

November 13, 2023

Mr. Robert Melillo, Building Inspector  
Town of North Castle  
17 Bedford Road  
Armonk, NY 10504

**Re: Response to Engineering Comments  
45 Bedford Road  
Town of North Castle, New York  
Langan Project No.: 190085001**

Dear Mr. Melillo:

The following is an itemized response to the comments received from the Town of North Castle Planning Department in the memorandum dated October 12, 2023, and James J. Hahn Engineering P.C. in the letter dated October 19, 2023, for the above referenced application. For ease of review, the comments are *italicized* and our responses are in **bold** text:

*Town of North Castle Planning Department Letter, dated October 12, 2023*

*Procedural Comments*

- 1. The Planning Board will need to schedule a Public Hearing regarding the proposed site plan and wetlands permit.*

**Response: Acknowledged.**

- 2. The SEQRA review of this project concluded with the adoption of a Negative Declaration by the Town Board on June 12, 2019.*

**Response: Acknowledged.**

- 3. Pursuant to Section 340-5.B of the Town Code, the Conservation Board is required to review the proposed wetland application and, within 45 days of receipt thereof, file a written report and its recommendation concerning the application with the Planning Board. Such report is required to evaluate the proposed regulated activity in terms of the findings, intent, and standards of Chapter 340.*

**Response: A wetland application will be submitted to the Conservation Board now that the grading changes associated with the flood plain mitigation have been updated in response to the recent Planning Board comments at the meeting.**

4. Pursuant to Section 7-3.A(6) of the Town Code, all site development plans submitted to the Planning Board are required to be referred to the Architectural Review Board (ARB) for review and comment.

**Response: The project has been submitted to the ARB for review.**

5. The site plan will need to be forwarded to the Chief of Police, Fire Inspector, and the Armonk Fire Chief so that they may make pertinent recommendations to the Planning Board including but not limited to, the designation of no-parking zones, emergency vehicle access or any other issued deemed important to providing emergency services.

The Police Department has expressed concern with respect to traffic and pedestrian safety. The Police Department recommends increased sight distances on the southwest corner as well as improvement to the guiderail and sidewalk to the existing bus stop on Maple Avenue.

**Response: The plans have been forwarded to the various departments. Note that a new sidewalk will be constructed connecting the existing sidewalk on Bedford Road to the bus stop on Maple Ave. The guiderail on Maple Ave adjacent to the sidewalk will also be replaced. See Sheet CS101.**

6. The Applicant will need to obtain County Stream Control Permit.

**Response: The applicant will apply for a County Stream Control Permit.**

7. The site plan will need to be forwarded to the Water and Sewer department so that they may make any pertinent recommendations to the Planning Board including, but no limited to, the capacity of the sewer and water infrastructure to handle the proposed amount of effluent and water demand.

The referral was made on September 12, 2023.

**Response: Acknowledged.**

8. The application for site plan approval will need to be referred to the Westchester County Planning Board pursuant to §239-m of New York State General Municipal Law (GML).

The referral was made on September 12, 2023.

**Response: Acknowledged.**

9. The site plan depicts construction within a floodplain. The Applicant will need to obtain a floodplain development permit pursuant to Chapter 177 of the Town Code.

**Response: A floodplain Development Permit Application was included with the original submission and the applicant will pursue a permit in accordance with Chapter 177 of the Town Code now that the requested grading changes adjacent to Maple Avenue have been incorporated.**

10. *The Applicant will need to secure a County Stream Control permit from the Westchester County Department of Public Works.*

**Response: Acknowledged.**

#### *General Comments*

1. *Plan CS001 shall be revised to update the Zoning Compliance Chart to demonstrate (show calculations) that unit count does not exceed one unit per each 4,200 square feet of net lot area and that bedroom count does not exceed one bedroom for each 2,350 square feet of net lot pursuant to Section 355-25.1 of the Town Code.*

*The Applicant stated that this issue was addressed on plan CS001; however, staff was not able to locate this information on the plan.*

**Response: The Zoning Compliance Table has been revised to show this information. See Sheet CS001. As outlined in the table, there is one unit per 5,342 square feet of net lot area and one bedroom per 2,671 square feet of net lot area.**

2. *The previously submitted Unit/Bedroom table on plan C-100 should be updated to identify which units will be AFFH units. Based upon 31 market rate units, four units will need to be AFFH units. The Applicant will need to demonstrate that the AFFH units meet the minimum size requirements in Section 355-24(6)(a) and (b).*

**Response: The location of the four (4) AFFH units are shown on the attached plan provided by the architect.**

3. *Pursuant to Section 355-40.X(1)(c) of the Town Code, visual privacy shall be preserved for residents through the proper design of rear yards, terraces, decks, or patio spaces. Proper screening through the use of vegetation and fencing shall be provided.*

*It is recommended that the Maple Ave. units be provided with a two-to-three-foot wall around each rear patio along with perimeter landscaping along the wall in an effort to screen the rear patios and provide screening and privacy.*

**Response: Additional landscaping has been added around the patio areas to provide additional privacy. In addition, the use of the Town's property adjacent to Maple Avenue has allowed for additional landscaping to screen the units.**

4. *The Applicant previously agreed to modify the southern (left) unit of the Maple Ave Townhouse plans to mimic the northern (right) layout. The plans should be updated.*

**Response: The submitted plan is the applicants preferred unit layout and is the plan that has been previously presented to the Planning Board.**

5. Pursuant to Section 355-40.X(4) of the Town Code, the Applicant is required to provide vehicular and pedestrian improvements on and around the property necessary to mitigate any vehicular and pedestrian impacts associated with the project.

*The Applicant should provide a crosswalk between the subject site and Armonk Square project. In addition, the Applicant should attempt to secure an easement from Armonk Square or 40 Bedford Road to construct a sidewalk along the entry road to Armonk Square from Bedford Road.*

**Response: A new sidewalk has been along Maple Avenue to the bus stop, and the applicant will continue to work with the town on an acceptable solution related to a safe location for a crosswalk to Armonk Square.**

6. It was previously recommended that landscaping that is similar and compatible with Wampus Brook Park be provided along Maple Avenue and a significant evergreen screen be provided along the common property line between the American Legion and Town Hall. The plan has been revised to provide a meadow (for floodplain compensatory storage).

*It is recommended that the Applicant propose an attractive decorative stone wall along Maple Avenue similar to the existing wall to be removed along Bedford Road. In addition, street lighting that is similar to Main Street and Wampus Brook Park should be proposed along the existing/proposed sidewalk along Bedford Road and Maple Avenue. In addition, the Applicant should give consideration to constructing a new bus shelter as the existing shelter is in disrepair.*

**Response: The utilization of the Town's property along Maple Avenue has allowed for the addition of a decorative stone wall that wraps around the corner of Bedford Road and Maple Avenue. The landscaping has also been revised and additional screening plantings have been added to this area between Maple Avenue and the rear of the units.**

7. A portion of the property is subject to a deed restriction that prohibits the construction of structures. The plan should be revised to identify the restricted area and note the restriction on the plan. It is noted that the site plan depicts patios in the deed restricted area. It is noted that the definition of Structure in the Town Code includes fences and driveways.

*The Applicant should review the deed restriction with the Town Attorney. The Applicant may need to amend the deed restriction held by the Town of North Castle in order to proceed with the development, as recommended, in that area.*

**Response: Fences and walls are not proposed around the patios, and a note has been added to the plan stating that fences are not allowed.**

8. The Town should plan for future roadway improvements at the Bedford and Maple intersection, as needed, as traffic increases in the area and other developments come online generally along the NYS Route 22 Corridor and NYS Route 120, with some of this development having an indirect impact on the Armonk Hamlet. The town should plan for possible future widening of Bedford Road on both the eastbound and westbound

approaches to Maple Avenue. For example, the Town should anticipate that in the future an eastbound exclusive right turn lane may be appropriate on Bedford Road at the Maple Avenue approach. On the westbound approach of Bedford Road, an exclusive left turn lane may be appropriate. It is acknowledged that additional rights-of-way may be needed on both approaches or three approaches to the intersection (including the Church side of the intersection) to accomplish these improvements. In any planning for the Gardens redevelopment the placement of a sidewalk along the stie frontage, which is recommended by both the Town and County should accommodate a future widening, if possible. On the westbound approach of Bedford Road to Maple Avenue, it would include the widening of the culvert in order to provide an exclusive left turn lane at the intersection.

The Applicant should place an easement along the Maple Avenue frontage that would enable the future construction of a right turn lane from Bedford Road onto Maple Avenue.

**Response: A potential easement has been added to the plans, however, the final configuration will be coordinated with the town based on the widening associated with the final design of the turn lane.**

11. The Carson City Series light detail shall be revised to note that the fixture shall utilize the SV4 (Flat Soft Vue Maximum Diffused Acrylic).

The Applicant stated that this issue was addressed; however, staff was not able to locate this information on the plan.

**Response: The detail has been revised to show the use of SV4 (Flat Soft Vue Maximum Diffused Acrylic) Lens.**

12. The Applicant will need to submit plans that will permit the Planning and Building Departments to verify the submitted floor area calculations. It is requested that the Applicant submit plans that graphically depict the areas counted toward the gross floor area calculations as well as include a chart of the calculations performed (tied to the graphic plan), which together can be used to verify the submitted calculations.

**Response: Updated architectural plans will be submitted that show the gross floor area calculations.**

13. The off-street parking analysis should be revised to depict the off-street parking requirements for the market rate units and the parking requirement for the AFFH units.

The Townhouses would be calculated at 2 for each dwelling. The AFFH units would be calculated at 1 for each dwelling unit, plus  $\frac{1}{2}$  for each bedroom and the multi-family units would be calculated at 2 for each dwelling, plus  $\frac{1}{2}$  for each bedroom in excess of 2, plus 10% visitor parking.

**Response: The calculations have been added to the parking table on CS001.**

14. The Applicant should submit a Building Coverage exhibit for review. The submitted Zoning Compliance Chart indicates a Building Coverage of 23.7% where 20% is the maximum permitted in the R-MF-DA Zoning District.

*The Applicant obtained a Building Coverage variance from the Zoning Board of Appeals on October 5, 2023.*

**Response: Acknowledged**

15. *The Applicant is proposing to enclose the lower level of the multifamily buildings. This change results in the FAR of .477 exceeding the maximum FAR of .4.*

*The Applicant obtained a FAR variance from the Zoning Board of Appeals on October 5, 2023.*

**Response: Acknowledged – the proposed FAR will not exceed 0.477 as approved by the Zoning Board of Appeals.**

16. *The site plan should be revised to depict the proposed amount of Town-regulated wetland buffer disturbance (s.f.). It is noted that the Applicant will be required to prepare a mitigation plan that is twice the size of the proposed amount of disturbance.*

**Response: The areas of both the buffer disturbance and associated proposed mitigation have been added to the plans. The planting in the remaining buffer and area adjacent to the buffer are being greatly enhanced, however, it is not feasible to provide mitigation at a ratio of 2:1. Additional details will be provided with the submission to the Conservation Commission.**

17. *The site plan has been revised to depict the location of new entry walls with signage. The design of walls and signage should be included on the plans.*

**Response: The wall will be designed to match the wall that wraps around the corner to Maple Avenue. The final details of the wall and signage design are in progress and will be submitted to the town when complete.**

18. *Pursuant to Section 355.15.O of the Town Code, the site plan shall be revised to depict adequate facilities for refuse and recycling.*

*The Applicant has indicated that each unit will have refuse and recycling bins.*

**Response: No additional response required.**

19. *Pursuant to Section 225-5 of the Town Code, where the Planning Board determines that a suitable recreation area cannot be located, the Board may require, as a condition of approval, a payment to the Town of a sum which shall be placed in a trust fund to be used by the Town Board exclusively for neighborhood park, playgrounds or recreation purposes.*

**Response: The applicant will work with the Planning Board on this item.**

20. *Pursuant to Section 355-34.1(5)(b) of the Town Code, within multifamily developments, the affordable AFFH units shall be physically integrated into the design of the development and shall be distributed among various sizes (efficiency, one-, two-, three-, and four-bedroom units) in the same proportion as all other units in the development.*

**Response: As shown on the enclosed plan, the AFFH units are scattered through the proposed development. All of the proposed units within the development are 2-bedroom units.**

21. Pursuant to Section 355-24.1.1 of the Town Code AFFH units shall be marketed in accordance with the Westchester County Fair Affordable Housing Affirmative Marketing Plan.

**Response: Acknowledged.**

22. Pursuant to Section 355-24-1.2 of the Town Code, the maximum monthly rent for an affordable AFFH unit and the maximum gross sales price for an AFAH unit shall be established in accordance with US Department of Housing and Urban Development guidelines as published in the current edition of the Westchester County Area Median Income AMI Sales Rent Limits available from the County of Westchester.

**Response: Acknowledged.**

23. Pursuant to Section 355-24-1.3 of the Town Code, units designated as affordable AFFH units shall remain affordable for a minimum of 50 years from date of initial certificate of occupancy for rental properties and from date of original sale of ownership units.

**Response: Acknowledged.**

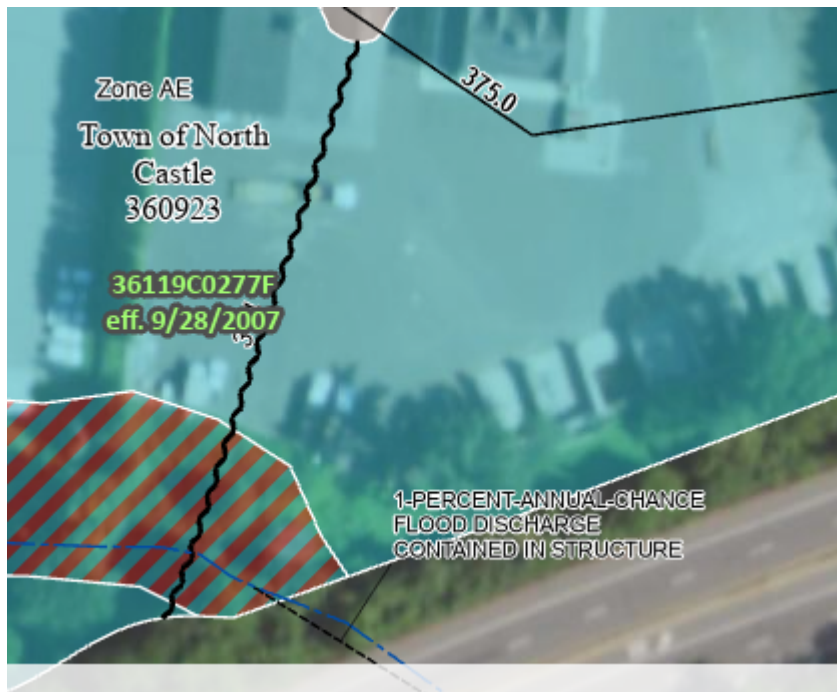
24. Pursuant to Section 355-24-1.4 of the Town Code, a property containing any affordable AFFH units shall be restricted using a mechanism such as declaration of restrictive covenants in recordable form acceptable to the Town which shall ensure that the affordable AFFH unit shall remain subject to affordable regulations for the minimum 50-year period of affordability. The covenants shall require that the unit be the primary residence of the resident household selected to occupy the unit upon approval such declaration shall be recorded against the property containing the affordable AFFH unit prior to the issuance of a Certificate of Occupancy for the development.

**Response: Acknowledged.**

James J. Hahn Engineering P.C. Letter, dated October 19, 2023

1. The applicant is proposing to fill in the floodplain that will reduce the storage volume for the FEMA 100 year flood event. To offset the reduction in volume, the applicant is proposing to remove fill in another location to construct a "floodplain volume compensation basin" to provide additional storage. However, the proposed fill is in the location where the floodplain channel enters the site thereby altering the channel dimensions which may reduce the capacity of the channel. Flow entering the site and the flood rise should be analyzed and demonstrated that the proposed project will not adversely impact storage areas or exacerbate flooding on adjacent properties.

**Response: The current FIRM mapping shows the floodway outside of the existing edge of pavement in the southwestern corner of the site. See below:**



**The proposed development has very limited disturbance and grading (less than 20 CY of fill) outside of the existing edge of pavement in this area and will not have an impact on the floodway.**

- The proposed floodplain compensation basin is being used for both new FEMA floodplain volume compensation storage and site stormwater runoff storage. As a result, the stormwater being detained in the basin will reduce the amount floodplain storage volume. If the basin is intended to provide both FEMA floodplain storage and site stormwater runoff storage, then adequate floodplain modeling should be provided to demonstrate how the two volumes interact and that there will be adequate floodplain volume during the FEMA 100 year flood event.*

**Response: The proposed floodplain compensation area has been redesigned and will not be used for stormwater runoff storage. The outlet from the stormwater management system no longer discharges into the floodplain management area.**

- Per 6.3.1 of the Stormwater Management Design Manual, the infiltration system is required to be separated by at least 3 feet above groundwater. Based on the provided soil testing data and the elevations shown, all of the infiltration systems do not meet this requirement and will not be able to provide the stormwater mitigation storage being proposed. The elevations of the proposed infiltration systems must be revised. Our office has spoken with the applicant's engineer, and they have begun preparing a revised layout that satisfies this requirement.*

**Response: The underground infiltration layout has been revised to have a minimum of 3 feet of separation from the water table. See Sheet CG101 and the detail on Sheet CS503.**



4. *The berm along the eastern side of the proposed floodplain compensation basin disconnects the basin from the rest of the floodplain during the early stages of the flood event. A comparison of existing and proposed floodplain storage should be provided.*

**Response: The berm along Maple Ave has been eliminated, and the floodplain compensation area has been graded to connect to the existing floodplain. See Sheet CG101.**

5. *As the proposed floodplain basin fills it will backfill the infiltration system "2P" thereby impacting the storage volume of 2P. this should be analyzed and incorporated into the hydrologic model.*

**Response: The infiltration system no longer discharges to the proposed floodplain mitigation compensation area, but it does discharge to the existing floodplain. Therefore, the infiltration system is analyzed with a tailwater elevation that assumes that the flood is at an elevation of 374.5. See the post-development drainage analysis in the SWPPP.**

6. *It should be demonstrated that the proposed 12 inch diameter pipe connecting to the floodplain Stormtech units to the flood channel is large enough and will not act as a constriction preventing flow into the units during a flood.*

**Response: The stormtech units for flood storage are no longer proposed. All floodplain mitigation is provided in the low area between Maple Avenue and the development.**

7. *Deep test pits should be performed in the area of the floodplain basin. Based on the provided tests for elsewhere on the site, it is possible the bottom of the proposed basin is located in the groundwater table.*

**Response: Deep test pits were performed on 11/08/2023 and the results are shown in Appendix E of the SWPPP. The bottom of the floodplain mitigation area will be above the groundwater table.**

8. *As previously mentioned, pursuant to Town Board Resolution Condition #8, the requested sidewalk to Armonk Square should be shown.*

**Response: The applicant will work with the town on an acceptable, safe solution for a crosswalk to Armonk Square.**

9. *As previously mentioned, the proposed project should be reviewed by the local fire department to determine if adequate access is provided.*

**Response: Acknowledged.**

10. *As previously mentioned, Westchester County Department of Health approval is required for the proposed water and sewer mains. Additionally, a utility easement description will be required. The proposed water and sewer services and mains should be reviewed by the*

Town Water and Sewer Department to ensure there is sufficient capacity to serve the project.

**Response: A water and sewer utility easement description will be provided after the Town Water and Sewer Department has approved the proposed routing of the water and sewer lines.**

11. *As previously mentioned, a stormwater facility maintenance easement or agreement must be provided as required by §267-7 B. and D. of the Town Code. A draft agreement should be provided for review.*

**Response: A draft stormwater maintenance agreement is attached to this letter.**

12. *As previously mentioned, per §267-7 B.(1) of the Town Code, a performance guarantee for the construction of the stormwater system may be required by the Town.*

**Response: Acknowledged. This will be provided if required by the Town.**

13. *As previously mentioned, the referenced NYSOPRHP letter in Section 2.2 of the SWPPP should be included in the SWPPP as an appendix.*

**Response: The referenced NYSHORP letter is attached in Appendix J of the SWPPP.**

14. *As previously mentioned, a network map should be provided for the existing conditions hydrologic model. Additionally, the design data used in the model should be provided, including pond sizing data, outlet information, etc. currently, it is unclear how the existing condition peak runoff rates were calculated.*

**Response: The existing conditions runoff rates utilized for the project were utilized from the previously approved project stormwater management design calculations. The figures and mapping from the previously approved project are included in the submitted SWPPP.**

15. *As previously mentioned, the HydroCAD model should be revised to match the conditions shown on the plans, including modeling pond "2P" discharging into pond "21P". When the infiltration system overflows, it will discharge into the floodplain basin.*

**Response: The conditions in the HydroCAD model and plans match, and the infiltration system no longer discharges to the floodplain management area.**

16. *As previously mentioned, a fence or barrier should be considered around the proposed floodplain basin. Even though it does not have a permanent pool, the sides of the basin are steep and in close proximity to patios. Consideration should be given to providing fall prevention such as a fence or landscape buffer.*

**Response: The slopes associated with the flood storage area have been reduced significantly, and additional plantings have been added around the area near Maple Avenue.**

17. *It should be demonstrated that the proposed easement for the widening of Bedford Road is wide enough for a future turning lane.*

**Response: A vehicle turning plan has been provided, which shows a bus turning from the future proposed right turn lane. See Sheet TM101.**

18. *The sidewalk along Bedford Road should be put into an easement to enable public use.*

**Response: An easement will be provided for the sidewalk and is shown on Sheet CS101.**

19. *The wetland buffer disturbance area should include the outlet pipe for Structure OCS-1.*

**Response: The wetland buffer area disturbance area has been updated to include the outlet pipe. See Sheet CS101.**

20. *The location of and distance to the Wampus River from the project site should be shown.*

**Response: The location and minimum distance to Wampus River is shown on the location map on Sheet CS001.**

21. *The proposed regrading of the 372 ft contour along the south property line should be revised to be consistent with the exiting topography as it connects to a 373 ft contour.*

**Response: The grading in this area has been revised. See Sheet CG101.**

22. *Any footing drain discharge locations should be shown. Footing drains should not discharge into the stormwater management system.*

**Response: Preliminary footing drain locations are shown on Sheet CG101.**

23. *The proposed sewer appears to be designed as a sewer main. Per Ten State Standards, sewer mains shall not be less than 8 inches in diameter.*

**Response: The proposed sewer main has been revised to an 8-inch line. See Sheet CU101.**

24. *It appears some of the proposed trees are located over the sewer main. The location of trees should be coordinated with the utilities plan.*

**Response: The planting plan has been revised accordingly. See Sheet LP101.**

25. *The proposed water main size and material should be stated on the plans.*

**Response: The watermain is now shown on the plans as 8-inch DIP.**

26. *In the response letter, it is stated that gas service is no longer proposed. However, references to gas services are still shown on the plans. It should be clarified if gas is proposed or not.*

**Response: All references to gas services have been removed from the plans.**

27. A New York State Department of Transportation (NYSDOT) approved “end assembly” should be provided on the relocated guide rail.

**Response: The new guiderail will be constructed with a NYSDOT end assembly.**

28. The applicant should consider constructing the proposed sidewalks along Bedford Road and Maple Avenue in accordance with NYSDOT standards to the greatest extent practicable, including a 1.5% cross slope, 6 inches of subbase, and a minimum width of 48 inches.

**Response: The sidewalks will be constructed in accordance with NYSDOT standards to the greatest extent practicable. The detail on Sheet CS501 has been revised accordingly.**

Should you have any questions or require any additional information, please do not hesitate to contact me at (914) 323-7420 or [mtucker@langan.com](mailto:mtucker@langan.com).

Sincerely,

**Langan Engineering, Environmental, Surveying,  
Landscape Architecture and Geology, D.P.C.**



Michael Tucker, PE  
Senior Project Engineer

**- DRAFT -**

**SCHEDULE A**

**STORMWATER CONTROL  
FACILITY MAINTENANCE AGREEMENT**

**FOR** The Gateway **PROJECT**

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Whereas, the Town of North Castle (the "Municipality") and NCD Acquisitions hereinafter "facility owner", want to enter into an agreement to provide for the long term maintenance and continuation of stormwater control measures approved by the Municipality; and

Whereas, the Municipality and the facility owner desire that the stormwater control measures be built in accordance with the approved project plans and thereafter be maintained, cleaned, repaired, replaced and continued in perpetuity in order to ensure optimum performance of the components.

Now therefore, the Municipality and the facility owner agree as follows:

1. This agreement binds the Municipality and the facility owner, its successors and assigns, to the maintenance provisions depicted in the approved project plans which are attached as Schedule A of this agreement.
2. The facility owner shall maintain, clean, repair, replace and continue the stormwater control measures depicted in Schedule A as necessary to ensure optimum performance of the measures to design specifications. The stormwater control measures shall include, but shall not be limited to, the following: drainage ditches, swales, dry wells, infiltrators, drop inlets, pipes, culverts, soil absorption devices and retention ponds.
3. The facility owner shall be responsible for all expenses related to the maintenance of the stormwater control measures and shall establish a means for the collection and distribution of expenses among parties for any commonly owned facilities.
4. The facility owner shall provide for the periodic inspection of the stormwater control measures, not less than once in every five-year period, to determine the condition and integrity of the measures. Such inspection shall be performed by a PE or RLA licensed by the State of New York. The inspecting engineer shall prepare and submit to the Municipality within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the stormwater control measures.
5. The facility owner shall not authorize, undertake or permit alteration, abandonment, modification or discontinuation of the stormwater control measures except in accordance with written approval of the Municipality.

6. The facility owner shall undertake necessary repairs and replacement of the stormwater control measures at the direction of the Municipality or in accordance with the recommendations of the inspecting engineer.
7. This agreement shall be recorded in the Office of the County Clerk, County of Westchester together with the deed for the common property and site plat and shall be included in the offering plan and/or prospectus approved pursuant to the conditions of the project's final approval.
8. If ever the Municipality determines that the facility owner has failed to construct or maintain the stormwater control measures in accordance with the project plan or has failed to undertake corrective action specified by the Municipality or by the inspecting engineer, the Municipality is authorized to undertake such steps as reasonably necessary for the preservation, continuation or maintenance of the stormwater control measures and to affix the expenses thereof as a lien against the property.
9. This agreement is effective as of the latest date below.

Dated:

\_\_\_\_\_  
*Developer/Facility Owner Authorized Signature*

\_\_\_\_\_  
*(Print Name)*

Dated:

\_\_\_\_\_  
Town of North Castle Authorized Signature

\_\_\_\_\_  
*(Print Name)*

# SITE PLAN APPROVAL DOCUMENTS

# THE GATEWAY

## 45 BEDFORD ROAD

## TOWN OF NORTH CASTLE

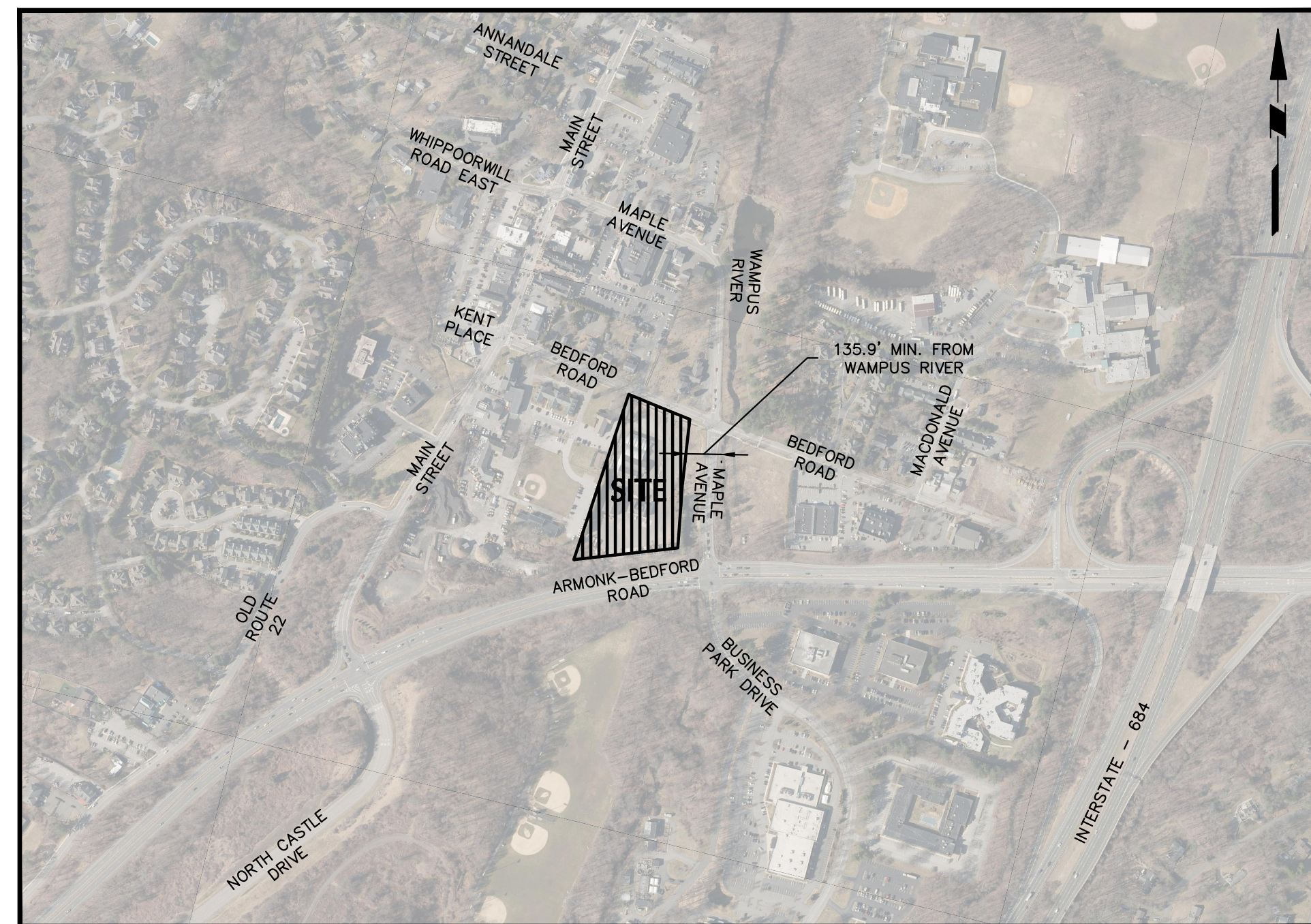
## WESTCHESTER COUNTY, NEW YORK

Project No. 190085001

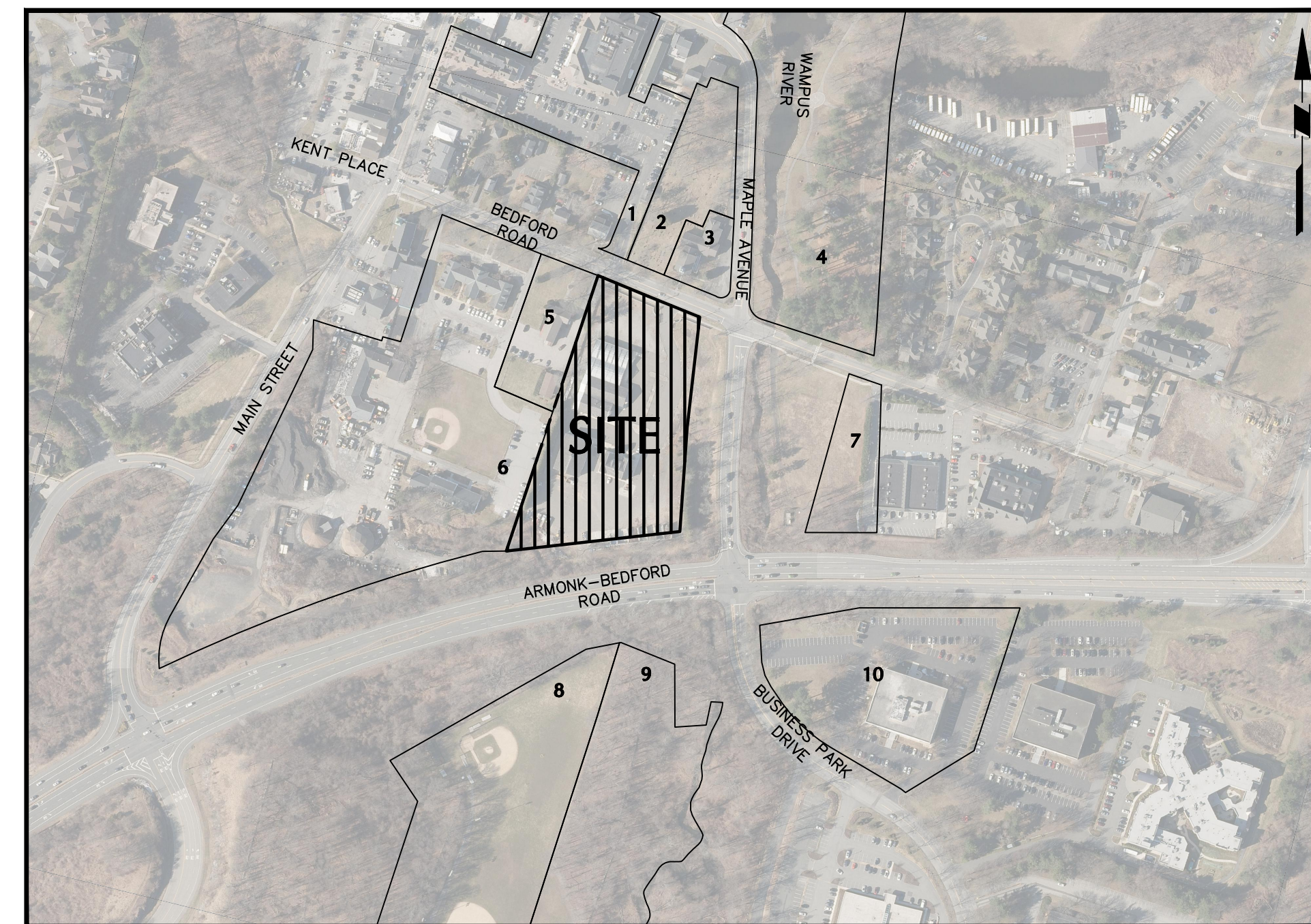
SITE INFORMATION	
ADDRESS:	45 BEDFORD ROAD ARMONK, NY 10504
SECTION:	108.03
BLOCK:	1
LOT(S):	65
BLOCK:	R-MF-DA (MULTIFAMILY DOWNTOWN ARMONK)

PROPERTY OWNER	
NCD ACQUISITIONS	
399 KNOLLWOOD ROAD SUITE 318 WHITE PLAINS, NY 10603	

APPLICANT	
KINGS CAPITAL CONSTRUCTION GROUP, INC.	
660 WHITE PLAINS ROAD TARRYTOWN, NY 10591	
TELEPHONE: 914-345-6799	



**LOCATION MAP**  
1" = 500'



**ADJACENT PROPERTIES MAP**  
1" = 300'

DRAWING LIST		
DRAWING NO.	SHEET NO.	DRAWING TITLE
CS001	1 OF 16	COVER SHEET
GH101	2 OF 16	LEGEND AND GENERAL NOTES
CD101	3 OF 16	EXISTING CONDITIONS AND REMOVALS PLAN
CS101	4 OF 16	SITE PLAN
CG101	5 OF 16	GRADING AND DRAINAGE PLAN
CG201	6 OF 16	DRAINAGE PROFILES
CU101	7 OF 16	UTILITY PLAN
CU201	8 OF 16	SANITARY SEWER PROFILES
CE101	9 OF 16	EROSION AND SEDIMENT CONTROL PLAN
CS501	10 OF 16	DETAILS (1 OF 3)
CS502	11 OF 16	DETAILS (2 OF 3)
CS503	12 OF 16	DETAILS (3 OF 3)
LP101	13 OF 16	PLANTING PLAN
LP501	14 OF 16	PLANTING DETAILS AND NOTES
LL101	15 OF 16	LIGHTING PLAN
LL501	16 OF 16	LIGHTING DETAILS AND NOTES

Parking Requirements Table			
Use: Multifamily Dwelling Units			
Requirements	Required	Proposed	
30 Townhouses X 2 spaces per dwelling unit	60		
4 (2BR) AFFH Units - 1+ 0.5/Bedroom = 4 X 2/Unit	8		
<b>Total for units</b>	<b>68</b>		
10% visitor	6.8		
<b>TOTAL</b>	<b>74.8</b>	<b>75*</b>	

\*Includes 2 ADA-accessible spaces

ADJACENT PROPERTY OWNERS					
MAP #	SECTION	BLOCK	LOT	PROPERTY OWNER	PROPERTY LOCATION
1	108.01	6	41	ASO LLC	402 Main St
2	108.03	1	13	St Stephens Church	46 Bedford Road
3	108.03	1	14	St Stephens Church	50 Bedford Road
4	108.01	6	20	Town of North Castle	Mt Kisco Road/Maple Avenue
5	108.03	1	66	American Legion	35 Bedford Road
6	108.03	1	67	Town of North Castle	15 Bedford Road
7	108.03	1	46	Town of North Castle	2 Business Park Drive
8	108.03	1	60	Town of North Castle	205 Business Park Drive
9	108.03	1	59	Town of North Castle	Maple Avenue
10	108.03	1	47	Armonk 80 Assoc. LLC	80 Business Park Drive

ZONING COMPLIANCE TABLE			
ZONING DISTRICT: R-MF-DA (Multifamily-Downtown Armonk Residence District)			
TAX MAP ID(S): 108.03-1-65			
PROPOSED USE: Multifamily Dwellings			
DESCRIPTION	REQUIRED/ PERMITTED	PROPOSED	COMPLIES
Minimum Lot Area (Acres)	4	4.17 <sup>1</sup>	YES
Minimum Lot Frontage on Bedford Road (Feet)	200	280.0	YES
Minimum Lot Width (Feet)	200	330.0	YES
Minimum Lot Depth (Feet)	200	580.0	YES
Maximum Floor Area Ratio	0.4	0.477	NO <sup>2</sup>
Minimum Lot Area/Dwelling Unit (Square Feet)	4200 SF	181653 SF/34 DUs = 5342 SF/DU	YES
Land Area/Bedroom (Square Feet)	2350 SF	181653 SF/68 Beds = 2671 SF/Bed	YES
Principal Building Setbacks (Feet)			
Minimum Front	50	50.0	YES
Minimum Side	25	25.0	YES
Minimum Rear	30	±50	YES
Maximum Building Height	30	30.0	YES
Maximum Building Coverage	20%	23.7%	NO <sup>3</sup>
*Net lot area = Total lot area minus 75% wetlands, water bodies and water courses = 183,529SF - 1875SF = 181,653SF = 4.17AC			
<sup>1</sup> Increase in FAR as a result of enclosing parking below building A.			
<sup>2</sup> Increase in coverage as a result of reducing Bedford Road Buildings to 2 stories.			

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**APPROVED BY A RESOLUTION OF THE NORTH CASTLE TOWN PLANNING BOARD**

PLANNING BOARD CHAIRPERSON \_\_\_\_\_ DATE \_\_\_\_\_  
CHRISTOPHER CARTHY

Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Date	Description	No.
Revisions		

  
 Michael J. Finan, PE, LEED-AP  
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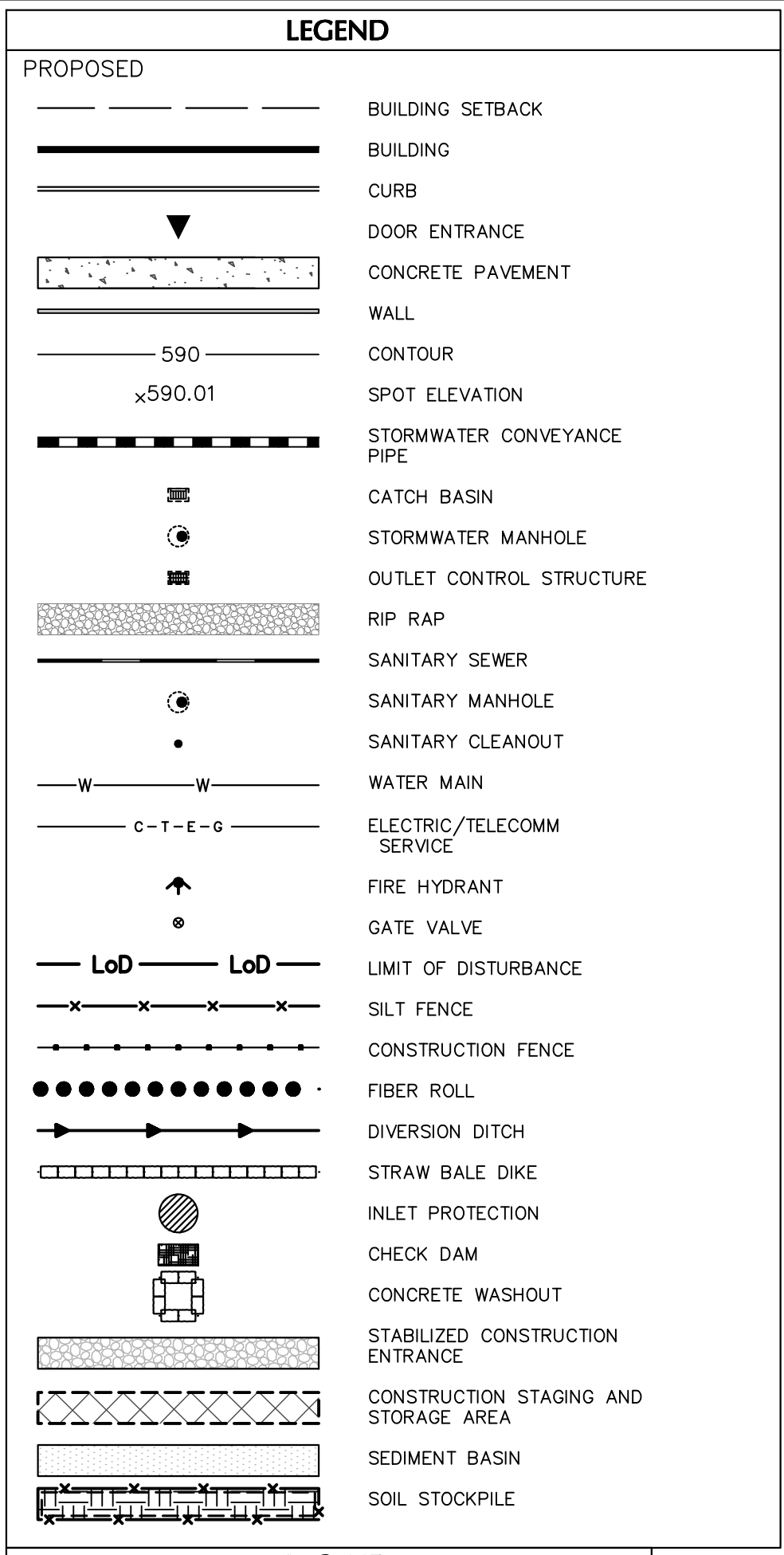
Project  
**45 BEDFORD ROAD**  
 ARMONK  
 WESTCHESTER COUNTY  
 NEW YORK

Drawing Title  
**COVER SHEET**

Project No.	190085001	<b>CS001</b>
Date	AUGUST 7, 2023	
Drawn By	GN	
Checked By	MT	
Sheet 1 of 17		

**WARNING:** IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

ABBREVIATIONS	
(TYP) -	TYPICAL
VIF -	VERIFY IN FIELD
NEC -	NECESSARY
PROP -	PROPOSED
EXIST -	EXISTING
HC -	HAND-CAP
SHT -	SHEET
NO -	NUMBER
TW -	TOP OF WALL
BW -	BOTTOM OF WALL
WV -	WATER VALVE
HYD -	HYDRANT
YR -	YEAR
AC -	ACRE
SF -	SQUARE FEET
LF -	LINEAR FEET
PT -	POINT OF TANGENT
PC -	POINT OF CURVATURE
HP -	HIGH POINT
LP -	LOW POINT
VC -	VERTICAL CURVE
PVI -	POINT OF VERTICAL INFLECTION
STA -	STATION
A.D -	ALGEBRAIC DIFFERENCE
K -	CURVE COEFFICIENT
BVCS -	BEGINNING VERTICAL CURVE STATION
BVCE -	BEGINNING VERTICAL CURVE ELEVATION
EVCS -	END VERTICAL CURVE STATION
EVCE -	END VERTICAL CURVE ELEVATION
ELEV -	ELEVATION
HORIZ -	HORIZONTAL
VERT -	VERTICAL
PERF -	PERFORATED
HDPE -	HIGH DENSITY POLYETHYLENE
PVC -	POLYVINYL CHLORIDE
DIP -	DUCTILE IRON PIPE
CIP -	CAST IRON PIPE
INV -	INVERT
MIN -	MINIMUM
ES -	END SECTION
OS -	OUTLET STRUCTURE
N.T.S -	NOT TO SCALE
UP -	UTILITY POLE
CTGE -	CABLE, TELEPHONE, GAS, ELECTRIC
LSE -	LOWEST SEWERABLE ELEVATION
R -	ARC RADIUS
A -	ARC LENGTH
Δ -	CENTRAL ANGLE
CL -	CHORD LENGTH
CB -	CHORD BEARING



### EROSION & SEDIMENT CONTROL NOTES

- REFER TO THE SPDES GENERAL PERMIT COMPLIANCE NOTES FOR ADDITIONAL REQUIREMENTS.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IN STRICT COMPLIANCE WITH NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, LATEST REVISIONS.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS. SITE PREPARATION ACTIVITIES SHALL BE PLANNED TO MINIMIZE THE SCOPE AND DURATION OF SOIL DISRUPTION. EXISTING VEGETATION SHALL BE PRESERVED AS MUCH AS IS PRACTICAL.
- THE CONTRACTOR AND THEIR SUBCONTRACTOR(S) SHALL IDENTIFY THE TRAINED INDIVIDUAL THAT WILL BE RESPONSIBLE FOR THE IMPLEMENTATION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
- PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL POINTS OF ENTRY ONTO THE PROJECT SITE.
- DAMAGE TO SURFACE WATERS RESULTING FROM EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY STABILIZING DISTURBED AREAS AND BY REMOVING SEDIMENT FROM CONSTRUCTION SITE DISCHARGES.
- STOCKPILED TOPSOIL SHALL BE TEMPORARILY SEEDED, MULCHED, AND ENCLOSED WITH SILT FENCING. ALL GRASS SEED WILL CONTAIN AT LEAST 25 PERCENT RAPID GERMINATING PERENNIAL RYE GRASS.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST BY SPRINKLING EXPOSED SOIL AREAS PERIODICALLY WITH WATER AS REQUIRED. THE CONTRACTOR IS TO SUPPLY ALL EQUIPMENT AND WATER.
- EARTHWORK ACTIVITIES SHALL BE CONSISTENT WITH THE PLANS. THE EARTHWORK OPERATION AREAS SHALL BE STABILIZED ON AN ONGOING BASIS WITH NO AREAS, WHICH ARE NOT CURRENTLY UNDER CONSTRUCTION, LEFT WITHOUT AT LEAST TEMPORARY COVER FOR MORE THAN 48 HOURS.
- EROSIVE MATERIAL TEMPORARILY STOCKPILED ON THE SITE DURING THE CONSTRUCTION PROCESS SHALL BE LOCATED IN AN AREA AWAY FROM STORM DRAINAGE AND SHALL BE PROPERLY PROTECTED BY A SURROUNDING SILT FENCE BARRIER.
- FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED LANDSCAPE SOILS.
- IF CONSTRUCTION TAKES PLACE IN "WET SOILS", CURTAIN DRAINS OR SUBSURFACE DRAINAGE SHALL BE INSTALLED TO DETERIORATE THE SOILS. DEWATERING DISCHARGES WILL NOT BE DIRECTED INTO WETLANDS, WATER COURSES, WATER-BODIES, OR STORM SEWER SYSTEMS.
- TEMPORARY DRAINAGE SWALES WITH A MINIMUM GRADE OF ONE PERCENT SHALL BE INSTALLED TO DIRECT RUNOFF AWAY FROM EXCAVATED AREAS. SWALES SHALL BE INSTALLED WITH STAKED AND SECURED HAY BALE BERMS TO PREVENT DOWNSTREAM SILTATION. LOCATION OF THE DRAINAGE SWALES AND HAY BALES WILL BE AT THE DIRECTION OF THE DESIGN ENGINEER. SILT FENCE SHALL BE PROPERLY INSTALLED DOWN GRADE OF ALL DISTURBED AREAS. SILT FENCE SHALL BE INSTALLED ALONG CONTOURS TO FILTER SEDIMENT FROM RUNOFF. INSPECTION BY CONTRACTOR SHOULD BE FREQUENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED. SILT FENCE SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WHEN ALL DISTURBED AREAS HAVE UNDERGONE FINAL STABILIZATION, UPGRADATION SURFACES HAVE BEEN PROPERLY STABILIZED, AND ALL STORMWATER MANAGEMENT SYSTEMS ARE IN PLACE AND OPERABLE. ALL AREAS DISTURBED BY THE REMOVAL OF THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE FILLED IN, TOPSOILED, SEEDED, AND MULCHED. FINAL STABILIZATION IS ACHIEVED WHEN ALL SOIL DISTURBING ACTIVITIES ARE COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 80 PERCENT COVERAGE IS ESTABLISHED, OR EQUIVALENT STABILIZATION MEASURES, SUCH AS PLACEMENT OF MULCH OR GEOTEXTILE, IS COMPLETED ON ALL AREAS NOT PAVED OR COVERED BY PERMANENT STRUCTURES. ENSURE THAT FINAL STABILIZATION OF ALL TRIBUTARY AREAS IS ACHIEVED PRIOR TO THE CONSTRUCTION OF THE BIORETENTION BASINS.
- THE CONTRACTOR SHALL DELINEATE THE OVERALL LIMIT OF DISTURBANCE WITH ORANGE CONSTRUCTION FENCE PRIOR TO ANY DEMOLITION OR CONSTRUCTION ACTIVITIES. ALL EXISTING WETLANDS TO REMAIN SHALL BE PROTECTED.

### POLLUTION PREVENTION CONTROL NOTES

GOOD HOUSEKEEPING PRACTICES ARE DESIGNED TO MAINTAIN A CLEAN AND ORDERLY WORK ENVIRONMENT. GOOD HOUSEKEEPING MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS BY THOSE PARTIES INVOLVED WITH THE DIRECT CARE AND DEVELOPMENT OF THE SITE. THE FOLLOWING MEASURES SHOULD BE OBSERVED TO CONTROL THE POSSIBLE EXPOSURE OF HARMFUL SUBSTANCES AND MATERIALS TO STORMWATER RUNOFF:

- MATERIAL RESULTING FROM THE CLEARING AND GRUBBING OPERATION SHALL BE STOCKPILED AWAY FROM STORM DRAINAGE, WATER BODIES AND/OR WATERCOURSES AND SURROUNDED WITH ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES. SOIL STOCKPILE LOCATIONS SHALL BE EXPOSED NO LONGER THAN 14 DAYS BEFORE SEEDING.
- EQUIPMENT MAINTENANCE AREAS SHALL BE PROTECTED FROM STORMWATER FLOWS AND SHALL BE SUPPLIED WITH APPROPRIATE WASTE RECEPTACLES FOR SPENT CHEMICALS, SOLVENTS, OILS, GREASES, GASOLINE, AND ANY POLLUTANTS THAT MIGHT CONTAMINATE THE SURROUNDING HABITAT AND/OR WATER SUPPLY. EQUIPMENT WASH-DOWN ZONES SHALL BE LOCATED WITHIN AREAS DRAINING TO SEDIMENT CONTROL DEVICES.
- THE USE OF DETERGENTS FOR LARGE-SCALE (I.E., VEHICLES, BUILDINGS, PAVEMENT SURFACES, ETC.) WASHING IS PROHIBITED.
- MATERIAL STORAGE LOCATIONS AND FACILITIES (I.E., COVERED STORAGE AREAS, STORAGE SHEDS, ETC.) SHALL BE LOCATED ON-SITE AND SHALL BE STORED ACCORDING TO THE MANUFACTURER'S STANDARDS IN A DEDICATED STAGING AREA. CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER TOXIC MATERIAL MUST BE STORED IN WATERPROOF CONTAINERS. RUNOFF CONTAINING SUCH MATERIALS MUST BE COLLECTED AND REMOVED FROM THE SITE, TREATED AND DISPOSED AT AN APPROVED SOLID WASTE OR CHEMICAL DISPOSAL FACILITY.
- HAZARDOUS SPILLS SHALL BE IMMEDIATELY CONTAINED TO PREVENT SUCH POLLUTANTS FROM ENTERING THE SURROUNDING HABITAT AND/OR WATER SUPPLY. SPILL KITS SHALL BE PROVIDED ON-SITE AND SHALL BE DISPLAYED IN A PROMINENT LOCATION FOR EASE OF ACCESS AND USE. SPILLS GREATER THAN FIVE (5) GALLONS SHALL BE REPORTED TO THE NYSDEC RESPONSE UNIT AT 1-800-457-7362. IN ADDITION, A RECORD OF THE INCIDENT(S) AND/OR NOTIFICATIONS SHALL BE DOCUMENTED AND ATTACHED TO THE SWPPP.
- PORTABLE SANITARY WASTE FACILITIES SHALL BE PROVIDED ON-SITE FOR WORKERS AND SHALL BE PROPERLY MAINTAINED.
- DUMPSTERS AND/OR DEBRIS CONTAINERS SHALL BE LOCATED ON-SITE AND SHALL BE OF ADEQUATE SIZE TO MANAGE RESPECTIVE MATERIALS. REGULAR COLLECTION AND DISPOSAL OF WASTES SHALL OCCUR AS REQUIRED.
- TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FEET FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED AND DISPOSED OF. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED AND/OR REPAIRED, SEEDED, AND MULCHED FOR FINAL STABILIZATION.
- NON-STORMWATER COMPONENTS OF SITE DISCHARGE MUST BE CLEAN WATER. WATER USED FOR CONSTRUCTION, WHICH DISCHARGES FROM THE SITE, MUST ORIGINATE FROM A PUBLIC WATER SUPPLY OR PRIVATE WELL APPROVED BY THE HEALTH DEPARTMENT. WATER USED FOR CONSTRUCTION THAT DOES NOT ORIGINATE FROM AN APPROVED PUBLIC SUPPLY MUST NOT DISCHARGE FROM THE SITE. IT CAN BE RETAINED IN THE TEMPORARY SEDIMENT BASINS UNTIL IT EVAPORATES.
- DISCHARGES FROM DEWATERING ACTIVITIES, INCLUDING DISCHARGES FROM DEWATERING TRENCHES AND EXCAVATIONS, MUST BE MANAGED BY APPROPRIATE CONTROL MEASURES.
- WASTEWATER DISCHARGES FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS, AND OTHER CONSTRUCTION MATERIALS IS PROHIBITED.

### TOWN OF NORTH CASTLE NOTES

- THE TOWN OF NORTH CASTLE STORMWATER MANAGEMENT OFFICER MAY REQUIRE SUCH INSPECTIONS AS NECESSARY TO DETERMINE COMPLIANCE WITH THIS CHAPTER 267 OF THE TOWN CODE AND MAY EITHER APPROVE THAT PORTION OF THE WORK COMPLETED OR NOTIFY THE APPLICANT WHEREIN THE WORK FAILS TO COMPLY WITH THE REQUIREMENTS OF THIS CHAPTER 267 OF THE TOWN CODE AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AS APPROVED. TO OBTAIN INSPECTIONS THE APPLICANT SHALL NOTIFY THE TOWN OF NORTH CASTLE BUILDING DEPARTMENT AT LEAST 48 HOURS BEFORE ANY OF THE FOLLOWING, AS REQUIRED BY THE STORMWATER MANAGEMENT OFFICER:
  - START OF CONSTRUCTION.
  - INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES.
  - COMPLETION OF SITE CLEARING.
  - COMPLETION OF FINAL GRADING.
  - CLOSE OF THE CONSTRUCTION SEASON.
  - COMPLETION OF FINAL LANDSCAPE.
  - INSTALLATION OF STORMWATER MANAGEMENT FACILITIES.
  - SUCCESSFUL ESTABLISHMENT OF LANDSCAPING IN PUBLIC AREAS.
- BEFORE THE TOWN APPROVES THE PROPOSED STORMWATER MANAGEMENT FACILITIES, THE OWNER MUST EXECUTE A MAINTENANCE EASEMENT AGREEMENT THAT SHALL BE BINDING ON ALL SUBSEQUENT LANDOWNERS SERVED BY THE STORMWATER MANAGEMENT PRACTICE PER SECTION 267.7(B) OF THE TOWN CODE.
- THE TOWN SHALL APPROVE A FORMAL MAINTENANCE AGREEMENT FOR THE PROPOSED STORMWATER MANAGEMENT PRACTICES BINDING ALL SUBSEQUENT LANDOWNERS AND RECORDED IN THE OFFICE OF THE COUNTY CLERK AS DEED RESTRICTION ON THE PROPERTY PRIOR TO FINAL APPROVAL IN ACCORDANCE WITH SECTION 267-7(D) OF THE TOWN CODE.

### CONSTRUCTION SEQUENCING NOTES

#### CLEARING AND GRUBBING ACTIVITIES

- FLAG THE DISTURBANCE LIMITS PRIOR TO THE COMMENCEMENT OF CLEARING AND GRUBBING ACTIVITIES.
- ACCESS TO THE SITE WILL BE PROVIDED OFF OF BEDFORD ROAD.
- INSTALL CONSTRUCTION FENCE, PERIMETER SILT FENCE AND TREE PROTECTION MEASURES AS SHOWN ON THE PROJECT PLANS.
- CLEARING AND GRUBBING ACTIVITIES SHALL BE PERFORMED WITHIN THE DISTURBANCE LIMITS. STABILIZE CONCURRENTLY WITH THE CLEARING ACTIVITIES. WOODS CHIPS AND/OR SPRAY MULCH SHALL BE USED TO TEMPORARILY STABILIZE THE CLEARED AREA. CHIPPING TREES AND STUMP GRINDINGS GENERATED AS PART OF THE CLEARING OPERATIONS WILL ALSO BE USED TO PRODUCE WOOD CHIPS.
- INSPECT ALL EROSION CONTROL MEASURES DURING CLEARING AND GRUBBING ACTIVITIES. REPAIR ANY DAMAGED EROSION CONTROL MEASURES UPON DISCOVERY.

#### BULK GRADING CONSTRUCTION

- STRIP TOP SOIL AND TEMPORARILY STOCKPILE THE MATERIAL ON-SITE. THE LOCATIONS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. HOWEVER, LOCATIONS CAN BE ADJUSTED AS THE EARTHWORK OPERATIONS PROGRESS. STOCKPILES SHALL BE PROTECTED FROM EROSION WITH SEED/MULCH AND SHALL BE COVERED IN RAIN EVENTS. REFER TO PROJECT DETAILS FOR ADDITIONAL INFORMATION.
- REMOVE EXISTING PAVEMENT, CONCRETE AND OTHER SITE FEATURES IDENTIFIED TO BE REMOVED ON THE PROJECT PLANS.
- DRAINAGE STRUCTURES SHALL HAVE INLET PROTECTION INSTALLED.
- ACTIVELY STABILIZE THE DISTURBED AREAS THAT ARE AT FINAL GRADE OR SUBGRADE ELEVATIONS. AREAS THAT WILL BE VEGETATED IN THE FINAL CONDITION SHALL NOT BE STABILIZED WITH STONE. VEGETATED AREAS SHALL BE TEMPORARILY STABILIZED WITH HYDRO-SEEDING, MULCHING, HAYING, OR SPREADING WOOD CHIP. PAVED AREAS AND BUILDING PADS ARE TO BE STABILIZED WITH GRAVEL.
- TEMPORARY SEDIMENT BASINS SHALL REMAIN IN PLACE UNTIL ALL SOIL DISTURBANCE ACTIVITIES THAT CONTRIBUTE TO THE TEMPORARY SEDIMENT BASINS HAVE BEEN COMPLETED.

#### GENERAL CONSTRUCTION

- INSTALL INLET PROTECTION MEASURES AT ALL INLETS AND AT THE ENDS OF ALL EXPOSURE STORMWATER PIPES AND RIP RAP AT THE LOCATIONS SHOWN ON THE PLANS.
- DELIVER BUILDING MATERIALS TO DESIGNATED STAGING AREAS FOR CONSTRUCTION.
- INSTALL PROPOSED CURBING AND SIDEWALKS.
- PREPARE PAVEMENT SUBBASE MATERIAL AND INSTALL BINDER COURSE. INLET PROTECTION MEASURES MAY BE REMOVED TEMPORARILY DURING THIS OPERATION, BUT NO MORE THAN 24-HOURS PRIOR TO PLACEMENT OF THE SUBBASE MATERIAL. INLET PROTECTION MEASURES SHALL BE REPLACED ONCE THE SUBBASE MATERIAL HAS BEEN INSTALLED.
- FINISH GRADING AND STABILIZE ALL DISTURBED AREAS. ALL CATCH BASINS, DRAINAGE MANHOLES, AND DRAINAGE LINES SHALL BE CLEANED OF ANY ACCUMULATED SILT AND SEDIMENT.
- REMOVE ALL ACCUMULATED SEDIMENT WITHIN THE TEMPORARY SEDIMENT BASINS. REMOVE THE TEMPORARY PERFORATED RISERS AND CONSTRUCTION FABRIC FROM OUTLET CONTROL STRUCTURES.
- INSTALL ALL PLANTINGS IN ACCORDANCE WITH THE PROJECT PLANS.
- CONNECT UNDERGROUND INFILTRATION SYSTEM AFTER ALL CONSTRUCTION IS COMPLETE AND THE WHOLE SITE IS STABILIZED.
- PLACE PAVEMENT TOP COURSE AND PAVEMENT MARKINGS, AS APPROPRIATE.
- REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES. IMMEDIATELY STABILIZE THE AREAS DISTURBED DURING THEIR REMOVAL. ESTABLISH PERMANENT VEGETATIVE COVER AND INSTALL ALL LANDSCAPING.

### STABILIZATION OF DISTURBED SURFACES

- MULCH (INCLUDING GRAVEL MULCH) - MULCH OFFERS AN EFFECTIVE MEANS OF STABILIZATION. THIS CAN ALSO INCLUDE ROLLED EROSION CONTROL BLANKETS.
- SPRAY ADHESIVES - THESE ARE PRODUCTS GENERALLY COMPOSED OF POLYMERS IN A LIQUID OR SOLID FORM THAT ARE MIXED WITH WATER TO FORM AN EMULSION THAT IS SPRAYED ON THE SOIL SURFACE WITH TYPICAL HYDROSEEDING EQUIPMENT. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC SOILS ON THE SITE. IN NO CASE SHOULD THE APPLICATION OF THESE ADHESIVES BE MADE ON WET SOILS OR IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS AND OTHERS WORKING WITH THE MATERIAL.
- POLYMER ADHESIVES - THESE POLYMERS ARE MIXED WITH WATER AND APPLIED TO THE DRIVING SURFACE BY A WATER TRUCK WITH A GRAVITY FEED DRIP BAR, SPRAY BAR OR AUTOMATED DISTRIBUTOR TRUCK. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INCORPORATION OF THE EMULSION INTO THE SOIL WILL BE DONE TO THE APPROPRIATE DEPTH BASED ON EXPECTED TRAFFIC. COMPACTION AFTER INCORPORATION WILL BE BY VIBRATORY ROLLER TO A MINIMUM OF 95% OF THE PREPARED SURFACE SHALL BE MOIST AND NO APPLICATION OF THE POLYMER WILL BE MADE IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS WORKING WITH THE MATERIAL.
- BARBERS - WOVEN GEOTEXTILES CAN BE PLACED ON THE DRIVING SURFACE TO EFFECTIVELY REDUCE DUST THROW AND PARTICLE MIGRATION ON HAIL ROADS. STONE CAN ALSO BE USED FOR CONSTRUCTION ROADS
- SEEDING - REFER TO LANDSCAPE PLANS AND DETAILS.

### DEMOLITION NOTES

- CLEARING AND GRUBBING OF ALL TREES (INCLUDING REMOVAL OF ANY ASSOCIATED ROOT SYSTEMS AND STUMPS) AND VEGETATION DESIGNATED FOR REMOVAL SHOULD BE PERFORMED. TOPSOIL SHOULD BE COMPLETELY STRIPPED WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. THAT ARE INDICATED ON PLANS.
- CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATION, ORDINANCES, AND STATUTES.
- THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING THEIR BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
- UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT, OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES, OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY, OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT, OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.
- THE CONTRACTOR SHALL DEMOLISH ALL BUILDINGS, PAVEMENT, ETC., WHERE DEMOLITION IS SHOWN ON THE BID/PROPOSAL TO PERFORM THE WORK AND DEMOLITION SHALL BE SAW CUT. DEMOLISHED CONCRETE AND ASPHALT SHALL BE CRUSHED AND STOCKPILED FOR REUSE AS SITE FILL. ALL DEMOLITION AND MATERIAL REUSE SHALL BE IN ACCORDANCE WITH ENVIRONMENTAL REQUIREMENTS FOR THE SITE.
- THE CONTRACTOR SHALL VERIFY THAT A SOIL EROSION AND SEDIMENT CONTROL PLAN HAS BEEN OBTAINED FOR DEMOLITION ACTIVITIES. CONTRACTOR SHALL COMPLY WITH THE CONDITIONS THEREON BY INSTALLING AND MAINTAINING ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AND MAKING REQUIRED NOTIFICATIONS.
- CONTRACTOR TO VERIFY THAT ALL ENVIRONMENTAL CONCERNS (ASBESTOS, LEAD BASED PAINT, HAZMAT MATERIALS, UNDERGROUND STORAGE TANKS, TRANSFORMERS, ETC.) HAVE BEEN REMOVED PRIOR TO COMMENCEMENT OF DEMOLITION ACTIVITIES. THESE POTENTIAL CONCERNS ARE NOT SHOWN ON THIS PLAN. THE CONTRACTOR SHALL REFER TO APPLICABLE FEDERAL, STATE, AND LOCAL REGULATION, ORDINANCES, AND STATUTES FOR APPROPRIATE DISPOSAL PROCEDURES.

### GENERAL NOTES

- THE CONTRACTOR SHALL CALL "DIG SAFELY NEW YORK" PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CALL 1-800-962-7962 OR 811 FOR STAKEOUT REQUESTS.
- ALL EXISTING UTILITY LINES SHALL BE LOCATED/VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING ANY MATERIALS AND/OR STARTING ANY CONSTRUCTION.
- THE CONTRACTOR SHALL FURNISH, INSTALL, TEST AND COMPLETE ALL WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER. IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH THESE PLANS DO NOT COMPLETELY REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, ALL SPECIFIC INSTRUCTIONS REQUIRED FOR SITE WORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS DEPICTED ON THESE PLANS IN ACCORDANCE WITH ALL APPLICABLE RULES, REGULATIONS AND LAWS IN EFFECT AT THE TIME OF CONSTRUCTION.
- THE CONTRACTOR SHALL ACCEPT THE SITE AS IS, THE CONTRACTOR SHALL ASSESS CONDITIONS AND THE KIND, QUALITY AND QUANTITY OF WORK REQUIRED. THE OWNER MAKES NO GUARANTEE IN REGARD TO THE ACCURACY OF ANY AVAILABLE INFORMATION WHICH WAS OBTAINED DURING INVESTIGATIONS. THE CONTRACTOR SHALL MAKE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS, CORRELATE CONDITIONS WITH THE DRAWINGS AND RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE OWNER AND ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL MAKE ADDITIONAL TOPOGRAPHIC SURVEYS HE DEEMS NECESSARY, PROVIDED THEY ARE COORDINATED WITH THE OWNER. ANY CONDITIONS DETERMINED BY THE CONTRACTOR THAT DIFFER FROM THE INFORMATION SHOWN ON THE DRAWINGS THAT ARE NOT BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO THE START OF WORK SHALL NOT BE CONSIDERED GROUNDS FOR ADDITIONAL PAYMENT OR CHANGES TO THE CONTRACT DURATION, OR ANY OTHER CLAIMS AGAINST THE OWNER OR OWNER'S ENGINEER.
- THE CONTRACTOR SHALL, WHEN THEY DEEM NECESSARY, PROVIDE WRITTEN REQUESTS FOR INFORMATION (RFI) TO THE OWNER AND ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITE WORK ITEM. THE RFI SHALL BE IN A FORM ACCEPTABLE TO OWNER AND ENGINEER AND SHALL ALLOW FOR A MINIMUM OF 10 WORK DAYS OR AN ADDITIONAL REASONABLE TIME FOR A WRITTEN REPLY. THE RFI SHALL BE NUMBERED CONSECUTIVELY BY DATE SUBMITTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE WORK ITEMS CONSTRUCTED DIFFERENTLY THAN INTENDED OR AS DEPICTED ON THE PLANS.
- INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUFFICIENTLY REVIEW ALL PLANS, PROFILES AND ANY OTHER INFORMATION IN THE CONTRACT DOCUMENTS FOR CONSISTENCY PRIOR TO CONSTRUCTION. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND BY THE CONTRACTOR OR HIS ASSIGNS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER IN WRITING, IN THE FORMAT OF AN RFI PRIOR TO CONSTRUCTION.
- THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED THROUGHOUT THE PLAN SET AS WELL AS REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE TO ALL THESE DOCUMENTS.

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Date	Description	No.	Signature	Date
11/13/23	RESPONSE TO COMMENTS	2		
01/06/2023	RESPONSE TO COMMENTS	11		
Revisions				

STATE OF NEW YORK  
MICHAEL J. RYAN  
Professional Engineer  
11/13/2023

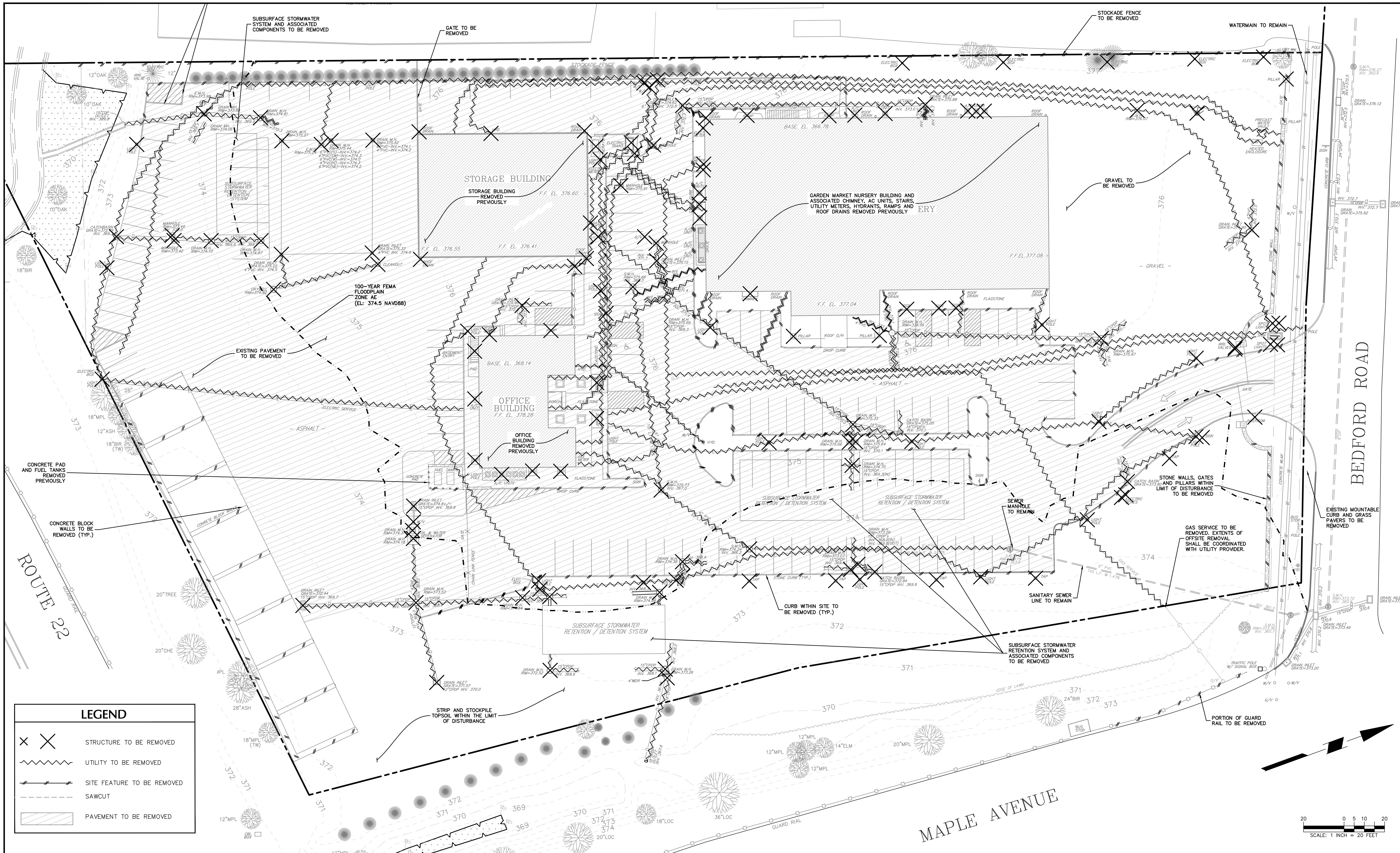
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Project  
**45 BEDFORD ROAD**  
ARMONK  
WESTCHESTER COUNTY  
NEW YORK

Drawing Title  
**LEGEND AND  
GENERAL NOTES**

Project No.	190085001	Drawing No.	GI101
Date	AUGUST 7, 2023		
Drawn By	GN		
Checked By	MT		
		Sheet	2 of 17





**LEGEND**

	STRUCTURE TO BE REMOVED
	UTILITY TO BE REMOVED
	SITE FEATURE TO BE REMOVED
	SAWCUT
	PAVEMENT TO BE REMOVED

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Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1

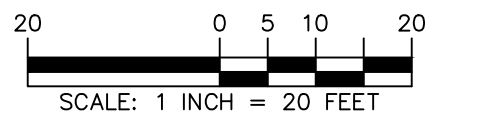
STATE OF NEW YORK  
MICHAEL J. RYAN  
Professional Engineer  
No. 081475  
PE, LEED-AP  
PROFESSIONAL ENGINEER NY Lic. No. 081473

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Project  
**45 BEDFORD ROAD**  
ARMONK  
WESTCHESTER COUNTY  
NEW YORK

Drawing Title  
**EXISTING CONDITIONS AND REMOVALS PLAN**

Project No. <b>190085001</b>	Drawing No. <b>CD101</b>
Date <b>AUGUST 7, 2023</b>	Sheet <b>3</b> of <b>17</b>
Drawn By <b>GN</b>	
Checked By <b>MT</b>	



Project No. 190085001  
1/2022 Langan



Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1


  
 Michael J. Finn, P.E., LEED-AP  
 PROFESSIONAL ENGINEER NY Lic. No. 081473

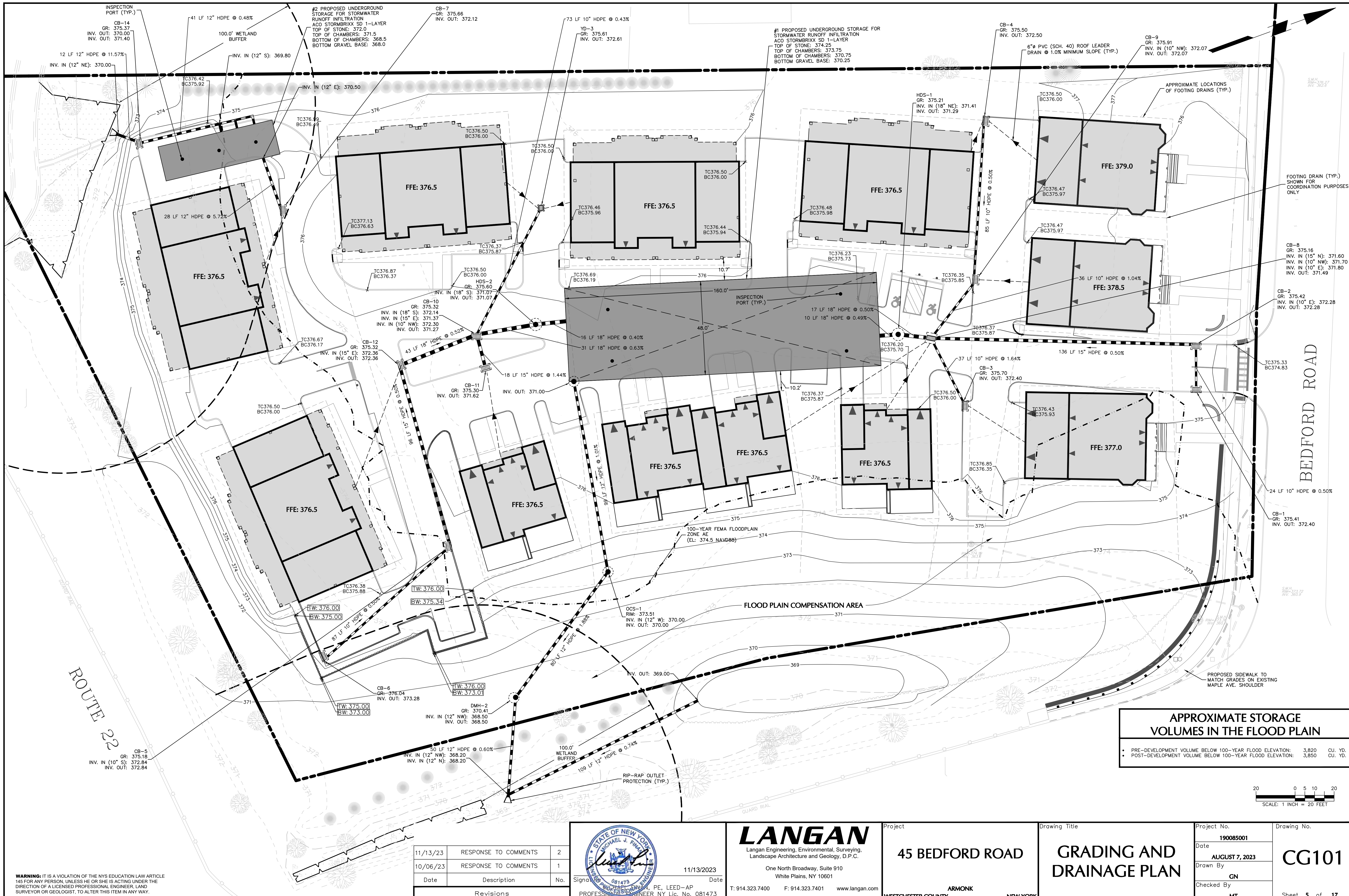
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Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY ARMONK NEW YORK

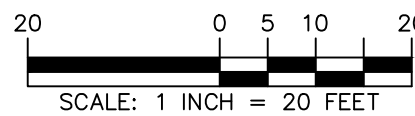
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**SITE PLAN**

Project No. <b>190085001</b>	Drawing No. <b>CS101</b>
Date <b>AUGUST 7, 2023</b>	Sheet <b>4</b> of <b>17</b>
Drawn By <b>GN</b>	
Checked By <b>MT</b>	

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APPROXIMATE STORAGE VOLUMES IN THE FLOOD PLAIN	
• PRE-DEVELOPMENT VOLUME BELOW 100-YEAR FLOOD ELEVATION:	3,820 CU. YD.
• POST-DEVELOPMENT VOLUME BELOW 100-YEAR FLOOD ELEVATION:	3,850 CU. YD.



Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Date	Description	No.
Revisions		

  
 MICHAEL J. RINALDI, P.E., LEED-AP  
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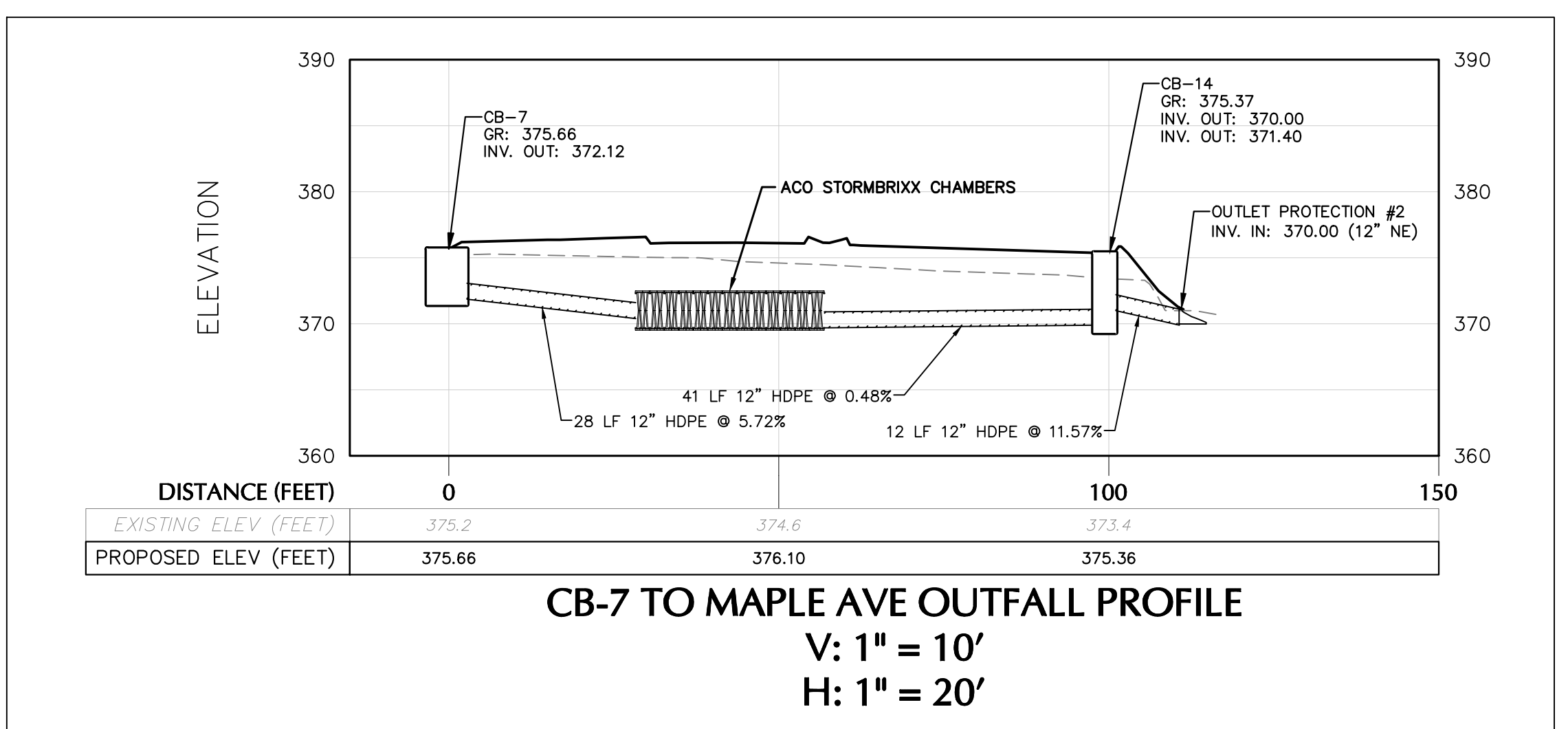
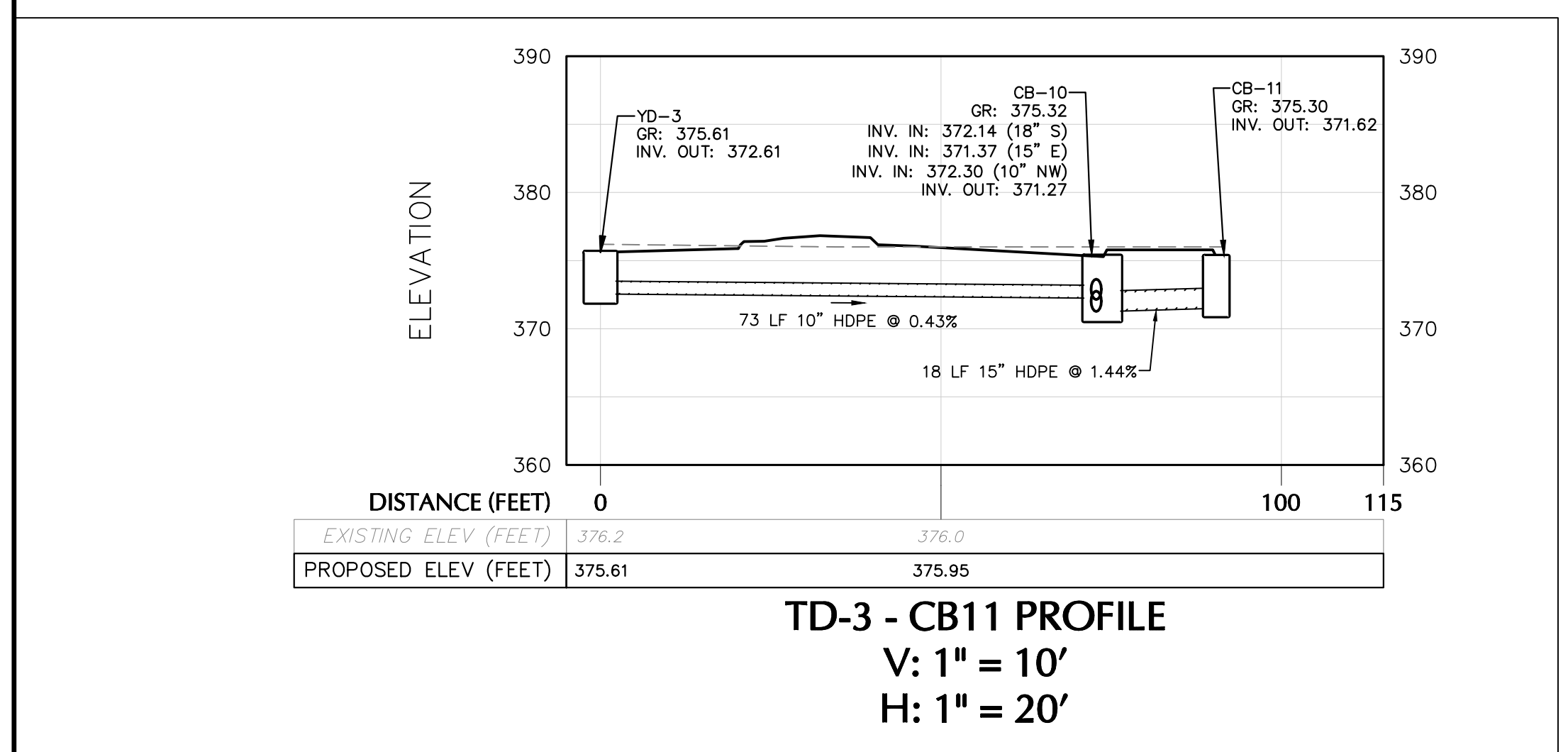
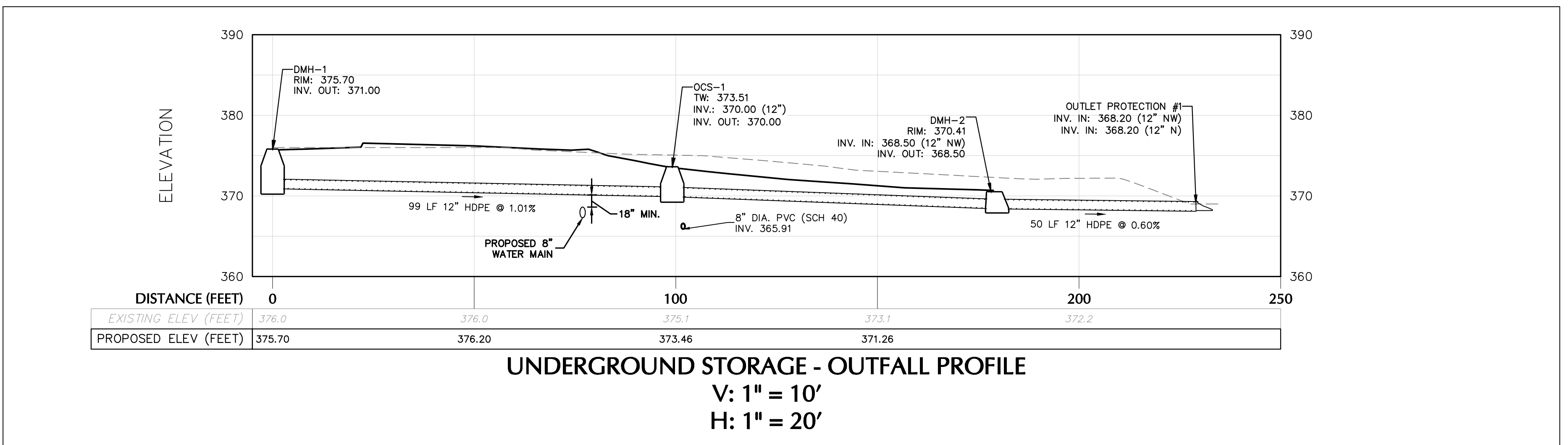
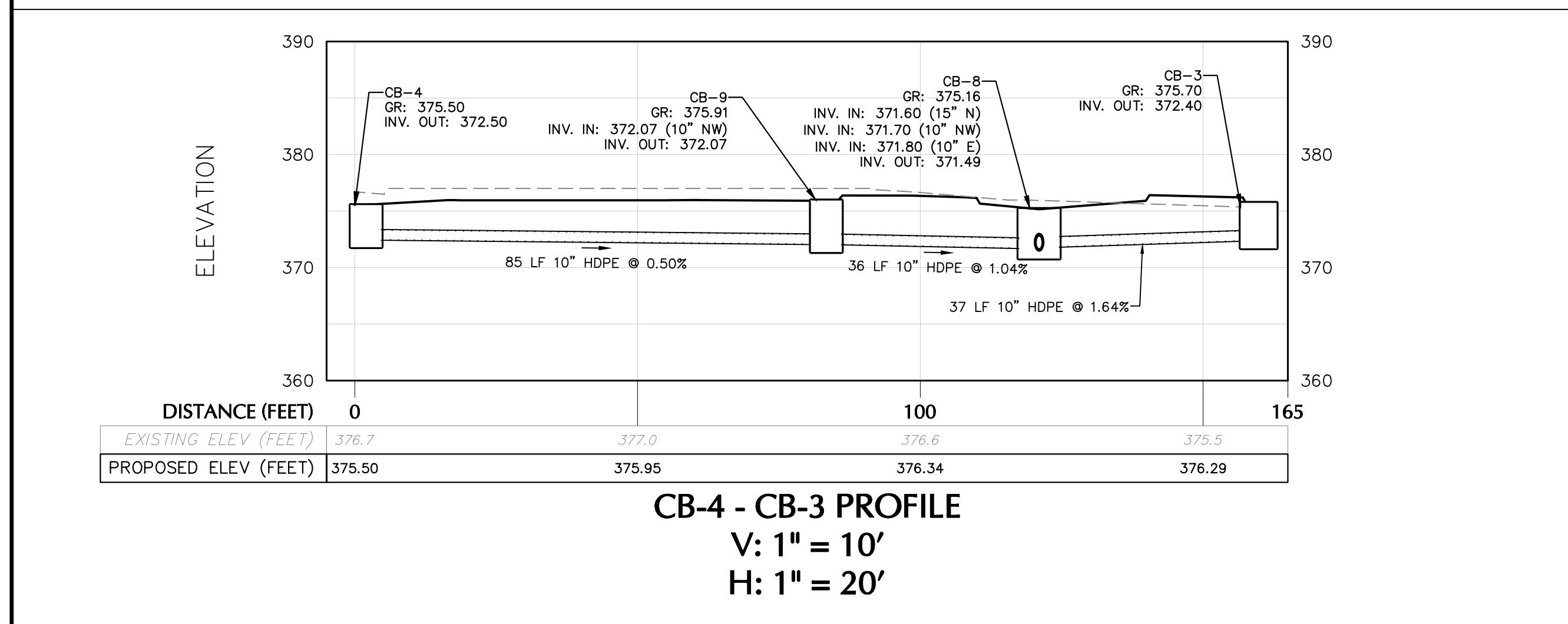
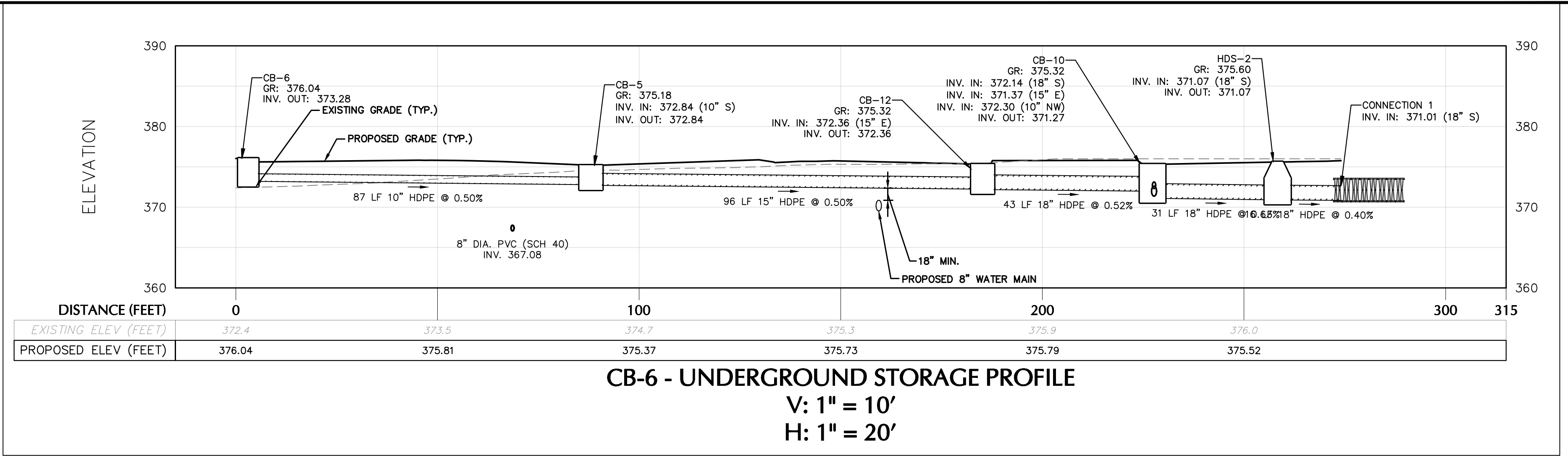
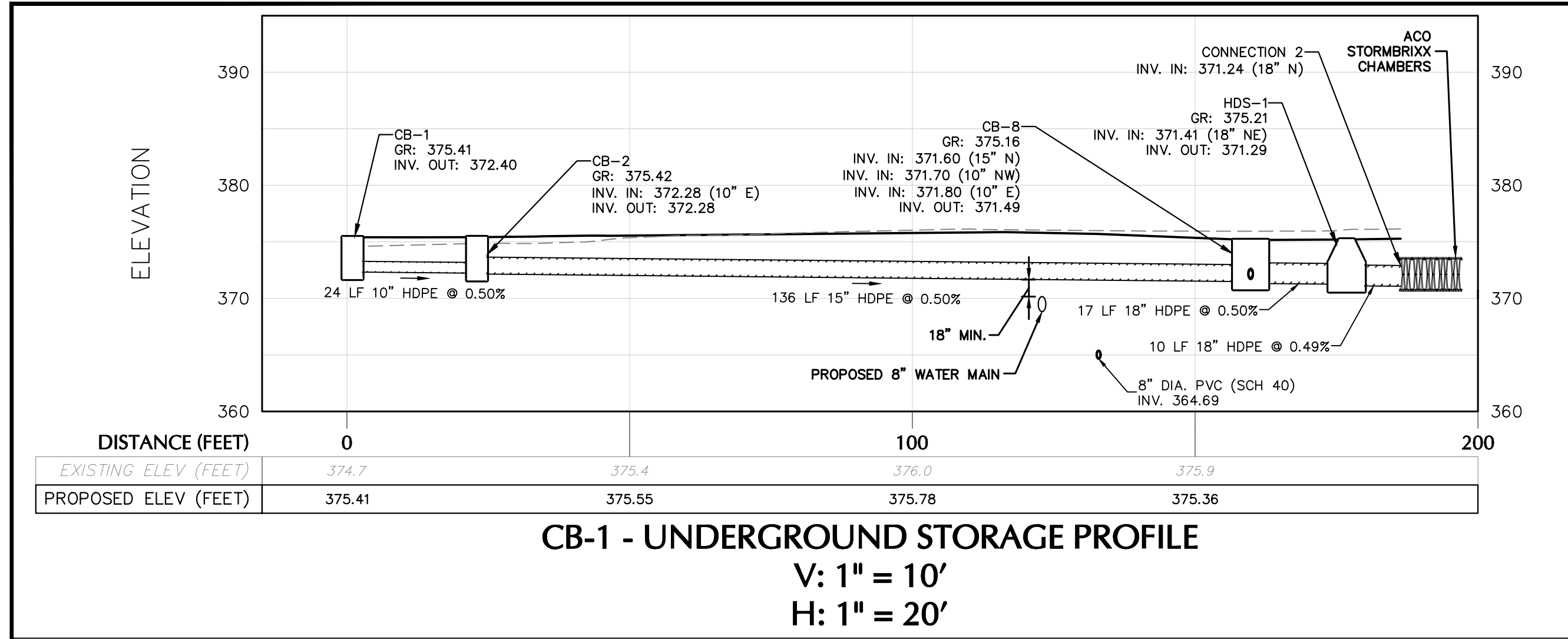
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Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY ARMONK NEW YORK

Drawing Title  
**GRADING AND DRAINAGE PLAN**

Project No.	190085001	Drawing No.	CG101
Date	AUGUST 7, 2023	Sheet	5 of 17
Drawn By	GN	Checked By	MT

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Date	Description	No.
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10/06/23	RESPONSE TO COMMENTS	1

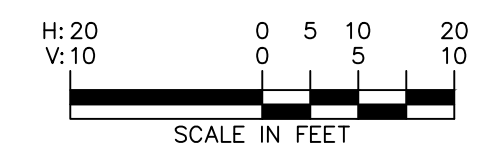
STATE OF NEW YORK  
 MICHAEL J. RYAN  
 PROFESSIONAL ENGINEER  
 No. 081473  
 Date 11/13/2023

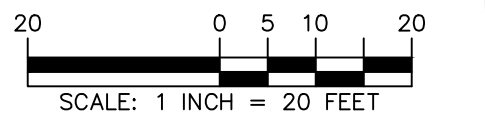
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Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY ARMONK NEW YORK

Drawing Title  
**DRAINAGE PROFILES**

Project No.  
**190085001**  
 Date  
**AUGUST 7, 2023**  
 Drawn By  
**GN**  
 Checked By  
**MT**  
 Drawing No.  
**CG201**  
 Sheet 6 of 17





Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Revisions		

MICHAEL J. RINALDI, P.E., LEED-AP  
 PROFESSIONAL ENGINEER NY Lic. No. 081473

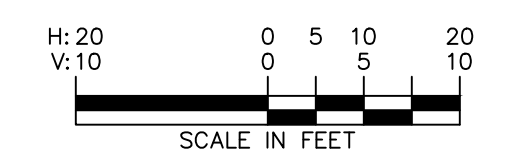
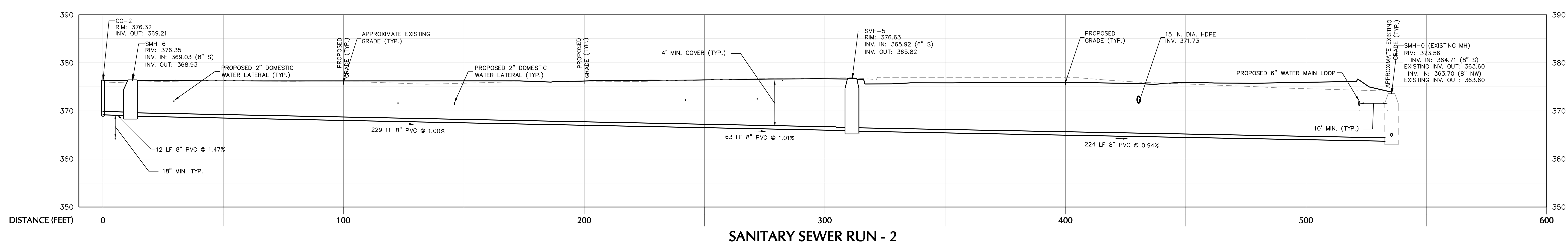
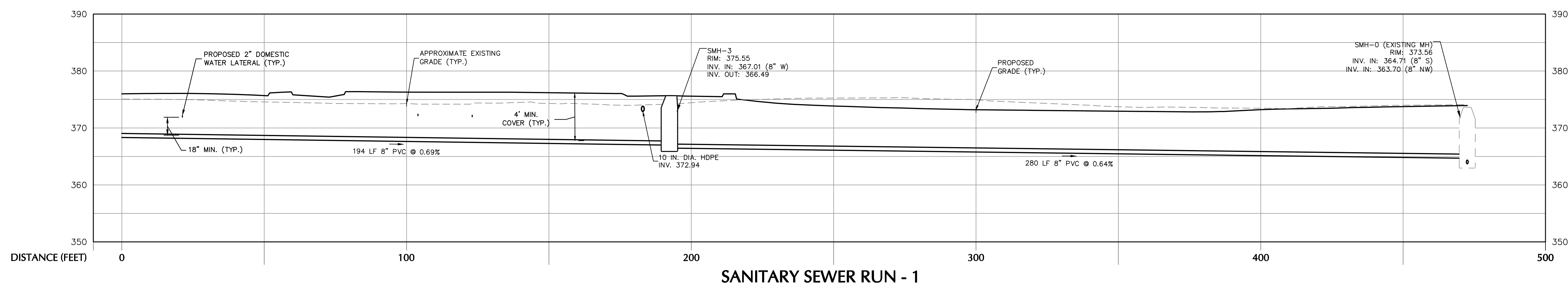
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Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY NEW YORK

Drawing Title  
**UTILITY PLAN**

Project No.	190085001	Drawing No.	<b>CU101</b>	
Date	AUGUST 7, 2023	Sheet		7 of 17
Drawn By	GN			
Checked By	MT			

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Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Revisions		

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Project  
**45 BEDFORD ROAD**  
 ARMONK  
 WESTCHESTER COUNTY NEW YORK

Drawing Title  
**SANITARY SEWER PROFILE**

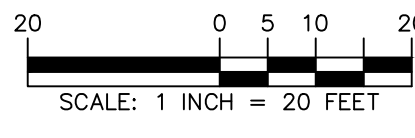
Project No. <b>190085001</b>	Drawing No. <b>CU201</b>
Date <b>AUGUST 7, 2023</b>	Sheet <b>8</b> of <b>17</b>
Drawn By <b>GN</b>	
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Project No. 190085001

BEDFORD ROAD

ROUTE 22



Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1

  
 11/13/2023  
 Date  
 PROFESSIONAL ENGINEER NY Lic. No. 081473

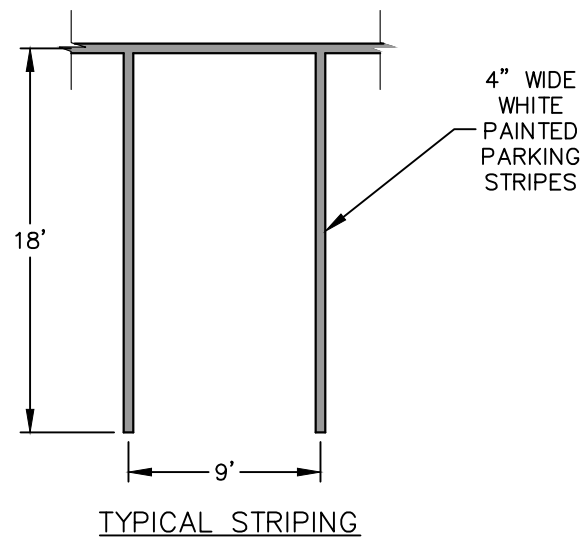
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Project  
**45 BEDFORD ROAD**  
 ARMONK  
 WESTCHESTER COUNTY NEW YORK

Drawing Title  
**SOIL EROSION &  
 SEDIMENT  
 CONTROL PLAN**

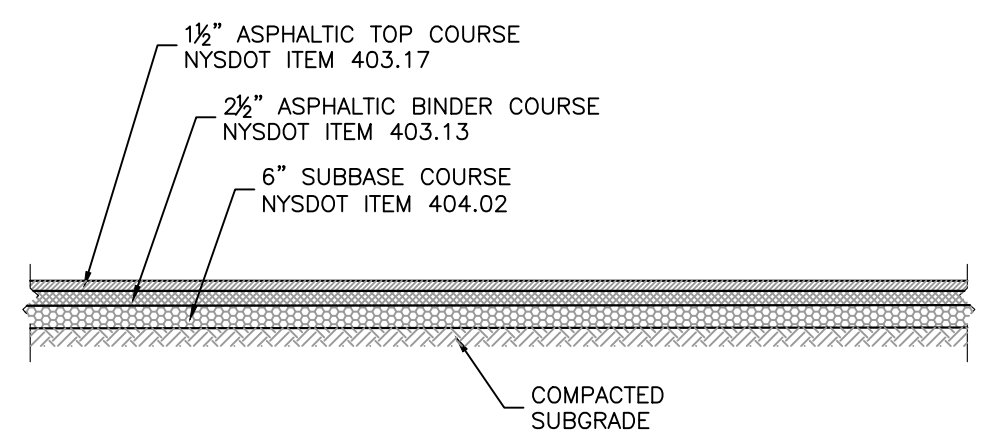
Project No.	190085001	Drawing No.	<b>CE101</b>	
Date	AUGUST 7, 2023	Sheet		9 of 17
Drawn By	GN			
Checked By	MT			

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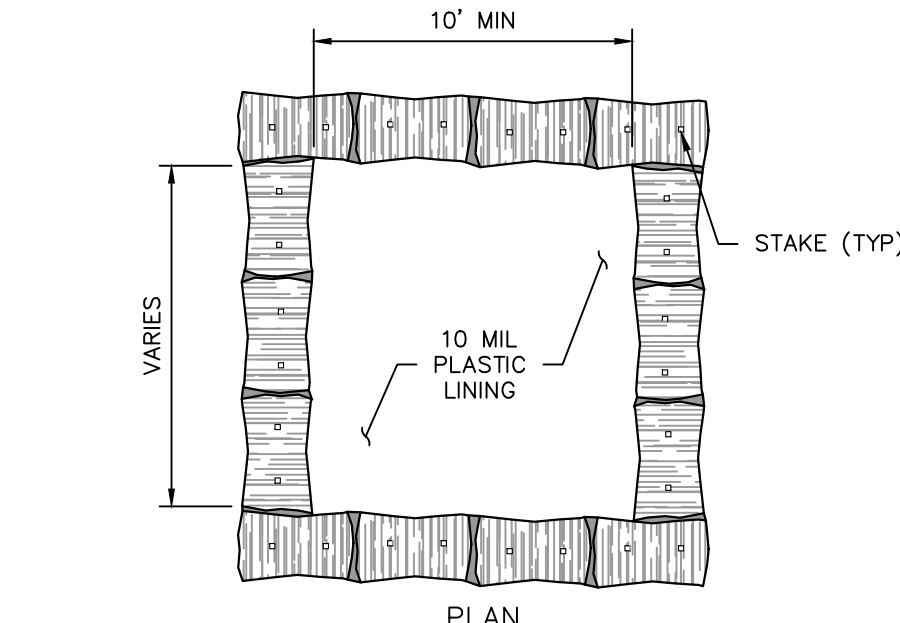
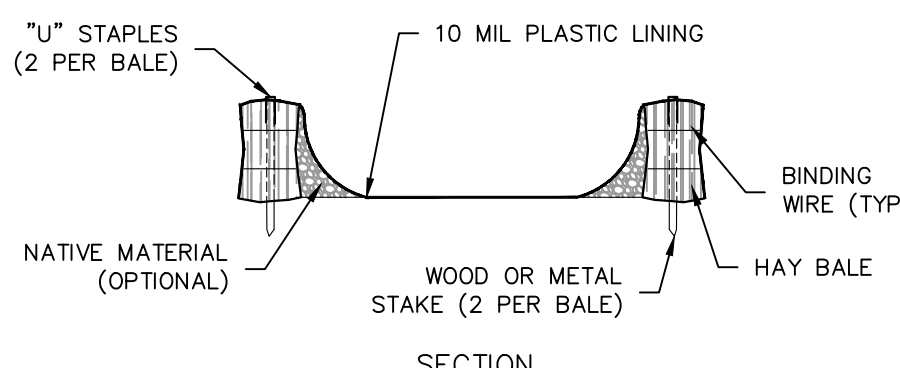
### PARKING STRIPING

SCALE: NTS



### ASPHALT PAVEMENT DETAIL

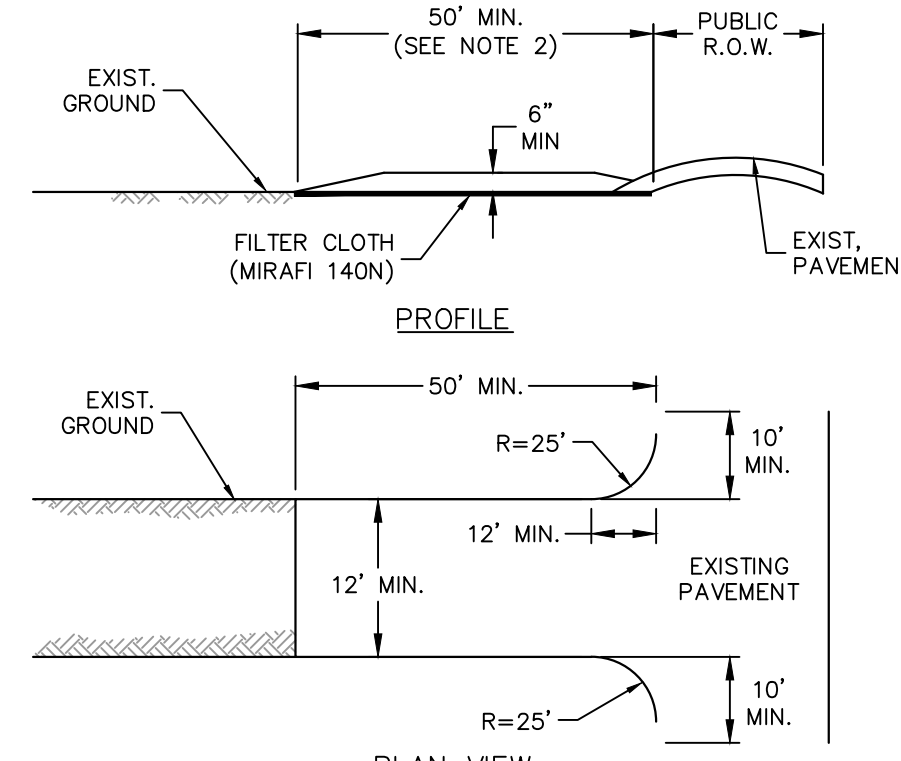
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- NOTES:
- CONCRETE WASHOUT SIGN TO BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
  - REMOVE HARDEN CONCRETE WHEN WITHIN 4" FROM TOP OF STRUCTURE.
  - CONSTRUCT NEW FACILITIES ONCE CURRENT FACILITIES ARE TWO-THIRDS FULL.
  - LINERS, HAY BALES, ETC. SHALL BE INSPECTED FOR DAMAGE. ANY DAMAGE SHALL BE REPAIR PROMPTLY.

### ABOVE GROUND TEMPORARY CONCRETE WASHOUT FACILITY

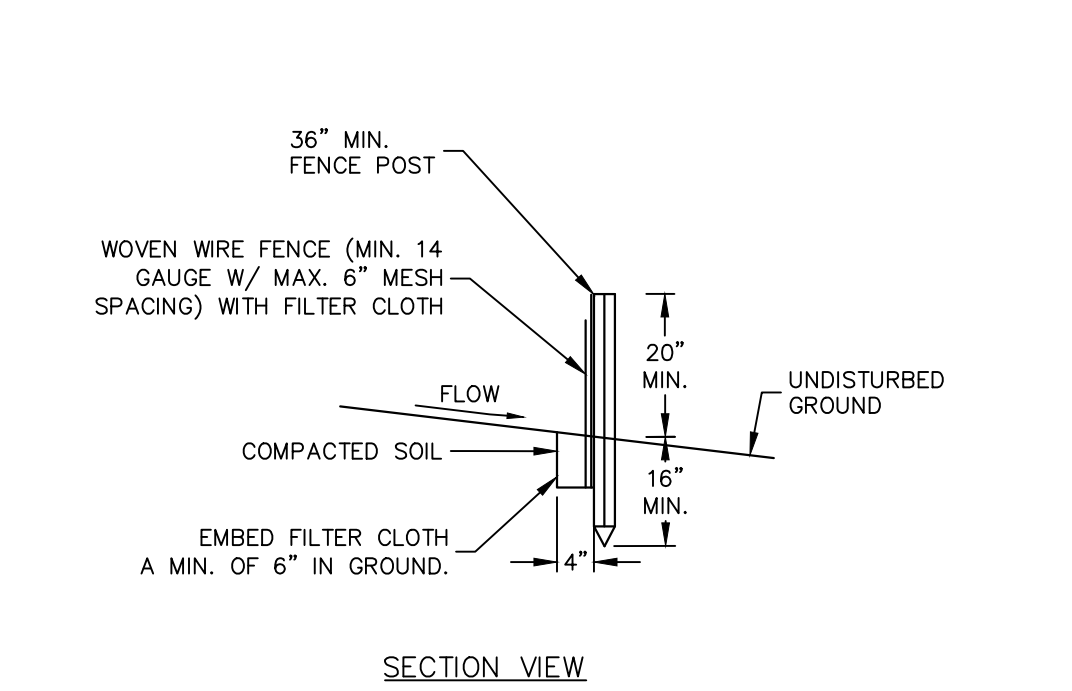
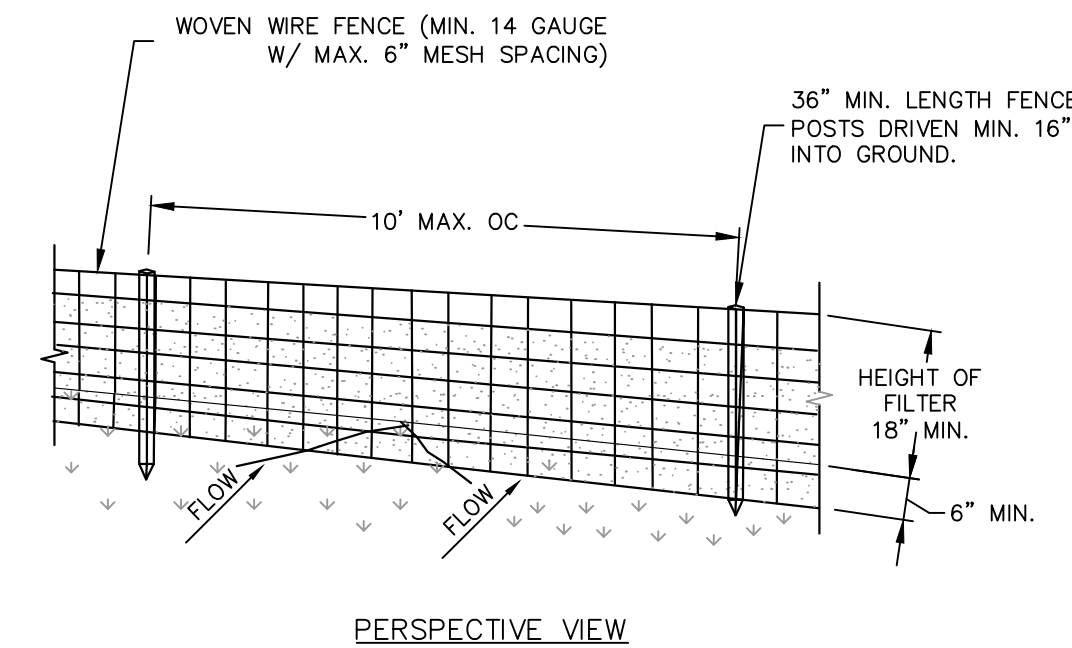
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- NOTE: PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.
- CONSTRUCTION SPECIFICATIONS:
- STONE SIZE - USE 3" STONE (NYS DOT ITEM #623.11 SIZE DESIGNATION #2, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT).
  - LENGTH - NOT LESS THAN 50- FEET (EXCEPT ON SINGLE FAMILY LOT, 30- FEET MINIMUM LENGTH WOULD APPLY).
  - THICKNESS - NOT LESS THAN SIX (6) INCHES.
  - WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SIGHT.
  - FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
  - SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
  - MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
  - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
  - PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

### STABILIZED CONSTR. ENTRANCE

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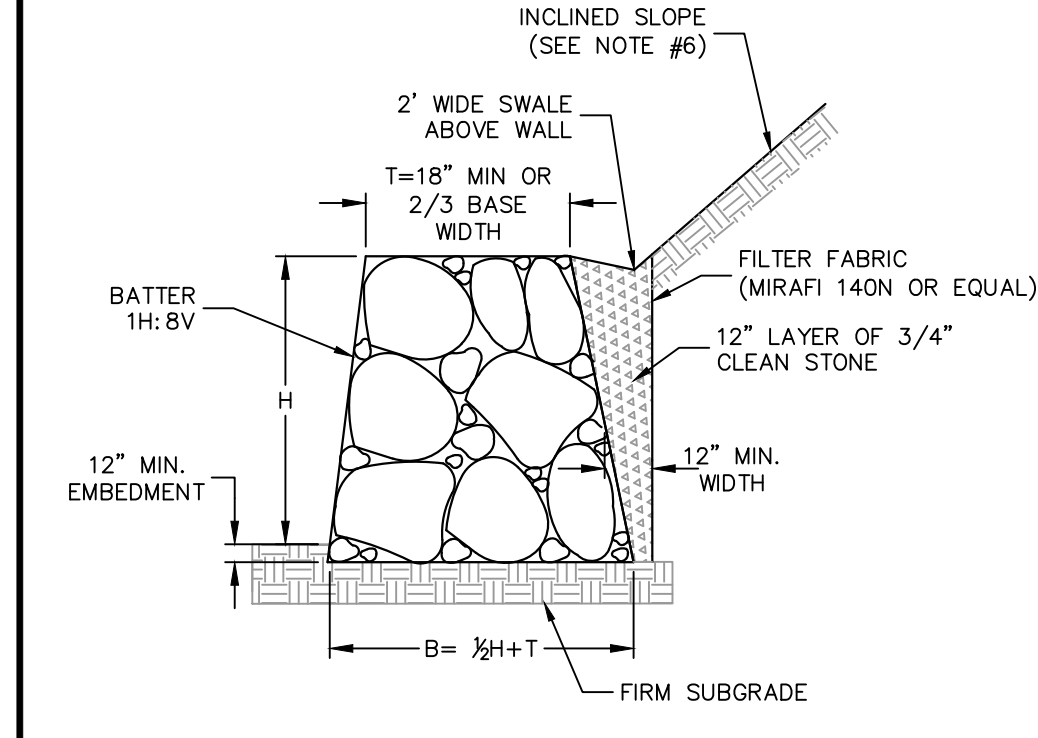
### SILT FENCE

SCALE: NTS

- CONSTRUCTION SPECIFICATIONS
- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL, EITHER "T" OR "U" TYPE, OR HARDWOOD.
  - FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 14 GAUGE, 6" MAXIMUM MESH OPENING.
  - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
  - FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
  - PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT THAT MEETS THE MINIMUM REQUIREMENTS SHOWN.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

- DETAIL NOTES
- INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL ("THE BLUE BOOK").
  - ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE, BUT AT LEAST 10 FEET FROM THE TOE OF A SLOPE STEEPER THAN 3:1. TO ALLOW FOR MAINTENANCE AND ROLL DOWN, THE AREA BEYOND THE FENCE MUST BE UNDISTURBED OR STABILIZED.
  - THE TYPE OF SILT FENCE SPECIFIED FOR EACH LOCATION ON THE PLAN SHALL NOT EXCEED THE MAXIMUM SLOPE LENGTH AND MAXIMUM FENCE LENGTH REQUIREMENTS SHOWN IN THE TABLE BELOW. IF A TYPE SILT FENCE IS NOT SPECIFIED ON THE PLANS, THE CRITERIA FOR STANDARD SILT FENCE CAN BE APPLIED.
  - SILT FENCE SHALL BE REMOVED AS SOON AS THE DISTURBED AREA HAS ACHIEVED FINAL STABILIZATION.

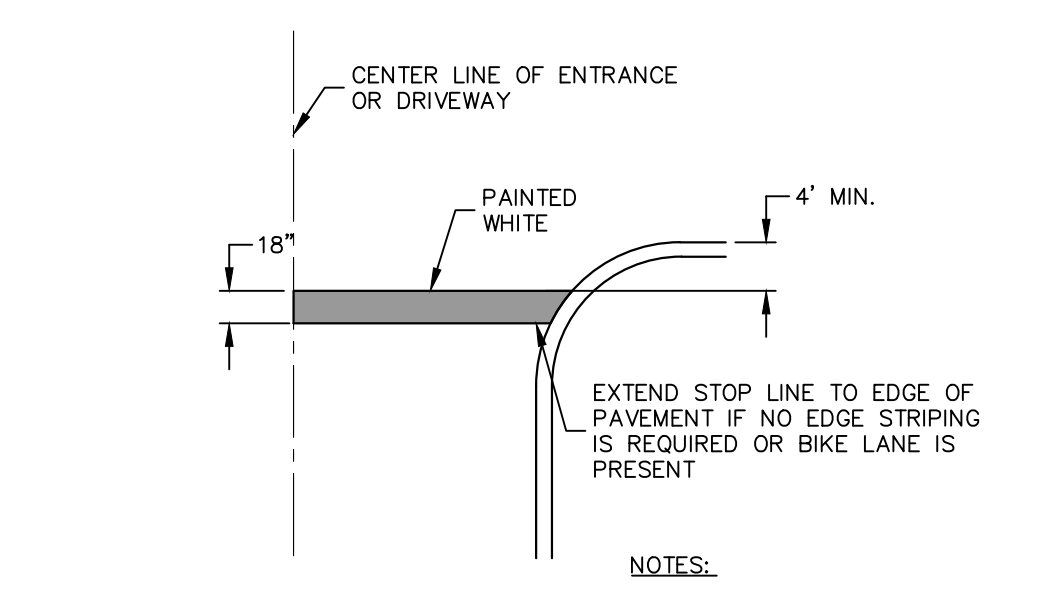
SLOPE	STEEPNESS	SLOPE LENGTH/FENCE LENGTH (FT.)		
		STANDARD	REINFORCED	SUPER
<2%	<50:1	300/1500	N/A	N/A
2-10%	50:1 TO 10:1	125/1000	250/2000	300/2500
10-20%	10:1 TO 5:1	100/750	150/1000	200/1000
20-33%	5:1 TO 3:1	60/500	80/750	100/1000
33-50%	3:1 TO 2:1	40/250	70/350	100/500
>50%	>2:1	20/125	30/175	50/250



### BOULDER WALL

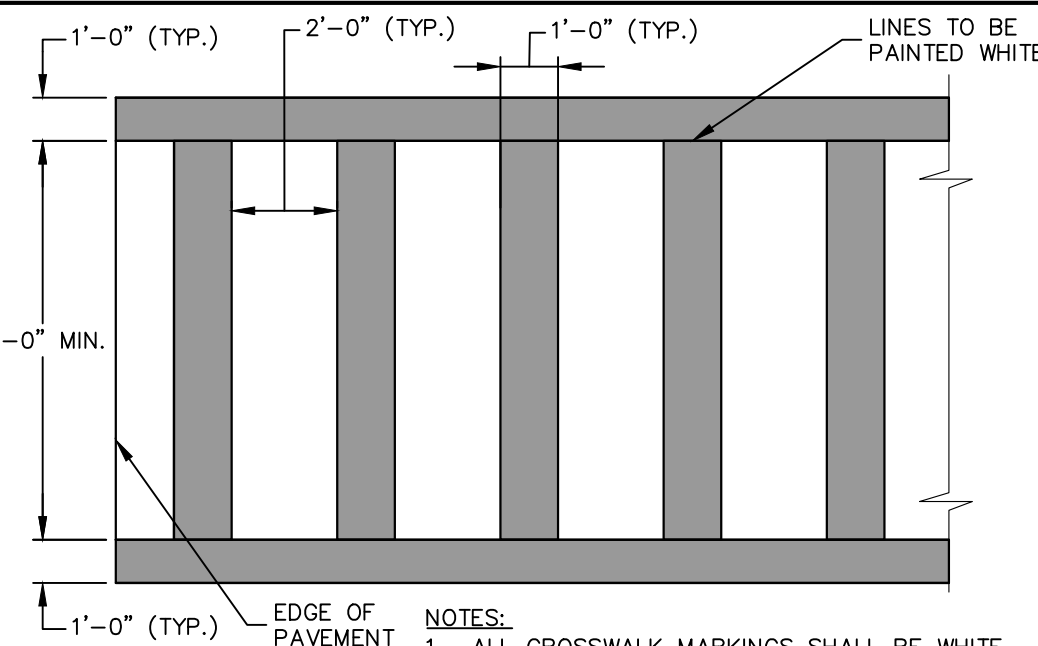
SCALE: NTS

- NOTES:
- BOULDERS AND BLASTED ROCK ARE TO BE PLACED IN SUCH A MANNER THAT THERE ARE NO VOIDS LARGER THAN 4".
  - A VARIETY OF ROCK SIZES ARE TO BE USED TO CREATE AN INTERLOCKED INTERLOCKING MASS.
  - AT LEAST 2/3 OF THE ROCK TO HAVE AT LEAST AN EFFECTIVE DIAMETER OF 2 FT.
  - THE ROCKS/BOULDERS SHALL BE PLACED SO THAT THE RESULTING FACE OF THE WALL IS A REASONABLY FLUSH PLANE.
  - ALL ROCK/BOULDERS SHALL BE SOUND ROCK NOT SUSCEPTIBLE TO WEATHERING AND DEGRADATION. ROCK TO BE USED TO BE APPROVED BY THE GEOTECHNICAL ENGINEER.
  - IF THERE IS AN INCLINED SLOPE BEHIND THE WALL THEN THE BASE OF THE WALL TO BE INCREASED TO 1.5 TIMES THE HEIGHT OF THE WALL.
  - FIELD ENGINEER SHALL BE PRESENT DURING THE CONSTRUCTION OF ALL ROCK WALLS.
  - ROCK WALLS TO BE CONSTRUCTED BY A CONTRACTOR EXPERIENCED IN BOULDER WALL CONSTRUCTION.



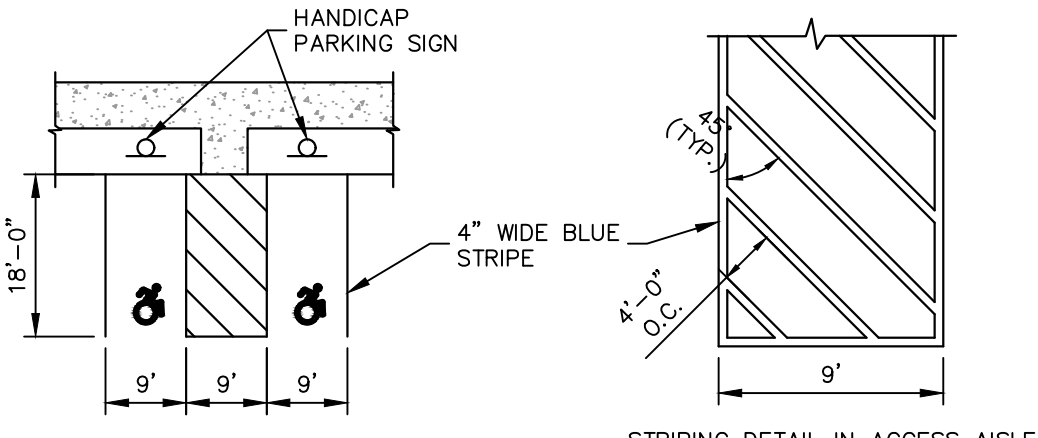
### STOP BAR STRIPING

SCALE: NTS



### CROSSWALK STRIPING (TYPE LS)

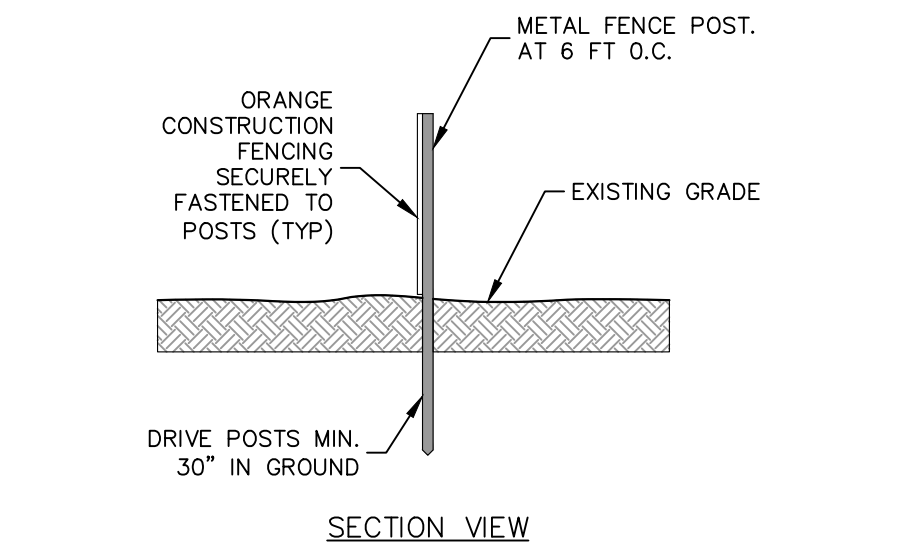
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### ADA PARKING SPACE STRIPING

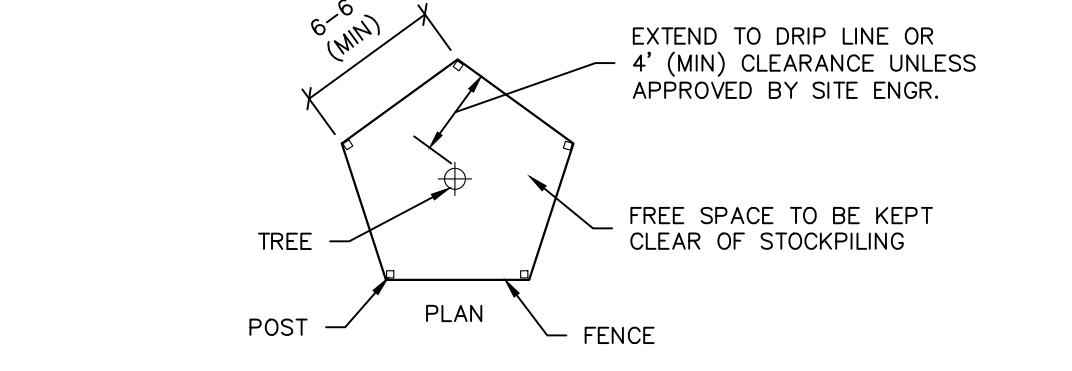
SCALE: NTS

- NOTES:
- ALL STALLS SHALL BE A MINIMUM OF 8'-0" X 18'-0".
  - SPACES DESIGNATED AS BEING "VAN ACCESSIBLE" SHALL BE ADJACENT TO ACCESS AISLES WITH A MIN. WIDTH OF 8'-0".
  - PROPOSED STRIPING SHALL BE BLUE IN COLOR.

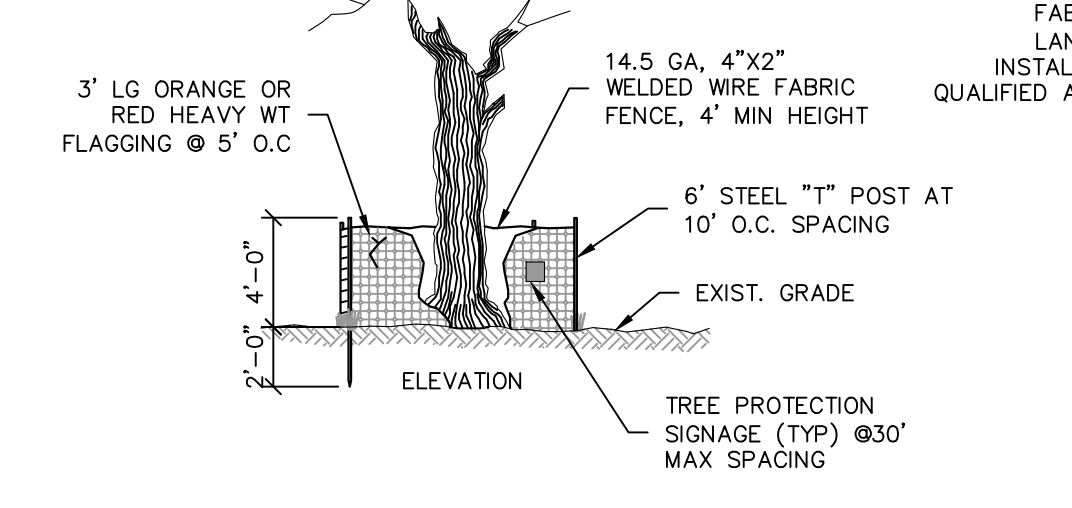


### ORANGE CONSTRUCTION FENCE

SCALE: NTS



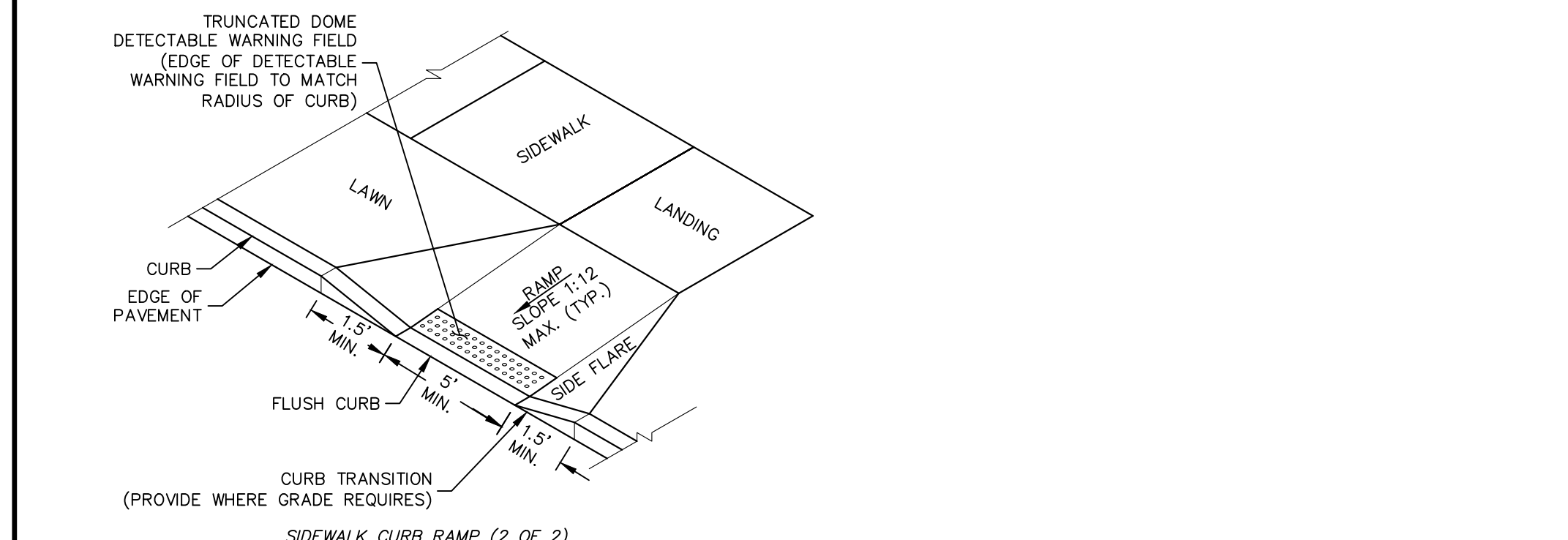
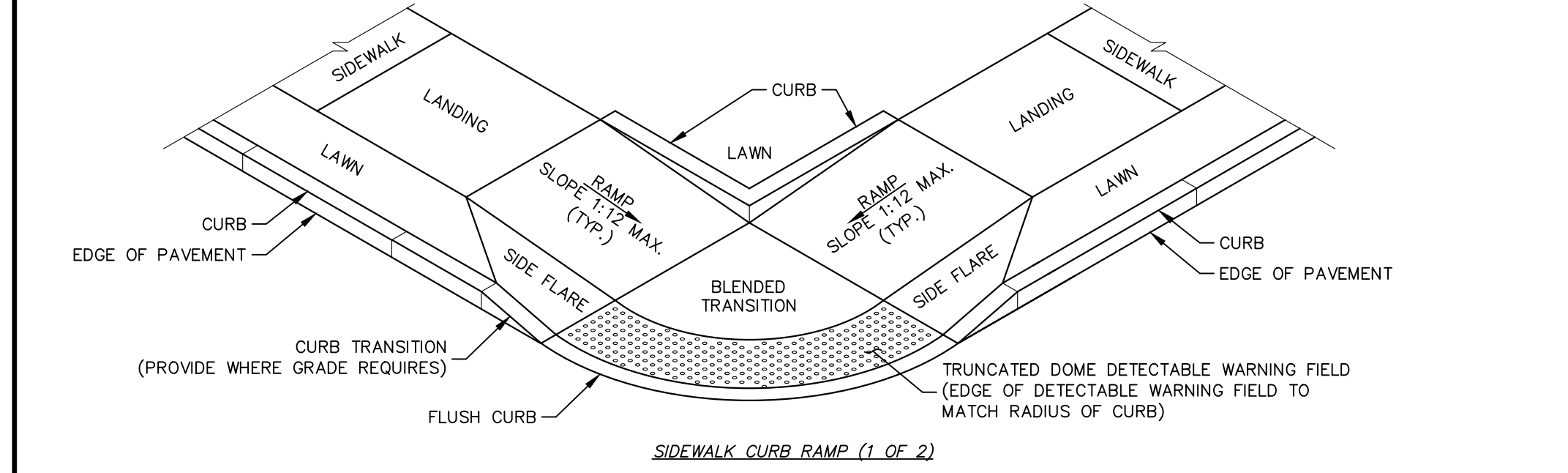
- NOTE: THE TREE PROTECTION SHOULD BE INSTALLED PRIOR TO ANY WORK, IN AREA WHERE CONTRACTOR DEEMS NECESSARY, AND REMAIN UNTIL END OF ALL WORK.



- CONSTRUCTION SPECIFICATIONS
- TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN FIELD BY PROJECT FORESTER.
  - EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
  - TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
  - ROOTS SHOULD BE SEVERED BY TRENCHER, VIBRATORY PLOW OR APPROVED EQUIVALENT. ROOTS OVER 1.5" DIAMETER SHOULD BE CLEANLY CUT BY HAND. ROOT PRUNING ADJACENT TO SPECIMEN TREES MAY REQUIRE SOIL REMOVAL BY SUPERSONIC AIR TOOL TO MINIMIZE TREE AND ROOT IMPACTS.

### TREE VEGETATION PROTECTION BARRIER

SCALE: NTS



### SIDEWALK CURB RAMP

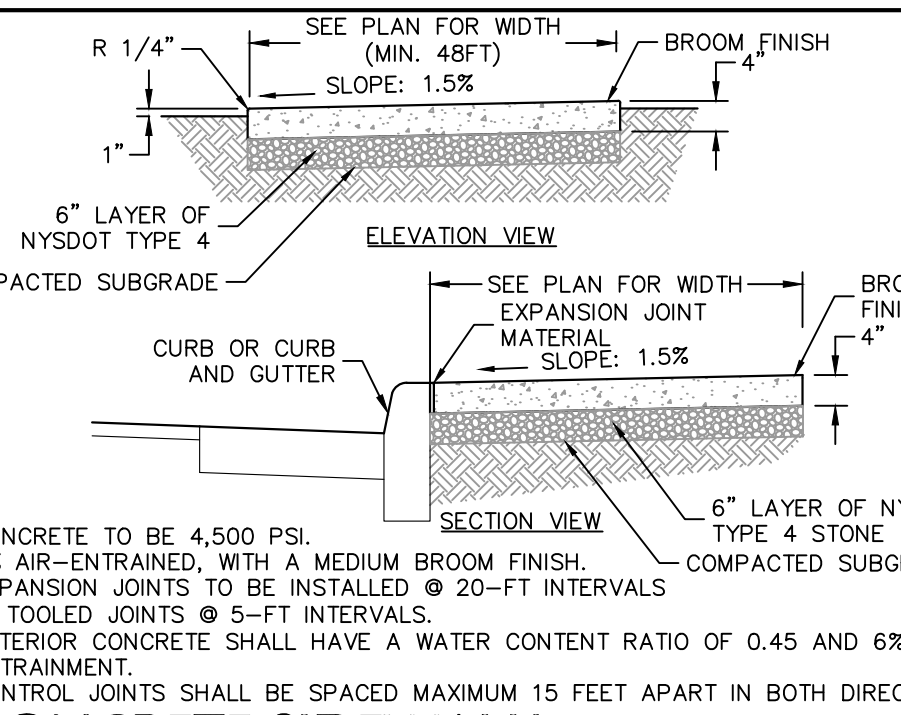
SCALE: NTS

#### SIDEWALK CURB RAMP NOTES:

- THERE SHALL BE A LANDING AT THE TOP OF EACH CURB RAMP.
- LANDINGS SHALL HAVE A MINIMUM CLEAR DIMENSION OF 5 FEET BY 5 FEET SQUARE. THE MAXIMUM CROSS SLOPE AT LANDINGS IS 2 PERCENT IN ANY DIRECTION. LANDINGS MAY OVERLAP WITH ADJACENT LANDINGS OR A SINGLE LANDING MAY SERVE MULTIPLE CURB RAMP OR PARALLEL/PERPENDICULAR RAMP.
- THE MAXIMUM CROSS SLOPE OF CURB RAMP SHALL BE 2 PERCENT. CURB RAMP SURFACES SHALL GENERALLY LIE IN CONTINUOUS PLANES WITH A MINIMUM OF SURFACE WARF.
- THE RUNNING GRADE OF CURB RAMP SHOULD BE AS FLAT AS PRACTICABLE. THE MAXIMUM RUNNING GRADE OF ANY PORTION OF ANY CURB SHALL BE 1:12 (8.3%).
- CURB RAMP LOCATED WHERE PEDESTRIANS MAY WALK ACROSS THE CURB RAMP SHALL HAVE FLARED SIDES. THE LENGTH OF THE FLARES SHALL BE AT LEAST TEN (10) TIMES THE CURB HEIGHT, MEASURED ALONG THE CURB LINE. IMPRACTICABLE TO PROVIDE A LANDING THAT IS AT LEAST 5 FEET WIDE (MEASURED FORM THE TOP OF THE RAMP TO THE BACK OF THE SIDEWALK), THE LENGTH OF THE FLARES SHALL BE TWELVE (12) TIME THE CURB HEIGHT MEASURED ALONG THE CURB LINE.
- THE SURFACE OF ALL CURB RAMP SHALL BE STABLE, FIRM AND SLIP RESISTANT. A COARSE BROOM FINISH RUNNING PERPENDICULAR TO THE SLOPE IS RECOMMENDED ON CONCRETE RAMP SURFACES, EXCLUSIVE OF THE DETECTABLE WARNING FIELDS.
- RAMP TRANSITIONS BETWEEN WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES.
- COORDINATE ALL TRAFFIC CONTROL DEVICES, UTILITY LOCATIONS, SIGNS, STREET FURNITURE AND DRAINAGE TO ENSURE A CONTINUOUS PEDESTRIAN ACCESS ROUTE AT ALL CURB RAMP LOCATIONS. GUIDANCE FOR CROSSWALK MARKINGS AND TRAFFIC CONTROL DEVICES IS PROVIDED IN THE MUTCD. DRAINAGE GRATES AND UTILITY ACCESS COVERS ARE NOTE ALLOWED IN RAMP WALKING SURFACES OR LANDINGS UNLESS APPROVE BY THE DESIGN ENGINEER.
- AT MARKED CROSSINGS, THE FULL WIDTH OF THE RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS. THE SIDES OF THE RAMP (THE FLARES) NEED NOT BE WITHIN THE MARKINGS.
- DETAILS ILLUSTRATE THAT DETECTABLE WARNINGS ARE REQUIRED. SEE THE CURRENT DETECTABLE WARNING STANDARD DETAIL AND NOTES FOR SPECIFIC DETECTABLE WARNING REQUIREMENTS.
- SLOPES ON BLENDED TRANSITIONS SHALL NOT BE STEEPER THAN 2% (1 ON 50) IN ANY DIRECTION.
- REFER TO THE SIDEWALK DETAIL FOR REQUIRED CONCRETE STRENGTH.

### 6-INCH CONCRETE CURB

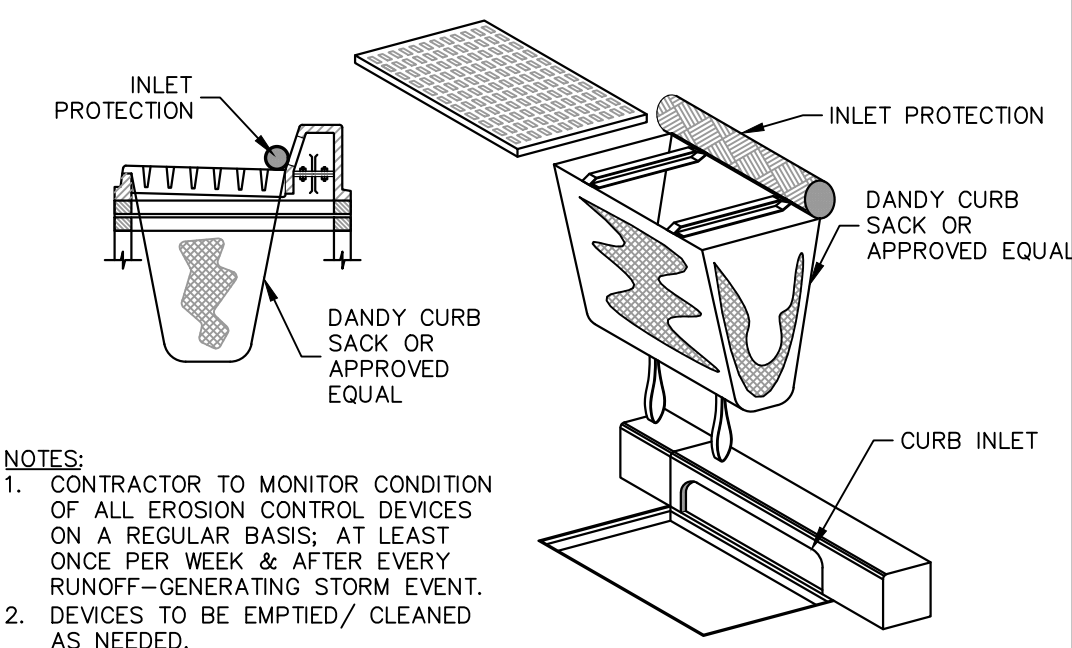
SCALE: NTS



- NOTES:
- CONCRETE TO BE 4,500 PSI.
  - 6% AIR-ENTRAINED, WITH A MEDIUM BROOM FINISH.
  - EXPANSION JOINTS TO BE INSTALLED @ 20-FT INTERVALS.
  - 1" TOoled JOINTS @ 5-FT INTERVALS.
  - EXTERIOR CONCRETE SHALL HAVE A WATER CONTENT RATIO OF 0.45 AND 6% AIR ENTRAINMENT.
  - CONTROL JOINTS SHALL BE SPACED MAXIMUM 15 FEET APART IN BOTH DIRECTIONS.

### CONCRETE SIDEWALK

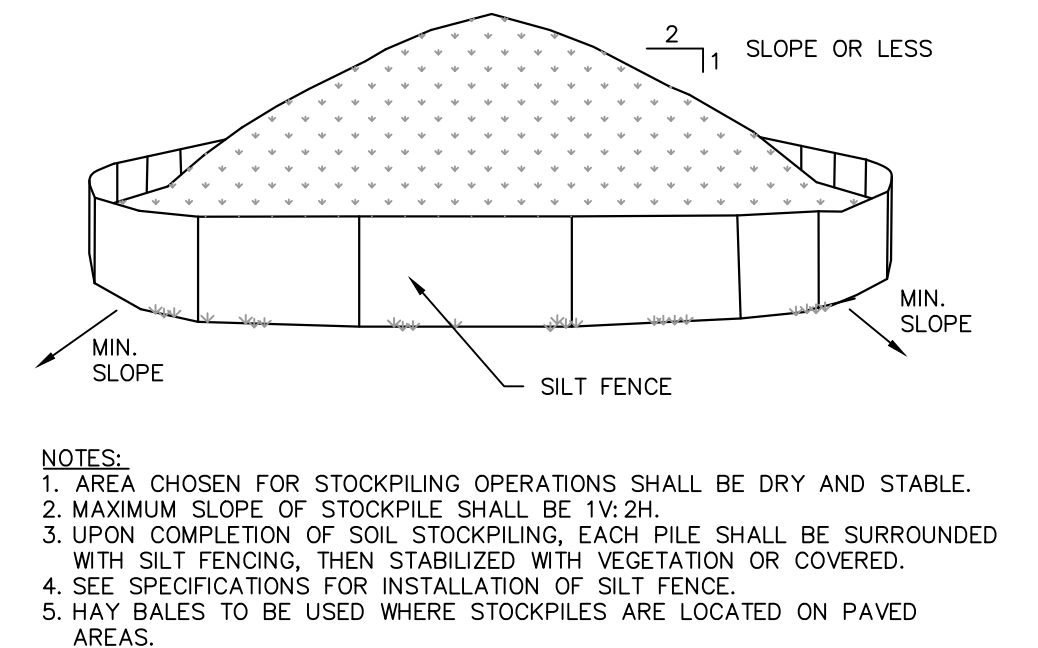
SCALE: NTS



### INLET PROTECTION - DANDY SACK

SCALE: NTS

- NOTES:
- CONTRACTOR TO MONITOR CONDITION OF ALL EROSION CONTROL DEVICES ON A REGULAR BASIS; AT LEAST ONCE PER WEEK & AFTER EVERY RUNOFF-GENERATING STORM EVENT.
  - DEVICES TO BE EMPTIED/CLEANED AS NEEDED.



### TEMPORARY STOCKPILE

SCALE: NTS

- NOTES:
- AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
  - MAXIMUM SLOPE OF STOCKPILE SHALL BE 1V:2H.
  - UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.
  - SEE SPECIFICATIONS FOR INSTALLATION OF SILT FENCE.
  - HAY BALES TO BE USED WHERE STOCKPILES ARE LOCATED ON PAVED AREAS.

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Date	Description	No.
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10/06/23	RESPONSE TO COMMENTS	1

11/13/2023

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Project

45 BEDFORD ROAD

WESTCHESTER COUNTY NEW YORK

Drawing Title

DETAILS (1 OF 3)

