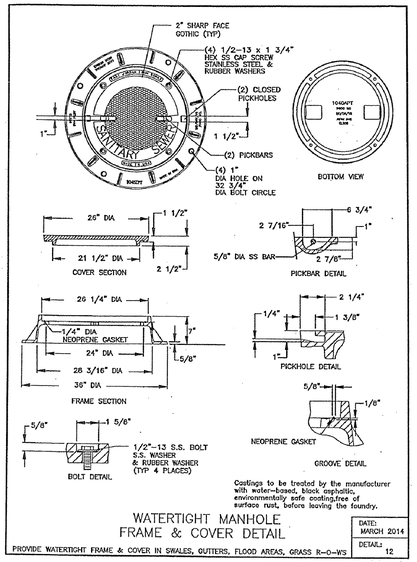


MANHOLE PIPE GASKET (DMG-02)
N.T.S.



NOTES
1. STEPS TO BE EXTRUDED OF 6061-T6 ALUMINUM.
2. STEPS SHALL BE PROVIDED AT 12" ON CENTER.

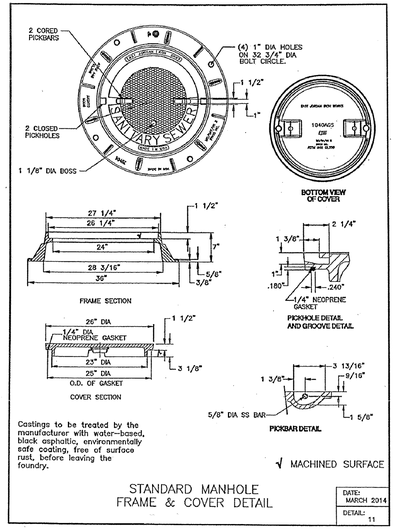
ALUMINUM STEP
N.T.S.



WATERTIGHT MANHOLE FRAME & COVER DETAIL

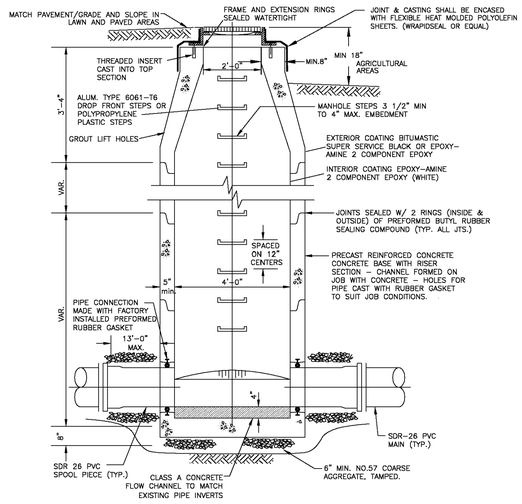
PROVIDE WATERTIGHT FRAME & COVER IN SWALES, GUTTERS, FLOOD AREAS, GRASS R-O-W'S

DATE: MARCH 2014
DETAIL: 12



STANDARD MANHOLE FRAME & COVER DETAIL

DATE: MARCH 2014
DETAIL: 11



PRECAST CONCRETE STANDARD MANHOLE
N.T.S.

MANHOLE COATING SPECIFICATIONS

EXTERIOR

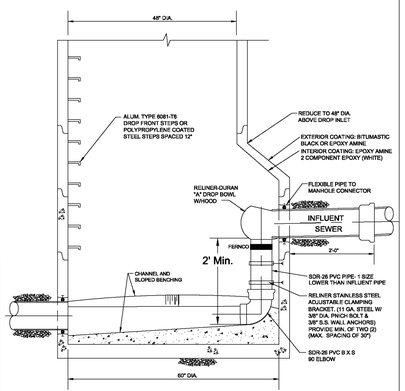
1. THE COATING SHALL BE BITUMASTIC SUPER SERVICE BLACK AS MANUFACTURED BY KOPPERS Co., INC. EQUIVALENT OF MOBIL CHEMICAL Co., OR EQUAL. AT LEAST TWO (2) COATS SHALL BE APPLIED GIVING A TOTAL DRY FILM THICKNESS OF A MINIMUM OF 24.0 MILS. AFTER INSTALLATION, DAMAGED SURFACES SHALL BE RECOATED IN ACCORDNCE WITH COATING MANUFACTURER'S RECOMMENDATION TO GIVE THE REQUIRED 24 MILS DRY FILM THICKNESS.

2. AS AN ALTERNATE, THE COATING SHALL INCLUDE TWO (2) COATS OF EPOXY-AMINE ADDUCT, MULTI-MIL, TWO COMPONENT, CATALYZED EPOXY, WITH TOTAL SOLIDS VOLUME OF 49-51% WHICH IS RESISTANT TO ALKALI, SALT AND GROUND WATER IMMERSION, PERTOLEUM PRODUTS AND ACIDS. COATING SHALL MEET AWWA D102-78 PAINT SYSTEM No. 1 STANDARDS AND A MINIMUM 12 MILSDRY FILM THICKNESS PER COAT.

INTERIOR

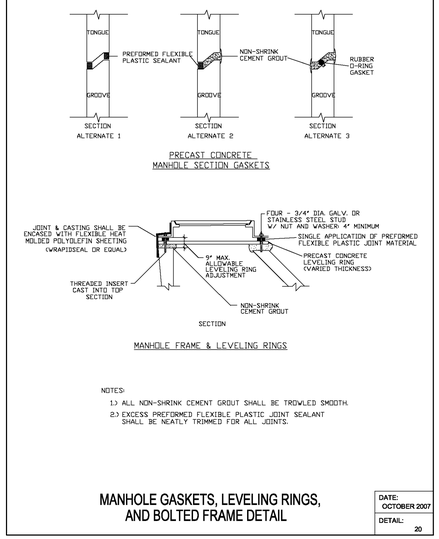
1. THE COATING SHALL INCLUDE 2 COATS OF EPOXY-AMINE ADDUCT, MULTI-MIL, TWO COMPONENT, CATALYZED EPOXY, WITH TOTAL SOLIDS VOLUME OF 49-51% WHICH IS RESISTANT TO ALKALI, SALT AND GROUNDWATER IMMERSION, PETROLEUM PRODUCTS AND ACIDS. COATING SHALL MEET AWWA D102-78, PAINT SYSTEM No. 1 STANDARDS AND A MINIMUM 12 MILS DRY THICKNESS PER COAT.

NOTE: 5' DIAMETER MANHOLE TO BE UTILIZED FOR INSIDE DROP MANHOLE



PRECAST SANITARY MANHOLE INSIDE DROP CONNECTION

DATE: JUNE 2007
DETAIL: 13



PRECAST CONCRETE MANHOLE SECTION GASKETS

MANHOLE FRAME & LEVELING RINGS

NOTES:
1.) ALL NON-SHRINK CEMENT GROUT SHALL BE TROWLED SMOOTH.
2.) EXCESS PREFORMED FLEXIBLE PLASTIC JOINT SEALANT SHALL BE NEATLY TRIMMED FOR ALL JOINTS.

MANHOLE GASKETS, LEVELING RINGS, AND BOLTED FRAME DETAIL

DATE: OCTOBER 2007
DETAIL: 20

ESE CONSULTANTS
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COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL ENGINEER — JEFFREY M. MAUDER — 049297 — REGISTERED

REC.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/31/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

SANITARY SEWER DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23 | SCALE: AS NOTED
DESIGN: | DRAWN: EJS
JOB NO.: 7662 | FILE NAME: 7662-S-09-DET-SAN
REF. NO.: SD09.06
SHEET NO.: 45 OF 62

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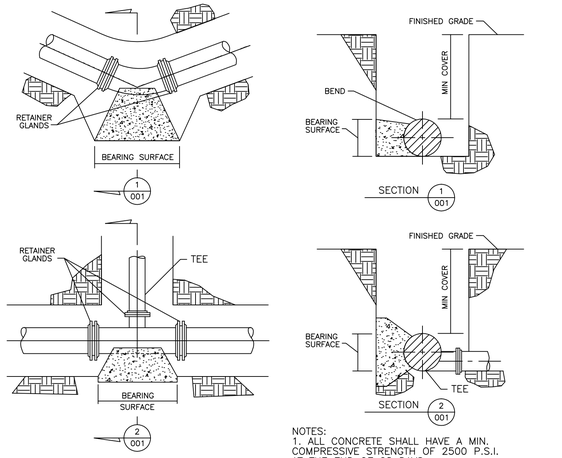


PLAN

NOTES:
1. ALL CONCRETE SHALL HAVE A MIN. COMPRESSIVE STRENGTH OF 2500 P.S.I. AT THE END OF 28 DAYS.
2. NO COUPLING OR JOINTS SHALL BE COVERED WITH CONCRETE.
3. FOR BEARING SURFACE DIMENSIONS SEE TABLES FOR VARIOUS PIPE SIZES.
4. BEARING SURFACE MUST BE UNDISTURBED EARTH.
5. PIPING SHALL BE WRAPPED WITH POLYETHYLENE PRIOR TO PLACEMENT OF CONCRETE.

HORIZONTAL THRUST BLOCKING 150 PSI WORKING PRESSURE

PIPE SIZES	6" AND 8"				10" AND 12"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE BEND OR DEFLECTION				DEGREE BEND OR DEFLECTION			
	11 1/4°	22 1/2°	45°	90°	11 1/4°	22 1/2°	45°	90°
SAND 1 TON/SQ.FT., SOFT CLAY 1 TON/SQ.FT.	1.50	3.00	6.00	12.00	3.00	6.00	12.00	24.50
SAND & GRAVEL 2 TON/SQ.FT.	1.00	1.50	3.00	6.00	1.50	3.00	6.00	12.00
CLAY 3 TON/SQ.FT.	1.00	1.00	2.00	4.00	1.00	2.00	4.00	8.00
SOFT ROCK 5 TON/SQ.FT.	1.00	1.00	1.00	2.50	1.00	1.00	2.50	5.00
ROCK 20 TON/SQ.FT.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

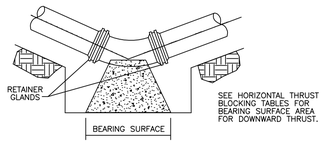
PIPE SIZES	14 AND 16"			
TYPE OF BEARING MATERIAL AND ALLOWABLE LOADS	DEGREE BEND OR DEFLECTION			
	11 1/4°	22 1/2°	45°	90°
SAND 1 TON/SQ.FT, SOFT CLAY 1 TON/SQ.FT.	5.50	11.00	21.50	43.00
SAND & GRAVEL 2 TON/SQ.FT.	2.50	5.50	11.00	21.50
CLAY 3 TON/SQ.FT.	2.00	3.50	7.00	14.00
SOFT ROCK 5 TON/SQ.FT.	1.00	2.00	4.50	8.50
ROCK 20 TON/SQ.FT.	1.00	1.00	1.00	2.00

NOTE:
BEARING SURFACE AREAS SHOWN ARE MINIMUMS FOR THE VARIOUS PIPE SIZES.

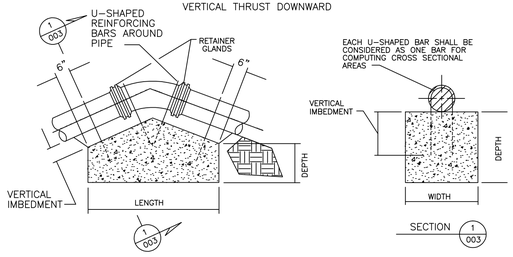
HORIZONTAL THRUST BLOCKING AND VERTICAL THRUSTS DOWNWARD BEARING SURFACE AREA

NOTES:
1. THIS METHOD OF CONSTRUCTION SHALL BE UTILIZED BY THE CONTRACTOR WHERE IT IS NECESSARY TO PASS BENEATH AN EXISTING UTILITY PIPE OR STRUCTURE TO MAINTAIN A MINIMUM 3'-6" COVER OVER THE NEW WATER MAIN.
2. THIS DETAIL IS TO BE USED AS DIRECTED BY AQUA PENNSYLVANIA.

WATER MAIN/UTILITY PIPE CROSSING DETAIL
N.T.S.



VERTICAL THRUST DOWNWARD



VERTICAL THRUST UPWARD

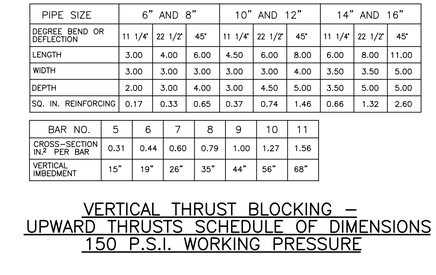
NOTES:
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 P.S.I. AT THE END OF 28 DAYS.
2. PAINT ALL EXPOSED STEEL WITH TWO COATS OF ASPHALT PAINT.
3. NO COUPLING OR JOINTS SHALL BE CONVEYED WITH CONCRETE.
4. ALL-THREADS WITH PIPE STRAPS MAY BE USED IN PLACE OF REINFORCING BARS.
5. ALL THRUST BLOCKS SHOWN ARE INTENDED AS A GUIDE AND SHALL WITHSTAND THE REQUIRED PRESSURE.
6. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS.
7. CERTAIN SITUATIONS MAY WARRENT THE USE OF TIE RODS, AUTHORIZED BY THE WATER COMPANY ONLY.

VERTICAL THRUST BLOCKING

PIPE SIZE	6" AND 8"			10" AND 12"			14" AND 16"		
DEGREE BEND OR DEFLECTION	11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°	11 1/4°	22 1/2°	45°
LENGTH	3.00	4.00	6.00	4.50	6.00	8.00	6.00	8.00	11.00
WIDTH	3.00	3.00	3.00	3.00	3.00	4.00	3.50	3.50	5.00
DEPTH	2.00	3.00	4.00	3.00	4.50	5.00	3.50	5.00	5.00
SQ. IN. REINFORCING	0.17	0.33	0.65	0.37	0.74	1.46	0.66	1.32	2.60

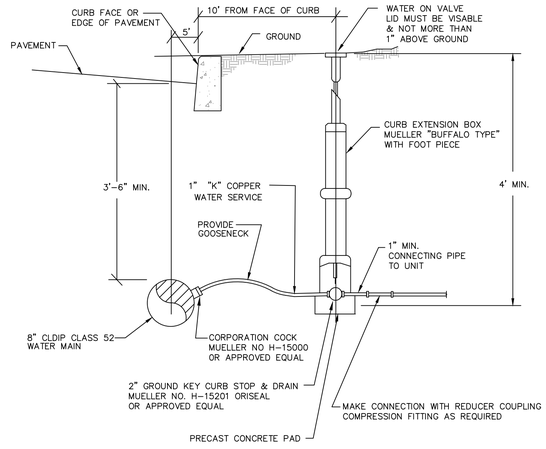
BAR NO.	5	6	7	8	9	10	11
CROSS-SECTION IN.² PER BAR	0.31	0.44	0.60	0.79	1.00	1.27	1.56
VERTICAL IMBEDMENT	15"	19"	26"	35"	44"	56"	68"

VERTICAL THRUST BLOCKING – UPWARD THRUSTS SCHEDULE OF DIMENSIONS 150 P.S.I. WORKING PRESSURE

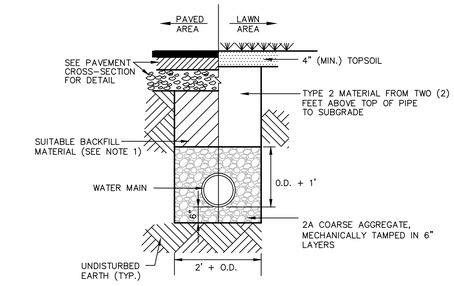


NOTES:
1. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS.
2. VALVE BOX SHALL BE 2 PIECE SCREW TYPE.

GATE VALVE INSTALLATION



WATER SERVICE CONNECTIONS
N.T.S.



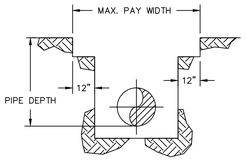
NOTES

1. SUITABLE BACKFILL MATERIAL, WHEN USED AS BACKFILL SHALL BE CAPABLE OF BEING COMPACTED TO AT LEAST NINETY-FIVE PERCENT (95%) OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.

2. TYPE 1 MATERIAL: EXCAVATED MATERIAL FROM THE TRENCH OR MATERIALS FROM OTHER SOURCES WHICH ARE FREE FROM LARGE CLODS, ROOTS, OR STONES LARGER THAT TWO INCHES MAY BE USED.

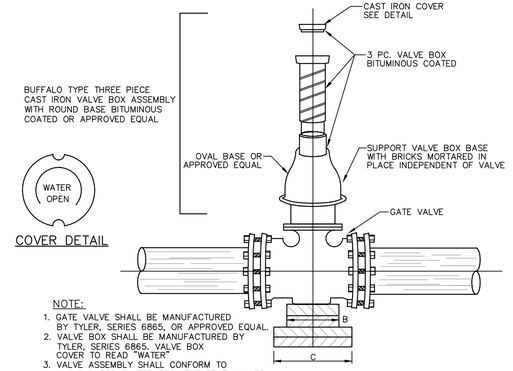
3. TYPE 2 MATERIAL: EXCAVATED MATERIAL FROM THE TRENCH OR MATERIALS FROM OTHER SOURCES WHICH ARE FREE FROM LARGE CLODS, ROOTS, OR STONES LARGER THAN EIGHT INCHES MAY BE USED.

WATER MAIN TRENCH DETAIL
N.T.S.



NOMINAL PIPE DIA. (IN.)	MAX. PAY WIDTH PIPE DEPTH 0'-8"	MAX. PAY WIDTH PIPE DEPTH OVER 6'
4	5.0	6.0
8	5.0	6.0
8	5.0	6.0
10	5.0	6.0
12	5.0	6.0
14	5.5	6.0
15	5.5	6.0
16	5.5	6.0
18	5.5	6.0
20	6.0	6.0
24	6.0	6.0
27	-	6.5
30	-	6.5
36	-	7.0
42	-	8.0
48	-	8.5
54	-	9.0
60	-	9.5

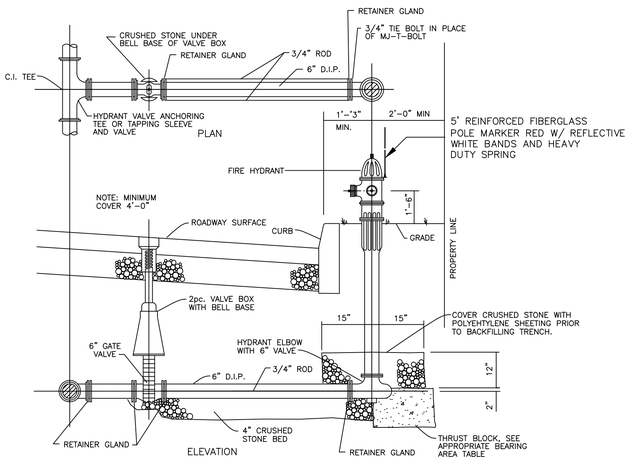
MAXIMUM TRENCH WIDTHS FOR STREET REPAVING



NOTE:
1. GATE VALVE SHALL BE MANUFACTURED BY TYLER, SERIES 6865, OR APPROVED EQUAL.
2. VALVE BOX SHALL BE MANUFACTURED BY TYLER, SERIES 6865, VALVE BOX COVER TO READ "WATER"
3. VALVE ASSEMBLY SHALL CONFORM TO AWWA C-509 94 FOR RESILIENT SEAT VALVES.
4. ANY VALVE WITH AN OPERATING NUT AT A DEPTH GREATER THAN FIVE (5) FEET SHALL REQUIRE A VALVE STEM EXTENSION.
5. ALL TEES (EXCEPT HYDRANT TEES) REQUIRE THREE (3) VALVES.
6. ALL CROSSES REQUIRE FOUR (4) VALVES.
7. THERE SHALL BE NO MORE THAN 1,000 LINEAR FEET OF WATER MAIN BETWEEN VALVES.
8. ANY VALVE WITH AN OPERATING NUT AT A DEPTH GREATER THAN FIVE (5) FEET SHALL REQUIRE A VALVE STEM EXTENSION.

SZ. OF VALVE	DIMENSIONS A	B	C
12"	24	8	14
10"	24	8	14
8"	20	6	12
6"	8	4	10
4"	8	4	10

GATE VALVE WITH VALVE BOX DETAIL
N.T.S.



NOTES:

1.1. THREAD SPECIFICATION: NATIONAL STANDARD;
BARREL COLOR: FIRE PROT. RED; BONNET COLOR: REFLECTIVE WHITE; CAP COLOR: GLOSS WHITE.
2. APPROVED HYDRANT MODELS ARE MUELLER CENTURION, DARLING B-84-B AND KENNEDY GUARDIAN.
3. ALL HYDRANTS SHALL INCLUDE ONE 4½" PUMPER NOZZLE AND TWO 2½" HOSE NOZZLES.
4. HYDRANT VALVE OPENING SHALL BE 5¼".
5. ALL HYDRANTS SHALL OPEN LEFT.
6. ALL HYDRANTS SHALL BE EQUIPPED WITH A 5 FOOT REINFORCED FIBERGLASS POLE MARKER WITH RED AND WHITE REFLECTIVE BANDS. THE POLE MARKER SHALL HAVE A FLEXIBLE SHAFT, HEAVY DUTY SPRING AND INTEGRAL MOUNTING BRACKET. REFERENCE MODEL 22516 FROM USA BLUE BOOK.
7. RETAINER GLANDS REQUIRED ON ALL MECHANICAL JOINT FITTINGS.
8. DRAIN HOLE IN HYDRANT MUST NOT BE OBSTRUCTED WITH CONCRETE.
9. ALL TIE BOLTS, RODS NUTS AND WASHERS SHALL BE COATED WITH BITUMASTIC AFTER INSTALLATION.
10. A BLUE PLASTIC ROAD REFLECTOR TO BE PLACED IN CENTER OF ROADWAY LOCATED IN FRONT OF FIRE HYDRANT. REFLECTOR TO BE RECESSED INTO ROADWAY.
11. CURBING IN FRONT OF HYDRANT 15' ON EACH SIDE TO BE PAINTED YELLOW.
12. FIRE HYDRANT MUST BE SUPPLIED WITH AT LEAST 8" MAIN.

FIRE HYDRANT DETAIL

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1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — No. PE082713

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

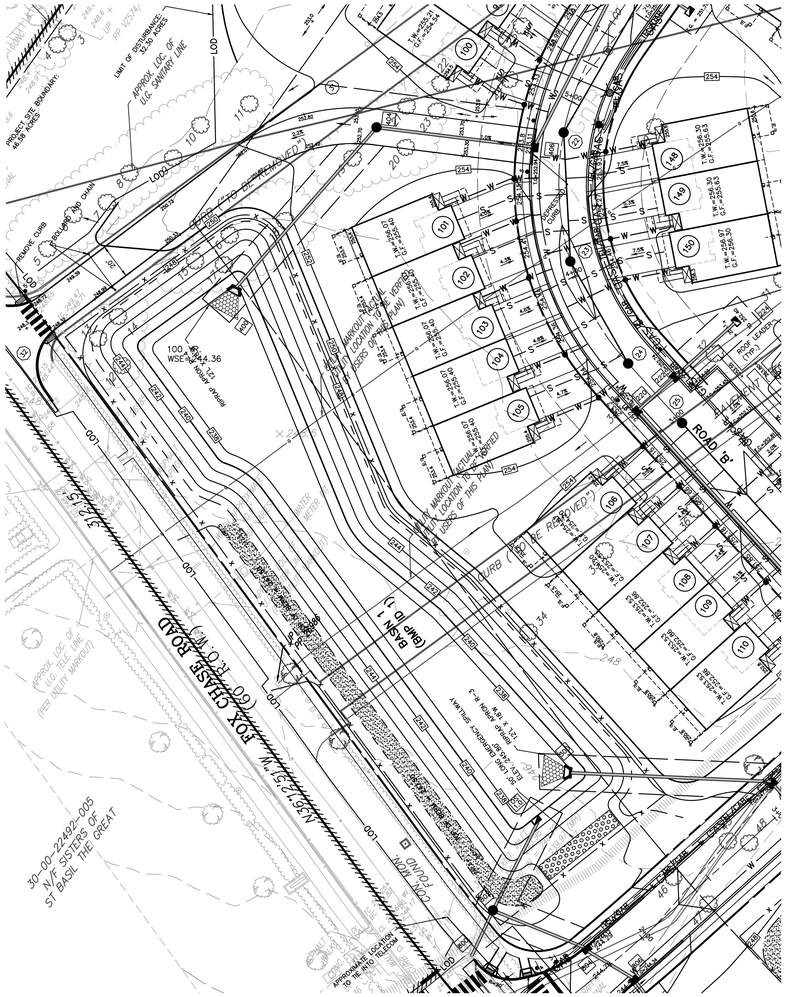
APPLICATION NUMBER LD-23-01

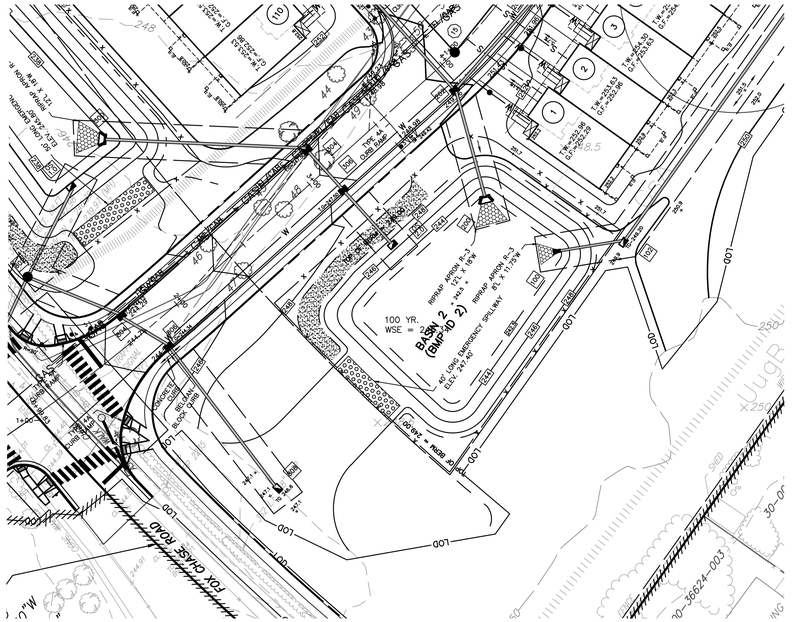
WATER DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-WATER
REF. NO.:	SD09.07
SHEET NO.:	46 OF 62

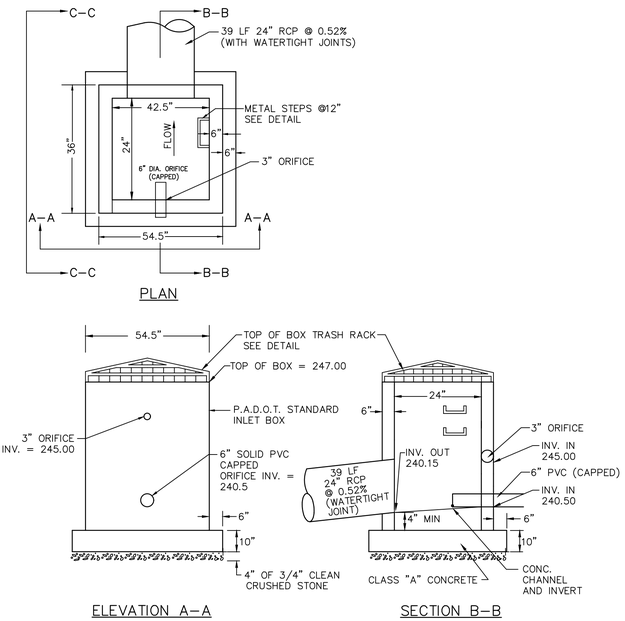
N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-09-DET-WATER.DWG-Luke Piotrowicz-3/21/2024 12:50 PM


FOX CHASE ROAD (60' R.O.W.)
N36°12'51"W 312.51'
30-00-22482-005
N/F SISTERS OF ST BASIL THE GREAT
ROAD 'B'
BASIN 1 (BMP ID 1)
100-YR WSEL = 244.36
PROJECT SITE BOUNDARY 49.38 ACRES
LIMIT OF DISTURBANCE 32.38 ACRES
APPROX. LOC. OF U.G. SANITARY LINE
APPROX. LOC. OF U.G. TELE. LINE (PER UTILITY MARKOUT)
APPROX. LOC. OF U.G. ELEC. LINE (PER UTILITY MARKOUT)
APPROX. LOC. OF U.G. GAS LINE (PER UTILITY MARKOUT)
APPROX. LOC. OF U.G. WATER LINE (PER UTILITY MARKOUT)
APPROXIMATE LOCATION OF TIE INTO TELECOM
APPROXIMATE LOCATION OF TIE INTO GAS
APPROXIMATE LOCATION OF TIE INTO WATER
APPROXIMATE LOCATION OF TIE INTO ELECTRIC
INV. OUT=240.30
INV. OUT=239.87
INV. OUT=240.02
INV. OUT=240.22
INV. OUT=240.37
INV. OUT=240.89
INV. OUT=241.63
INV. OUT=242.33
INV. OUT=243.30
INV. OUT=244.28
INV. OUT=245.34
INV. OUT=246.29
INV. OUT=247.51
INV. OUT=248.73
INV. OUT=249.95
INV. OUT=251.17
INV. OUT=252.39
INV. OUT=253.61
INV. OUT=254.83
INV. OUT=256.05
INV. OUT=257.27
INV. OUT=258.49
INV. OUT=259.71
INV. OUT=260.93
INV. OUT=262.15
INV. OUT=263.37
INV. OUT=264.59
INV. OUT=265.81
INV. OUT=267.03
INV. OUT=268.25
INV. OUT=269.47
INV.



PLAN VIEW: BASIN #2

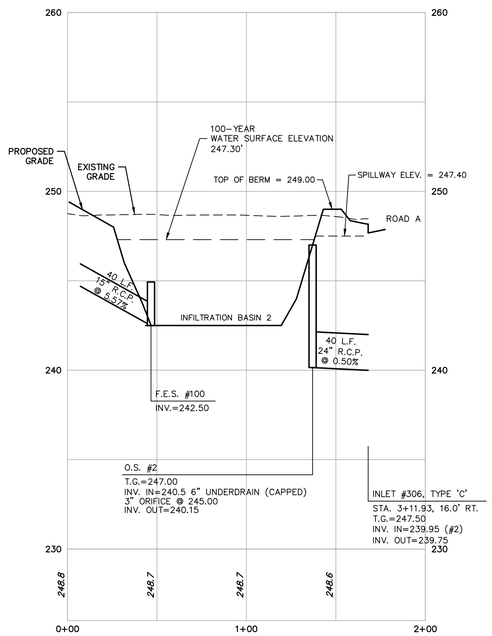
SCALE: 1"=40'



NOTES:
1. WATERTIGHT SEALS TO BE USED ON ALL JOINTS.
2. BASIN NOT TO BE USED DURING CONSTRUCTION.

OUTLET STRUCTURE #2

N.T.S.



PROFILE: BASIN 2

1"=40' Horizontal
1"=4' Vertical

STORAGE CHART:

Elevation (feet)	Surf. Area (sq–ft)	Inc. Store (cubic–feet)	Cum. Store (cubic–feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

DESIGN WATER SURFACE ELEVATION:

1–YR	=	244.00
2–YR	=	244.63
5–YR	=	245.40
10–YR	=	245.98
25–YR	=	246.90
50–YR	=	247.11
100–YR	=	247.30

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JEFFREY M. MAUDER — PROFESSIONAL ENGINEER

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD–23–01

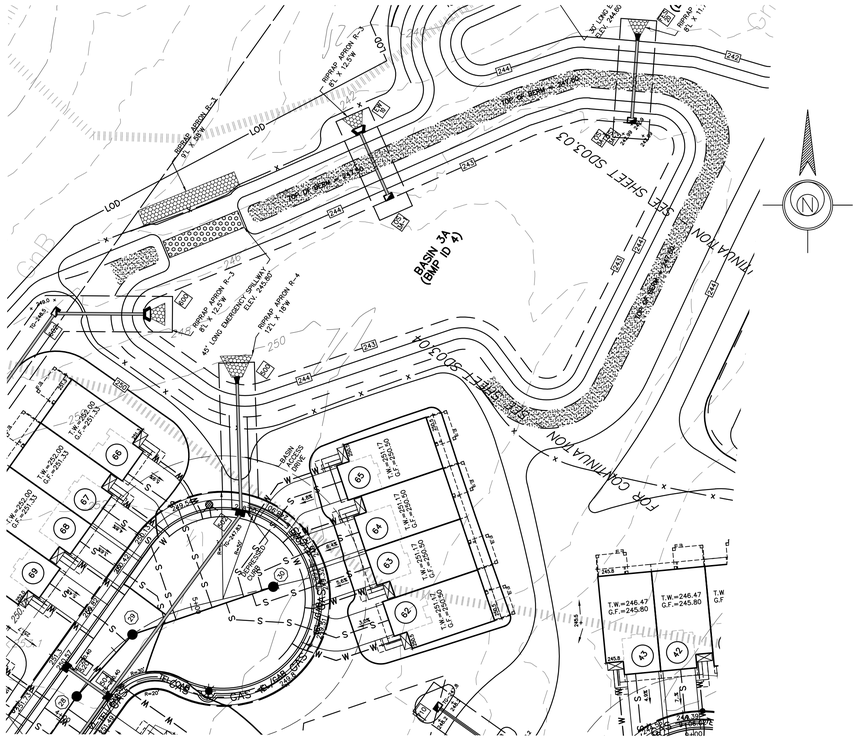
REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/31/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

BASIN DETAILS
BASIN #2

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3–24–23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662–S–09–DET–BASIN
REF. NO.: SD09.09	
SHEET NO.: 48 OF 62	

N:\PROJECTS\PENNSYLVANIA\7662–RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662–S–09–DET–BASIN.DWG–Luke Piotrowicz–3/21/2024 12:50 PM


BASIN 3A
(BMP ID 6)
SEE SHEET S003.03
SEE SHEET S003.04
FOR CONTINUATION
TOP OF BERM = 247.50
SPILLWAY ELEV. = 245.80
RIPRAP APRON R-3
8'L x 12'W
RIPRAP APRON R-4
12'L x 16'W
45' LONG EMERGENCY SPILLWAY
ELEV. 245.80'
LOD
GAS
T.W.=246.47
G.F.=245.80
T.W.=246.47
G.F.=245.80
INLET #502
TYPE 'C'
INLET #503
TYPE 'C'
INLET #504
TYPE 'C'
INLET #505
TYPE 'C'
INLET #506
TYPE 'C'
INLET #507
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INLET #508
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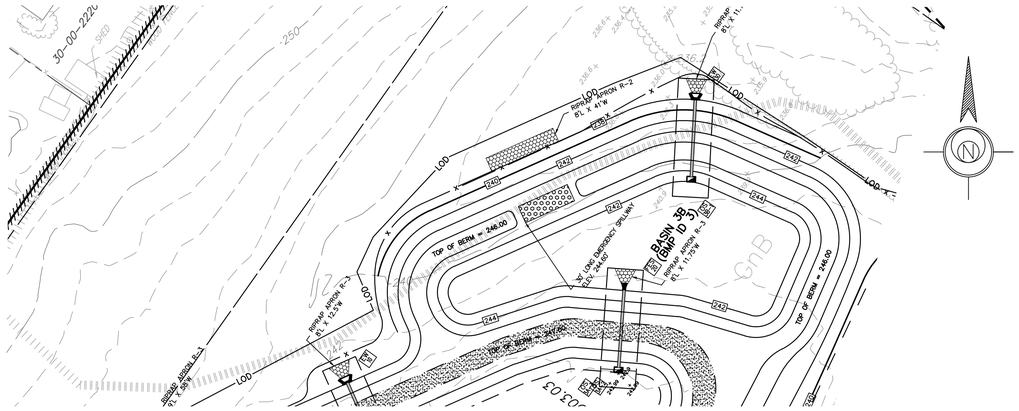
TYPE 'C'
INLET #510
TYPE 'C'
INLET #511
TYPE 'C'
INLET



PLAN VIEW: BASIN #3B

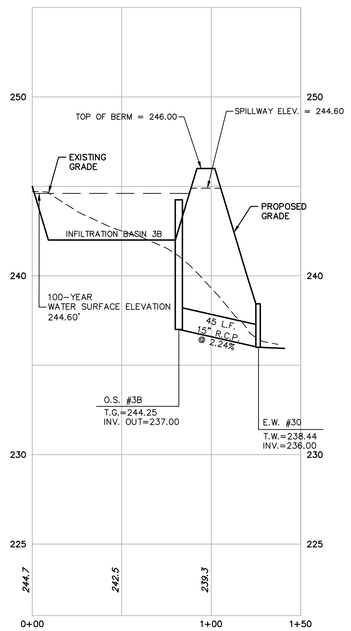
SCALE: 1"=40'

STORAGE CHART:

Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

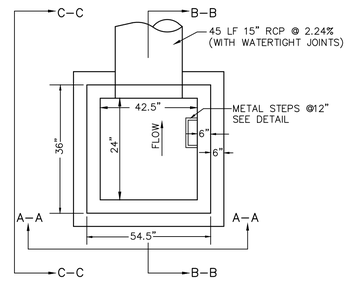
DESIGN WATER SURFACE ELEVATION:

1-YR	=	243.41
2-YR	=	243.66
5-YR	=	244.05
10-YR	=	244.31
25-YR	=	244.46
50-YR	=	244.53
100-YR	=	244.60

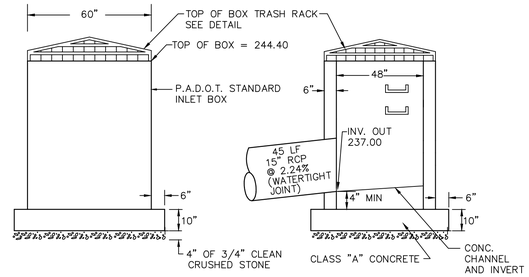


PROFILE: BASIN 3B

1"=40' Horizontal
1"=4' Vertical



PLAN



ELEVATION A-A SECTION B-B

NOTES:
1. WATERTIGHT SEALS TO BE USED ON ALL JOINTS.
2. BASIN 3B TO NOT BE USED DURING CONSTRUCTION.

OUTLET STRUCTURE #3B

N.T.S.

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COMMONWEALTH OF PENNSYLVANIA — PROFESSIONAL ENGINEER — JEFFREY M. MAUDER

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/31/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT-NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

BASIN DETAILS
BASIN #3B

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3-24-23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-S-09-DET-BASIN
REF. NO.: SD09.11	
SHEET NO.: 50 OF 62	

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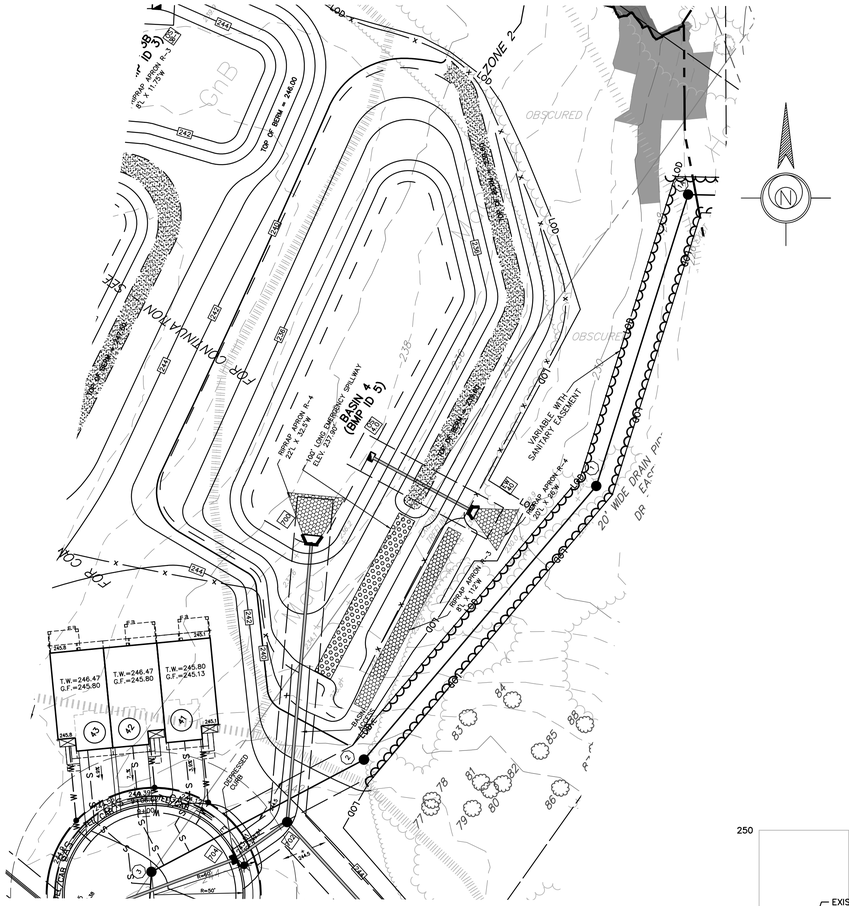
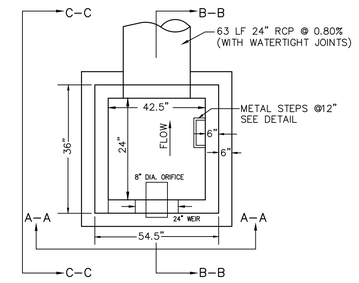
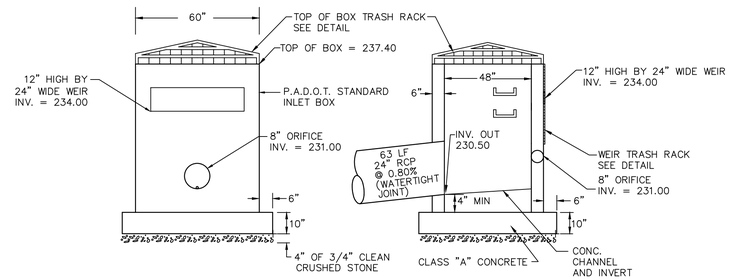


PLAN VIEW: BASIN #4

SCALE: 1"=40'



PLAN



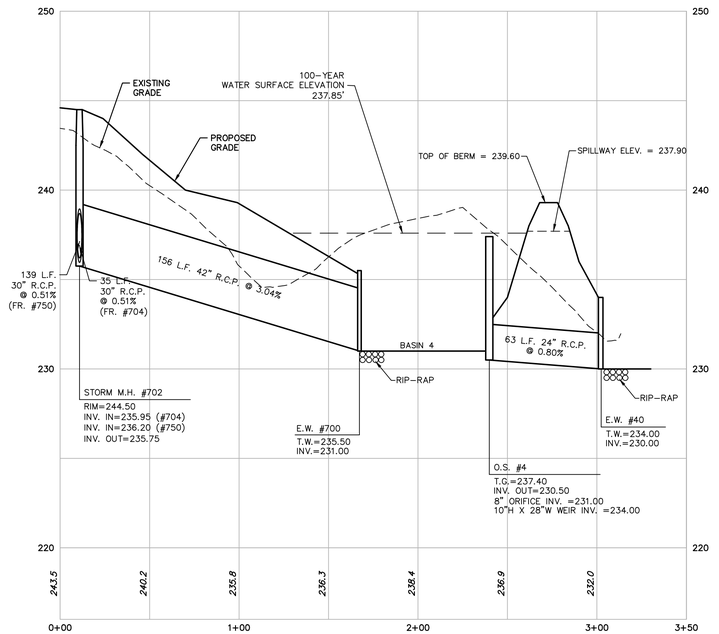
ELEVATION A–A SECTION B–B

NOTES:

1. WATERTIGHT SEALS TO BE USED ON ALL JOINTS.
2. LOWER ORIFICE TO BE CLOSED DURING CONSTRUCTION.
3. WEIR TO BE CLOSED DURING CONSTRUCTION, SEE NOTE.
4. TOP OF BOX TO BE 236.70 DURING CONSTRUCTION.

OUTLET STRUCTURE #4

N.T.S.



PROFILE: BASIN 4

1"=40' Horizontal
1"=4' Vertical

STORAGE CHART:

Elevation (feet)	Surf. Area (sq–ft)	Inc. Store (cubic–feet)	Cum. Store (cubic–feet)
231.00	7,450	0	0
232.00	10,400	8,925	8,925
234.00	14,760	25,160	34,085
236.00	22,200	36,960	71,045
238.00	28,000	50,200	121,245
239.30	33,800	40,170	161,415

DESIGN WATER SURFACE ELEVATION:

1–YR	=	232.86
2–YR	=	233.75
5–YR	=	234.70
10–YR	=	235.34
25–YR	=	236.34
50–YR	=	237.17
100–YR	=	237.85

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COMMONWEALTH OF PENNSYLVANIA — JEFFREY M. MAUDER — ENGINEER — No. PE076006

REV.	DATE	DESCRIPTION	DRAWN
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

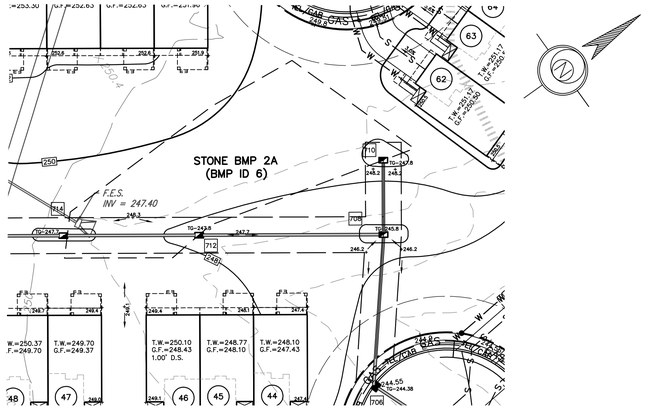
APPLICATION NUMBER LD–23–01

BASIN DETAILS
BASIN #4

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

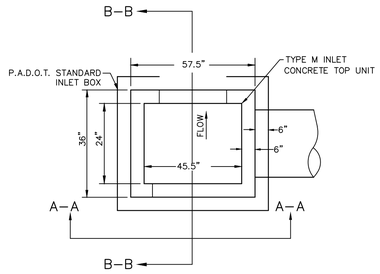
DATE: 3–24–23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662–S–09–DET–BASIN
REF. NO.:	SD09.12
SHEET NO.:	51 OF 62

N:\PROJECTS\PENNSYLVANIA\7662–RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662–S–09–DET–BASIN.DWG–Luke Piotrowicz–3/21/2024 12:50 PM



PLAN VIEW: STONE BMP #2A

SCALE: 1"=40'



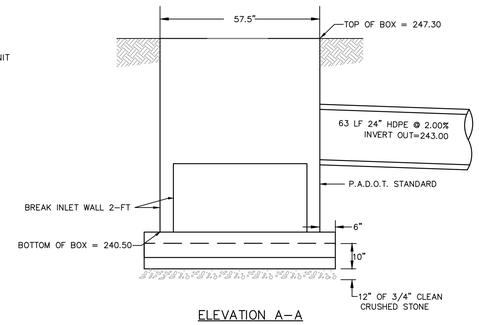
PLAN

NOTE:

1. WATERTIGHT SEALS TO BE USED ON ALL JOINTS.

INLET 746

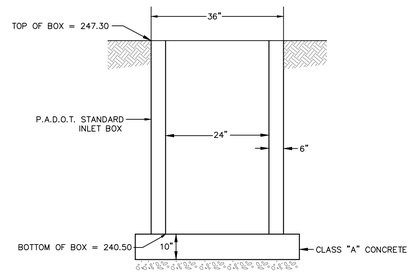
N.T.S.



ELEVATION A–A

INLET 746

N.T.S.



ELEVATION B–B

INLET 746

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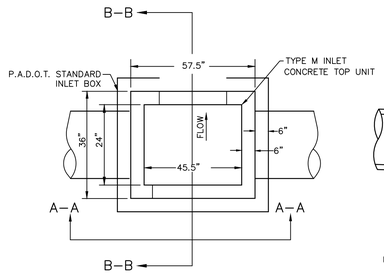


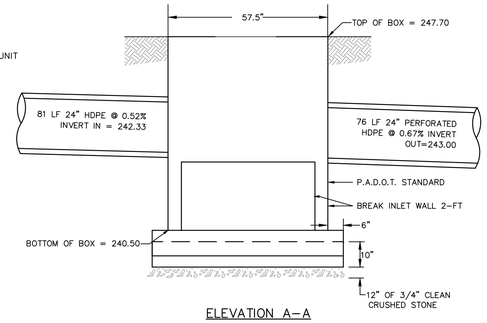
PLAN

NOTE:

1. WATERTIGHT SEALS TO BE USED ON ALL JOINTS.

INLET 714 AND 712

N.T.S.



ELEVATION A–A

INLET 714

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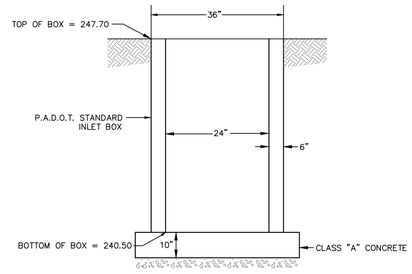

ELEVATION B–B

INLET 714

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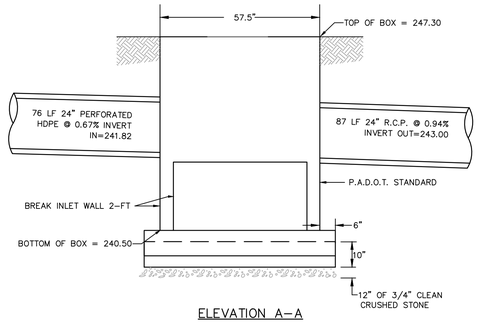

ELEVATION A–A

INLET 712

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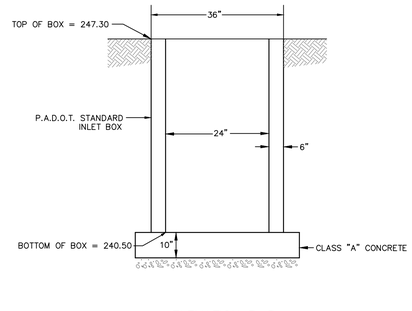

ELEVATION B–B

INLET 712

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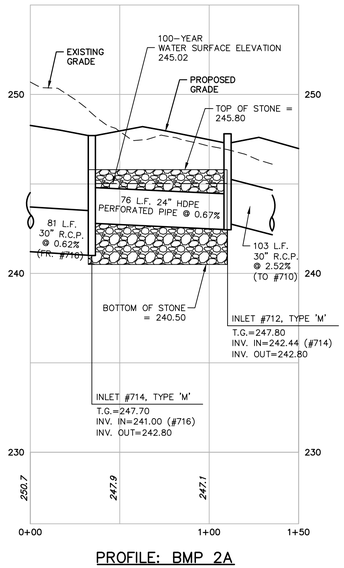

PROFILE: BMP 2A

1"=40' Horizontal
1"=4' Vertical

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T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — JEFFREY M. MAUDER — 078837 — PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION
3	03/22/24	REVISIONS PER TOWNSHIP COMMENTS
2	10/31/23	REVISIONS PER TOWNSHIP COMMENTS
1	7/24/23	TOWNSHIP REVIEW LETTER

DRAWN: ESE ESE ESE ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

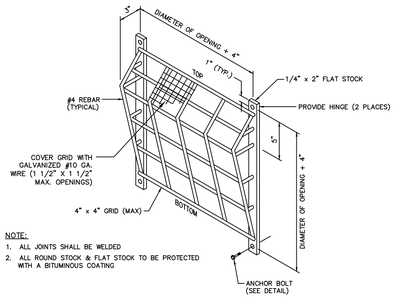
APPLICATION NUMBER LD–23–01

BASIN DETAILS
STONE BMP #2A

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE: 3–24–23	SCALE: AS NOTED
DESIGN:	DRAWN: EJS
JOB NO.: 7662	FILE NAME: 7662-5-09-DET-BASIN
REF. NO.:	SD09.14
SHEET NO.:	52 OF 62

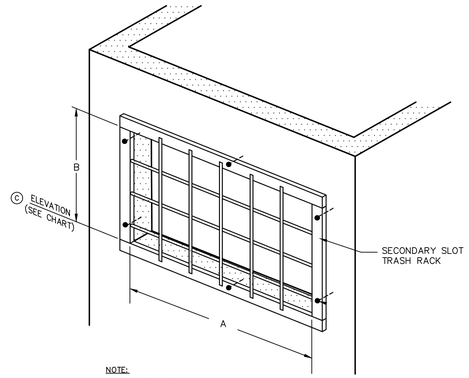
N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-5-09-DET-BASIN.DWG–Luke Piotrowicz–3/21/2024 12:50 PM



NOTE:
1. ALL JOINTS SHALL BE WELDED
2. ALL ROUND STOCK & FLAT STOCK TO BE PROTECTED WITH A BITUMINOUS COATING

PRIMARY ORIFICE ABOVE BASIN BOTTOM TRASH RACK DETAIL

N.T.S.

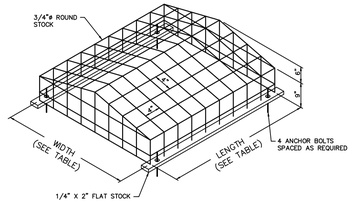


NOTE:
1. ALL JOINTS SHALL BE WELDED
2. ALL ROUND STOCK & FLAT STOCK TO BE PROTECTED WITH A BITUMINOUS COATING

BMP ID	BASIN	STRUCTURE #	A (FEET)	B (FEET)	C (ELEVATION)
5	4	O.S. #4.0	FRONT: 2.33	0.83	234.00.

SECONDARY SLOT TRASH RACK DETAIL

N.T.S.

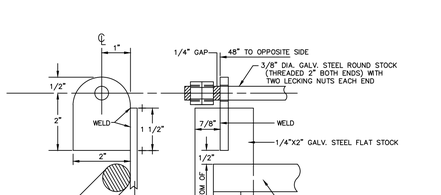


NOTE:
1. ALL JOINTS SHALL BE WELDED
2. ALL ROUND STOCK & FLAT STOCK TO BE PROTECTED WITH A BITUMINOUS COATING

BMP ID	BASIN	STRUCTURE #	LENGTH	WIDTH
1	1	O.S. #1.0	52"	30"
2	2	O.S. #2.0	52"	30"
4	3A	O.S. #3A-1	52"	30"
4	3A	O.S. #3A-2	52"	30"
3	3B	O.S. #3B-1	52"	30"
5	4	O.S. #4.0	52"	30"

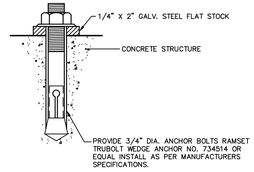
TOP OF STRUCTURE TRASH RACK

N.T.S.



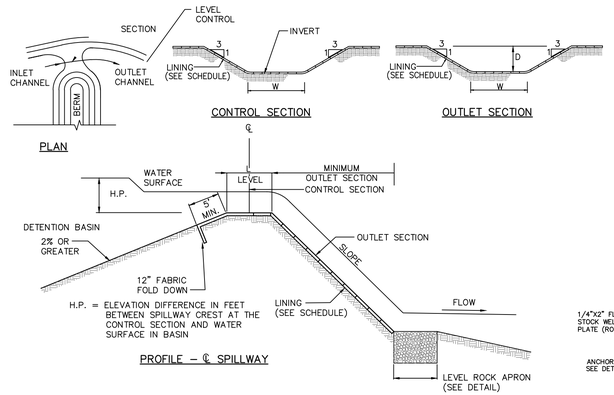
HINGE ASSEMBLY

N.T.S.



ANCHOR BOLT DETAIL

N.T.S.



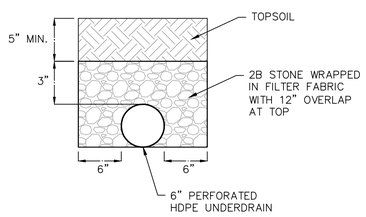
PROFILE – ℄ SPILLWAY

EMERGENCY SPILLWAY SCHEDULE

BMP ID	BASIN #	TOP OF BERM ft.	PERMANENT CONTROL SECTION			TEMPORARY CONTROL SECTION			OUTLET SECTION			
			WIDTH ft.	INVERT ft.	LINING	WIDTH ft.	INVERT ft.	LINING	MAX SLOPE ft.	W ft.	D ft.	LINING
1	1	247.50	50	245.80	C-125	NA	NA	NA	3:1	50	1.70	C-125
2	2	249.00	40	247.40	C-125	NA	NA	NA	3:1	40	1.60	C-125
4	3A	247.50	45	245.80	C-125	NA	NA	NA	3:1	45	1.70	C-125
4	3A	246.00	30	244.60	C-125	NA	NA	NA	3:1	30	1.40	C-125
3	3B	246.00	30	244.60	C-125	NA	NA	NA	3:1	30	1.40	C-125
5	4	239.60	100	237.90	C-125	NA	NA	NA	3:1	100	1.70	C-125

EMERGENCY SPILLWAY CALCULATION

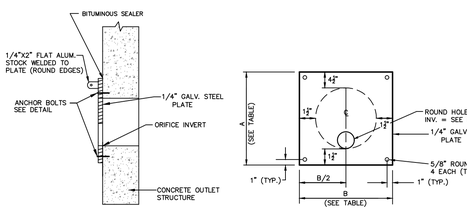
FORMULA: Q =2.7 L (H 3/2)



NOTE: UNDERDRAIN TO INCLUDE A THREADED CAP AT THE OUTLET STRUCTURE CONNECTION.

INFILTRATION BASIN UNDERDRAIN

N.T.S.

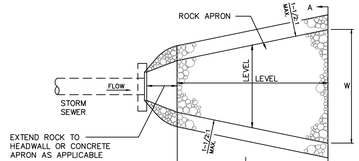


BMP ID	BASIN #	STRUCTURE #	A (in.)	B (in.)	ORIFICE DIAMETER (in.)	ORIFICE INVERT (ft.)
1	1	O.S. #1.0	9	6	3.0	241.00
2	2	O.S. #2.0	9	6	3.0	245.00
4	3A	O.S. #3A-1	16	13	10.0	242.90
4	3A	O.S. #3A-2	9	6	3.0	244.00
5	4	O.S. #4.0	14	11	8.0	231.00

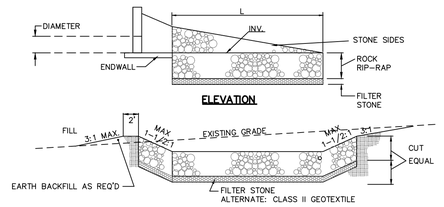
TWO (2) 10" ORIFICES

ORIFICE PLATE DETAIL

N.T.S.



PLAN VIEW



ELEVATION

SECTION A–A

STORM SEWER OUTLET ROCK APRON SCHEDULE

OUTLET #	PIPE DIA (in)	RIP–RAP CALCULATED SIZE	RIP–RAP PROVIDED SIZE	RIP–RAP THICK (in)	MIN. APRON DIM. L (ft)	MIN. APRON DIM. INITIAL WIDTH (ft)	MIN. APRON DIM. TERMINAL W (ft)
FES 100	15	R–3	R–3	9	8	3.75	11.75
EW 200	24	R–3	R–3	9	12	6	18.0
EW 300	24	R–3	R–3	9	12	6	18.0
EW 400	24	R–3	R–3	9	12	6	18.0
FES 500	24	R–3	R–3	9	12	6	18.0
EW 600	18	R–3	R–3	9	8	4.5	12.5
EW 700	42	R–4	R–4	18	22	10.5	32.5
O.S. 3A–2	18	R–3	R–3	9	12.5	4.5	12.5
O.S. 3A–4	15	R–3	R–3	9	11.80	3.75	11.75
O.S. 3B–2	15	R–3	R–3	9	8	3.75	11.75
O.S. 4.1	24	R–4	R–4	18	20	6	26.0

RIPRAP APRONS AT PIPE OUTLETS WITH D–W ENDWALLS

RIPRAP

PADOT No.	Size Inches (sq. openings) Max.	Avg. (1)	Min. (2)	Filter Stone NCSA Size No.
R–3	6	3	2	FS–2
R–4	12	6	3	FS–2
R–5	18	9	5	FS–2
R–6	24	12	7	FS–3
R–7	30	15	12	FS–3
R–8	48	24	15	FS–3

FILTER STONE

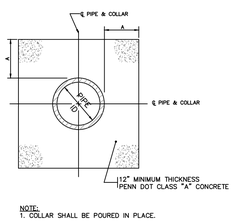
Size Inches (sq. openings)

NCSA No.	Max	Avg.	Min	Thickness
FS–2	2	No. 4	No. 100	4 in (minimum)
FS–3	6–1/2	2.5	No. 16	8 in (minimum)

NOTES:
1. "AVERAGE SIZE" IS THAT SIZE EXCEEDED BY AT LEAST 50% OF THE TOTAL WEIGHT OF THE TONNAGE SHIPPED; 50% OF THE TONNAGE SHALL CONSIST OF PIECES LARGER THAN THE "AVERAGE" SIZE.
2. PIECES SMALLER THAN THE MINIMUM SIZE SHOWN SHALL NOT EXCEED 15% OF THE TONNAGE SHIPPED.
3. THE TABLE ASSUMES A STONE DRY DENSITY OF 165 POUNDS PER CUBIC FOOT.
4. PLACE FILTER STONE TO SPECIFIED THICKNESS UNDER RIP RAP.
5. FILTER STONE ALTERNATIVE: PADOT CLASS 2 GEOTEXTILE MAY BE SUBSTITUTED FOR FILTER STONE AS FOLLOWS:
   TYPE A – UNDER R–3, R–4, R–5, AND R–6 RIP RAP.
   TYPE B – UNDER R–7 AND R–8 RIP RAP.
6. ALL APRONS ARE TO BE LEVEL AT ELEVATIONS MATCHING THE PIPE OUTLET INVERT.
7. ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STORM SEWER ROCK APRONS

(NOT TO SCALE)



NOTE:
1. COLLAR SHALL BE POURED IN PLACE.

CONCRETE ANTI–SEEP COLLAR

N.T.S.

BMP ID	BASIN #	# OF COLLARS	VERTICAL PROJECTION A (IN.)	SPACING (FT.)	DISTANCE TO FIRST COLLAR (FT)	BARREL DIA. (IN)
4	O.S. 3A–1	2	12	8.12	8.12	18
4	O.S. 3A–2	2	12	8.06	8.06	15
3	O.S. 3B–1	3	18	14.02	14.02	15
5	O.S. 4.0	3	18	12.11	12.11	24

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T: 215-914-2050

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — JEFFREY M. MAUDER — ENGINEER — 084376 — PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION	DRAWN
3	05/22/24	REVISIONS PER TOWNSHIP COMMENTS	ESE
2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTER	ESE

BASIN DETAILS

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

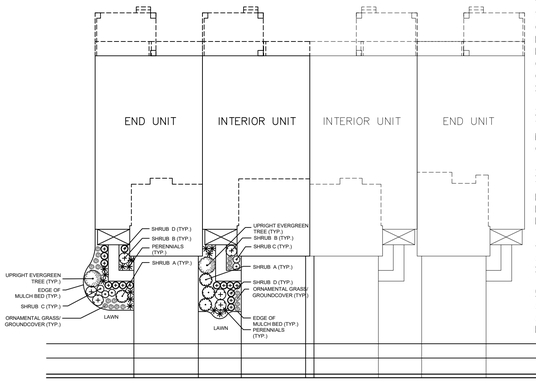
PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT–NOT TO BE RECORDED

APPLICATION NUMBER LD–23–01

DATE:	SCALE:
3–24–23	AS NOTED
DESIGN:	DRAWN:
	EJS
JOB NO.: 7662	FILE NAME: 7662–S–09–DET–BASIN
REF. NO.: SD09.16	
SHEET NO.: 53 OF 62	

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL\ENGDEPT\DRAWINGS\7662-S-09-DET-BASIN.DWG-Luke Pistrowicz-3/21/2024 12:50 PM

TYPICAL UNIT LANDSCAPING



END UNIT - TYPICAL UNIT PLANT QUANTITIES

(1) UPRIGHT EVERGREEN
(1) SHRUB A - MEDIUM EVERGREEN SHRUB
(3) SHRUB B - MEDIUM DECIDUOUS SHRUB
(5) SHRUB C - SMALL DECIDUOUS
(8) SHRUB D - EVERGREEN SHRUB
(9) PERENNIALS
(11) LOW ORNAMENTAL GRASSES OR GROUNDCOVER

INTERIOR UNIT - TYPICAL UNIT PLANT QUANTITIES

(1) UPRIGHT EVERGREEN
(3) SHRUB A - MEDIUM EVERGREEN SHRUB
(3) SHRUB B - MEDIUM DECIDUOUS SHRUB
(2) SHRUB C - SMALL DECIDUOUS
(7) SHRUB D - EVERGREEN SHRUB
(6) PERENNIALS
(7) LOW ORNAMENTAL GRASSES OR GROUNDCOVER

FEET
20 0 10 20 40
GRAPHIC SCALE 1 inch = 20 ft.

TYPICAL UNIT PLANTING NOTES:

1. LAYOUT OF PLANTING BED IS CONCEPTUAL AND MAY VARY DUE TO EXISTING SITE CONDITIONS AND MODEL ELEVATION. SPECIES CHOSEN SHALL CORRELATE WITH EXISTING SITE CONDITIONS OF EACH HOME (IE: SUN/SHADE) TO ENSURE SURVIVABILITY OF PLANT.

2. SHRUBS SHALL BE PLANTED IN GROUPS OF THE SAME SPECIES (3-5 PLANTS) TO MAINTAIN BALANCE THROUGHOUT THE GARDEN.

3. FOUNDATION PLANTS ARE IN ADDITION TO AND ARE TO BE COORDINATED WITH PROPOSED STREET TREES, OPEN SPACE PLANTINGS AND EXISTING VEGETATION TO REMAIN.

