LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

October 6, 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 August 16, 2023, and James J. Hahn Engineering P.C. in the letter dated September 7, 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 August 16, 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.

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: Acknowledged.

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.*

   Response: Acknowledged.

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.*

   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).*

   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.

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 depict Gross Lot Area and Net Lot Area. It is noted, that pursuant to Section 355-25.1 of the Town Code, Net Lot Area is required to be used when calculating FAR. The calculations used to calculate Net Lot Area and FAR (Net Lot Area and Gross Floor Area) shall be depicted.*

Response: The Zoning Compliance Chart has been updated to account for the Net Lot Area calculations.

2. *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.*

   Response: The Zoning Compliance Chart has been updated to account for the Net Lot Area calculations.

3. *Plan CS101 (and others if necessary) should be revised to depict a 50-foot side yard setback along Maple Avenue pursuant to the Corner Lot definition in Section 355-15.1 of the Town Code.*

   Response: The setback along Maple Avenue has been revised to be 50 feet on sheet CS101, per the corner lot definition.

4. *The 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: When the architectural plans are updated, the AFFH units will be clearly identified.

5. *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.

6. *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.

7. *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. Furthermore, a sidewalk along Maple Avenue to the bus stop should be constructed.

Response: A sidewalk has been added to the bus stop, and the applicant will work with the town on an acceptable solution related to a crosswalk

8. *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) and a walking trail in this area. While the proposed site plan elements may be attractive, the Planning Department believes that the trail will not be highly utilized.

   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.

   Many of the existing arborvitae adjacent to Town Hall are depicted as remaining. However, a good portion have been removed or are in declining condition. This area shall be further evaluated by the Applicant and the Planning Board.

   Response: We agree that the proposed walking trail may not be utilized as originally intended, so it has been removed from the design. The landscaping design has been modified to show the removal of a portion of the arborvitae, and additional smaller-scale plantings have been added to this area. In addition, a sidewalk has been added from Bedford Road to the bus shelter.

   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 proposed, 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.

9. *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 final design of the widening associated with the turn lane.

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

Response: The light fixture has been updated as requested.

11. *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.

12. *The site plan shall be revised to depict 25' wide backup and maneuvering aisles adjacent to off-street parking spaces. Access aisles that are not adjacent to parking can be 24' wide.*

Response: The drive aisles adjacent to parking have been increased to a width of 25 feet.

13. *Pursuant to Section 355-56.H(2) of the Town Code, 10% of the parking area shall be landscaped.*

The Applicant should prepare an exhibit demonstrating compliance with this provision of the Town Code.

Response: Landscaping in excess of 10% has been provided in the parking area in front of the buildings, as shown on the planting plan, sheet LP101. A separate figure demonstrating compliance will be provided.

14. *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.*

    Response: The parking requirement for AFFH units is 1 space per unit plus ½ space per bedroom. Since all the units are 2 bedrooms, the calculation works out to be 2 spaces per unit, which is the same requirement as the remainder of the units.

15. *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.*

    Based upon the submitted Zoning Conformance Table, a Building Coverage variance will need to be issued by the Zoning Board of Appeals.

    Response: The applicant has applied to the Zoning Board of Appeals for a Zoning Variance related to building coverage.

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 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 Applicant should indicate if any signage is proposed for the project. If so, the location and design of the signage should be included on the plans.*

    Response: Stone walls with signage are proposed for the entrance to the project and are shown on sheet CS101.

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.*

    Response: Each unit or building will have refuse and recycling bins.

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.I(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: The AFFH units are scattered through the proposed development and included various unit types.

21. *Pursuant to Section 355-24.I.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-I.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-I.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-I.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 from 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 September 7, 2023*

1. *The proposed project includes work within wetland buffer areas. A mitigation plan should be prepared in accordance with Town Code Chapter 340 "Wetlands and Watercourse Protection".*

Response: The site plans show the restoration and enhancement of the remaining buffer as mitigation as required by Town Code Chapter 340.

2. *The proposed project includes work within a FEMA Special Flood Hazard Area. The applicant should demonstrate conformance with all required parts of Town Code Chapter 177 "Flood Damage Prevention".*

Response: The total fill in the floodplain is 179.5 CY, and the compensatory storage has a volume of 193.6 CY below the 100-year flood elevation (374.5'), as shown on sheet CG101.

3. *It should be determined if the proposed project is located within 100 feet of Wampus River. If so, a Westchester County Stream Permit may be required.*

   Response: Based upon a measurement on aerial mapping, the project site is greater than 100 feet from the Wampus River.

4. *Part B. of the EAF should be revised to include all required permits, including NYSDEC SPDES General Permit, MS4 SWPPP Approval, and Town Building Permit.*

   Response: The enclosed FEAF has been revised accordingly.

5. *The cover letter indicates that water and sewer "will be provided via easement." The proposed easements should be shown on the plans. If the extensions are proposed as water and sewer mains, then Westchester County Department of Health approval may be required. Additionally, proposed water and sewer services should be reviewed by the Town Water and Sewer Department to ensure there is sufficient capacity to serve the project.*

   Response: 15-foot-wide easements have been added around the water and sewer lines per section 275-27 C (1) of the Town Code. The easements are shown on sheet CU101.

6. *Pursuant to Town Board Resolution Condition #8, the easement for a future turning lane should be shown. Additionally, the requested sidewalk to existing bus stop on Maple Avenue and crosswalk to Armonk Square be shown.*

   Response: A potential easement has been added to the plans on sheet CS101, however, the final configuration will need to be coordinated with the town and the final design of the widening associated with the turn lane. A sidewalk has also been shown to the bus stop.

7. *The proposed project should be reviewed by the local fire department to determine if adequate access is provided. Additionally, the nearest fire hydrant should be labeled on the plans and emergency vehicle turning movements should be provided.*

   Response: A fire truck movement plan has been added to the plans set as sheet FG01.

8. *The SWPPP and plans should include the required construction inspection per §267-8 A.(1)(a) of the Town Code. The list should include an additional inspection for "installation of stormwater management facilities."*

   Response: The additional inspections have been added to the plans on sheet GI101 and SWPPP.

9. *A stormwater facility maintenance easement or agreement must be provided as required by §267-7 B. and D. of the Town Code.*

   Response: Acknowledged.

10. *Per §267-8 B.(1) of the Town Code, a performance guarantee for the construction of the stormwater system may be required by the Town.*

    Response: Acknowledged.

11. *The referenced NYSOPRHP letter in Section 2.2 of the SWPPP should be included in the SWPPP as an appendix.*

    Response: The NYSOPRHP letter will be added to the final SWPPP when received.

12. *Pre-treatment should be provided and discussed in the SWPPP. The WQv worksheets indicate isolator rows are to be provided but are not shown on the plans.*

    Response: The SWPPP has been updated to include the proposed pre-treatment. The Isolator Row is shown on sheet CG101.

13. *Deep test pits and infiltration test should be performed in accordance with Appendix D of the Stormwater Management Design Manual. Test results should be included in the SWPPP and test locations shown on the plans.*

    Response: Deep test pits and infiltration tests were performed in the areas of the stormwater practices. The results have been added to the SWPPP.

14. *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.*

    Response: A map has been added to the SWPPP.

15. *The HydroCAD model should be revised to match the conditions shown on the plans, including modeling pond "2P" discharging into pond "21P". As the floodplain volume basin fills it will backfill the drainage system and this should be analyzed. Additionally, the pond labels should be shown on the watershed map.*

    Response: The model has been revised to match the plan configuration.

16. *It is unclear how the floodplain storage StormTech units are intended to function. They should be included in the HydroCAD model.*

    Response: The floodplain storage units are meant to provide compensatory storage for a portion of the proposed fill in the floodplain. They are not being utilized as part of the stormwater management system so are not included as part of the model.

17. *On the WQv worksheets only the volume provided in the infiltration systems below the lowest outlet elevation should be considered WQv provided.*

    Response: The calculations have been revised accordingly.

18. *The infiltration system must not be connected until construction is complete and the site is stabilized. A note, stating as much, should be added to the plans and should be included in the construction sequence.*

    Response: A note has been added to the plans on sheet CG101.

19. *Per the NYSDEC Stormwater Management Design Manual Section 6.3, infiltration systems should be separated a minimum of 10 feet from structures. This should include the proposed underground flood storage system.*

    Response: The infiltration systems have been relocated to be a minimum of 10 feet from structures.

20. *The locations of inspection ports for the infiltration systems should be shown on the plans.*

    Response: The inspection ports have been added to the plans.

21. *Proposed roof leader locations and connections to the drainage system should be shown.*

    Response: Proposed roof leader locations are shown on sheet CG101.

22. *Information appears to be missing from the drainage profiles, such as storage systems and structure labels. Additionally, the profile to headwall 1 extends outside the boundaries of the profile.*

    Response: The profiles have been updated accordingly.

23. *It appears the sewer profile for "run 1" should be revised to show three drainage pipe crossings. Both profiles should show water crossings.*

    Response: The profile of "run 1" has been updated accordingly.

24. *Sewer laterals should be shown for all connections. Water and sewer laterals should be separated by a minimum of five feet.*

    Response: All sewer and water laterals have been revised to be a minimum of 5 feet apart.

25. *The existing entrance includes mountable curb and grass pavers. It should be noted if these features are to remain or be removed.*

    Response: These features are being removed from the entrance as shown on sheet CD101.

26. *A fence or barrier should be considered around the proposed floodplain basin.*

    Response: Since this area is normally dry and will only hold water during large flood events, a fence is not part of the design.

27. *A detail should be provided for the catch basins located directly over and connected to the infiltration system.*

    Response: The drainage system layout has been revised, and there are no catch basins directly over the infiltration system.

28. *A retaining wall detail should be provided. Additionally, top and bottom wall elevations should be provided.*

    Response: The removal of the walking trail eliminated the need for a retaining wall in the southwest corner of the site.

29. *On March 15, 2019, Con Edison issued a moratorium on new gas connections and limited expansion of existing services. It should be confirmed that Con Edison is able to provide the proposed service. Otherwise, alternative means should be identified.*

    Response: Gas is no longer proposed for the project.

30. *Planting trees directly over and adjacent to drainage pipe, sanitary sewers, water pipes and other utilities should be avoided. The planting plan and utilities plan should be coordinated to avoid conflicts.*

    Response: The landscape plan has been adjusted to avoid conflicts.

31. *Per Chapter 863, Article XXVIII of the Westchester County Code of Ordinances, no fertilizer containing more than 0% phosphorus shall be used unless testing confirms the need for additional phosphorus. This should be noted on the plans.*

    Response: A note regarding the fertilizer has been added to the landscape plan.

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.

Sincerely,

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

Michael Tucker, PE
Senior Project Engineer

SITE PLAN APPROVAL DOCUMENTS

THE GATEWAY

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

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

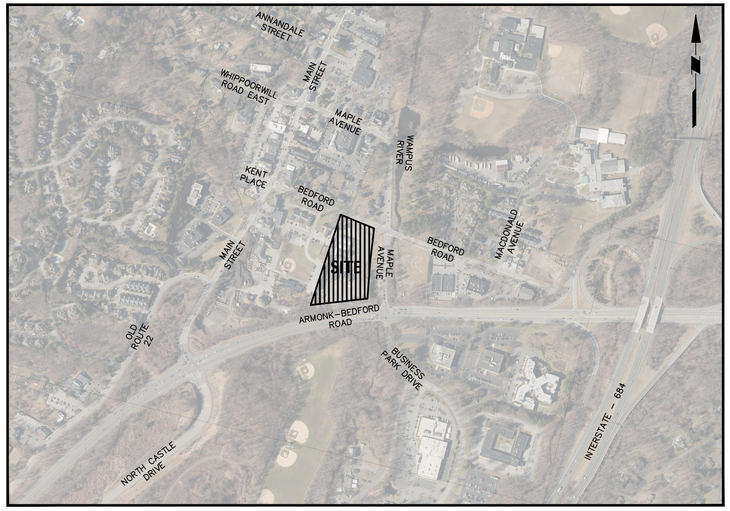
399 KNOLLWOOD ROAD
SUITE 318
WHITE PLAINS, NY 10603

APPLICANT

KINGS CAPITAL CONSTRUCTION GROUP, INC.

660 WHITE PLAINS ROAD
TARRYTOWN, NY 10591

TELEPHONE: 914–345–6799

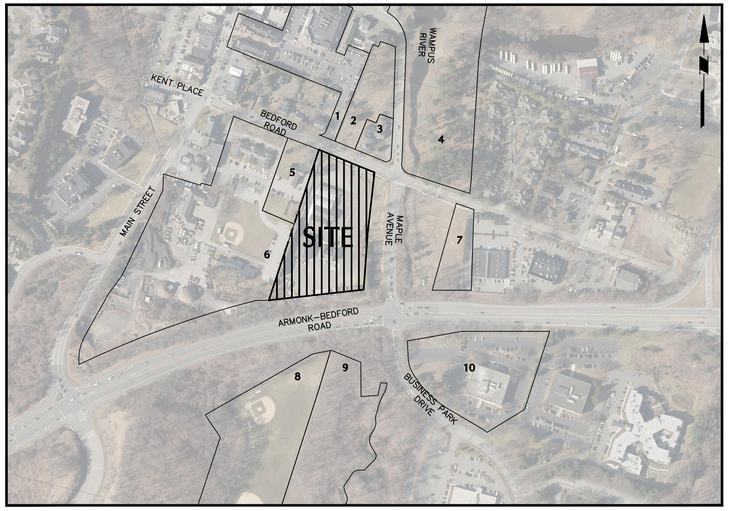


LOCATION MAP

1"=500'

DRAWING LIST		
DRAWING NO.	SHEET NO.	DRAWING TITLE
CS001	1 OF 16	COVER SHEET
GI101	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
2 spaces per dwelling unit	68	
10% visitor	6.8	
Total	75	75*
*Includes 2 ADA-accessible spaces		



ADJACENT PROPERTIES MAP

1"=300'

ADJACENT PROPERTY OWNERS					
MAP #	SECTION	BLOCK	LOT	PROPERTY OWNER	PROPERTY LOCATION
1	108.01	6	41	ASQ 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[1]	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[2]
Minimum Lot Area/Dwelling Unit (Square Feet)	4200(43.2 Units)	5342 (34 Units)	YES
Land Area/Bedroom (Square Feet)	2350(77.3 Beds)	2671(68 Beds)	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[3]
[1]Net lot area = Total lot area minus 75% wetlands, water bodies and water courses = 183,529SF - 1875SF = 181,653SF = 4.17AC			
[2]Increase in FAR as a result of enclosing parking below building A.			
[3]Increase in coverage as a result of reducing Bedford Road Buildings to 2 stories.			

CIVIL ENGINEER

LANGAN

1 NORTH BROADWAY
SUITE 910
WHITE PLAINS, NY 10604

TEL: 914–323–7400

CONTACT: MICHAEL FINAN, PE

SURVEYOR

SOUND VIEW ENGINEERS AND LAND SURVEYORS LLC

239 GLENVILLE ROAD
SUITE 100
GREENWICH, CT 06831

TEL: 203–532–1300

CONTACT: AIDAN C. McCANN, PLS

LANDSCAPE ARCHITECT

LANGAN

1 NORTH BROADWAY
SUITE 910
WHITE PLAINS, NY 10604

TEL: 914–323–7400

CONTACT: MICHAEL HUNTON, RLA

APPROVED BY A RESOLUTION OF THE NORTH CASTLE TOWN PLANNING BOARD

PLANNING BOARD CHAIRPERSON
CHRISTOPHER CARTHY

DATE

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.

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

STATE OF NEW YORK · MICHAEL J. FINAN · 081473 · PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINAN, PE, LEED–AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title: COVER SHEET

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

Drawing No. CS001
Sheet 1 of 17

Date: 10/6/2023 Time: 10:38 User: gnyambura Style Table: Langan.stb Layout: Cover Sheet Document Code: 190085001-0301-CS001-0101

ABBREVIATIONS

(TYP)	TYPICAL
VIF	VERIFY IN FIELD
NEC.	NECESSARY
PROP.	PROPOSED
EXIST.	EXISTING
HC	HANDI–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
EL	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
△	CENTRAL ANGLE
CL	CHORD LENGTH
CB	CHORD BEARING

LEGEND

PROPOSED

- BUILDING SETBACK
- BUILDING
- CURB
- DOOR ENTRANCE
- CONCRETE PAVEMENT
- WALL
- 590 — CONTOUR
- ×590.01 — SPOT ELEVATION
- STORMWATER CONVEYANCE PIPE
- CATCH BASIN
- STORMWATER MANHOLE
- OUTLET CONTROL STRUCTURE
- RIP RAP
- SANITARY SEWER
- SANITARY MANHOLE
- SANITARY CLEANOUT
- W — WATER MAIN
- C–T–E–G — ELECTRIC/TELECOMM/GAS SERVICE
- FIRE HYDRANT
- GATE VALVE
- LoD — LIMIT OF DISTURBANCE
- SILT FENCE
- CONSTRUCTION FENCE
- FIBER ROLL
- DIVERSION DITCH
- STRAW BALE DIKE
- INLET PROTECTION
- CHECK DAM
- CONCRETE WASHOUT
- STABILIZED CONSTRUCTION ENTRANCE
- CONSTRUCTION STAGING AND STORAGE AREA
- SEDIMENT BASIN
- SOIL STOCKPILE

LEGEND

EXISTING

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- RIGHT–OF–WAY LINE
- EASEMENT LINE
- SA — SANITARY SEWER LINE
- ST — DRAINAGE LINE
- W — WATER LINE
- G — GAS LINE
- OHE — OVERHEAD ELECTRIC LINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- BUILDING
- WETLAND LINE
- TREE LINE
- 590 — CONTOUR
- FENCE LINE
- TREES
- D E F FM G S ST T U W — MANHOLE (AS LABELED)
- HYDRANT
- UTILITY POLE
- END SECTION
- CATCH BASIN
- WV — WATER VALVE
- LIGHT
- SIGN

EROSION & SEDIMENT CONTROL NOTES

1. REFER TO THE SPDES GENERAL PERMIT COMPLIANCE NOTES FOR ADDITIONAL REQUIREMENTS.
2. 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.
3. 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.
4. 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.
5. 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.
6. DAMAGE TO SURFACE WATERS RESULTING FROM EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY STABILIZING DISTURBED AREAS AND BY REMOVING SEDIMENT FROM CONSTRUCTION SITE DISCHARGES.
7. 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.
8. 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.
9. 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.
10. 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.
11. FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED LANDSCAPE SOILS.
12. IF CONSTRUCTION TAKES PLACE IN "WET SOILS", CURTAIN DRAINS OR SUBSURFACE DRAINAGE SHALL BE INSTALLED TO DEWATER THE SOILS. DEWATERING DISCHARGES WILL NOT BE DIRECTED INTO WETLANDS, WATER COURSES, WATER–BODIES, OR STORM SEWER SYSTEMS.
13. 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.
14. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WHEN ALL DISTURBED AREAS HAVE UNDERGONE FINAL STABILIZATION, UPGRADIENT 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.
15. 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 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 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.
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 AND/OR WATER SUPPLY. EQUIPMENT WASH–DOWN ZONES SHALL BE LOCATED WITHIN AREAS DRAINING TO SEDIMENT CONTROL DEVICES.
3. THE USE OF DETERGENTS FOR LARGE–SCALE (I.E., VEHICLES, BUILDINGS, PAVEMENT SURFACES, ETC.) WASHING IS PROHIBITED.
4. 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, REMOVED FROM THE SITE, TREATED AND DISPOSED AT AN APPROVED SOLID WASTE OR CHEMICAL DISPOSAL FACILITY.
5. 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.
6. PORTABLE SANITARY WASTE FACILITIES SHALL BE PROVIDED ON–SITE FOR WORKERS AND SHALL BE PROPERLY MAINTAINED.
7. 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.
8. 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.
9. 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.
10. DISCHARGES FROM DEWATERING ACTIVITIES, INCLUDING DISCHARGES FROM DEWATERING TRENCHES AND EXCAVATIONS, MUST 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.

TOWN OF NORTH CASTLE NOTES

1. 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:
   - 1.a. START OF CONSTRUCTION.
   - 1.b. INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES.
   - 1.c. COMPLETION OF SITE CLEARING.
   - 1.d. COMPLETION OF ROUGH GRADING.
   - 1.e. COMPLETION OF FINAL GRADING.
   - 1.f. CLOSE OF THE CONSTRUCTION SEASON.
   - 1.g. COMPLETION OF FINAL LANDSCAPE.
   - 1.h. INSTALLATION OF STORMWATER MANAGEMENT FACILITIES.
   - 1.i. SUCCESSFUL ESTABLISHMENT OF LANDSCAPING IN PUBLIC AREAS.
2. 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.
3. THE TOWN SHALL APPROVE A FORMAL MAINTENANCE AGREEMENT FOR THE PROPOSED STORMWATER MANAGEMENT PRACTICES BINDING ALL SUBSEQUENT LANDOWNERS AND RECORDED IN THE OFFICE OF YTHE 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

1. FLAG THE DISTURBANCE LIMITS PRIOR TO THE COMMENCEMENT OF CLEARING AND GRUBBING ACTIVITIES.
2. ACCESS TO THE SITE WILL BE PROVIDED OFF OF BEDFORD ROAD.
3. INSTALL CONSTRUCTION FENCE, PERIMETER SILT FENCE AND TREE PROTECTION MEASURES AS SHOWN ON THE PROJECT PLANS.
4. 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.
5. INSPECT ALL EROSION CONTROL MEASURES DURING CLEARING AND GRUBBING ACTIVITIES. REPAIR ANY DAMAGED EROSION CONTROL MEASURES UPON DISCOVERY.

BULK GRADING CONSTRUCTION

6. STRIP TOP SOIL AND TEMPORARILY STOCKPILE THE MATERIAL ONSITE. THE LOCATIONS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS; HOWEVER, LOCATIONS CAN BE ADJUSTED AS THE EARTHWORK OPERATIONS PROGRESSES. STOCKPILES SHALL BE PROTECTED FROM EROSION WITH SEED/MULCH AND SHALL BE COVERED IN RAIN EVENTS. REFER TO PROJECT DETAILS FOR ADDITIONAL INFORMATION.
7. REMOVE EXISTING PAVEMENT, CONCRETE AND OTHER SITE FEATURES IDENTIFIED TO BE REMOVED ON THE PROJECT PLANS.
8. DRAINAGE STRUCTURES SHALL HAVE INLET PROTECTION INSTALLED.
9. ACTIVELY STABILIZE THE DISTURBED AREAS THAT ARE AT FINAL GRADE OR SUBGRADE ELEVATIONS. AREAS THAT WILL BE VEGETATED IN THE FINAL CONDITIONS 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.
10. TEMPORARY SEDIMENT BASINS SHALL REMAIN IN PLACE UNTIL ALL SOIL DISTURBANCE ACTIVITIES THAT CONTRIBUTE TO THE TEMPORARY SEDIMENT BASINS HAVE BEEN COMPLETED.

GENERAL CONSTRUCTION

11. INSTALL INLET PROTECTION MEASURES AT ALL INLETS AND AT THE ENDS OF ALL EXPOSED STORMWATER PIPES AND RIP RAP AT THE LOCATIONS SHOWN ON THE PLANS.
12. DELIVER BUILDING MATERIALS TO DESIGNED STAGING AREAS FOR CONSTRUCTION.
13. INSTALL PROPOSED CURBING AND SIDEWALKS.
14. 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.
15. FINISH GRADING AND STABILIZE ALL DISTURBED AREAS. ALL CATCH BASINS, DRAINAGE MANHOLES, AND DRAINAGE LINES SHALL BE CLEANED OF ANY ACCUMULATED SILT AND SEDIMENT.
16. REMOVE ALL ACCUMULATED SEDIMENT WITHIN THE TEMPORARY SEDIMENT BASINS. REMOVE THE TEMPORARY PERFORATED RISERS AND CONSTRUCTION FABRIC FROM OUTLET CONTROL STRUCTURES.
17. INSTALL ALL PLANTINGS IN ACCORDANCE WITH THE PROJECT PLANS.
18. CONNECT UNDERGROUND INFILTRATION SYSTEM AFTER ALL CONSTRUCTION IS COMPLETE AND THE WHOLE SITE IS STABILIZED.
19. PLACE PAVEMENT TOP COURSE AND PAVEMENT MARKINGS, AS APPROPRIATE.
20. 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

1. MULCH (INCLUDING GRAVEL MULCH) – MULCH OFFERS AN EFFECTIVE MEANS OF STABILIZATION. THIS CAN ALSO INCLUDE ROLLED EROSION CONTROL BLANKETS.
2. 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.
3. POLYMER ADDITIVES – 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%. 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.
4. BARRIERS – WOVEN GEOTEXTILES CAN BE PLACED ON THE DRIVING SURFACE TO EFFECTIVELY REDUCE DUST THROW AND PARTICLE MIGRATION ON HAUL ROADS. STONE CAN ALSO BE USED FOR CONSTRUCTION ROADS FOR EFFECTIVE DUST CONTROL.
5. SEEDING – REFER TO LANDSCAPE PLANS AND DETAILS.

DEMOLITION NOTES

1. CLEARING AND GRUBBING OF ALL TRESS (INCLUDING REMOVAL OF ANY ASSOCIATED ROOT SYSTEMS AND STUMPS) AND VEGETATION DESIGNATED FOR REMOVAL SHOULD BE PERFORMED. TOPSOIL SHOULD BE COMPLETELY STRIPPED FROM THE PROPOSED BUILDING FOOTPRINT AND 10 FEET BEYOND THE BUILDING LIMITS AND IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
2. 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.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REGULATION, ORDINANCES, AND STATUTES.
4. 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 ITS 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.
5. 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, DISCOVER, REMOVAL, ABATEMENT, OR DISPOSAL OR ASBESTOS OR OTHER HAZARDOUS MATERIALS.
6. THE CONTRACTOR SHALL DEMOLISH ALL BUILDINGS, PAVEMENT, ETC., WHERE INDICATED WITHIN THE LIMIT OF DISTURBANCE. EDGES OF PAVEMENT DEMOLITION SHALL BE SAW CUT. DEMOLISHED CONCRETE AND ASPHALT SHALL BE CRUSHED TO THE DIMENSIONS INDICATED IN THE PROJECT GEOTECHNICAL REPORT AND STOCKPILED FOR REUSE AS SITE FILL. ALL DEMOLITION AND MATERIAL REUSE SHALL BE IN ACCORDANCE WITH ENVIRONMENTAL REQUIREMENTS FOR THE SITE.
7. THE CONTRACTOR SHALL VERIFY THAT A SOIL EROSION AND SEDIMENT CONTROL PERMIT 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.
8. 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 THE ENVIRONMENTAL REPORTS AND DOCUMENTS FOR ENVIRONMENTAL CONCERN LOCATIONS AND DISPOSAL PROCEDURES.

GENERAL NOTES

1. THE CONTRACTOR SHALL CALL "DIG SAFELY NEW YORK" PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CALL 1–800–962–7962 OR 811 FOR STAKEOUT REQUESTS.
2. ALL EXISTING UTILITY LINES SHALL BE LOCATED/VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING ANY MATERIALS AND/OR STARTING ANY CONSTRUCTION.
3. 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.
4. 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 SHOW 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.
5. 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 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.
6. 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.
7. 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.

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.

Revisions

Date	Description	No.
01/26/2023 / 10/05/2023	RESPONSE TO COMMENTS / Additional Variances	11

STATE OF NEW YORK · MICHAEL J. FINAN · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature: MICHAEL FINAN, PE, LEED–AP — Date: 10/06/2023

PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN

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

Project	Drawing Title	Project No.	Drawing No.
45 BEDFORD ROAD ARMONK WESTCHESTER COUNTY NEW YORK	LEGEND AND GENERAL NOTES	190085001	GI101
		Date: AUGUST 7, 2023	
		Drawn By: GN	
		Checked By: MT	Sheet 2 of 17

LANGAN — Project No. 190085001

Date: 10/5/2023 Time: 21:57 User: gnyambura Style Table: Langan.stb Layout: GI101 Document Code: 190085001-0301-GI101-0101

SUBSURFACE STORMWATER SYSTEM AND ASSOCIATED COMPONENTS TO BE REMOVED

GATE TO BE REMOVED

STOCKADE FENCE TO BE REMOVED

WATERMAIN TO REMAIN

STORAGE BUILDING REMOVED PREVIOUSLY

GARDEN MARKET NURSERY BUILDING AND ASSOCIATED CHIMNEY, AC UNITS, STAIRS, UTILITY METERS, HYDRANTS, RAMPS AND ROOF DRAINS REMOVED PREVIOUSLY

GRAVEL TO BE REMOVED

100-YEAR FEMA FLOODPLAIN ZONE AE (EL: 374.5 NAVD88)

EXISTING PAVEMENT TO BE REMOVED

OFFICE BUILDING REMOVED PREVIOUSLY

CONCRETE PAD AND FUEL TANKS REMOVED PREVIOUSLY

CONCRETE BLOCK WALLS TO BE REMOVED (TYP.)

STONE WALLS, GATES AND PILLARS WITHIN LIMIT OF DISTURBANCE TO BE REMOVED

SEWER MANHOLE TO REMAIN

GAS SERVICE TO BE REMOVED. EXTENTS OF OFFSITE REMOVAL SHALL BE COORDINATED WITH UTILITY PROVIDER.

EXISTING MOUNTABLE CURB AND GRASS PAVERS TO BE REMOVED

SANITARY SEWER LINE TO REMAIN

CURB WITHIN SITE TO BE REMOVED (TYP.)

SUBSURFACE STORMWATER RETENTION SYSTEM AND ASSOCIATED COMPONENTS TO BE REMOVED

STRIP AND STOCKPILE TOPSOIL WITHIN THE LIMIT OF DISTURBANCE

PORTION OF GUARD RAIL TO BE RELOCATED BEHIND PROPOSED SIDEWALK

BEDFORD ROAD

ROUTE 22

MAPLE AVENUE

LEGEND

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

SCALE: 1 INCH = 20 FEET

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINNAN · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINNAN, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title
EXISTING CONDITIONS AND REMOVALS PLAN

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

Drawing No. CD101
Sheet 3 of 17

LANGAN
Project No. 190085001

Date: 10/6/2023 Time: 10:46 User: gnyambura Style Table: Langan.stb Layout: CD101 Document Code: 190085001-0301-CD101-0101

SIGN LEGEND

R7-8	R7-1	R1-1
12"x18"	12"x18"	30"x30"

NOTE: ALL PROPOSED SIGNAGE SHALL CONFORM TO THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) FOR SIZE, LEGEND AND PLACEMENT.

20 0 5 10 20
SCALE: 1 INCH = 20 FEET

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.