Project No. 190085001

Date AUGUST 7, 2023

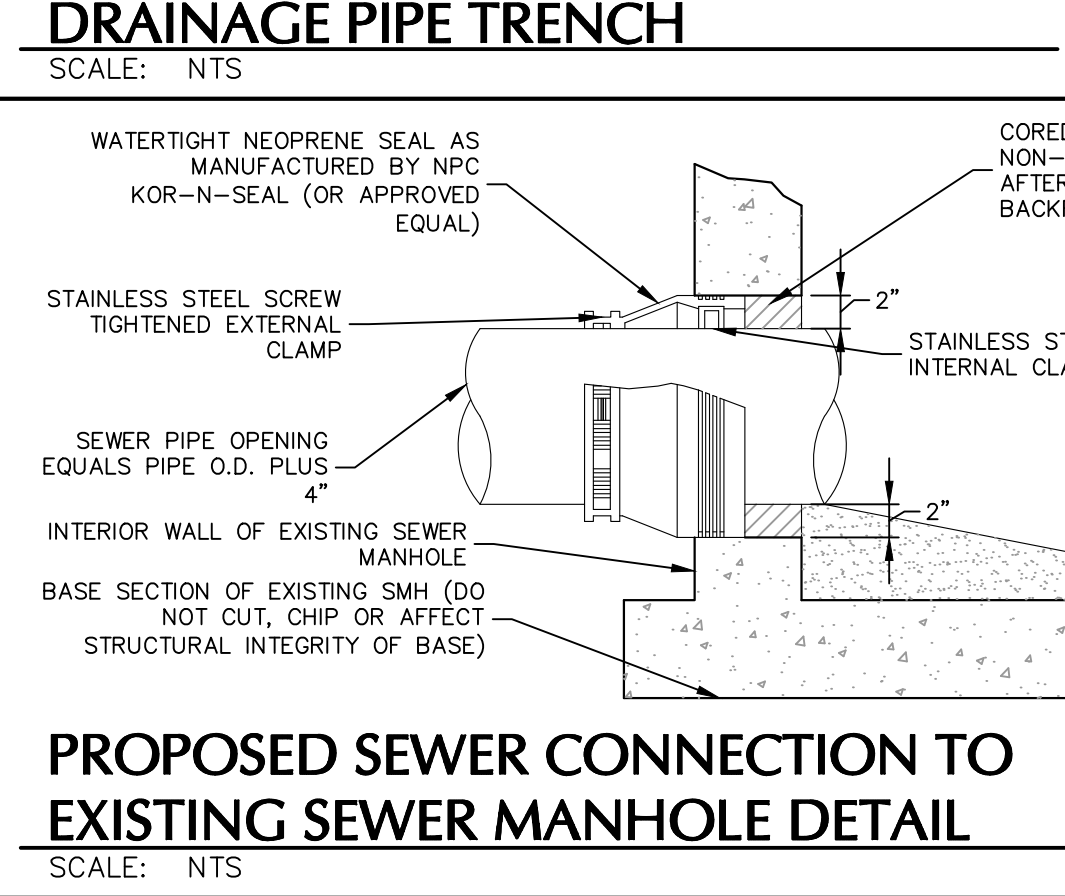
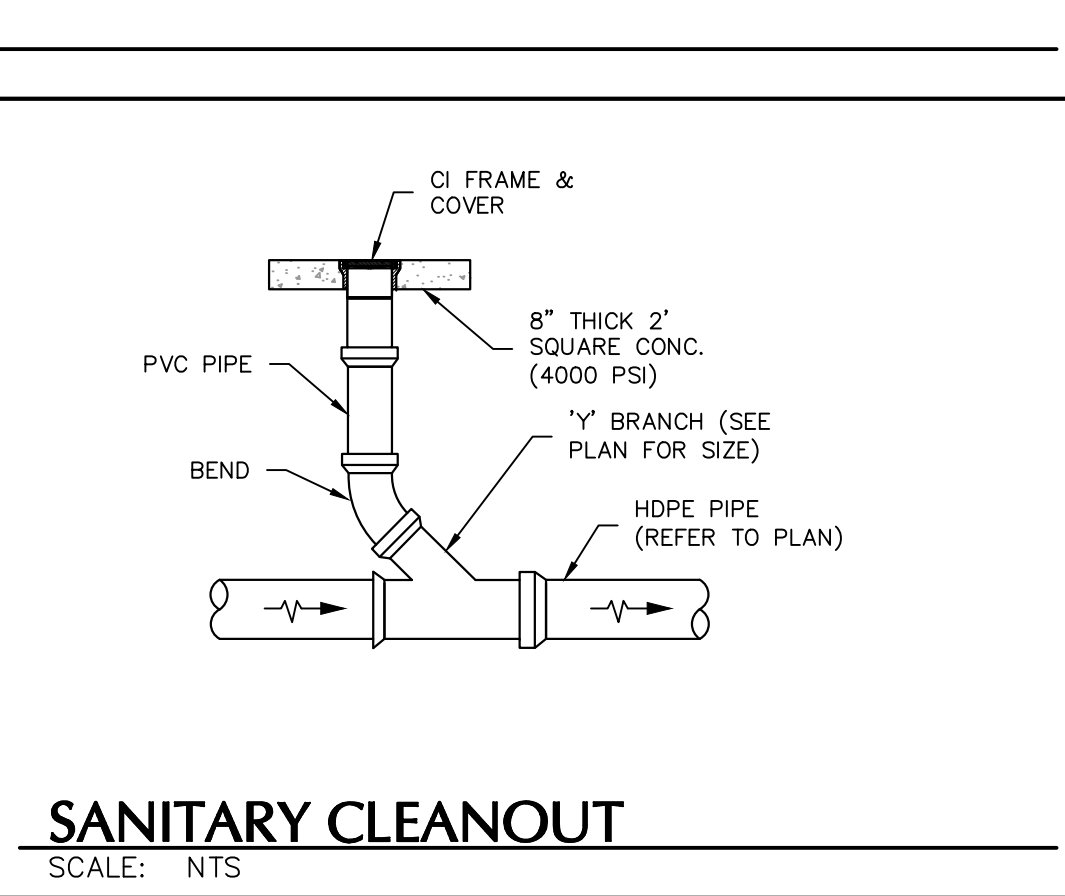
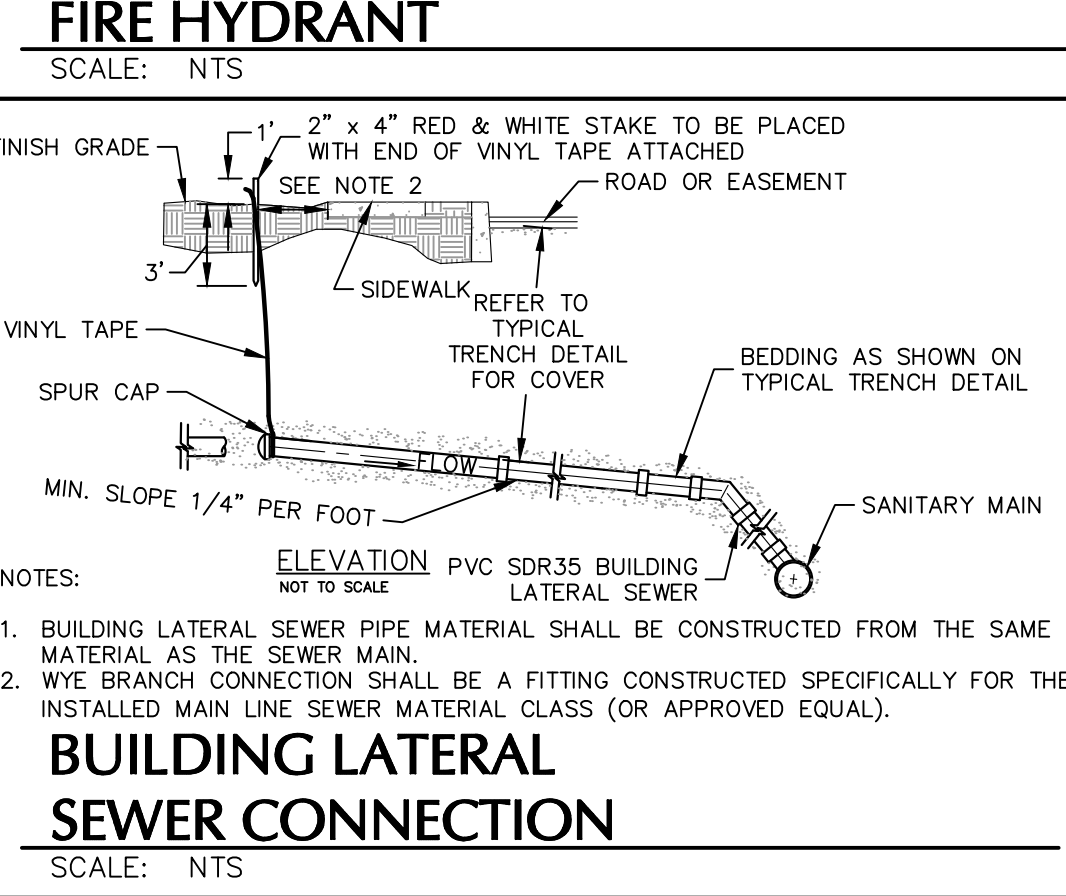
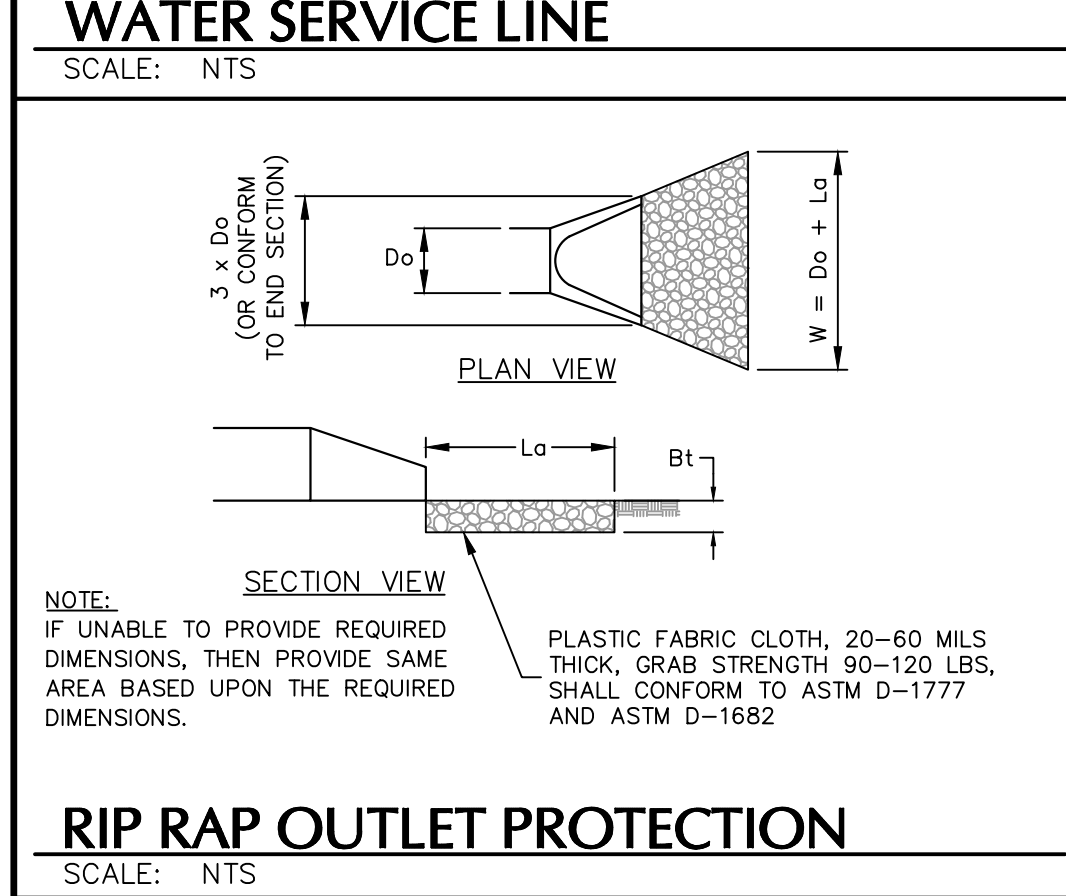
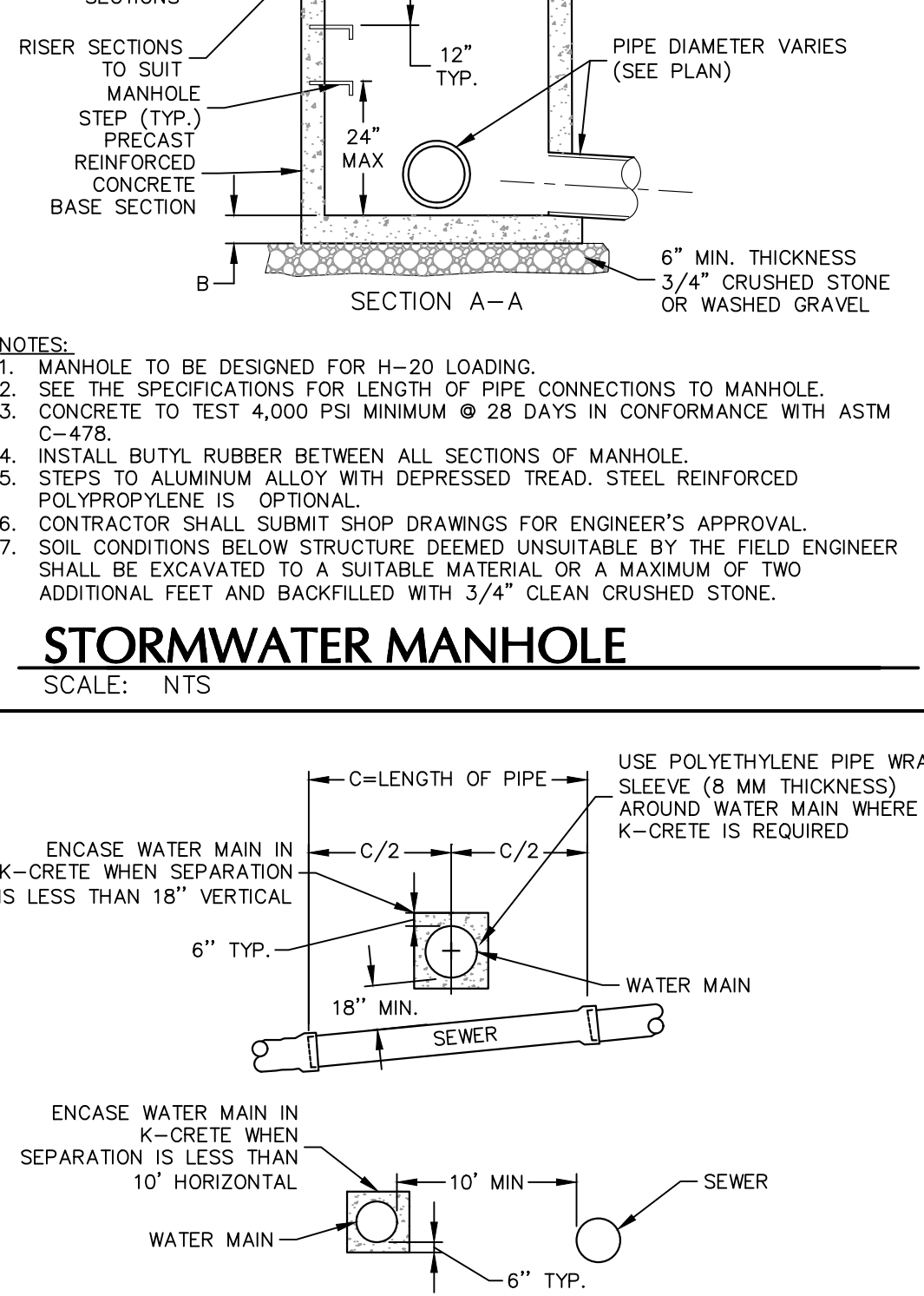
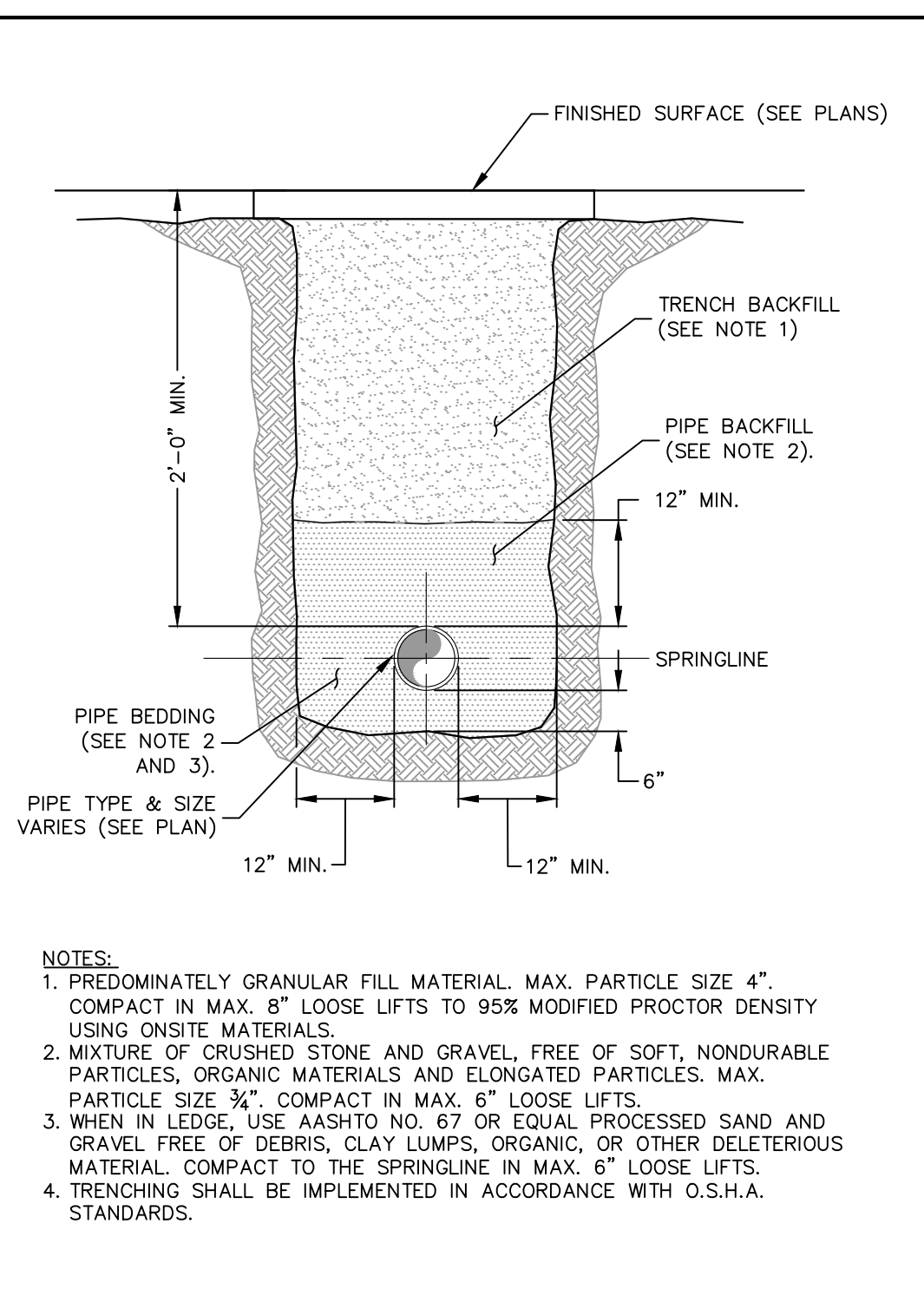
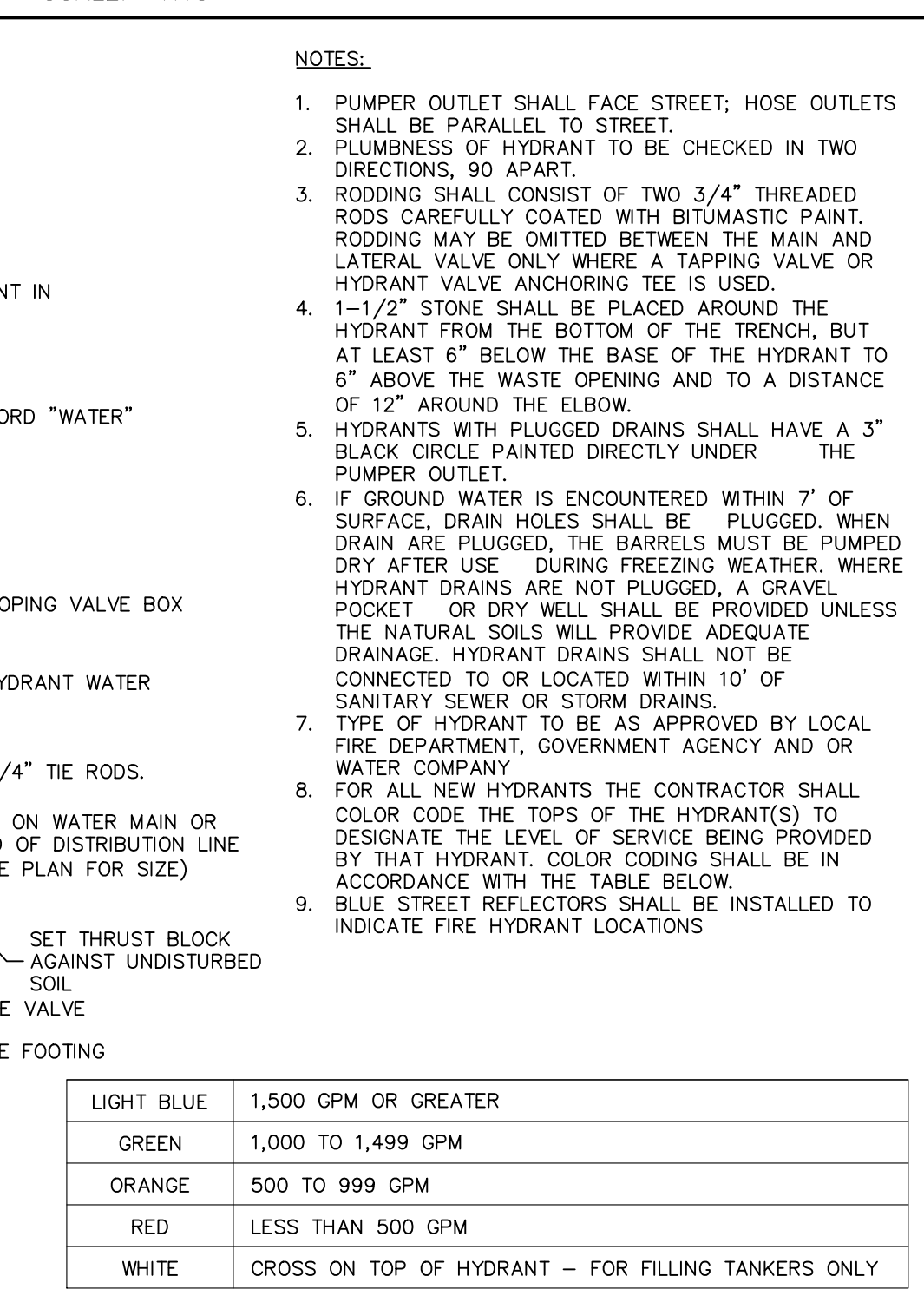
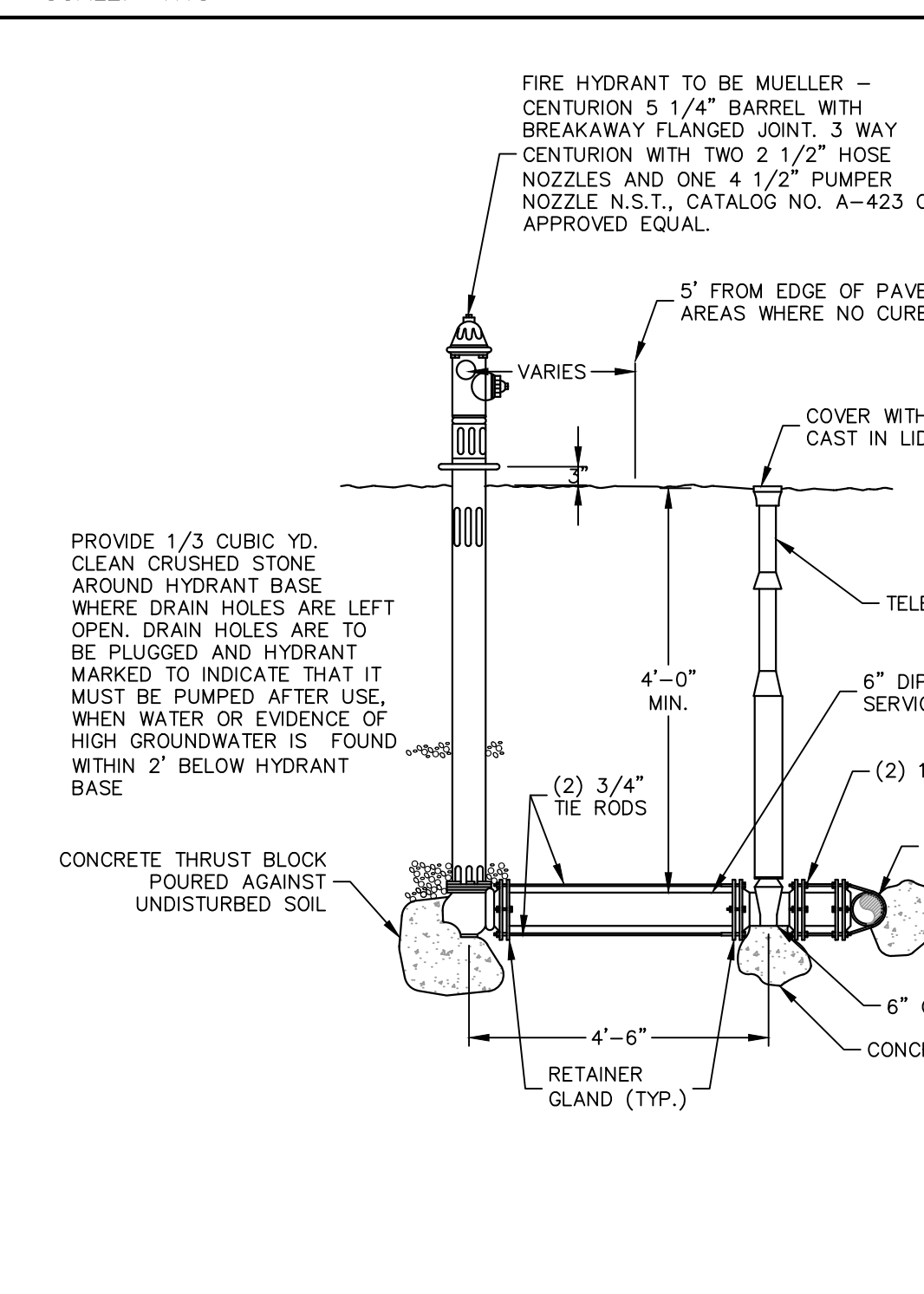
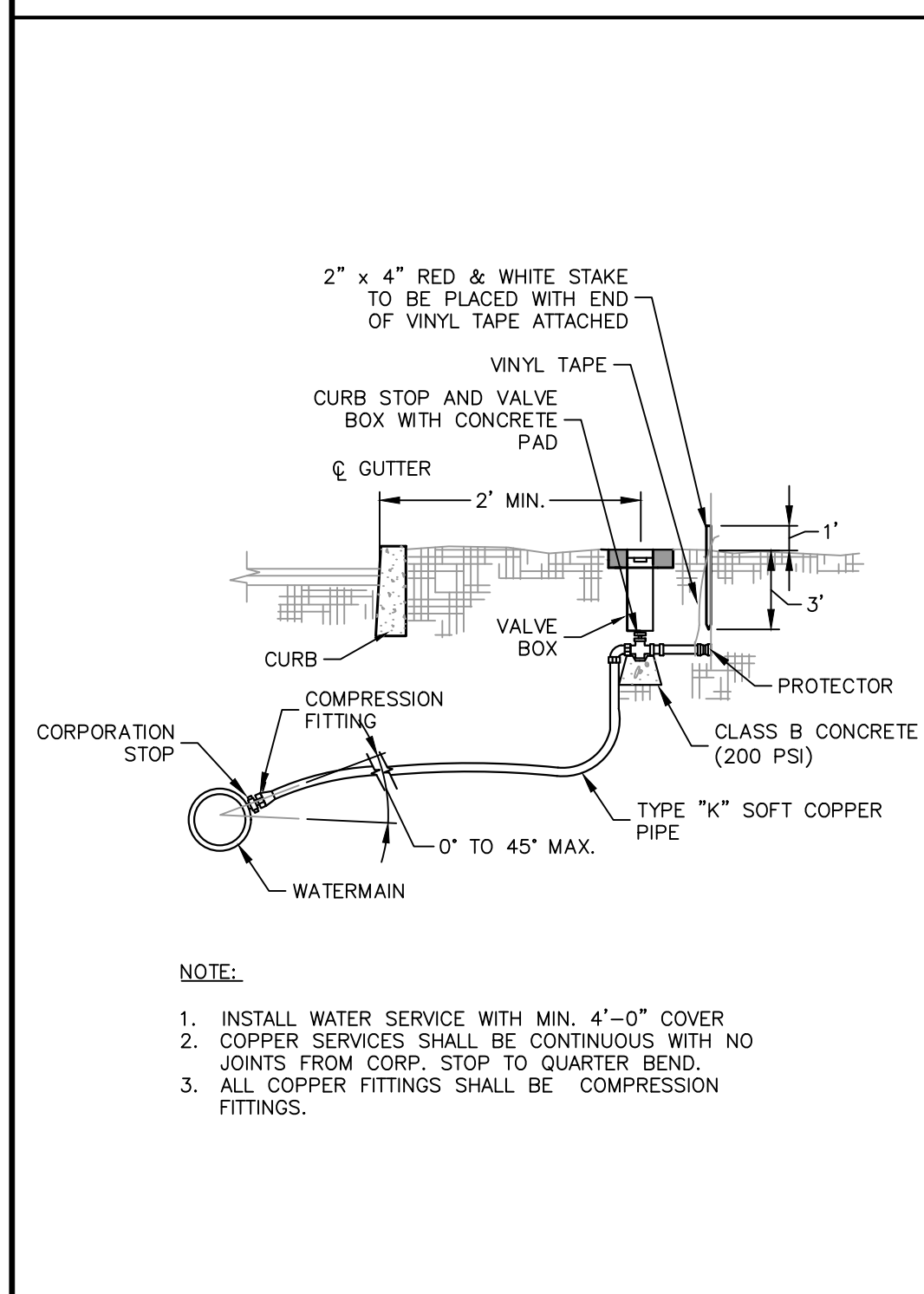
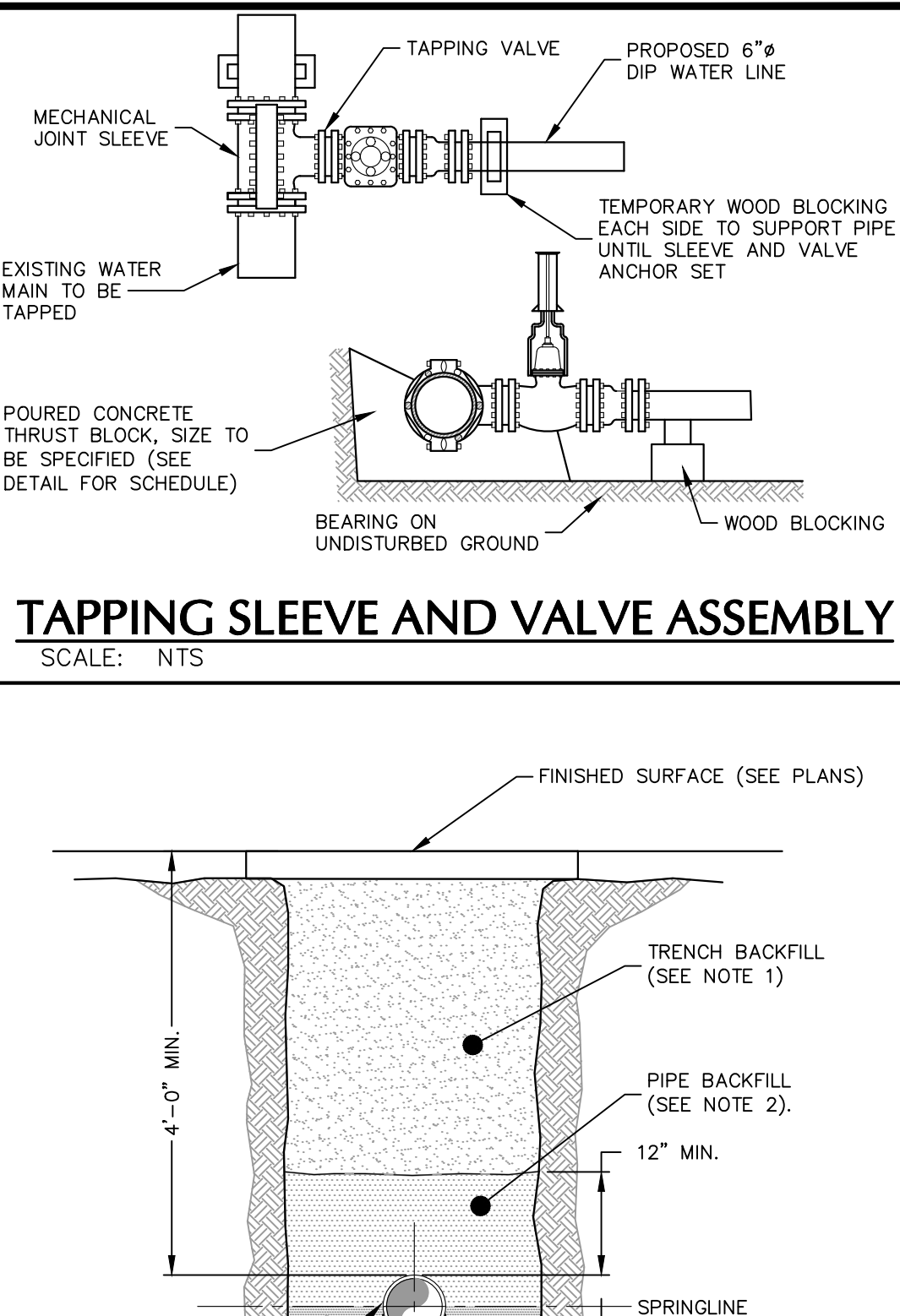
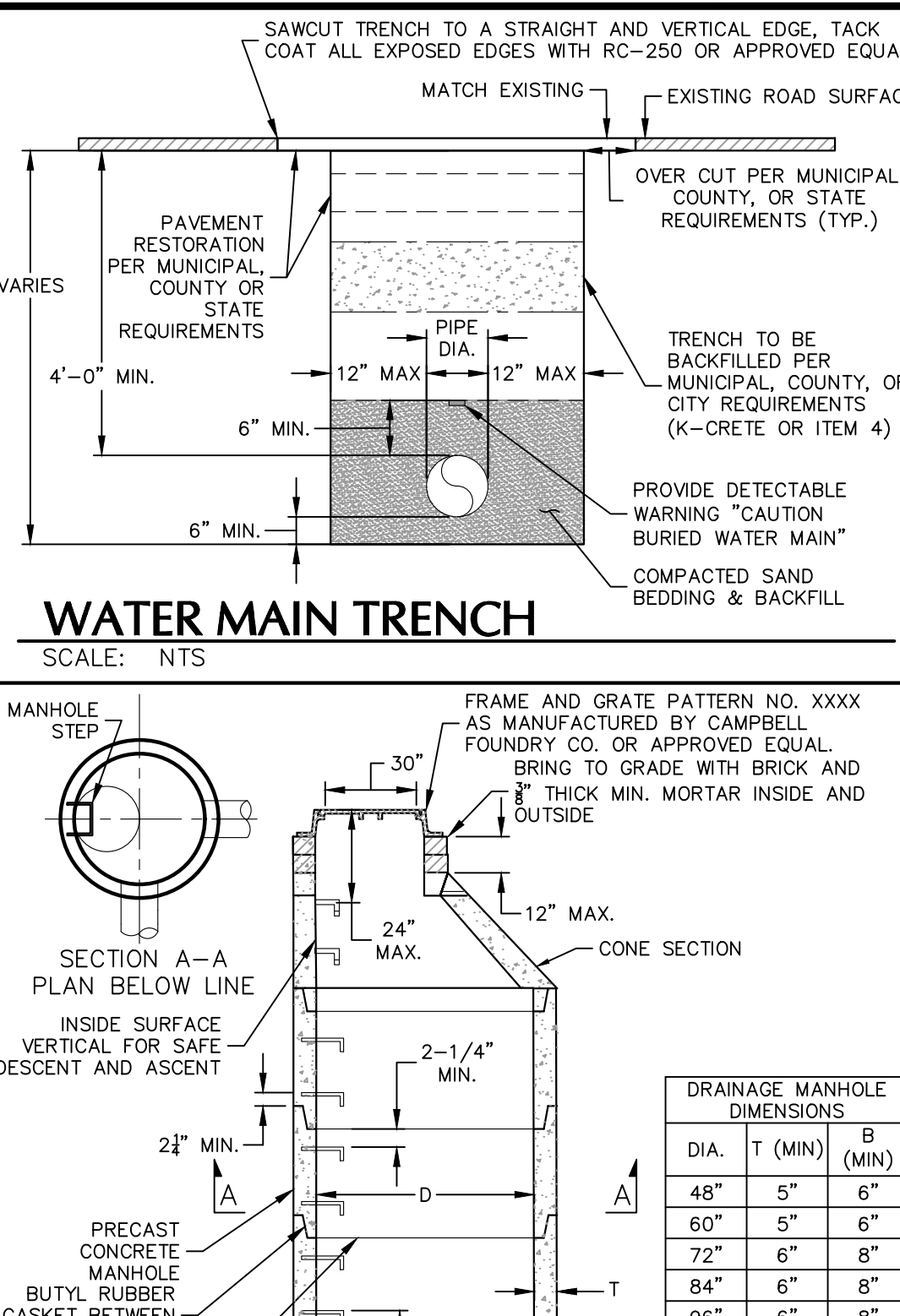
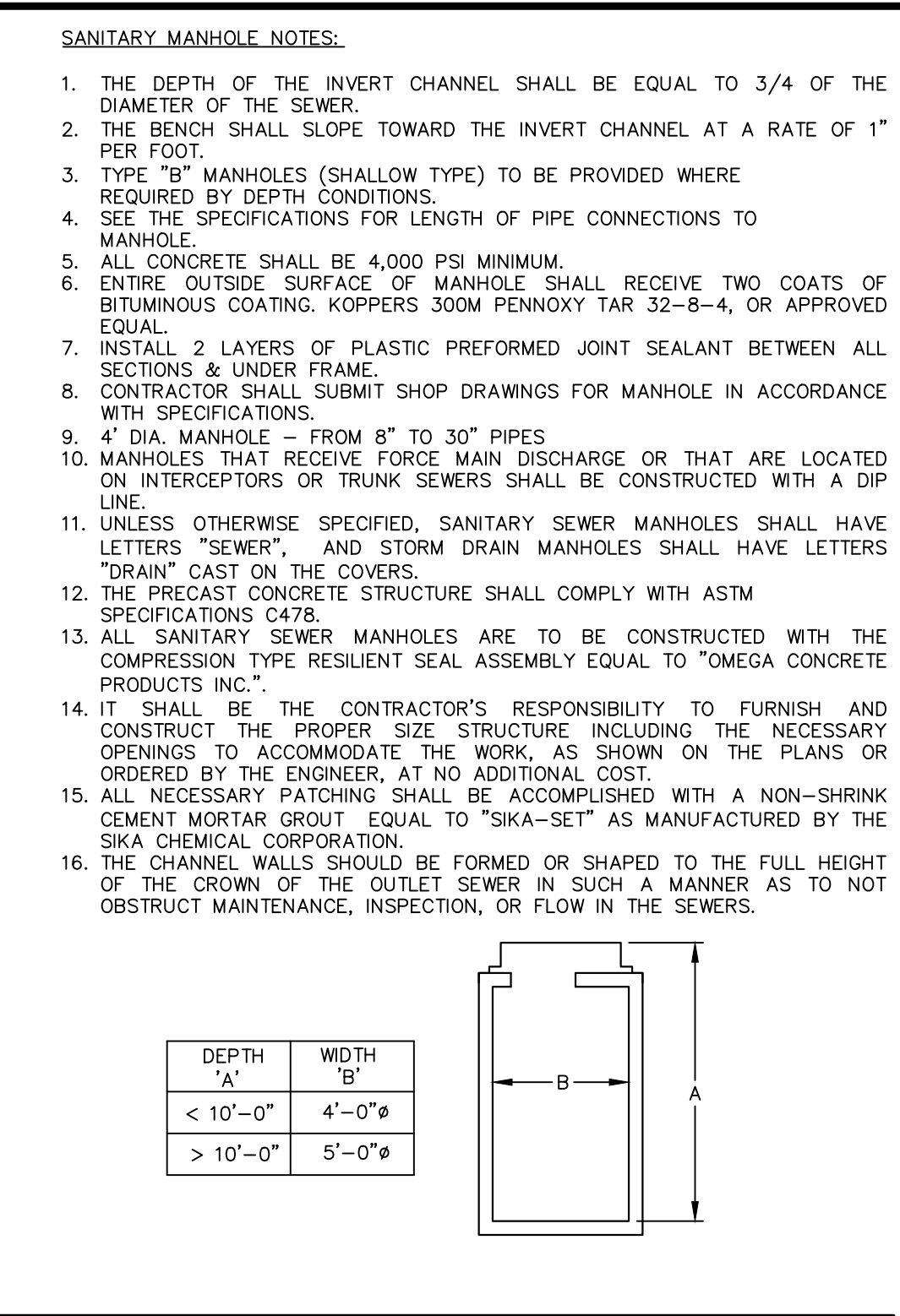
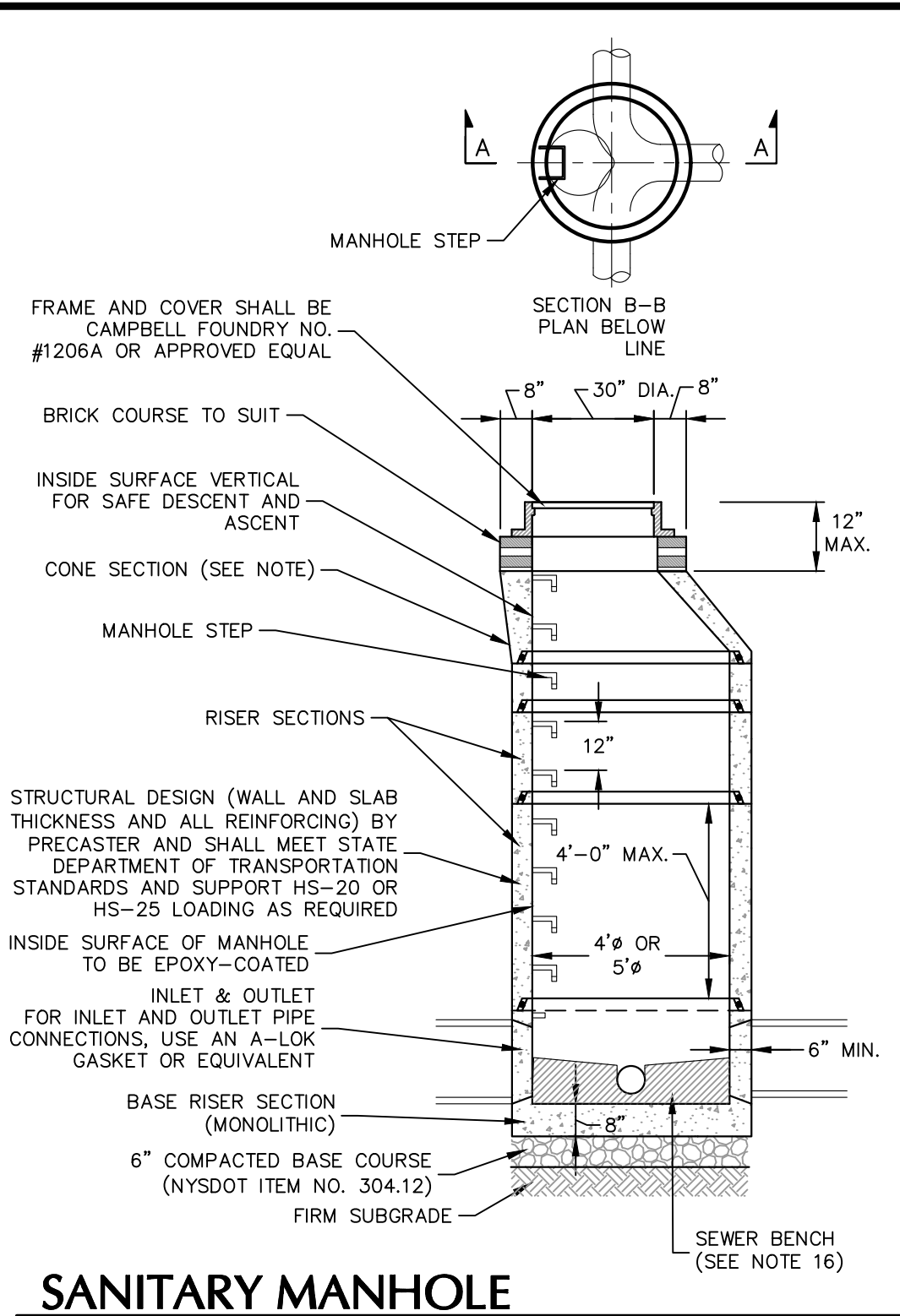
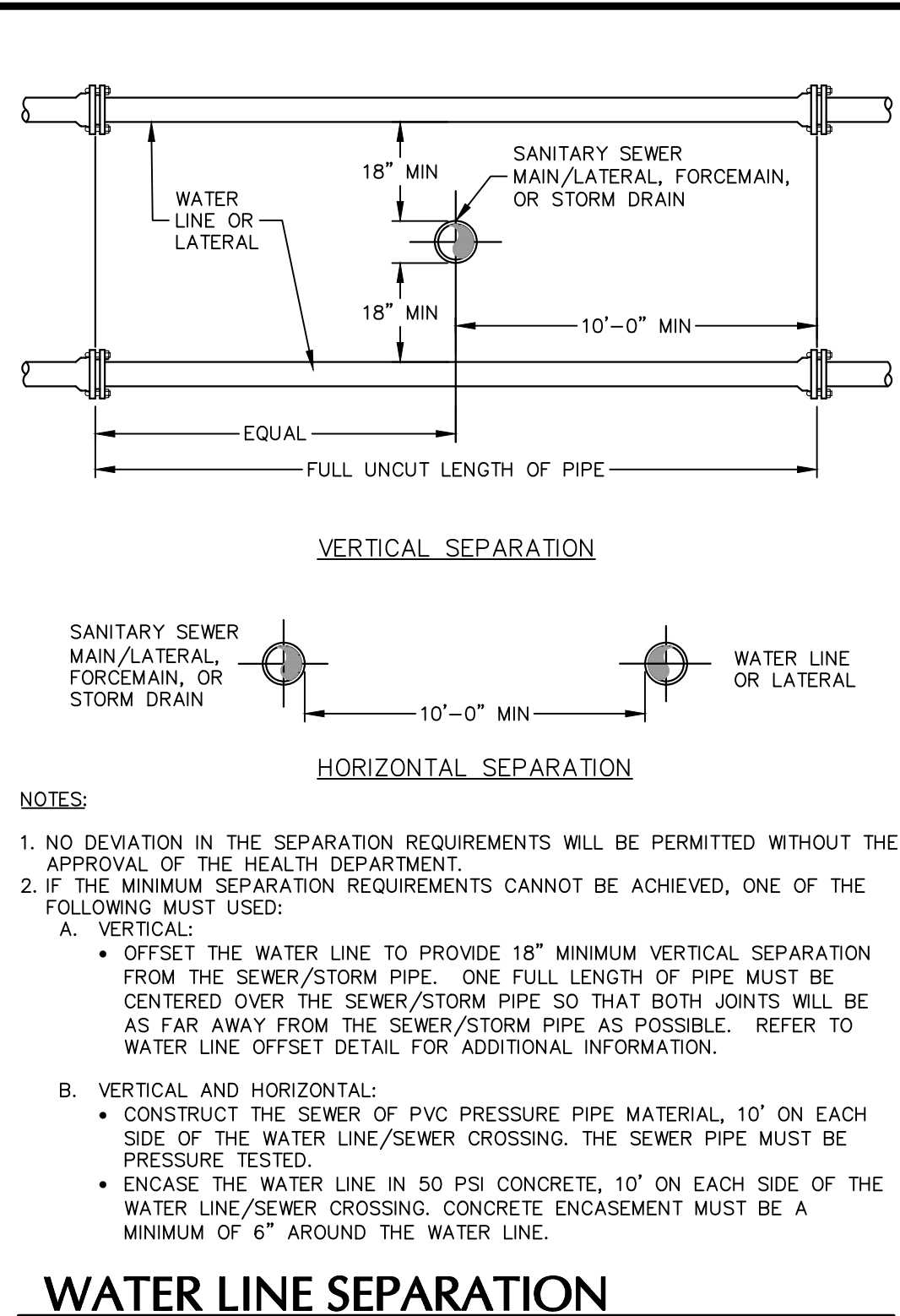
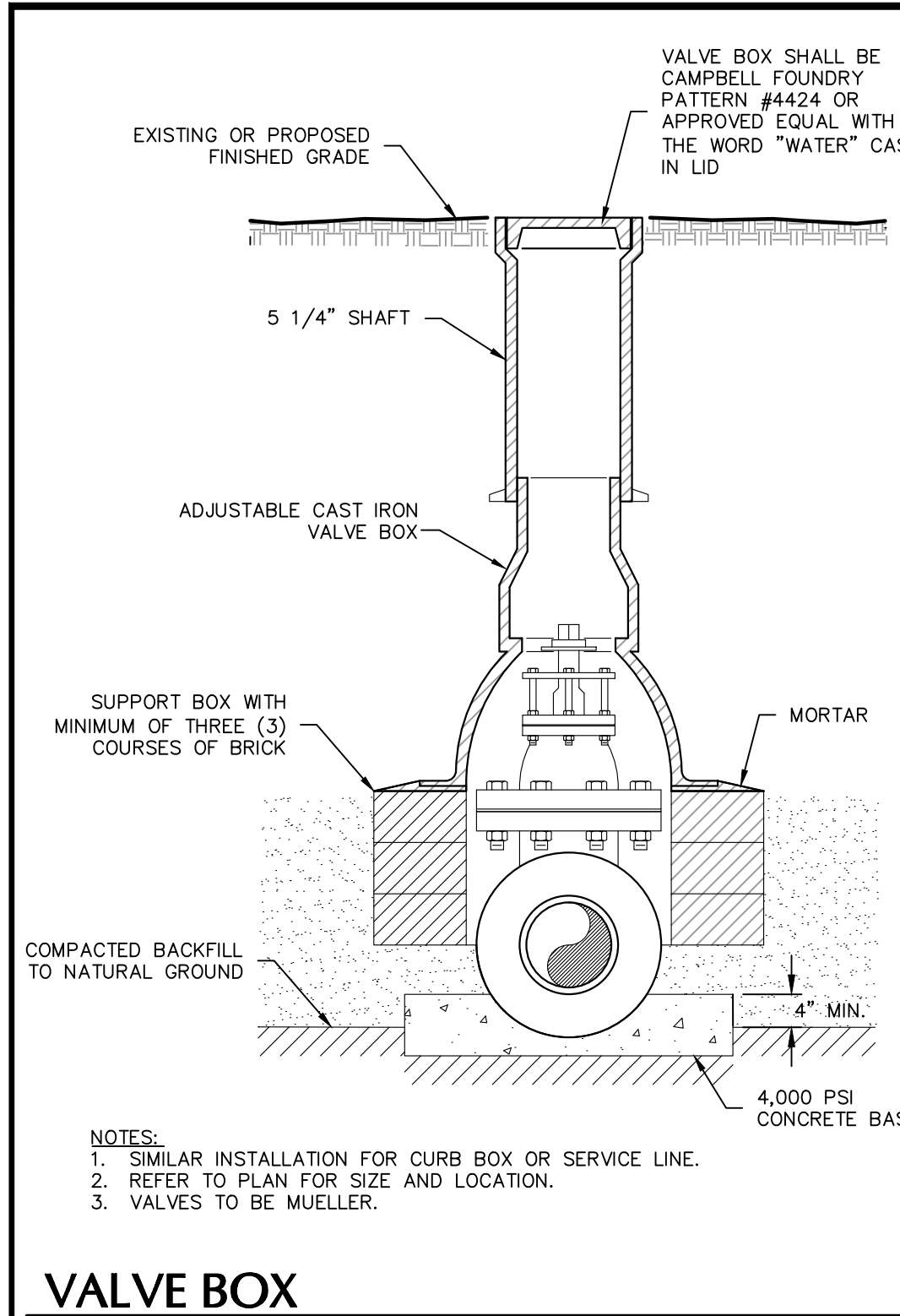
Drawn By GN

Checked By MT

Drawing No. CS501

Sheet 10 of 17





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Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Date	Description	No.
Revisions		

STATE OF NEW YORK  
MICHAEL J. RYAN  
Professional Engineer  
No. 081473  
PE, LEED-AP  
PROFESSIONAL ENGINEER NY Lic. No. 081473

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Project  
**45 BEDFORD ROAD**  
ARMONK  
WESTCHESTER COUNTY  
NEW YORK

Drawing Title  
**DETAILS (2 OF 3)**

Project No.  
**190085001**

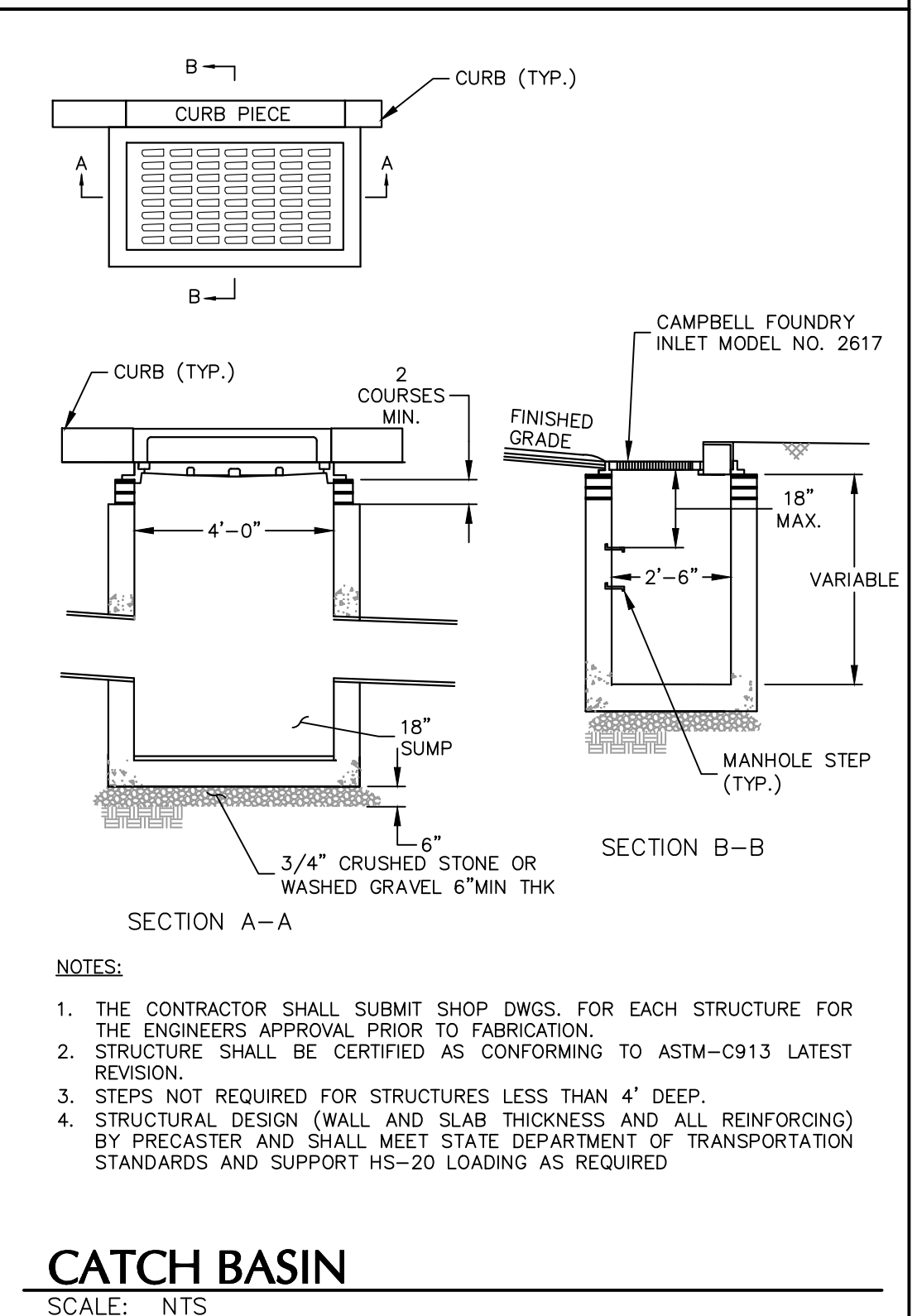
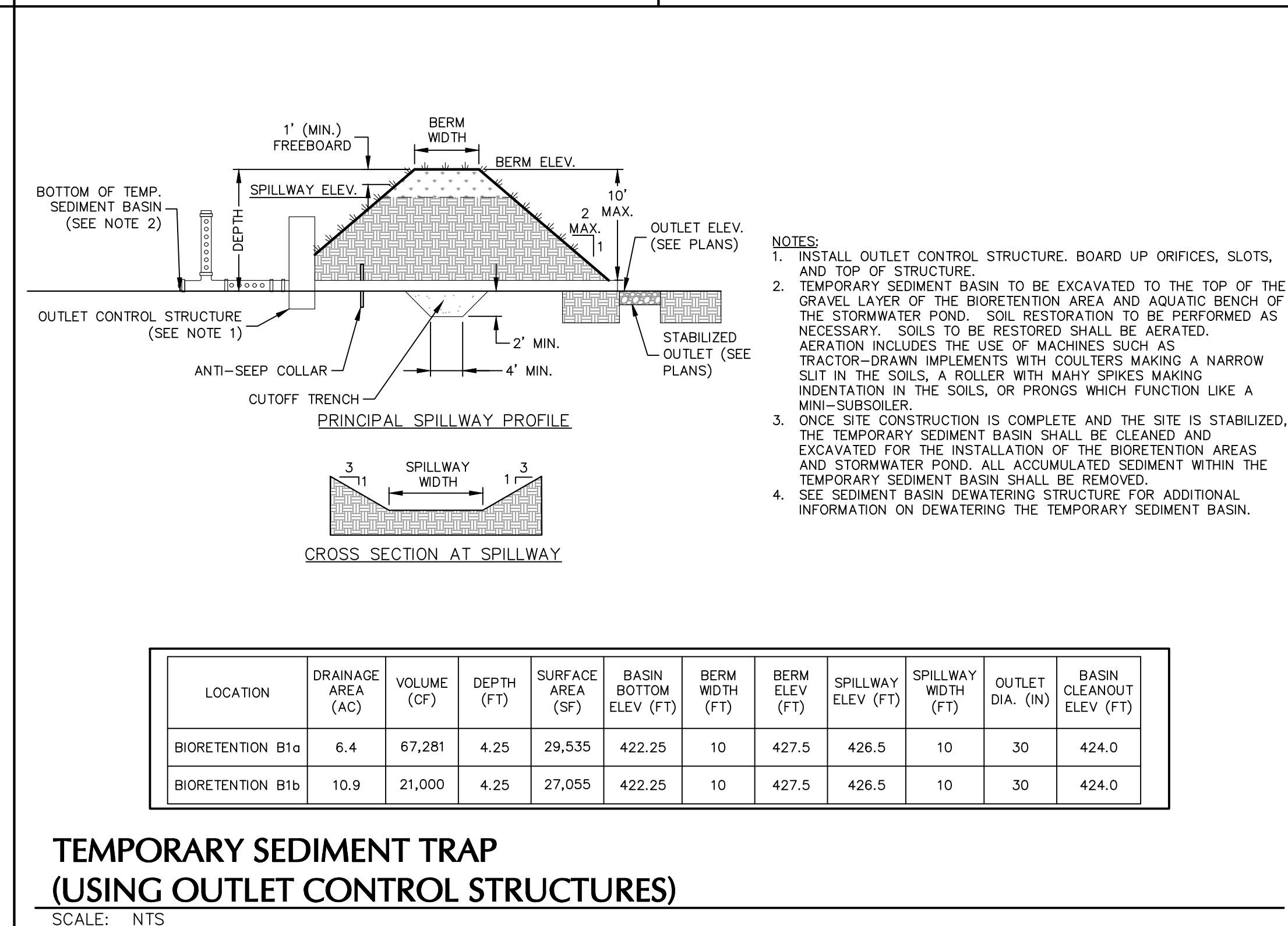
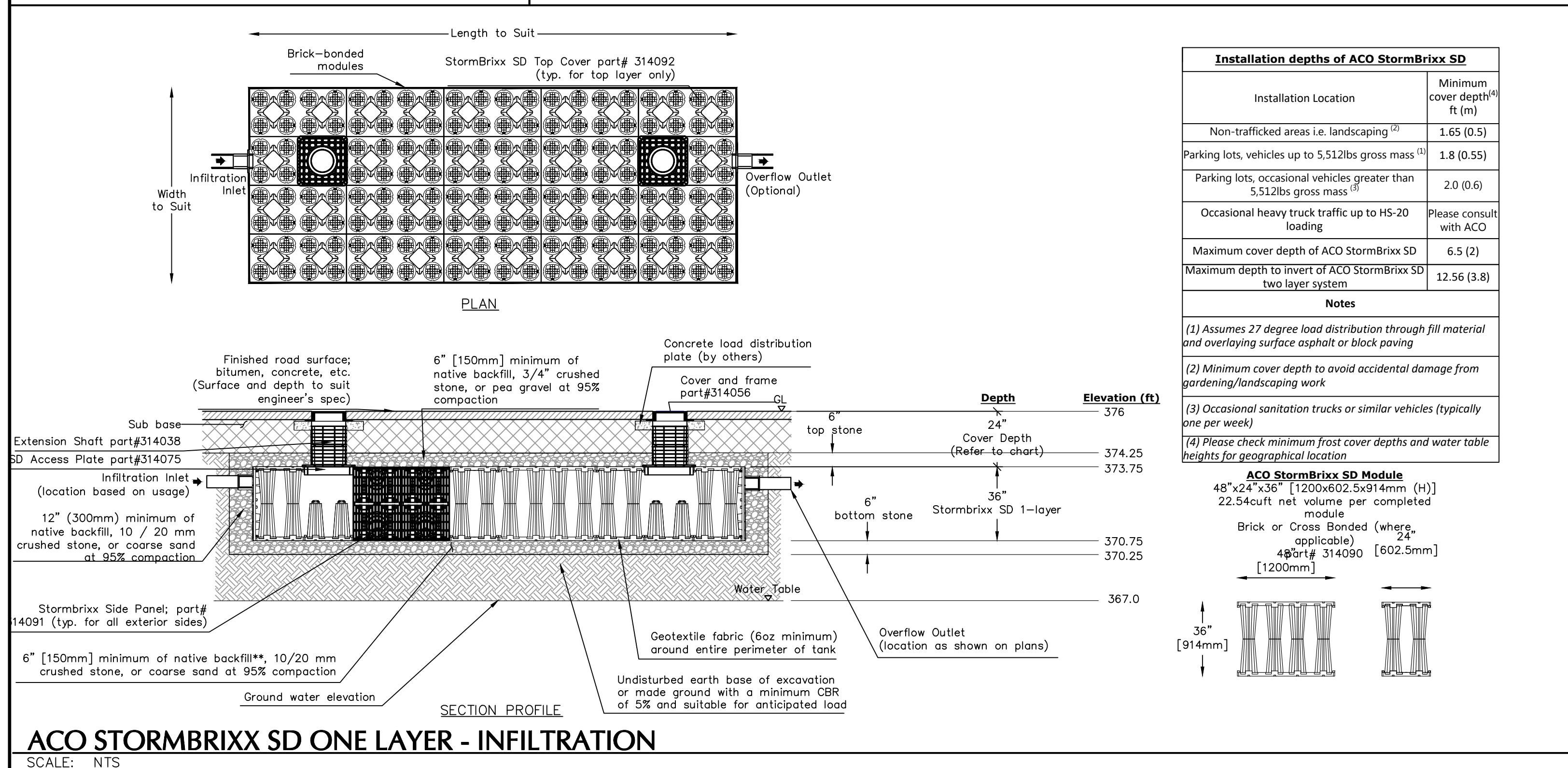
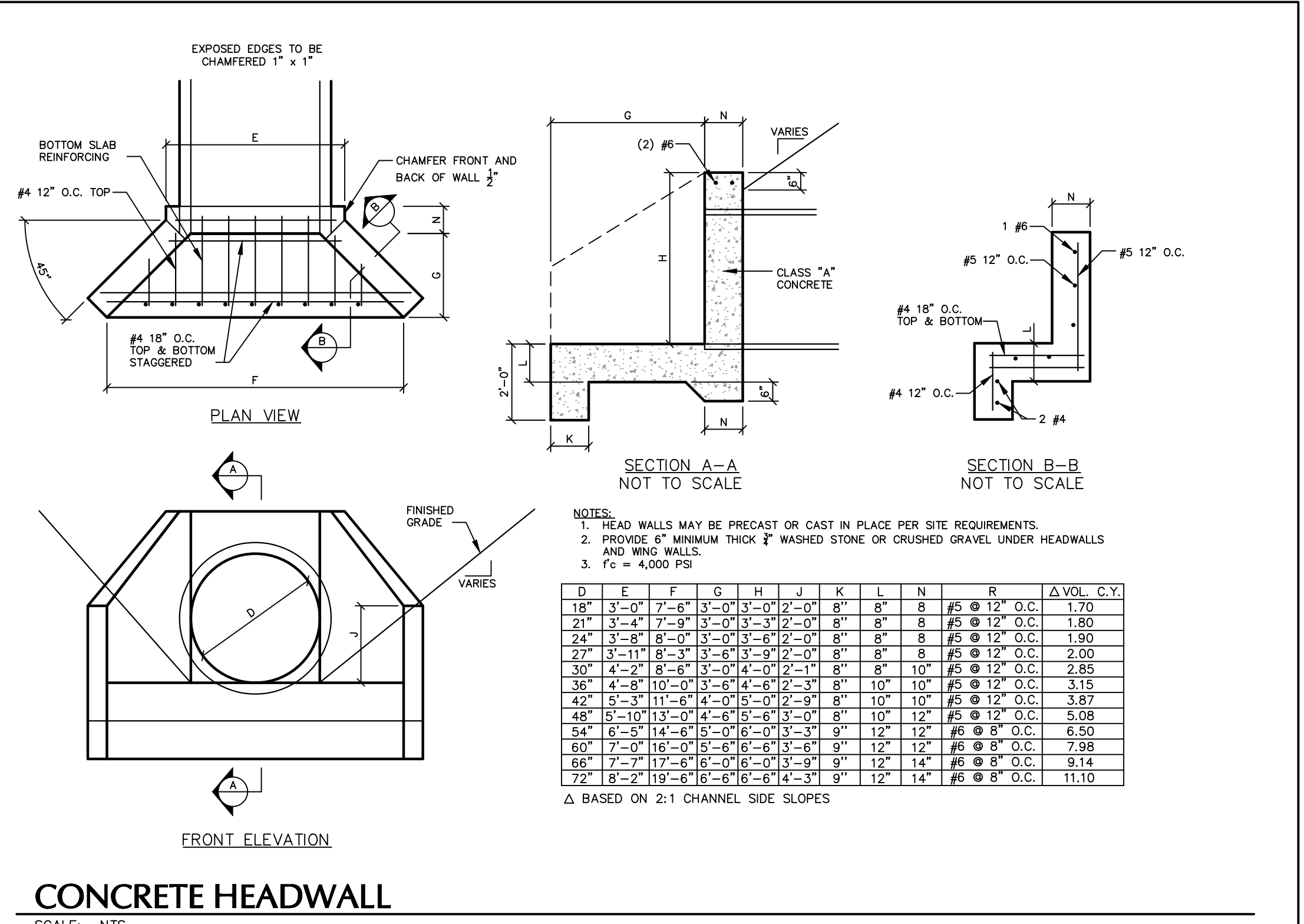
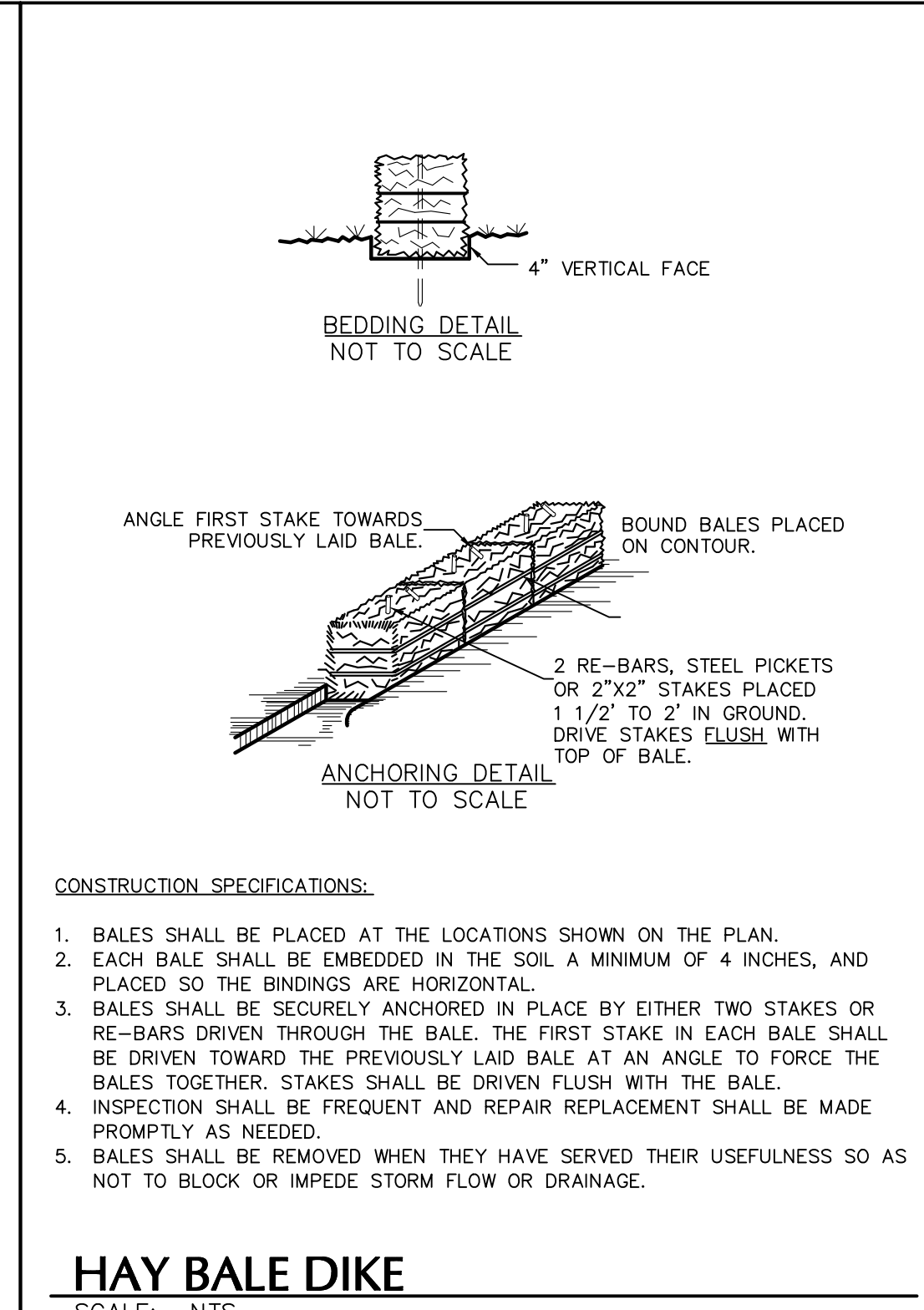
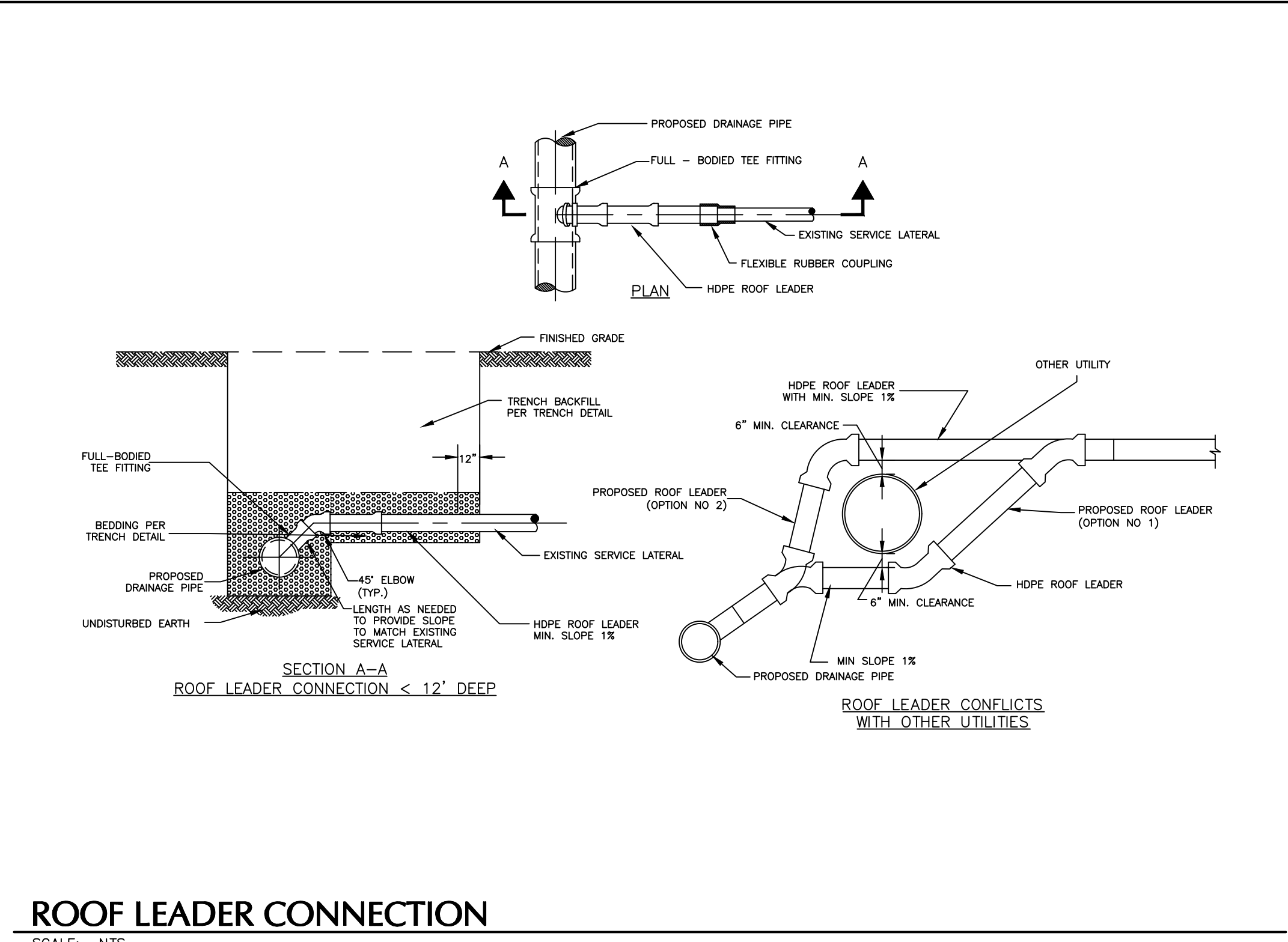
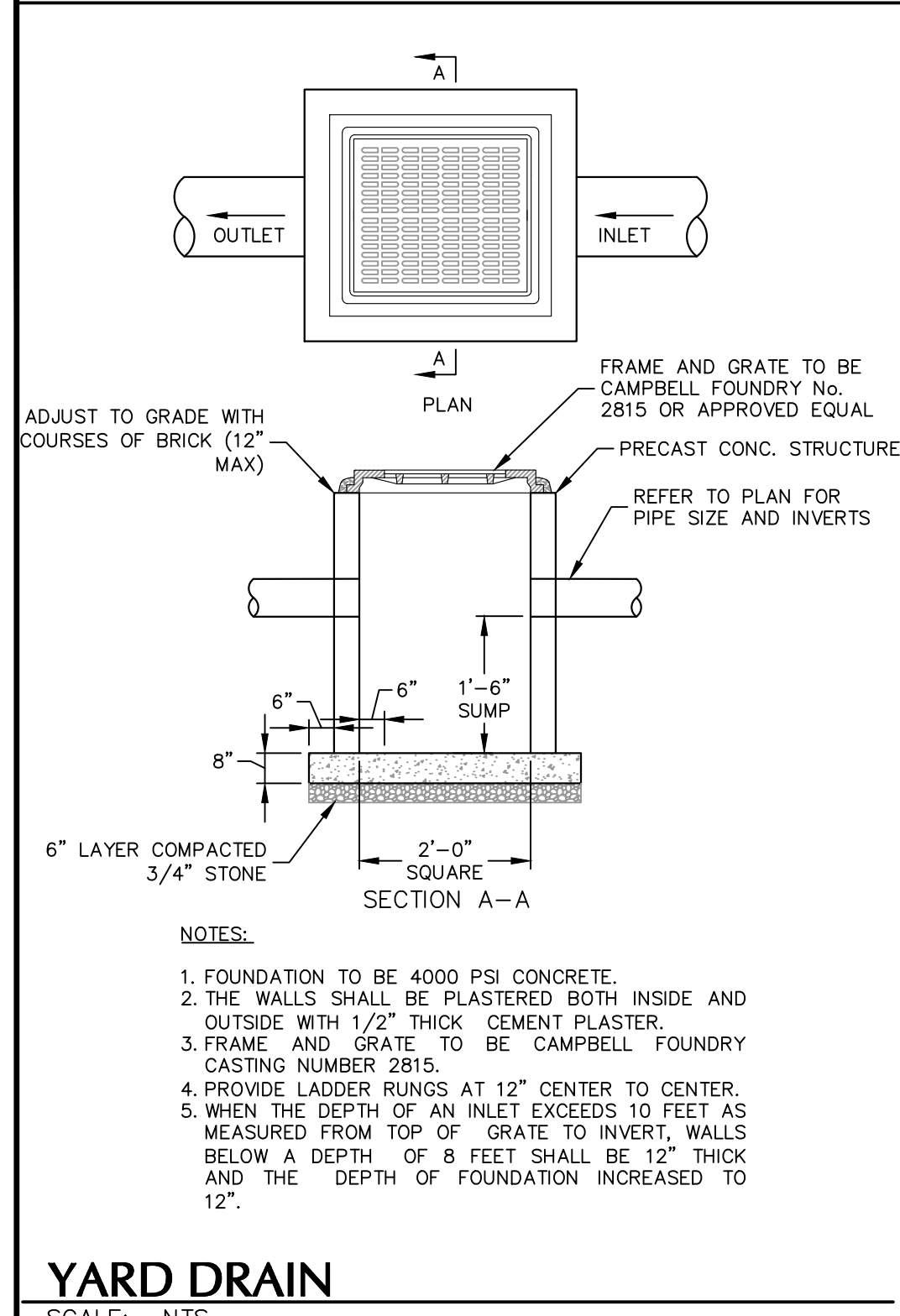
Date  
**AUGUST 7, 2023**

Drawn By  
**GN**

Checked By  
**MT**

Drawing No.  
**CS502**

Sheet 11 of 17



Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Date	Description	No.
Revisions		

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**45 BEDFORD ROAD**  
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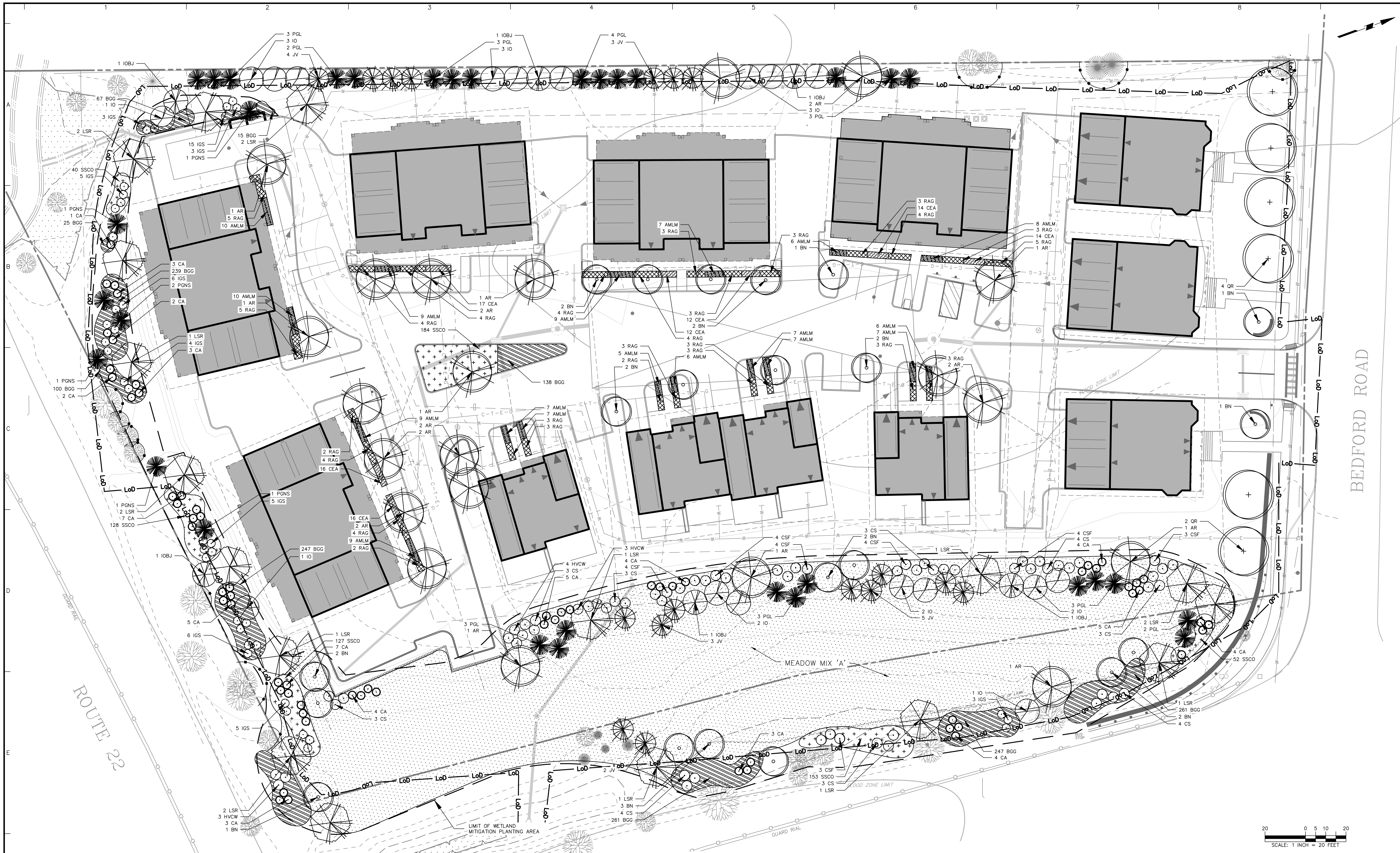
Project No.	Drawing No.
190085001	CS503
Date AUGUST 7, 2023	Sheet 12 of 17
Drawn By GN	
Checked By MT	

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**DETAILS (3 OF 3)**

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11/13/23	RESPONSE TO COMMENTS	2
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Revisions		

  
 MICHAEL HUNTON, RLA  
 LANDSCAPE ARCHITECT NY Lic. No. 2926

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Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY ARMONK NEW YORK

Drawing Title  
**PLANTING PLAN**

Project No.	190085001	Drawing No.	LP101
Date	AUGUST 7, 2023	Sheet	13 of 17
Drawn By	MJ		
Checked By	MH		

TOWN OF NORTH CASTLE - ZONING BYLAW REGULATIONS COMPLIANCE CHART

Table with 4 columns: REGULATION SECTION, REQUIRED/PERMITTED, PROVIDED/PROPOSED, COMPLIANCE. Rows include 355-56.H. and 355-56.H.2.

GENERAL LANDSCAPE PLANTING NOTES

- 1. NAMES OF PLANTS AS DESCRIBED ON THIS PLAN CONFORM TO THOSE GIVEN IN "STANDARDIZED PLANT NAMES" HAS EDITORIAL PREPARED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE... 2. ALL EXPOSED GROUND SURFACES THAT ARE NOT PAVED WITHIN THE CONTRACT LIMIT LINE...

LAWN SEED MIX:

- 1. LAWN SEED MIX: 3 TURF-TYPE TALL-FESCUE GRASSES... 2. GENERAL SEEDING NOTES: a) FINAL SEED MIXTURES, RATES, AND SPECIES TO BE DETERMINED BASED ON PROJECT LANDSCAPE...

LAWN WATERING SCHEDULE

- THE FOLLOWING WATERING SCHEDULE COVERS ROUGHLY 8 WEEKS TO ESTABLISH A HEALTHY STAND OF GRASS... 1. SEEDING SHALL BE DONE DURING THE SEASONS SPECIFIED IN THE LAWN SEED MIX NOTES AND/OR PROJECT SPECIFICATIONS...

IRRIGATION NOTES:

- 1. THE IRRIGATION CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF THE IRRIGATION INSTALLATION PLAN AND CUT-SHEETS FOR ALL COMPONENTS FOR REVIEW AND APPROVAL... 2. CHEMICAL ANALYSIS: a) LOWER THAN 1.0 TOXIC SUBSTANCE ANALYSIS...

MEADOW SEED NOTES

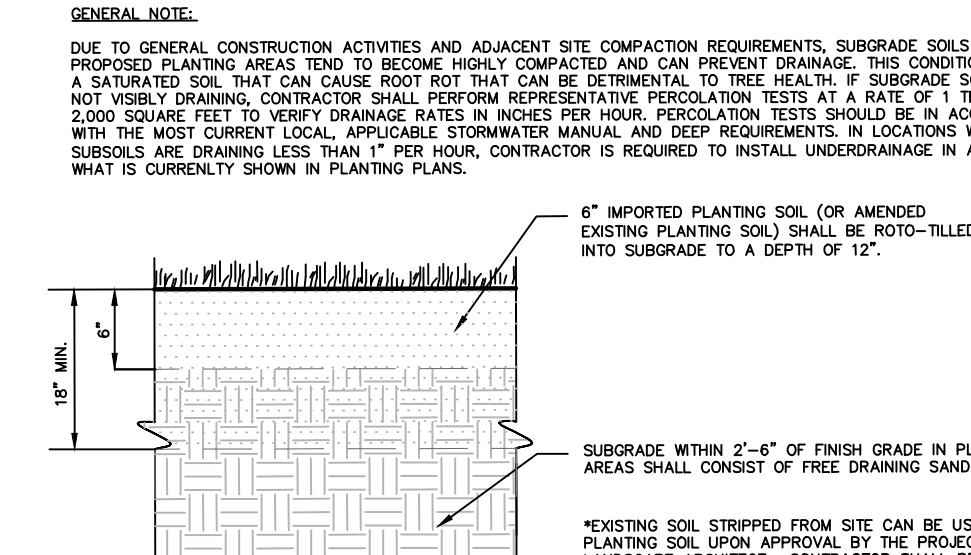
- SEED MIX: A - NATIVE DETENTION AREA MIX... 20.0% PANICUM CLANDESTINUM DEERTONGUE, TOGA... 20.0% PANICUM VIRGATUM SWITCHGRASS, SWITCHGRASS... 20.0% CAREX VILPANOVA, PA ECTYPE... 20.0% ELIMUS VIRGIDUS MAIDEN HAIR, VIRGINIA WIGGLE...

PLANTING SOIL SPECIFICATIONS

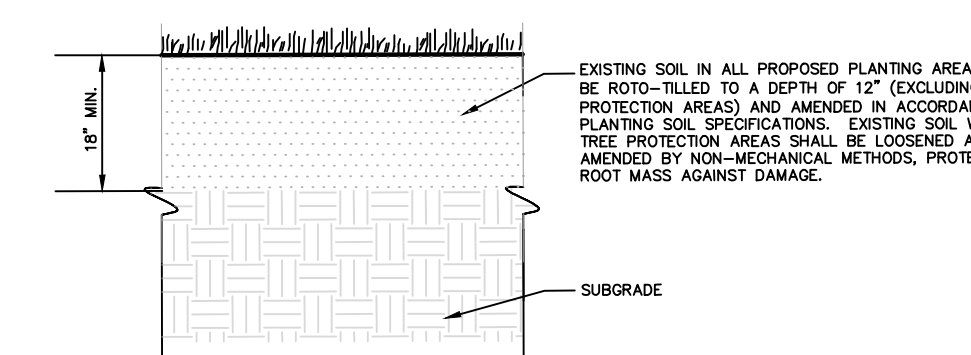
- 1. PLANTING SOIL, ALTERNATIVELY MAY BE REFERRED TO AS TOPSOIL, SHOULD BE FRIABLE, FERTILE, WELL DRAINED, FREE OF DEBRIS, TOWN TRASH AND STONES OVER 1/2" DIA... 2. PLANTING SOIL: REUSE SURFACE SOILS STOCKPILED ON SITE, VERIFYING COMPLIANCE WITH PLANTING SOIL AND TOPSOIL CRITERIA...

GENERAL NOTES

- 1. ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE... 2. BIODIRECTION SOIL MIX: a) BIODIRECTION SOIL MIX IS TO BE USED IN ALL DETENTION BASINS AND RAIN GARDENS... 3. COARSE SAND: 1) PARTICLE SIZE ANALYSIS...



PLANTING SOIL WITHIN AREAS OF CUT OR RAISED GRADE



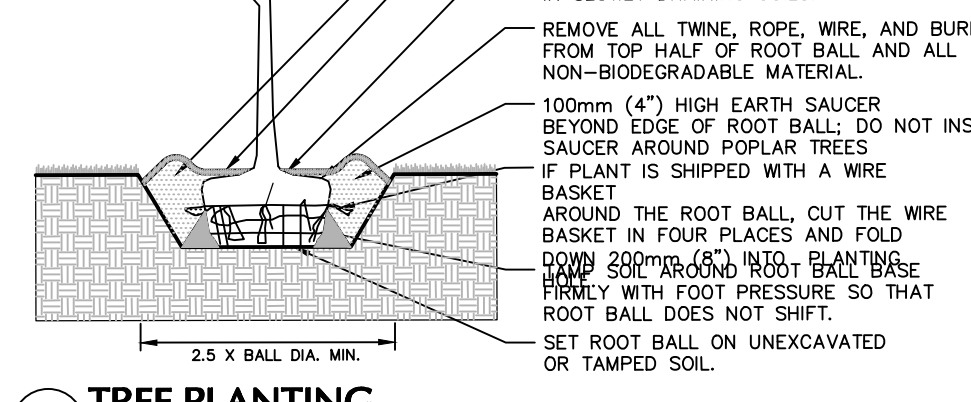
PLANTING SOIL WITHIN AREAS OF UNCHANGED GRADE

- 1. CONTRACTOR IS RESPONSIBLE TO SEND SAMPLES OF EXISTING SOILS INTENDED FOR USE IN PLANTING AREAS... 2. RECYCLED CRUSHED CONCRETE AND ASPHALT MELTINS SHALL NOT BE PLACED WITHIN 2'-6\"/>

PLANTING SOIL

- 1. CONTRACTOR TO PROVIDE SIX INCHES (6") MINIMUM DEPTH PLANTING SOIL LAYER IN LAWN AREAS... 2. SOIL PLACEMENT: a) CONTRACTOR TO PROVIDE SIX INCHES (6") MINIMUM DEPTH PLANTING SOIL LAYER IN LAWN AREAS...

TREE PLANTING



SHRUB AND ORNAMENTAL GRASS PLANTING

- 1. ALL SHRUBS TO BE SET PLANTED 2 WEEKS TO LANDSCAPE PLAN FOR SPACING OF INDIVIDUAL PLANTS... 2. REMOVE ALL WEED, PLASTIC, TAGS OR SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING...

PLANT SCHEDULE

Table with 6 columns: KEY, QTY., BOTANICAL NAME, COMMON NAME, SIZE, ROOT, REMARKS. Rows include Shade Tree(s), Ornamental Tree(s), Evergreen Tree(s), Evergreen Shrub(s), and Deciduous Shrub(s).

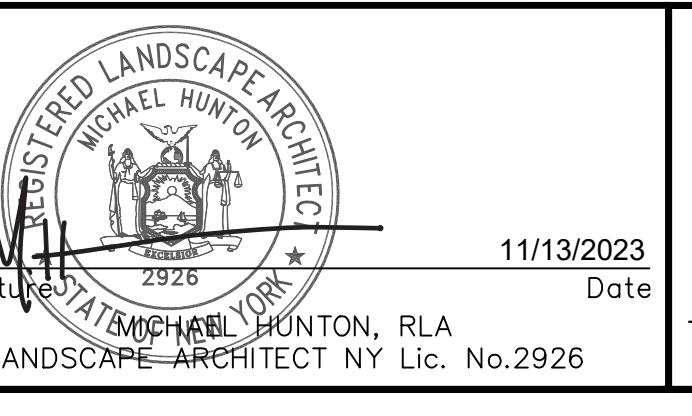
NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

LANDSCAPE MAINTENANCE NOTES

- 1. MAINTENANCE OPERATIONS BEFORE APPROVAL: a) PLANT CARE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS SATISFACTORILY INSTALLED AND SHALL CONTINUE THROUGHOUT THE LIFE OF THE CONTRACT UNTIL FINAL ACCEPTANCE OF THE PROJECT... b) CARE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS...

Table with 4 columns: Date, Response to Comments, No., Signature. Rows include 11/13/23 and 10/06/23.

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Project information: 45 BEDFORD ROAD, WESTCHESTER COUNTY, NEW YORK

Drawing Title: PLANTING DETAILS AND NOTES

Project No. 190085001, Date AUGUST 7, 2023, Drawing No. LP501, Sheet 14 of 17



### SITE LIGHTING SCHEDULE

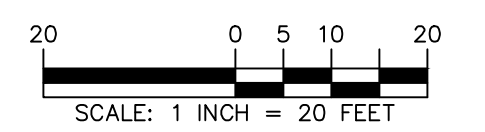
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●	A	25	STERNBERG LIGHTING	1843LED	POLE MOUNTED POST TOP LIGHT; COLOR - BLACK	12'-0"	71	5,710	0.90	TYPE 5	3000 K	1843LED-12L-40-T4-MDL014-CSA	STERNBERG LIGHTING	ROUND TAPERED ALUMINUM WITH DECORATIVE BASE; COLOR - BLACK	12'-0"	4500 DECATUR SERIES	N/A
●	B	10	STERNBERG LIGHTING	1843LED	POLE MOUNTED POST TOP LIGHT; COLOR - BLACK	12'-0"	71	8,212	0.90	TYPE 4	3000 K	1843LED-12L-40-T5-MDL008-CSA	STERNBERG LIGHTING	ROUND TAPERED ALUMINUM WITH DECORATIVE BASE; COLOR - BLACK	12'-0"	4500 DECATUR SERIES	N/A
—	C	52	PERFORMANCE IN LIGHTING	QUASAR 10 1WB	WALL MOUNTED POST TOP LIGHT; COLOR - BLACK	8'-6"	3.5	150	0.90	ROUND	3000 K	QUASAR10-1WB-30335690104	-	-	-	-	N/A

- NOTES:  
 1. POLES SHALL BE FACTORY CUT TO SPECIFIED LENGTH BY MANUFACTURER.  
 2. CONTRACTOR TO CONFIRM AND COORDINATE FINAL LINE VOLTAGE WITH MEP PLANS PRIOR TO PURCHASING FIXTURES.