4. QUALITY OF PLANT SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK.

5. SUBSTITUTIONS PERMITTED WITH WRITTEN APPROVAL BY ESE LANDSCAPE ARCHITECT AND TOWN REPRESENTATIVE PRIOR TO PLANTING.

TYPICAL UNIT PLANT LIST

Upright Evergreen Tree
- *Chamaecyparis nootkanensis 'Pendula'*
- *Ilex 'Nellie R. Stevens'*
- *Thuja plicata 'Green Giant'*

Shrub A - Medium Evergreen
- Ilex glabra 'Densa' or 'Shamrock'
- *Ilex x meservae 'Blue Princess'* ***plant with 1 male for berries***
- *Ilex x meservae 'Blue Prince'* ***1 needed as pollinator***
- *Rhododendron x 'PJM'*
- Taxus x media 'Hatfield'

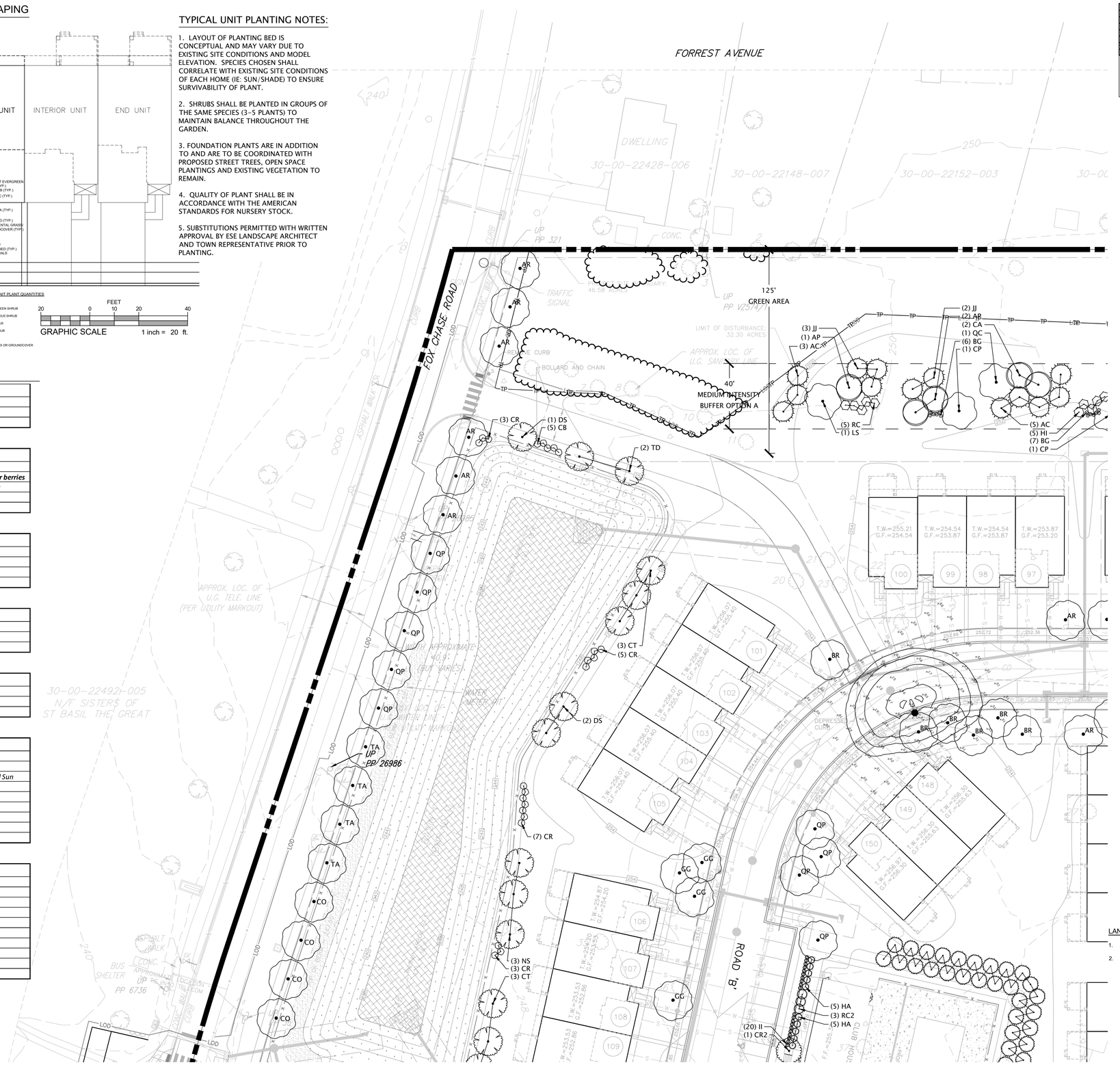
Shrub B - Medium Deciduous
- Comptonia peregrina
- Hydrangea arborescens 'Invincibal!'
- Itea virginica 'Little Henry'
- Rosa rugosa 'Radtko' or 'Sunny Knockout'

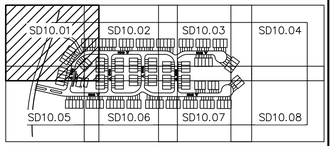
Shrub C - Small Deciduous
- *Azalea 'Encore Autumn Cheer'*
- *Buxus 'Winter Gem' or 'Green Mound'*
- Thuja occidentalis 'Hetz Midget'

Shrub D - Small Evergreen
- *Azalea 'Encore Autumn Cheer'*
- *Buxus 'Winter Gem' or 'Green Mound'*
- Thuja occidentalis 'Hetz Midget'

Perennials
- **Sun/ Part Shade**
- *nepeta racemosa 'Little Trudy' or 'Walker's Low'*
- *Rudbeckia fulgida var. sullivanti 'Little Goldstar' - Full Sun*
- *Sedum 'Black Beauty'*
- **Part Shade/ Full Shade**
- *Bergenia cordifolia*
- *Geranium macrorrhizum 'Bevans Variety'*
- *Heuchera x 'Plum Pudding'*
- *Hosta varieties*

Ornamental Grasses/ Groundcover
- **Sun/ Part Shade**
- *Pennisetum alopecuriodes* 'Hameln'
- Dianthus gratianopolitanus *'Bath's Pink'*
- *Liriope muscari 'Big Blue or 'Variegata'*
- *Sedum x 'Vera Jameson'*
- **Part Shade/ Full Shade**
- *Hakonechloa macra 'Aureola'*
- *Liriope muscari 'Big Blue or 'Variegata'*
- *Phlox stolonifera 'Sherwood Purple'*
- *Tiarella ' Sugar and Spice'*





KEYMAP

PLANT LEGEND

STREET TREES		
SYMBOL		BOTANICAL/COMMON NAME
	AR	ACER RUBRUM 'AUTUMN RED'/ AUTUMN RED MAPLE
	BR	BETULA NIGRA/ RIVER BIRCH
	CO	CARPINUS CAROLINIANA 'ORANGE CRUSH'/A. HORNBEAM
	QP	QUERCUS PHELLOS / WILLOW OAK
	CG	GLEDITSIA TRIACANTHOS / GREEN GLORY HONEY LOCUST
	TA	TILIA AMERICANA / AMERICAN LINDEN

BUFFER CANOPY TREES		
SYMBOL		BOTANICAL/COMMON NAME
	CP	CELTIS OCCIDENTALIS 'PRAIRIE HARVET'/HACKBERRY
	LS	LIQUIDAMBAR STYRACIFLUA/AMERICAN SWEET GUM
	QC	QUERCUS COCCINEA/SCARLET OAK
	QR	QUERCUS RUBRA/RED OAK

BUFFER EVERGREEN TREES		
SYMBOL		BOTANICAL/COMMON NAME
	AB	ABIES CONCOLOR/WHITE FIR
	PG	PICEA GLAUCA/WHITE SPRUCE
	PB	PICEA PUNGENS 'BABY BLUE' / BABY BLUE COLORADO SPRUCE

BUFFER UNDERSTORY TREES		
SYMBOL		BOTANICAL/COMMON NAME
	AP	AMELANCHER X GRANDIFLORA/APPLE SERVICEBERRY
	CA	CERCIS CAMADEMSIS 'ALLEY CAT'/ EASTERN REDBUD
	CF	CORNUS FLORIDA/FIRST LADY DOGWOOD
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BUFFER SHRUBS		
SYMBOL		BOTANICAL/COMMON NAME
	BG	BUXUS X 'GREEN MOUNTAIN'/GREEN MOUNTAIN BOXWOOD
	CG	CORNUS RACEMOSA/'CRAY' DOGWOOD
	HI	HYDRANGEA ARBORESCENS 'KOLPINBEL'/HYDRANGEA
	IM	ITEA VIRGINICA 'MORNING STAR'/MORNING STAR SWEETSPIRE
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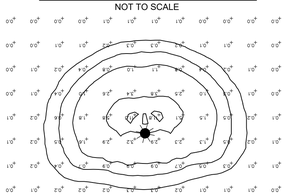
TP TP TP

TEMPORARY TREE PROTECTION FENCING
NOT TO SCALE

VEGETATION TO REMAIN
NOT TO SCALE



STREET LIGHT LUMINAIRE
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PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT - NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

LANDSCAPE PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE:	SCALE: 1"= 30'
DESIGN:	DRAWN: EED
JOB NO.: 7662	FILE NAME: 7662-S-09-LAND
REF. NO.:	SD10.01
SHEET NO.:	54 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASIL'S\ENGDEPT\DRAWINGS\7662-S-09-LAND.DWG-Luke Pietrowicz- 3/21/2024 12:51 PM

FORREST AVENUE

DWELLING

30-00-22152-003 | 30-00-22156-008 | 30-00-22160-004 | 30-00-22164-009 | 30-00-22168-005 | 30-00-22172-001 | 30-00-22176-006 | 30-00-22180-002

SHED

SPLIT RAIL FENCE | VINYL FENCE

125' GREEN AREA

40' MEDIUM INTENSITY BUFFER OPTION A

(2) JJ, (2) AR, (2) CA, (1) QC, (6) BG, (1) CP, (5) AC, (5) HI, (7) BG, (1) CP

(2) AC, (2) LS, (3) HV, (4) IA, (3) BG, (6) IM

(2) AC, (1) QA, (1) CA, (3) JJ, (3) CG

(3) QC, (3) CF, (5) IA, (1) AC, (5) RC

(5) JJ, (2) CP, (1) AP, (5) CG, (1) CP

(5) AC, (5) IM, (3) QA

(1) CP

(3) QA, (5) AC, (3) AP, (5) HI, (5) CG, (5) IM

(2) JJ, (5) RC, (1) CP, (1) JJ, (3) CG, (3) BG

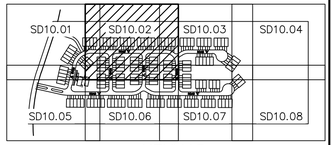
ROAD 'B'

ROAD 'C'

ROAD 'F'

ROAD 'G'

CURB FOR GRAPHICAL REPRESENTATION (TYP)



KEYMAP

PLANT LEGEND

STREET TREES

SYMBOL		BOTANICAL/COMMON NAME
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	BR	BETULA NIGRA/ RIVER BIRCH
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ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

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JOB NO.: 7662	FILE NAME: 7662-S-09-LAND
REF. NO.:	SD10.02
SHEET NO.:	55 OF 62

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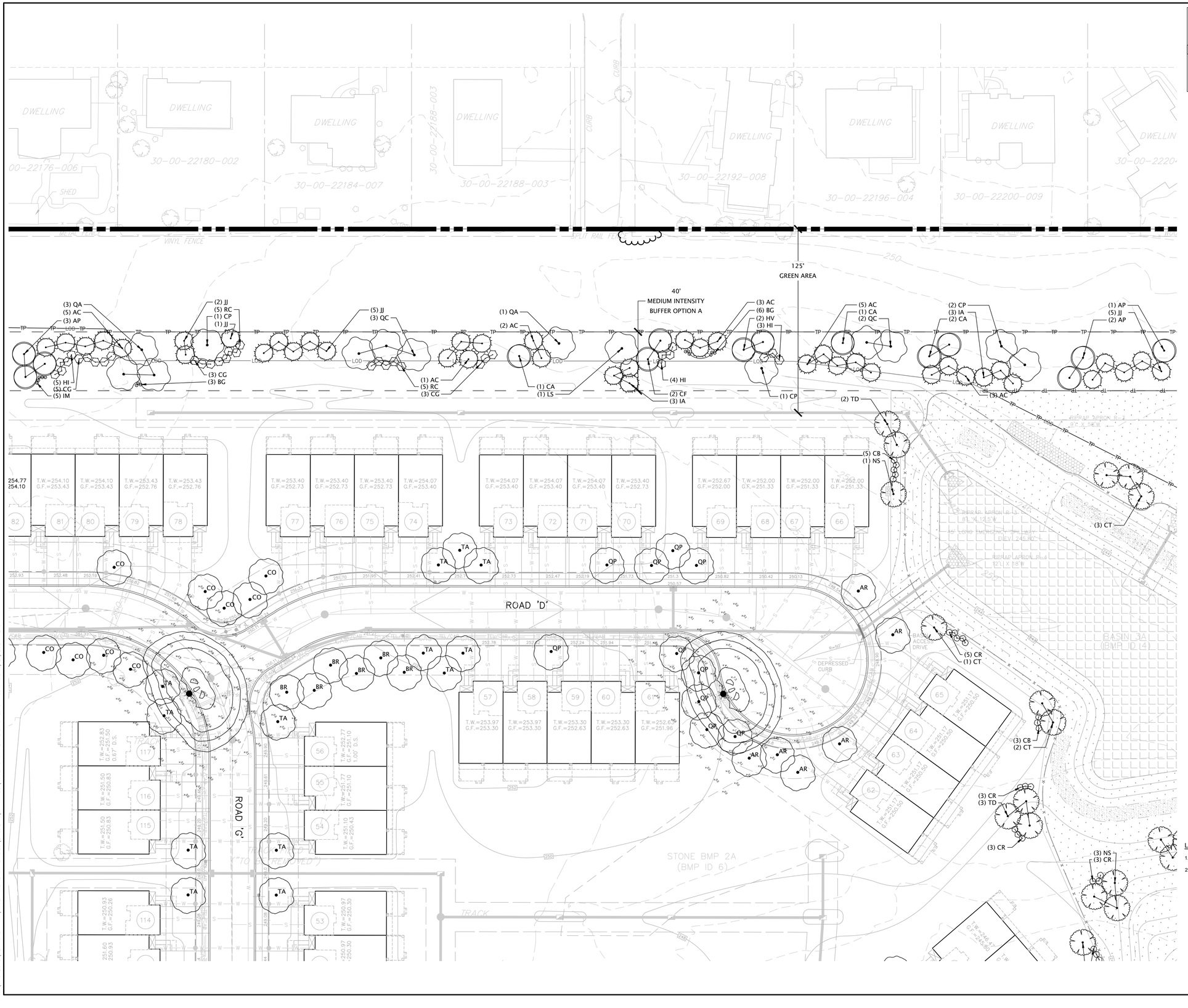

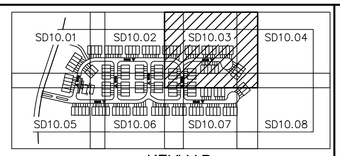

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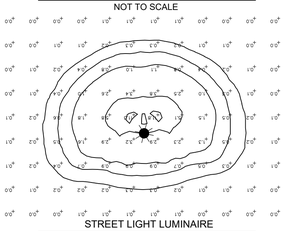

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APPLICATION NUMBER LD-23-01

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SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE:	SCALE: 1"= 30'
DESIGN:	DRAWN: EED
JOB NO.: 7662	FILE NAME: 7662-S-09-LAND
REF. NO.:	SD10.03
SHEET NO.:	56 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST BASIL\ENGDEPT\DRAWINGS\7662-S-09-LAND.DWG-Lake Plotrowitz-3/21/2024 12:51 PM

FORREST AVENUE

DWELLING
DWELLING
DWELLING
DWELLING
30-00-22204-005
30-00-22200-009
30-00-22208-001
30-00-22212-006
30-00-22216-002
30-00-12796-008
30-00-63888-009
30-00-63884-004
30-00-63880-008
30-00-63876-003
SHED
WOOD FENCE
EXISTING TREELINE
240
250
230
230

125'
GREEN AREA

(2) CP
(3) IA
(2) CA
(3) AC
(1) AP
(5) JJ
(2) AP
(2) AP
(1) QC
(1) CF
(3) JJ
(1) CF
(2) LS
(1) CF
(2) HV
(1) CP
(3) AC
(1) LS
(5) JJ
(1) LS
(3) CA
(3) QA
(3) JJ

40'
MEDIUM INTENSITY
BUFFER OPTION A

TREE CANOPY
TO REMAIN

(5) DS
(3) CT
(5) CR
(1) CT
(3) CB
(2) CT
(3) CR
(3) TD
(3) CR
(3) NS
(3) CR
(3) DS
(3) DS
(3) TD

RIPRAP APRON R-4
8'L X 15'W
ELEV. 245.50

RIPRAP APRON R-3
8'L X 15'W
ELEV. 246.00

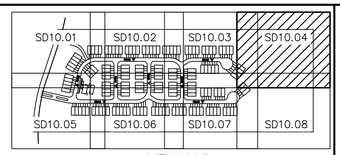
RIPRAP APRON R-4
12'L X 15'W

RIPRAP APRON R-4
8'L X 15'W

BASIN 3A
(BMP ID 14)

ZONE 2

KEYMAP



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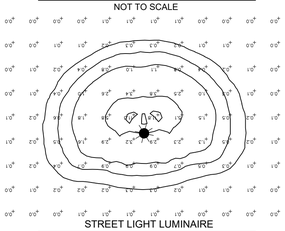

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REF. NO.: SD10.04	
SHEET NO.: 57 OF 62	

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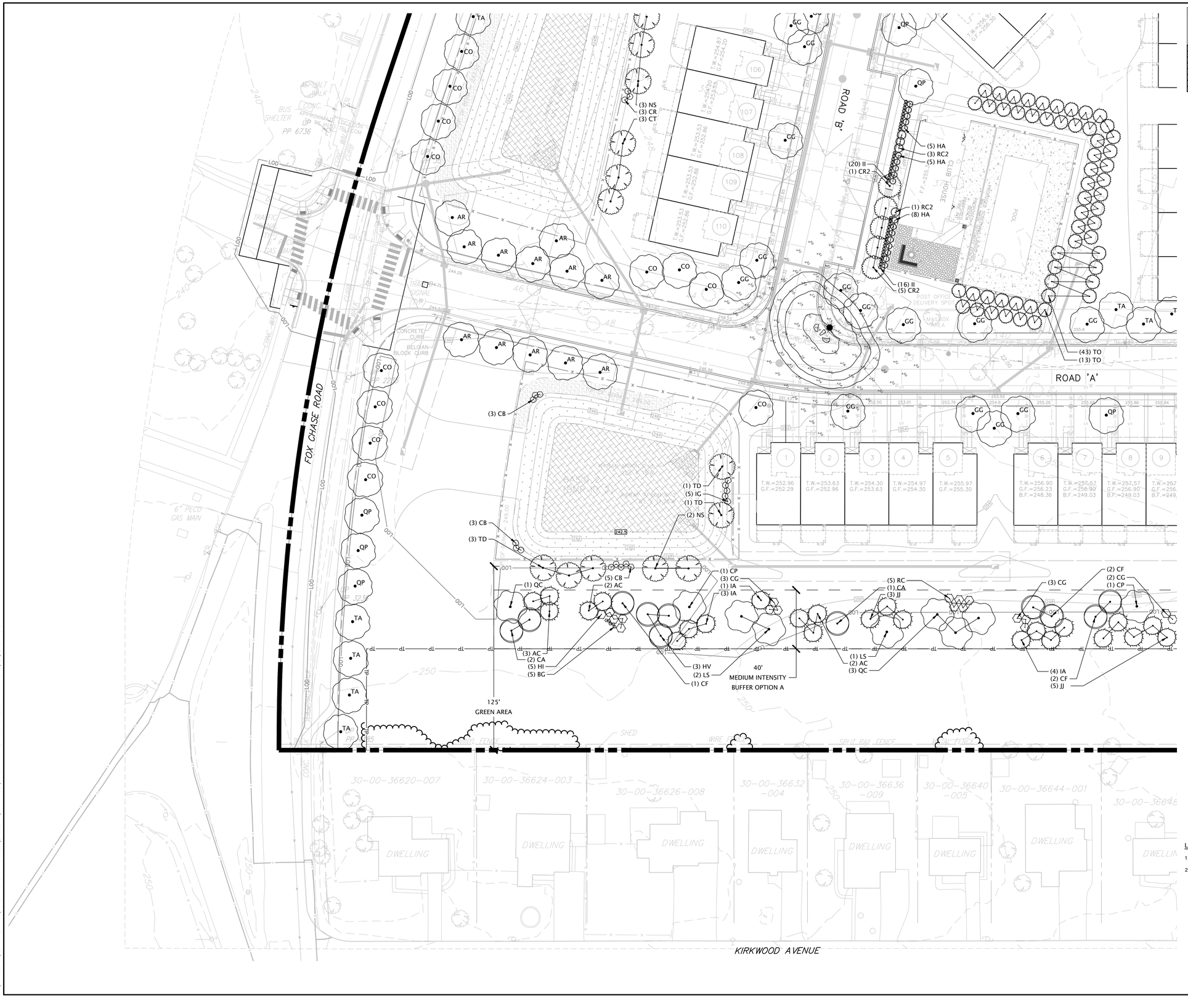

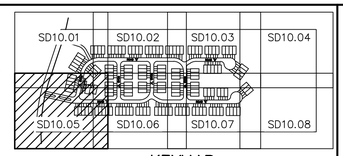

KEYMAP

PLANT LEGEND

STREET TREES

SYMBOL		BOTANICAL/COMMON NAME
	AR	ACER RUBRUM 'AUTUMN RED'/ AUTUMN RED MAPLE
	BR	BETULA NIGRA/ RIVER BIRCH
	CO	CARPINUS CAROLINIANA 'ORANGE CRUSH'/A. HORNBEAM
	QP	QUERCUS PHELLOS / WILLOW OAK
	GG	GLEDITSIA TRIACANTHOS / GREEN GLORY HONEY LOCUST
	TA	TILIA AMERICANA / AMERICAN LINDEN

BUFFER CANOPY TREES

SYMBOL		BOTANICAL/COMMON NAME
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NOT TO SCALE

VEGETATION TO REMAIN
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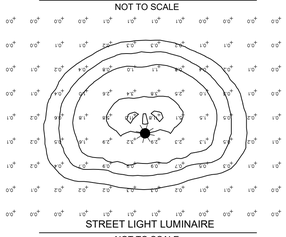

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2	10/13/23	REVISIONS PER TOWNSHIP COMMENTS	ESE
1	7/24/23	TOWNSHIP REVIEW LETTERS	ESE

PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT - NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

LANDSCAPE PLAN

SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE:	SCALE: 1"= 30'
DESIGN:	DRAWN: EED
JOB NO.: 7662	FILE NAME: 7662-S-09-LAND
REF. NO.: **SD10.05**	
SHEET NO.: **58** OF **62**	

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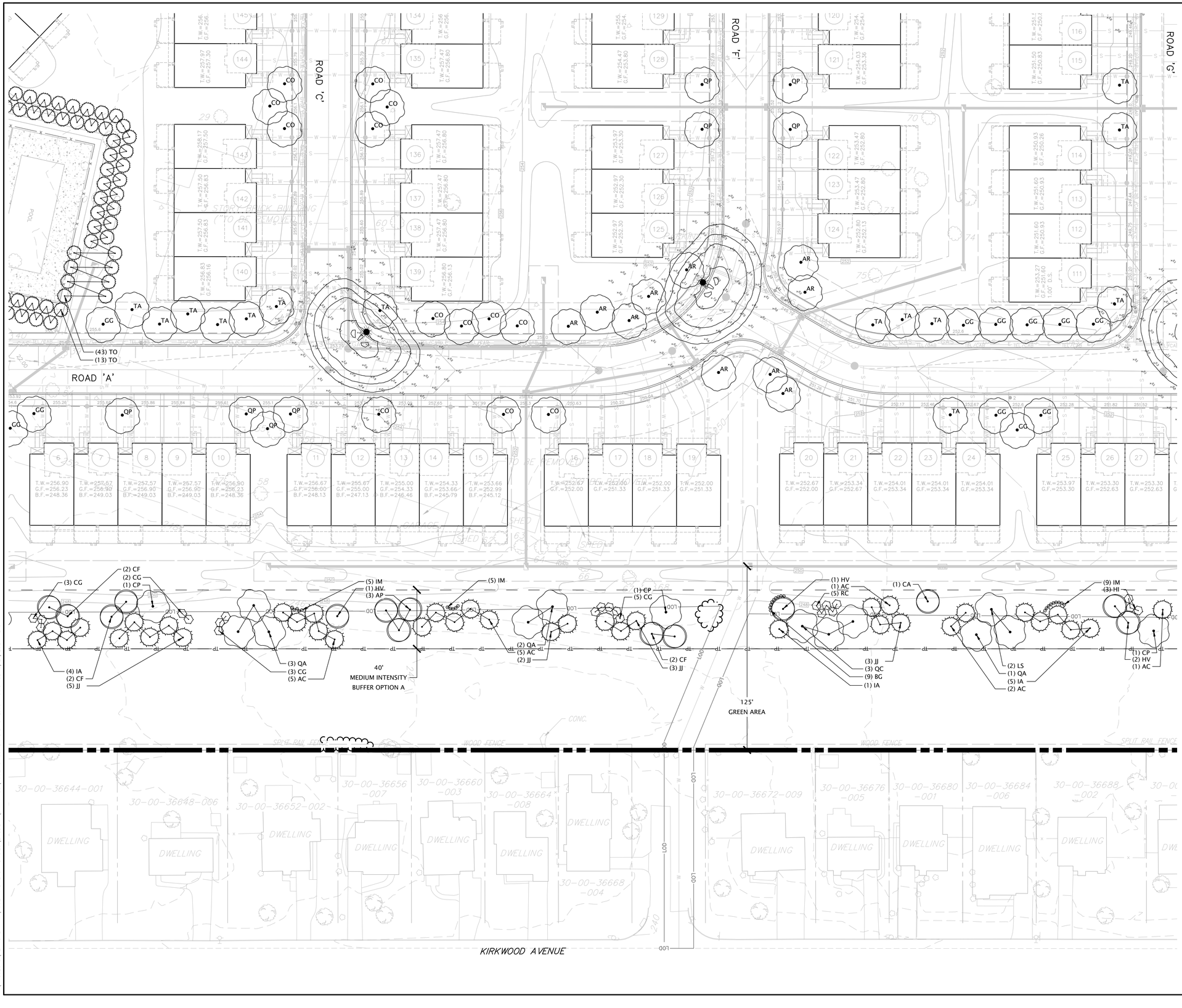

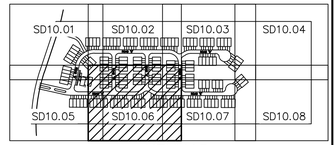

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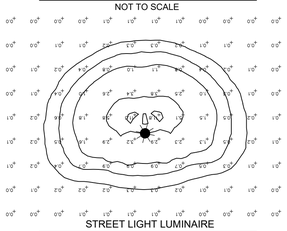

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PRELIMINARY MAJOR SUBDIVISION AND LAND DEVELOPMENT - NOT TO BE RECORDED

APPLICATION NUMBER LD-23-01

DATE:	SCALE: 1"= 30'
DESIGN:	DRAWN: EED
JOB NO.: 7662	FILE NAME: 7662-S-09-LAND
REF. NO.:	SD10.06
SHEET NO.:	59 OF 62

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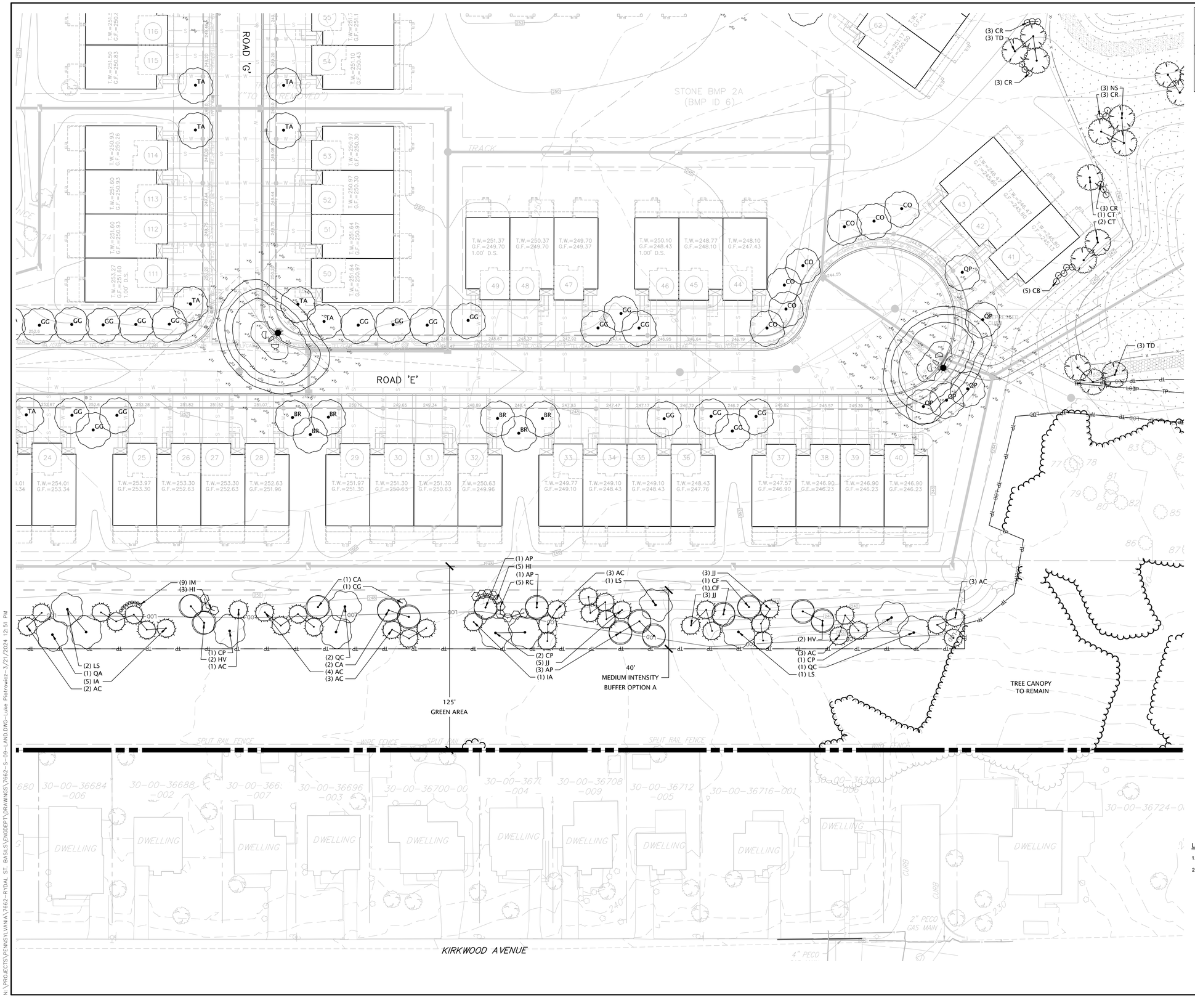

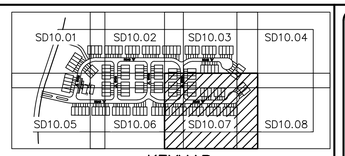

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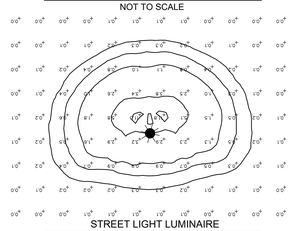

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SISTERS OF ST. BASIL

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

DATE:	SCALE: 1"= 30'
DESIGN:	DRAWN: EED
JOB NO.: 7662	FILE NAME: 7662-S-09-LAND
REF. NO.:	SD10.07
SHEET NO.:	60 OF 62

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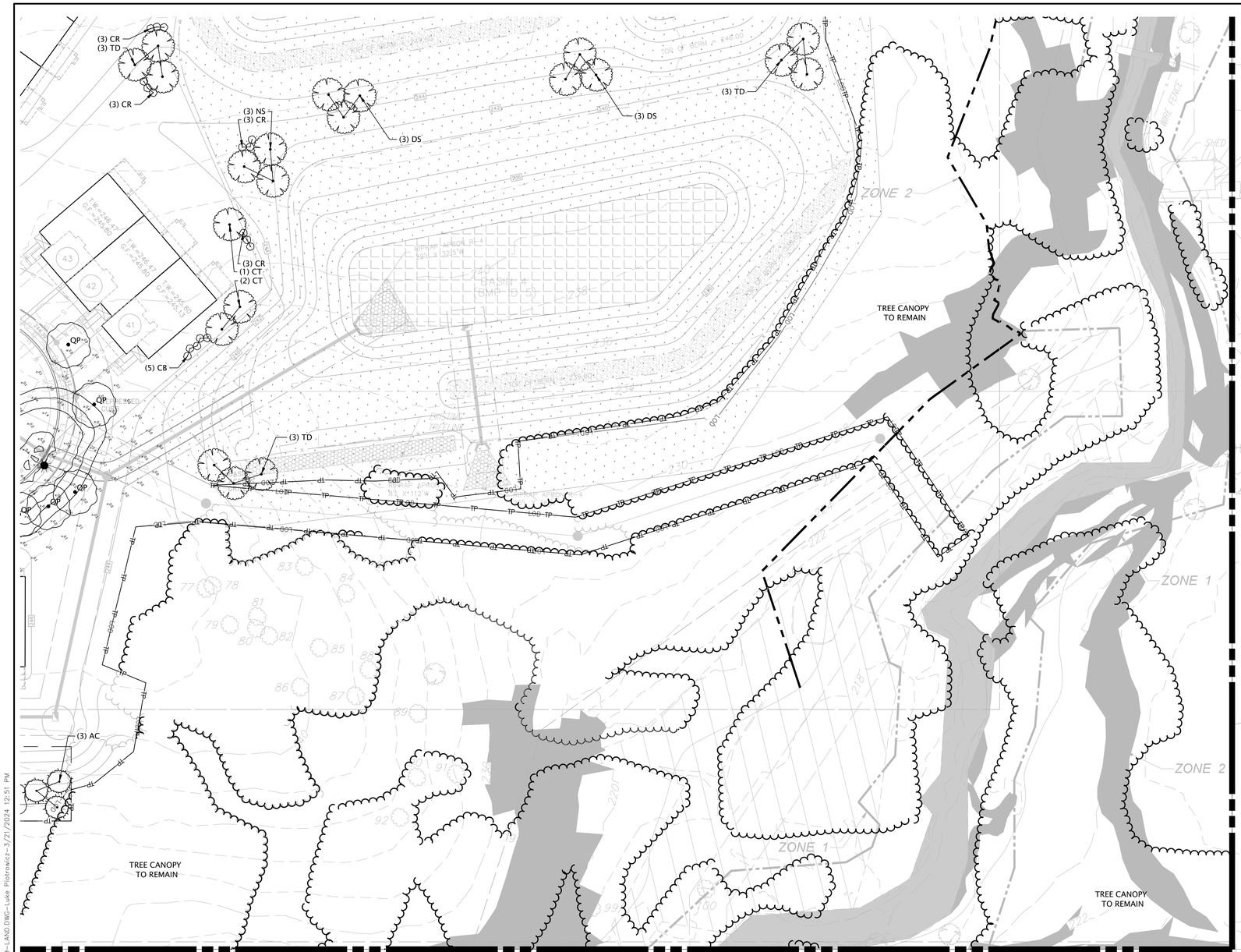

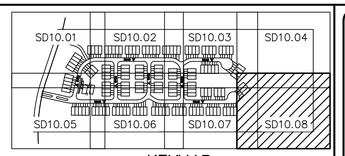

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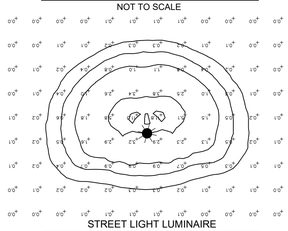

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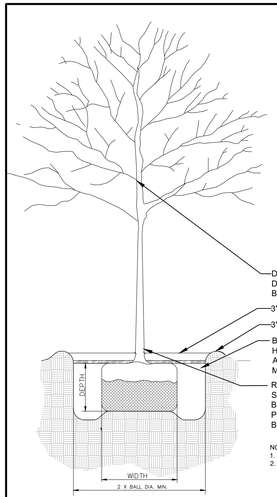
SHEET NO.:	61 OF 62

N:\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DRAWINGS\7662-S-09-LAND.DWG-Luke Piotrowicz-3/21/2024 12:51 PM



TYPE 1& 2 SHADE TREES	
CALIPER	MIN. DIA. ROOTBALL
1/2 INCH	12 INCH
3/4 INCH	14 INCH
1 INCH	16 INCH
1 1/4 INCH	18 INCH
1 1/2 INCH	20 INCH
1 3/4 INCH	22 INCH
2 INCH	24 INCH
2 1/2 INCH	28 INCH
3 INCH	32 INCH
3 1/2 INCH	38 INCH
4 INCH	42 INCH
4 1/2 INCH	48 INCH
5 INCH	54 INCH
5 1/2 INCH	57 INCH
6 INCH	60 INCH
7 INCH	70 INCH
8 INCH	80 INCH

DO NOT CUT CENTRAL LEADER. TREES WITH DAMAGED/CUT/BROKEN CENTRAL LEADERS WILL BE REJECTED.

3" MULCH WITH NO MULCH AGAINST TRUNK

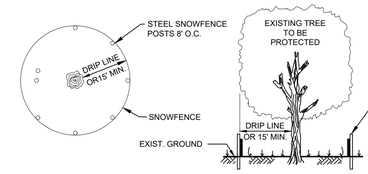
3" EARTH SAUCER

BACKFILL MIXTURE: 2 PARTS PARENT SOIL DUG FROM HOLE THAT HAS BEEN AMENDED WITH 1 PART COMPOST AND ESPOMA BIO-TONE STARTER PLUS 4-3-3, MIXED THOROUGHLY

REMOVE BURLAP FROM ENTIRE BASE. NO BURLAP SHALL BE SEEN ABOVE SOILS LINE. ROPE & TWINE TO BE REMOVED FROM PIT. CUT WIRE BASKET IN 4 PLACES, FOLD DOWN 8" INTO HOLE. TOP OF BALL TO BE LEVEL WITH GRADE. ROOT FLARE EXPOSED.

NOTE:
1. SEE CHART FOR MINIMUM ROOTBALL DIAMENTER
2. THE DEPTH OF ROOTBALL SHALL BE NO LESS THAN 60% ITS WIDTH

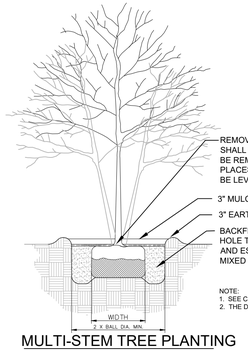
TREE PLANTING DETAIL
NOT TO SCALE



PLAN SECTION

NOTES:
1. TREE PROTECTION SHALL BE PROVIDED FOR ANY AND ALL TREES TO BE PRESERVED DURING AND AFTER CONSTRUCTION. TREE PROTECTION SHALL BE LOCATED WITHIN 25 FEET OF ANY PROPOSED DISTURBANCE.
2. WHEN FENCING HAS BEEN INSTALLED, ITS SHALL BE INSPECTED AND APPROVED BY THE TOWNSHIP PRIOR TO COMMENCING CLEARING AND FURTHER CONSTRUCTION.
3. 4' HIGH SNOWFENCE TO BE REPLACED WITH APPROPRIATELY SIZED COMPOST FILTER SOCK WHERE INDICATED ON THE PLANS, OR WHERE SITE CONDITIONS ALLOW.
4. BOARDS SHALL NOT BE NAILED TO TREES DURING CONSTRUCTION.
5. ROOTS SHALL NOT BE CUT IN AN AREA INSIDE THE DRIP LINE OF THE TREE BRANCHES.
6. TREE LIMB REMOVAL, WHERE NECESSARY, WILL BE MADE IN LINE WITH THE TRUNK COLLAR OR MAIN LIMB COLLAR, CUTS SHALL NOT BE PAINTED, AND BE PERFORMED UNDER THE IMMEDIATE SUPERVISION OF A LICENSED NURSERYMAN.

TREE PROTECTION FENCE DETAIL
NOT TO SCALE



TYPE 1, 2 &3 SPREADING, BROAD, COMPACT UPRIGHT		TYPE 4&5 PYRAMIDAL, BROAD UPRIGHT		TYPE 6 COLUMNAR	
SPREAD (TYPES 1&2) HEIGHT (TYPE 3)	MIN. DIA. BALL	HEIGHT/ CALIPER	MIN. DIA. BALL	HEIGHT/ CALIPER	MIN. DIA. BALL
9 IN.	8 IN.	12 IN.	8 IN.	12 IN.	7 IN.
12 IN.	10 IN.	15 IN.	10 IN.	15 IN.	8 IN.
15 IN.	12 IN.	18 IN.	12 IN.	18 IN.	9 IN.
18 IN.	14 IN.	24 IN.	14 IN.	24 IN.	11 IN.
24 IN.	16 IN.	30 IN.	16 IN.	30 IN.	13 IN.
30 IN.	18 IN.	3 FT.	18 IN.	3 FT.	14 IN.
36 IN.	24 IN.	4 FT.	20 IN.	4 FT.	16 IN.
42 IN.	26 IN.	5 FT.	22 IN.	5 FT.	18 IN.
4 FT.	28 IN.	6 FT.	24 IN.	6 FT.	20 IN.
5 FT.	36 IN.	7 FT.	26 IN.	7 FT.	22 IN.
5 FT.	40 IN.	8 FT.	28 IN.	8 FT.	24 IN.
7 FT.	46 IN.	9 FT. /3 IN.	32 IN.	9 FT. /2 1/2 IN.	26 IN.
8 FT.	52 IN.	3 1/2 IN.	34 IN.	3 IN.	28 IN.
		4 IN.	38 IN.	3 1/2 IN.	32 IN.
		4 1/2 IN.	42 IN.	4 IN.	36 IN.
		5 IN.	48 IN.	4 1/2 IN.	40 IN.
		5 1/2 IN.	54 IN.	5 IN.	44 IN.
		6 IN.	60 IN.	5 1/2 IN.	48 IN.
		7 IN.	72 IN.	6 IN.	54 IN.
		8 IN.	84 IN.	7 IN.	66 IN.
		9 IN.	90 IN.	8 IN.	78 IN.
				9 IN.	90 IN.

DO NOT CUT CENTRAL LEADER. TREES WITH DAMAGED/CUT/BROKEN CENTRAL LEADERS WILL BE REJECTED.

3" MULCH WITH NO MULCH AGAINST TRUNK

3" EARTH SAUCER

BACKFILL MIXTURE: 2 PARTS PARENT SOIL DUG FROM HOLE THAT HAS BEEN AMENDED WITH 1 PART COMPOST AND ESPOMA BIO-TONE STARTER PLUS 4-3-3, MIXED THOROUGHLY

REMOVE BURLAP FROM ENTIRE BASE. NO BURLAP SHALL BE SEEN ABOVE SOILS LINE. ROPE & TWINE TO BE REMOVED FROM PIT. CUT WIRE BASKET IN 4 PLACES, FOLD DOWN 8" INTO HOLE. TOP OF BALL TO BE LEVEL WITH GRADE. ROOT FLARE EXPOSED. DO NOT REMOVE LEADER OR ALIGHT BRANCHES.

NOTE:
1. SEE CHART FOR MINIMUM ROOTBALL DIAMENTER
2. THE DEPTH OF ROOTBALL SHALL BE NO LESS THAN 60% ITS WIDTH

CONIFER PLANTING DETAIL
NOT TO SCALE

REMOVE BURLAP FROM ENTIRE BASE. NO BURLAP SHALL BE SEEN ABOVE SOILS LINE. ROPE & TWINE TO BE REMOVED FROM PIT. CUT WIRE BASKET IN 4 PLACES, FOLD DOWN 8" INTO HOLE. TOP OF BALL TO BE LEVEL WITH GRADE. ROOT FLARE EXPOSED.

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NOTE:
1. SEE CHART FOR MINIMUM ROOTBALL DIAMENTER
2. THE DEPTH OF ROOTBALL SHALL BE NO LESS THAN 60% ITS WIDTH

MULTI-STEM TREE PLANTING
NOT TO SCALE

LANDSCAPE AND LIGHTING NOTES

LANDSCAPE NOTES:
1. IN THE EVENT THAT ANY DISCREPANCIES BETWEEN THE QUANTITIES OF PLANTS INDICATED ON THE PLANT SCHEDULE AND THOSE INDICATED ON THE PLAN, THE QUANTITIES INDICATED ON THE PLAN SHALL GOVERN.
2. NO SUBSTITUTIONS SHALL BE ACCEPTED, EXCEPT WITH THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT OR HIS AGENT.
3. THE LANDSCAPE ARCHITECT OR HIS AGENT SHALL BE THE SOLE JUDGE OF THE QUALITY AND ACCEPTABILITY OF THE MATERIALS. ALL REJECTED MATERIALS SHALL BE IMMEDIATELY REPLACED WITH ACCEPTABLE MATERIAL AT NO ADDITIONAL COST.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT.
5. THE TREES SHALL BE NURSERY STOCK COMPATIBLE WITH SOILS, EXISTING TREES AND CLIMATIC CONDITIONS IN THE SUBDIVISION. THEY SHALL BE SYMMETRICAL IN GROWTH, FREE OF INSECTS AND DISEASE AND SUITABLE FOR STREET PLANTINGS.
6. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS; WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE FROM DEFECTS AND INJURIES.
7. THE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITION CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.
8. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH "AMERICAN STANDARDS FOR NURSERY STOCK" ANSI 260 (MOST RECENT EDITION) AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
9. B & B PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE ROOT BALL ONLY. PLANTS WITH BROKEN, SPLIT OR DAMAGED ROOT BALLS SHALL BE REJECTED.
10. TREES SHALL BE LOCATED IN A MANNER WHICH WILL NOT OBSTRUCT ACCESS TO FIRE HYDRANT OR VISIBILITY OF STREET OR TRAFFIC SIGNS. NO TREES OR SHRUBS SHALL BE PLANTED IN A SIGHT TRIANGLE. NO TREES SHALL BE PLANTED IN ANY UTILITY OR MUNICIPAL EASEMENTS.
11. TREES SHALL BE STRUCTURALLY PRUNED, WATERED AND MULCHED ACCORDING TO ISA BEST MANAGEMENT PRACTICES UNTIL THEY ARE ESTABLISHED.
12. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITION ARE SUITABLE. SPRING PLANTING SEASON SHALL BE: MARCH 1ST TO JUNE 1ST. FALL PLANTING SEASON SHALL BE: AUGUST 15TH TO DECEMBER 15TH FOR EVERGREEN PLANTS AND SEPTEMBER 15TH TO DECEMBER 15TH, FOR DECIDUOUS PLANTS.
13. SET ALL PLANTS PLUMB AND STRAIGHT. SET AT SUCH LEVEL THAT, AFTER SETTLEMENT, A NORMAL OR NATURAL RELATIONSHIP TO THE CROWN OF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE PLANTS IN THE CENTER OF THE PLANTING PIT.
14. THE LOCATION OF ALL PLANT MATERIAL IS DIAGRAMMATIC. FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF THE LANDSCAPE ARCHITECT OR HIS AGENT.
15. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING UPON THE PERFORMANCE OF THE WORK.
16. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL FOR UTILITY LOCATIONS, IF NECESSARY AND NOTIFY ALL UTILITY COMPANIES PRIOR TO EXCAVATING PLANT PITS. PLANT LOCATIONS MAY BE ADJUSTED IN FIELD TO AVOID INTERFERENCE WITH UTILITIES.
17. SEE THE SOIL EROSION AND SEDIMENT CONTROL PLAN FOR ALL TURF SPECIFICATIONS.
18. INDIVIDUAL LOT LANDSCAPING SHALL BE PLANTED PRIOR TO THE ISSUANCE OF A USE AND OCCUPANCY PERMIT.
19. GUARANTY: ALL LANDSCAPING REQUIRED UNDER THIS SECTION AND THE PROVISIONS OF THE ZONING CODE SHALL BE GUARANTEED BY THE SUBDIVIDER/LAND DEVELOPER OR BUILDER FOR A PERIOD OF ONE YEAR AFTER THE TOWNSHIP HAS ISSUED AN OCCUPANCY PERMIT FOR THE PROPERTY. IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER/LAND DEVELOPER OR BUILDER TO PROTECT, MAINTAIN AND FEED (IF NECESSARY) BOTH NEWLY PLANTED AND EXISTING PLANT MATERIALS DURING THIS PERIOD TO ENSURE THAT PLANTS ARE ALIVE AND HEALTHY. AN INSPECTION SHALL BE MADE BY THE TOWNSHIP AT THE END OF THE ONE-YEAR PERIOD; ANY PLANT MATERIALS UNACCEPTABLE AT THE TIME OF INSPECTION SHALL BE REPLACED IN ORDER TO SATISFY THE LANDSCAPING REQUIREMENTS OF THIS SECTION AND THE ZONING CODE.
20. TREE PROTECTION DURING CONSTRUCTION: TREE PROTECTION AREAS SHALL BE DELINEATED TO IMPLEMENT THE STANDARDS CONTAINED IN THE TOWNSHIP ZONING ORDINANCE AND THIS ORDINANCE REGARDING PRESERVATION OF TREES, WOODLANDS, AND FORESTS DURING THE DEVELOPMENT AND CONSTRUCTION PROCESS.
21. TREE PROTECTION AREA: AN AREA THAT IS RADIAL TO THE TRUNK OF A TREE. THE TREE PROTECTION AREA SHALL BE 15 FEET FROM THE TRUNK OF THE TREE TO BE RETAINED, OR THE DISTANCE FROM THE TRUNK TO THE DRIP LINE (THE LINE MARKING THE OUTER EDGE OF THE BRANCHES OF THE TREE) WHICHEVER IS GREATER. WHERE THERE IS A GROUP OF TREES OR WOODLANDS, THE TREE PROTECTION AREA SHALL BE THE AGGREGATE OF THE PROTECTION AREAS FOR THE INDIVIDUAL TREES.

LIGHTING NOTES:
22. POST APPROVAL ALTERATIONS TO LIGHTING PLANS, OR INTENDED SUBSTITUTIONS FOR APPROVED LIGHTING EQUIPMENT, SHALL BE SUBMITTED TO TOWNSHIP FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
23. TOWNSHIP RESERVES THE RIGHT TO CONDUCT A POST-INSPECTION OF LIGHTING TO VERIFY COMPLIANCE WITH APPROVED-PLAN COMMITMENTS, AND IF APPROPRIATE, TO REQUIRE REMEDIAL ACTION AT NO EXPENSE TO TOWNSHIP.

BASIN SEED MIX

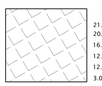
BASIN SIDE SLOPE
(±176,335 SF)

ERNST SEED MIX 183 (OR APPROVED EQUAL)
20 LB PER ACRE OR 1/2 LB PER 1,000 SF)
Mix Composition
36.0% Panicum clandestinum, 'Tioga' (Deertongue)
20.0% Carex vulpinoidea, PA Ecotype(Fox Sedge, PA Ecotype)
20.0% Elymus virginicus, PA Ecotype (Virginia Wildrye, PA Ecotype)
20.0% Panicum virgatum, 'Shawnee' (Switchgrass)
2.0% Juncus tenuis, PA Ecotype (Path Rush, PA Ecotype)
1.0% Juncus effusus (Soft Rush)
1.0% Panicum rigidulum, PA Ecotype (Redtop Panicgrass)
Total: 100%

BASIN BOTTOM - LOW MAINTENANCE
(±26,265 SF)

ERNST SEED MIX 126 (OR APPROVED EQUAL)
20-40 LB PER ACRE OR 1LB PER 1,000 SF)
Mix Composition
25% Redtop Panicgrass, PA Ecotype (Panicum rigidulum (F. stipitatum), PA Ecotype)
16% Virginia Wildrye, PA Ecotype (Elymus virginicus, PA Ecotype)
16% Alkaligrass, 'Fults' (Puccinellia distans, 'Fults')
15% Fowl Bluegrass (Poa palustris)
10% Creeping Bentgrass (Agrostis stolonifera)
7% Redtop Bentgrass (Agrostis gigantea), PA Ecotype (Agrostis scabra, PA Ecotype)
5% Soft Rush (Juncus effusus)
2% Autumn Bentgrass, PA Ecotype (Agrostis perennans, PA Ecotype)
1% Path Rush, PA Ecotype (Juncus tenuis, PA Ecotype)
Total: 100% - See more at: http://www.ernstseed.com

DETENTION BASIN BOTTOM
(±32,925 SF)

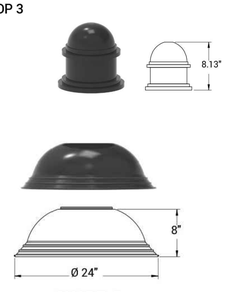


ERNST SEED MIX 122 (OR APPROVED EQUAL)
20 LB PER ACRE OR 1/2 LB PER 1,000 SF)

21.0% CAREX VULPINOIDEA, PA ECOTYPE (FOX SEDGE, PA ECOTYPE)
20.0% ELYMUS VIRGINICUS, PA ECOTYPE (VIRGINIA WILDRYE, PA ECOTYPE)
16.0% CAREX LURIDA, PA ECOTYPE (LURID SEDGE, PA ECOTYPE)
12.0% CAREX LUPULINA, PA ECOTYPE (HOP SEDGE, PA ECOTYPE)
12.0% CAREX SCOPARIA, PA ECOTYPE (BLUNT BROOM SEDGE, PA ECOTYPE)
3.0% VERBENA HASTATA, PA ECOTYPE (BLUE VERVAIN, PA ECOTYPE)
2.4% ASCLEPIAS INCARNATA, PA ECOTYPE (SWAMP MILKWEED, PA ECOTYPE)
2.0% JUNCUS EFFUSUS (SOFT RUSH)
2.0% ZIZIA AUREA, PA ECOTYPE (GOLDEN ALEXANDERS, PA ECOTYPE)
1.6% ASTER NOVAE-ANGLIAE, PA ECOTYPE (NEW ENGLAND ASTER, PA ECOTYPE)
1.3% CAREX STIPATA, PA ECOTYPE (AWL SEDGE, PA ECOTYPE)
1.0% BIDENS CERNUA, PA ECOTYPE (NODDING BUR MARIGOLD, PA ECOTYPE)
1.0% JUNCUS TENUIS, PA ECOTYPE (PATH RUSH, PA ECOTYPE)
0.8% SOLIDAGO RUGOSA, PA ECOTYPE (WRINKLELEAF GOLDENROD, PA ECOTYPE)
0.6% VERBENA URTICIFOLIA, PA ECOTYPE (WHITE VERVAIN, PA ECOTYPE)
0.5% CAREX CRINITA, PA ECOTYPE (FRINGED SEDGE, PA ECOTYPE)
0.5% EUPATORIUM PERFOLIATUM, PA ECOTYPE (BONESET, PA ECOTYPE)
0.5% HELENIUM AUTUMNALE, PA ECOTYPE (COMMON SNEEZEWEED, PA ECOTYPE)
0.5% MIMULUS RINGENS, PA ECOTYPE (SQUARE STEMMED MONKEYFLOWER, PA ECOTYPE)
0.3% LOBELIA SIPHILITICA, PA ECOTYPE (GREAT BLUE LOBELIA, PA ECOTYPE)
0.3% SCIRPUS CYPERINUS, PA ECOTYPE (WOOLGRASS, PA ECOTYPE)
0.2% ALISMA SUBCORDATUM, PA ECOTYPE (MUD PLANTAIN, PA ECOTYPE)
0.2% ASTER PUNICEUS, PA ECOTYPE (PURPLESTEM ASTER, PA ECOTYPE)
0.2% ASTER UMBELLATUS, PA ECOTYPE (FLAT TOPPED WHITE ASTER, PA ECOTYPE)
0.1% PENTHORUM SEDOIDES, PA ECOTYPE (DITCH STONECROP, PA ECOTYPE)
TOTAL:100%

NLS LIGHTING, LLC CAL-1 PEDESTRIAN LUMINARIES, RSAP POLE, AND DPB-500 POLE BASE (OR APPROVED EQUAL)

TOP 3



SHADE 5

CAL-1	TP3	S5	T3	48L	53	30K8	UNV	AM	BLK	
Cat#	**Top**	**Shade**	**Light Dist.**	**# of LEDs**	**Milliamps**	**Kelvin**	**Volts**	**Mounting**	**Color**	**Options**
California 1 25' Diameter **(CAL-1)**	Top 1 **(TP1)** Top 2 **(TP2)** Top 3 **(TP3)**	Shade 1 **(S1)** Shade 2 **(S2)** Shade 4 **(S4)** Shade 5 **(S5)** Shade 6 **(S6)** Shade 7 **(S7)** Shade 8 **(S8)**	Type 2 **(T2)** Type 3 **(T3)** Type 4 **(T4)** Type 5 **(T5)**	32 **(32L)** 48 **(48L)** 64 **(64L)**	350 **(35)** ❶ 530 **(53)** ❶ 700 **(7)** 1050 **(1)**	2700K, 80 CRI **(27K8)** ❶ ❷ 3000K, 70 CRI **(30K7)** ❶ 3000K, 80 CRI **(30K8)** ❶ ❷ 3500K, 80 CRI **(35K8)** ❶ 4000K, 70 CRI **(40K7)** 4000K, 80 CRI **(40K8)** ❶ 5000K, 70 CRI **(50K7)** 5000K, 80 CRI **(50K8)** ❶	120-277 **(UNV)** 347-480 **(HV)**	Arm Mount **(AM)** ❶ Wall Mount **(WM)** ❶	Bronze Textured **(BRZ)** White Textured **(WHT)** Smooth White Gloss **(SWT)** Silver **(SVR)** Black Textured **(BLK)** Smooth Black Gloss **(SBK)** Graphite Textured **(GPH)** Grey Textured **(GRY)** Custom **(CS)**	House Side Shield **(HSS)** Bird Spikes **(BS)** Photocell **(PC)** ❶ Nema 7-Pin Receptacle **(PE7)** ❶ Photocell + Receptacle **(PCR)** ❶ Receptacle + Shorting Cap **(PER)** ❶ FSP-211 with Motion Sensor **(FSP-X)** ❶ *XI- and Below **(FSP-20)** ❶ *19'-20' Heights **(FSP-40)** ❶ *21'-40' Heights Frosted Lens **(FL)** ❶ Marine Grade Finish **(MGF)**

Notes:
❶ 48L-64L Only
❷ Consult Factory for Lead Time. Consult Factory for 90 CRI Requests.
For Arm Mount, please select an Architectural Arm (AA) separately.
Universal Voltage 120-277
Only compatible with Arm Mount Arch Arms: 2, 3, 7-11, 13-18
48L option only, using IK-10 rated Silicone Optics
3000K or warmer must be selected to meet International Dark-Sky Association certification.
For Wall Mount, please select an Architectural arm (AA) separately.

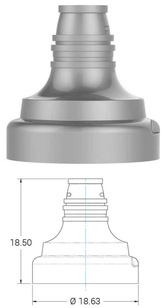
REV. 10.04.22

1

ALL STREET LIGHTS SHALL HAVE MOTION CONTROLLED DYNADIMMERS AND SHALL BE PROGRAMMED TO DIM LIGHTING TO 25% BETWEEN THE HOURS OF 11PM TO 6AM. FULL LIGHT OUTPUT MODE WHEN MOTION DETECTION OCCURS, RETURNING TO 25% OUTPUT AFTER 5 MINUTES OF NO MOTION. (OR TOWNSHIP APPROVED EQUAL)

STREET LIGHT DETAIL (QTY:11)
NOT TO SCALE

NLS LIGHTING, DPB-500-4R-BLK POLE BASE (OR APPROVED EQUAL)



LIGHT POLE BASE DETAIL
NOT TO SCALE

STREET TREE PLANT SCHEDULE

2402.B.2.c. STREET TREES = 9,195 LF /40 = 230 TREES REQUIRED
146-39.B.(3)[2] >10 PARKING SPACES = 1 TREE REQUIRED

STREET TREES	QUANTITY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE
AR	50	ACER RUBRUM 'AUTUMN RED'	AUTUMN RED MAPLE	B & B	3"-3.5" CAL. *
BR	21	BETULA NIGRA	RIVER BIRCH	B & B	10` MIN. HT.
CO	41	CARPINUS CAROLINIANA 'ORANGE CRUSH'	ORANGE CRUSH AMERICAN HORNBEAM	B & B	2" CAL.
GG	40	GLEDITSIA TRIACANTHOS 'GREEN GLORY'	GREEN GLORY HONEY LOCUST	B & B	3"-3.5" CAL. *
QP	44	QUERCUS PHELLOS	WILLOW OAK	B & B	3"-3.5" CAL. *
TA	35	TILIA AMERICANA	AMERICAN LINDEN	B & B	2" CAL.
TOTAL REQUIRED	**231**				
TOTAL PROPOSED	**231**	*REPLACEMENT TREES FROM CALCULATION OF SECTION 2401.A.2.d.(1)(a)			

40' MEDIUM INTENSITY BUFFER OPTION "A" PLANT SCHEDULE

2403.B.4.a.[2][A] BUFFERS AND SCREENS / MEDIUM INTENSITY BUFFER: PER 100 LF = 3,480 LF
SHADE 35.0 (2 TREES) = 70 TREES, FLOWERING 35.0 (2 TREES) = 70 TREES,
EVERGREEN 35.0 (5 TREES) = 175 TREES, SHRUBS 35.0 (5 SHRUBS) = 175 SHRUBS

BUFFER CANOPY TREES	QUANTITY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE
CP	18	CELTIS OCCIDENTALIS 'PRAIRIE HARVEST'	PRAIRIE HARVEST HACKBERRY	B & B	2" CAL.
LS	15	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	B & B	2" CAL.
QA	17	QUERCUS ALBA	WHITE OAK	B & B	2" CAL.
QC	20	QUERCUS COCCINEA	SCARLET OAK	B & B	2" CAL.
TOTAL REQUIRED	**70**				
TOTAL PROPOSED	**70**				
BUFFER EVERGREEN TREES	**QUANTITY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT.**	**SIZE**
AC	78	ABIES CONCOLOR	WHITE FIR	B & B	8` MIN. HT.
IA	30	ILEX OPACA	AMERICAN HOLLY	B & B	8` MIN. HT.
JJ	67	JUNIPERUS COMMUNIS	COMMON JUNIPER	B & B	8` MIN. HT.
TOTAL REQUIRED	**175**				
TOTAL PROPOSED	**175**				
BUFFER UNDERSTORY TREES	**QUANTITY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT.**	**SIZE**
AP	20	AMELANCHIER X GRANDIFLORA 'PRINCESS DIANA'	PRINCESS DIANA APPLE SERVICEBERRY	B & B	1 1/2" MIN. CAL.
CA	17	CERCIS CANADENSIS 'ALLEY CAT'	ALLEY CAT EASTERN REDBUD	B & B	1 1/2" MIN. CAL.
CF	17	CORNUS FLORIDA 'FIRST LADY'	FIRST LADY DOGWOOD	B & B	1 1/2" MIN. CAL.
HV	16	HAMAMELIS VIRGINIANA	COMMON WITCH HAZEL	B & B	1 1/2" MIN. CAL.
TOTAL REQUIRED	**70**				
TOTAL PROPOSED	**70**				
BUFFER SHRUBS	**QUANTITY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT.**	**SIZE**
BG	39	BUXUS X 'GREEN MOUNTAIN'	GREEN MOUNTAIN BOXWOOD	CONT.	24" MIN HT.
CG	36	CORNUS RACEMOSA	GRAY DOGWOOD	CONT.	24" MIN HT.
HI	30	HYDRANGEA ARBORESCENS 'KOLPINBEL'	PINKERELLA™ HYDRANGEA	CONT.	24" MIN HT.
IM	35	ITEA VIRGINICA 'MORNING STAR'	MORNING STAR SWEETSPIRE	CONT.	24" MIN HT.
RC	35	RHODODENDRON CATAWBIENSE 'CAPISTRANO'	YELLOW FLOWERED RHODODENDRON	CONT.	24" MIN HT.
TOTAL REQUIRED	**175**				
TOTAL PROPOSED	**175**				

CLUBHOUSE FOUNDATION PLANT SCHEDULE

CLUBHOUSE FOUNDATION	QUANTITY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE
CR2	6	CORNUS X 'RUTGAN'	STELLAR PINK® DOGWOOD	B & B	1 1/2" MIN. CAL.
HA	18	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE HYDRANGEA	CONT.	24" MIN HT.
II	37	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	CONT.	24" MIN HT.
RC2	4	RHODODENDRON CATAWBIENSE 'CAPISTRANO'	YELLOW FLOWERED RHODODENDRON	CONT.	24" MIN HT.
TOTAL PROPOSED	**65**				

SITE ELEMENT SCREEN PLANT SCHEDULE

SITE ELEMENT SCREEN	QUANTITY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE
TO	56	THUJA OCCIDENTALIS	AMERICAN ARBORVITAE	B & B	6` MIN. HT

BASIN PLANT SCHEDULE

BASIN TREES	QUANTITY	BOTANICAL NAME	COMMON NAME	CONT.	SIZE
DS	14	AMELANCHIER ARBOREA	DOWNY SERVICEBERRY	B & B	2" CAL.
CT	15	CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CYPRESS	B & B	8` MIN. HT.
NS	9	NYSSA SYLVATICA	TUPELO	B & B	2" CAL.
TD	18	TAXODIUM DISTICHUM	BALD CYPRESS	B & B	8` MIN. HT.
TOTAL PROPOSED	**56**				
BASIN SHRUBS	**QUANTITY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT.**	**SIZE**
CR	35	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	CONT.	24" MIN HT.
CB	29	CORNUS SERICEA 'BAILEYI'	BAYLEY'S RED TWIG DOGWOOD	CONT.	24" MIN HT.
IG	5	ILEX GLABRA	INKBERRY HOLLY	CONT.	24" MIN HT.
TOTAL PROPOSED	**69**				

TREE REPLACEMENT REQUIREMENTS

SECTION 2401.A.2.d.(1)(a)
TREE REPLACEMENT SHALL OCCUR WHEN NEW IMPERVIOUS COVERAGE EXCEEDS 500 S.F. AND A TREE WITH A MINIMUM CALIPER OF SIX INCHES IS REMOVED. IN SUCH CASES, TWO NEW TREES, EACH A MINIMUM OF 3"-3.5" CALIPER, MEASURED 6" ABOVE GRADE, SHALL BE PLANTED FOR EACH TREE WITH A MINIMUM CALIPER OF 6" OR GREATER THAT IS REMOVED.

67 TREES REMOVED @ >6" CALIPER x 2 REPLACEMENT TREES = 134 REPLACEMENT TREES REQUIRED
134 REPLACEMENT TREES PROVIDED

RSAP ORDERING GUIDE

Cat#	Height	Pole Dimension	Gauge	Base Pattern
RSAP Round Straight Aluminum Pole **(RSAP)**	10' **(10)** 12' **(12)** 14' **(14)** 16' **(16)** 18' **(18)** 20' **(20)** 22' **(22)** 24' **(24)** 25' **(25)**	4" Round **(4R)** 5" Round **(5R)** 6" Round **(6R)**	120 Wall Thickness **(120)** ❶ 160 Wall Thickness **(160)** 250 Wall Thickness **(250)**	9BC (10'-20') 8 3/16" TO 9 3/16" Bolt Circle **(9BC)** (22'-Over) 11 1/2"- 14" Bolt Circle **(13BC)** Custom Bolt Circle **(CBC)** * Consult Factory

Mounting	Color	Bolts	Options
SGL Single **(SGL)** D-180 D-180 **(D-180)** Triple T-90 **(T-90)** Quad QD **(QD)** No Drill ND **(ND)** *Tenon Option **Tenon** 2 3/8" Round **(T2R)** 3" Round **(T3R)** 3 1/2" Round **(T312R)** 4 1/2" Round **(T412R)**	Bronze Textured **(BRZ)** White Textured **(WHT)** Smooth White Gloss **(SWT)** Silver **(SVR)** Green Textured **(GRN)** Hunter Green Textured **(HGN)** Black Textured **(BLK)** Smooth Black Gloss **(SBK)** Graphite Textured **(GPH)** Grey Textured **(GRY)** Custom **(CS)**	3430 3/4" x 30" **(3430)** 1" x 36" **(1836)** Less Anchor Bolts **(LAB)**	GFI-K9 **(GFI20A)** GFI-Key *Weather Proof Receptacle GFI Provision Only **(PROV)** Round Base Cover **(RBC)** 1/2" Coupling **(COUP)** * Specify Location Vibration Dampener **(VD)** Extra Hand Hole **(3HH)** * Specify Location Marine Grade Finish **(MGF)** Anodized Under Powder **(AUP)**

Notes:
❶ 120 Wall Thickness only available in Poles 16' or shorter.
Pole Dimension of 6" not available with 120 Wall Thickness.

NLS L

ESE CONSULTANTS
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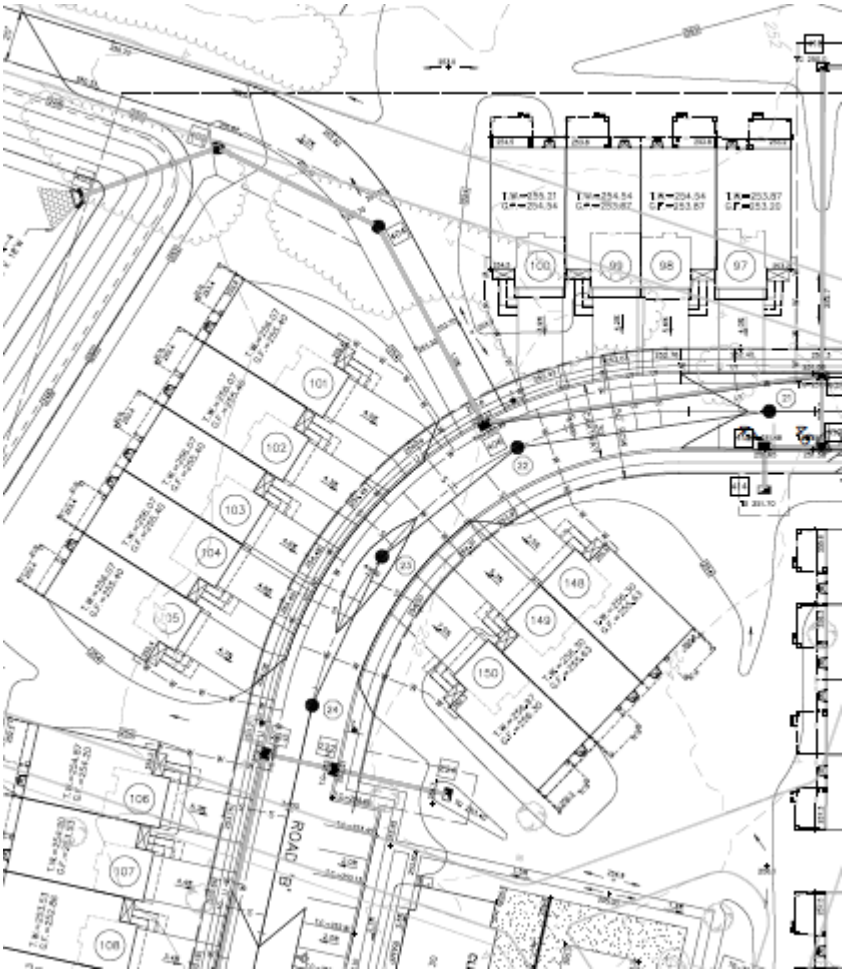
NPDES NARRATIVE

FOR

SISTERS OF ST. BASIL



LOCATED IN:

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, STATE OF PENNSYLVANIA

Jeffrey M. Madden
Professional Engineer
Pennsylvania License No.
PE 070760

July 2023
L.R. March 2024

Associated plans and documents:

- Preliminary Major Subdivision Plans –dated March 23, 2023, last revised October 13, 2023
- Erosion and Sediment Control Plans – dated July 17, 2023, last revised March 18, 2024
- Post Construction Stormwater Management Plans – dated July 17, 2023, last revised March 18, 2024
- Stormwater Management Narrative – dated July 2023, last revised March 2024
- Erosion and Sediment Control Narrative – dated July 2023, last revised March 2024

I

Site Information

Location and Surrounding Uses

Sisters of St. Basils in Abington Township, Montgomery County, PA consists of 46.37 acres located in the CS Community Service District and within the Age-Restricted Carriage Home Overlay District. The tract is also known as tax parcel numbers 30-00-22424-00-1 and 30-00-22420-00-5.

The Unnamed Tributary to Pennypack Creek passes within the northeastern portion of the property. The property is bounded to the south by Fox Chase Road, to the west by Forrest Ave (residential), to the east by Kirkwood Avenue (residential), and to the south by Sulfolk Road (residential).

The Zoning Ordinance permits the development of land located in the CS District and within the Age-Restricted Carriage Home Overlay District to include the construction of single-family attached dwellings. This design proposes 150 single-family attached townhomes with 12.9 acres of open space, 32.30 ac of disturbance, and an NPDES site boundary of 46.58 acres.

The site is located within District B of the Pennypack Creek Watershed and within District B of the Tookany/Tacony-Frankford Creek Watershed.

There are seven (7) study points for stormwater runoff noted within this report as Drainage Area A through Drainage Area G. Furthermore, the site is designed with a total of ten (10) discharge points noted within this report as DP001 through DP010.

Existing Conditions

The site contains natural resource areas such as steep slopes, waters of the U.S., preliminary federally regulated wetlands, and mature trees. Existing contours range in elevation from 210 to 260.

The existing topography is generally the highest at the center of the site and then slopes down in all directions. Most of the site ultimately draining towards the Tributary to Pennypack Creek to the north and the existing residential lots along Forrest Avenue to the west, and along Kirkwood Avenue to the east. The remainder of the site drains from the center of the site to the south and ultimately discharging into Fox Chase Road. The property consists of a school, parking lot, track and field facility, meadows and woodlands. Impervious areas include portions of Fox Chase Road.

Stormwater Management

Infiltration is proposed on the site due to good preliminary soil testing performed on the site. To provide for water quality on-site and provide infiltration to meet delta 2 requirements, the BMPs selected for the site are as follows: Three Infiltration Basins, Two Dry Extended Detention Basin, and One Subsurface Infiltration Bed.

To calculate the Delta 2 Volume that is required to be infiltrated, the DEP PCSM Spreadsheets were used. Since the site lies in both the Tookany/Tacony-Frankford Creek Watershed and the Pennypack Creek Watershed, two DEP PCSM Spreadsheets were calculated.

Per the Volume tab on the DEP PCSM Spreadsheet, the 2-year volume increase equals 41,322 cuft for the Tookany/Tacony-Frankford Creek Watershed.

Per the Volume tab on the second DEP PCSM Spreadsheet, the 2-year volume increase equals 63,038 cuft for the Pennypack Creek Watershed.

The total volume increase for the site, (51.07 acres in Pre- and Post Development) equals 104,360 cuft.

Below are the required volumes for the two watersheds calculated by using the two DEP PCSM Spreadsheets.

Tookany/Tacony-Frankford Creek Watershed Pre-dev 2-year volume = 31,150 cubic-feet
Tookany/Tacony-Frankford Creek Watershed Post dev 2-year volume = 72,472 cubic-feet

Tookany/Tacony-Frankford Creek Watershed; 2-year WQv to be treated = **41,322** cubic-feet

Pennypack Creek Watershed Pre-dev 2-year volume = 86,459 cubic-feet
Pennypack Creek Watershed Post dev 2-year volume = 149,497 cubic-feet

Pennypack Creek Watershed; 2-year WQv difference = **63,038** cubic-feet
Overall 2-year WQv difference = ***104,360*** cubic-feet

Design Infiltration Rates

Basin 1:
Tested Infiltration Rate: 1.49 in/hr
Design Infiltration Rate w/ FOS: 1.49 / 2 = 0.75 in/hr
DEP PCSM Spreadsheet Rate: 0.75 * 0.9 = 0.67 in/hr
Bottom Surface Area: 10,750 sf
Basin 1 Design Rate = 10,750 * 0.67 / 12 / 60 / 60 = 0.17 cfs/s

Basin 2:
Tested Infiltration Rate: 2.87 in/hr
Design Infiltration Rate w/ FOS: 2.87 / 2 = 1.44 in/hr
DEP PCSM Spreadsheet Rate: 1.44 * 0.9 = 1.29 in/hr
Bottom Surface Area: 6,500 sf
Basin 2 Design Rate = 6,500 * 1.29 / 12 / 60 / 60 = 0.19 cfs/s

Stone BMP 2A:
Tested Infiltration Rate: 5.6 in/hr
Design Infiltration Rate w/ FOS: 5.6 / 2 = 2.8 in/hr
DEP PCSM Spreadsheet Rate: 2.8 * 0.9 = 2.52 in/hr
Bottom Surface Area: 9,900 sf
Stone BMP 2A Design Rate = 9,900 * 2.52 / 12 / 60 / 60 = 0.58 cfs/s

Basin 3B:
Tested Infiltration Rate: 1.28 in/hr
Design Infiltration Rate w/ FOS: 1.28 / 2 = 0.64 in/hr
DEP PCSM Spreadsheet Rate: 0.64 * 0.9 = 0.58 in/hr
Bottom Surface Area: 8,470 sf
Basin 3B Design Rate = 8,470 * 0.58 / 12 / 60 / 60 = 0.11 cfs/s

Detention Basin Tc Calculations

The Tc calculations for all basins use information from the Storm Sewer System tabulations. For basins 1, 2, 3A, 3B and Stone BMP 2A the actual sheet flow time, as calculated using TR-55, has been used. For basin 1 this is 12.8 minutes, for basin 2 this is 19.8 minutes, for basin 3A this is 13.8 minutes, for basin 3B this is 5.0 minutes. For Stone BMP 2A this is 12.1 minutes. For the pipe flow section, the Storm Sewer pipe run time was used. This time was calculated by taking the total system time minus the user entered 5-minute inlet time.