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

Revisions

STATE OF NEW YORK · MICHAEL J. FINAMORE · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINAMORE, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

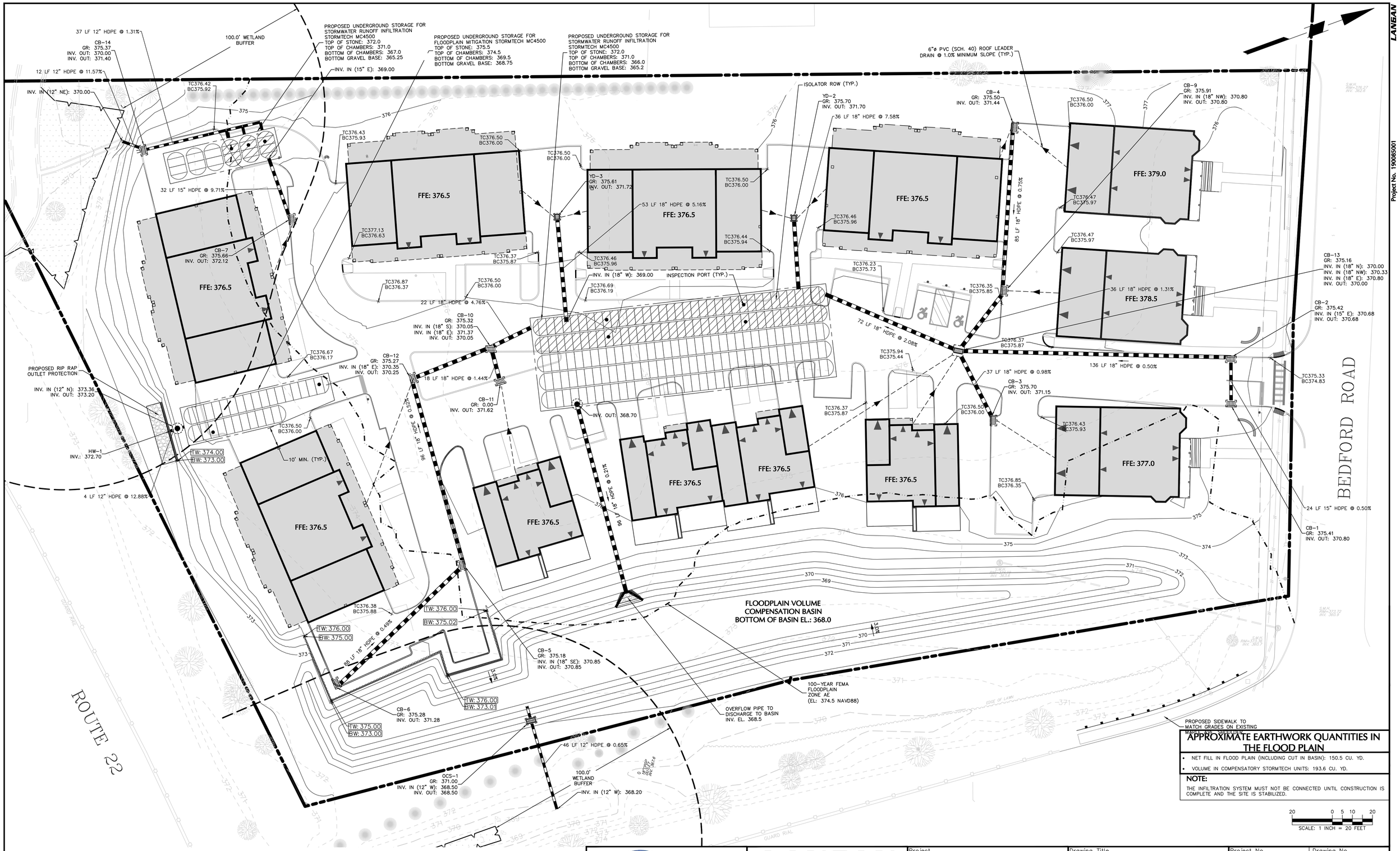
Drawing Title
SITE PLAN

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

Drawing No. CS101
Sheet 4 of 17

LANGAN
Project No. 190085001

Date: 10/5/2023 Time: 21:57 User: gnyambura Style Table: Langan.stb Layout: CS101 Document Code: 190085001-0301-CS101-0101



APPROXIMATE EARTHWORK QUANTITIES IN THE FLOOD PLAIN

- NET FILL IN FLOOD PLAIN (INCLUDING CUT IN BASIN): 150.5 CU. YD.
- VOLUME IN COMPENSATORY STORMTECH UNITS: 193.6 CU. YD.

NOTE:

THE INFILTRATION SYSTEM MUST NOT BE CONNECTED UNTIL CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

20 0 5 10 20
SCALE: 1 INCH = 20 FEET

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINA · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

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

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

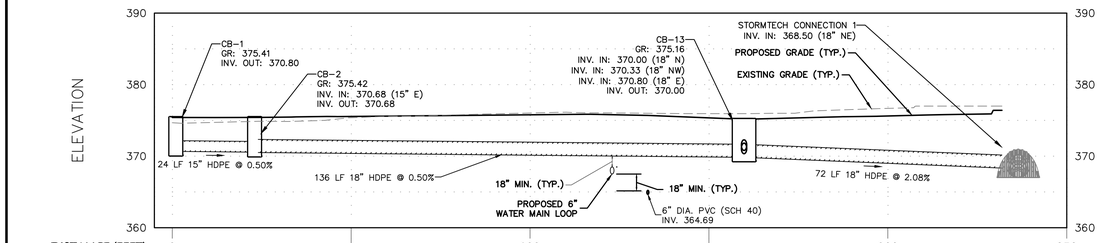
Drawing Title: GRADING AND DRAINAGE PLAN

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

Drawing No. CG101
Sheet 5 of 17

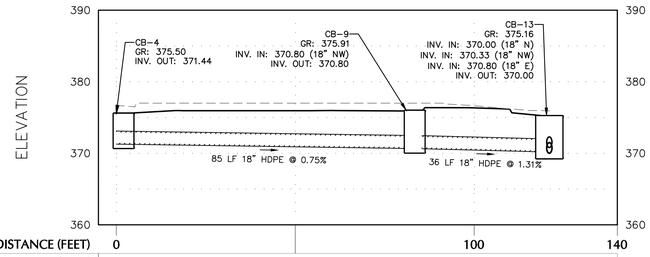
Date: 10/5/2023 Time: 21:57 User: gnyambura Style Table: Langan.stb Layout: CG101 Document Code: 190085001-0301-CG101-0101

LANGAN
Project No. 190085001



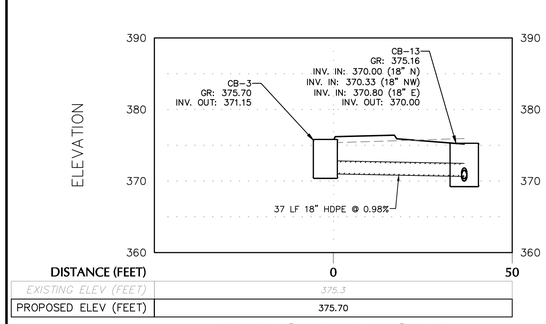
DISTANCE (FEET)	0	100	200	250
EXISTING ELEV (FEET)	374.7	375.4	376.0	375.9	376.7
PROPOSED ELEV (FEET)	375.41	375.55	375.78	375.36	375.62

CB-1 TO UNDERGROUND STORAGE PROFILE
V: 1" = 10'
H: 1" = 20'



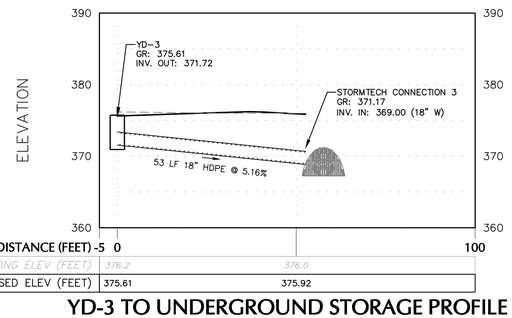
DISTANCE (FEET)	0	100	140
EXISTING ELEV (FEET)	376.7	377.0	376.6
PROPOSED ELEV (FEET)	375.50	375.95	376.34

CB-4 TO CB-13 PROFILE
V: 1" = 10'
H: 1" = 20'



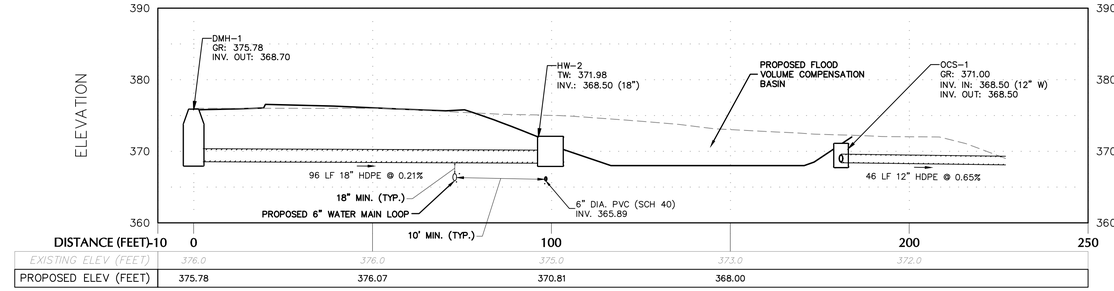
DISTANCE (FEET)	0	50
EXISTING ELEV (FEET)	375.3	
PROPOSED ELEV (FEET)	375.70	

CB-3 TO CB-13 PROFILE
V: 1" = 10'
H: 1" = 20'



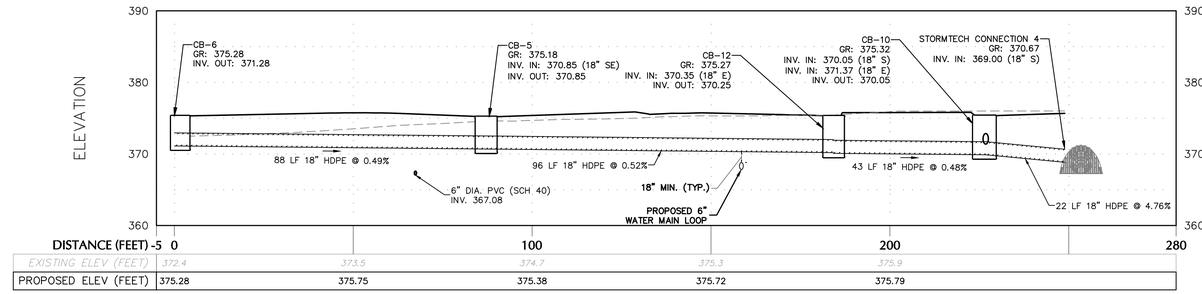
DISTANCE (FEET)	0	100
EXISTING ELEV (FEET)	376.2	376.0
PROPOSED ELEV (FEET)	375.61	375.92

YD-3 TO UNDERGROUND STORAGE PROFILE
V: 1" = 10'
H: 1" = 20'



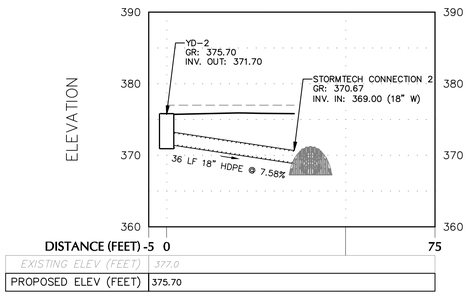
DISTANCE (FEET)	-10	0	100	200	250
EXISTING ELEV (FEET)	376.0	376.0	375.0	373.0	372.0
PROPOSED ELEV (FEET)	375.78	376.07	370.81	368.00	

UNDERGROUND STORAGE TO MAPLE AVE OUTFALL PROFILE
V: 1" = 10'
H: 1" = 20'



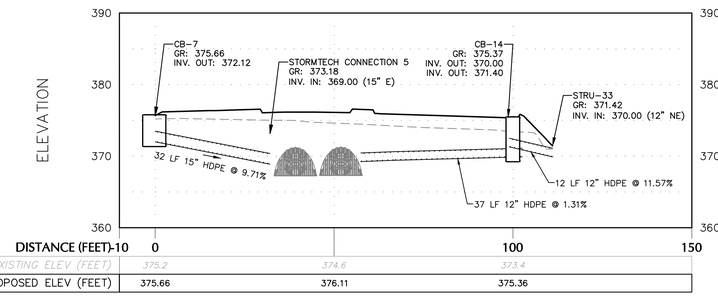
DISTANCE (FEET)	-5	0	100	200	280
EXISTING ELEV (FEET)	372.4	373.5	374.7	375.3	375.9
PROPOSED ELEV (FEET)	375.28	375.75	375.38	375.72	375.79

CB-6 TO UNDERGROUND STORAGE PROFILE
V: 1" = 10'
H: 1" = 20'



DISTANCE (FEET)	-5	0	75
EXISTING ELEV (FEET)	377.0		
PROPOSED ELEV (FEET)	375.70		

YD-2 TO UNDERGROUND STORAGE PROFILE
V: 1" = 10'
H: 1" = 20'



DISTANCE (FEET)	-10	0	100	150
EXISTING ELEV (FEET)	375.2	374.6	373.4	
PROPOSED ELEV (FEET)	375.66	376.11	375.36	

CB-7 TO STREAM OUTFALL PROFILE
V: 1" = 10'
H: 1" = 20'

H: 20 0 5 10 20
V: 10 0 5 10
SCALE IN FEET

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINA · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINA, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY 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

LANGAN Project No. 190085001

Date: 10/5/2023 Time: 21:57 User: gnyambura Style Table: Langan.stb Layout: CG201 Document Code: 190085001-0301-CG201-0101

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINNEGAN · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINNEGAN, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

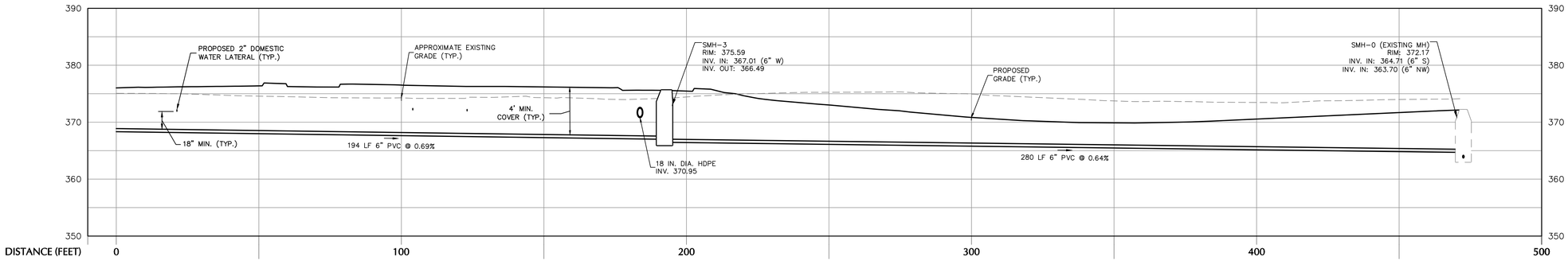
Drawing Title
UTILITY PLAN

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

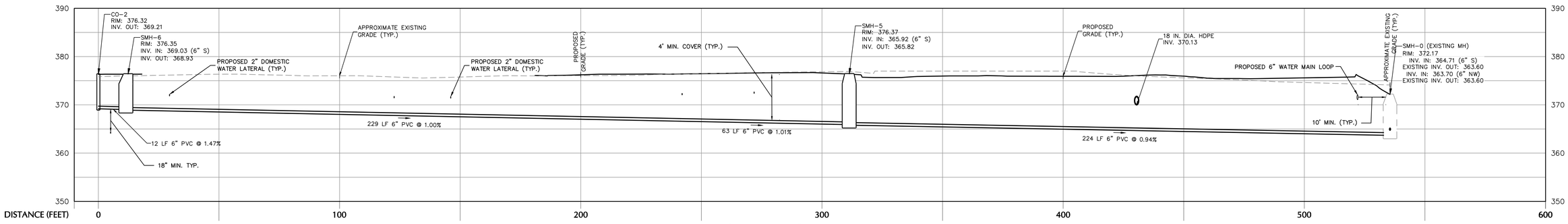
Drawing No. CU101
Sheet 7 of 17

Date: 10/5/2023 Time: 21:58 User: gnyambura Style Table: Langan.stb Layout: CU101 Document Code: 190085001-0301-CU101-0101

LANGAN
Project No. 190085001



SANITARY SEWER RUN - 1



SANITARY SEWER RUN - 2

H: 20 V: 10
0 5 10 20
0 5 10
SCALE IN FEET

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINAMORE · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINAMORE, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

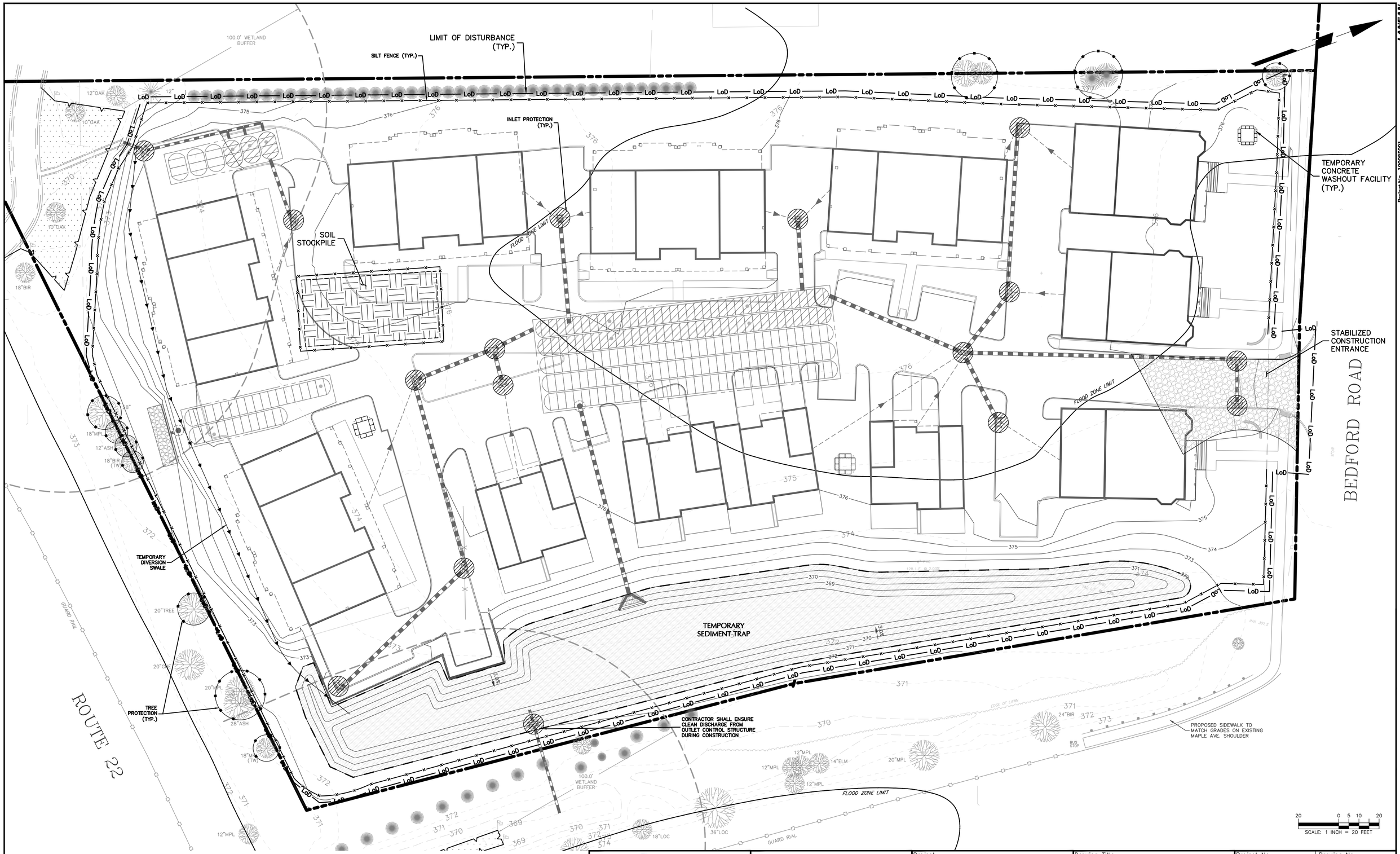
Drawing Title
SANITARY SEWER PROFILE

Project No.	190085001
Date	AUGUST 7, 2023
Drawn By	GN
Checked By	MT

Drawing No.
CU201
Sheet 8 of 17

Date: 10/5/2023 Time: 21:58 User: gnyambura Style Table: Langan.stb Layout: CU201 Document Code: 190085001-0301-CU201-0101

LANGAN Project No. 190085001



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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK — MICHAEL J. FINAMORE — 081473 — LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINAMORE, PE, LEED–AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

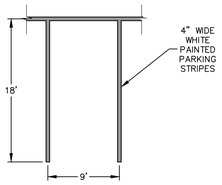
Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title
SOIL EROSION & SEDIMENT CONTROL PLAN

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

LANGAN
Project No. 190085001

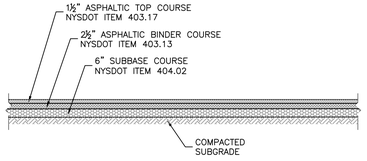
Date: 10/5/2023 Time: 21:58 User: gnyambura Style Table: Langan.stb Layout: CE101 Document Code: 190085001-0301-CE101-0101



TYPICAL STRIPING

PARKING STRIPING

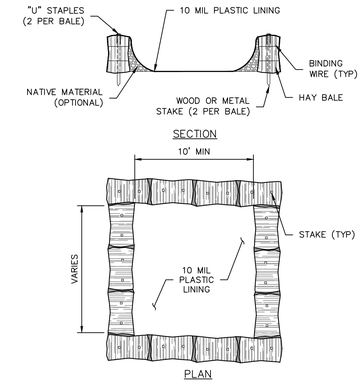
SCALE: NTS



NOTE: MINIMUM SLOPE SHALL BE 1% FOR PARKING LOT.

ASPHALT PAVEMENT DETAIL

SCALE: NTS

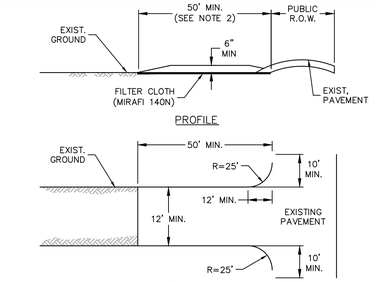


PLAN

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

ABOVE GROUND TEMPORARY CONCRETE WASHOUT FACILITY

SCALE: NTS



PLAN VIEW

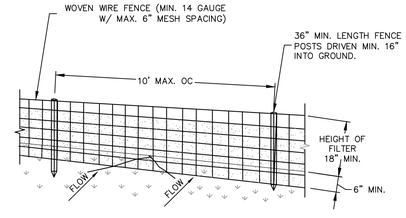
NOTE:
PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.

CONSTRUCTION SPECIFICATIONS

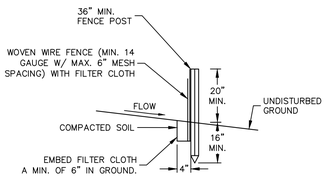
1. STONE SIZE – USE 3" STONE (NYSDOT ITEM #623.11 SIZE DESIGNATION #2, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – NOT LESS THAN 50-FEET (EXCEPT ON SINGLE FAMILY LOT, 30-FEET MINIMUM LENGTH WOULD APPLY.)
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM. BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SIGHT.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. 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
7. 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 TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTR. ENTRANCE

SCALE: NTS



PERSPECTIVE VIEW



SECTION VIEW

CONSTRUCTION SPECIFICATIONS:

1. 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.
2. 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.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
4. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
5. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT THAT MEETS THE MINIMUM REQUIREMENTS SHOWN.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

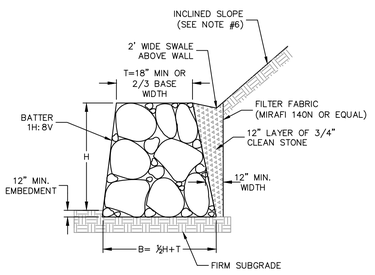
DETAIL NOTES:

1. INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL ("THE BLUE BOOK").
2. 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 3H:1V. TO ALLOW FOR MAINTENANCE AND ROLL DOWN. THE AREA BEYOND THE FENCE MUST BE UNDISTURBED OR STABILIZED.
3. 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.
4. SILT FENCE SHALL BE REMOVED AS SOON AS THE DISTURBED AREA HAS ACHIEVED FINAL STABILIZATION.

		SLOPE LENGTH/FENCE LENGTH (FT.)		
SLOPE	STEEPNESS	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

SILT FENCE

SCALE: NTS

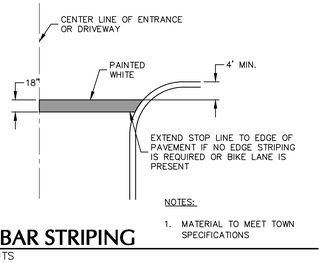


NOTES:

1. BOULDERS AND BLASTED ROCK ARE TO BE PLACED IN SUCH A MANNER THAT THERE ARE NO VOIDS LARGER THAN 4".
2. A VARIETY OF ROCK SIZES ARE TO BE USED TO CREATE AN INTERGRATED INTERLOCKING MASS.
3. AT LEAST ⅓ OF THE ROCK TO HAVE AT LEAST AN EFFECTIVE DIAMETER OF 2 FT.
4. THE ROCKS/BOULDERS SHALL BE PLACED SO THAT THE RESULTING FACE OF THE WALL IS A REASONABLY FLUSH PLANE
5. ALL ROCK/BOULDERS SHALL BE SOUND ROCK NOT SUSCEPTIBLE TO WEATHERING AND DEGRADATION. ROCK TO BE USED TO BE APPROVED BY THE GEOTECHNICAL ENGINEER.
6. 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.
7. FIELD ENGINEER SHALL BE PRESENT DURING THE CONSTRUCTION OF ALL ROCK WALLS.
8. ROCK WALLS TO BE CONSTRUCTED BY A CONTRACTOR EXPERIENCED IN BOULDER WALL CONSTRUCTION.

BOULDER WALL

SCALE: NTS

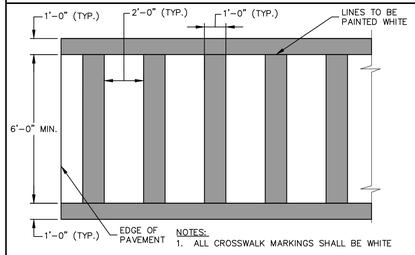


NOTES:

1. MATERIAL TO MEET TOWN SPECIFICATIONS

STOP BAR STRIPING

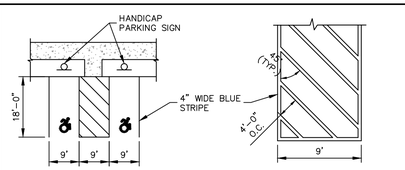
SCALE: NTS



NOTES:
1. ALL CROSSWALK MARKINGS SHALL BE WHITE

CROSSWALK STRIPING (TYPE LS)

SCALE: NTS

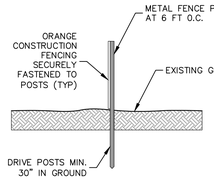


STRIPING DETAIL IN ACCESS AISLE

NOTES:
1. ALL STALLS SHALL BE A MINIMUM OF 8'-0"X18'-0".
2. SPACES DESIGNATED AS BEING "VAN ACCESSIBLE" SHALL BE ADJACENT TO ACCESS AISLES WITH A MIN. WIDTH OF 8'-0".
3. PROPOSED STRIPING SHALL BE BLUE IN COLOR

ADA PARKING SPACE STRIPING

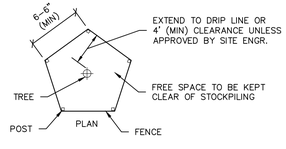
SCALE: NTS



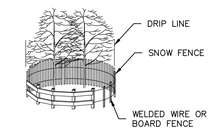
SECTION VIEW

ORANGE CONSTRUCTION FENCE

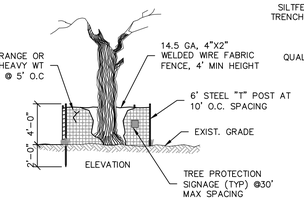
SCALE: NTS



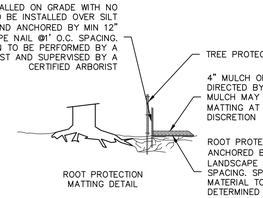
NOTE:
THE TREE PROTECTION SHOULD BE INSTALLED PRIOR TO ANY WORK, IN AREA WHERE CONTRACTOR DEEMS NECESSARY, AND REMAIN UNTIL END OF ALL WORK.



CORRECT METHOD OF TREE FENCING



SILTFENCE TO INSTALLED ON GRADE WITH NO TRENCH. MATTING TO BE INSTALLED OVER SILT FABRIC AND ANCHORED BY MIN 12" LANDSCAPE NAIL @1' O.C. SPACING. INSTALLATION TO BE PERFORMED BY A QUALIFIED ARBORIST AND SUPERVISED BY A CERTIFIED ARBORIST



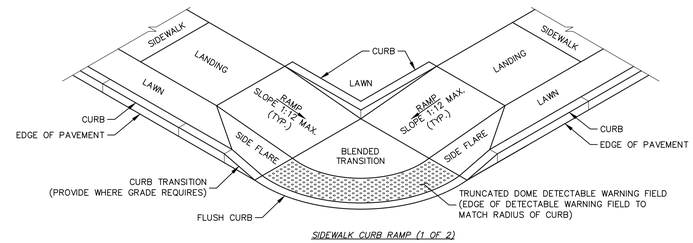
ROOT PROTECTION MATTING DETAIL

CONSTRUCTION SPECIFICATIONS

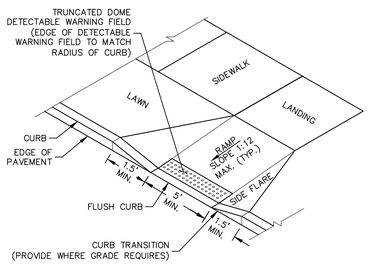
1. TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN FIELD BY PROJECT FORESTER.
2. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
3. TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
4. 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 (1 OF 2)



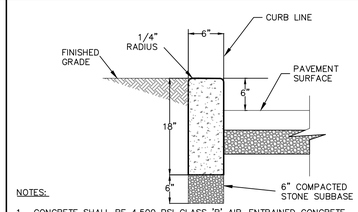
SIDEWALK CURB RAMP (2 OF 2)

SIDEWALK CURB RAMP

SCALE: NTS

SIDEWALK CURB RAMP NOTES:

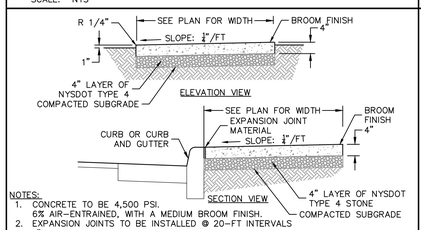
1. THERE SHALL BE A LANDING AT THE TOP OF EACH CURB RAMP.
2. LANDINGS SHALL HAVE A MINIMUM CLEAR DIMENSION OF 5 FEET BY 5 FEET SQUARE. THE MAXIMUM CROSS SLOPE AT LANDINGS IS 2 PERCENT IN ANY DIRECTION. LANDINGS MAY OVERLAP WITH ADJACENT LANDINGS OR A SINGLE LANDING MAY SERVE MULTIPLE CURB RAMPS OR PARALLEL/PERPENDICULAR RAMPS.
3. THE MAXIMUM CROSS SLOPE OF CURB RAMPS SHALL BE 2 PERCENT. CURB RAMPS SURFACES SHALL GENERALLY LIE IN CONTINUOUS PLANES WITH A MINIMUM OF SURFACE WARP.
4. THE RUNNING GRADE OF CURB RAMPS SHOULD BE AS FLAT AS PRACTICABLE. THE MAXIMUM RUNNING GRADE OF ANY PORTION OF ANY CURB SHALL BE 1:12 (8.3%).
5. CURB RAMPS 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. WHEN INFEASIBLE OR 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.
6. THE SURFACE OF ALL CURB RAMPS 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.
7. RAMP TRANSITIONS BETWEEN WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES.
8. 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.
9. 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 WIDTH OF THE MARKINGS.
10. DETAILS ILLUSTRATE THAT DETECTABLE WARNINGS ARE REQUIRED. SEE THE CURRENT DETECTABLE WARNING STANDARD DETAIL AND NOTES FOR SPECIFIC DETECTABLE WARNING REQUIREMENTS.
11. SLOPES ON BLENDED TRANSITIONS SHALL NOT BE STEEPER THAN 2% (1 ON 50) IN ANY DIRECTION).
12. REFER TO THE SIDEWALK DETAIL FOR REQUIRED CONCRETE STRENGTH.



NOTES:
1. CONCRETE SHALL BE 4,500 PSI CLASS 'B' AIR-ENTRAINED CONCRETE.
2. TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB AT 20 FOOT INTERVALS AND SHALL BE FILLED WITH PREFORMED BITUMINOUS JOINT FILLER.
3. ALL CURBS SHALL BE INSTALLED ON AN APPROVED, COMPACTED SUBGRADE.

6-INCH CONCRETE CURB

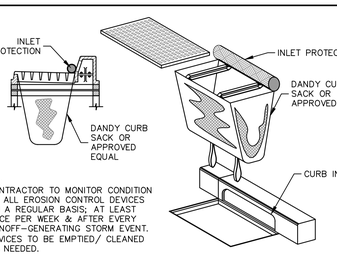
SCALE: NTS



NOTES:
1. CONCRETE TO BE 4,500 PSI. 6% AIR-ENTRAINED, WITH A MEDIUM BROOM FINISH.
2. EXPANSION JOINTS TO BE INSTALLED @ 20-FT INTERVALS
3. 1" TOOLED JOINTS @ 5-FT INTERVALS.
4. EXTERIOR CONCRETE SHALL HAVE A WATER CONTENT RATIO OF 0.45 AND 6% AIR ENTRAINMENT.
5. CONTROL JOINTS SHALL BE SPACED MAXIMUM 15 FEET APART IN BOTH DIRECTIONS.