### SITE LIGHTING STATISTICS

DESCRIPTION	AVG. (FC)	MAX. (FC)	MIN. (FC)	MAX./MIN.	AVG./MIN.
PROPERTY LINE	0.01	0.2	0.0	N/A	N/A
NORTH DRIVEWAY	1.62	4.3	0.5	3.50	9.20
SOUTH DRIVEWAY	1.40	4.1	0.5	2.80	8.20

NOTES:  
 LIGHT PHOTOMETRY AND CALCULATIONS FOR EXISTING AND ADJACENT LIGHTING TO REMAIN ARE NOT INCLUDED IN THE ABOVE STATISTICS.



**WARNING:** IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.
11/13/23	RESPONSE TO COMMENTS	2
10/06/23	RESPONSE TO COMMENTS	1
Date	Description	No.
Revisions		

11/13/2023  
 Signature: MICHAEL HUNTON, RLA  
 LANDSCAPE ARCHITECT NY Lic. No. 2926

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 White Plains, NY 10601  
 T: 914.323.7400 F: 914.323.7401 www.langan.com

Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY ARMONK NEW YORK

Drawing Title  
**SITE LIGHTING PLAN**

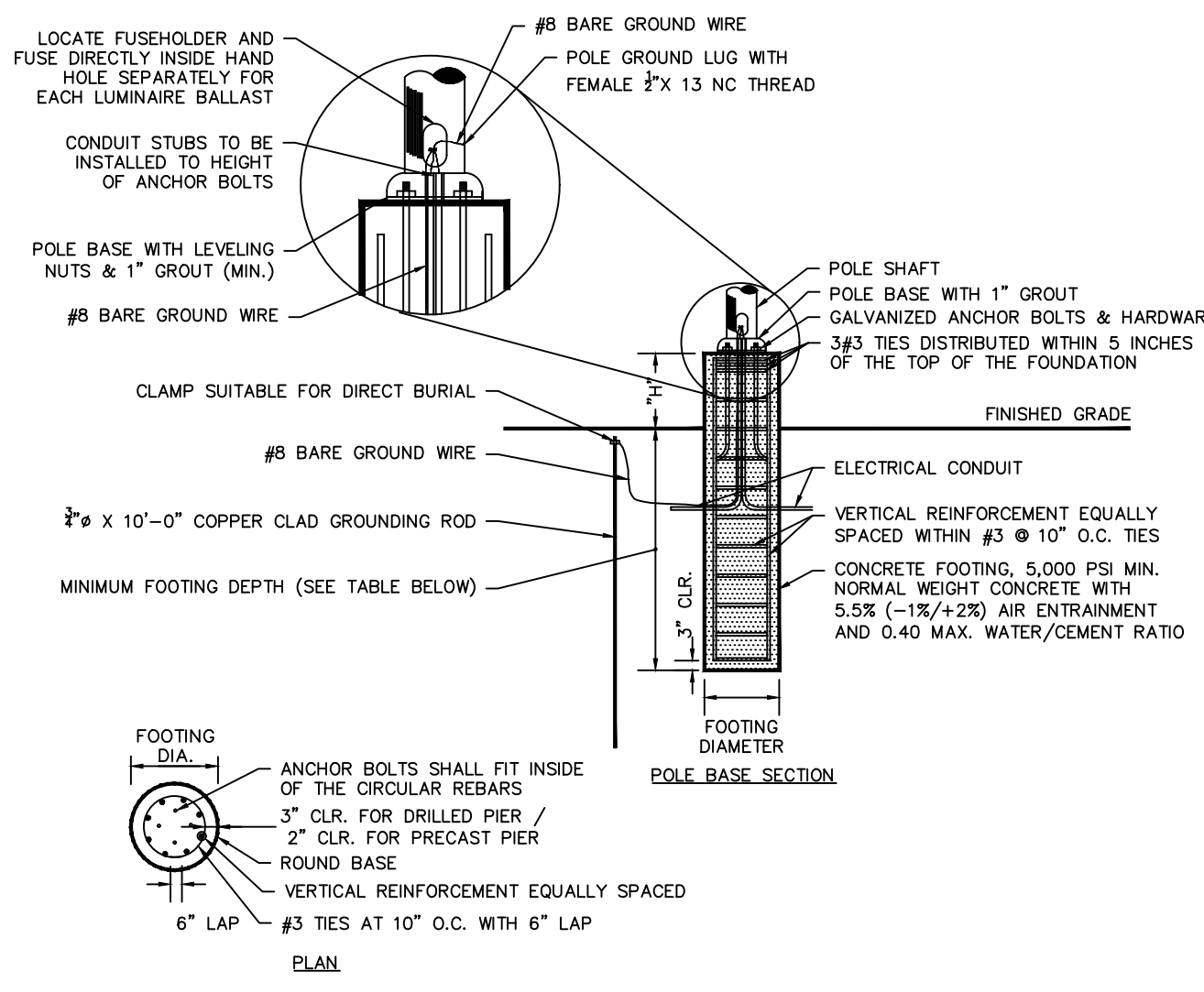
Project No.  
**190085001**  
 Date  
**AUGUST 7, 2023**  
 Drawn By  
**SH**  
 Checked By  
**MH**  
 Drawing No.  
**LL101**  
 Sheet 15 of 17

### TOWN OF NORTH CASTLE - ZONING BYLAW REGULATIONS COMPLIANCE CHART

REGULATION SECTION	REQUIRED / PERMITTED	COMPLIANCE
355-45.M.1	NO USE SHALL PRODUCE ILLUMINATION BEYOND THE BOUNDARIES OF THE PROPERTY ON WHICH IT IS LOCATED IN EXCESS OF 0.5 FOOTCANDLE, MEASURED VERTICALLY AT FIVE FEET ABOVE THE GROUND, AT THE PROPERTY LINE, NOTWITHSTANDING THE ABOVE, WHERE TWO COMMERCIAL PROPERTIES ADJACENT TO EACH OTHER, A MAXIMUM VERTICAL ILLUMINATION AT FIVE FEET ABOVE THE GROUND AT THE PROPERTY LINE, OF 1.0 FOOTCANDLE IS PERMITTED.	COMPLIES
355-45.M.3	ALL EXTERIOR LUMINAIRES, INCLUDING LUMINAIRES INSTALLED UNDER CANOPIES, SHALL BE FULL-CUTOFF FIXTURES.	COMPLIES
355-45.M.4	THE MOUNTING HEIGHT FOR ANY LIGHTING FIXTURE SHALL BE NOT GREATER THAN 25 FEET	COMPLIES

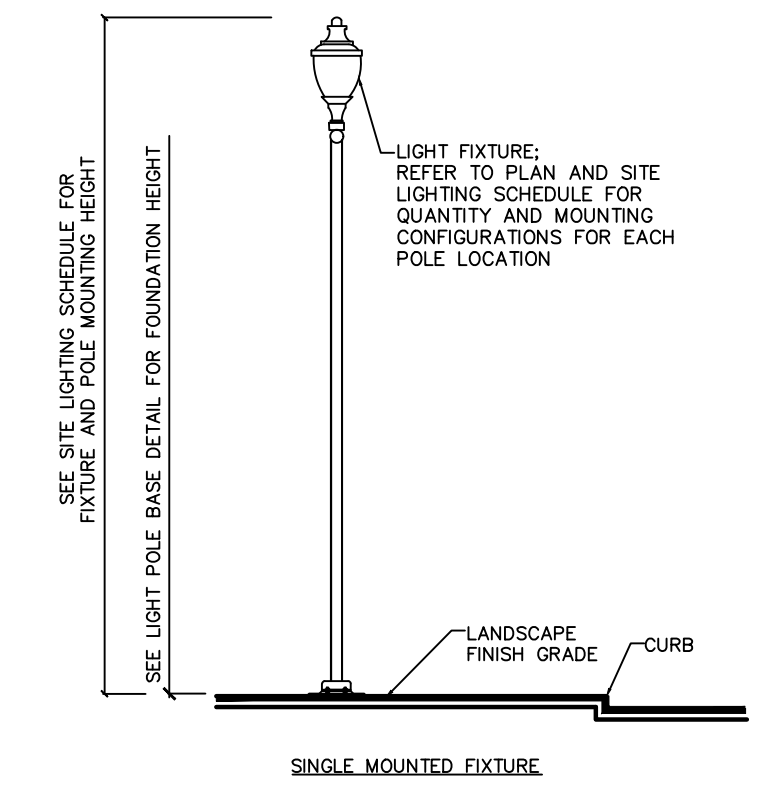
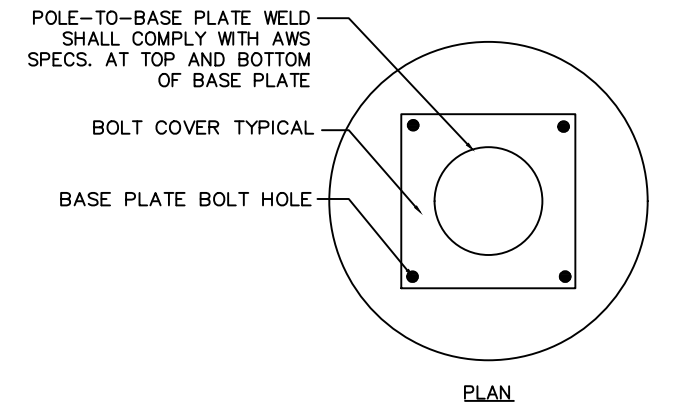
### SITE LIGHTING NOTES

- GENERAL**
- POINT-BY-POINT CALCULATIONS PROVIDED WITHIN HAVE BEEN PREPARED IN ACCORDANCE TO IESNA STANDARDS AND IN CONSIDERATION OF THE VARIABLES WITHIN THESE NOTES AND SITE LIGHTING SCHEDULE. THE VALUES SHOWN ON THE PLANS ARE NOT AN INDICATION OF THE INITIAL LIGHT INTENSITIES OF THE LAMPS. THESE VALUES ARE AN APPROXIMATION OF THE MAINTAINED INTENSITIES DELIVERED TO THE GROUND PLANE USING INDUSTRY STANDARD LIGHT LOSS FACTORS (LLF) WHICH COVER LAMP DEGRADATION AND NATURAL BUILDUP/DIRT DEGRADATION ON THE FIXTURE LENS. THE LIGHTING PLAN IS DESIGNED WITH AN INDUSTRY STANDARD LLF IN ACCORDANCE WITH GUIDANCE AS PROVIDED BY IESNA. MINOR VARIATIONS IN TOPOGRAPHY, PHYSICAL OBSTRUCTIONS, AMBIENT OR ADJACENT LIGHT SOURCES AND/OR OTHER POTENTIAL IMPACTS HAVE NOT BEEN INCLUDED IN THESE CALCULATIONS. THEREFORE, AS-BUILT LIGHT INTENSITIES MAY VARY, IN EITHER DIRECTION, FROM WHAT IS EXPLICITLY PORTRAYED WITHIN THESE DRAWINGS. NO GUARANTEE OF LIGHT LEVELS IS EXPRESSED OR IMPLIED BY THE POINT BY POINT CALCULATIONS SHOWN ON THESE PLANS.
  - LIGHT LEVEL POINT SPACING IS 10 FT. LEFT TO RIGHT AND 10 FT. TOP TO BOTTOM. POINT BY POINT CALCULATIONS ARE BASED ON THE LIGHT LOSS FACTOR AS STATED IN THE LIGHTING SCHEDULE.
  - COMPLIANCE
  - ALL SITE LIGHTING RELATED WORK AND MATERIALS SHALL COMPLY WITH CITY, COUNTY, AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
  - LIGHTING LAYOUT COMPLIES WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) SAFETY STANDARDS FOR LIGHT LEVELS.
- COORDINATION**
- CONTRACTOR TO COORDINATE POWER SOURCE WITH LIGHT FIXTURES TO ENSURE ALL SITE LIGHTING IS OPERATING EFFECTIVELY, EFFICIENTLY AND SAFELY.
  - REFER TO ELECTRIFICATION PLAN FOR PROVIDING ADEQUATE POWER FOR SITE LIGHTING.
  - CONTRACTOR TO COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
  - INSTALLATION OF ALL LIGHTING FIXTURES, POLES, FOOTINGS, AND FEEDER CABLE TO BE COORDINATED WITH ALL SITE WORK TRADES TO AVOID CONFLICT WITH FINISHED AND PROPOSED WORK.
  - CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND FEEDER CABLE FOR EXTERIOR LIGHTING WITH EXISTING AND PROPOSED UTILITIES, SITE DRAINAGE SYSTEMS, AND PAVING. CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE SHOULD ANY UTILITIES, NOT SHOWN ON THE PLANS, BE FOUND DURING EXCAVATIONS.
- POLES AND FOOTINGS**
- PROVIDE A CONCRETE BASE FOR EACH LIGHT POLE AT THE LOCATIONS INDICATED ON THE CONSTRUCTION DRAWINGS AND/OR IN ACCORDANCE WITH PROJECT PLANS AND SPECIFICATIONS RELATING DIRECTLY TO CAST-IN-PLACE CONCRETE. THE USE OF ALTERNATE LIGHTING FOUNDATIONS, SUCH AS PRECAST, MAY CHANGE THE SIZING AND REINFORCEMENT REQUIREMENTS FROM THOSE SHOWN ON THESE PLANS. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO ORDERING ANY SUBSTITUTED PRODUCTS.
  - CONTRACTOR SHALL EXAMINE AND VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO SUPPORT LOADS EXERTED UPON THE FOUNDATIONS DURING EXCAVATION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY UNSATISFACTORY CONDITIONS.
  - POLE FOUNDATIONS SHALL NOT BE POURED IF FREE STANDING WATER IS PRESENT IN EXCAVATED AREA.
  - ALL POLES HIGHER THAN 25 FT. SHALL BE EQUIPPED WITH FACTORY INSTALLED VIBRATION DAMPENERS.
- WALL MOUNTED FIXTURES**
- CONTRACTOR TO COORDINATE INSTALLATION OF ALL THE WALL MOUNTED FIXTURES AND ELECTRICAL CONNECTIONS TO SITE STRUCTURE(S) WITH BUILDING MEP, ARCHITECT, AND/OR OWNER.
  - INSTALLATION AND ELECTRICAL CONNECTIONS FOR WALL MOUNTED FIXTURES TO BE COORDINATED WITH ARCHITECTURAL, STRUCTURAL, UTILITY AND SITE PLANS AND TO BE IN ACCORDANCE WITH ALL APPLICABLE CODES.
- ADJUSTMENT AND INSPECTION**
- CONTRACTOR TO OPERATE EACH LUMINAIRE AFTER INSTALLATION AND CONNECTION. INSPECT FOR IMPROPER CONNECTIONS AND OPERATION.
  - CONTRACTOR TO AIM AND ADJUST ALL LUMINAIRES TO PROVIDE ILLUMINATION LEVELS AND DISTRIBUTION AS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE LANDSCAPE ARCHITECT AND/OR OWNER.
  - CONTRACTOR TO CONFIRM THAT LIGHT FIXTURES, TILT ANGLE AND AIMING MATCH SPECIFICATIONS ON THE PLANS.
- REQUIREMENTS FOR ALTERNATES**
- ALL LIGHTING SUBSTITUTIONS MUST BE MADE WITHIN 14 DAYS PRIOR TO THE BID DATE TO PROVIDE AMPLIFIED TIME FOR REVIEW AND TO ISSUE AN ADDENDUM INCORPORATING THE SUBSTITUTION WITH THE FOLLOWING REQUIREMENTS:
    - ANY SUBSTITUTION TO LIGHTING FIXTURES, POLES, ETC. MUST BE APPROVED BY THE OWNER, ENGINEER AND TENANTS. ANY COST ASSOCIATED WITH REVIEW AND/OR APPROVAL OF THE SUBSTITUTIONS SHALL BE ENTIRELY BORNE BY THE CONTRACTOR.
    - COMPUTER PREPARED PHOTOMETRIC LAYOUT OF THE PROPOSED LIGHTED AREA WHICH INDICATES, BY ISOFOOTCANDLE, THE SYSTEM'S PERFORMANCE.
    - A PHOTOMETRIC REPORT FROM A NATIONAL INDEPENDENT TESTING LABORATORY WITH REPORT NUMBER, DATE, FIXTURE CATALOG NUMBER, LUMINAIRE AND LAMP SPECIFICATIONS, IES CALCULATIONS, POINT BY POINT FOOT CANDLE PLAN, STATISTIC ZONES SHOWING AVERAGE, MAXIMUM, MINIMUM AND UNIFORMITY RATIOS, SUMMARY, ISOLUX PLOT, AND CATALOGUE CUTS. CATALOGUE CUTS MUST IDENTIFY OPTICS, LAMP TYPE, DISTRIBUTION TYPE, REFLECTOR, LENS, BALLASTS, WATTAGE, VOLTAGE, FINISH HOUSING DESCRIPTION AND ALL OTHER PERTINENT INFORMATION.
    - POLE MANUFACTURER AASHTO CALCULATIONS INDICATING THE POLE AND ANCHOR BOLTS BEING SUBMITTED ARE CAPABLE OF SUPPORTING THE POLE AND FIXTURE SYSTEMS BEING UTILIZED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
    - THE UNDERWRITERS LABORATORY LISTING AND FILE NUMBER FOR THE SPECIFIC FIXTURE(S) TO BE UTILIZED.
    - A COLOR PHOTOGRAPH THAT CLEARLY SHOWS THE REPLACEMENT FIXTURE POLE MOUNTED, THE FIXTURE'S COLOR, FINISH, AND PHYSICAL CHARACTERISTICS.



MOUNTING HEIGHT	FOOTING DEPTH	FOOTING DIAMETER	EXPOSED HEIGHT "H"	VERTICAL REINFORCEMENT
14'-0"	2'-0"	5'-0"	0'-2"	6#5 BARS

- NOTES:**
- SHAFT CAP, ARMS, BASE FLANGE, ANCHOR BOLTS, LEVELING NUTS, CONNECTION HARDWARE, BOLT COVERS, HANDHOLE COVER, AND BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY POLE MANUFACTURER.
  - EACH STANDARD TO BE PROTECTED AGAINST LIGHTNING WITH AN INTERCONNECTED GROUND ROD. THIS ROD SHALL BE BONDED PER SECTION NUMBER 250-86, N.E.C.
  - CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENT OF ACI 318. CAST-IN-PLACE SHALL HAVE UNCONFINED COMPRESSIVE STRENGTH OF AT LEAST 5,000 PSI AT 28-DAYS. DEFORMED REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60.
  - CONTRACTOR TO ENSURE CONCRETE POLE BASES ARE POURED / PLACED ABSOLUTELY VERTICAL & LEVEL.
  - IF POLE BASE IS CAST-IN-PLACE, POLE BASE SHALL BE ONE CONTINUOUS POUR. EXPOSED PORTION OF BASE SHALL BE HAND-RUBBED SMOOTH.
  - CONTRACTOR TO COMPACT SUBGRADE AROUND POLE BASE PER EARTHWORK SPECIFICATIONS / GEOTECH REPORT.
  - THE INFORMATION ILLUSTRATED IN THE LIGHT POLE FOUNDATION DETAIL HAS BEEN PROVIDED FOR GENERAL REFERENCE AND PRELIMINARY COST ESTIMATE PURPOSES. LIGHT POLE FOUNDATIONS SHOULD BE DESIGNED AND DETAILED BY A LICENSED STRUCTURAL ENGINEER BASED ON EXISTING SOIL CONDITIONS, LOCAL DESIGN STANDARDS, AND MANUFACTURER'S RECOMMENDATIONS.
  - CONTRACTOR TO CONFIRM GROUNDING DESIGN WITH MEP.



### 1 LIGHT POLE BASE

NTS

### 2 LIGHT FIXTURE AND POLE

NTS

### 1843LED CARSON CITY SERIES

LED

DATE: 4/20/23

PERFORMANCE LIGHTING

QUASAR 10 1WB

Part number 30335690104

Mounting Config: Pole

Fixtures: 1

LED: 1843LED

CCT: 2700K

Type: 12

Driver: MDD09B

Options: -BKT Black Textured, -WHT White Textured, -PCZ Pink Green Textured, -ABZ Architectural Medium Bronze Textured, -DRT Dark Green Textured, -CD Custom Match, -CI Cast Iron, -BBI Black, -WBR Weathered Brown, -CD Cedar, -WPK Weathered Black, -TT Tin Top

Specifications

Finish (Click here to view paint finish sheet)

Custom Finishes

Custom Color Match

Cast Iron

Black

Weathered Brown

Cedar

Weathered Black

Tin Top

Custom color requires upcharge.

Standard Select Finishes

VC Verde Green

SW Swedish Iron

OW Old World Gray Textured

See next page

555 Lawrence Ave., Roselle, IL 60012  
info@sternberglighting.com  
www.sternberglighting.com

### 3 POLE MOUNTED LIGHT FIXTURE

NTS

DATE: 4/20/23

PERFORMANCE LIGHTING

QUASAR 10 1WB

Part number 30335690104

Mounting Config: Pole

Fixtures: 1

LED: 1843LED

CCT: 2700K

Type: 12

Driver: MDD09B

Options: -BKT Black Textured, -WHT White Textured, -PCZ Pink Green Textured, -ABZ Architectural Medium Bronze Textured, -DRT Dark Green Textured, -CD Custom Match, -CI Cast Iron, -BBI Black, -WBR Weathered Brown, -CD Cedar, -WPK Weathered Black, -TT Tin Top

Specifications

Finish (Click here to view paint finish sheet)

Custom Finishes

Custom Color Match

Cast Iron

Black

Weathered Brown

Cedar

Weathered Black

Tin Top

Custom color requires upcharge.

Standard Select Finishes

VC Verde Green

SW Swedish Iron

OW Old World Gray Textured

See next page

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info@sternberglighting.com  
www.sternberglighting.com

### 4 WALL MOUNTED LIGHT FIXTURE

NTS

### 4500 DECATUR SERIES

ORNAMENTAL POLE

DATE: 4/20/23

PERFORMANCE LIGHTING

QUASAR 10 1WB

Part number 30335690104

Mounting Config: Pole

Fixtures: 1

LED: 1843LED

CCT: 2700K

Type: 12

Driver: MDD09B

Options: -BKT Black Textured, -WHT White Textured, -PCZ Pink Green Textured, -ABZ Architectural Medium Bronze Textured, -DRT Dark Green Textured, -CD Custom Match, -CI Cast Iron, -BBI Black, -WBR Weathered Brown, -CD Cedar, -WPK Weathered Black, -TT Tin Top

Specifications

Finish (Click here to view paint finish sheet)

Custom Finishes

Custom Color Match

Cast Iron

Black

Weathered Brown

Cedar

Weathered Black

Tin Top

Custom color requires upcharge.

Standard Select Finishes

VC Verde Green

SW Swedish Iron

OW Old World Gray Textured

See next page

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### 5 LIGHT POLE

NTS

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Date	Description	No.	Signature	Date
11/13/23	RESPONSE TO COMMENTS	2		
10/06/23	RESPONSE TO COMMENTS	1		
				11/13/2023

Revisions

DATE: 11/13/2023

TIME: 11:20

USER: dkreitman

STYLE: Table

LAYOUT: LL501

DOCUMENT CODE: 190085001-0301-LL501-0101

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Project

## 45 BEDFORD ROAD

ARMONK  
WESTCHESTER COUNTY  
NEW YORK

Drawing Title

## SITE LIGHTING DETAILS AND NOTES

Project No.	190085001	Drawing No.	LL501
Date	AUGUST 7, 2023		
Drawn By	SH		
Checked By	MH		

Sheet 16 of 17

Project No. 190085001

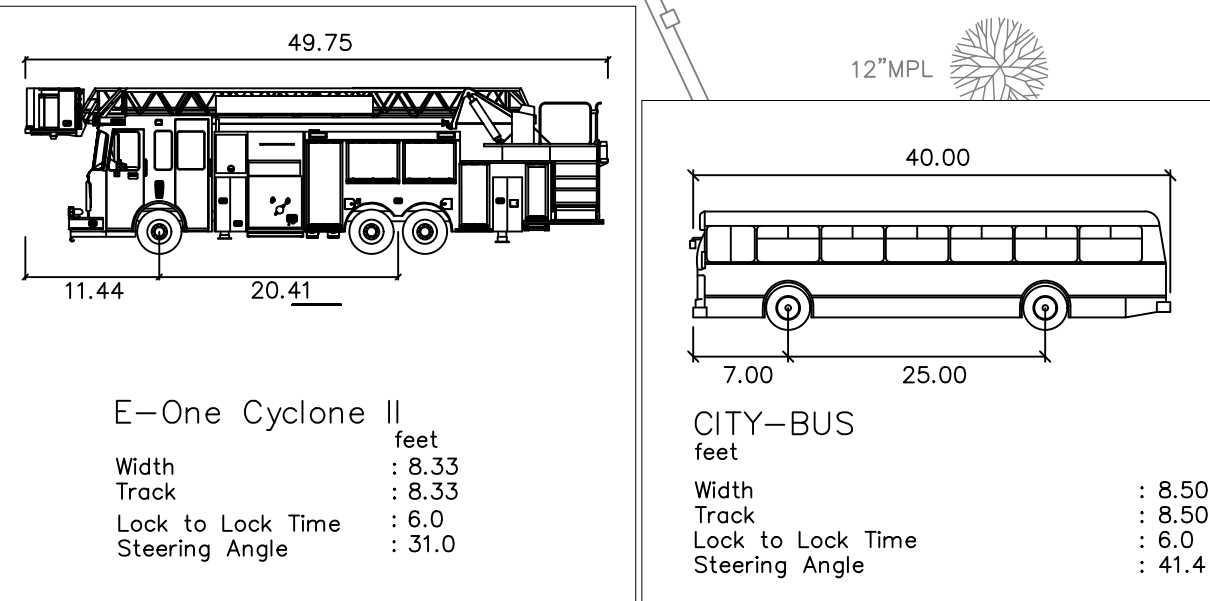


Project No. 190085001

BEDFORD ROAD

ROUTE 22

MAPLE AVENUE



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10/06/23	RESPONSE TO COMMENTS	1

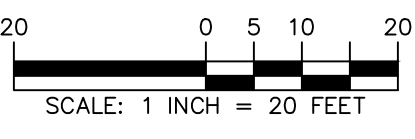
11/13/2023  
 PROFESSIONAL ENGINEER NY Lic. No. 081473-1

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Project  
**45 BEDFORD ROAD**  
 WESTCHESTER COUNTY ARMONK NEW YORK

Drawing Title  
**FIRE TRUCK MOVEMENTS**

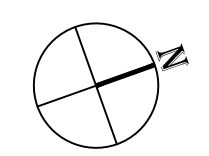
Project No. <b>190085001</b>	Drawing No. <b>FG01</b>
Date <b>SEPTEMBER 22, 2023</b>	Sheet <b>17</b> of <b>17</b>
Drawn By <b>GN</b>	
Checked By <b>MT</b>	





1 SITE PLAN  
SCALE: 1/32" = 1'-0"

SHEET TITLE: PROPOSED SITE TURNING LANE  
PROJECT: THE GATEWAY 45 BEDFORD RD ARMONK, NY



Design Development, p.l.c.  
165 Mamaroneck Ave., fl. 2  
White Plains, NY 10601  
914.949.4272 f.  
914.949.4278 f.

DATE: 11/13/2023  
SCALE: AS NOTED  
DRAWING:

A-SK - 001

DWG: 01 PLANS REV: 10/20/23 PROJ DATE: 11/13/2023



---

# STORMWATER POLLUTION PREVENTION PLAN

for

**The Gateway  
45 Bedford Road  
Town of North Castle, New York**

*Prepared For:*

**Kings Capital Construction  
660 White Plains Road  
Tarrytown, NY 10591**

*Prepared By:*

**Langan Engineering, Environmental, Surveying  
Landscape Architecture and Geology, D.P.C.  
One North Broadway, Suite 910  
White Plains, New York 10601**

**August 7<sup>th</sup>, 2023  
Revised October 6<sup>th</sup>, 2023  
Revised November 13<sup>th</sup>, 2023**

***LANGAN***

**Project No.: 190085001**

The Gateway  
45 Bedford Road  
Town of North Castle, New York

August 7th, 2023  
*Revised November 13th, 2023*

## Preparer of the SWPPP

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the SPDES General Permit for Stormwater Discharges from Construction Activity. Furthermore, I understand that certifying false, incorrect, or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil or administrative proceedings.

Name: Michael Finan, PE, LEED-AP

Date: November 13, 2023



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# 1 Executive Summary

This Stormwater Pollution Prevention Plan (SWPPP) and accompanying project plans have been prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (General Permit) latest revision, the *New York State Stormwater Management Design Manual (Design Manual)* latest revision, and the *New York State Standards and Specifications for Erosion and Sediment Control* latest revision. The Applicant, Kings Capital Construction, is proposing to redevelop 4.2-acre property at 45 Bedford Road in the Town of North Castle, New York. The project, The Gateway, is a multi-family residential development that consists of 34 townhouse units and associated site improvements including parking, landscaping, and lighting.

The project is a redevelopment that reduces the existing impervious coverage by a minimum of 25 percent of the total disturbed, existing impervious area. The reduction in the site impervious area will reduce the volume of stormwater runoff generated by the project thus achieving the stormwater management criteria for both water quality and quantity. In addition, the project will maintain existing drainage patterns as much as practical, control the rate of stormwater runoff resulting from the development, and mitigate potential impacts on water quality and erosion generated during and after construction.

Coverage under the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity (General Permit) latest revision will be required (see [Appendix A](#)), since the project involves soil disturbance of 1 or more acres. The proposed project is also in a municipal separate storm sewer system (MS4); therefore, the Town of North Castle will review and accept the SWPPP. The Notice of Intent (NOI) form and signed "MS4 SWPPP Acceptance" form will be submitted to the NYSDEC before construction begins to obtain coverage under the SPDES General Permit. The forms have been provided in [Appendix B](#).

The pre-development conditions were analyzed in a previously approved SWPPP dated June 11, 2019, which was used in this analysis. This analysis is provided in [Appendix D](#). Post-development conditions was analyzed using the USDA Soil Conservation Service Publication Technical Release (TR-55) "Urban Hydrology for Small Watersheds", which provides procedures for estimating runoff and peak discharges in small watersheds. The analysis is based upon the watershed areas, land coverage, soil group types, curve numbers (CN), times of concentration (Tc), rainfall distribution type, and rainfall amount for the design storm events. The post-development peak discharge rates of runoff have been evaluated utilizing stormwater modeling software. An overall comparison of the pre- and post-development peak discharge rates for each of the design storms analyzed is provided in the table below.

**Table 1-1: Overall Summary of Peak Discharge Rates**

<b>Storm Event</b>	<b>Pre (cfs)</b>	<b>Post (cfs)</b>	<b>Diff (cfs)</b>
1-year	0.40	0.17	-0.23
10-year	6.16	2.03	-4.13
100-year	18.29	5.55	-12.74

The overall comparison of the pre- and post-development stormwater runoff peak discharge rates demonstrates no significant adverse impacts to the design points analyzed. In addition, the erosion control, sediment control, pollution-prevention, and stormwater management measures to be implemented during construction as outlined in this SWPPP and project drawings will minimize soil erosion and control sediment transport off site, and after construction will control the water quality and quantity of stormwater runoff.

## 2 Project Information

### 2.1 Project Summary

Below is a summary of the project information:

**Table 2-1: Project Summary**

Project Name:	The Gateway
Project Location:	45 Bedford Road, Armonk, NY Town of North Castle
Property Tax ID No.:	Section 108.03 Block 1 Lot 65
Property Acreage:	4.27 acres
Municipality:	Town of North Castle, which is a municipal separate storm sewer system (MS4).
Project Description:	Residential development that consists of 34 townhouse units and associated site developments including parking, landscaping and lighting.
Estimated Disturbed Area:	3 acres, which does require coverage under the SPDES General Permit.
Existing Site Conditions:	Grass (fair condition), impervious area (gravel, pavement, existing buildings)  3.18 acres of existing impervious area
Proposed Site Conditions:	Grass (fair condition), meadow (good condition), impervious area (gravel, pavement, buildings)  2.23 acres of proposed impervious area (30% decrease)
Stormwater Management Practices:	Underground infiltration
Construction Duration:	From April 2024 to April 2025, including planned winter shutdowns.

## **2.2 Site Conditions**

The Site is bounded by Bedford Road to the North; Maple Avenue to the east; Armonk-Bedford Road (NY State Highway 22) to the south; and commercial properties, a baseball field, and Town of North Castle offices to the west. (See [Figure 1](#)).



SCALE: 1 INCH = 500 FEET

<p><b>LANGAN</b> Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C. One North Broadway, Suite 910 White Plains, NY 10601 T: 914.323.7400 F: 914.323.7401 www.langan.com</p>	Project	Drawing Title	Project No.	Figure
	45 BEDFORD ROAD	<b>SITE LOCATION MAP</b>	190085001	<b>FG01</b>
	TOWN OF NORTH CASTLE		Date	
	WESTCHESTER COUNTY NEW YORK		01/30/2023	
			Drawn By	Sheet 1 of 1
			GN	
			Checked By	
			MT	



## **Site Soils**

The United States Department of Agriculture (USDA) Soil Conservation Service Soil Survey for Westchester County has been reviewed. The surficial soil conditions are shown in [Figure 2](#) and are summarized in the table below.

**Table 2-2: USDA Soil Data**

<b>Map Symbol</b>	<b>Description</b>	<b>Depth to Groundwater (ft.)</b>	<b>Depth to Bedrock (in)</b>	<b>Hydrologic Soil Group</b>
UvB	Urban land – Riverhead complex, 2 to 8 percent slopes	>6	>78	-- <sup>1</sup>

1. A hydrological soil group is not given for Urban land – Riverhead complex. The hydrologic soils group will be assumed to be the same as the surrounding soil groups. In this instance, the surrounding soil groups are Type B and A/D; therefore, the hydrological soil group will be assumed to be Type B.

Deep tests and infiltration tests were performed on site on 09/27/2023. Groundwater was encountered at various points around the site at depths of 75"-108" below the ground surface. See Appendix E for infiltration and test pit data.

## **Water Resources**

One wetland - a stream - was identified within the property area, in the southwest. This wetland is USACE jurisdictional. The stream is classified by the NYSDEC as a Class C waterbody. Although classified by the NYSDEC, Class C waterbodies are not regulated by the NYSDEC, therefore the stream is not subject to NYSDEC setback requirements.

Aquifer mapping was reviewed to determine whether the site is over a sole source, primary or principal aquifer. According to the Environmental Protection Agency "Sole Source Aquifers" map, the site is not over a sole-source aquifer. According to the NYSDEC "Primary and Principal Aquifers in New York State" map, the site is not over a primary aquifer or a principal aquifer.

## **Floodplains**

The Flood Insurance Rate Map (FIRM) was reviewed, and parts of the property is located within a floodplain (see [Figure 3](#)). The base flood elevation is 374.5 ft (NAVD88).

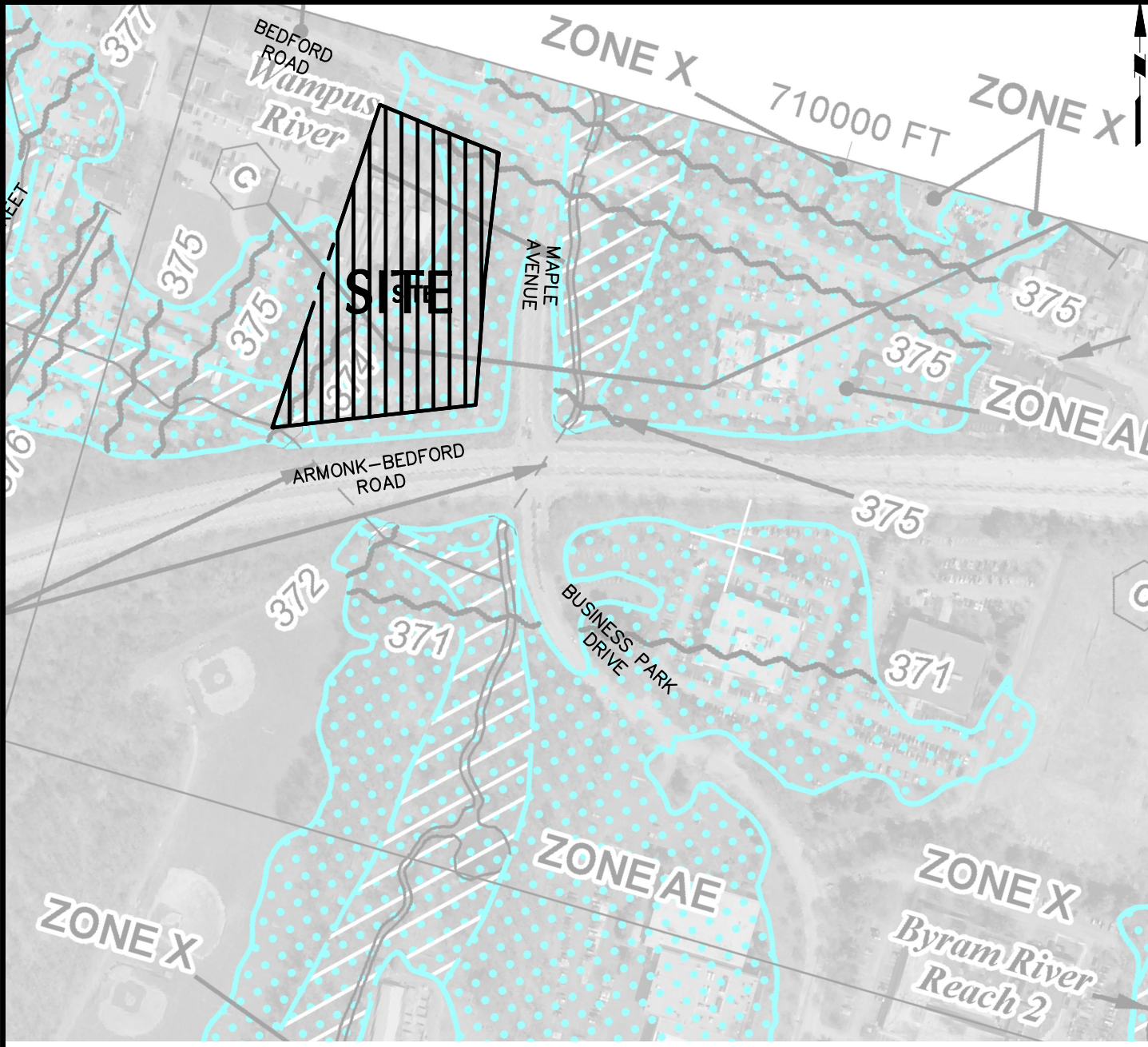
## **Cultural Resources**

According to the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) Cultural Resource Information System (CRIS) database, the site is within an archaeologically sensitive area (see [Figure 4](#)). A no-impact letter from the State Historic Preservation Office is attached in Appendix J.



**WARNING:** IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

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	45 BEDFORD ROAD	SOILS MAP	190085001	FG02
	ARMONK WESTCHESTER COUNTY NEW YORK		Date 01/30/2023	
			Drawn By GN Checked By MT	
				Sheet 2 of 6



**LEGEND**

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

**ZONE A** No Base Flood Elevations determined.

**ZONE AE** Base Flood Elevations determined.

**ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

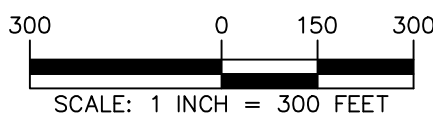
OTHER FLOOD AREAS

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

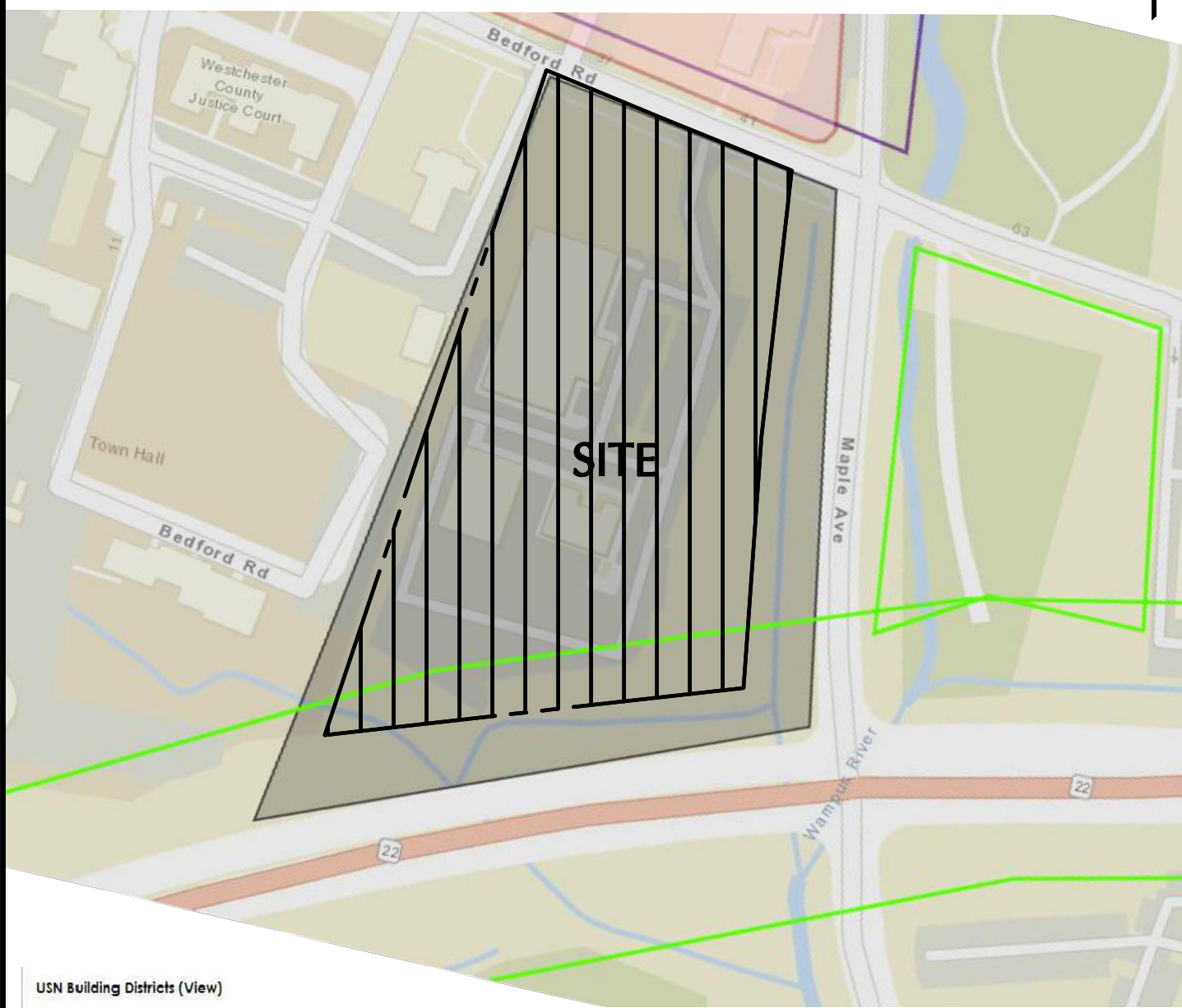
OTHER AREAS

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.



**ZONE D** Areas in which flood hazards are undetermined, but possible.



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	45 BEDFORD ROAD	<b>FLOOD INSURANCE RATE MAP</b>	190085001	FG03
	TOWN OF NORTH CASTLE WESTCHESTER COUNTY NEW YORK		Date 01/30/2023	
			Drawn By GN	Sheet 1 of 1



USN Building Districts (View)

-  Eligible
-  Other Statuses

National Register Building Sites (View)



Survey Archaeology Areas (View)



SCALE: 1 INCH = 150 FEET

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	45 BEDFORD ROAD	CULTURAL RESOURCES MAP	190085001	FG04
	TOWN OF NORTH CASTLE WESTCHESTER COUNTY NEW YORK		Date 01/30/2023	Sheet 1 of 1
			Drawn By GN Checked By MT	

### 3 Stormwater Management Plan

#### 3.1 Stormwater Site Planning

##### 3.1.1 Preservation of Natural Features and Conservation

Preservation of natural features includes techniques to identify and preserve natural areas that can be used to protect water, habitat, and vegetative resources. Conservation includes designing elements of the development in a way that the site design takes advantage of a site’s natural features, preserves sensitive areas, and identifies constraints and opportunities to prevent or reduce negative effects of a development. An evaluation of the preservation of natural features and conservation planning practices is provided in the table below.

**Table 3-1: Preservation of Natural Features and Conservation**

Practice	Description	Incorporated	Reason
Preservation of Undisturbed Areas	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.	N/A	Most of the site is already developed.
Preservation of Buffers	Define, delineate, and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.	Considered and Not Applied	The project has minimal unavoidable disturbance in the 100-foot buffer of adjacent streams. Mitigation measures have been taken to preserve the wetlands and buffers.
Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.	N/A	Most of the site is already developed.
Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact.	N/A	Most of the site is in the flood plain.
Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.	Considered and Applied	The proposed development will reduce existing impervious area.
Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices.	Considered and Applied	N/A

##### 3.1.2 Reduction of Impervious Cover

Reduction of impervious cover includes methods to reduce the amount of rooftops, parking lots, roadways, sidewalks, and other surfaces that do not allow rain to infiltrate into the soil. An evaluation of the reduction of impervious cover techniques is provided in the table below.

**Table 3-2: Reduction of Impervious Cover**

Practice	Description	Incorporated	Reason
Roadway Reduction	Minimize roadway widths and lengths to reduce site impervious area	N/A	
Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area	N/A	
Driveway Reduction	Minimize driveway lengths and widths to reduce site impervious area	N/A	
Cul-de-sac Reduction	Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.	N/A	There are no cul-de-sacs in the proposed development.
Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.	Considered and Applied.	The project proposes two- and three-story buildings.
Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.	Considered and Applied.	The project proposes compact parking spaces below some buildings to avoid creating more impervious area for those parking spaces.

### 3.1.3 Runoff Reduction Techniques

Green infrastructure techniques use the natural features of the site and promote runoff reduction through micromanaging runoff, promoting groundwater recharge, increasing losses through evapotranspiration, and emulating the existing hydrology. An evaluation of the runoff reduction practices is provided in the table below.

**Table 3-3: Runoff-Reduction Practices**

Practice	Description	Incorporated	Reason
Conservation of Natural Areas	Retain the pre-development hydrologic and water quality characteristics of undisturbed natural areas, stream and wetland buffers by restoring and/or permanently conserving these areas on a site.	N/A	The wetland buffers are preserved as much as practical, but they are not placed in a permanent conservation easement.
Sheet flow to Riparian Buffers or Filter Strips	Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project.	N/A	The project area is not big enough to incorporate undisturbed natural areas with sheet flow.
Vegetated Open Swale	The natural drainage paths, or properly designed vegetated channels, can be used instead of constructing underground storm sewers or concrete open channels to increase time of concentration, reduce the peak discharge, and provide infiltration.	N/A	The project area does not have enough space to incorporate an open swale.
Tree Planting/ Tree Box	Plant or conserve trees to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas and erosion and sediment control.	Considered and applied.	The project includes new trees in the project area as part of the landscaping plan.

Practice	Description	Incorporated	Reason
Disconnection of Rooftop Runoff	Direct runoff from residential rooftop areas and upland overland runoff flow to designated pervious areas.	Considered and not applied.	The project area does not have enough space to have significant overland flow from rooftops.
Stream Daylighting for Redevelopment Projects	Stream daylight previously culverted/ piped streams to restore natural habitats, better attenuate runoff by increasing the storage size and promoting infiltration.	N/A	
Rain Garden	Manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression.	N/A	The project area does not have enough space to incorporate a rain garden.
Green Roof	Capture runoff through a layer of vegetation and soil installed on top of a conventional flat or sloped roof.	N/A	
Stormwater Planter	Small, landscaped stormwater treatment devices that can be designed as infiltration or filtering practices.	N/A	
Rain Tank/Cistern	Capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities.	N/A	
Porous Pavement	Pervious types of pavements that provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface.	Considered and not applied.	

### 3.1.4 Standard Stormwater Management Practices

Standard stormwater management practices (SMPs) are structural practices that are designed to capture and treat the water quality volume. Some of the standard SMPs can also provide runoff reduction or water quantity controls. An evaluation of the standard SMPs is provided in the table below.

**Table 3-4: Standard Stormwater Management Practices**

Practice	Description	Incorporated	Reason
Stormwater Ponds	Constructed stormwater retention basins that have a permanent pool (or micropool). Runoff from each rain event is detained and treated in the pool. Can be used to treat hotspot runoff if 2 feet minimum separation to seasonally groundwater is provided or if a permeable liner is provided.	N/A	There is not enough space in the project area to construct a stormwater pond.
Stormwater Wetlands	Constructed stormwater wetlands that are structural practices that incorporate wetland plants to store and treat runoff. Can be used to treat hotspot runoff if 2 feet minimum separation to seasonally groundwater is provided.	N/A	There is not enough space in the project area to construct a stormwater wetland.

Practice	Description	Incorporated	Reason
Stormwater Infiltration	Excavated trench or basin used to capture and allow for infiltration into the surrounding soils from the bottom and sides of the basin or trench. Also, a standard stormwater practice that also provides runoff reduction volume capacity.	N/A	There is not enough space in the project area to construct an open stormwater infiltration trench or basin.
Underground Infiltration System	An underground perforated piping or chambers used to capture and allow for infiltration into the surrounding soils from the bottom and sides. Also, a standard stormwater practice that also provides runoff reduction volume capacity.	Considered and applied.	Stormtech chambers are proposed for this project.
Stormwater Filtering Systems – Sand or Organic	Aboveground or underground multi-chamber practice designed to treat stormwater runoff through filtration using a sediment forebay, primary filter media and underdrain. Can be used to treat hotspot runoff if a permeable liner is provided.	Considered and not applied.	Other practices were chosen for the site.
Stormwater Filtering Systems – Bioretention	Shallow basin or landscaped area that uses engineered soils and vegetation to capture and treat runoff. Can be used to treat hotspot runoff if a permeable liner is provided. Also, a standard stormwater practice that also provides runoff reduction volume capacity.	Considered and not applied.	Other practices were chosen for the site.
Stormwater Open Channel Systems - Dry Swale	Vegetated channel that captures and treats runoff within dry cells formed by check dams or other means. Can be used to treat hotspot runoff if a permeable liner is provided. Also, a standard stormwater practice that also provides runoff reduction volume capacity.	N/A	There is not enough space in the project area to construct an open swale.
Stormwater Open Channel Systems - Wet Swale	Vegetated channel that captures and treats runoff within wet cells formed by check dams or other means.	N/A	There is not enough space in the project area to construct an open swale.

## 3.2 Hydrologic Analysis

### 3.2.1 Stormwater Modeling

The USDA Soil Conservation Service Publication Technical Release (TR-55) “Urban Hydrology for Small Watersheds” has been used to analyze the pre- and post-development rainfall runoff rates and volumes. Watershed areas, curve numbers (CN), and times of concentration (T<sub>c</sub>) were calculated for each contributing watershed. The curve number is a land-sensitive coefficient that dictates the relationship between total rainfall depth and direct storm runoff. Based on the land coverage and soil group types, the average CN has been determined for each of the subcatchments for both the existing and proposed conditions.



The  $T_c$  is defined as the time for runoff to travel from the hydraulically most distant point in the watershed to a Design Point (DP). Values of the time of concentration were determined for both the pervious and impervious area of each watershed for the proposed conditions based on land cover and slope of the flow path using methods outlined in TR-55. As per TR-55, the minimum  $T_c$  used is 0.1 hours (or 6 minutes).

An overall watershed boundary was developed for the post-development conditions (see [Figure 6](#)). The pre-development watershed boundary and conditions are in the previously approved SWPPP shown in [Appendix D](#). The overall watershed was broken down into smaller watersheds, or subcatchments to allow for analysis of runoff conditions at several locations. Each of these locations is defined as a Design Point (DP) to compare the proposed development to the existing conditions. Descriptions of each of the selected design points are provided below:

- [Design Point 1](#): Stream south-west of the site.
- [Design Point 2](#): Wetland south-east of the site.
- [Design point 3](#): Catch basin on Bedford Road northeast of the site.

Rainfall data used in the modeling and analysis was obtained from the isohyet maps provided in the *Design Manual* and the Northeast Regional Climate Center (NRCC). A Type III rainfall distribution was used to evaluate the pre- and post-development stormwater runoff conditions for the 1-, 10-, and 100-year 24-hour storm events. The rainfall data used in the stormwater management design and analysis is provided in the table below.

**Table 3-5: Rainfall Data**

Storm Event	24-Hour Rainfall
90 <sup>th</sup> Percentile <sup>(1,2)</sup>	1.50 inches
1-year	2.80 inches
2-year <sup>(3)</sup>	3.43 inches
10-year	5.13 inches
100-year	9.16 inches

1. The 90<sup>th</sup> percentile 24-hour rainfall value was taken from the *New York State Stormwater Management Design Manual*. The other 24-hour rainfall values are taken from NRCC.
2. The 90<sup>th</sup> percentile 24-hour rainfall amount was used to calculate the required total water quality volume.
3. The 2-year 24-hour rainfall amount was used to calculate the sheet flow component in the time of concentration.

The rainfall data used in the stormwater management design and analysis is provided in [Appendix C](#). The results of the computer modeling used to analyze the post-development watershed conditions are provided in [Appendix E](#). The pre-development watershed conditions analysis is provided in the previously approved SWPPP in [Appendix D](#).

### 3.2.2 Water Quality Control

The water quality volumes have been determined based on the methodology described in the Design Manual. The total water quality volume is provided in the table below.

**Table 3-6: Total Water Quality Volume**

Subcatchment	Area (ac)	Impervious Area (ac)	WQ <sub>v</sub> (cf)
10	0.50	0.24	1,332
20A	2.41	1.87	9,824
20B&C	1.05	0.00	285
<b>Total</b>	<b>3.95</b>	<b>2.12</b>	<b>11,441</b>

Detailed design calculations have been provided in [Appendix C](#). Stormtech Isolator Row Plus™ units are used for pretreatment. The infiltration rate on the site is greater than 5 inches/hour, therefore pre-treatment is provided for 100% of the water quality volume. All underground pre-treatment and infiltration units were sized using 75% of the lowest soil infiltration rate.

Subcatchment 30 was not included as part of the total water quality volume calculations, since it has a smaller post-development total area and impervious area than in pre-development conditions. This subcatchment discharges to an existing catch basin on Bedford Road to the northeast of the site.

### 3.2.3 Runoff Reduction Volume

Runoff reduction is achieved by infiltration, groundwater recharge, reuse, recycle, evaporation and evapotranspiration of 100 percent of the post-development water quality volumes to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, and minimizing concentrated flow by using runoff-control techniques to provide treatment in a distributed manner before runoff reaches the collection system. The runoff-reduction-volume techniques that were used to reduce the total required water quality volume are in the table below.

**Table 3-7: Implemented Runoff Reduction Volume Techniques**

Techniques/ Practices	RRv Reduction Method	Reduction Amount
Underground Infiltration System	Standard SMP with RRv capacity	100% of the WQ <sub>v</sub> provided by the practice

### 3.2.4 Water Quantity Control

A comparison of the required and provided channel protection volume is provided in the table below.

**Table 3-8: Summary of Channel Protection Volume**

Water Quantity Parameter	Required (cf)	Provided (cf)
Channel Protection Volume	9,918	16,339

Detailed channel protection volume calculations have been provided in [Appendix C](#).

A comparison of the pre- and post-development peak discharge rates is provided in the table below.

**Table 3-9: Summary of Peak Discharge Rates**

Storm Event	Design Point	Pre (cfs)	Post (cfs)	Diff (cfs)
1-year	1	0.00	0.00	0.00
	2	0.07	0.07	0.00
	3	0.33	0.10	-0.23
10-year	1	2.53	0.99	-1.54
	2	2.85	0.70	-2.15
	3	0.78	0.34	-0.44
100-year	1	4.89	2.47	-2.42
	2	11.84	2.26	-9.58
	3	1.56	0.82	-0.74

Comparison of the peak discharge rates for pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the proposed development will not be increased. The pre-development stormwater model is provided in the previously approved SWPPP submission in [Appendix D](#). The post-development stormwater model is provided in [Appendix F](#).

## 4 Erosion and Sediment Control Plan

### 4.1 Construction Sequencing Schedule and Phasing

The project will be completed in one phase. The general construction sequencing is shown on the project plans. In addition, the Applicant is not requesting to disturb more than 5 acres of soil at any one time.

### 4.2 Erosion and Sediment Control Measures

Temporary erosion and sediment control measures to be used during construction will include the following:

- Stabilized Construction Access** - Before construction, the stabilized construction access shall be installed as shown on the plans to reduce the tracking of sediment onto adjacent roadways. Construction traffic must enter and exit the site at the stabilized construction access. The stabilized construction access shall be maintained in good condition to control tracking of sediment onto rights-of-way or streets. When necessary, the placement of additional aggregate atop the filter fabric shall be done to maintain the minimum thickness. Sediments and soils spilled, dropped, or washed onto the public rights-of-way shall be removed immediately.
- Dust Control** - Water trucks or other approved water source shall be used, as needed, during construction to reduce dust generated on the site. Dust control shall be provided by the general contractor to a degree acceptable to the owner/operator, and in compliance with the applicable local and state dust control requirements.
- Temporary Soil Stockpile** - Materials, such as topsoil, shall be temporarily stockpiled (if necessary) on site during construction. Stockpiles shall be located away from storm drainage, water bodies or courses, and shall be properly protected from erosion in accordance with the NYSDEC standard detail.

- **Silt Fencing** - Before initiation of and during construction, silt fencing shall be established along the perimeter of areas to be disturbed because of the construction up gradient of water courses or adjacent properties. These barriers may extend into non-impact areas to adequately protect adjacent lands. Clearing and grubbing shall be performed only as necessary for the installation of the sediment control barrier. To maximize effectiveness of the silt fencing, daily inspections shall be performed by site personnel. Maintenance of the fence shall be performed as needed and when directed by the Qualified Inspector.
- **Temporary Seeding** - Within seven days after construction ceases on any particular area of the site, all disturbed areas where there shall be no construction for longer than 14 days shall be temporarily seeded and mulched to minimize erosion and sediment loss. Other stabilization methods maybe approved by the Qualified Inspector.
- **Inlet Protection** – Inlet protection shall be installed around existing and proposed catch basins (once installed) to keep sediment from entering the storm-sewer system. During construction, the inlet protection measures shall be replaced as needed to ensure proper function of the structure.
- **Temporary Sediment Basins and Traps** - Temporary sediment basins and traps shall be constructed to intercept sediment laden runoff, reduce the amount of sediment leaving the disturbed areas, and protect drainage ways, properties, and rights-of-way. Projects that have proposed stormwater ponds can be used as temporary sediment basins during construction. Temporary sediment basins and traps shall be inspected at least every seven days. All damage caused by soil erosion and construction equipment shall be repaired upon discovery. Accumulated sediment shall be removed from the sediment basin or trap when it reaches 50 percent of the design capacity and must not exceed 50 percent. Sediment must not be placed downstream from the embankment, adjacent to a stream, or floodplain.
- **Dewatering** - Dewatering, if required, must not be discharged directly into wetlands, water courses, water bodies, and storm sewer systems without appropriate protection or authorizations. Proper methods and devices shall be used to the extent permitted by law, such as pumping water into temporary sediment basins, providing surge protection at the inlet and outlet of pumps, floating the intake of the pump, or other methods to minimize and retain the suspended solids.

Permanent erosion and sediment control measures to be used after construction generally include the following:

- **Establish Permanent Vegetation** - Disturbed areas not covered by impervious surfaces shall be seeded in accordance with the accompanying plans. The type of seed, mulch, and maintenance measures shall be followed. All areas at final grade shall be seeded and mulched within 14 days after completion of the major construction. All seeded areas shall be protected with mulch or hay. Final site stabilization is achieved when soil-disturbing activities have been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on the disturbed unpaved areas and areas not covered by permanent structures.

- **Rock Outlet Protection** - Rock outlet protection shall be installed at the locations as shown on the accompanying plans. The installation of rock outlet protection will reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving water course or water body.

Specific erosion and sediment control measures, inspection frequency, and remediation procedures are provided in the subsequent sections and on the accompanying project plans.

### **4.3 Pollution Prevention Controls**

Good housekeeping practices are designed to maintain a clean and orderly work environment. Good housekeeping measures shall be maintained throughout the construction process by those parties involved with the direct care and development of the site. The following measures shall be implemented to control the possible exposure of harmful substances and materials to stormwater runoff:

1. Material resulting from the clearing and grubbing operation shall be stockpiled away from storm drainage, water bodies or watercourses and surrounded with adequate erosion and sediment control measures. Soil stockpile locations shall be exposed no longer than 14 days before seeding.
2. Equipment maintenance areas shall be protected from stormwater flows and shall be supplied with appropriate waste receptacles for spent chemicals, solvents, oils, greases, gasoline, and any pollutants that might contaminate the surrounding habitat or water supply. Equipment wash-down zones shall be within areas draining to sediment control devices.
3. The use of detergents for large-scale (e.g., vehicles, buildings, pavement surfaces) washing is prohibited.
4. Material storage locations and facilities (e.g., covered storage areas, storage sheds) shall be on-site and shall be stored according to the manufacturer's standards in a dedicated staging area. Chemicals, paints, solvents, fertilizers, and other toxic material shall be stored in waterproof containers. Runoff containing such materials shall be collected, removed from the site, treated and disposed of at an approved solid waste or chemical disposal facility.
5. Hazardous spills shall be immediately contained to prevent pollutants from entering the surrounding habitat or water supply. Spill Kits shall be provided on site and shall be displayed in a prominent location for ease of access and use. Spills greater than 5 gallons shall be reported to the NYSDEC Response Unit at 1-800-457-7362. In addition, a record of the incidents or notifications shall be documented and attached to the SWPPP.
6. Portable sanitary waste facilities shall be provided on site for workers and shall be properly maintained.
7. Dumpsters or debris containers shall be on site and shall be of adequate size to manage respective materials. Regular collection and disposal of wastes must occur as required.

8. Temporary concrete washout facilities shall be a minimum of 50 feet from storm drain inlets, open drainage facilities, and watercourses. Each facility should be away from construction traffic or access areas to prevent disturbance or tracking. A sign shall be installed adjacent to each washout facility to inform concrete equipment operators to use the proper facilities. When temporary concrete washout facilities are no longer required for the work, the hardened concrete shall be removed and disposed of. Materials used to construct the temporary concrete washout facilities shall be removed and disposed of. Holes, depressions, or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be backfilled or repaired, seeded, and mulched for final stabilization. Wastewater discharges from washout of concrete is prohibited.
9. Non-stormwater components of site discharge shall be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or approved private well. Water used for construction that does not originate from an approved public supply must not discharge from the site.
10. Discharges from dewatering activities, including discharges from dewatering trenches and excavations, shall be managed by appropriate control measures.
11. Wastewater discharges from washout and cleanout of stucco, paint, form-release oils, curing compounds, and other construction materials is prohibited.

## 4.4 Soil Stabilization and Restoration

### Stabilization

In areas where soil disturbance has temporarily or permanently ceased, the application of soil stabilization measures shall be initiated by the end of the next business day and completed within 14 days from the date the current soil disturbance ceased. The soil-stabilization measures shall be in conformance with the *New York State Standards and Specifications for Erosion and Sediment Control*, latest edition.

### Restoration

Soil restoration shall be performed in the disturbed areas. The soils shall be restored in accordance with the table below.

**Table 4-1: Soil Restoration**

<b>Type of Soil Disturbance</b>	<b>Soil Restoration Requirement</b>
No Soil Disturbance (e.g., preservation of natural features)	Restoration not required.
Minimal Soil Disturbance (e.g., clearing and grubbing)	Restoration not required.
Areas where topsoil is stripped only (e.g., no change in grade)	Apply 6 inches of topsoil in Type A and B soils
Areas of cut or fill	Aerate and apply 6 inches of topsoil in Type A and B soils
Heavy traffic areas on site	Apply full soil restoration (see below).

(Especially in 5 to 25 feet around buildings, but not within a 5-foot perimeter around foundation walls)	
Areas where runoff reduction or infiltration practices are applied	Restoration not required, but can be applied to enhance soil infiltration.
Redevelopment projects	Soil restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.

**Full Soil Restoration**

Before applying full soil restoration, all construction, including construction equipment and material storage, site cleanup and trafficking, should be finished and the site closed to further disturbance. Full soil restoration should be performed with a heavy-duty agricultural-grade deep ripper, deep angled-leg subsoiler, or equivalent machinery to achieve de-compaction.

Full soil restoration is implemented in a two-phase process:

1. Deep rip the affected thickness of exposed subsoil, aggressively fracturing it before the protected topsoil is reapplied on the site.
2. De-compact simultaneously through the restored topsoil layer and upper half of the affected subsoil.

**Low to Moderate Subsoil Moisture**

The disturbed soils are returned to rough grade and the following is applied:

1. Apply 3 inches of compost over the subsoil.
2. Till compost a minimum of 12 inches into the subsoil using a cat-mounted ripper, tractor-mounted disc, or tiller mixing and circulating air and compost into subsoils.
3. Rock-pick until uplifted stone and rock of 4 inches or larger size are cleaned off the site. All construction material and foreign debris and existing root masses shall be removed from proposed planting areas.
4. Apply 6 inches of topsoil. Newly installed planting soils shall be mixed with existing soils where they meet in order to create a transitional gradient to allow for proper drainage.
5. Install plants and vegetation in accordance with the Landscaping Plan.

**5 Stormwater Pollution Prevention Plan Implementation**

**5.1 Certification Statements**

Before starting construction, the owner/operator, contractors, and subcontractors are required to sign the certification statements provided in Appendix H.

The owner/operator must sign a copy of the Owner’s/Operator’s certification before submitting the Notice of Intent. The owner/operator acknowledges that the SWPPP has been developed and will be implemented as the first element of construction and agrees to comply with the terms and conditions of the general permit for which the Notice of Intent is being submitted.

The owner/operator must identify the contractors and subcontractors that will be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the erosion and sediment control practices; and constructing the post-construction stormwater management practices included in the SWPPP. The contractors and subcontractors must identify at least one trained individual from their company who will be responsible for implementation of the SWPPP. This person will be known as the trained contractor. At least one trained contractor will be on site daily when soil disturbing activities are being performed. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has begun, they must also sign the certification statement and identify their responsibilities.

## **5.2 Pre-Construction Meeting**

Before beginning construction, the owner/operator must set up a pre-construction meeting with the Town representative, qualified professional, qualified inspector, contractors, and subcontractors. The primary purpose of the pre-construction meeting is to discuss the responsibilities of each party as they relate to the implementation of the SWPPP and to clarify any questions.

## **5.3 Construction Site Log**

The owner/operator must maintain a copy of the following, including but not limited to: General Permit, signed NOI, signed MS4 Acceptance form, NOI Acknowledgement Letter, SWPPP, signed certification statements, and inspections reports. The documents must be maintained in a secure location on site. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

## **5.4 Construction Inspections and Maintenance**

### **5.4.1 Contractor Maintenance Inspection Requirements**

The trained contractor must inspect the erosion and sediment control practices and pollution-prevention measures to verify that they are being maintained in effective operating condition. The inspections will be conducted as follows:

- For construction sites where soil disturbance is on-going, the trained contractor must inspect the measures within the active work area daily. If deficiencies are identified, the contractor will begin implementing corrective actions within one business day and must complete the corrective actions by the end of the day.
- For construction sites where soil disturbance activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the trained contractor can stop conducting the maintenance inspections. The trained contractor must conduct the daily maintenance inspections as soil disturbance resumes.
- For construction sites where soil disturbance has been shut down with partial project completion, the trained contractor can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all



post-construction stormwater management practices required for the completed part of the project have been constructed in conformance with the SWPPP and are operational.

#### 5.4.2 Qualified Inspector Inspection Requirements

The owner/operator must have a Qualified Inspector conduct site inspections to verify the stability and effectiveness of protective measures and practices employed during construction. The site inspections will be conducted as follows:

- For construction sites where soil disturbance is ongoing, the Qualified Inspector must conduct a site inspection at least once every seven days.
- For construction sites where soil disturbance activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the Qualified Inspector must conduct a site inspection at least once every 30 days. The owner/operator must notify the NYSDEC or MS4 in writing before reducing the frequency of the inspections.
- For construction sites where soil disturbance activities have been shut down with partial project completion, the Qualified Inspector can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices are operational. The owner/operator must notify the NYSDEC or the MS4 in writing before the shutdown.

All erosion and sediment control inspections shall be performed in accordance with this SWPPP, accompanying project plans, latest revision of *New York State Standards and Specifications for Erosion and Sediment Control*, and procedures outlined in Appendix H of the latest revision of the *New York State Stormwater Management Design Manual*. Inspection reports must identify and document the maintenance of the erosion and sediment control measures. An Example inspection report has been provided in Appendix H.

Specific maintenance components, schedule frequency, inspection parameters and remediation procedures are provided on the accompanying project plans. Any adjustments or modifications to the maintenance plan shall be noted in the inspection reports and submitted to the Town for approval.

#### 5.4.3 Town of North Castle Inspection Requirements

The Town of North Castle Stormwater Management Officer may require site inspections to ensure compliance with Chapter 267 of the Town Code. The Officer may either approve the portion of work completed or notify the Owner/Operator where the work fails to comply with Chapter 267 of the Town Code or the approved SWPPP. The Owner/Operator shall notify the Town of North Castle Building Department at least 48 hours before the following construction activities to schedule inspections, as required by the Stormwater Management Officer:

1. Start of construction
2. Installation of sediment and erosion control measures
3. Completion of site clearing
4. Completion of rough grading

5. Completion of final grading
6. Close of the construction season
7. Completion of final landscape
8. Installation of stormwater management facilities
9. Successful establishment of landscaping in public areas

Prior to the Town of North Castle giving any approval that has a stormwater management facility as one of the requirements, the owner/contractor must execute a maintenance easement agreement that shall be binding on all subsequent landowners served by the stormwater management facility as per Section 267.7(B) of the Town Code. The Town shall also approve a formal maintenance agreement for stormwater management facilities binding all subsequent landowners and recorded in the office of the County Clerk as a deed restriction on the property prior to final plan approval as per Section 267.7(D) of the Town Code.

## **6 Termination of Coverage**

The owner/operator may terminate coverage when:

- a. Total project completion has occurred.
- b. A planned shutdown with partial project completion has occurred.
- c. Property ownership changes or when there is a change in operational control over the construction plans and specifications; and the new owner/operator has obtained coverage under the SPDES General Permit.
- d. Coverage under an alternative SPDES general permit or an individual SPDES permit has been obtained.

The completed NOT must be submitted to the NYSDEC to cancel coverage. A blank copy of the NOT has been provided in [Appendix B](#).

## **7 Post-Construction Requirements**

### **7.1 Record Retention**

Following construction, the owner/operator must retain a copy of the signed NOI, signed MS4 SWPPP Acceptance, NOI Acknowledgement Letter, SWPPP, project plans, and any inspection reports that were prepared in conjunction with the General Permit for at least five years from the date that the NYSDEC receives a complete NOT.

### **7.2 Inspection and Maintenance**

Post-construction inspections and maintenance will be performed by Kings Capital Construction. Inspections and maintenance for the various site components and stormwater management facilities shall be performed in accordance with the accompanying project plans and this SWPPP. Detailed post-construction inspections and maintenance procedures are provided in [Appendix I](#).

## **8 Conclusion**

This Stormwater Pollution Prevention Plan has been developed in accordance with the requirements of the Town of North Castle and the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) Phase II technical guidelines. This SWPPP identifies the erosion control, sediment control, pollution-prevention, and stormwater management measures to be implemented during construction to minimize soil erosion and control sediment transport off site, and after construction to control and treat stormwater runoff from the developed site.

In the opinion of the SWPPP preparer, the proposed project will not have adverse impacts if the measures for erosion control, sediment control, pollution prevention, and stormwater management measures are properly constructed and maintained in accordance with the requirements outlined herein and on the accompanying project plans.

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The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix A: NYSDEC SPDES General Permit**

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Department of  
Environmental  
Conservation

NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

From

**CONSTRUCTION ACTIVITY**

Permit No. GP- 0-20-001

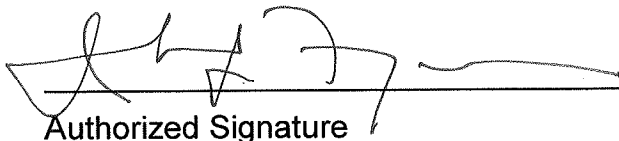
Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20

Date

Address: NYS DEC  
Division of Environmental Permits  
625 Broadway, 4th Floor  
Albany, N.Y. 12233-1750

## PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of “*construction activity*”, as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

**\*Note: The italicized words/phrases within this permit are defined in Appendix A.**

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM  
CONSTRUCTION ACTIVITIES**

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## Part 1. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

This permit authorizes stormwater *discharges to surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants to surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

### B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharges* authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize the discharge of pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge of pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:
- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
  - (ii) Control stormwater *discharges*, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;
  - (iii) *Minimize* the amount of soil exposed during *construction activity*;
  - (iv) *Minimize* the disturbance of *steep slopes*;
  - (v) *Minimize* sediment *discharges* from the site;
  - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
  - (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;
  - (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and
  - (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.
- b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

- c. **Dewatering.** *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.
  
- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:
  - (i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;
  
  - (ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and
  
  - (iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.
  
- e. **Prohibited Discharges.** The following *discharges* are prohibited:
  - (i) Wastewater from washout of concrete;
  
  - (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
  - (iv) Soaps or solvents used in vehicle and equipment washing; and
  - (v) Toxic or hazardous substances from a spill or other release.
- f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

### **C. Post-construction Stormwater Management Practice Requirements**

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

#### **a. Sizing Criteria for New Development**

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

**In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.**

The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site discharges directly to tidal waters, or fifth order or larger streams.
  
- (iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
  
- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

**b. Sizing Criteria for New Development in Enhanced Phosphorus Removal Watershed**

- (i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

- (ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

**In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual.** The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

### c. Sizing Criteria for Redevelopment Activity

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
- (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
  - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
  - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
  - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

**d. Sizing Criteria for Combination of Redevelopment Activity and New Development**

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

**D. Maintaining Water Quality**

The Department expects that compliance with the conditions of this permit will control *discharges* necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharges* authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharges* authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharges* will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.



### **E. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: “Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned”; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

### **F. Activities Which Are Ineligible for Coverage Under This General Permit**

All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

*operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.
7. *Construction activities* for linear transportation projects and linear utility projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase “D” (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
    - 1-5 acres of disturbance - 20 feet
    - 5-20 acres of disturbance - 50 feet
    - 20+ acres of disturbance - 100 feet, or
  - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
    - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
    - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
    - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
    - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
  - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

- (i) No Affect
- (ii) No Adverse Affect
- (iii) Executed Memorandum of Agreement, or

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.
9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

## Part II. PERMIT COVERAGE

### A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.
2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.
3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

## B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (<http://www.dec.ny.gov/>). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

**NOTICE OF INTENT  
NYS DEC, Bureau of Water Permits  
625 Broadway, 4<sup>th</sup> Floor  
Albany, New York 12233-3505**

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.
3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

## C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
  - a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (<http://www.dec.ny.gov/>) for more information,
  - b. where required, all necessary Department permits subject to the *Uniform Procedures Act* ("UPA") (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

- c. the final SWPPP has been prepared, and
  - d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:
- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
    - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
    - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
    - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
  - (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed “MS4 SWPPP Acceptance” form, or
  - (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed “MS4 SWPPP Acceptance” form.
4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

#### **D. General Requirements For Owners or Operators With Permit Coverage**

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (“NOT”) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor’s or subcontractor’s certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.
3. The *owner or operator of a construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

- use control MS4, the regulated, traditional land use control MS4 (provided the regulated, traditional land use control MS4 is not the owner or operator of the construction activity). At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:*
- a. The *owner or operator* shall have a *qualified inspector* conduct **at least two** (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.
  - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
  - d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.
  - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..
  5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.
  6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the



*regulated, traditional land use control MS4* in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

#### **E. Permit Coverage for Discharges Authorized Under GP-0-15-002**

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of a *construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

#### **F. Change of Owner or Operator**

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4*, the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.
2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.
3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

*operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

### Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

#### A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.
2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:
  - a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

- b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;
  - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority; and
  - d. to document the final construction conditions.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

## **B. Required SWPPP Contents**

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
  - a. Background information about the scope of the project, including the location, type and size of project

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge(s)*;
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;
- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

- j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;
  - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and
  - l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

The post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
- c. A Stormwater Modeling and Analysis Report that includes:
  - (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;
  - (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;
  - (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;
  - (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;
  - (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and
  - (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;
- d. Soil testing results and locations (test pits, borings);
- e. Infiltration test results, when required; and
- f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria*, Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

### **C. Required SWPPP Components by Project Type**

Unless otherwise notified by the Department, *owners or operators of construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators of the construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

## **Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS**

### **A. General Construction Site Inspection and Maintenance Requirements**

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

### **B. Contractor Maintenance Inspection Requirements**

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall



begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

### C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
  - Certified Professional in Erosion and Sediment Control (CPESC),
  - New York State Erosion and Sediment Control Certificate Program holder
  - Registered Landscape Architect, or
  - someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].
1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:
    - a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
  - c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
  - d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:
- a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
  - b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice*” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.
  - e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.
  4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

- a. Date and time of inspection;
- b. Name and title of person(s) performing inspection;
- c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
- f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;
- g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;
- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
- j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
- k. Identification and status of all corrective actions that were required by previous inspection; and

- I. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

## **Part V. TERMINATION OF PERMIT COVERAGE**

### **A. Termination of Permit Coverage**

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:
  - a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

- b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
      - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.
      - d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice certification statements*” on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.
4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the “*MS4 Acceptance*” statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.A.3. of this permit.
5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:
  - a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

## **Part VI. REPORTING AND RETENTION RECORDS**

### **A. Record Retention**

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

### **B. Addresses**

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

## **Part VII. STANDARD PERMIT CONDITIONS**

### **A. Duty to Comply**

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

#### **B. Continuation of the Expired General Permit**

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

#### **C. Enforcement**

Failure of the *owner or operator*, its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to \$37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

#### **D. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.



### **E. Duty to Mitigate**

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

### **F. Duty to Provide Information**

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

### **G. Other Information**

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

### **H. Signatory Requirements**

1. All NOIs and NOTs shall be signed as follows:
  - a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
    - (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
  - b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
  - c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
    - (i) the chief executive officer of the agency, or
    - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

- c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

## **I. Property Rights**

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

## **J. Severability**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

## **K. Requirement to Obtain Coverage Under an Alternative Permit**

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge(s)*, the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

#### **L. Proper Operation and Maintenance**

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

#### **M. Inspection and Entry**

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.
4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

#### **N. Permit Actions**

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

#### **O. Definitions**

Definitions of key terms are included in Appendix A of this permit.

#### **P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

#### **Q. Penalties for Falsification of Forms and Reports**

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

**R. Other Permits**

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

## **APPENDIX A – Acronyms and Definitions**

### **Acronyms**

APO – Agency Preservation Officer

BMP – Best Management Practice

CPESC – Certified Professional in Erosion and Sediment Control

Cpv – Channel Protection Volume

CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)

DOW – Division of Water

EAF – Environmental Assessment Form

ECL - Environmental Conservation Law

EPA – U. S. Environmental Protection Agency

HSG – Hydrologic Soil Group

MS4 – Municipal Separate Storm Sewer System

NOI – Notice of Intent

NOT – Notice of Termination

NPDES – National Pollutant Discharge Elimination System

OPRHP – Office of Parks, Recreation and Historic Places

Qf – Extreme Flood

Qp – Overbank Flood

RRv – Runoff Reduction Volume

RWE – Regional Water Engineer

SEQR – State Environmental Quality Review

SEQRA - State Environmental Quality Review Act

SHPA – State Historic Preservation Act

SPDES – State Pollutant Discharge Elimination System

SWPPP – Stormwater Pollution Prevention Plan

TMDL – Total Maximum Daily Load

UPA – Uniform Procedures Act

USDA – United States Department of Agriculture

WQv – Water Quality Volume

## Definitions

All definitions in this section are solely for the purposes of this permit.

**Agricultural Building** – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

**Agricultural Property** – means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

**Alter Hydrology from Pre to Post-Development Conditions** - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

**Combined Sewer** - means a sewer that is designed to collect and convey both “sewage” and “stormwater”.

**Commence (Commencement of) Construction Activities** - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for “*Construction Activity(ies)*” also.

**Construction Activity(ies)** - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

**Construction Site** – means the land area where *construction activity(ies)* will occur. See definition for “*Commence (Commencement of) Construction Activities*” and “*Larger Common Plan of Development or Sale*” also.

**Dewatering** – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

**Direct Discharge (to a specific surface waterbody)** - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system



and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

**Discharge(s)** - means any addition of any pollutant to waters of the State through an outlet or *point source*.

**Embankment** –means an earthen or rock slope that supports a road/highway.

**Endangered or Threatened Species** – see 6 NYCRR Part 182 of the Department’s rules and regulations for definition of terms and requirements.

**Environmental Conservation Law (ECL)** - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

**Equivalent (Equivalence)** – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

**Final Stabilization** - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

**General SPDES permit** - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

**Groundwater(s)** - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

**Historic Property** – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

**Impervious Area (Cover)** - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

**Infeasible** – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

**Larger Common Plan of Development or Sale** - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

**Minimize** – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

**Municipal Separate Storm Sewer (MS4)** - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

- (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State;
- (ii) Designed or used for collecting or conveying stormwater;
- (iii) Which is not a *combined sewer*, and
- (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

**Natural Buffer** –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

**New Development** – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

**New York State Erosion and Sediment Control Certificate Program** – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

**NOI Acknowledgment Letter** - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

**Nonpoint Source** - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

**Overbank** –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

**Owner or Operator** - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

**Performance Criteria** – means the design criteria listed under the “Required Elements” sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf ) in Part I.C.2. of the permit.