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*Item 16 -Not required as the DEP PCSM Spreadsheets are used

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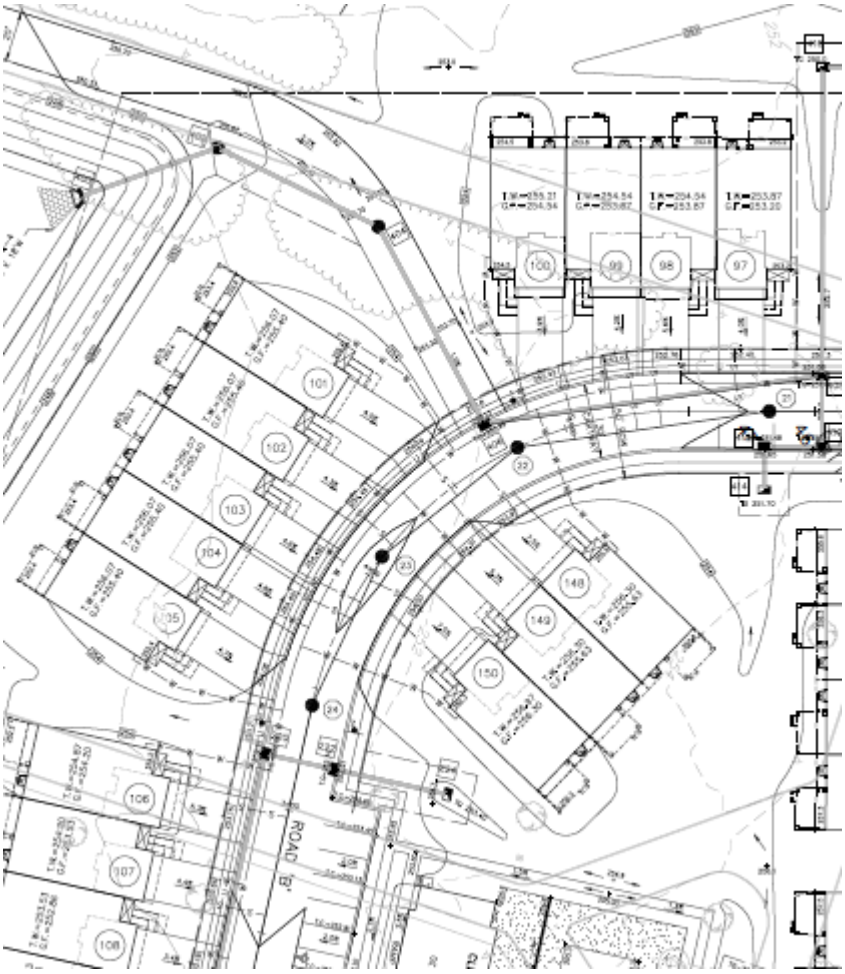
STORMWATER MANAGEMENT NARRATIVE

FOR

SISTERS OF ST. BASIL



LOCATED IN:

ABINGTON TOWNSHIP, MONTGOMERY COUNTY, STATE OF PENNSYLVANIA

Jeffrey M. Madden
Professional Engineer
Pennsylvania License No.
PE 070760

July 2023
L.R. March 2024

Associated plans and documents:

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I

Site Information

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The site is located within District B of the Pennypack Creek Watershed and within District B of the Tookany/Tacony-Frankford Creek Watershed.

There are seven (7) study points for stormwater runoff noted within this report as Drainage Area A through Drainage Area G. Furthermore, the site is designed with a total of ten (10) discharge points noted within this report as DP001 through DP010.

Existing Conditions

The site contains natural resource areas such as steep slopes, waters of the U.S., preliminary federally regulated wetlands, and mature trees. Existing contours range in elevation from 210 to 260.

The existing topography is generally the highest at the center of the site and then slopes down in all directions. Most of the site ultimately draining towards the Tributary to Pennypack Creek to the north and the existing residential lots along Forrest Avenue to the west, and along Kirkwood Avenue to the east. The remainder of the site drains from the center of the site to the south and ultimately discharging into Fox Chase Road. The property consists of a school, parking lot, track and field facility, meadows and woodlands. Impervious areas include portions of Fox Chase Road.

Soil Types and Limitations

The soils information for the project is found on the 'Natural Resources Conservation Service" on the "Web Soil Survey, http://websoilsurvey.nrcs.usda.gov". The Soil Survey Area is Montgomery County, PA and the Survey Area Data is Version 16, September 1, 2021.

The following soil types are found on the site:

Soil Type	Symbol	Soil Group
Genelg silt loam, 3 to 8 percent slopes	GnB	B
Glenville silt loam, somewhat poorly drained, 0 to 3 percent slopes	GsA	C/D
Glenville silt loam, 3 to 8 percent slopes	GsB	B/C
Hatboro silt loam	Ha	B/D
Manor loam, 3 to 8 percent slopes	MaB	B
Manor loam, 8 to 15 percent slopes	MaC	B
Manor loam, 15 to 25 percent slopes	MaD	C
Udorthents, schist and gneiss, 0 to 8 percent slopes	UdsB	C
Urban land, 0 to 8 percent slopes	UgB	
Urban land-Udorthents, schist and gneiss complex, 0 to 8 percent slopes	UugB	

SOIL TYPE	DESCRIPTION	HYDROLOGIC GROUP	RATING	RATING REASON BLDGS W/ BASEMENTS
GnB	GENELG SILT LOAM, 3 TO 8 PERCENT SLOPES	B	NOT LIMITED	
GsA	GLENVILLE SILT LOAM, SOMEWHAT POORLY DRAINED, 0 TO 3 PERCENT	C/D	VERY LIMITED	DEPTH TO SATURATED ZONE, PONDING
GsB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	B/C	VERY LIMITED	DEPTH TO SATURATED ZONE, PONDING
Ha	HATBORO SILT LOAM	B/D	VERY LIMITED	DEPTH TO SATURATED ZONE, FLOODING
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	NOT LIMITED	
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	SOMWHAT LIMITED	SLOPE
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	C	VERY LIMITED	DEPTH TO HARD BEDROCK, DEPTH TO SOFT BEDROCK,
UdsB	UDORTHENTS, SCHIST AND GNEISS, 0 TO 8 PERCENT SLOPES	C	SOMWHAT LIMITED	DEPTH TO SATURATED ZONE, SHRINK-SWELL
UgB	URBAN LAND, 0 TO 8 PERCENT SLOPES		NOT RATED	
UugB	URBAN LAND-UDORTHENTS, SCHIST AND GNEISS COMPLEX, 0 TO 8 PERCENT		NOT RATED	

II

Hydrology

Stormwater Management Design Criteria

The Stormwater Management Plan described herein has been designed according to the following publications and criteria:

- Abington Township Stormwater Management Ordinance 2100 Article III and Article IV
- Abington Township Code, Part II General Legislation, Chapter 142 Stormwater Management
- Abington Township Code, Part II General Legislation, Chapter 146 Subdivision and Land Development
- Pennsylvania Stormwater Best Management Practices Manual – Final Draft -April 2006,
- "Urban Hydrology for Small Watersheds" (Technical Release No. 55), published by the United States Department of Agriculture, Soil Conservation Service, dated June 1986.

Peak Runoff Rate Control

Per, the Abington Township Code, Chapter 142-Stormwater Management Section 142-401.M, the rainfall intensities for these events are taken from NOAA Chapter 14 as 2.74, 3.31, 4.18, 4.92, 6.00, 6.92, and 7.93 inches for the 1, 2, 5, 10, 25, 50 and 100- year events, respectively.

Section 142-409.A.8 and Section 142-409.B.6 from the Abington Stormwater Management Chapter 142 states that the reduction only applies to the disturbed areas. In order to account for the non-disturbed areas, an "Allowable Post Developed Flows" chart was setup. The allowable flows have been calculated by using the 1-year pre-developed design flow multiplied with the percentage UN-disturbed of the shed. That number is then added to the product of the 2-year frequency storm multiplied by the percent disturbed of the shed. As an example:
(Q-1-pre x % disturbed) + (Q-2-pre x % undisturbed) = Q-2 post-allowable.

The site is located within District B of the Pennypack Creek Watershed and within District B of the Tookany/Tacony-Frankford Creek Watershed. Therefore, per Section 142-409.A.7 each subarea must meet each management district criteria.

The reductions shown in the tables below have been applied to and achieved for the overall site.

Per Section 142-409 Table 409.1T:
Peak Rate Control Standards by Stormwater Management District in the Tookany/Tacony-Frankford Creek Watershed, District B:

Post Construction Storm	Pre-Construction Storm for new development
2-year	1-year
5-year	2-year
10-year	5-year
25-year	10-year
50-year	25-year
100-year	100-year

The *'St. Basils – Watershed Summaries'* table, included in the appendix section, summarizes the peak runoff rates and reductions for each point of interest in the Tookany/Tacony-Frankford Creek Watershed (POI A, B, C). As demonstrated in the table, the post-developed peak rate has been reduced per the above requirement at all study points.

Per Section 142-409 Table 409.1P:
Peak Rate Control Standards by Stormwater Management District in the Pennypack Creek Watershed, District B:

Post Construction Storm	Pre-Construction Storm for new development
2-year	1-year
5-year	2-year
10-year	5-year
25-year	10-year
50-year	25-year
100-year	50-year

The *'St. Basils – Watershed Summaries'* table, included in the appendix section, summarizes the peak runoff rates and reductions for each point of interest in the Pennypack Creek Watershed (POI D, E, F, G). As demonstrated in the table, the post-developed peak rate has been reduced per the above requirement at all study points.

Impervious surface

For the SWM calculations, the maximum on lot allowable impervious area of 2,500 sf for the interior and exterior units has been used. This area includes the proposed dwelling and any options and future lot improvements.

The sum of this allowable impervious unit area, proposed roadways, clubhouse, parking, sidewalk, service walk, and driveway aprons within the right-of-way totals 15.85 ac. of on-site impervious or 31.0% of the total site area which is below the ordinance stated maximum of 50% impervious cover.

Delta 2-year storm event Volume Requirement and Water Quality

Infiltration is proposed on the site due to good preliminary soil testing performed on the site. To provide for water quality on-site and provide infiltration to meet delta 2 requirements, the BMPs selected for the site are as follows: Three Infiltration Basins, Two Dry Extended Detention Basin, and One Subsurface Infiltration Bed.

Per Section 142-401.M: All storage facilities shall completely drain both the volume and rate control capacities over a period not less than 24 hours and not more than 72 hours.

Per Section 142-405.2.B: The recharge volume required shall be computed as Rev = (1/12)*I, Where: Rev = Recharge Volume and I = Impervious area within limits of disturbance in sqft.

Rev = (1/12) * 690,430 sf= 57,535 cuft (1.32 acre-ft).

Per Section 142-407.B: The water quality storage volume shall be computed as WQv = [P * Rv * A] / 12, Where: WQv= Water Quality Volume in acre-ft, P=1 inch, A=area of the project contributing to the water quality BMP in acres, Rv=0.05+0.009*I, where I is the percent of the area that is impervious surface.

Rv = 0.05 + 0.009 * (31.00%) = 0.5279
WQv = (1 inch * 0.5279 * 28.85 acres) / 12 = 1.27 acre-ft

Per Section 142-406.A.1: The post development total runoff volume for all storms equal to or less than the 2-year 24 hour storm event shall not be increased.

The DEP PCSM Spreadsheet has been calculated for the two separate watersheds on the site. The Tookany/Tacony-Frankford Creek Watershed and the Pennypack Creek Watershed.

Per the Volume tab on the DEP PCSM Spreadsheet, which has been included in appendix 2 of this report, the 2-year volume increase equals 41,322 cuft for the Tookany/Tacony-Frankford Creek Watershed.

Per the Volume tab on the DEP PCSM Spreadsheet, which has been included in appendix 2 of this report, the 2-year volume increase equals 63,038 cuft for the Pennypack Creek Watershed.

The total volume increase for the site, (51.07 acres in Pre- and Post-Development) equals 104,360 cuft.

Below are the required volumes for the two watersheds calculated by using the DEP PCSM Spreadsheet shown in appendix 2.

Tookany/Tacony-Frankford Creek Watershed Pre-dev 2-year volume = 31,150 cubic-feet
Tookany/Tacony-Frankford Creek Watershed Post dev 2-year volume = 72,472 cubic-feet

Tookany/Tacony-Frankford Creek Watershed; 2-year WQv to be treated = **41,322** cubic-feet

Pennypack Creek Watershed Pre-dev 2-year volume = 86,459 cubic-feet
Pennypack Creek Watershed Post dev 2-year volume = 149,497 cubic-feet

Pennypack Creek Watershed; 2-year WQv difference = **63,038** cubic-feet
Overall 2-year WQv difference = ***104,360*** cubic-feet

Design Infiltration Rates

Basin 1:
Tested Infiltration Rate: 1.49 in/hr
Design Infiltration Rate w/ FOS: 1.49 / 2 = 0.75 in/hr
DEP PCSM Spreadsheet Rate: 0.75 * 0.9 = 0.67 in/hr
Bottom Surface Area: 10,750 sf
Basin 1 Design Rate = 10,750 * 0.67 / 12 / 60 / 60 = 0.17 cfs/s

Basin 2:
Tested Infiltration Rate: 2.87 in/hr
Design Infiltration Rate w/ FOS: 2.87 / 2 = 1.44 in/hr
DEP PCSM Spreadsheet Rate: 1.44 * 0.9 = 1.29 in/hr
Bottom Surface Area: 6,500 sf
Basin 2 Design Rate = 6,500 * 1.29 / 12 / 60 / 60 = 0.19 cfs/s

Stone BMP 2A:
Tested Infiltration Rate: 5.6 in/hr
Design Infiltration Rate w/ FOS: 5.6 / 2 = 2.8 in/hr
DEP PCSM Spreadsheet Rate: 2.8 * 0.9 = 2.52 in/hr
Bottom Surface Area: 9,900 sf
Stone BMP 2A Design Rate = 9,900 * 2.52 / 12 / 60 / 60 = 0.58 cfs/s

Basin 3B:
Tested Infiltration Rate: 1.28 in/hr
Design Infiltration Rate w/ FOS: 1.28 / 2 = 0.64 in/hr
DEP PCSM Spreadsheet Rate: 0.64 * 0.9 = 0.58 in/hr
Bottom Surface Area: 8,470 sf
Basin 3B Design Rate = 8,470 * 0.58 / 12 / 60 / 60 = 0.11 cfs/s

Detention Basin Tc Calculations

The Tc calculations for all basins use information from the Storm Sewer System tabulations. For basins 1, 2, 3A, 3B and Stone BMP 2A the actual sheet flow time, as calculated using TR-55, has been used. For basin 1 this is 12.8 minutes, for basin 2 this is 19.8 minutes, for basin 3A this is 13.8 minutes, for basin 3B this is 5.0 minutes. For Stone BMP 2A this is 12.1 minutes. For the pipe flow section, the Storm Sewer pipe run time was used. This time was calculated by taking the total system time minus the user entered 5-minute inlet time.

The Tc calculations are shown in appendix 9.

III

During Construction Hydrology

The Construction Sequence within the ENS plans should be followed in detail. Below is a synopsis of that construction sequence. If there is any discrepancy between this chapter and the construction sequence, the construction sequence is to be followed.

Per the Construction Sequence shown on the ENS plans, the construction entrance is to be installed first, then the super silt fence and tree protection, followed by the construction of the sediment basin, and the temporary swales. After the sediment basin and swales have been stabilized per the Construction Sequence, site construction can start.

The runoff will be collected through the temporary and permanent swales and proposed storm system and will be diverted to the Sediment Basin.

The Sediment Basin will be converted after the drainage area has been stabilized to the satisfaction of the conservation district and as listen in the construction sequence.

Calculations and routings for the Basin can be found in the appendix 2.

IV

Closed Conveyance System

Design Criteria

All closed conveyances were designed in accordance with Section 146-33. of the Abington Township Code, Part II General Legislation, Chapter 146.

Per Section 146-33.B.2, Storm pipes designed for residential areas are required to be designed for a ten-year-return frequency storm. All stormwater designs shall provide for overflow that will cause no damage to property nor affect the health and safety of individuals. Per the requirements the 10-year design storm are not allowed to surcharge out of the inlets. The system has been run to show capacity for the 100-year storm event to ensure all runoff designed to go to the basin will reach the basin. All pipes are proposed with a minimum diameter of fifteen inches (15”).

Methodology

Peak flow rates to each collection point were calculated using the Rational Method with applicable C values and storm frequency design factors as required by the ordinance.

Closed conveyance systems were then designed for capacity using Manning’s Equation. Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® Version 11 was utilized to perform the design calculation. The resulting inlet and pipe tables are included in the appendix.

Hydraulic Gradeline Analysis

Hydraulic gradeline calculations were performed for the entire conveyance system, to assure that the HGL fell below the grate/rim elevation for each structure in the system during the 10-year storm event (design storm) and the 100-year storm event. Hydraulic calculations were performed using Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® Version 11.

V

Open Conveyance System

Design Criteria

Wherever possible, overland runoff was directed to the discharge points via open channels or swales.

Swale calculations are shown in Appendix 14. All swales will be lined with NA-Green lining where required (or approved equal).

Summary Report

1

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

Date: 27-Jan-23
By: LJP
Chk'd:
Rev'd: 12-Oct-23

Allowable Post Developed Flows - SCS

Area Summaries												
Area	Pre Q -1 yr (cfs)	Pre Q -2 yr (cfs)	Pre Q -5 yr (cfs)	Pre Q -10 yr (cfs)	Pre Q -25 yr (cfs)	Pre Q - 50 yr (cfs)	Pre Q - 100 yr (cfs)	Pre Total Area (Ac.)	Total Area Disturbed (Ac.)	% of shed (%)	Total Area Undisturbed (Ac.)	% of shed (%)
POI A	0.45	0.94	1.90	2.85	4.39	5.79	7.40	1.97	1.37	69.5%	0.60	30.5%
POI B	3.77	6.76	12.12	17.21	25.23	32.44	40.64	8.83	7.36	83.4%	1.47	16.6%
POI C	0.14	0.46	1.23	2.05	3.43	4.72	6.25	1.70	1.55	91.2%	0.15	8.8%
POI D	7.26	11.18	17.75	23.75	32.92	40.96	49.96	11.05	8.37	75.7%	2.68	24.3%
POI E	3.19	6.39	12.50	18.46	27.97	36.64	46.59	11.67	4.26	36.5%	7.41	63.5%
POI F	4.32	7.92	14.38	20.52	30.23	38.97	48.92	9.17	6.57	71.6%	2.60	28.4%
POI G	3.58	5.96	10.11	13.96	19.96	25.28	31.29	5.03	2.58	51.3%	2.45	48.7%

32.06

Weighted Allowable						
Area	Post Q-2 yr (cfs)	Post Q-5 yr (cfs)	Post Q-10 yr (cfs)	Post Q-25 yr (cfs)	Post Q-50 yr (cfs)	Post Q-100 yr (cfs)
POI A	0.60	1.23	2.19	3.32	4.82	7.40
POI B	4.27	7.65	12.97	18.55	26.43	40.64
POI C	0.17	0.53	1.30	2.17	3.54	6.25
POI D	8.21	12.77	19.21	25.97	34.87	43.14
POI E	5.22	10.27	16.28	24.50	33.48	42.96
POI F	5.34	9.75	16.12	23.27	32.71	41.79
POI G	4.74	7.98	11.99	16.88	22.55	28.21

POI A, B, C: All fall into the T-Watershed, therefore the 100 year storm rate will not have to be reduced.

Note: The allowable post developed flows are calculated by using the previous year pre developed design flow multiplied with the percent **UN**-disturbed of the shed. That number is then added to the product of the actual year frequency storm multiplied by the percent disturbed of the shed.

Example:
(Q-1-pre * % disturbed) + (Q-2-pre * % undisturbed) = Q-2 post-allowable
(Q-2-pre * % disturbed) + (Q-5-pre * % undisturbed) = Q-5 post-allowable
(Q-5-pre * % disturbed) + (Q-10-pre * % undisturbed) = Q-10 post-allowable
(Q-10-pre * % disturbed) + (Q-25-pre * % undisturbed) = Q-25 post-allowable
(Q-25-pre * % disturbed) + (Q-50-pre * % undisturbed) = Q-50 post-allowable
(Q-50-pre * % disturbed) + (Q-100-pre * % undisturbed) = Q-100 post-allowable

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

Date: 2/2/2023
By: LJP
Chk'd:
Rev'd: 12-Oct-23

Sisters of St. Basil (7662) - WATERSHED SUMMARIES - Tookany/Tacony-Frankford Creek								
WATERSHED DESCRIPTION		PEAK RUNOFF RATES (CFS)						
		1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
POI A	Pre-Developed POI A	0.45	0.94	1.90	2.85	4.39	5.79	7.40
	Post Developed to POI A	0.20	0.44	0.92	1.39	2.17	2.88	3.70
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*0.60*	*1.23*	*2.19*	*3.32*	*4.82*	*7.40*
POI B	Pre-Developed POI B	3.77	6.76	12.12	17.21	25.23	32.44	40.64
	Post Bypass B	2.19	3.17	4.77	6.19	8.32	10.16	12.19
	Post Developed Basin 1	0.00	0.00	0.17	0.26	0.35	0.42	0.49
	Post Developed Basin 2	0.00	0.00	0.12	0.22	0.31	1.78	6.73
	Post Developed to POI B	2.19	3.17	4.77	6.19	8.47	10.38	12.48
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*4.27*	*7.65*	*12.97*	*18.55*	*26.43*	*40.64*
POI C	Pre-Developed flow to POI C	0.14	0.46	1.23	2.05	3.43	4.72	6.25
	Post Developed to POI C	0.08	0.19	0.40	0.60	0.93	1.23	1.58
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*0.17*	*0.53*	*1.30*	*2.17*	*3.54*	*6.25*

Sisters of St. Basil (7662) - WATERSHED SUMMARIES - Pennypack Creek								
WATERSHED DESCRIPTION		PEAK RUNOFF RATES (CFS)						
		1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
POI D	Pre-Developed POI D	7.26	11.18	17.75	23.75	32.92	40.96	49.96
	Post Developed to POI D	1.79	2.91	4.83	6.61	9.37	11.81	14.55
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*8.21*	*12.77*	*19.21*	*25.97*	*34.87*	*43.14*
POI E	Pre-Developed POI E	3.19	6.39	12.50	18.46	27.97	36.64	46.59
	Post Bypass E	2.41	4.85	9.41	13.83	20.93	27.39	34.80
	Post Developed Basin 3A	1.54	2.39	3.54	4.30	4.98	5.04	5.17
	Post Developed Basin 3B	0.00	0.00	0.00	0.00	0.60	1.81	3.27
	Post Developed flow to POI E	2.41	4.85	9.41	13.83	20.95	27.50	34.96
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*5.22*	*10.27*	*16.28*	*24.50*	*33.48*	*42.96*
POI F	Pre-Developed POI F	4.32	7.92	14.38	20.52	30.23	38.97	48.92
	Post Bypass F	1.58	2.95	5.43	7.79	11.53	14.91	18.76
	Post Developed Stone BMP 2A	4.40	10.36	18.83	24.80	32.34	38.34	44.73
	Post Developed Basin 4	2.08	2.61	7.42	12.29	16.73	19.58	33.02
	Post Developed flow to POI F	3.05	4.75	8.35	14.22	22.82	29.34	38.09
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*5.34*	*9.75*	*16.12*	*23.27*	*32.71*	*41.79*
POI G	Pre-Developed POI G	3.58	5.96	10.11	13.96	19.96	25.28	31.29
	Post Developed flow to POI G	1.80	3.15	5.54	7.79	11.32	14.49	18.07
	ALLOWABLE POST DEVELOPED FLOW (from allowable excel sheet)	--	*4.74*	*7.98*	*11.99*	*16.88*	*22.55*	*28.21*

	1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
TOTAL PRE DEVELOPED	22.71	39.61	69.99	98.80	144.13	184.80	231.05
TOTAL ALLOWABLE POST	--	28.55	50.19	80.05	114.66	158.39	210.39
TOTAL POST DEVELOPED	11.52	19.46	34.22	50.63	76.03	97.63	123.43

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

Date: 27-Jan-23
By: LJP
Chk'd:
Rev'd:

Allowable Post Developed Flows - SCS

Area Summaries												
Area	Pre Q -1 yr (cfs)	Pre Q -2 yr (cfs)	Pre Q -5 yr (cfs)	Pre Q -10 yr (cfs)	Pre Q -25 yr (cfs)	Pre Q - 50 yr (cfs)	Pre Q - 100 yr (cfs)	Pre Total Area (Ac.)	Total Area Disturbed (Ac.)	% of shed (%)	Total Area Undisturbed (Ac.)	% of shed (%)
POI A	0.45	0.94	1.90	2.85	4.39	5.79	7.40			#DIV/0!	0.00	#DIV/0!
POI B	3.77	6.76	12.12	17.21	25.23	32.44	40.64			#DIV/0!	0.00	#DIV/0!
POI C	0.14	0.46	1.23	2.05	3.43	4.72	6.25			#DIV/0!	0.00	#DIV/0!
POI D	7.26	11.18	17.75	23.75	32.92	40.96	49.96			#DIV/0!	0.00	#DIV/0!
POI E	3.19	6.39	12.50	18.46	27.97	36.64	46.59			#DIV/0!	0.00	#DIV/0!
POI F	4.32	7.92	14.38	20.52	30.23	38.97	48.92			#DIV/0!	0.00	#DIV/0!
POI G	3.58	5.96	10.11	13.96	19.96	25.28	31.29			#DIV/0!	0.00	#DIV/0!

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

Date: 3/10/2023
By: JMM
Chk'd:
Rev'd:

Sisters of St. Basil (7662) - WATERSHED SUMMARIES - Tookany/Tacony-Frankford Creek								
WATERSHED DESCRIPTION		PEAK RUNOFF RATES (CFS)						
		1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
POI A	Pre-Developed POI A	0.45	0.94	1.90	2.85	4.39	5.79	7.40
	During Construction Bypass to POI A	0.44	0.77	1.36	1.91	2.77	3.54	4.42
POI B	Pre-Developed POI B	3.77	6.76	12.12	17.21	25.23	32.44	40.64
	During Construction Bypass B	3.54	4.62	6.27	7.67	9.72	11.45	13.34
	During Construction to E&S Basin 1 Out	0.23	0.31	0.40	0.46	1.99	5.60	10.10
	Total During Construction to POI B	3.66	4.74	6.55	8.02	10.14	11.92	23.28
POI C	Pre-Developed flow to POI C	0.14	0.46	1.23	2.05	3.43	4.72	6.25
	During Construction to POI C	0.17	0.30	0.55	0.78	1.14	1.46	1.83

Sisters of St. Basil (7662) - WATERSHED SUMMARIES - Pennypack Creek								
WATERSHED DESCRIPTION		PEAK RUNOFF RATES (CFS)						
		1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
POI D	Pre-Developed POI D	7.26	11.18	17.75	23.75	32.92	40.96	49.96
	During Construction to POI D	5.33	7.46	10.48	13.10	16.93	20.19	23.76
POI E	Pre-Developed POI E	3.19	6.39	12.50	18.46	27.97	36.64	46.59
	During Construction Bypass E	2.77	5.34	10.05	14.60	21.84	28.41	35.91
	During Construction E&S Basin 3A Out	0.12	0.20	0.30	0.36	1.32	3.82	10.21
	During Construction Basin 3B Out	0.00	0.00	0.41	0.89	1.33	1.84	2.44
	Total During Construction flow to POI E	2.89	5.46	10.22	14.86	22.23	29.14	46.31
POI F	Pre-Developed POI F	4.32	7.92	14.38	20.52	30.23	38.97	48.92
	During Construction Bypass F	1.75	3.15	5.66	8.05	11.81	15.19	19.03
	During Construction Basin 4 Out	0.12	0.12	0.12	0.69	2.87	8.82	21.37
	Total During Construction flow to POI F	1.87	3.27	5.87	8.17	11.93	15.31	30.53
POI G	Pre-Developed POI G	3.58	5.96	10.11	13.96	19.96	25.28	31.29
	During Construction flow to POI G	3.29	4.97	7.79	10.33	14.18	17.55	21.29

	1 Year	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
TOTAL PRE DEVELOPED	22.71	39.61	69.99	98.80	144.13	184.80	231.05
TOTAL DURING CONSTRUCTION	17.65	26.97	42.82	57.17	79.32	99.11	151.42

2-Year Volume
(DEP PCSM Spreadsheets)

2

General Information

Instructions | *General* | Volume | Rate | Quality

Project Name: **Sisters of St. Basil (Watershed 01)**

Application Type: **PAG-02 NOI**

County: **Montgomery**

Municipality: **Abington Township**

Project Type: **Single-Family Housing**

◉ New Project ○ Minor / Major Amendment

Area: **12.75** acres *(In Watershed)*

Total Earth Disturbance: **10.95** acres *(In Watershed)*

No. of Post-Construction Discharge Points: **3**

Start DP Numbering at: **001**

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
001					East Branch Jenkintown Creek 25598789	WWF	No
002	9.41	9.00	1.18	4.75	East Branch Jenkintown Creek 25598789	WWF	Yes
003					East Branch Jenkintown Creek 25598789	WWF	No
Undetained Areas	3.34	1.95	0.31	0.79	East Branch Jenkintown Creek 25598789	WWF	
Totals:	**12.75**	**10.95**	**1.49**	**5.54**			

Volume Management

Project: Sisters of St. Basil (Watershed 01)

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **3.31** inches

Alternative 2-Year / 24-Hour Storm Event _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **7** ☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Institutional	0.92	B	98	0.041	3.08	10,276
Impervious Areas: Institutional	0.14	C	98	0.041	3.08	1,564
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	0.16	C	98	0.041	3.08	1,787
Impervious as Meadow	0.24	B	58	1.448	0.38	332
Impervious as Meadow	0.03	C	71	0.817	0.94	103
Pervious as Meadow	6.73	B	58	1.448	0.38	9,302
Pervious as Meadow	2.27	C	71	0.817	0.94	7,787
TOTAL (ACRES):	**10.49**				**TOTAL (CF):**	**31,150**

Post-Construction Conditions: *No. Rows:* 6

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	0.92	B	98	0.041	3.08	10,276
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	0.64	C	98	0.041	3.08	7,149
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	2.97	B	98	0.041	3.08	33,174
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.71	C	98	0.041	3.08	7,931
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	4.25	B	61	1.279	0.49	7,556
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.46	C	74	0.703	1.11	5,886
TOTAL (ACRES):	**10.95**				**TOTAL (CF):**	**71,972**

IET CHANGE IN VOLUME TO MANAGE (CF): **40,822**

Non-Structural BMP Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Structural BMP Volume Credits: *No. Structural BMPs:* 2 *Start BMP Numbering at:* 1

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
002	1	Infiltration Basin	-	Off-Site	5.99	30,840	10,750	0.75	50	No		22,434	**29,690**	
002	2	Infiltration Basin	-	to BMP No. 1	3.01	21,998	6,500	1.44	32	No		13,592	**21,998**	
												Totals:	**51,688**	

INFILTRATION & ET CREDITS (CF):	**51,688**
NET CHANGE IN VOLUME TO MANAGE (CF):	**40,822**
TOTAL CREDITS (CF):	**51,688**

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Sisters of St. Basil (Watershed 01)

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	**3.31**	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):	**4.92**	Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	**6.92**	Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	**7.93**	Alternative 100-Year 24-Hour Storm Event (in):	

☑ **Report Summary of Peak Rates Only**

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)			
	Pre-Construction	**Post-Construction**	**Net Change**	
2-Year Storm:	**8.26**	**4.07**	**-4.19**	***Rate Control Satisfied***
10-Year Storm:	**22.32**	**8.41**	**-13.91**	***Rate Control Satisfied***
50-Year Storm:	**43.30**	**14.54**	**-28.76**	***Rate Control Satisfied***
100-Year Storm:	**54.71**	**17.70**	**-37.01**	***Rate Control Satisfied***

DP No.	BMP No.	BMP Name	MRC?	Inflow to BMP (cfs)				Outflow from BMP (cfs)			
				2-yr	10-yr	50-yr	100-yr	2-yr	10-yr	50-yr	100-yr
002	1	Infiltration Basin	-	11.81	22.82	37.44	48.93	0.17	0.43	0.59	0.66
002	2	Infiltration Basin	-	12.18	21.40	33.00	38.84	0.19	0.41	1.97	6.92

Water Quality

Project: Sisters of St. Basil (Watershed 01)

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Institutional	Institutional	0.92	B	10,276	67.5	0.14	1.21	43.31	0.09	0.78
Impervious Areas: Institutional	Institutional	0.14	C	1,564	67.5	0.14	1.21	6.59	0.01	0.12
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	Urban Highway	0.16	C	1,787	142.0	0.32	3.00	15.85	0.04	0.33
Impervious as Meadow	Grassland/Herbaceous	0.24	B	332	48.8	0.22	2.30	1.01	0.00	0.05
Impervious as Meadow	Grassland/Herbaceous	0.03	C	103	48.8	0.22	2.30	0.31	0.00	0.01
Pervious as Meadow	Grassland/Herbaceous	6.73	B	9,302	48.8	0.22	2.30	28.34	0.13	1.34
Pervious as Meadow	Grassland/Herbaceous	2.27	C	7,787	48.8	0.22	2.30	23.73	0.11	1.12
	TOTAL (ACRES):	**10.49**					**TOTALS:**	**119.14**	**0.38**	**3.75**

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	Urban Highway	0.92	B	10,276	142.0	0.32	3.00	91.12	0.21	1.93
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	Urban Highway	0.64	C	7,149	142.0	0.32	3.00	63.39	0.14	1.34
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	2.97	B	33,174	65.0	0.29	2.05	134.65	0.60	4.25
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	0.71	C	7,931	65.0	0.29	2.05	32.19	0.14	1.02
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	4.25	B	7,556	78.0	0.25	1.25	36.80	0.12	0.59
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	1.46	C	5,886	78.0	0.25	1.25	28.67	0.09	0.46
	TOTAL (ACRES):	**10.95**					**TOTALS:**	**386.81**	**1.30**	**9.58**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	**267.67**	**0.92**	**5.83**

☑ **Characterize Undetained Areas (for Untreated Stormwater)** *No. Rows:* **3**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.76	B	61	1.279	0.49	1,351
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.64	C	74	0.703	1.11	2,580
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	0.56	N/A	98	0.041	3.08	6,255

Non-Structural BMP Water Quality Credits:

☑ Pervious Undetained Area Credit

TSS	TP	TN
2.99	0.01	0.08

☐ Other (attach calculations)

Structural BMP Water Quality Credits:

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
002	1	Infiltration Basin	-	5.99	30,840	29,690		1,150	10.00	0.24	0.96	0.72	0.02	0.07
002	2	Infiltration Basin	-	3.01	21,998	21,998		0	-	-	-	-	-	-

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	0.72	0.02	0.07
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	74.61	0.19	1.48
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):	2.99	0.01	0.08
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	72.33	0.19	1.46
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	119.14	0.38	3.75

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Luke Piotrowicz	3/15/2024
Spreadsheet User Name	Date

Version	Date	Change(s)
1.9	10/18/2021	1) Modified dropdown list for Infiltration Period (Volume Worksheet, Structural BMP Volume Credits table) to eliminate hours 1-11 (i.e., the minimum Infiltration Period must be 12 hours). 2) Updated median outflow concentrations (MOCs) for structural BMPs based on the latest analysis of literature data.
1.8	12/21/2020	1) Updated list of pre-construction land covers in Volume Worksheet so that the same post-construction impervious land cover options are available for pre-construction conditions (for more accurate water quality analyses). 2) Removed Soil Amendment from dropdown list of structural BMPs in Volume Worksheet (Soil Amendment credits should be calculated separately in accordance with Stormwater BMP Manual and reported as an "Other" Non-Structural BMP credit). 3) Increased number of allowable digits in the Peak Rate Summary table of the Rate Worksheet from 3 to 4. 4) Corrected problem on Quality Worksheet where acres for custom-input land covers on Volume Worksheet were not displayed.
1.7	8/28/2020	1) Modified the Quality Worksheet such that outflows from MRC BMPs are not subject to pollutant load calculations. 2) Added new section for "Characterization of Undetained Areas (for Untreated Stormwater)" in the Quality Worksheet to allow for the calculation of more accurate estimates of pollutant loads in untreated stormwater. 3) Modified the Pervious Undetained Area Credit to calculate automatically when the "Characterization of Undetained Areas (for Untreated Stormwater)" function is completed. 4) Corrected an error that did not allow the selection of more than 10 DPs from the Structural BMP table in the Volume Worksheet.
1.6	5/11/2020	1) Updated calculation of weighted curve number for calculation of peak rates in Rate Worksheet to consider any selection of "Impervious as Meadow" as having a CN of 98; 2) Added "MRC?" column to Structural BMP table in Volume Worksheet (outflows from BMPs when this column = "Y" and Discharge = "Off-Site" are added to Managed Release Credit shown at bottom of table); 3) Removed "Series" and "Impervious in DA" columns and added "Discharge" column to allow flexibility to user in the entry of BMPs in series (see Instructions); 4) Added three BMPs to drop-down list in Structural BMP table in Volume Worksheet: Vegetated Roof, Riparian Forest Buffer (Min 150 Ft), and Riparian Buffer; 5) Changed Managed Release Credit from manual entry to auto-calculation in Structural BMP table - if MRC? column = "Y" and Discharge = "Off-Site", Managed Release Credits are calculated and shown; 6) Increased number of possible discharge points from 10 to 20 in the General Worksheet, the number of possible pre-construction and post-construction land covers from 8 to 20 (each, with number of rows controlled separately) in the Volume Worksheet, and the number of possible structural BMPs from 20 to 50 in the Volume, Rate and Quality Worksheets; 7) Added row for Riparian Forest Buffer Credits in Volume Worksheet; 8) Removed Pervious Undetained Area Credits from Volume Worksheet and added it to the Quality Worksheet (Non-Structural WQ Credit), changing the type of credit from volume reduction to pollutant load reduction (see Instructions); 8) Modified calculation of pollutant loads in untreated stormwater to utilize post-construction volume-weighted pollutant concentrations instead of area-weighted pollutant concentrations; 9) Added "Clear Project" button to General Worksheet to remove all entries throughout spreadsheet; 10) Added Certification statement to bottom of Quality Worksheet.
1.5	1/24/2020	1) Removed pervious undetained area credit on Volume Worksheet to calculate the credit based on the pervious undetained area within the earth disturbance area only (previously the credit was applied to undetained areas reported for the project site); 2) Changed validation for pre- and post-construction conditions (land covers) in Volume Worksheet to ensure user-entered areas do not exceed the Total Earth Disturbance Area as reported in the General Worksheet (as opposed to the Project Site Area previously used) due to the possibility that areas of a project site outside the limit of disturbance may be treated differently by the spreadsheet in pre- and post-construction conditions.
1.4	1/14/2020	1) Added drop-down lists in General and Volume Worksheets to allow users to select the starting Discharge Point and BMP Numbers for the spreadsheet (addresses concern that two instances of the spreadsheet for the same project site could have the same DP or BMP numbering). 2) Updated equation for determining volume of untreated stormwater in Quality Worksheet to subtract all non-structural volume credits entered in the Volume Worksheet.
1.3	1/7/2020	1) Increased number of decimal places for Area in the Quality Worksheet from one to two; 2) unlocked cells for BMP outflow concentrations for manual input that were mistakenly locked; and 3) modified the formula for pervious undetained area credit in the Volume Worksheet to consider total acres of impervious and pervious in undetained areas instead of percentages.
1.2	1/2/2020	1) Updated calculation that determines the total volume routed to BMPs when BMPs are in series, which affects the calculation of pollutant loads in untreated stormwater in the Quality worksheet. Previous versions of the spreadsheet did not fully credit the volume routed to BMPs in series, as stormwater flows from drainage areas beyond that of the first BMP in series were not considered. Update - if the volume routed to a downstream BMP in series exceeds the volume routed to the previous BMP, minus infiltration and ET credits, the difference in this volume is credited to the downstream BMP. 2) Increased the allowable infiltration/vegetated area to six figures in the Volume Worksheet, Structural BMP table. 3) Added an advisory to the Rate worksheet that if the weighted curve number for either pre- or post-construction conditions is less than 40, the Rate worksheet should not be used except to report peak rates.
1.1	12/19/2019	1) Added peak rate summary checkbox and table to Rate worksheet; 2) removed validation constraint for BMP inflows and outflows in Rate worksheet; 3) provided ability to manually enter Impervious in BMP Drainage Area in Volume Worksheet; and 4) other miscellaneous corrections and updates.
1	12/6/2019	Original

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 11.02 cfs @ 11.96 hrs, Volume= 0.505 af, Depth= 2.01"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

BMP NO. 2

Summary for Subcatchment 90S: Basin 1

Runoff = 11.81 cfs @ 12.05 hrs, Volume= 0.708 af, Depth= 1.42"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

BMP NO. 1

Summary for Pond 10P: BASIN 2

Inflow Area = 3.010 ac, 0.00% Impervious, Inflow Depth = 2.01" for 2-YR event
Inflow = 11.02 cfs @ 11.96 hrs, Volume= 0.505 af
Outflow = 0.19 cfs @ 11.46 hrs, Volume= 0.505 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.46 hrs, Volume= 0.505 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.42' @ 16.58 hrs Surf.Area= 8,074 sf Storage= 13,592 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 712.0 min (1,525.4 - 813.4)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.46 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=239.87' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.00 cfs of 15.22 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Hydrograph for Pond 10P: BASIN 2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	242.50	0.00	0.00	**0.00**
2.00	0.00	0	242.50	0.00	0.00	0.00
4.00	0.00	0	242.50	0.00	0.00	0.00
6.00	0.00	0	242.50	0.00	0.00	0.00
8.00	0.02	0	242.50	0.02	0.02	0.00
10.00	**0.12**	0	242.50	**0.12**	**0.12**	0.00
12.00	**9.37**	7,915	243.68	**0.19**	**0.19**	0.00
14.00	0.33	13,045	244.35	0.19	0.19	0.00
16.00	0.21	**13,579**	**244.41**	0.19	0.19	0.00
18.00	0.16	**13,516**	**244.41**	0.19	0.19	0.00
20.00	0.12	13,146	244.36	0.19	0.19	0.00
22.00	0.11	12,580	244.29	0.19	0.19	0.00
24.00	0.10	11,953	244.21	0.19	0.19	0.00
26.00	0.00	10,612	244.04	0.19	0.19	0.00
28.00	0.00	9,244	243.86	0.19	0.19	0.00
30.00	0.00	7,876	243.67	0.19	0.19	0.00
32.00	0.00	6,508	243.48	0.19	0.19	0.00
34.00	0.00	5,140	243.29	0.19	0.19	0.00
36.00	0.00	3,772	243.08	0.19	0.19	0.00
38.00	0.00	2,404	242.88	0.19	0.19	0.00
40.00	0.00	1,036	242.67	0.19	0.19	0.00
42.00	0.00	0	242.50	0.00	0.00	0.00
44.00	0.00	0	242.50	0.00	0.00	0.00
46.00	0.00	0	242.50	0.00	0.00	0.00
48.00	0.00	0	242.50	0.00	0.00	0.00
50.00	0.00	0	242.50	0.00	0.00	0.00
52.00	0.00	0	242.50	0.00	0.00	0.00
54.00	0.00	0	242.50	0.00	0.00	0.00
56.00	0.00	0	242.50	0.00	0.00	0.00
58.00	0.00	0	242.50	0.00	0.00	0.00
60.00	0.00	0	242.50	0.00	0.00	0.00
62.00	0.00	0	242.50	0.00	0.00	0.00
64.00	0.00	0	242.50	0.00	0.00	0.00
66.00	0.00	0	242.50	0.00	0.00	0.00
68.00	0.00	0	242.50	0.00	0.00	0.00
70.00	0.00	0	242.50	0.00	0.00	0.00
72.00	0.00	0	242.50	0.00	0.00	0.00
74.00	0.00	0	242.50	0.00	0.00	0.00
76.00	0.00	0	242.50	0.00	0.00	0.00
78.00	0.00	0	242.50	0.00	0.00	0.00
80.00	0.00	0	242.50	0.00	0.00	0.00
82.00	0.00	0	242.50	0.00	0.00	0.00
84.00	0.00	0	242.50	0.00	0.00	0.00
86.00	0.00	0	242.50	0.00	0.00	0.00
88.00	0.00	0	242.50	0.00	0.00	0.00
90.00	0.00	0	242.50	0.00	0.00	0.00
92.00	0.00	0	242.50	0.00	0.00	0.00
94.00	0.00	0	242.50	0.00	0.00	0.00
96.00	0.00	0	242.50	0.00	0.00	0.00
98.00	0.00	0	242.50	0.00	0.00	0.00
100.00	0.00	0	242.50	0.00	0.00	0.00

BMP NO. 2: INFILTRATION PERIOD = 32 HOURS.

Summary for Pond 20P: BASIN 1

Inflow Area = 8.990 ac, 0.00% Impervious, Inflow Depth = 0.94" for 2-YR event
Inflow = 11.81 cfs @ 12.05 hrs, Volume= 0.708 af
Outflow = 0.17 cfs @ 11.59 hrs, Volume= 0.708 af, Atten= 99%, Lag= 0.0 min
Discarded = 0.17 cfs @ 11.59 hrs, Volume= 0.708 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 239.83' @ 23.77 hrs Surf.Area= 14,336 sf Storage= 22,434 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,293.1 min (2,140.3 - 847.2)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

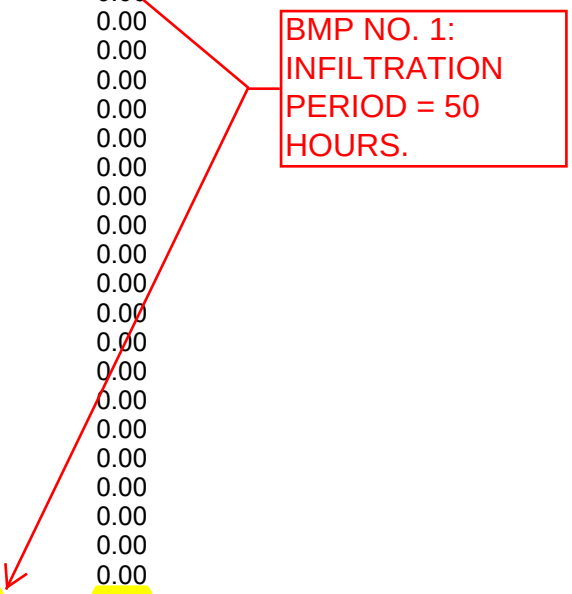
Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0052 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 11.59 hrs HW=238.03' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=238.00' TW=0.00' (Dynamic Tailwater)
↑└**1=OS Pipe Basin 1 to Road Inlet** (Controls 0.00 cfs)
↑├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Hydrograph for Pond 20P: BASIN 1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	238.00	0.00	0.00	**0.00**
2.00	0.00	0	238.00	0.00	0.00	0.00
4.00	0.00	0	238.00	0.00	0.00	0.00
6.00	0.00	0	238.00	0.00	0.00	0.00
8.00	0.00	0	238.00	0.00	0.00	0.00
10.00	0.02	0	238.00	**0.02**	**0.02**	0.00
12.00	**10.43**	5,007	238.47	**0.17**	**0.17**	0.00
14.00	**0.57**	18,822	239.57	0.17	0.17	0.00
16.00	0.35	20,807	239.71	0.17	0.17	0.00
18.00	0.27	21,783	239.78	0.17	0.17	0.00
20.00	0.20	22,261	239.82	0.17	0.17	0.00
22.00	0.18	**22,396**	**239.83**	0.17	0.17	0.00
24.00	0.17	**22,434**	**239.83**	0.17	0.17	0.00
26.00	0.00	21,329	239.75	0.17	0.17	0.00
28.00	0.00	20,105	239.66	0.17	0.17	0.00
30.00	0.00	18,881	239.57	0.17	0.17	0.00
32.00	0.00	17,657	239.49	0.17	0.17	0.00
34.00	0.00	16,433	239.39	0.17	0.17	0.00
36.00	0.00	15,209	239.30	0.17	0.17	0.00
38.00	0.00	13,985	239.21	0.17	0.17	0.00
40.00	0.00	12,761	239.11	0.17	0.17	0.00
42.00	0.00	11,537	239.02	0.17	0.17	0.00
44.00	0.00	10,313	238.92	0.17	0.17	0.00
46.00	0.00	9,089	238.82	0.17	0.17	0.00
48.00	0.00	7,865	238.71	0.17	0.17	0.00
50.00	0.00	6,641	238.61	0.17	0.17	0.00
52.00	0.00	5,417	238.50	0.17	0.17	0.00
54.00	0.00	4,193	238.39	0.17	0.17	0.00
56.00	0.00	2,969	238.28	0.17	0.17	0.00
58.00	0.00	1,745	238.17	0.17	0.17	0.00
60.00	0.00	521	238.05	0.17	0.17	0.00
62.00	0.00	0	238.00	0.00	0.00	0.00
64.00	0.00	0	238.00	0.00	0.00	0.00
66.00	0.00	0	238.00	0.00	0.00	0.00
68.00	0.00	0	238.00	0.00	0.00	0.00
70.00	0.00	0	238.00	0.00	0.00	0.00
72.00	0.00	0	238.00	0.00	0.00	0.00
74.00	0.00	0	238.00	0.00	0.00	0.00
76.00	0.00	0	238.00	0.00	0.00	0.00
78.00	0.00	0	238.00	0.00	0.00	0.00
80.00	0.00	0	238.00	0.00	0.00	0.00
82.00	0.00	0	238.00	0.00	0.00	0.00
84.00	0.00	0	238.00	0.00	0.00	0.00
86.00	0.00	0	238.00	0.00	0.00	0.00
88.00	0.00	0	238.00	0.00	0.00	0.00
90.00	0.00	0	238.00	0.00	0.00	0.00
92.00	0.00	0	238.00	0.00	0.00	0.00
94.00	0.00	0	238.00	0.00	0.00	0.00
96.00	0.00	0	238.00	0.00	0.00	0.00
98.00	0.00	0	238.00	0.00	0.00	0.00
100.00	0.00	0	238.00	0.00	0.00	0.00



Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 10/2/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - (Basin 1) - DISTURBED AREA**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	(On-site) Building Impervious	98	1.57	154.11
B/C	(On-site) Impervious	98	1.33	130.70
B	Lawn	61	3.02	184.04
C	Lawn	74	0.05	4.03

Totals = 5.98 472.88

Composite Cn = $\frac{472.88}{5.98}$ = 79.11

USE Cn = 79.1

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 10/2/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - (Basin 2) - DISTURBED AREA**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
C	(On-site) Building Impervious	98	0.84	82.12
C	(On-site) Impervious	98	1.01	99.19
B	Lawn	61	0.40	24.29
C	Lawn	74	0.76	56.32
Undisturbed area into Basin 2				
B	Residentail 1/4 Ac Lot (offsite)	75	0.30	22.83
B	Lawn	61	0.13	7.93
C	Lawn	74	0.28	20.71
		Totals =	3.01	261.91

$$\text{Composite Cn} = \frac{261.91}{3.01} = 87.03$$

USE Cn = 87.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

General Information

Instructions | *General* | Volume | Rate | Quality

Project Name: **Sisters of St. Basil (Watershed 02)**

Application Type: **PAG-02 NOI**

County: **Montgomery**

Municipality: **Abington Township**

Project Type: **Single-Family Housing**

◉ New Project ○ Minor / Major Amendment

Area: **33.83** acres
(In Watershed)

Total Earth Disturbance: **21.81** acres
(In Watershed)

No. of Post-Construction Discharge Points: **7**

Start DP Numbering at: **004**

Discharge Point (DP) No.	Drainage Area (DA) (acres)	Earth Disturbance in DA (acres)	Existing Impervious in DA (acres)	Proposed Impervious in DA (acres)	Receiving Waters	Ch. 93 Class	Structural BMP(s)
004					Unnamed Tributary to Pennypack Creek 25599077	TSF	No
005					Unnamed Tributary to Pennypack Creek 25599077	TSF	No
006					Unnamed Tributary to Pennypack Creek 25599077	TSF	No
007					Unnamed Tributary to Pennypack Creek 25599077	TSF	No

008	5.22	5.15	0.37	2.80	Unnamed Tributary to Pennypack Creek 25599077	TSF	Yes
009	0.43	0.43	0.00	0.00	Unnamed Tributary to Pennypack Creek 25599077	TSF	Yes
010	13.50	13.50	3.81	7.72	Unnamed Tributary to Pennypack Creek 25599077	TSF	Yes
Undetained Areas	14.68	2.27	0.02	0.02	Unnamed Tributary to Pennypack Creek 25599077	TSF	
Totals:	**33.83**	**21.35**	**4.2**	**10.54**			

Volume Management

Project: Sisters of St. Basil (Watershed 02)

Instructions | General | *Volume* | Rate | Quality

2-Year / 24-Hour Storm Event (NOAA Atlas 14): **3.31** inches

Alternative 2-Year / 24-Hour Storm Event _____ inches

Alternative Source: _____

Pre-Construction Conditions: *No. Rows:* **9**

☐ *Exempt from Meadow in Good Condition* ☑ *Automatically Calculate CN, Ia, Runoff and Volume*

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Institutional	0.90	B	98	0.041	3.08	10,053
Impervious Areas: Institutional	2.47	C	98	0.041	3.08	27,590
Impervious as Meadow	0.22	B	58	1.448	0.38	304
Impervious as Meadow	0.61	C	71	0.817	0.94	2,092
Pervious as Meadow	6.59	B	58	1.448	0.38	9,108
Pervious as Meadow	10.70	C	71	0.817	0.94	36,703
Forested (Good Condition)	0.22	B	55	1.636	0.28	227
Forested (Good Condition)	0.06	C	70	0.857	0.89	194
Forested (Good Condition)	0.04	D	77	0.597	1.29	187
TOTAL (ACRES):	**21.81**				**TOTAL (CF):**	**86,459**

Post-Construction Conditions: *No. Rows:* **8**

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	2.13	B	98	0.041	3.08	23,792
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	6.40	C	98	0.041	3.08	71,487
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	0.38	B	98	0.041	3.08	4,245
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	1.63	C	98	0.041	3.08	18,207
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	4.62	B	61	1.279	0.49	8,214
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	5.60	C	74	0.703	1.11	22,577
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.04	D	80	0.500	1.49	216
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.55	B	58	1.448	0.38	760
TOTAL (ACRES):	**21.35**				**TOTAL (CF):**	**149,497**

NET CHANGE IN VOLUME TO MANAGE (CF): **63,038**

Non-Structural BMP Volume Credits:

☐ Tree Planting Credit

☐ Other (attach calculations):

Structural BMP Volume Credits: *No. Structural BMPs:* **4** *Start BMP Numbering at:* **3**

DP No.	BMP No.	BMP Name	MRC?	Discharge	Incremental BMP DA (acres)	Volume Routed to BMP (CF)	Infiltration / Vegetated Area (SF)	Infiltration Rate (in/hr)	Infiltration Period (hrs)	Vegeta-ted?	Media Depth (ft)	Storage Volume (CF)	Infiltration Credit (CF)	ET Credit (CF)
009	3	Infiltration Basin	-	Off-Site	0.43	32,539	8,470	0.64	80	No		26,803	**31,682**	
008	4	Dry Extended Detention Basin	-	to BMP No. 3	5.15	31,799	0	0.00		No		15,995		
010	5	Dry Extended Detention Basin	-	Off-Site	8.09	65,688	0	0.00		No		34,876		
010	6	Infiltration Bed	-	to BMP No. 5	5.41	42,863	9,900	2.80	16	No		12,774	**33,264**	
												Totals:	**64,946**	

INFILTRATION & ET CREDITS (CF): **64,946**

NET CHANGE IN VOLUME TO MANAGE (CF): **63,038**

TOTAL CREDITS (CF): **64,946**

VOLUME REQUIREMENT SATISFIED

Rate Control

Project: Sisters of St. Basil (Watershed 02)

Precipitation Amounts:

NOAA 2-Year 24-Hour Storm Event (in):	**3.31**	Alternative 2-Year 24-Hour Storm Event (in):	
NOAA 10-Year 24-Hour Storm Event (in):	**4.92**	Alternative 10-Year 24-Hour Storm Event (in):	
NOAA 50-Year 24-Hour Storm Event (in):	**6.92**	Alternative 50-Year 24-Hour Storm Event (in):	
NOAA 100-Year 24-Hour Storm Event (in):	**7.93**	Alternative 100-Year 24-Hour Storm Event (in):	

☑ **Report Summary of Peak Rates Only**

Attach model input and output data or other calculations to support the rates reported below.

	Peak Discharge Rates (cfs)			
	Pre-Construction	**Post-Construction**	**Net Change**	
2-Year Storm:	**27.52**	**14.51**	**-13.01**	***Rate Control Satisfied***
10-Year Storm:	**68.43**	**40.20**	**-28.23**	***Rate Control Satisfied***
50-Year Storm:	**127.74**	**79.35**	**-48.39**	***Rate Control Satisfied***
100-Year Storm:	**159.58**	**98.42**	**-61.16**	***Rate Control Satisfied***

DP No.	BMP No.	BMP Name	MRC?	Inflow to BMP (cfs)				Outflow from BMP (cfs)			
				2-yr	10-yr	50-yr	100-yr	2-yr	10-yr	50-yr	100-yr
009	3	Infiltration Basin	-	2.44	4.43	5.67	6.25	0.11	0.11	1.92	3.38
008	4	Dry Extended Detention Basin	-	11.45	21.05	33.34	39.57	2.39	4.30	5.04	5.17
010	5	Dry Extended Detention Basin	-	25.26	60.92	95.93	112.74	2.61	12.29	19.58	33.02
010	6	Infiltration Bed	-	16.68	27.55	40.97	47.69	10.94	25.38	38.92	45.31

Water Quality

Project: Sisters of St. Basil (Watershed 02)

PRINT

Instructions | General | Volume | Rate | *Quality*

Pre-Construction Pollutant Loads:

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Institutional	Institutional	0.90	B	10,053	67.5	0.14	1.21	42.37	0.09	0.76
Impervious Areas: Institutional	Institutional	2.47	C	27,590	67.5	0.14	1.21	116.27	0.24	2.08
Impervious as Meadow	Grassland/Herbaceous	0.22	B	304	48.8	0.22	2.30	0.93	0.00	0.04
Impervious as Meadow	Grassland/Herbaceous	0.61	C	2,092	48.8	0.22	2.30	6.38	0.03	0.30
Pervious as Meadow	Grassland/Herbaceous	6.59	B	9,108	48.8	0.22	2.30	27.75	0.13	1.31
Pervious as Meadow	Grassland/Herbaceous	10.70	C	36,703	48.8	0.22	2.30	111.84	0.50	5.27
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.22	B	227	45.0	0.13	1.05	0.64	0.00	0.01
Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.06	C	194	45.0	0.13	1.05	0.55	0.00	0.01

Forested (Good Condition)	Deciduous Forest/Evergreen Forest/Mixed Forest	0.04	D	187	45.0	0.13	1.05	0.53	0.00	0.01
	TOTAL (ACRES):	**21.81**					**TOTALS:**	**307.24**	**1.00**	**9.81**

Post-Construction Pollutant Loads (without BMPs):

Land Cover (from Volume Worksheet)	Land Cover for Water Quality	Area (acres)	Soil Group	Runoff Volume (cf)	Pollutant Conc. (mg/L)			Pollutant Loads (lbs)		
					TSS	TP	TN	TSS	TP	TN
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	2.13	B	23,792	65.0	0.29	2.05	96.57	0.43	3.05
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	Residential	6.40	C	71,487	65.0	0.29	2.05	290.15	1.29	9.15
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	Urban Highway	0.38	B	4,245	142.0	0.32	3.00	37.64	0.08	0.80
Impervious Areas: Streets and Roads - Paved; Curbs and Storm Sewers (Excluding ROW)	Urban Highway	1.63	C	18,207	142.0	0.32	3.00	161.44	0.36	3.41
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	4.62	B	8,214	78.0	0.25	1.25	40.01	0.13	0.64
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	5.60	C	22,577	78.0	0.25	1.25	109.96	0.35	1.76
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	Open Space	0.04	D	216	78.0	0.25	1.25	1.05	0.00	0.02
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	Grassland/Herbaceous	0.55	B	760	48.8	0.22	2.30	2.32	0.01	0.11
	TOTAL (ACRES):	**21.35**					**TOTALS:**	**739.12**	**2.67**	**18.93**

POLLUTANT LOAD REDUCTION REQUIREMENTS (LBS):	431.88	1.67	9.12

☑ **Characterize Undetained Areas (for Untreated Stormwater)** *No. Rows:* 5

Land Cover	Area (acres)	Soil Group	CN	Ia (in)	Q Runoff (in)	Runoff Volume (cf)
Meadow-Continuous Grass, Protected from Grazing and Generally Mowed for Hay	0.55	B	58	1.448	0.38	760
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.54	B	61	1.279	0.49	960
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	1.12	C	74	0.703	1.11	4,515
Open Space (Lawns, Parks, Golf Courses, Cemeteries, Etc.) - Good Condition (Grass Cover > 75%)	0.04	D	80	0.500	1.49	216
Impervious Areas: Paved Parking Lots, Roofs, Driveways, Etc. (Excluding ROW)	0.02	N/A	98	0.041	3.08	223

Non-Structural BMP Water Quality Credits:

☑ Pervious Undetained Area Credit

TSS	TP	TN
4.91	0.02	0.14

☐ Other (attach calculations)

Structural BMP Water Quality Credits:

☑ *Use default BMP Outflows and Median BMP Outflow Concentrations*

DP No.	BMP No.	BMP Name	MRC?	BMP DA (acres)	Vol. Routed to BMP (CF)	Inf. & ET Credits (CF)	Capture & Buffer Credits (CF)	Outflow (CF)	Outflow Conc. (mg/L)			Pollutant Loads (lbs)		
									TSS	TP	TN	TSS	TP	TN
009	3	Infiltration Basin	-	0.43	32,539	31,682		857	10.00	0.24	0.96	0.54	0.01	0.05
008	4	Dry Extended Detention Basin	-	5.15	31,799			31,799	-	-	-	-	-	-
010	5	Dry Extended Detention Basin	-	8.09	65,688			65,688	22.00	0.19	1.22	90.24	0.78	5.00
010	6	Infiltration Bed	-	5.41	42,863	33,264		9,599	-	-	-	-	-	-

	TSS	TP	TN
POLLUTANT LOADS FROM STRUCTURAL BMP (TREATED) OUTFLOWS (LBS):	**90.77**	**0.79**	**5.06**
POLLUTANT LOADS FROM UNTREATED STORMWATER (LBS):	**30.94**	**0.10**	**0.58**
NON-STRUCTURAL BMP WATER QUALITY CREDITS (LBS):	**4.91**	**0.02**	**0.14**
NET POLLUTANT LOADS FROM SITE, POST-CONSTRUCTION (LBS):	**116.80**	**0.88**	**5.50**
POLLUTANT LOADS FROM SITE, PRE-CONSTRUCTION (LBS):	**307.24**	**1.00**	**9.81**

WATER QUALITY REQUIREMENT SATISFIED

CERTIFICATION

I certify under penalty of law and subject to the penalties of 18 Pa.C.S. § 4904 (relating to unsworn falsification to authorities) that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I further certify that the structure, function, and calculations contained in this spreadsheet have not been modified in comparison to the spreadsheet DEP has posted to its website or, if modifications were made, an explanation of the modifications made is attached to this spreadsheet.