CONCRETE SIDEWALK

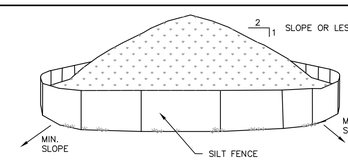
SCALE: NTS



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

INLET PROTECTION - DANDY SACK

SCALE: NTS



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

TEMPORARY STOCKPILE

SCALE: NTS

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.

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

Revisions

STATE OF NEW YORK · MICHAEL J. FINNERTY · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINNERTY, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title: DETAILS (1 OF 3)

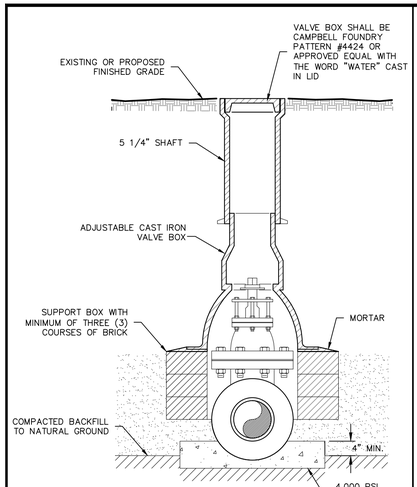
Project No.	190085001
Date	AUGUST 7, 2023
Drawn By	GN
Checked By	MT

Drawing No. CS501

Sheet 10 of 17

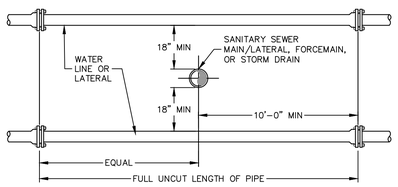
LANGAN Project No. 190085001

Date: 10/5/2023 Time: 21:58 User: gnyambura Style Table: Langan.stb Layout: Layout1 Document Code: 190085001-0301-CS501-0101

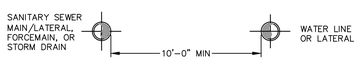


NOTES:
1. SIMILAR INSTALLATION FOR CURB BOX OR SERVICE LINE.
2. REFER TO PLAN FOR SIZE AND LOCATION.
3. VALVES TO BE MUELLER.

VALVE BOX
SCALE: NTS



VERTICAL SEPARATION



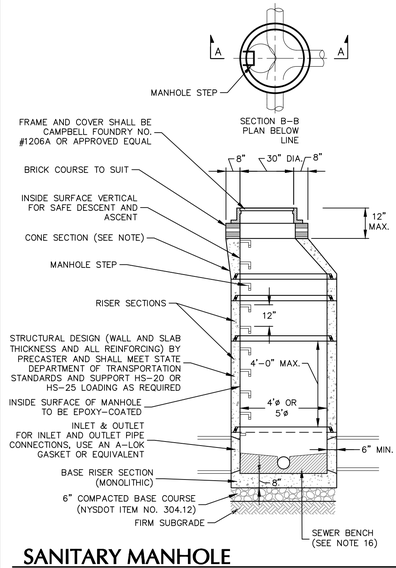
HORIZONTAL SEPARATION

NOTES:

1. NO DEVIATION IN THE SEPARATION REQUIREMENTS WILL BE PERMITTED WITHOUT THE APPROVAL OF THE HEALTH DEPARTMENT.
2. IF THE MINIMUM SEPARATION REQUIREMENTS CANNOT BE ACHIEVED, ONE OF THE FOLLOWING MUST USED:
   A. VERTICAL:
      - OFFSET THE WATER LINE TO PROVIDE 18" MINIMUM VERTICAL SEPARATION FROM THE SEWER/STORM PIPE. ONE FULL LENGTH OF PIPE MUST BE CENTERED OVER THE SEWER/STORM PIPE SO THAT BOTH JOINTS WILL BE AS FAR AWAY FROM THE SEWER/STORM PIPE AS POSSIBLE. REFER TO WATER LINE OFFSET DETAIL FOR ADDITIONAL INFORMATION.

   B. VERTICAL AND HORIZONTAL:
      - CONSTRUCT THE SEWER OF PVC PRESSURE PIPE MATERIAL, 10' ON EACH SIDE OF THE WATER LINE/SEWER CROSSING. THE SEWER PIPE MUST BE PRESSURE TESTED.
      - ENCASE THE WATER LINE IN 50 PSI CONCRETE, 10' ON EACH SIDE OF THE WATER LINE/SEWER CROSSING. CONCRETE ENCASEMENT MUST BE A MINIMUM OF 6" AROUND THE WATER LINE.

WATER LINE SEPARATION
SCALE: NTS

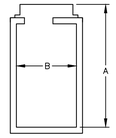


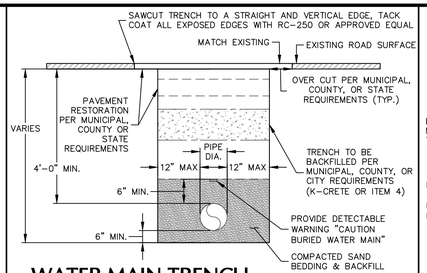
SANITARY MANHOLE
SCALE: NTS

SANITARY MANHOLE NOTES:

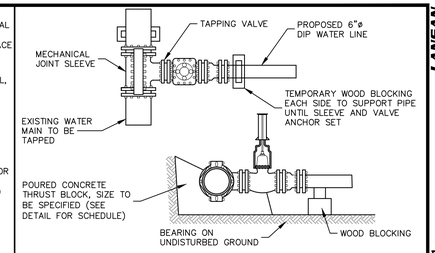
1. THE DEPTH OF THE INVERT CHANNEL SHALL BE EQUAL TO 3/4 OF THE DIAMETER OF THE SEWER.
2. THE BENCH SHALL SLOPE TOWARD THE INVERT CHANNEL AT A RATE OF 1" PER FOOT.
3. TYPE "B" MANHOLES (SHALLOW TYPE) TO BE PROVIDED WHERE REQUIRED BY DEPTH CONDITIONS.
4. SEE THE SPECIFICATIONS FOR LENGTH OF PIPE CONNECTIONS TO MANHOLE.
5. ALL CONCRETE SHALL BE 4,000 PSI MINIMUM.
6. ENTIRE OUTSIDE SURFACE OF MANHOLE SHALL RECEIVE TWO COATS OF BITUMINOUS COATING. KOPPERS 300M PENNOXY TAR 32-8-4, OR APPROVED EQUAL.
7. INSTALL 2 LAYERS OF PLASTIC PREFORMED JOINT SEALANT BETWEEN ALL SECTIONS & UNDER FRAME.
8. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR MANHOLE IN ACCORDANCE WITH SPECIFICATIONS.
9. 4' DIA. MANHOLE – FROM 8" TO 30" PIPES
10. MANHOLES THAT RECEIVE FORCE MAIN DISCHARGE OR THAT ARE LOCATED ON INTERCEPTORS OR TRUNK SEWERS SHALL BE CONSTRUCTED WITH A DIP LINE.
11. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER MANHOLES SHALL HAVE LETTERS "SEWER", AND STORM DRAIN MANHOLES SHALL HAVE LETTERS "DRAIN" CAST ON THE COVERS.
12. THE PRECAST CONCRETE STRUCTURE SHALL COMPLY WITH ASTM SPECIFICATIONS C478.
13. ALL SANITARY SEWER MANHOLES ARE TO BE CONSTRUCTED WITH THE COMPRESSION TYPE RESILIENT SEAL ASSEMBLY EQUAL TO "OMEGA CONCRETE PRODUCTS INC.".
14. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND CONSTRUCT THE PROPER SIZE STRUCTURE INCLUDING THE NECESSARY OPENINGS TO ACCOMMODATE THE WORK, AS SHOWN ON THE PLANS OR ORDERED BY THE ENGINEER, AT NO ADDITIONAL COST.
15. ALL NECESSARY PATCHING SHALL BE ACCOMPLISHED WITH A NON-SHRINK CEMENT MORTAR GROUT EQUAL TO "SIKA-SET" AS MANUFACTURED BY THE SIKA CHEMICAL CORPORATION.
16. THE CHANNEL WALLS SHOULD BE FORMED OR SHAPED TO THE FULL HEIGHT OF THE CROWN OF THE OUTLET SEWER IN SUCH A MANNER AS TO NOT OBSTRUCT MAINTENANCE, INSPECTION, OR FLOW IN THE SEWERS.

DEPTH 'A'	WIDTH 'B'
< 10'-0"	4'-0"ø
> 10'-0"	5'-0"ø

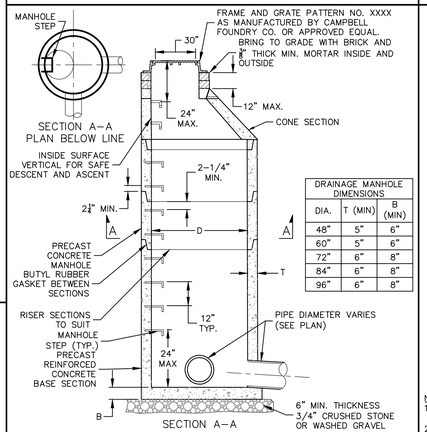




WATER MAIN TRENCH
SCALE: NTS



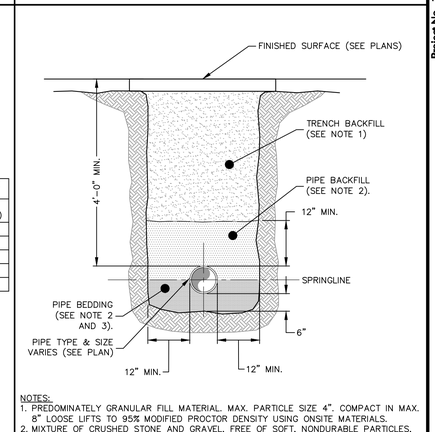
TAPPING SLEEVE AND VALVE ASSEMBLY
SCALE: NTS



DRAINAGE MANHOLE DIMENSIONS		
DIA.	T (MIN)	B (MIN)
48"	5"	6"
60"	5"	6"
72"	6"	8"
84"	6"	8"
96"	6"	8"

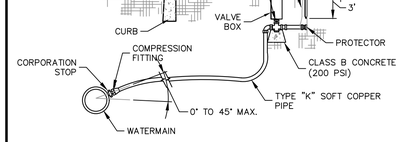
NOTES:
1. MANHOLE TO BE DESIGNED FOR H-20 LOADING.
2. SEE THE SPECIFICATIONS FOR LENGTH OF PIPE CONNECTIONS TO MANHOLE.
3. CONCRETE TO TEST 4,000 PSI MINIMUM @ 28 DAYS IN CONFORMANCE WITH ASTM C-478.
4. INSTALL BUTYL RUBBER BETWEEN ALL SECTIONS OF MANHOLE.
5. STEPS TO ALUMINUM ALLOY WITH DEPRESSED TREAD. STEEL REINFORCED POLYPROPYLENE IS OPTIONAL.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL.
7. SOIL CONDITIONS BELOW STRUCTURE DEEMED UNSUITABLE BY THE FIELD ENGINEER SHALL BE EXCAVATED TO A SUITABLE MATERIAL OR A MAXIMUM OF TWO ADDITIONAL FEET AND BACKFILLED WITH 3/4" CLEAN CRUSHED STONE.

STORMWATER MANHOLE
SCALE: NTS



NOTES:
1. PREDOMINATELY GRANULAR FILL MATERIAL. MAX. PARTICLE SIZE 4". COMPACT IN MAX. 8" LOOSE LIFTS TO 95% MODIFIED PROCTOR DENSITY USING ONSITE MATERIALS.
2. MIXTURE OF CRUSHED STONE AND GRAVEL, FREE OF SOFT, NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES. MAX. PARTICLE SIZE ¾". COMPACT IN MAX. 6" LOOSE LIFTS.
3. WHEN IN LEDGE, USE AASHTO NO. 67 OR EQUAL PROCESSED SAND AND GRAVEL FREE OF DEBRIS, CLAY LUMPS, ORGANIC, OR OTHER DELETERIOUS MATERIAL. COMPACT TO THE SPRINGLINE IN MAX. 6" LOOSE LIFTS.
4. TRENCHING SHALL BE IMPLEMENTED IN ACCORDANCE WITH O.S.H.A. STANDARDS.

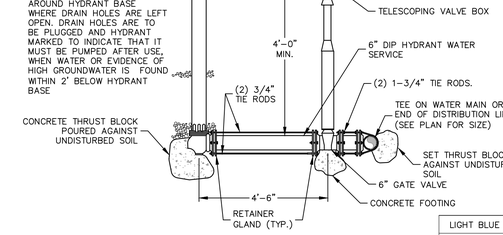
SEWER PIPE TRENCH
SCALE: NTS



NOTE:

1. INSTALL WATER SERVICE WITH MIN. 4'-0" COVER
2. COPPER SERVICES SHALL BE CONTINUOUS WITH NO JOINTS FROM CORP. STOP TO QUARTER BEND.
3. ALL COPPER FITTINGS SHALL BE COMPRESSION FITTINGS.

WATER SERVICE LINE
SCALE: NTS

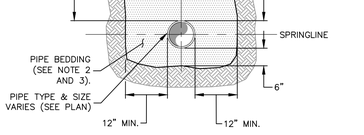


NOTES:

1. PUMPER OUTLET SHALL FACE STREET; HOSE OUTLETS SHALL BE PARALLEL TO STREET.
2. PLUMBNESS OF HYDRANT TO BE CHECKED IN TWO DIRECTIONS, 90 APART.
3. RODDING SHALL CONSIST OF TWO 3/4" THREADED RODS CAREFULLY COATED WITH BITUMASTIC PAINT. RODDING MAY BE OMITTED BETWEEN THE MAIN AND LATERAL VALVE ONLY WHERE A TAPPING VALVE OR HYDRANT VALVE ANCHORING TEE IS USED.
4. 1-1/2" STONE SHALL BE PLACED AROUND THE HYDRANT FROM THE BOTTOM OF THE TRENCH, BUT AT LEAST 6" BELOW THE BASE OF THE HYDRANT TO 6" ABOVE THE WASTE OPENING AND TO A DISTANCE OF 12" AROUND THE ELBOW.
5. HYDRANTS WITH PLUGGED DRAINS SHALL HAVE A 3" BLACK CIRCLE PAINTED DIRECTLY UNDER THE PUMPER OUTLET.
6. IF GROUND WATER IS ENCOUNTERED WITHIN 7' OF SURFACE, DRAIN HOLES SHALL BE PLUGGED. WHEN DRAIN ARE PLUGGED, THE BARRELS MUST BE PUMPED DRY AFTER USE. DURING FREEZING WEATHER, WHERE HYDRANT DRAINS ARE NOT PLUGGED, A GRAVEL POCKET OR DRY WELL SHALL BE PROVIDED UNLESS THE NATURAL SOILS WILL PROVIDE ADEQUATE DRAINAGE. HYDRANT DRAINS SHALL NOT BE CONNECTED TO OR LOCATED WITHIN 10' OF SANITARY SEWER OR STORM DRAINS.
7. TYPE OF HYDRANT TO BE AS APPROVED BY LOCAL FIRE DEPARTMENT, GOVERNMENT AGENCY AND OR WATER COMPANY
8. FOR ALL NEW HYDRANTS THE CONTRACTOR SHALL COLOR CODE THE TOPS OF THE HYDRANT(S) TO DESIGNATE THE LEVEL OF SERVICE BEING PROVIDED BY THAT HYDRANT. COLOR CODING SHALL BE IN ACCORDANCE WITH THE TABLE BELOW.
9. BLUE STREET REFLECTORS SHALL BE INSTALLED TO INDICATE FIRE HYDRANT LOCATIONS

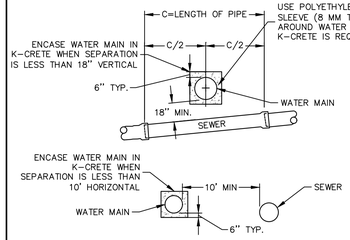
LIGHT BLUE	1,500 GPM OR GREATER
GREEN	1,000 TO 1,499 GPM
ORANGE	500 TO 999 GPM
RED	LESS THAN 500 GPM
WHITE	CROSS ON TOP OF HYDRANT – FOR FILLING TANKERS ONLY

FIRE HYDRANT
SCALE: NTS



NOTES:
1. PREDOMINATELY GRANULAR FILL MATERIAL. MAX. PARTICLE SIZE 4". COMPACT IN MAX. 8" LOOSE LIFTS TO 95% MODIFIED PROCTOR DENSITY USING ONSITE MATERIALS.
2. MIXTURE OF CRUSHED STONE AND GRAVEL, FREE OF SOFT, NONDURABLE PARTICLES, ORGANIC MATERIALS AND ELONGATED PARTICLES. MAX. PARTICLE SIZE ¾". COMPACT IN MAX. 6" LOOSE LIFTS.
3. WHEN IN LEDGE, USE AASHTO NO. 67 OR EQUAL PROCESSED SAND AND GRAVEL FREE OF DEBRIS, CLAY LUMPS, ORGANIC, OR OTHER DELETERIOUS MATERIAL. COMPACT TO THE SPRINGLINE IN MAX. 6" LOOSE LIFTS.
4. TRENCHING SHALL BE IMPLEMENTED IN ACCORDANCE WITH O.S.H.A. STANDARDS.

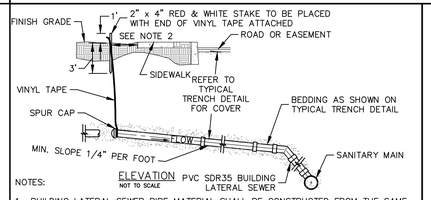
DRAINAGE PIPE TRENCH
SCALE: NTS



NOTES:

1. WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER MAIN & THE OUTSIDE OF THE SEWER. THIS WILL BE THE CASE WHETHER THE WATER MAIN PASSES ABOVE OR BELOW THE SEWER.
2. AT CROSSINGS ONE FULL LENGTH OF SEWER PIPE SHALL BE LAID SO BOTH JOINTS WILL BE AS FAR FROM THE WATER MAIN AS POSSIBLE. SEE DETAIL WHERE THE SEWER HAS ALREADY BEEN INSTALLED. THE WATER MAIN SHALL BE PLACED SO THAT THE JOINTS ON THE WATER MAIN ARE EQUIDISTANT FROM THE SEWER.
3. WATER MAINS SHALL BE LAID AT LEAST 10' HORIZONTALLY FROM ANY EXISTING OR PROPOSED SEWER. IN CASES WHERE THIS IS NOT POSSIBLE, THE REVIEWING AUTHORITY MAY ALLOW ENCASEMENT, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER.
4. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY SEWER MANHOLE.
5. IN THE EVENT THAT THERE IS ANY DEVIATION FROM THE ABOVE REQUIREMENTS, SAID CHANGES MUST BE APPROVED BY THE COUNTY HEALTH DEPARTMENT PRIOR TO THE COMPLETION OF ANY SUCH CHANGES.

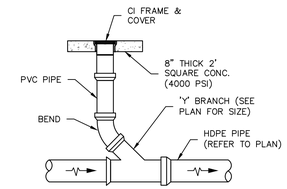
SEWER - WATER MAIN CROSSING
SCALE: NTS



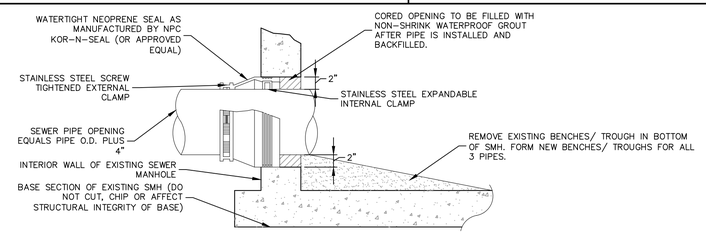
NOTES:

1. BUILDING LATERAL SEWER PIPE MATERIAL SHALL BE CONSTRUCTED FROM THE SAME MATERIAL AS THE SEWER MAIN.
2. WYE BRANCH CONNECTION SHALL BE A FITTING CONSTRUCTED SPECIFICALLY FOR THE INSTALLED MAIN LINE SEWER MATERIAL CLASS (OR APPROVED EQUAL).

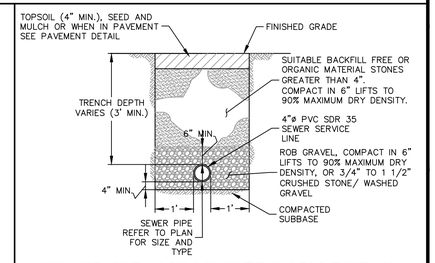
BUILDING LATERAL SEWER CONNECTION
SCALE: NTS



SANITARY CLEANOUT
SCALE: NTS



PROPOSED SEWER CONNECTION TO EXISTING SEWER MANHOLE DETAIL
SCALE: NTS



SEWER SERVICE LINE TRENCH DETAIL
SCALE: NTS

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINA · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINA, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

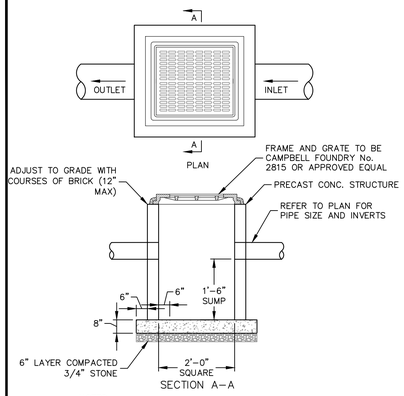
Drawing Title: DETAILS (2 OF 3)

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

Drawing No. CS502
Sheet 11 of 17

LANGAN
Project No. 190085001

Date: 10/5/2023 Time: 21:58 User: gnyambura Style Table: Langan.stb Layout: Layout1 Document Code: 190085001-0301-CS501-0102

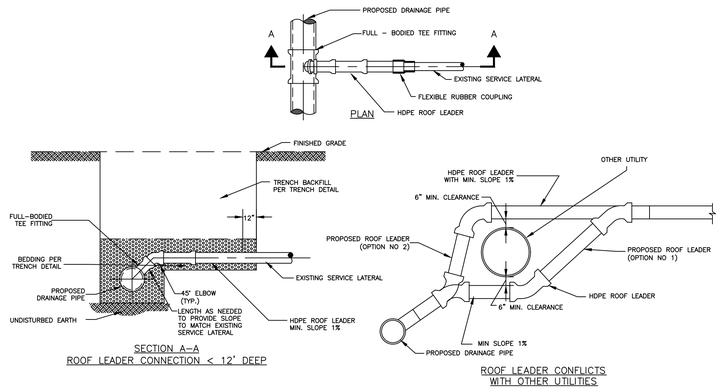


NOTES:

1. FOUNDATION TO BE 4000 PSI CONCRETE.
2. THE WALLS SHALL BE PLASTERED BOTH INSIDE AND OUTSIDE WITH 1/2" THICK CEMENT PLASTER.
3. FRAME AND GRATE TO BE CAMPBELL FOUNDRY CASTING NUMBER 2815.
4. PROVIDE LADDER RUNGS AT 12" CENTER TO CENTER.
5. WHEN THE DEPTH OF AN INLET EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, WALLS BELOW A DEPTH OF 8 FEET SHALL BE 12" THICK AND THE DEPTH OF FOUNDATION INCREASED TO 12".

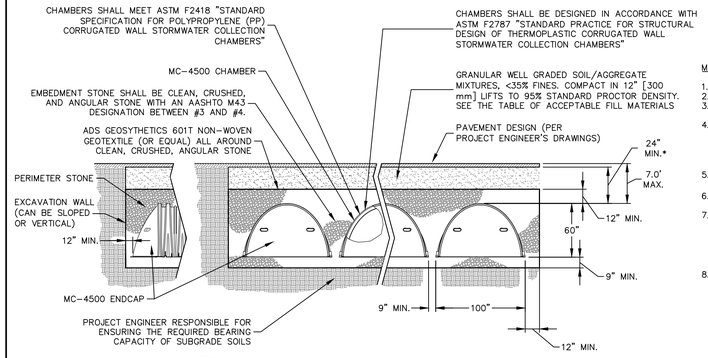
YARD DRAIN

SCALE: NTS



ROOF LEADER CONNECTION

SCALE: NTS



NOTES:

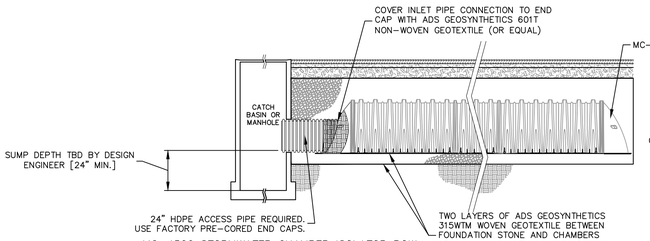
1. PERIMETER STONE MUST ALWAYS BE BROUGHT UP EVENLY WITH BACKFILL OF BED. PERIMETER STONE MUST EXTEND HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH STRAIGHT OR SLOPED SIDEWALLS.
2. THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS, WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

MC-4500 STORMWATER CHAMBER SPECIFICATIONS:

1. CHAMBERS SHALL BE STORMTECH MC-4500 OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MADE FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL CONFIRM TO THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATIONS FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS.
6. CHAMBERS SHALL CONFIRM TO THE REQUIREMENTS OF ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS.
7. ONLY CHAMBERS THAT ARE APPROVED BY THE PROJECT ENGINEER WILL BE ALLOWED. THE CONTRACTOR SHALL SUBMIT (3 SETS) OF THE FOLLOWING TO THE PROJECT ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION BY A REGISTERED STRUCTURAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12 ARE MET.
   b. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL CROSS SECTION IS BASED.
8. THE INSTALLATION OF CHAMBERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S LATEST CONSTRUCTION GUIDE.

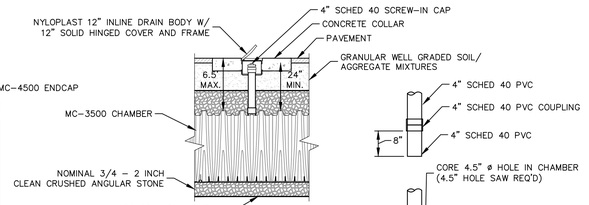
MC-4500 STORMWATER CHAMBER CROSS SECTION

NOT TO SCALE



MC-4500 STORMWATER CHAMBER ISOLATOR ROW

NOT TO SCALE

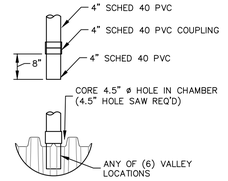


NOTES:

1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY OF (6) CHAMBER CORRUGATION VALLEYS.
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED.

MC-4500 STORMWATER CHAMBER INSPECTION PORT

NOT TO SCALE

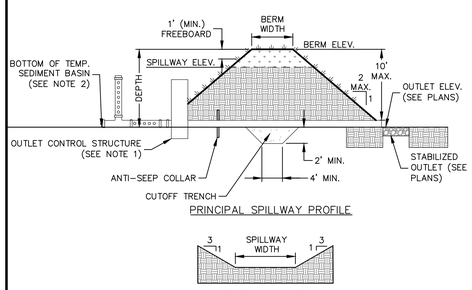


CONNECTION DETAIL

NTS

STORMTECH MC-4500 STORMWATER CHAMBER

SCALE: NTS



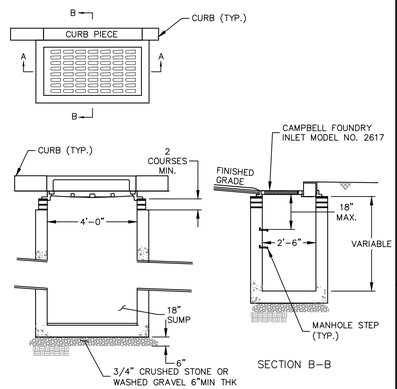
NOTES:

1. INSTALL OUTLET CONTROL STRUCTURE. BOARD UP ORIFICES, SLOTS, AND TOP OF STRUCTURE.
2. TEMPORARY SEDIMENT BASIN TO BE EXCAVATED TO THE TOP OF THE GRAVEL LAYER OF THE BIORETENTION AREA AND AQUATIC BENCH OF THE STORMWATER POND. SOIL RESTORATION TO BE PERFORMED AS NECESSARY. SOILS TO BE RESTORED SHALL BE AERATED. AERATION INCLUDES THE USE OF MACHINES SUCH AS TRACTOR-DRAWN IMPLEMENTS WITH COULTERS MAKING A NARROW SLIT IN THE SOILS, A ROLLER WITH MAHY SPIKES MAKING INDENTATION IN THE SOILS, OR PRONGS WHICH FUNCTION LIKE A MINI-SUBSOILER.
3. ONCE SITE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, THE TEMPORARY SEDIMENT BASIN SHALL BE CLEANED AND EXCAVATED FOR THE INSTALLATION OF THE BIORETENTION AREAS AND STORMWATER POND. ALL ACCUMULATED SEDIMENT WITHIN THE TEMPORARY SEDIMENT BASIN SHALL BE REMOVED.
4. SEE SEDIMENT BASIN DEWATERING STRUCTURE FOR ADDITIONAL INFORMATION ON DEWATERING THE TEMPORARY SEDIMENT BASIN.

LOCATION	DRAINAGE AREA (AC)	VOLUME (CF)	DEPTH (FT)	SURFACE AREA (SF)	BASIN BOTTOM ELEV (FT)	BERM WIDTH (FT)	BERM ELEV (FT)	SPILLWAY ELEV (FT)	SPILLWAY WIDTH (FT)	OUTLET DIA. (IN)	BASIN CLEANOUT ELEV (FT)
BIORETENTION B1a	6.4	67,281	4.25	29,535	422.25	10	427.5	426.5	10	30	424.0
BIORETENTION B1b	10.9	21,000	4.25	27,055	422.25	10	427.5	426.5	10	30	424.0

TEMPORARY SEDIMENT TRAP (USING OUTLET CONTROL STRUCTURES)

SCALE: NTS

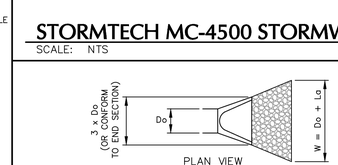


NOTES:

1. THE CONTRACTOR SHALL SUBMIT SHOP DWGS. FOR EACH STRUCTURE FOR THE ENGINEERS APPROVAL PRIOR TO FABRICATION.
2. STRUCTURE SHALL BE CERTIFIED AS CONFORMING TO ASTM-C913 LATEST REVISION.
3. STEPS NOT REQUIRED FOR STRUCTURES LESS THAN 4' DEEP.
4. STRUCTURAL DESIGN (WALL AND SLAB THICKNESS AND ALL REINFORCING) BY PRECASTER AND SHALL MEET STATE DEPARTMENT OF TRANSPORTATION STANDARDS AND SUPPORT HS-20 LOADING AS REQUIRED

CATCH BASIN

SCALE: NTS

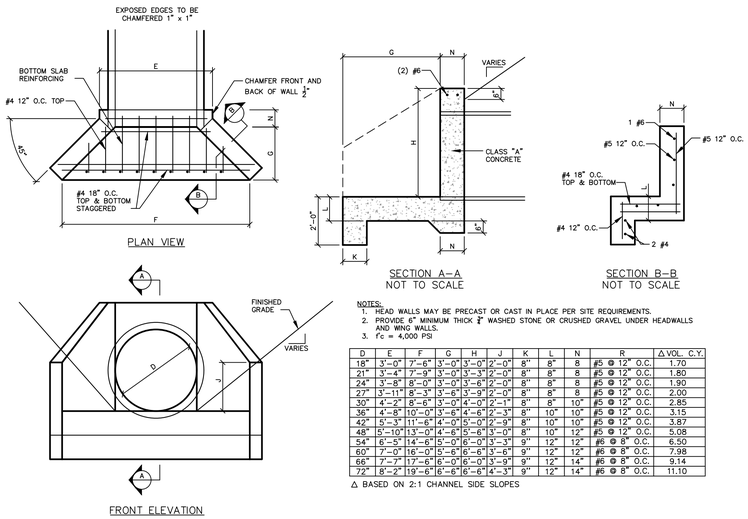


NOTE:
IF UNABLE TO PROVIDE REQUIRED DIMENSIONS, THEN PROVIDE SAME AREA BASED UPON THE REQUIRED DIMENSIONS.