**Point Source** - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

**Pollutant** - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

**Qualified Inspector** - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

**Qualified Professional** - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

**Redevelopment Activity(ies)** – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

**Regulated, Traditional Land Use Control MS4** - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

**Routine Maintenance Activity** - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

**Site limitations** – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

**Sizing Criteria** – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank Flood* (Qp), and *Extreme Flood* (Qf).

**State Pollutant Discharge Elimination System (SPDES)** - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

**Steep Slope** – means land area designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

**Streambank** – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

**Stormwater Pollution Prevention Plan (SWPPP)** – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

**Surface Waters of the State** - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

**Temporarily Ceased** – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

**Temporary Stabilization** - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

**Total Maximum Daily Loads (TMDLs)** - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint sources*. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint sources*, and a margin of safety (MOS).

**Trained Contractor** - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

**Uniform Procedures Act (UPA) Permit** - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

**Water Quality Standard** - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

## APPENDIX B – Required SWPPP Components by Project Type

**Table 1**  
**Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls**

<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</b></p> <ul style="list-style-type: none"><li>• Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E</li><li>• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E</li><li>• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.</li></ul>
<p><b>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</b></p> <p>All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.</p>
<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land:</b></p> <ul style="list-style-type: none"><li>• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains</li><li>• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects</li><li>• Pond construction</li><li>• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover</li><li>• Cross-country ski trails and walking/hiking trails</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.</li><li>• Slope stabilization projects</li><li>• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics</li></ul>



**Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State”, excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

**Table 2**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES**  
**POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

**The following construction activities that involve soil disturbances of one (1) or more acres of land:**

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

The following construction activities that involve soil disturbances of one (1) or more acres of land:

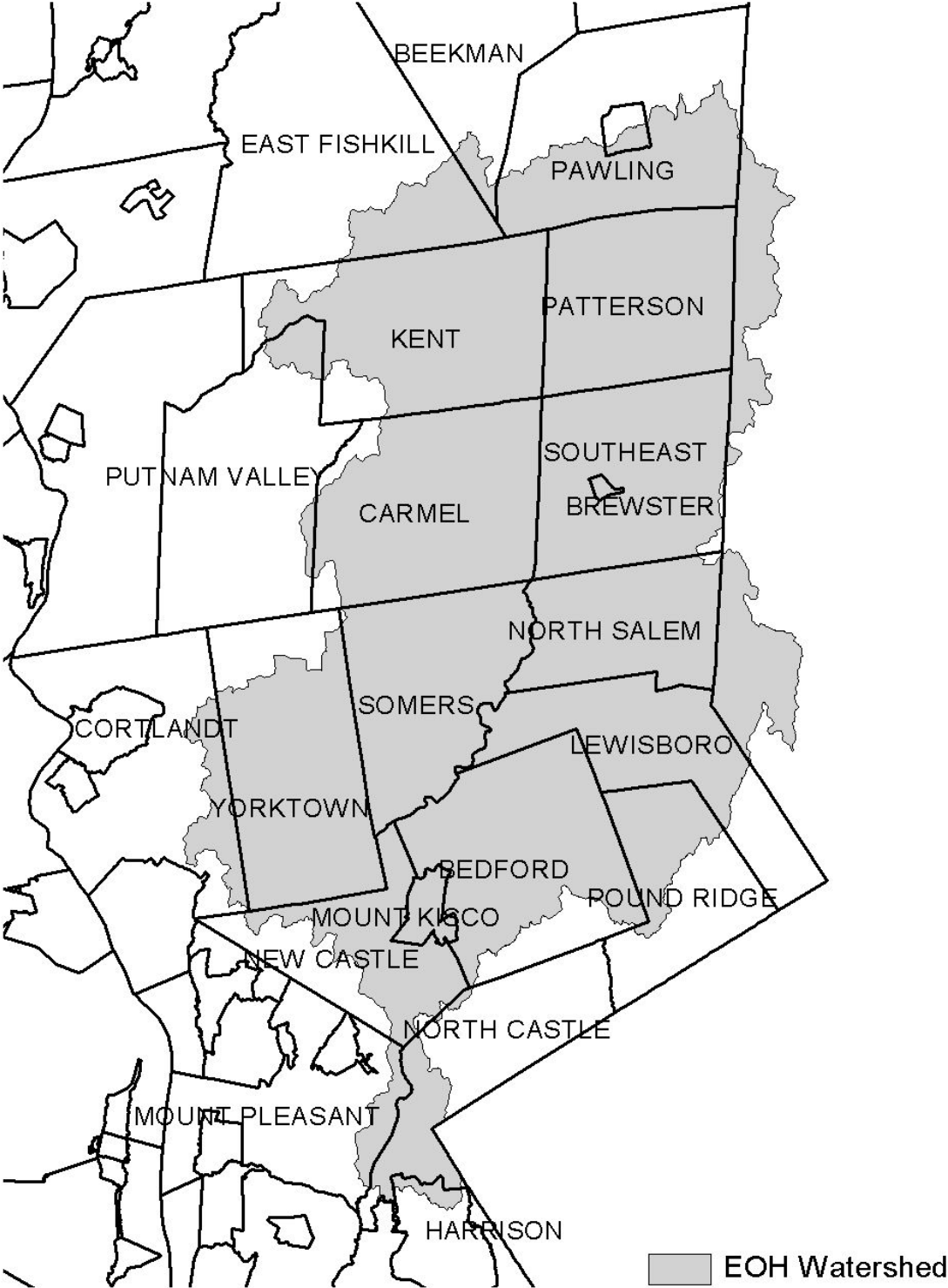
- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

## APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

**Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).**

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

**Figure 1 - New York City Watershed East of the Hudson**



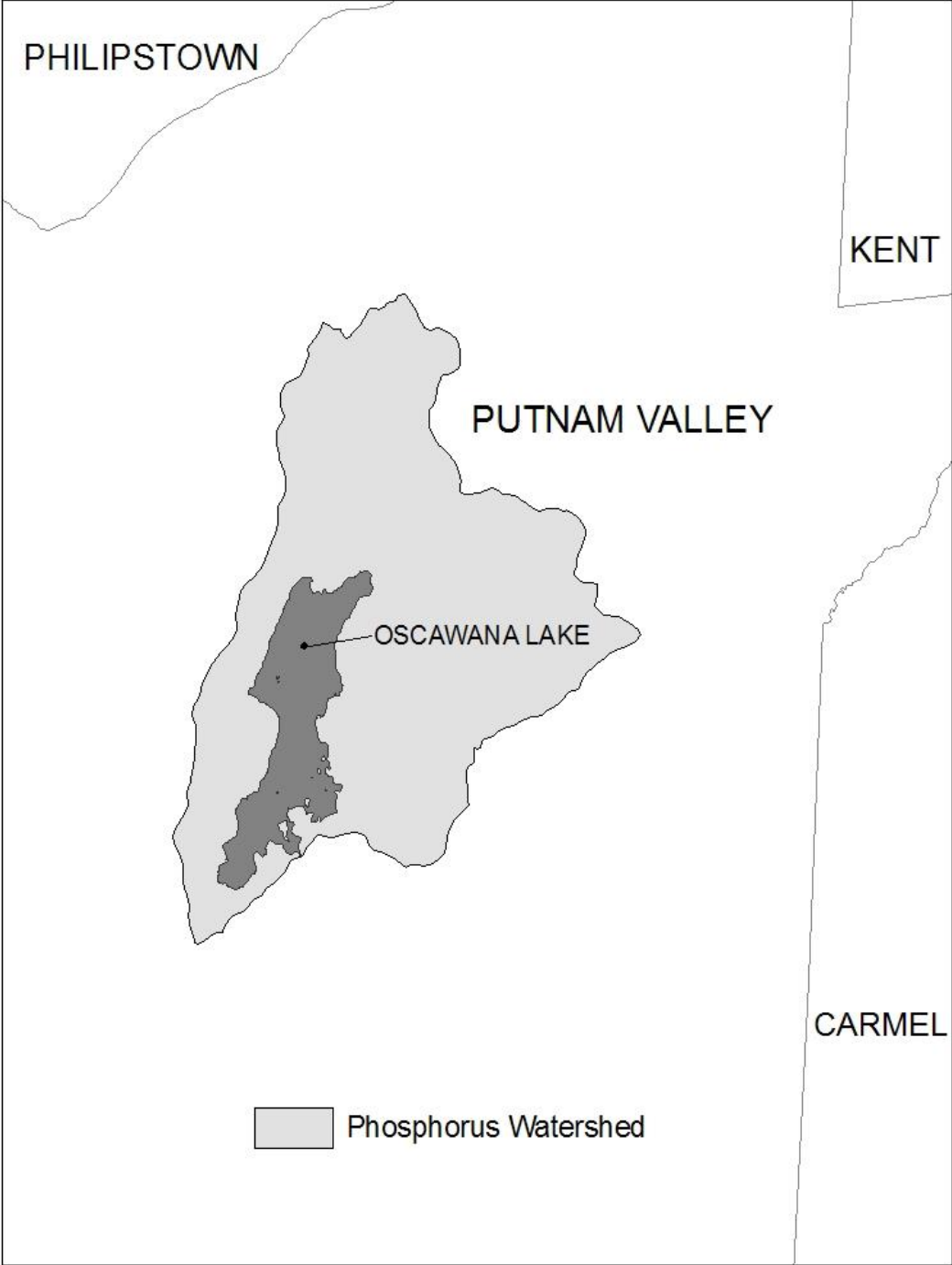
**Figure 2 - Onondaga Lake Watershed**



**Figure 3 - Greenwood Lake Watershed**

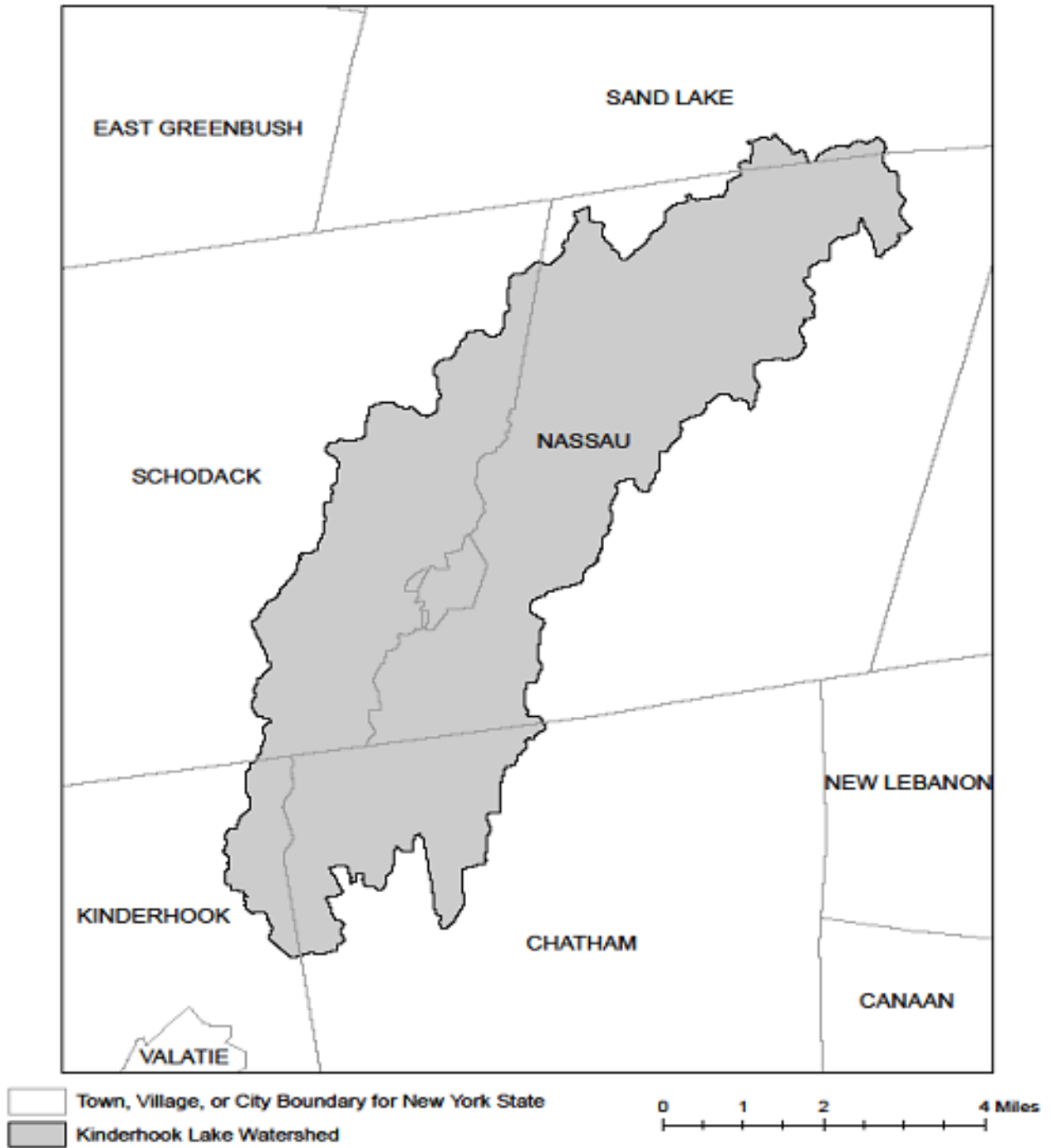


**Figure 4 - Oscawana Lake Watershed**





**Figure 5 - Kinderhook Lake Watershed**



## **APPENDIX D – Watersheds with Lower Disturbance Threshold**

**Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.**

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C

## APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

### 303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients



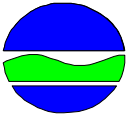
## APPENDIX F – List of NYS DEC Regional Offices

<u>Region</u>	<u>COVERING THE FOLLOWING COUNTIES:</u>	<u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u>	<u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u>
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, Po Box 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix B: NYSDEC SPDES General Permit Forms**

## NOTICE OF INTENT



### New York State Department of Environmental Conservation

#### Division of Water

**625 Broadway, 4th Floor**

**Albany, New York 12233-3505**

NYR   
(For DEC use only)

**Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001**  
All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

**- IMPORTANT -**  
**RETURN THIS FORM TO THE ADDRESS ABOVE**

**OWNER/OPERATOR MUST SIGN FORM**

#### Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

K I N G S   C A P I T A L   C O N S T R U C T I O N

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

S P E R D U T I

Owner/Operator Contact Person First Name

J O H N

Owner/Operator Mailing Address

6 6 0   W H I T E   P L A I N S   R O A D

City

T A R R Y T O W N

State

N Y

Zip

1 0 5 9 1 -

Phone (Owner/Operator)

9 7 3 - 2 2 9 - 4 1 0 3

Fax (Owner/Operator)

-  -

Email (Owner/Operator)

j . s p e r d u t i @ k i n g s c a p i t a l g r o u p . c o m

FED TAX ID

-  (not required for individuals)



3. Select the predominant land use for both pre and post development conditions.  
**SELECT ONLY ONE CHOICE FOR EACH**

**Pre-Development  
Existing Land Use**

- FOREST
- PASTURE/OPEN LAND
- CULTIVATED LAND
- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY
- PARKING LOT
- OTHER

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**Post-Development  
Future Land Use**

- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- MUNICIPAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY (water, sewer, gas, etc.)
- PARKING LOT
- CLEARING/GRADING ONLY
- DEMOLITION, NO REDEVELOPMENT
- WELL DRILLING ACTIVITY \*(Oil, Gas, etc.)
- OTHER

Number of Lots

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**\*Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area																								
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			4	.	2																						
			3	.	7																						
			3	.	2																						
			2	.	2																						

5. Do you plan to disturb more than 5 acres of soil at any one time?  Yes  No

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>												
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		0													
1	0	0													
		0													
		0													

7. Is this a phased project?  Yes  No

8. Enter the planned start and end dates of the disturbance activities.

<b>Start Date</b>	<b>End Date</b>																
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0	5																
0	1																
2	0	2	4														
0	5																
0	1																
2	0	2	5														



15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?  Yes  No  Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

T O W N O F N O R T H C A S T L E

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?  Yes  No  Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?  Yes  No

19. Is this property owned by a state authority, state agency, federal government or local government?  Yes  No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)  Yes  No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?  Yes  No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?  Yes  No  
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?  Yes  No







**Post-construction Stormwater Management Practice (SMP) Requirements**

**Important: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- Preservation of Undisturbed Areas
- Preservation of Buffers
- Reduction of Clearing and Grading
- Locating Development in Less Sensitive Areas
- Roadway Reduction
- Sidewalk Reduction
- Driveway Reduction
- Cul-de-sac Reduction
- Building Footprint Reduction
- Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

**Total WQv Required**

.    acre-feet

29. Identify the RR techniques (Area Reduction), RR techniques (Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required (#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

**Note:** Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

<u>RR Techniques (Area Reduction)</u>	<u>Total Contributing Area (acres)</u>		<u>Total Contributing Impervious Area(acres)</u>	
<input type="radio"/> Conservation of Natural Areas (RR-1) ...	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Sheetflow to Riparian Buffers/Filters Strips (RR-2) .....	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Tree Planting/Tree Pit (RR-3) .....	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Disconnection of Rooftop Runoff (RR-4) ..	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<u>RR Techniques (Volume Reduction)</u>				
<input type="radio"/> Vegetated Swale (RR-5) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Rain Garden (RR-6) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Stormwater Planter (RR-7) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Rain Barrel/Cistern (RR-8) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Porous Pavement (RR-9) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Green Roof (RR-10) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<u>Standard SMPs with RRv Capacity</u>				
<input type="radio"/> Infiltration Trench (I-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Infiltration Basin (I-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Dry Well (I-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Underground Infiltration System (I-4) .....	<input type="text"/>	<input type="text"/>	2	1 2
<input type="radio"/> Bioretention (F-5) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Dry Swale (O-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<u>Standard SMPs</u>				
<input type="radio"/> Micropool Extended Detention (P-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Wet Pond (P-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Wet Extended Detention (P-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Multiple Pond System (P-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Pocket Pond (P-5) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Surface Sand Filter (F-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Underground Sand Filter (F-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Perimeter Sand Filter (F-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Organic Filter (F-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Shallow Wetland (W-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Extended Detention Wetland (W-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Pond/Wetland System (W-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Pocket Wetland (W-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Wet Swale (O-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>



33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

**Note:** Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

**WQv Provided**  

		0	.	0	2	3
--	--	---	---	---	---	---

**acre-feet**

**Note:** For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). 

		0	.	2	7	9
--	--	---	---	---	---	---

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?  **Yes**  **No**

**If Yes, go to question 36.**

**If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.**

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

<b>CPv Required</b>	<b>CPv Provided</b>														
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">0</td> <td style="width: 10px; text-align: center;">.</td> <td style="width: 20px; height: 20px; text-align: center;">3</td> <td style="width: 20px; height: 20px; text-align: center;">7</td> <td style="width: 20px; height: 20px; text-align: center;">5</td> </tr> </table> <b>acre-feet</b>			0	.	3	7	5	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">0</td> <td style="width: 10px; text-align: center;">.</td> <td style="width: 20px; height: 20px; text-align: center;">3</td> <td style="width: 20px; height: 20px; text-align: center;">8</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> <b>acre-feet</b>			0	.	3	8	
		0	.	3	7	5									
		0	.	3	8										

36a. The need to provide channel protection has been waived because:

- Site discharges directly to tidal waters or a fifth order or larger stream.
- Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

**Total Overbank Flood Control Criteria (Qp)**

<b>Pre-Development</b>	<b>Post-development</b>														
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">6</td> <td style="width: 10px; text-align: center;">.</td> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 20px; height: 20px; text-align: center;">6</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> <b>CFS</b>			6	.	1	6		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 10px; text-align: center;">.</td> <td style="width: 20px; height: 20px; text-align: center;">5</td> <td style="width: 20px; height: 20px; text-align: center;">4</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> <b>CFS</b>			1	.	5	4	
		6	.	1	6										
		1	.	5	4										

**Total Extreme Flood Control Criteria (Qf)**

<b>Pre-Development</b>	<b>Post-development</b>														
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 20px; height: 20px; text-align: center;">8</td> <td style="width: 10px; text-align: center;">.</td> <td style="width: 20px; height: 20px; text-align: center;">2</td> <td style="width: 20px; height: 20px; text-align: center;">9</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> <b>CFS</b>		1	8	.	2	9		<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 20px; height: 20px; text-align: center;">3</td> <td style="width: 10px; text-align: center;">.</td> <td style="width: 20px; height: 20px; text-align: center;">1</td> <td style="width: 20px; height: 20px; text-align: center;">0</td> <td style="width: 20px; height: 20px;"></td> </tr> </table> <b>CFS</b>		1	3	.	1	0	
	1	8	.	2	9										
	1	3	.	1	0										











Department of  
Environmental  
Conservation

NYS Department of Environmental Conservation  
Division of Water  
625 Broadway, 4th Floor  
Albany, New York 12233-3505

## MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

**Construction Activities Seeking Authorization Under SPDES General Permit**

\*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

### I. Project Owner/Operator Information

1. Owner/Operator Name:

2. Contact Person:

3. Street Address:

4. City/State/Zip:

### II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/State/Zip:

### III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

### IV. Regulated MS4 Information

11. Name of MS4:

12. MS4 SPDES Permit Identification Number: NYR20A

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:

**MS4 SWPPP Acceptance Form - continued**

**V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative**

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

**VI. Additional Information**

## MS4 Signatory Authorization

Your SPDES permit requires you to annually submit a report. The Municipal Compliance Certification Form (MCC) must be signed as follows:

- 1.) For a municipality, state, federal, or other public agency: by either a principal or executive officer or ranking elected official. A principal executive officer includes:
  - (i) the chief executive officer of the agency, or
  - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency; or
- 2.) A duly authorized representative of the person described in item (1).

**NOTE: A person is a duly authorized representative only if**

- (i) the authorization is made in writing by a person described in paragraph 1 above; and
- (ii) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- (iii) the written authorization is submitted to the Department.

**Initial authorization or changes to authorization:** The initial authorization should be submitted to the Department with any reports to be signed by an authorized representative. If an authorization under paragraph (2) is no longer accurate because a different individual, or position, has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (2) must be submitted to the Department with any reports to be signed by an authorized representative.

## Signature Authorization Form

Permittee Name:

SPDES NO. NYR20A

Date:

Name of person described in paragraph (1):	Title:
Signature of person described in paragraph (1):	Date:

**THE PERMITTEE MUST NOTIFY THE DEPARTMENT OF ANY CHANGE IN THIS INFORMATION. THIS FORM SHOULD ONLY BE SENT IN WITH THE ANNUAL REPORT.**

Name and/or title of person responsible for signing and submitting official documents including reports, certifications or information required by the NYS Small MS4 General Permit:	Phone:		
Signature (if individual named above):			
Mailing Address:	City:	State:	Zip:

\* Note: Notices of Intent (NOI) associated with permit coverage under the NYS Small MS4 General Permit must be signed by a principal executive officer or ranking elected official. See paragraph (1) for definition of a principal executive officer.

Return to: MS4 Coordinator  
Bureau of Water Permits  
New York State Department of Environmental Conservation 625  
Broadway  
Albany, NY 12233-3505



# SWPPP Preparer Certification Form

---

*SPDES General Permit for Stormwater  
Discharges From Construction Activity  
(GP-0-20-001)*

## **Project Site Information** Project/Site Name

## **Owner/Operator Information** Owner/Operator (Company Name/Private Owner/Municipality Name)

## **Certification Statement – SWPPP Preparer**

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First name

MI

Last Name

Signature

Date



# Owner/Operator Certification Form

## SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: \_\_\_\_\_

eNOI Submission Number: \_\_\_\_\_

eNOI Submitted by:                      Owner/Operator                      SWPPP Preparer                      Other

### Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name

M.I.    Last Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix C: Design Calculations**

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## Total Required Water Quality Volume Calculation Worksheet

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....							no
Design Point(s): 1,2			<i>Manually enter the information below.</i>				
P=	1.50	inch					
Breakdown of Subcatchments							
Subcatchment Number	Subcatchment Model Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Description
1	10	0.50	0.24	49%	0.49	1,332	Underground Infiltration System
2	20A	2.41	1.87	78%	0.75	9,824	Underground Infiltration System
3	20B	1.05	0.00	0%	0.05	285	
4							
5							
6							
7							
8							
9							
10							
Subtotal		3.95	2.12	54%	0.53	11,441	Subtotal 1
<b>Total</b>		<b>3.95</b>	<b>2.12</b>	<b>54%</b>	<b>0.53</b>	<b>11,441</b>	<b>Initial WQv</b>

Identify Runoff Reduction Techniques By Area			
Technique	Total Contributing Area	Contributing Impervious Area	Notes
	(Acre)	(Acre)	
Conservation of Natural Areas	0.00	0.00	<i>minimum 10,000 sf</i>
Riparian Buffers	0.00	0.00	<i>maximum contributing length 75 feet to 150 feet</i>
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	<i>Up to 100 sf directly connected impervious area may be</i>
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	

Recalculate WQv after application of Area Reduction Techniques					
	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Runoff Coefficient Rv	WQv (ft <sup>3</sup> )
Initial WQv	3.95	2.12	54%	0.53	11,441
Subtract Area	0.00	0.00	--	--	--
WQv adjusted after Area Reductions	<b>3.95</b>	<b>2.12</b>	54%	0.53	11,441
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	3.95	2.12	54%	0.53	<b>11,441</b>
WQv reduced by Area Reduction techniques					0



## Minimum Runoff Reduction Volume Worksheet

Minimum Runoff Reduction Volume			
<p>1. Construction activities that cannot achieve 100% reduction of the total water quality volume due to site limitation shall direct runoff from all newly constructed impervious areas to a runoff reduction technique or standard stormwater management practice with runoff reduction volume capacity unless infeasible.</p> <p>2. In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the minimum runoff reduction (<math>RRv_{min}</math>).</p> <p>3. The minimum runoff reduction volume is calculated as follows:</p>			
$RRv_{min} = \frac{P * \bar{R}v * Aic * S}{12}$			
<p>Where:</p> <p style="margin-left: 40px;"><math>RRv_{min}</math> = Minimum runoff reduction required from impervious area</p> <p style="margin-left: 40px;"><math>\bar{R}v = 0.05 + 0.009 (I)</math>, where <math>I</math> is 100% impervious</p> <p style="margin-left: 40px;"><math>Aic</math> = Total area of new impervious cover</p> <p style="margin-left: 40px;"><math>S</math> = Hydrologic Soil Group Specific Reduction Factor</p>			

Enter the Soils Data for the site			
Soil Group	Acres	S	
A	0.00	55%	<i>(new impervious area in Type A Soils)</i>
B	2.16	40%	<i>(new impervious area in Type B Soils)</i>
C	0.00	30%	<i>(new impervious area in Type C Soils)</i>
D	<b>0.00</b>	20%	<i>(new impervious area in Type D Soils)</i>
Total Area	2.16		
Calculate the Minimum RRv			
Soil Group Specific Reduction Factor (S)	<b>0.40</b>		<i>(weighted average)</i>
Total Area of New Impervious Cover (Aic)	2.16	acre	
Precipitation (P)	1.50	in	
Rv	0.95		
<b>Minimum RRv</b>	<b>4,468</b>	<b>ft<sup>3</sup></b>	<i>(P * Rv x Aic * S)/12</i>
	0.10	af	

## Underground Infiltration System Worksheet

Design Point(s):	1							
Enter Site Data For Drainage Area to be Treated by Practice								
Subcatchment Number	Subcatchment Model Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Precipitation (in)	Description
1	10	0.50	0.24	0.49	0.49	1,332	1.50	Underground Infiltration System
Enter Impervious Area Reduced by Disconnection of Rooftops			0.00	49%	0.49	1,332	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						0	ft <sup>3</sup>	
<b>Design Elements</b>								
<b>Pretreatment Techniques to Prevent Clogging</b>								
Infiltration Rate					7.50	in/hour	<i>Okay</i>	
Pretreatment Sizing					100	% WQv	25% minimum; 50% if >2 in/hr; 100% if >5in/hour	
Pretreatment Required Volume					1,332	ft <sup>3</sup>		
Pretreatment Provided					1,332	ft <sup>3</sup>		
Pretreatment Techniques utilized					<i>Other</i>		<i>Hydrodynamic Separator</i>	
<b>Size An Infiltration Basin</b>								
Design Volume		1,332	ft <sup>3</sup>	WQv				
Volume Provided		1,340	ft <sup>3</sup>	Storage Volume provided in underground infiltration system below lowest outlet (not including pretreatment)				
Sizing v		<b>OK</b>	The underground infiltration system must provide storage equal to or greater than the WQv of the contributing area.					
<b>Determine Runoff Reduction</b>								
Runoff Reduction			1,332	ft <sup>3</sup>	100% of the storage provided in the basin or WQv, whichever is smaller			
Volume Treated			8	ft <sup>3</sup>	This is the portion of the WQv that is not reduced/infiltrated			

## Underground Infiltration System Worksheet

Design Point(s):	2							
Enter Site Data For Drainage Area to be Treated by Practice								
Subcatchment Number	Subcatchment Model Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft <sup>3</sup> )	Precipitation (in)	Description
2	20A	2.41	1.87	0.78	0.75	9,824	1.50	Underground Infiltration System
Enter Impervious Area Reduced by Disconnection of Rooftops			0.00	78%	0.75	9,824	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						0	ft <sup>3</sup>	
Design Elements								
Pretreatment Techniques to Prevent Clogging								
Infiltration Rate					9.00	in/hour	<i>Okay</i>	
Pretreatment Sizing					100	% WQv	25% minimum; 50% if >2 in/hr; 100% if >5in/hour	
Pretreatment Required Volume					9,824	ft <sup>3</sup>		
Pretreatment Provided					9,825	ft <sup>3</sup>		
Pretreatment Techniques utilized					<i>Other</i>		<i>Hydrodynamic Separator</i>	
Size An Infiltration Basin								
Design Volume		9,824	ft <sup>3</sup>	WQv				
Volume Provided		10,834	ft <sup>3</sup>	Storage Volume provided in underground infiltration system below lowest outlet (not including pretreatment)				
Sizing v		<b>OK</b>	The underground infiltration system must provide storage equal to or greater than the WQv of the contributing area.					
Determine Runoff Reduction								
Runoff Reduction			9,824	ft <sup>3</sup>	100% of the storage provided in the basin or WQv, whichever is smaller			
Volume Treated			1,010	ft <sup>3</sup>	This is the portion of the WQv that is not reduced/infiltrated			

## Channel Protection Volume Worksheet

Design Point(s):			
Channel Protection Volume			
Area	3.95	ac	0.006 sq. miles
Curve Number (CN)	89		
Precipitation for 1 yr storm ( $P_{1 \text{ yr storm}}$ )	2.83	in	
Ia (200 / CN - 2)	0.25		
Ia / $P_{1 \text{ yr storm}}$	0.09		
S (Ia / 0.2)	1.24		
Time of Concentration	6.00	min	0.100 hours
Unit peak discharge ( $q_u$ )	650	csm/in	from Exhibit 4-III of TR-55
Ratio of Outflow to Inflow ( $q_o/q_i$ )	0.022		from Figure B.1 of Design Manual
Unit Volume ( $V_s/V_r$ )	0.65		$0.683 - 1.43*(q_o/q_i) + 1.64*(q_o/q_i)^2 - 0.804*(q_o/q_i)^3$
Runoff for 1 yr storm ( $Q_{1 \text{ yr runoff}}$ )	1.75	in	$(P_{1 \text{ yr storm}} - 0.2*S)^2 / (P_{1 \text{ yr storm}} + 0.8*S)$
<b>Channel Protection Volume</b>	<b>16,339</b>	<b>cf</b>	$[(V_s/V_r) * (Q_{1 \text{ yr runoff}}) * A] / 12 * 43560$
<b>Average Release Rate over 24 hours</b>	<b>0.19</b>	<b>cfs</b>	

The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix D: Pre-Development Stormwater Analysis**

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(Previously Approved from the SWPPP prepared by JMC dated June 11, 2019.)

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# PRELIMINARY STORMWATER POLLUTION PREVENTION PLAN

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## MARIANI GARDENS REDEVELOPMENT

**45 BEDFORD ROAD  
TOWN OF NORTH CASTLE  
WESTCHESTER COUNTY, NEW YORK**

*Prepared for:* **45 Bedford Road, LLC**  
45 Bedford Road  
Armonk, NY 10504

*Prepared by:*



120 Bedford Road  
Armonk, NY 10504  
JMC Project 18053

*Date:* June 11, 2019

## **Project Description**

The proposed Project consists of application for the following:

(1) Zoning petition to the Town of North Castle Town Board to create a new zoning district for the subject property (R-MF-DA, Residential-Multi-Family-Downtown Armonk) which would permit the development of a 43 unit residential project on the site;

(2) amending Chapter 355 by adding a new section to be known as §355-25.1 entitled “Additional R-MF-DA Residence District Regulations”;

(3) amending §355-21 “Schedule of Residence District Regulations” by adding bulk and area requirements;

(4) amending the Town Zoning Map to re-zone the approximately 4 acre site for the property known as 45 Bedford Road, and designated on the Tax Assessment Map of the Town of North Castle as lot 108.03-1-65;

(5) amending the definition of “Floor Area, Gross” in §355-4 to eliminate an inconsistency in the existing code to reflect the Town’s consistent interpretation of gross floor area to include floor area for off-street parking for all residential buildings, not just one and two family residences, and to exclude any attic space with a floor to ceiling height of less than 7.5 feet for all residential buildings, and not just one and two family residences;

(6) site plan approval from the Town of North Castle Planning Board.

The applicant for this Proposed Action is 45 Bedford Road LLC with offices at present located at 45 Bedford Road (“Mariani Gardens”). This proposed multi-family residential development will consist of 43 residential units with a mix of styles including townhomes adjacent to Bedford Road (the A-Units) and two three-level buildings. The B-Building is proposed adjacent to the eastern property line and includes 16 apartments and the C-Building is proposed adjacent to Route 22 and

includes 23. Both three-level apartment buildings include parking below the living space at ground level and include terraces as private amenity space for many of the proposed units.

The proposal is to improve the 4.21 acre site with a high quality multi-family community consisting of a mix of housing styles and options. There will be 43 units totaling approximately 71,691 square feet of gross floor area. Ingress and egress will be from Bedford Road with the curb cut being reconstructed approximately 30' east of its present location.

### **Stormwater Management Design Criteria**

This Preliminary Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with Chapter 267 - "Stormwater Management" of the Town of North Castle Code and the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit No. GP-0-15-002 for Stormwater Discharges from Construction Activity, effective January 29, 2015.

The project is a redevelopment and therefore will comply with the strategies outlined within.

Chapter 9: Redevelopment Projects of the Design Manual.

### **Existing Conditions**

The site currently contains a Garden Center, consisting of an existing Garden Center Building, an office building, storage, operations area, display areas and parking. The existing stormwater improvements capture and treat the Water Quality Volume as required by the NYSDEC in the New York State Stormwater Design Manual August 2003 and the General Permit GP-02-01.

The site is divided into four Drainage Areas (EDA-1, EDA-2a, EDA-2b and EDA-2c). Drainage Area EDA-1 discharges stormwater runoff to Design Point #1 and Drainage Areas EDA-2a, EDA-2b and EDA-2c all discharge stormwater runoff to Design Point #2 under Existing conditions. Each of these drainage areas are treated with a CDS Precast Manhole Stormwater Unit (PMSU) water quality device which provides pre-treatment of the runoff to remove pollutants before runoff



is directed to the existing infiltration practices. Each of the three existing infiltration facilities consist of Cultech 330 HD Recharger units with overflow structures with outlets for any overflow. Refer to Appendix C for an Existing Conditions Drainage Area Map.

Existing Drainage Area 1 (EDA-1) is 0.68 acres in size and is located at the southwest corner of the property. This drainage area includes the Storage building and the portion of the operations area adjacent to the existing brook and wetlands. This drainage area discharges to Subsurface Retention / Detention System #1 and overflows into the existing brook at the southwest corner of the property.

Existing Drainage Area 2a (EDA-1-a) is 0.70 acres in size and is located at the southeast corner of the property. This drainage area includes the majority of the existing facility's operations area. The drainage area discharges to Subsurface Retention / Detention System #2a and overflows into the existing drainage channel adjacent to Maple Avenue.

Existing Drainage Area 2b (EDA-2b) is 1.96 acres in size and includes developed areas at the center of the northern portion of the property. This drainage area includes the existing Garden Center, most of the existing parking areas, the mulched display area adjacent to Bedford Road, the front portions of the office building and a portion of the access drive. The drainage area discharges to a Subsurface Retention / Detention system and overflows into the existing drainage channel adjacent to Maple Avenue.

Existing Drainage Area 2c (EDA-2c) is 0.68 acres in size and is located adjacent to Maple Avenue. This drainage area includes the mulched display area for ornamental trees and shrubs. This drainage area discharges to the existing drainage swale along Maple Avenue and is undetained. Water Quality treatment is not required because this drainage area does not include any impervious areas.

The peak rates of runoff to the design point of each of the drainage areas for each storm are shown on the table below:

**Table 1**  
**Summary of Peak Rates of Runoff in Existing Conditions**  
(Cubic Feet per Second)

<b>Storm Recurrence Interval</b>	<b>DP-1</b>	<b>DP-2</b>	<b>DP-3</b>
1-year	0.00	0.07	0.33
10-year	2.53	2.85	0.78
100-year	4.89	11.84	1.56

**Proposed Conditions**

The project’s SWPPP will consider conveyance of runoff from redeveloped areas of the site to proposed stormwater management practices. Stormwater runoff will receive water quality treatment through a combination of green practices and standard practices with runoff reduction capabilities.

Since the project is classified as a redevelopment project, Runoff Reduction Volume is not required. Stream Channel Protection Volume Requirements (CPv) are also not required in redevelopment projects, and are not proposed as part of this project. However, both are being provided by the proposed stormwater management system.

The site has been graded so that the proposed drainage patterns remain similar to existing conditions. Water quality measures incorporated into the stormwater management design will include a surface infiltration pond, porous pavement infiltration systems and hydrodynamic separators.

All practices exceed the required elements of SMP criteria as outlined in Chapter 6 of the NYS Stormwater Management Design Manual. A summary of each category is provided below.

1. Feasibility – Ponds are designed based upon unique physical environmental considerations noted in the NYS Stormwater Management Design Manual (NYSSMDM) Table 7.2 "Physical Feasibility Matrix".
2. Conveyance – The design conveys runoff to the designed pond in a manner that is safe, minimizes

erosion and disruption to natural drainage channel and promotes filtering and infiltration.

3. Pretreatment – All ponds provide pretreatment in accordance with NYSSMDM design guidelines.
4. Treatment Geometry – The plan provides water quality treatment in accordance with NYSSMDM guidelines noted Table 6.1 "Water Quality Volume Distributing in Pond Design".
5. Environmental/Landscaping – Extensive landscaping has been provided for each proposed practice to enhance pollutant removal and provide aesthetic enhancement to the property.
6. Maintenance – Maintenance for the environmental practices has been provided and is detailed in the SWPPP Report as required. Maintenance access is provided in the design plans.

All piped stormwater runoff from the parking lots will be treated with a hydrodynamic separator to achieve the required removal of total suspended solids based on the redevelopment criteria in the NYS Stormwater Manual (75% WQv). The plan also proposes to reduce runoff from the site by application of green infrastructure techniques

Proposed Stormwater Practices for the project will include:

#### Hydrodynamic Water Quality Separators

Hydrodynamic water quality separators will be used to provide pretreatment of the water quality flow rate for separating sediment, debris, floatables, etc. from the runoff prior to discharge to the SMP's. These practices will be used in the vicinity of the C-Building.

#### Infiltration Systems

Infiltration practices provide runoff reduction and water quality enhancements by filtering runoff through soils below the proposed practice. Both surface infiltration ponds and porous pavement infiltration systems are being proposed for the project to provide water quality enhancements and to reduce peak runoff flows discharged from the site.

The infiltration pond will be a subtle depression to the east of the central driveway which will infiltrate runoff from the central portions of the property. This depression is graded so it will not be look like a typical stormwater pond and will be lawn. Also included is porous pavement for the driveway from Bedford Road to the C-Building and for the driveways in front of the proposed B-Buildings.

The site is divided into nine Drainage Areas (PDA-1A, PDA-1B, PDA-2A, PDA 2B, PDA-2C, PDA-2D, PDA-2E, PDA-2F and PDA-3). Drainage Area PDA-1A and PDA-1B discharges stormwater runoff to Design Point #1, Drainage Areas PDA-2A, PDA 2B, PDA-2C, PDA-2D, PDA-2E, PDA-2F all discharge stormwater runoff to Design Point #2 and Drainage Area PDA-3 drain to Design Point #3, which are the same design points studied in existing conditions.

The following is a description is each drainage area analyzed in proposed conditions:

Proposed Drainage Area PDA-1A is 0.10 acres in size and is located along the western side of the property. This drainage area includes pervious and landscaped areas behind the B-building and between the C-Building parking area and the western property line. This drainage area drains towards the proposed water quality structure in the southeast corner of the property before being discharged into the existing watercourse in this corner of the property.

Proposed Drainage Area PDA-1B is 0.39 acres in size and consists of parking areas located along the southern and western side of the proposed C-Building. This drainage area drains towards the porous pavement along the western and southern edges of the parking lots. The porous pavement overflows via catch basins to a water quality structure before being discharged into the existing watercourse at the southwest corner of the property.

Proposed Drainage Area PDA-2A is 0.39 acres in size and consists the proposed C-Building. Stormwater runoff from this building drains to the proposed infiltration system and does not require pretreatment since it is consist of entirely building area. Although the invert of pipe from

the C-Building at the pond is at elevation 374, the pond routing of this basin does not begin until elevation 375 to accommodate the 100-year flood elevation of 375.

Proposed Drainage Area PDA-2B is 1.63 acres in size and consists the A and B-Buildings, pervious / landscaped areas adjacent to the proposed A and B-Buildings as well as the center driveway which will be porous pavement. Stormwater runoff from this area drains to the proposed infiltration system. Pre-treatment is provided by a grass filter strip for the areas from the porous pavement area and by hydrodynamic separators for the piped runoff into this basin. Although water is conveyed via a pipe with an invert at the pond of elevation 374, the pond routing of this basin does not begin until elevation 375 to accommodate the 100-year flood elevation of 375.

Proposed Drainage Area PDA-2C is 0.49 acres in size and consists of porous / landscaped areas along the eastern edge of the adjacent to Maple Avenue. Stormwater runoff from this area drains undetained towards the existing swale located along eastern portion of the property which drains to the existing culvert under 22 located at the southeast corner of the property.

Proposed Drainage Area PDA-2D is 0.19 acres in size and consists the pervious paved and landscaped areas adjacent to the western proposed A-Buildings. Stormwater runoff from this area is piped to the proposed infiltration system. Although water is conveyed via a pipe with an invert at the pond of elevation 374, the pond routing of this basin does not begin until elevation 375 to accommodate the 100-year flood elevation of 375.

Proposed Drainage Area PDA-2E is 0.12 acres in size and consists the pervious paved and landscaped areas adjacent to the eastern proposed A-Buildings. Stormwater runoff from this area is piped to the proposed infiltration system. Although water is conveyed via a pipe with an invert at the pond of elevation 374, the pond routing of this basin does not begin until elevation 375 to accommodate the 100-year flood elevation of 375.

Proposed Drainage Area PDA-2F is 0.16 acres in size and consists of standard and porous pavement at the eastern side of proposed C-Building. Runoff is treated by the porous pavement

section and storms greater than the 10-year storm will discharge undetained via a pipe to the existing culvert under Route 22.

Proposed Drainage Area PDA-2G is 0.37 acres in size and consists the area adjacent to the graded depression proposed for flood plain compensatory storage. This area will not create runoff as the area has capacity to store the 100 year storm from its contributing areas since it is approximately 2' feet deep

Proposed Drainage Area PDA-3 is 0.12 acres in size and consists of a small portion of the proposed driveway and the pervious area between the reconstructed wall along the front of the property and Bedford Road. Stormwater runoff from this area flows undetained to Bedford Road's drainage system.

Please refer to the Proposed Conditions Drainage Area Map in Appendix C.

The peak rates of runoff to the design point of each of the drainage areas for each storm in proposed are shown on the table below:

**Table 2**  
**Summary of Peak Rates of Runoff in Proposed Conditions**  
 (Cubic Feet per Second)

<b>Storm Recurrence Interval</b>	<b>DP-1</b>	<b>DP-2</b>	<b>DP-3</b>
1-year	0.00	0.07	0.05
10-year	0.00	0.68	0.23
100-year	0.00	3.78	0.63

The reductions in peak rates of runoff from proposed to existing conditions are shown on the table below:

**Table 3**  
**Percent Reductions in Peak Rates of Runoff (%)**  
 (Existing vs. Proposed Conditions)

<b>Storm Recurrence Interval</b>	<b>DP-1</b>	<b>DP-2</b>	<b>DP-3</b>
1-year	0	0	84.8
10-year	100	76.1	71.5
100-year	10	68.1	59.6

**SOIL EROSION & SEDIMENT CONTROL**

A potential impact of the proposed development on any soils or slopes will be that of erosion and transport of sediment during construction. An Erosion and Sediment Control Management Program will be established for the proposed development, beginning at the start of construction and continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," dated November 2016. A continuing maintenance program will be implemented for the control of sediment transport and erosion control after construction and throughout the useful life of the project.

The Operator shall have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify that the appropriate erosion and sediment controls, as shown on the Sediment & Erosion Control Plans, have been adequately installed to ensure overall preparedness of the site for the commencement of construction. In addition, the Operator shall have a qualified professional conduct one site inspection at least every seven calendar days and at least two site inspections every seven calendar days when greater than five acres of soil is disturbed at any one time.

### Soil Description

As provided by the United States Department of Agriculture, Soil Conservation Service "Web Soil Survey," soil classifications which exist on the subject site are described below.

A soil's tendency to erode is described in the USDA web soil survey. The ratings in this interpretation indicate the hazard of soil loss from unsurfaced areas. The ratings are based on soil erosion factor K, slope, and content of rock fragments. The hazard is described as "slight," "moderate," or "severe." A rating of "slight" indicates that little or no erosion is likely; "moderate" indicates that some erosion is likely, that the temporarily unsurfaced / unstabilized during construction may require occasional maintenance, and that simple erosion-control measures are needed; and "severe" indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that erosion-control measures are needed. The onsite soils include sand and gravel and the slope of the site is moderate. Therefore, the site can be considered slight to moderate in terms of sediment and erosion control risk.

Descriptions of the temporary sediment & erosion controls that will be used during the development of the site including silt fence, stabilized construction entrance, seeding, mulching and inlet protection are as follows:

1. Silt Fence is constructed using a geotextile fabric. The fence will be either 18 inches or 30 inches high. The height of the fence can be increased in the event of placing these devices on uncompacted fills or extremely loose undisturbed soils. The fences will not be placed in areas



which receive concentrated flows such as ditches, swales and channels nor will the filter fabric material be placed across the entrance to pipes, culverts, spillway structures, sediment traps or basins.

2. Stabilized Construction Entrance consists of AASHTO No. 1 rock. The rock entrance will be a minimum of 50 feet in length by 20 feet in width by 8 inches in depth.

3. Seeding will be used to create a vegetative surface to stabilize disturbed earth until at least 70% of the disturbed area has a perennial vegetative cover. This amount is required to adequately function as a sediment and erosion control facility. Grass lining will also be used to line temporary channels and the surrounding disturbed areas.

4. Mulching is used as an anchor for seeding and disturbed areas to reduce soil loss due to storm events. These areas will be mulched with straw at a rate of 3 tons per acre such that the mulch forms a continuous blanket. Mulch must be placed after seeding or within 48 hours after seeding is completed.

5. Inlet Protection will be provided for all stormwater basins and inlets with the use of curb & gutter inlet protection and stone & block inlet protection structures, which will keep silt, sediment and construction debris out of the storm system. Existing structures within existing paved areas will be protected using "Silt Sacks" inside the structures.

6. Erosion Control Matting will be utilized on slopes and within swales, where applicable, to provide stabilization in advance of vegetation being established. Such matting will be biodegradable to facilitate long term growth of vegetation in swales, on slopes and within stormwater management facilities.

The contractor shall be responsible for maintaining the temporary sediment and erosion control measures throughout construction. This maintenance will include, but not be limited to, the following tasks:

1. For dust control purposes, moisten all exposed graded areas with water at least twice a day in those areas where soil is exposed and cannot be planted with a temporary cover due to construction operations or the season (December through March).
2. Inspection of erosion and sediment control measures shall be performed at the end of each construction day and immediately following each rainfall event. All required repairs shall be immediately executed by the contractor.
3. Sediment deposits shall be removed when they reach approximately  $\frac{1}{3}$  the height of the silt fence. All such sediment shall be properly disposed of in fill areas on the site, as directed by the Owner's Field Representative. Fill shall be protected following disposal with mulch, temporary and/or permanent vegetation and be completely circumscribed on the downhill side by silt fence.
4. Rake all exposed areas parallel to the slope during earthwork operations.
5. Following final grading, the disturbed area shall be stabilized with a permanent surface treatment (i.e. turf grass, pavement or sidewalk). During rough grading, areas which are not to be disturbed for fourteen or more days shall be stabilized with the temporary seed mixture, as defined on the plans. Seed all piles of dirt in exposed soil areas that will not receive a permanent surface treatment.

### **Permanent Control Measures and Facilities for Long Term Protection**

Towards the completion of construction of proposed redevelopment, permanent sediment and erosion control measures will be developed for long term erosion protection. The following permanent control measures and facilities have been proposed to be implemented for the project:

1. Catch Basins will be used to remove some of the coarse sand and grit sediment before entering the drainage system. Each catch basin will be constructed with an 18 inch deep sump.

2. Seeding of at least 70% perennial vegetative cover will be used to produce a permanent uniform erosion resistant surface. The seeded areas will be mulched with straw at a rate of 3 tons per acre such that the mulch forms a continuous blanket.
3. Porous Pavement is proposed to retain and infiltrate stormwater runoff in the central portions of the property as well as adjacement to the proposed C-Building. These practices are located in areas where groundwater and rock elevations are acceptable to provide the required separation. According to Section 3.6 of the Design Manual, 100% of the WQv provided by an Infiltration Practice can be applied towards meeting the RRv criteria.
4. Infiltration Basin are proposed to treat and retain and infiltrate runoff from the portions of the Site which are being developed. These practices are located in areas where groundwater and rock elevations are acceptable to provide the required separation. The existing slopes in these areas also do not exceed 15 percent. According to Section 3.6 of the Design Manual, 100% of the WQv provided by an Infiltration Practice can be applied towards meeting the RRv criteria.
5. Hydrodynamic Separators are structural stormwater practices which enhance stormwater quality by removing suspended solids from stormwater runoff. These practices will be used as pre-treatment before paved / parking areas without other means of water quality enhancement is provided.

### **Stormwater Conclusion**

With the proper implementation of the project's stormwater management plan and long-term maintenance of all stormwater practices by the applicant / property owner, the project will meet and in many instances exceed the regulatory requirements of the NYSDEC and the Town North Castle, during and after construction, and the project will not have an adverse impact on downstream properties.

- I. APPENDICES
  - A. Existing Conditions Calculations
  - B. Proposed Conditions Calculations
  - C. Drainage Area Maps and Drawings

## **APPENDIX A**

### **EXISTING CONDITIONS CALCULATIONS**

## **APPENDIX B**

### **PROPOSED CONDITIONS CALCULATIONS**

**APPENDIX C**

**DRAINAGE AREA MAPS**

- I. APPENDICES
  - A. Existing Conditions Calculations
  - B. Proposed Conditions Calculations
  - C. Drainage Area Maps and Drawings

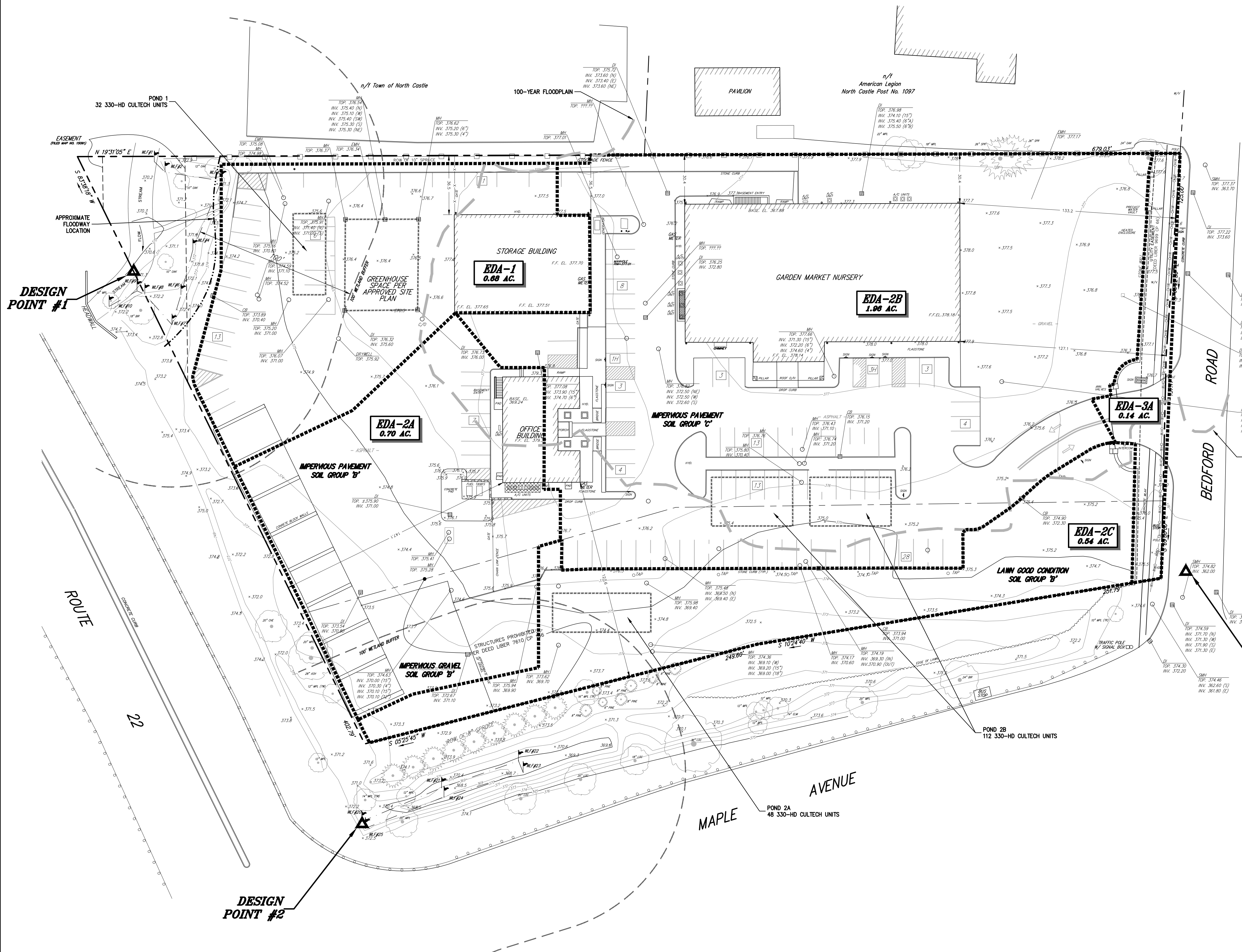


## **APPENDIX A**

### **EXISTING CONDITIONS CALCULATIONS**

NOT FOR CONSTRUCTION

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**EXISTING DRAINAGE LEGEND**

	EXISTING GRADE
	FLAGGED WETLANDS WITH FLAG NUMBERS
	EXISTING STONE WALL
	WATERSHED BOUNDARY LINE
	BOUNDARY OF COVER TYPE LINE
	LIMIT OF SOIL GROUPS LINE

**SOIL TYPE TABLE**

DESIGNATION	HYDROLOGIC GROUP	DESCRIPTION
UvB	B	URBAN LAND-RIVERHEAD COMPLEX 2 TO 8 PERCENT SLOPES

**NOTES:**

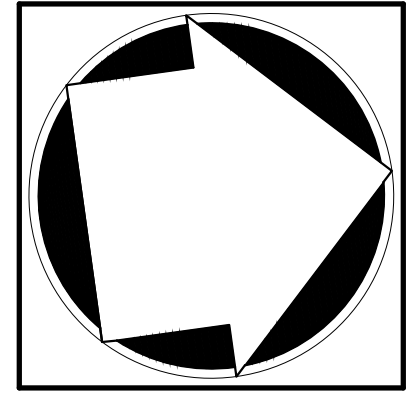
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY SOUND VIEW ENGINEERS & LAND SURVEYORS LLC, DATED 06/04/2018.

45 BEDFORD ROAD LLC  
45 BEDFORD ROAD  
TOWN OF NORTH CASTLE, NY

HALPER ARCHITECTS LLC  
225 MILL STREET  
GREENWICH, CT 06830

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC  
JMC Site Development Consultants, LLC

John Meyer Consulting, Inc.  
120 BEDFORD ROAD - ARMONK, NY 10504  
voice 914.273.6225 • fax 914.273.2102  
www.jmcplic.com



EXISTING DRAINAGE AREA MAP

MARIANI GARDENS REDEVELOPMENT  
45 BEDFORD ROAD  
TOWN OF NORTH CASTLE, NEW YORK

**PROGRESS PLOTTING**

Drawing: 18053-DRAINAGE-TK  
Date: 2019-02-26  
Time: 1:30 PM  
By:

Drawn: TK	Approved: RA
Scale: 1" = 30'	
Date: 11/28/2018	
Project No: 18053	
18053-DRAINAGE-TK	EDA EDALS
Drawing No:	DA-1

No.	Revision	Date	By

Previous Editions Obsolete

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

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WARNING: For weighted average inflow, the approximate total travel time through entire reach is shorter than the inflow hydrograph time step. Consider reducing calculation time step.

Wtd.Avg.Q = .00 cfs    Approx.Total Tt = .0000 hrs  
Check output for: Modified Puls    REACH 2B-1    1 YR

WARNING: Pond [] -- Storm [TypeIII 24hr Tag: 1 YR]  
<2S/t-O> term less than zero for one or more ordinates. To view this parameter in your output reports, use menu Options/Project Options/Report Filter and turn on Pond Route Calcs. This warning may be eliminated in some cases by reducing Output Increment on the Go dialog.

WARNING: For weighted average inflow, the approximate total travel time through entire reach is shorter than the inflow hydrograph time step. Consider reducing calculation time step.

Wtd.Avg.Q = .00 cfs    Approx.Total Tt = .0000 hrs  
Check output for: Modified Puls    REACH 2B-2    1 YR

WARNING: Pond [] -- Storm [TypeIII 24hr Tag: 1 YR]  
<2S/t-O> term less than zero for one or more ordinates. To view this parameter in your output reports, use menu Options/Project Options/Report Filter and turn on Pond Route Calcs. This warning may be eliminated in some cases by reducing Output Increment on the Go dialog.

WARNING: For weighted average inflow, the approximate total travel time through entire reach is shorter than the inflow hydrograph time step. Consider reducing calculation time step.  
Wtd.Avg.Q = 2.15 cfs    Approx.Total Tt = .0076 hrs  
Check output for: Modified Puls    REACH 2B-1    10 YR

WARNING: Pond [] -- Storm [TypeIII 24hr Tag: 10 YR]  
<2S/t-O> term less than zero for one or more ordinates. To view this parameter in your output reports, use menu Options/Project Options/Report Filter and turn on Pond Route Calcs. This warning may be eliminated in some cases by reducing Output Increment on the Go dialog.

WARNING: VOLUME/OUTFLOW DATA EXCEEDED DURING ROUTING.  
Check routing calculations for: POND 2B            OUT 100 YR

WARNING: E-Q-Vol data overtopped... routing results invalid.  
Check output for: Pond Routing Summary    POND 2B            OUT 100 YR

WARNING: For weighted average inflow, the approximate total travel time through entire reach is shorter than the inflow hydrograph time step. Consider reducing calculation time step.  
Wtd.Avg.Q = 6.98 cfs    Approx.Total Tt = .0054 hrs  
Check output for: Modified Puls    REACH 2B-1    100 YR

Type.... WARNING MESSAGES

Page 1.03

Name.... WARNING

Event: 100 yr

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

WARNING: Pond [] -- Storm [TypeIII 24hr Tag: 100 YR]  
<2S/t-O> term less than zero for one or more ordinates. To view this parameter  
in your output reports, use menu Options/Project Options/Report Filter and turn on  
Pond Route Calcs. This warning may be eliminated in some cases by reducing Output  
Increment on the Go dialog.

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Westchester-JMC

Return Event	Total Depth in	Rainfall Type	RNF ID
1 YR	2.8000	Synthetic Curve	TypeIII 24hr
10 YR	5.1300	Synthetic Curve	TypeIII 24hr
100 YR	9.1600	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*DP-1	JCT	1	0		.0200	.00		
*DP-1	JCT	10	2229		12.1200	2.53		
*DP-1	JCT	100	7466		12.1000	4.89		
*DP-2	JCT	1	573		12.3800	.07		
*DP-2	JCT	10	7976		12.4800	2.85		
*DP-2	JCT	100	33863		12.3400	11.84		
*DP-3	JCT	1	1135		12.1000	.33		
*DP-3	JCT	10	2785		12.1000	.78		
*DP-3	JCT	100	5858		12.1000	1.56		
EDA-1	AREA	1	6341		12.1000	1.58		
EDA-1	AREA	10	12077		12.1000	2.92		
EDA-1	AREA	100	22016		12.1000	5.24		
EDA-2A	AREA	1	5728		12.1000	1.52		
EDA-2A	AREA	10	11557		12.1000	2.94		
EDA-2A	AREA	100	21743		12.1000	5.35		

MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
EDA-2B	AREA	1	11139		12.1800	2.58		
EDA-2B	AREA	10	26252		12.1800	5.99		
EDA-2B	AREA	100	53947		12.1600	11.89		
EDA-2C	AREA	1	573		12.3800	.07		
EDA-2C	AREA	10	2837		12.2600	.55		
EDA-2C	AREA	100	8529		12.2600	1.78		
EDA-3	AREA	1	1135		12.1000	.33		
EDA-3	AREA	10	2785		12.1000	.78		
EDA-3	AREA	100	5858		12.1000	1.56		
JUNC 2B-1	JCT	1	0		.0200	.00		
JUNC 2B-1	JCT	10	3672		12.3600	3.13		
JUNC 2B-1	JCT	100	18926		12.1400	9.07		
JUNC 2B-2	JCT	1	0		.0200	.00		
JUNC 2B-2	JCT	10	3672		12.3800	3.11		
JUNC 2B-2	JCT	100	18926		12.1600	9.07		
POND 1	IN POND	1	6341		12.1000	1.58		
POND 1	IN POND	10	12077		12.1000	2.92		
POND 1	IN POND	100	22016		12.1000	5.24		
POND 1	OUT POND	1	0		1.7400	.00	373.31	1544
POND 1	OUT POND	10	2229		12.1200	2.53	373.89	1933
POND 1	OUT POND	100	7466		12.1000	4.89	374.07	2063
POND 2A	IN POND	1	5728		12.1000	1.52		
POND 2A	IN POND	10	11557		12.1000	2.94		
POND 2A	IN POND	100	21743		12.1000	5.35		
POND 2A	OUT POND	1	0		3.9600	.00	370.52	1207
POND 2A	OUT POND	10	1483		12.1600	1.86	371.77	2320
POND 2A	OUT POND	100	6424		12.1000	4.91	372.03	2537



MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
POND 2B	IN	POND 1	11139		12.1800	2.58		
POND 2B	IN	POND 10	26252		12.1800	5.99		
POND 2B	IN	POND 100	53947		12.1600	11.89		
POND 2B	OUT	POND 1	0		7.9800	.00	370.81	1902
POND 2B	OUT	POND 10	3672		12.3600	3.13	372.39	5505
POND 2B	OUT	POND 100	18926		12.1400	9.07	372.80	6370

Type.... Tc Calcs  
Name.... EDA-1

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: User Defined

Segment #1 Time: .0833 hrs  
-----

=====  
Total Tc: .0833 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

Type.... Tc Calcs  
Name.... EDA-2A

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: User Defined

Segment #1 Time: .0833 hrs  
-----

=====  
Total Tc: .0833 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: TR-55 Sheet

Mannings n           .2400  
Hydraulic Length    100.00 ft  
2yr, 24hr P         3.5000 in  
Slope                .020000 ft/ft

Avg.Velocity           .12 ft/sec

Segment #1 Time:       .2274 hrs  
-----

Segment #2: Tc: TR-55 Shallow

Hydraulic Length    34.00 ft  
Slope                .002000 ft/ft  
Unpaved

Avg.Velocity           .72 ft/sec

Segment #2 Time:       .0131 hrs  
-----

Segment #3: Tc: TR-55 Channel

Flow Area            1.2300 sq.ft  
Wetted Perimeter    3.93 ft  
Hydraulic Radius    .31 ft  
Slope                .005000 ft/ft  
Mannings n           .0110  
Hydraulic Length    238.00 ft

Avg.Velocity           4.42 ft/sec

Segment #3 Time:       .0150 hrs  
-----

=====  
Total Tc:            .2555 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: TR-55 Sheet

Mannings n .2400  
Hydraulic Length 100.00 ft  
2yr, 24hr P 3.5000 in  
Slope .013000 ft/ft  
  
Avg.Velocity .10 ft/sec

Segment #1 Time: .2702 hrs

-----  
Segment #2: Tc: TR-55 Shallow

Hydraulic Length 166.00 ft  
Slope .020000 ft/ft  
Unpaved  
  
Avg.Velocity 2.28 ft/sec

Segment #2 Time: .0202 hrs

-----  
Segment #3: Tc: TR-55 Channel

Flow Area 6.0000 sq.ft  
Wetted Perimeter 9.00 ft  
Hydraulic Radius .67 ft  
Slope .014000 ft/ft  
Mannings n .0500  
Hydraulic Length 496.00 ft  
  
Avg.Velocity 2.69 ft/sec

Segment #3 Time: .0512 hrs

-----  
=====  
Total Tc: .3416 hrs  
=====

Type.... Tc Calcs  
Name.... EDA-3

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
IMPERVIOUS	98	.680			98.00
COMPOSITE AREA & WEIGHTED CN --->		.680			98.00 (98)

.....

Type.... Runoff CN-Area  
Name.... EDA-2A

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

---

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.550			98.00
GRAVEL GOOD COND. HSG B	85	.150			85.00
COMPOSITE AREA & WEIGHTED CN --->		.700			95.21 (95)
.....	.....	.....	.....	.....	.....



Type.... Runoff CN-Area  
Name.... EDA-2B

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	1.400			98.00
GRASS GOOD COND. HSG B	61	.560			61.00
COMPOSITE AREA & WEIGHTED CN --->		1.960			87.43 (87)
.....					

Type.... Runoff CN-Area  
Name.... EDA-2C

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
GRASS GOOD COND. HSG B	61	.540			61.00
COMPOSITE AREA & WEIGHTED CN --->		.540			61.00 (61)

.....

Type.... Runoff CN-Area  
Name.... EDA-3

File.... P:\2018\18053\DRAINAGE\PONDPACK\EDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.140			98.00
GRASS GOOD COND. HSG B	61	.080			61.00
COMPOSITE AREA & WEIGHTED CN --->		.220			84.55 (85)
.....					

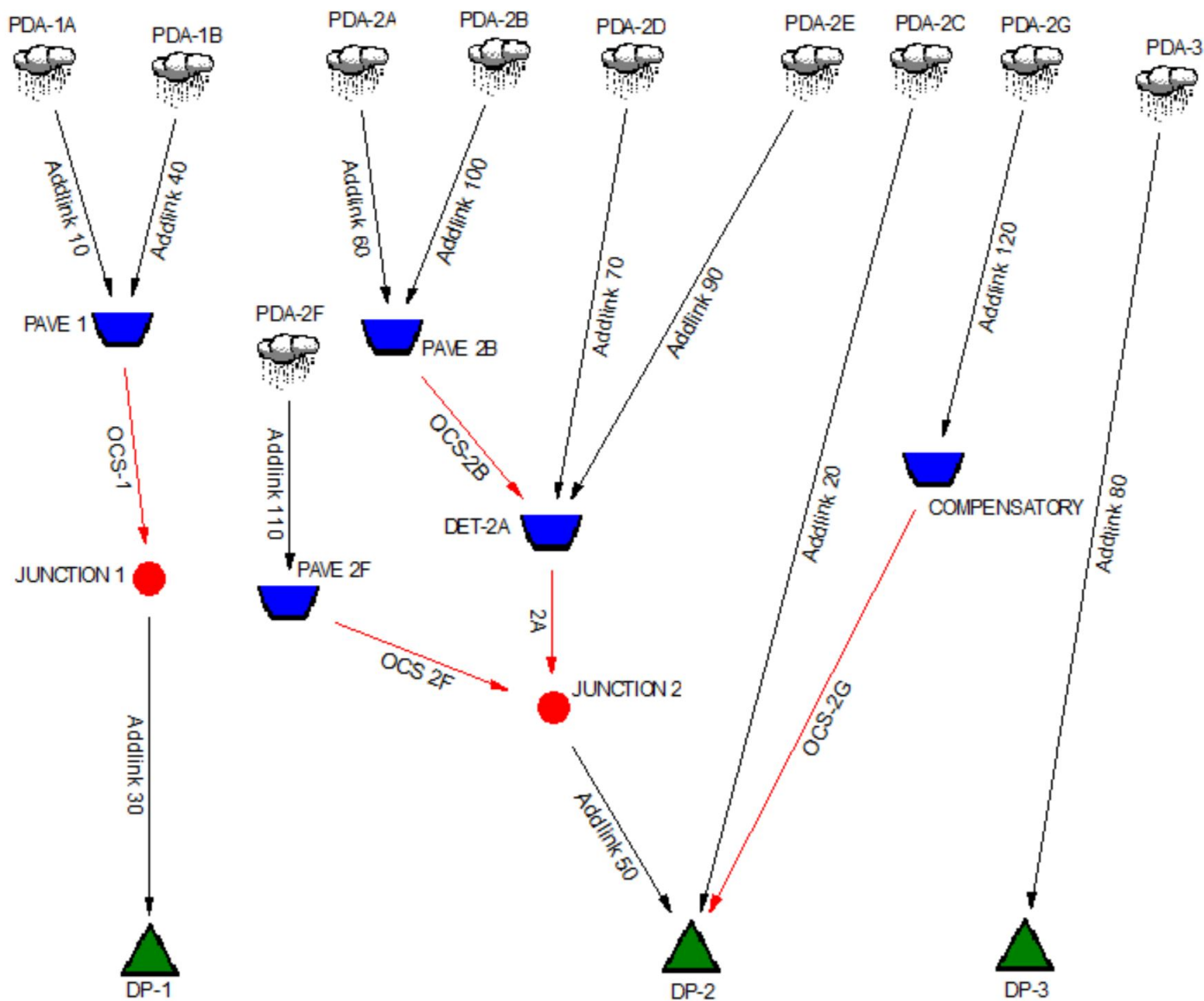
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----- E -----  
EDA-1... 3.01, 4.01  
EDA-2A... 3.02, 4.02  
EDA-2B... 3.03, 4.03  
EDA-2C... 3.04, 4.04  
EDA-3... 3.05, 4.05  
  
----- W -----  
WARNING... 1.01  
Watershed... 2.01

## **APPENDIX B**

### **PROPOSED CONDITIONS CALCULATIONS**



---

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\*\*\*\*\* MASTER SUMMARY \*\*\*\*\*

Watershed..... Master Network Summary ..... 1.01

\*\*\*\*\* DESIGN STORMS SUMMARY \*\*\*\*\*

Westchester-JMC Design Storms ..... 2.01

\*\*\*\*\* TC CALCULATIONS \*\*\*\*\*

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PDA-1B..... Tc Calcs ..... 3.02

PDA-2A..... Tc Calcs ..... 3.03

PDA-2B..... Tc Calcs ..... 3.04

PDA-2C..... Tc Calcs ..... 3.05

PDA-2D..... Tc Calcs ..... 3.06

PDA-2E..... Tc Calcs ..... 3.07

PDA-2F..... Tc Calcs ..... 3.08

PDA-2G..... Tc Calcs ..... 3.09

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\*\*\*\*\* CN CALCULATIONS \*\*\*\*\*

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---

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PDA-2A.....	Runoff CN-Area .....	4.03
PDA-2B.....	Runoff CN-Area .....	4.04
PDA-2C.....	Runoff CN-Area .....	4.05
PDA-2D.....	Runoff CN-Area .....	4.06
PDA-2E.....	Runoff CN-Area .....	4.07
PDA-2F.....	Runoff CN-Area .....	4.08
PDA-2G.....	Runoff CN-Area .....	4.09
PDA-3.....	Runoff CN-Area .....	4.10



MASTER DESIGN STORM SUMMARY

Network Storm Collection: Westchester-JMC

Return Event	Total Depth in	Rainfall Type	RNF ID
1	2.8000	Synthetic Curve	TypeIII 24hr
10	5.1300	Synthetic Curve	TypeIII 24hr
100	9.1600	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
COMPENSATORY	IN	POND	1		12.1200	.06		
COMPENSATORY	IN	POND	10		12.1200	.54		
COMPENSATORY	IN	POND	100		12.1000	1.68		
COMPENSATORY	OUT	POND	1		11.9800	.00	374.99	24747
COMPENSATORY	OUT	POND	10		11.1200	.00	374.99	24747
COMPENSATORY	OUT	POND	100		8.9800	.00	374.99	24747
DET-2A	IN	POND	1		12.1000	.42		
DET-2A	IN	POND	10		12.1000	1.03		
DET-2A	IN	POND	100		12.0400	16.34		
DET-2A	OUT	POND	1		8.1200	.00	374.99	3384
DET-2A	OUT	POND	10		5.4400	.00	374.99	3384
DET-2A	OUT	POND	100		12.4400	2.87	376.09	10939
*DP-1	JCT		1		.0200	.00		
*DP-1	JCT		10		.0200	.00		
*DP-1	JCT		100		.0200	.00		

MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*DP-2	JCT	1	520		12.1400	.07		
*DP-2	JCT	10	2575		12.1200	.68		
*DP-2	JCT	100	16564		12.3400	3.78		
*DP-3	JCT	1	213		12.1000	.05		
*DP-3	JCT	10	825		12.1000	.23		
*DP-3	JCT	100	2221		12.1000	.63		
JUNCTION 1	JCT	1	0		.0200	.00		
JUNCTION 1	JCT	10	0		.0200	.00		
JUNCTION 1	JCT	100	0		.0200	.00		
JUNCTION 2	JCT	1	0		.0200	.00		
JUNCTION 2	JCT	10	0		.0200	.00		
JUNCTION 2	JCT	100	8825		12.4400	2.87		
PAVE 1	IN POND	1	3153		12.1000	.84		
PAVE 1	IN POND	10	6805		12.1000	1.77		
PAVE 1	IN POND	100	13522		12.1000	3.42		
PAVE 1	OUT POND	1	0		4.8400	.00	372.21	1150
PAVE 1	OUT POND	10	0		2.8200	.00	372.56	3073
PAVE 1	OUT POND	100	0		1.5600	.00	373.40	7686
PAVE 2B	IN POND	1	10510		12.1000	2.87		
PAVE 2B	IN POND	10	25271		12.1000	6.88		
PAVE 2B	IN POND	100	53119		12.1000	14.04		
PAVE 2B	OUT POND	1	0		1.8800	.00	374.06	1868
PAVE 2B	OUT POND	10	0		.9800	.00	375.95	8223
PAVE 2B	OUT POND	100	14707		12.0400	14.28	376.12	8789
PAVE 2F	IN POND	1	1366		12.0800	.36		
PAVE 2F	IN POND	10	2706		12.0800	.68		
PAVE 2F	IN POND	100	5040		12.0800	1.22		

MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
PAVE 2F	OUT POND	1	0		4.1600	.00	372.07	146
PAVE 2F	OUT POND	10	0		2.2200	.00	372.23	492
PAVE 2F	OUT POND	100	0		1.1400	.00	372.64	1345
PDA-1A	AREA	1	100		12.1000	.01		
PDA-1A	AREA	10	525		12.1000	.14		
PDA-1A	AREA	100	1579		12.1000	.45		
PDA-1B	AREA	1	3053		12.1000	.83		
PDA-1B	AREA	10	6280		12.1000	1.62		
PDA-1B	AREA	100	11943		12.1000	2.97		
PDA-2A	AREA	1	3636		12.0800	.90		
PDA-2A	AREA	10	6926		12.0800	1.67		
PDA-2A	AREA	100	12627		12.1000	3.00		
PDA-2B	AREA	1	6874		12.1000	1.96		
PDA-2B	AREA	10	18345		12.1000	5.20		
PDA-2B	AREA	100	40492		12.1000	11.04		
PDA-2C	AREA	1	520		12.1400	.07		
PDA-2C	AREA	10	2575		12.1200	.68		
PDA-2C	AREA	100	7739		12.1200	2.16		
PDA-2D	AREA	1	720		12.1000	.20		
PDA-2D	AREA	10	2009		12.1000	.57		
PDA-2D	AREA	100	4549		12.1000	1.25		
PDA-2E	AREA	1	747		12.1000	.21		
PDA-2E	AREA	10	1695		12.1000	.46		
PDA-2E	AREA	100	3409		12.1000	.88		
PDA-2F	AREA	1	1366		12.0800	.36		
PDA-2F	AREA	10	2706		12.0800	.68		
PDA-2F	AREA	100	5040		12.0800	1.22		

MASTER NETWORK SUMMARY  
SCS Unit Hydrograph Method

(\*Node=Outfall; +Node=Diversion;)  
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
PDA-2G	AREA	1	393		12.1200	.06		
PDA-2G	AREA	10	1944		12.1200	.54		
PDA-2G	AREA	100	5844		12.1000	1.68		
PDA-3	AREA	1	213		12.1000	.05		
PDA-3	AREA	10	825		12.1000	.23		
PDA-3	AREA	100	2221		12.1000	.63		

Name... Westchester-JMC

File... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

Title... Project Date: 6/30/2006  
 Project Engineer: Robert Aiello, P.E.  
 Project Title: Mariani's Garden Market  
 Project Comments:  
 Proposed Conditions Hydrological Calculations

JMC Project 5087  
 Mariani's Garden Market  
 45 Bedford Road  
 North Castle (Armonk), NY

DESIGN STORMS SUMMARY

Design Storm File, ID = Westchester-JMC

Storm Tag Name = 1

-----  
 Data Type, File, ID = Synthetic Storm TypeIII 24hr  
 Storm Frequency = 1 yr  
 Total Rainfall Depth= 2.8000 in  
 Duration Multiplier = 1  
 Resulting Duration = 24.0000 hrs  
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 10

-----  
 Data Type, File, ID = Synthetic Storm TypeIII 24hr  
 Storm Frequency = 10 yr  
 Total Rainfall Depth= 5.1300 in  
 Duration Multiplier = 1  
 Resulting Duration = 24.0000 hrs  
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100

-----  
 Data Type, File, ID = Synthetic Storm TypeIII 24hr  
 Storm Frequency = 100 yr  
 Total Rainfall Depth= 9.1600 in  
 Duration Multiplier = 1  
 Resulting Duration = 24.0000 hrs  
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----

Segment #1: Tc: User Defined

Segment #1 Time: .0833 hrs

-----

=====  
Total Tc: .0833 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

Type.... Tc Calcs  
Name.... PDA-1B

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----

Segment #1: Tc: User Defined

Segment #1 Time: .0833 hrs

-----

=====  
Total Tc: .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: User Defined

Segment #1 Time: .0833 hrs  
-----

=====  
Total Tc: .0833 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====



.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs  
-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: TR-55 Shallow

Hydraulic Length 200.00 ft  
Slope .020000 ft/ft  
Unpaved

Avg.Velocity 2.28 ft/sec

Segment #1 Time: .0243 hrs  
-----

Segment #2: Tc: TR-55 Sheet

Mannings n .1500  
Hydraulic Length 150.00 ft  
2yr, 24hr P 3.3000 in  
Slope .200000 ft/ft

Avg.Velocity .47 ft/sec

Segment #2 Time: .0885 hrs  
-----

=====  
Total Tc: .1129 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs  
-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----

Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs

-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

.....  
TIME OF CONCENTRATION CALCULATOR  
.....

-----  
Segment #1: Tc: User Defined

Segment #1 Time: .0830 hrs  
-----

=====  
Total Tc: .0830 hrs  
  
Calculated Tc < Min.Tc:  
Use Minimum Tc...  
Use Tc = .0833 hrs  
=====

Type.... Runoff CN-Area  
Name.... PDA-1A

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
GRASS GOOD COND. HSG B	61	.100			61.00
COMPOSITE AREA & WEIGHTED CN --->		.100			61.00 (61)
.....	.....	.....	.....	.....	.....



RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
IMPERVIOUS	98	.350			98.00
Pasture, grassland, or range - good	61	.040			61.00
COMPOSITE AREA & WEIGHTED CN --->		.390			94.21 (94)

.....

Type.... Runoff CN-Area  
Name.... PDA-2A

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.390			98.00

COMPOSITE AREA & WEIGHTED CN ---> .390 98.00 (98)

.....

Type.... Runoff CN-Area  
Name.... PDA-2B

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.860			98.00
GRASS GOOD COND. HSG B	61	.770			61.00

COMPOSITE AREA & WEIGHTED CN --->                    1.630                    80.52 (81)

.....

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
GRASS GOOD COND. HSG B	61	.490			61.00
COMPOSITE AREA & WEIGHTED CN --->		.490			61.00 (61)

.....

Type.... Runoff CN-Area  
Name.... PDA-2D

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.090			98.00
GRASS GOOD COND. HSG B	61	.100			61.00

COMPOSITE AREA & WEIGHTED CN ---> .190 78.53 (79)  
.....

Type.... Runoff CN-Area  
Name.... PDA-2E

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.090			98.00
GRASS GOOD COND. HSG B	61	.030			61.00

COMPOSITE AREA & WEIGHTED CN ---> .120 88.75 (89)

.....

Type.... Runoff CN-Area  
Name.... PDA-2F

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.150			98.00
PERVIOUS	61	.010			61.00

COMPOSITE AREA & WEIGHTED CN ---> .160 95.69 (96)  
.....

Type.... Runoff CN-Area  
Name.... PDA-2G

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
GRASS GOOD COND. HSG B	61	.370			61.00
COMPOSITE AREA & WEIGHTED CN --->		.370			61.00 (61)

.....