Luke Piotrowicz	3/15/2024
Spreadsheet User Name	Date

Version	Date	Change(s)
1.9	10/18/2021	1) Modified dropdown list for Infiltration Period (Volume Worksheet, Structural BMP Volume Credits table) to eliminate hours 1-11 (i.e., the minimum Infiltration Period must be 12 hours). 2) Updated median outflow concentrations (MOCs) for structural BMPs based on the latest analysis of literature data.
1.8	12/21/2020	1) Updated list of pre-construction land covers in Volume Worksheet so that the same post-construction impervious land cover options are available for pre-construction conditions (for more accurate water quality analyses). 2) Removed Soil Amendment from dropdown list of structural BMPs in Volume Worksheet (Soil Amendment credits should be calculated separately in accordance with Stormwater BMP Manual and reported as an "Other" Non-Structural BMP credit). 3) Increased number of allowable digits in the Peak Rate Summary table of the Rate Worksheet from 3 to 4. 4) Corrected problem on Quality Worksheet where acres for custom-input land covers on Volume Worksheet were not displayed.
1.7	8/28/2020	1) Modified the Quality Worksheet such that outflows from MRC BMPs are not subject to pollutant load calculations. 2) Added new section for "Characterization of Undetained Areas (for Untreated Stormwater)" in the Quality Worksheet to allow for the calculation of more accurate estimates of pollutant loads in untreated stormwater. 3) Modified the Pervious Undetained Area Credit to calculate automatically when the "Characterization of Undetained Areas (for Untreated Stormwater)" function is completed. 4) Corrected an error that did not allow the selection of more than 10 DPs from the Structural BMP table in the Volume Worksheet.
1.6	5/11/2020	1) Updated calculation of weighted curve number for calculation of peak rates in Rate Worksheet to consider any selection of "Impervious as Meadow" as having a CN of 98; 2) Added "MRC?" column to Structural BMP table in Volume Worksheet (outflows from BMPs when this column = "Y" and Discharge = "Off-Site" are added to Managed Release Credit shown at bottom of table); 3) Removed "Series" and "Impervious in DA" columns and added "Discharge" column to allow flexibility to user in the entry of BMPs in series (see Instructions); 4) Added three BMPs to drop-down list in Structural BMP table in Volume Worksheet: Vegetated Roof, Riparian Forest Buffer (Min 150 Ft), and Riparian Buffer; 5) Changed Managed Release Credit from manual entry to auto-calculation in Structural BMP table - if MRC? column = "Y" and Discharge = "Off-Site", Managed Release Credits are calculated and shown; 6) Increased number of possible discharge points from 10 to 20 in the General Worksheet, the number of possible pre-construction and post-construction land covers from 8 to 20 (each, with number of rows controlled separately) in the Volume Worksheet, and the number of possible structural BMPs from 20 to 50 in the Volume, Rate and Quality Worksheets; 7) Added row for Riparian Forest Buffer Credits in Volume Worksheet; 8) Removed Pervious Undetained Area Credits from Volume Worksheet and added it to the Quality Worksheet (Non-Structural WQ Credit), changing the type of credit from volume reduction to pollutant load reduction (see Instructions); 8) Modified calculation of pollutant loads in untreated stormwater to utilize post-construction volume-weighted pollutant concentrations instead of area-weighted pollutant concentrations; 9) Added "Clear Project" button to General Worksheet to remove all entries throughout spreadsheet; 10) Added Certification statement to bottom of Quality Worksheet.
1.5	1/24/2020	1) Removed pervious undetained area credit on Volume Worksheet to calculate the credit based on the pervious undetained area within the earth disturbance area only (previously the credit was applied to undetained areas reported for the project site); 2) Changed validation for pre- and post-construction conditions (land covers) in Volume Worksheet to ensure user-entered areas do not exceed the Total Earth Disturbance Area as reported in the General Worksheet (as opposed to the Project Site Area previously used) due to the possibility that areas of a project site outside the limit of disturbance may be treated differently by the spreadsheet in pre- and post-construction conditions.
1.4	1/14/2020	1) Added drop-down lists in General and Volume Worksheets to allow users to select the starting Discharge Point and BMP Numbers for the spreadsheet (addresses concern that two instances of the spreadsheet for the same project site could have the same DP or BMP numbering). 2) Updated equation for determining volume of untreated stormwater in Quality Worksheet to subtract all non-structural volume credits entered in the Volume Worksheet.
1.3	1/7/2020	1) Increased number of decimal places for Area in the Quality Worksheet from one to two; 2) unlocked cells for BMP outflow concentrations for manual input that were mistakenly locked; and 3) modified the formula for pervious undetained area credit in the Volume Worksheet to consider total acres of impervious and pervious in undetained areas instead of percentages.
1.2	1/2/2020	1) Updated calculation that determines the total volume routed to BMPs when BMPs are in series, which affects the calculation of pollutant loads in untreated stormwater in the Quality worksheet. Previous versions of the spreadsheet did not fully credit the volume routed to BMPs in series, as stormwater flows from drainage areas beyond that of the first BMP in series were not considered. Update - if the volume routed to a downstream BMP in series exceeds the volume routed to the previous BMP, minus infiltration and ET credits, the difference in this volume is credited to the downstream BMP. 2) Increased the allowable infiltration/vegetated area to six figures in the Volume Worksheet, Structural BMP table. 3) Added an advisory to the Rate worksheet that if the weighted curve number for either pre- or post-construction conditions is less than 40, the Rate worksheet should not be used except to report peak rates.
1.1	12/19/2019	1) Added peak rate summary checkbox and table to Rate worksheet; 2) removed validation constraint for BMP inflows and outflows in Rate worksheet; 3) provided ability to manually enter Impervious in BMP Drainage Area in Volume Worksheet; and 4) other miscellaneous corrections and updates.
1	12/6/2019	Original

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 11.81 cfs @ 12.06 hrs, Volume= 0.730 af, Depth= 1.70"
Routed to Pond 30p : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.150	83	
	5.150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 0.33 cfs @ 11.98 hrs, Volume= 0.018 af, Depth= 0.49"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 16.68 cfs @ 12.04 hrs, Volume= 0.984 af, Depth= 2.18"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 21.86 cfs @ 12.02 hrs, Volume= 1.197 af, Depth= 1.77"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.580 ac, 0.00% Impervious, Inflow Depth = 1.61" for 2-YR event
Inflow = 2.55 cfs @ 12.38 hrs, Volume= 0.747 af
Outflow = 0.11 cfs @ 11.95 hrs, Volume= 0.747 af, Atten= 96%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.95 hrs, Volume= 0.747 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.68' @ 24.16 hrs Surf.Area= 10,200 sf Storage= 10,808 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,047.0 min (3,050.9 - 2,003.9)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

BASIN 3A & 3B ARE IN SERIES, TOTAL STORGAE BASIN 3B = 10,808 CF + 15,995 CF = 26,803 CF

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.95 hrs HW=242.54' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
↑—**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
↑—**3=Orifice/Grate** (Controls 0.00 cfs)

Hydrograph for Pond 40P: BASIN 3B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	242.50	0.00	0.00	**0.00**
2.00	0.00	0	242.50	0.00	0.00	0.00
4.00	0.00	0	242.50	0.00	0.00	0.00
6.00	0.00	0	242.50	0.00	0.00	0.00
8.00	0.00	0	242.50	0.00	0.00	0.00
10.00	0.07	0	242.50	**0.07**	**0.07**	0.00
12.00	**1.18**	452	242.56	**0.11**	**0.11**	0.00
14.00	**0.25**	9,134	243.52	0.11	0.11	0.00
16.00	0.18	9,846	243.59	0.11	0.11	0.00
18.00	0.16	10,253	243.63	0.11	0.11	0.00
20.00	0.14	10,512	243.66	0.11	0.11	0.00
22.00	0.13	10,672	243.67	0.11	0.11	0.00
24.00	0.13	**10,802**	**243.68**	0.11	0.11	0.00
26.00	0.08	**10,607**	**243.66**	0.11	0.11	0.00
28.00	0.08	10,375	243.64	0.11	0.11	0.00
30.00	0.08	10,143	243.62	0.11	0.11	0.00
32.00	0.08	9,912	243.60	0.11	0.11	0.00
34.00	0.08	9,680	243.57	0.11	0.11	0.00
36.00	0.08	9,448	243.55	0.11	0.11	0.00
38.00	0.08	9,216	243.53	0.11	0.11	0.00
40.00	0.08	8,984	243.50	0.11	0.11	0.00
42.00	0.08	8,752	243.48	0.11	0.11	0.00
44.00	0.08	8,521	243.46	0.11	0.11	0.00
46.00	0.08	8,289	243.43	0.11	0.11	0.00
48.00	0.08	8,057	243.41	0.11	0.11	0.00
50.00	0.08	7,825	243.38	0.11	0.11	0.00
52.00	0.08	7,593	243.36	0.11	0.11	0.00
54.00	0.08	7,360	243.34	0.11	0.11	0.00
56.00	0.08	7,128	243.31	0.11	0.11	0.00
58.00	0.08	6,895	243.29	0.11	0.11	0.00
60.00	0.08	6,663	243.26	0.11	0.11	0.00
62.00	0.08	6,429	243.24	0.11	0.11	0.00
64.00	0.08	6,196	243.21	0.11	0.11	0.00
66.00	0.08	5,961	243.19	0.11	0.11	0.00
68.00	0.08	5,726	243.16	0.11	0.11	0.00
70.00	0.08	5,489	243.14	0.11	0.11	0.00
72.00	0.08	5,249	243.11	0.11	0.11	0.00
74.00	0.08	5,005	243.08	0.11	0.11	0.00
76.00	0.07	4,755	243.06	0.11	0.11	0.00
78.00	0.07	4,493	243.03	0.11	0.11	0.00
80.00	0.07	4,211	243.00	0.11	0.11	0.00
82.00	0.06	3,899	242.96	0.11	0.11	0.00
84.00	0.00	3,145	242.87	0.11	0.11	0.00
86.00	0.00	2,353	242.78	0.11	0.11	0.00
88.00	0.00	1,561	242.69	0.11	0.11	0.00
90.00	0.00	769	242.59	0.11	0.11	0.00
92.00	0.00	0	242.50	0.00	0.00	0.00
94.00	0.00	0	242.50	0.00	0.00	0.00
96.00	0.00	0	242.50	0.00	0.00	0.00
98.00	0.00	0	242.50	0.00	0.00	0.00
100.00	0.00	0	242.50	0.00	0.00	0.00

BMP NO.5 INFILTRATION PERIOD: 80 HOURS

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 2.18" for 2-YR event
Inflow = 16.68 cfs @ 12.04 hrs, Volume= 0.984 af
Outflow = 10.94 cfs @ 12.13 hrs, Volume= 0.984 af, Atten= 34%, Lag= 5.9 min
Discarded = 0.58 cfs @ 11.42 hrs, Volume= 0.672 af
Primary = 10.36 cfs @ 12.13 hrs, Volume= 0.312 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.72' @ 12.13 hrs Surf.Area= 9,900 sf Storage= 12,774 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 107.2 min (919.4 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 11.42 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=10.34 cfs @ 12.13 hrs HW=243.72' TW=232.98' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 4.99 cfs @ 4.53 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 5.35 cfs @ 3.26 fps)

Hydrograph for Pond 50P: STONE BMP 2A (BASIN)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	240.50	0.00	0.00	0.00
2.00	0.00	0	240.50	0.00	0.00	0.00
4.00	0.00	0	240.50	0.00	0.00	0.00
6.00	0.00	0	240.50	0.00	0.00	0.00
8.00	0.07	0	240.50	0.07	0.07	0.00
10.00	0.25	0	240.50	0.25	**0.25**	0.00
12.00	**15.71**	**8,383**	**242.62**	**0.58**	**0.58**	**0.00**
14.00	**0.65**	**9,566**	**242.92**	**0.76**	0.58	**0.18**
16.00	0.39	8,763	242.71	0.58	0.58	0.00
18.00	0.30	7,051	242.28	0.58	0.58	0.00
20.00	0.22	4,760	241.70	0.58	0.58	0.00
22.00	0.20	2,080	241.03	0.58	0.58	0.00
24.00	0.18	0	240.50	0.24	0.24	0.00
26.00	0.00	0	240.50	0.00	0.00	0.00
28.00	0.00	0	240.50	0.00	0.00	0.00
30.00	0.00	0	240.50	0.00	0.00	0.00
32.00	0.00	0	240.50	0.00	0.00	0.00
34.00	0.00	0	240.50	0.00	0.00	0.00
36.00	0.00	0	240.50	0.00	0.00	0.00
38.00	0.00	0	240.50	0.00	0.00	0.00
40.00	0.00	0	240.50	0.00	0.00	0.00
42.00	0.00	0	240.50	0.00	0.00	0.00
44.00	0.00	0	240.50	0.00	0.00	0.00
46.00	0.00	0	240.50	0.00	0.00	0.00
48.00	0.00	0	240.50	0.00	0.00	0.00
50.00	0.00	0	240.50	0.00	0.00	0.00
52.00	0.00	0	240.50	0.00	0.00	0.00
54.00	0.00	0	240.50	0.00	0.00	0.00
56.00	0.00	0	240.50	0.00	0.00	0.00
58.00	0.00	0	240.50	0.00	0.00	0.00
60.00	0.00	0	240.50	0.00	0.00	0.00
62.00	0.00	0	240.50	0.00	0.00	0.00
64.00	0.00	0	240.50	0.00	0.00	0.00
66.00	0.00	0	240.50	0.00	0.00	0.00
68.00	0.00	0	240.50	0.00	0.00	0.00
70.00	0.00	0	240.50	0.00	0.00	0.00
72.00	0.00	0	240.50	0.00	0.00	0.00
74.00	0.00	0	240.50	0.00	0.00	0.00
76.00	0.00	0	240.50	0.00	0.00	0.00
78.00	0.00	0	240.50	0.00	0.00	0.00
80.00	0.00	0	240.50	0.00	0.00	0.00
82.00	0.00	0	240.50	0.00	0.00	0.00
84.00	0.00	0	240.50	0.00	0.00	0.00
86.00	0.00	0	240.50	0.00	0.00	0.00
88.00	0.00	0	240.50	0.00	0.00	0.00
90.00	0.00	0	240.50	0.00	0.00	0.00
92.00	0.00	0	240.50	0.00	0.00	0.00
94.00	0.00	0	240.50	0.00	0.00	0.00
96.00	0.00	0	240.50	0.00	0.00	0.00
98.00	0.00	0	240.50	0.00	0.00	0.00
100.00	0.00	0	240.50	0.00	0.00	0.00

BMP NO.6 INFILTRATION PERIOD: 16 HOURS

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 10/3/2023
Chk'd:
Rev'd: 01/23/24

Watershed: **Post Developed - (Basin 3A) - DISTURBED AREA**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	(On-site) Impervious	98	1.19	116.22
B/C/D	(On-site) Building Impervious	98	1.61	157.48
B	Lawn	61	1.79	109.25
C	Lawn	74	0.56	41.53
Undisturbed area into Basin 3A				
B	Lawn	61	0.07	4.41
Totals =			5.15	424.49

Composite Cn = $\frac{424.49}{5.15}$ = 82.50

USE Cn = 82.5

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 10/3/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - (Basin 3B) - DISTURBED AREA**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Lawn	61	0.43	26.20
All Area conveyed to Basin 3B is Disturbed				
Totals =			0.43	26.20

Composite Cn = $\frac{26.20}{0.43}$ = 61.00

USE Cn = 61.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 10/3/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - (Stone BMP 2A) - DISTURBED AREA**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	(On-site) Impervious	98	1.32	129.77
B/C/D	(On-site) Building Impervious	98	2.09	204.73
B	Lawn	61	0.24	14.74
C	Lawn	74	1.75	129.53
All Area conveyed to Stone BMP 2A is Disturbed				

Totals =	5.41	478.77

Composite Cn = $\frac{478.77}{5.41}$ = 88.57

USE Cn = 88.6

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 10/3/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - (Basin 4) - DISTURBED AREA**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	(On-site) Impervious	98	1.81	177.81
B/C	(On-site) Building Impervious	98	2.50	245.22
B	Lawn	61	1.84	112.44
C	Lawn	74	1.93	142.88
All Area conveyed to Basin 4 is Disturbed				

Totals =	8.09	678.35

Composite Cn = $\frac{678.35}{8.09}$ = 83.84

USE Cn = 83.8

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Pre-developed Tc

3

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed A**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description (table B-8)			Meadow		
Manning's Roughness Coefficient, n (table B-8)			0.17		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0111		
Tt =	$\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.3110		
	Sheet flow Subtotal Tt =	**hr**			**0.3110**

Shallow concentrated flow

		Segment ID	B - C	C - D	
Surface Description (paved or unpaved)			Unpaved	Paved	
Flow Length, L		ft	446	29	
Watercourse Slope, s		ft/ft	0.0106	0.0197	
Average Velociity, V (figure B-8)		fps	1.66	2.85	
Tt =	$\frac{L}{(3600 \times V)}$	hr	0.0746	0.0028	
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0775**

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Channel flow Subtotal Tt =	**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.3885
Tt (min) = 23.310

Total Hydraulic Length = 625
Total Elevation Change = 6.9
Average Slope = 1.11%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/27/2023
Chk'd:
Rev'd:

Watershed: **Pre Developed B**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B		
Surface Description		Meadow		
Manning's Roughness Coefficient, n		0.17		
Flow Length, L	ft.	150		
Two Year 24 Hour Rainfall, P2	in.	3.31		
Land Slope, s	ft/ft	0.0135		
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2870		
Sheet flow Subtotal Tt =	**hr**			**0.2870**

Shallow concentrated flow

	Segment ID	B - C	C - D	D - E
Surface Description (paved or unpaved)		Unpaved	Paved	Unpaved
Flow Length, L	ft	196	37	197
Watercourse Slope, s	ft/ft	0.0181	0.0122	0.0251
Average Velociity, V (figure B-8)	fps	2.17	2.24	2.56
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0251	0.0046	0.0214
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0511**

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.3380
Tt (min) = 20.282

Total Hydraulic Length = 580
Total Elevation Change = 11.0
Average Slope = 1.89%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/18/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed C**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Meadow		
Manning's Roughness Coefficient, n			0.17		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0167		
Tt =	$\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2640		
	Sheet flow Subtotal Tt =	**hr**			**0.2640**

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	105		
Watercourse Slope, s		ft/ft	0.0138		
Average Velociity, V (figure B-8)		fps	1.90		
Tt =	$\frac{L}{(3600 \times V)}$	hr	0.0154		
	Shallow concentrated flow Subtotal Tt =	**hr**			**0.0154**

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Channel flow Subtotal Tt =	**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.2794
Tt (min) = 16.766

Total Hydraulic Length =	255
Total Elevation Change =	3.9
Average Slope =	1.55%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/27/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed D**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Meadow		
Manning's Roughness Coefficient, n			0.17		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0093		
Tt =	$\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.3339		
	Sheet flow Subtotal Tt =	**hr**			**0.3339**

Shallow concentrated flow

		Segment ID	B - C	C - D	D - E
Surface Description (paved or unpaved)			Unpaved	Paved	Unpaved
Flow Length, L		ft	363	16	487
Watercourse Slope, s		ft/ft	0.0075	0.0156	0.0210
Average Velociity, V (figure B-8)		fps	1.39	2.54	2.34
Tt =	$\frac{L}{(3600 \times V)}$	hr	0.0723	0.0017	0.0578
	Shallow concentrated flow Subtotal Tt =	**hr**			**0.1319**

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Channel flow Subtotal Tt =	**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.4658
Tt (min) = 27.948

Total Hydraulic Length =	1016
Total Elevation Change =	14.6
Average Slope =	1.44%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/19/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed E**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Meadow		
Manning's Roughness Coefficient, n			0.17		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0224		
Tt =	$\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2346		
	Sheet flow Subtotal Tt =	**hr**			**0.2346**

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	1196		
Watercourse Slope, s		ft/ft	0.0228		
Average Velociity, V (figure B-8)		fps	2.44		
Tt =	$\frac{L}{(3600 \times V)}$	hr	0.1363		
	Shallow concentrated flow Subtotal Tt =	**hr**			**0.1363**

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Channel flow Subtotal Tt =	**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.3709
Tt (min) = 22.256

Total Hydraulic Length = 1346
Total Elevation Change = 30.6
Average Slope = 2.28%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/19/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed F**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Meadow		
Manning's Roughness Coefficient, n			0.17		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0408		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.1846		
Sheet flow Subtotal Tt =		**hr**			**0.1846**

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	707		
Watercourse Slope, s		ft/ft	0.0433		
Average Velociity, V (figure B-8)		fps	3.36		
Tt =	L / (3600 x V)	hr	0.0585		
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0585**

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
Pipe flow Subtotal Tt =		**hr**			

Total Tt = 0.2430
Tt (min) = 14.583

Total Hydraulic Length = 857
Total Elevation Change = 36.8
Average Slope = 4.29%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/19/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed G**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Meadow		
Manning's Roughness Coefficient, n			0.17		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0433		
Tt =	$\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.1802		
	Sheet flow Subtotal Tt =	**hr**			**0.1802**

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	340		
Watercourse Slope, s		ft/ft	0.0471		
Average Velociity, V (figure B-8)		fps	3.50		
Tt =	$\frac{L}{(3600 \times V)}$	hr	0.0270		
	Shallow concentrated flow Subtotal Tt =	**hr**			**0.0270**

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Channel flow Subtotal Tt =	**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	$\frac{L}{(3600 \times V)}$	hr			
	Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.2072
Tt (min) = 12.429

Total Hydraulic Length =	490
Total Elevation Change =	22.5
Average Slope =	4.59%

Pre-developed Cn

4

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed A**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Existing road	98	0.06	5.81
B	Existing Impervious TBR	98	0.23	22.24
B	20% Existing Impervious TBR (Counted as Meadow)	58	0.06	3.29
B	Meadow (good)	58	1.63	94.53

Totals =	1.97	125.87

Composite Cn = $\frac{125.87}{1.97}$ = 64

USE Cn = 63.8

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/27/2023
Chk'd:
Rev'd: 11/28/23

Watershed: **Pre Developed B**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B/C	Existing Road	98	0.41	39.71
B/C	Existing Impervious TBR	98	0.86	84.58
B	20% Existing Impervious TBR (Counted as Meadow)	58	0.18	10.52
C	20% Existing Impervious TBR (Counted as Meadow)	71	0.03	2.44
B	Meadow (good)	58	4.52	262.02
C	Meadow (good)	71	2.53	179.87
B	Residentail 1/4 Ac Lot (offsite)	75	0.39	29.11
C	Lawn (good)	74	0.08	6.20

Totals = 9.01 | 614.45

Composite Cn = $\frac{614.45}{9.01}$ = 68.22

USE Cn = 68

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed C**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B	Meadow (good)	58	1.70	98.53
Totals =			1.70	98.53

Composite Cn = $\frac{98.53}{1.70}$ = 58.00

USE Cn = 58.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd:
Rev'd: 11/28/23

Watershed: **Pre Developed D**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	Existing Impervious TBR	98	2.62	256.58
B	20% Existing Impervious TBR (Counted as Meadow)	58	0.22	12.65
C	20% Existing Impervious TBR (Counted as Meadow)	71	0.44	30.99
B	Meadow (good)	58	2.15	124.60
C	Meadow (good)	71	4.72	334.95
B	Residentail 1/4 Ac Lot (offsite)	75	1.18	88.47
B	Existing Road	98	0.04	4.30
Totals =			11.36	852.53

Composite Cn = $\frac{852.53}{11.36}$ = 75.03

USE Cn = 75

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/20/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed E**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	Existing Impervious TBR	98	0.21	20.96
C	20% Existing Impervious TBR (Counted as Meadow)	71	0.05	3.80
B	Off-site 1/3 Acre Residential Lots (offsite)	72	2.17	156.00
C	Off-site 1/3 Acre Residential Lots (offsite)	81	0.07	6.04
B	Woods (good)	55	1.24	68.31
D	Woods (good)	77	0.73	56.52
B	Meadow (good)	58	4.49	260.22
C	Meadow (good)	71	2.70	191.43
Totals =			11.67	763.27

$$\text{Composite Cn} = \frac{763.27}{11.67} = 65.42$$

USE Cn = 65.4

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/19/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed F**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	Existing Impervious TBR	98	0.28	27.70
C	20% Existing Impervious TBR (Counted as Meadow)	71	0.07	5.02
B	Woods (good)	55	1.43	78.55
C	Woods (good)	70	0.01	0.71
D	Woods (good)	77	1.39	106.88
B	Meadow (good)	58	2.54	147.08
C	Meadow (good)	71	3.45	245.27
Totals =			9.17	611.21

$$\text{Composite Cn} = \frac{611.21}{9.17} = 66.65$$

USE Cn = 66.7

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/19/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Pre Developed G**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	Existing Impervious TBR	98	0.22	21.15
C	20% Existing Impervious TBR (Counted as Meadow)	71	0.05	3.83
B	Off-site 1/4 Acre Residential Lots	75	0.68	51.32
B	Woods (good)	55	0.59	32.50
C	Woods (good)	70	0.17	11.57
D	Woods (good)	77	0.02	1.49
B	Meadow (good)	58	0.43	24.90
C	Meadow (good)	71	2.87	204.10
Totals =			5.03	350.86

$$\text{Composite Cn} = \frac{350.86}{5.03} = 69.70$$

USE Cn = 69.7

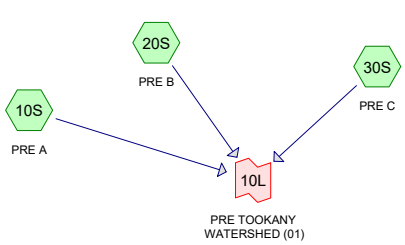
24 hr RAINFALL for Abington Township

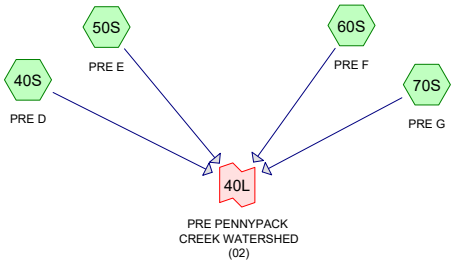
(per NOAA)

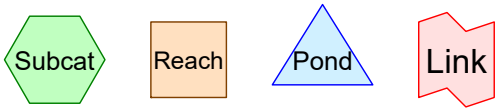
1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Pre-developed Hydrographs

5







Routing Diagram for 7662-PRE vs POST
Prepared by ESE Consultants, Inc, Printed 11/30/2023
HydroCAD® 10.20-3c s/n 01254 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment 10S: PRE A

Runoff = 0.45 cfs @ 12.24 hrs, Volume= 0.059 af, Depth= 0.36"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 3.84 cfs @ 12.16 hrs, Volume= 0.374 af, Depth= 0.50"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 0.14 cfs @ 12.19 hrs, Volume= 0.028 af, Depth= 0.20"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 7.47 cfs @ 12.24 hrs, Volume= 0.753 af, Depth= 0.80"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	11.360	75	
	11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 3.19 cfs @ 12.21 hrs, Volume= 0.382 af, Depth= 0.39"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	11.670	65	
	11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 4.32 cfs @ 12.09 hrs, Volume= 0.352 af, Depth= 0.46"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	9.170	67	
	9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 3.58 cfs @ 12.06 hrs, Volume= 0.241 af, Depth= 0.57"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 0.44" for 1-YR event
Inflow = 4.39 cfs @ 12.17 hrs, Volume= 0.460 af
Primary = 4.39 cfs @ 12.17 hrs, Volume= 0.460 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 0.56" for 1-YR event
Inflow = 15.85 cfs @ 12.15 hrs, Volume= 1.728 af
Primary = 15.85 cfs @ 12.15 hrs, Volume= 1.728 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: PRE A

Runoff = 0.94 cfs @ 12.20 hrs, Volume= 0.100 af, Depth= 0.61"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 6.90 cfs @ 12.16 hrs, Volume= 0.596 af, Depth= 0.79"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 0.46 cfs @ 12.15 hrs, Volume= 0.054 af, Depth= 0.38"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 11.49 cfs @ 12.24 hrs, Volume= 1.107 af, Depth= 1.17"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	11.360	75	
	11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 6.39 cfs @ 12.19 hrs, Volume= 0.637 af, Depth= 0.65"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	11.670	65	
	11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 7.92 cfs @ 12.09 hrs, Volume= 0.570 af, Depth= 0.75"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	9.170	67	
	9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 5.96 cfs @ 12.06 hrs, Volume= 0.374 af, Depth= 0.89"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 0.71" for 2-YR event
Inflow = 8.26 cfs @ 12.16 hrs, Volume= 0.750 af
Primary = 8.26 cfs @ 12.16 hrs, Volume= 0.750 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 0.87" for 2-YR event
Inflow = 27.52 cfs @ 12.12 hrs, Volume= 2.687 af
Primary = 27.52 cfs @ 12.12 hrs, Volume= 2.687 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: PRE A

Runoff = 1.91 cfs @ 12.19 hrs, Volume= 0.177 af, Depth= 1.08"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 12.37 cfs @ 12.15 hrs, Volume= 0.991 af, Depth= 1.32"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 1.23 cfs @ 12.12 hrs, Volume= 0.106 af, Depth= 0.75"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 18.24 cfs @ 12.24 hrs, Volume= 1.707 af, Depth= 1.80"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

Area (ac)	CN	Description
* 11.360	75	
11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 12.50 cfs @ 12.17 hrs, Volume= 1.103 af, Depth= 1.13"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

Area (ac)	CN	Description
* 11.670	65	
11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 14.38 cfs @ 12.08 hrs, Volume= 0.961 af, Depth= 1.26"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

Area (ac)	CN	Description
* 9.170	67	
9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 10.11 cfs @ 12.05 hrs, Volume= 0.608 af, Depth= 1.45"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 1.21" for 5-YR event
Inflow = 15.41 cfs @ 12.15 hrs, Volume= 1.274 af
Primary = 15.41 cfs @ 12.15 hrs, Volume= 1.274 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 1.41" for 5-YR event
Inflow = 48.56 cfs @ 12.12 hrs, Volume= 4.379 af
Primary = 48.56 cfs @ 12.12 hrs, Volume= 4.379 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: PRE A

Runoff = 2.86 cfs @ 12.19 hrs, Volume= 0.251 af, Depth= 1.53"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 17.56 cfs @ 12.14 hrs, Volume= 1.369 af, Depth= 1.82"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 2.05 cfs @ 12.11 hrs, Volume= 0.159 af, Depth= 1.13"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 24.41 cfs @ 12.22 hrs, Volume= 2.257 af, Depth= 2.38"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	11.360	75	
	11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 18.46 cfs @ 12.17 hrs, Volume= 1.557 af, Depth= 1.60"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	11.670	65	
	11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 20.52 cfs @ 12.08 hrs, Volume= 1.335 af, Depth= 1.75"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	9.170	67	
	9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 13.96 cfs @ 12.05 hrs, Volume= 0.829 af, Depth= 1.98"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 1.68" for 10-YR event
Inflow = 22.32 cfs @ 12.14 hrs, Volume= 1.779 af
Primary = 22.32 cfs @ 12.14 hrs, Volume= 1.779 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 1.93" for 10-YR event
Inflow = 68.43 cfs @ 12.11 hrs, Volume= 5.978 af
Primary = 68.43 cfs @ 12.11 hrs, Volume= 5.978 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: PRE A

Runoff = 4.39 cfs @ 12.17 hrs, Volume= 0.372 af, Depth= 2.26"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 25.74 cfs @ 12.14 hrs, Volume= 1.968 af, Depth= 2.62"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 3.43 cfs @ 12.11 hrs, Volume= 0.249 af, Depth= 1.76"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 33.84 cfs @ 12.22 hrs, Volume= 3.107 af, Depth= 3.28"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	11.360	75	
	11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 27.97 cfs @ 12.16 hrs, Volume= 2.287 af, Depth= 2.35"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	11.670	65	
	11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 30.23 cfs @ 12.07 hrs, Volume= 1.933 af, Depth= 2.53"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	9.170	67	
	9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 19.96 cfs @ 12.05 hrs, Volume= 1.176 af, Depth= 2.81"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 2.45" for 25-YR event
Inflow = 33.32 cfs @ 12.14 hrs, Volume= 2.588 af
Primary = 33.32 cfs @ 12.14 hrs, Volume= 2.588 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 2.74" for 25-YR event
Inflow = 99.67 cfs @ 12.11 hrs, Volume= 8.503 af
Primary = 99.67 cfs @ 12.11 hrs, Volume= 8.503 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: PRE A

Runoff = 5.79 cfs @ 12.17 hrs, Volume= 0.483 af, Depth= 2.94"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 33.10 cfs @ 12.13 hrs, Volume= 2.512 af, Depth= 3.35"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 4.72 cfs @ 12.10 hrs, Volume= 0.334 af, Depth= 2.36"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 42.11 cfs @ 12.22 hrs, Volume= 3.861 af, Depth= 4.08"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	11.360	75	
	11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 36.64 cfs @ 12.16 hrs, Volume= 2.957 af, Depth= 3.04"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	11.670	65	
	11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 38.97 cfs @ 12.07 hrs, Volume= 2.478 af, Depth= 3.24"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	9.170	67	
	9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 25.28 cfs @ 12.04 hrs, Volume= 1.489 af, Depth= 3.55"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 3.15" for 50-YR event
Inflow = 43.30 cfs @ 12.13 hrs, Volume= 3.328 af
Primary = 43.30 cfs @ 12.13 hrs, Volume= 3.328 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 3.48" for 50-YR event
Inflow = 127.74 cfs @ 12.11 hrs, Volume= 10.786 af
Primary = 127.74 cfs @ 12.11 hrs, Volume= 10.786 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: PRE A

Runoff = 7.40 cfs @ 12.17 hrs, Volume= 0.612 af, Depth= 3.73"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	1.970	64	Bypass
	1.970		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: PRE B

Runoff = 41.47 cfs @ 12.13 hrs, Volume= 3.136 af, Depth= 4.18"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	9.010	68	
	9.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: PRE C

Runoff = 6.25 cfs @ 12.10 hrs, Volume= 0.434 af, Depth= 3.06"
Routed to Link 10L : PRE TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	1.700	58	
	1.700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: PRE D

Runoff = 51.36 cfs @ 12.21 hrs, Volume= 4.713 af, Depth= 4.98"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	11.360	75	
	11.360		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9					**Direct Entry,**

Summary for Subcatchment 50S: PRE E

Runoff = 46.59 cfs @ 12.16 hrs, Volume= 3.732 af, Depth= 3.84"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	11.670	65	
	11.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.3					**Direct Entry,**

Summary for Subcatchment 60S: PRE F

Runoff = 48.92 cfs @ 12.07 hrs, Volume= 3.105 af, Depth= 4.06"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	9.170	67	
	9.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6					**Direct Entry,**

Summary for Subcatchment 70S: PRE G

Runoff = 31.29 cfs @ 12.04 hrs, Volume= 1.846 af, Depth= 4.40"
Routed to Link 40L : PRE PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	5.030	70	
	5.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4					**Direct Entry,**

Summary for Link 10L: PRE TOOKANY WATERSHED (01)

Inflow Area = 12.680 ac, 0.00% Impervious, Inflow Depth = 3.96" for 100-YR event
Inflow = 54.71 cfs @ 12.13 hrs, Volume= 4.181 af
Primary = 54.71 cfs @ 12.13 hrs, Volume= 4.181 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 40L: PRE PENNYPACK CREEK WATERSHED (02)

Inflow Area = 37.230 ac, 0.00% Impervious, Inflow Depth = 4.32" for 100-YR event
Inflow = 159.58 cfs @ 12.10 hrs, Volume= 13.396 af
Primary = 159.58 cfs @ 12.10 hrs, Volume= 13.396 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

During Construction Tc

6

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/10/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 1)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Disturbed		
Manning's Roughness Coefficient, n			0.13		
Flow Length, L		ft.	100		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0310		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.1202		
Sheet flow Subtotal Tt =		**hr**			**0.1202**

Elev. A = 253.50
Elev. B = 250.40
Chg. Elev. = 3.10

Shallow concentrated flow

		Segment ID	-		
Surface Description (paved or unpaved)					
Flow Length, L		ft			
Watercourse Slope, s		ft/ft			
Average Velociity, V (figure B-8)		fps			
Tt =	L / (3600 x V)	hr			
Shallow concentrated flow Subtotal Tt =		**hr**			

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID	B - B	-	
Structure 'From' - 'To'					
Flow Length, L		ft	650		
Pipe Diameter, D		in	15.00		
Manning's Roughness Coefficient, n			0.013		
Pipe Slope, s		ft/ft	0.018	#VALUE!	#VALUE!
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps	11.07	#VALUE!	#VALUE!
Tt =	L / (3600 x V)	hr	0.0163	#VALUE!	#VALUE!
Pipe flow Subtotal Tt =		**hr**			**0.0163**

Elev. B = 250.40
Elev. B = 239.00
Chg. Elev. = 11.40
246.52

Total Tt = 0.1365
Tt (min) = 8.189

Total Hydraulic Length = 750
Total Elevation Change = 14.5
Average Slope = 1.93%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/27/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass A**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0200		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.3235		
Sheet flow Subtotal Tt =		**hr**			**0.3235**

Elev. A = 253.10
Elev. B = 250.10
Chg. Elev. = 3.00

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	253		
Watercourse Slope, s		ft/ft	0.0075		
Average Velociity, V (figure B-8)		fps	1.40		
Tt =	L / (3600 x V)	hr	0.0503		
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0503**

Elev. B = 250.10
Elev. C = 248.20
Chg. Elev. = 1.90

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
Pipe flow Subtotal Tt =		**hr**			

Total Tt = 0.3737
Tt (min) = 22.423

Total Hydraulic Length =	403
Total Elevation Change =	4.9
Average Slope =	1.22%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass B**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

Segment ID		A - B			
Surface Description		Grass			Elev. A = 249.00
Manning's Roughness Coefficient, n		0.24			Elev. B = 245.50
Flow Length, L	ft.	150			Chg. Elev. = 3.50
Two Year 24 Hour Rainfall, P2	in.	3.31			
Land Slope, s	ft/ft	0.0233			
Tt = 0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.3041			
Sheet flow Subtotal Tt =	**hr**			**0.3041**	

Shallow concentrated flow

Segment ID		B - C	C - D		
Surface Description (paved or unpaved)		Unpaved	Paved		Elev. B = 245.50
Flow Length, L	ft	73	90		Elev. C = 244.50
Watercourse Slope, s	ft/ft	0.0137	0.0060		Chg. Elev. = 1.00
Average Velociity, V (figure B-8)	fps	1.89	1.57		Elev. C = 244.50
Tt = L / (3600 x V)	hr	0.0107	0.0159		Elev. D = 243.96
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0266**	Chg. Elev. = 0.54

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = L / (3600 x V)	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID				
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = L / (3600 x V)	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.3307
Tt (min) = 19.844

Total Hydraulic Length = 313
Total Elevation Change = 5.0
Average Slope = 1.61%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass C**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID			
Surface Description				
Manning's Roughness Coefficient, n				
Flow Length, L	ft.			
Two Year 24 Hour Rainfall, P2	in.			
Land Slope, s	ft/ft			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr			
Sheet flow Subtotal Tt =	**hr**			

Shallow concentrated flow

	Segment ID			
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt =
Tt (min) = 5.000

Total Hydraulic Length =
Total Elevation Change =
Average Slope =

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass D**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B			Elev. A = 250.00
Surface Description		Disturbed			Elev. B = 247.80
Manning's Roughness Coefficient, n		0.13			Chg. Elev. = 2.20
Flow Length, L	ft.	150			
Two Year 24 Hour Rainfall, P2	in.	3.31			
Land Slope, s	ft/ft	0.0147			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2242			
Sheet flow Subtotal Tt =	**hr**			**0.2242**	

Shallow concentrated flow

	Segment ID	B - C			Elev. B = 247.80
Surface Description (paved or unpaved)		Unpaved			Elev. C = 240.20
Flow Length, L	ft	238			Chg. Elev. = 7.60
Watercourse Slope, s	ft/ft	0.0319			240.20
Average Velociity, V (figure B-8)	fps	2.88			
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0229			
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0229**	

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.2472
Tt (min) = 14.829

Total Hydraulic Length =	388
Total Elevation Change =	9.8
Average Slope =	2.53%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/6/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass E**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B			Elev. A = 252.00
Surface Description		Grass			Elev. B = 246.00
Manning's Roughness Coefficient, n		0.24			Chg. Elev. = 6.00
Flow Length, L	ft.	150			
Two Year 24 Hour Rainfall, P2	in.	3.31			
Land Slope, s	ft/ft	0.0400			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.2451			
Sheet flow Subtotal Tt =	**hr**			**0.2451**	

Shallow concentrated flow

	Segment ID	B - C			Elev. B = 246.00
Surface Description (paved or unpaved)		Unpaved			Elev. C = 223.76
Flow Length, L	ft	800			Chg. Elev. = 22.24
Watercourse Slope, s	ft/ft	0.0278			
Average Velociity, V (figure B-8)	fps	2.69			
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0826			
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0826**	

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.3277
Tt (min) = 19.664

Total Hydraulic Length =	950
Total Elevation Change =	28.2
Average Slope =	2.97%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass F**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

Segment ID		A - B	B - C		
Surface Description		Grass	Woods		Elev. A = 239.00
Manning's Roughness Coefficient, n		0.24	0.4		Elev. B = 234.00
Flow Length, L	ft.	30	70		Chg. Elev. = 5.00
Two Year 24 Hour Rainfall, P2	in.	3.31	3.31		Elev. B = 234.00
Land Slope, s	ft/ft	0.1667	0.1071		Elev. C = 226.50
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.0382	0.1352		Chg. Elev. = 7.50
Sheet flow Subtotal Tt =	**hr**			**0.1734**	

Shallow concentrated flow

Segment ID		B - C			
Surface Description (paved or unpaved)		Unpaved			Elev. B = 234.00
Flow Length, L	ft	230			Elev. C = 214.00
Watercourse Slope, s	ft/ft	0.0870			Chg. Elev. = 20.00
Average Velociity, V (figure B-8)	fps	4.76			214.00
$Tt = \frac{L}{(3600 \times V)}$	hr	0.0134			
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0134**	

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID				
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1868
Tt (min) = 11.210

Total Hydraulic Length =	330
Total Elevation Change =	32.5
Average Slope =	9.85%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/6/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - By-pass G**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B			
Surface Description			Grass			Elev. A = 245.10
Manning's Roughness Coefficient, n			0.24			Elev. B = 232.00
Flow Length, L		ft.	150			Chg. Elev. = 13.10
Two Year 24 Hour Rainfall, P2		in.	3.31			
Land Slope, s		ft/ft	0.0873			
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.1794			
	Sheet flow Subtotal Tt =	**hr**			**0.1794**	

Shallow concentrated flow

		Segment ID	B - C			
Surface Description (paved or unpaved)			Unpaved			Elev. B = 232.00
Flow Length, L		ft	92			Elev. C = 227.50
Watercourse Slope, s		ft/ft	0.0489			Chg. Elev. = 4.50
Average Velociity, V (figure B-8)		fps	3.57			
Tt =	L / (3600 x V)	hr	0.0072			
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0072**	

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
	Channel flow Subtotal Tt =	**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
	Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1865
Tt (min) = 11.192

Total Hydraulic Length =	242
Total Elevation Change =	17.6
Average Slope =	7.27%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 3A)**

TIME OF CONCENTRATION

(S.C.S. TR-55 method)

Sheet Flow

Segment ID		-		
Surface Description		Grass		
Manning's Roughness Coefficient, n		0.24		
Flow Length, L	ft.			
Two Year 24 Hour Rainfall, P2	in.	3.31		
Land Slope, s	ft/ft			
$Tt = \frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr			
Sheet flow Subtotal Tt =	**hr**			

Shallow concentrated flow

Segment ID				
Surface Description (paved or unpaved)		unpaved		
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
$Tt = \frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID				
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n		0.013		
Pipe Slope, s	ft/ft	#DIV/0!		
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps	1.50		
$Tt = \frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt =
Tt (min) = 5 minutes

Total Hydraulic Length =
Total Elevation Change =
Average Slope =

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 3B)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

Segment ID				
Surface Description				
Manning's Roughness Coefficient, n				
Flow Length, L	ft.			
Two Year 24 Hour Rainfall, P2	in.			
Land Slope, s	ft/ft			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr			
Sheet flow Subtotal Tt =	**hr**			

Shallow concentrated flow

Segment ID				
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID		A - B			Elev. A =
Structure 'From' - 'To'					Elev. B =
Flow Length, L	ft				Chg. Elev. =
Pipe Diameter, D	in				
Manning's Roughness Coefficient, n					
Pipe Slope, s	ft/ft	#DIV/0!			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps				
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0833			
Pipe flow Subtotal Tt =	**hr**			**0.0833**	

Total Tt = 0.0833
Tt (min) = 5.000

Total Hydraulic Length =
Total Elevation Change =
Average Slope =

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 4)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	37		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.1027		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.0549		
Sheet flow Subtotal Tt =		**hr**			**0.0549**

Elev. A = 253.30
Elev. B = 249.50
Chg. Elev. = 3.80

Shallow concentrated flow

		Segment ID			
Surface Description (paved or unpaved)					
Flow Length, L		ft			
Watercourse Slope, s		ft/ft			
Average Velociity, V (figure B-8)		fps			
Tt =	L / (3600 x V)	hr			
Shallow concentrated flow Subtotal Tt =		**hr**			

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V =	(1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID	B - C		
Structure 'From' - 'To'			START TO END		
Flow Length, L		ft	835		
Pipe Diameter, D		in	varies		
Manning's Roughness Coefficient, n			0.013		
Pipe Slope, s		ft/ft	0.016		
Velocity, V =	(1.486)(r^2/3)(s^1/2)/n	fps	2.00		
Tt =	L / (3600 x V)	hr	0.1160		
Pipe flow Subtotal Tt =		**hr**			**0.1160**

Elev. B = 249.50
Elev. C = 236.00
Chg. Elev. = 13.50

Total Tt = 0.1708
Tt (min) = 10.250

Total Hydraulic Length =	872
Total Elevation Change =	17.3
Average Slope =	1.98%

During Construction Cn

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Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/10/2023
Chk'd: 3/3/2023
Rev'd:

Watershed: **During Construction - (E&S Basin 1)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	(On-site) Building Impervious	98	2.41	236.23
B/C	Disturbed Soil (Future (On-site) Impervious)	91	2.33	211.61
B	Disturbed Soil	86	3.92	336.74
C	Disturbed Soil	91	0.87	79.10
B	Residentail 1/4 Ac Lot (offsite)	75	0.30	22.83
Totals =			9.83	886.51

Composite Cn = $\frac{886.51}{9.83}$ = 90.23

USE Cn = 90.2

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass A**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Existing Road	98	0.06	5.52
B/C/D	(On-site) Impervious	98	0.01	0.59
B	Lawn (Good Condition)	61.0	0.69	42.20
B	Disturbed Soil	86.0	0.24	20.65

Totals =	0.99	68.97

Composite Cn = $\frac{68.97}{0.99}$ = 69.36

USE Cn = 69

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/10/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass B**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B/C	Existing Road	98	0.31	30.65
B/C	(On-site) Impervious	98	0.27	26.20
B	Disturbed Soil	86	0.33	28.37
C	Disturbed Soil	91	0.71	64.80
B	Residentail 1/4 Ac Lot (offsite)	75	0.08	6.23
B	Meadow (good)	58	0.10	5.85
C	Meadow (good)	71	0.10	7.10
Totals =			1.91	169.19

$$\text{Composite Cn} = \frac{169.19}{1.91} = 88.77$$

USE Cn = 89

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: JMM
Date: 11/23/2021
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass C**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Disturbed Soil	86	0.05	4.54
B	Lawn (Good Condition)	61	0.20	12.18
Totals =			0.25	16.72

Composite Cn = $\frac{16.72}{0.25}$ = 66.23

USE Cn = 66

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/28/2023
Chk'd:
Rev'd: 03/06/23

Watershed: **During Construction - By-Pass D**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B	Residentail 1/4 Ac Lot (offsite)	75	0.91	68.60
B	Disturbed	86	0.51	43.47
C	Disturbed	91	1.67	152.37

Totals =	3.09	264.44

Composite Cn = $\frac{264.44}{3.09}$ = 85.45

USE Cn = 85

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/23/2023
Chk'd:
Rev'd: 03/06/23

Watershed: **During Construction - By-Pass E**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	(Off-site) 1/3 Acre Residential Lots	72	2.17	156.00
C	(Off-site) 1/3 Acre Residential Lots	81	0.07	6.04
B	Meadow (good)	58	2.67	154.92
B	Woods (good)	55	1.24	68.31
D	Woods (good)	77	0.73	56.52
B	Lawn	61	0.12	7.46
C	Lawn	74	0.75	55.67
C	Disturbed	91	0.35	32.12

Totals = 8.12 537.03

Composite Cn = $\frac{537.03}{8.12}$ = 66.17

USE Cn = 66.2

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - By-Pass F**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Woods (good)	55	1.18	64.65
C	Woods (good)	70	0.00	0.19
D	Woods (good)	77	1.35	103.65
B	Disturbed	86	0.19	16.22
C	Disturbed	91	0.07	6.01
B	Meadow (good)	58	0.39	22.86
Totals =			3.17	213.59

Composite Cn = $\frac{213.59}{3.17}$ = 67.31

USE Cn = 67.3

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/23/2023
Chk'd:
Rev'd: 03/06/23

Watershed: **During Construction - By-pass G**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	(Off-site) 1/4 Acre Residential Lots	75	0.68	51.32
B	Woods (good)	55	0.58	32.07
C	Woods (good)	70	0.06	3.92
D	Woods (good)	77	0.02	1.49
B	Lawn	61	0.44	27.11
C	Disturbed	91	1.14	103.80

Totals = 2.93 219.72

Composite Cn = $\frac{219.72}{2.93}$ = 75.04

USE Cn = 75.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/1/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 3A)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	(On-site) Impervious	98	1.67	163.32
B/C/D	Disturbed Soil (Future (On-site) Impervious)	91	2.07	188.02
B	Lawn	61	2.11	128.92
C	Lawn	74	0.97	71.64

Totals =	6.81	551.88

Composite Cn = $\frac{551.88}{6.81}$ = 80.99

USE Cn = 81.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/1/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 3B)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Lawn	61	0.43	26.20

Totals =	0.43	26.20

Composite Cn = $\frac{26.20}{0.43}$ = 61.00

USE Cn = 61.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **During Construction - (E&S Basin 4)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	(On-site) Impervious	98	2.80	274.65
B/C	Disturbed Soil (Future (On-site) Impervious)	91	4.10	372.90
B	Lawn	61	0.81	49.22
C	Lawn	74	4.64	343.67
C	Disturbed Soil (Misc Area)	91	3.88	353.08
Totals =			16.23	1393.52

$$\text{Composite Cn} = \frac{1393.52}{16.23} = 85.85$$

USE Cn = 85.9

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

During Construction Hydrographs

8

Subcat Reach Pond Link

Routing Diagram for 7662-PRE vs DURING
Prepared by ESE Consultants, Inc, Printed 11/30/2023
HydroCAD® 10.20-3c s/n 01254 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 0.44 cfs @ 12.19 hrs, Volume= 0.044 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 3.54 cfs @ 12.12 hrs, Volume= 0.264 af, Depth= 1.67"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 27.74 cfs @ 12.00 hrs, Volume= 1.431 af, Depth= 1.75"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 0.17 cfs @ 11.98 hrs, Volume= 0.009 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	0.250	66	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 5.53 cfs @ 12.07 hrs, Volume= 0.353 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	3.090	85	
	3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 3.29 cfs @ 12.04 hrs, Volume= 0.194 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	2.930	75	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 2.77 cfs @ 12.17 hrs, Volume= 0.288 af, Depth= 0.43"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 14.17 cfs @ 11.96 hrs, Volume= 0.634 af, Depth= 1.12"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 0.14 cfs @ 11.99 hrs, Volume= 0.010 af, Depth= 0.27"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 16.70 cfs @ 12.02 hrs, Volume= 0.913 af, Depth= 1.44"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 1.75 cfs @ 12.06 hrs, Volume= 0.122 af, Depth= 0.46"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 1.75" for 1-YR event
Inflow = 27.74 cfs @ 12.00 hrs, Volume= 1.431 af
Outflow = 0.24 cfs @ 24.06 hrs, Volume= 1.085 af, Atten= 99%, Lag= 724.1 min
Primary = 0.24 cfs @ 24.06 hrs, Volume= 1.085 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 242.89' @ 24.06 hrs Surf.Area= 30,589 sf Storage= 69,466 cf (51,309 cf above start)

Plug-Flow detention time= 3,286.6 min calculated for 0.668 af (47% of inflow)
Center-of-Mass det. time= 2,138.3 min (2,950.3 - 812.0)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=0.24 cfs @ 24.06 hrs HW=242.89' TW=0.00' (Dynamic Tailwater)
└─**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.24 cfs of 6.56 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.48 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 1.12" for 1-YR event
Inflow = 14.17 cfs @ 11.96 hrs, Volume= 0.634 af
Outflow = 0.12 cfs @ 11.62 hrs, Volume= 0.634 af, Atten= 99%, Lag= 0.0 min
Secondary = 0.12 cfs @ 11.62 hrs, Volume= 0.634 af
  Routed to Link 20L : DURING E TOTAL
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 243.92' @ 24.05 hrs Surf.Area= 25,662 sf Storage= 39,692 cf (21,718 cf above start)

Plug-Flow detention time= 3,083.5 min calculated for 0.221 af (35% of inflow)
Center-of-Mass det. time= 1,700.9 min (2,544.2 - 843.3)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=0.12 cfs @ 11.62 hrs HW=243.02' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.12 cfs of 1.35 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=ENS Skimmer 3" orifice** (Controls 0.00 cfs)
  - **4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.00' TW=0.00' (Dynamic Tailwater)
- **5=Spillway BAsin 3A** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 0.27" for 1-YR event
Inflow = 0.14 cfs @ 11.99 hrs, Volume= 0.010 af
Outflow = 0.12 cfs @ 12.02 hrs, Volume= 0.010 af, Atten= 13%, Lag= 1.8 min
Discarded = 0.12 cfs @ 12.02 hrs, Volume= 0.010 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 242.53' @ 12.02 hrs Surf.Area= 8,109 sf Storage= 3 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.12 cfs @ 12.02 hrs HW=242.53' (Free Discharge)
└**1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.00 cfs of 11.63 cfs potential flow)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 1.44" for 1-YR event
Inflow = 16.70 cfs @ 12.02 hrs, Volume= 0.913 af
Outflow = 0.12 cfs @ 10.76 hrs, Volume= 0.901 af, Atten= 99%, Lag= 0.0 min
Primary = 0.12 cfs @ 10.76 hrs, Volume= 0.901 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 233.83' @ 24.13 hrs Surf.Area= 20,787 sf Storage= 55,477 cf (33,286 cf above start)

Plug-Flow detention time= 4,108.8 min calculated for 0.391 af (43% of inflow)
Center-of-Mass det. time= 2,444.5 min (3,274.8 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=0.12 cfs @ 10.76 hrs HW=232.11' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.12 cfs of 10.31 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 1.38" for 1-YR event
Inflow = 3.66 cfs @ 12.12 hrs, Volume= 1.349 af
Primary = 3.66 cfs @ 12.12 hrs, Volume= 1.349 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth = 1.29" for 1-YR event
Inflow = 2.89 cfs @ 12.17 hrs, Volume= 0.922 af
Primary = 2.89 cfs @ 12.17 hrs, Volume= 0.922 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 1.14" for 1-YR event
Inflow = 1.87 cfs @ 12.06 hrs, Volume= 1.023 af
Primary = 1.87 cfs @ 12.06 hrs, Volume= 1.023 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 0.77 cfs @ 12.17 hrs, Volume= 0.069 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 4.62 cfs @ 12.12 hrs, Volume= 0.346 af, Depth= 2.18"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 35.62 cfs @ 12.00 hrs, Volume= 1.860 af, Depth= 2.27"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 0.30 cfs @ 11.97 hrs, Volume= 0.015 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

Area (ac)	CN	Description
* 0.250	66	
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 7.46 cfs @ 12.07 hrs, Volume= 0.477 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

Area (ac)	CN	Description
* 3.090	85	
3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 4.97 cfs @ 12.04 hrs, Volume= 0.285 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

Area (ac)	CN	Description
* 2.930	75	
2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 5.34 cfs @ 12.15 hrs, Volume= 0.473 af, Depth= 0.70"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 19.70 cfs @ 11.96 hrs, Volume= 0.883 af, Depth= 1.56"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 0.33 cfs @ 11.98 hrs, Volume= 0.018 af, Depth= 0.49"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 22.23 cfs @ 12.02 hrs, Volume= 1.223 af, Depth= 1.93"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 3.15 cfs @ 12.05 hrs, Volume= 0.197 af, Depth= 0.75"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 2.27" for 2-YR event
Inflow = 35.62 cfs @ 12.00 hrs, Volume= 1.860 af
Outflow = 0.32 cfs @ 24.05 hrs, Volume= 1.375 af, Atten= 99%, Lag= 723.2 min
Primary = 0.32 cfs @ 24.05 hrs, Volume= 1.375 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 243.35' @ 24.05 hrs Surf.Area= 31,687 sf Storage= 83,727 cf (65,570 cf above start)

Plug-Flow detention time= 2,709.7 min calculated for 0.958 af (52% of inflow)
Center-of-Mass det. time= 1,896.7 min (2,701.3 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=0.32 cfs @ 24.05 hrs HW=243.35' TW=0.00' (Dynamic Tailwater)
└─**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.32 cfs of 7.28 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 4.10 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 1.56" for 2-YR event
Inflow = 19.70 cfs @ 11.96 hrs, Volume= 0.883 af
Outflow = 0.13 cfs @ 24.06 hrs, Volume= 0.883 af, Atten= 99%, Lag= 725.8 min
Secondary = 0.13 cfs @ 24.06 hrs, Volume= 0.883 af
  Routed to Link 20L : DURING E TOTAL
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 244.32' @ 24.06 hrs Surf.Area= 26,737 sf Storage= 50,159 cf (32,185 cf above start)

Plug-Flow detention time= 3,775.7 min calculated for 0.470 af (53% of inflow)
Center-of-Mass det. time= 2,407.5 min (3,241.2 - 833.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=0.13 cfs @ 24.06 hrs HW=244.32' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.13 cfs of 8.78 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=ENS Skimmer 3" orifice** (Orifice Controls 0.01 cfs @ 0.87 fps)
  - **4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.00' TW=0.00' (Dynamic Tailwater)
- **5=Spillway BAsin 3A** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 0.49" for 2-YR event
Inflow = 0.33 cfs @ 11.98 hrs, Volume= 0.018 af
Outflow = 0.17 cfs @ 12.05 hrs, Volume= 0.018 af, Atten= 47%, Lag= 4.3 min
Discarded = 0.17 cfs @ 12.05 hrs, Volume= 0.018 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.20' @ 12.05 hrs Surf.Area= 9,320 sf Storage= 61 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.1 min (909.0 - 907.9)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 12.05 hrs HW=243.20' (Free Discharge)
└**1=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.00 cfs of 11.63 cfs potential flow)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 1.93" for 2-YR event
Inflow = 22.23 cfs @ 12.02 hrs, Volume= 1.223 af
Outflow = 0.12 cfs @ 10.07 hrs, Volume= 0.910 af, Atten= 99%, Lag= 0.0 min
Primary = 0.12 cfs @ 10.07 hrs, Volume= 0.910 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 234.44' @ 24.15 hrs Surf.Area= 22,070 sf Storage= 68,566 cf (46,375 cf above start)

Plug-Flow detention time= 4,093.9 min calculated for 0.401 af (33% of inflow)
Center-of-Mass det. time= 2,425.5 min (3,247.4 - 822.0)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=0.12 cfs @ 10.07 hrs HW=232.11' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.12 cfs of 10.31 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 1.76" for 2-YR event
Inflow = 4.74 cfs @ 12.12 hrs, Volume= 1.721 af
Primary = 4.74 cfs @ 12.12 hrs, Volume= 1.721 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth = 1.90" for 2-YR event
Inflow = 5.46 cfs @ 12.15 hrs, Volume= 1.356 af
Primary = 5.46 cfs @ 12.15 hrs, Volume= 1.356 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 1.23" for 2-YR event
Inflow = 3.27 cfs @ 12.05 hrs, Volume= 1.107 af
Primary = 3.27 cfs @ 12.05 hrs, Volume= 1.107 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 1.36 cfs @ 12.17 hrs, Volume= 0.114 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 6.27 cfs @ 12.12 hrs, Volume= 0.474 af, Depth= 2.99"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 47.63 cfs @ 11.99 hrs, Volume= 2.531 af, Depth= 3.09"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 0.55 cfs @ 11.97 hrs, Volume= 0.025 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	0.250	66	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 10.48 cfs @ 12.07 hrs, Volume= 0.674 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	3.090	85	
	3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 7.79 cfs @ 12.03 hrs, Volume= 0.440 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	2.930	75	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 10.05 cfs @ 12.14 hrs, Volume= 0.809 af, Depth= 1.20"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 28.52 cfs @ 11.96 hrs, Volume= 1.290 af, Depth= 2.27"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 0.68 cfs @ 11.97 hrs, Volume= 0.032 af, Depth= 0.91"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 30.86 cfs @ 12.02 hrs, Volume= 1.716 af, Depth= 2.71"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 5.66 cfs @ 12.04 hrs, Volume= 0.332 af, Depth= 1.26"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 3.09" for 5-YR event
Inflow = 47.63 cfs @ 11.99 hrs, Volume= 2.531 af
Outflow = 0.41 cfs @ 24.05 hrs, Volume= 1.860 af, Atten= 99%, Lag= 723.6 min
Primary = 0.41 cfs @ 24.05 hrs, Volume= 1.860 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 244.11' @ 24.05 hrs Surf.Area= 33,590 sf Storage= 108,506 cf (90,350 cf above start)

Plug-Flow detention time= 2,410.1 min calculated for 1.443 af (57% of inflow)
Center-of-Mass det. time= 1,825.8 min (2,621.7 - 795.8)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=0.41 cfs @ 24.05 hrs HW=244.11' TW=0.00' (Dynamic Tailwater)
└─**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.41 cfs of 8.34 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.29 cfs @ 5.86 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 2.27" for 5-YR event
Inflow = 28.52 cfs @ 11.96 hrs, Volume= 1.290 af
Outflow = 0.27 cfs @ 24.02 hrs, Volume= 1.138 af, Atten= 99%, Lag= 723.3 min
Secondary = 0.27 cfs @ 24.02 hrs, Volume= 1.138 af
  Routed to Link 20L : DURING E TOTAL
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 244.76' @ 24.02 hrs Surf.Area= 27,747 sf Storage= 62,280 cf (44,306 cf above start)

Plug-Flow detention time= 3,119.1 min calculated for 0.725 af (56% of inflow)
Center-of-Mass det. time= 2,069.4 min (2,892.2 - 822.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=0.27 cfs @ 24.02 hrs HW=244.76' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.27 cfs of 10.46 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  ├─**3=ENS Skimmer 3" orifice** (Orifice Controls 0.15 cfs @ 2.99 fps)
  └─**4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.00' TW=0.00' (Dynamic Tailwater)
└─**5=Spillway BAsin 3A** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 0.91" for 5-YR event
Inflow = 0.68 cfs @ 11.97 hrs, Volume= 0.032 af
Outflow = 0.68 cfs @ 12.01 hrs, Volume= 0.032 af, Atten= 1%, Lag= 2.3 min
Discarded = 0.27 cfs @ 12.01 hrs, Volume= 0.031 af
Primary = 0.41 cfs @ 12.01 hrs, Volume= 0.001 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.30' @ 12.01 hrs Surf.Area= 11,215 sf Storage= 174 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.9 min (885.7 - 882.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.27 cfs @ 12.01 hrs HW=244.30' (Free Discharge)
└**1=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=0.37 cfs @ 12.01 hrs HW=244.30' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.37 cfs of 14.07 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 0.37 cfs @ 0.70 fps)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 2.71" for 5-YR event
Inflow = 30.86 cfs @ 12.02 hrs, Volume= 1.716 af
Outflow = 0.12 cfs @ 9.00 hrs, Volume= 0.922 af, Atten= 100%, Lag= 0.0 min
Primary = 0.12 cfs @ 9.00 hrs, Volume= 0.922 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 235.35' @ 24.17 hrs Surf.Area= 24,098 sf Storage= 89,536 cf (67,344 cf above start)

Plug-Flow detention time= 4,081.1 min calculated for 0.412 af (24% of inflow)
Center-of-Mass det. time= 2,399.8 min (3,212.1 - 812.3)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=0.12 cfs @ 9.00 hrs HW=232.11' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.12 cfs of 10.31 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 2.39" for 5-YR event
Inflow = 6.55 cfs @ 12.12 hrs, Volume= 2.334 af
Primary = 6.55 cfs @ 12.12 hrs, Volume= 2.334 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth > 2.73" for 5-YR event
Inflow = 10.17 cfs @ 12.14 hrs, Volume= 1.947 af
Primary = 10.17 cfs @ 12.14 hrs, Volume= 1.947 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 1.40" for 5-YR event
Inflow = 5.78 cfs @ 12.04 hrs, Volume= 1.254 af
Primary = 5.78 cfs @ 12.04 hrs, Volume= 1.254 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 1.91 cfs @ 12.17 hrs, Volume= 0.157 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 7.67 cfs @ 12.12 hrs, Volume= 0.585 af, Depth= 3.70"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 57.84 cfs @ 11.99 hrs, Volume= 3.112 af, Depth= 3.80"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 0.78 cfs @ 11.97 hrs, Volume= 0.035 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	0.250	66	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 13.10 cfs @ 12.06 hrs, Volume= 0.848 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	3.090	85	
	3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 10.33 cfs @ 12.03 hrs, Volume= 0.582 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	2.930	75	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 14.60 cfs @ 12.14 hrs, Volume= 1.132 af, Depth= 1.67"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 36.23 cfs @ 11.96 hrs, Volume= 1.654 af, Depth= 2.91"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 1.03 cfs @ 11.97 hrs, Volume= 0.047 af, Depth= 1.32"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 38.26 cfs @ 12.02 hrs, Volume= 2.149 af, Depth= 3.39"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 8.05 cfs @ 12.04 hrs, Volume= 0.462 af, Depth= 1.75"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 3.80" for 10-YR event
Inflow = 57.84 cfs @ 11.99 hrs, Volume= 3.112 af
Outflow = 0.47 cfs @ 24.06 hrs, Volume= 2.299 af, Atten= 99%, Lag= 724.1 min
Primary = 0.47 cfs @ 24.06 hrs, Volume= 2.299 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 244.76' @ 24.06 hrs Surf.Area= 35,624 sf Storage= 130,961 cf (112,804 cf above start)

Plug-Flow detention time= 2,402.4 min calculated for 1.882 af (60% of inflow)
Center-of-Mass det. time= 1,904.4 min (2,694.5 - 790.1)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=0.47 cfs @ 24.06 hrs HW=244.76' TW=0.00' (Dynamic Tailwater)
└─**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.47 cfs of 9.14 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.03 fps)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 2.91" for 10-YR event
Inflow = 36.23 cfs @ 11.96 hrs, Volume= 1.654 af
Outflow = 0.33 cfs @ 23.61 hrs, Volume= 1.390 af, Atten= 99%, Lag= 699.1 min
Secondary = 0.33 cfs @ 23.61 hrs, Volume= 1.390 af
  Routed to Link 20L : DURING E TOTAL
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 245.19' @ 23.61 hrs Surf.Area= 28,732 sf Storage= 74,526 cf (56,552 cf above start)

Plug-Flow detention time= 2,665.2 min calculated for 0.977 af (59% of inflow)
Center-of-Mass det. time= 1,880.8 min (2,696.5 - 815.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=0.33 cfs @ 23.61 hrs HW=245.19' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.33 cfs of 11.86 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  ├─**3=ENS Skimmer 3" orifice** (Orifice Controls 0.21 cfs @ 4.36 fps)
  └─**4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.00' TW=0.00' (Dynamic Tailwater)
└─**5=Spillway BAsin 3A** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 1.32" for 10-YR event
Inflow = 1.03 cfs @ 11.97 hrs, Volume= 0.047 af
Outflow = 1.16 cfs @ 11.95 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.27 cfs @ 11.95 hrs, Volume= 0.041 af
Primary = 0.89 cfs @ 11.95 hrs, Volume= 0.006 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.33' @ 11.95 hrs Surf.Area= 11,260 sf Storage= 177 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.8 min (872.2 - 869.4)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.27 cfs @ 11.95 hrs HW=244.33' (Free Discharge)
└**1=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=0.81 cfs @ 11.95 hrs HW=244.33' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.81 cfs of 14.11 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 0.81 cfs @ 0.91 fps)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 3.39" for 10-YR event
Inflow = 38.26 cfs @ 12.02 hrs, Volume= 2.149 af
Outflow = 0.12 cfs @ 8.22 hrs, Volume= 0.930 af, Atten= 100%, Lag= 0.0 min
Primary = 0.12 cfs @ 8.22 hrs, Volume= 0.930 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 236.09' @ 24.18 hrs Surf.Area= 25,739 sf Storage= 107,998 cf (85,807 cf above start)

Plug-Flow detention time= 4,078.3 min calculated for 0.421 af (20% of inflow)
Center-of-Mass det. time= 2,381.1 min (3,187.1 - 805.9)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=0.12 cfs @ 8.22 hrs HW=232.11' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.12 cfs of 10.31 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 2.95" for 10-YR event
Inflow = 8.02 cfs @ 12.12 hrs, Volume= 2.884 af
Primary = 8.02 cfs @ 12.12 hrs, Volume= 2.884 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth > 3.55" for 10-YR event
Inflow = 14.79 cfs @ 12.14 hrs, Volume= 2.528 af
Primary = 14.79 cfs @ 12.14 hrs, Volume= 2.528 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 1.55" for 10-YR event
Inflow = 8.17 cfs @ 12.04 hrs, Volume= 1.392 af
Primary = 8.17 cfs @ 12.04 hrs, Volume= 1.392 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 2.77 cfs @ 12.17 hrs, Volume= 0.224 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 9.72 cfs @ 12.12 hrs, Volume= 0.750 af, Depth= 4.74"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 72.64 cfs @ 11.99 hrs, Volume= 3.970 af, Depth= 4.85"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 1.14 cfs @ 11.96 hrs, Volume= 0.051 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	0.250	66	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 16.93 cfs @ 12.06 hrs, Volume= 1.108 af, Depth= 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	3.090	85	
	3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 14.18 cfs @ 12.03 hrs, Volume= 0.801 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	2.930	75	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 21.84 cfs @ 12.13 hrs, Volume= 1.651 af, Depth= 2.44"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 47.63 cfs @ 11.96 hrs, Volume= 2.204 af, Depth= 3.88"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 1.60 cfs @ 11.97 hrs, Volume= 0.072 af, Depth= 2.01"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 49.07 cfs @ 12.02 hrs, Volume= 2.793 af, Depth= 4.41"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 11.81 cfs @ 12.03 hrs, Volume= 0.668 af, Depth= 2.53"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 4.85" for 25-YR event
Inflow = 72.64 cfs @ 11.99 hrs, Volume= 3.970 af
Outflow = 1.98 cfs @ 14.47 hrs, Volume= 3.101 af, Atten= 97%, Lag= 148.6 min
Primary = 1.98 cfs @ 14.47 hrs, Volume= 3.101 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 245.12' @ 14.47 hrs Surf.Area= 36,748 sf Storage= 143,930 cf (125,773 cf above start)

Plug-Flow detention time= 1,969.4 min calculated for 2.684 af (68% of inflow)
Center-of-Mass det. time= 1,618.8 min (2,402.2 - 783.4)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=1.98 cfs @ 14.47 hrs HW=245.12' TW=0.00' (Dynamic Tailwater)
↑└─**1=OS Pipe Basin 1 to Road Inlet** (Passes 1.98 cfs of 9.56 cfs potential flow)
  ↑├─**2=Orifice/Grate** (Orifice Controls 0.37 cfs @ 7.60 fps)
  ├─**3=Orifice/Grate** (Weir Controls 1.49 cfs @ 1.11 fps)
  └─**4=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 3.88" for 25-YR event
Inflow = 47.63 cfs @ 11.96 hrs, Volume= 2.204 af
Outflow = 1.33 cfs @ 14.13 hrs, Volume= 1.889 af, Atten= 97%, Lag= 130.2 min
Secondary = 1.33 cfs @ 14.13 hrs, Volume= 1.889 af
  Routed to Link 20L : DURING E TOTAL
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 245.49' @ 14.13 hrs Surf.Area= 29,395 sf Storage= 83,019 cf (65,045 cf above start)

Plug-Flow detention time= 2,026.5 min calculated for 1.476 af (67% of inflow)
Center-of-Mass det. time= 1,511.7 min (2,319.3 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=1.33 cfs @ 14.13 hrs HW=245.49' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.33 cfs of 12.72 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 0.96 cfs @ 0.96 fps)
  ├─**3=ENS Skimmer 3" orifice** (Orifice Controls 0.25 cfs @ 5.08 fps)
  └─**4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.00' TW=0.00' (Dynamic Tailwater)
└─**5=Spillway BAsin 3A** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 2.01" for 25-YR event
Inflow = 1.60 cfs @ 11.97 hrs, Volume= 0.072 af
Outflow = 1.60 cfs @ 11.97 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.27 cfs @ 11.97 hrs, Volume= 0.056 af
Primary = 1.33 cfs @ 11.97 hrs, Volume= 0.016 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.36' @ 11.97 hrs Surf.Area= 11,300 sf Storage= 181 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.7 min (858.6 - 855.9)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.27 cfs @ 11.97 hrs HW=244.36' (Free Discharge)
└**1=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=1.32 cfs @ 11.97 hrs HW=244.36' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.32 cfs of 14.15 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 1.32 cfs @ 1.07 fps)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 4.41" for 25-YR event
Inflow = 49.07 cfs @ 12.02 hrs, Volume= 2.793 af
Outflow = 0.68 cfs @ 19.11 hrs, Volume= 1.189 af, Atten= 99%, Lag= 425.9 min
Primary = 0.68 cfs @ 19.11 hrs, Volume= 1.189 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 236.76' @ 19.11 hrs Surf.Area= 27,144 sf Storage= 125,762 cf (103,571 cf above start)

Plug-Flow detention time= 3,295.4 min calculated for 0.680 af (24% of inflow)
Center-of-Mass det. time= 1,961.8 min (2,760.3 - 798.5)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=0.68 cfs @ 19.11 hrs HW=236.76' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.68 cfs of 34.69 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 0.56 cfs @ 0.80 fps)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 3.94" for 25-YR event
Inflow = 10.14 cfs @ 12.12 hrs, Volume= 3.851 af
Primary = 10.14 cfs @ 12.12 hrs, Volume= 3.851 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth > 4.99" for 25-YR event
Inflow = 22.19 cfs @ 12.13 hrs, Volume= 3.556 af
Primary = 22.19 cfs @ 12.13 hrs, Volume= 3.556 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 2.07" for 25-YR event
Inflow = 11.93 cfs @ 12.03 hrs, Volume= 1.858 af
Primary = 11.93 cfs @ 12.03 hrs, Volume= 1.858 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 3.54 cfs @ 12.16 hrs, Volume= 0.284 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 11.45 cfs @ 12.12 hrs, Volume= 0.891 af, Depth= 5.63"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 85.18 cfs @ 11.99 hrs, Volume= 4.706 af, Depth= 5.74"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 1.46 cfs @ 11.96 hrs, Volume= 0.065 af, Depth= 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

Area (ac)	CN	Description
* 0.250	66	
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 20.19 cfs @ 12.06 hrs, Volume= 1.333 af, Depth= 5.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

Area (ac)	CN	Description
* 3.090	85	
3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 17.55 cfs @ 12.03 hrs, Volume= 0.996 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

Area (ac)	CN	Description
* 2.930	75	
2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 28.41 cfs @ 12.13 hrs, Volume= 2.126 af, Depth= 3.14"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 57.39 cfs @ 11.96 hrs, Volume= 2.685 af, Depth= 4.73"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 2.12 cfs @ 11.97 hrs, Volume= 0.095 af, Depth= 2.64"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 58.27 cfs @ 12.01 hrs, Volume= 3.350 af, Depth= 5.29"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 15.19 cfs @ 12.03 hrs, Volume= 0.857 af, Depth= 3.24"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 5.74" for 50-YR event
Inflow = 85.18 cfs @ 11.99 hrs, Volume= 4.706 af
Outflow = 5.60 cfs @ 12.70 hrs, Volume= 3.836 af, Atten= 93%, Lag= 42.2 min
Primary = 5.60 cfs @ 12.70 hrs, Volume= 3.836 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 245.26' @ 12.70 hrs Surf.Area= 37,208 sf Storage= 149,357 cf (131,200 cf above start)

Plug-Flow detention time= 1,591.9 min calculated for 3.419 af (73% of inflow)
Center-of-Mass det. time= 1,328.1 min (2,107.0 - 778.9)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=5.60 cfs @ 12.70 hrs HW=245.26' TW=0.00' (Dynamic Tailwater)
└─**1=OS Pipe Basin 1 to Road Inlet** (Passes 5.60 cfs of 9.73 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.38 cfs @ 7.82 fps)
  ├─**3=Orifice/Grate** (Weir Controls 5.09 cfs @ 1.68 fps)
  └─**4=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 4.73" for 50-YR event
Inflow = 57.39 cfs @ 11.96 hrs, Volume= 2.685 af
Outflow = 3.83 cfs @ 12.57 hrs, Volume= 2.368 af, Atten= 93%, Lag= 36.5 min
Secondary = 3.83 cfs @ 12.57 hrs, Volume= 2.368 af
  Routed to Link 20L : DURING E TOTAL
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
  Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 245.60' @ 12.57 hrs Surf.Area= 29,658 sf Storage= 86,438 cf (68,464 cf above start)

Plug-Flow detention time= 1,585.8 min calculated for 1.955 af (73% of inflow)
Center-of-Mass det. time= 1,220.2 min (2,022.2 - 802.0)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=3.83 cfs @ 12.57 hrs HW=245.60' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.83 cfs of 13.05 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 3.44 cfs @ 1.47 fps)
  ├─**3=ENS Skimmer 3" orifice** (Orifice Controls 0.26 cfs @ 5.33 fps)
  └─**4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=243.00' TW=0.00' (Dynamic Tailwater)
└─**5=Spillway BAsin 3A** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 2.64" for 50-YR event
Inflow = 2.12 cfs @ 11.97 hrs, Volume= 0.095 af
Outflow = 2.12 cfs @ 11.97 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.27 cfs @ 11.97 hrs, Volume= 0.069 af
Primary = 1.84 cfs @ 11.97 hrs, Volume= 0.026 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.38' @ 11.97 hrs Surf.Area= 11,339 sf Storage= 184 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.7 min (850.2 - 847.5)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.27 cfs @ 11.97 hrs HW=244.38' (Free Discharge)
└**1=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=1.84 cfs @ 11.97 hrs HW=244.38' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 1.84 cfs of 14.18 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 1.84 cfs @ 1.19 fps)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 5.29" for 50-YR event
Inflow = 58.27 cfs @ 12.01 hrs, Volume= 3.350 af
Outflow = 1.85 cfs @ 14.20 hrs, Volume= 1.745 af, Atten= 97%, Lag= 131.3 min
Primary = 1.85 cfs @ 14.20 hrs, Volume= 1.745 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 236.83' @ 14.20 hrs Surf.Area= 27,285 sf Storage= 127,605 cf (105,414 cf above start)

Plug-Flow detention time= 2,076.1 min calculated for 1.236 af (37% of inflow)
Center-of-Mass det. time= 1,393.1 min (2,186.5 - 793.5)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=1.85 cfs @ 14.20 hrs HW=236.83' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.85 cfs of 34.92 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 1.73 cfs @ 1.17 fps)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 4.84" for 50-YR event
Inflow = 11.92 cfs @ 12.12 hrs, Volume= 4.727 af
Primary = 11.92 cfs @ 12.12 hrs, Volume= 4.727 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth > 6.34" for 50-YR event
Inflow = 29.13 cfs @ 12.13 hrs, Volume= 4.520 af
Primary = 29.13 cfs @ 12.13 hrs, Volume= 4.520 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 2.90" for 50-YR event
Inflow = 15.31 cfs @ 12.03 hrs, Volume= 2.602 af
Primary = 15.31 cfs @ 12.03 hrs, Volume= 2.602 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 10S: DURING A (BYPASS)