PLASTIC FABRIC CLOTH, 20-60 MILS THICK, GRAB STRENGTH 90-120 LBS, SHALL CONFORM TO ASTM D-1777 AND ASTM D-1682

RIP RAP OUTLET PROTECTION

SCALE: NTS



NOTES:

1. HEAD WALLS MAY BE PRECAST OR CAST IN PLACE PER SITE REQUIREMENTS.
2. PROVIDE 6" MINIMUM THICK 3/4" WASHED STONE OR CRUSHED GRAVEL UNDER HEADWALLS AND WING WALLS.
3. f'c = 4,000 PSI

D	E	F	G	H	J	K	L	N	R	△VOL. C.Y.
18"	3'-0"	7'-6"	3'-0"	3'-0"	2'-0"	8"	8"	8	#5 @ 12" O.C.	1.70
21"	3'-4"	7'-9"	3'-0"	3'-3"	2'-0"	8"	8"	8	#5 @ 12" O.C.	1.80
24"	3'-8"	8'-0"	3'-0"	3'-6"	2'-0"	8"	8"	8	#5 @ 12" O.C.	1.90
27"	3'-11"	8'-3"	3'-0"	3'-9"	2'-0"	8"	8"	8	#5 @ 12" O.C.	2.00
30"	4'-2"	8'-6"	3'-0"	4'-0"	2'-1"	8"	8"	10"	#5 @ 12" O.C.	2.85
36"	4'-8"	10'-0"	3'-6"	4'-6"	2'-3"	8"	10"	10"	#5 @ 12" O.C.	3.15
42"	5'-3"	11'-6"	4'-0"	5'-0"	2'-9"	8"	10"	10"	#5 @ 12" O.C.	3.87
48"	5'-10"	13'-0"	4'-6"	5'-6"	3'-0"	8"	10"	12"	#5 @ 12" O.C.	5.08
54"	6'-5"	14'-6"	5'-0"	6'-0"	3'-3"	9"	12"	12"	#6 @ 8" O.C.	6.50
60"	7'-0"	16'-0"	5'-6"	6'-6"	3'-6"	9"	12"	12"	#6 @ 8" O.C.	7.98
66"	7'-7"	17'-6"	6'-0"	6'-0"	3'-9"	9"	12"	14"	#6 @ 8" O.C.	9.14
72"	8'-2"	19'-6"	6'-6"	6'-6"	4'-3"	9"	12"	14"	#6 @ 8" O.C.	11.10

△ BASED ON 2:1 CHANNEL SIDE SLOPES

CONCRETE HEADWALL

SCALE: NTS

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

STATE OF NEW YORK · MICHAEL J. FINA · 081473 · LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINA, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title: DETAILS (3 OF 3)

Project No. 190085001
Date AUGUST 7, 2023
Drawn By GN
Checked By MT

Drawing No. CS503
Sheet 12 of 17

LANGAN
Project No. 190085001

Date: 10/5/2023 Time: 21:58 User: gnyambura Style Table: Langan.stb Layout: Layout1 Document Code: 190085001-0301-CS501-0103

PLANT SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
SHADE TREE(S)						
AR	20	ACER RUBRUM	RED MAPLE	3 1/2–5" CAL.	B+B	–
LSR	17	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	SEEDLESS SWEETGUM	3 1/2–5" CAL.	B+B	–
QR	6	QUERCUS RUBRA	RED OAK	3 1/2–5" CAL.	B+B	–
ORNAMENTAL TREE(S)						
BN	20	BETULA NIGRA	MULTI STEM RIVER BIRCH	12–14'	B+B	–
EVERGREEN TREE(S)						
PGL	47	PICEA GLAUCA	WHITE SPRUCE	8–10'	B+B	–
PGNS	11	PICEA GLAUCA 'NORTH STAR'	NORTH STAR WHITE SPRUCE	8–10'	CONTAINER	–
EVERGREEN SHRUB(S)						
IGS	33	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	24–30"	B=B	–
DECIDUOUS SHRUB(S)						
CA	66	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	24–30"	B+B	–
CEA	335	CEANOTHUS AMERICANUS	NEW JERSEY TEA	2–3'	B+B	spaced @ 18"
CS	35	CORNUS SERICEA (FORMERLY STOLONIFERA)	RED OSIER DOGWOOD	2–3'	B+B	–
CSF	29	CORNUS SERICEA 'FLAVIRAMEA'	YELLOW TWIG DOGWOOD	2–3'	B+B	–
HVCW	10	HAMAMELIS VIRGINIANA	COMMON WITCHHAZEL	3–4'	B+B	–
RAG	87	RHUS AROMATICA 'GRO LOW'	GRO LOW FRAGRANT SUMAC	2–3'	B+B	spaced @ 36"
ORNAMENTAL GRASS(ES)						
BGG	1478	BOUTELOUA GRACILIS	BLUE GRAMA GRASS	2 GAL.	CONTAINER	spaced @ 18"
SSCO	336	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	2 GAL.	CONTAINER	spaced @ 18"

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

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.
10/06/23	RESPONSE TO COMMENTS	1

Revisions

REGISTERED LANDSCAPE ARCHITECT MICHAEL HUNTON 2926 STATE OF NEW YORK

Signature Date

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

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title
PLANTING PLAN

Project No. 190085001
Date AUGUST 7, 2023
Drawn By MJ
Checked By MH

Drawing No. LP101
Sheet 13 of 17

LANGAN
Project No. 190085001

Date: 10/6/2023 Time: 11:17 User: mjuliana Style Table: Langan.stb Layout: LP101 Document Code: 190085001-0301-LP101-0101

TOWN OF NORTH CASTLE - ZONING BYLAW REGULATIONS COMPLIANCE CHART

REGULATION SECTION	REQUIRED / PERMITTED	PROVIDED / PROPOSED	COMPLIANCE
355–56.H.	THE COMMISSION MAY REQUIRE THE PLANTING OF TREES, OF AN APPROVED SPECIES, OF NOT LESS THAN THREE INCH CALIPER AT TIME OF PLANTING, SHALL BE PROVIDED WITHIN SUCH A PARKING AREA FOR EACH 10 PARKING SPACES.	1 TREE/ EVERY 10 PARKING SPACE. 75 PARKING SPACES IN PARKING AREA. 75 PARKING SPACES/ 10 = 7.5 7.5 = 8 PARKING LOT TREES REQUIRED. 24 PARKING LOT TREES PROVIDED.	COMPLIES
355–56 H.2.	IN ALL OFF–STREET PARKING AREAS CONTAINING 25 OR MORE PARKING SPACES, AT LEAST 10 % OF THE INTERIOR OF THE PARKING AREA SHALL BE CURBED AND LANDSCAPED WITH TREES, SHRUBS AND OTHER PLANT MATERIAL.	10 % OF INTERIOR LANDSCAPING PER PARKING AREA CONTAINING 25 OR MORE PARKING SPACES REQUIRED AREA OF PARKING LOT = 40,228 AREA OF INTERIOR LANDSCAPE=8,233 8,233/40,228X100%=20.5% OVER 20% OF INTERIOR LANDSCAPING PROVIDED	COMPLIES

GENERAL LANDSCAPE PLANTING NOTES

1. NAMES OF PLANTS AS DESCRIBED ON THIS PLAN CONFORM TO THOSE GIVEN IN "STANDARDIZED PLANT NAMES", 1942 EDITION, PREPARED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE. NAMES OF PLANT VARIETIES NOT INCLUDED THEREIN CONFORM TO NAMES GENERALLY ACCEPTED IN NURSERY TRADE.
2. ALL EXPOSED GROUND SURFACES THAT ARE NOT PAVED WITHIN THE CONTRACT LIMIT LINE, AND THAT ARE NOT COVERED BY LANDSCAPE PLANTING OR SEEDING AS SPECIFIED, SHALL BE COVERED BY A NATURAL MULCH THAT WILL PREVENT SOIL EROSION AND THE EMANATION OF DUST.
3. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR PROJECT ENGINEER.
4. STANDARDS FOR TYPE, SPREAD, HEIGHT, ROOT BALL AND QUALITY OF NEW PLANT MATERIAL SHALL BE IN ACCORDANCE WITH GUIDELINES AS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN. PLANT MATERIAL SHALL HAVE NORMAL HABIT OF GROWTH AND BE HEALTHY, VIGOROUS, AND FREE FROM DISEASES AND INSECT INFESTATION.
5. NEW PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS SPECIFIED OTHERWISE. ALL PLANTS SHALL BE SET PLUMB AND SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING. PLANT MATERIAL OF THE SAME SPECIES AND SPECIFIED AS THE SAME SIZE SHOULD BE SIMILAR IN SHAPE, COLOR AND HABIT. THE LANDSCAPE ARCHITECT HAS THE RIGHT TO REJECT PLANT MATERIAL THAT DOES NOT CONFORM TO THE TYPICAL OR SPECIFIED HABIT OF THAT SPECIES.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY AND SEWER LINES PRIOR TO THE START OF EXCAVATION ACTIVITIES. NOTIFY THE PROJECT ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS WITH PROPOSED PLANTING LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.
7. THE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS. IF THE SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, THE CONTRACTOR SHALL SUBMIT PROOF OF NON–AVAILABILITY TO THE LANDSCAPE ARCHITECT AND OWNER, TOGETHER WITH A WRITTEN PROPOSAL FOR USE OF AN EQUIVALENT MATERIAL.
8. LANDSCAPE CONTRACTOR TO STAKE OUT PLANTING LOCATIONS, FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT AND/OR OWNER BEFORE PLANTING WORK BEGINS. THE LANDSCAPE ARCHITECT AND/OR OWNER SHALL DIRECT THE CONTRACTOR IN THE FINAL PLACEMENT OF ALL PLANT MATERIAL AND LOCATION OF PLANTING BEDS TO ENSURE COMPLIANCE WITH DESIGN INTENT UNLESS OTHERWISE INSTRUCTED.
9. THE LANDSCAPE ARCHITECT MAY REVIEW PLANT MATERIALS AT THE SITE, BEFORE PLANTING, FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE LANDSCAPE ARCHITECT RETAINS THE RIGHT TO FURTHER REVIEW PLANT MATERIALS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEM, INSECTS, INJURIES, AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. THE CONTRACTOR SHALL REMOVE REJECTED PLANT MATERIALS IMMEDIATELY FROM PROJECT SITE AS DIRECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
10. DELIVERY, STORAGE, AND HANDLING
    A. PACKAGED MATERIALS: PACKAGED MATERIALS SHALL BE DELIVERED IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. MATERIALS SHALL BE PROTECTED FROM DETERIORATION DURING DELIVERY, AND WHILE STORED AT SITE.
    B. TREES AND SHRUBS: THE CONTRACTOR SHALL PROVIDE TREES AND SHRUBS DUG FOR THE GROWING SEASON FOR WHICH THEY WILL BE PLANTED. DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT. DO NOT BEND OR BIND–TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING TRANSIT. DO NOT DROP BALLED AND BURLAPPED STOCK DURING DELIVERY OR HANDLING.
    C. ALL PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOTBALL WRAPPING AND BINDING MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED FROM THE TOP OF THE BALL AT THE TIME OF PLANTING. IF THE PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, THE WIRE BASKET SHALL BE CUT AND FOLDED DOWN 8 INCHES INTO THE PLANTING HOLE. WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE ROOT BALL SHALL BE CUT THROUGH THE SURFACE IN TWO LOCATIONS.
    D. THE CONTRACTOR SHALL HAVE TREES AND SHRUBS DELIVERED TO SITE AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, THE CONTRACTOR SHALL SET TREES AND SHRUBS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE AND KEEP ROOTS MOIST BY COVERING WITH MULCH, BURLAP OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE.
11. ALL LANDSCAPED AREAS TO BE CLEARED OF ROCKS, STUMPS, TRASH AND OTHER UNSIGHTLY DEBRIS. ALL FINE GRADED AREAS SHOULD BE HAND RAKED SMOOTH ELIMINATING ANY CLUMPS AND AND UNEVEN SURFACES PRIOR TO PLANTING OR MULCHING.
12. ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS, NOTES AND CONTRACT SPECIFICATIONS. THE LANDSCAPE ARCHITECT MAY REVIEW INSTALLATION AND MAINTENANCE PROCEDURES.
13. NEW PLANT MATERIAL SHALL BE GUARANTEED TO BE ALIVE AND IN VIGOROUS GROWING CONDITION FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE BY THE OWNER. PLANT MATERIAL FOUND TO BE UNHEALTHY, DYING OR DEAD DURING THIS PERIOD, SHALL BE REMOVED AND REPLACED IN KIND BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
14. THE CONTRACTOR SHALL KEEP AREA CLEAN DURING DELIVERY AND INSTALLATION OF PLANT MATERIALS. REMOVE AND DISPOSE OF OFF–SITE ANY ACCUMULATED DEBRIS OR UNUSED MATERIALS. REPAIR DAMAGE TO ADJACENT AREAS CAUSED BY LANDSCAPE INSTALLATION OPERATIONS.
15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24–HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR AS REQUIRED BY SITE AND WEATHER CONDITIONS TO MAINTAIN VIGOROUS AND HEALTHY PLANT GROWTH.
16. THE BACKFILL MIXTURE AND SOIL MIXES TO BE INSTALLED PER THE SPECIFICATIONS.
17. AFTER PLANT IS PLACED IN TREE PIT LOCATION, ALL TWINE HOLDING ROOT BALL TOGETHER SHOULD BE COMPLETELY REMOVED AND THE BURLAP SHOULD BE PULLED DOWN SO 1/3 OF THE ROOT BALL IS EXPOSED. SYNTHETIC BURLAP SHOULD BE COMPLETELY REMOVED AFTER INSTALLATION.
18. MULCH SHOULD NOT BE PILED UP AROUND THE TRUNK OF ANY PLANT MATERIAL. NO MULCH OR TOPSOIL SHOULD BE TOUCHING THE BASE OF THE TRUNK ABOVE THE ROOT COLLAR.
19. ALL FENCE INSTALLATION SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY LANDSCAPE PLANTING, LAWN AND GRASSES, OR IRRIGATION WORK.
20. FOR ANY DISCREPANCIES BETWEEN THE PLANT SCHEDULE AND PLANTING PLAN THE GRAPHIC QUANTITY SHOWN SHALL GOVERN.
21. PLANT MATERIALS SHALL NOT BE PLANTED UNTIL THE FINISHED GRADING HAS BEEN COMPLETED.
22. ALL PLANT INSTALLATIONS SHALL BE COMPLETED EITHER BETWEEN APRIL 1 – JUNE 15 OR AUGUST 15 – NOVEMBER 1, UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT. SEE LAWN SEEDING DATES IN SEEDING NOTES.

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, REPAIRING AND RESHAPING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS AS ORIGINALLY INSTALLED, WATERING WHEN NEEDED OR DIRECTED, AND PERFORMING ANY OTHER WORK REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION.
   C. CONTRACTOR SHALL REMOVE AND REPLACE ALL DEAD, DEFECTIVE AND/OR REJECTED PLANTS AS REQUIRED BEFORE FINAL ACCEPTANCE.
2. MAINTENANCE DURING CONSTRUCTION:
   A. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING. PLANTS SHALL BE WATERED, MULCHED, WEEDED, PRUNED, SPRAYED, FERTILIZED, CULTIVATED, AND OTHERWISE MAINTAINED AND PROTECTED UNTIL PROVISIONAL ACCEPTANCE. SETTLED PLANTS SHALL BE RESET TO PROPER GRADE AND POSITION, PLANTING SAUCER RESTORED AND DEAD MATERIAL REMOVED. STAKES AND WIRES SHALL BE TIGHTENED AND REPAIRED. DEFECTIVE WORK SHALL BE CORRECTED AS SOON AS POSSIBLE AFTER IT BECOMES APPARENT AND WEATHER AND SEASON PERMIT.
   B. IF A SUBSTANTIAL NUMBER OF PLANTS ARE SICKLY OR DEAD AT THE TIME OF INSPECTION, ACCEPTANCE SHALL NOT BE GRANTED AND THE CONTRACTOR'S RESPONSIBILITY FOR MAINTENANCE OF ALL PLANTS SHALL BE EXTENDED FROM THE TIME REPLACEMENTS ARE MADE OR EXISTING PLANTS ARE DEEMED ACCEPTABLE BY THE LANDSCAPE ARCHITECT.
   C. ALL REPLACEMENTS SHALL BE PLANTS OF THE SAME KIND AND SIZE SPECIFIED ON THE PLANT LIST OR THAT WHICH WAS TO REMAIN OR BE RELOCATED. THEY SHALL BE FURNISHED AND PLANTED AS SPECIFIED. THE COST SHALL BE BORNE BY THE CONTRACTOR. REPLACEMENTS RESULTING FROM REMOVAL, LOSS, OR DAMAGE DUE TO OCCUPANCY OF THE PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES SHALL BE APPROVED AND PAID FOR BY THE OWNER.
   D. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER INSPECTION AND PROVISIONAL ACCEPTANCE.
   E. AT THE END OF THE ESTABLISHMENT PERIOD, INSPECTION SHALL BE MADE AGAIN. ANY PLANT REQUIRED UNDER THIS CONTRACT THAT IS DEAD OR UNSATISFACTORY TO THE LANDSCAPE ARCHITECT OR OWNER SHALL BE REMOVED FROM THE SITE AND REPLACED DURING THE NORMAL PLANTING SEASON.
3. LAWN MAINTENANCE:
   A. BEGIN MAINTENANCE IMMEDIATELY AFTER EACH PORTION OF LAWN IS PLANTED AND CONTINUE FOR 8 WEEKS AFTER ALL LAWN PLANTING IS COMPLETED.
   B. WATER TO KEEP SURFACE SOIL MOIST, REPAIR WASHED OUT AREAS BY FILLING WITH TOPSOIL, LIMING, FERTILIZING AND RE–SEEDING; MOW TO 2 1/2 – 3 INCHES AFTER GRASS REACHES 3 1/2 INCHES IN HEIGHT, AND MOW FREQUENTLY ENOUGH TO KEEP GRASS FROM EXCEEDING 3 1/2 INCHES. WEED BY LOCAL SPOT APPLICATION OF SELECTIVE HERBICIDE ONLY AFTER GRASS IS WELL–ESTABLISHED.

LAWN SEED MIX:

1. LAWN SEED MIX: 3 TURF–TYPE TALL–FESCUE GRASSES

   NOTES:
   A) SEED RATE:
      1) NEW ESTABLISHMENT: SEED AT A RATE OF 6–8 LBS/1000 SQ FT
      2) RENOVATION: 20–50% EXISTING COVER: 5–7 LBS/1000 SQ FT
         50–75% EXISTING COVER: 4–6 LBS/1000 SQ FT

2. GENERAL SEED NOTES:
   A) FINAL SEED MIXTURES, RATES, AND SPECIES TO BE DETERMINED BASED ON PROJECT LANDSCAPE ARCHITECT REVIEW.
   B) SEEDING SHALL TAKE PLACE IN THE SPRING (APRIL 1 TO JUNE 15) OR THE FALL (SEPTEMBER 1 TO OCTOBER 15).
   C) ELIMINATE UNWANTED VEGETATION PRIOR TO SEEDING USING A NON–SELECTIVE HERBICIDE PER MANUFACTURER'S SPECIFICATIONS.
   D) IT IS RECOMMENDED THAT CONTRACTOR INSTALL SEED MIXTURE USING A NO–TILL TRUAX–TYPE DRILL SEEDER WHERE APPLICABLE.
   E) THERE MUST BE CONTINUOUS SOIL MOISTURE FOR 4–6 WEEKS TO ALLOW FOR PROPER GERMINATION.
   F) ALL SEED MIXES TO BE 100% PURE LIVE SEED.

LAWN WATERING SCHEDULE

THE FOLLOWING WATERING SCHEDULE COVERS ROUGHLY 8 WEEKS TO ESTABLISH A HEALTHY STAND OF GRASS FROM SEED. THE CONTRACTOR SHALL BE OBLIGATED TO ENSURE A HEALTHY STAND OF GRASS AT THE END OF THE MAINTENANCE/BOND PERIOD. ANY BARE OR DEAD AREAS IN THE LAWN SHALL BE PREPARED, RESEEDED AND REESTABLISHED PRIOR TO THE END OF THE MAINTENANCE/BOND PERIOD AND TO THE SATISFACTION OF THE PROJECT LANDSCAPE ARCHITECT AND THE OWNER.

IMPORTANT ASPECTS TO ATTAINING AND SUSTAINING A HEALTHY STAND OF GRASS ARE THE INSTALLATION OF TOPSOIL, SEED BED PREPARATION, ATTAINING OPTIMAL pH FOR THE INTENDED PLANT SPECIES, FERTILIZING, MULCH COVERING, AND SUFFICIENT WATERING PER THESE NOTES AND/OR PROJECT SPECIFICATIONS.

1. SEEDING SHALL BE DONE DURING THE SEASONS SPECIFIED IN THE LAWN SEED MIX NOTES AND/OR PROJECT SPECIFICATIONS.
2. AFTER THE SEEDBED IS PREPARED, SEED IS INSTALLED, AND MULCH IS APPLIED, WATER LIGHTLY TO KEEP THE TOP 2 INCHES OF SOIL CONSISTENTLY MOIST, NOT SATURATED. AT NO TIME SHOULD WATER BE APPLIED TO THE POINT OF RUNOFF OR THE DISPLACEMENT OF SEED.
3. DEPENDING ON SOIL TEMPERATURES, IT MAY TAKE SEVERAL WEEKS FOR GERMINATION TO OCCUR. DIFFERENT SPECIES WITHIN THE MIX GERMINATE AT DIFFERENT TIMES AND THEREFORE CONTRACTOR SHOULD CONTINUE THE LIGHT WATERING, AS DESCRIBED ABOVE, UNTIL THERE IS AT LEAST 2 INCHES OF GROWTH THROUGHOUT.
4. AT THIS POINT, WATERING FREQUENCY MAY BE REDUCED TO EVERY 3 TO 5 DAYS. WATER SHALL BE APPLIED TO WET A 6 INCH MINIMUM SOIL DEPTH TO PROMOTE HEALTHY DEEP ROOTS.
5. BEGIN MOWING ONCE PER WEEK AFTER THE GRASS HAS REACHED 3 INCHES HEIGHT. MOW TO A HEIGHT OF NO LESS THAN 2–½ INCHES. AFTER 2 TO 3 WEEKS OF MOWING, CONTINUE TO WATER TO A 6 INCH MINIMUM SOIL DEPTH AS NECESSARY PER WEATHER CONDITIONS, AND SOIL MOISTURE SENSORS IF APPLICABLE.

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 BY THE PROJECT LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION. THE IRRIGATION INSTALLATION PLAN SHALL BE COMPLETE WITH ZONE DESIGNATIONS AND WATER USAGE IN GALLONS PER MINUTE PER ZONE, RUN TIME SCHEDULE, LEGEND OF COMPONENTS AND PLAN GRAPHICS WITH QUANTITIES, MINIMUM SYSTEM REQUIREMENTS INCLUDING STATIC PRESSURE AT THE WATER CONNECTION POINT, ESTIMATED WATER BUDGET, CONSTRUCTION DETAILS AND IRRIGATION NOTES. THE PLAN SHALL ALSO INCLUDE LOCATIONS OF ALL PROPOSED SLEEVES AND THEIR SIZES, LOCATIONS OF ALL LATERAL LINE SIZE STEP–DOWNS WITH SIZE INDICATIONS, LOCATION OF ALL SOIL MOISTURE SENSORS, CONTROLLER, VALVES AND ALL OTHER COMPONENTS NECESSARY FOR THE SYSTEMS OPERATION.
2. LANDSCAPE AREAS SHALL BE IRRIGATED WITH POP–UP SPRAY AND ROTARY IRRIGATION HEADS IN SUFFICIENT DENSITY TO COVER THE ENTIRE AREA.
3. CONTRACTOR TO AVOID DISTURBANCE OF EXISTING PLANT MATERIAL WHEN LOCATING VALVES AND PIPE LINES. ANY PLANT MATERIAL DAMAGED AS A RESULT OF IRRIGATION INSTALLATION SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
4. ALL EXCAVATION MATERIAL SHALL BE PLACED BACK IN TRENCHES.
5. ALL DISTURBED LANDSCAPE AND PAVED AREAS SHALL BE RESTORED TO THE CONDITION FOUND PRIOR TO START OF INSTALLATION.
6. DEPTH OF TRENCHES SHALL BE SUFFICIENT OR PROVIDE A MINIMUM COVER ABOVE THE TOP OF PIPE AS FOLLOWS:
   – 12" OVER NON–PRESSURE LATERAL LINES
   – 18" OVER NON–PRESSURE LATERAL LINES UNDER PAVING
   – 18" OVER CONTROL WIRES
   – 18" OVER MAIN LINE
   – 24" OVER MAIN LINE UNDER PAVING
7. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATION OF THE PLUMBING TIE–INS, SLEEVES UNDER PAVEMENTS (AS NECESSARY), AND CONTROL DEVICES WITH THE GENERAL CONTRACTOR, OWNER, AND OWNER'S REPRESENTATIVE.
8. CONTRACTOR TO COORDINATE INSTALLATION OF IRRIGATION SYSTEM WITH EXISTING AND PROPOSED UTILITIES, SITE DRAINAGE SYSTEMS, AND PAVING.
9. CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE SHOULD ANY UTILITIES, NOT SHOWN ON THE PLANS, BE FOUND DURING INSTALLATION WORK.
10. WATERPROOF ALL WIRE CONNECTORS USING 3M 'DBY' WATERPROOF CONNECTORS OR EQUIVALENT.
11. DRAIN VALVES ARE TO BE PROVIDED AT SUFFICIENT INTERVALS TO PROVIDE COMPLETE DRAINAGE OF ALL PIPING.
12. COORDINATE THE LOCATION OF CONTROLS, IRRIGATION CONTROLLER, AND SOIL MOISTURE SENSORS WITH THE PROJECT MEP AND OWNER PRIOR TO INSTALLATION.
13. IRRIGATION CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO IRRIGATION DESIGN WHERE REQUIRED TO PROVIDE 100% COVERAGE OF ALL LANDSCAPE AREAS, AS DESIGNATED ON THIS PLAN.
14. INSTALLATION MUST COMPLY WITH ALL LOCAL CODES AND CONDITIONS.
15. ALL IRRIGATION WORK SHALL BE GUARANTEED FOR 1 YEAR AFTER COMPLETION OF ALL WORK.
16. CONTRACTOR TO PROVIDE THREE (3) COPIES OF AS–BUILTS, SERVICE MANUALS AND INSTRUCTIONS TO THE OWNER OR OWNERS REPRESENTATIVE.
17. ALL SPRINKLER HEADS SHALL BE SET BACK 4" MINIMUM FROM BACK OF ALL CURBS.
18. CONTRACTOR MAY SUBMIT ALTERNATE EQUIVALENT MATERIALS FOR REVIEW AND APPROVAL BY OWNER'S REPRESENTATIVE OR PROJECT LANDSCAPE ARCHITECT.

MEADOW SEED NOTES

SEED MIX A – NATIVE DETENTION AREA MIX

26.0%% PANICUM CLANDESTINUM	DEERTONGUE, TIOGA
25.0% PANICUM VIRGATUM, 'CARTHAGE'	SWITCHGRASS, 'CARTHAGE'
20.0% CAREX VULPINOIDEA, PA ECOTYPE	FOX SEDGE, PA ECOTYPE
20.0% ELYMUS VIRGINICUS, MADISON	VIRGINIA WILDRYE
4.0% AGROSTIS PERENNANS, ALBANY PINE	AUTMUN BENTGRASS
3.0% JUNCUS EFFUSUS	SOFT RUSH
1.0% JUNCUS TENUIS, PA ECOTYPE	PATH RUSH, PA ECOTYPE
1.0% PANICUM RIGIDULUM, PA ECOTYPE	REDTOP PANICGRASS, PA ECOTYPE

NOTES:
SEED AT A RATE OF 20–40 LB/ACRE OF 100% PURE LIVE SEED , REFER TO SUPPLIER RECOMMENDATIONS FOR ADDITIONAL INFORMATION

GENERAL SEEDING NOTES:

1. FINAL SEED MIXTURES, RATES & SPECIES TO BE DETERMINED BASED ON LOCAL SITE CONDITIONS.
2. ALL SEEDING RATES ARE BASED ON PURE LIVE SEED (PLS.) CONTRACTOR SHALL ADJUST ANY SUPPLIER BULK SEEDING RATES (BSR) TO PROVIDE PLS EQUIVALENTS.
3. SEEDING SHALL TAKE PLACE IN THE SPRING (APRIL 1 TO JUNE 1) OR THE FALL (SEPTEMBER 1 TO OCTOBER 1).
4. ELIMINATE UNWANTED VEGETATION PRIOR TO SEEDING USING A BROAD–SPECTRUM NON–SELECTIVE HERBICIDE PER MANUFACTURER'S SPECIFICATIONS.
5. IT IS RECOMMENDED THAT CONTRACTOR INSTALL SEED MIXTURE USING A NO–TILL TRUAX–TYPE DRILL WHERE APPLICABLE.
6. MULCHING/TACKING IS REQUIRED ON ALL SEEDING IN ACCORDANCE WITH THE STANDARDS. AN EROSION CONTROL BLANKET WITH A MINIMUM 12–MONTH BIODEGRADABLE LIFE SPAN MAY BE USED IN LIEU OF STANDARD MULCHING/TACKING. PERMANENT BLANKETS WILL NOT BE ACCEPTED UNLESS OTHERWISE NOTED.
7. CONTINUOUS MOISTURE MUST BE ENSURED DURING ESTABLISHMENT TO ALLOW PROPER GERMINATION. SOIL WILL REMAIN CONTINUOUSLY MOIST FOR THE TOP 4 INCHES OF TOPSOIL. DO NOT SATURATE OR WATER TO THE POINT OF RUNOFF OR THE DISPLACEMENT OF SEED.
8. DEPENDING ON SOIL TEMPERATURES, IT MAY TAKE SEVERAL WEEKS FOR GERMINATION TO OCCUR. DIFFERENT SPECIES WITHIN THE MIX GERMINATE AT DIFFERENT TIMES AND THEREFORE CONTRACTOR SHOULD CONTINUE THE LIGHT WATERING, AS DESCRIBED ABOVE, UNTIL THERE IS AT LEAST 2 INCHES OF GROWTH THROUGHOUT.
9. AT THIS POINT, WATERING FREQUENCY MAY BE REDUCED TO EVERY 3 TO 5 DAYS. WATER SHALL BE APPLIED TO WET A 6 INCH MINIMUM SOIL DEPTH TO PROMOTE HEALTHY DEEP ROOTS.

WEED CONTROL / MAINTENANCE

1. MOWING MEADOW AREAS SHALL BE DONE VIA STRING TRIMMER, WHERE LARGER MACHINES CANNOT REASONABLY BE USED AND WHERE DAMAGE OR RUTTING COULD OCCUR.
2. DURING THE ESTABLISHMENT YEAR, CONTRACTOR SHALL MOW SEEDING IF WEED HEIGHT EXCEEDS MEADOW MIX HEIGHT. MOW AT A HEIGHT OF 8"–10". DO NOT MOW CLOSE, AS SOME OF THE MEADOW MIX MAY BE DAMAGED.
3. AFTER THE FIRST GROWING SEASON, AND IF MEADOW MIX IS WELL ESTABLISHED, THE MEADOW MIX SHALL BE MOWED ONLY ONCE ANNUALLY. ANNUAL MAINTENANCE MOWING SHALL BE DONE IN LATE WINTER DURING THE MONTH OF MARCH.
4. DURING THE FIRST 2–4 YEARS OF ESTABLISHMENT, AND AFTER ESTABLISHMENT DEPENDING ON THE LOOK DESIRED, SELECTIVE WEEDING WITH A BROADLEAF WEED–CONTROL HERBICIDE, OVER–SEEDING BARE SPOTS AND WATERING TO PROMOTE A UNIFORM DROUGHT–TOLERANT STAND OF PLANTS MAY BE NECESSARY.
5. FERTILIZERS ARE NOT GENERALLY NEEDED OR RECOMMENDED FOR NATIVE MEADOWS UNLESS SOIL TEST RESULTS SHOW A SIGNIFICANT LACK OF NUTRIENTS. USE ONLY SLOW–RELEASE FERTILIZERS WITH LITTLE TO NO NITROGEN IN APRIL OR SEPTEMBER.