Type.... Runoff CN-Area  
Name.... PDA-3

File.... P:\2018\18053\DRAINAGE\PONDPACK\2019-06-06\_jy\PDA.ppw

---

RUNOFF CURVE NUMBER DATA

.....

-----

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
-----	-----	-----	-----	-----	-----
IMPERVIOUS	98	.020			98.00
GRASS GOOD COND. HSG B	61	.100			61.00

COMPOSITE AREA & WEIGHTED CN ---> .120 67.17 (67)

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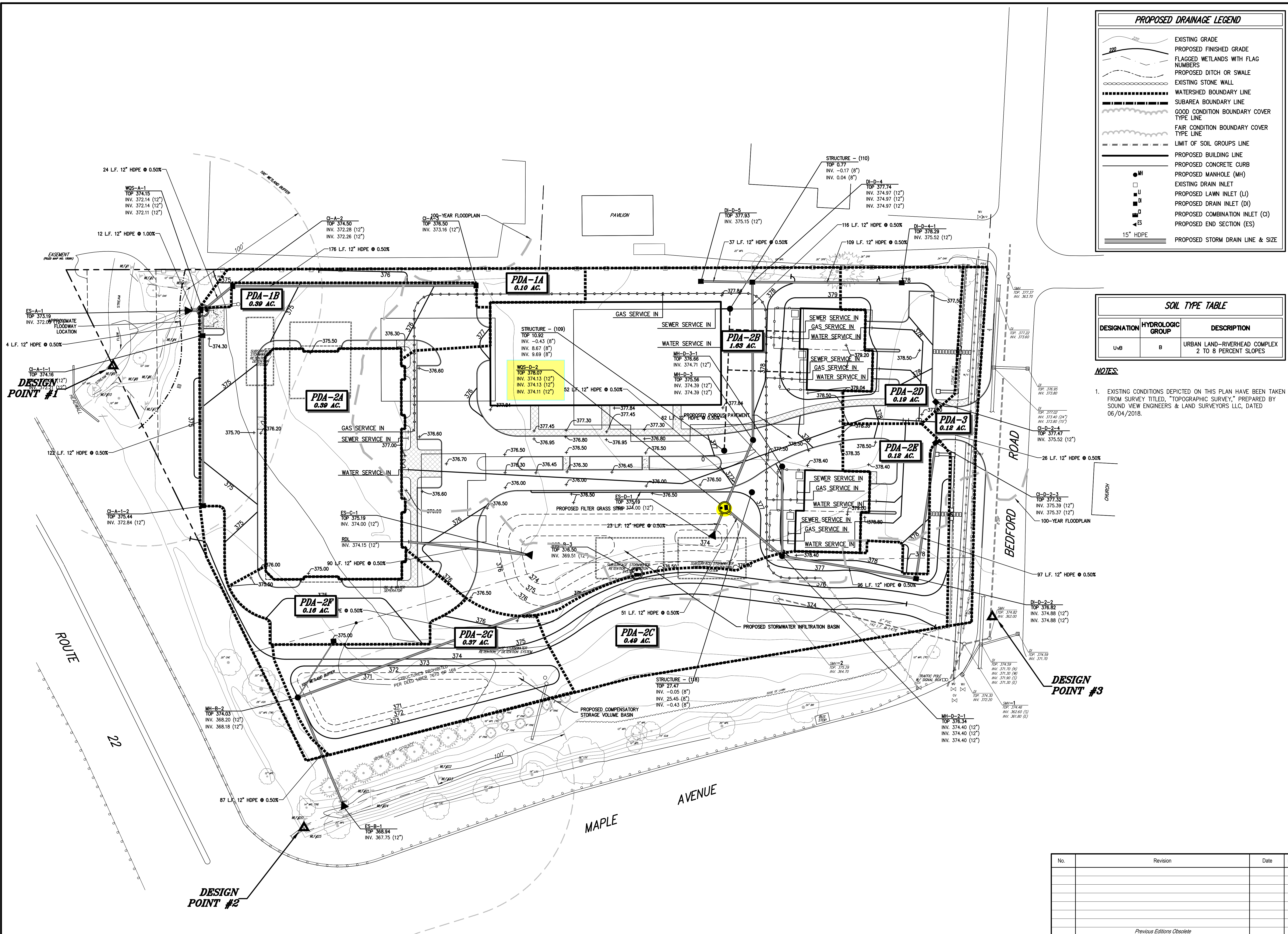
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PDA-1B... 3.02, 4.02  
PDA-2A... 3.03, 4.03  
PDA-2B... 3.04, 4.04  
PDA-2C... 3.05, 4.05  
PDA-2D... 3.06, 4.06  
PDA-2E... 3.07, 4.07  
PDA-2F... 3.08, 4.08  
PDA-2G... 3.09, 4.09  
PDA-3... 3.10, 4.10

----- W -----  
Watershed... 1.01  
Westchester-JMC... 2.01

## **APPENDIX C**

### **DRAINAGE AREA MAPS AND DRAWINGS**

NOT FOR CONSTRUCTION



**PROPOSED DRAINAGE LEGEND**

- EXISTING GRADE
- PROPOSED FINISHED GRADE
- FLAGGED WETLANDS WITH FLAG NUMBERS
- PROPOSED DITCH OR SWALE
- EXISTING STONE WALL
- WATERSHED BOUNDARY LINE
- SUBAREA BOUNDARY LINE
- GOOD CONDITION BOUNDARY COVER TYPE LINE
- FAIR CONDITION BOUNDARY COVER TYPE LINE
- LIMIT OF SOIL GROUPS LINE
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED MANHOLE (MH)
- EXISTING DRAIN INLET
- PROPOSED LAWN INLET (LI)
- PROPOSED DRAIN INLET (DI)
- PROPOSED COMBINATION INLET (CI)
- PROPOSED END SECTION (ES)
- PROPOSED STORM DRAIN LINE & SIZE

**SOIL TYPE TABLE**

DESIGNATION	HYDROLOGIC GROUP	DESCRIPTION
UvB	B	URBAN LAND—RIVERHEAD COMPLEX 2 TO 8 PERCENT SLOPES

**NOTES:**

- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY SOUND VIEW ENGINEERS & LAND SURVEYORS LLC, DATED 06/04/2018.

**45 BEDFORD ROAD LLC**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NY

**HALPER ARCHITECTS LLC**  
 225 MILL STREET  
 GREENWICH, CT 06830

**JMC**

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC  
 JMC Site Development Consultants, LLC

John Meyer Consulting, Inc.  
 120 BEDFORD ROAD - ARMONK, NY 10904  
 voice 914.273.5225 • fax 914.273.2102  
 www.jmcplic.com

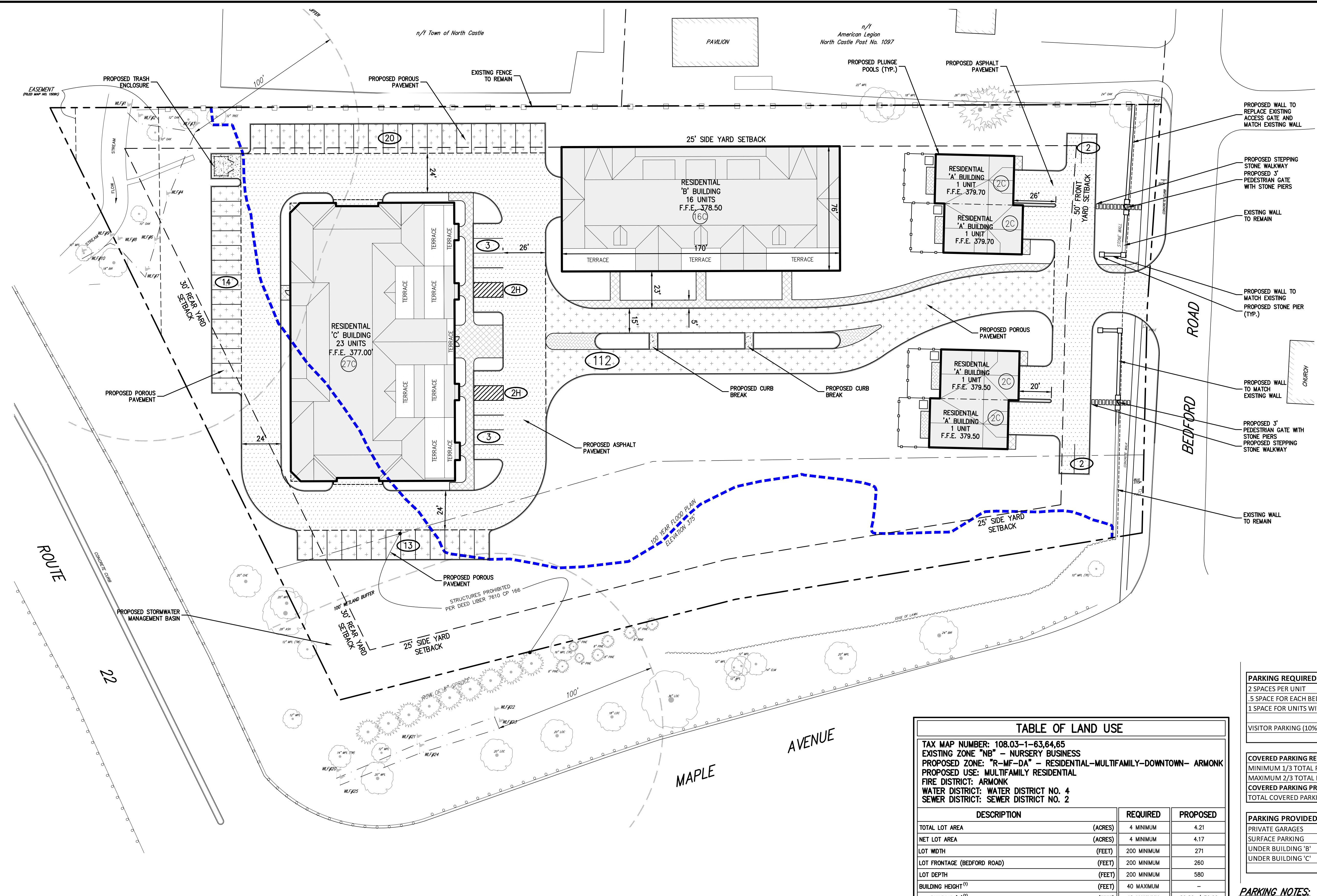
**PROPOSED DRAINAGE AREA MAP**

**MARIANI GARDENS REDEVELOPMENT**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NEW YORK

No.	Revision	Date	By

Drawn: TK Approved: RA  
 Scale: 1" = 30'  
 Date: 06/07/2019  
 Project No: 18053  
 Storm Drainage: STORM POALS  
 Drawing No: **DA-2**

*Previous Editions Obsolete*



### LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING SETBACK LINE
- EXISTING EASEMENT LINE
- EXISTING ROADWAY CENTER LINE
- EXISTING WETLAND LINE AND DELINEATION
- EXISTING BUILDING OVERHANG
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING GUIDE RAIL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED ACCESSIBLE PARKING SPACES WITH NUMBER OF SPACES INDICATED (REFER TO STRIPING DETAILS)
- PROPOSED PARKING SPACES WITH NUMBER OF SPACES INDICATED (REFER TO STRIPING DETAILS)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED PAVEMENT
- PROPOSED POROSITY PAVEMENT
- PROPOSED PAVERS
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- PROPOSED GAS LINE
- PROPOSED 12" WIDE WHITE STOP LINE
- PROPOSED ARROW MARKING ON PAVEMENT
- PROPOSED WORD MARKING ON PAVEMENT
- TRAFFIC SIGN LOCATION & DESIGNATION

**GENERAL NOTES:**  
 1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM A SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY SOUND VIEW ENGINEERS & LAND SURVEYORS LLC, DATED 06/04/2018.

PARKING REQUIRED	
2 SPACES PER UNIT	43 UNITS 86 SPACES
.5 SPACE FOR EACH BEDROOM OVER 2 (3 BR UNITS)	6 UNITS 3 SPACES
1 SPACE FOR UNITS WITH 3 AND 4TH BR (4 BR UNITS)	4 UNITS 4 SPACES
	<b>SUB TOTAL 93 SPACES</b>
VISITOR PARKING (10% OF TOTAL)	9 SPACES
<b>TOTAL PARKING REQUIRED</b>	<b>109 SPACES</b>

COVERED PARKING REQUIRED	
MINIMUM 1/3 TOTAL PARKING REQUIRED	36 SPACES
MAXIMUM 2/3 TOTAL PARKING REQUIRED	73 SPACES
<b>COVERED PARKING PROVIDED</b>	<b>51 SPACES</b>
TOTAL COVERED PARKING	51 SPACES

PARKING PROVIDED	
PRIVATE GARAGES	8 SPACES
SURFACE PARKING	61 SPACES
UNDER BUILDING 'B'	16 SPACES
UNDER BUILDING 'C'	27 SPACES
<b>TOTAL PARKING PROVIDED</b>	<b>112 SPACES</b>

**PARKING NOTES:**  
 1. DOES NOT INCLUDE DRIVEWAY APRONS IN FRONT OF THE A TYPE UNITS.

TABLE OF LAND USE		
TAX MAP NUMBER: 108.03-1-63,64,65		
EXISTING ZONE "NB" - NURSERY BUSINESS		
PROPOSED ZONE: "R-MF-DA" - RESIDENTIAL-MULTIFAMILY-DOWNTOWN- ARMONK		
PROPOSED USE: MULTIFAMILY RESIDENTIAL		
FIRE DISTRICT: ARMONK		
WATER DISTRICT: WATER DISTRICT NO. 4		
SEWER DISTRICT: SEWER DISTRICT NO. 2		
DESCRIPTION	REQUIRED	PROPOSED
TOTAL LOT AREA (ACRES)	4 MINIMUM	4.21
NET LOT AREA (ACRES)	4 MINIMUM	4.17
LOT WIDTH (FEET)	200 MINIMUM	271
LOT FRONTAGE (BEDFORD ROAD) (FEET)	200 MINIMUM	260
LOT DEPTH (FEET)	200 MINIMUM	580
BUILDING HEIGHT <sup>(1)</sup> (FEET)	40 MAXIMUM	-
BUILDING 'A' <sup>(1)</sup> (FEET)	40 MAXIMUM	29.80 / 30.00
BUILDING 'B' <sup>(1)</sup> (FEET)	40 MAXIMUM	30.00
BUILDING 'C' <sup>(1)</sup> (FEET)	40 MAXIMUM	37.00
FLOOR AREA RATIO <sup>(2)</sup>	0.5 MAXIMUM	.395
BUILDING COVERAGE <sup>(2)</sup> (PERCENT)	30 MAXIMUM	19.7
GROSS LAND COVERAGE <sup>(2)(3)</sup> (PERCENT)	-	47.3
<b>YARDS</b>		
FRONT BUILDING SETBACK (FEET)	50 MINIMUM	50
REAR BUILDING SETBACK (FEET)	30 MINIMUM	30
SIDE BUILDING SETBACK (FEET)	25 MINIMUM	25

**TABLE OF LAND USE NOTES:**  
 1. BUILDING HEIGHT IS CALCULATED BASED ON THE VERTICAL DISTANCE BETWEEN THE WEIGHTED MEAN LEVEL OF THE EAVES AND THE AVERAGE ELEVATION OF THE LOWEST STREET. (BEDFORD ROAD @ 376.60)  
 2. CALCULATIONS ARE BASED ON NET LOT AREA WHICH IS DEFINED AS THE LOT AREA MINUS 75% OF THE AREA OF ANY WETLANDS, WATER BODIES, AND WATERCOURSES, BUT EXCLUDING ANY ADJACENT AREAS, ALL AS DEFINED IN CHAPTER 340, WETLANDS AND WATERCOURSE PROTECTION, OF THE TOWN CODE. NOTE THERE ARE NO STEEP SLOPES ON THE SUBJECT PROPERTY. (183,519 SF = 1.875 SF = 181,644 SF)  
 3. THAT PERCENTAGE OF THE LAND AREA COVERED BY THE COMBINED AREA OF ALL BUILDINGS, STRUCTURES, AND PAVED, GRAVEL, SEMIPERVIOUS PAVERS AREAS ON A LOT, WALLS UNDER FOUR FEET IN HEIGHT AND FENCES SHALL NOT BE CONSIDERED GROSS LAND COVERAGE.

BUILDING	TYPE/STYLE	# UNITS	# BEDROOMS PER UNIT	TOTAL BEDROOMS	APPROXIMATE UNIT SIZE (SF)
'A'	Townhomes	4	4	16	3,709
'B'	Flats	10	1	10	710 to 958
'B'	Duplex	2	2	4	1,633
'B'	Duplex	4	3	12	1,988 to 2,235
'C'	Flats	14	1*	14	773 to 1,677
'C'	Flats	7	2*	14	1,335 to 1,999
'C'	Flats	2	3*	6	1,683 to 1,836
<b>TOTAL</b>		<b>43</b>		<b>76</b>	

	'A' Bldgs.	'B' Bldgs.	'C' Bldg.	TOTAL UNITS
1 BEDROOM UNITS	-	10	14*	24
2 BEDROOM UNITS	-	2	7*	9
3 BEDROOM UNITS	-	4	2*	6
4 BEDROOM UNITS	4	-	-	4
<b>TOTAL UNITS</b>	<b>4</b>	<b>16</b>	<b>23</b>	<b>43</b>

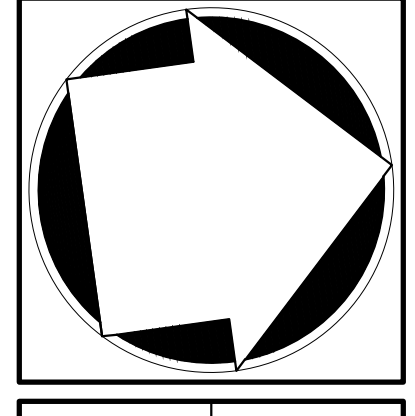
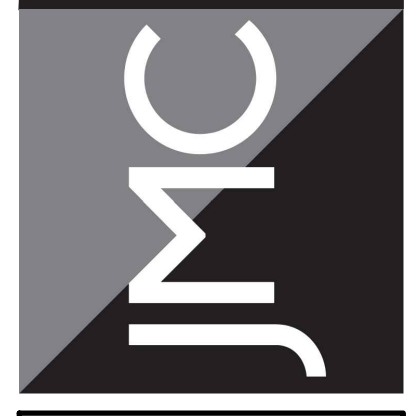
\* Includes three (3) 1-bedroom, one (1) 2-bedroom, and one (1) 3-bedroom Affordable Affirmatively Furthering Fair Housing (AFFH) Units.

No.	Revision	Date	By
1.	TOWN BOARD SUBMISSION	12/05/2018	JJ
2.	PLANNING BOARD SUBMISSION	12/17/2018	JJ
3.	ISSUED TO ARB	01/09/2019	JJ
4.	TOWN BOARD SUBMISSION	05/03/2019	JJ
5.	TOWN BOARD SUBMISSION	06/07/2019	JJ
6.	REVISED PER TOWN ENGINEERS COMMENTS	06/11/2019	JJ

APPLICANT/TOWNER:  
**45 BEDFORD ROAD LLC**  
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 TOWN OF NORTH CASTLE, NY

ARCHITECT:  
**HALPER ARCHITECTS LLC**  
 225 MILL STREET  
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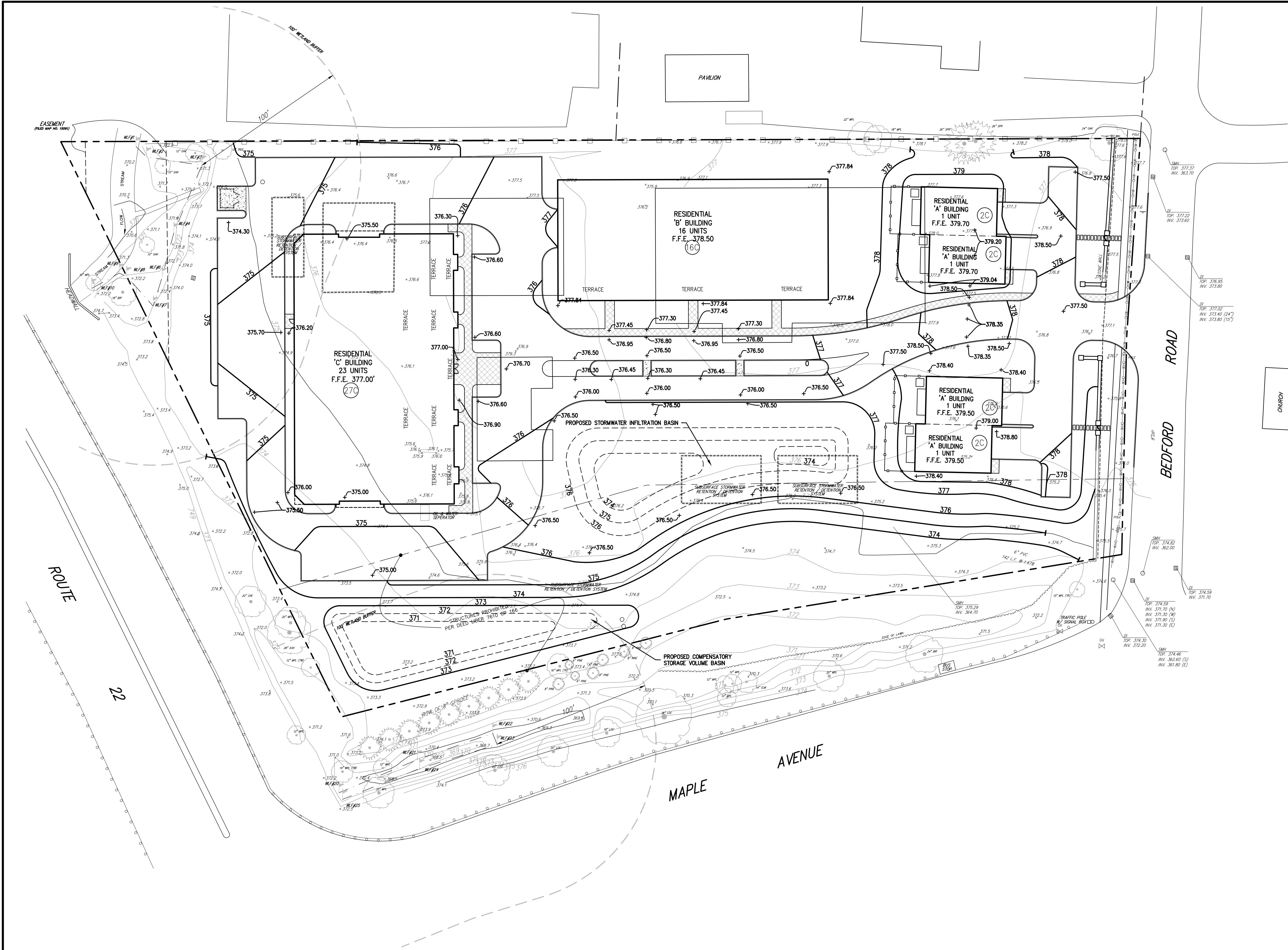
**LAYOUT PLAN**

**MARIANI GARDENS REDEVELOPMENT**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NEW YORK

Drawn: JJ Approved: RA  
 Scale: 1" = 30'  
 Date: 12/05/2018  
 Project No: 18053  
 HRS-9E C-100 LAT-SC  
 Drawing No:  
**C-100**  
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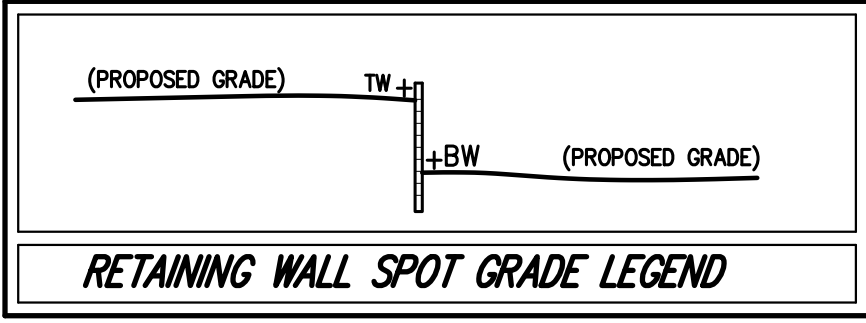
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**LEGEND**

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING WETLAND LINE AND DELINEATION
- EXISTING WETLAND BUFFER
- EXISTING FLOOD AREA LINE
- EXISTING BUILDING OVERHANG
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- EXISTING SPOT GRADE
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING GUIDE RAIL
- EXISTING FENCE
- EXISTING DRAIN INLET
- EXISTING MANHOLE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED CONCRETE SIDEWALK
- PROPOSED DROP CURB AND RAMP
- PROPOSED FINISHED GRADE
- PROPOSED SPOT GRADE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED TYPE CI DRAIN INLET
- PROPOSED TYPE DI DRAIN INLET
- PROPOSED TYPE LI DRAIN INLET
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)

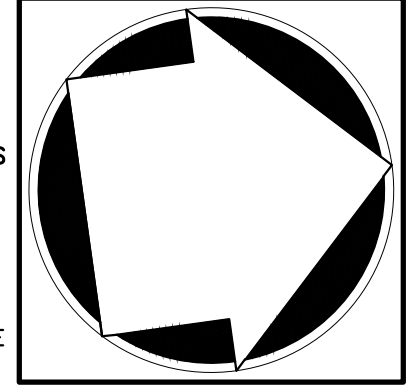
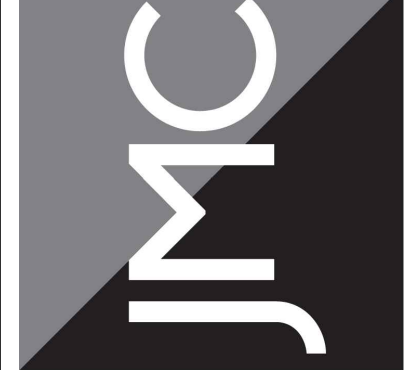
- GENERAL NOTES:**
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC SURVEY," PREPARED BY SOUND VIEW ENGINEERS & LAND SURVEYORS LLC, DATED 06/04/2018.
  - ALL AREAS WHERE STORMWATER MANAGEMENT PRACTICES ARE PROPOSED SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY TRAFFIC DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.
  - ALL FILLS SHALL BE COMPACTED TO PROVIDE STABILITY OF MATERIAL AND TO PREVENT SETTLEMENT.
  - EXCAVATIONS AND FILLS SHALL NOT ENDANGER ADJOINING PROPERTIES, NOR DIVERT WATER ONTO THE PROPERTY OF OTHERS AT ANY TIME DURING THE COURSE OF CONSTRUCTION.
  - CONTRACTOR SHALL REFER TO EROSION AND SEDIMENT CONTROL PLAN FOR FURTHER DIRECTION REGARDING SITE STABILIZATION THROUGHOUT THE COURSE OF CONSTRUCTION.



APPLICANT/OWNER:  
**45 BEDFORD ROAD LLC**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NY

ARCHITECT:  
**HALPER ARCHITECTS LLC**  
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 GREENWICH, CT 06630

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 John Meyer Consulting, Inc.  
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**GRADING PLAN**

**MARIANI GARDENS REDEVELOPMENT**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NEW YORK

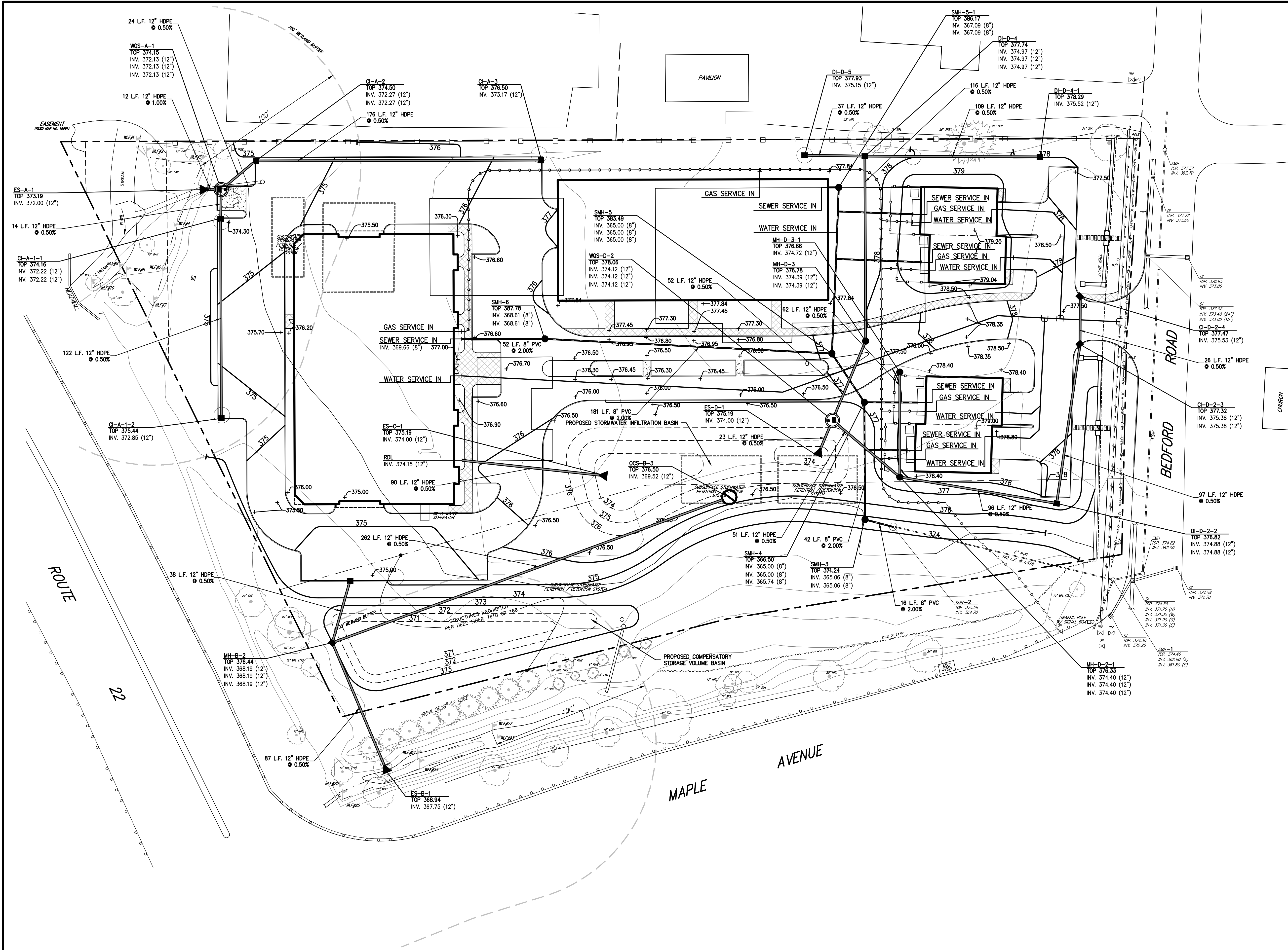
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3.	ISSUED TO ARB	01/09/2019	JJ
4.	TOWN BOARD SUBMISSION	06/07/2019	JJ
5.	REVISED PER TOWN ENGINEERS COMMENTS	06/11/2019	JJ

Drawn: JJ Approved: RA  
 Scale: 1" = 30'  
 Date: 12/05/2018  
 Project No: 18053  
 1805-GRD C-200 GRD.scr  
 Drawing No:  
**C-200**  
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**LEGEND**

- ADJACENT PROPERTY LINE
- - - ADJACENT EASEMENT LINE
- - - EXISTING WETLAND LINE AND DELINEATION
- - - EXISTING WETLAND BUFFER
- - - EXISTING BUILDING OVERHANG
- - - EXISTING BUILDING LINE
- - - EXISTING PAVEMENT EDGE
- - - EXISTING CURB LINE
- - - EXISTING STONE WALL
- - - EXISTING RETAINING WALL
- - - EXISTING FENCE RAIL
- - - EXISTING GUIDE
- - - EXISTING STORM DRAIN LINE AND SIZE
- - - EXISTING SANITARY LINE AND SIZE
- - - EXISTING WATER LINE
- - - EXISTING GAS LINE
- - - EXISTING OVERHEAD WRES
- - - EXISTING DRAIN INLET
- - - EXISTING MANHOLE
- - - EXISTING FIRE HYDRANT
- - - EXISTING GAS VALVE
- - - EXISTING WATER VALVE
- - - EXISTING UTILITY POLE
- - - EXISTING LIGHT POLE
- - - EXISTING SIGN
- - - PROPOSED BUILDING LINE
- - - PROPOSED CONCRETE CURB
- - - PROPOSED EASEMENT LINE
- - - PROPOSED CONCRETE SIDEWALK
- - - PROPOSED DROP CURB AND RAMP
- SMH PROPOSED SANITARY SEWER MANHOLE
- MH PROPOSED STORM DRAIN MANHOLE
- CI PROPOSED TYPE CI DRAIN INLET
- DI PROPOSED TYPE DI DRAIN INLET
- LI PROPOSED TYPE LI DRAIN LAWN INLET
- TRENCH DRAIN
- PROPOSED TYPE A HEADWALL
- PROPOSED TYPE B HEADWALL
- WQS PROPOSED WATER QUALITY STRUCTURE
- OCS PROPOSED SUBSURFACE DRAINAGE OUTLET CONTROL STRUCTURE
- OVS PROPOSED OUTLET CONTROL STRUCTURE
- CD PROPOSED CLEANOUT
- HY PROPOSED HYDRANT
- 15" HDPE PROPOSED STORM DRAIN LINE & SIZE
- 8" PVC PROPOSED SANITARY SEWER LINE & SIZE
- 6" WATER PROPOSED WATER LINE & SIZE
- PROPOSED GAS LINE
- PROPOSED ELECTRIC/TELEPHONE/CABLE
- PROPOSED WATER VALVE
- PROPOSED GAS VALVE
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- PROPOSED DOUBLE ARM LIGHTING STANDARD (DESIGN BY OTHERS)
- PROPOSED SINGLE ARM LIGHTING STANDARD (DESIGN BY OTHERS)
- PROPOSED UTILITY POLE
- EXISTING FEATURE TO BE REMOVED

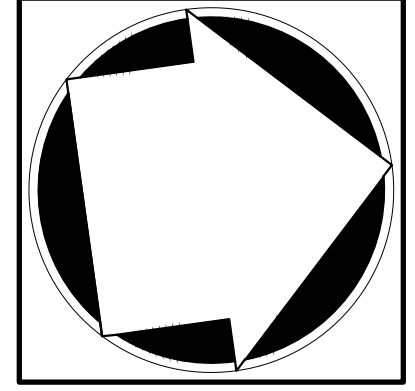
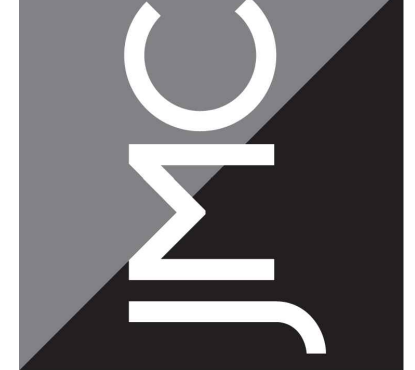
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No.	Revision	Date	By

APPLICANT/TOWNER: **45 BEDFORD ROAD LLC**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NY

ARCHITECT: **HALPER ARCHITECTS LLC**  
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**UTILITIES PLAN**

**MARIANI GARDENS REDEVELOPMENT**  
 45 BEDFORD ROAD  
 TOWN OF NORTH CASTLE, NEW YORK

Drawn: JJC Approved: RA  
 Scale: 1" = 30'  
 Date: 06/11/2019  
 Project No: 18053  
 18053-UTL UTL UTLscr  
 Drawing No: **C-300**

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The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix E: Infiltration Test Results**

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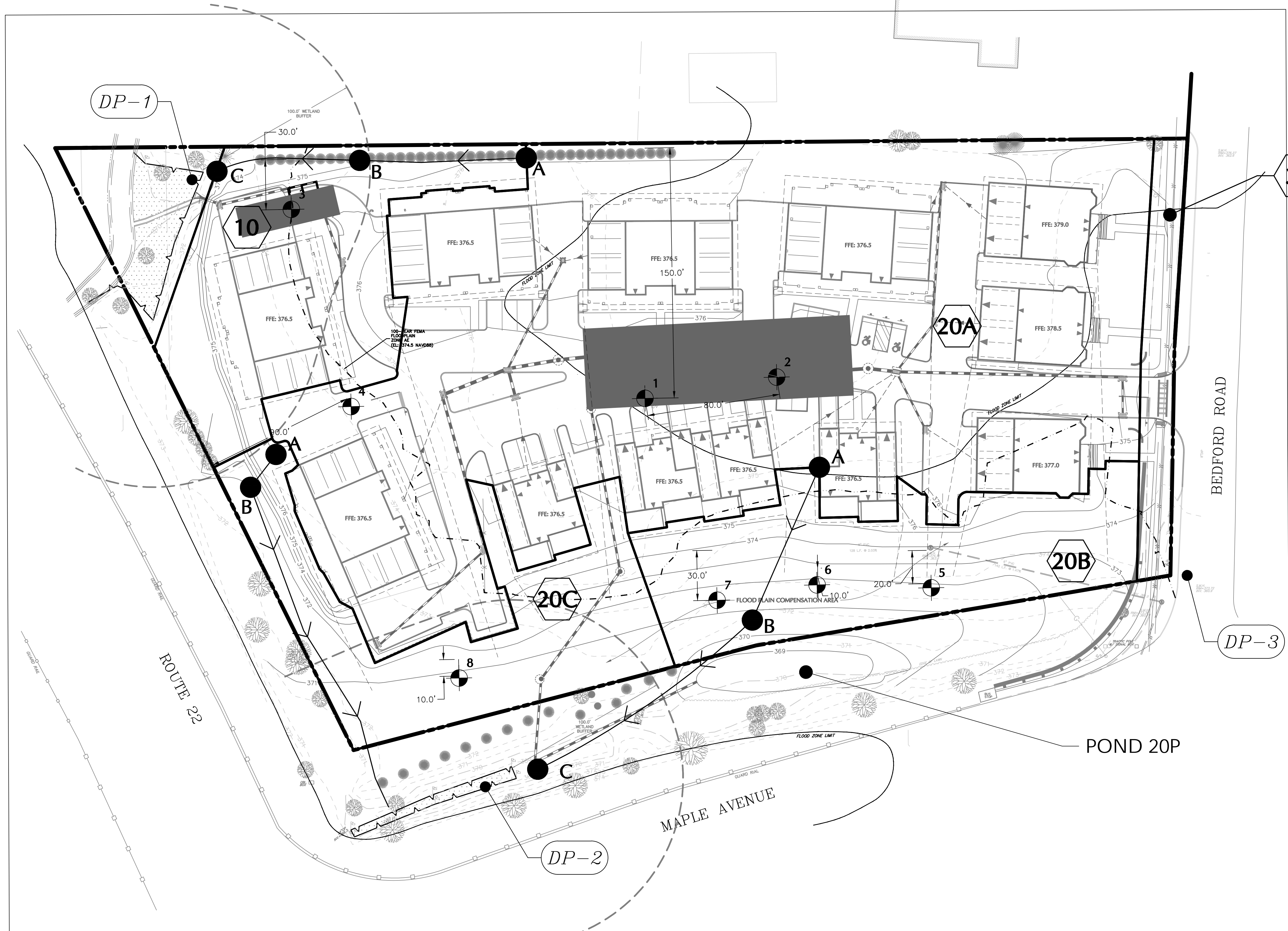
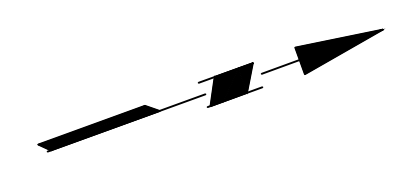


Infiltration & Test Pit Data									
Date:		9/27/2023							
Address:		45 Bedford Road, Armonk NY							
Test done by:		Luke Caserta, Grace Nyambura							
Hole Number	Run Number	Start	Stop	Elapsed Time (Min)	Depth to Water from Ground Surface (Inches)		Water Level Drop in Inches	Soil Rate (In/Hr)	
					Start	Stop			
1	1	10:11	11:11	60	38	62	24	24	
	2	11:27	12:27	60	38	62	24	24	
	3	12:32	13:32	60	38	62	24	24	
Groundwater encountered 96" below ground surface.									
2	1	9:57	10:57	60	38	62	24	24	
	2	11:31	12:31	60	38	56	18	18	
	3	12:37	13:37	60	38	56	18	18	
	4	13:39	14:49	60	38	54	16	16	
	5	14:49	15:49	60	38	50	12	12	
	6	15:50	16:50	60	38	50	12	12	
Groundwater encountered 108" below ground surface.									
3	1	11:41	12:41	60	38	55	17	17	
	2	12:48	13:48	60	38	53	15	15	
	3	13:53	14:53	60	38	50	12	12	
	4	14:57	15:57	60	38	50	12	12	
	5	16:01	17:01	60	38	48	10	10	
Groundwater encountered 132" below ground surface.									
4	1	14:08	15:08	60	49	56	7	7	
	2	15:10	16:10	60	49	56	7	7	
	3	16:15	17:15	60	49	55	6	6	
Groundwater encountered 75" below ground surface.									

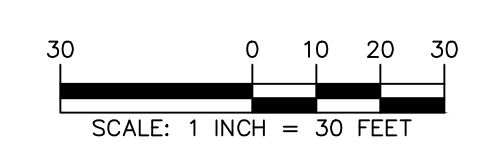
Test Pit Data	
Date:	11/8/2023
Address:	45 Bedford Road, Armonk NY
Test done by:	Elbin Madera Jr., Grace Nyambura
Hole Number	Depth to Groundwater below Existing Grade (Inches)
5	84
6	76
7	84
8	84

The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix F: Post-Development Stormwater Analysis**



LEGEND	
<b>HvE (C)</b>	SOIL CLASSIFICATION AND HYDROLOGIC SOIL GROUP
	HYDROLOGIC SOIL GROUP BOUNDARY
	TIME OF CONCENTRATION
	SUB-CATCHMENT ID
	SUBCATCHMENT BOUNDARY
	DISCHARGE POINT
	INFILTRATION TEST AND DEEP TEST



**WARNING:** IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE OR SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.
Revisions		

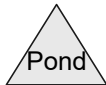
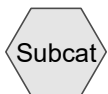
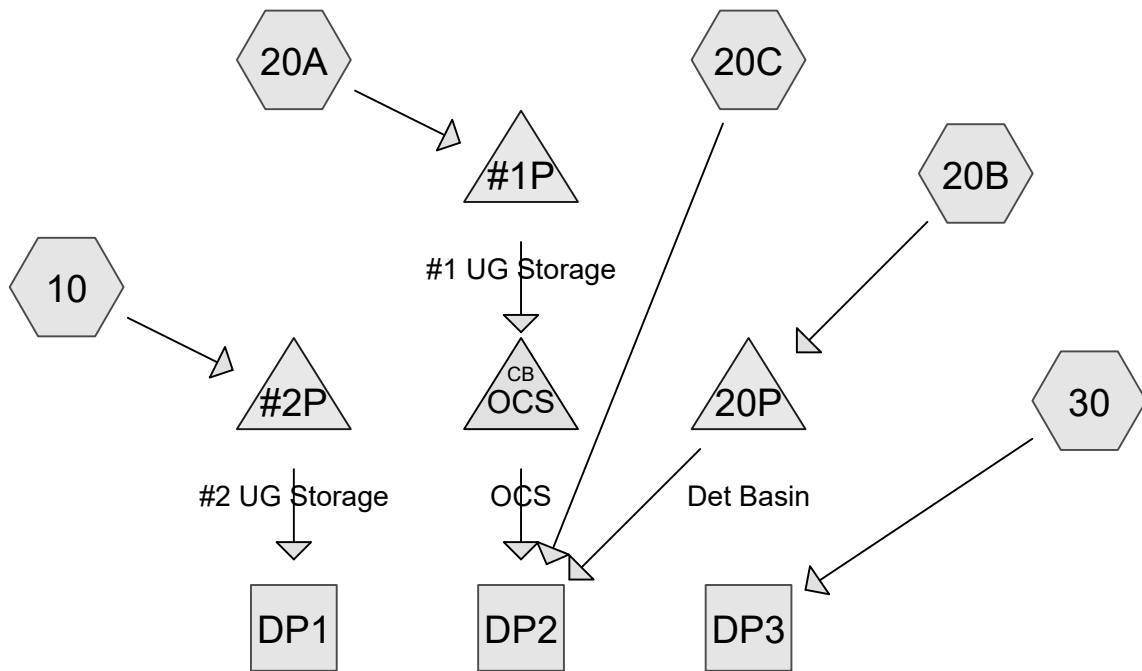
Signature  
**MICHAEL FINAN, PE, LEED-AP**  
 PROFESSIONAL ENGINEER NY Lic. No. 081473-1

**LANGAN**  
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Project  
**45 BEDFORD ROAD**  
 ARMONK  
 WESTCHESTER COUNTY NEW YORK

Drawing Title  
**POST DEVELOPMENT WATERSHED MAP**

Project No. <b>190085001</b>	Figure <b>FG06</b>
Date <b>01/30/2023</b>	Sheet <b>1</b> of <b>6</b>
Drawn By <b>GN</b>	
Checked By <b>MT</b>	



**Routing Diagram for 2023-11-13 Post Development Watershed Analysis**

Prepared by Langan Engineering, Printed 11/13/2023

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## 2023-11-13 Post Development Watershed Analysis

Prepared by Langan Engineering

HydroCAD® 10.20-3f s/n 08223 © 2023 HydroCAD Software Solutions LLC

Printed 11/13/2023

Page 2

### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.507	61	>75% Grass cover, Good, HSG B (10, 20A, 20B, 20C, 30)
2.159	98	Impervious (10, 20A, 30)
<b>3.666</b>	<b>83</b>	<b>TOTAL AREA</b>

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Subcatchment10:** Runoff Area=21,665 sf 49.10% Impervious Runoff Depth=1.05"  
 Flow Length=187' Slope=0.0100 '/' Tc=14.6 min CN=79 Runoff=0.45 cfs 0.044 af

**Subcatchment20A:** Runoff Area=91,379 sf 89.19% Impervious Runoff Depth=2.17"  
 Tc=6.0 min CN=94 Runoff=5.03 cfs 0.379 af

**Subcatchment20B:** Runoff Area=21,465 sf 0.00% Impervious Runoff Depth=0.30"  
 Flow Length=257' Tc=11.3 min CN=61 Runoff=0.07 cfs 0.012 af

**Subcatchment20C:** Runoff Area=19,919 sf 0.00% Impervious Runoff Depth=0.30"  
 Flow Length=235' Tc=6.3 min CN=61 Runoff=0.07 cfs 0.011 af

**Subcatchment30:** Runoff Area=5,276 sf 36.47% Impervious Runoff Depth=0.79"  
 Tc=6.0 min CN=74 Runoff=0.10 cfs 0.008 af

**Reach DP1:** Inflow=0.00 cfs 0.000 af  
 Outflow=0.00 cfs 0.000 af

**Reach DP2:** Inflow=0.07 cfs 0.011 af  
 Outflow=0.07 cfs 0.011 af

**Reach DP3:** Inflow=0.10 cfs 0.008 af  
 Outflow=0.10 cfs 0.008 af

**Pond #1P: #1 UG Storage** Peak Elev=370.92' Storage=2,708 cf Inflow=5.03 cfs 0.379 af  
 Discarded=1.62 cfs 0.379 af Primary=0.00 cfs 0.000 af Outflow=1.62 cfs 0.379 af

**Pond #2P: #2 UG Storage** Peak Elev=370.04' Storage=449 cf Inflow=0.45 cfs 0.044 af  
 Discarded=0.13 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.044 af

**Pond 20P: Det Basin** Peak Elev=369.22' Storage=529 cf Inflow=0.07 cfs 0.012 af  
 12.0" Round Culvert n=0.013 L=109.0' S=0.0073 '/' Outflow=0.00 cfs 0.000 af

**Pond OCS: OCS** Peak Elev=370.00' Inflow=0.00 cfs 0.000 af  
 Outflow=0.00 cfs 0.000 af

**Total Runoff Area = 3.666 ac Runoff Volume = 0.454 af Average Runoff Depth = 1.49"**  
**41.10% Pervious = 1.507 ac 58.90% Impervious = 2.159 ac**

**Summary for Subcatchment 10:**

Runoff = 0.45 cfs @ 12.21 hrs, Volume= 0.044 af, Depth= 1.05"  
 Routed to Pond #2P : #2 UG Storage

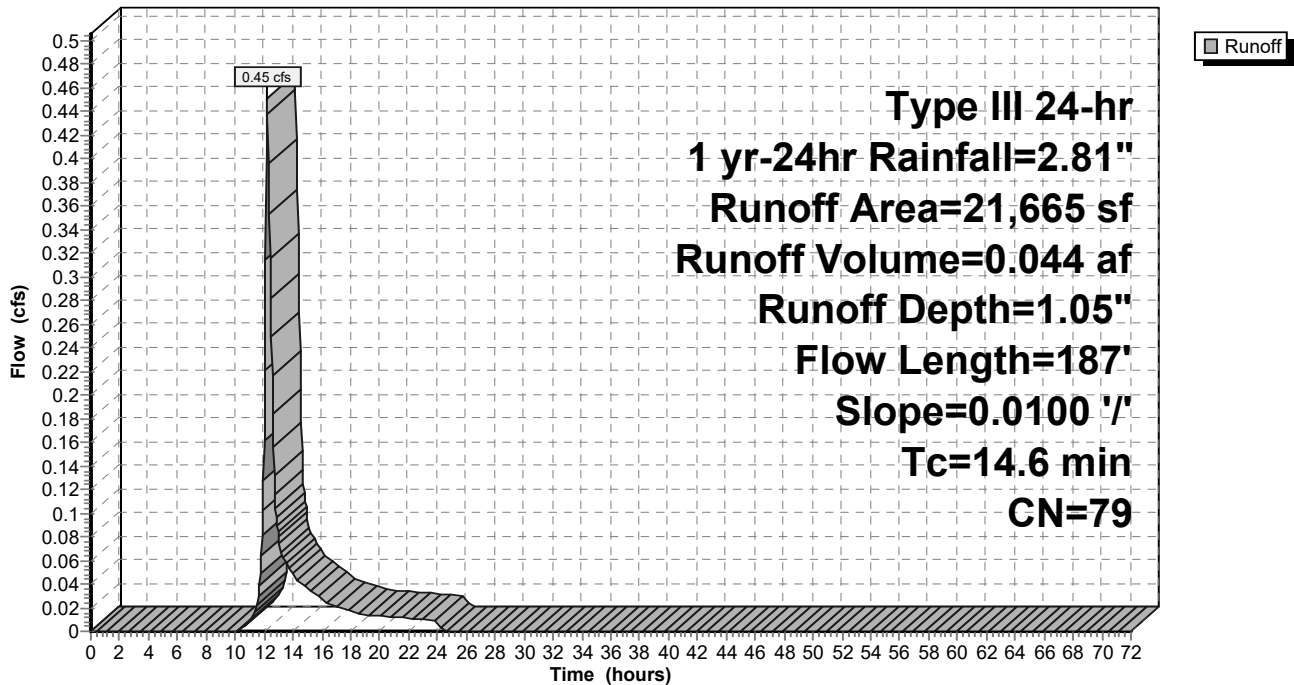
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 1 yr-24hr Rainfall=2.81"

Area (sf)	CN	Description
11,027	61	>75% Grass cover, Good, HSG B
* 10,638	98	Impervious
21,665	79	Weighted Average
11,027		50.90% Pervious Area
10,638		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		<b>Sheet Flow, a-b</b>
					Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b>
					Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

**Subcatchment 10:**

Hydrograph



**Summary for Subcatchment 20A:**

Runoff = 5.03 cfs @ 12.09 hrs, Volume= 0.379 af, Depth= 2.17"  
 Routed to Pond #1P : #1 UG Storage

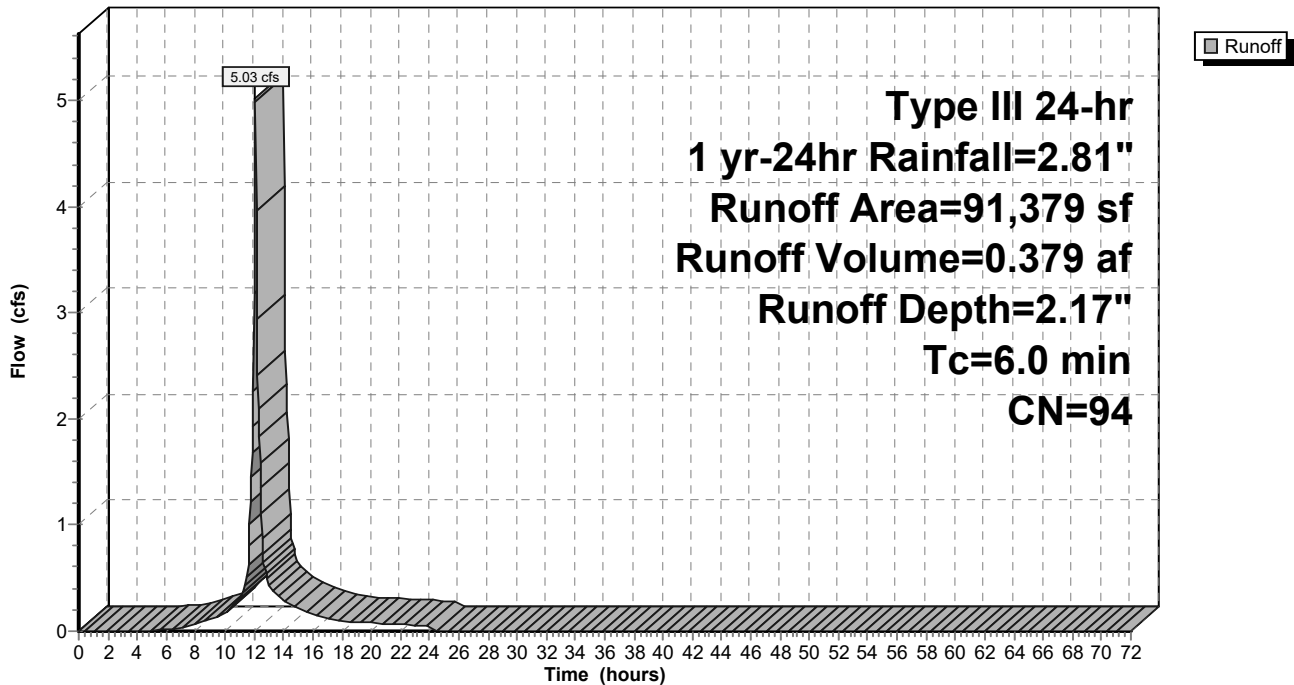
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 1 yr-24hr Rainfall=2.81"

	Area (sf)	CN	Description
*	81,498	98	Impervious
	9,881	61	>75% Grass cover, Good, HSG B
	91,379	94	Weighted Average
	9,881		10.81% Pervious Area
	81,498		89.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 20A:**

Hydrograph





**Summary for Subcatchment 20B:**

Runoff = 0.07 cfs @ 12.34 hrs, Volume= 0.012 af, Depth= 0.30"  
 Routed to Pond 20P : Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 1 yr-24hr Rainfall=2.81"

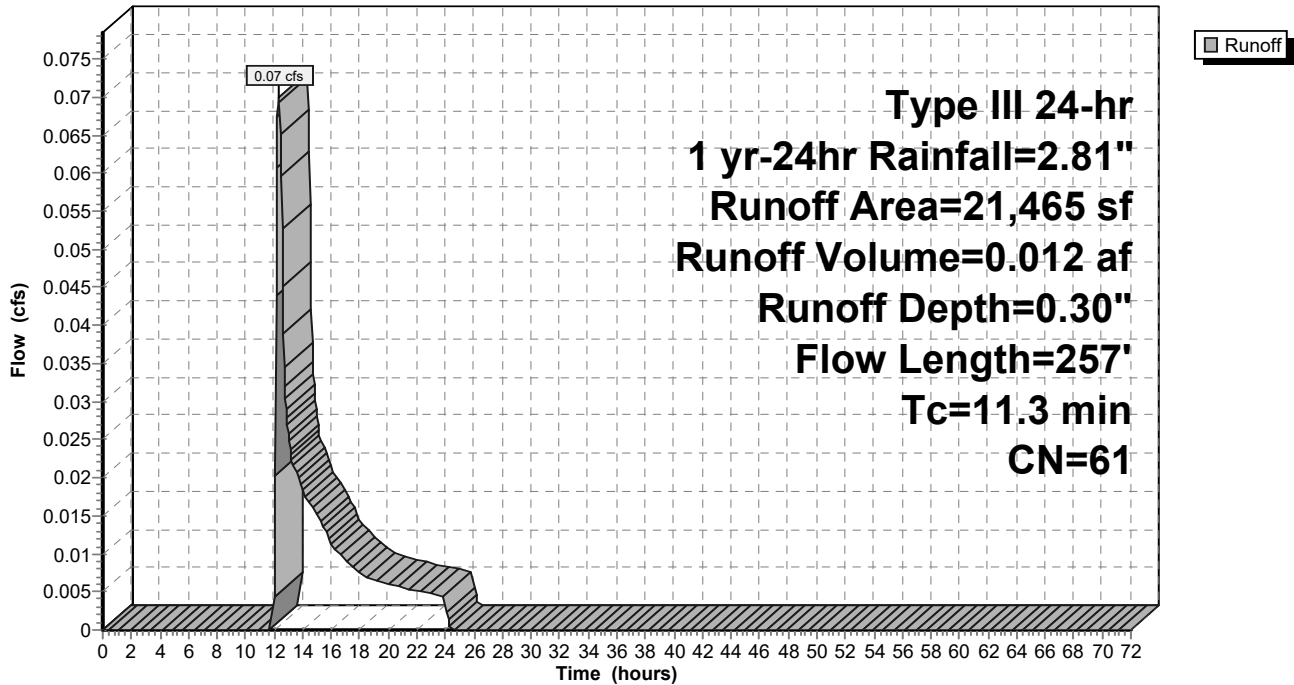
Area (sf)	CN	Description
21,465	61	>75% Grass cover, Good, HSG B
21,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0600	0.19		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
2.4	157	0.0250	1.11		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
11.3	257	Total			

**Subcatchment 20B:**

Hydrograph



**Summary for Subcatchment 20C:**

Runoff = 0.07 cfs @ 12.15 hrs, Volume= 0.011 af, Depth= 0.30"  
 Routed to Reach DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 1 yr-24hr Rainfall=2.81"

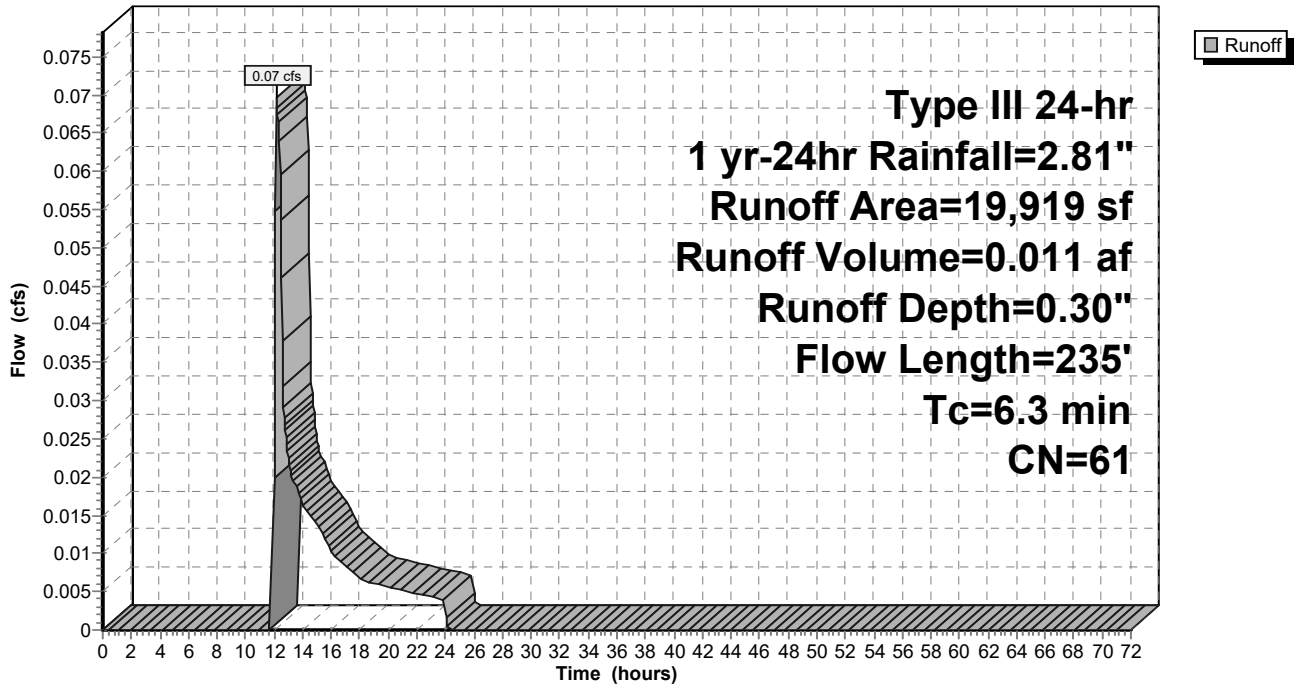
Area (sf)	CN	Description
19,919	61	>75% Grass cover, Good, HSG B
19,919		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	25	0.5000	0.33		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
5.0	210	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
6.3	235	Total			

**Subcatchment 20C:**

Hydrograph



**Summary for Subcatchment 30:**

Runoff = 0.10 cfs @ 12.10 hrs, Volume= 0.008 af, Depth= 0.79"  
 Routed to Reach DP3 :

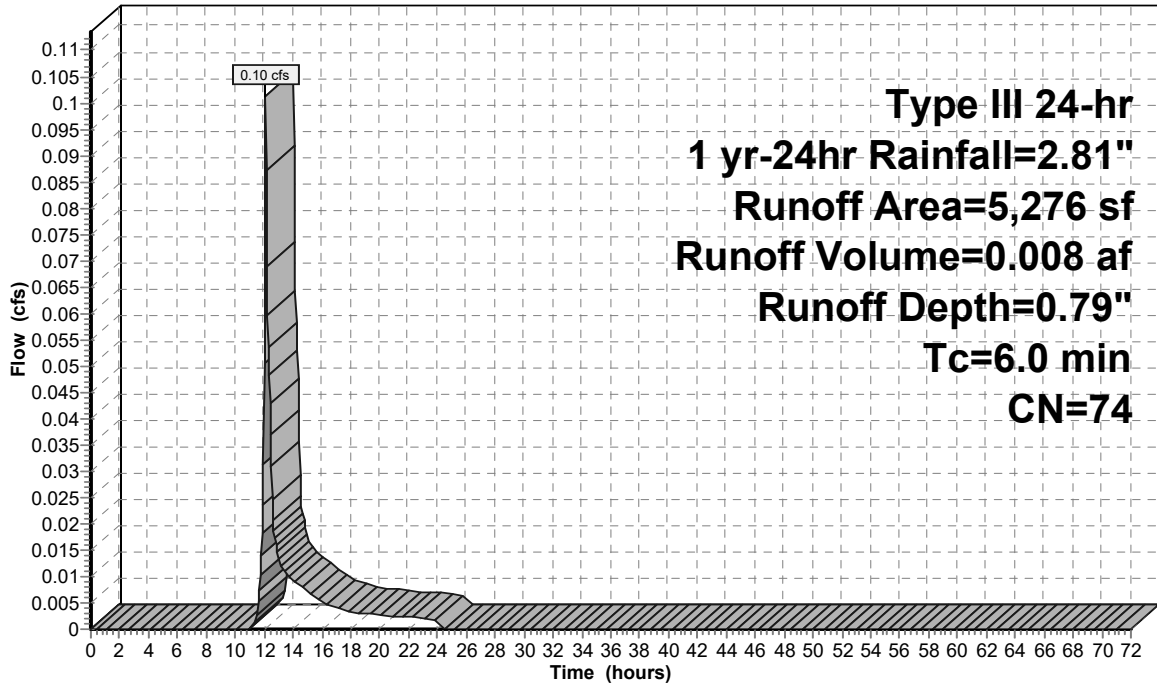
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 1 yr-24hr Rainfall=2.81"

	Area (sf)	CN	Description
*	1,924	98	Impervious
	3,352	61	>75% Grass cover, Good, HSG B
	5,276	74	Weighted Average
	3,352		63.53% Pervious Area
	1,924		36.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 30:**

Hydrograph



Runoff

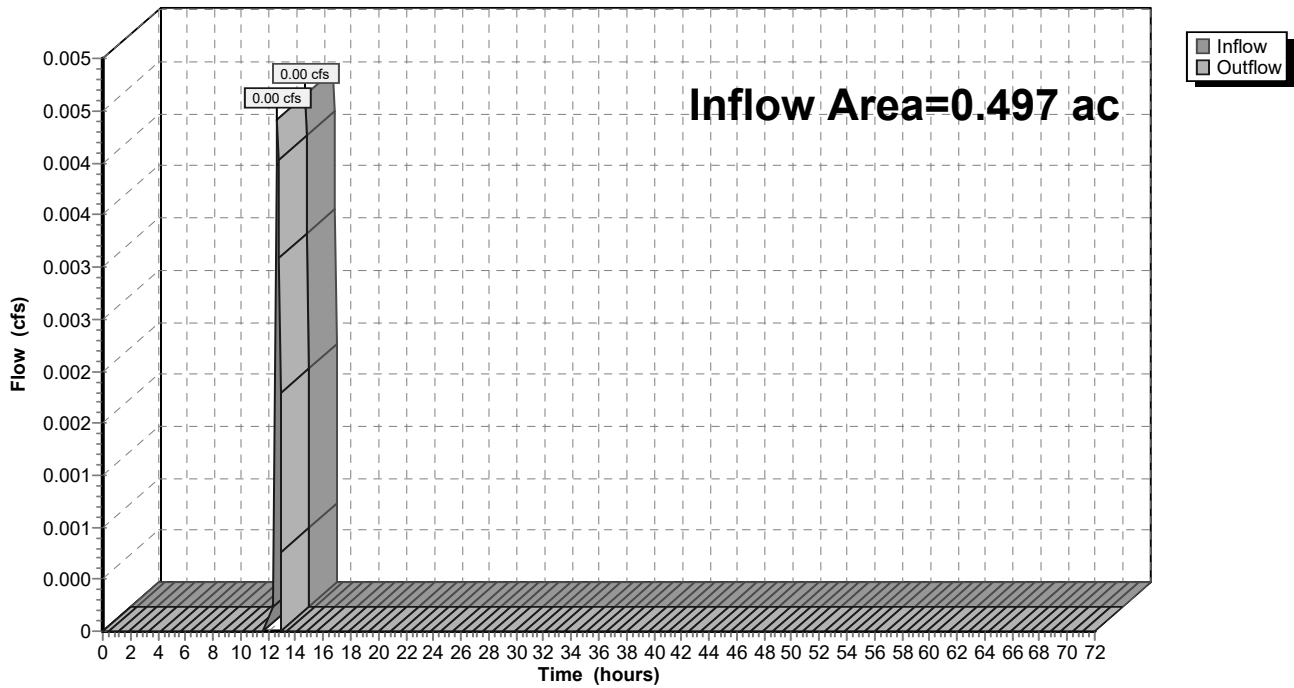
### Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 0.00" for 1 yr-24hr event  
Inflow = 0.00 cfs @ 12.70 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 12.70 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP1:

Hydrograph



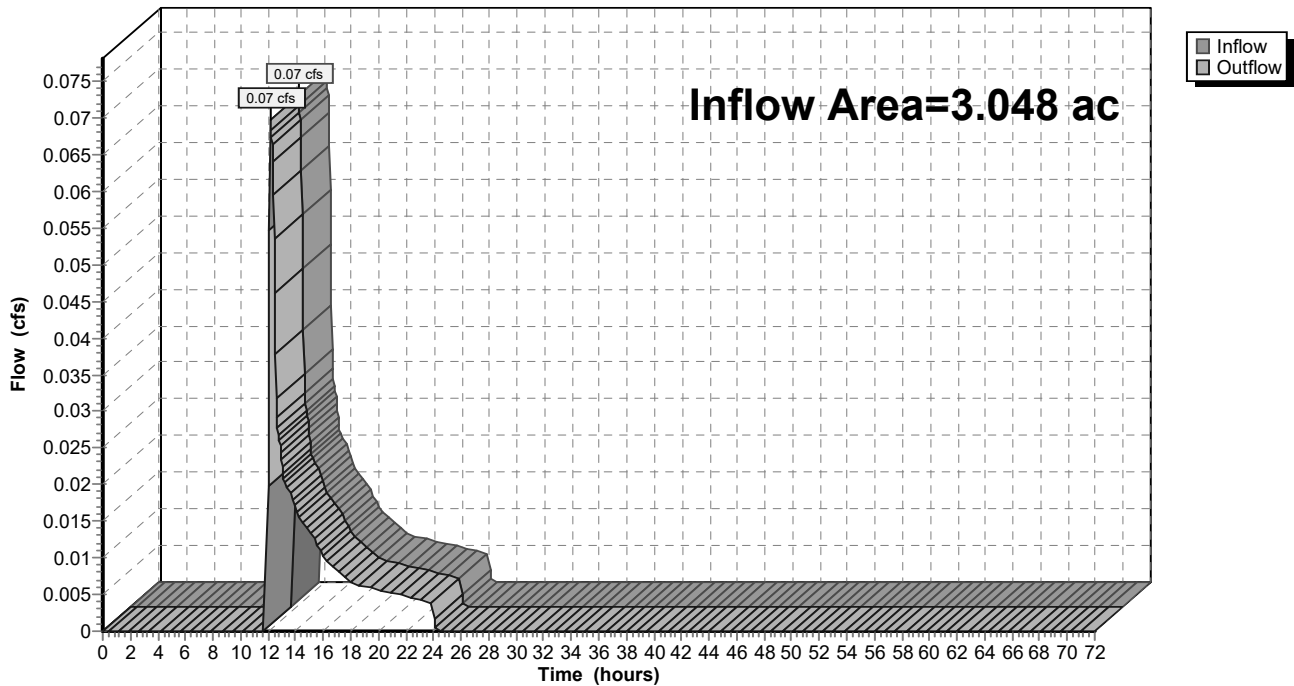
### Summary for Reach DP2:

Inflow Area = 3.048 ac, 61.39% Impervious, Inflow Depth = 0.04" for 1 yr-24hr event  
Inflow = 0.07 cfs @ 12.15 hrs, Volume= 0.011 af  
Outflow = 0.07 cfs @ 12.15 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP2:

Hydrograph



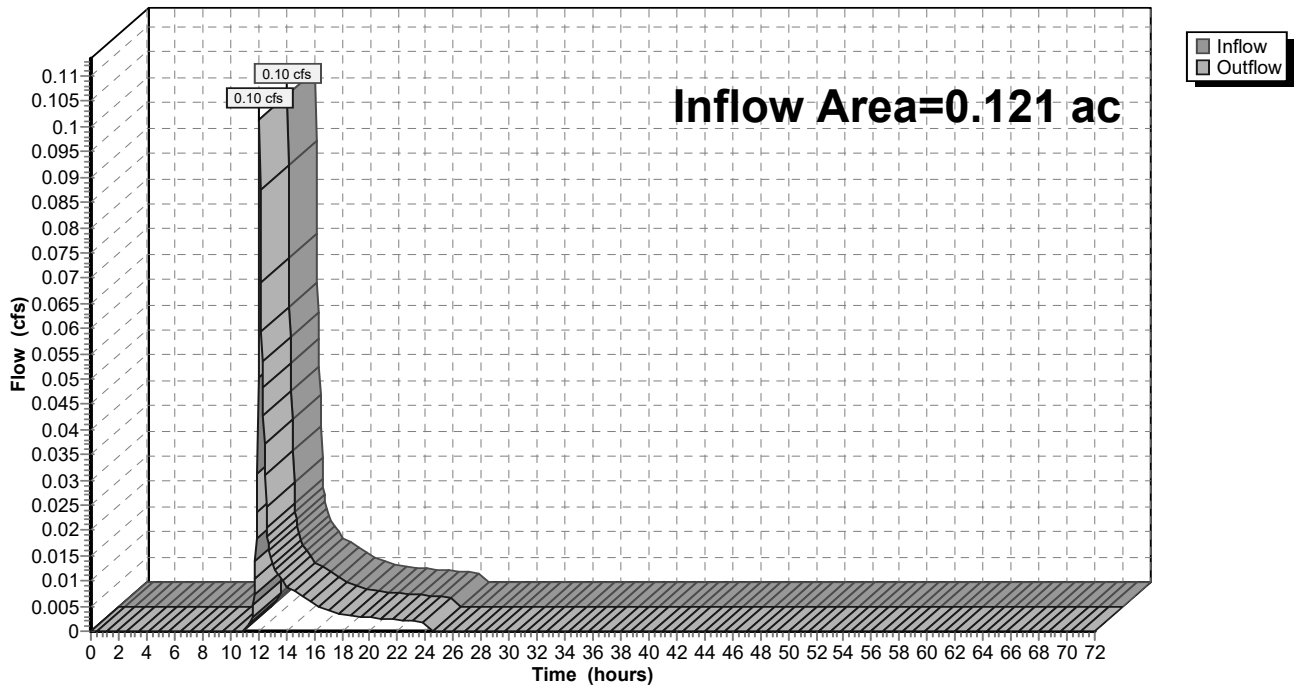
### Summary for Reach DP3:

Inflow Area = 0.121 ac, 36.47% Impervious, Inflow Depth = 0.79" for 1 yr-24hr event  
Inflow = 0.10 cfs @ 12.10 hrs, Volume= 0.008 af  
Outflow = 0.10 cfs @ 12.10 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP3:

Hydrograph



**Summary for Pond #1P: #1 UG Storage**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 2.17" for 1 yr-24hr event  
 Inflow = 5.03 cfs @ 12.09 hrs, Volume= 0.379 af  
 Outflow = 1.62 cfs @ 12.39 hrs, Volume= 0.379 af, Atten= 68%, Lag= 18.3 min  
 Discarded = 1.62 cfs @ 12.39 hrs, Volume= 0.379 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond OCS : OCS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.92' @ 12.39 hrs Surf.Area= 7,502 sf Storage= 2,708 cf

Plug-Flow detention time= 8.4 min calculated for 0.379 af (100% of inflow)  
 Center-of-Mass det. time= 8.4 min ( 799.8 - 791.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	370.25'	3,001 cf	<b>47.44'W x 158.14'L x 4.00'H Field A</b> 29,999 cf Overall - 22,497 cf Embedded = 7,502 cf x 40.0% Voids
#2A	370.75'	21,822 cf	<b>ACO StormBrixx SD 1 x 960 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 960 Chambers in 24 Rows
		24,823 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	371.00'	<b>12.0" Round Culvert</b> L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 371.00' / 370.00' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	370.25'	<b>9.000 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=1.62 cfs @ 12.39 hrs HW=370.92' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 1.62 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=370.25' TW=374.50' (Fixed TW Elev= 374.50')  
 ↑**1=Culvert** ( Controls 0.00 cfs)

**Pond #1P: #1 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

40 Chambers/Row x 3.95' Long = 158.14' Row Length

24 Rows x 23.7" Wide = 47.44' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

960 Chambers x 22.7 cf = 21,821.7 cf Chamber Storage

960 Chambers x 23.4 cf = 22,496.6 cf Displacement

29,998.7 cf Field - 22,496.6 cf Chambers = 7,502.1 cf Stone x 40.0% Voids = 3,000.9 cf Stone Storage

Chamber Storage + Stone Storage = 24,822.5 cf = 0.570 af

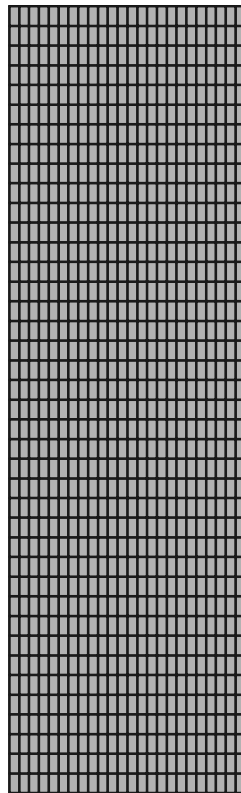
Overall Storage Efficiency = 82.7%

Overall System Size = 158.14' x 47.44' x 4.00'

960 Chambers

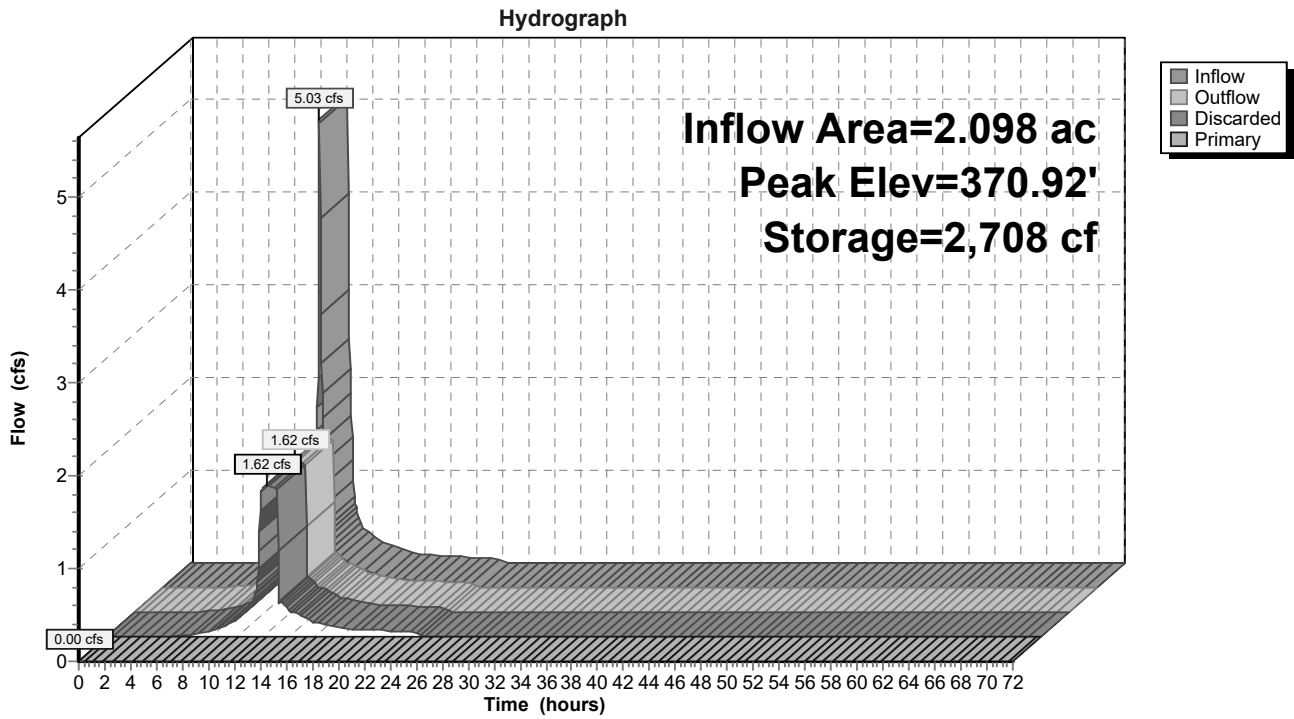
1,111.1 cy Field

277.9 cy Stone





### Pond #1P: #1 UG Storage



**Summary for Pond #2P: #2 UG Storage**

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 1.05" for 1 yr-24hr event  
 Inflow = 0.45 cfs @ 12.21 hrs, Volume= 0.044 af  
 Outflow = 0.13 cfs @ 12.70 hrs, Volume= 0.044 af, Atten= 70%, Lag= 29.2 min  
 Discarded = 0.13 cfs @ 12.70 hrs, Volume= 0.043 af  
 Primary = 0.00 cfs @ 12.70 hrs, Volume= 0.000 af  
 Routed to Reach DP1 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.04' @ 12.70 hrs Surf.Area= 625 sf Storage= 449 cf

Plug-Flow detention time= 22.5 min calculated for 0.044 af (100% of inflow)  
 Center-of-Mass det. time= 22.5 min ( 883.6 - 861.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	369.00'	250 cf	<b>15.81'W x 39.53'L x 4.00'H Field A</b> 2,500 cf Overall - 1,875 cf Embedded = 625 cf x 40.0% Voids
#2A	369.50'	1,818 cf	<b>ACO StormBrixx SD 1 x 80 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 80 Chambers in 8 Rows
		2,069 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.80' / 370.00' S= -0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	369.00'	<b>7.500 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=0.13 cfs @ 12.70 hrs HW=370.03' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 0.13 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.70 hrs HW=370.03' (Free Discharge)  
 ↑**1=Culvert** (Inlet Controls 0.00 cfs @ 0.50 fps)

**Pond #2P: #2 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

10 Chambers/Row x 3.95' Long = 39.53' Row Length

8 Rows x 23.7" Wide = 15.81' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

80 Chambers x 22.7 cf = 1,818.5 cf Chamber Storage

80 Chambers x 23.4 cf = 1,874.7 cf Displacement

2,499.9 cf Field - 1,874.7 cf Chambers = 625.2 cf Stone x 40.0% Voids = 250.1 cf Stone Storage

Chamber Storage + Stone Storage = 2,068.5 cf = 0.047 af

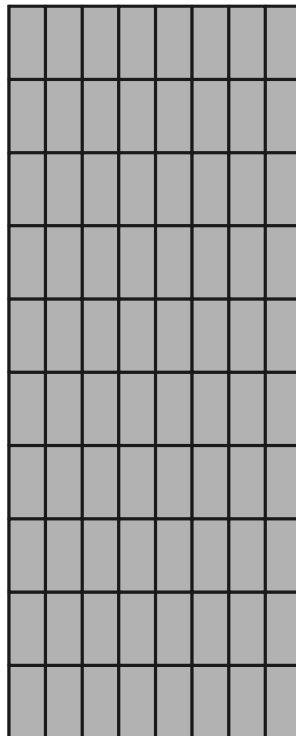
Overall Storage Efficiency = 82.7%

Overall System Size = 39.53' x 15.81' x 4.00'