Runoff = 4.42 cfs @ 12.15 hrs, Volume= 0.354 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	0.990	69	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 20S: DURING B (BYPASS)

Runoff = 13.34 cfs @ 12.12 hrs, Volume= 1.048 af, Depth= 6.62"
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	1.900	89	
	1.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 30S: DURING E&S BASIN 1

Runoff = 98.87 cfs @ 11.99 hrs, Volume= 5.518 af, Depth= 6.74"
Routed to Pond 10P : ENS BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	9.830	90	
	9.830		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2					**Direct Entry, Total Tc**

Summary for Subcatchment 40S: DURING C (BYPASS)

Runoff = 1.83 cfs @ 11.96 hrs, Volume= 0.082 af, Depth= 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	0.250	66	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 50S: DURING D (BYPASS)

Runoff = 23.76 cfs @ 12.06 hrs, Volume= 1.583 af, Depth= 6.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	3.090	85	
	3.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8					**Direct Entry,**

Summary for Subcatchment 60S: DURING G (BYPASS)

Runoff = 21.29 cfs @ 12.03 hrs, Volume= 1.216 af, Depth= 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	2.930	75	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Subcatchment 70S: POST E (BYPASS)

Runoff = 35.91 cfs @ 12.13 hrs, Volume= 2.673 af, Depth= 3.95"
Routed to Link 20L : DURING E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	8.120	66	
	8.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 80S: DURING TO E&S BASIN 3A

Runoff = 68.12 cfs @ 11.96 hrs, Volume= 3.221 af, Depth= 5.68"
Routed to Pond 20P : E&S BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	6.810	81	
	6.810		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: TO BASIN 3B

Runoff = 2.72 cfs @ 11.96 hrs, Volume= 0.122 af, Depth= 3.39"
Routed to Pond 30P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 100S: DURING TO BASIN 4

Runoff = 68.32 cfs @ 12.01 hrs, Volume= 3.967 af, Depth= 6.26"
Routed to Pond 40P : E&S BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	7.600	86	
	7.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 110S: DURING F (BYPASS)

Runoff = 19.03 cfs @ 12.03 hrs, Volume= 1.073 af, Depth= 4.06"
Routed to Link 30L : DURING F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	3.170	67	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: ENS BASIN 1

Inflow Area = 9.830 ac, 0.00% Impervious, Inflow Depth = 6.74" for 100-YR event
Inflow = 98.87 cfs @ 11.99 hrs, Volume= 5.518 af
Outflow = 10.10 cfs @ 12.43 hrs, Volume= 4.647 af, Atten= 90%, Lag= 26.2 min
Primary = 10.10 cfs @ 12.43 hrs, Volume= 4.647 af
Routed to Link 10L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 241.00' Surf.Area= 21,589 sf Storage= 18,157 cf
Peak Elev= 245.60' @ 12.43 hrs Surf.Area= 38,270 sf Storage= 162,141 cf (143,984 cf above start)

Plug-Flow detention time= 1,316.3 min calculated for 4.230 af (77% of inflow)
Center-of-Mass det. time= 1,110.9 min (1,885.6 - 774.7)

Volume	Invert	Avail.Storage	Storage Description
#1	240.00'	239,353 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.00	15,500	0	0
242.00	29,950	45,450	45,450
244.00	35,000	64,950	110,400
246.00	41,600	76,600	187,000
247.50	45,000	64,950	251,950

Device	Routing	Invert	Outlet Devices
#1	Primary	240.29'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 84.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.29' / 239.87' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	245.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	241.00'	**0.12 cfs Exfiltration when above 241.00'**

Primary OutFlow Max=10.10 cfs @ 12.43 hrs HW=245.60' TW=0.00' (Dynamic Tailwater)
↑└─**1=OS Pipe Basin 1 to Road Inlet** (Inlet Controls 10.10 cfs @ 8.23 fps)
  ↑├─**2=Orifice/Grate** (Passes < 0.41 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 17.66 cfs potential flow)
  └─**4=Exfiltration** (Passes < 0.12 cfs potential flow)

Summary for Pond 20P: E&S BASIN 3A

Inflow Area = 6.810 ac, 0.00% Impervious, Inflow Depth = 5.68" for 100-YR event
Inflow = 68.12 cfs @ 11.96 hrs, Volume= 3.221 af
Outflow = 10.29 cfs @ 12.14 hrs, Volume= 2.903 af, Atten= 85%, Lag= 11.2 min
Secondary = 10.21 cfs @ 12.14 hrs, Volume= 2.903 af
Routed to Link 20L : DURING E TOTAL
Tertiary = 0.07 cfs @ 12.14 hrs, Volume= 0.000 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 243.00' Surf.Area= 21,698 sf Storage= 17,974 cf
Peak Elev= 245.81' @ 12.14 hrs Surf.Area= 30,122 sf Storage= 92,540 cf (74,566 cf above start)

Plug-Flow detention time= 1,272.8 min calculated for 2.491 af (77% of inflow)
Center-of-Mass det. time= 1,004.3 min (1,801.1 - 796.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.00'	147,827 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.00	15,000	0	0
243.00	22,840	18,920	18,920
244.00	27,390	25,115	44,035
246.00	32,170	59,560	103,595
247.50	37,180	52,013	155,608

Device	Routing	Invert	Outlet Devices
#1	Secondary	242.50'	**18.0" Round Culvert** L= 33.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0152 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	245.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	244.25'	**3.0" Vert. ENS Skimmer 3" orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	243.00'	**0.12 cfs Exfiltration at top of sediment storgae when above 243.00'**
#5	Tertiary	245.80'	**45.0 deg x 45.0' long x 1.70' rise Spillway BAsin 3A** Cv= 2.56 (C= 3.20)

Secondary OutFlow Max=10.21 cfs @ 12.14 hrs HW=245.81' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 10.21 cfs of 13.60 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 9.81 cfs @ 2.08 fps)
  ├─**3=ENS Skimmer 3" orifice** (Orifice Controls 0.28 cfs @ 5.76 fps)
  └─**4=Exfiltration at top of sediment storgae** (Exfiltration Controls 0.12 cfs)

Tertiary OutFlow Max=0.07 cfs @ 12.14 hrs HW=245.81' TW=0.00' (Dynamic Tailwater)
└─**5=Spillway BAsin 3A** (Weir Controls 0.07 cfs @ 0.25 fps)

Summary for Pond 30P: BASIN 3B

Inflow Area = 0.430 ac, 0.00% Impervious, Inflow Depth = 3.39" for 100-YR event
Inflow = 2.72 cfs @ 11.96 hrs, Volume= 0.122 af
Outflow = 2.72 cfs @ 11.97 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.28 cfs @ 11.97 hrs, Volume= 0.082 af
Primary = 2.44 cfs @ 11.97 hrs, Volume= 0.039 af
Routed to Link 20L : DURING E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.41' @ 11.97 hrs Surf.Area= 11,380 sf Storage= 187 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.6 min (842.8 - 840.2)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	386 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) x 0.95 38,615 cf Overall x 1.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**1.280 in/hr Exfiltration X 0.50 over Surface area** Conductivity to Groundwater Elevation = 240.00'
#2	Primary	238.00'	**15.0" Round Culvert** L= 43.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 236.00' S= 0.0465 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.25'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.28 cfs @ 11.97 hrs HW=244.41' (Free Discharge)
└**1=Exfiltration** (Controls 0.28 cfs)

Primary OutFlow Max=2.43 cfs @ 11.97 hrs HW=244.41' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 2.43 cfs of 14.21 cfs potential flow)
└**3=Orifice/Grate** (Weir Controls 2.43 cfs @ 1.31 fps)

Summary for Pond 40P: E&S BASIN 4

Inflow Area = 7.600 ac, 0.00% Impervious, Inflow Depth = 6.26" for 100-YR event
Inflow = 68.32 cfs @ 12.01 hrs, Volume= 3.967 af
Outflow = 5.04 cfs @ 12.70 hrs, Volume= 2.362 af, Atten= 93%, Lag= 41.3 min
Primary = 5.04 cfs @ 12.70 hrs, Volume= 2.362 af
Routed to Link 30L : DURING F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 232.10' Surf.Area= 17,751 sf Storage= 22,191 cf
Peak Elev= 236.96' @ 12.70 hrs Surf.Area= 27,554 sf Storage= 131,129 cf (108,938 cf above start)

Plug-Flow detention time= 1,468.6 min calculated for 1.852 af (47% of inflow)
Center-of-Mass det. time= 1,047.3 min (1,836.1 - 788.8)

Volume	Invert	Avail.Storage	Storage Description
#1	230.00'	212,173 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
230.00	4,900	0	0
231.00	9,800	7,350	7,350
232.00	18,500	14,150	21,500
234.00	22,200	40,700	62,200
236.00	26,900	49,100	111,300
238.00	31,300	58,200	169,500
239.60	36,000	53,840	223,340

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert** L= 61.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0082 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	236.70'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	232.10'	**0.12 cfs Exfiltration when above 232.10'**

Primary OutFlow Max=5.03 cfs @ 12.70 hrs HW=236.96' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 5.03 cfs of 35.33 cfs potential flow)
  ├─**2=Orifice/Grate** (Weir Controls 4.91 cfs @ 1.66 fps)
  └─**3=Exfiltration** (Exfiltration Controls 0.12 cfs)

Summary for Link 10L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.730 ac, 0.00% Impervious, Inflow Depth > 5.83" for 100-YR event
Inflow = 23.28 cfs @ 12.12 hrs, Volume= 5.695 af
Primary = 23.28 cfs @ 12.12 hrs, Volume= 5.695 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 20L: DURING E TOTAL

Inflow Area = 8.550 ac, 0.00% Impervious, Inflow Depth > 7.88" for 100-YR event
Inflow = 46.38 cfs @ 12.13 hrs, Volume= 5.616 af
Primary = 46.38 cfs @ 12.13 hrs, Volume= 5.616 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: DURING F TOTAL

Inflow Area = 10.770 ac, 0.00% Impervious, Inflow Depth > 3.83" for 100-YR event
Inflow = 19.15 cfs @ 12.03 hrs, Volume= 3.435 af
Primary = 19.15 cfs @ 12.03 hrs, Volume= 3.435 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Post-developed Tc

9

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/10/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - (Basin 1)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B			Elev. A = 253.50
Surface Description		Lawn			Elev. B = 250.40
Manning's Roughness Coefficient, n		0.24			Chg. Elev. = 3.10
Flow Length, L	ft.	100			
Two Year 24 Hour Rainfall, P2	in.	3.31			
Land Slope, s	ft/ft	0.0310			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr	0.1962			
Sheet flow Subtotal Tt =	**hr**			**0.1962**	

Shallow concentrated flow

	Segment ID	-		
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID	B - C	-		Elev. B = 250.40
Structure 'From' - 'To'					Elev. C = 239.00
Flow Length, L	ft	650			Chg. Elev. = 11.40
Pipe Diameter, D	in	15.00			246.52
Manning's Roughness Coefficient, n		0.013			
Pipe Slope, s	ft/ft	0.018			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps	11.07			
Tt = $\frac{L}{(3600 \times V)}$	hr	0.0163			
Pipe flow Subtotal Tt =	**hr**			**0.0163**	

Total Tt = 0.2126
Tt (min) = 12.754

Total Hydraulic Length = 750
Total Elevation Change = 14.5
Average Slope = 1.93%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/10/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - (Basin 2)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

Segment ID				
Surface Description				
Manning's Roughness Coefficient, n				
Flow Length, L	ft.			
Two Year 24 Hour Rainfall, P2	in.			
Land Slope, s	ft/ft			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr			
Sheet flow Subtotal Tt =	**hr**			

Shallow concentrated flow

Segment ID				
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID			-	
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt =
Tt (min) = 5.000

Total Hydraulic Length =
Total Elevation Change =
Average Slope =

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/27/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-Pass A**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0200		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.3235		
Sheet flow Subtotal Tt =		**hr**			**0.3235**

Elev. A = 253.10
Elev. B = 250.10
Chg. Elev. = 3.00

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	253		
Watercourse Slope, s		ft/ft	0.0075		
Average Velociity, V (figure B-8)		fps	1.40		
Tt =	L / (3600 x V)	hr	0.0503		
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0503**

Elev. B = 250.10
Elev. C = 248.20
Chg. Elev. = 1.90

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
Pipe flow Subtotal Tt =		**hr**			

Total Tt = 0.3737
Tt (min) = 22.423

Total Hydraulic Length =	403
Total Elevation Change =	4.9
Average Slope =	1.22%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/7/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-Pass B**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0233		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.3041		
Sheet flow Subtotal Tt =		**hr**			**0.3041**

Elev. A = 249.00
Elev. B = 245.50
Chg. Elev. = 3.50

Shallow concentrated flow

		Segment ID	B - C	C - D	
Surface Description (paved or unpaved)			Unpaved	Paved	
Flow Length, L		ft	67	90	
Watercourse Slope, s		ft/ft	0.0149	0.0060	
Average Velociity, V (figure B-8)		fps	1.97	1.57	
Tt =	L / (3600 x V)	hr	0.0094	0.0159	
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0253**

Elev. B = 245.50
Elev. C = 244.50
Chg. Elev. = 1.00
Elev. C = 244.50
Elev. D = 243.96
Chg. Elev. = 0.54

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
Pipe flow Subtotal Tt =		**hr**			

Total Tt = 0.3294
Tt (min) = 19.766

Total Hydraulic Length =	307
Total Elevation Change =	5.0
Average Slope =	1.64%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/7/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-Pass C**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

Segment ID				
Surface Description				
Manning's Roughness Coefficient, n				
Flow Length, L	ft.			
Two Year 24 Hour Rainfall, P2	in.			
Land Slope, s	ft/ft			
Tt = $\frac{0.007(nL)^{0.8}}{(P2^{0.5})(s^{0.4})}$	hr			
Sheet flow Subtotal Tt =	**hr**			

Shallow concentrated flow

Segment ID				
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID				
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = $\frac{L}{(3600 \times V)}$	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt =
Tt (min) = 5.000

Total Hydraulic Length =
Total Elevation Change =
Average Slope =

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/7/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-pass D**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B			Elev. A = 250.00
Surface Description		Grass			Elev. B = 247.80
Manning's Roughness Coefficient, n		0.24			Chg. Elev. = 2.20
Flow Length, L	ft.	150			
Two Year 24 Hour Rainfall, P2	in.	3.31			
Land Slope, s	ft/ft	0.0147			
Tt = 0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.3662			
Sheet flow Subtotal Tt =	**hr**			**0.3662**	

Shallow concentrated flow

	Segment ID	B - C			Elev. B = 247.80
Surface Description (paved or unpaved)		Unpaved			Elev. C = 240.20
Flow Length, L	ft	238			Chg. Elev. = 7.60
Watercourse Slope, s	ft/ft	0.0319			240.20
Average Velociity, V (figure B-8)	fps	2.88			
Tt = L / (3600 x V)	hr	0.0229			
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0229**	

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = L / (3600 x V)	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = L / (3600 x V)	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.3891
Tt (min) = 23.347

Total Hydraulic Length =	388
Total Elevation Change =	9.8
Average Slope =	2.53%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/6/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-Pass E**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0400		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.2451		
Sheet flow Subtotal Tt =		**hr**			**0.2451**

Elev. A = 252.00
Elev. B = 246.00
Chg. Elev. = 6.00

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	800		
Watercourse Slope, s		ft/ft	0.0278		
Average Velociity, V (figure B-8)		fps	2.69		
Tt =	L / (3600 x V)	hr	0.0826		
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0826**

Elev. B = 246.00
Elev. C = 223.76
Chg. Elev. = 22.24

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
Pipe flow Subtotal Tt =		**hr**			

Total Tt = 0.3277
Tt (min) = 19.664

Total Hydraulic Length = 950
Total Elevation Change = 28.2
Average Slope = 2.97%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd: 3/20/2023

Watershed: **Post Developed - By-Pass F**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

	Segment ID	A - B	B - C	
Surface Description		Grass	Woods	
Manning's Roughness Coefficient, n		0.24	0.4	
Flow Length, L	ft.	80	20	
Two Year 24 Hour Rainfall, P2	in.	3.31	3.31	
Land Slope, s	ft/ft	0.1163	0.0600	
Tt = 0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.0968	0.0626	
Sheet flow Subtotal Tt =	**hr**			**0.1593**

Elev. A = 239.30
Elev. B = 230.00
Chg. Elev. = 9.30
Elev. B = 230.00
Elev. C = 228.80
Chg. Elev. = 1.20

Shallow concentrated flow

	Segment ID	C - D		
Surface Description (paved or unpaved)		Unpaved		
Flow Length, L	ft	277		
Watercourse Slope, s	ft/ft	0.0534		
Average Velociity, V (figure B-8)	fps	3.73		
Tt = L / (3600 x V)	hr	0.0206		
Shallow concentrated flow Subtotal Tt =	**hr**			**0.0206**

Elev. C = 228.80
Elev. D = 214.00
Chg. Elev. = 14.80
214.00

Channel flow

	Segment ID			
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = L / (3600 x V)	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

	Segment ID			
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = L / (3600 x V)	hr			
Pipe flow Subtotal Tt =	**hr**			

Total Tt = 0.1800
Tt (min) = 10.798

Total Hydraulic Length =	377
Total Elevation Change =	25.3
Average Slope =	6.71%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/6/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-pass G**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Meadow		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	150		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0873		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.1794		
Sheet flow Subtotal Tt =		**hr**			**0.1794**

Elev. A = 245.10
Elev. B = 232.00
Chg. Elev. = 13.10

Shallow concentrated flow

		Segment ID	B - C		
Surface Description (paved or unpaved)			Unpaved		
Flow Length, L		ft	92		
Watercourse Slope, s		ft/ft	0.0489		
Average Velociity, V (figure B-8)		fps	3.57		
Tt =	L / (3600 x V)	hr	0.0072		
Shallow concentrated flow Subtotal Tt =		**hr**			**0.0072**

Elev. B = 232.00
Elev. C = 227.50
Chg. Elev. = 4.50

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID			
Structure 'From' - 'To'					
Flow Length, L		ft			
Pipe Diameter, D		in			
Manning's Roughness Coefficient, n					
Pipe Slope, s		ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Tt =	L / (3600 x V)	hr			
Pipe flow Subtotal Tt =		**hr**			

Total Tt = 0.1865
Tt (min) = 11.192

Total Hydraulic Length =	242
Total Elevation Change =	17.6
Average Slope =	7.27%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd: 3/20/2023
Rev'd: 7/10/2023

Watershed: **Post Developed - (Basin 3A)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	122		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0361		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.2166		
Sheet flow Subtotal Tt =		**hr**			**0.2166**

Elev. A = 254.40
Elev. B = 250.00
Chg. Elev. = 4.40

Shallow concentrated flow

		Segment ID			
Surface Description (paved or unpaved)					
Flow Length, L		ft			
Watercourse Slope, s		ft/ft			
Average Velociity, V (figure B-8)		fps			
Tt =	L / (3600 x V)	hr			
Shallow concentrated flow Subtotal Tt =		**hr**			

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V =	(1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID	B - C		
Structure 'From' - 'To'			606 TO 600		
Flow Length, L		ft	569		
Pipe Diameter, D		in	18.00		
Manning's Roughness Coefficient, n			0.011		
Pipe Slope, s		ft/ft	0.012		
Velocity, V =	(1.486)(r^2/3)(s^1/2)/n	fps	12.37		
Tt =	L / (3600 x V)	hr	0.0128		
Pipe flow Subtotal Tt =		**hr**			**0.0128**

Elev. B = 250.00
Elev. C = 243.00
Chg. Elev. = 7.00

Total Tt = 0.2294
Tt (min) = 13.761

Total Hydraulic Length =	691
Total Elevation Change =	11.4
Average Slope =	1.65%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - (Basin 3B)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

Segment ID				
Surface Description				
Manning's Roughness Coefficient, n				
Flow Length, L	ft.			
Two Year 24 Hour Rainfall, P2	in.			
Land Slope, s	ft/ft			
Tt = 0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr			
Sheet flow Subtotal Tt =	**hr**			

Shallow concentrated flow

Segment ID				
Surface Description (paved or unpaved)				
Flow Length, L	ft			
Watercourse Slope, s	ft/ft			
Average Velociity, V (figure B-8)	fps			
Tt = L / (3600 x V)	hr			
Shallow concentrated flow Subtotal Tt =	**hr**			

Channel flow

Segment ID				
Cross Sectional Flow Area, a	sq ft			
Wetted Perimeter, Pw	ft			
Hydraulic Radius, r = a/Pw	ft			
Channel Slope, s	ft/ft			
Manning's Roughness Coefficient, n				
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L	ft			
Tt = L / (3600 x V)	hr			
Channel flow Subtotal Tt =	**hr**			

Pipe flow

Segment ID				
Structure 'From' - 'To'				
Flow Length, L	ft			
Pipe Diameter, D	in			
Manning's Roughness Coefficient, n				
Pipe Slope, s	ft/ft			
Velocity, V = (1.486)(r^2/3)(s^1/2)/n	fps			
Tt = L / (3600 x V)	hr	0.0833		
Pipe flow Subtotal Tt =	**hr**			**0.0833**

Total Tt = 0.0833
Tt (min) = 5.000

Total Hydraulic Length =
Total Elevation Change =
Average Slope =

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - (Stone BMP 2A)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	57		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.0456		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.1073		
Sheet flow Subtotal Tt =		**hr**			**0.1073**

Elev. A = 254.40
Elev. B = 251.80
Chg. Elev. = 2.60

Shallow concentrated flow

		Segment ID			
Surface Description (paved or unpaved)					
Flow Length, L		ft			
Watercourse Slope, s		ft/ft			
Average Velociity, V (figure B-8)		fps			
Tt =	L / (3600 x V)	hr			
Shallow concentrated flow Subtotal Tt =		**hr**			

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID	B - C		
Structure 'From' - 'To'			START TO END		
Flow Length, L		ft	675		
Pipe Diameter, D		in	varies		
Manning's Roughness Coefficient, n			0.013		
Pipe Slope, s		ft/ft	0.014		
Velocity, V = (1.486)(r^2/3)(s^1/2)/n		fps	2.00		
Tt =	L / (3600 x V)	hr	0.0938		
Pipe flow Subtotal Tt =		**hr**			**0.0938**

Elev. B = 251.80
Elev. C = 242.30
Chg. Elev. = 9.50

Total Tt = 0.2010
Tt (min) = 12.060

Total Hydraulic Length =	732
Total Elevation Change =	12.1
Average Slope =	1.65%

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd:

Watershed: **Post Developed - (Basin 4)**

TIME OF CONCENTRATION
(S.C.S. TR-55 method)

Sheet Flow

		Segment ID	A - B		
Surface Description			Grass		
Manning's Roughness Coefficient, n			0.24		
Flow Length, L		ft.	37		
Two Year 24 Hour Rainfall, P2		in.	3.31		
Land Slope, s		ft/ft	0.1027		
Tt =	0.007(nL)^0.8 / (P2^0.5)(s^0.4)	hr	0.0549		
Sheet flow Subtotal Tt =		**hr**			**0.0549**

Elev. A = 253.30
Elev. B = 249.50
Chg. Elev. = 3.80

Shallow concentrated flow

		Segment ID			
Surface Description (paved or unpaved)					
Flow Length, L		ft			
Watercourse Slope, s		ft/ft			
Average Velociity, V (figure B-8)		fps			
Tt =	L / (3600 x V)	hr			
Shallow concentrated flow Subtotal Tt =		**hr**			

Channel flow

		Segment ID			
Cross Sectional Flow Area, a		sq ft			
Wetted Perimeter, Pw		ft			
Hydraulic Radius, r = a/Pw		ft			
Channel Slope, s		ft/ft			
Manning's Roughness Coefficient, n					
Velocity, V =	(1.486)(r^2/3)(s^1/2)/n	fps			
Flow length, L		ft			
Tt =	L / (3600 x V)	hr			
Channel flow Subtotal Tt =		**hr**			

Pipe flow

		Segment ID	B - C		
Structure 'From' - 'To'			START TO END		
Flow Length, L		ft	835		
Pipe Diameter, D		in	varies		
Manning's Roughness Coefficient, n			0.013		
Pipe Slope, s		ft/ft	0.016		
Velocity, V =	(1.486)(r^2/3)(s^1/2)/n	fps	2.00		
Tt =	L / (3600 x V)	hr	0.1160		
Pipe flow Subtotal Tt =		**hr**			**0.1160**

Elev. B = 249.50
Elev. C = 236.00
Chg. Elev. = 13.50

Total Tt = 0.1708
Tt (min) = 10.250

Total Hydraulic Length = 872
Total Elevation Change = 17.3
Average Slope = 1.98%

Post-developed Cn

10

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd:
Rev'd: 06/01/23

Watershed: **Post Developed - (Basin 1)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	(On-site) Building Impervious	98	1.57	154.11
B/C	(On-site) Impervious	98	1.33	130.70
B	Lawn	61	3.02	184.04
C	Lawn	74	0.05	4.03

Totals = 5.98 472.88

Composite Cn = $\frac{472.88}{5.98}$ = 79.11

USE Cn = 79.1

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd:
Rev'd: 03/20/23

Watershed: **Post Developed - (Basin 2)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B	Residentail 1/4 Ac Lot (offsite)	75	0.30	22.83
C	(On-site) Building Impervious	98	0.84	82.12
C	(On-site) Impervious	98	1.01	99.19
B	Lawn	61	0.53	32.22
C	Lawn	74	1.04	77.02
Totals =			3.72	313.38

Composite Cn = $\frac{313.38}{3.72}$ = 84.16

USE Cn = 84.2

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd: 3/20/2023
Rev'd: 04/07/23

Watershed: **Post Developed - By-Pass A**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Existing Road	98	0.05	4.50
B/C/D	(On-site) Impervious	98	0.02	1.82
B	Lawn (Good Condition)	61.0	0.93	56.75

Totals = 0.99 63.07

Composite Cn = $\frac{63.07}{0.99}$ = 63.40

USE Cn = 63.4

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/27/2023
Chk'd:
Rev'd: 11/28/23

Watershed: **Post Developed - By-Pass B**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B/C	Existing Road	98	0.25	24.66
B/C	(On-site) Impervious	98	0.54	52.69
B	Lawn (Good Condition)	61	0.43	26.19
C	Lawn (Good Condition)	74	0.90	66.69
B	Residentail 1/4 Ac Lot (offsite)	75	0.08	6.23
Totals =			2.20	176.45

Composite Cn = $\frac{176.45}{2.20}$ = 80.10

USE Cn = 80.1

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 1/25/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - By-Pass C**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Lawn (Good Condition)	61	0.25	15.15

Totals =	0.25	15.15

Composite Cn = $\frac{15.15}{0.25}$ = 61.00

USE Cn = 61.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/28/2023
Chk'd:
Rev'd: 11/28/23

Watershed: **Post Developed - By-pass D**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				
B	Residentail 1/4 Ac Lot (offsite)	75	1.18	88.51
B	Lawn (Good Condition)	61	0.51	30.83
B	Existing Road	98	0.04	4.30
C	Lawn (Good Condition)	74	1.67	123.90
Totals =			3.40	247.55

Composite Cn = $\frac{247.55}{3.40}$ = 72.73

USE Cn = 72.7

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/23/2023
Chk'd: 3/20/2023
Rev'd: 03/06/23

Watershed: **Post Developed - By-Pass E**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	(Off-site) 1/3 Acre Residential Lots	72	2.17	156.00
C	(Off-site) 1/3 Acre Residential Lots	81	0.07	6.04
B	Meadow (good)	58	2.68	155.29
B	Woods (good)	55	1.23	67.87
D	Woods (good)	77	0.73	56.52
B	Lawn	61	0.12	7.46
C	Lawn	74	1.11	81.79

Totals = 8.11 530.96

Composite Cn = $\frac{530.96}{8.11}$ = 65.44

USE Cn = 65.4

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd: 10/12/23

Watershed: **Post Developed - By-Pass F**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Woods (good)	55	1.18	64.65
C	Woods (good)	70	0.00	0.19
D	Woods (good)	77	1.35	104.01
B	Lawn	61	0.48	29.54
C	Lawn	74	0.07	4.89
D	Lawn	80	0.04	2.97
B	Meadow (good)	58	0.05	3.18
Totals =			3.17	209.44

Composite Cn = $\frac{209.44}{3.17}$ = 66.04

USE Cn = 66.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 2/23/2023
Chk'd:
Rev'd: 03/06/23

Watershed: **Post Developed - By-pass G**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	(Off-site) 1/4 Acre Residential Lots	75	0.68	51.32
B	Woods (good)	55	0.58	32.07
C	Woods (good)	70	0.06	3.92
D	Woods (good)	77	0.02	1.49
B	Lawn	61	0.44	27.11
C	Lawn	74	1.14	84.41

Totals = 2.93 200.32

Composite Cn = $\frac{200.32}{2.93}$ = 68.42

USE Cn = 68.4

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/1/2023
Chk'd:
Rev'd: 07/10/23

Watershed: **Post Developed - (Basin 3A)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	(On-site) Impervious	98	1.19	116.22
B/C/D	(On-site) Building Impervious	98	1.61	157.48
B	Lawn	61	1.86	113.66
C	Lawn	74	0.56	41.53

Totals =	5.22	428.90

Composite Cn = $\frac{428.90}{5.22}$ = 82.20

USE Cn = 82.2

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/1/2023
Chk'd: 3/20/2023
Rev'd:

Watershed: **Post Developed - (Basin 3B)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B	Lawn	61	0.43	26.20

Totals =	0.43	26.20

Composite Cn = $\frac{26.20}{0.43}$ = 61.00

USE Cn = 61.0

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/2/2023
Chk'd: 3/20/2023
Rev'd: 07/10/23

Watershed: **Post Developed - (Stone BMP 2A)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C/D	(On-site) Impervious	98	1.32	129.77
B/C/D	(On-site) Building Impervious	98	2.09	204.73
B	Lawn	61	0.24	14.74
C	Lawn	74	1.75	129.53	
Totals =			5.41	478.77

Composite Cn = $\frac{478.77}{5.41}$ = 88.57

USE Cn = 88.6

24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Sisters of St. Basil (7662)
Abington Township
Montgomery County, Pennsylvania

By: LJP
Date: 3/7/2023
Chk'd:
Rev'd: 06/01/23

Watershed: **Post Developed - (Basin 4)**

RUNOFF CURVE NUMBER CALCULATIONS:

(S.C.S. TR-55 method)

Soil name and hydrologic group	Cover Description	Cn	Area (acres)	Product of CN x Area
--				0.00
B/C	(On-site) Impervious	98	1.81	177.81
B/C	(On-site) Building Impervious	98	2.50	245.22
B	Lawn	61	1.84	112.44
C	Lawn	74	1.93	142.88

Totals = 8.09 678.35

Composite Cn = $\frac{678.35}{8.09}$ = 83.84

USE Cn = 83.8

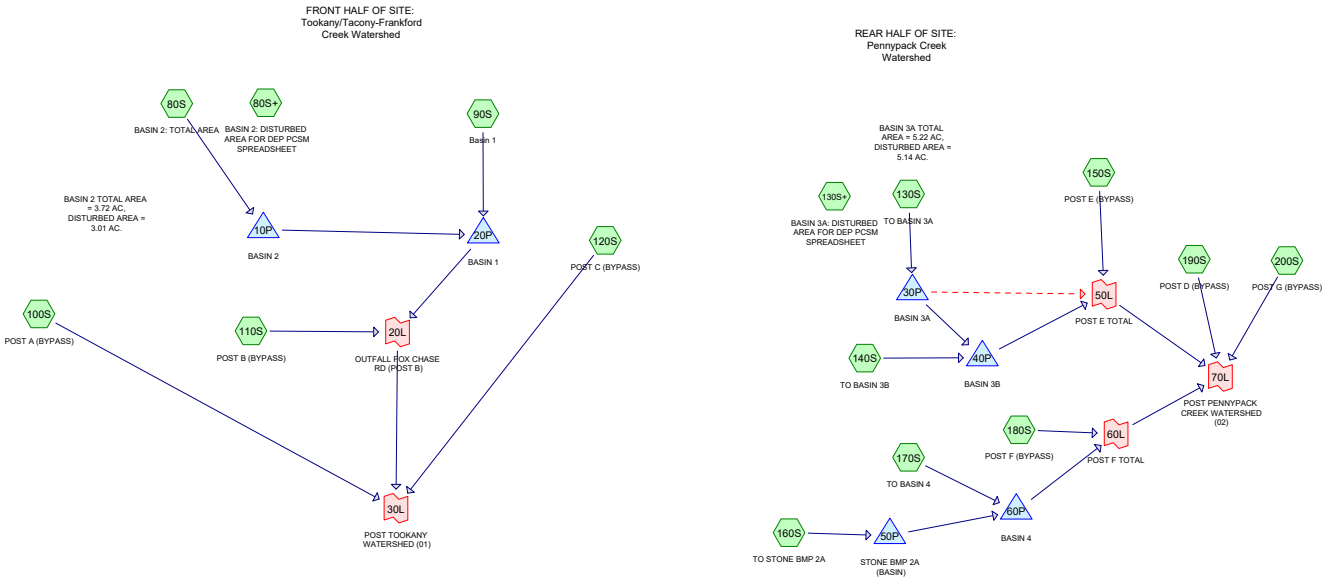
24 hr RAINFALL for Abington Township

(per NOAA)

1 year	2 year	5 year	10 year	25 year	50 year	100 year
2.74	3.31	4.18	4.92	6.00	6.92	7.93

Post-developed Hydrographs

11



Routing Diagram for 7662-PRE vs POST
Prepared by ESE Consultants, Inc, Printed 11/30/2023
HydroCAD® 10.20-3c s/n 01254 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 9.02 cfs @ 11.96 hrs, Volume= 0.405 af, Depth= 1.31"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 8.38 cfs @ 11.96 hrs, Volume= 0.380 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 8.22 cfs @ 12.05 hrs, Volume= 0.499 af, Depth= 1.00"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 0.20 cfs @ 12.22 hrs, Volume= 0.027 af, Depth= 0.33"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 2.54 cfs @ 12.13 hrs, Volume= 0.194 af, Depth= 1.06"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 0.08 cfs @ 11.99 hrs, Volume= 0.006 af, Depth= 0.27"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 8.25 cfs @ 12.06 hrs, Volume= 0.512 af, Depth= 1.18"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 8.58 cfs @ 12.06 hrs, Volume= 0.531 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 0.14 cfs @ 11.99 hrs, Volume= 0.010 af, Depth= 0.27"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 2.41 cfs @ 12.17 hrs, Volume= 0.265 af, Depth= 0.39"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 12.85 cfs @ 12.04 hrs, Volume= 0.751 af, Depth= 1.67"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 16.11 cfs @ 12.02 hrs, Volume= 0.880 af, Depth= 1.31"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 1.58 cfs @ 12.05 hrs, Volume= 0.113 af, Depth= 0.43"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 2.15 cfs @ 12.19 hrs, Volume= 0.199 af, Depth= 0.70"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 1.80 cfs @ 12.05 hrs, Volume= 0.121 af, Depth= 0.50"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-YR Rainfall=2.74"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 1.31" for 1-YR event
Inflow = 9.02 cfs @ 11.96 hrs, Volume= 0.405 af
Outflow = 0.19 cfs @ 11.68 hrs, Volume= 0.405 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.68 hrs, Volume= 0.405 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.00' @ 15.91 hrs Surf.Area= 7,596 sf Storage= 10,299 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 566.9 min (1,399.7 - 832.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.68 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=239.87' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.00 cfs of 15.22 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 0.62" for 1-YR event
Inflow = 8.22 cfs @ 12.05 hrs, Volume= 0.499 af
Outflow = 0.17 cfs @ 0.00 hrs, Volume= 1.028 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.028 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 240.37' @ 19.35 hrs Surf.Area= 15,637 sf Storage= 30,489 cf (7,447 cf above start)

Plug-Flow detention time= 2,467.6 min calculated for 0.499 af (100% of inflow)
Center-of-Mass det. time= 1,338.2 min (2,195.7 - 857.5)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=239.87' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 1.18" for 1-YR event
Inflow = 8.25 cfs @ 12.06 hrs, Volume= 0.512 af
Outflow = 1.54 cfs @ 12.45 hrs, Volume= 0.512 af, Atten= 81%, Lag= 23.3 min
Primary = 1.54 cfs @ 12.45 hrs, Volume= 0.512 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.41' @ 24.10 hrs Surf.Area= 23,462 sf Storage= 9,330 cf

Plug-Flow detention time= 700.8 min calculated for 0.512 af (100% of inflow)
Center-of-Mass det. time= 701.0 min (1,549.0 - 848.0)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.54 cfs @ 12.45 hrs HW=243.38' TW=242.75' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 1.54 cfs of 2.66 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.54 cfs @ 2.36 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.90' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.00 cfs of 0.81 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth = 1.11" for 1-YR event
Inflow = 1.57 cfs @ 12.44 hrs, Volume= 0.522 af
Outflow = 0.11 cfs @ 12.07 hrs, Volume= 0.522 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.11 cfs @ 12.07 hrs, Volume= 0.522 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.41' @ 24.12 hrs Surf.Area= 9,695 sf Storage= 8,047 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 826.3 min (2,363.9 - 1,537.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 12.07 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 1.67" for 1-YR event
Inflow = 12.85 cfs @ 12.04 hrs, Volume= 0.751 af
Outflow = 4.98 cfs @ 12.20 hrs, Volume= 0.751 af, Atten= 61%, Lag= 10.0 min
Discarded = 0.58 cfs @ 11.66 hrs, Volume= 0.594 af
Primary = 4.40 cfs @ 12.20 hrs, Volume= 0.157 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.38' @ 12.20 hrs Surf.Area= 9,900 sf Storage= 11,420 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 118.7 min (938.6 - 819.9)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 11.66 hrs HW=240.56' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=4.40 cfs @ 12.20 hrs HW=243.38' TW=232.50' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 2.13 cfs @ 3.70 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 2.26 cfs @ 2.60 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 0.92" for 1-YR event
Inflow = 16.11 cfs @ 12.02 hrs, Volume= 1.037 af
Outflow = 2.08 cfs @ 12.78 hrs, Volume= 1.035 af, Atten= 87%, Lag= 45.4 min
Primary = 2.08 cfs @ 12.78 hrs, Volume= 1.035 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 232.86' @ 12.78 hrs Surf.Area= 13,677 sf Storage= 22,112 cf

Plug-Flow detention time= 168.4 min calculated for 1.035 af (100% of inflow)
Center-of-Mass det. time= 167.1 min (991.7 - 824.6)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.08 cfs @ 12.78 hrs HW=232.86' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 2.08 cfs of 16.95 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 2.08 cfs @ 5.95 fps)
3=Orifice/Grate (Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 0.20" for 1-YR event
Inflow = 2.54 cfs @ 12.13 hrs, Volume= 0.194 af
Primary = 2.54 cfs @ 12.13 hrs, Volume= 0.194 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 0.21" for 1-YR event
Inflow = 2.73 cfs @ 12.14 hrs, Volume= 0.227 af
Primary = 2.73 cfs @ 12.14 hrs, Volume= 0.227 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 0.23" for 1-YR event
Inflow = 2.41 cfs @ 12.17 hrs, Volume= 0.265 af
Primary = 2.41 cfs @ 12.17 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth > 0.83" for 1-YR event
Inflow = 3.05 cfs @ 12.07 hrs, Volume= 1.148 af
Primary = 3.05 cfs @ 12.07 hrs, Volume= 1.148 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 0.57" for 1-YR event
Inflow = 8.41 cfs @ 12.11 hrs, Volume= 1.733 af
Primary = 8.41 cfs @ 12.11 hrs, Volume= 1.733 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 12.18 cfs @ 11.96 hrs, Volume= 0.550 af, Depth= 1.77"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 11.02 cfs @ 11.96 hrs, Volume= 0.505 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 11.81 cfs @ 12.05 hrs, Volume= 0.708 af, Depth= 1.42"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 0.44 cfs @ 12.20 hrs, Volume= 0.047 af, Depth= 0.57"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 3.63 cfs @ 12.12 hrs, Volume= 0.273 af, Depth= 1.49"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 0.19 cfs @ 11.98 hrs, Volume= 0.010 af, Depth= 0.49"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 11.45 cfs @ 12.06 hrs, Volume= 0.708 af, Depth= 1.63"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 11.79 cfs @ 12.06 hrs, Volume= 0.728 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 0.33 cfs @ 11.98 hrs, Volume= 0.018 af, Depth= 0.49"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 4.85 cfs @ 12.15 hrs, Volume= 0.442 af, Depth= 0.65"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 16.68 cfs @ 12.04 hrs, Volume= 0.984 af, Depth= 2.18"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 21.86 cfs @ 12.02 hrs, Volume= 1.197 af, Depth= 1.77"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 2.95 cfs @ 12.04 hrs, Volume= 0.185 af, Depth= 0.70"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 3.42 cfs @ 12.19 hrs, Volume= 0.299 af, Depth= 1.05"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 3.15 cfs @ 12.04 hrs, Volume= 0.194 af, Depth= 0.79"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.31"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 1.77" for 2-YR event
Inflow = 12.18 cfs @ 11.96 hrs, Volume= 0.550 af
Outflow = 0.19 cfs @ 11.52 hrs, Volume= 0.550 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.52 hrs, Volume= 0.550 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.63' @ 17.86 hrs Surf.Area= 8,321 sf Storage= 15,363 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 815.5 min (1,639.4 - 823.9)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.52 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=239.87' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.00 cfs of 15.22 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 0.88" for 2-YR event
Inflow = 11.81 cfs @ 12.05 hrs, Volume= 0.708 af
Outflow = 0.17 cfs @ 0.00 hrs, Volume= 1.237 af, Atten= 99%, Lag= 0.0 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.237 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 240.89' @ 23.77 hrs Surf.Area= 16,948 sf Storage= 39,057 cf (16,015 cf above start)

Plug-Flow detention time= 2,922.4 min calculated for 0.708 af (100% of inflow)
Center-of-Mass det. time= 1,793.1 min (2,640.3 - 847.2)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=239.87' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 1.63" for 2-YR event
Inflow = 11.45 cfs @ 12.06 hrs, Volume= 0.708 af
Outflow = 2.39 cfs @ 12.40 hrs, Volume= 0.708 af, Atten= 79%, Lag= 20.3 min
Primary = 2.39 cfs @ 12.40 hrs, Volume= 0.708 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.66' @ 24.15 hrs Surf.Area= 24,553 sf Storage= 15,389 cf

Plug-Flow detention time= 1,151.4 min calculated for 0.708 af (100% of inflow)
Center-of-Mass det. time= 1,151.6 min (1,990.2 - 838.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.39 cfs @ 12.40 hrs HW=243.53' TW=242.88' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 2.39 cfs of 3.34 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.39 cfs @ 2.70 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.90' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.00 cfs of 0.81 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth = 1.54" for 2-YR event
Inflow = 2.44 cfs @ 12.39 hrs, Volume= 0.725 af
Outflow = 0.11 cfs @ 11.97 hrs, Volume= 0.725 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.97 hrs, Volume= 0.725 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.66' @ 24.16 hrs Surf.Area= 10,155 sf Storage= 10,557 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,028.8 min (2,992.8 - 1,964.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.97 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 2.18" for 2-YR event
Inflow = 16.68 cfs @ 12.04 hrs, Volume= 0.984 af
Outflow = 10.94 cfs @ 12.13 hrs, Volume= 0.984 af, Atten= 34%, Lag= 5.9 min
Discarded = 0.58 cfs @ 11.42 hrs, Volume= 0.672 af
Primary = 10.36 cfs @ 12.13 hrs, Volume= 0.312 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.72' @ 12.13 hrs Surf.Area= 9,900 sf Storage= 12,774 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 107.2 min (919.4 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 11.42 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=10.34 cfs @ 12.13 hrs HW=243.72' TW=232.98' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 4.99 cfs @ 4.53 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 5.35 cfs @ 3.26 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 1.34" for 2-YR event
Inflow = 25.26 cfs @ 12.08 hrs, Volume= 1.508 af
Outflow = 2.61 cfs @ 12.83 hrs, Volume= 1.506 af, Atten= 90%, Lag= 44.8 min
Primary = 2.61 cfs @ 12.83 hrs, Volume= 1.506 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 233.75' @ 12.83 hrs Surf.Area= 15,049 sf Storage= 34,876 cf

Plug-Flow detention time= 185.1 min calculated for 1.506 af (100% of inflow)
Center-of-Mass det. time= 184.7 min (996.8 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.61 cfs @ 12.83 hrs HW=233.75' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 2.61 cfs of 22.06 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 2.61 cfs @ 7.48 fps)
3=Orifice/Grate (Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 0.27" for 2-YR event
Inflow = 3.63 cfs @ 12.12 hrs, Volume= 0.273 af
Primary = 3.63 cfs @ 12.12 hrs, Volume= 0.273 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 0.30" for 2-YR event
Inflow = 4.07 cfs @ 12.13 hrs, Volume= 0.330 af
Primary = 4.07 cfs @ 12.13 hrs, Volume= 0.330 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 0.39" for 2-YR event
Inflow = 4.85 cfs @ 12.15 hrs, Volume= 0.442 af
Primary = 4.85 cfs @ 12.15 hrs, Volume= 0.442 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth = 1.22" for 2-YR event
Inflow = 4.75 cfs @ 12.06 hrs, Volume= 1.691 af
Primary = 4.75 cfs @ 12.06 hrs, Volume= 1.691 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 0.86" for 2-YR event
Inflow = 14.51 cfs @ 12.10 hrs, Volume= 2.626 af
Primary = 14.51 cfs @ 12.10 hrs, Volume= 2.626 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 17.13 cfs @ 11.96 hrs, Volume= 0.784 af, Depth= 2.53"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 15.09 cfs @ 11.96 hrs, Volume= 0.703 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 17.63 cfs @ 12.05 hrs, Volume= 1.052 af, Depth= 2.11"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 0.92 cfs @ 12.17 hrs, Volume= 0.084 af, Depth= 1.02"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 5.40 cfs @ 12.12 hrs, Volume= 0.402 af, Depth= 2.19"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 0.40 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 0.91"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 16.57 cfs @ 12.06 hrs, Volume= 1.026 af, Depth= 2.36"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 16.88 cfs @ 12.06 hrs, Volume= 1.046 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 0.68 cfs @ 11.97 hrs, Volume= 0.032 af, Depth= 0.91"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 9.41 cfs @ 12.15 hrs, Volume= 0.767 af, Depth= 1.13"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 22.56 cfs @ 12.04 hrs, Volume= 1.349 af, Depth= 2.99"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 30.91 cfs @ 12.02 hrs, Volume= 1.706 af, Depth= 2.53"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 5.43 cfs @ 12.04 hrs, Volume= 0.316 af, Depth= 1.20"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 5.58 cfs @ 12.17 hrs, Volume= 0.470 af, Depth= 1.66"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 5.54 cfs @ 12.04 hrs, Volume= 0.322 af, Depth= 1.32"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-YR Rainfall=4.18"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 2.53" for 5-YR event
Inflow = 17.13 cfs @ 11.96 hrs, Volume= 0.784 af
Outflow = 0.31 cfs @ 16.07 hrs, Volume= 0.784 af, Atten= 98%, Lag= 246.5 min
Discarded = 0.19 cfs @ 11.06 hrs, Volume= 0.692 af
Primary = 0.12 cfs @ 16.07 hrs, Volume= 0.092 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.40' @ 16.07 hrs Surf.Area= 9,195 sf Storage= 22,077 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 949.9 min (1,763.7 - 813.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.06 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.12 cfs @ 16.07 hrs HW=245.40' TW=241.51' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.12 cfs of 29.85 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.52 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 1.42" for 5-YR event
Inflow = 17.63 cfs @ 12.05 hrs, Volume= 1.144 af
Outflow = 0.34 cfs @ 21.39 hrs, Volume= 1.626 af, Atten= 98%, Lag= 560.7 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.17 cfs @ 21.39 hrs, Volume= 0.221 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 241.63' @ 21.39 hrs Surf.Area= 18,790 sf Storage= 52,250 cf (29,207 cf above start)

Plug-Flow detention time= 2,841.3 min calculated for 1.097 af (96% of inflow)
Center-of-Mass det. time= 1,918.4 min (2,774.4 - 856.0)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.17 cfs @ 21.39 hrs HW=241.63' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.17 cfs of 4.28 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.17 cfs @ 3.42 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 2.36" for 5-YR event
Inflow = 16.57 cfs @ 12.06 hrs, Volume= 1.026 af
Outflow = 3.54 cfs @ 12.38 hrs, Volume= 0.931 af, Atten= 79%, Lag= 19.4 min
Primary = 3.54 cfs @ 12.38 hrs, Volume= 0.930 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.01 cfs @ 24.18 hrs, Volume= 0.002 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.05' @ 24.18 hrs Surf.Area= 26,138 sf Storage= 25,321 cf

Plug-Flow detention time= 1,577.7 min calculated for 0.931 af (91% of inflow)
Center-of-Mass det. time= 1,530.0 min (2,358.0 - 828.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.54 cfs @ 12.38 hrs HW=243.77' TW=243.13' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 3.54 cfs of 4.24 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.54 cfs @ 3.24 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.01 cfs @ 24.18 hrs HW=244.05' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.01 cfs of 7.62 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.77 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 2.04" for 5-YR event
Inflow = 3.63 cfs @ 12.36 hrs, Volume= 0.962 af
Outflow = 0.11 cfs @ 11.75 hrs, Volume= 0.828 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.75 hrs, Volume= 0.828 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.05' @ 24.19 hrs Surf.Area= 10,849 sf Storage= 14,669 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 959.2 min (3,269.0 - 2,309.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.75 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 2.99" for 5-YR event
Inflow = 22.56 cfs @ 12.04 hrs, Volume= 1.349 af
Outflow = 19.41 cfs @ 12.09 hrs, Volume= 1.349 af, Atten= 14%, Lag= 3.4 min
Discarded = 0.58 cfs @ 10.99 hrs, Volume= 0.776 af
Primary = 18.83 cfs @ 12.09 hrs, Volume= 0.573 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.09' @ 12.09 hrs Surf.Area= 9,900 sf Storage= 14,246 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 96.0 min (899.3 - 803.3)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 10.99 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=18.81 cfs @ 12.09 hrs HW=244.09' TW=233.72' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 9.00 cfs @ 5.16 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 9.81 cfs @ 3.86 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 2.03" for 5-YR event
Inflow = 45.92 cfs @ 12.05 hrs, Volume= 2.279 af
Outflow = 7.42 cfs @ 12.45 hrs, Volume= 2.277 af, Atten= 84%, Lag= 23.9 min
Primary = 7.42 cfs @ 12.45 hrs, Volume= 2.277 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 234.70' @ 12.45 hrs Surf.Area= 17,402 sf Storage= 50,125 cf

Plug-Flow detention time= 173.0 min calculated for 2.277 af (100% of inflow)
Center-of-Mass det. time= 172.8 min (973.8 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.42 cfs @ 12.45 hrs HW=234.70' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 7.42 cfs of 27.04 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 3.08 cfs @ 8.83 fps)
3=Orifice/Grate (Orifice Controls 4.34 cfs @ 2.68 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 0.63" for 5-YR event
Inflow = 5.40 cfs @ 12.12 hrs, Volume= 0.623 af
Primary = 5.40 cfs @ 12.12 hrs, Volume= 0.623 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 0.66" for 5-YR event
Inflow = 6.33 cfs @ 12.13 hrs, Volume= 0.725 af
Primary = 6.33 cfs @ 12.13 hrs, Volume= 0.725 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 0.67" for 5-YR event
Inflow = 9.41 cfs @ 12.15 hrs, Volume= 0.768 af
Primary = 9.41 cfs @ 12.15 hrs, Volume= 0.768 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth = 1.87" for 5-YR event
Inflow = 8.35 cfs @ 12.41 hrs, Volume= 2.592 af
Primary = 8.35 cfs @ 12.41 hrs, Volume= 2.592 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 1.36" for 5-YR event
Inflow = 25.52 cfs @ 12.09 hrs, Volume= 4.153 af
Primary = 25.52 cfs @ 12.09 hrs, Volume= 4.153 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 21.40 cfs @ 11.96 hrs, Volume= 0.991 af, Depth= 3.20"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 18.56 cfs @ 11.96 hrs, Volume= 0.876 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 22.79 cfs @ 12.05 hrs, Volume= 1.362 af, Depth= 2.73"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 1.39 cfs @ 12.17 hrs, Volume= 0.120 af, Depth= 1.46"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 6.96 cfs @ 12.12 hrs, Volume= 0.518 af, Depth= 2.82"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 0.60 cfs @ 11.97 hrs, Volume= 0.028 af, Depth= 1.32"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 21.05 cfs @ 12.06 hrs, Volume= 1.308 af, Depth= 3.01"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 21.32 cfs @ 12.06 hrs, Volume= 1.329 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 1.03 cfs @ 11.97 hrs, Volume= 0.047 af, Depth= 1.32"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 13.83 cfs @ 12.14 hrs, Volume= 1.082 af, Depth= 1.60"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 27.55 cfs @ 12.03 hrs, Volume= 1.666 af, Depth= 3.70"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 38.74 cfs @ 12.02 hrs, Volume= 2.156 af, Depth= 3.20"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 7.79 cfs @ 12.03 hrs, Volume= 0.442 af, Depth= 1.67"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 7.58 cfs @ 12.17 hrs, Volume= 0.628 af, Depth= 2.22"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 7.79 cfs @ 12.04 hrs, Volume= 0.445 af, Depth= 1.82"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=4.92"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 3.20" for 10-YR event
Inflow = 21.40 cfs @ 11.96 hrs, Volume= 0.991 af
Outflow = 0.41 cfs @ 15.82 hrs, Volume= 0.991 af, Atten= 98%, Lag= 231.5 min
Discarded = 0.19 cfs @ 10.63 hrs, Volume= 0.762 af
Primary = 0.22 cfs @ 15.82 hrs, Volume= 0.229 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.98' @ 15.82 hrs Surf.Area= 9,861 sf Storage= 27,647 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 948.9 min (1,756.0 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 10.63 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.22 cfs @ 15.82 hrs HW=245.98' TW=242.09' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.22 cfs of 29.85 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.46 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 1.97" for 10-YR event
Inflow = 22.82 cfs @ 12.05 hrs, Volume= 1.591 af
Outflow = 0.43 cfs @ 24.07 hrs, Volume= 1.918 af, Atten= 98%, Lag= 721.4 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.26 cfs @ 24.07 hrs, Volume= 0.513 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 242.33' @ 24.07 hrs Surf.Area= 20,529 sf Storage= 65,964 cf (42,922 cf above start)

Plug-Flow detention time= 2,486.1 min calculated for 1.389 af (87% of inflow)
Center-of-Mass det. time= 1,740.2 min (2,614.6 - 874.4)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.26 cfs @ 24.07 hrs HW=242.33' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.26 cfs of 5.88 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.26 cfs @ 5.28 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 3.01" for 10-YR event
Inflow = 21.05 cfs @ 12.06 hrs, Volume= 1.308 af
Outflow = 4.30 cfs @ 12.36 hrs, Volume= 1.105 af, Atten= 80%, Lag= 18.0 min
Primary = 4.30 cfs @ 12.36 hrs, Volume= 0.968 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.10 cfs @ 24.12 hrs, Volume= 0.137 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 24.12 hrs Surf.Area= 26,732 sf Storage= 32,233 cf

Plug-Flow detention time= 1,422.8 min calculated for 1.105 af (84% of inflow)
Center-of-Mass det. time= 1,352.7 min (2,173.8 - 821.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.29 cfs @ 12.36 hrs HW=243.99' TW=243.32' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 4.29 cfs of 4.82 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.29 cfs @ 3.93 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.10 cfs @ 24.12 hrs HW=244.31' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.10 cfs of 8.77 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.10 cfs @ 2.09 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 2.16" for 10-YR event
Inflow = 4.43 cfs @ 12.36 hrs, Volume= 1.015 af
Outflow = 0.11 cfs @ 11.29 hrs, Volume= 0.835 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.29 hrs, Volume= 0.835 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 24.13 hrs Surf.Area= 11,235 sf Storage= 17,556 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,041.8 min (3,245.2 - 2,203.4)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.29 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 3.70" for 10-YR event
Inflow = 27.55 cfs @ 12.03 hrs, Volume= 1.666 af
Outflow = 25.38 cfs @ 12.08 hrs, Volume= 1.666 af, Atten= 8%, Lag= 2.4 min
Discarded = 0.58 cfs @ 10.62 hrs, Volume= 0.853 af
Primary = 24.80 cfs @ 12.08 hrs, Volume= 0.813 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 12.08 hrs Surf.Area= 9,900 sf Storage= 15,154 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 89.0 min (886.4 - 797.3)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 10.62 hrs HW=240.56' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=24.78 cfs @ 12.08 hrs HW=244.31' TW=234.37' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 11.81 cfs @ 5.46 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 12.97 cfs @ 4.18 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 2.64" for 10-YR event
Inflow = 60.92 cfs @ 12.04 hrs, Volume= 2.968 af
Outflow = 12.29 cfs @ 12.35 hrs, Volume= 2.966 af, Atten= 80%, Lag= 18.6 min
Primary = 12.29 cfs @ 12.35 hrs, Volume= 2.966 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 235.34' @ 12.35 hrs Surf.Area= 19,231 sf Storage= 61,976 cf

Plug-Flow detention time= 153.0 min calculated for 2.966 af (100% of inflow)
Center-of-Mass det. time= 152.9 min (947.9 - 795.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.29 cfs @ 12.35 hrs HW=235.34' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 12.29 cfs of 29.65 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 3.37 cfs @ 9.64 fps)
3=Orifice/Grate (Orifice Controls 8.93 cfs @ 4.59 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 1.04" for 10-YR event
Inflow = 6.96 cfs @ 12.12 hrs, Volume= 1.031 af
Primary = 6.96 cfs @ 12.12 hrs, Volume= 1.031 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 1.08" for 10-YR event
Inflow = 8.41 cfs @ 12.12 hrs, Volume= 1.178 af
Primary = 8.41 cfs @ 12.12 hrs, Volume= 1.178 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 1.06" for 10-YR event
Inflow = 13.83 cfs @ 12.14 hrs, Volume= 1.219 af
Primary = 13.83 cfs @ 12.14 hrs, Volume= 1.219 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth = 2.45" for 10-YR event
Inflow = 14.22 cfs @ 12.17 hrs, Volume= 3.408 af
Primary = 14.22 cfs @ 12.17 hrs, Volume= 3.408 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 1.86" for 10-YR event
Inflow = 40.20 cfs @ 12.13 hrs, Volume= 5.700 af
Primary = 40.20 cfs @ 12.13 hrs, Volume= 5.700 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 27.67 cfs @ 11.96 hrs, Volume= 1.301 af, Depth= 4.20"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 23.62 cfs @ 11.96 hrs, Volume= 1.133 af, Depth= 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 30.50 cfs @ 12.05 hrs, Volume= 1.834 af, Depth= 3.68"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 2.17 cfs @ 12.17 hrs, Volume= 0.180 af, Depth= 2.18"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 9.29 cfs @ 12.12 hrs, Volume= 0.693 af, Depth= 3.78"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 0.93 cfs @ 11.97 hrs, Volume= 0.042 af, Depth= 2.01"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 27.66 cfs @ 12.05 hrs, Volume= 1.734 af, Depth= 3.99"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 27.85 cfs @ 12.05 hrs, Volume= 1.752 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 1.60 cfs @ 11.97 hrs, Volume= 0.072 af, Depth= 2.01"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 20.93 cfs @ 12.13 hrs, Volume= 1.589 af, Depth= 2.35"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 34.81 cfs @ 12.03 hrs, Volume= 2.135 af, Depth= 4.74"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 50.24 cfs @ 12.02 hrs, Volume= 2.829 af, Depth= 4.20"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 11.53 cfs @ 12.03 hrs, Volume= 0.645 af, Depth= 2.44"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 10.65 cfs @ 12.17 hrs, Volume= 0.875 af, Depth= 3.09"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 11.32 cfs @ 12.03 hrs, Volume= 0.640 af, Depth= 2.62"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-YR Rainfall=6.00"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 4.20" for 25-YR event
Inflow = 27.67 cfs @ 11.96 hrs, Volume= 1.301 af
Outflow = 0.50 cfs @ 15.89 hrs, Volume= 1.301 af, Atten= 98%, Lag= 235.6 min
Discarded = 0.19 cfs @ 9.88 hrs, Volume= 0.867 af
Primary = 0.31 cfs @ 15.89 hrs, Volume= 0.434 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 246.90' @ 15.89 hrs Surf.Area= 10,944 sf Storage= 37,143 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,011.0 min (1,810.5 - 799.4)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 9.88 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.31 cfs @ 15.89 hrs HW=246.90' TW=242.93' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.31 cfs of 30.12 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.41 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 2.81" for 25-YR event
Inflow = 30.71 cfs @ 12.05 hrs, Volume= 2.268 af
Outflow = 0.52 cfs @ 24.14 hrs, Volume= 2.389 af, Atten= 98%, Lag= 725.8 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.35 cfs @ 24.14 hrs, Volume= 0.984 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 243.30' @ 24.14 hrs Surf.Area= 22,956 sf Storage= 87,125 cf (64,083 cf above start)

Plug-Flow detention time= 2,247.0 min calculated for 1.860 af (82% of inflow)
Center-of-Mass det. time= 1,636.9 min (2,542.5 - 905.6)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.35 cfs @ 24.14 hrs HW=243.30' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.35 cfs of 7.90 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.10 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 3.99" for 25-YR event
Inflow = 27.66 cfs @ 12.05 hrs, Volume= 1.734 af
Outflow = 4.98 cfs @ 12.19 hrs, Volume= 1.499 af, Atten= 82%, Lag= 8.0 min
Primary = 4.92 cfs @ 12.18 hrs, Volume= 1.251 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.14 cfs @ 15.42 hrs, Volume= 0.248 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.48' @ 15.42 hrs Surf.Area= 27,109 sf Storage= 36,705 cf

Plug-Flow detention time= 1,130.7 min calculated for 1.499 af (86% of inflow)
Center-of-Mass det. time= 1,066.8 min (1,879.9 - 813.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.86 cfs @ 12.18 hrs HW=244.20' TW=243.34' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 4.86 cfs of 5.47 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 4.86 cfs @ 4.46 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.14 cfs @ 15.42 hrs HW=244.48' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.14 cfs of 9.43 cfs potential flow)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.14 cfs @ 2.87 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 2.81" for 25-YR event
Inflow = 5.17 cfs @ 12.18 hrs, Volume= 1.322 af
Outflow = 0.71 cfs @ 15.49 hrs, Volume= 1.129 af, Atten= 86%, Lag= 198.5 min
Discarded = 0.11 cfs @ 10.51 hrs, Volume= 0.844 af
Primary = 0.60 cfs @ 15.49 hrs, Volume= 0.285 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.46' @ 15.49 hrs Surf.Area= 11,457 sf Storage= 19,262 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 772.7 min (2,673.5 - 1,900.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 10.51 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.60 cfs @ 15.49 hrs HW=244.46' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.60 cfs of 15.45 cfs potential flow)
  └─**3=Orifice/Grate** (Weir Controls 0.60 cfs @ 0.82 fps)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 4.74" for 25-YR event
Inflow = 34.81 cfs @ 12.03 hrs, Volume= 2.135 af
Outflow = 32.92 cfs @ 12.07 hrs, Volume= 2.135 af, Atten= 5%, Lag= 2.0 min
Discarded = 0.58 cfs @ 10.02 hrs, Volume= 0.948 af
Primary = 32.34 cfs @ 12.07 hrs, Volume= 1.187 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.58' @ 12.07 hrs Surf.Area= 9,900 sf Storage= 16,228 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 80.5 min (871.0 - 790.5)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 10.02 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=32.31 cfs @ 12.07 hrs HW=244.58' TW=235.29' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 15.37 cfs @ 5.77 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 16.94 cfs @ 4.54 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 3.57" for 25-YR event
Inflow = 80.32 cfs @ 12.03 hrs, Volume= 4.016 af
Outflow = 16.73 cfs @ 12.33 hrs, Volume= 4.014 af, Atten= 79%, Lag= 17.7 min
Primary = 16.73 cfs @ 12.33 hrs, Volume= 4.014 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 236.34' @ 12.33 hrs Surf.Area= 22,033 sf Storage= 82,618 cf

Plug-Flow detention time= 137.7 min calculated for 4.014 af (100% of inflow)
Center-of-Mass det. time= 137.4 min (926.6 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=16.73 cfs @ 12.33 hrs HW=236.34' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert - OS 4** (Passes 16.73 cfs of 33.29 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 3.76 cfs @ 10.78 fps)
—**3=Orifice/Grate** (Orifice Controls 12.97 cfs @ 6.67 fps)
—**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 1.69" for 25-YR event
Inflow = 9.44 cfs @ 12.12 hrs, Volume= 1.677 af
Primary = 9.44 cfs @ 12.12 hrs, Volume= 1.677 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 1.73" for 25-YR event
Inflow = 11.71 cfs @ 12.12 hrs, Volume= 1.898 af
Primary = 11.71 cfs @ 12.12 hrs, Volume= 1.898 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 1.85" for 25-YR event
Inflow = 20.95 cfs @ 12.13 hrs, Volume= 2.123 af
Primary = 20.95 cfs @ 12.13 hrs, Volume= 2.123 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth = 3.35" for 25-YR event
Inflow = 22.82 cfs @ 12.08 hrs, Volume= 4.659 af
Primary = 22.82 cfs @ 12.08 hrs, Volume= 4.659 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 2.71" for 25-YR event
Inflow = 61.85 cfs @ 12.09 hrs, Volume= 8.296 af
Primary = 61.85 cfs @ 12.09 hrs, Volume= 8.296 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 33.00 cfs @ 11.96 hrs, Volume= 1.570 af, Depth= 5.06"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 27.91 cfs @ 11.96 hrs, Volume= 1.355 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 37.15 cfs @ 12.04 hrs, Volume= 2.248 af, Depth= 4.51"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 2.88 cfs @ 12.17 hrs, Volume= 0.234 af, Depth= 2.84"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 11.31 cfs @ 12.12 hrs, Volume= 0.847 af, Depth= 4.62"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 1.23 cfs @ 11.97 hrs, Volume= 0.055 af, Depth= 2.64"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 33.34 cfs @ 12.05 hrs, Volume= 2.106 af, Depth= 4.84"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 33.45 cfs @ 12.05 hrs, Volume= 2.121 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 2.12 cfs @ 11.97 hrs, Volume= 0.095 af, Depth= 2.64"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 27.39 cfs @ 12.13 hrs, Volume= 2.055 af, Depth= 3.04"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 40.97 cfs @ 12.03 hrs, Volume= 2.538 af, Depth= 5.63"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 60.05 cfs @ 12.02 hrs, Volume= 3.414 af, Depth= 5.06"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 14.91 cfs @ 12.03 hrs, Volume= 0.830 af, Depth= 3.14"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 13.36 cfs @ 12.17 hrs, Volume= 1.095 af, Depth= 3.87"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 14.49 cfs @ 12.03 hrs, Volume= 0.817 af, Depth= 3.35"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-YR Rainfall=6.92"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 5.06" for 50-YR event
Inflow = 33.00 cfs @ 11.96 hrs, Volume= 1.570 af
Outflow = 1.97 cfs @ 12.66 hrs, Volume= 1.570 af, Atten= 94%, Lag= 42.2 min
Discarded = 0.19 cfs @ 9.23 hrs, Volume= 0.899 af
Primary = 1.78 cfs @ 12.66 hrs, Volume= 0.671 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 247.11' @ 12.66 hrs Surf.Area= 11,202 sf Storage= 39,549 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 904.9 min (1,699.1 - 794.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 9.23 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=1.78 cfs @ 12.66 hrs HW=247.11' TW=242.92' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 1.78 cfs of 30.98 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.33 cfs @ 6.79 fps)
  └**4=Orifice/Grate** (Weir Controls 1.45 cfs @ 1.10 fps)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 3.61" for 50-YR event
Inflow = 37.44 cfs @ 12.05 hrs, Volume= 2.919 af
Outflow = 0.59 cfs @ 24.14 hrs, Volume= 2.869 af, Atten= 98%, Lag= 725.7 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.42 cfs @ 24.14 hrs, Volume= 1.464 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 244.28' @ 24.14 hrs Surf.Area= 25,457 sf Storage= 110,928 cf (87,886 cf above start)

Plug-Flow detention time= 2,204.3 min calculated for 2.340 af (80% of inflow)
Center-of-Mass det. time= 1,676.7 min (2,570.6 - 893.9)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.42 cfs @ 24.14 hrs HW=244.28' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.42 cfs of 9.52 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.42 cfs @ 8.56 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 4.84" for 50-YR event
Inflow = 33.34 cfs @ 12.05 hrs, Volume= 2.106 af
Outflow = 5.04 cfs @ 12.19 hrs, Volume= 1.869 af, Atten= 85%, Lag= 8.4 min
Primary = 4.90 cfs @ 12.19 hrs, Volume= 1.605 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.17 cfs @ 13.22 hrs, Volume= 0.265 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.65' @ 13.22 hrs Surf.Area= 27,507 sf Storage= 41,490 cf

Plug-Flow detention time= 930.0 min calculated for 1.869 af (89% of inflow)
Center-of-Mass det. time= 874.6 min (1,682.2 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.85 cfs @ 12.19 hrs HW=244.46' TW=243.61' (Dynamic Tailwater)
└**1=Culvert - OS 3A-2** (Passes 4.85 cfs of 5.45 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 4.85 cfs @ 4.44 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.17 cfs @ 13.22 hrs HW=244.65' TW=0.00' (Dynamic Tailwater)
└**3=Culvert - OS 3A-1** (Passes 0.17 cfs of 10.08 cfs potential flow)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
  └**6=Orifice/Grate** (Orifice Controls 0.17 cfs @ 3.50 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 3.61" for 50-YR event
Inflow = 5.67 cfs @ 12.00 hrs, Volume= 1.699 af
Outflow = 1.92 cfs @ 13.42 hrs, Volume= 1.505 af, Atten= 66%, Lag= 85.4 min
Discarded = 0.11 cfs @ 9.84 hrs, Volume= 0.850 af
Primary = 1.81 cfs @ 13.42 hrs, Volume= 0.655 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.53' @ 13.42 hrs Surf.Area= 11,558 sf Storage= 20,052 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 558.1 min (2,230.7 - 1,672.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 9.84 hrs HW=242.54' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=1.81 cfs @ 13.42 hrs HW=244.53' TW=0.00' (Dynamic Tailwater)
└**2=Culvert - OS 3B** (Passes 1.81 cfs of 15.53 cfs potential flow)
  └**3=Orifice/Grate** (Weir Controls 1.81 cfs @ 1.19 fps)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 5.63" for 50-YR event
Inflow = 40.97 cfs @ 12.03 hrs, Volume= 2.538 af
Outflow = 38.92 cfs @ 12.07 hrs, Volume= 2.538 af, Atten= 5%, Lag= 1.9 min
Discarded = 0.58 cfs @ 9.27 hrs, Volume= 1.011 af
Primary = 38.34 cfs @ 12.07 hrs, Volume= 1.527 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.79' @ 12.07 hrs Surf.Area= 9,900 sf Storage= 17,063 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 74.6 min (860.4 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 9.27 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=38.30 cfs @ 12.07 hrs HW=244.79' TW=236.03' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 18.24 cfs @ 5.98 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 20.06 cfs @ 4.80 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 4.39" for 50-YR event
Inflow = 95.93 cfs @ 12.03 hrs, Volume= 4.941 af
Outflow = 19.58 cfs @ 12.33 hrs, Volume= 4.939 af, Atten= 80%, Lag= 17.8 min
Primary = 19.58 cfs @ 12.33 hrs, Volume= 4.939 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 237.17' @ 12.33 hrs Surf.Area= 24,313 sf Storage= 101,801 cf