PLANTING SOIL SPECIFICATIONS

1. PLANTING SOIL, ALTERNATELY MAY BE REFERRED TO AS TOPSOIL, SHOULD BE FRIABLE, FERTILE, WELL DRAINED, FREE OF DEBRIS, TOXINS, TRASH AND STONES OVER 1/2" DIA., IT SHOULD HAVE A HIGH ORGANIC CONTENT SUITABLE TO SUSTAIN HEALTHY PLANT GROWTH AND SHOULD LOOK AESTHETICALLY PLEASING HAVING NO NOXIOUS ODORS.
2. PLANTING SOIL:

   REUSE SURFACE SOILS STOCKPILED ON SITE, VERIFYING COMPLIANCE WITH PLANTING SOIL AND TOPSOIL CRITERIA IN THIS SPECIFICATION THROUGH TESTING. CLEAN SURFACE SOIL OF ALL ROOTS, PLANTS, SOD, AND GRAVEL OVER 1" IN DIAMETER AND DELETERIOUS MATERIALS. IF ON–SITE SOILS ARE TO BE USED FOR PROPOSED PLANTING, THE CONTRACTOR SHALL DEMONSTRATE, THROUGH SOIL TESTING, THAT ON–SITE SOILS MEET THE SAME CRITERIA AS INDICATED IN NOTES PLANS AND SPECIFICATIONS.

   SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN TOPSOIL AND PLANTING SOIL QUANTITIES ARE INSUFFICIENT. OBTAIN SOIL DISPLACED FROM NATURALLY WELL–DRAINED SITES WHERE TOPSOIL OCCURS AT LEAST 4" DEEP. DO NOT OBTAIN FROM AGRICULTURAL LAND, BOGS, MARSHES OR CONTAMINATED SITES.

   CONTRACTOR SHALL TEST SOILS AND FURNISH SAMPLES UPON REQUEST. PACKAGED MATERIALS SHALL BE UNOPENED BAGS OR CONTAINERS, EACH BEARING A NAME, GUARANTEE, AND TRADEMARK OF THE PRODUCER, MATERIAL COMPOSITION, MANUFACTURER'S CERTIFIED ANALYSIS, AND THE WEIGHT OF THE MATERIALS. SOIL OR AMENDMENT MATERIALS SHALL BE STORED ON SITE TEMPORARILY IN STOCKPILES PRIOR TO PLACEMENT AND SHALL BE PROTECTED FROM INTRUSION OF CONTAMINANTS AND EROSION. AFTER MIXING, SOIL MATERIALS SHALL BE COVERED WITH A TARPAULIN UNTIL TIME OF ACTUAL USE.

   ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE, OR APPROVED EQUAL, PRIOR TO DELIVERY TO THE SITE. CONTRACTOR SHALL FURNISH SOIL SAMPLES AND SOIL TEST RESULTS TO LANDSCAPE ARCHITECT OR OWNER AT A RATE OF ONE SAMPLE PER 500 CUBIC YARDS TO ENSURE CONSISTENCY ACROSS THE TOTAL VOLUME OF PLANTING SOIL REQUIRED. TEST RESULTS SHALL EVALUATE FOR ALL CRITERIA LISTED IN THIS SPECIFICATION. IF TESTING AGENCY DETERMINES THAT THE SOILS ARE DEFICIENT IN ANY MANNER AND MAY BE CORRECTED BY ADDING AMENDMENTS, THE CONTRACTOR SHALL FOLLOW STATED RECOMMENDATIONS FOR SOIL IMPROVEMENT AND FURNISH SUBMITTALS FOR ALL AMENDMENTS PRIOR TO DELIVERY OF SOIL TO THE PROJECT SITE.

   A. THE FOLLOWING TESTING SHOULD BE PERFORMED AND RESULTS GIVEN TO THE LANDSCAPE ARCHITECT FOR APPROVAL BEFORE INSTALLATION:
      a. PARTICLE SIZE ANALYSIS – LOAMY SAND: 60–75% SAND, 25–40% SILT, AND 5–15% CLAY.
      b. FERTILITY ANALYSIS: pH (5.5–6.5), SOLUBLE SALTS (LESS THAN 2 MMHO/CM), NITRATE, PHOSPHATE, POTASSIUM, CALCIUM AND MAGNESIUM
      c. ORGANIC MATTER CONTENT: 2.5–5% IN NATIVE SOILS; UP TO 10% IN AMENDED SOILS
      d. TOXIC SUBSTANCE ANALYSIS
      e. MATERIAL DRAINAGE RATE: 60% PASSING IN 2 MINUTES, 40% RETAINED
      f. NOT MORE THAN 1% OF MATERIAL SHALL BE RETAINED BY A #4 SIEVE
3. BIORETENTION SOIL MIX
   a. BIORETENTION SOIL MIX IS TO BE USED IN ALL DETENTION BASINS AND RAIN GARDENS.
   b. MIX TO CONSIST OF 60% COARSE SAND, 40% SUBMITTED TOPSOIL/HORTICULTURAL SOIL MIX
   c. TOPSOIL/HORTICULTURAL SOIL MIX: REFER TO SPECIFICATIONS LISTED IN SECTION ABOVE

   d. COARSE SAND

   1) PARTICLE SIZE ANALYSIS

SIEVE	PERCENT PASSING
3/8 INCH (9.5 MM)	100
NO 4 (4.75 MM)	95–100
NO 8 (2.36 MM)	80–100
NO 16 (1.18 MM)	50–85
NO 30 (.60 MM)	25–60
NO 50 (.30 MM)	10–30
NO 100 (.15 MM)	2–10
NO 200 (0.75 MM	2–5

   2) CHEMICAL ANALYSIS
      PH: LOWER THAN 7.0
      TOXIC SUBSTANCE ANALYSIS

   e. FINAL BIORETENTION MIX

   1) PARTICLE SIZE ANALYSIS
      a) SAND – 80–85%
      b) SILT – 10–15%
      c) CLAY – 2–5%

      NOT MORE THAN 1% OF MATERIAL TO BE RETAINED BY A #4 SIEVE

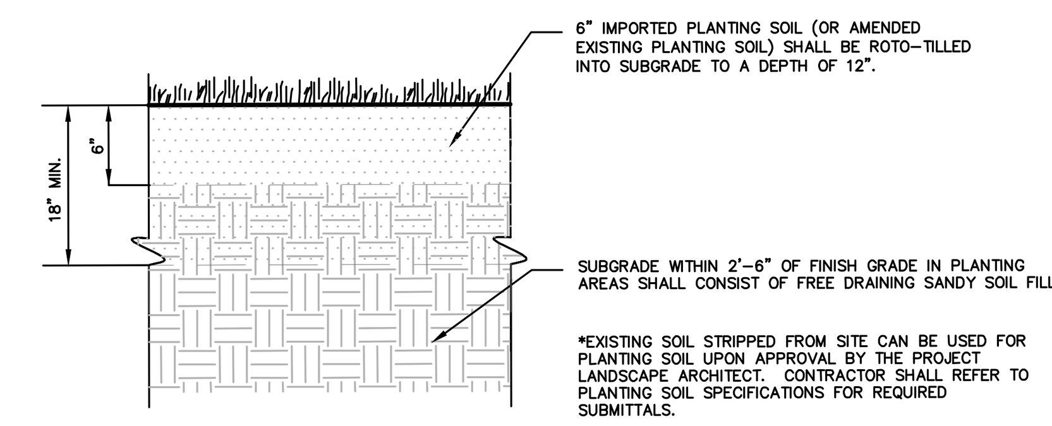
   2) CHEMICAL ANALYSIS
      a) PH – 5.5–6.5
      b) SOLUBLE SALTS: LESS THAN 2 MMHO/CM

   3) CONTRACTOR TO SUBMIT TOXIC SUBSTANCE ANALYSIS AND MATERIAL DRAINAGE RATE IN ADDITION TO INFORMATION LISTED ABOVE. DRAINAGE RATE OF MATERIAL TO EXCEED 1 INCH/HOUR
4. SOIL AMENDMENT FOR PLANT MATERIAL:
   IF SOIL ORGANIC CONTENT IS INADEQUATE, SOIL SHALL BE AMENDED WITH COMPOST OR ACCEPTABLE, WEED FREE, ORGANIC MATTER. ORGANIC AMENDMENT SHALL BE WELL COMPOSTED, PH RANGE OF 6–8; MOISTURE CONTENT 35–55% BY WEIGHT 100% PASSING THROUGH 1" SIEVE; SOLUBLE SALT CONTENT LESS THAN 0.5 MM HOS/CM; MEETING ALL APPLICABLE ENVIRONMENTAL CRITERIA FOR CLEAN FILL.

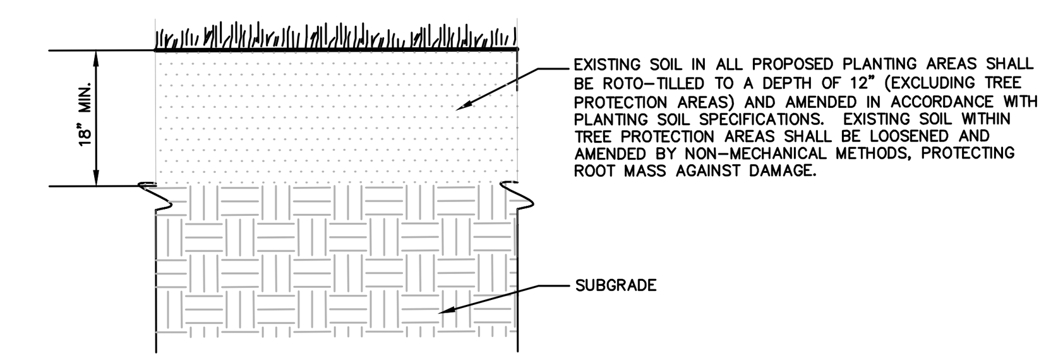
   A. ORGANIC MATTER AS A SOIL AMENDMENT: LEAF MOLD WITH 60–90% ORGANIC CONTENT BY WEIGHT. SHREDDED LEAF LITTER, COMPOSTED FOR A MINIMUM OF 1 YR. SHOULD BE FREE OF DEBRIS, STONES OVER 1/2", WOOD CHIPS OVER 1".
   B. SOIL IN BEDS AND PLANTING ISLANDS OTHER THAN BACKFILL MATERIAL AND TOPSOIL, SHOULD BE FRIABLE, WELL DRAINED, AND FREE OF DEBRIS, INCLUDING STONES AND TRASH.
   C. AMENDMENTS FOR BACK FILL IN TREE AND SHRUB PITS:
      a. GROUND LIMESTONE (WITH A MIN. OF 88% OF CALCIUM AND MAGNESIUM CARBONATES) USED PENDING RESULTS OF SOIL ANALYSIS.
         – BRING pH LEVELS TO 5.5 MIN. TO 6.5 FOR NON–ERICACEOUS PLANTS
         – BRING pH LEVELS TO 4.5 MIN. TO 5.5 FOR ERICACEOUS PLANTS
      b. TERRA–SORB BY 'PLANT HEALTH CARE' 800–421–9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN PLANTER BACKFILL MIXTURE WITH TREES AND SHRUBS.
      c. MYCOR–ROOT SAVER BY 'PLANT HEALTH CARE' 800–421–9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN BACKFILL MIXTURE WITH TREES.
5. WHERE PLANTING AREAS ARE PROPOSED FOR FORMER PAVED OR GRAVEL AREAS, BEDS SHALL BE EXCAVATED TO A MINIMUM 30" DEPTH AND, AT A MINIMUM, BE BACKFILLED WITH BOTTOM LAYER OF SANDY LOAM (ORGANIC CONTENT LESS THAN 2%) OVER WHICH TOPSOIL AND PLANTING SOILS WILL BE PLACED AT DEPTHS INDICATED IN PLANS, DETAILS AND NOTES.
6. CLEAN SOIL FILL IN LANDSCAPE AREAS:
   LANDSCAPE FILL MATERIAL, BELOW PLANTING SOILS, SHALL HAVE THE PHYSICAL PROPERTIES OF A SANDY LOAM WITH AN ORGANIC CONTENT OF LESS THAN 2% AND A PH BETWEEN 5 – 7.
7. SOIL PLACEMENT:
   A. CONTRACTOR TO PROVIDE SIX INCHES (6") MINIMUM DEPTH PLANTING SOIL LAYER IN LAWN AREAS, TWELVE INCHES (12") MINIMUM DEPTH PLANTING SOIL LAYER IN GROUNDCOVER AND PERENNIAL AREAS, EIGHTEEN INCHES (18") MINIMUM DEPTH PLANTING SOIL LAYER IN SHRUB AREAS, AND THIRTY–SIX INCHES (36") MINIMUM DEPTH PLANTING SOIL LAYER IN TREE PLANTING AREAS.
   B. SCARIFY AND/OR TILL COMPACTED SUBSOILS TO A MINIMUM DEPTH OF 6 INCHES. THOROUGHLY MIX A 6 INCH DEPTH LAYER OF PLANTING SOIL INTO THE SUBSOIL PRIOR TO PLACING PLANTING SOIL AT THE DEPTHS INDICATED ABOVE. PLANTING SOIL SHALL BE PLACED IN 12–18" LIFTS AND WATER THOROUGHLY BEFORE INSTALLING NEXT LIFT. REPEAT UNTIL DEPTHS AND FINISH GRADES HAVE BEEN ACHIEVED. NO SOILS SHALL BE PLACED IN A FROZEN OR MUDDY CONDITION.
   C. PLANTING SOIL PRESENT AT THE SITE, IF ANY, MAY BE USED TO SUPPLEMENT TOTAL AMOUNT REQUIRED. CONTRACTOR TO FURNISH AN ANALYSIS OF ON–SITE PLANTING SOIL UTILIZED IN ALL PLANTING AREAS.
8. SOIL CONDITIONING:
   A. ADJUST pH AND NUTRIENT LEVELS AS REQUIRED TO ENSURE AN ACCEPTABLE GROWING MEDIUM. LOWER pH USING ELEMENTAL SULFUR ONLY. PEAT MOSS OR COPPER SULFATE MAY NOT BE USED. GROUND LIMESTONE AS A SOIL AMENDMENT MATERIAL WILL ONLY BE USED PENDING RESULTS OF SOIL ANALYSIS. PROVIDE WITH MINIMUM 88% CALCIUM AND MAGNESIUM CARBONATES AND SHALL HAVE TOTAL 100% PASSING THE 10 MESH SIEVE, MINIMUM 90% PASSING 20 MESH SIEVE, AND MINIMUM 60% PASSING 100 MESH SIEVE.
   B. ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
   C. SOIL MODIFICATIONS (PENDING RESULTS OF SOIL ANALYSIS):
      a. THOROUGHLY TILL ORGANIC MATTER (LEAF COMPOST) INTO THE TOP 6 TO 12 IN. OF MOST PLANTING SOILS TO IMPROVE THE SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A pH HIGHER THAN 7.0. PEAT MOSS MAY NOT BE USED AS ORGANIC MATTER AMENDMENT.
      b. MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. IMPROVE DRAINAGE IN HEAVY SOILS BY PLANTING ON RAISED MOUNDS OR BEDS AND INCLUDING SUBSURFACE DRAINAGE LINES.
      c. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
      d. PER CHAPTER 863, ARTICLE XXVIII OF THE WESTCHESTER COUNTY CODE OF ORDINANCES, NO FERTILIZER CONTAINING PHOSPHOROUS SHALL BE USED ON SITE UNLESS NECESSITATED BY SOIL TESTING. ALL SOIL TESTING RESULTS ARE TO BE REVIEWED BY PROJECT LANDSCAPE ARCHITECT PRIOR TO PLANTING INSTALLATION.

GENERAL NOTE:

DUE TO GENERAL CONSTRUCTION ACTIVITIES AND ADJACENT SITE COMPACTION REQUIREMENTS, SUBGRADE SOILS WITHIN PROPOSED PLANTING AREAS TEND TO BECOME HIGHLY COMPACTED AND CAN PREVENT DRAINAGE. THIS CONDITION CREATES A SATURATED SOIL THAT CAN CAUSE ROOT ROT THAT CAN BE DETRIMENTAL TO TREE HEALTH. IF SUBGRADE SOILS ARE NOT VISIBLY DRAINING, CONTRACTOR SHALL PERFORM REPRESENTATIVE PERCOLATION TESTS AT A RATE OF 1 TEST PER 2,000 SQUARE FEET TO VERIFY DRAINAGE RATES IN INCHES PER HOUR. PERCOLATION TESTS SHOULD BE IN ACCORDANCE WITH THE MOST CURRENT LOCAL, APPLICABLE STORMWATER MANUAL AND DEEP REQUIREMENTS. IN LOCATIONS WHERE SUBSOILS ARE DRAINING LESS THAN 1" PER HOUR, CONTRACTOR IS REQUIRED TO INSTALL UNDERDRAINAGE IN ADDITION TO WHAT IS CURRENLTY SHOWN IN PLANTING PLANS.



PLANTING SOIL WITHIN AREAS OF CUT OR RAISED GRADE



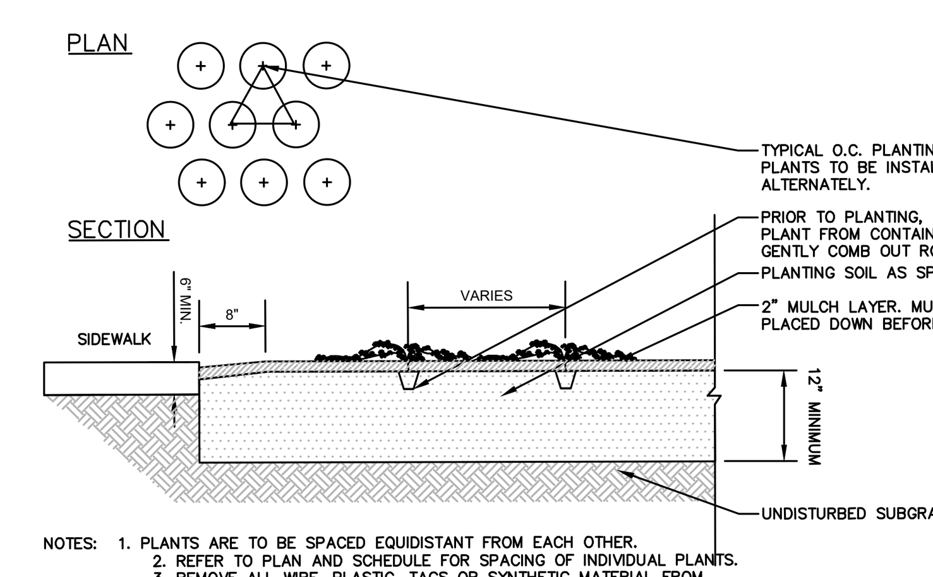
PLANTING SOIL WITHIN AREAS OF UNCHANGED GRADE

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO SEND SAMPLES OF EXISTING SOILS INTENDED FOR USE IN PLANTING AREAS (1 PER 500 CY.) TO TESTING LABORATORY OR UNIVERSITY COOPERATIVE EXTENSION FOR TESTING. ALL TESTING COSTS ARE AT THE CONTRACTOR'S EXPENSE.
2. RECYCLED CRUSHED CONCRETE AND ASPHALT MILLINGS SHALL NOT BE PLACED WITHIN 2'–6" OF FINISH GRADE IN PROPOSED LANDSCAPE AREAS.
3. IMPORTED FILL SHALL CONTAIN NO CONTAMINATION IN EXCEEDENCE OF THE APPLICABLE STATE ENVIRONMENTAL STANDARDS AND MEET THE ENVIRONMENTAL REQUIREMENTS FOR THE PROJECT. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION OF COMPLIANCE PRIOR TO DELIVERY OF ANY FILL TO THE SITE.
4. CONTRACTOR TO LIGHTLY COMPACT ALL PLACED PLANTING SOILS AND RAISE GRADES ACCORDINGLY TO ALLOW FOR FUTURE SETTLEMENT OF PLANTING SOILS (TYP.)
5. NO STONES, WOOD CHIPS, OR DEBRIS LARGER THAN 1/2" SHALL BE ACCEPTABLE WITHIN PLANTING AREAS.

1 PLANTING SOIL

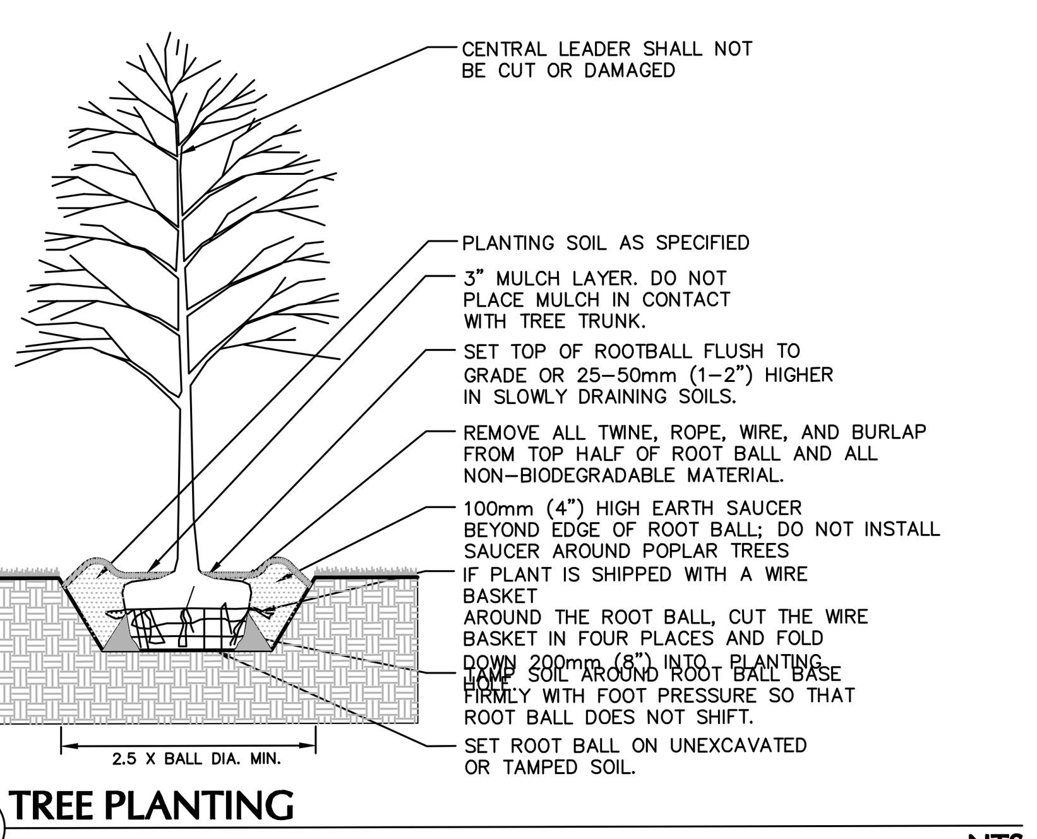
NTS



NOTES: 1. PLANTS ARE TO BE SPACED EQUIDISTANT FROM EACH OTHER.
2. REFER TO PLAN AND SCHEDULE FOR SPACING OF INDIVIDUAL PLANTS.
3. REMOVE ALL WIRE, PLASTIC, TAGS OR SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING.

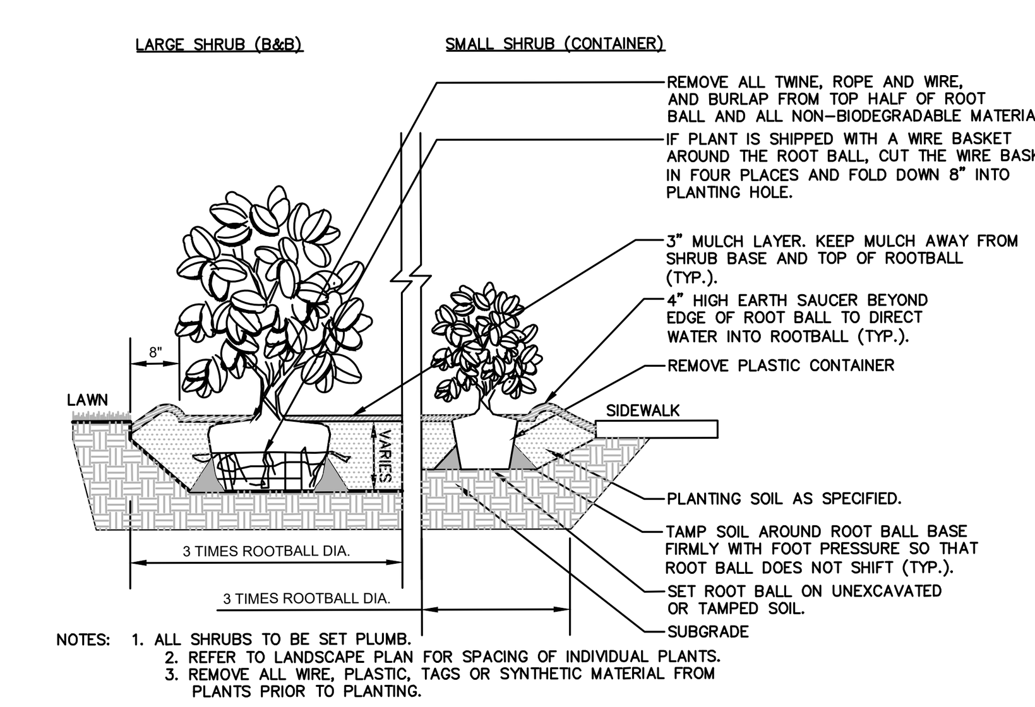
3 GROUNDCOVER / PERENNIAL PLANTING

NTS



2 TREE PLANTING

NTS



NOTES: 1. ALL SHRUBS TO BE SET PLUMB.
2. REFER TO LANDSCAPE PLAN FOR SPACING OF INDIVIDUAL PLANTS.
3. REMOVE ALL WIRE, PLASTIC, TAGS OR SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING.

4 SHRUB AND ORNAMENTAL GRASS PLANTING

NTS

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

Revisions

Signature | Date

REGISTERED LANDSCAPE ARCHITECT · MICHAEL HUNTON · 2926 · STATE OF NEW YORK

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

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title: PLANTING DETAILS AND NOTES

Project No.: 190085001
Date: AUGUST 7, 2023
Drawn By: MJ
Checked By: MH

Drawing No.: LP501

Sheet 14 of 17

LANGAN
Project No. 190085001

Date: 10/5/2023 Time: 12:41 User: lzoe Style Table: Langan.stb Layout: Layout1 Document Code: 190085001-0301-LP501-0101

SITE LIGHTING SCHEDULE

SYMBOL	KEY	QTY.	FIXTURE MANUFACTURER	FIXTURE MODEL	FIXTURE DESCRIPTION	FIXTURE MOUNTING HEIGHT	WATTS	LUMENS	LIGHT LOSS FACTOR	OPTICS	COLOR TEMPERATURE	FIXTURE CATALOGUE NO.	POLE MANUFACTURER	POLE DESCRIPTION	POLE LENGTH	POLE CATALOGUE NO.	NOTES/REMARKS
●	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.

20 0 5 10 20
SCALE: 1 INCH = 20 FEET

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.
10/06/23	RESPONSE TO COMMENTS	1
Revisions		

REGISTERED LANDSCAPE ARCHITECT MICHAEL HUNTON 2926 STATE OF NEW YORK

Signature Date

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

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY 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

Date: 10/6/2023 Time: 01:10 User: lzoe Style Table: Langan.stb Layout: LL101 Document Code: 190085001-0301-LL101-0101

LANGAN
Project No. 190085001

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 ABOUT 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

1. 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.
2. 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

3. ALL SITE LIGHTING RELATED WORK AND MATERIALS SHALL COMPLY WITH CITY, COUNTY, AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
4. LIGHTING LAYOUT COMPLIES WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) SAFETY STANDARDS FOR LIGHT LEVELS.

COORDINATION

5. CONTRACTOR TO COORDINATE POWER SOURCE WITH LIGHT FIXTURES TO ENSURE ALL SITE LIGHTING IS OPERATING EFFECTIVELY, EFFICIENTLY AND SAFELY.
6. REFER TO ELECTRIFICATION PLAN FOR PROVIDING ADEQUATE POWER FOR SITE LIGHTING.
7. CONTRACTOR TO COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
8. 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.
9. 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

10. 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.
11. 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.
12. POLE FOUNDATIONS SHALL NOT BE POURED IF FREE STANDING WATER IS PRESENT IN EXCAVATED AREA.
13. ALL POLES HIGHER THAN 25 FT. SHALL BE EQUIPPED WITH FACTORY INSTALLED VIBRATION DAMPENERS.

WALL MOUNTED FIXTURES

14. CONTRACTOR TO COORDINATE INSTALLATION OF ALL THE WALL MOUNTED FIXTURES AND ELECTRICAL CONNECTIONS TO SITE STRUCTURE(S) WITH BUILDING MEP, ARCHITECT, AND/OR OWNER.
15. 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.

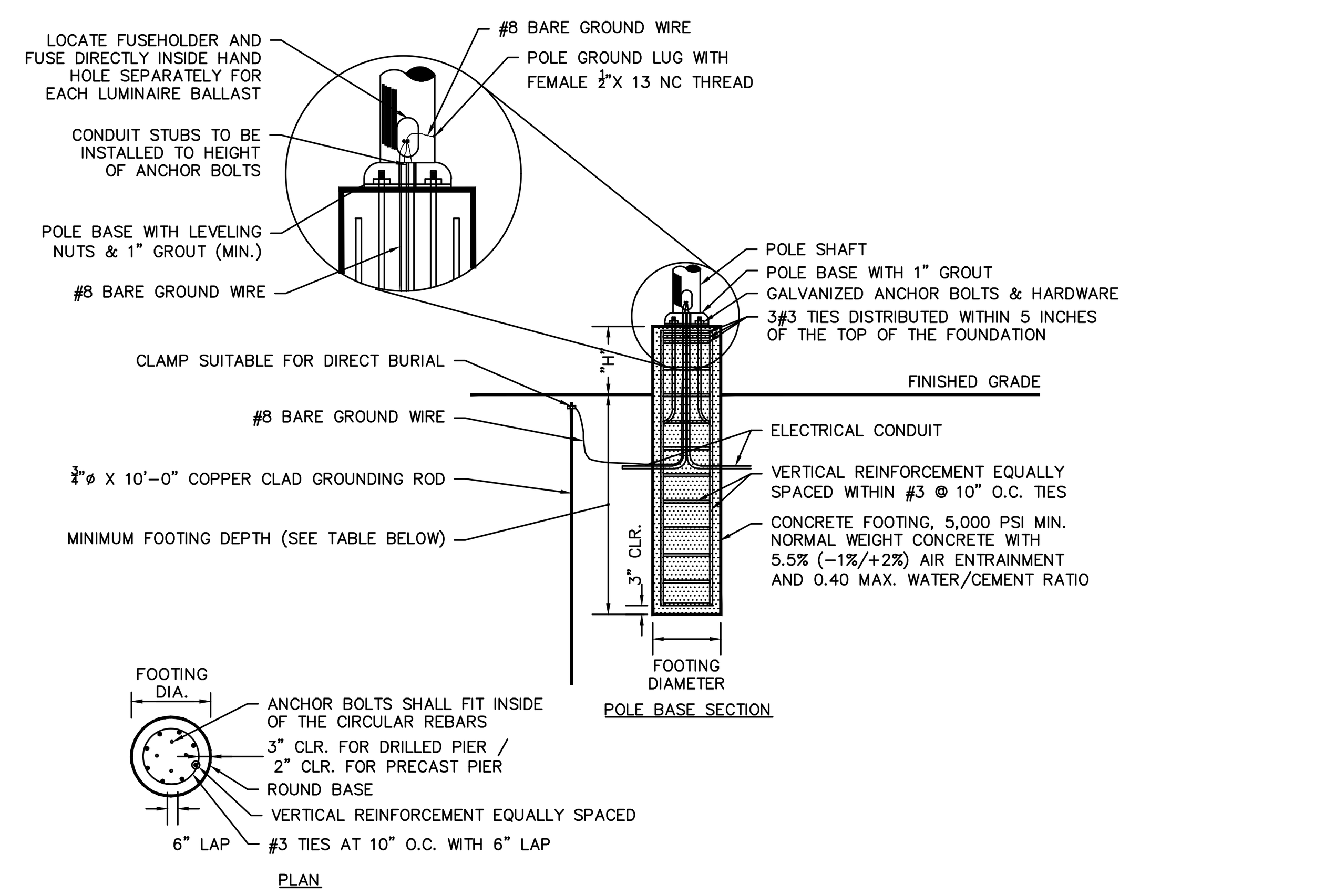
ADJUSTMENT AND INSPECTION

16. CONTRACTOR TO OPERATE EACH LUMINAIRE AFTER INSTALLATION AND CONNECTION. INSPECT FOR IMPROPER CONNECTIONS AND OPERATION.
17. 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.
18. CONTRACTOR TO CONFIRM THAT LIGHT FIXTURES, TILT ANGLE AND AIMING MATCH SPECIFICATIONS ON THE PLANS.