80 Chambers

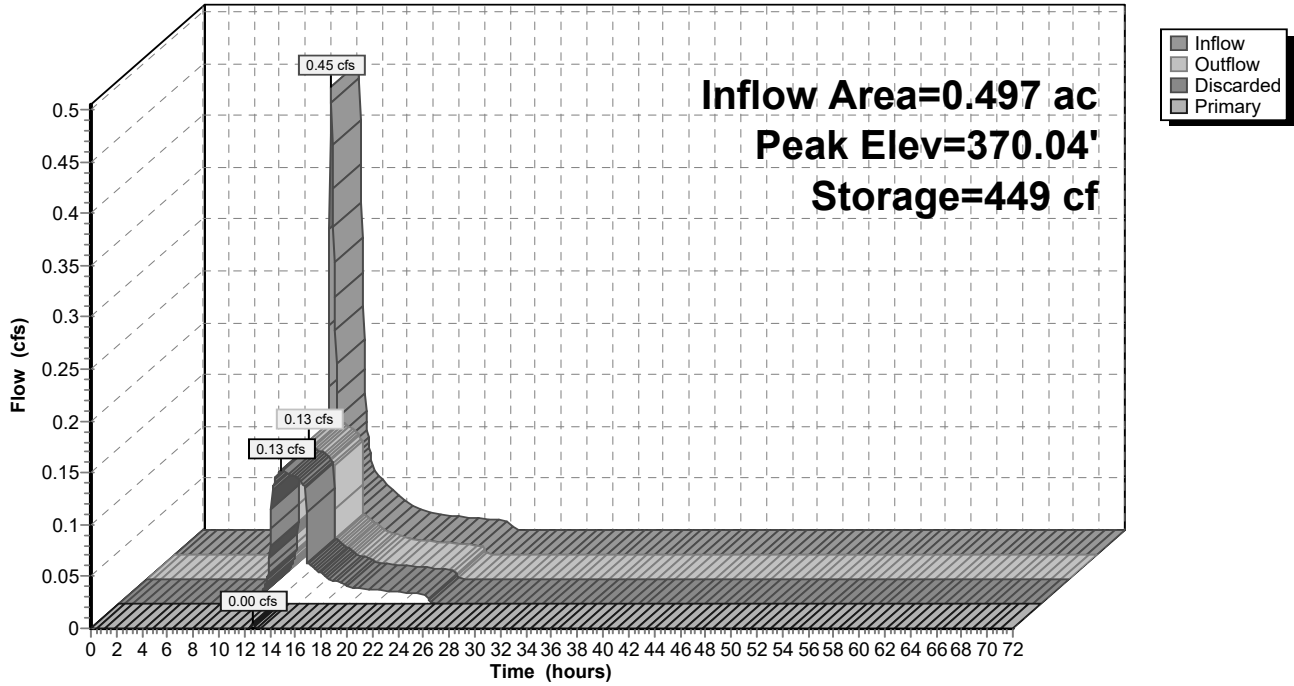
92.6 cy Field

23.2 cy Stone



### Pond #2P: #2 UG Storage

Hydrograph



**Summary for Pond 20P: Det Basin**

Inflow Area = 0.493 ac, 0.00% Impervious, Inflow Depth = 0.30" for 1 yr-24hr event  
 Inflow = 0.07 cfs @ 12.34 hrs, Volume= 0.012 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 369.22' @ 24.70 hrs Surf.Area= 2,721 sf Storage= 529 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

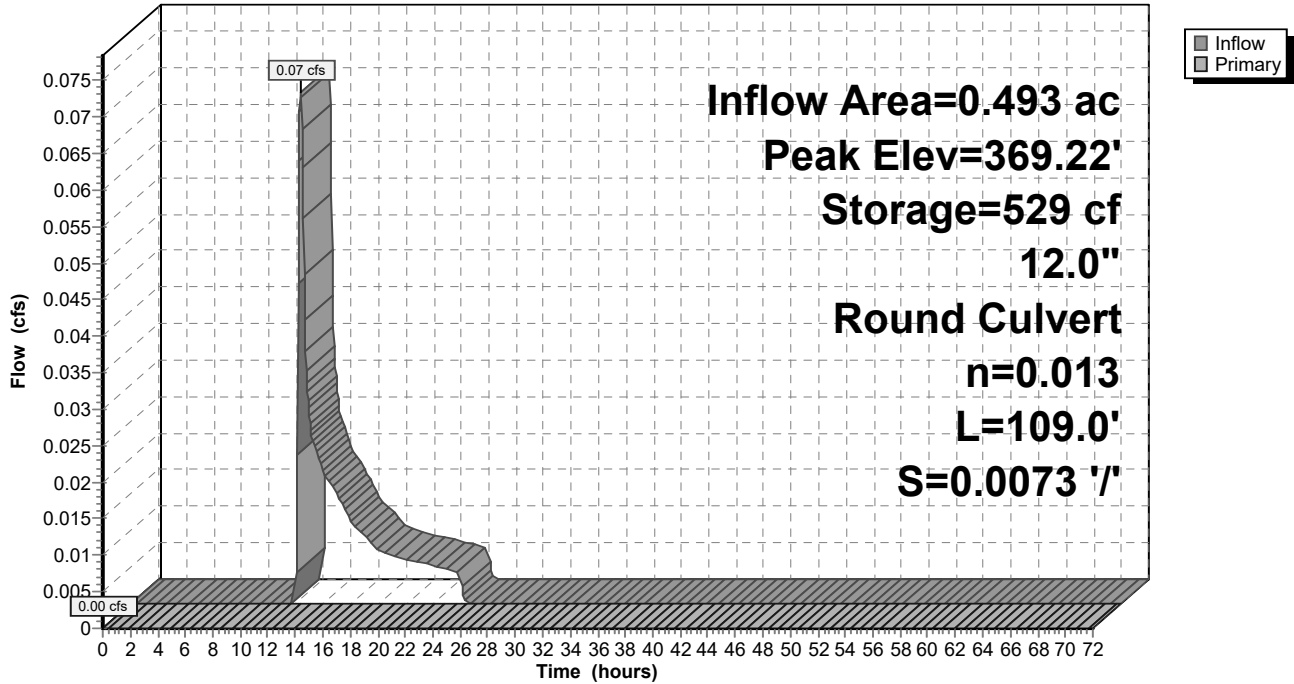
Volume	Invert	Avail.Storage	Storage Description			
#1	369.00'	3,707 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
369.00	2,092	230.0	0	0	2,092	
370.00	5,605	400.0	3,707	3,707	10,621	

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	<b>12.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 368.20' S= 0.0073 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=369.00' TW=372.00' (Fixed TW Elev= 372.00')  
 ↑1=Culvert ( Controls 0.00 cfs)

### Pond 20P: Det Basin

Hydrograph



**Summary for Pond OCS: OCS**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 0.00" for 1 yr-24hr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.00' @ 0.00 hrs

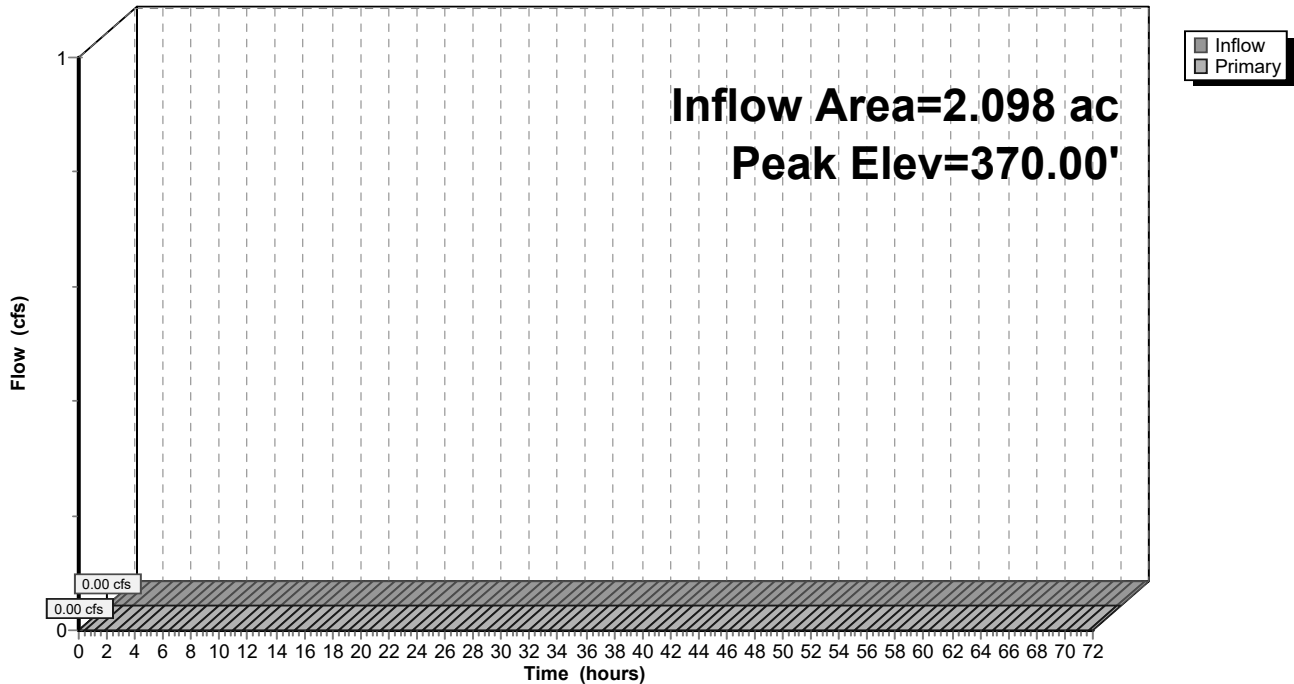
Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 370.00' / 368.00' S= 0.0435 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	372.00'	<b>24.0" W x 36.0" H Vert. Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	370.00'	<b>12.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=370.00' (Free Discharge)

- 1=Culvert ( Controls 0.00 cfs)
- 2=Grate ( Controls 0.00 cfs)
- 3=Orifice ( Controls 0.00 cfs)

**Pond OCS: OCS**

Hydrograph



**2023-11-13 Post Development Watershed Analysis Type III 24-hr 10 yr-24 hr Rainfall=5.13"**

Prepared by Langan Engineering

Printed 11/13/2023

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Subcatchment10:** Runoff Area=21,665 sf 49.10% Impervious Runoff Depth=2.91"  
Flow Length=187' Slope=0.0100 '/' Tc=14.6 min CN=79 Runoff=1.29 cfs 0.121 af

**Subcatchment20A:** Runoff Area=91,379 sf 89.19% Impervious Runoff Depth=4.44"  
Tc=6.0 min CN=94 Runoff=9.89 cfs 0.776 af

**Subcatchment20B:** Runoff Area=21,465 sf 0.00% Impervious Runoff Depth=1.45"  
Flow Length=257' Tc=11.3 min CN=61 Runoff=0.63 cfs 0.059 af

**Subcatchment20C:** Runoff Area=19,919 sf 0.00% Impervious Runoff Depth=1.45"  
Flow Length=235' Tc=6.3 min CN=61 Runoff=0.70 cfs 0.055 af

**Subcatchment30:** Runoff Area=5,276 sf 36.47% Impervious Runoff Depth=2.47"  
Tc=6.0 min CN=74 Runoff=0.34 cfs 0.025 af

**Reach DP1:** Inflow=0.99 cfs 0.039 af  
Outflow=0.99 cfs 0.039 af

**Reach DP2:** Inflow=0.70 cfs 0.055 af  
Outflow=0.70 cfs 0.055 af

**Reach DP3:** Inflow=0.34 cfs 0.025 af  
Outflow=0.34 cfs 0.025 af

**Pond #1P: #1 UG Storage** Peak Elev=371.81' Storage=9,238 cf Inflow=9.89 cfs 0.776 af  
Discarded=1.70 cfs 0.776 af Primary=0.00 cfs 0.000 af Outflow=1.70 cfs 0.776 af

**Pond #2P: #2 UG Storage** Peak Elev=370.59' Storage=785 cf Inflow=1.29 cfs 0.121 af  
Discarded=0.14 cfs 0.082 af Primary=0.99 cfs 0.039 af Outflow=1.13 cfs 0.121 af

**Pond 20P: Det Basin** Peak Elev=369.78' Storage=2,590 cf Inflow=0.63 cfs 0.059 af  
12.0" Round Culvert n=0.013 L=109.0' S=0.0073 '/' Outflow=0.00 cfs 0.000 af

**Pond OCS: OCS** Peak Elev=370.00' Inflow=0.00 cfs 0.000 af  
Outflow=0.00 cfs 0.000 af

**Total Runoff Area = 3.666 ac Runoff Volume = 1.036 af Average Runoff Depth = 3.39"**  
**41.10% Pervious = 1.507 ac 58.90% Impervious = 2.159 ac**



**Summary for Subcatchment 10:**

Runoff = 1.29 cfs @ 12.20 hrs, Volume= 0.121 af, Depth= 2.91"  
 Routed to Pond #2P : #2 UG Storage

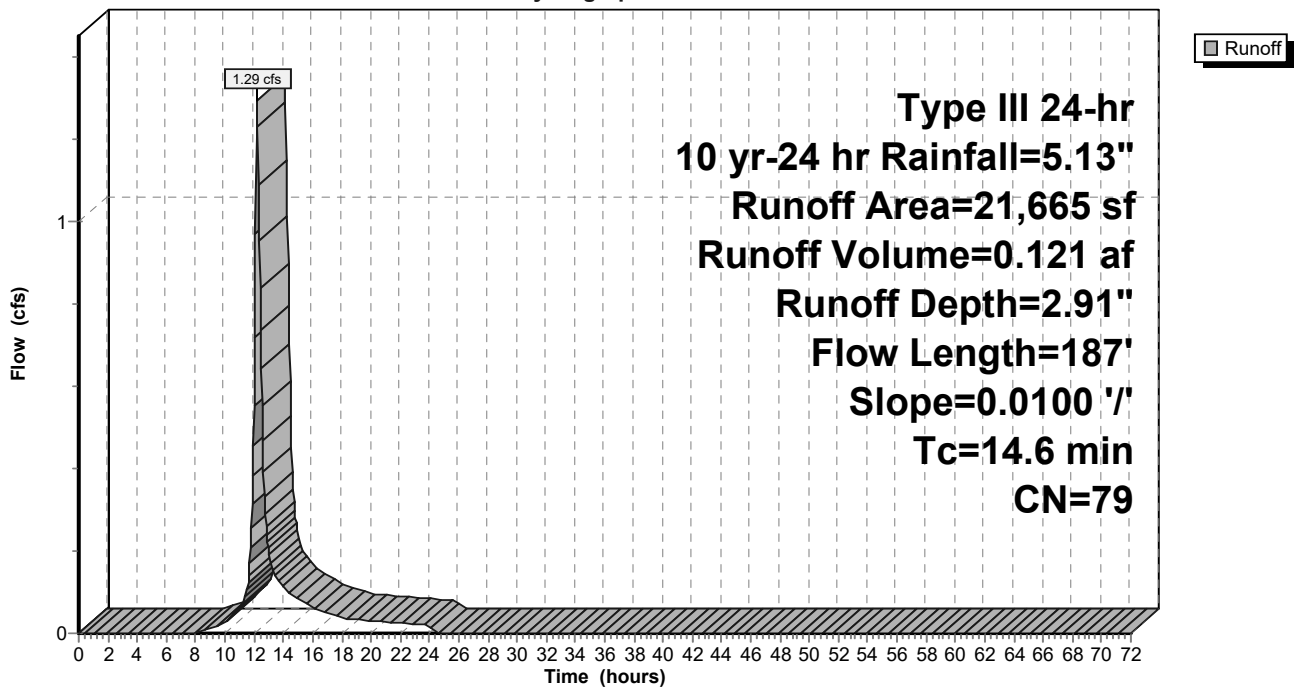
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10 yr-24 hr Rainfall=5.13"

Area (sf)	CN	Description
11,027	61	>75% Grass cover, Good, HSG B
* 10,638	98	Impervious
21,665	79	Weighted Average
11,027		50.90% Pervious Area
10,638		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		<b>Sheet Flow, a-b</b>
					Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b>
					Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

**Subcatchment 10:**

Hydrograph



**Summary for Subcatchment 20A:**

Runoff = 9.89 cfs @ 12.09 hrs, Volume= 0.776 af, Depth= 4.44"  
 Routed to Pond #1P : #1 UG Storage

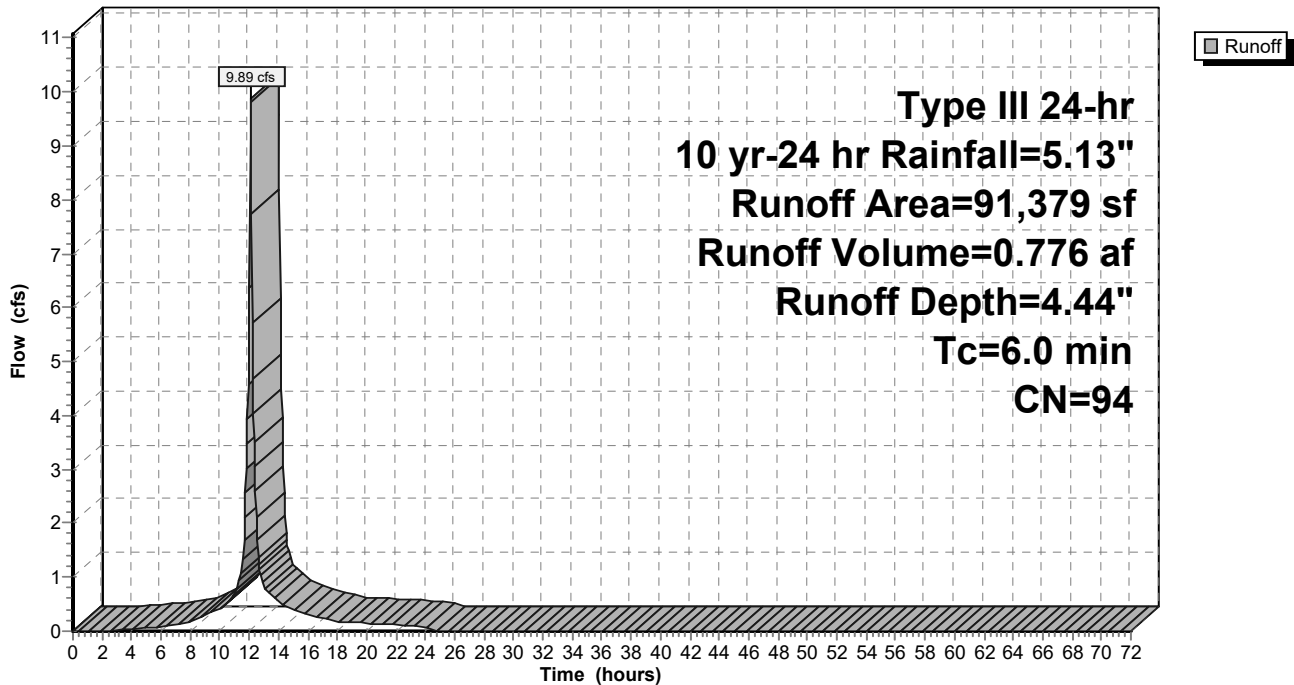
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10 yr-24 hr Rainfall=5.13"

	Area (sf)	CN	Description
*	81,498	98	Impervious
	9,881	61	>75% Grass cover, Good, HSG B
	91,379	94	Weighted Average
	9,881		10.81% Pervious Area
	81,498		89.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 20A:**

Hydrograph



**Summary for Subcatchment 20B:**

Runoff = 0.63 cfs @ 12.17 hrs, Volume= 0.059 af, Depth= 1.45"  
 Routed to Pond 20P : Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10 yr-24 hr Rainfall=5.13"

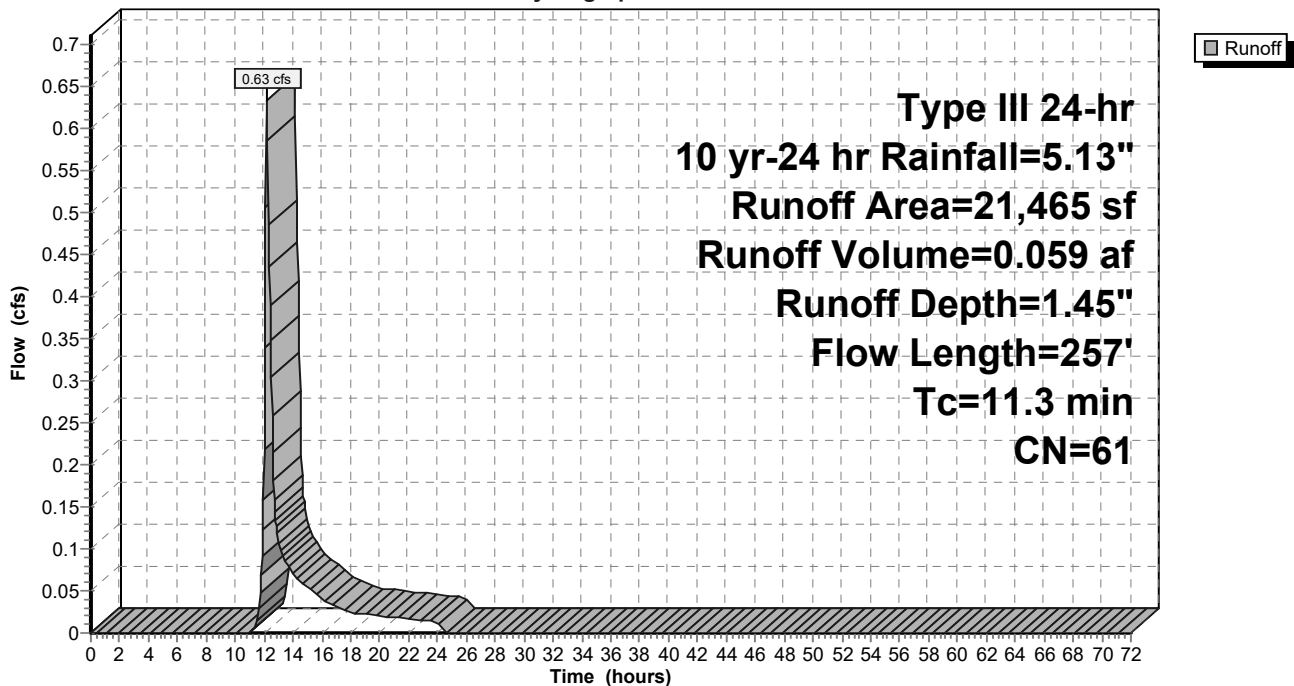
Area (sf)	CN	Description
21,465	61	>75% Grass cover, Good, HSG B
21,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0600	0.19		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
2.4	157	0.0250	1.11		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
11.3	257	Total			

**Subcatchment 20B:**

Hydrograph



**Summary for Subcatchment 20C:**

Runoff = 0.70 cfs @ 12.11 hrs, Volume= 0.055 af, Depth= 1.45"  
 Routed to Reach DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10 yr-24 hr Rainfall=5.13"

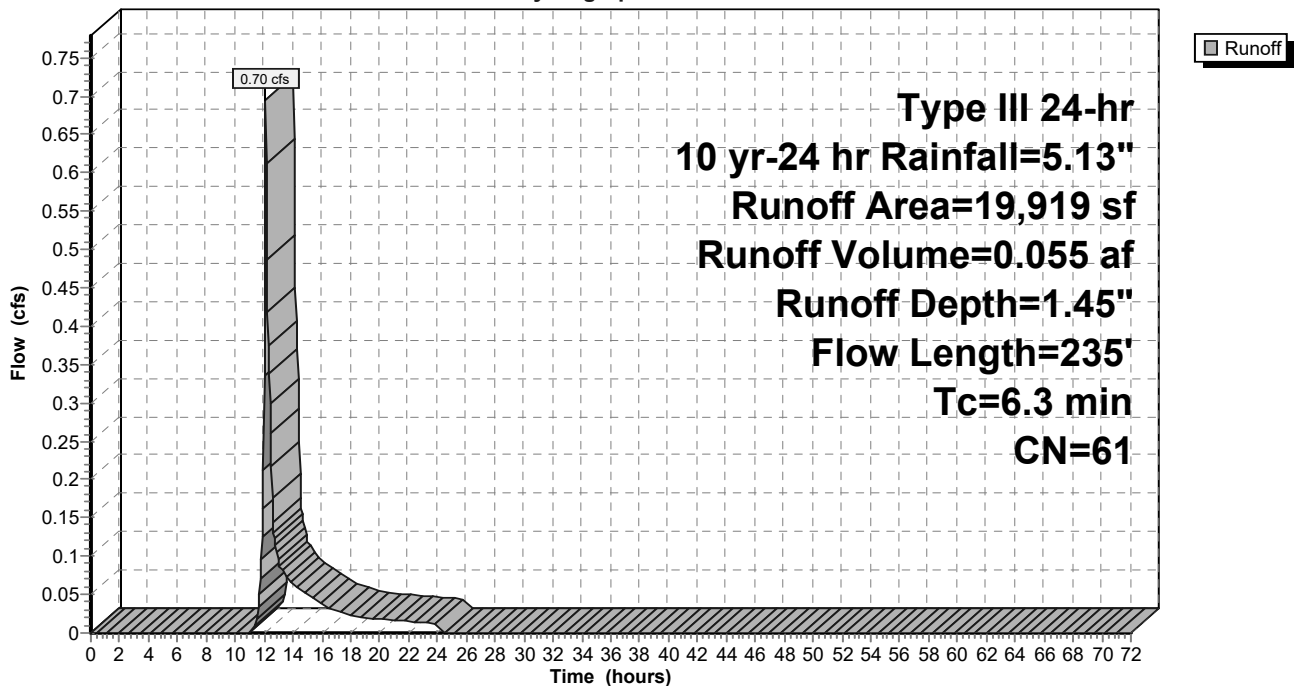
Area (sf)	CN	Description
19,919	61	>75% Grass cover, Good, HSG B
19,919		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	25	0.5000	0.33		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
5.0	210	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
6.3	235	Total			

**Subcatchment 20C:**

Hydrograph



**Summary for Subcatchment 30:**

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 2.47"  
 Routed to Reach DP3 :

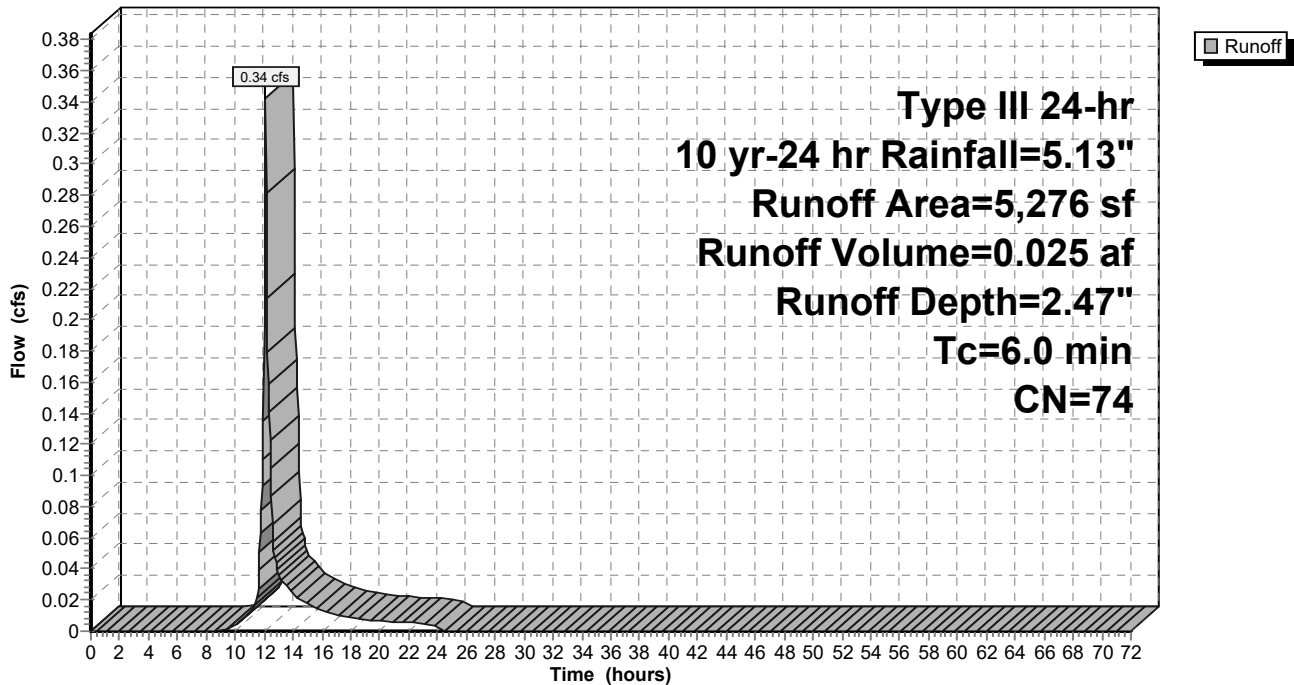
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10 yr-24 hr Rainfall=5.13"

	Area (sf)	CN	Description
*	1,924	98	Impervious
	3,352	61	>75% Grass cover, Good, HSG B
	5,276	74	Weighted Average
	3,352		63.53% Pervious Area
	1,924		36.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 30:**

Hydrograph



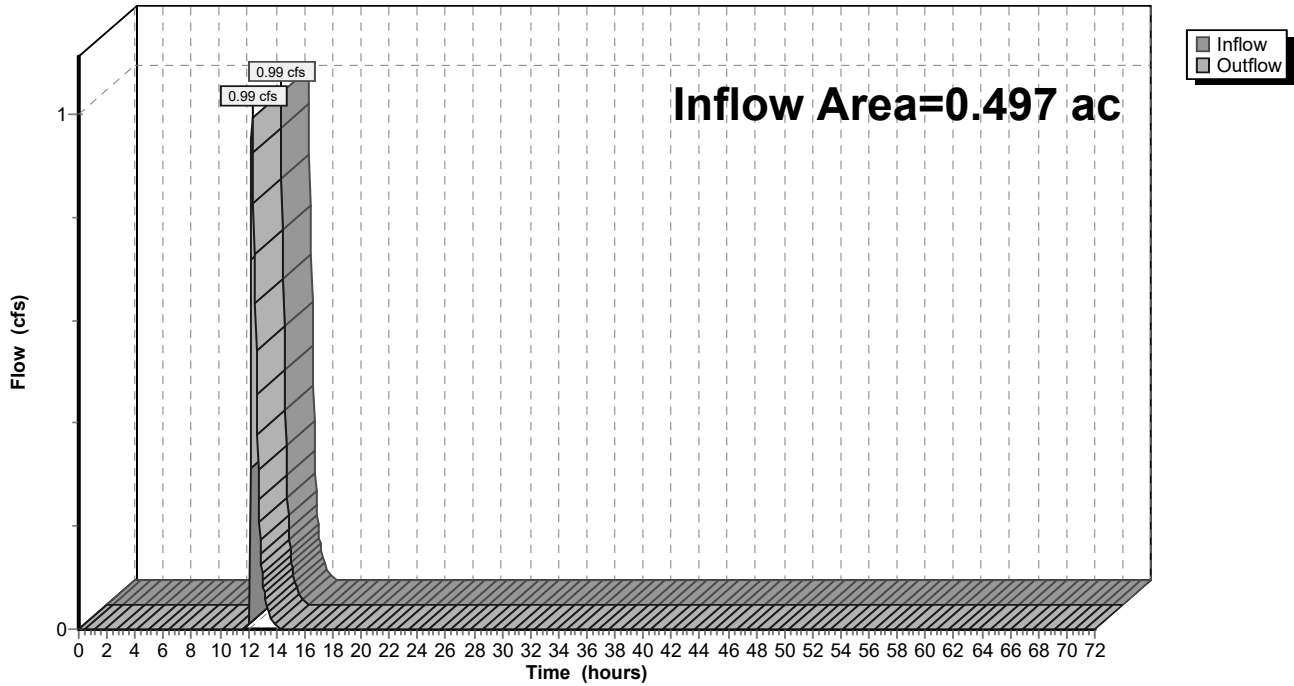
### Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 0.95" for 10 yr-24 hr event  
Inflow = 0.99 cfs @ 12.29 hrs, Volume= 0.039 af  
Outflow = 0.99 cfs @ 12.29 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP1:

Hydrograph



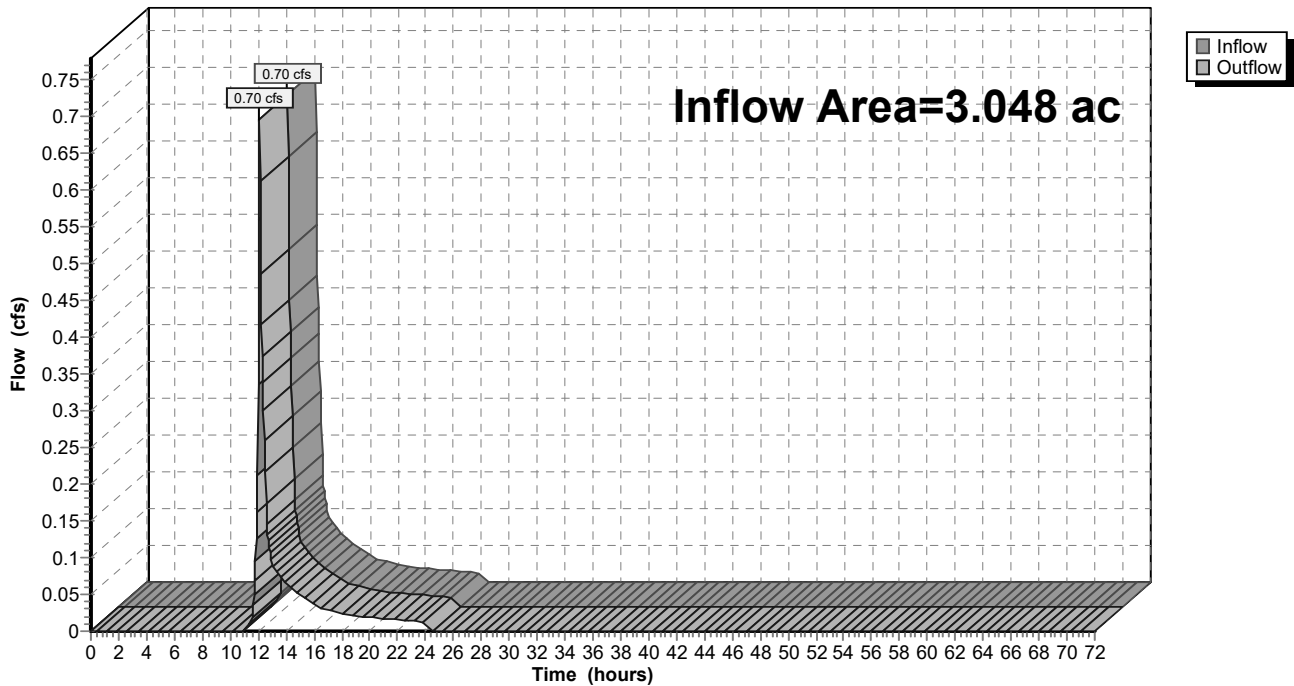
### Summary for Reach DP2:

Inflow Area = 3.048 ac, 61.39% Impervious, Inflow Depth = 0.22" for 10 yr-24 hr event  
Inflow = 0.70 cfs @ 12.11 hrs, Volume= 0.055 af  
Outflow = 0.70 cfs @ 12.11 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP2:

Hydrograph



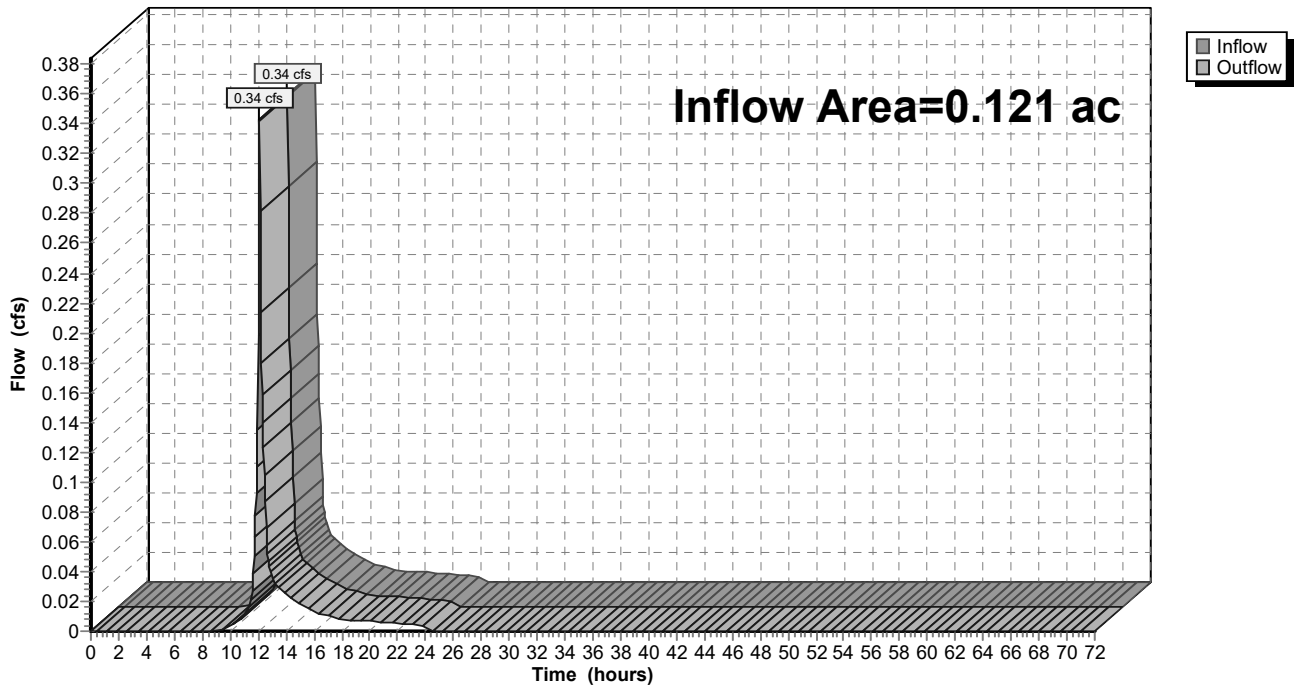
### Summary for Reach DP3:

Inflow Area = 0.121 ac, 36.47% Impervious, Inflow Depth = 2.47" for 10 yr-24 hr event  
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af  
Outflow = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP3:

Hydrograph





**Summary for Pond #1P: #1 UG Storage**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 4.44" for 10 yr-24 hr event  
 Inflow = 9.89 cfs @ 12.09 hrs, Volume= 0.776 af  
 Outflow = 1.70 cfs @ 12.55 hrs, Volume= 0.776 af, Atten= 83%, Lag= 27.9 min  
 Discarded = 1.70 cfs @ 12.55 hrs, Volume= 0.776 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond OCS : OCS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 371.81' @ 12.55 hrs Surf.Area= 7,502 sf Storage= 9,238 cf

Plug-Flow detention time= 31.8 min calculated for 0.775 af (100% of inflow)  
 Center-of-Mass det. time= 31.8 min ( 804.6 - 772.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	370.25'	3,001 cf	<b>47.44'W x 158.14'L x 4.00'H Field A</b> 29,999 cf Overall - 22,497 cf Embedded = 7,502 cf x 40.0% Voids
#2A	370.75'	21,822 cf	<b>ACO StormBrixx SD 1 x 960 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 960 Chambers in 24 Rows
		24,823 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	371.00'	<b>12.0" Round Culvert</b> L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 371.00' / 370.00' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	370.25'	<b>9.000 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=1.70 cfs @ 12.55 hrs HW=371.81' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 1.70 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=370.25' TW=374.50' (Fixed TW Elev= 374.50')  
 ↑**1=Culvert** ( Controls 0.00 cfs)

**Pond #1P: #1 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

40 Chambers/Row x 3.95' Long = 158.14' Row Length

24 Rows x 23.7" Wide = 47.44' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

960 Chambers x 22.7 cf = 21,821.7 cf Chamber Storage

960 Chambers x 23.4 cf = 22,496.6 cf Displacement

29,998.7 cf Field - 22,496.6 cf Chambers = 7,502.1 cf Stone x 40.0% Voids = 3,000.9 cf Stone Storage

Chamber Storage + Stone Storage = 24,822.5 cf = 0.570 af

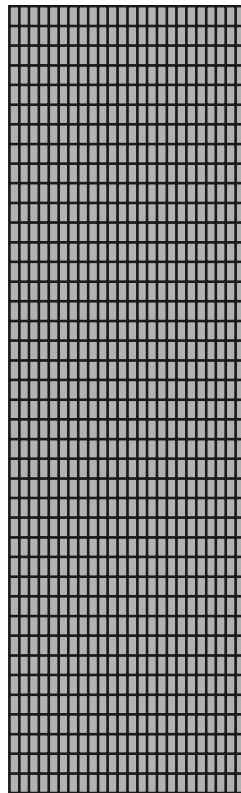
Overall Storage Efficiency = 82.7%

Overall System Size = 158.14' x 47.44' x 4.00'

960 Chambers

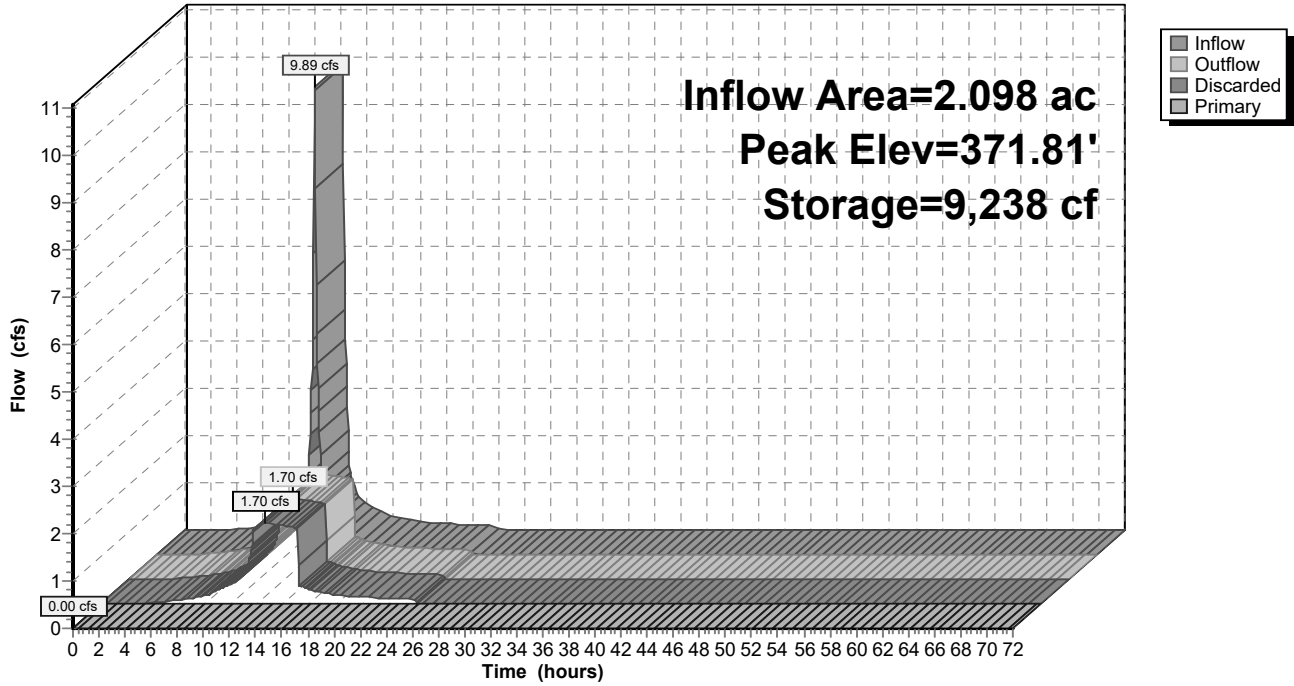
1,111.1 cy Field

277.9 cy Stone



### Pond #1P: #1 UG Storage

Hydrograph



**Summary for Pond #2P: #2 UG Storage**

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 2.91" for 10 yr-24 hr event  
 Inflow = 1.29 cfs @ 12.20 hrs, Volume= 0.121 af  
 Outflow = 1.13 cfs @ 12.29 hrs, Volume= 0.121 af, Atten= 13%, Lag= 5.4 min  
 Discarded = 0.14 cfs @ 12.29 hrs, Volume= 0.082 af  
 Primary = 0.99 cfs @ 12.29 hrs, Volume= 0.039 af  
 Routed to Reach DP1 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.59' @ 12.29 hrs Surf.Area= 625 sf Storage= 785 cf

Plug-Flow detention time= 21.7 min calculated for 0.121 af (100% of inflow)  
 Center-of-Mass det. time= 21.7 min ( 853.1 - 831.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	369.00'	250 cf	<b>15.81'W x 39.53'L x 4.00'H Field A</b> 2,500 cf Overall - 1,875 cf Embedded = 625 cf x 40.0% Voids
#2A	369.50'	1,818 cf	<b>ACO StormBrixx SD 1 x 80 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 80 Chambers in 8 Rows
		2,069 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.80' / 370.00' S= -0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	369.00'	<b>7.500 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=0.14 cfs @ 12.29 hrs HW=370.59' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 0.14 cfs)

**Primary OutFlow** Max=0.99 cfs @ 12.29 hrs HW=370.59' (Free Discharge)  
 ↑**1=Culvert** (Inlet Controls 0.99 cfs @ 2.06 fps)

**Pond #2P: #2 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

10 Chambers/Row x 3.95' Long = 39.53' Row Length

8 Rows x 23.7" Wide = 15.81' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

80 Chambers x 22.7 cf = 1,818.5 cf Chamber Storage

80 Chambers x 23.4 cf = 1,874.7 cf Displacement

2,499.9 cf Field - 1,874.7 cf Chambers = 625.2 cf Stone x 40.0% Voids = 250.1 cf Stone Storage

Chamber Storage + Stone Storage = 2,068.5 cf = 0.047 af

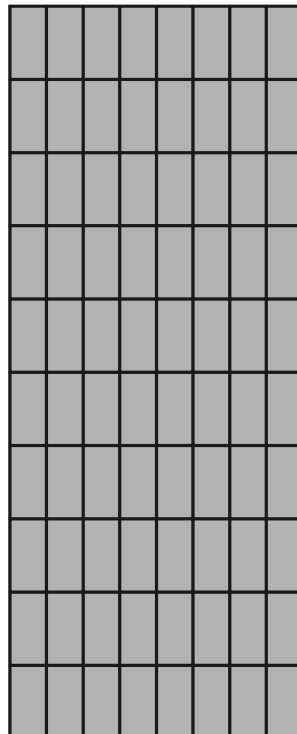
Overall Storage Efficiency = 82.7%

Overall System Size = 39.53' x 15.81' x 4.00'

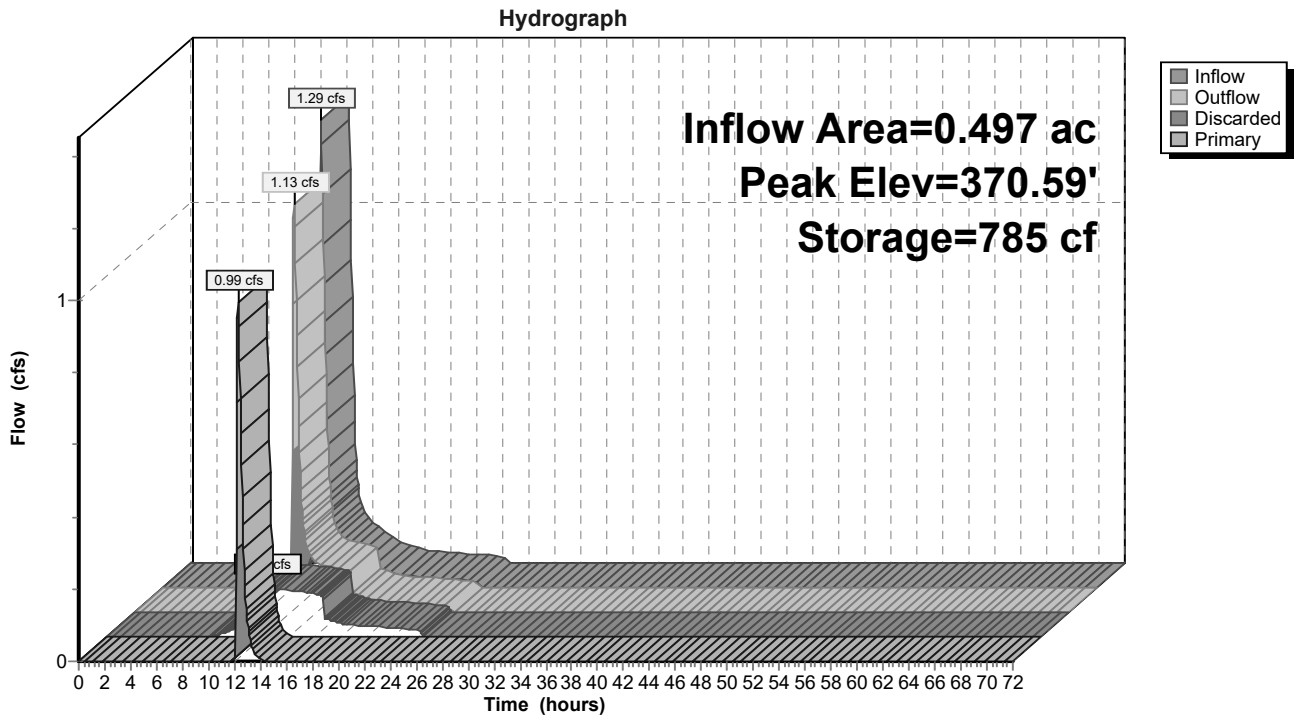
80 Chambers

92.6 cy Field

23.2 cy Stone



### Pond #2P: #2 UG Storage



**Summary for Pond 20P: Det Basin**

Inflow Area = 0.493 ac, 0.00% Impervious, Inflow Depth = 1.45" for 10 yr-24 hr event  
 Inflow = 0.63 cfs @ 12.17 hrs, Volume= 0.059 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 369.78' @ 24.70 hrs Surf.Area= 4,698 sf Storage= 2,590 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

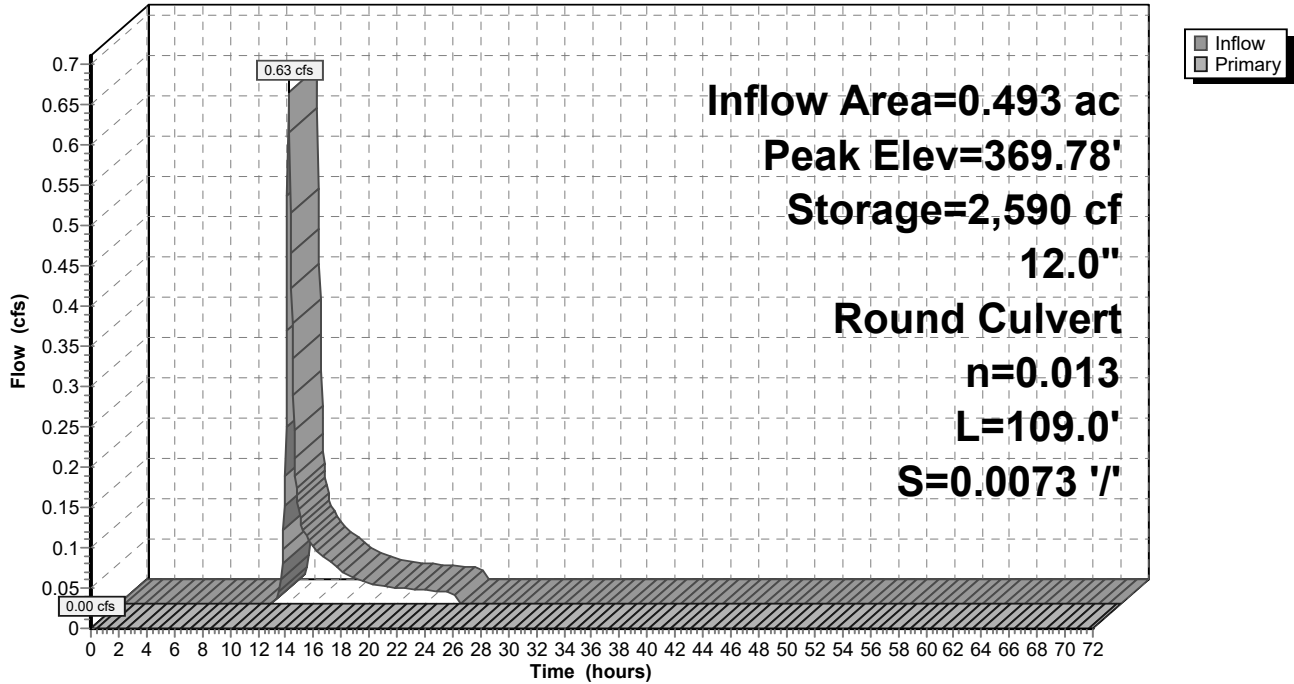
Volume	Invert	Avail.Storage	Storage Description		
#1	369.00'	3,707 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
369.00	2,092	230.0	0	0	2,092
370.00	5,605	400.0	3,707	3,707	10,621

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	<b>12.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 368.20' S= 0.0073 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=369.00' TW=372.00' (Fixed TW Elev= 372.00')  
 ↑1=Culvert ( Controls 0.00 cfs)

### Pond 20P: Det Basin

Hydrograph





**Summary for Pond OCS: OCS**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 0.00" for 10 yr-24 hr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.00' @ 0.00 hrs

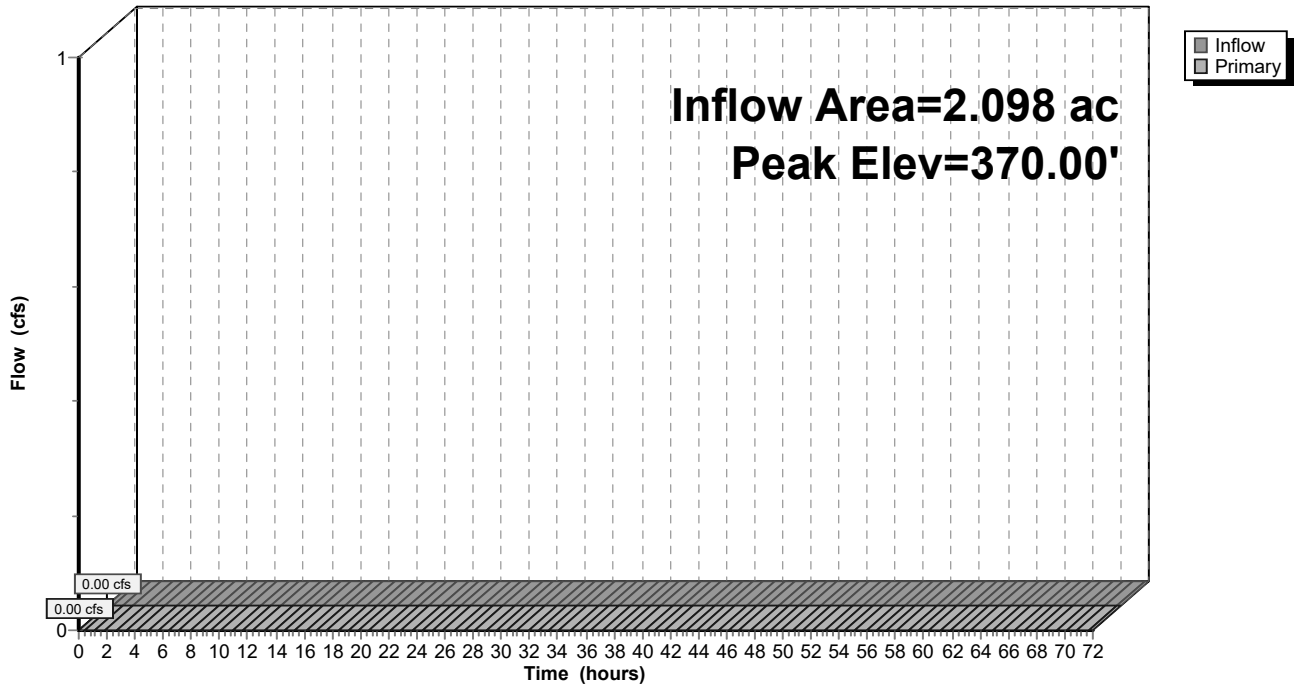
Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 370.00' / 368.00' S= 0.0435 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	372.00'	<b>24.0" W x 36.0" H Vert. Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	370.00'	<b>12.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=370.00' (Free Discharge)

- 1=Culvert ( Controls 0.00 cfs)
- 2=Grate ( Controls 0.00 cfs)
- 3=Orifice ( Controls 0.00 cfs)

**Pond OCS: OCS**

Hydrograph



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Subcatchment10:** Runoff Area=21,665 sf 49.10% Impervious Runoff Depth=6.60"  
 Flow Length=187' Slope=0.0100 '/' Tc=14.6 min CN=79 Runoff=2.88 cfs 0.273 af

**Subcatchment20A:** Runoff Area=91,379 sf 89.19% Impervious Runoff Depth=8.44"  
 Tc=6.0 min CN=94 Runoff=18.17 cfs 1.475 af

**Subcatchment20B:** Runoff Area=21,465 sf 0.00% Impervious Runoff Depth=4.35"  
 Flow Length=257' Tc=11.3 min CN=61 Runoff=2.08 cfs 0.179 af

**Subcatchment20C:** Runoff Area=19,919 sf 0.00% Impervious Runoff Depth=4.35"  
 Flow Length=235' Tc=6.3 min CN=61 Runoff=2.26 cfs 0.166 af

**Subcatchment30:** Runoff Area=5,276 sf 36.47% Impervious Runoff Depth=5.98"  
 Tc=6.0 min CN=74 Runoff=0.82 cfs 0.060 af

**Reach DP1:** Inflow=2.47 cfs 0.143 af  
 Outflow=2.47 cfs 0.143 af

**Reach DP2:** Inflow=2.26 cfs 0.261 af  
 Outflow=2.26 cfs 0.261 af

**Reach DP3:** Inflow=0.82 cfs 0.060 af  
 Outflow=0.82 cfs 0.060 af

**Pond #1P: #1 UG Storage** Peak Elev=373.60' Storage=22,208 cf Inflow=18.17 cfs 1.475 af  
 Discarded=1.85 cfs 1.475 af Primary=0.00 cfs 0.000 af Outflow=1.85 cfs 1.475 af

**Pond #2P: #2 UG Storage** Peak Elev=371.26' Storage=1,193 cf Inflow=2.88 cfs 0.273 af  
 Discarded=0.15 cfs 0.130 af Primary=2.47 cfs 0.143 af Outflow=2.62 cfs 0.273 af

**Pond 20P: Det Basin** Peak Elev=372.26' Storage=3,707 cf Inflow=2.08 cfs 0.179 af  
 12.0" Round Culvert n=0.013 L=109.0' S=0.0073 '/' Outflow=1.38 cfs 0.095 af

**Pond OCS: OCS** Peak Elev=370.00' Inflow=0.00 cfs 0.000 af  
 Outflow=0.00 cfs 0.000 af

**Total Runoff Area = 3.666 ac Runoff Volume = 2.153 af Average Runoff Depth = 7.05"**  
**41.10% Pervious = 1.507 ac 58.90% Impervious = 2.159 ac**

**Summary for Subcatchment 10:**

Runoff = 2.88 cfs @ 12.20 hrs, Volume= 0.273 af, Depth= 6.60"  
 Routed to Pond #2P : #2 UG Storage

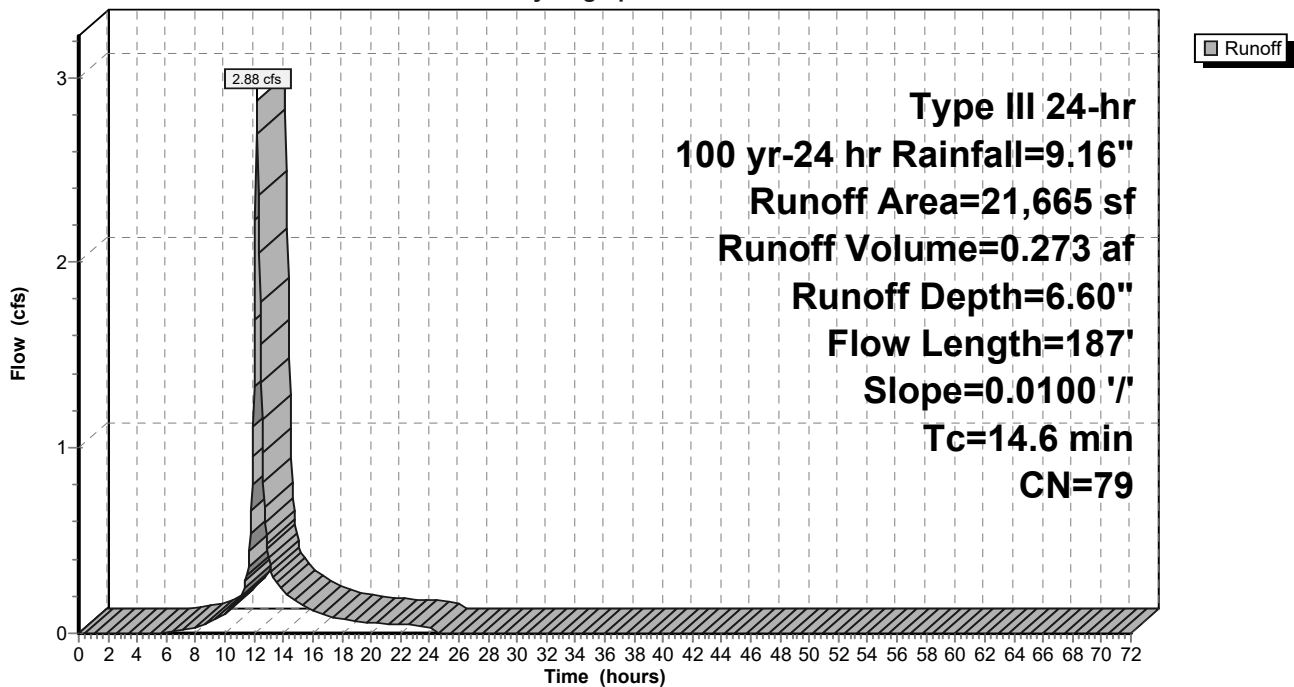
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100 yr-24 hr Rainfall=9.16"

Area (sf)	CN	Description
11,027	61	>75% Grass cover, Good, HSG B
* 10,638	98	Impervious
21,665	79	Weighted Average
11,027		50.90% Pervious Area
10,638		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		<b>Sheet Flow, a-b</b>
					Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b>
					Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

**Subcatchment 10:**

Hydrograph



**Summary for Subcatchment 20A:**

Runoff = 18.17 cfs @ 12.09 hrs, Volume= 1.475 af, Depth= 8.44"  
 Routed to Pond #1P : #1 UG Storage

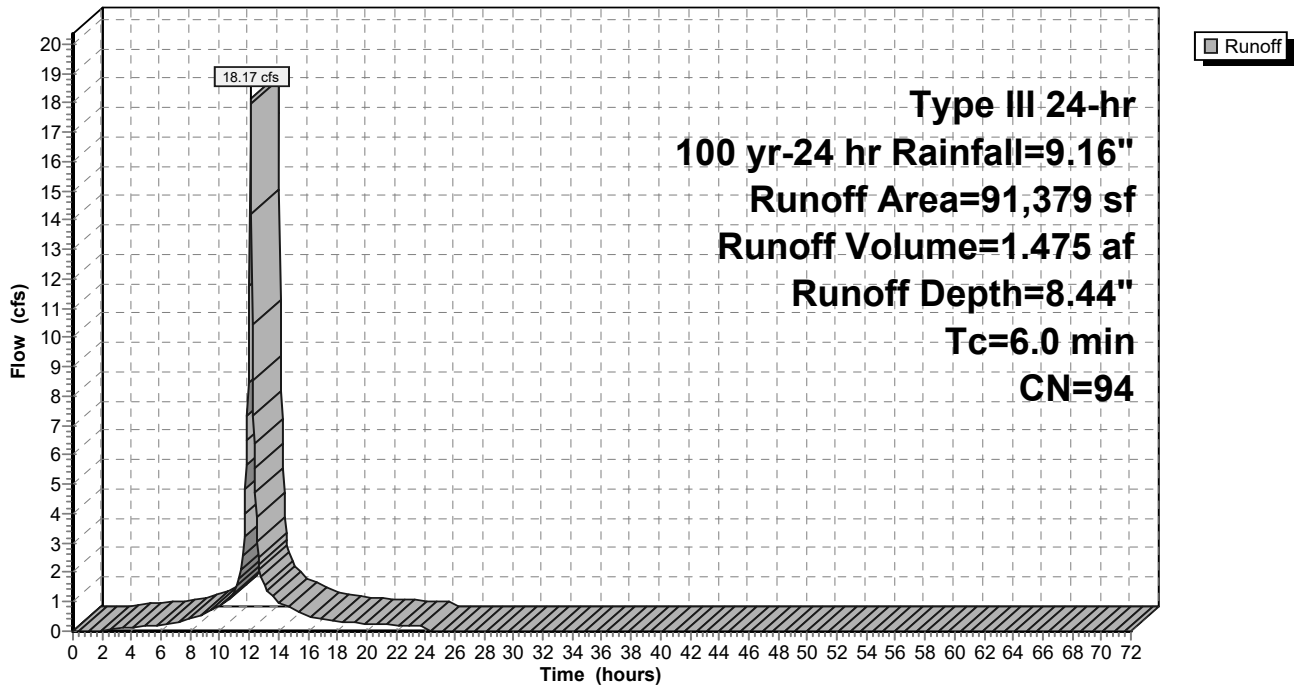
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100 yr-24 hr Rainfall=9.16"

	Area (sf)	CN	Description
*	81,498	98	Impervious
	9,881	61	>75% Grass cover, Good, HSG B
	91,379	94	Weighted Average
	9,881		10.81% Pervious Area
	81,498		89.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 20A:**

Hydrograph



**Summary for Subcatchment 20B:**

Runoff = 2.08 cfs @ 12.16 hrs, Volume= 0.179 af, Depth= 4.35"  
 Routed to Pond 20P : Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100 yr-24 hr Rainfall=9.16"

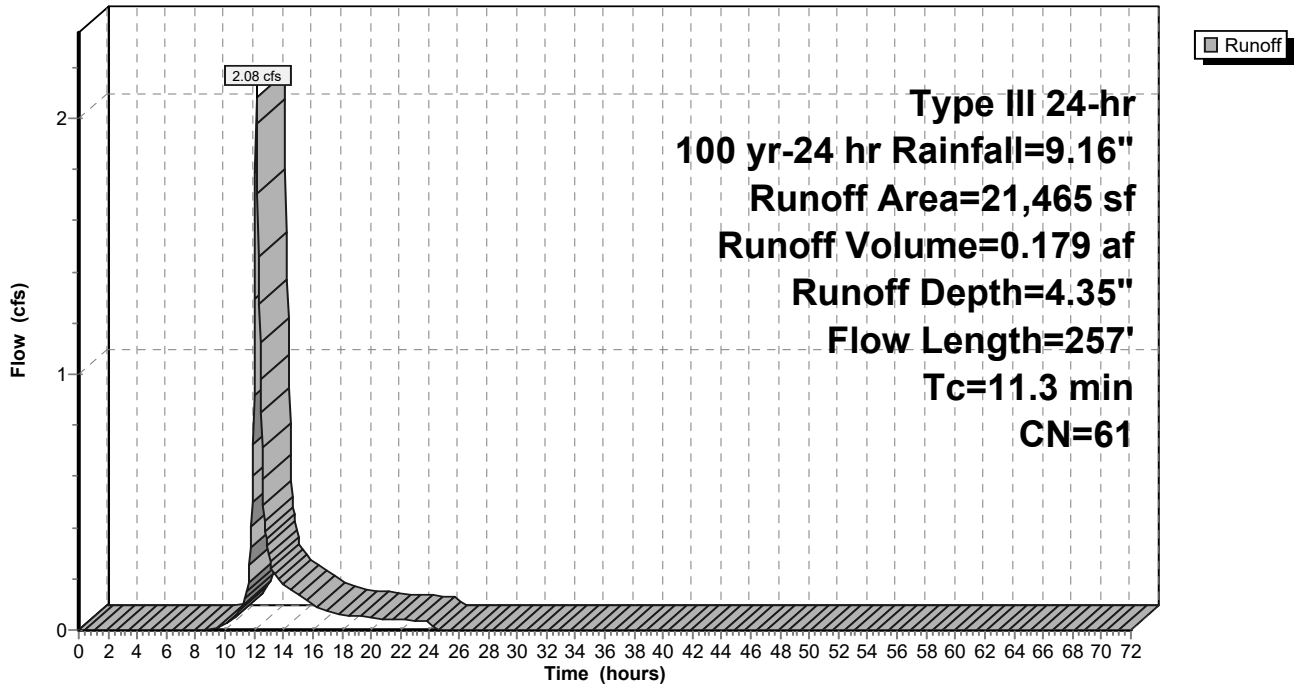
Area (sf)	CN	Description
21,465	61	>75% Grass cover, Good, HSG B
21,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0600	0.19		<b>Sheet Flow, a-b</b>
					Grass: Dense n= 0.240 P2= 3.43"
2.4	157	0.0250	1.11		<b>Shallow Concentrated Flow, b-c</b>
					Short Grass Pasture Kv= 7.0 fps
11.3	257	Total			

**Subcatchment 20B:**

Hydrograph



**Summary for Subcatchment 20C:**

Runoff = 2.26 cfs @ 12.10 hrs, Volume= 0.166 af, Depth= 4.35"  
 Routed to Reach DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100 yr-24 hr Rainfall=9.16"

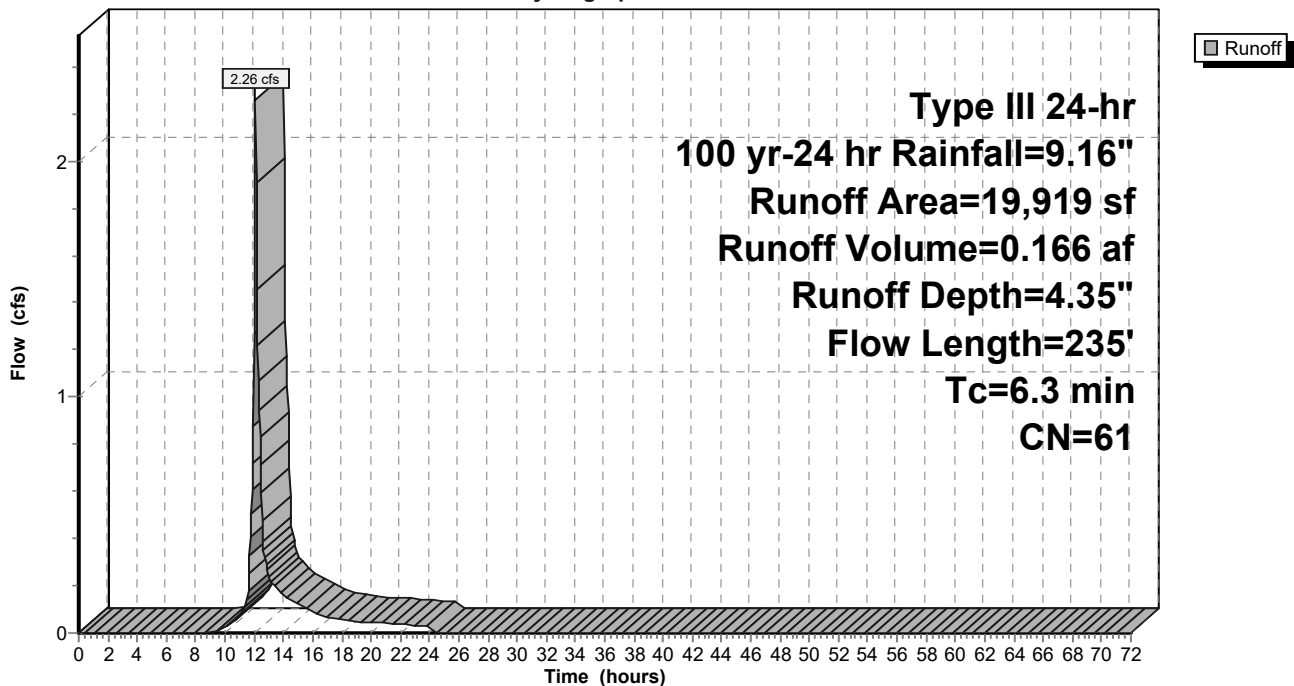
Area (sf)	CN	Description
19,919	61	>75% Grass cover, Good, HSG B
19,919		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	25	0.5000	0.33		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
5.0	210	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
6.3	235	Total			

**Subcatchment 20C:**

Hydrograph



**Summary for Subcatchment 30:**

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 5.98"  
 Routed to Reach DP3 :

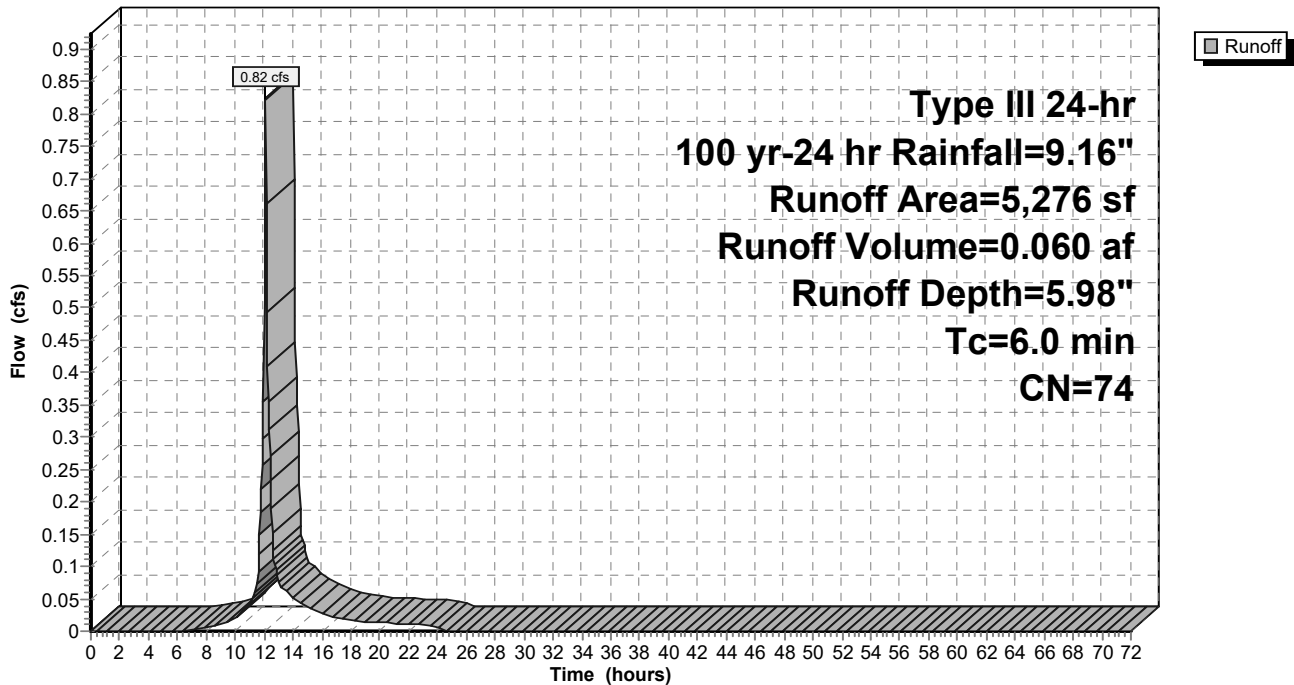
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100 yr-24 hr Rainfall=9.16"

	Area (sf)	CN	Description
*	1,924	98	Impervious
	3,352	61	>75% Grass cover, Good, HSG B
	5,276	74	Weighted Average
	3,352		63.53% Pervious Area
	1,924		36.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 30:**

Hydrograph



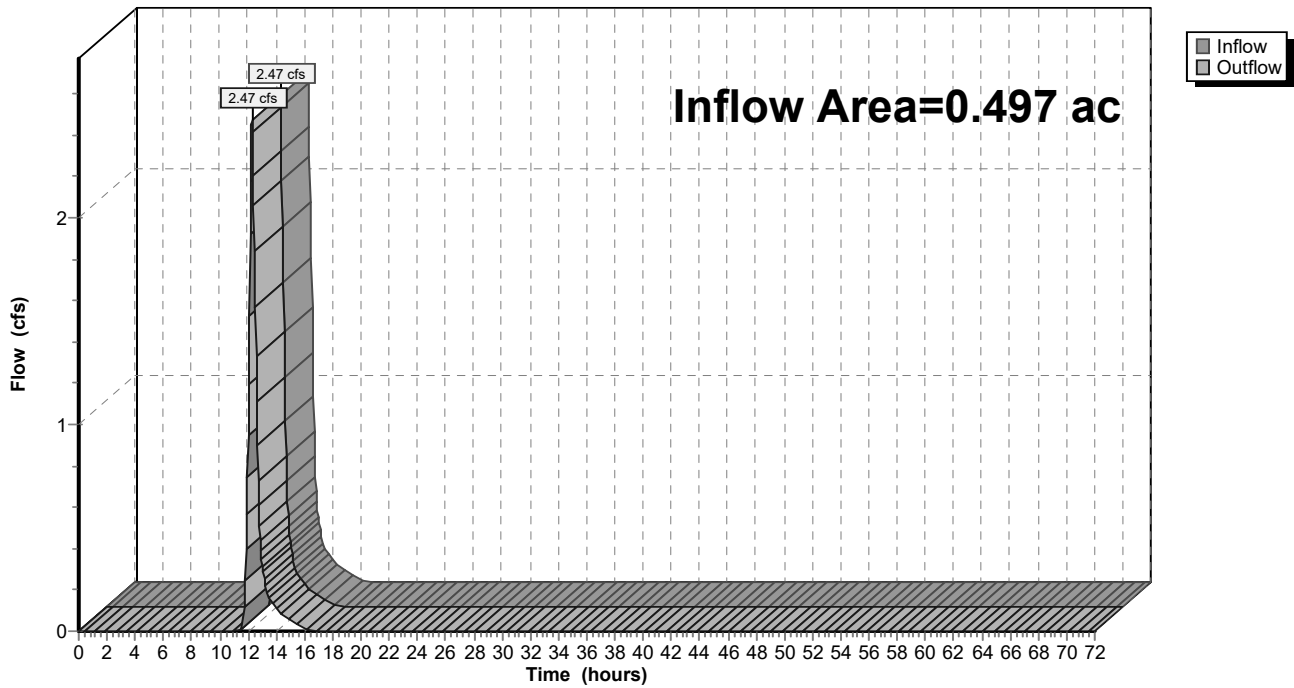
### Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 3.45" for 100 yr-24 hr event  
Inflow = 2.47 cfs @ 12.27 hrs, Volume= 0.143 af  
Outflow = 2.47 cfs @ 12.27 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP1:

Hydrograph





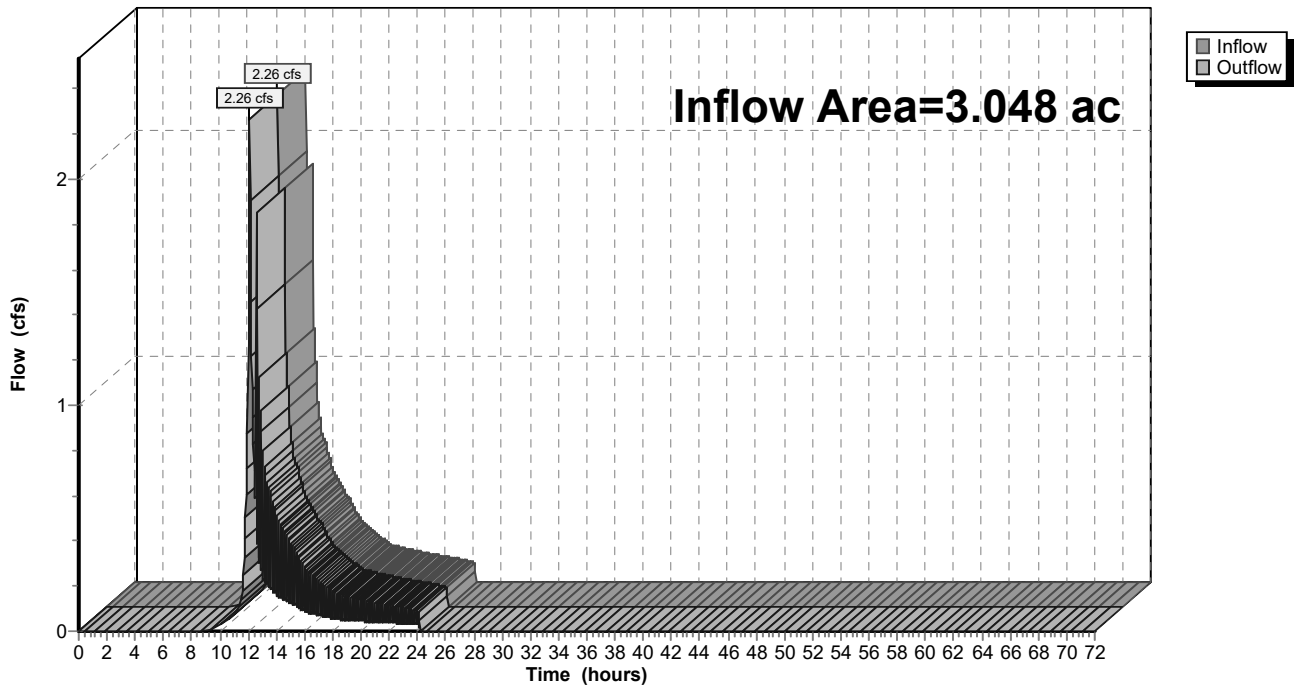
### Summary for Reach DP2:

Inflow Area = 3.048 ac, 61.39% Impervious, Inflow Depth = 1.03" for 100 yr-24 hr event  
Inflow = 2.26 cfs @ 12.10 hrs, Volume= 0.261 af  
Outflow = 2.26 cfs @ 12.10 hrs, Volume= 0.261 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP2:

Hydrograph



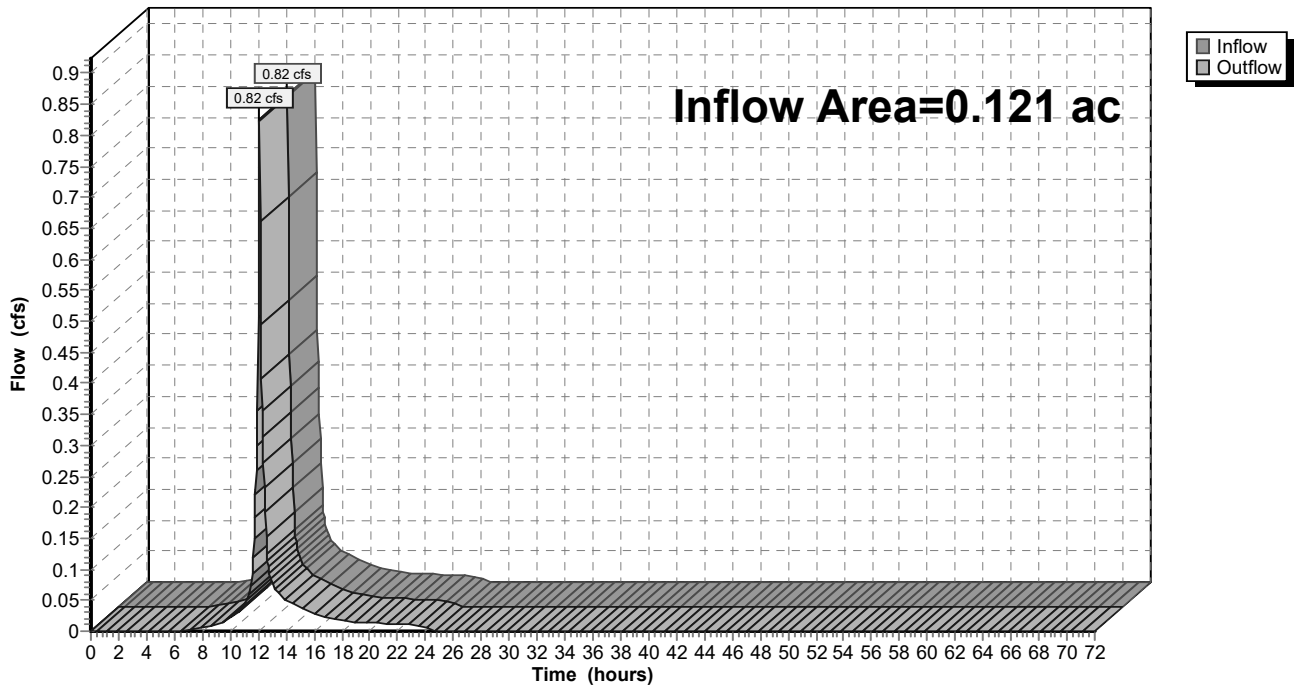
### Summary for Reach DP3:

Inflow Area = 0.121 ac, 36.47% Impervious, Inflow Depth = 5.98" for 100 yr-24 hr event  
Inflow = 0.82 cfs @ 12.09 hrs, Volume= 0.060 af  
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP3:

Hydrograph



**Summary for Pond #1P: #1 UG Storage**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 8.44" for 100 yr-24 hr event  
 Inflow = 18.17 cfs @ 12.09 hrs, Volume= 1.475 af  
 Outflow = 1.85 cfs @ 12.84 hrs, Volume= 1.475 af, Atten= 90%, Lag= 45.2 min  
 Discarded = 1.85 cfs @ 12.84 hrs, Volume= 1.475 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond OCS : OCS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 373.60' @ 12.84 hrs Surf.Area= 7,502 sf Storage= 22,208 cf

Plug-Flow detention time= 85.9 min calculated for 1.474 af (100% of inflow)  
 Center-of-Mass det. time= 85.8 min ( 844.1 - 758.3 )

Volume	Invert	Avail.Storage	Storage Description
#1A	370.25'	3,001 cf	<b>47.44'W x 158.14'L x 4.00'H Field A</b> 29,999 cf Overall - 22,497 cf Embedded = 7,502 cf x 40.0% Voids
#2A	370.75'	21,822 cf	<b>ACO StormBrixx SD 1 x 960 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 960 Chambers in 24 Rows
		24,823 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	371.00'	<b>12.0" Round Culvert</b> L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 371.00' / 370.00' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	370.25'	<b>9.000 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=1.85 cfs @ 12.84 hrs HW=373.60' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 1.85 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=370.25' TW=374.50' (Fixed TW Elev= 374.50')  
 ↑**1=Culvert** ( Controls 0.00 cfs)

**Pond #1P: #1 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

40 Chambers/Row x 3.95' Long = 158.14' Row Length

24 Rows x 23.7" Wide = 47.44' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

960 Chambers x 22.7 cf = 21,821.7 cf Chamber Storage

960 Chambers x 23.4 cf = 22,496.6 cf Displacement

29,998.7 cf Field - 22,496.6 cf Chambers = 7,502.1 cf Stone x 40.0% Voids = 3,000.9 cf Stone Storage

Chamber Storage + Stone Storage = 24,822.5 cf = 0.570 af

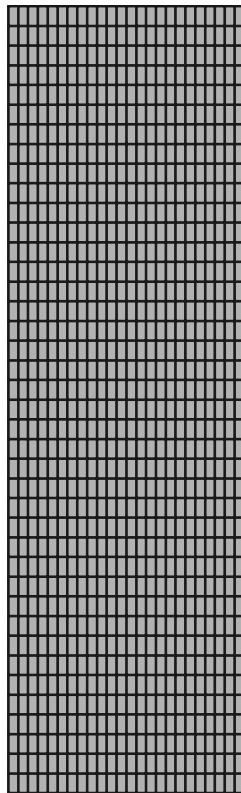
Overall Storage Efficiency = 82.7%

Overall System Size = 158.14' x 47.44' x 4.00'

960 Chambers

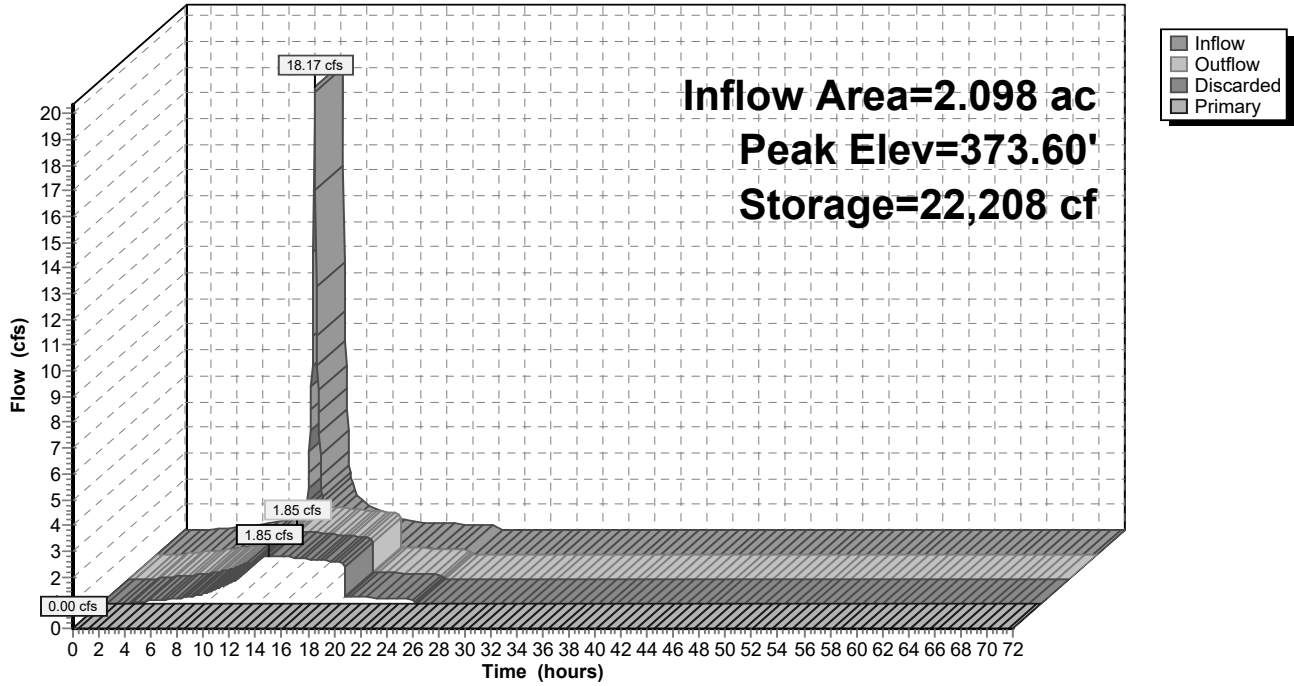
1,111.1 cy Field

277.9 cy Stone



### Pond #1P: #1 UG Storage

Hydrograph



**Summary for Pond #2P: #2 UG Storage**

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 6.60" for 100 yr-24 hr event  
 Inflow = 2.88 cfs @ 12.20 hrs, Volume= 0.273 af  
 Outflow = 2.62 cfs @ 12.27 hrs, Volume= 0.273 af, Atten= 9%, Lag= 4.2 min  
 Discarded = 0.15 cfs @ 12.27 hrs, Volume= 0.130 af  
 Primary = 2.47 cfs @ 12.27 hrs, Volume= 0.143 af  
 Routed to Reach DP1 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 371.26' @ 12.27 hrs Surf.Area= 625 sf Storage= 1,193 cf

Plug-Flow detention time= 19.1 min calculated for 0.273 af (100% of inflow)  
 Center-of-Mass det. time= 19.1 min ( 827.2 - 808.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	369.00'	250 cf	<b>15.81'W x 39.53'L x 4.00'H Field A</b> 2,500 cf Overall - 1,875 cf Embedded = 625 cf x 40.0% Voids
#2A	369.50'	1,818 cf	<b>ACO StormBrixx SD 1 x 80 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 80 Chambers in 8 Rows
		2,069 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.80' / 370.00' S= -0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	369.00'	<b>7.500 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=0.15 cfs @ 12.27 hrs HW=371.25' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 0.15 cfs)

**Primary OutFlow** Max=2.43 cfs @ 12.27 hrs HW=371.25' (Free Discharge)  
 ↑**1=Culvert** (Barrel Controls 2.43 cfs @ 3.10 fps)

**Pond #2P: #2 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

10 Chambers/Row x 3.95' Long = 39.53' Row Length

8 Rows x 23.7" Wide = 15.81' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

80 Chambers x 22.7 cf = 1,818.5 cf Chamber Storage

80 Chambers x 23.4 cf = 1,874.7 cf Displacement

2,499.9 cf Field - 1,874.7 cf Chambers = 625.2 cf Stone x 40.0% Voids = 250.1 cf Stone Storage

Chamber Storage + Stone Storage = 2,068.5 cf = 0.047 af

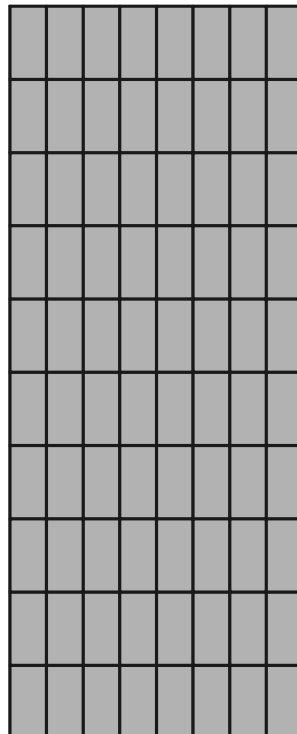
Overall Storage Efficiency = 82.7%

Overall System Size = 39.53' x 15.81' x 4.00'

80 Chambers

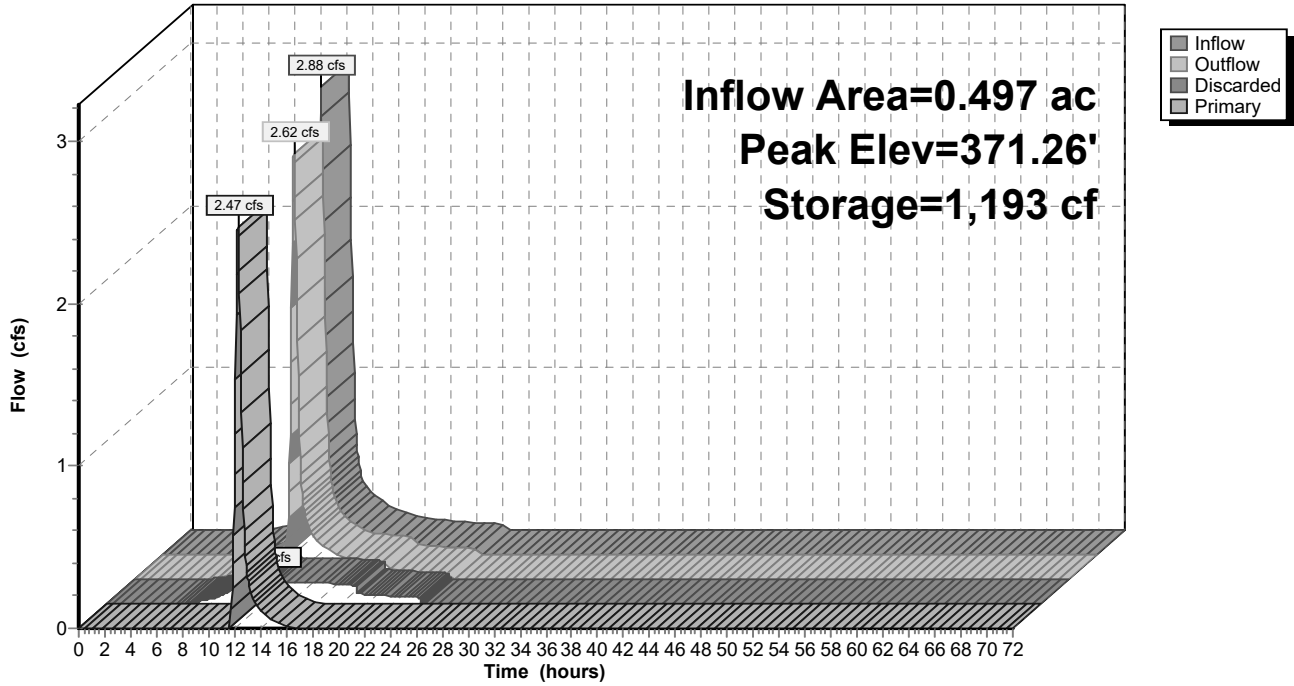
92.6 cy Field

23.2 cy Stone



### Pond #2P: #2 UG Storage

Hydrograph





**Summary for Pond 20P: Det Basin**

Inflow Area = 0.493 ac, 0.00% Impervious, Inflow Depth = 4.35" for 100 yr-24 hr event  
 Inflow = 2.08 cfs @ 12.16 hrs, Volume= 0.179 af  
 Outflow = 1.38 cfs @ 12.55 hrs, Volume= 0.095 af, Atten= 34%, Lag= 23.2 min  
 Primary = 1.38 cfs @ 12.55 hrs, Volume= 0.095 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 372.26' @ 12.55 hrs Surf.Area= 5,605 sf Storage= 3,707 cf

Plug-Flow detention time= 226.0 min calculated for 0.095 af (53% of inflow)  
 Center-of-Mass det. time= 108.8 min ( 950.8 - 842.0 )

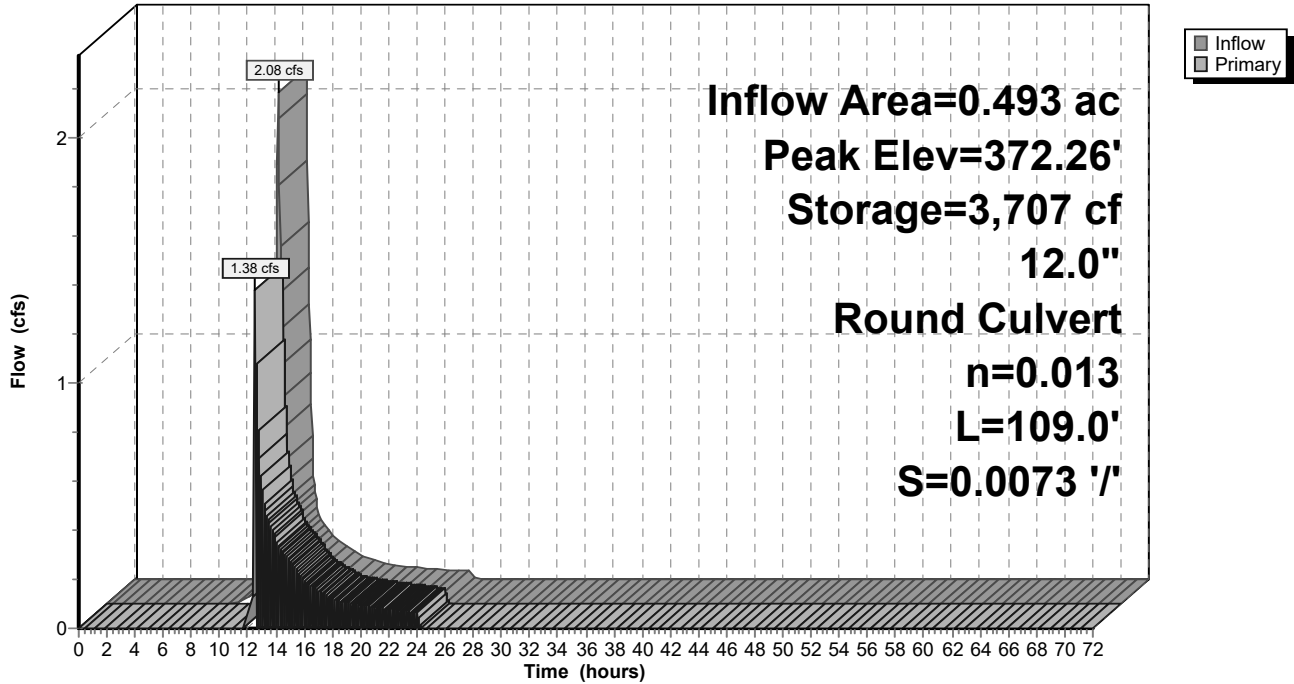
Volume	Invert	Avail.Storage	Storage Description			
#1	369.00'	3,707 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
369.00	2,092	230.0	0	0	2,092	
370.00	5,605	400.0	3,707	3,707	10,621	

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	<b>12.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 368.20' S= 0.0073 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.38 cfs @ 12.55 hrs HW=372.26' TW=372.00' (Fixed TW Elev= 372.00')  
 ↑**1=Culvert** (Outlet Controls 1.38 cfs @ 1.76 fps)

### Pond 20P: Det Basin

Hydrograph



**Summary for Pond OCS: OCS**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 0.00" for 100 yr-24 hr event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.00' @ 0.00 hrs

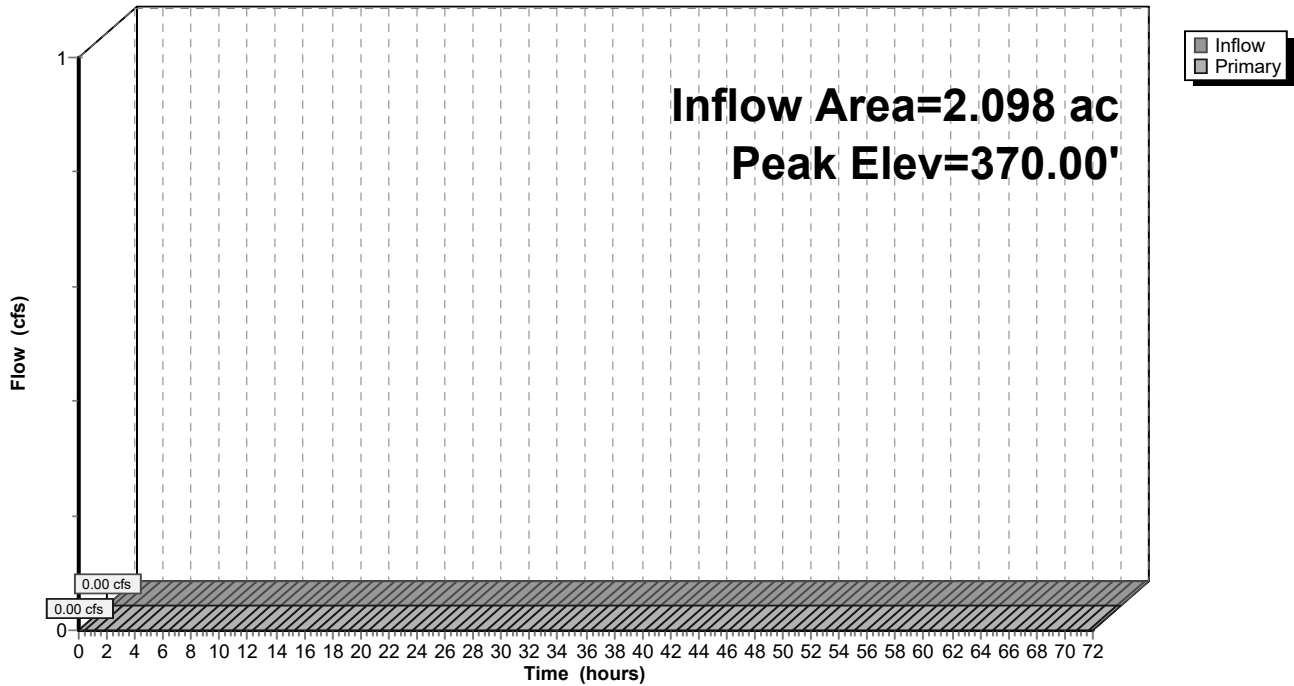
Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 370.00' / 368.00' S= 0.0435 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	372.00'	<b>24.0" W x 36.0" H Vert. Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	370.00'	<b>12.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=370.00' (Free Discharge)

- 1=Culvert ( Controls 0.00 cfs)
- 2=Grate ( Controls 0.00 cfs)
- 3=Orifice ( Controls 0.00 cfs)

**Pond OCS: OCS**

Hydrograph



**2023-11-13 Post Development Watershed A Type III 24-hr Water quality storm Rainfall=1.50"**

Prepared by Langan Engineering

Printed 11/13/2023

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Subcatchment10:** Runoff Area=21,665 sf 49.10% Impervious Runoff Depth=0.26"  
Flow Length=187' Slope=0.0100 '/' Tc=14.6 min CN=79 Runoff=0.08 cfs 0.011 af

**Subcatchment20A:** Runoff Area=91,379 sf 89.19% Impervious Runoff Depth=0.94"  
Tc=6.0 min CN=94 Runoff=2.25 cfs 0.164 af

**Subcatchment20B:** Runoff Area=21,465 sf 0.00% Impervious Runoff Depth=0.01"  
Flow Length=257' Tc=11.3 min CN=61 Runoff=0.00 cfs 0.000 af

**Subcatchment20C:** Runoff Area=19,919 sf 0.00% Impervious Runoff Depth=0.01"  
Flow Length=235' Tc=6.3 min CN=61 Runoff=0.00 cfs 0.000 af

**Subcatchment30:** Runoff Area=5,276 sf 36.47% Impervious Runoff Depth=0.15"  
Tc=6.0 min CN=74 Runoff=0.01 cfs 0.001 af

**Reach DP1:** Inflow=0.00 cfs 0.000 af  
Outflow=0.00 cfs 0.000 af

**Reach DP2:** Inflow=0.00 cfs 0.000 af  
Outflow=0.00 cfs 0.000 af

**Reach DP3:** Inflow=0.01 cfs 0.001 af  
Outflow=0.01 cfs 0.001 af

**Pond #1P: #1 UG Storage** Peak Elev=370.37' Storage=346 cf Inflow=2.25 cfs 0.164 af  
Discarded=1.57 cfs 0.164 af Primary=0.00 cfs 0.000 af Outflow=1.57 cfs 0.164 af

**Pond #2P: #2 UG Storage** Peak Elev=369.03' Storage=8 cf Inflow=0.08 cfs 0.011 af  
Discarded=0.08 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.011 af

**Pond 20P: Det Basin** Peak Elev=369.01' Storage=13 cf Inflow=0.00 cfs 0.000 af  
12.0" Round Culvert n=0.013 L=109.0' S=0.0073 '/' Outflow=0.00 cfs 0.000 af

**Pond OCS: OCS** Peak Elev=370.00' Inflow=0.00 cfs 0.000 af  
Outflow=0.00 cfs 0.000 af

**Total Runoff Area = 3.666 ac Runoff Volume = 0.177 af Average Runoff Depth = 0.58"**  
**41.10% Pervious = 1.507 ac 58.90% Impervious = 2.159 ac**

**Summary for Subcatchment 10:**

Runoff = 0.08 cfs @ 12.26 hrs, Volume= 0.011 af, Depth= 0.26"  
 Routed to Pond #2P : #2 UG Storage

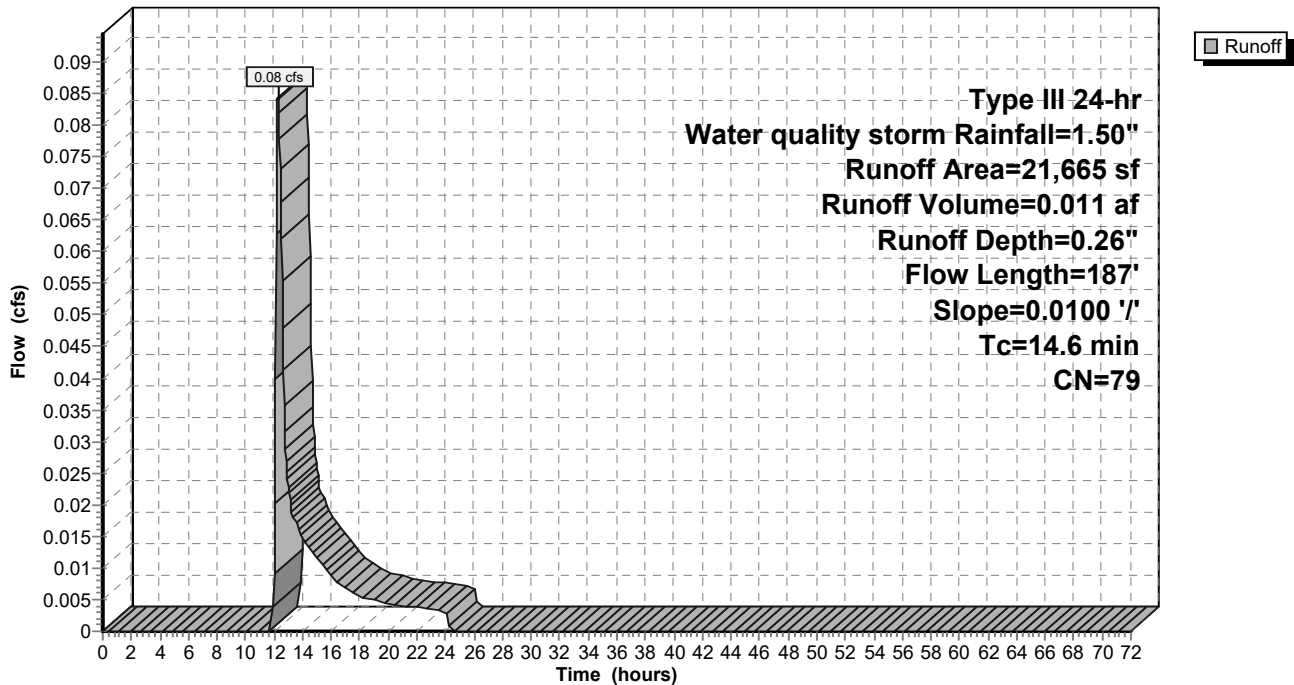
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Water quality storm Rainfall=1.50"

Area (sf)	CN	Description
11,027	61	>75% Grass cover, Good, HSG B
* 10,638	98	Impervious
21,665	79	Weighted Average
11,027		50.90% Pervious Area
10,638		49.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0100	0.13		<b>Sheet Flow, a-b</b>
					Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b>
					Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

**Subcatchment 10:**

Hydrograph



**Summary for Subcatchment 20A:**

Runoff = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af, Depth= 0.94"  
 Routed to Pond #1P : #1 UG Storage

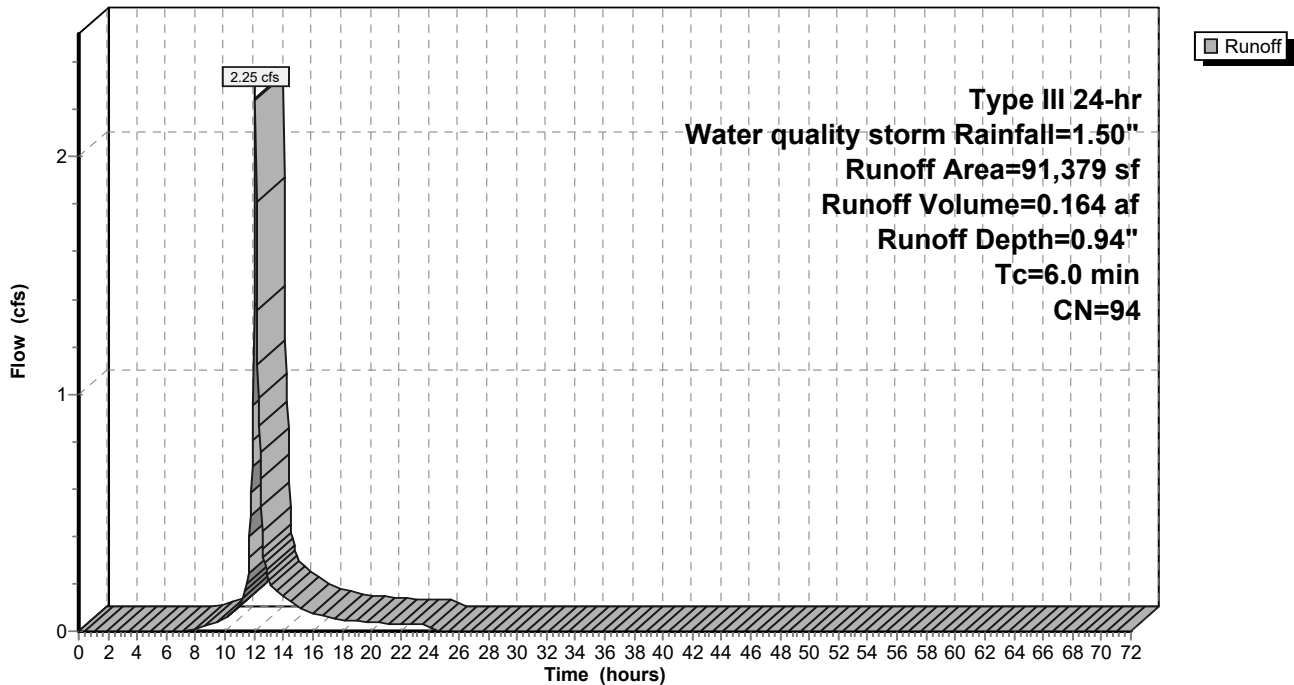
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Water quality storm Rainfall=1.50"

	Area (sf)	CN	Description
*	81,498	98	Impervious
	9,881	61	>75% Grass cover, Good, HSG B
	91,379	94	Weighted Average
	9,881		10.81% Pervious Area
	81,498		89.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 20A:**

Hydrograph



**Summary for Subcatchment 20B:**

Runoff = 0.00 cfs @ 21.27 hrs, Volume= 0.000 af, Depth= 0.01"  
 Routed to Pond 20P : Det Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Water quality storm Rainfall=1.50"

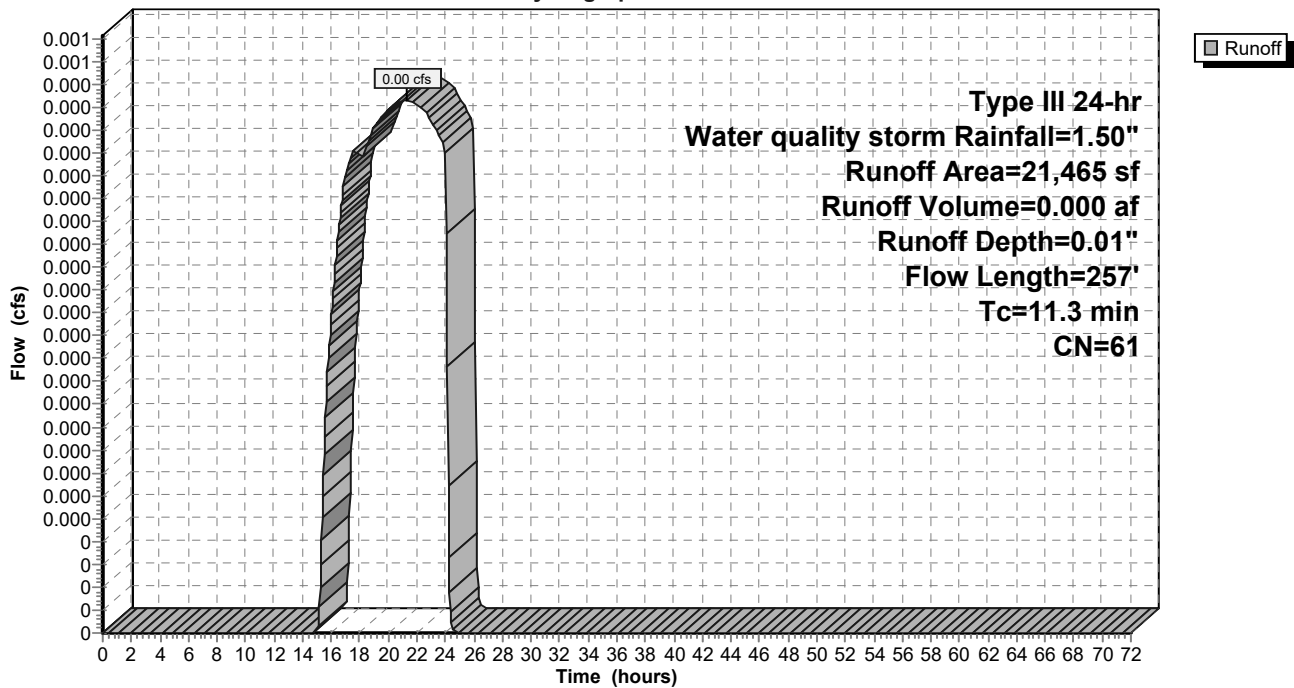
Area (sf)	CN	Description
21,465	61	>75% Grass cover, Good, HSG B
21,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0600	0.19		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
2.4	157	0.0250	1.11		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
11.3	257	Total			

**Subcatchment 20B:**

Hydrograph



**Summary for Subcatchment 20C:**

Runoff = 0.00 cfs @ 21.23 hrs, Volume= 0.000 af, Depth= 0.01"  
 Routed to Reach DP2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Water quality storm Rainfall=1.50"

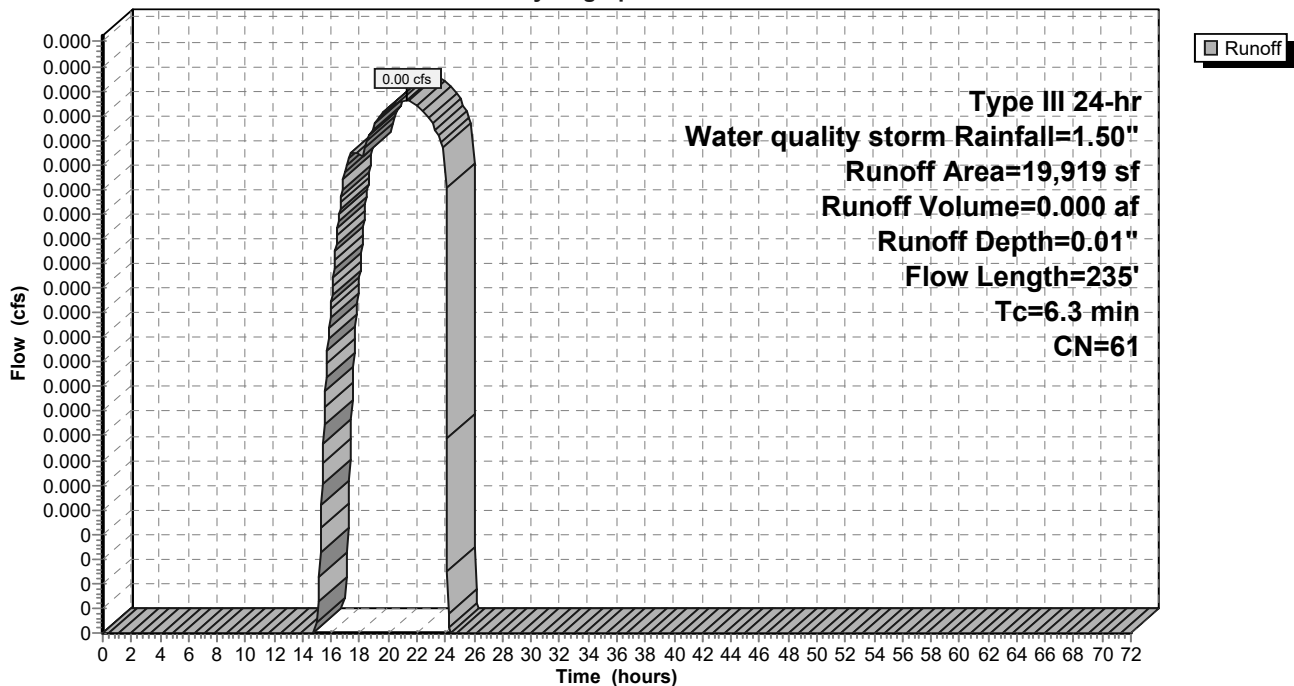
Area (sf)	CN	Description
19,919	61	>75% Grass cover, Good, HSG B
19,919		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	25	0.5000	0.33		<b>Sheet Flow, a-b</b> Grass: Dense n= 0.240 P2= 3.43"
5.0	210	0.0100	0.70		<b>Shallow Concentrated Flow, b-c</b> Short Grass Pasture Kv= 7.0 fps
6.3	235	Total			

**Subcatchment 20C:**

Hydrograph





**Summary for Subcatchment 30:**

Runoff = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af, Depth= 0.15"  
 Routed to Reach DP3 :

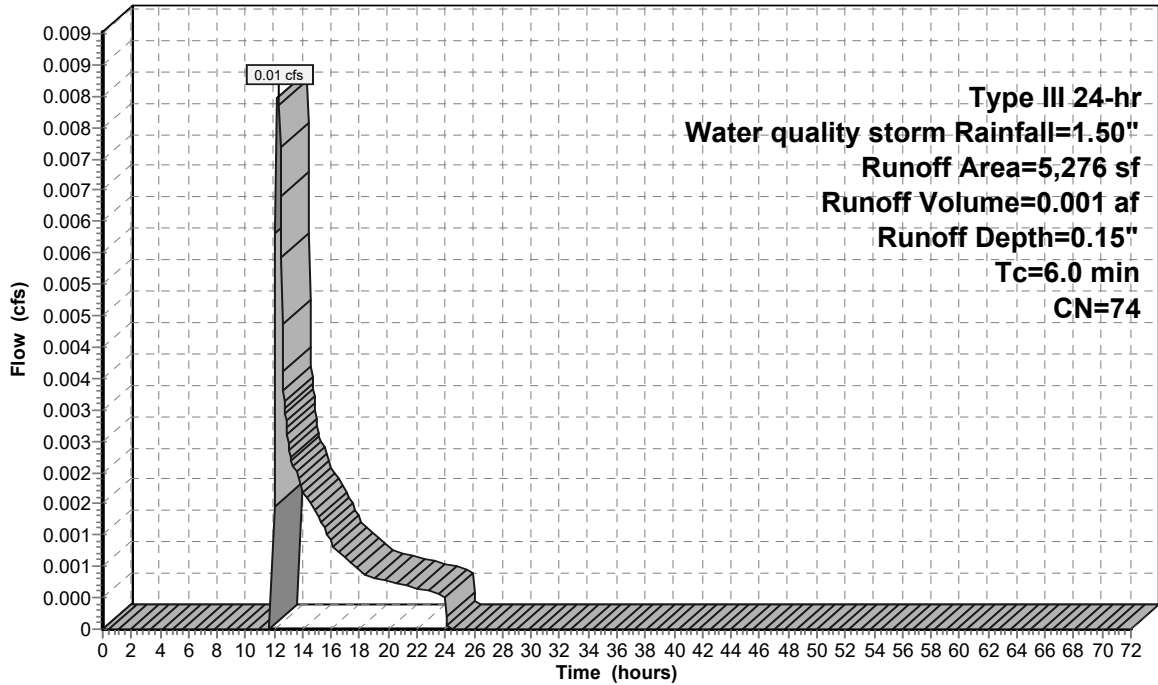
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Type III 24-hr Water quality storm Rainfall=1.50"

	Area (sf)	CN	Description
*	1,924	98	Impervious
	3,352	61	>75% Grass cover, Good, HSG B
	5,276	74	Weighted Average
	3,352		63.53% Pervious Area
	1,924		36.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment 30:**

Hydrograph



Runoff

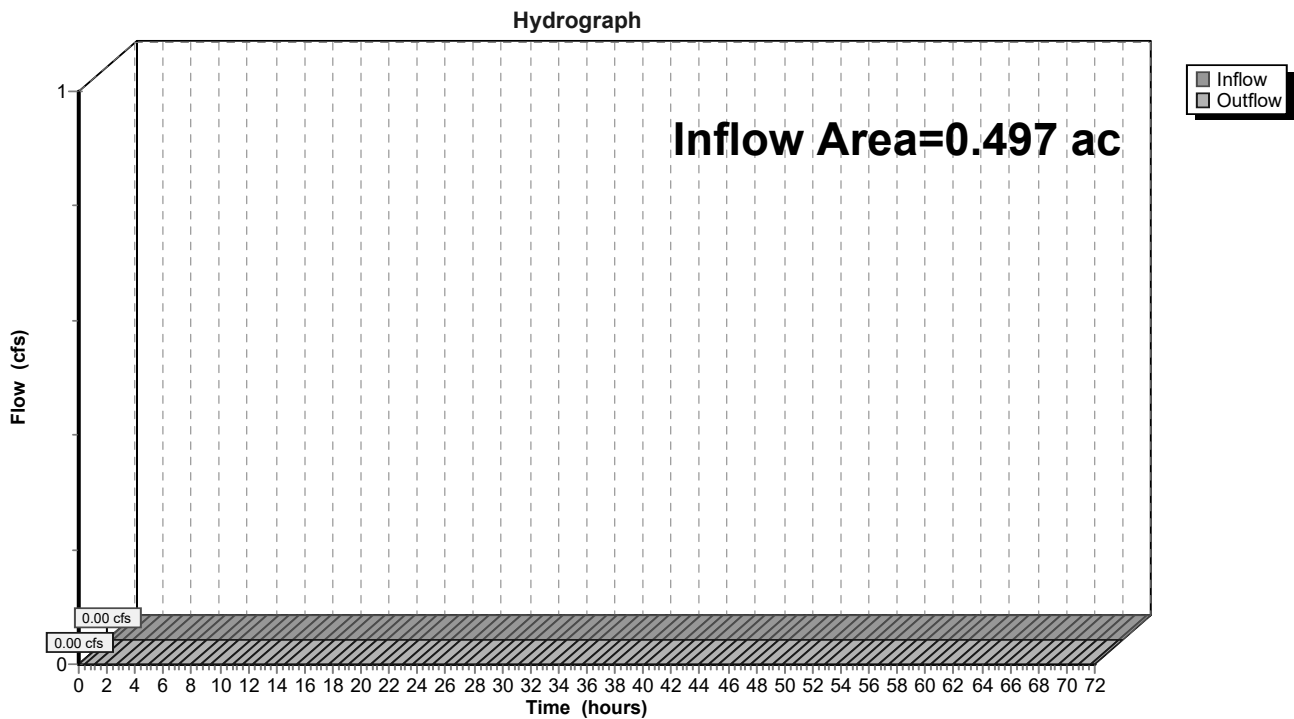
Type III 24-hr  
 Water quality storm Rainfall=1.50"  
 Runoff Area=5,276 sf  
 Runoff Volume=0.001 af  
 Runoff Depth=0.15"  
 Tc=6.0 min  
 CN=74

### Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 0.00" for Water quality storm event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP1:



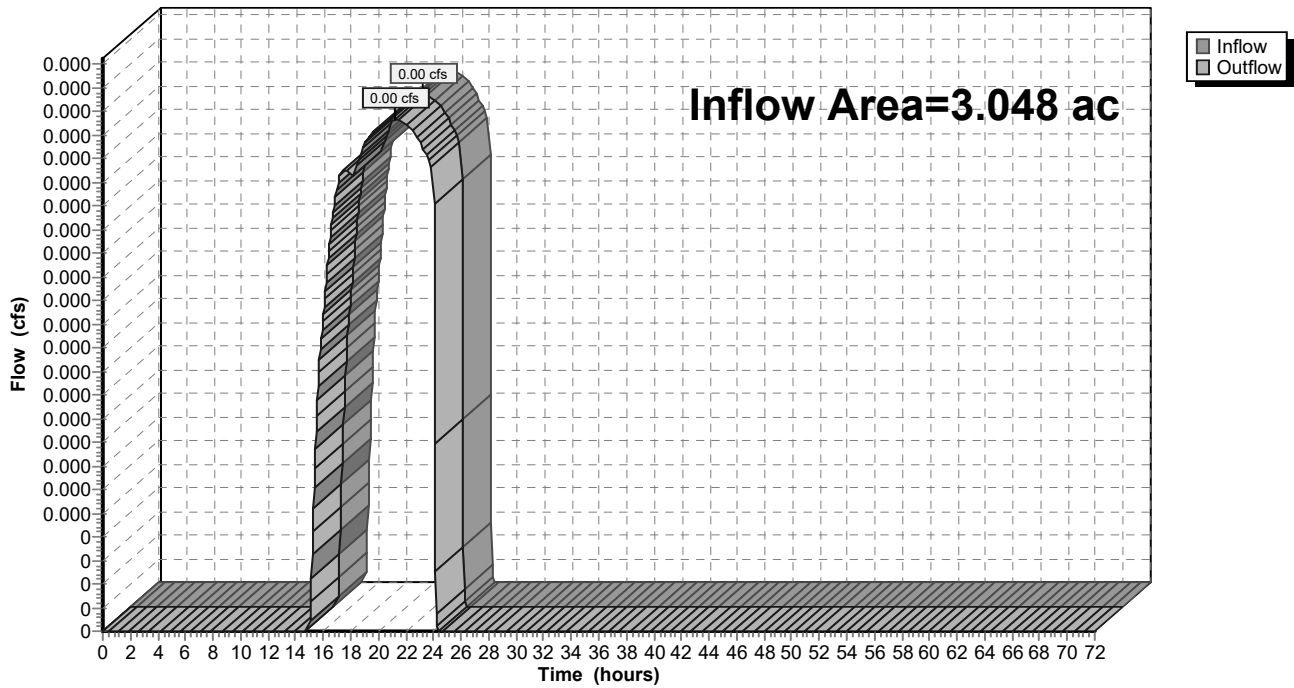
### Summary for Reach DP2:

Inflow Area = 3.048 ac, 61.39% Impervious, Inflow Depth = 0.00" for Water quality storm event  
Inflow = 0.00 cfs @ 21.23 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 21.23 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP2:

Hydrograph



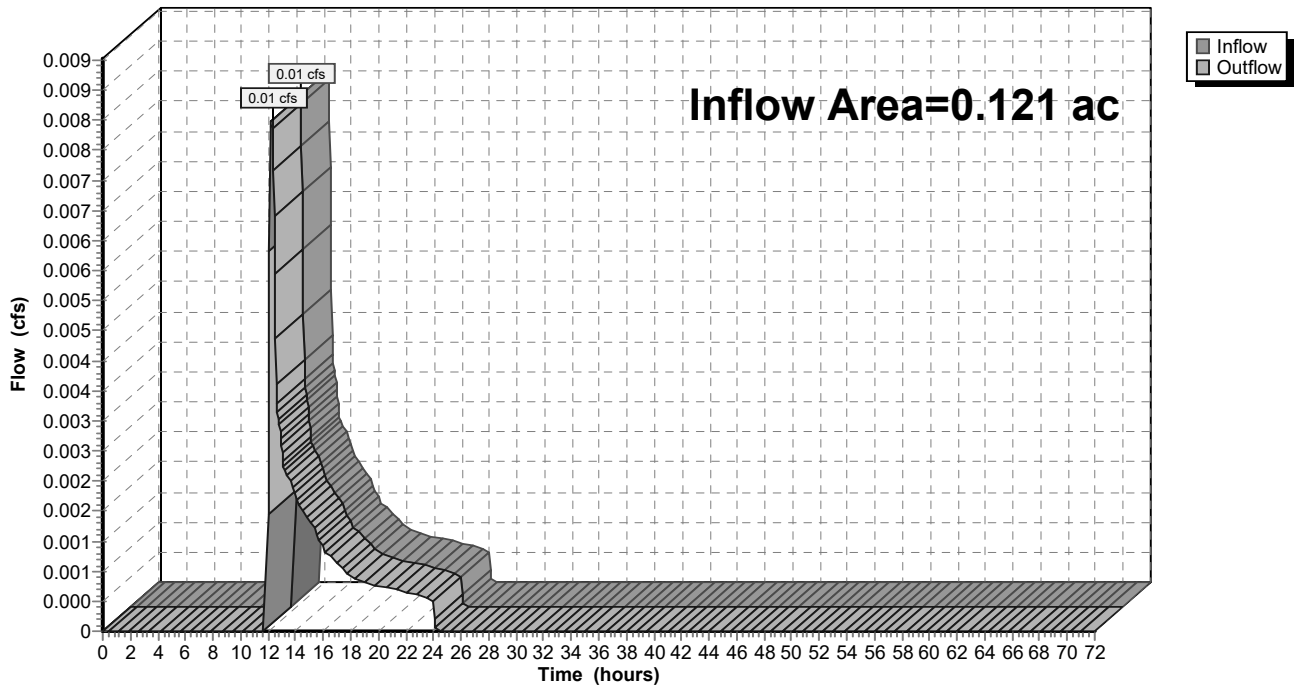
### Summary for Reach DP3:

Inflow Area = 0.121 ac, 36.47% Impervious, Inflow Depth = 0.15" for Water quality storm event  
Inflow = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af  
Outflow = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Reach DP3:

Hydrograph



**Summary for Pond #1P: #1 UG Storage**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 0.94" for Water quality storm event  
 Inflow = 2.25 cfs @ 12.09 hrs, Volume= 0.164 af  
 Outflow = 1.57 cfs @ 12.18 hrs, Volume= 0.164 af, Atten= 30%, Lag= 5.1 min  
 Discarded = 1.57 cfs @ 12.18 hrs, Volume= 0.164 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond OCS : OCS

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.37' @ 12.18 hrs Surf.Area= 7,502 sf Storage= 346 cf

Plug-Flow detention time= 1.7 min calculated for 0.164 af (100% of inflow)  
 Center-of-Mass det. time= 1.7 min ( 816.7 - 815.0 )

Volume	Invert	Avail.Storage	Storage Description
#1A	370.25'	3,001 cf	<b>47.44'W x 158.14'L x 4.00'H Field A</b> 29,999 cf Overall - 22,497 cf Embedded = 7,502 cf x 40.0% Voids
#2A	370.75'	21,822 cf	<b>ACO StormBrixx SD 1 x 960 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 960 Chambers in 24 Rows
		24,823 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	371.00'	<b>12.0" Round Culvert</b> L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 371.00' / 370.00' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	370.25'	<b>9.000 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=1.57 cfs @ 12.18 hrs HW=370.36' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 1.57 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=370.25' TW=374.50' (Fixed TW Elev= 374.50')  
 ↑**1=Culvert** ( Controls 0.00 cfs)

**Pond #1P: #1 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

40 Chambers/Row x 3.95' Long = 158.14' Row Length

24 Rows x 23.7" Wide = 47.44' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

960 Chambers x 22.7 cf = 21,821.7 cf Chamber Storage

960 Chambers x 23.4 cf = 22,496.6 cf Displacement

29,998.7 cf Field - 22,496.6 cf Chambers = 7,502.1 cf Stone x 40.0% Voids = 3,000.9 cf Stone Storage

Chamber Storage + Stone Storage = 24,822.5 cf = 0.570 af

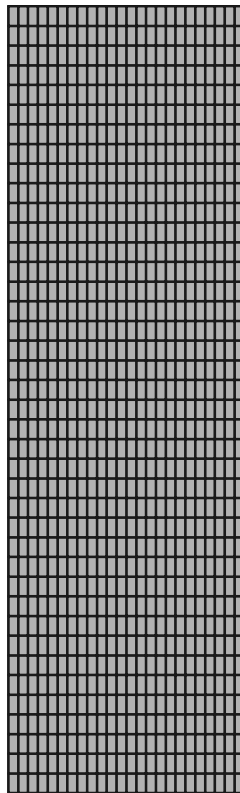
Overall Storage Efficiency = 82.7%

Overall System Size = 158.14' x 47.44' x 4.00'

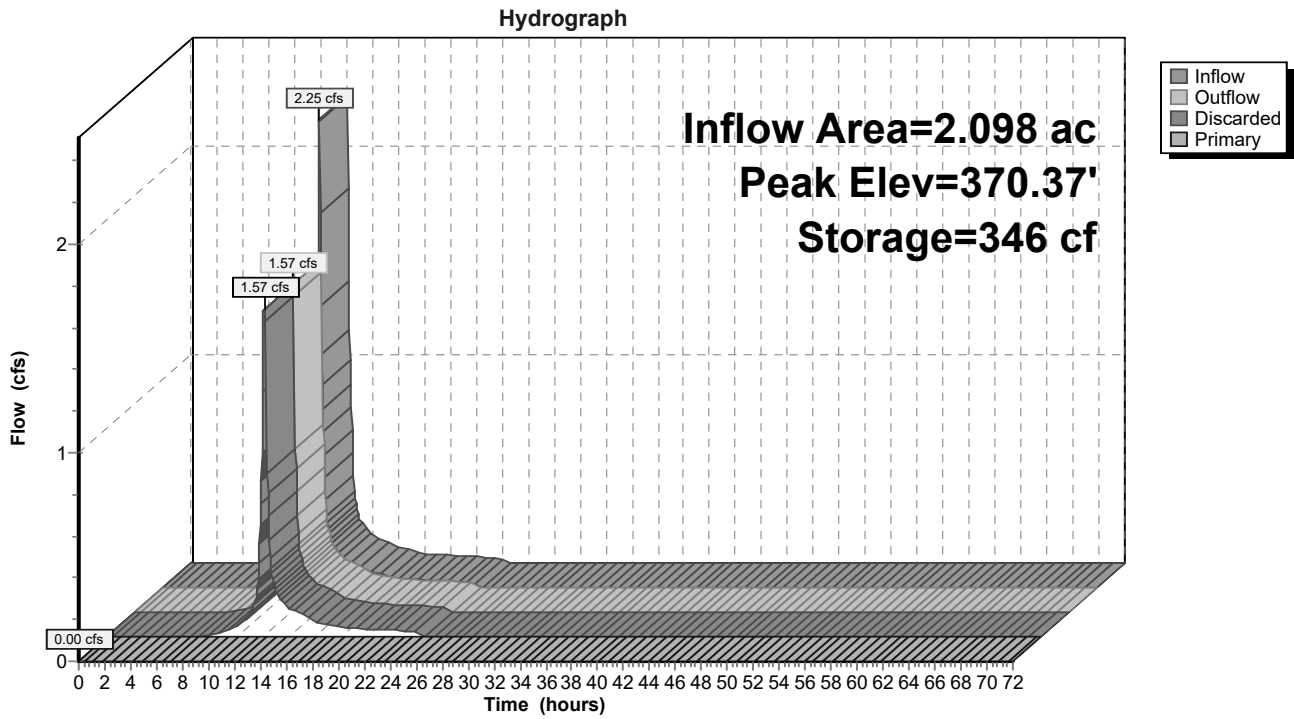
960 Chambers

1,111.1 cy Field

277.9 cy Stone



### Pond #1P: #1 UG Storage



**Summary for Pond #2P: #2 UG Storage**

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 0.26" for Water quality storm event  
 Inflow = 0.08 cfs @ 12.26 hrs, Volume= 0.011 af  
 Outflow = 0.08 cfs @ 12.29 hrs, Volume= 0.011 af, Atten= 1%, Lag= 1.9 min  
 Discarded = 0.08 cfs @ 12.29 hrs, Volume= 0.011 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP1 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 369.03' @ 12.29 hrs Surf.Area= 625 sf Storage= 8 cf

Plug-Flow detention time= 1.5 min calculated for 0.011 af (100% of inflow)  
 Center-of-Mass det. time= 1.5 min ( 910.2 - 908.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	369.00'	250 cf	<b>15.81'W x 39.53'L x 4.00'H Field A</b> 2,500 cf Overall - 1,875 cf Embedded = 625 cf x 40.0% Voids
#2A	369.50'	1,818 cf	<b>ACO StormBrixx SD 1 x 80 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 80 Chambers in 8 Rows
		2,069 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.80' / 370.00' S= -0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	369.00'	<b>7.500 in/hr Infiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=0.11 cfs @ 12.29 hrs HW=369.03' (Free Discharge)  
 ↑**2=Infiltration** (Exfiltration Controls 0.11 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=369.00' (Free Discharge)  
 ↑**1=Culvert** ( Controls 0.00 cfs)



**Pond #2P: #2 UG Storage - Chamber Wizard Field A**

**Chamber Model = ACO StormBrixxSD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf

Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

10 Chambers/Row x 3.95' Long = 39.53' Row Length

8 Rows x 23.7" Wide = 15.81' Base Width

6.0" Stone Base + 36.0" Chamber Height + 6.0" Stone Cover = 4.00' Field Height

80 Chambers x 22.7 cf = 1,818.5 cf Chamber Storage

80 Chambers x 23.4 cf = 1,874.7 cf Displacement

2,499.9 cf Field - 1,874.7 cf Chambers = 625.2 cf Stone x 40.0% Voids = 250.1 cf Stone Storage

Chamber Storage + Stone Storage = 2,068.5 cf = 0.047 af

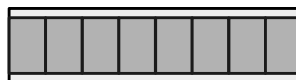
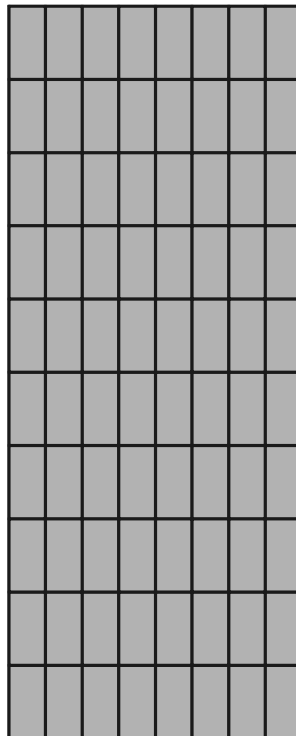
Overall Storage Efficiency = 82.7%

Overall System Size = 39.53' x 15.81' x 4.00'

80 Chambers

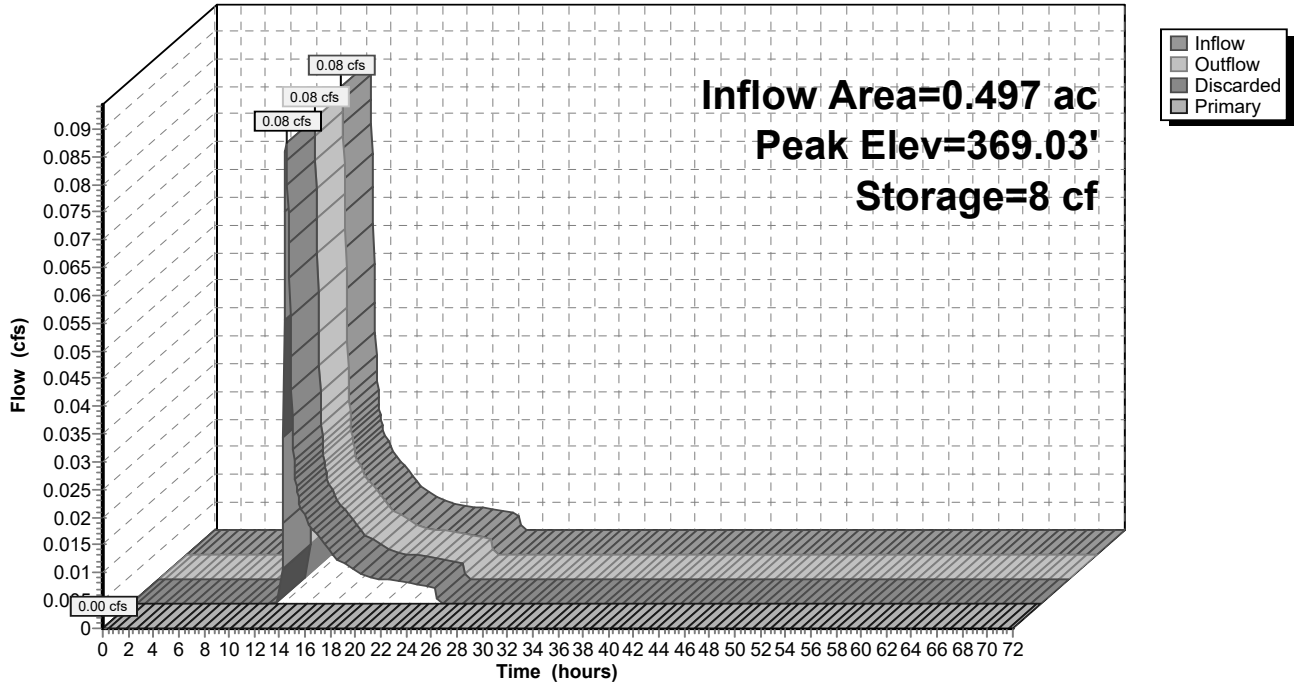
92.6 cy Field

23.2 cy Stone



### Pond #2P: #2 UG Storage

Hydrograph



**Summary for Pond 20P: Det Basin**

Inflow Area = 0.493 ac, 0.00% Impervious, Inflow Depth = 0.01" for Water quality storm event  
 Inflow = 0.00 cfs @ 21.27 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 369.01' @ 24.70 hrs Surf.Area= 2,109 sf Storage= 13 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

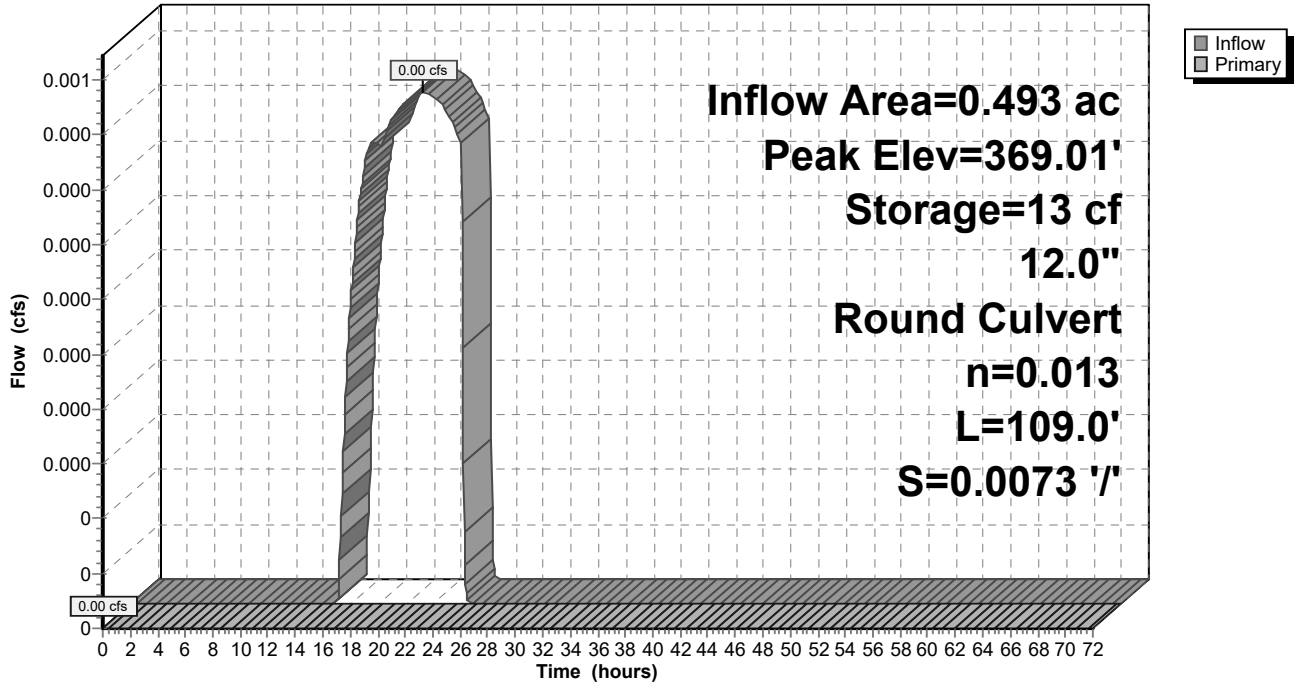
Volume	Invert	Avail.Storage	Storage Description			
#1	369.00'	3,707 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
369.00	2,092	230.0	0	0	2,092	
370.00	5,605	400.0	3,707	3,707	10,621	

Device	Routing	Invert	Outlet Devices
#1	Primary	369.00'	<b>12.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 368.20' S= 0.0073 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=369.00' TW=372.00' (Fixed TW Elev= 372.00')  
 ↑1=Culvert ( Controls 0.00 cfs)

### Pond 20P: Det Basin

Hydrograph



**Summary for Pond OCS: OCS**

Inflow Area = 2.098 ac, 89.19% Impervious, Inflow Depth = 0.00" for Water quality storm event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Reach DP2 :

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 370.00' @ 0.00 hrs

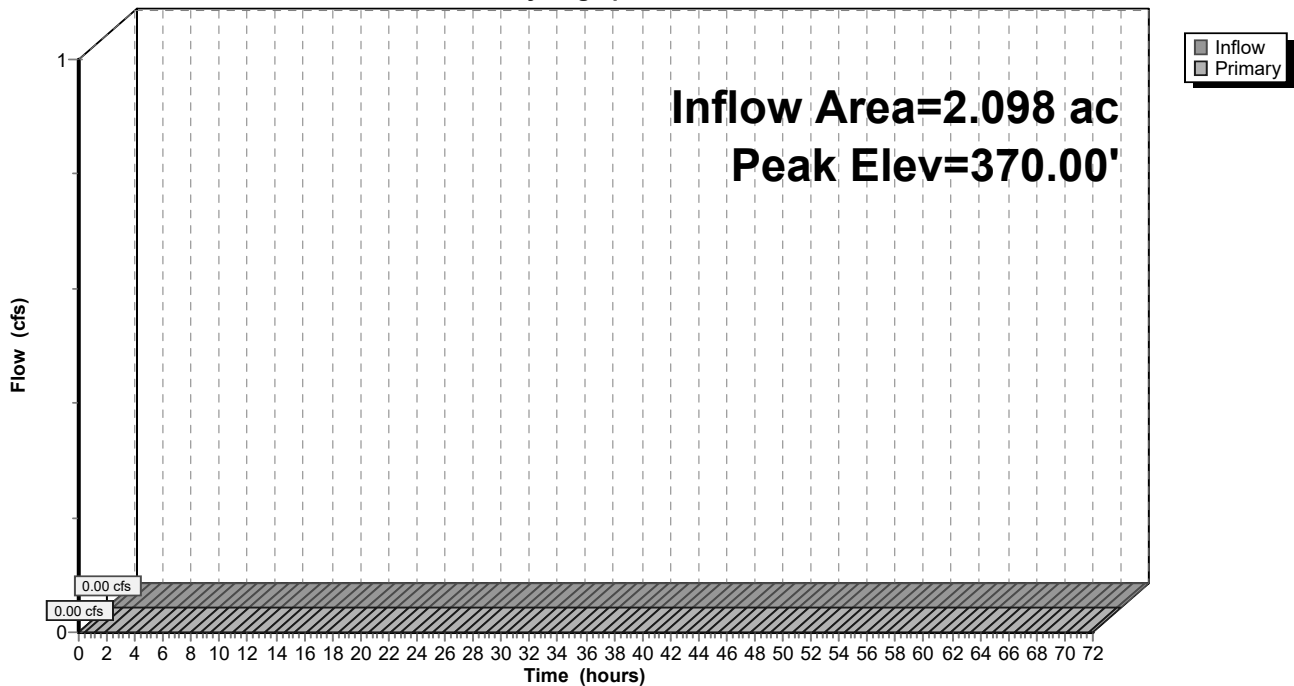
Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	<b>12.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 370.00' / 368.00' S= 0.0435 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	372.00'	<b>24.0" W x 36.0" H Vert. Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Device 1	370.00'	<b>12.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=370.00' (Free Discharge)

- 1=Culvert ( Controls 0.00 cfs)
- 2=Grate ( Controls 0.00 cfs)
- 3=Orifice ( Controls 0.00 cfs)

**Pond OCS: OCS**

Hydrograph



The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix G: Certification Statements**

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The Gateway  
45 Bedford Road, Armonk NY  
Town of North Castle, New York

## **Owner's/Operator's Certification**

"I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted."

**Name** (please print) \_\_\_\_\_

**Title** \_\_\_\_\_ **Date** \_\_\_\_\_

**Address** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Email** \_\_\_\_\_

**Signature** \_\_\_\_\_

The Gateway  
45 Bedford Road, Armonk NY  
Town of North Castle, New York

## Contractor's Certification

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

**Contracting Firm Name** \_\_\_\_\_

**Address** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_

**Name** (please print) \_\_\_\_\_

**Title** \_\_\_\_\_ **Date** \_\_\_\_\_

**Signature** \_\_\_\_\_

**SWPPP Responsibilities** \_\_\_\_\_

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**Trained Individual Name** (please print) \_\_\_\_\_

**Title** \_\_\_\_\_ **Date** \_\_\_\_\_

**Signature** \_\_\_\_\_

**SWPPP Responsibilities** \_\_\_\_\_

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**Note: All Contractors involved with Stormwater related activities shall sign a Contractor's Certification.**



The Gateway  
45 Bedford Road, Armonk NY  
Town of North Castle, New York

## Subcontractor's Certification

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

**Subcontracting Firm Name** \_\_\_\_\_

**Address** \_\_\_\_\_

**Phone** \_\_\_\_\_ **Fax** \_\_\_\_\_

**Name** (please print) \_\_\_\_\_

**Title** \_\_\_\_\_ **Date** \_\_\_\_\_

**Signature** \_\_\_\_\_

**SWPPP Responsibilities** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Trained Individual Name** (please print) \_\_\_\_\_

**Title** \_\_\_\_\_ **Date** \_\_\_\_\_

**Signature** \_\_\_\_\_

**SWPPP Responsibilities** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Note: All subcontractors involved with Stormwater related activities shall sign a Subcontractor's Certification.**

The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix H: Example Inspection Form**

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# EXAMPLE EROSION CONTROL REPORT

PROJECT NO: \_\_\_\_\_ PROJECT NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

MUNICIPALITY: \_\_\_\_\_ LOCATION: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_ OWNER: \_\_\_\_\_

DATE OF PREVIOUS INSPECTION: \_\_\_\_\_ INSPECTOR'S NAME: \_\_\_\_\_

DATE OF MOST RECENT STORM 0.5" OR GREATER: \_\_\_\_\_ DATE OF INSPECTION: \_\_\_\_\_

LAST RAIN EVENT: \_\_\_\_\_ DEPTH: \_\_\_\_\_

WEATHER: \_\_\_\_\_ TEMPERATURE: \_\_\_\_\_ °F

SPECIAL NOTES: \_\_\_\_\_

### EROSION CONTROL CHECKLIST

ADDITIONAL ACTION REQUIRED BY PROJECT MANAGER OR PROJECT ENGINEER  YES  NO

PHOTOS OR SKETCHES ATTACHED  ADDITIONAL REMARKS ATTACHED

\_\_\_\_\_  
**Inspector (print name)**

\_\_\_\_\_  
**Inspection Date**

\_\_\_\_\_  
**Qualified Professional (print name)**

\_\_\_\_\_  
**Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

**Maintaining Water Quality**

Yes No NA

- Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
- Is there residue from oil and floating substances, visible oil film, or globules of grease?
- All disturbance is within the limits of the approved plans.
- Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

**Housekeeping**

**1. General Site Conditions**

Yes No NA

- Is construction site litter and debris appropriately managed?
- Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- Is construction impacting the adjacent properties?
- Is dust adequately controlled?

**2. Temporary Stream Crossing**

Yes No NA

- Maximum diameter pipes necessary to span creek without dredging are installed.
- Installed non-woven geotextile fabric beneath approaches
- Is fill composed of aggregate (no earth or soil)?
- Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

**Runoff Control Practices**

**1. Excavation Dewatering**

Yes No NA

- Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
- Clean water from upstream pool is being pumped to the downstream pool.
- Sediment laden water from work area is being discharged to a silt-trapping device.
- Constructed upstream berm with one-foot minimum freeboard.

**2. Level Spreader**

Yes No NA

- Installed per plan.
- Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
- Flow sheets out of level spreader without erosion on downstream edge.

**3. Interceptor Dikes and Swales**

Yes No NA

- Installed per plan with minimum side slopes 2H:1V or flatter.
- Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
- Sediment-laden runoff directed to sediment trapping structure.

**4. Stone Check Dam**

**Yes No NA**

- Is channel stable? (flow is not eroding soil underneath or around the structure).
- Check is in good condition (rocks in place and no permanent pools behind the structure).
- Has accumulated sediment been removed?

**5. Rock Outlet Protection**

**Yes No NA**

- Installed per plan.
- Installed concurrently with pipe installation.

**Soil Stabilization**

**1. Topsoil and Spoil Stockpiles**

**Yes No NA**

- Stockpiles are stabilized with vegetation and/or mulch.
- Sediment control is installed at the toe of the slope.

**2. Revegetation**

**Yes No NA**

- Temporary seedings and mulch have been applied to idle areas.
- 4 inches minimum of topsoil has been applied under permanent seedings

**Sediment Control Practices**

**1. Stabilized Construction Entrance**

**Yes No NA**

- Stone is clean enough to effectively remove mud from vehicles.
- Installed per standards and specifications?
- Does all traffic use the stabilized entrance to enter and leave the site?
- Is adequate drainage provided to prevent ponding at entrance?

**2. Silt Fence**

**Yes No NA**

- Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
- Joints constructed by wrapping the two ends together for continuous support.
- Fabric buried 6 inches minimum.
- Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is \_\_\_\_% of design capacity.

**3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)**

**Yes No NA**

- Installed concrete blocks lengthwise so open ends face outward, not upward.
- Place wire screen between No. 3 crushed stone and concrete blocks.
- Drainage area is 1 acre or less.
- Excavated area is 900 cubic feet.
- Excavated side slopes should be 2:1.
- 2" x 4" frame is constructed and structurally sound.
- Posts 3-foot maximum spacing between posts.
- Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
- Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is \_\_\_\_% of design capacity.

**4. Temporary Sediment Trap**

**Yes No NA**

- Outlet structure is constructed per the approved plan or drawing.
- Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is \_\_\_\_% of design capacity.

**5. Temporary Sediment Basin**

**Yes No NA**

- Basin and outlet structure constructed per the approved plan.
- Basin side slopes are stablized with seed/mulch.
- Drainage structure is flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is \_\_\_\_% of design capacity.

The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix I: Post-Construction Inspection & Maintenance**

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## Post Construction Inspection and Maintenance Checklist Underground Infiltration System

### 1. Inlet and Outlet Structures (Frequency: Annual)

	Yes	No	NA
a. Concrete structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. In good condition, no need for repairs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Cracks or displacement. <i>Maintenance: Repair any minor cracks. If minor displacement is observed, re-inspect in 6 months. Replace structure if major cracks or significant displacement is observed.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Minor spalling (<1"). <i>Maintenance: Repair any minor spalling.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Major spalling (rebars exposed). <i>Maintenance: Replace structure.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Joint failures. <i>Maintenance: Replace structure.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Water tightness. <i>Maintenance: Reseal structure for water tightness if minor leaks are observed. Replace structure if significant leaks are observed.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. Clear of sediment. <i>Maintenance: Remove and properly dispose of any accumulated sediment when at 50% of sump height.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. Clear of debris and trash. <i>Maintenance: Remove and properly dispose of any debris and trash.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Pipes free from damage, corrosion, and sediment. <i>Maintenance: Immediately repair any damaged pipes. If pipes are severely damaged and cannot be repaired, replace the pipes. Remove and properly dispose of any sediment.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 2. Header System (Frequency: Annual)

	Yes	No	NA
a. Clear of debris and litter. <i>Maintenance: Use a high pressure nozzle with rear facing jets to wash the sediment and debris into the upstream structure. Remove sediment and debris from the sump of the upstream structure.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Clear of sediment. <i>Maintenance: Remove and properly dispose of sediment when accumulated over 4 inches. Use a high pressure nozzle with rear facing jets to wash the sediment into the upstream structure. Remove sediment from the sump of the upstream structure.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**3. Isolator/Containment Row  
(Frequency: Annual)**

- |  | <b>Yes</b>               | <b>No</b>                | <b>NA</b>                |
|--|--------------------------|--------------------------|--------------------------|
| a. Clear of debris and litter.<br><i>Maintenance: Remove and properly dispose of any debris and trash. Use a high pressure nozzle with rear facing jets to wash the debris into the upstream structure. Remove debris from the sump of the upstream structure.</i>               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Clear of sediment.<br><i>Maintenance: Remove and properly dispose of sediment when accumulated over 4 inches. Use a high pressure nozzle with rear facing jets to wash the sediment into the upstream structure. Remove sediment from the sump of the upstream structure.</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**4. Underground Chambers  
(Frequency: Annual)**

- |  | <b>Yes</b>               | <b>No</b>                | <b>NA</b>                |
|--|--------------------------|--------------------------|--------------------------|
| a. Chambers are in good condition.<br><i>Maintenance: Inspect the interior of the chambers using a CCTV or comparable inspection method through the inspection port. If deficiencies are noted immediately contact a NYS licensed Professional Engineer.</i>                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Clear of debris and litter.<br><i>Maintenance: Remove and properly dispose of any debris and trash. Use a high pressure nozzle with rear facing jets to wash the debris into the upstream structure. Remove debris from the sump of the upstream structure.</i>               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Clear of sediment.<br><i>Maintenance: Remove and properly dispose of sediment when accumulated over 4 inches. Use a high pressure nozzle with rear facing jets to wash the sediment into the upstream structure. Remove sediment from the sump of the upstream structure.</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Dewaterers between storms.<br><i>Maintenance: If standing water during inspection, recheck after 48 hours. If standing water is still present, contact a NYS licensed Professional Engineer.</i>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**5. Surrounding Site  
(Frequency: Monthly)**

- |   | <b>Yes</b>               | <b>No</b>                | <b>NA</b>                |
|---|--------------------------|--------------------------|--------------------------|
| a. Vegetation and ground cover adequate.<br><i>Maintenance: Reseed bare areas. Remove any unauthorized plants or any nuisance weeds and vegetation, including their roots. Do not use any herbicides. Topsoil, rake and seed the disturbed area by their removal.</i> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Area free from depressions.<br><i>Maintenance: Immediately repair. Re-grade and compact the soil. Topsoil, rake and seed the area. Re-inspect in 6 months.</i>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

	<b>Yes</b>	<b>No</b>	<b>NA</b>
c. Unauthorized plants over system. <i>Maintenance: Remove any unauthorized plants, including roots. Do not use herbicides. Topsoil, rake and seed the area disturbed by their removal.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Unauthorized structures over system. <i>Maintenance: Remove any unauthorized structures. Immediately inspect the interior of the chambers using a CCTV or comparable inspection method through the inspection port. If deficiencies are noted immediately contact a NYS licensed Professional Engineer.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Notes:**

1. The site must be returned to the approved conditions when any repairs are made.
2. All seed mixtures shall meet the seed mixture requirements specified on the approved plans.

**Comments:**

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**Actions to be taken:**

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The Gateway  
45 Bedford Road  
Town of North Castle, New York

## **Appendix J: NYS SHPO No Impact Letter**

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**New York State  
Parks, Recreation and  
Historic Preservation**

**KATHY HOCHUL**  
Governor

**ERIK KULLESEID**  
Commissioner

October 16, 2023

Adam R. Kaufman  
Director of Planning  
Town of North Castle (Armonk)  
15 Bedford Road  
Armonk, NY 10504

Re: SEQRA  
The Gateway  
23PR08680

Dear Adam R. Kaufman:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted documents under the State Environmental Quality Review Act (SEQRA) as requested. These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (NY Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR § 617).

We note that the project area is located across Bedford Road from the Bedford Road Historic District, listed in the State and National Registers of Historic Places (S/NRHP), and directly adjacent to the S/NRHP-eligible Town Hall. Therefore, under SEQRA, our office as subject matter experts have reviewed the proposed project, and offer the following comments regarding potential impacts to architectural or archaeological resources:

1. Our office cannot provide comments on the demolition of Mariani Gardens as the demolition has already taken place.
2. Our office cannot provide comments on the proposed design and materials of the planned multi-family residential development unless we are provided further details regarding the project, including exterior elevations and a finishes schedule, however, we can provide parameters for development for a location adjacent to historic resources.
3. Our office recommends taking visual cues from the adjacent historic district as far as the layout of the buildings, the space between buildings/built space versus open space, the types of existing vegetation, the setback from the sidewalk, the potential reuse of the existing stone walls which can also be found within the historic district, exterior finish materials, massing and building heights, and building styles. The use of similar exterior colors, roof shapes and profiles, building materials, heights, and massing can help ensure new buildings are compatible within or adjacent to a historic district. The Bedford Road Historic District primarily has single-family residential properties that are two

stories high with wood clapboard exteriors, symmetrical facades and proportions, classical architectural components, setbacks from the sidewalk, and landscaped vegetation such as hedgerows and other types of plantings.

Please be aware that if this project will involve state or federal permits, funding or licenses it may be subject to a more rigorous review by those agencies and this office for impacts to historic and archaeological resources under Section 106 of the National Historic Preservation Act or Section 14.09 of the NYS Parks, Recreation and Historic Preservation Law.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

If you have any questions, you can call or e-mail me at the contact information below.

Sincerely,

A handwritten signature in cursive script that reads "Sara McIvor".

Sara McIvor  
Historic Site Restoration Coordinator  
518-268-2127 | [sara.mcivor@parks.ny.gov](mailto:sara.mcivor@parks.ny.gov)

Cc: G. Nyambura – Langan Engineering  
L. Zawacki – Town of North Castle