Plug-Flow detention time= 130.8 min calculated for 4.939 af (100% of inflow)
Center-of-Mass det. time= 130.5 min (916.3 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=19.58 cfs @ 12.33 hrs HW=237.17' TW=0.00' (Dynamic Tailwater)
└**1=Culvert - OS 4** (Passes 19.58 cfs of 36.02 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 4.06 cfs @ 11.63 fps)
  ├**3=Orifice/Grate** (Orifice Controls 15.52 cfs @ 7.98 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 2.33" for 50-YR event
Inflow = 11.53 cfs @ 12.12 hrs, Volume= 2.311 af
Primary = 11.53 cfs @ 12.12 hrs, Volume= 2.311 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 2.37" for 50-YR event
Inflow = 14.54 cfs @ 12.12 hrs, Volume= 2.601 af
Primary = 14.54 cfs @ 12.12 hrs, Volume= 2.601 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 2.59" for 50-YR event
Inflow = 27.50 cfs @ 12.13 hrs, Volume= 2.975 af
Primary = 27.50 cfs @ 12.13 hrs, Volume= 2.975 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth = 4.15" for 50-YR event
Inflow = 29.34 cfs @ 12.06 hrs, Volume= 5.769 af
Primary = 29.34 cfs @ 12.06 hrs, Volume= 5.769 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 3.48" for 50-YR event
Inflow = 79.35 cfs @ 12.09 hrs, Volume= 10.656 af
Primary = 79.35 cfs @ 12.09 hrs, Volume= 10.656 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 80S: BASIN 2: TOTAL AREA

Runoff = 38.84 cfs @ 11.96 hrs, Volume= 1.869 af, Depth= 6.03"
Routed to Pond 10P : BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	3.720	84	
	3.720		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Total Tc**

Summary for Subcatchment 80S+: BASIN 2: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 32.60 cfs @ 11.96 hrs, Volume= 1.601 af, Depth= 6.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	3.010	87	
	3.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 90S: Basin 1

Runoff = 44.50 cfs @ 12.04 hrs, Volume= 2.712 af, Depth= 5.44"
Routed to Pond 20P : BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	5.980	79	
	5.980		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8					**Direct Entry, Total Tc**

Summary for Subcatchment 100S: POST A (BYPASS)

Runoff = 3.70 cfs @ 12.17 hrs, Volume= 0.298 af, Depth= 3.61"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	0.990	63	
	0.990		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4					**Direct Entry, Total Tc**

Summary for Subcatchment 110S: POST B (BYPASS)

Runoff = 13.52 cfs @ 12.12 hrs, Volume= 1.019 af, Depth= 5.56"
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	2.200	80	
	2.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8					**Direct Entry, Total Tc**

Summary for Subcatchment 120S: POST C (BYPASS)

Runoff = 1.58 cfs @ 11.96 hrs, Volume= 0.071 af, Depth= 3.39"
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	0.250	61	
	0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 130S: TO BASIN 3A

Runoff = 39.57 cfs @ 12.05 hrs, Volume= 2.520 af, Depth= 5.79"
Routed to Pond 30P : BASIN 3A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	5.220	82	
	5.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 130S+: BASIN 3A: DISTURBED AREA FOR DEP PCSM SPREADSHEET

Runoff = 39.58 cfs @ 12.05 hrs, Volume= 2.532 af, Depth= 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	5.140	83	
	5.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8					**Direct Entry,**

Summary for Subcatchment 140S: TO BASIN 3B

Runoff = 2.72 cfs @ 11.96 hrs, Volume= 0.122 af, Depth= 3.39"
Routed to Pond 40P : BASIN 3B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	0.430	61	
	0.430		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Time**

Summary for Subcatchment 150S: POST E (BYPASS)

Runoff = 34.80 cfs @ 12.13 hrs, Volume= 2.594 af, Depth= 3.84"
Routed to Link 50L : POST E TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	8.110	65	
	8.110		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7					**Direct Entry,**

Summary for Subcatchment 160S: TO STONE BMP 2A

Runoff = 47.69 cfs @ 12.03 hrs, Volume= 2.984 af, Depth= 6.62"
Routed to Pond 50P : STONE BMP 2A (BASIN)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	5.410	89	
	5.410		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Summary for Subcatchment 170S: TO BASIN 4

Runoff = 70.79 cfs @ 12.02 hrs, Volume= 4.064 af, Depth= 6.03"
Routed to Pond 60P : BASIN 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	8.090	84	
	8.090		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3					**Direct Entry,**

Summary for Subcatchment 180S: POST F (BYPASS)

Runoff = 18.76 cfs @ 12.03 hrs, Volume= 1.044 af, Depth= 3.95"
Routed to Link 60L : POST F TOTAL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	3.170	66	
	3.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8					**Direct Entry,**

Summary for Subcatchment 190S: POST D (BYPASS)

Runoff = 16.40 cfs @ 12.16 hrs, Volume= 1.345 af, Depth= 4.75"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	3.400	73	
	3.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.3					**Direct Entry,**

Summary for Subcatchment 200S: POST G (BYPASS)

Runoff = 18.07 cfs @ 12.03 hrs, Volume= 1.020 af, Depth= 4.18"
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-YR Rainfall=7.93"

	Area (ac)	CN	Description
*	2.930	68	
	2.930		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2					**Direct Entry,**

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 6.03" for 100-YR event
Inflow = 38.84 cfs @ 11.96 hrs, Volume= 1.869 af
Outflow = 6.92 cfs @ 12.12 hrs, Volume= 1.869 af, Atten= 82%, Lag= 9.5 min
Discarded = 0.19 cfs @ 8.65 hrs, Volume= 0.924 af
Primary = 6.73 cfs @ 12.12 hrs, Volume= 0.944 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 247.30' @ 12.12 hrs Surf.Area= 11,430 sf Storage= 41,716 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 792.9 min (1,582.2 - 789.3)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 8.65 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=6.72 cfs @ 12.12 hrs HW=247.30' TW=242.58' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 6.72 cfs of 32.88 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.11 fps)
  └**4=Orifice/Grate** (Weir Controls 6.37 cfs @ 1.81 fps)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 4.52" for 100-YR event
Inflow = 48.93 cfs @ 12.06 hrs, Volume= 3.657 af
Outflow = 0.66 cfs @ 24.13 hrs, Volume= 3.430 af, Atten= 99%, Lag= 724.0 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.49 cfs @ 24.13 hrs, Volume= 2.024 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 245.34' @ 24.13 hrs Surf.Area= 28,264 sf Storage= 139,266 cf (116,223 cf above start)

Plug-Flow detention time= 2,264.5 min calculated for 2.900 af (79% of inflow)
Center-of-Mass det. time= 1,794.6 min (2,670.6 - 875.9)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.49 cfs @ 24.13 hrs HW=245.34' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.49 cfs of 10.99 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.49 cfs @ 9.89 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 5.79" for 100-YR event
Inflow = 39.57 cfs @ 12.05 hrs, Volume= 2.520 af
Outflow = 5.17 cfs @ 12.21 hrs, Volume= 2.282 af, Atten= 87%, Lag= 9.7 min
Primary = 4.98 cfs @ 12.21 hrs, Volume= 2.003 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.22 cfs @ 12.68 hrs, Volume= 0.280 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.00' @ 12.68 hrs Surf.Area= 28,285 sf Storage= 51,053 cf

Plug-Flow detention time= 783.4 min calculated for 2.282 af (91% of inflow)
Center-of-Mass det. time= 734.9 min (1,537.4 - 802.5)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.93 cfs @ 12.21 hrs HW=244.80' TW=243.92' (Dynamic Tailwater)
└**1=Culvert - OS 3A-2** (Passes 4.93 cfs of 5.55 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 4.93 cfs @ 4.52 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.22 cfs @ 12.68 hrs HW=245.00' TW=0.00' (Dynamic Tailwater)
└**3=Culvert - OS 3A-1** (Passes 0.22 cfs of 11.25 cfs potential flow)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
  └**6=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.50 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 4.51" for 100-YR event
Inflow = 6.25 cfs @ 11.98 hrs, Volume= 2.124 af
Outflow = 3.38 cfs @ 13.07 hrs, Volume= 1.930 af, Atten= 46%, Lag= 65.4 min
Discarded = 0.11 cfs @ 9.17 hrs, Volume= 0.856 af
Primary = 3.27 cfs @ 13.07 hrs, Volume= 1.073 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.60' @ 13.07 hrs Surf.Area= 11,652 sf Storage= 20,789 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 425.2 min (1,937.9 - 1,512.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 9.17 hrs HW=242.54' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=3.27 cfs @ 13.07 hrs HW=244.60' TW=0.00' (Dynamic Tailwater)
└**2=Culvert - OS 3B** (Passes 3.27 cfs of 15.60 cfs potential flow)
  └**3=Orifice/Grate** (Weir Controls 3.27 cfs @ 1.44 fps)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 6.62" for 100-YR event
Inflow = 47.69 cfs @ 12.03 hrs, Volume= 2.984 af
Outflow = 45.31 cfs @ 12.07 hrs, Volume= 2.984 af, Atten= 5%, Lag= 1.9 min
Discarded = 0.58 cfs @ 8.81 hrs, Volume= 1.072 af
Primary = 44.73 cfs @ 12.07 hrs, Volume= 1.912 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.02' @ 12.07 hrs Surf.Area= 9,900 sf Storage= 17,967 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 69.3 min (850.7 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 8.81 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=44.69 cfs @ 12.07 hrs HW=245.01' TW=236.80' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 21.40 cfs @ 6.18 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 23.29 cfs @ 5.07 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 5.31" for 100-YR event
Inflow = 112.74 cfs @ 12.03 hrs, Volume= 5.976 af
Outflow = 33.02 cfs @ 12.25 hrs, Volume= 5.974 af, Atten= 71%, Lag= 13.2 min
Primary = 33.02 cfs @ 12.25 hrs, Volume= 5.974 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 237.85' @ 12.25 hrs Surf.Area= 26,184 sf Storage= 118,947 cf

Plug-Flow detention time= 123.3 min calculated for 5.974 af (100% of inflow)
Center-of-Mass det. time= 123.1 min (906.0 - 783.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=33.02 cfs @ 12.25 hrs HW=237.85' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert - OS 4** (Passes 33.02 cfs of 38.12 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.29 cfs @ 12.29 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 17.33 cfs @ 8.92 fps)
  └─**4=Orifice/Grate** (Weir Controls 11.40 cfs @ 2.19 fps)

Summary for Link 20L: OUTFALL FOX CHASE RD (POST B)

Inflow Area = 11.900 ac, 0.00% Impervious, Inflow Depth = 3.07" for 100-YR event
Inflow = 13.81 cfs @ 12.12 hrs, Volume= 3.044 af
Primary = 13.81 cfs @ 12.12 hrs, Volume= 3.044 af, Atten= 0%, Lag= 0.0 min
Routed to Link 30L : POST TOOKANY WATERSHED (01)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 30L: POST TOOKANY WATERSHED (01)

Inflow Area = 13.140 ac, 0.00% Impervious, Inflow Depth = 3.12" for 100-YR event
Inflow = 17.70 cfs @ 12.12 hrs, Volume= 3.412 af
Primary = 17.70 cfs @ 12.12 hrs, Volume= 3.412 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 50L: POST E TOTAL

Inflow Area = 13.760 ac, 0.00% Impervious, Inflow Depth = 3.44" for 100-YR event
Inflow = 34.96 cfs @ 12.13 hrs, Volume= 3.947 af
Primary = 34.96 cfs @ 12.13 hrs, Volume= 3.947 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 60L: POST F TOTAL

Inflow Area = 16.670 ac, 0.00% Impervious, Inflow Depth = 5.05" for 100-YR event
Inflow = 38.09 cfs @ 12.23 hrs, Volume= 7.018 af
Primary = 38.09 cfs @ 12.23 hrs, Volume= 7.018 af, Atten= 0%, Lag= 0.0 min
Routed to Link 70L : POST PENNYPACK CREEK WATERSHED (02)

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Summary for Link 70L: POST PENNYPACK CREEK WATERSHED (02)

Inflow Area = 36.760 ac, 0.00% Impervious, Inflow Depth = 4.35" for 100-YR event
Inflow = 98.42 cfs @ 12.08 hrs, Volume= 13.329 af
Primary = 98.42 cfs @ 12.08 hrs, Volume= 13.329 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs

Basin Design Calculations

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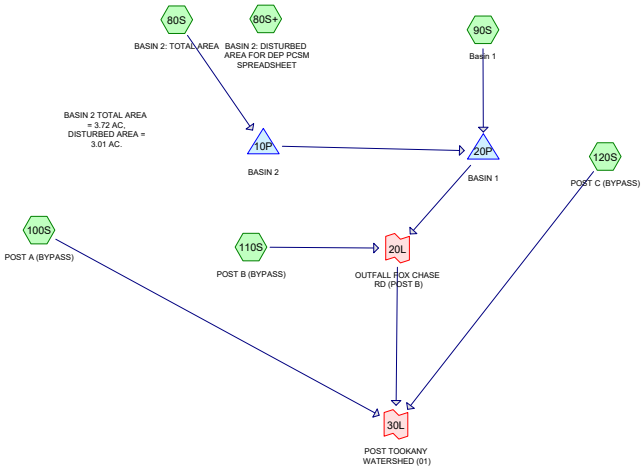
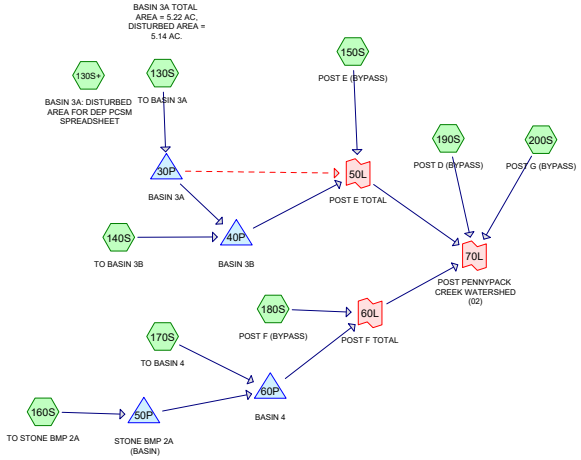
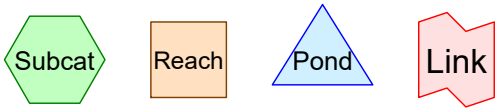
Pond Report
Emergency Spillway Calculations
Antiseep Design Calculations
NOAA Chapter 14 precipitation Data
Rainfall Report







Routing Diagram for 7662-PRE vs POST
Prepared by ESE Consultants, Inc, Printed 11/30/2023
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Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 1.31" for 1-YR event
Inflow = 9.02 cfs @ 11.96 hrs, Volume= 0.405 af
Outflow = 0.19 cfs @ 11.68 hrs, Volume= 0.405 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.68 hrs, Volume= 0.405 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.00' @ 15.91 hrs Surf.Area= 7,596 sf Storage= 10,299 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 566.9 min (1,399.7 - 832.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.68 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=239.87' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.00 cfs of 15.22 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 0.62" for 1-YR event
Inflow = 8.22 cfs @ 12.05 hrs, Volume= 0.499 af
Outflow = 0.17 cfs @ 0.00 hrs, Volume= 1.028 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.028 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 240.37' @ 19.35 hrs Surf.Area= 15,637 sf Storage= 30,489 cf (7,447 cf above start)

Plug-Flow detention time= 2,467.6 min calculated for 0.499 af (100% of inflow)
Center-of-Mass det. time= 1,338.2 min (2,195.7 - 857.5)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=239.87' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Controls 0.00 cfs)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 1.18" for 1-YR event
Inflow = 8.25 cfs @ 12.06 hrs, Volume= 0.512 af
Outflow = 1.54 cfs @ 12.45 hrs, Volume= 0.512 af, Atten= 81%, Lag= 23.3 min
Primary = 1.54 cfs @ 12.45 hrs, Volume= 0.512 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.41' @ 24.10 hrs Surf.Area= 23,462 sf Storage= 9,330 cf

Plug-Flow detention time= 700.8 min calculated for 0.512 af (100% of inflow)
Center-of-Mass det. time= 701.0 min (1,549.0 - 848.0)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.54 cfs @ 12.45 hrs HW=243.38' TW=242.75' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 1.54 cfs of 2.66 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.54 cfs @ 2.36 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.90' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.00 cfs of 0.81 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth = 1.11" for 1-YR event
Inflow = 1.57 cfs @ 12.44 hrs, Volume= 0.522 af
Outflow = 0.11 cfs @ 12.07 hrs, Volume= 0.522 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.11 cfs @ 12.07 hrs, Volume= 0.522 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.41' @ 24.12 hrs Surf.Area= 9,695 sf Storage= 8,047 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 826.3 min (2,363.9 - 1,537.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 12.07 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 1.67" for 1-YR event
Inflow = 12.85 cfs @ 12.04 hrs, Volume= 0.751 af
Outflow = 4.98 cfs @ 12.20 hrs, Volume= 0.751 af, Atten= 61%, Lag= 10.0 min
Discarded = 0.58 cfs @ 11.66 hrs, Volume= 0.594 af
Primary = 4.40 cfs @ 12.20 hrs, Volume= 0.157 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.38' @ 12.20 hrs Surf.Area= 9,900 sf Storage= 11,420 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 118.7 min (938.6 - 819.9)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 11.66 hrs HW=240.56' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=4.40 cfs @ 12.20 hrs HW=243.38' TW=232.50' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 2.13 cfs @ 3.70 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 2.26 cfs @ 2.60 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 0.92" for 1-YR event
Inflow = 16.11 cfs @ 12.02 hrs, Volume= 1.037 af
Outflow = 2.08 cfs @ 12.78 hrs, Volume= 1.035 af, Atten= 87%, Lag= 45.4 min
Primary = 2.08 cfs @ 12.78 hrs, Volume= 1.035 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 232.86' @ 12.78 hrs Surf.Area= 13,677 sf Storage= 22,112 cf

Plug-Flow detention time= 168.4 min calculated for 1.035 af (100% of inflow)
Center-of-Mass det. time= 167.1 min (991.7 - 824.6)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.08 cfs @ 12.78 hrs HW=232.86' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 2.08 cfs of 16.95 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 2.08 cfs @ 5.95 fps)
3=Orifice/Grate (Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 1.77" for 2-YR event
Inflow = 12.18 cfs @ 11.96 hrs, Volume= 0.550 af
Outflow = 0.19 cfs @ 11.52 hrs, Volume= 0.550 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.19 cfs @ 11.52 hrs, Volume= 0.550 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.63' @ 17.86 hrs Surf.Area= 8,321 sf Storage= 15,363 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 815.5 min (1,639.4 - 823.9)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.52 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=239.87' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.00 cfs of 15.22 cfs potential flow)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 0.88" for 2-YR event
Inflow = 11.81 cfs @ 12.05 hrs, Volume= 0.708 af
Outflow = 0.17 cfs @ 0.00 hrs, Volume= 1.237 af, Atten= 99%, Lag= 0.0 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.237 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 240.89' @ 23.77 hrs Surf.Area= 16,948 sf Storage= 39,057 cf (16,015 cf above start)

Plug-Flow detention time= 2,922.4 min calculated for 0.708 af (100% of inflow)
Center-of-Mass det. time= 1,793.1 min (2,640.3 - 847.2)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=239.87' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 1.63" for 2-YR event
Inflow = 11.45 cfs @ 12.06 hrs, Volume= 0.708 af
Outflow = 2.39 cfs @ 12.40 hrs, Volume= 0.708 af, Atten= 79%, Lag= 20.3 min
Primary = 2.39 cfs @ 12.40 hrs, Volume= 0.708 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.66' @ 24.15 hrs Surf.Area= 24,553 sf Storage= 15,389 cf

Plug-Flow detention time= 1,151.4 min calculated for 0.708 af (100% of inflow)
Center-of-Mass det. time= 1,151.6 min (1,990.2 - 838.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.39 cfs @ 12.40 hrs HW=243.53' TW=242.88' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 2.39 cfs of 3.34 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.39 cfs @ 2.70 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.90' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.00 cfs of 0.81 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth = 1.54" for 2-YR event
Inflow = 2.44 cfs @ 12.39 hrs, Volume= 0.725 af
Outflow = 0.11 cfs @ 11.97 hrs, Volume= 0.725 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.97 hrs, Volume= 0.725 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.66' @ 24.16 hrs Surf.Area= 10,155 sf Storage= 10,557 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,028.8 min (2,992.8 - 1,964.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.97 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 2.18" for 2-YR event
Inflow = 16.68 cfs @ 12.04 hrs, Volume= 0.984 af
Outflow = 10.94 cfs @ 12.13 hrs, Volume= 0.984 af, Atten= 34%, Lag= 5.9 min
Discarded = 0.58 cfs @ 11.42 hrs, Volume= 0.672 af
Primary = 10.36 cfs @ 12.13 hrs, Volume= 0.312 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 243.72' @ 12.13 hrs Surf.Area= 9,900 sf Storage= 12,774 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 107.2 min (919.4 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 11.42 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=10.34 cfs @ 12.13 hrs HW=243.72' TW=232.98' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 4.99 cfs @ 4.53 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 5.35 cfs @ 3.26 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 1.34" for 2-YR event
Inflow = 25.26 cfs @ 12.08 hrs, Volume= 1.508 af
Outflow = 2.61 cfs @ 12.83 hrs, Volume= 1.506 af, Atten= 90%, Lag= 44.8 min
Primary = 2.61 cfs @ 12.83 hrs, Volume= 1.506 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 233.75' @ 12.83 hrs Surf.Area= 15,049 sf Storage= 34,876 cf

Plug-Flow detention time= 185.1 min calculated for 1.506 af (100% of inflow)
Center-of-Mass det. time= 184.7 min (996.8 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.61 cfs @ 12.83 hrs HW=233.75' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 2.61 cfs of 22.06 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 2.61 cfs @ 7.48 fps)
3=Orifice/Grate (Controls 0.00 cfs)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 2.53" for 5-YR event
Inflow = 17.13 cfs @ 11.96 hrs, Volume= 0.784 af
Outflow = 0.31 cfs @ 16.07 hrs, Volume= 0.784 af, Atten= 98%, Lag= 246.5 min
Discarded = 0.19 cfs @ 11.06 hrs, Volume= 0.692 af
Primary = 0.12 cfs @ 16.07 hrs, Volume= 0.092 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.40' @ 16.07 hrs Surf.Area= 9,195 sf Storage= 22,077 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 949.9 min (1,763.7 - 813.8)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 11.06 hrs HW=242.57' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.12 cfs @ 16.07 hrs HW=245.40' TW=241.51' (Dynamic Tailwater)
↑└**1=OS pipe to Basin 1** (Passes 0.12 cfs of 29.85 cfs potential flow)
↑├**3=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.52 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 1.42" for 5-YR event
Inflow = 17.63 cfs @ 12.05 hrs, Volume= 1.144 af
Outflow = 0.34 cfs @ 21.39 hrs, Volume= 1.626 af, Atten= 98%, Lag= 560.7 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.17 cfs @ 21.39 hrs, Volume= 0.221 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 241.63' @ 21.39 hrs Surf.Area= 18,790 sf Storage= 52,250 cf (29,207 cf above start)

Plug-Flow detention time= 2,841.3 min calculated for 1.097 af (96% of inflow)
Center-of-Mass det. time= 1,918.4 min (2,774.4 - 856.0)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.17 cfs @ 21.39 hrs HW=241.63' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.17 cfs of 4.28 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.17 cfs @ 3.42 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 2.36" for 5-YR event
Inflow = 16.57 cfs @ 12.06 hrs, Volume= 1.026 af
Outflow = 3.54 cfs @ 12.38 hrs, Volume= 0.931 af, Atten= 79%, Lag= 19.4 min
Primary = 3.54 cfs @ 12.38 hrs, Volume= 0.930 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.01 cfs @ 24.18 hrs, Volume= 0.002 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.05' @ 24.18 hrs Surf.Area= 26,138 sf Storage= 25,321 cf

Plug-Flow detention time= 1,577.7 min calculated for 0.931 af (91% of inflow)
Center-of-Mass det. time= 1,530.0 min (2,358.0 - 828.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.54 cfs @ 12.38 hrs HW=243.77' TW=243.13' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 3.54 cfs of 4.24 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.54 cfs @ 3.24 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.01 cfs @ 24.18 hrs HW=244.05' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.01 cfs of 7.62 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.77 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 2.04" for 5-YR event
Inflow = 3.63 cfs @ 12.36 hrs, Volume= 0.962 af
Outflow = 0.11 cfs @ 11.75 hrs, Volume= 0.828 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.75 hrs, Volume= 0.828 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.05' @ 24.19 hrs Surf.Area= 10,849 sf Storage= 14,669 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 959.2 min (3,269.0 - 2,309.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.75 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 2.99" for 5-YR event
Inflow = 22.56 cfs @ 12.04 hrs, Volume= 1.349 af
Outflow = 19.41 cfs @ 12.09 hrs, Volume= 1.349 af, Atten= 14%, Lag= 3.4 min
Discarded = 0.58 cfs @ 10.99 hrs, Volume= 0.776 af
Primary = 18.83 cfs @ 12.09 hrs, Volume= 0.573 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.09' @ 12.09 hrs Surf.Area= 9,900 sf Storage= 14,246 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 96.0 min (899.3 - 803.3)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 10.99 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=18.81 cfs @ 12.09 hrs HW=244.09' TW=233.72' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 9.00 cfs @ 5.16 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 9.81 cfs @ 3.86 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 2.03" for 5-YR event
Inflow = 45.92 cfs @ 12.05 hrs, Volume= 2.279 af
Outflow = 7.42 cfs @ 12.45 hrs, Volume= 2.277 af, Atten= 84%, Lag= 23.9 min
Primary = 7.42 cfs @ 12.45 hrs, Volume= 2.277 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 234.70' @ 12.45 hrs Surf.Area= 17,402 sf Storage= 50,125 cf

Plug-Flow detention time= 173.0 min calculated for 2.277 af (100% of inflow)
Center-of-Mass det. time= 172.8 min (973.8 - 801.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.42 cfs @ 12.45 hrs HW=234.70' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 7.42 cfs of 27.04 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 3.08 cfs @ 8.83 fps)
3=Orifice/Grate (Orifice Controls 4.34 cfs @ 2.68 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 3.20" for 10-YR event
Inflow = 21.40 cfs @ 11.96 hrs, Volume= 0.991 af
Outflow = 0.41 cfs @ 15.82 hrs, Volume= 0.991 af, Atten= 98%, Lag= 231.5 min
Discarded = 0.19 cfs @ 10.63 hrs, Volume= 0.762 af
Primary = 0.22 cfs @ 15.82 hrs, Volume= 0.229 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.98' @ 15.82 hrs Surf.Area= 9,861 sf Storage= 27,647 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 948.9 min (1,756.0 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 10.63 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.22 cfs @ 15.82 hrs HW=245.98' TW=242.09' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.22 cfs of 29.85 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.46 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 1.97" for 10-YR event
Inflow = 22.82 cfs @ 12.05 hrs, Volume= 1.591 af
Outflow = 0.43 cfs @ 24.07 hrs, Volume= 1.918 af, Atten= 98%, Lag= 721.4 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.26 cfs @ 24.07 hrs, Volume= 0.513 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 242.33' @ 24.07 hrs Surf.Area= 20,529 sf Storage= 65,964 cf (42,922 cf above start)

Plug-Flow detention time= 2,486.1 min calculated for 1.389 af (87% of inflow)
Center-of-Mass det. time= 1,740.2 min (2,614.6 - 874.4)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.26 cfs @ 24.07 hrs HW=242.33' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.26 cfs of 5.88 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.26 cfs @ 5.28 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 3.01" for 10-YR event
Inflow = 21.05 cfs @ 12.06 hrs, Volume= 1.308 af
Outflow = 4.30 cfs @ 12.36 hrs, Volume= 1.105 af, Atten= 80%, Lag= 18.0 min
Primary = 4.30 cfs @ 12.36 hrs, Volume= 0.968 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.10 cfs @ 24.12 hrs, Volume= 0.137 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 24.12 hrs Surf.Area= 26,732 sf Storage= 32,233 cf

Plug-Flow detention time= 1,422.8 min calculated for 1.105 af (84% of inflow)
Center-of-Mass det. time= 1,352.7 min (2,173.8 - 821.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.29 cfs @ 12.36 hrs HW=243.99' TW=243.32' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 4.29 cfs of 4.82 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 4.29 cfs @ 3.93 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.10 cfs @ 24.12 hrs HW=244.31' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.10 cfs of 8.77 cfs potential flow)
  ├─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.10 cfs @ 2.09 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 2.16" for 10-YR event
Inflow = 4.43 cfs @ 12.36 hrs, Volume= 1.015 af
Outflow = 0.11 cfs @ 11.29 hrs, Volume= 0.835 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.11 cfs @ 11.29 hrs, Volume= 0.835 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 24.13 hrs Surf.Area= 11,235 sf Storage= 17,556 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,041.8 min (3,245.2 - 2,203.4)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 11.29 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=242.50' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.00 cfs of 13.05 cfs potential flow)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 3.70" for 10-YR event
Inflow = 27.55 cfs @ 12.03 hrs, Volume= 1.666 af
Outflow = 25.38 cfs @ 12.08 hrs, Volume= 1.666 af, Atten= 8%, Lag= 2.4 min
Discarded = 0.58 cfs @ 10.62 hrs, Volume= 0.853 af
Primary = 24.80 cfs @ 12.08 hrs, Volume= 0.813 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.31' @ 12.08 hrs Surf.Area= 9,900 sf Storage= 15,154 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 89.0 min (886.4 - 797.3)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 10.62 hrs HW=240.56' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=24.78 cfs @ 12.08 hrs HW=244.31' TW=234.37' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 11.81 cfs @ 5.46 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 12.97 cfs @ 4.18 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 2.64" for 10-YR event
Inflow = 60.92 cfs @ 12.04 hrs, Volume= 2.968 af
Outflow = 12.29 cfs @ 12.35 hrs, Volume= 2.966 af, Atten= 80%, Lag= 18.6 min
Primary = 12.29 cfs @ 12.35 hrs, Volume= 2.966 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 235.34' @ 12.35 hrs Surf.Area= 19,231 sf Storage= 61,976 cf

Plug-Flow detention time= 153.0 min calculated for 2.966 af (100% of inflow)
Center-of-Mass det. time= 152.9 min (947.9 - 795.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.29 cfs @ 12.35 hrs HW=235.34' TW=0.00' (Dynamic Tailwater)
- **1=Culvert - OS 4** (Passes 12.29 cfs of 29.65 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 3.37 cfs @ 9.64 fps)
  - **3=Orifice/Grate** (Orifice Controls 8.93 cfs @ 4.59 fps)
  - **4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 4.20" for 25-YR event
Inflow = 27.67 cfs @ 11.96 hrs, Volume= 1.301 af
Outflow = 0.50 cfs @ 15.89 hrs, Volume= 1.301 af, Atten= 98%, Lag= 235.6 min
Discarded = 0.19 cfs @ 9.88 hrs, Volume= 0.867 af
Primary = 0.31 cfs @ 15.89 hrs, Volume= 0.434 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 246.90' @ 15.89 hrs Surf.Area= 10,944 sf Storage= 37,143 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1,011.0 min (1,810.5 - 799.4)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 9.88 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.31 cfs @ 15.89 hrs HW=246.90' TW=242.93' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 0.31 cfs of 30.12 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.41 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 2.81" for 25-YR event
Inflow = 30.71 cfs @ 12.05 hrs, Volume= 2.268 af
Outflow = 0.52 cfs @ 24.14 hrs, Volume= 2.389 af, Atten= 98%, Lag= 725.8 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.35 cfs @ 24.14 hrs, Volume= 0.984 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 243.30' @ 24.14 hrs Surf.Area= 22,956 sf Storage= 87,125 cf (64,083 cf above start)

Plug-Flow detention time= 2,247.0 min calculated for 1.860 af (82% of inflow)
Center-of-Mass det. time= 1,636.9 min (2,542.5 - 905.6)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.35 cfs @ 24.14 hrs HW=243.30' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.35 cfs of 7.90 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.10 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 3.99" for 25-YR event
Inflow = 27.66 cfs @ 12.05 hrs, Volume= 1.734 af
Outflow = 4.98 cfs @ 12.19 hrs, Volume= 1.499 af, Atten= 82%, Lag= 8.0 min
Primary = 4.92 cfs @ 12.18 hrs, Volume= 1.251 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.14 cfs @ 15.42 hrs, Volume= 0.248 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.48' @ 15.42 hrs Surf.Area= 27,109 sf Storage= 36,705 cf

Plug-Flow detention time= 1,130.7 min calculated for 1.499 af (86% of inflow)
Center-of-Mass det. time= 1,066.8 min (1,879.9 - 813.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.86 cfs @ 12.18 hrs HW=244.20' TW=243.34' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 4.86 cfs of 5.47 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 4.86 cfs @ 4.46 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.14 cfs @ 15.42 hrs HW=244.48' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.14 cfs of 9.43 cfs potential flow)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.14 cfs @ 2.87 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 2.81" for 25-YR event
Inflow = 5.17 cfs @ 12.18 hrs, Volume= 1.322 af
Outflow = 0.71 cfs @ 15.49 hrs, Volume= 1.129 af, Atten= 86%, Lag= 198.5 min
Discarded = 0.11 cfs @ 10.51 hrs, Volume= 0.844 af
Primary = 0.60 cfs @ 15.49 hrs, Volume= 0.285 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.46' @ 15.49 hrs Surf.Area= 11,457 sf Storage= 19,262 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 772.7 min (2,673.5 - 1,900.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 10.51 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.60 cfs @ 15.49 hrs HW=244.46' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 0.60 cfs of 15.45 cfs potential flow)
  └─**3=Orifice/Grate** (Weir Controls 0.60 cfs @ 0.82 fps)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 4.74" for 25-YR event
Inflow = 34.81 cfs @ 12.03 hrs, Volume= 2.135 af
Outflow = 32.92 cfs @ 12.07 hrs, Volume= 2.135 af, Atten= 5%, Lag= 2.0 min
Discarded = 0.58 cfs @ 10.02 hrs, Volume= 0.948 af
Primary = 32.34 cfs @ 12.07 hrs, Volume= 1.187 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.58' @ 12.07 hrs Surf.Area= 9,900 sf Storage= 16,228 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 80.5 min (871.0 - 790.5)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 10.02 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=32.31 cfs @ 12.07 hrs HW=244.58' TW=235.29' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 15.37 cfs @ 5.77 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 16.94 cfs @ 4.54 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 3.57" for 25-YR event
Inflow = 80.32 cfs @ 12.03 hrs, Volume= 4.016 af
Outflow = 16.73 cfs @ 12.33 hrs, Volume= 4.014 af, Atten= 79%, Lag= 17.7 min
Primary = 16.73 cfs @ 12.33 hrs, Volume= 4.014 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 236.34' @ 12.33 hrs Surf.Area= 22,033 sf Storage= 82,618 cf

Plug-Flow detention time= 137.7 min calculated for 4.014 af (100% of inflow)
Center-of-Mass det. time= 137.4 min (926.6 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=16.73 cfs @ 12.33 hrs HW=236.34' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert - OS 4** (Passes 16.73 cfs of 33.29 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 3.76 cfs @ 10.78 fps)
3=Orifice/Grate (Orifice Controls 12.97 cfs @ 6.67 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 5.06" for 50-YR event
Inflow = 33.00 cfs @ 11.96 hrs, Volume= 1.570 af
Outflow = 1.97 cfs @ 12.66 hrs, Volume= 1.570 af, Atten= 94%, Lag= 42.2 min
Discarded = 0.19 cfs @ 9.23 hrs, Volume= 0.899 af
Primary = 1.78 cfs @ 12.66 hrs, Volume= 0.671 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 247.11' @ 12.66 hrs Surf.Area= 11,202 sf Storage= 39,549 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 904.9 min (1,699.1 - 794.1)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 9.23 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=1.78 cfs @ 12.66 hrs HW=247.11' TW=242.92' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 1.78 cfs of 30.98 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.33 cfs @ 6.79 fps)
└**4=Orifice/Grate** (Weir Controls 1.45 cfs @ 1.10 fps)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 3.61" for 50-YR event
Inflow = 37.44 cfs @ 12.05 hrs, Volume= 2.919 af
Outflow = 0.59 cfs @ 24.14 hrs, Volume= 2.869 af, Atten= 98%, Lag= 725.7 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.42 cfs @ 24.14 hrs, Volume= 1.464 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 244.28' @ 24.14 hrs Surf.Area= 25,457 sf Storage= 110,928 cf (87,886 cf above start)

Plug-Flow detention time= 2,204.3 min calculated for 2.340 af (80% of inflow)
Center-of-Mass det. time= 1,676.7 min (2,570.6 - 893.9)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.42 cfs @ 24.14 hrs HW=244.28' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.42 cfs of 9.52 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.42 cfs @ 8.56 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 4.84" for 50-YR event
Inflow = 33.34 cfs @ 12.05 hrs, Volume= 2.106 af
Outflow = 5.04 cfs @ 12.19 hrs, Volume= 1.869 af, Atten= 85%, Lag= 8.4 min
Primary = 4.90 cfs @ 12.19 hrs, Volume= 1.605 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.17 cfs @ 13.22 hrs, Volume= 0.265 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.65' @ 13.22 hrs Surf.Area= 27,507 sf Storage= 41,490 cf

Plug-Flow detention time= 930.0 min calculated for 1.869 af (89% of inflow)
Center-of-Mass det. time= 874.6 min (1,682.2 - 807.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.85 cfs @ 12.19 hrs HW=244.46' TW=243.61' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 4.85 cfs of 5.45 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 4.85 cfs @ 4.44 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.17 cfs @ 13.22 hrs HW=244.65' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.17 cfs of 10.08 cfs potential flow)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.17 cfs @ 3.50 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 3.61" for 50-YR event
Inflow = 5.67 cfs @ 12.00 hrs, Volume= 1.699 af
Outflow = 1.92 cfs @ 13.42 hrs, Volume= 1.505 af, Atten= 66%, Lag= 85.4 min
Discarded = 0.11 cfs @ 9.84 hrs, Volume= 0.850 af
Primary = 1.81 cfs @ 13.42 hrs, Volume= 0.655 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.53' @ 13.42 hrs Surf.Area= 11,558 sf Storage= 20,052 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 558.1 min (2,230.7 - 1,672.6)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 9.84 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=1.81 cfs @ 13.42 hrs HW=244.53' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 1.81 cfs of 15.53 cfs potential flow)
  └─**3=Orifice/Grate** (Weir Controls 1.81 cfs @ 1.19 fps)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 5.63" for 50-YR event
Inflow = 40.97 cfs @ 12.03 hrs, Volume= 2.538 af
Outflow = 38.92 cfs @ 12.07 hrs, Volume= 2.538 af, Atten= 5%, Lag= 1.9 min
Discarded = 0.58 cfs @ 9.27 hrs, Volume= 1.011 af
Primary = 38.34 cfs @ 12.07 hrs, Volume= 1.527 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.79' @ 12.07 hrs Surf.Area= 9,900 sf Storage= 17,063 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 74.6 min (860.4 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 9.27 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=38.30 cfs @ 12.07 hrs HW=244.79' TW=236.03' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 18.24 cfs @ 5.98 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 20.06 cfs @ 4.80 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 4.39" for 50-YR event
Inflow = 95.93 cfs @ 12.03 hrs, Volume= 4.941 af
Outflow = 19.58 cfs @ 12.33 hrs, Volume= 4.939 af, Atten= 80%, Lag= 17.8 min
Primary = 19.58 cfs @ 12.33 hrs, Volume= 4.939 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 237.17' @ 12.33 hrs Surf.Area= 24,313 sf Storage= 101,801 cf

Plug-Flow detention time= 130.8 min calculated for 4.939 af (100% of inflow)
Center-of-Mass det. time= 130.5 min (916.3 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=19.58 cfs @ 12.33 hrs HW=237.17' TW=0.00' (Dynamic Tailwater)
1=Culvert - OS 4 (Passes 19.58 cfs of 36.02 cfs potential flow)
2=Orifice/Grate (Orifice Controls 4.06 cfs @ 11.63 fps)
3=Orifice/Grate (Orifice Controls 15.52 cfs @ 7.98 fps)
4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 10P: BASIN 2

Inflow Area = 3.720 ac, 0.00% Impervious, Inflow Depth = 6.03" for 100-YR event
Inflow = 38.84 cfs @ 11.96 hrs, Volume= 1.869 af
Outflow = 6.92 cfs @ 12.12 hrs, Volume= 1.869 af, Atten= 82%, Lag= 9.5 min
Discarded = 0.19 cfs @ 8.65 hrs, Volume= 0.924 af
Primary = 6.73 cfs @ 12.12 hrs, Volume= 0.944 af
Routed to Pond 20P : BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 247.30' @ 12.12 hrs Surf.Area= 11,430 sf Storage= 41,716 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 792.9 min (1,582.2 - 789.3)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	63,080 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	6,500	0	0
244.00	8,000	10,875	10,875
246.00	10,400	18,400	29,275
248.00	12,900	23,300	52,575
249.00	14,750	13,825	66,400

Device	Routing	Invert	Outlet Devices
#1	Primary	240.15'	**24.0" Round OS pipe to Basin 1** L= 39.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 240.15' / 239.95' S= 0.0051 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Discarded	242.50'	**0.19 cfs Exfiltration at all elevations**
#3	Device 1	245.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	247.00'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 8.65 hrs HW=242.57' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=6.72 cfs @ 12.12 hrs HW=247.30' TW=242.58' (Dynamic Tailwater)
└**1=OS pipe to Basin 1** (Passes 6.72 cfs of 32.88 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.11 fps)
  └**4=Orifice/Grate** (Weir Controls 6.37 cfs @ 1.81 fps)

Summary for Pond 20P: BASIN 1

Inflow Area = 9.700 ac, 0.00% Impervious, Inflow Depth = 4.52" for 100-YR event
Inflow = 48.93 cfs @ 12.06 hrs, Volume= 3.657 af
Outflow = 0.66 cfs @ 24.13 hrs, Volume= 3.430 af, Atten= 99%, Lag= 724.0 min
Discarded = 0.17 cfs @ 0.00 hrs, Volume= 1.405 af
Primary = 0.49 cfs @ 24.13 hrs, Volume= 2.024 af
Routed to Link 20L : OUTFALL FOX CHASE RD (POST B)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Starting Elev= 239.87' Surf.Area= 14,432 sf Storage= 23,042 cf
Peak Elev= 245.34' @ 24.13 hrs Surf.Area= 28,264 sf Storage= 139,266 cf (116,223 cf above start)

Plug-Flow detention time= 2,264.5 min calculated for 2.900 af (79% of inflow)
Center-of-Mass det. time= 1,794.6 min (2,670.6 - 875.9)

Volume	Invert	Avail.Storage	Storage Description
#1	238.00'	206,673 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
238.00	10,750	0	0
240.00	15,500	26,250	26,250
242.00	20,750	36,250	62,500
244.00	26,000	46,750	109,250
246.00	31,600	57,600	166,850
247.50	36,000	50,700	217,550

Device	Routing	Invert	Outlet Devices
#1	Primary	240.30'	**15.0" Round OS Pipe Basin 1 to Road Inlet** L= 81.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 240.30' / 239.87' S= 0.0053 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	238.00'	**0.17 cfs Exfiltration at all elevations**
#3	Device 1	241.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	245.50'	**45.5" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.17 cfs @ 0.00 hrs HW=239.87' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.49 cfs @ 24.13 hrs HW=245.34' TW=0.00' (Dynamic Tailwater)
└**1=OS Pipe Basin 1 to Road Inlet** (Passes 0.49 cfs of 10.99 cfs potential flow)
├**3=Orifice/Grate** (Orifice Controls 0.49 cfs @ 9.89 fps)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 30P: BASIN 3A

Inflow Area = 5.220 ac, 0.00% Impervious, Inflow Depth = 5.79" for 100-YR event
Inflow = 39.57 cfs @ 12.05 hrs, Volume= 2.520 af
Outflow = 5.17 cfs @ 12.21 hrs, Volume= 2.282 af, Atten= 87%, Lag= 9.7 min
Primary = 4.98 cfs @ 12.21 hrs, Volume= 2.003 af
Routed to Pond 40P : BASIN 3B
Secondary = 0.22 cfs @ 12.68 hrs, Volume= 0.280 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.00' @ 12.68 hrs Surf.Area= 28,285 sf Storage= 51,053 cf

Plug-Flow detention time= 783.4 min calculated for 2.282 af (91% of inflow)
Center-of-Mass det. time= 734.9 min (1,537.4 - 802.5)

Volume	Invert	Avail.Storage	Storage Description
#1	242.90'	129,966 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.90	0	0	0
242.99	100	5	5
243.00	22,840	115	119
244.00	27,390	25,115	25,234
246.00	32,170	59,560	84,794
247.50	37,180	52,013	136,807

Device	Routing	Invert	Outlet Devices
#1	Primary	242.50'	**15.0" Round Culvert - OS 3A-2** L= 45.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0111 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	242.90'	**10.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads
#3	Secondary	242.50'	**18.0" Round Culvert - OS 3A-1** L= 39.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 242.50' / 242.00' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#4	Device 1	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	245.80'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	244.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.93 cfs @ 12.21 hrs HW=244.80' TW=243.92' (Dynamic Tailwater)
└─**1=Culvert - OS 3A-2** (Passes 4.93 cfs of 5.55 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 4.93 cfs @ 4.52 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.22 cfs @ 12.68 hrs HW=245.00' TW=0.00' (Dynamic Tailwater)
└─**3=Culvert - OS 3A-1** (Passes 0.22 cfs of 11.25 cfs potential flow)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)
  └─**6=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.50 fps)

Summary for Pond 40P: BASIN 3B

Inflow Area = 5.650 ac, 0.00% Impervious, Inflow Depth > 4.51" for 100-YR event
Inflow = 6.25 cfs @ 11.98 hrs, Volume= 2.124 af
Outflow = 3.38 cfs @ 13.07 hrs, Volume= 1.930 af, Atten= 46%, Lag= 65.4 min
Discarded = 0.11 cfs @ 9.17 hrs, Volume= 0.856 af
Primary = 3.27 cfs @ 13.07 hrs, Volume= 1.073 af
Routed to Link 50L : POST E TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 244.60' @ 13.07 hrs Surf.Area= 11,652 sf Storage= 20,789 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 425.2 min (1,937.9 - 1,512.7)

Volume	Invert	Avail.Storage	Storage Description
#1	242.50'	38,615 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
242.50	8,470	0	0
244.00	11,340	14,858	14,858
246.00	14,450	25,790	40,648

Device	Routing	Invert	Outlet Devices
#1	Discarded	242.50'	**0.11 cfs Exfiltration at all elevations**
#2	Primary	237.00'	**15.0" Round Culvert - OS 3B** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.00' / 236.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#3	Device 2	244.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 9.17 hrs HW=242.54' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=3.27 cfs @ 13.07 hrs HW=244.60' TW=0.00' (Dynamic Tailwater)
└─**2=Culvert - OS 3B** (Passes 3.27 cfs of 15.60 cfs potential flow)
  └─**3=Orifice/Grate** (Weir Controls 3.27 cfs @ 1.44 fps)

Summary for Pond 50P: STONE BMP 2A (BASIN)

Inflow Area = 5.410 ac, 0.00% Impervious, Inflow Depth = 6.62" for 100-YR event
Inflow = 47.69 cfs @ 12.03 hrs, Volume= 2.984 af
Outflow = 45.31 cfs @ 12.07 hrs, Volume= 2.984 af, Atten= 5%, Lag= 1.9 min
Discarded = 0.58 cfs @ 8.81 hrs, Volume= 1.072 af
Primary = 44.73 cfs @ 12.07 hrs, Volume= 1.912 af
Routed to Pond 60P : BASIN 4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 245.02' @ 12.07 hrs Surf.Area= 9,900 sf Storage= 17,967 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 69.3 min (850.7 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	240.50'	20,831 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 52,470 cf Overall - 393 cf Embedded = 52,077 cf x 40.0% Voids
#2	242.80'	236 cf	**24.0" Round Pipe 714 to 712** Inside #1 L= 75.0' S= 0.0050 '/' 393 cf Overall - 3.5" Wall Thickness = 236 cf
		21,066 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
240.50	9,900	0	0
242.00	9,900	14,850	14,850
243.00	9,900	9,900	24,750
244.25	9,900	12,375	37,125
245.80	9,900	15,345	52,470

Device	Routing	Invert	Outlet Devices
#1	Discarded	240.50'	**0.58 cfs Exfiltration at all elevations**
#2	Primary	242.80'	**30.0" Round Culvert 712 TO 708** L= 103.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 242.00' S= 0.0078 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf
#3	Primary	242.80'	**30.0" Round Culvert 710 TO 708** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 242.80' / 240.20' S= 0.0619 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Discarded OutFlow Max=0.58 cfs @ 8.81 hrs HW=240.55' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=44.69 cfs @ 12.07 hrs HW=245.01' TW=236.80' (Dynamic Tailwater)
├**2=Culvert 712 TO 708** (Barrel Controls 21.40 cfs @ 6.18 fps)
└**3=Culvert 710 TO 708** (Inlet Controls 23.29 cfs @ 5.07 fps)

Summary for Pond 60P: BASIN 4

Inflow Area = 13.500 ac, 0.00% Impervious, Inflow Depth = 5.31" for 100-YR event
Inflow = 112.74 cfs @ 12.03 hrs, Volume= 5.976 af
Outflow = 33.02 cfs @ 12.25 hrs, Volume= 5.974 af, Atten= 71%, Lag= 13.2 min
Primary = 33.02 cfs @ 12.25 hrs, Volume= 5.974 af
Routed to Link 60L : POST F TOTAL

Routing by Dyn-Stor-Ind method, Time Span= 0.00-100.00 hrs, dt= 0.01 hrs
Peak Elev= 237.85' @ 12.25 hrs Surf.Area= 26,184 sf Storage= 118,947 cf

Plug-Flow detention time= 123.3 min calculated for 5.974 af (100% of inflow)
Center-of-Mass det. time= 123.1 min (906.0 - 783.0)

Volume	Invert	Avail.Storage	Storage Description
#1	231.00'	161,092 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) x 0.95

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
231.00	10,000	0	0
232.00	13,000	11,500	11,500
234.00	16,250	29,250	40,750
236.00	22,200	38,450	79,200
238.00	28,000	50,200	129,400
239.30	33,800	40,170	169,570

Device	Routing	Invert	Outlet Devices
#1	Primary	230.50'	**24.0" Round Culvert - OS 4** L= 62.8' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 230.50' / 230.00' S= 0.0080 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	231.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	234.00'	**28.0" W x 10.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.40'	**24.0" x 45.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=33.02 cfs @ 12.25 hrs HW=237.85' TW=0.00' (Dynamic Tailwater)
- **1=Culvert - OS 4** (Passes 33.02 cfs of 38.12 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 4.29 cfs @ 12.29 fps)
  - **3=Orifice/Grate** (Orifice Controls 17.33 cfs @ 8.92 fps)
  - **4=Orifice/Grate** (Weir Controls 11.40 cfs @ 2.19 fps)

Sisters of St. Basil (7662)
Abington Township
Montgomery County, PA

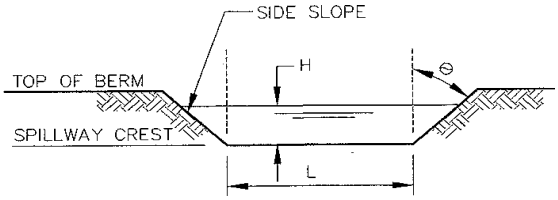
Prepared By: LJP
Date: 03/03/23
Revised By:
Last Revised: 10/13/23

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2} + 2.5\ H^{5/2}\ (Tan\theta)$

Inflow Q_{100}: 48.93 c.f.s.

Basin Identification: Basin 1



Water Surface Elevation (Ft.)	Discharge Q (CFS)
245.80	0.0
245.90	4.3
246.00	12.1
246.10	22.4
246.20	34.6
246.30	48.4
246.40	63.9
246.50	80.7
246.60	98.9
246.70	118.4
246.80	139.0
246.90	160.9
247.00	183.8
247.10	207.9
247.20	233.0
247.30	259.2
247.40	286.3
247.50	314.5

Inflow Q_{100}:	48.93
Top of Berm Elevation:	247.50
Spillway Crest Elevation:	245.80
Spillway Bottom Width (L):	50.0
Spillway Side Slope Run:	5.00
Spillway Side Slope Rise:	1.70
Side Angle (θ):	45.00

100 Year Water Surface Elevation:	**246.30**
Freeboard to Top of Berm (Ft.):	**1.20**

NOTE:
The formula used is a combination of Broad-Crested Weir flow (Q=CLH^3/2) and V-Notch weir flow (Q=CH^5/2tanθ). The 'C' values used in the formula are low and thus conservative.

Sisters of St. Basil (7662)
Abington Township
Montgomery County, PA

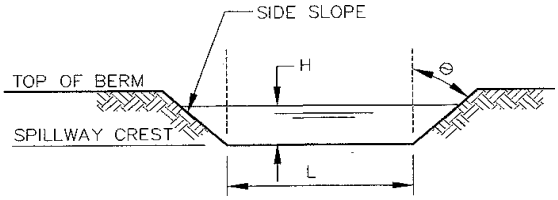
Prepared By: LJP
Date: 03/03/23
Revised By:
Last Revised:

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2} + 2.5\ H^{5/2}\ (Tan\theta)$

Inflow Q_{100}: 38.84 c.f.s.

Basin Identification: Basin 2



Water Surface Elevation (Ft.)	Discharge Q (CFS)
247.40	0.0
247.50	3.4
247.60	9.7
247.70	17.9
247.80	27.7
247.90	38.9
248.00	51.3
248.10	64.9
248.20	79.6
248.30	95.3
248.40	112.0
248.50	129.7
248.60	148.4
248.70	167.9
248.80	188.3
248.90	209.6
249.00	231.7

Inflow Q_{100}:	38.84
Top of Berm Elevation:	249.00
Spillway Crest Elevation:	247.40
Spillway Bottom Width (L):	40.0
Spillway Side Slope Run:	5.00
Spillway Side Slope Rise:	1.60
Side Angle (θ):	45.00

100 Year Water Surface Elevation:	**247.90**
Freeboard to Top of Berm (Ft.):	**1.10**

NOTE:
The formula used is a combination of Broad-Crested Weir flow (Q=CLH^3/2) and V-Notch weir flow (Q=CH^5/2tanθ). The 'C' values used in the formula are low and thus conservative.

Sisters of St. Basil (7662)
Abington Township
Montgomery County, PA

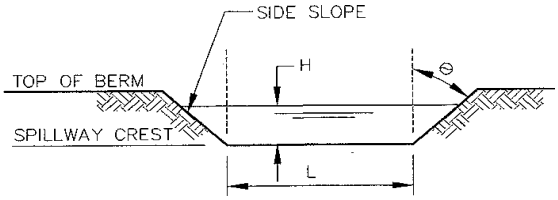
Prepared By: LJP
Date: 03/07/23
Revised By:
Last Revised: 07/10/23

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2} + 2.5\ H^{5/2}\ (Tan\theta)$

Inflow Q_{100}: 39.57 c.f.s.

Basin Identification: Basin 3A



Water Surface Elevation (Ft.)	Discharge Q (CFS)
245.80	0.0
245.90	3.9
246.00	10.9
246.10	20.2
246.20	31.1
246.30	43.7
246.40	57.6
246.50	72.8
246.60	89.3
246.70	106.9
246.80	125.5
246.90	145.3
247.00	166.1
247.10	187.9
247.20	210.7
247.30	234.4
247.40	259.0
247.50	284.6

Inflow Q_{100}:	39.57
Top of Berm Elevation:	247.50
Spillway Crest Elevation:	245.80
Spillway Bottom Width (L):	45.0
Spillway Side Slope Run:	5.00
Spillway Side Slope Rise:	1.70
Side Angle (θ):	45.00

100 Year Water Surface Elevation:	**246.27**
Freeboard to Top of Berm (Ft.):	**1.23**

NOTE:
The formula used is a combination of Broad-Crested Weir flow (Q=CLH^3/2) and V-Notch weir flow (Q=CH^5/2tanθ). The 'C' values used in the formula are low and thus conservative.

Sisters of St. Basil (7662)
Abington Township
Montgomery County, PA

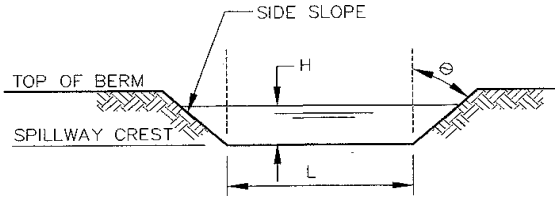
Prepared By: LJP
Date: 03/07/23
Revised By:
Last Revised: 10/13/23

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2} + 2.5\ H^{5/2}\ (Tan\theta)$

Inflow Q_{100}: 6.25 c.f.s.

Basin Identification: Basin 3B



Water Surface Elevation (Ft.)	Discharge Q (CFS)
244.60	0.0
244.70	2.6
244.80	7.3
244.90	13.5
245.00	20.9
245.10	29.4
245.20	38.8
245.30	49.1
245.40	60.3
245.50	72.3
245.60	85.0
245.70	98.6
245.80	112.9
245.90	127.9
246.00	143.6

Inflow Q_{100}:	6.25
Top of Berm Elevation:	246.00
Spillway Crest Elevation:	244.60
Spillway Bottom Width (L):	30.0
Spillway Side Slope Run:	4.00
Spillway Side Slope Rise:	1.40
Side Angle (θ):	45.00

100 Year Water Surface Elevation:	**244.78**
Freeboard to Top of Berm (Ft.):	**1.22**

NOTE:
The formula used is a combination of Broad-Crested Weir flow (Q=CLH^3/2) and V-Notch weir flow (Q=CH^5/2tanθ). The 'C' values used in the formula are low and thus conservative.

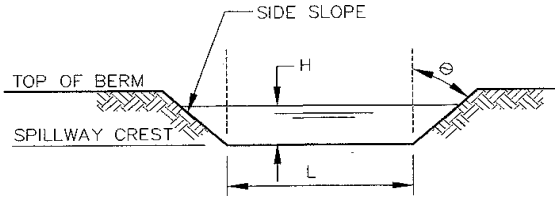
Sisters of St. Basil (7662)
Abington Township
Montgomery County, PA

Prepared By: LJP
Date: 03/07/23
Revised By:
Last Revised: 10/13/23

EMERGENCY SPILLWAY CALCULATION

Formula:
$Q = 2.7\ LH^{3/2} + 2.5\ H^{5/2}\ (Tan\theta)$

Inflow Q_{100}: 112.74 c.f.s.



Basin Identification: Basin 4

Water Surface Elevation (Ft.)	Discharge Q (CFS)
237.90	0.0
238.00	8.6
238.10	24.2
238.20	44.6
238.30	68.7
238.40	96.2
238.50	126.6
238.60	159.8
238.70	195.5
238.80	233.6
238.90	274.0
239.00	316.6
239.10	361.3
239.20	408.0
239.30	456.6
239.40	507.2
239.50	559.6
239.60	613.7

Inflow Q_{100}:	112.74
Top of Berm Elevation:	239.60
Spillway Crest Elevation:	237.90
Spillway Bottom Width (L):	100.0
Spillway Side Slope Run:	5.00
Spillway Side Slope Rise:	1.70
Side Angle (θ):	45.00

100 Year Water Surface Elevation:	**238.45**
Freeboard to Top of Berm (Ft.):	**1.15**

NOTE:
The formula used is a combination of Broad-Crested Weir flow (Q=CLH^3/2) and V-Notch weir flow (Q=CH^5/2tanθ). The 'C' values used in the formula are low and thus conservative.

STANDARD E&S WORKSHEET #18

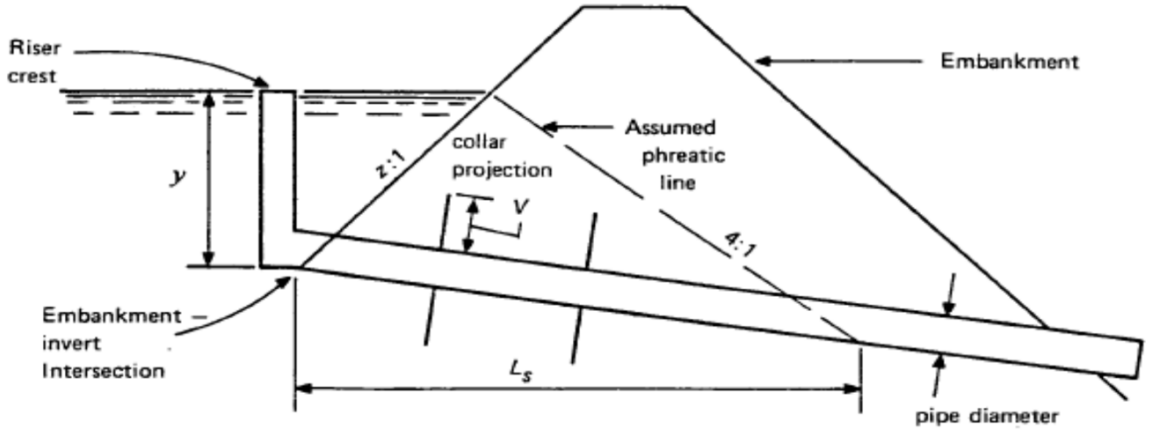
Anti-seep Collar Design

PROJECT NAME: Sisters of St. Basil

LOCATION: Abington Township, Montgomery County, PA

PREPARED BY: LJP DATE: 7/10/2023

CHECKED BY: DATE:



BASIN NO.	TEMP. OR PERM.	Y (FT)	Z	Ls (FT)	Lf (FT)	V (IN)	BARREL DIA. (IN)	COLLAR SIZE (IN)	NO. COLLARS	COLLAR SPACING (FT)	DISTANCE TO 1ST COLLAR (FT)
O.S. 3A-1	PERM	3.30	3	24.3	28.0	12	18	42	2	8.12	8.12
O.S. 3A-2	PERM	3.30	3	24.2	27.8	12	15	39	2	8.06	8.06
O.S. 3B-1	PERM	7.30	3	56.1	64.5	18	15	51	3	14.02	14.02
O.S. 4.0	PERM	6.70	3	48.4	55.7	18	24	60	3	12.11	12.11

NOAA Atlas 14, Volume 2, Version 3
Location name: Jenkintown, Pennsylvania, USA*
Latitude: 40.0908°, Longitude: -75.1015°
Elevation: 251 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.346** (0.315-0.380)	**0.412** (0.375-0.453)	**0.487** (0.442-0.535)	**0.541** (0.491-0.594)	**0.607** (0.547-0.665)	**0.653** (0.586-0.717)	**0.699** (0.625-0.769)	**0.741** (0.658-0.818)	**0.792** (0.697-0.879)	**0.830** (0.725-0.927)
10-min	**0.552** (0.503-0.607)	**0.659** (0.600-0.724)	**0.780** (0.708-0.856)	**0.865** (0.785-0.949)	**0.967** (0.872-1.06)	**1.04** (0.934-1.14)	**1.11** (0.993-1.22)	**1.17** (1.04-1.30)	**1.25** (1.10-1.39)	**1.31** (1.14-1.46)
15-min	**0.690** (0.629-0.758)	**0.829** (0.755-0.910)	**0.987** (0.896-1.08)	**1.09** (0.993-1.20)	**1.23** (1.11-1.34)	**1.32** (1.18-1.45)	**1.40** (1.26-1.54)	**1.48** (1.32-1.64)	**1.58** (1.39-1.75)	**1.64** (1.43-1.83)
30-min	**0.946** (0.862-1.04)	**1.14** (1.04-1.26)	**1.40** (1.27-1.54)	**1.59** (1.44-1.74)	**1.82** (1.64-1.99)	**1.98** (1.78-2.18)	**2.15** (1.92-2.37)	**2.31** (2.05-2.55)	**2.51** (2.21-2.78)	**2.66** (2.32-2.97)
60-min	**1.18** (1.08-1.30)	**1.44** (1.31-1.58)	**1.80** (1.63-1.97)	**2.06** (1.87-2.27)	**2.42** (2.18-2.65)	**2.69** (2.41-2.95)	**2.96** (2.65-3.26)	**3.23** (2.87-3.57)	**3.60** (3.17-4.00)	**3.88** (3.39-4.33)
2-hr	**1.42** (1.28-1.56)	**1.73** (1.56-1.90)	**2.17** (1.96-2.39)	**2.51** (2.26-2.76)	**2.96** (2.66-3.26)	**3.33** (2.97-3.66)	**3.70** (3.28-4.07)	**4.07** (3.58-4.49)	**4.59** (3.99-5.09)	**4.99** (4.29-5.56)
3-hr	**1.55** (1.41-1.72)	**1.89** (1.71-2.09)	**2.38** (2.15-2.63)	**2.76** (2.49-3.04)	**3.28** (2.94-3.62)	**3.69** (3.29-4.07)	**4.12** (3.65-4.56)	**4.56** (4.00-5.06)	**5.17** (4.48-5.77)	**5.66** (4.84-6.34)
6-hr	**1.95** (1.77-2.16)	**2.36** (2.14-2.61)	**2.96** (2.68-3.27)	**3.44** (3.11-3.80)	**4.14** (3.70-4.56)	**4.71** (4.18-5.19)	**5.32** (4.68-5.87)	**5.96** (5.19-6.60)	**6.89** (5.89-7.68)	**7.65** (6.44-8.58)
12-hr	**2.37** (2.17-2.63)	**2.87** (2.62-3.18)	**3.62** (3.30-4.00)	**4.26** (3.86-4.70)	**5.19** (4.66-5.72)	**5.99** (5.32-6.60)	**6.86** (6.02-7.58)	**7.82** (6.76-8.68)	**9.24** (7.80-10.3)	**10.4** (8.65-11.7)
24-hr	**2.74** (2.53-2.98)	**3.31** (3.06-3.60)	**4.18** (3.86-4.54)	**4.92** (4.52-5.34)	**6.00** (5.49-6.49)	**6.92** (6.28-7.48)	**7.93** (7.15-8.56)	**9.03** (8.06-9.76)	**10.7** (9.38-11.5)	**12.0** (10.5-13.1)
2-day	**3.16** (2.90-3.44)	**3.82** (3.51-4.16)	**4.83** (4.44-5.26)	**5.67** (5.20-6.16)	**6.88** (6.28-7.46)	**7.90** (7.17-8.57)	**9.00** (8.10-9.75)	**10.2** (9.10-11.1)	**11.9** (10.5-13.0)	**13.3** (11.7-14.6)
3-day	**3.34** (3.09-3.63)	**4.03** (3.73-4.38)	**5.08** (4.69-5.51)	**5.94** (5.47-6.44)	**7.17** (6.58-7.76)	**8.20** (7.48-8.87)	**9.30** (8.44-10.1)	**10.5** (9.44-11.4)	**12.2** (10.9-13.2)	**13.6** (12.0-14.8)
4-day	**3.52** (3.27-3.82)	**4.25** (3.95-4.60)	**5.33** (4.94-5.76)	**6.20** (5.74-6.71)	**7.46** (6.87-8.06)	**8.50** (7.80-9.17)	**9.61** (8.77-10.4)	**10.8** (9.78-11.6)	**12.5** (11.2-13.5)	**13.9** (12.3-15.0)
7-day	**4.12** (3.84-4.44)	**4.94** (4.61-5.33)	**6.12** (5.70-6.60)	**7.10** (6.60-7.65)	**8.50** (7.86-9.14)	**9.66** (8.90-10.4)	**10.9** (9.98-11.7)	**12.2** (11.1-13.1)	**14.1** (12.7-15.2)	**15.6** (14.0-16.9)
10-day	**4.69** (4.39-5.02)	**5.61** (5.25-6.01)	**6.85** (6.40-7.34)	**7.85** (7.33-8.41)	**9.26** (8.61-9.90)	**10.4** (9.63-11.1)	**11.6** (10.7-12.4)	**12.8** (11.8-13.7)	**14.5** (13.2-15.6)	**16.0** (14.4-17.1)
20-day	**6.34** (5.99-6.72)	**7.53** (7.12-7.98)	**8.99** (8.50-9.54)	**10.1** (9.57-10.8)	**11.7** (11.0-12.4)	**12.9** (12.1-13.7)	**14.2** (13.3-15.0)	**15.4** (14.4-16.4)	**17.1** (15.9-18.2)	**18.5** (17.0-19.6)
30-day	**7.90** (7.49-8.31)	**9.31** (8.83-9.80)	**10.9** (10.3-11.4)	**12.1** (11.5-12.7)	**13.7** (13.0-14.4)	**14.9** (14.1-15.7)	**16.1** (15.2-17.0)	**17.3** (16.3-18.3)	**18.9** (17.6-19.9)	**20.1** (18.6-21.2)
45-day	**10.1** (9.58-10.6)	**11.8** (11.3-12.4)	**13.6** (13.0-14.3)	**15.0** (14.2-15.7)	**16.7** (15.9-17.5)	**18.0** (17.0-18.8)	**19.2** (18.2-20.1)	**20.3** (19.2-21.3)	**21.8** (20.5-22.9)	**22.8** (21.4-24.0)
60-day	**12.0** (11.5-12.6)	**14.1** (13.5-14.8)	**16.1** (15.4-16.9)	**17.6** (16.8-18.4)	**19.5** (18.6-20.4)	**20.9** (19.9-21.8)	**22.1** (21.0-23.2)	**23.3** (22.2-24.5)	**24.8** (23.5-26.0)	**25.8** (24.4-27.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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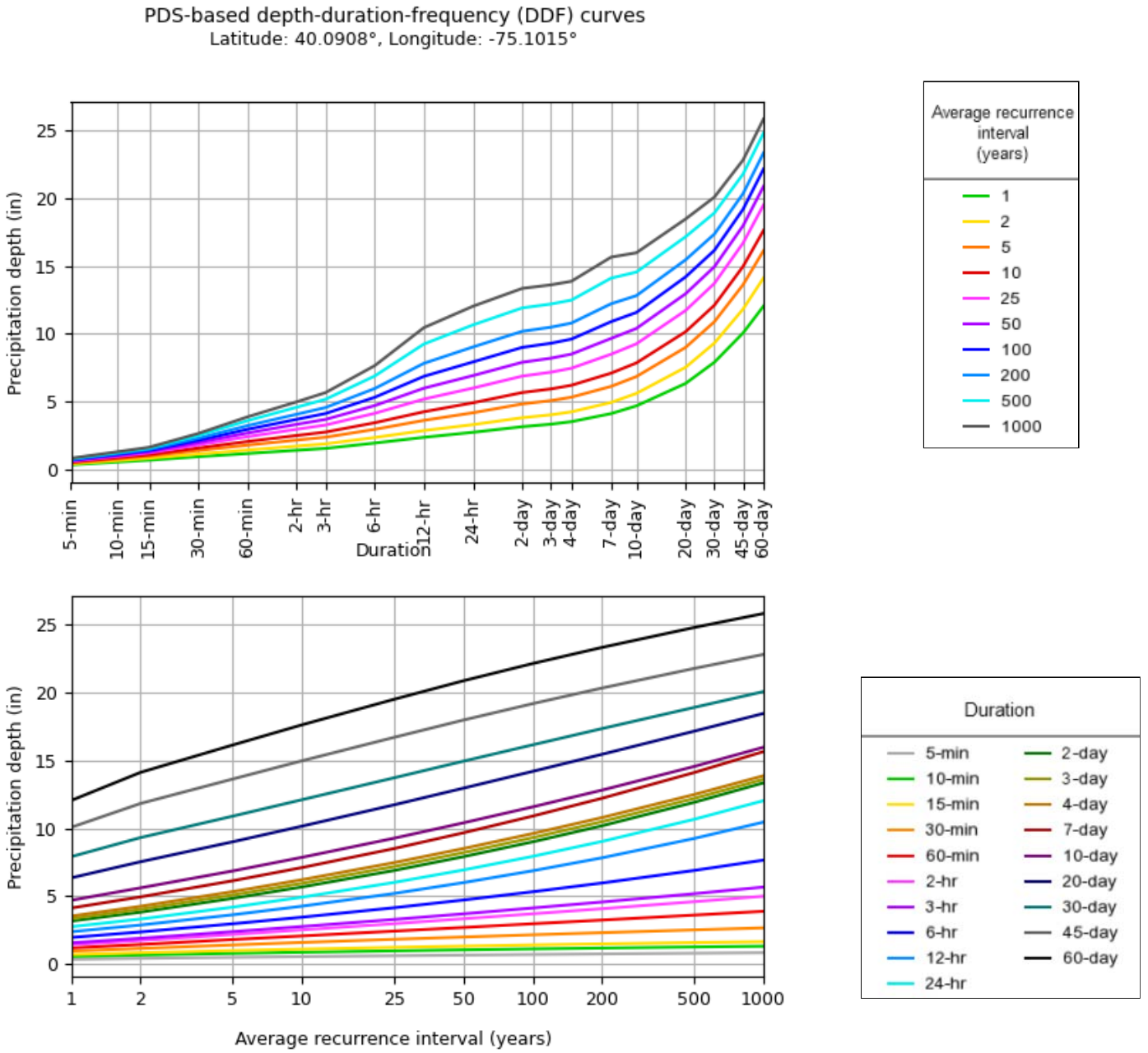
PF graphical



NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Fri Jul 14 16:38:41 2023

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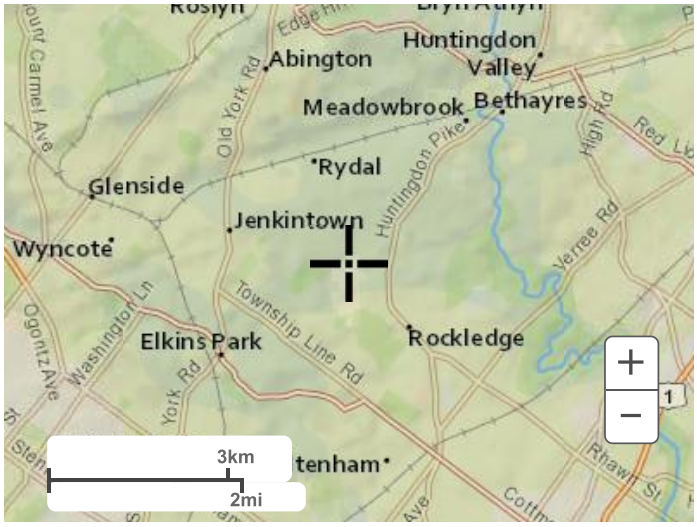
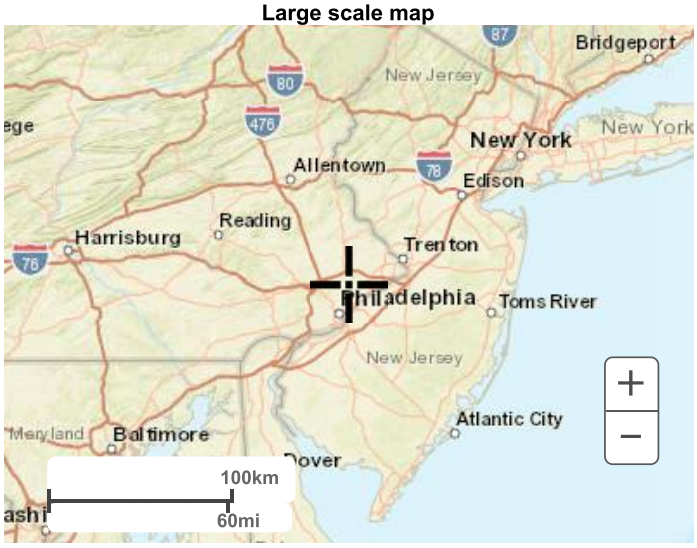
Maps & aerials

Small scale terrain



Large scale terrain

Large scale map



Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	2.74	2
2	2-YR	Type II 24-hr		Default	24.00	1	3.31	2
3	5-YR	Type II 24-hr		Default	24.00	1	4.18	2
4	10-YR	Type II 24-hr		Default	24.00	1	4.92	2
5	25-YR	Type II 24-hr		Default	24.00	1	6.00	2
6	50-YR	Type II 24-hr		Default	24.00	1	6.92	2
7	100-YR	Type II 24-hr		Default	24.00	1	7.93	2

Storm Sewer Design Information

13

C-value Calculations
Inlet, Pipe, Spread, HGL Calculations
Outlet Protection Calculations

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Woods. (ac.)	'C'	1/4 Acre SFam. (ac.)	'C'	1/3 Acre SFam. (ac.)	'C'	Other (Lawn) (ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
100 Run																
FES 100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
102	Yard	0.10	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.05	0.30	0.15	0.74	5.00
104	Yard	0.17	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.11	0.30	0.29	0.68	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Woods. (ac.)	'C'	1/4 Acre SFam. (ac.)	'C'	1/3 Acre SFam. (ac.)	'C'	Other (Lawn) (ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
200 Run																
FES 200	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
202	Road A	0.10	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.02	0.30	0.12	0.86	5.00
204	Road A	0.15	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.02	0.30	0.17	0.87	5.00
206	Road A	0.06	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.05	0.30	0.10	0.65	5.00
208	Yard	0.27	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.05	0.30	0.32	0.84	5.00
210	Road A	0.15	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.03	0.30	0.18	0.85	5.00
212	Road A	0.03	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.01	0.30	0.04	0.73	5.00
214	Yard	0.15	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.15	0.30	0.30	0.62	5.00
216	Road B	0.25	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.02	0.30	0.26	0.91	5.00
218	Road B	0.15	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.08	0.30	0.23	0.73	5.00
220	Road B	0.15	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.00	0.30	0.15	0.94	5.00
222	Road B	0.06	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.04	0.30	0.10	0.71	5.00
224	Yard	0.04	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.10	0.30	0.14	0.50	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Woods. (ac.)	'C'	1/4 Acre SFam. (ac.)	'C'	1/3 Acre SFam. (ac.)	'C'	Other (Lawn) (ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
300 Run																
FES 300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
304	Road A	0.13	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.09	0.30	0.22	0.68	5.00
306	Road A	0.05	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.00	0.30	0.05	0.90	5.00
O.S. 2.0	Basin 2	0.00	0.95	0.00	0.95	0.00	0.20	0.30	0.56	0.00	0.53	0.89	0.30	1.19	0.37	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Woods. (ac.)	'C'	1/4 Acre SFam. (ac.)	'C'	1/3 Acre SFam. (ac.)	'C'	Other (Lawn) (ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
400 Run																
FES 400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MH 404	Acc. Rd.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
406	Road B	0.11	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.01	0.30	0.12	0.89	5.00
408	Road B	0.47	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.08	0.30	0.55	0.86	5.00
410	Road B	0.21	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.09	0.30	0.30	0.75	5.00
412	Road B	0.15	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.05	0.30	0.21	0.79	5.00
414	Yard	0.21	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.19	0.30	0.40	0.64	5.00
416	Road B	0.24	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.43	0.30	0.67	0.53	5.00
MH 418	Road B/C	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
420	Road C	0.16	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.03	0.30	0.20	0.84	5.00
422	Road C	0.16	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.03	0.30	0.20	0.85	5.00
424	Road B	0.06	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.06	0.30	0.12	0.63	5.00
426	Road B	0.20	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.02	0.30	0.22	0.88	5.00
428	Yard	0.21	0.95	0.00	0.95	0.00	0.20	0.00	0.56	0.00	0.53	0.66	0.30	0.87	0.45	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Other (Lawn) (ac.)	'C'	(ac.)	'C'	(ac.)	'C'	(ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
500 Run																
FES 500	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
502	Road D	0.48	0.95	0.09	0.30	---	---	---	---	---	---	---	---	0.56	0.85	5.00
504	Road D	0.23	0.95	0.01	0.30	---	---	---	---	---	---	---	---	0.24	0.92	5.00
506	Road D	0.04	0.95	0.01	0.30	---	---	---	---	---	---	---	---	0.04	0.82	5.00
508	Road D	0.03	0.95	0.01	0.30	---	---	---	---	---	---	---	---	0.03	0.83	5.00
510	Road B	0.26	0.95	0.03	0.30	---	---	---	---	---	---	---	---	0.30	0.87	5.00
512	Road B	0.04	0.95	0.02	0.30	---	---	---	---	---	---	---	---	0.06	0.73	5.00
514	Road B	0.04	0.95	0.04	0.30	---	---	---	---	---	---	---	---	0.09	0.63	5.00
516	Road A	0.25	0.95	0.07	0.30	---	---	---	---	---	---	---	---	0.33	0.80	5.00
518	Road A	0.22	0.95	0.04	0.30	---	---	---	---	---	---	---	---	0.26	0.85	5.00
520	Yard	0.20	0.95	0.02	0.30	---	---	---	---	---	---	---	---	0.22	0.88	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Other (Lawn) (ac.)	'C'	(ac.)	'C'	(ac.)	'C'	(ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
600 Run																
FES 600	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
602	Yard	0.10	0.95	0.05	0.30			---	---	---	---	---	---	0.15	0.75	5.00
604	Yard	0.10	0.95	0.11	0.30	---	---	---	---	---	---	---	---	0.21	0.62	5.00
606	Yard	0.17	0.95	0.11	0.30	---	---	---	---	---	---	---	---	0.29	0.69	5.00
608	Yard	0.38	0.95	0.72	0.30	---	---	---	---	---	---	---	---	1.10	0.52	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Other (Lawn) (ac.)	'C'	(ac.)	'C'	(ac.)	'C'	(ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
700 Run																
FES 700	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MH-702	Yard	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-
704	Road E	0.85	0.95	0.00	0.95	0.34	0.30	---	---	---	---	---	---	1.19	0.76	5.00
706	Road E	0.36	0.95	0.00	0.95	0.12	0.30	---	---	---	---	---	---	0.48	0.78	5.00
708	Yard	0.07	0.95	0.00	0.95	0.30	0.30	---	---	---	---	---	---	0.37	0.42	5.00
710	Yard	0.00	0.95	0.00	0.95	0.06	0.30	---	---	---	---	---	---	0.06	0.31	5.00
712	Yard	0.10	0.95	0.00	0.95	0.16	0.30	---	---	---	---	---	---	0.26	0.56	5.00
714	Yard	0.28	0.95	0.00	0.95	0.26	0.30	---	---	---	---	---	---	0.53	0.64	5.00
MH-716	Yard	---	---	---	---	---	---	---	---	---	---	---	---	---	---	-
718	Yard	0.14	0.95	0.00	0.95	0.22	0.30	---	---	---	---	---	---	0.35	0.55	5.00
720	Road B	0.45	0.95	0.00	0.95	0.23	0.30	---	---	---	---	---	---	0.68	0.73	5.00
722	Road B	0.49	0.95	0.00	0.95	-0.49	0.30	---	---	---	---	---	---		#DIV/0!	5.00
724	Yard	0.38	0.95	0.00	0.95	0.28	0.30	---	---	---	---	---	---	0.65	0.68	5.00
726	Yard	0.10	0.95	0.00	0.95	0.09	0.30	---	---	---	---	---	---	0.19	0.65	5.00
730	Road E	0.06	0.95	0.00	0.95	0.06	0.30	---	---	---	---	---	---	0.12	0.63	5.00
732	Road E	0.25	0.95	0.00	0.95	0.03	0.30	---	---	---	---	---	---	0.28	0.88	5.00
734	Road E	0.04	0.95	0.00	0.95	0.11	0.30	---	---	---	---	---	---	0.15	0.49	5.00
736	Road E	0.02	0.95	0.00	0.95	0.01	0.30	---	---	---	---	---	---	0.02	0.71	5.00
738	Road E	0.22	0.95	0.00	0.95	0.04	0.30	---	---	---	---	---	---	0.26	0.84	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 07/10/23
By: LJP
Chk'd:
Revised:

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Other (Lawn) (ac.)	'C'	(ac.)	'C'	(ac.)	'C'	(ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
740	Road F	0.22	0.95	0.04	0.30	---	---	---	---	---	---	---	---	0.26	0.85	5.00
742	Road F	0.25	0.95	0.07	0.30	---	---	---	---	---	---	---	---	0.33	0.80	5.00
744	Yard	0.28	0.95	0.27	0.30	---	---	---	---	---	---	---	---	0.54	0.63	5.00
750	Yard	0.10	0.95	0.00	0.95	0.04	0.30	---	---	---	---	---	---	0.15	0.75	5.00
752	Yard	0.17	0.95	0.00	0.95	0.12	0.30	---	---	---	---	---	---	0.29	0.68	5.00
754	Yard	0.14	0.95	0.00	0.95	0.12	0.30	---	---	---	---	---	---	0.25	0.65	5.00
756	Yard	0.07	0.95	0.00	0.95	0.11	0.30	---	---	---	---	---	---	0.18	0.54	5.00
758	Yard	0.14	0.95	0.00	0.95	0.11	0.30	---	---	---	---	---	---	0.24	0.67	5.00
760	Yard	0.17	0.95	0.00	0.95	0.16	0.30	---	---	---	---	---	---	0.33	0.64	5.00
762	Yard	0.14	0.95	0.00	0.95	0.12	0.30	---	---	---	---	---	---	0.26	0.64	5.00
764	Road A	0.37	0.95	0.00	0.95	0.06	0.30	---	---	---	---	---	---	0.43	0.86	5.00
766	Road A	0.25	0.95	0.00	0.95	0.13	0.30	---	---	---	---	---	---	0.38	0.73	5.00
MH-768	Road A/C	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
770	Road C	0.14	0.95	0.00	0.95	0.01	0.30	---	---	---	---	---	---	0.15	0.91	5.00
772	Road C	0.14	0.95	0.00	0.95	0.01	0.30	---	---	---	---	---	---	0.15	0.91	5.00
774	Yard	0.17	0.95	0.00	0.95	0.14	0.30	---	---	---	---	---	---	0.32	0.65	5.00
776	Road A	0.44	0.95	0.00	0.95	0.13	0.30	---	---	---	---	---	---	0.57	0.80	5.00
778	Road A	0.23	0.95	0.00	0.95	0.09	0.30	---	---	---	---	---	---	0.33	0.76	5.00
780	Yard	0.17	0.95	0.00	0.95	0.13	0.30	---	---	---	---	---	---	0.30	0.67	5.00

Sisters of St. Basil
Abington Township
Montgomery County, PA

Date: 10/16/23
By: LJP
Chk'd:
Revised: 02/14/24

STORM SEWER INLET RUNOFF COEFFICIENT CALCULATIONS

Inlet No.	Road	Inlet Drainage Area 'C' Value														overland travel time to inlet (min.)
		Imp. (ac.)	'C'	Add. Imp. (ac.)	'C'	Other (Lawn) (ac.)	'C'	(ac.)	'C'	(ac.)	'C'	(ac.)	'C'	Total Area (ac.)	Overall 'C' 25/100 yr	
800 Run																
EX 800	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MH-802	Road	---	---	---	---	---	---	---	---	---	---	---	---	-	-	-
804	Road	0.07	0.95	0.14	0.30	---	---	---	---	---	---	---	---	0.21	0.52	5.00
806	Road	0.07	0.95	0.12	0.30	---	---	---	---	---	---	---	---	0.19	0.54	5.00
808	Yard	0.00	0.95	0.16	0.30	---	---	---	---	---	---	---	---	0.16	0.30	5.00

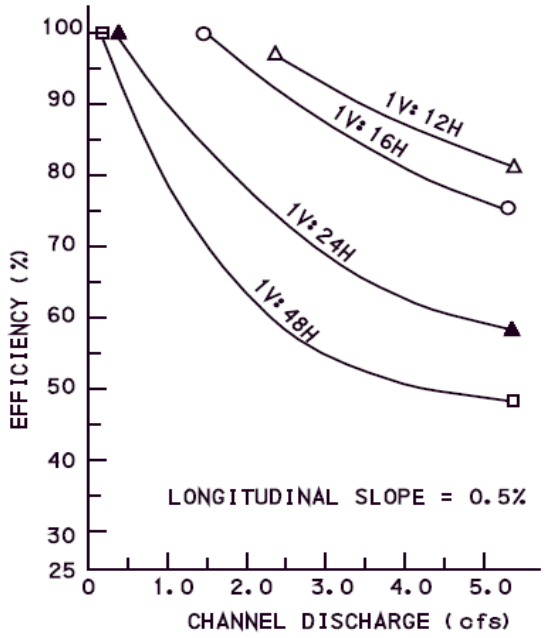


FIGURE 10.3.1 (ENGLISH)
EFFICIENCY CURVES: CAPACITY OF TYPE C INLET OR TYPE M INLET (MOUNTABLE CURB)

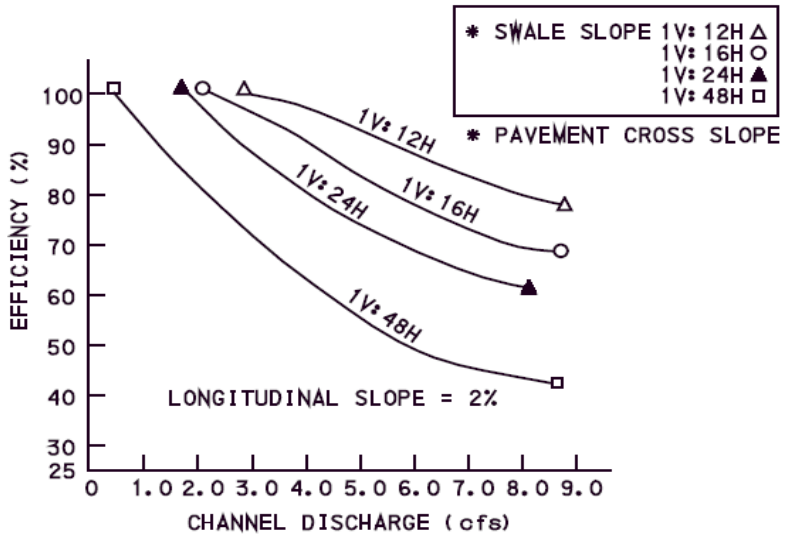


FIGURE 10.3.2 (ENGLISH)
EFFICIENCY CURVES: CAPACITY OF TYPE C INLET OR TYPE M INLET (MOUNTABLE CURB)

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	47.968	0.15	0.43	0.74	0.11	0.30	5.0	7.8	5.7	1.75	14.99	1.54	15	4.59	242.50	244.70	245.68	245.70	242.50	249.30	102 to FES100
2	1	173.116	0.28	0.28	0.69	0.19	0.19	5.0	5.0	6.5	1.25	5.04	2.33	15	0.52	244.90	245.80	245.75	246.24	249.30	249.20	104 to 102

Project File: Run 100.stm

Number of lines: 2

Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	102	0.72	0.00	0.72	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.09	10.87	0.09	10.87	0.0	Off
2	104	1.25	0.00	1.25	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	14.84	0.13	14.84	0.0	Off

Project File: Run 100.stm | Number of lines: 2 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	47.968	0.15	0.43	0.74	0.11	0.30	5.0	7.2	7.6	2.32	14.99	1.89	15	4.59	242.50	244.70	247.26	247.31	242.50	249.30	102 to FES100
2	1	173.116	0.28	0.28	0.69	0.19	0.19	5.0	5.0	8.4	1.62	5.04	1.32	15	0.52	244.90	245.80	247.38	247.47	249.30	249.20	104 to 102

Project File: Run 100.stm | Number of lines: 2 | Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	102	0.93	0.00	0.93	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.11	12.53	0.11	12.53	0.0	Off
2	104	1.62	0.00	1.62	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.15	17.24	0.15	17.24	0.0	Off

Project File: Run 100.stm | Number of lines: 2 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	56.250	0.12	2.11	0.86	0.10	1.64	5.0	10.1	5.3	8.64	40.01	2.87	24	2.67	242.50	244.00	245.68	245.73	242.50	249.67	202 to FES200
2	1	68.778	0.17	1.11	0.87	0.15	0.85	5.0	7.6	5.8	4.93	24.54	3.81	18	4.65	244.50	247.70	245.90	248.55	249.67	251.30	204 to 202
3	2	33.525	0.10	0.42	0.65	0.07	0.33	5.0	5.4	6.4	2.13	12.90	3.54	15	3.40	247.90	249.04	248.55	249.62	251.30	251.55	206 to 204
4	3	30.871	0.32	0.32	0.84	0.27	0.27	5.0	5.0	6.5	1.74	5.04	3.65	15	0.52	249.24	249.40	249.75	249.92	251.55	252.80	208 to 206
5	2	97.983	0.18	0.52	0.85	0.15	0.37	5.0	6.7	6.0	2.21	6.12	3.63	15	0.77	247.90	248.65	248.55	249.24	251.30	253.75	210 to 204
6	5	48.162	0.04	0.34	0.73	0.03	0.22	5.0	6.0	6.2	1.33	5.04	3.38	15	0.52	248.85	249.10	249.29	249.56	253.75	254.50	212 to 210
7	6	58.560	0.30	0.30	0.62	0.19	0.19	5.0	5.0	6.5	1.21	5.01	3.28	15	0.51	249.30	249.60	249.72	250.03	254.50	253.00	214 to 212
8	1	90.501	0.26	0.88	0.91	0.24	0.69	5.0	9.5	5.4	3.70	16.91	3.23	18	2.21	244.50	246.50	245.90	247.23	249.67	250.39	216 to 202
9	8	30.022	0.23	0.23	0.73	0.17	0.17	5.0	5.0	6.5	1.09	6.25	2.79	15	0.80	246.75	246.99	247.23	247.40	250.39	250.39	218 to 216
10	8	151.972	0.15	0.39	0.94	0.14	0.28	5.0	7.7	5.8	1.62	6.86	3.60	15	0.96	246.75	248.21	247.23	248.71	250.39	252.74	220 to 216
11	10	30.001	0.10	0.24	0.71	0.07	0.14	5.0	7.1	5.9	0.84	4.95	2.94	15	0.50	248.41	248.56	248.76	248.92	252.74	252.74	222 to 220
12	11	45.511	0.14	0.14	0.50	0.07	0.07	5.0	5.0	6.5	0.45	5.08	2.50	15	0.53	248.76	249.00	249.01	249.26	252.74	252.40	224 to 222

Project File: Run 200.stm | Number of lines: 12 | Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	202	0.67	0.49	0.57	0.59	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.34	0.17	5.34	0.0	Off
2	204	0.96	0.27	0.74	0.49	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.50	0.17	5.50	0.0	1
3	206	0.42	0.00	0.41	0.01	Comb	4.0	1.00	0.00	1.00	2.00	0.020	2.00	0.050	0.020	0.013	0.12	2.95	0.03	0.51	0.0	Off
4	208	1.74	0.00	1.74	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.16	18.00	0.16	18.00	0.0	Off
5	210	0.99	0.00	0.72	0.27	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.16	4.93	0.16	4.93	0.0	2
6	212	0.19	0.00	0.19	0.00	Comb	4.0	1.00	0.00	1.00	2.00	0.020	2.00	0.050	0.020	0.013	0.09	1.77	0.00	0.00	0.0	3
7	214	1.21	0.00	1.21	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	14.52	0.13	14.52	0.0	Off
8	216	1.53	0.24	1.09	0.69	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.55	0.19	6.55	0.0	Off
9	218	1.09	0.01	0.72	0.38	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.16	5.20	0.16	5.20	0.0	Off
10	220	0.91	0.00	0.67	0.24	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.15	4.73	0.15	4.73	0.0	8
11	222	0.46	0.00	0.45	0.01	Comb	4.0	1.00	0.00	1.00	2.00	0.020	2.00	0.050	0.020	0.013	0.12	3.14	0.03	0.63	0.0	9
12	224	0.45	0.00	0.45	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.07	8.52	0.07	8.52	0.0	Off

Project File: Run 200.stm | Number of lines: 12 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	56.250	0.12	2.11	0.86	0.10	1.64	5.0	8.9	7.1	11.70	40.01	3.72	24	2.67	242.50	244.00	247.26	247.39	242.50	249.67	202 to FES200
2	1	68.778	0.17	1.11	0.87	0.15	0.85	5.0	7.0	7.7	6.53	24.54	4.50	18	4.65	244.50	247.70	247.66	248.69	249.67	251.30	204 to 202
3	2	33.525	0.10	0.42	0.65	0.07	0.33	5.0	5.3	8.3	2.76	12.90	3.77	15	3.40	247.90	249.04	248.69	249.71	251.30	251.55	206 to 204
4	3	30.871	0.32	0.32	0.84	0.27	0.27	5.0	5.0	8.4	2.25	5.04	3.93	15	0.52	249.24	249.40	249.83	250.00	251.55	252.80	208 to 206
5	2	97.983	0.18	0.52	0.85	0.15	0.37	5.0	6.3	7.9	2.91	6.12	3.90	15	0.77	247.90	248.65	248.69	249.34	251.30	253.75	210 to 204
6	5	48.162	0.04	0.34	0.73	0.03	0.22	5.0	5.8	8.1	1.74	5.04	3.65	15	0.52	248.85	249.10	249.36	249.62	253.75	254.50	212 to 210
7	6	58.560	0.30	0.30	0.62	0.19	0.19	5.0	5.0	8.4	1.56	5.01	3.53	15	0.51	249.30	249.60	249.78	250.09	254.50	253.00	214 to 212
8	1	90.501	0.26	0.88	0.91	0.24	0.69	5.0	8.5	7.3	4.99	16.91	2.94	18	2.21	244.50	246.50	247.66	247.80	249.67	250.39	216 to 202
9	8	30.022	0.23	0.23	0.73	0.17	0.17	5.0	5.0	8.4	1.41	6.25	1.22	15	0.80	246.75	246.99	248.02	248.03	250.39	250.39	218 to 216
10	8	151.972	0.15	0.39	0.94	0.14	0.28	5.0	7.1	7.6	2.16	6.86	2.79	15	0.96	246.75	248.21	248.02	248.80	250.39	252.74	220 to 216
11	10	30.001	0.10	0.24	0.71	0.07	0.14	5.0	6.6	7.8	1.10	4.95	3.18	15	0.50	248.41	248.56	248.81	248.97	252.74	252.74	222 to 220
12	11	45.511	0.14	0.14	0.50	0.07	0.07	5.0	5.0	8.4	0.59	5.08	2.68	15	0.53	248.76	249.00	249.05	249.30	252.74	252.40	224 to 222

Project File: Run 200.stm | Number of lines: 12 | Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	202	0.86	1.06	0.57	1.36	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.20	6.79	0.20	6.79	0.0	Off
2	204	1.24	0.56	0.74	1.06	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.59	0.19	6.59	0.0	1
3	206	0.54	0.00	0.52	0.03	Comb	4.0	1.00	0.00	1.00	2.00	0.020	2.00	0.050	0.020	0.013	0.13	3.51	0.04	0.83	0.0	Off
4	208	2.25	0.00	2.25	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.19	20.99	0.19	20.99	0.0	Off
5	210	1.28	0.00	0.72	0.56	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.61	0.17	5.61	0.0	2
6	212	0.24	0.00	0.24	0.00	Comb	4.0	1.00	0.00	1.00	2.00	0.020	2.00	0.050	0.020	0.013	0.10	1.95	0.00	0.00	0.0	3
7	214	1.56	0.00	1.56	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.15	16.86	0.15	16.86	0.0	Off
8	216	1.98	0.51	1.09	1.40	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.21	7.62	0.21	7.62	0.0	Off
9	218	1.41	0.04	0.72	0.72	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.94	0.18	5.94	0.0	Off
10	220	1.18	0.00	0.67	0.51	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.39	0.17	5.39	0.0	8
11	222	0.59	0.00	0.56	0.04	Comb	4.0	1.00	0.00	1.00	2.00	0.020	2.00	0.050	0.020	0.013	0.13	3.70	0.05	0.95	0.0	9
12	224	0.59	0.00	0.59	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.08	9.74	0.08	9.74	0.0	Off

Project File: Run 200.stm | Number of lines: 12 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	109.476	0.22	0.26	0.68	0.15	0.19	5.0	7.7	5.8	2.53	26.70	0.81	24	1.19	238.00	239.30	241.34	241.35	238.00	247.50	304 TO OUTFALL
2	1	49.948	0.04	0.04	0.89	0.04	0.04	5.0	6.1	6.2	1.68	17.33	1.87	24	0.50	239.50	239.75	241.36	240.20	247.50	247.50	306 TO 304
3	2	31.116	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	1.46	19.64	3.37	24	0.64	239.95	240.15	240.32	240.57	247.50	247.00	O.S. #2 TO 306

Project File: Run 300.stm | Number of lines: 3 | Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	304	0.97	0.00	0.89	0.08	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.16	4.87	0.16	4.87	0.0	Off
2	306	0.23	0.00	0.23	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.10	1.91	0.10	1.91	0.0	Off
3	O.S. #2	1.46*	0.00	1.46	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.14	16.22	0.14	16.22	0.0	Off

Project File: Run 300.stm | Number of lines: 3 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	109.476	0.22	0.26	0.68	0.15	0.19	5.0	7.6	7.5	2.85	26.70	0.91	24	1.19	238.00	239.30	243.89	243.90	238.00	247.50	304 TO OUTFALL
2	1	49.948	0.04	0.04	0.89	0.04	0.04	5.0	6.1	8.0	1.74	17.33	0.56	24	0.50	239.50	239.75	243.92	243.92	247.50	247.50	306 TO 304
3	2	31.116	0.00	0.00	0.00	0.00	0.00	5.0	5.0	0.0	1.46	19.64	0.46	24	0.64	239.95	240.15	243.93	243.93	247.50	247.00	O.S. #2 TO 306

Project File: Run 300.stm | Number of lines: 3 | Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	304	1.25	0.00	0.89	0.36	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.55	0.17	5.55	0.0	Off
2	306	0.30	0.00	0.23	0.07	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.10	2.25	0.10	2.25	0.0	Off
3	O.S. #2	1.46*	0.00	1.46	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.14	16.22	0.14	16.22	0.0	Off

Project File: Run 300.stm | Number of lines: 3 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	119.613	0.00	3.86	0.00	0.00	2.58	5.0	9.2	5.4	14.05	31.65	4.78	24	1.67	238.00	240.00	241.34	241.64	237.90	253.00	MH-404 TO OUTF
2	1	88.181	0.12	3.86	0.89	0.11	2.58	5.0	8.9	5.5	14.21	42.12	5.53	24	2.95	240.20	242.80	241.99	244.16	253.00	252.94	406 TO MH-404
3	2	136.962	0.55	3.74	0.86	0.47	2.47	5.0	8.4	5.6	13.88	25.41	6.78	24	1.08	243.00	244.47	244.16	245.81	252.94	251.40	408 TO 406
4	3	31.946	0.30	1.65	0.75	0.23	1.25	5.0	6.8	6.0	7.49	32.00	6.49	18	7.91	244.97	247.50	245.81	248.56	251.40	251.40	410 TO 408
5	4	22.985	0.21	0.61	0.79	0.17	0.42	5.0	5.2	6.4	2.71	4.92	3.48	15	0.50	247.75	247.86	248.56	248.58	251.40	251.46	412 TO 410
6	5	15.385	0.40	0.40	0.64	0.26	0.26	5.0	5.0	6.5	1.66	8.60	2.70	15	1.51	248.06	248.30	248.90	248.81	251.46	251.70	414 TO 412
7	3	121.207	0.67	1.54	0.53	0.36	0.75	5.0	7.0	5.9	4.43	17.29	3.29	24	0.50	244.67	245.28	245.81	246.02	251.40	250.00	416 TO 408
8	7	175.088	0.87	0.87	0.45	0.39	0.39	5.0	5.0	6.5	2.54	8.04	3.92	18	0.50	245.78	246.65	246.36	247.25	250.00	250.40	417 TO 416
9	4	92.799	0.00	0.74	0.00	0.00	0.61	5.0	6.4	6.1	3.70	8.21	4.51	15	1.38	247.75	249.03	248.56	249.80	251.40	252.63	MH-418 TO 410
10	9	66.611	0.20	0.40	0.84	0.17	0.34	5.0	5.6	6.3	2.14	7.25	3.83	15	1.07	249.23	249.94	249.80	250.52	252.63	253.70	420 TO MH-418
11	10	29.912	0.20	0.20	0.85	0.17	0.17	5.0	5.0	6.5	1.10	5.00	3.19	15	0.51	250.14	250.30	250.54	250.71	253.70	253.70	422 TO 420
12	9	61.505	0.12	0.34	0.63	0.08	0.27	5.0	5.6	6.3	1.70	6.56	3.30	15	0.88	249.23	249.77	249.80	250.28	252.63	253.37	424 TO MH-418
13	12	38.195	0.22	0.22	0.88	0.19	0.19	5.0	5.0	6.5	1.25	6.36	3.63	15	0.83	249.97	250.28	250.34	250.73	253.37	253.68	426 TO 424

Project File: Run 400.stm | Number of lines: 13 | Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-404	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	406	0.69	0.00	0.53	0.16	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.14	4.05	0.14	4.05	0.0	3
3	408	3.07	0.55	3.61	0.00	Comb	4.0	8.58	17.15	8.58	2.00	Sag	2.00	0.050	0.020	0.000	0.26	9.97	0.26	9.97	0.0	Off
4	410	1.46	0.98	2.44	0.00	Comb	4.0	6.30	12.60	6.30	2.00	Sag	2.00	0.050	0.020	0.000	0.23	8.72	0.23	8.72	0.0	Off
5	412	1.08	0.00	0.76	0.32	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.16	5.14	0.16	5.14	0.0	4
6	414	1.66	0.00	1.66	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.15	17.49	0.15	17.49	0.0	Off
7	416	2.30	0.00	2.30	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.19	21.27	0.19	21.27	0.0	Off
8	417	2.54	0.00	2.54	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.21	22.57	0.21	22.57	0.0	Off
9	MH-418	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
10	420	1.09	0.00	0.77	0.32	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.16	5.17	0.16	5.17	0.0	4
11	422	1.10	0.00	0.77	0.33	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.16	5.21	0.16	5.21	0.0	4
12	424	0.49	0.00	0.47	0.02	Comb	4.0	0.17	0.00	0.17	2.00	0.020	2.00	0.050	0.020	0.013	0.13	3.27	0.04	0.75	0.0	4
13	426	1.25	0.00	0.87	0.38	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.55	0.17	5.55	0.0	3

Project File: Run 400.stm | Number of lines: 13 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	119.613	0.00	3.86	0.00	0.00	2.58	5.0	8.2	7.3	18.89	31.65	6.01	24	1.67	238.00	240.00	243.89	244.60	237.90	253.00	MH-404 TO OUTF
2	1	88.181	0.12	3.86	0.89	0.11	2.58	5.0	8.0	7.4	19.06	42.12	6.07	24	2.95	240.20	242.80	245.09	245.62	253.00	252.94	406 TO MH-404
3	2	136.962	0.55	3.74	0.86	0.47	2.47	5.0	7.6	7.5	18.54	25.41	5.90	24	1.08	243.00	244.47	246.44	247.22	252.94	251.40	408 TO 406
4	3	31.946	0.30	1.65	0.75	0.23	1.25	5.0	6.4	7.9	9.87	32.00	6.02	18	7.91	244.97	247.50	248.43	248.71	251.40	251.40	410 TO 408
5	4	22.985	0.21	0.61	0.79	0.17	0.42	5.0	5.1	8.3	3.51	4.92	3.62	15	0.50	247.75	247.86	248.71	248.75	251.40	251.46	412 TO 410
6	5	15.385	0.40	0.40	0.64	0.26	0.26	5.0	5.0	8.4	2.15	8.60	2.91	15	1.51	248.06	248.30	249.08	248.88	251.46	251.70	414 TO 412
7	3	121.207	0.67	1.54	0.53	0.36	0.75	5.0	6.6	7.8	5.84	17.29	1.86	24	0.50	244.67	245.28	248.43	248.50	251.40	250.00	416 TO 408
8	7	175.088	0.87	0.87	0.45	0.39	0.39	5.0	5.0	8.4	3.28	8.04	1.86	18	0.50	245.78	246.65	248.58	248.72	250.00	250.40	417 TO 416
9	4	92.799	0.00	0.74	0.00	0.00	0.61	5.0	6.0	8.0	4.86	8.21	4.99	15	1.38	247.75	249.03	248.71	249.92	251.40	252.63	MH-418 TO 410
10	9	66.611	0.20	0.40	0.84	0.17	0.34	5.0	5.4	8.2	2.78	7.25	4.07	15	1.07	249.23	249.94	249.92	250.61	252.63	253.70	420 TO MH-418
11	10	29.912	0.20	0.20	0.85	0.17	0.17	5.0	5.0	8.4	1.42	5.00	3.38	15	0.51	250.14	250.30	250.61	250.77	253.70	253.70	422 TO 420
12	9	61.505	0.12	0.34	0.63	0.08	0.27	5.0	5.5	8.2	2.21	6.56	3.51	15	0.88	249.23	249.77	249.92	250.36	252.63	253.37	424 TO MH-418
13	12	38.195	0.22	0.22	0.88	0.19	0.19	5.0	5.0	8.4	1.62	6.36	3.91	15	0.83	249.97	250.28	250.40	250.79	253.37	253.68	426 TO 424

Project File: Run 400.stm | Number of lines: 13 | Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-404	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	406	0.89	0.00	0.53	0.36	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.15	4.67	0.15	4.67	0.0	3
3	408	3.96	1.12	5.08	0.00	Comb	4.0	8.58	17.15	8.58	2.00	Sag	2.00	0.050	0.020	0.000	0.31	12.64	0.31	12.64	0.0	Off
4	410	1.89	1.98	3.86	0.00	Comb	4.0	6.30	12.60	6.30	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
5	412	1.39	0.00	0.76	0.63	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.84	0.18	5.84	0.0	4
6	414	2.15	0.00	2.15	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.18	20.39	0.18	20.39	0.0	Off
7	416	2.98	0.00	2.98	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.23	24.88	0.23	24.88	0.0	Off
8	417	3.28	0.00	3.28	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.24	26.41	0.24	26.41	0.0	Off
9	MH-418	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
10	420	1.41	0.00	0.77	0.64	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.87	0.18	5.87	0.0	4
11	422	1.42	0.00	0.77	0.65	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.90	0.18	5.90	0.0	4
12	424	0.63	0.00	0.58	0.05	Comb	4.0	0.17	0.00	0.17	2.00	0.020	2.00	0.050	0.020	0.013	0.14	3.85	0.06	1.11	0.0	4
13	426	1.62	0.00	0.87	0.75	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.28	0.19	6.28	0.0	3

Project File: Run 400.stm | Number of lines: 13 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	75.027	0.56	2.13	0.85	0.48	1.80	5.0	9.5	5.4	9.69	17.67	5.19	24	0.52	243.00	243.39	244.19	244.50	243.00	247.83	502 TO 500
2	1	127.402	0.24	1.57	0.92	0.22	1.33	5.0	8.7	5.6	7.37	17.23	5.09	24	0.49	243.59	244.22	244.50	245.18	247.83	250.40	504 TO 502
3	2	207.415	0.04	1.11	0.82	0.03	0.91	5.0	7.6	5.8	5.29	8.09	4.88	18	0.51	244.72	245.77	245.60	246.66	250.40	251.10	506 TO 504
4	3	58.969	0.03	1.07	0.83	0.02	0.88	5.0	7.2	5.9	5.17	7.98	4.80	18	0.49	245.97	246.26	246.85	247.14	251.10	250.07	508 TO 506
5	4	68.795	0.30	0.78	0.87	0.26	0.64	5.0	6.7	6.0	3.84	8.11	3.35	18	0.51	246.36	246.71	247.67	247.46	250.07	250.36	510 TO 508
6	5	74.573	0.06	0.48	0.73	0.04	0.38	5.0	6.1	6.2	2.33	8.65	4.52	15	1.53	246.96	248.10	247.46	248.71	250.36	251.60	512 TO 510
7	6	77.098	0.09	0.42	0.63	0.06	0.33	5.0	5.3	6.4	2.13	5.10	3.89	15	0.53	248.30	248.71	248.86	249.29	251.60	252.56	514 TO 512
8	2	30.054	0.22	0.22	0.88	0.19	0.19	5.0	5.0	6.5	1.25	17.73	5.79	15	6.42	244.97	246.90	245.20	247.34	250.40	250.40	520 TO 504
9	4	30.061	0.26	0.26	0.83	0.22	0.22	5.0	5.0	6.5	1.40	5.10	1.18	15	0.53	246.41	246.57	247.67	247.67	250.07	250.07	518 TO 508
10	7	30.036	0.33	0.33	0.84	0.28	0.28	5.0	5.0	6.5	1.80	4.94	3.66	15	0.50	248.91	249.06	249.43	249.59	252.56	252.56	516 TO 514

Project File: Run 500.stm | Number of lines: 10 | Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	502	3.08	0.00	3.08	0.00	Comb	4.0	6.64	13.27	6.64	2.00	Sag	2.00	0.050	0.020	0.000	0.26	10.03	0.26	10.03	0.0	Off
2	504	1.43	0.00	1.43	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.92	0.18	5.92	0.0	1
3	506	0.21	0.00	0.21	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.09	1.85	0.09	1.85	0.0	4
4	508	0.16	0.00	0.16	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.08	1.67	0.08	1.67	0.0	Off
5	510	1.69	0.00	1.69	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.40	0.19	6.40	0.0	4
6	512	0.28	0.00	0.28	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.10	2.15	0.10	2.15	0.0	Off
7	514	0.37	0.00	0.37	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.11	2.67	0.11	2.67	0.0	6
8	520	1.25	0.00	1.25	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.55	0.17	5.55	0.0	1
9	518	1.40	0.00	1.40	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.85	0.18	5.85	0.0	Off
10	516	1.80	0.00	1.80	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.58	0.19	6.58	0.0	5

Project File: Run 500.stm | Number of lines: 10 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	75.027	0.56	2.13	0.85	0.48	1.80	5.0	8.5	7.2	13.06	17.67	5.10	24	0.52	243.00	243.39	244.99	244.69	243.00	247.83	502 TO 500
2	1	127.402	0.24	1.57	0.92	0.22	1.33	5.0	7.8	7.4	9.86	17.23	5.50	24	0.49	243.59	244.22	244.69	245.34	247.83	250.40	504 TO 502
3	2	207.415	0.04	1.11	0.82	0.03	0.91	5.0	7.0	7.7	7.02	8.09	5.16	18	0.51	244.72	245.77	245.80	246.85	250.40	251.10	506 TO 504
4	3	58.969	0.03	1.07	0.83	0.02	0.88	5.0	6.7	7.8	6.83	7.98	5.01	18	0.49	245.97	246.26	247.07	247.32	251.10	250.07	508 TO 506
5	4	68.795	0.30	0.78	0.87	0.26	0.64	5.0	6.3	7.9	5.05	8.11	2.96	18	0.51	246.36	246.71	247.92	248.03	250.07	250.36	510 TO 508
6	5	74.573	0.06	0.48	0.73	0.04	0.38	5.0	5.8	8.1	3.05	8.65	3.43	15	1.53	246.96	248.10	248.13	248.80	250.36	251.60	512 TO 510
7	6	77.098	0.09	0.42	0.63	0.06	0.33	5.0	5.3	8.3	2.76	5.10	4.20	15	0.53	248.30	248.71	248.96	249.38	251.60	252.56	514 TO 512
8	2	30.054	0.22	0.22	0.88	0.19	0.19	5.0	5.0	8.4	1.62	17.73	4.39	15	6.42	244.97	246.90	245.34	247.40	250.40	250.40	520 TO 504
9	4	30.061	0.26	0.26	0.83	0.22	0.22	5.0	5.0	8.4	1.81	5.10	1.47	15	0.53	246.41	246.57	247.92	247.94	250.07	250.07	518 TO 508
10	7	30.036	0.33	0.33	0.84	0.28	0.28	5.0	5.0	8.4	2.32	4.94	3.94	15	0.50	248.91	249.06	249.51	249.67	252.56	252.56	516 TO 514

Project File: Run 500.stm | Number of lines: 10 | Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	502	3.99	0.00	3.99	0.00	Comb	4.0	6.64	13.27	6.64	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.01	0.30	12.01	0.0	Off
2	504	1.85	0.00	1.85	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.67	0.19	6.67	0.0	1
3	506	0.27	0.00	0.27	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.10	2.09	0.10	2.09	0.0	4
4	508	0.21	0.00	0.21	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.09	1.85	0.09	1.85	0.0	Off
5	510	2.19	0.00	2.19	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.20	7.20	0.20	7.20	0.0	4
6	512	0.37	0.00	0.37	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.11	2.66	0.11	2.66	0.0	Off
7	514	0.48	0.00	0.48	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.12	3.21	0.12	3.21	0.0	6
8	520	1.62	0.00	1.62	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.28	0.19	6.28	0.0	1
9	518	1.81	0.00	1.81	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.60	0.19	6.60	0.0	Off
10	516	2.32	0.00	2.32	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.21	7.39	0.21	7.39	0.0	5

Project File: Run 500.stm | Number of lines: 10 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	56.514	0.22	1.82	0.88	0.19	1.10	5.0	7.9	5.7	6.27	10.73	4.69	18	0.89	243.00	243.50	244.19	244.47	243.00	248.50	602 to 600
2	1	154.807	0.21	1.60	0.62	0.13	0.90	5.0	7.1	5.9	5.34	8.04	4.87	18	0.50	243.70	244.48	244.60	245.37	248.50	249.80	604 to 602
3	2	144.581	0.29	1.39	0.69	0.20	0.77	5.0	6.2	6.2	4.75	8.04	4.55	18	0.50	244.68	245.40	245.55	246.24	249.80	250.20	606 to 604
4	3	211.053	1.10	1.10	0.52	0.57	0.57	5.0	5.0	6.5	3.71	4.95	4.42	15	0.50	245.65	246.70	246.46	247.51	250.20	250.00	608 to 606

Run 600 | Number of lines: 4 | Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	602	1.25	0.00	1.25	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	14.86	0.13	14.86	0.0	Off
2	604	0.84	0.00	0.84	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.10	11.87	0.10	11.87	0.0	Off
3	606	1.30	0.00	1.30	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	15.15	0.13	15.15	0.0	Off
4	608	3.71	0.00	3.71	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.26	28.49	0.26	28.49	0.0	Off

Run 600 | Number of lines: 4 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	56.514	0.22	1.82	0.88	0.19	1.10	5.0	7.3	7.6	8.34	10.73	4.72	18	0.89	243.00	243.50	244.99	245.29	243.00	248.50	602 to 600
2	1	154.807	0.21	1.60	0.62	0.13	0.90	5.0	6.6	7.8	7.05	8.04	3.99	18	0.50	243.70	244.48	245.74	246.34	248.50	249.80	604 to 602
3	2	144.581	0.29	1.39	0.69	0.20	0.77	5.0	5.9	8.0	6.21	8.04	3.53	18	0.50	244.68	245.40	246.46	246.86	249.80	250.20	606 to 604
4	3	211.053	1.10	1.10	0.52	0.57	0.57	5.0	5.0	8.4	4.79	4.95	3.96	15	0.50	245.65	246.70	246.96	247.87	250.20	250.00	608 to 606

Run 600 | Number of lines: 4 | Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	602	1.62	0.00	1.62	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.15	17.26	0.15	17.26	0.0	Off
2	604	1.09	0.00	1.09	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.12	13.71	0.12	13.71	0.0	Off
3	606	1.68	0.00	1.68	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.16	17.60	0.16	17.60	0.0	Off
4	608	4.79	0.00	4.79	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.31	33.44	0.31	33.44	0.0	Off

Run 600 | Number of lines: 4 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	81.101	0.00	4.48	0.00	0.00	3.22	0.0	10.0	5.3	17.05	34.89	3.47	30	0.62	241.00	241.50	244.29	244.41	247.70	249.00	MH-716 TO 714
2	1	29.429	0.35	4.05	0.55	0.19	2.92	5.0	9.8	5.3	15.51	36.63	3.16	30	0.68	241.70	241.90	244.60	244.63	249.00	248.30	718 TO MH-716
3	2	126.867	0.67	3.70	0.74	0.50	2.72	5.0	9.2	5.4	14.84	31.80	3.12	30	0.51	242.10	242.75	244.87	244.98	248.30	248.05	720 TO 718
4	3	29.912	0.66	3.03	0.78	0.51	2.23	5.0	9.0	5.5	12.22	31.46	4.09	30	0.50	242.95	243.10	245.06	244.27	248.05	248.05	722 TO 720
5	4	121.112	0.65	2.37	0.68	0.44	1.71	5.0	8.0	5.7	9.75	31.53	5.28	30	0.50	243.30	243.91	244.27	244.95	248.05	248.80	724 TO 722
6	5	133.006	0.54	1.13	0.63	0.34	0.83	5.0	6.7	6.0	4.97	31.37	5.78	24	1.64	244.41	246.59	244.95	247.37	248.80	251.35	740 TO 724
7	6	29.912	0.26	0.59	0.85	0.22	0.49	5.0	6.5	6.1	2.94	4.95	4.22	15	0.50	247.34	247.49	248.03	248.18	251.35	251.35	742 TO 790
8	7	122.863	0.33	0.33	0.80	0.26	0.26	5.0	5.0	6.5	1.71	4.93	3.16	15	0.50	247.69	248.30	248.32	248.82	251.35	251.80	744 TO 792
9	5	108.285	0.19	0.59	0.65	0.12	0.45	5.0	6.5	6.1	2.70	4.94	4.10	15	0.50	244.67	245.21	245.33	245.87	248.80	250.00	726 TO 724
10	9	114.593	0.12	0.40	0.63	0.08	0.32	5.0	5.4	6.4	2.05	4.93	3.05	15	0.50	245.41	245.98	246.25	246.55	250.00	249.83	730 TO 726
11	10	30.009	0.28	0.28	0.88	0.25	0.25	5.0	5.0	6.5	1.60	4.95	3.53	15	0.50	246.18	246.33	246.67	246.83	249.83	249.83	732 TO 730
12	1	134.626	0.15	0.43	0.49	0.07	0.31	5.0	6.7	6.0	1.84	7.84	2.62	15	1.26	243.50	245.19	244.60	245.73	249.00	248.30	734 TO MH-716
13	12	94.480	0.02	0.28	0.71	0.01	0.23	5.0	5.4	6.4	1.48	4.93	3.45	15	0.50	245.39	245.86	245.86	246.34	248.30	249.72	736 TO 734
14	13	30.054	0.26	0.26	0.84	0.22	0.22	5.0	5.0	6.5	1.42	5.10	3.45	15	0.53	246.06	246.22	246.51	246.69	249.72	249.72	738 TO 736

Project File: Run 700 To Enter BMP 2A.stm

Number of lines: 14

Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-716	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	718	1.25	0.00	1.25	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	14.81	0.13	14.81	0.0	Off
3	720	3.21	0.00	3.21	0.00	Comb	4.0	7.08	14.16	7.08	2.00	Sag	2.00	0.050	0.020	0.000	0.26	10.04	0.26	10.04	0.0	Off
4	722	3.34	0.00	3.34	0.00	Comb	4.0	7.50	15.00	7.50	2.00	Sag	2.00	0.050	0.020	0.000	0.26	10.04	0.26	10.04	0.0	Off
5	724	2.86	0.00	2.86	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.22	24.30	0.22	24.30	0.0	Off
6	740	2.20	0.00	2.20	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.20	7.22	0.20	7.22	0.0	10
7	742	1.43	0.00	1.43	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.92	0.18	5.92	0.0	Off
8	744	1.71	0.00	1.71	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.16	17.81	0.16	17.81	0.0	Off
9	726	0.80	0.00	0.80	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.10	11.53	0.10	11.53	0.0	Off
10	730	0.49	0.00	0.49	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.13	3.27	0.13	3.27	0.0	Off
11	732	1.60	0.00	1.21	0.39	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	6.23	0.18	6.23	0.0	Off
12	734	0.48	0.00	0.48	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.12	3.21	0.12	3.21	0.0	Off
13	736	0.09	0.00	0.09	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.07	1.35	0.07	1.35	0.0	12
14	738	1.42	0.00	1.08	0.34	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.18	5.89	0.18	5.89	0.0	Off

Project File: Run 700 To Enter BMP 2A.stm | Number of lines: 14 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	81.101	0.00	4.48	0.00	0.00	3.22	0.0	8.8	7.2	23.07	34.89	4.70	30	0.62	241.00	241.50	244.99	245.21	247.70	249.00	MH-716 TO 714
2	1	29.429	0.35	4.05	0.55	0.19	2.92	5.0	8.7	7.2	20.96	36.63	4.27	30	0.68	241.70	241.90	245.55	245.62	249.00	248.30	718 TO MH-716
3	2	126.867	0.67	3.70	0.74	0.50	2.72	5.0	8.2	7.3	19.95	31.80	4.06	30	0.51	242.10	242.75	246.04	246.30	248.30	248.05	720 TO 718
4	3	29.912	0.66	3.03	0.78	0.51	2.23	5.0	8.1	7.4	16.41	31.46	3.34	30	0.50	242.95	243.10	246.43	246.47	248.05	248.05	722 TO 720
5	4	121.112	0.65	2.37	0.68	0.44	1.71	5.0	7.3	7.6	12.98	31.53	2.65	30	0.50	243.30	243.91	246.56	246.66	248.05	248.80	724 TO 722
6	5	133.006	0.54	1.13	0.63	0.34	0.83	5.0	6.3	7.9	6.53	31.37	3.40	24	1.64	244.41	246.59	246.82	247.49	248.80	251.35	740 TO 724
7	6	29.912	0.26	0.59	0.85	0.22	0.49	5.0	6.1	8.0	3.86	4.95	4.46	15	0.50	247.34	247.49	248.17	248.32	251.35	251.35	742 TO 790
8	7	122.863	0.33	0.33	0.80	0.26	0.26	5.0	5.0	8.4	2.21	4.93	3.29	15	0.50	247.69	248.30	248.48	248.89	251.35	251.80	744 TO 792
9	5	108.285	0.19	0.59	0.65	0.12	0.45	5.0	6.2	8.0	3.54	4.94	2.89	15	0.50	244.67	245.21	246.82	247.10	248.80	250.00	726 TO 724
10	9	114.593	0.12	0.40	0.63	0.08	0.32	5.0	5.3	8.3	2.66	4.93	2.17	15	0.50	245.41	245.98	247.29	247.45	250.00	249.83	730 TO 726
11	10	30.009	0.28	0.28	0.88	0.25	0.25	5.0	5.0	8.4	2.06	4.95	1.69	15	0.50	246.18	246.33	247.53	247.56	249.83	249.83	732 TO 730
12	1	134.626	0.15	0.43	0.49	0.07	0.31	5.0	6.3	7.9	2.42	7.84	2.96	15	1.26	243.50	245.19	245.55	245.81	249.00	248.30	734 TO MH-716
13	12	94.480	0.02	0.28	0.71	0.01	0.23	5.0	5.3	8.3	1.92	4.93	3.02	15	0.50	245.39	245.86	246.18	246.41	248.30	249.72	736 TO 734
14	13	30.054	0.26	0.26	0.84	0.22	0.22	5.0	5.0	8.4	1.83	5.10	3.72	15	0.53	246.06	246.22	246.58	246.76	249.72	249.72	738 TO 736

Project File: Run 700 To Enter BMP 2A.stm

Number of lines: 14

Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-716	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	718	1.61	0.00	1.61	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.15	17.20	0.15	17.20	0.0	Off
3	720	4.15	0.00	4.15	0.00	Comb	4.0	7.08	14.16	7.08	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
4	722	4.31	0.00	4.31	0.00	Comb	4.0	7.50	15.00	7.50	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.01	0.30	12.01	0.0	Off
5	724	3.70	0.00	3.70	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.26	28.46	0.26	28.46	0.0	Off
6	740	2.85	0.00	2.85	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.22	8.08	0.22	8.08	0.0	10
7	742	1.85	0.00	1.85	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.67	0.19	6.67	0.0	Off
8	744	2.21	0.00	2.21	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.19	20.77	0.19	20.77	0.0	Off
9	726	1.03	0.00	1.03	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.11	13.31	0.11	13.31	0.0	Off
10	730	0.63	0.00	0.63	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.14	3.85	0.14	3.85	0.0	Off
11	732	2.06	0.00	1.21	0.85	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.20	7.01	0.20	7.01	0.0	Off
12	734	0.62	0.00	0.62	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.14	3.78	0.14	3.78	0.0	Off
13	736	0.12	0.00	0.12	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.07	1.49	0.07	1.49	0.0	12
14	738	1.83	0.00	1.08	0.75	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.64	0.19	6.64	0.0	Off

Project File: Run 700 To Enter BMP 2A.stm | Number of lines: 14 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	156.396	0.00	6.70	0.00	0.00	4.75	0.0	14.6	4.6	65.83	189.9	7.82	42	3.04	231.00	235.75	235.29	238.29	231.00	244.50	MH-702 to E.W. 7
2	1	35.442	1.19	2.37	0.76	0.90	1.60	5.0	5.8	6.2	54.19	132.4	9.07	36	3.36	235.95	237.14	238.29	239.53	244.50	242.84	704 TO 702
3	2	99.924	0.47	1.18	0.79	0.37	0.69	5.0	5.6	6.3	48.59	80.49	8.64	36	1.24	237.34	238.58	239.53	240.85	242.84	244.38	706 TO 704
4	3	84.530	0.36	0.71	0.42	0.15	0.32	5.0	5.4	6.4	46.27	75.38	8.59	36	1.09	238.78	239.70	240.85	241.91	244.38	245.80	708 TO 706
5	4	103.083	0.29	0.29	0.53	0.15	0.15	5.0	5.0	6.5	22.16	70.56	6.43	30	2.52	240.20	242.80	241.91	244.40	245.80	247.80	712 TO 708
6	4	41.450	0.06	0.06	0.31	0.02	0.02	5.0	5.0	6.5	23.17	111.3	6.63	30	6.27	240.20	242.80	241.91	244.44	245.80	247.80	710 TO 708
7	1	138.585	0.15	4.33	0.75	0.11	3.15	5.0	13.8	4.7	14.66	31.58	4.54	30	0.51	236.20	236.90	238.29	238.19	244.50	243.90	750 TO MH-702
8	7	147.530	0.29	4.18	0.68	0.20	3.03	5.0	13.0	4.8	14.48	31.47	6.00	30	0.50	237.10	237.84	238.29	239.12	243.90	244.60	752 TO 750
9	8	145.099	0.25	3.89	0.65	0.16	2.84	5.0	12.2	4.9	13.90	31.51	5.93	30	0.50	238.04	238.77	239.20	240.02	244.60	246.50	754 TO 752
10	9	144.198	0.18	3.64	0.54	0.10	2.67	5.0	11.4	5.0	13.47	31.61	5.88	30	0.51	238.97	239.70	240.11	240.93	246.50	249.00	756 TO 754
11	10	146.035	0.24	3.46	0.67	0.16	2.58	5.0	10.5	5.2	13.36	31.84	5.88	30	0.51	239.90	240.65	241.03	241.88	249.00	249.50	758 TO 756
12	11	182.118	0.33	3.22	0.65	0.21	2.42	5.0	9.5	5.4	13.03	31.41	5.81	30	0.50	240.85	241.76	241.97	242.97	249.50	248.80	760 TO 758
13	12	152.452	0.26	2.89	0.64	0.17	2.20	5.0	8.8	5.5	12.15	17.41	5.93	24	0.51	242.26	243.03	243.49	244.28	248.80	248.90	762 TO 760
14	13	175.046	0.30	0.30	0.67	0.20	0.20	5.0	5.0	6.5	1.30	6.89	3.05	15	0.97	243.78	245.48	244.28	245.93	248.90	248.90	780 TO 762
15	13	123.471	0.43	2.33	0.86	0.37	1.84	5.0	8.3	5.6	10.35	17.36	5.65	24	0.50	243.23	243.85	244.34	245.00	248.90	250.45	764 to 762
16	15	33.993	0.38	1.00	0.73	0.28	0.76	5.0	8.1	5.7	4.31	13.09	5.20	18	1.32	244.35	244.80	245.00	245.60	250.45	250.19	766 to 764
17	16	132.905	0.00	0.30	0.00	0.00	0.27	5.0	6.5	6.1	1.66	12.27	3.19	15	3.08	245.00	249.09	245.60	249.60	250.19	253.29	MH-768 to 766
18	17	67.514	0.15	0.30	0.91	0.14	0.27	0.0	5.7	6.3	1.71	4.96	3.61	15	0.50	249.29	249.63	249.80	250.15	253.29	254.48	770 to MH-768
19	18	29.912	0.15	0.15	0.91	0.14	0.14	5.0	5.0	6.5	0.88	4.95	2.99	15	0.50	249.83	249.98	250.19	250.35	254.48	254.48	772 to 770
20	16	45.312	0.32	0.32	0.65	0.21	0.21	5.0	5.0	6.5	1.35	13.94	2.82	15	3.97	245.00	246.80	245.60	247.26	250.19	250.30	774 to 766
21	15	118.297	0.57	0.90	0.80	0.46	0.71	5.0	5.4	6.4	4.50	4.94	4.56	15	0.50	244.65	245.24	245.59	246.18	250.45	249.10	776 to 764
22	21	31.500	0.33	0.33	0.76	0.25	0.25	5.0	5.0	6.5	1.63	4.99	2.41	15	0.51	245.44	245.60	246.66	246.11	249.10	249.10	778 to 776

Project File: Run 700 To Exit BMP 2A.stm | Number of lines: 22 | Run Date: 7/14/2023

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-702	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	704	5.86	0.90	6.76	0.00	Comb	4.0	22.48	44.96	22.48	2.00	Sag	2.00	0.050	0.020	0.000	0.24	9.18	0.24	9.18	0.0	Off
3	706	2.41	0.00	1.51	0.90	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.21	7.51	0.21	7.51	0.0	2
4	708	0.98	0.00	0.98	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.11	12.90	0.11	12.90	0.0	Off
5	712	22.16*	0.00	22.16	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.87	89.26	0.87	89.26	0.0	Off
6	710	23.17*	0.00	23.17	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.90	91.90	0.90	91.90	0.0	Off
7	750	0.73	0.00	0.73	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.09	10.95	0.09	10.95	0.0	Off
8	752	1.28	0.00	1.28	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	15.01	0.13	15.01	0.0	Off
9	754	1.05	0.00	1.05	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.11	13.44	0.11	13.44	0.0	Off
10	756	0.63	0.00	0.63	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.08	10.12	0.08	10.12	0.0	Off
11	758	1.04	0.00	1.04	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.11	13.36	0.11	13.36	0.0	Off
12	760	1.39	0.00	1.39	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.14	15.77	0.14	15.77	0.0	Off
13	762	1.08	0.00	1.08	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.12	13.62	0.12	13.62	0.0	Off
14	780	1.30	0.00	1.30	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	15.18	0.13	15.18	0.0	Off
15	764	2.40	0.00	2.40	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
16	766	1.80	0.21	2.01	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
17	MH-768	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
18	770	0.00	0.00	0.00	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	16
19	772	0.88	0.00	0.67	0.21	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.15	4.64	0.15	4.64	0.0	16
20	774	1.35	0.00	1.35	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	15.49	0.13	15.49	0.0	Off
21	776	2.96	0.00	2.96	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.22	8.21	0.22	8.21	0.0	15
22	778	1.63	0.00	1.63	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.19	6.28	0.19	6.28	0.0	16

Project File: Run 700 To Exit BMP 2A.stm | Number of lines: 22 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	156.396	0.00	6.70	0.00	0.00	4.75	0.0	12.4	6.4	74.43	189.9	8.54	42	3.04	231.00	235.75	237.72	238.45	231.00	244.50	MH-702 to E.W. 7
2	1	35.442	1.19	2.37	0.76	0.90	1.60	5.0	5.8	8.1	57.12	132.4	9.17	36	3.36	235.95	237.14	238.45	239.59	244.50	242.84	704 TO 702
3	2	99.924	0.47	1.18	0.79	0.37	0.69	5.0	5.6	8.2	49.88	80.49	8.69	36	1.24	237.34	238.58	239.59	240.88	242.84	244.38	706 TO 704
4	3	84.530	0.36	0.71	0.42	0.15	0.32	5.0	5.4	8.2	46.87	75.38	8.61	36	1.09	238.78	239.70	240.88	241.93	244.38	245.80	708 TO 706
5	4	103.083	0.29	0.29	0.53	0.15	0.15	5.0	5.0	8.4	22.45	70.56	6.46	30	2.52	240.20	242.80	241.93	244.41	245.80	247.80	712 TO 708
6	4	41.450	0.06	0.06	0.31	0.02	0.02	5.0	5.0	8.4	23.21	111.3	6.61	30	6.27	240.20	242.80	241.93	244.44	245.80	247.80	710 TO 708
7	1	138.585	0.15	4.33	0.75	0.11	3.15	5.0	11.8	6.5	20.39	31.58	5.42	30	0.51	236.20	236.90	238.45	238.43	244.50	243.90	750 TO MH-702
8	7	147.530	0.29	4.18	0.68	0.20	3.03	5.0	11.2	6.6	20.04	31.47	6.61	30	0.50	237.10	237.84	238.55	239.36	243.90	244.60	752 TO 750
9	8	145.099	0.25	3.89	0.65	0.16	2.84	5.0	10.6	6.7	19.13	31.51	6.52	30	0.50	238.04	238.77	239.45	240.25	244.60	246.50	754 TO 752
10	9	144.198	0.18	3.64	0.54	0.10	2.67	5.0	9.9	6.9	18.42	31.61	6.45	30	0.51	238.97	239.70	240.34	241.15	246.50	249.00	756 TO 754
11	10	146.035	0.24	3.46	0.67	0.16	2.58	5.0	9.3	7.0	18.16	31.84	6.44	30	0.51	239.90	240.65	241.25	242.09	249.00	249.50	758 TO 756
12	11	182.118	0.33	3.22	0.65	0.21	2.42	5.0	8.5	7.3	17.56	31.41	6.35	30	0.50	240.85	241.76	242.19	243.18	249.50	248.80	760 TO 758
13	12	152.452	0.26	2.89	0.64	0.17	2.20	5.0	8.0	7.4	16.29	17.41	6.30	24	0.51	242.26	243.03	243.79	244.56	248.80	248.90	762 TO 760
14	13	175.046	0.30	0.30	0.67	0.20	0.20	5.0	5.0	8.4	1.68	6.89	2.45	15	0.97	243.78	245.48	245.49	245.99	248.90	248.90	780 TO 762
15	13	123.471	0.43	2.33	0.86	0.37	1.84	5.0	7.5	7.5	13.81	17.36	4.40	24	0.50	243.23	243.85	245.49	245.85	248.90	250.45	764 to 762
16	15	33.993	0.38	1.00	0.73	0.28	0.76	5.0	7.4	7.6	5.74	13.09	3.25	18	1.32	244.35	244.80	246.29	246.38	250.45	250.19	766 to 764
17	16	132.905	0.00	0.30	0.00	0.00	0.27	5.0	6.1	8.0	2.17	12.27	2.80	15	3.08	245.00	249.09	246.62	249.68	250.19	253.29	MH-768 to 766
18	17	67.514	0.15	0.30	0.91	0.14	0.27	0.0	5.5	8.2	2.23	4.96	3.90	15	0.50	249.29	249.63	249.88	250.23	253.29	254.48	770 to MH-768
19	18	29.912	0.15	0.15	0.91	0.14	0.14	5.0	5.0	8.4	1.14	4.95	3.22	15	0.50	249.83	249.98	250.24	250.40	254.48	254.48	772 to 770
20	16	45.312	0.32	0.32	0.65	0.21	0.21	5.0	5.0	8.4	1.74	13.94	2.50	15	3.97	245.00	246.80	246.62	247.32	250.19	250.30	774 to 766
21	15	118.297	0.57	0.90	0.80	0.46	0.71	5.0	5.3	8.3	5.84	4.94	4.76	15	0.50	244.65	245.24	246.29	247.12	250.45	249.10	776 to 764
22	21	31.500	0.33	0.33	0.76	0.25	0.25	5.0	5.0	8.4	2.10	4.99	1.71	15	0.51	245.44	245.60	247.64	247.67	249.10	249.10	778 to 776

Project File: Run 700 To Exit BMP 2A.stm

Number of lines: 22

Run Date: 7/14/2023

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-702	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	704	7.58	1.60	9.18	0.00	Comb	4.0	22.48	44.96	22.48	2.00	Sag	2.00	0.050	0.020	0.000	0.29	11.37	0.29	11.37	0.0	Off
3	706	3.11	0.00	1.51	1.60	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.23	8.39	0.23	8.39	0.0	2
4	708	1.27	0.00	1.27	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	14.94	0.13	14.94	0.0	Off
5	712	22.45*	0.00	22.45	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.88	90.02	0.88	90.02	0.0	Off
6	710	23.21*	0.00	23.21	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.90	91.99	0.90	91.99	0.0	Off
7	750	0.94	0.00	0.94	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.11	12.62	0.11	12.62	0.0	Off
8	752	1.65	0.00	1.65	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.15	17.45	0.15	17.45	0.0	Off
9	754	1.36	0.00	1.36	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.14	15.58	0.14	15.58	0.0	Off
10	756	0.81	0.00	0.81	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.10	11.64	0.10	11.64	0.0	Off
11	758	1.35	0.00	1.35	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.13	15.48	0.13	15.48	0.0	Off
12	760	1.80	0.00	1.80	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.16	18.34	0.16	18.34	0.0	Off
13	762	1.39	0.00	1.39	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.14	15.79	0.14	15.79	0.0	Off
14	780	1.68	0.00	1.68	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.16	17.65	0.16	17.65	0.0	Off
15	764	3.10	0.00	3.10	0.00	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
16	766	2.32	0.48	2.32	0.48	Genr	0.0	0.00	0.00	0.00	0.00	Sag	2.00	0.050	0.020	0.000	0.30	12.00	0.30	12.00	0.0	Off
17	MH-768	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
18	770	0.00	0.00	0.00	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.00	0.00	0.00	0.00	0.0	16
19	772	1.14	0.00	0.67	0.47	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.17	5.30	0.17	5.30	0.0	16
20	774	1.74	0.00	1.74	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.16	18.01	0.16	18.01	0.0	Off
21	776	3.82	0.00	3.82	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.24	9.15	0.24	9.15	0.0	15
22	778	2.10	0.00	2.10	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.050	0.020	0.013	0.20	7.07	0.20	7.07	0.0	16

Project File: Run 700 To Exit BMP 2A.stm | Number of lines: 22 | Run Date: 7/14/2023

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	27.907	0.00	0.56	0.00	0.00	0.26	5.0	12.9	4.8	1.24	5.13	2.97	15	0.54	239.87	240.02	240.37	240.46	0.00	246.50	MH-802 TO EX-8
2	1	55.837	0.21	0.56	0.52	0.11	0.26	5.0	12.2	4.9	1.27	5.50	3.44	15	0.62	240.22	240.56	240.63	241.01	246.50	244.29	804 TO MH-802
3	2	33.369	0.19	0.35	0.54	0.10	0.15	5.0	11.5	5.0	0.76	5.03	2.87	15	0.52	240.76	240.94	241.09	241.28	244.29	244.34	806 TO 804
4	3	99.055	0.16	0.16	0.30	0.05	0.05	5.0	5.0	6.5	0.31	10.10	2.95	15	2.08	241.14	243.20	241.29	243.42	244.34	246.60	808 TO 806

Project File: Run 800.stm | Number of lines: 4 | Run Date: 2/14/2024

NOTES:Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period =Yrs. 10 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-802	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	804	0.71	0.00	0.71	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.10	5.15	0.10	5.15	0.0	Off
3	806	0.66	0.00	0.66	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.10	5.03	0.10	5.03	0.0	Off
4	808	0.31	0.00	0.31	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.05	7.07	0.05	7.07	0.0	Off

Project File: Run 800.stm | Number of lines: 4 | Run Date: 2/14/2024

NOTES: Inlet N-Values = 0.016; Intensity = 60.89 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	27.907	0.00	0.56	0.00	0.00	0.26	5.0	11.1	6.6	1.72	5.13	3.66	15	0.54	239.87	240.02	240.37	240.54	0.00	246.50	MH-802 TO EX-8
2	1	55.837	0.21	0.56	0.52	0.11	0.26	5.0	10.6	6.7	1.75	5.50	3.78	15	0.62	240.22	240.56	240.71	241.09	246.50	244.29	804 TO MH-802
3	2	33.369	0.19	0.35	0.54	0.10	0.15	5.0	10.0	6.9	1.03	5.03	3.14	15	0.52	240.76	240.94	241.15	241.34	244.29	244.34	806 TO 804
4	3	99.055	0.16	0.16	0.30	0.05	0.05	5.0	5.0	8.4	0.40	10.10	2.77	15	2.08	241.14	243.20	241.34	243.45	244.34	246.60	808 TO 806

Project File: Run 800.stm | Number of lines: 4 | Run Date: 2/14/2024

NOTES:Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period =Yrs. 100 ; c = cir e = ellip b = box

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	MH-802	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	804	0.92	0.00	0.92	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.11	5.67	0.11	5.67	0.0	Off
3	806	0.86	0.00	0.86	0.00	Genr	0.0	0.00	0.00	0.00	0.00	0.020	2.00	0.020	0.020	0.013	0.11	5.54	0.11	5.54	0.0	Off
4	808	0.40	0.00	0.40	0.00	DrGrt	0.0	0.00	5.06	2.53	2.00	Sag	2.00	0.020	0.020	0.000	0.06	8.02	0.06	8.02	0.0	Off

Project File: Run 800.stm | Number of lines: 4 | Run Date: 2/14/2024

NOTES: Inlet N-Values = 0.016; Intensity = 47.90 / (Inlet time + 9.20) ^ 0.66; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

Sisters of St. Basils (#7662)
Abington Township
Montgomery County, PA

By: LJP
Date: 14-Mar-23
Chk'd:
Rev'd 9-Oct-23

STORM SEWER RIPRAP APRON OUTLET PROTECTION

OUTLET No.	Temporary (E&S) or Permanent Condition	Mannings 'n'	PIPE DIA Do (in)	PIPE SLOPE (ft/ft)	100-yr Flow Q (cfs)	100-yr FLOW V (fps)	APRON (Internal) W (ft)	APRON La (ft)	APRON (External) W (ft)	RIPRAP STONE SIZE (NSA No.)	RIPRAP STONE THICK (in)	RIPRAP STONE d50 (in)	RIPRAP FILTER THICK (in)	RIPRAP FILTER SIZE (NSA No.)	OPTIONAL RENO MAT/GABION THICK (in)	OPTIONAL RENO MAT/GABION SIZE (in)
FES 100	permanent	0.013	15	0.0459	2.32	2	3.75	8	11.8	R-3	9	3	3	FS-1	6	3 to 6
EW 200	permanent	0.013	24	0.0267	11.70	4	6.0	12	18.0	R-3	9	3	3	FS-1	6	3 to 6
EW 300	permanent	0.013	24	0.0119	2.85	1	6.0	12	18.0	R-3	9	3	3	FS-1	6	3 to 6
EW 400	permanent	0.013	24	0.0167	18.89	6	6.0	12	18.0	R-3	9	3	3	FS-1	9	3 to 6
FES 500	permanent	0.013	24	0.0052	13.06	4	6.0	12	18.0	R-3	9	3	3	FS-1	6	3 to 6
EW 600	permanent	0.013	18	0.0089	8.34	6	4.5	8	12.5	R-3	9	3	3	FS-1	6	3 to 6
EW 700	permanent	0.013	42	0.0304	74.43	8	10.5	22	32.5	R-4	18	6	4	FS-2	9	3 to 6
O.S. 3A-1	permanent	0.013	18	0.0128	0.22	4	4.5	8	12.5	R-3	9	3	3	FS-1	6	3 to 6
O.S. 3A-2	permanent	0.013	15	0.0111	5.05	5	3.75	8	11.8	R-3	9	3	3	FS-1	6	3 to 6
O.S. 3B-1	permanent	0.013	15	0.0233	3.42	1	3.75	8	11.8	R-3	9	3	3	FS-1	6	3 to 6
O.S. 4.1	permanent	0.013	24	0.0080	35.37	7	6.0	20	26.0	R-4	18	6	4	FS-2	9	3 to 6

Sisters of St. Basils (#7662)

Abington Township

Montgomery County, PA

STORM SEWER RIP-RAP DATA TABLE

RIP-RAP		FILTER		RIP-RAP DESIGN DATA			
SIZE (NSA No.)	THICK (in)	SIZE (NSA No.)	THICK (in)	MAX V (fps)	d50 (ft)	d50 (in)	dMAX (in)
R-1	2.25	N/A	N/A		0.0625	0.75	1.5
R-2	4.5	N/A	N/A	4.5	0.125	1.5	3
R-3	9	FS-1	3	6.5	0.25	3	6
R-4	18	FS-2	4	9	0.5	6	12
R-5	27	FS-2	6	11.5	0.75	9	18
R-6	36	FS-3	8	13	1	12	24
R-7	45	FS-3	10	14.5	1.25	15	30
R-8	63			17	1.75	21	42

RENO MATTRESS DATA TABLE

STONE		MAX V
THICK (in)	SIZE (in)	V (fps)
6	3 to 6	6
9	3 to 6	12
12	3 to 6	15
18	4 to 6	18
>18	5 to 9	22

NOTES:
1. dMAX per PADEP E&S Manual Table 9, page 24.
2. Rip-Rap "THICK" = 1.5 x "dMAX".
3. Filter stone "SIZE" and "THICK" per PADEP E&S Manual, Table 9, Page 24.
4. Geotextile may be used as an alternative to Filter Stone.
5. Rip-Rap is required for outlet velocities > 2.5 fps.
6. MAX V (Rip-Rap) per PADEP E&S Manual, Table 9, page 24.
7. Minimum Tailwater Condition is assumed for all outlets.
8. Apron length (La) per PADEP E&S Manual, Fig. 21, page 116.
9. Rip-Rap Apron W = L + 3 x PIPE DIA.
10. Reno Mattress/Gabions may be used where maximum velocities exceed 14.5 fps, per PADEP E&S Manual, Table 13, page 31.