REQUIREMENTS FOR ALTERNATES

19. ALL LIGHTING SUBSTITUTIONS MUST BE MADE WITHIN 14 DAYS PRIOR TO THE BID DATE TO PROVIDE AMPLE TIME FOR REVIEW AND TO ISSUE AN ADDENDUM INCORPORATING THE SUBSTITUTION WITH THE FOLLOWING REQUIREMENTS:
   - A. 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
   - B. COMPUTER PREPARED PHOTOMETRIC LAYOUT OF THE PROPOSED LIGHTED AREA WHICH INDICATES, BY ISOFOOTCANDLE, THE SYSTEM'S PERFORMANCE.
   - C. 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.
   - D. 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.
   - E. THE UNDERWRITERS LABORATORY LISTING AND FILE NUMBER FOR THE SPECIFIC FIXTURE(S) TO BE UTILIZED.
   - F. A COLOR PHOTOGRAPH THAT CLEARLY SHOWS THE REPLACEMENT FIXTURE POLE MOUNTED, THE FIXTURE'S COLOR, FINISH, AND PHYSICAL CHARACTERISTICS.

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.

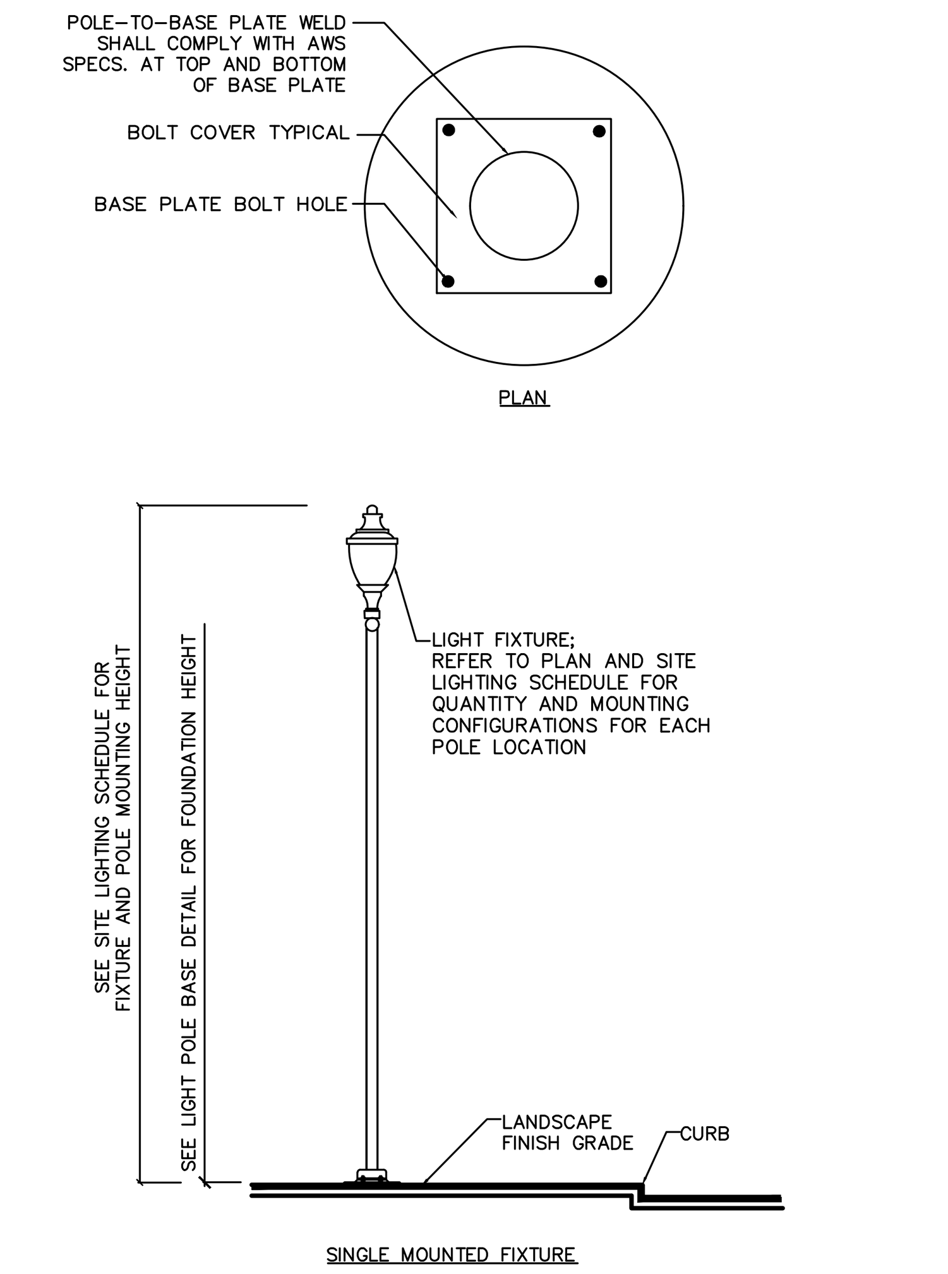


MOUNTING HEIGHT	FOOTING DEPTH	FOOTING DIAMETER	EXPOSED HEIGHT "H"	VERTICAL REINFORCEMENT
14'–0"	2'–0"	5'–0"	0'–2"	6#5 BARS

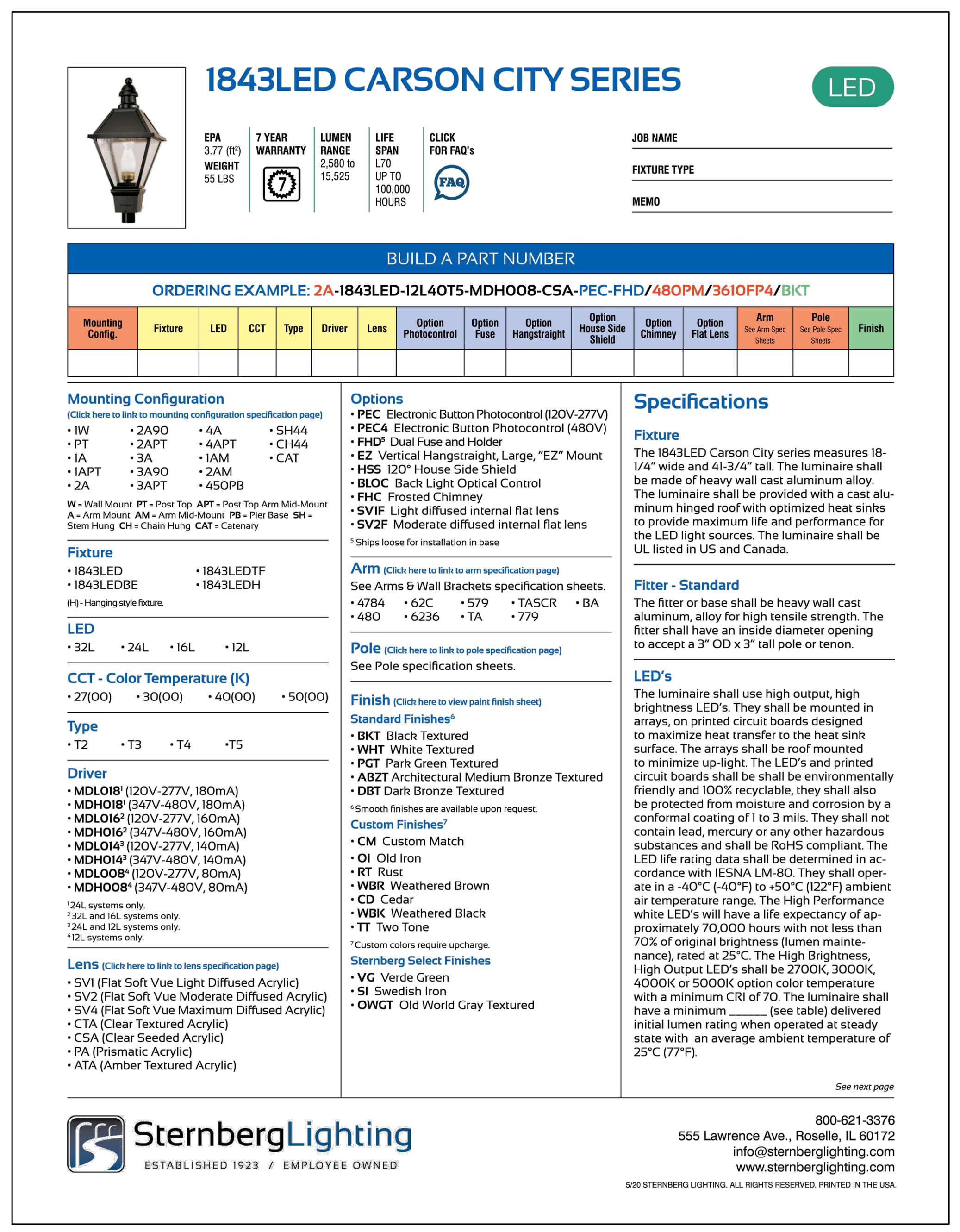
NOTES:

1. 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.
2. 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.
3. 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.
4. CONTRACTOR TO ENSURE CONCRETE POLE BASES ARE POURED / PLACED ABSOLUTELY VERTICAL & LEVEL.
5. IF POLE BASE IS CAST–IN–PLACE, POLE BASE SHALL BE ONE CONTINUOUS POUR. EXPOSED PORTION OF BASE SHALL BE HAND–RUBBED SMOOTH.
6. CONTRACTOR TO COMPACT SUBGRADE AROUND POLE BASE PER EARTHWORK SPECIFICATIONS / GEOTECH REPORT.
7. 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 MANUFACTURERS RECOMMENDATIONS.
8. CONTRACTOR TO CONFIRM GROUNDING DESIGN WITH MEP.

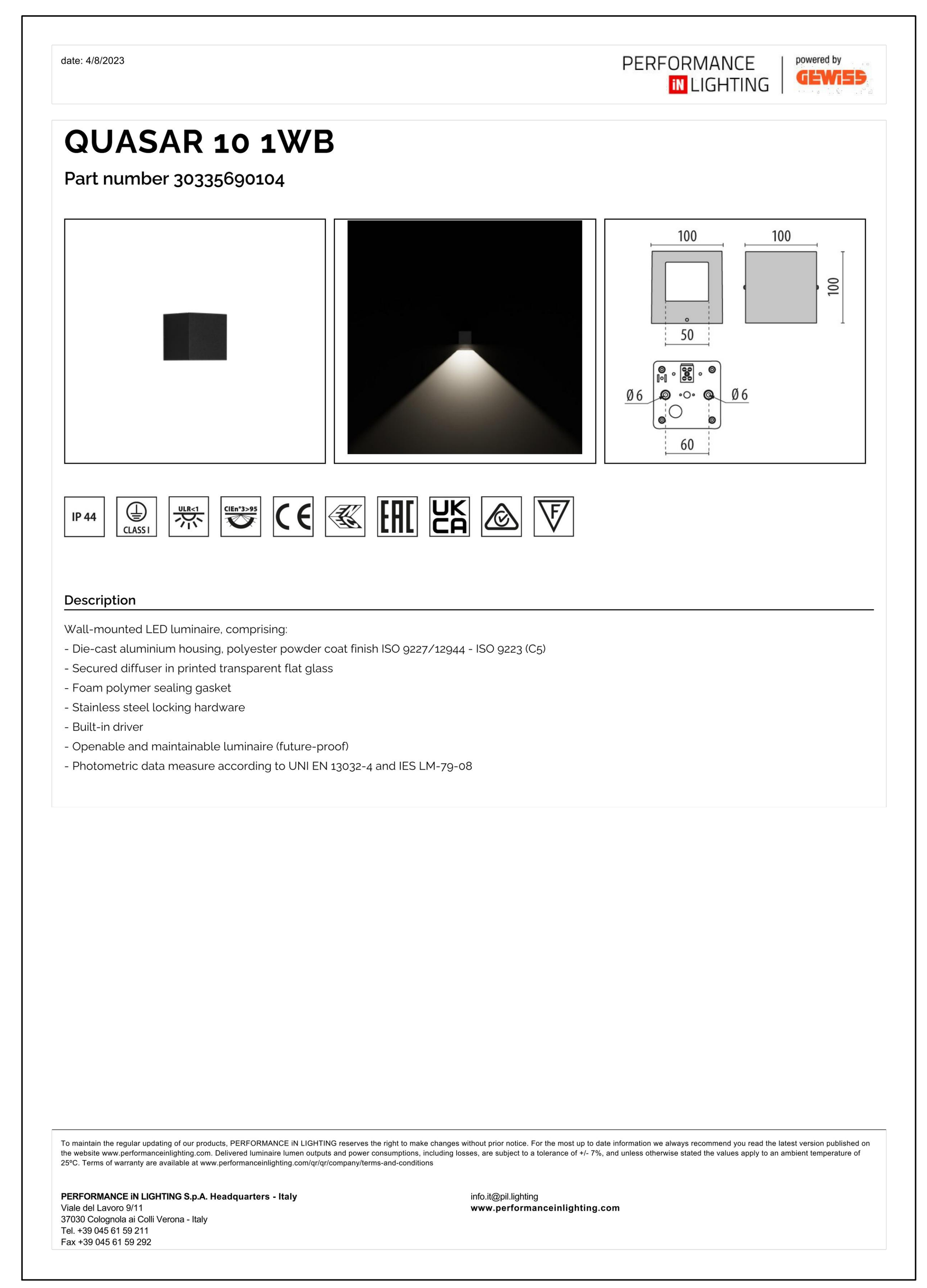
1 LIGHT POLE BASE
NTS



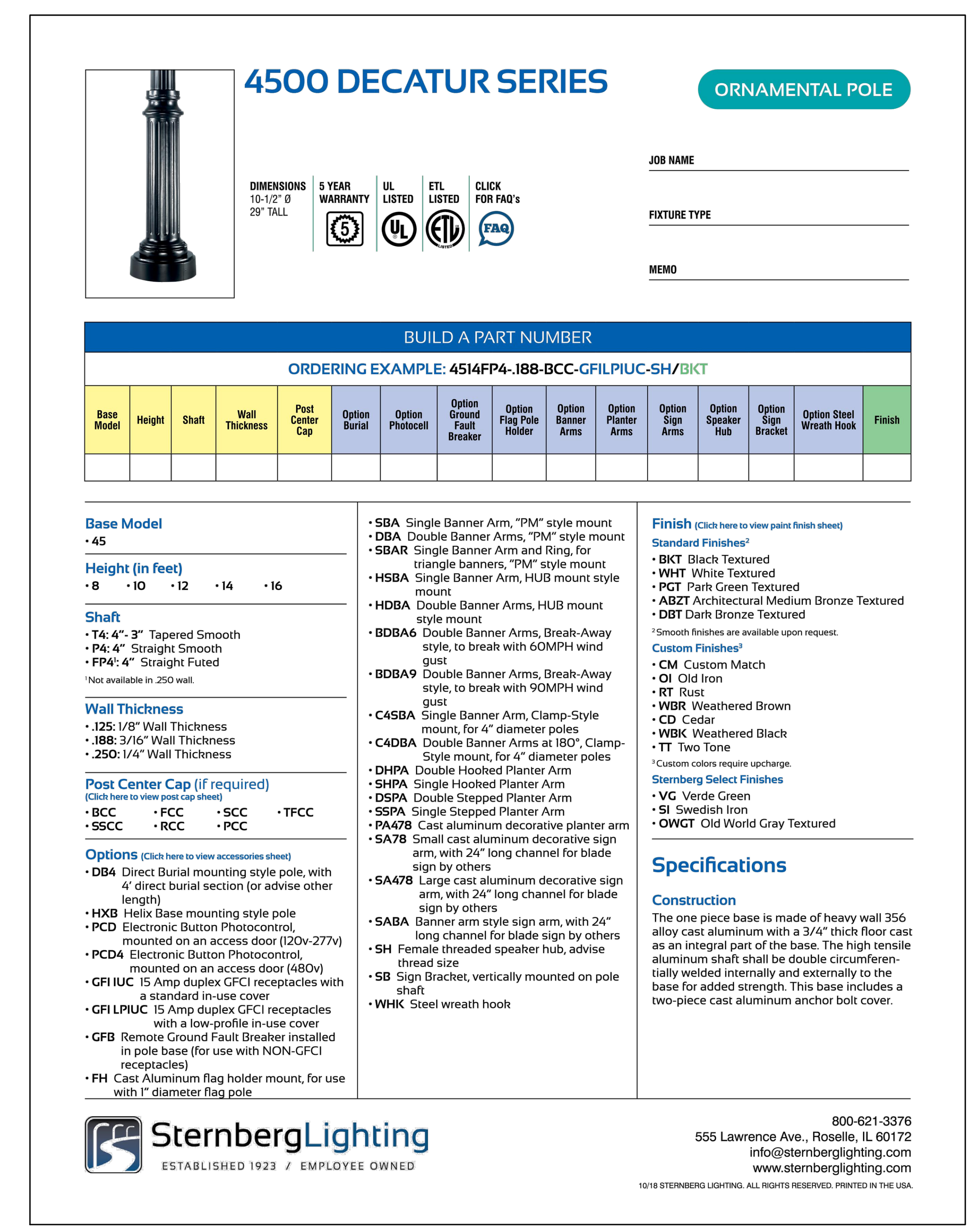
2 LIGHT FIXTURE AND POLE
NTS



3 POLE MOUNTED LIGHT FIXTURE
NTS



4 WALL MOUNTED LIGHT FIXTURE
NTS



5 LIGHT POLE
NTS

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

Revisions

Signature | Date
MICHAEL HUNTON, RLA
LANDSCAPE ARCHITECT NY Lic. No.2926

LANGAN
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

Project: 45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title: SITE LIGHTING DETAILS AND NOTES

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

Drawing No. LL501
Sheet 16 of 17

Date: 10/5/2023 Time: 15:31 User: lzoe Style Table: Langan.stb Layout: LL501 Document Code: 190085001-0301-LL501-0101

LANGAN
Project No. 190085001

100.0' WETLAND BUFFER

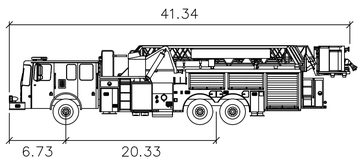
NYFD 75' Tower Ladder Seagrave Marauder

FIRE HYDRANT

FIRE HYDRANT

NYFD 75' Tower Ladder Seagrave Marauder

NYFD 75' Tower Ladder Seagrave Marauder



NYFD 75' Tower Ladder Seagrave Marauder

feet

Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 40.4

20 0 5 10 20

SCALE: 1 INCH = 20 FEET

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.

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

Revisions

STATE OF NEW YORK * MICHAEL J. FINAMORE * 081473 LICENSED PROFESSIONAL ENGINEER

Signature 10/06/2023 Date

MICHAEL J. FINAMORE, PE, LEED-AP
PROFESSIONAL ENGINEER NY Lic. No. 081473-1

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title
FIRE TRUCK MOVEMENTS

Project No. 190085001
Date SEPTEMBER 22, 2023
Drawn By GN
Checked By MT

Drawing No. FG01
Sheet 17 of 17

LANGAN
Project No. 190085001

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 7th, 2023
Revised October 6, 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: October 6, 2023

Table of Contents

Table of Contents

Tables

Figures

Appendices

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

Storm Event	Pre (cfs)	Post (cfs)	Diff (cfs)
1-year	0.40	0.12	-0.28
10-year	6.16	1.54	-4.62
100-year	18.29	13.10	-5.19

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

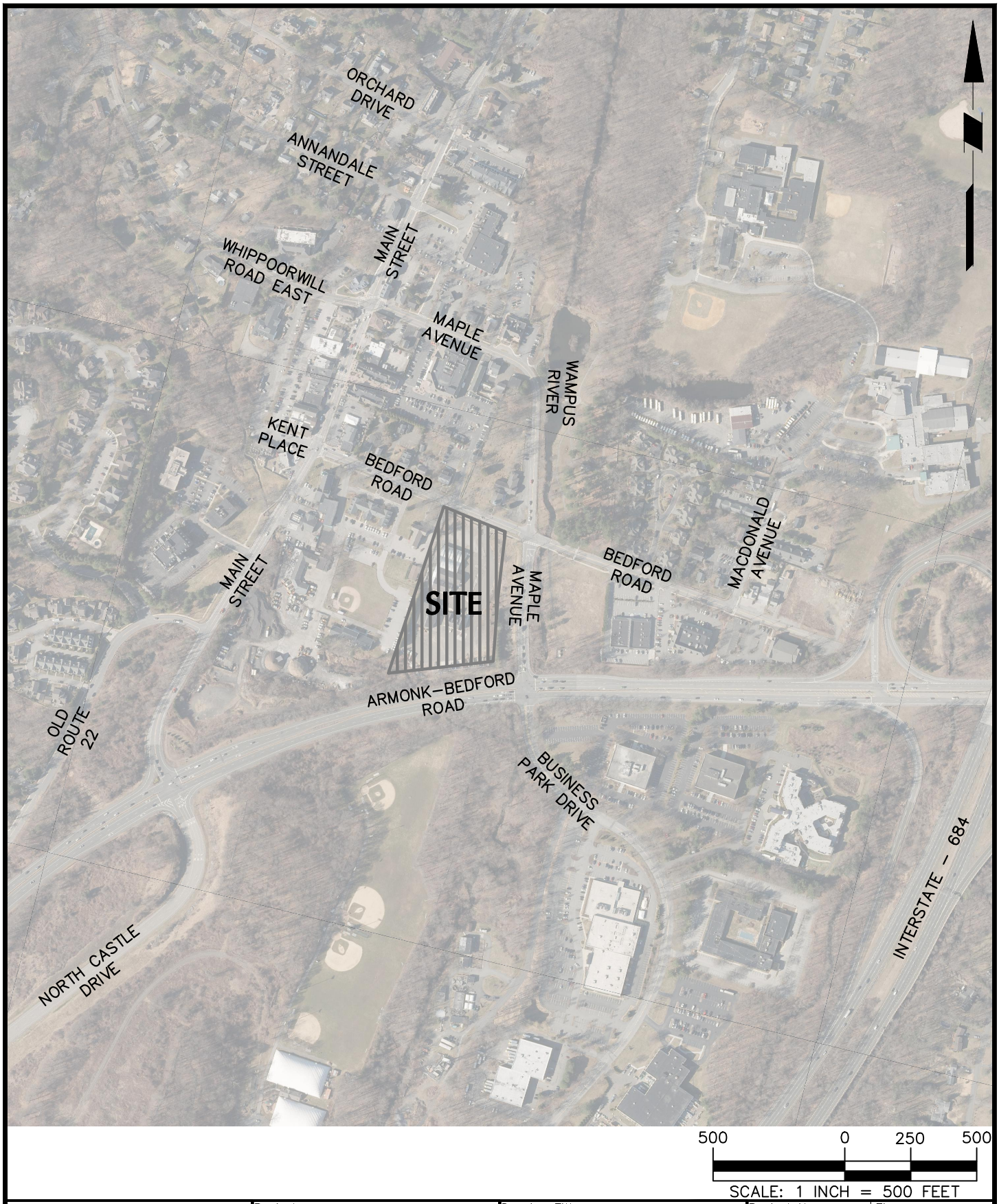
Below is a summary of the project information:

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).



LANGAN

Project No. 190085001

LANGAN
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

Project	45 BEDFORD ROAD TOWN OF NORTH CASTLE WESTCHESTER COUNTY NEW YORK
Drawing Title	SITE LOCATION MAP
Project No.	190085001
Date	01/30/2023
Drawn By	GN
Checked By	MT
Figure	FG01
Sheet	1 of 1

Date: 8/7/2023 Time: 09:31 User: gnyambura Style Table: Langan.stb Layout: Layout1 Document Code: FG01-190085001-0201-CS101-0101

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

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

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). NYSOPRHP has been consulted.

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.

LANGAN

Project No. 190085001

LANGAN
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

Project	45 BEDFORD ROAD ARMONK WESTCHESTER COUNTY NEW YORK
Drawing Title	SOILS MAP
Project No.	190085001
Date	01/30/2023
Drawn By	GN
Checked By	MT
Figure	FG02
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

ZONE X	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.

300 0 150 300

SCALE: 1 INCH = 300 FEET

LANGAN
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

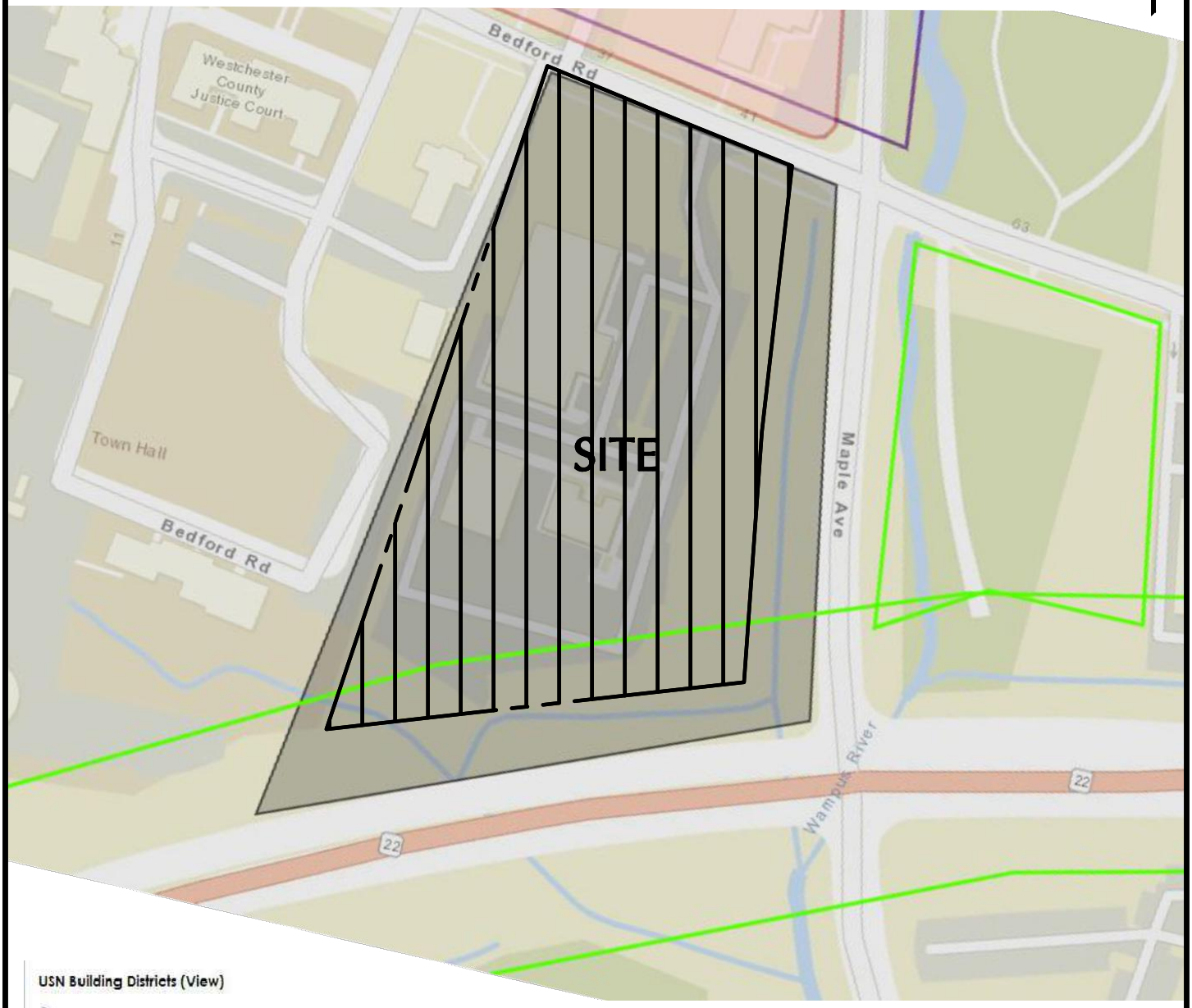
Project
45 BEDFORD ROAD
TOWN OF NORTH CASTLE
WESTCHESTER COUNTY NEW YORK

Drawing Title
FLOOD INSURANCE RATE MAP

Project No. 190085001
Date 01/30/2023
Drawn By GN
Checked By MT

Figure
FG03
Sheet 1 of 1

Project No. 190085001



USN Building Districts (View)

Eligible

Other Statuses

National Register Building Sites (View)

Survey Archaeology Areas (View)

150 0 50 100 150

SCALE: 1 INCH = 150 FEET

LANGAN

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

Project

45 BEDFORD ROAD

TOWN OF NORTH CASTLE
WESTCHESTER COUNTY NEW YORK

Drawing Title

CULTURAL RESOURCES MAP

Project No. 190085001

Date 01/30/2023

Drawn By GN

Checked By MT

Figure

FG04

Sheet 1 of 1

Project No. 190085001

Date: 8/7/2023 Time: 09:44 User: gnyambura Style Table: Langan.stb Layout: Layout1 Document Code: FG04-190085001-0201-CS101-0101

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-foor 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_C) 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
90th Percentile (1,2)	1.50 inches
1-year	2.80 inches
2-year (3)	3.43 inches
10-year	5.13 inches
100-year	9.16 inches

1. The 90th 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 90th 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 F. 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_v (cf)
10	0.50	0.24	1332
20A	2.41	1.87	9,824
20B	1.05	0.00	285
Total	**3.95**	**2.29**	**11,888**

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 WQv 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	0.00	-0.07
	3	0.33	0.12	-0.21
10-year	1	2.53	0.73	-1.80
	2	2.85	0.48	-2.37
	3	0.78	0.33	-0.45
100-year	1	4.89	2.64	-2.25
	2	11.84	9.74	-2.10
	3	1.56	0.72	-0.84

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

Type of Soil Disturbance	Soil Restoration Requirement
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.

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.

Appendix A: NYSDEC SPDES General Permit

NEW YORK STATE OF OPPORTUNITY | 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

1-23-20

Authorized Signature

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

Table of Contents

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

*Discharge*s 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 discharge*s;

   (ii) Control stormwater *discharge*s, 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 *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, 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**. *Discharge*s from *dewatering* activities, including *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s 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 *discharge*s; 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 *discharge*s 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. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s 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 *discharge*s 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 *discharge*s 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. *Discharge*s 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, 4th 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 <u>not</u> 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 <u>not</u> 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 *discharge*s 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

l. 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 source*s. 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 source*s, 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

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and 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
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

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.

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

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- 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.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

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

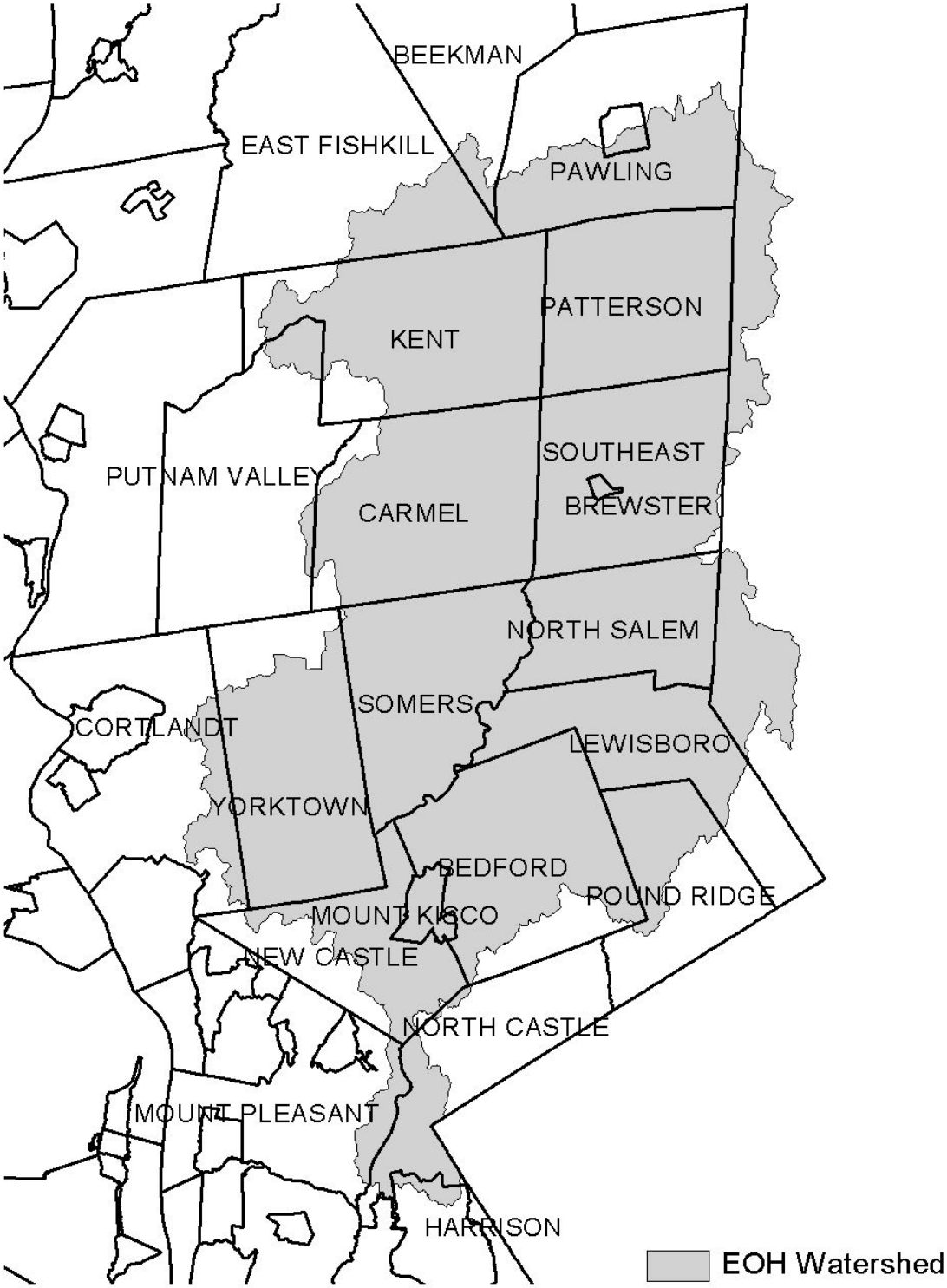


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

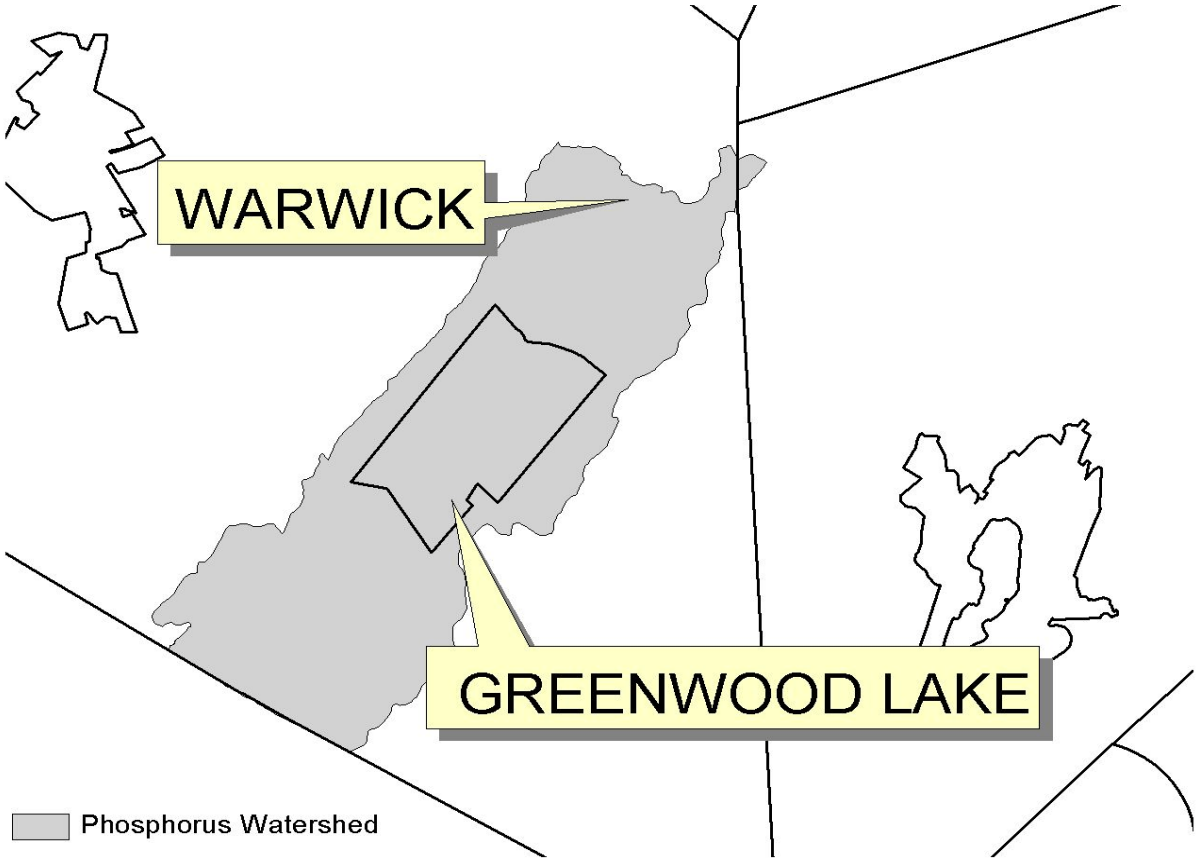


Figure 4 - Oscawana Lake Watershed

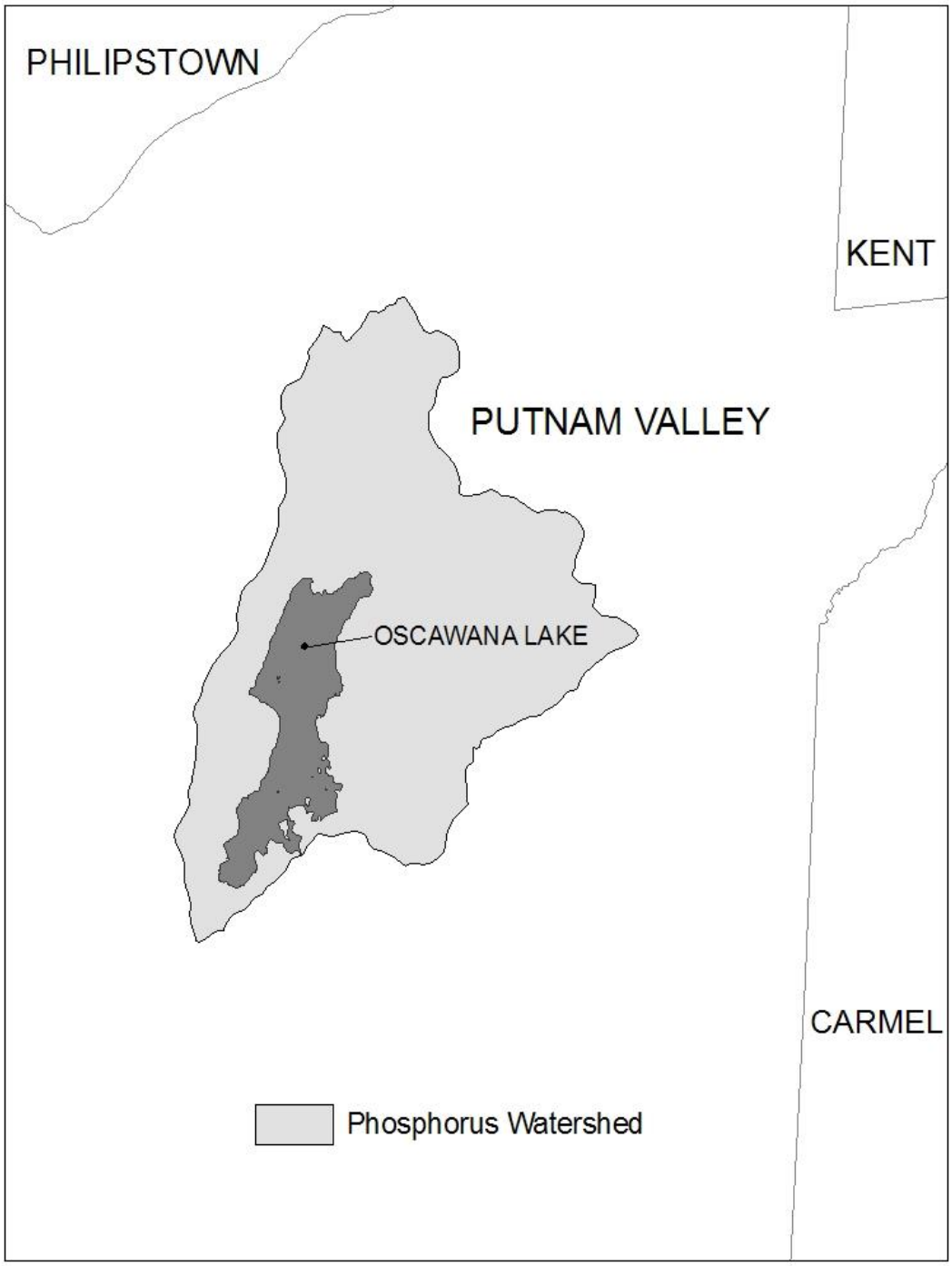
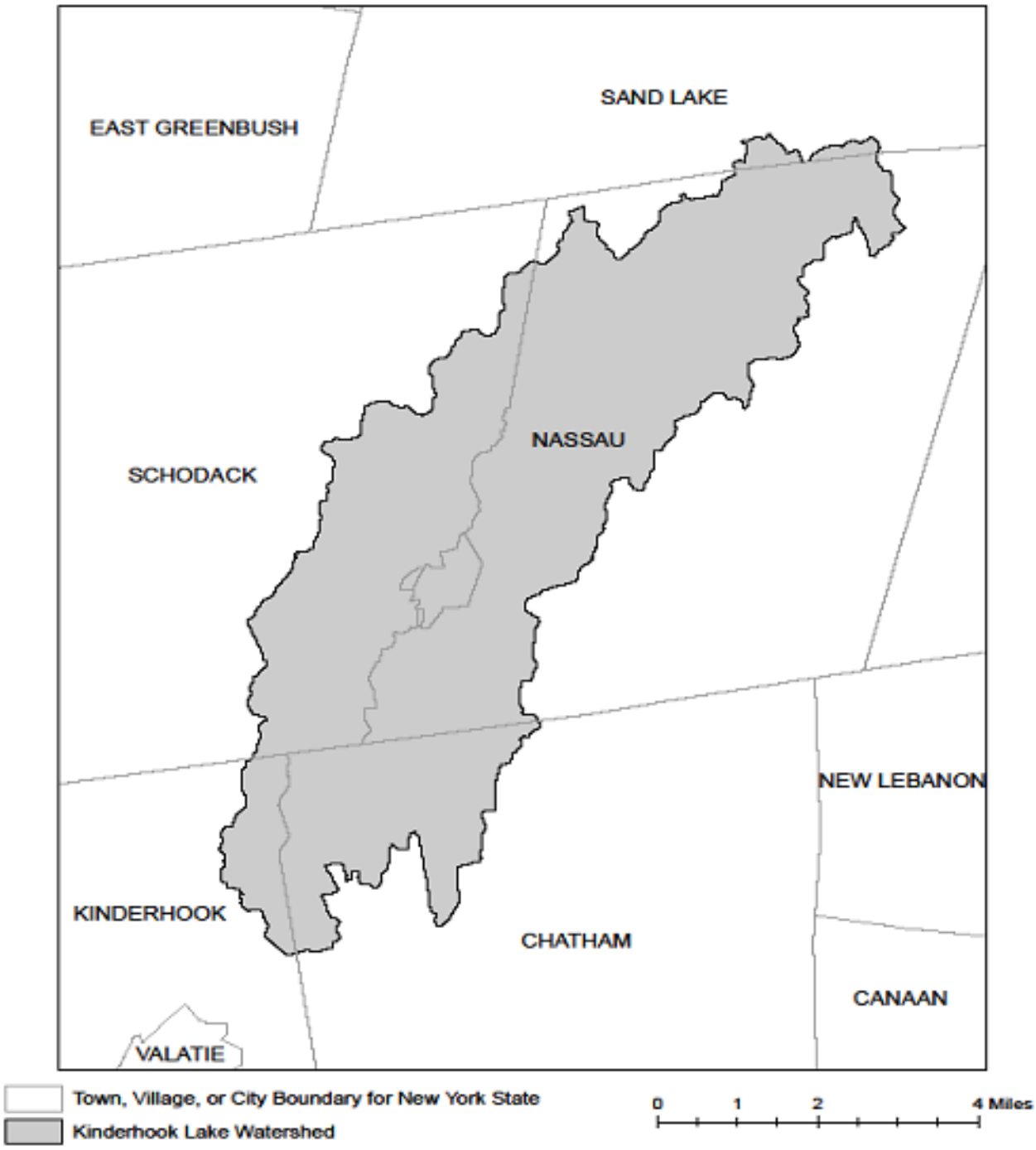


Figure 5 - Kinderhook Lake Watershed



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

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
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

Appendix B: NYSDEC SPDES General Permit Forms

0644089821

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)
KINGS CAPITAL CONSTRUCTION

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
SPERDUTI

Owner/Operator Contact Person First Name
JOHN

Owner/Operator Mailing Address
660 WHITE PLAINS ROAD

City
TARRYTOWN

State: NY
Zip: 10591-____

Phone (Owner/Operator): 973-229-4103
Fax (Owner/Operator): ___-___-____

Email (Owner/Operator)
j.sperduti@kingscapitalgroup.com

FED TAX ID
__-_____ (not required for individuals)

Project Site Information

Project/Site Name
THE GATEWAY

Street Address (NOT P.O. BOX)
45 BEDFORD ROAD

Side of Street
○ **North** ◉ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)
NORTH CASTLE

State
NY

Zip
10504 -

County
WESTCHESTER

DEC Region
3

Name of Nearest Cross Street
MAPLE AVENUE

Distance to Nearest Cross Street (Feet)
50

Project In Relation to Cross Street
○ **North** ○ **South** ○ **East** ◉ **West**

Tax Map Numbers
Section-Block-Parcel
108.03-1-65

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
608146

Y Coordinates (Northing)
4553310

2. What is the nature of this construction project?

◉ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

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

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ◉ 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

***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
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.

A	B	C	D
0 %	100 %	0 %	0 %

7. Is this a phased project? ○ **Yes** ◉ **No**

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

Start Date 05/01/2024 - **End Date** 05/01/2025

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

WAMPUS RIVER

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ◉ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ◉ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ **Yes** ◉ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ **Yes** ◉ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ◉ **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ◉ **No**

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?

TOWN OF NORTH CASTLE

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**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ◉ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer
LANGAN ENGINEERING

Contact Name (Last, Space, First)
TUCKER, MICHAEL

Mailing Address
1 NORTH BROADWAY SUITE 910

City
WHITE PLAINS

State NY Zip 10601-

Phone 914-323-7400

Fax 914-323-7401

Email
MTUCKER@LANGAN.COM

SWPPP Preparer Certification

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 MICHAEL **MI**

Last Name FINAN

Signature

Date 10/06/2023

25. Has a construction sequence schedule for the planned management practices been prepared? ◉ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ◉ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ◉ Stabilized Construction Entrance
- ◉ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ◉ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ◉ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ◉ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

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

0.263 **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)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)		and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			2.12
○ Bioretention (F-5)			
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
○ Wet Pond (P-2)			
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
○ Pocket Pond (P-5)			
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	
○ **Wet Vault**	
○ **Media Filter**	
○ **Other**	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

0.256 **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ◉ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

0.103 **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

◉ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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

0.023 **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). 0.279

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.

CPv Required

0.375 **acre-feet**

CPv Provided

0.38 **acre-feet**

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)

Pre-Development

6.16 **CFS**

Post-development

1.54 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

18.29 **CFS**

Post-development

13.10 **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ● **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

KINGS CAPITAL CONSTRUCTION

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

N/A

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N][Y][R][ ][ ][ ][ ][ ][ ]
- ○ Other [ ]
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ● **No**
If Yes, Indicate Size of Impact. [ ][ ][ ][ ][ ].[ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ● **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N][Y][R][ ][ ][ ][ ][ ][ ]

Owner/Operator 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.

Print First Name **MI**

Print Last Name

Owner/Operator Signature

Date / /

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

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

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

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SWPPP Preparer Certification Form

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

Project Site Information

Project/Site Name

The Gateway - 45 Bedford Road

Owner/Operator Information

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

Kings Capital Construction

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

Revised: January 2020

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

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

Project/Site Name: The Gardens - 45 Bedford Road

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

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is 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.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

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

Appendix C: Design Calculations

LANGAN

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
P=	1.50 *inch*

Manually enter the information below.

Breakdown of Subcatchments

Subcatchment Number	Subcatchment Model Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	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
Total		**3.95**	**2.12**	**54%**	**0.53**	**11,441**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
Initial WQv	3.95	2.12	54%	0.53	11,441
Subtract Area	0.00	0.00	--	--	--
WQv adjusted after Area Reductions	**3.95**	**2.12**	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	**11,441**
WQv reduced by Area Reduction techniques					0

LANGAN

Minimum Runoff Reduction Volume Worksheet

Minimum Runoff Reduction Volume

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.
2. In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the minimum runoff reduction (RRv_{min}).
3. The minimum runoff reduction volume is calculated as follows:

$$RRv_{min} = \frac{P * \bar{R}v * Aic * S}{12}$$

Where:

RRv_{min} = Minimum runoff reduction required from impervious area

$\bar{R}v$ = 0.05 + 0.009 (I), where I is 100% impervious

Aic = Total area of new impervious cover

S = Hydrologic Soil Group Specific Reduction Factor

Enter the Soils Data for the site

Soil Group	Acres	S	
A	0.00	55%	*(new impervious area in Type A Soils)*
B	2.16	40%	*(new impervious area in Type B Soils)*
C	0.00	30%	*(new impervious area in Type C Soils)*
D	**0.00**	20%	*(new impervious area in Type D Soils)*
Total Area	2.16		

Calculate the Minimum RRv

Soil Group Speific Reduction Factor (S)	**0.40**		*(weighted average)*
Total Area of New Impervious Cover (Aic)	2.16	*acre*	
Precipitation (P)	1.50	*in*	
Rv	0.95		
Minimum RRv	**4,468**	***ft3***	*(P * Rv x Aic * S)/12*
	0.10	af	

LANGAN

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^3)*	**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^3	

Design Elements Pretreatment Techniques to Prevent Clogging			
Infiltration Rate	7.50	*in/hour*	*Okay*
Pretreatment Sizing	100	*% WQv*	*25% minimum;* *50% if >2 in/hr;* *100% if >5in/hour*
Pretreatment Required Volume	1,332	ft^3	
Pretreatment Provided	1,786	ft^3	
Pretreatment Techniques utilized	*Other*		*Isolator Row Plus* ™

Size An Infiltration Basin				
Design Volume		1,332	ft^3	WQv
Volume Provided		1,340	ft^3	*Storage Volume provided in underground infiltration system below lowest outlet (not including pretreatment)*
Sizing √		OK		*The underground infiltration system must provide storage equal to or greater than the WQv of the contributing area.*

Determine Runoff Reduction			
Runoff Reduction	**1,332**	ft^3	***100% of the storage provided in the basin or WQv, whichever is smaller***
Volume Treated	**8**	ft^3	***This is the portion of the WQv that is not reduced/infiltrated***

LANGAN

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^3)*	**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^3*	

Design Elements Pretreatment Techniques to Prevent Clogging			
Infiltration Rate	9.00	*in/hour*	*Okay*
Pretreatment Sizing	100	*% WQv*	*25% minimum; 50% if >2 in/hr; 100% if >5in/hour*
Pretreatment Required Volume	9,824	*ft^3*	
Pretreatment Provided	11,456	*ft^3*	
Pretreatment Techniques utilized	*Other*		*Isolator Row Plus™*

Size An Infiltration Basin				
Design Volume		9,824	*ft^3*	WQv
Volume Provided		10,834	*ft^3*	*Storage Volume provided in underground infiltration system below lowest outlet (not including pretreatment)*
Sizing √		OK		*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^3***	***100% of the storage provided in the basin or WQv, whichever is smaller***
Volume Treated	**1,010**	***ft^3***	***This is the portion of the WQv that is not reduced/infiltrated***

LANGAN

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 ($P_{1\ yr\ storm}$)	2.83	*in*	
Ia (200 / CN - 2)	0.25		
Ia / $P_{1\ yr\ storm}$	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 ($Q_{1\ yr\ runoff}$)	1.75	*in*	*$(P_{1\ yr\ storm} - 0.2*S)^2/(P_{1\ yr\ storm} + 0.8*S)$*
Channel Protection Volume	**16,339**	***cf***	*$[((V_s/V_r) * (Q_{1\ yr\ runoff}) * A)/12]*43560$*
Average Release Rate over 24 hours	**0.19**	***cfs***	

LANGAN

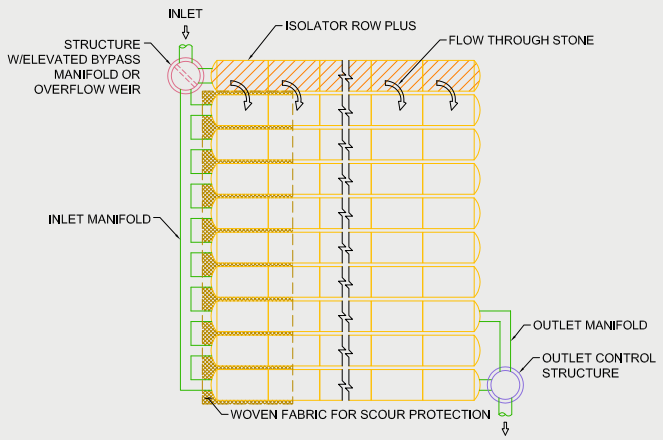
Isolator® Row Plus

The StormTech Isolator Row Plus is an enhancement to our proven water quality treatment system. This updated system is an NJCAT verified water quality treatment device that can be incorporated into any system layout.

Features

- Isolator Row Plus is now NJCAT verified. As a Manufactured Treatment Device it achieves over 80% TSS removal by filtration NJDEP Laboratory Protocol Assessment NJCAT Technology Verification.
- A patented Flamp™ (Flared End Ramp) provides a smooth transition from pipe invert to fabric bottom. The Flamp is attached to the inlet pipe inside the chamber end cap and improves chamber function over time by distributing sediment and debris that would otherwise collect at the inlet. It also serves to improve the fluid and solid flow back into the inlet pipe during maintenance and cleaning.
- Proprietary ADS Plus fabric maintains durability and sediment removal while allowing for higher water quality flow rates. A single layer of ADS Plus fabric is placed between the angular base stone and the Isolator Row Plus chambers.

Schematic of the StormTech Isolator Row Plus System



Technology Descriptions

The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume or a flow basis. An upstream manhole not only provides access to the Isolator Row Plus but includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with either an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the StormTech chamber system it is either infiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

Summary of Verified Claims[1]

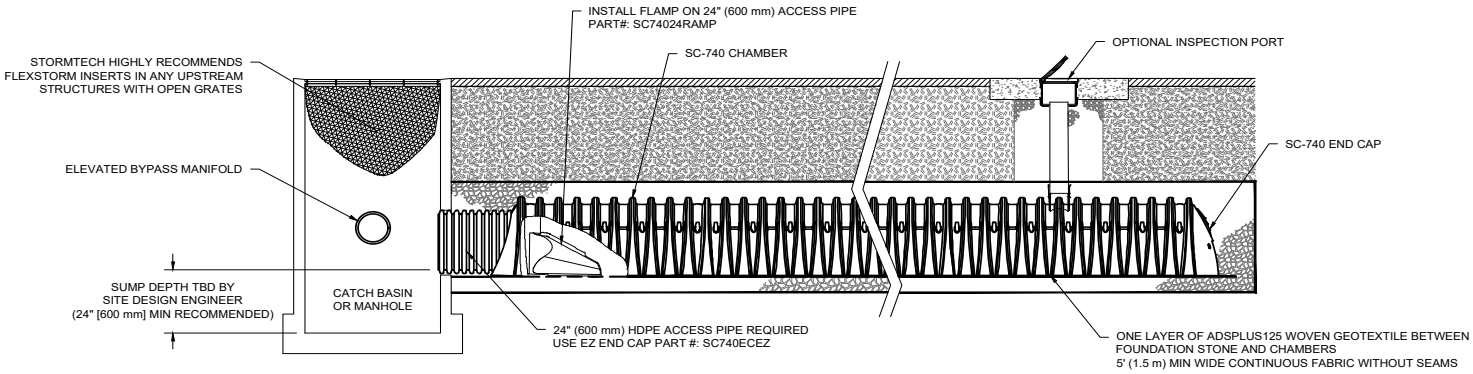
Treatment Rate (gpm/ft²)	4.1
Underlying Geotextile Layers	1
NJDEP Test Sediment	1-1000µ
Mean Particle Concentration (mg/L)	200
TSS Removal Efficiency	>80%

[1] Verification testing of the StormTech SC-740 Isolator Row PLUS in accordance with NJDEP Laboratory protocol to access total suspended solids removal by filtration manufactured treatment device, 2013

ADS StormTech™

adspipe.com
800-821-6710

StormTech Isolator Row Plus (not to scale)



Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediment to just one row of the StormTech system, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout.

Maintenance is accomplished with the JetVac® process. The JetVac process utilizes a high-pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediment. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency.

StormTech Isolator Row Plus

Chamber Model	Chamber Storage	Chamber Footprint	Treatment Rate
SC-160LP	15.0 cf (0.42 m^3)	11.45 sf (1.06 m^2)	0.11 cfs (3.11 L/s)
SC-310	31.0 cf (0.88 m^3)	17.7 sf (1.64 m^2)	0.16 cfs (4.53 L/s)
SC-740	74.9 cf (2.12 m^3)	27.8 sf (2.58 m^2)	0.26 cfs (7.36 L/s)
DC-780	78.4 cf (2.22 m^3)	27.8 sf (2.58 m^2)	0.26 cfs (7.36 L/s)
MC-3500	175.0 cf (4.96 m^3)	42.9 sf (3.99 m^2)	0.40 cfs (11.32 L/s)
MC-4500	162.6 cf (4.60 m^3)	30.1 sf (2.80 m^2)	0.28 cfs (7.93 L/s)
MC-7200	267.3 cf (7.57 m^3)	50.0 sf (4.65 m^2)	0.45 cfs (12.74 L/s)

Installation

Installation of the stormwater treatment unit(s) shall be preformed per manufacture's installation instructions. Such instructions can be obtained by calling Advanced Drainage Systems Inc. at (800) 821-6710 or by logging on to adspipe.com.