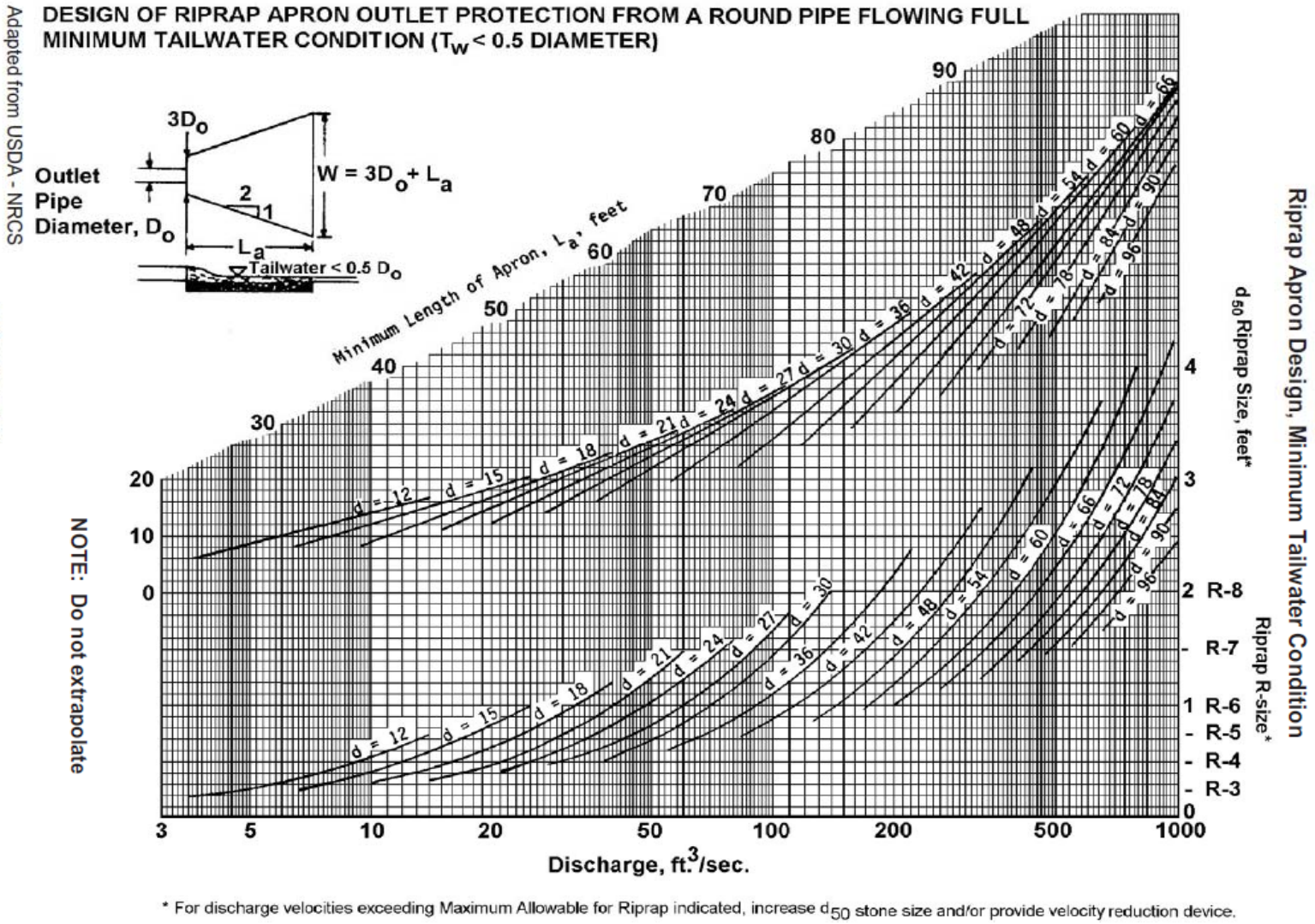


FIGURE 9.3
Riprap Apron Design, Minimum Tailwater Condition

* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase d_{50} stone size and/or provide velocity reduction device.

Swale Calculations

14

STANDARD E&S WORKSHEET #11

Channel Design Data

PROJECT NAME: Sisters of St. Basil (#7662)

LOCATION: ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA

PREPARED BY: LJP DATE: 10/9/2023

CHECKED BY: DATE:

CHANNEL OR CHANNEL SECTION		1	1	2	2	3	3
TEMPORARY OR PERMANENT?	(T OR P)	T	P	T	P	T	P
DESIGN STORM	(2, 5, OR 10 YR)	2	2	2	2	2	2
ACRES	(AC)	4.46	0.15	0.33	0.33	0.64	0.64
MULTIPLIER	(1.6, 2.25, OR 2.75)[1]	1.60	2.75	2.75	2.75	2.75	2.75
Qr (REQUIRED CAPACITY)	(CFS)	7.14	0.41	0.91	0.91	1.76	1.76
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	4.44	0.38	0.67	0.71	0.90	0.87
PROTECTIVE LINING[2]		NAG S75	Grass	NAG S75	Grass	NAG S75	Grass
n (MANNING'S COEFFICIENT)[2]		0.07	0.09	0.07	0.09	0.07	0.08
Va (ALLOWABLE VELOCITY)	(FPS)	5.00	5.00	5.00	5.00	5.00	5.00
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.17	0.63	0.84	0.67	0.91	0.77
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.60	N/A	1.60	N/A	1.60	N/A
τ_d (CALC'S SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	0.42	N/A	0.25	N/A	0.29	N/A
CHANNEL BOTTOM WIDTH	(FT)	1.00	1.00	2.00	2.00	2.00	2.00
CHANNEL SIDE SLOPES	(H:V)	7.0 :1	7.0 :1	10.0 :1	10.0 :1	10.0 :1	10.0 :1
D (TOTAL DEPTH)	(FT)	1.17	0.73	0.70	0.74	0.73	0.75
CHANNEL TOP WIDTH @ D	(FT)	17.38	11.22	16.00	16.80	16.60	17.00
d (CALCULATED FLOW DEPTH)	(FT)	0.67	0.23	0.20	0.24	0.23	0.25
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	10.38	4.22	6.00	6.80	6.60	7.00
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)	1.49 :1	4.35 :1	10.00 :1	8.33 :1	8.70 :1	8.00 :1
d_{50} STONE SIZE	(IN)	NA	NA	NA	NA	NA	NA
A (CROSS-SECTIONAL AREA)	(SQ. FT.)	3.81	0.60	0.80	1.06	0.99	1.13
R (HYDRAULIC RADIUS)		0.36	0.14	0.13	0.15	0.15	0.16
S (BED SLOPE)[3]	(FT/FT)	0.010	0.020	0.020	0.020	0.020	0.020
Sc (CRITICAL SLOPE)	(FT/FT)	0.09	0.23	0.12	0.22	0.12	0.17
.7 Sc	(FT/FT)	0.06	0.16	0.08	0.15	0.08	0.12
1.3 Sc	(FT/FT)	0.11	0.30	0.16	0.29	0.15	0.22
STABLE FLOW?	(Y/N)	YES	YES	YES	YES	YES	YES
FREEBOARD BASED ON UNSTABLE FLOW	(FT)	NA	NA	NA	NA	NA	NA
FREEBOARD BASED ON STABLE FLOW	(FT)	0.17	0.06	0.05	0.06	0.06	0.06
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.50	0.50	0.50	0.50	0.50	0.50
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSIBILE VELOCITY (V) OR SHEAR STRESS (S)		S	V	S	V	S	V

1. Use 1.6 for Temporary Channel, 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds, 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach approriate Worksheets.

2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.

3. Slopes may not be averaged.

4. Minimum Freeboard is 0.5 ft. or 1/4 Total Channel Depth, whichever is greater.

5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% of greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

STANDARD E&S WORKSHEET #11

Channel Design Data

PROJECT NAME: St. Basils (7662)

LOCATION: ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA

PREPARED BY: LJP DATE: 10/9/2023

CHECKED BY: DATE:

CHANNEL OR CHANNEL SECTION		4	4	5	5	6	6
TEMPORARY OR PERMANENT?	(T OR P)	T	P	T	P	T	P
DESIGN STORM	(2, 5, OR 10 YR)	2	2	2	2	2	2
ACRES	(AC)	0.32	0.32	0.54	0.54	0.65	0.65
MULTIPLIER	(1.6, 2.25, OR 2.75)[1]	2.75	2.75	2.75	2.75	2.75	2.75
Qr (REQUIRED CAPACITY)	(CFS)	0.88	0.88	1.49	1.49	1.79	1.79
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	0.74	0.71	1.19	1.17	1.50	1.47
PROTECTIVE LINING[2]		NAG S75	Grass	NAG S75	Grass	NAG S75	Grass
n (MANNING'S COEFFICIENT)[2]		0.07	0.09	0.07	0.08	0.07	0.07
Va (ALLOWABLE VELOCITY)	(FPS)	5.00	5.00	5.00	5.00	5.00	5.00
V (CALCULATED AT FLOW DEPTH d)	(FPS)	0.87	0.67	1.13	0.97	1.26	1.19
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.60	N/A	1.60	N/A	1.60	N/A
τ_d (CALC'S SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	0.26	N/A	0.37	N/A	0.44	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.00	2.00	2.00	2.00	2.00	2.00
CHANNEL SIDE SLOPES	(H:V)	10.0 :1	10.0 :1	5.0 :1	5.0 :1	4.0 :1	4.0 :1
D (TOTAL DEPTH)	(FT)	0.71	0.74	0.80	0.83	0.85	0.86
CHANNEL TOP WIDTH @ D	(FT)	16.20	16.80	10.00	10.30	8.80	8.88
d (CALCULATED FLOW DEPTH)	(FT)	0.21	0.24	0.30	0.33	0.35	0.36
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	6.20	6.80	5.00	5.30	4.80	4.88
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)	9.52 :1	8.33 :1	6.67 :1	6.06 :1	5.71 :1	5.56 :1
d_{50} STONE SIZE	(IN)	NA	NA	NA	NA	NA	NA
A (CROSS-SECTIONAL AREA)	(SQ. FT.)	0.86	1.06	1.05	1.20	1.19	1.24
R (HYDRAULIC RADIUS)		0.14	0.15	0.21	0.22	0.24	0.25
S (BED SLOPE)[3]	(FT/FT)	0.020	0.020	0.020	0.020	0.020	0.020
Sc (CRITICAL SLOPE)	(FT/FT)	0.12	0.22	0.11	0.16	0.10	0.12
.7 Sc	(FT/FT)	0.08	0.15	0.07	0.11	0.07	0.08
1.3 Sc	(FT/FT)	0.16	0.29	0.14	0.20	0.13	0.15
STABLE FLOW?	(Y/N)	YES	YES	YES	YES	YES	YES
FREEBOARD BASED ON UNSTABLE FLOW	(FT)	NA	NA	NA	NA	NA	NA
FREEBOARD BASED ON STABLE FLOW	(FT)	0.05	0.06	0.08	0.08	0.09	0.09
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.50	0.50	0.50	0.50	0.50	0.50
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSIBILE VELOCITY (V) OR SHEAR STRESS (S)		S	V	S	V	S	V

1. Use 1.6 for Temporary Channel, 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds, 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach approriate Worksheets.

2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.

3. Slopes may not be averaged.

4. Minimum Freeboard is 0.5 ft. or 1/4 Total Channel Depth, whichever is greater.

5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% of greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

STANDARD E&S WORKSHEET #11

Channel Design Data

PROJECT NAME: St. Basils (7662)

LOCATION: ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA

PREPARED BY: LJP DATE: 10/9/2023

CHECKED BY: DATE:

CHANNEL OR CHANNEL SECTION		7	7	8	8	9	9
TEMPORARY OR PERMANENT?	(T OR P)	T	P	T	P	T	P
DESIGN STORM	(2, 5, OR 10 YR)	2	2	2	2	2	2
ACRES	(AC)	0.52	0.52	0.35	0.35	1.44	0.67
MULTIPLIER	(1.6, 2.25, OR 2.75)[1]	2.75	2.75	2.75	2.75	1.60	2.75
Qr (REQUIRED CAPACITY)	(CFS)	1.43	1.43	0.96	0.96	2.30	1.84
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	1.17	1.20	0.67	0.71	1.40	1.25
PROTECTIVE LINING[2]		NAG S75	Grass	NAG S75	Grass	NAG S75	Grass
n (MANNING'S COEFFICIENT)[2]		0.07	0.08	0.07	0.09	0.07	0.09
Va (ALLOWABLE VELOCITY)	(FPS)	5.00	5.00	5.00	5.00	5.00	5.00
V (CALCULATED AT FLOW DEPTH d)	(FPS)	0.97	0.84	0.84	0.67	1.05	0.80
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.60	N/A	1.60	N/A	1.60	N/A
τ_d (CALC'S SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	0.32	N/A	0.25	N/A	0.36	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.00	2.00	2.00	2.00	2.00	2.00
CHANNEL SIDE SLOPES	(H:V)	10.0 :1	10.0 :1	10.0 :1	10.0 :1	9.0 :1	9.0 :1
D (TOTAL DEPTH)	(FT)	0.76	0.79	0.70	0.74	0.79	0.82
CHANNEL TOP WIDTH @ D	(FT)	17.20	17.80	16.00	16.80	16.22	16.76
d (CALCULATED FLOW DEPTH)	(FT)	0.26	0.29	0.20	0.24	0.29	0.32
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	7.20	7.80	6.00	6.80	7.22	7.76
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)	7.69 :1	6.90 :1	10.00 :1	8.33 :1	6.90 :1	6.25 :1
d_{50} STONE SIZE	(IN)	NA	NA	NA	NA	NA	NA
A (CROSS-SECTIONAL AREA)	(SQ. FT.)	1.20	1.42	0.80	1.06	1.34	1.56
R (HYDRAULIC RADIUS)		0.17	0.18	0.13	0.15	0.18	0.20
S (BED SLOPE)[3]	(FT/FT)	0.020	0.020	0.020	0.020	0.020	0.020
Sc (CRITICAL SLOPE)	(FT/FT)	0.11	0.17	0.12	0.22	0.11	0.20
.7 Sc	(FT/FT)	0.08	0.12	0.08	0.15	0.08	0.14
1.3 Sc	(FT/FT)	0.15	0.21	0.16	0.29	0.14	0.26
STABLE FLOW?	(Y/N)	YES	YES	YES	YES	YES	YES
FREEBOARD BASED ON UNSTABLE FLOW	(FT)	NA	NA	NA	NA	NA	NA
FREEBOARD BASED ON STABLE FLOW	(FT)	0.07	0.07	0.05	0.06	0.07	0.08
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.50	0.50	0.50	0.50	0.50	0.50
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSIBILE VELOCITY (V) OR SHEAR STRESS (S)		S	V	S	V	S	V

1. Use 1.6 for Temporary Channel, 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds, 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach approriate Worksheets.

2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.

3. Slopes may not be averaged.

4. Minimum Freeboard is 0.5 ft. or 1/4 Total Channel Depth, whichever is greater.

5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% of greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

STANDARD E&S WORKSHEET #11

Channel Design Data

PROJECT NAME: St. Basils (7662)

LOCATION: ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA

PREPARED BY: LJP DATE: 10/9/2023

CHECKED BY: DATE:

CHANNEL OR CHANNEL SECTION		10	10	11	11	12	12
TEMPORARY OR PERMANENT?	(T OR P)	T	P	T	P	T	P
DESIGN STORM	(2, 5, OR 10 YR)	2	2	2	2	2	2
ACRES	(AC)	1.31	0.94	2.20	1.12	0.57	0.29
MULTIPLIER	(1.6, 2.25, OR 2.75)[1]	1.60	2.75	1.60	2.75	1.60	2.75
Qr (REQUIRED CAPACITY)	(CFS)	2.10	2.59	3.52	3.08	0.91	0.80
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	2.07	2.58	3.61	3.19	1.04	0.91
PROTECTIVE LINING[2]		NAG S75	Grass	NAG S75	Grass	NAG S75	Grass
n (MANNING'S COEFFICIENT)[2]		0.07	0.08	0.07	0.08	0.07	0.08
Va (ALLOWABLE VELOCITY)	(FPS)	5.00	5.00	5.00	5.00	5.00	5.00
V (CALCULATED AT FLOW DEPTH d)	(FPS)	1.34	1.22	1.56	1.29	1.15	0.95
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.60	N/A	1.60	N/A	1.60	N/A
τ_d (CALC'S SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	0.51	N/A	0.67	N/A	0.39	N/A
CHANNEL BOTTOM WIDTH	(FT)	2.00	2.00	2.00	2.00	2.00	2.00
CHANNEL SIDE SLOPES	(H:V)	5.0 :1	5.0 :1	5.0 :1	5.0 :1	5.0 :1	5.0 :1
D (TOTAL DEPTH)	(FT)	0.89	0.98	1.01	1.03	0.77	0.78
CHANNEL TOP WIDTH @ D	(FT)	10.90	11.80	12.10	12.30	9.70	9.80
d (CALCULATED FLOW DEPTH)	(FT)	0.39	0.48	0.51	0.53	0.27	0.28
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	5.90	6.80	7.10	7.30	4.70	4.80
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)	5.13 :1	4.17 :1	3.92 :1	3.77 :1	7.41 :1	7.14 :1
d_{50} STONE SIZE	(IN)	NA	NA	NA	NA	NA	NA
A (CROSS-SECTIONAL AREA)	(SQ. FT.)	1.54	2.11	2.32	2.46	0.90	0.95
R (HYDRAULIC RADIUS)		0.26	0.31	0.32	0.33	0.19	0.20
S (BED SLOPE)[3]	(FT/FT)	0.021	0.021	0.021	0.021	0.023	0.023
Sc (CRITICAL SLOPE)	(FT/FT)	0.10	0.14	0.09	0.14	0.11	0.16
.7 Sc	(FT/FT)	0.07	0.10	0.06	0.10	0.08	0.11
1.3 Sc	(FT/FT)	0.13	0.18	0.12	0.18	0.14	0.21
STABLE FLOW?	(Y/N)	YES	YES	YES	YES	YES	YES
FREEBOARD BASED ON UNSTABLE FLOW	(FT)	NA	NA	NA	NA	NA	NA
FREEBOARD BASED ON STABLE FLOW	(FT)	0.10	0.12	0.13	0.13	0.07	0.07
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.50	0.50	0.50	0.50	0.50	0.50
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSIBILE VELOCITY (V) OR SHEAR STRESS (S)		S	V	S	V	S	V

1. Use 1.6 for Temporary Channel, 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds, 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach approriate Worksheets.

2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.

3. Slopes may not be averaged.

4. Minimum Freeboard is 0.5 ft. or 1/4 Total Channel Depth, whichever is greater.

5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% of greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

STANDARD E&S WORKSHEET #11

Channel Design Data

PROJECT NAME: St. Basils (7662)

LOCATION: ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA

PREPARED BY: LJP DATE: 10/9/2023

CHECKED BY: DATE:

CHANNEL OR CHANNEL SECTION		13	13				
TEMPORARY OR PERMANENT?	(T OR P)	T	P				
DESIGN STORM	(2, 5, OR 10 YR)	2	2				
ACRES	(AC)	0.21	0.41				
MULTIPLIER	(1.6, 2.25, OR 2.75)[1]	1.60	2.75				
Qr (REQUIRED CAPACITY)	(CFS)	0.34	1.13				
Q (CALCULATED AT FLOW DEPTH d)	(CFS)	0.38	1.18				
PROTECTIVE LINING[2]		NAG S75	Grass				
n (MANNING'S COEFFICIENT)[2]		0.07	0.08				
Va (ALLOWABLE VELOCITY)	(FPS)	5.00	5.00				
V (CALCULATED AT FLOW DEPTH d)	(FPS)	0.86	1.02				
τ_a (MAX ALLOWABLE SHEAR STRESS)	(LB/FT^2)	1.60	N/A				
τ_d (CALC'S SHEAR STRESS AT FLOW DEPTH d)	(LB/FT^2)	0.23	N/A				
CHANNEL BOTTOM WIDTH	(FT)	2.00	2.00				
CHANNEL SIDE SLOPES	(H:V)	5.0 :1	5.0 :1				
D (TOTAL DEPTH)	(FT)	0.66	0.82				
CHANNEL TOP WIDTH @ D	(FT)	8.60	10.20				
d (CALCULATED FLOW DEPTH)	(FT)	0.16	0.32				
CHANNEL TOP WIDTH @ FLOW DEPTH d	(FT)	3.60	5.20				
BOTTOM WIDTH: FLOW DEPTH RATIO	(12:1 MAX)	12.50 :1	6.25 :1				
d_{50} STONE SIZE	(IN)	NA	NA				
A (CROSS-SECTIONAL AREA)	(SQ. FT.)	0.45	1.15				
R (HYDRAULIC RADIUS)		0.12	0.22				
S (BED SLOPE)[3]	(FT/FT)	0.023	0.023				
Sc (CRITICAL SLOPE)	(FT/FT)	0.12	0.16				
.7 Sc	(FT/FT)	0.09	0.11				
1.3 Sc	(FT/FT)	0.16	0.20				
STABLE FLOW?	(Y/N)	YES	YES				
FREEBOARD BASED ON UNSTABLE FLOW	(FT)	NA	NA				
FREEBOARD BASED ON STABLE FLOW	(FT)	0.04	0.08				
MINIMUM REQUIRED FREEBOARD[4]	(FT)	0.50	0.50				
DESIGN METHOD FOR PROTECTIVE LINING[5] PERMISSIBILE VELOCITY (V) OR SHEAR STRESS (S)		S	V				

1. Use 1.6 for Temporary Channel, 2.25 for Temporary Channels in Special Protection (HQ or EV) Watersheds, 2.75 for Permanent Channels. For Rational Method, enter "N/A" and attach E&S Worksheets 9 and 10. For TR-55 enter "N/A" and attach approriate Worksheets.

2. Adjust "n" value for changes in channel liner and flow depth. For vegetated channels, provide data for manufactured linings without vegetation and with vegetation in separate columns.

3. Slopes may not be averaged.

4. Minimum Freeboard is 0.5 ft. or 1/4 Total Channel Depth, whichever is greater.

5. Permissible velocity lining design method is not acceptable for channels with a bed slope of 10% of greater. Shear stress lining design method is required for channels with a bed slope of 10% or greater. Shear stress lining design method may be used for any channel bed slope.

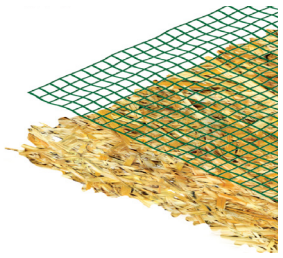
MATERIAL PROPERTY DATA SHEET

EroNet™ S75®

Short Term • Single Net • Straw Matrix • Erosion Control Blanket

DESCRIPTION

S75 temporary Erosion Control Blanket is composed of a 100% weed free agricultural straw matrix mechanically (stitch) bonded on two-inch centers to a single synthetic, photodegradable net. The net is secured to the top of the RECP to restrain the straw matrix once installed. S75 blanket is intended for use in applications requiring erosion protection for a period up to twelve months. The material is fully degradable. The net and thread are photodegradable and the fiber matrix is biodegradable. Actual field longevity is dependent on soil and climatic conditions.



Each roll of S75 is made in the USA and manufactured under Western Green's Quality Assurance Program to ensure a continuous distribution of fibers and consistent thickness.

Material Content		
Matrix	Straw	
Netting	Lightweight, Synthetic Regular Degradable	Single Net (Green)
Thread	Synthetic, Regular Degradable	

Standard Roll Sizes				
Width	8 ft	(2.4 m)	16 ft	(4.9 m)
Length	112 ft	(34.1 m)	563 ft	(171.0 m)
Weight ± 10%	50 lb	(22.7 kg)	500 lb	(227.0 kg)
Area	100 sy	(83.6 m^2)	1000 SY	(836.0 m^2)

Material available in custom roll sizes

Approvals & Classification	
Classification	FHWA: Type 2.C / ECTC: Type 2.C
TTI Approvals	Class 1 Type A, B
NTPEP Number	ECP-2020-01-18

Index Property	Test Method	Typical	
Thickness	ASTM D6525	0.28 in.	(7 mm)
Mass/Unit Area	ASTM D6566	8.0 oz/sy	(275 g/sm)
Tensile Strength – MD	ASTM D6818	110 lbs/ft	(1.6 kN/m)
Tensile Strength – TD	ASTM D6818	60 lbs/ft	(0.9 kN/m)
Elongation - MD	ASTM D6818	30%	
Elongation – TD	ASTM D6818	30%	
Density/Specific Gravity	D792	N/A	
Light Penetration	ASTM D6567	15%	
Biomass Improvement	ASTM D7322	375%	
Water Absorption	ASTM D1117	400%	

Design Parameters		
Property	**Unvegetated**	**Vegetated[3]**
RUSLE C Factor[2]	0.02	N/A
Slope Maximum Gradient[1]	3H:1V	N/A
Permissible Shear Stress[2]	1.6 psf (75 Pa)	N/A
Permissible Velocity[2]	5.0 fps (1.5 m/s)	N/A

Manning's n Roughness (HEC-15)		
τ_{lower}	τ_{mid}	τ_{upper}
0.040	0.030	0.030

1 Maximum Gradient a recomendation for typical insllations.
2 Hydraulic thresholds compliant with ASTM D6459/D6460 but generalized for typical applications.
3 Vegetated values dependent on established stand of vegetation

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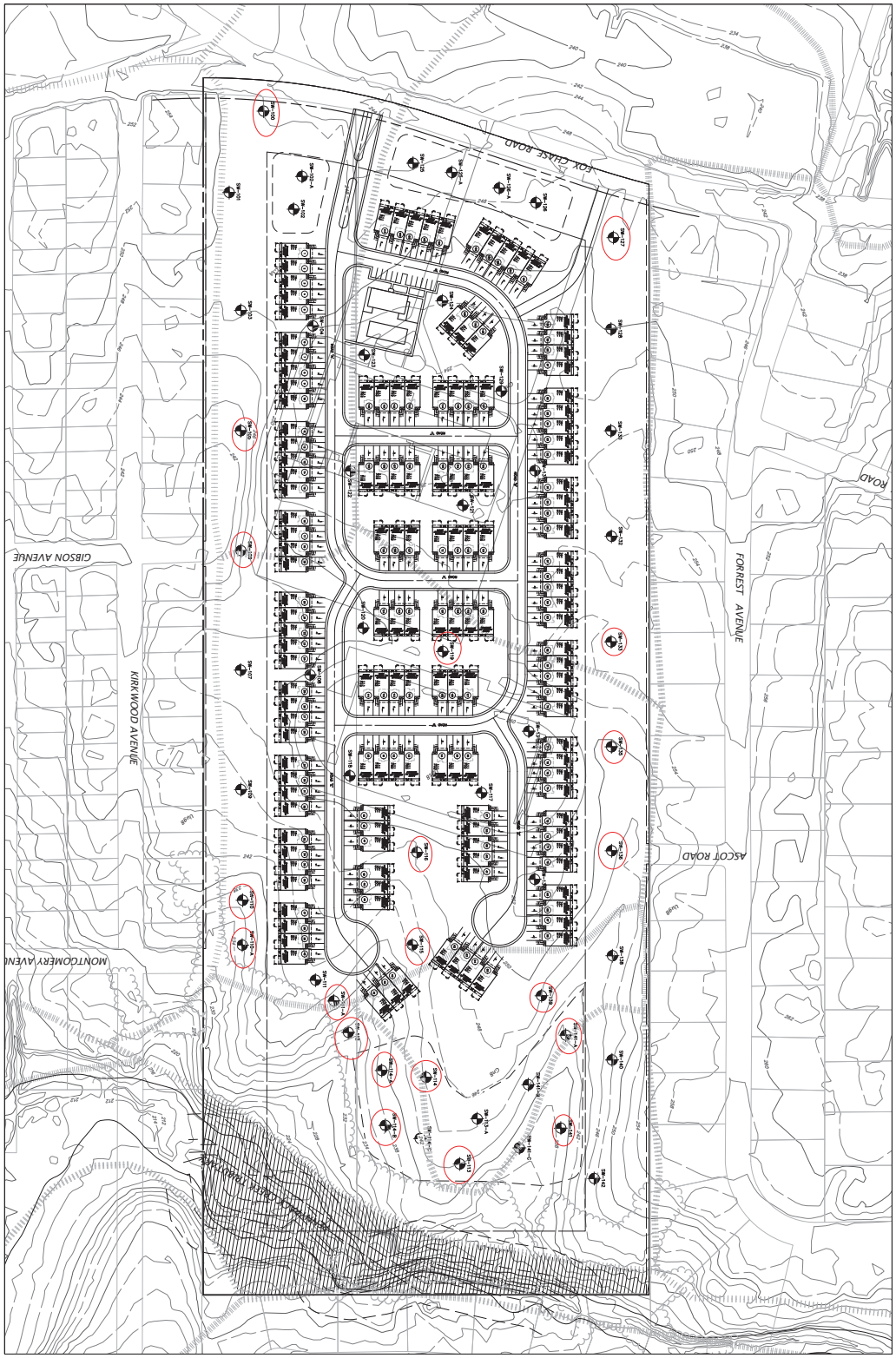
Rev. 4.2023
Scan for additional and updated product information, or click here.

Infiltration Test Results

15

\\ESE\DEPTS\CADD\PROJECTS\PENNSYLVANIA\7662-RYDAL ST. BASILS\ENGDEPT\DESIGN\SWM\INFILTRATION TESTING\7662-S-INFL-TESTING.DWG-Luke Piotrowicz-1/11/2023 1:51 PM



LEGEND

EXISTING STRUCTURE
EXISTING CONTOURS
PROPOSED TREE LINE
EXISTING TREE LINE
WETLANDS LIMIT
WATERS OF THE U.S.
BUILDING SETBACK LINE
PROPOSED CENTER LINE
PROGRAM LIMIT
PROPOSED PROPERTY LINE
EXISTING PROPERTY LINE
PROPOSED R.O.W.
EXISTING CARTWAY
PROPOSED CURB
PROPOSED 4' WIDE SIDEWALK WITH ACCESS RAMP
OUTBOUND LINE
ZONING BOUNDARY LINE
PROPOSED SPLIT RAIL FENCE
PROPOSED EASEMENT
PROPOSED LOT NUMBER
PROPOSED TESTING LOCATION

HORIZONTAL GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 FEET

INFILTRATION TESTING PLAN

SISTERS OF ST. BASIL
ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

REV.	DATE	DESCRIPTION	DRAWN

DATE: 01/11/2023
DESIGN: LJP
DRAWN: LJP
SCALE: 1" = 100'
PROJECT NO.: 7662
FILE NAME: INFIL-TESTING
SHEET NO.: 1 OF 1
PLAN NO.: IN-TEST.01

ESE CONSULTANTS
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
ESE Consultants, Inc.
1140 Virginia Drive • Fort Washington, PA 19034
T: 215-914-2000

7662 Sisters of St. Basil Infiltration Testing Summary

2/21/2023

Test Pit	Depth/Rock (in)	Redox (in)	Prelim Design Depth (in)	Test Depth (in)	Infiltration Rate (in/hr)	Suitable Depth (in) *	Comments
SW-100	115+	26-48	82	82	0.75/4.5	48-91+	Best from 82-115+
SW-101	120+	23-50	NA	TBD	TBD	50-96+	Best from 86-120+
SW-102	108R	-	84 to 108	76	2.87	32-84	
SW-102A	100R	-		76		28-76	
SW-103	125+	20-34	NA	TBD	TBD	72-101+	Best from 88-125+
SW-104	115+	-	NA	TBD	TBD	96+	Silt loam to 96"
SW-105	125+	-	84	84	4.2	36-101+	Best from 75-125+
SW-106	126+	-	84	84		32-102+	Fill and asphalt to 15"; compacted to 32"; Best 32-126+
SW-106	126+	-	36	36	5.25/3.75	32-102+	Fill and asphalt to 15"; compacted to 32"; Best 32-126+
SW-107	122+	-	NA	TBD	TBD	28-98+	Best 46-122+
SW-108	101R	-	NA	TBD	TBD	34-77	Best from 60-77
SW-109	126+	34-46	NA	TBD	TBD	46-102+	Best 56-126+
SW-110	122+	22-45	96	96	3.2	45-98+	
SW-110A	112R	35-68	72	72		68-88	
SW-111	120+	35-48	NA	TBD	TBD	48-96+	Best 80-120+
SW-111A	92R	-	*48+	48	6.3	9-68	Will be very difficult to set rings 48"+ due to rock
SW-112	128+	24-46	*54+	54		46-104+	Best 54-128+
SW-113	52R	-	*26+	28	3.0/2.0	8-28	Best 20-28
SW-113A	48R	-	102	24	0.25/1.25	15-24	
SW-114	56R	-	*26+	26	3.0/2.5	9-26	Best 21-26
SW-114A	108R	28-40	*26+	66	6.0/10.5	40-66	Best 60-66
SW-114B	84R	-	*26+	60	8.25/10.5	10-60	Best 56-60
SW-114C	50R	-	72	26	0.75/0.5	8-26	
SW-115	104R	-	80	80	5.6	32-80	
SW-116	122+	-	92	92		32-98+	Best 62-128+
SW-117	126+	8-24	NA	TBD	TBD	24-102+	Fill to 24"; Best 56-124+
SW-118	116+	-	NA	TBD	TBD	32-92	Compacted to 32"; Best 48-116+
SW-119	108+	-	72	72	6.0/1.0	9-84+	
SW-120	125+	-	NA	TBD	TBD	24-101+	
SW-121	101+	?	Unsuitable				Numerous seeps; water filling test pit; compacted
SW-122	108+		Unsuitable				Legacy fill; Seeps

SW-123	120+	-	NA	TBD	TBD	56-96+	
SW-124	108+	-	NA	TBD	TBD	20-84+	
SW-125	120+	28-90	72-90	90	1.49; recommend at 238ft	90-120+	Tested at bottom of loam horizon w redox ; slowest inf rate of 4 pits. Rec 6" deeper design
SW-125A	132+	28-48	84-108	102		48-132+	Best 95-132+
SW-126	150+	-	102-126	120		18-150+	Best 40-150+
SW-126A	132+	-	90-114	108		12-132+	Best 48-132+
SW-127	102+	-	56	54/78	0/0	56-78+	Compacted to 32"
SW-128	118+	18-28	NA	TBD	TBD	84-94+	Compacted to 28"
SW-129	115+	-	NA	TBD	TBD	80-91+	Compacted to 42"
SW-130	106+	-	NA	TBD	TBD	28-82+	Compacted to 20"
SW-131	108+	-	NA	TBD	TBD	29-84+	Compacted to 29"
SW-132	76R	-	NA	TBD	TBD	30-52	
SW-133	112+	-	84	84	3.25/3.0	34-88+	
SW-134	120+	-	NA	TBD	TBD	26-96+	Best 45-120+
SW-135	117+	-	84	84	6.4	48-93+	
SW-136	120+	-	72	72		36-96+	
SW-137	78R	-	NA	TBD	TBD	15-54	
SW-138	108+	32-90+	NA	TBD	TBD	Unsuitable	In swale; numerous seeps; unsafe to enter
SW-139	80R	-	*24+	24	3.0/3.0	9-56	Likely too rocky to set double rings 25"+
SW-140	118+	28-60	NA	TBD	TBD	60-94+	
SW-141	88+	27-60	*24	24	0.0/0.02	60-88	Generally not suitable at 24" based on morph.
SW-141A	114R	-	*12+	50	0.75/1.5	16-90	Best 48-90
SW-141B	36R	-	72	12	1.25/1.5	12	
SW-141C	60R	-	24	24	0.75/0.25	9-36	
SW-142	45R	-	NA	TBD	TBD	9-21	Extremely flaggy 22"+

* Deeper depth 24 in above rock or bottom of excavation

= Not Evaluated

Drainage Area Plans

16

RESOLUTION NO. 24-024

BEFORE THE ABINGTON TOWNSHIP BOARD OF COMMISSIONERS

Applicant:
Toll Mid-Atlantic LP Company, Inc.

Property:
711 Fox Chase Road, Jenkintown, PA 19046

Parcel No:
30-00-22424-00-1
30-00-22420-00-5

Application No.:
LD-23-01-711

FINAL MAJOR SUBDIVISION AND LAND DEVELOPMENT APPROVAL

BE IT RESOLVED, the Board of Commissioners grants Conditional Final Approval of Applicant's Subdivision and Land Development Application number, LD-23-01-711, Sheet 1 of 62, prepared by ESE Consultants, Inc. dated March 24, 2023, last revised March 22, 2024 ("Plan")[1] proposing the demolition of existing structures and the construction of homes and other buildings ("Project") of the property located at 711 Fox Chase Road, Jenkintown, PA 19046 ("Property")[2].

This Conditional Approval is subject to Applicant satisfying the following conditions prior to the Plan's recording:

[1] More fully detailed on the Plan, attached as Exhibit "A."
[2] The Property is further identified as Tax Parcel number 30-00-22424-00-1 & 30-00-22420-00-5.

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Without limiting the generality of the foregoing, the Board of Commissioners has approved the Plans subject to specific compliance with the following additional terms and acknowledgements:

1. The Applicant shall submit a minimum of four (4) paper copies and two (2) mylar copies of the approved Record Plan(s), and a PDF-formatted disk with the full Approved Plan set, for recording by the Applicant.

2. Complying with all applicable Township review letters, as amended, including: [3]
   a. Abington Township Environmental Advisory Council May 11, 2023 Review Letter;
   b. Township Fire Marshal's November 9, 2023 Review Letter;
   c. Montgomery County Conservation District May 21, 2024 Review Letter;[4]
   d. Township Engineer's April 3, 2024 Review Letter;
   e. Montgomery County Planning Commission's May 19, 2023 and November 9, 2023 Review Letters;
   f. Township Wastewater Department May 12, 2023 and November 9, 2023 Review Letters;
   g. Abington Shade Tree Commission December 18, 2023 Review Letter;
   h. Traffic Planning and Design, Inc. November 10, 2023 Review Letter.

3. The Applicant shall execute and deliver the required financial security and development agreements as well as all other appropriate agreements as shall be required by the Township Solicitor or Township Engineer, at the time the plan is submitted to Abington Township for recording.

4. Prior to construction, the Applicant shall submit to the Township evidence of all required permits and approvals necessary to complete construction, including but not limited to the following:

   a. All applicable permits issued by PaDEP;
   b. Soil Erosion and Sediment Pollution Control Plan approval by the Montgomery County Conservation District, if applicable;
   c. Approval of the Abington Township Fire Marshal;
   d. Approval of the Abington Township Traffic Engineer, if applicable;

[3] *See* Review Letters attached as Exhibit "B."

[4] The configuration of the required 125' setback from the side tract boundary lines and medium intensity buffer shall be in the configuration set forth on Exhibit "C" attached to the Resolution granting Conditional Preliminary Approval.

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e. Approval of the Abington Township Environmental Advisory Council, if required;
f. PennDOT Highway Occupancy Permit, if required;
g. Building permits, construction permits, road opening permits, electrical permits, earth disturbance permits from Abington Township, as applicable;
h. Shop drawings for all materials associated with water, sanitary sewer and/or storm sewer utilities shall be submitted, reviewed and approved by the Township Engineer prior to commencement of construction.

5. Material specifications and standards of construction shall be in accordance with Abington Township requirements, except as otherwise provided for herein or by the terms of any future variances, waivers or resolutions related to this project.

6. This Approval is subject to Applicant's compliance with all regulations, rules, resolutions and ordinances of Abington Township, except as otherwise provided for herein or by the terms of any variances, waivers or resolutions related to this project.

7. The Applicant shall sign a Developer's Agreement with the Township.

8. The Applicant shall sign an Operations and Maintenance Agreement with the Township covering all proposed stormwater management BMPs. The Maintenance Agreement shall be transferred with transfer of ownership of the property. The Operations and Maintenance Plan, and Operations and Maintenance Agreement shall be recorded by the Applicant in the Office of the Recorder of Deeds for Montgomery County along with the Record Plan.

9. All administrative, legal and engineering expenses owed to the Township for plan review and/or planning services shall be paid in full by the Applicant prior to release of signed record plans.

10. The Applicant shall comply in all respects with the rules, regulations and requirements of all governmental agencies and/or bodies having jurisdiction with respect to this Application and shall assume all costs, expense and responsibility in connection therewith, without any liability whatsoever on the part of the Township.

BE IT FURTHER RESOLVED that the following waivers were GRANTED by the Board of Commissioners on March 14, 2024 pursuant to Resolution No. 2014-

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18 based on the scope of the Project and the existing conditions of the Property at Applicant's request as follows:

1. §146-11.A.(4) – Property Identification Plans – A partial waiver from the requirement to show tract boundary information, including tax map parcel numbers, names of owners, and approximate acreage, within 400 feet.
2. §146-11.B.(3) – Existing Features Plan – A partial waiver from the requirement that existing features plan shall include property lines and names of landowners within 400 feet of the site.
3. §146-11.B.(7) – Existing Features Plan – A partial waiver from the requirement to provide all utility information within 400 feet of the subject property.
4. §146-27.C – Sidewalks and Curbs – Location – A partial waiver from the requirements to locate sidewalks between the curb and Fox Chase Road right-of-way line, six inches from the property line.
5. §146-27.F – Sidewalks and Curbs – A partial waiver to permit the curbing on the interior roads to be constructed with 6" Belgian Block.
6. §146-29.A – Blocks – Length – A partial waiver for internal roads C, D, F, and G from the requirement that blocks have a minimum length of 500 feet.
7. §1460-33.I – Drainage – A waiver from the requirement to direct roof drains under the sidewalk and connect to storm drains.
8. §146-35.C.(2) – Design and construction of sewers – Size, grade and type – A partial waiver to permit modification of the material of the sanitary sewer main to SDR-26 (plastic pipe) from ductile iron within the development only. The ductile iron pipe will be required within the public Fox Chase Road right-of-way.
9. §146-43.C.(3).(a) – Excavations and fills – A partial waiver to permit cut and fill slopes greater than 15% for the stormwater basin berms and allow basin slopes and slopes to tie into natural grade up to 33%.

***

NOTE:
This Resolution shall become effective on the date upon which all of the above stated conditions are acknowledged and accepted by the Applicant in writing below. If, for any reason, Applicant fails to sign the Acknowledgment and Acceptance below within 10 days from this Resolution's date, then the Applicant's conditional approval granted herein shall become null and void, the waivers and/or deferrals requested shall be deemed denied; and the Subdivision Application and Plan shall be denied for failure to comply with the Township's Zoning and/or Subdivision and Land Development Ordinances for the reasons

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cited herein or as set forth in the Review Letters referenced above and attached to this Resolution.

***

DULY PRESENTED AND ADOPTED by the Board of Commissioners at a duly advertised public meeting held this ____ day of _____.

MOTION BY:

SECOND BY: VOTE:

DRAFT

APPLICANT'S ACKNOWLEDGEMENT AND
ACCEPTANCE OF APPROVAL CONDITIONS

Applicant acknowledges and accepts the above approval conditions this ____ day of _____, 2024.

Toll Mid-Atlantic LP Company, Inc.

By: _____

Name: _____

Title: _____

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Exhibit "A"
Plan

DRAFT

Exhibit "B"
Review Letters

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-06-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Administration		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Adoption of Ordinance for Zoning Amendments for Conditional Uses

EXECUTIVE SUMMARY:

Ordinance amending the code of the Township of Abington at Part II [General Legislation], Chapter 162 [Zoning], By
Amending and Restating Article III [R1 Low-Density Residential District], Article IV [R2 Low-Medium-Density Residential District], Article V [R3 Medium-Density Residential District], Article VI [R4 Medium-High-Density Residential District], and the Use Matrix Appendix to refine the Provision of the E-10 [Life Care are Facility (Continuing Care)] and E-12 [Nursing Home] Uses.

PREVIOUS BOARD ACTIONS:

5-9-24 - Board of Commissioners made a motion to move the Ordinance to the Planning Commissioner for review.
5-28-24 - Planning Commission reviewed and approved moving to the Board of Commissioners for a final vote.

RECOMMENDED BOARD ACTIONS:

Motion to adopt Ordinance# 2215 amending the code of the Township of Abington at Part II [General Legislation], Chapter 162 [Zoning], By Amending and Restating Article III [R1 Low-Density Residential District], Article IV [R2 Low-Medium-Density Residential District], Article V [R3 Medium-Density Residential District], Article VI [R4 Medium-High-Density Residential District], and the Use Matrix

Appendix to refine the Provision of the E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] Uses.

ABINGTON TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 2215

AN ORDINANCE OF THE TOWNSHIP OF ABINGTON, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING THE CODE OF THE TOWNSHIP OF ABINGTON AT PART II [GENERAL LEGISLATION], CHAPTER 162 [ZONING], BY AMENDING AND RESTATING ARTICLE III [R1 LOW-DENSITY RESIDENTIAL DISTRICT], ARTICLE IV [R2 LOW-MEDIUM-DENSITY RESIDENTIAL DISTRICT], ARTICLE V [R3 MEDIUM-DESNITY RESIDENTIAL DISTRICT], ARTICLE VI [R4 MEDIUM-HIGH-DENSITY RESIDENTIAL DISTRICT], AND THE USE MATRIX APPENDIX TO REFINE THE PROVISION OF THE E-10 [LIFE CARE FACILITY (CONTINUING CARE)] AND E-12 [NURSING HOME] USES

CERTIFICATION

I, RICHARD J. MANFREDI, BEING DULY SWORN ACCORDING TO LAW, DEPOSE AND SAY THAT I AM THE TOWNSHIP MANAGER IN ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA AND THAT ATTACHED HERETO IS A TRUE AND COMPLETE CORRECT COPY OF ORDINANCE NO. _____.

_____
Richard J. Manfredi, Township Manager
_____, 2024

ENACTED: _____

ABINGTON TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 2215

AN ORDINANCE OF THE TOWNSHIP OF ABINGTON, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING THE CODE OF THE TOWNSHIP OF ABINGTON AT PART II [GENERAL LEGISLATION], CHAPTER 162 [ZONING], BY AMENDING AND RESTATING ARTICLE III [R1 LOW-DENSITY RESIDENTIAL DISTRICT], ARTICLE IV [R2 LOW-MEDIUM-DENSITY RESIDENTIAL DISTRICT], ARTICLE V [R3 MEDIUM-DESNITY RESIDENTIAL DISTRICT], ARTICLE VI [R4 MEDIUM-HIGH-DENSITY RESIDENTIAL DISTRICT], AND THE USE MATRIX APPENDIX TO REFINE THE PROVISION OF THE E-10 [LIFE CARE FACILITY (CONTINUING CARE)] AND E-12 [NURSING HOME] USES

WHEREAS, The Board of Commissioners of Abington Township is duly empowered by the First Class Township Code, 53 P.S. § 55101, *et seq.*, to enact certain regulations relating to the public health, safety welfare of the residents of Abington Township;

WHEREAS, The Board of Commissioners of Abington Township has adopted a comprehensive zoning ordinance, known as The Revised Abington Township Zoning Ordinance, as amended, in accordance with the provisions of Article VI of the Pennsylvania Municipalities Planning Code, 53 P.S. § 10101, et seq., which is intended to provide for the orderly development and redevelopment of Abington Township;

WHEREAS, the First Class Township Code and Pennsylvania Municipalities Planning Code, *supra*, authorize the Board of Commissioners to make, amend and adopt amendments to The Revised Abington Township Zoning Ordinance, as amended, that are consistent with the Constitution and laws of the Commonwealth that it deems necessary for the proper management and control of the Township and the best interests of its residents; and

WHEREAS, the Board of Commissioners of Abington Township has determined that certain amendments to The Revised Abington Township Zoning Ordinance, as amended, are required for the orderly administration of the laws of Abington Township; and

WHEREAS, the Board of Commissioners has determined that the Code of the Township of Abington should be amended to refine where the E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] Uses are provided within Abington Township for the maintenance of peace, good government, health and welfare of the Township and its residents.

*****

NOW, THEREFORE, BE IT HEREBY ORDAINED AND ENACTED by the Board of Commissioners of Abington Township that the Township's Code is amended as follows:

SECTION 1. **Amendment to Chapter 162 [Zoning], Article III [R1 Low-Density Residential District] to remove provisions for Uses E-10 and E-12.**

The Code of the Township of Abington, Part II [General Legislation], Chapter 162 [Zoning], Article III [R1 Low-Density Residential District] is hereby restated and amended, as follows:

Section 301. PERMITTED USES:.

By reference, Uses E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] shall be marked with an "N", corresponding to "Not Permitted" in the Comprehensive Use Matrix Appendix, as further provided in this Ordinance.

Section 302. DIMENSIONAL REGULATIONS:

The struck-through language (~~example~~) shall be deleted from Figure 3.1 as indicated:

MINIMUM LOT DIMENSIONS			
	Lot Area	**Lot Width**	**Lot Depth**
All uses except those specified below	1 Acre	200'	100'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~5 Acres~~	~~300'~~	~~300'~~
MINIMUM YARD DIMENSION			
	Front	**Side (2)**	**Rear**
All uses except those specified below	50' (the front yard on one side of a corner lot may be reduced to a depth of not less than 40')	20'	30'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~100'~~	~~50'~~	~~50'~~
COVERAGE			
	Maximum Building Area	**Maximum Impervious**	**Minimum Green Area**
All uses except those specified below	20%	25%	75%
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~40%~~	~~70%~~	~~30%~~
BUILDING			
	Maximum Height	**Maximum Length**	**Minimum Separation for Residential Dwellings**
All uses except those specified below	35'	150'	40'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~40'~~	~~160'~~	~~30'~~
~~MINIMUM OPEN SPACE~~			
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~50% of gross site area~~		

SECTION 2. **Amendment to Chapter 162 [Zoning], Article IV [R2 Low-Medium-Density Residential District] to remove provisions for Uses E-10 and E-12.**

The Code of the Township of Abington, Part II [General Legislation], Chapter 162 [Zoning], Article IV [R2 Low-Medium-Density Residential District] is hereby restated and amended, as follows:

Section 401. PERMITTED USES:.

By reference, Uses E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] shall be marked with an "N", corresponding to "Not Permitted" in the Comprehensive Use Matrix Appendix, as further provided in this Ordinance.

Section 402. DIMENSIONAL REGULATIONS:

The struck-through language (~~example~~) shall be deleted from Figure 4.1 as indicated:

MINIMUM LOT DIMENSIONS			
	Lot Area	**Lot Width**	**Lot Depth**
All uses except those specified below	15,000 sq.ft.	100'	100'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~5 Acres~~	~~300'~~	~~300'~~
MINIMUM YARD DIMENSION			
	Front	**Side (2)**	**Rear**
All uses except those specified below	40 ft (the front yard on one side of a corner lot may be reduced to a depth of not less than 30 ft)	15'	30'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~100'~~	~~50'~~	~~50'~~
COVERAGE			
	Maximum Building Area	**Maximum Impervious**	**Minimum Green Area**
All uses except those specified below	25%	35%	65%
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~40%~~	~~70%~~	~~30%~~
BUILDING			
	Maximum Height	**Maximum Length**	**Minimum Separation for Residential Dwellings**
All uses except those specified below	35'	150'	30'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~40'~~	~~160'~~	~~30'~~
~~MINIMUM OPEN SPACE~~			
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~50% of gross site area~~		

Note: A scrivener's error appears in Figure 4.1, as published, labeling the uses as "E-7: Life Care Facility and E-9: Nursing Home," which is inconsistent with the Zoning Ordinance.

SECTION 3. **Amendment to Chapter 162 [Zoning], Article V [R3 Medium-Density Residential District] to remove provisions for Uses E-10 and E-12.**

The Code of the Township of Abington, Part II [General Legislation], Chapter 162 [Zoning], Article V [R3 Medium-Density Residential District] is hereby restated and amended, as follows:

Section 501. PERMITTED USES:.

By reference, Uses E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] shall be marked with an "N", corresponding to "Not Permitted" in the Comprehensive Use Matrix Appendix, as further provided in this Ordinance.

Section 502. DIMENSIONAL REGULATIONS:

The struck-through language (~~example~~) shall be deleted from Figure 5.1 as indicated:

MINIMUM LOT DIMENSIONS			
	Lot Area	**Lot Width**	**Lot Depth**
All uses except those specified below	10,000 sq. ft.	75'	100'
~~Uses E-10: Life Care Facility and E-12: Nursing Home~~	~~5 Acres~~	~~300'~~	~~300'~~
MINIMUM YARD DIMENSION			
	Front	**Side (2)**	**Rear**
All uses except those specified below	30' (the front yard on one side of a corner lot may be reduced to a depth of not less than 20')	12'	30'
~~Uses E-10: Life Care Facility and E-12: Nursing Home~~	~~100'~~	~~50'~~	~~50'~~
COVERAGE			
	Maximum Building Area	**Maximum Impervious**	**Minimum Green Area**
All uses except those specified below	30%	40%	60%
~~Uses E-10: Life Care Facility and E-12: Nursing Home~~	~~40%~~	~~70%~~	~~30%~~
BUILDING			
	Maximum Height	**Maximum Length**	**Minimum Separation for Residential Dwellings**
All uses except those specified below	35' max.	100' max.	24' min.
~~Uses E-10: Life Care Facility and E-12: Nursing Home~~	~~40'~~	~~160'~~	~~30'~~
~~MINIMUM OPEN SPACE~~			
~~Uses E-10: Life Care Facility and E-12: Nursing Home~~	~~50% of gross site area~~		

SECTION 4. **Amendment to Chapter 162 [Zoning], Article VI [R4 Medium-High-Density Residential District] to remove provisions for Uses E-10 and E-12.**

The Code of the Township of Abington, Part II [General Legislation], Chapter 162 [Zoning], Article VI [R4 Medium-High-Density Residential District] is hereby restated and amended, as follows:

Section 601. PERMITTED USES:.

By reference, Uses E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] shall be marked with an "N", corresponding to "Not Permitted" in the Use Comprehensive Matrix Appendix, as further provided in this Ordinance.

Section 602. DIMENSIONAL REGULATIONS:

The struck-through language (~~example~~) shall be deleted from Figure 3.1 as indicated:

MINIMUM LOT DIMENSIONS			
	Lot Area	**Lot Width**	**Lot Depth**
All uses except those specified below	7,500 s.f.	50'	100'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~5 Acres~~	~~300'~~	~~300'~~
MINIMUM YARD DIMENSION			
	Front	**Side (2)**	**Rear**
All uses except those specified below	20' (the front yard on one side of a corner lot may be reduced to a depth of not less than 15 ft)	10'	25'
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~100'~~	~~50'~~	~~50'~~
COVERAGE			
	Maximum Building Area	**Maximum Impervious**	**Minimum Green Area**
All uses except those specified below	40%	55%, but: 50% for existing nonconforming lots < 7,500 s.f.	45%, but: 50% for existing nonconforming lots < 7,500 s.f.
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~40%~~	~~70%~~	~~30%~~
BUILDING			
	Maximum Height	**Maximum Length**	**Minimum Separation for Residential Dwellings**
All uses except those specified below	35' max.	100' max.	20' min.
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~40'~~	~~160'~~	~~30'~~
~~MINIMUM OPEN SPACE~~			
~~Uses E-10: Life Care Facility (Continuing Care) and E-12: Nursing Home~~	~~50% of gross site area~~		

SECTION 5. **Amendment to Chapter 162 [Zoning], Comprehensive Use Matrix Appendix to change the designations for Uses E-10 and E-12 in the R1, R2, R3, and R4 Zoning Districts.**

The Code of the Township of Abington, Part II [General Legislation], Chapter 162 [Zoning], Comprehensive Use Matrix Appendix is hereby restated and amended to change the designation of Uses E-10 [Life Care Facility (Continuing Care)] and E-12 [Nursing Home] to remove the designation marked with a "CU", corresponding to "Conditional Use" and to mark the uses with an "N", corresponding to "Not Permitted", for the columns labeled as "R1," "R2," "R3", and "R4," corresponding to the R1 Low-Density Residential District, R2 Low-Medium-Density Residential District, R3 Medium-Density Residential District, and R4 Medium-High-Density Residential District, respectively.

SECTION 6. **Repeal and Ratification.**

All ordinances or parts of ordinances inconsistent herewith or in conflict with any of the specific terms enacted hereby, to the extent of said inconsistencies or conflicts, are hereby specifically repealed. Any other terms and provisions of the Township's Code unaffected by this Ordinance are hereby reaffirmed and ratified.

SECTION 7. **Severability.**

Should any section, paragraph, sentence, clause, or phrase in this Ordinance be declared unconstitutional or invalid for any reason, the remainder of the Ordinance shall not be affected thereby and shall remain in full force and affect, and for this reason the provisions of this Ordinance shall be severable.

SECTION 8. **Effective Date.**

This Ordinance shall become effective five (5) days after enactment.

*****

*****

ORDAINED AND ENACTED this _____ day of _____ 2024, by the Board of Commissioners of the Township of Abington.

TOWNSHIP OF ABINGTON
BOARD OF COMMISSIONERS

_____
THOMAS HECKER
President

[Seal]

Attested by:

_____
Richard J. Manfredi
Township Manager & Secretary

MONTGOMERY COUNTY
BOARD OF COMMISSIONERS

JAMILA H. WINDER, CHAIR
NEIL K. MAKHIJA, VICE CHAIR
THOMAS DIBELLO, COMMISSIONER

WWW.MONTGOMERYCOUNTYPA.GOV

MONTGOMERY COUNTY
PLANNING COMMISSION

MONTGOMERY COUNTY • PO BOX 311
NORRISTOWN, PA 19404-0311

610-278-3722
PLANNING@MONTGOMERYCOUNTYPA.GOV

SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

May 23, 2024

Mr. Rich Manfredi, Manager
Abington Township
1176 Old York Road
Abington, Pennsylvania 19001-3713

Re: MCPC #24-0118-001
Proposed Zoning Text Amendment: E-10 and E-12 Uses in Residential Districts
Abington Township

Dear Mr. Manfredi:

We have reviewed the above-referenced zoning text amendment in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on May 14, 2024. We forward this letter as a report of our review.

BACKGROUND

The township has submitted a proposed zoning text amendment that would remove Use E-10 Life Care Facility and E-12 Nursing Home as uses allowed in the R1, R2, R3, and R4 residential zoning districts. They are currently allowed in those districts by conditional use.

COMPREHENSIVE PLAN COMPLIANCE

The proposed zoning text amendment is generally consistent with *MONTCO 2040: A Shared Vision, The Montgomery County Comprehensive Plan*. The township's R1, R2, R3, and R4 residential districts generally overlap with Montco 2040's "Suburban Residential" future land use category. The plan states that the primary uses in this future land use category might include institutional uses.

The proposed zoning text amendment is also generally consistent with the Abington Comprehensive Plan (adopted 2007). The township's R1, R2, R3, and R4 residential zoning districts generally overlap with the "low density," "medium density," and "high density" future land use categories.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) recommends approval of the proposed zoning text

and map amendments, however, in the course of our review we have identified the following issue that the Township may wish to consider prior to final zoning text amendment adoption.

REVIEW COMMENTS

NONCONFORMITIES

There is at least one nonconforming use that would be created by this proposed zoning text change. For example, the Edgehill Nursing & Rehabilitation Center, located in the R4 High Density Residential District.

CONCLUSION

Should the governing body adopt this proposed zoning ordinance amendment, Section 609 of the Municipalities Planning Code requires that we be sent an official copy within 30 days.

Sincerely,

Michael Narcowich, AICP, Community Planning Assistant Manager II
michael.narcowich@montgomerycountypa.gov – 610-278-5238

c: Nicholas Brown, Chair, Township Planning Commission
Khaled R. Hassan, P.E., Pennoni, Township Engineer
Michael P. Clarke, Esq., Rudolph Clarke, LLC, Township Solicitor

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	BOC-07-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000
		Yes ☐ No ☐
Administration		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100
		Yes ☐ No ☐

AGENDA ITEM:

Billboard Ordinance

EXECUTIVE SUMMARY:

This Ordinance will help regulate the size of Billboards in the Township of Abington.

PREVIOUS BOARD ACTIONS:

n/a

RECOMMENDED BOARD ACTIONS:

Motion to authorize the Solicitor to advertise Ordinance No. 2216 amending Chapter 162, the Zoning Ordinance to regulate the size of billboards.

ABINGTON TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 2216

AN ORDINANCE OF THE TOWNSHIP OF ABINGTON, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING THE CODE OF THE TOWNSHIP OF ABINGTON AT PART II [GENERAL LEGISLATION], CHAPTER 162 [ZONING], BY AMENDING AND RESTATING ARTICLE XXII [SIGNS] TO REGULATE THE SIZE OF BILLBOARDS

CERTIFICATION

I, RICHARD J. MANFREDI, BEING DULY SWORN ACCORDING TO LAW, DEPOSE AND SAY THAT I AM THE TOWNSHIP MANAGER IN ABINGTON TOWNSHIP, MONTGOMERY COUNTY, PA AND THAT ATTACHED HERETO IS A TRUE AND COMPLETE CORRECT COPY OF ORDINANCE NO. _____.

_____
Richard J. Manfredi, Township Manager
_____, 2024

ENACTED: _____

ABINGTON TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

ORDINANCE NO. 2216

AN ORDINANCE OF THE TOWNSHIP OF ABINGTON, MONTGOMERY COUNTY, PENNSYLVANIA, AMENDING THE CODE OF THE TOWNSHIP OF ABINGTON AT PART II [GENERAL LEGISLATION], CHAPTER 162 [ZONING], BY AMENDING AND RESTATING ARTICLE XXII [SIGNS] TO REGULATE THE SIZE OF BILLBOARDS

WHEREAS, The Board of Commissioners of Abington Township is duly empowered by the First Class Township Code, 53 P.S. § 55101, *et seq.*, to enact certain regulations relating to the public health, safety welfare of the residents of Abington Township;

WHEREAS, The Board of Commissioners of Abington Township has adopted a comprehensive zoning ordinance, known as The Revised Abington Township Zoning Ordinance, as amended, in accordance with the provisions of Article VI of the Pennsylvania Municipalities Planning Code, 53 P.S. § 10101, et seq., which is intended to provide for the orderly development and redevelopment of Abington Township;

WHEREAS, the First Class Township Code and Pennsylvania Municipalities Planning Code, *supra*, authorize the Board of Commissioners to make, amend and adopt amendments to The Revised Abington Township Zoning Ordinance, as amended, that are consistent with the Constitution and laws of the Commonwealth that it deems necessary for the proper management and control of the Township and the best interests of its residents; and

WHEREAS, the Board of Commissioners of Abington Township has determined that certain amendments to The Revised Abington Township Zoning Ordinance, as amended, are required for the orderly administration of the laws of Abington Township; and

WHEREAS, the Board of Commissioners has determined that the Code of the Township of Abington should be amended to regulate the size of billboards for the maintenance of peace, good government, health and welfare of the Township and its residents.

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NOW, THEREFORE, BE IT HEREBY ORDAINED AND ENACTED by the Board of Commissioners of Abington Township that the Township's Code is amended as follows:

SECTION 1. Amendment to Chapter 162 [Zoning], Article XXII [Signs], Section 2208 [Signs Requiring a Permit] to regulate the size of billboards.

The Code of the Township of Abington, Part II [General Legislation], Chapter 162 [Zoning], Article XXII [Signs], Section 2208 [Signs Requiring a Permit] is hereby restated and amended by adding the underlined language (example), as follows:

Section 2208.2. Permanent Signs

…

D. BC Business Center District

…

4. Billboards:

a. Are permitted in the BC Business Center District only. No more than one (1) billboard is permitted in each of the five BC Business Center District areas (one in BC-Willow Grove Park, one in BC-Town Center, one in BC-Noble, one in BC-Foxcroft, and one in BC-Huntingdon Valley).

b. Are permitted on properties at least 10 acres in size.

c. Are permitted on properties having frontage of at least 200' on a street with a right-of-way of at least 80'.

d. Not more than one billboard is permitted per property or development tract.

e. No billboard shall have more than two sides.

f. Shall be set back at least 40' from all property lines.

g. The height of the billboard shall not exceed the setback of the billboard from the property line, up to a maximum height of 30'/

h. Must be set back at least 200' from any property where zoning permits a residential use.

i. The sign face of any billboard shall not exceed 200 sq. ft.

SECTION 2. Repeal and Ratification.

All ordinances or parts of ordinances inconsistent herewith or in conflict with any of the specific terms enacted hereby, to the extent of said inconsistencies or conflicts, are hereby specifically repealed. Any other terms and provisions of the Township's Code unaffected by this Ordinance are hereby reaffirmed and ratified.

SECTION 3. Severability.

Should any section, paragraph, sentence, clause, or phrase in this Ordinance be declared unconstitutional or invalid for any reason, the remainder of the Ordinance shall not be affected thereby and shall remain in full force and affect, and for this reason the provisions of this Ordinance shall be severable.

SECTION 4. Effective Date.

This Ordinance shall become effective five (5) days after enactment.

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ORDAINED AND ENACTED this _____ day of _____ 2024, by the Board of Commissioners of the Township of Abington.

TOWNSHIP OF ABINGTON
BOARD OF COMMISSIONERS

_____
THOMAS HECKER
President

[Seal]

Attested by:

_____
Richard J. Manfredi
Township Manager & Secretary

BOARD OF COMMISSIONERS REGULAR PUBLIC MEETING

AGENDA ITEM

June 13, 2024	FC-01-061324	FISCAL IMPACT
DATE	*AGENDA ITEM NUMBER*	Cost > $10,000 Yes ☐ No ☐
Finance		PUBLIC BID REQUIRED
DEPARTMENT		Cost > $20,100 Yes ☐ No ☐

AGENDA ITEM:

Expenditures Salaries & Wages for April 2024

EXECUTIVE SUMMARY:

N/A

PREVIOUS BOARD ACTIONS:

N/A

RECOMMENDED BOARD ACTIONS:

Motion to approve the April 2024 expenditures in the amount of $2,730,234.25and salaries and wages in the amount of $2,281,372.97 and authorizing the proper officials to sign and approve invoices and supporting documentation in payment of bills and contracts as they mature through the month of July 2024. (Click here to view supporting information for expenditures in April 2024)

(Motion & Roll Call)