ADS StormTech™

adspipe.com
800-821-6710

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

Appendix D: Pre-Development Stormwater Analysis

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

LANGAN

PRELIMINARY STORMWATER POLLUTION PREVENTION PLAN

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)

Storm Recurrence Interval	DP-1	DP-2	DP-3
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 pond 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 environment practices has been provided and is detain 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)

Storm Recurrence Interval	DP-1	DP-2	DP-3
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)

Storm Recurrence Interval	DP-1	DP-2	DP-3
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 ⅓ 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 CACLUATIONS

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 CACLUATIONS

Table of Contents

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

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

::
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: .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
==========

::
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)

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)

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)

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)

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)

Index of Starting Page Numbers for ID Names

APPENDIX B

PROPOSED CONDITIONS CALCULATIONS

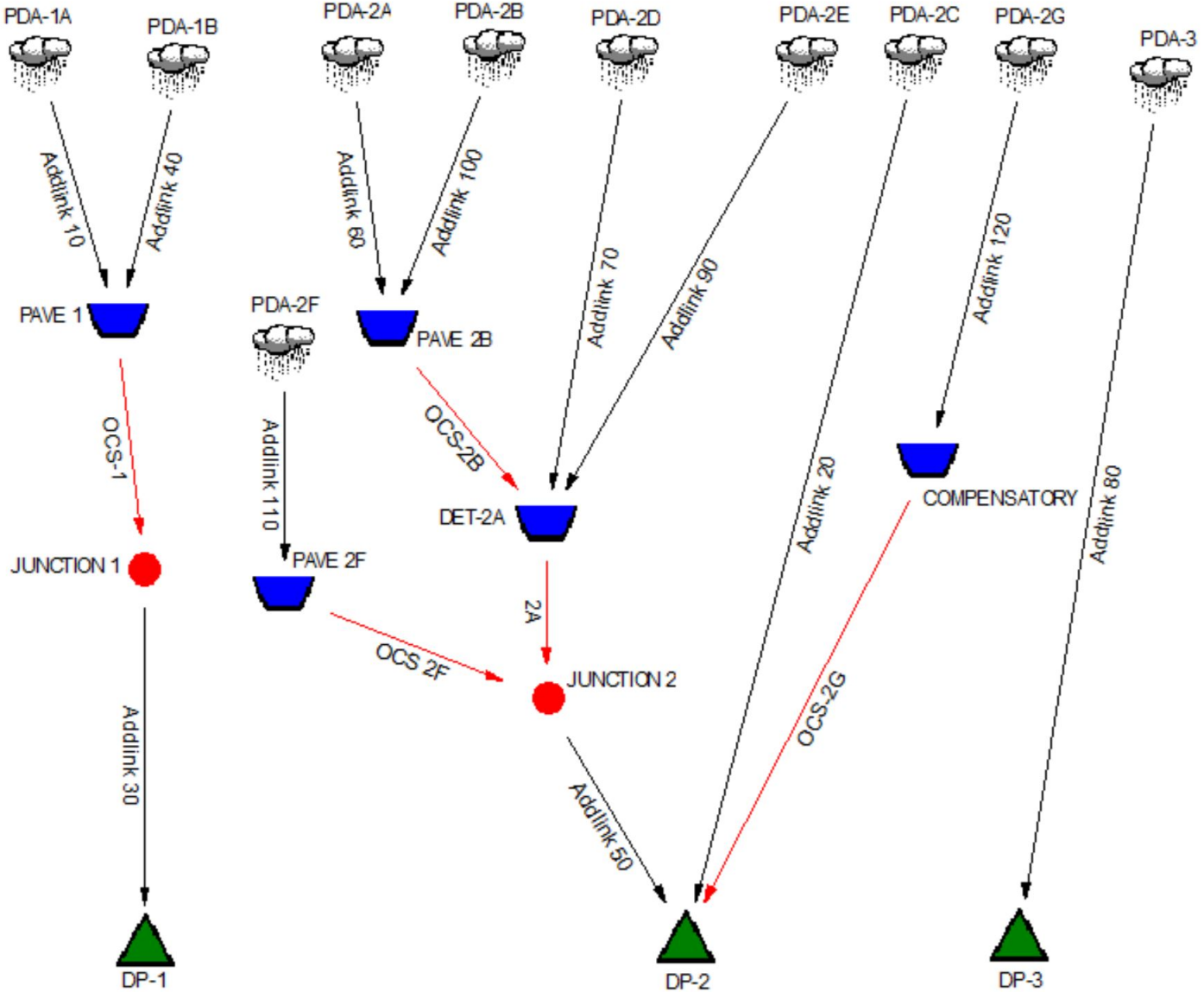

PDA-1A
PDA-1B
PDA-2A
PDA-2B
PDA-2D
PDA-2E
PDA-2C
PDA-2G
PDA-3
Addlink 10
Addlink 40
Addlink 60
Addlink 100
Addlink 70
Addlink 90
Addlink 120
PAVE 1
PDA-2F
PAVE 2B
OCS-1
Addlink 110
OCS-2B
DET-2A
COMPENSATORY
Addlink 20
Addlink 80
JUNCTION 1
PAVE 2F
2A
OCS 2F
JUNCTION 2
OCS-2G
Addlink 30
Addlink 50
DP-1
DP-2
DP-3

Table of Contents

Table of Contents (continued)

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	393		12.1200	.06		
COMPENSATORY IN	POND	10	1944		12.1200	.54		
COMPENSATORY IN	POND	100	5844		12.1000	1.68		
COMPENSATORY OUT	POND	1	0		11.9800	.00	374.99	24747
COMPENSATORY OUT	POND	10	0		11.1200	.00	374.99	24747
COMPENSATORY OUT	POND	100	0		8.9800	.00	374.99	24747
DET-2A IN	POND	1	1467		12.1000	.42		
DET-2A IN	POND	10	3704		12.1000	1.03		
DET-2A IN	POND	100	22664		12.0400	16.34		
DET-2A OUT	POND	1	0		8.1200	.00	374.99	3384
DET-2A OUT	POND	10	0		5.4400	.00	374.99	3384
DET-2A OUT	POND	100	8825		12.4400	2.87	376.09	10939
*DP-1	JCT	1	0		.0200	.00		
*DP-1	JCT	10	0		.0200	.00		
*DP-1	JCT	100	0		.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		

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

::
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

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)

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)

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)

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)

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)

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)

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)

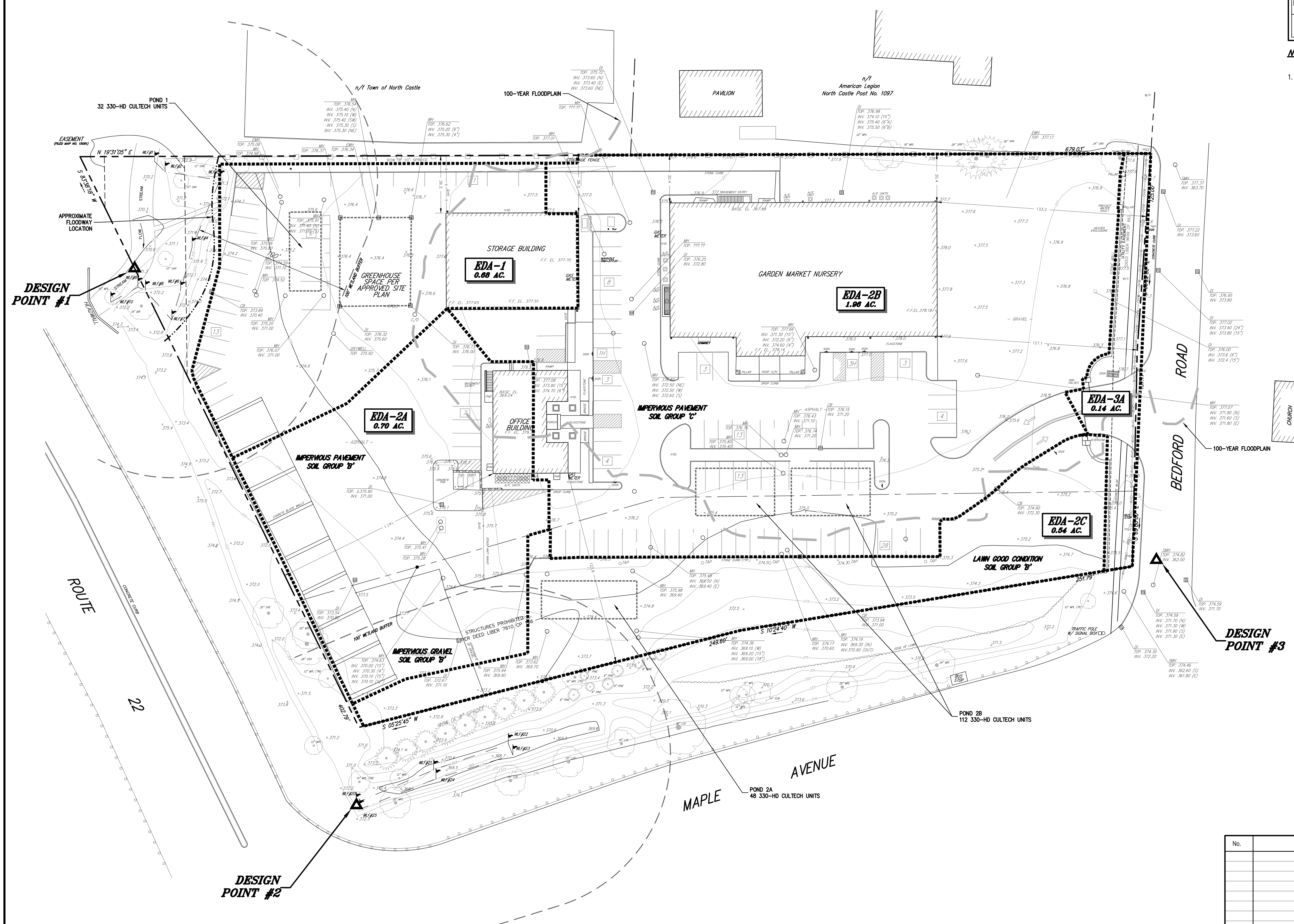
RUNOFF CURVE NUMBER DATA

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)

Index of Starting Page Numbers for ID Names

APPENDIX C

DRAINAGE AREA MAPS AND DRAWINGS



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:

1. 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.

APPLICANT/OWNER:
45 BEDFORD ROAD LLC
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NY

ARCHITECT:
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 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

EXISTING DRAINAGE AREA MAP

MARIANI GARDENS REDEVELOPMENT
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NEW YORK

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.

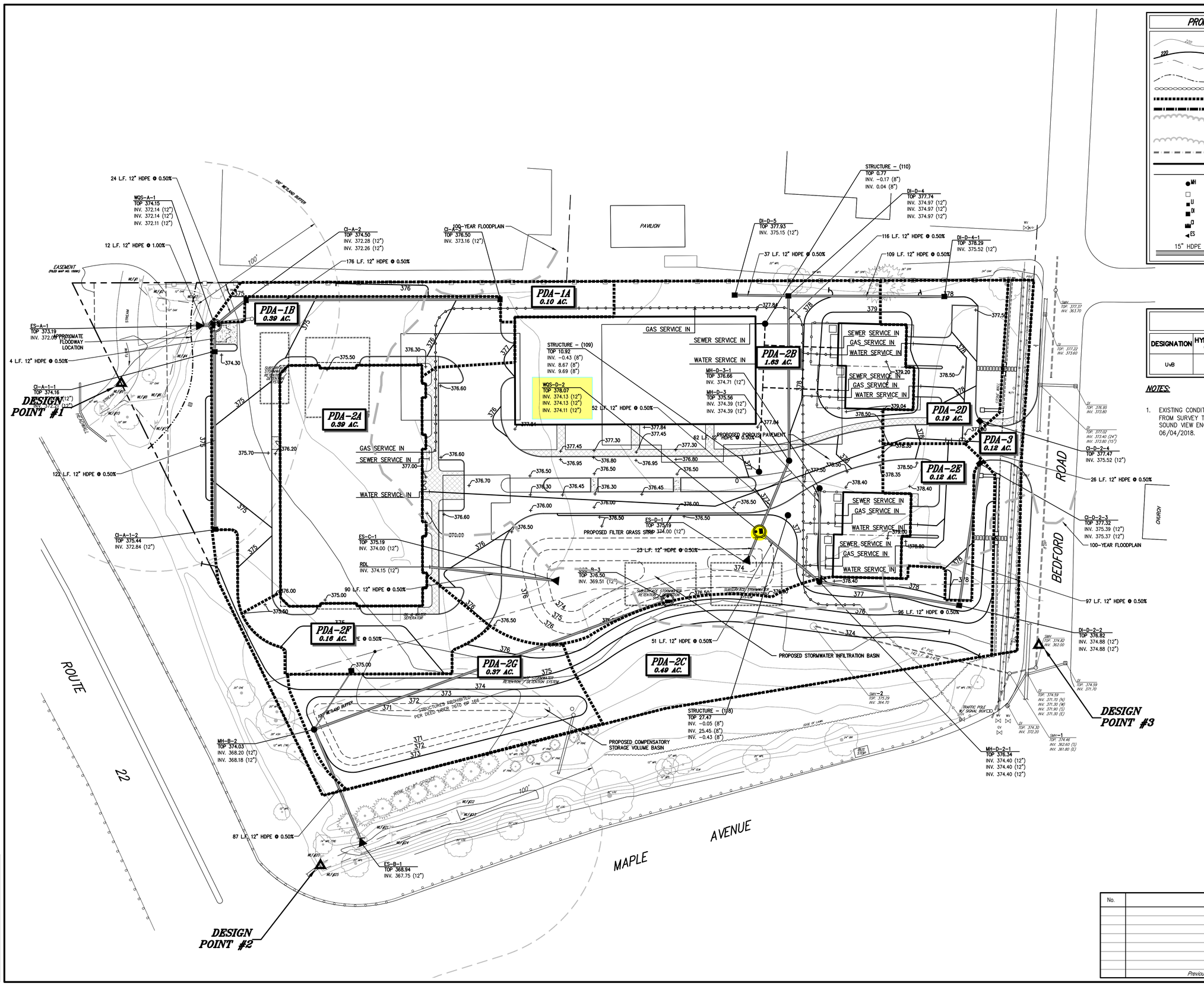
PROGRESS PLOTTING

Drawing: 18053-DRAINAGE-TK
Date: 2019-02-26
Time: 1:30 PM
By:

No.	Revision	Date	By

Drawn: TK Approved: RA
Scale: 1" = 30'
Date: 11/28/2018
Project No: 18053
18053-DRAINAGE-TK EDA EDA.LS
Drawing No: DA–1

Previous Editions Obsolete



APPLICANT/OWNER:
45 BEDFORD ROAD LLC
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NY

ARCHITECT:
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 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

PROPOSED DRAINAGE AREA MAP

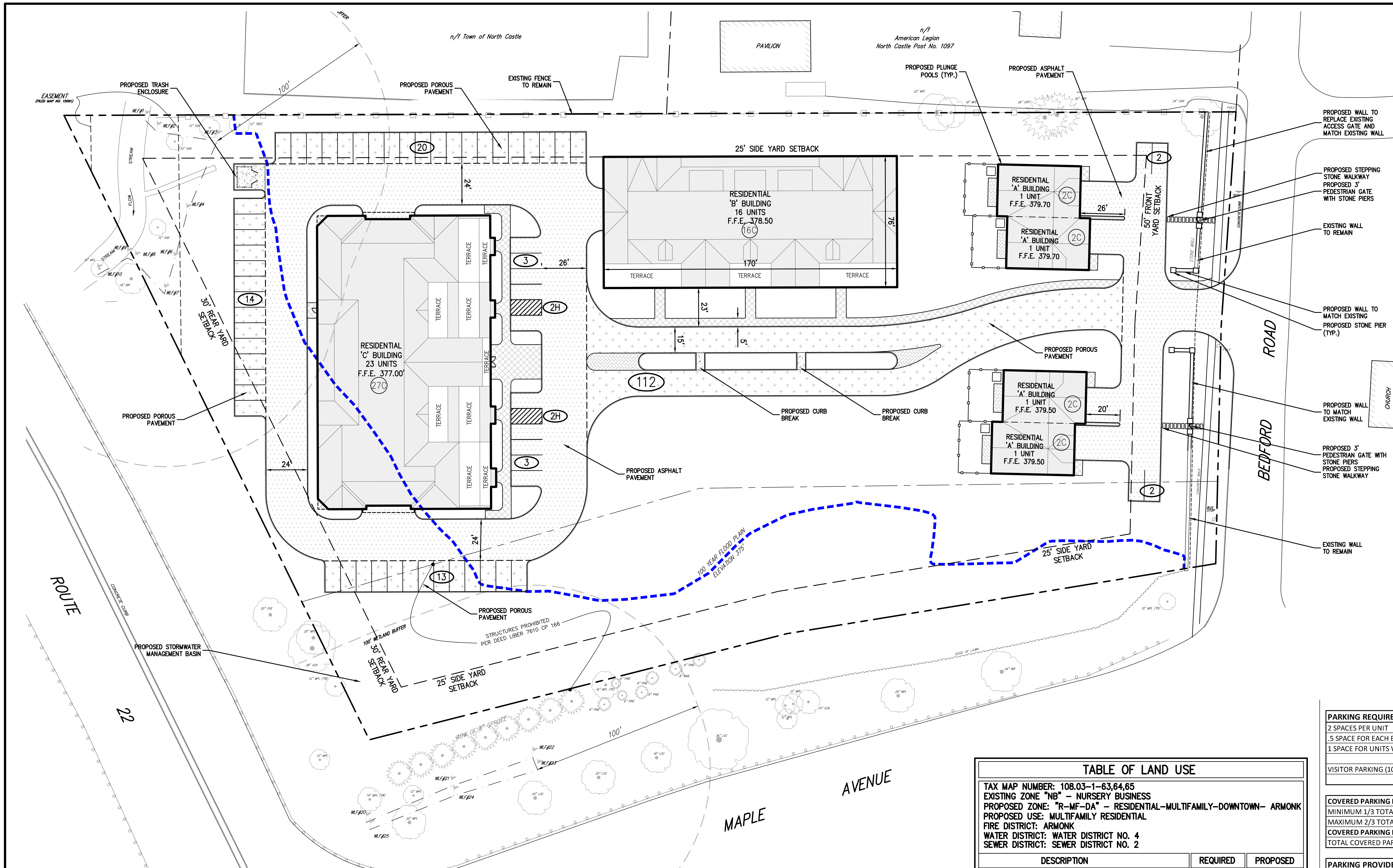
MARIANI GARDENS REDEVELOPMENT
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NEW YORK

No.	Revision	Date	By

Previous Editions Obsolete

Drawn: TK Approved: RA
Scale: 1" = 30'
Date: 06/07/2019
Project No: 18053
Hydrop Drainage | STORM | PDA/LS
Drawing No: DA-2

NOT FOR CONSTRUCTION



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 POROUS 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 LCC, 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
	SUB TOTAL	*93*	*SPACES*
VISITOR PARKING (10% OF TOTAL)		9	SPACES
TOTAL PARKING REQUIRED		**109**	**SPACES**

COVERED PARKING REQUIRED		
MINIMUM 1/3 TOTAL PARKING REQUIRED	36	SPACES
MAXIMUM 2/3 TOTAL PARKING REQUIRED	73	SPACES
COVERED PARKING PROVIDED		
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
TOTAL PARKING PROVIDED	**112**	**SPACES**

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 (1)	(FEET)	40 MAXIMUM	–
BUILDING 'A' (1)	(FEET)	40 MAXIMUM	29.80 / 30.00
BUILDING 'B' (1)	(FEET)	40 MAXIMUM	30.00
BUILDING 'C' (1)	(FEET)	40 MAXIMUM	37.00
FLOOR AREA RATIO (2)		0.5 MAXIMUM	.395
BUILDING COVERAGE (2)	(PERCENT)	30 MAXIMUM	19.7
GROSS LAND COVERAGE (2)(3)	(PERCENT)	–	47.3
YARDS			
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
	TOTAL	**43**		**76**	

	'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
TOTAL UNITS	**4**	**16**	**23**	**43**

* Includes three (3) 1-bedroom, one (1) 2-bedroom, and one (1) 3-bedroom Affordable Affirmatively Furthering Fair Housing (AFFH) Units.

APPLICANT/OWNER: 45 BEDFORD ROAD LLC
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NY

ARCHITECT: 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 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

JMC

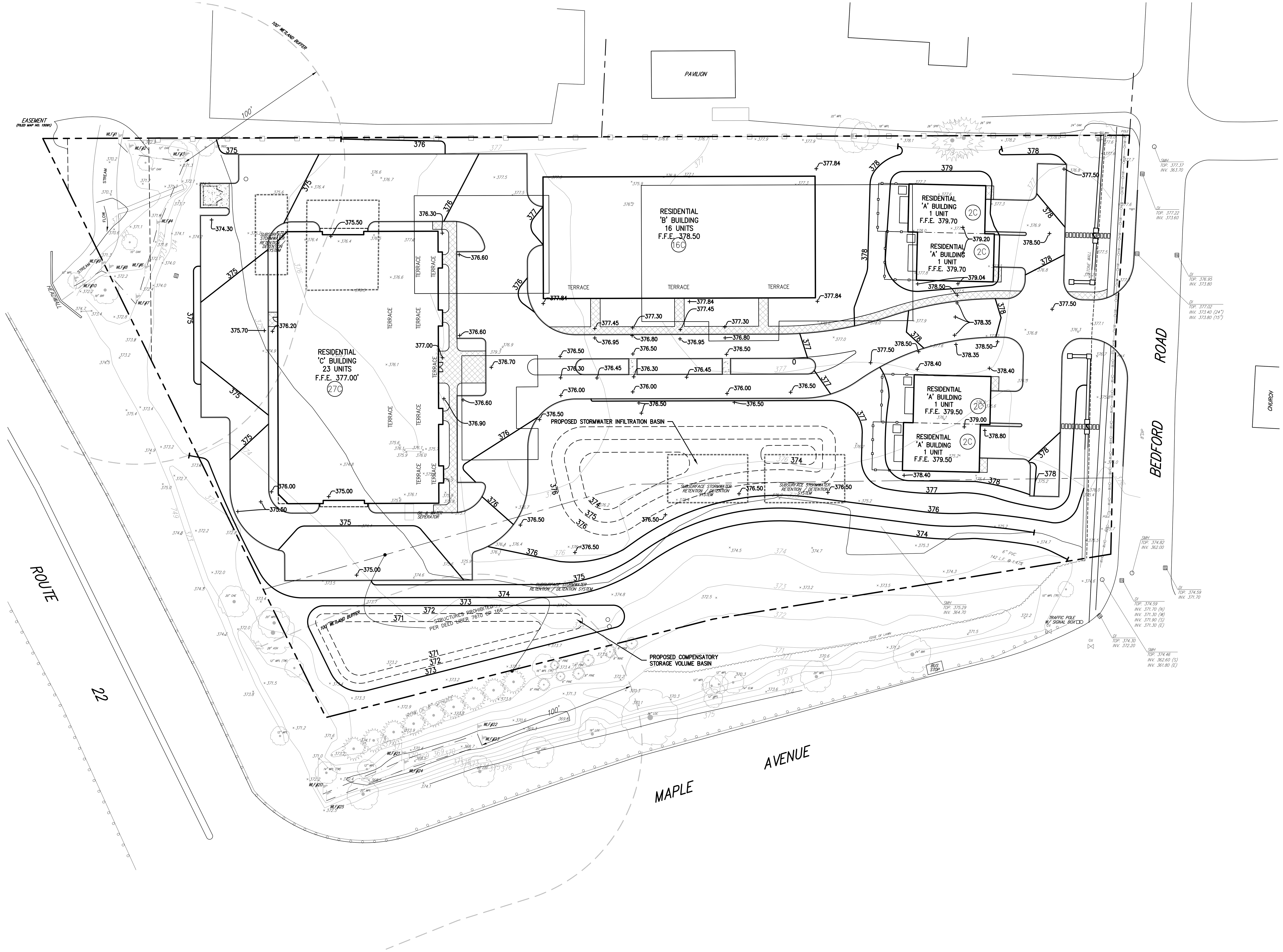
LAYOUT PLAN

MARIANI GARDENS REDEVELOPMENT
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NEW YORK

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
	Previous Editions Obsolete		

Drawn: JJ		Approved: RA	
Scale: 1" = 30'			
Date: 12/05/2018			
Project No: 18053			
18053-SITE	C-100	LAY.scr	
Drawing No: C-100			

NOT FOR CONSTRUCTION

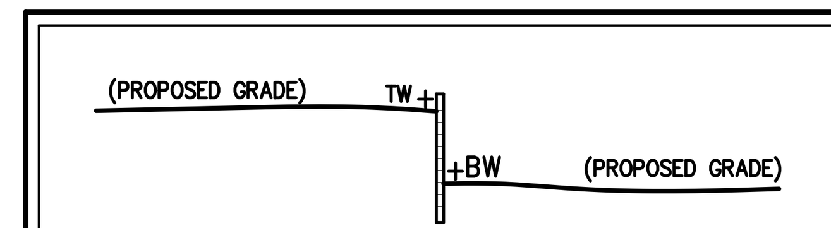


LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING WETLAND LINE AND DELINEATION (WLF-63, WLF-64, WLF-65)
- EXISTING WETLAND BUFFER
- EXISTING FLOOD AREA LINE
- EXISTING BUILDING OVERHANG
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING CONTOUR (375)
- EXISTING INDEX CONTOUR (374)
- EXISTING SPOT GRADE (373.25)
- 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 (375)
- PROPOSED SPOT GRADE (375.50)
- 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
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)

GENERAL NOTES:

1. 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.**
2. 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.
3. ALL FILLS SHALL BE COMPACTED TO PROVIDE STABILITY OF MATERIAL AND TO PREVENT SETTLEMENT.
4. EXCAVATIONS AND FILLS SHALL NOT ENDANGER ADJOINING PROPERTIES, NOR DIVERT WATER ONTO THE PROPERTY OF OTHERS AT ANY TIME DURING THE COURSE OF CONSTRUCTION.
5. CONTRACTOR SHALL REFER TO EROSION AND SEDIMENT CONTROL PLAN FOR FURTHER DIRECTION REGARDING SITE STABILIZATION THROUGHOUT THE COURSE OF CONSTRUCTION.



RETAINING WALL SPOT GRADE LEGEND

APPLICANT/OWNER:
45 BEDFORD ROAD LLC
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NY

ARCHITECT:
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 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

JMC

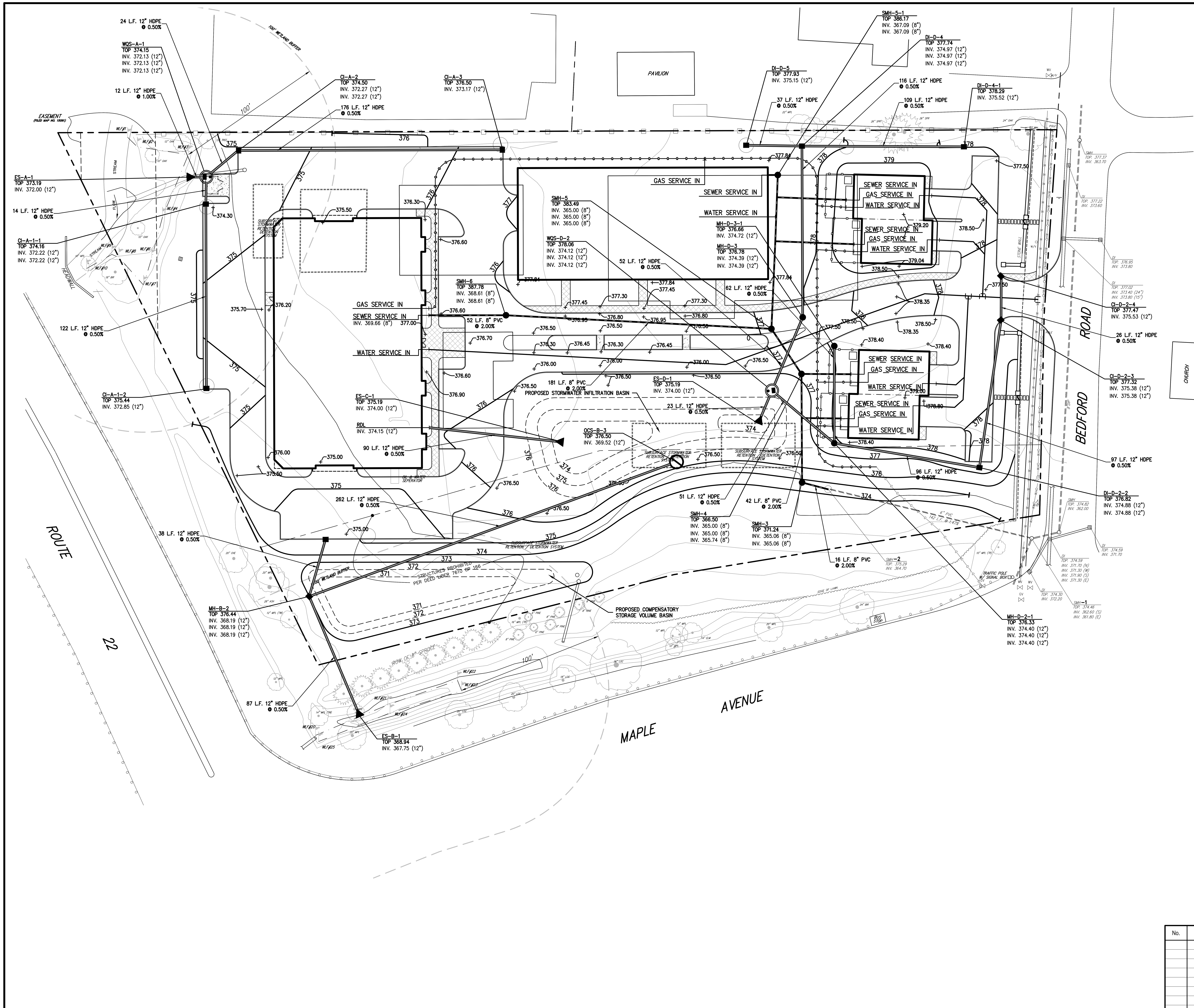
GRADING PLAN

MARIANI GARDENS REDEVELOPMENT

45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NEW YORK

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	06/07/2019	JJ
5.	REVISED PER TOWN ENGINEERS COMMENTS	06/11/2019	JJ
	Previous Editions Obsolete		

Drawn: JJ	Approved: RA	
Scale: 1" = 30'		
Date: 12/05/2018		
Project No: 18053		
18053-GRAD	C-200	GRAD.scr
Drawing No: C-200		



LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING 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 GUIDE RAIL
- EXISTING FENCE
- EXISTING STORM DRAIN LINE AND SIZE
- EXISTING SANITARY LINE AND SIZE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRES
- 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
- PROPOSED TRENCH DRAIN
- HW — PROPOSED TYPE A HEADWALL
- HW — PROPOSED TYPE B HEADWALL
- WQS — PROPOSED WATER QUALITY STRUCTURE
- OCS — PROPOSED SUBSURFACE DRAINAGE OUTLET CONTROL STRUCTURE
- OCS — PROPOSED OUTLET CONTROL STRUCTURE
- CO — PROPOSED CLEANOUT
- 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

APPLICANT/OWNER:
45 BEDFORD ROAD LLC
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NY

ARCHITECT:
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 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

UTILITIES PLAN

MARIANI GARDENS REDEVELOPMENT
45 BEDFORD ROAD
TOWN OF NORTH CASTLE, NEW YORK

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.

No.	Revision	Date	By

Previous Editions Obsolete

Drawn: JJ	Approved: RA
Scale: 1" = 30'	
Date: 06/11/2019	
Project No: 18053	
18053-UTIL	UTIL / UTIL.scr
Drawing No: C-300	

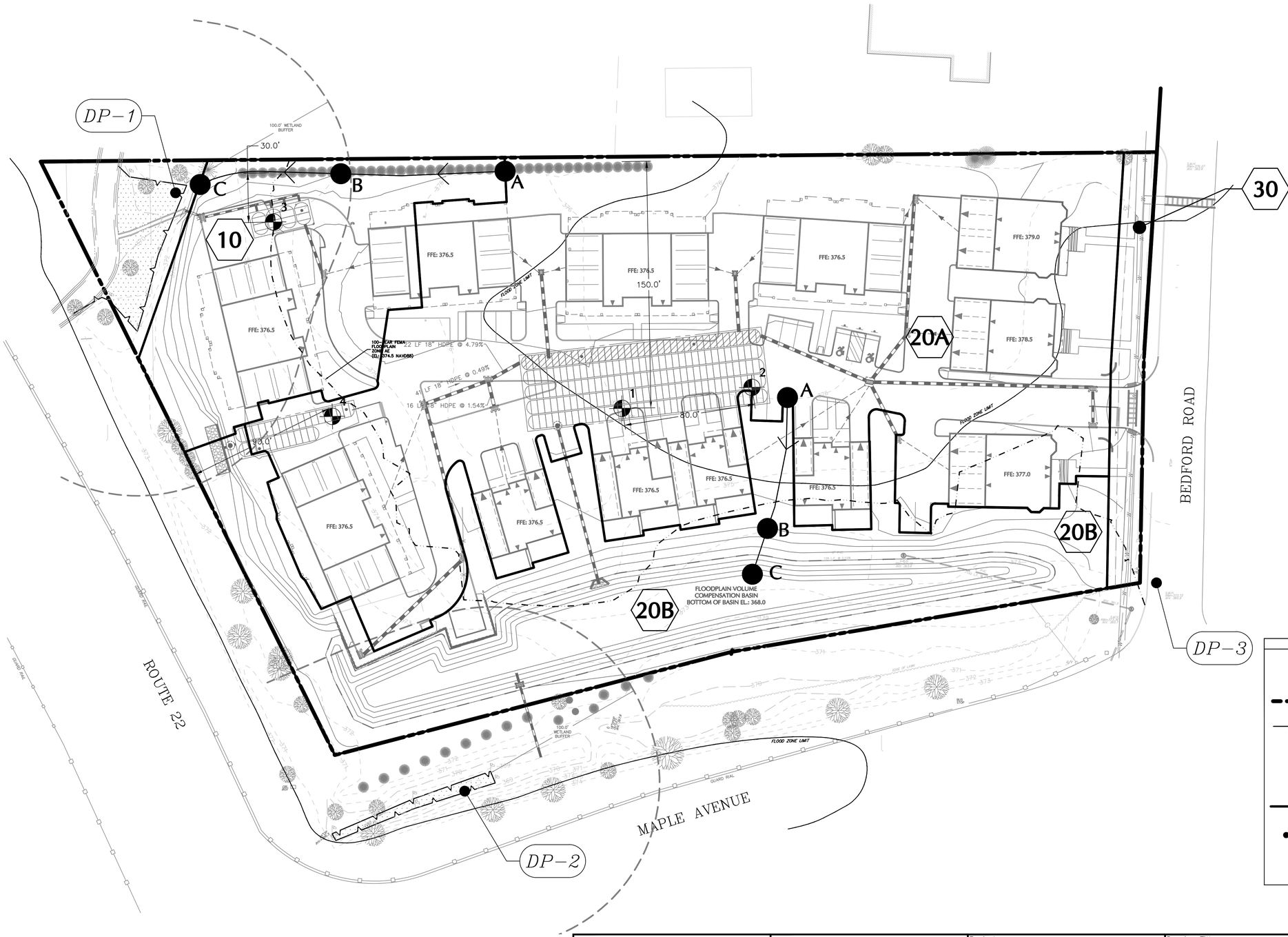
Appendix E: Infiltration Test Results

Infiltration & Test Pit Data								
Date:	9/27/2023							
Address:	45 Bedford Road, Armonk NY							
Test done by:	Luke Caserta, Grace Nyambura							
					Depth to Water from Ground Surface (Inches)			
Hole Number	**Run Number**	**Start**	**Stop**	**Elapsed Time (Min)**	**Start**	**Stop**	**Water Level Drop in Inches**	**Soil Rate (In/Hr)**
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.							

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

Appendix F: Post-Development Stormwater Analysis

LANGAN



LEGEND

HvE (C)	SOIL CLASSIFICATION AND HYDROLOGIC SOIL GROUP
	HYDROLOGIC SOIL GROUP BOUNDARY
	TIME OF CONCENTRATION
10	SUB–CATCHMENT ID
	SUBCATCHMENT BOUNDARY
DP–1	DISCHARGE POINT
2	INFILTRATION TEST AND DEEP TEST

30 0 10 20 30
SCALE: 1 INCH = 30 FEET

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 Date
MICHAEL FINAN, PE, LEED–AP
PROFESSIONAL ENGINEER NY Lic. No. 081473–1

LANGAN
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

Project
45 BEDFORD ROAD
ARMONK
WESTCHESTER COUNTY NEW YORK

Drawing Title
POST DEVELOPMENT WATERSHED MAP

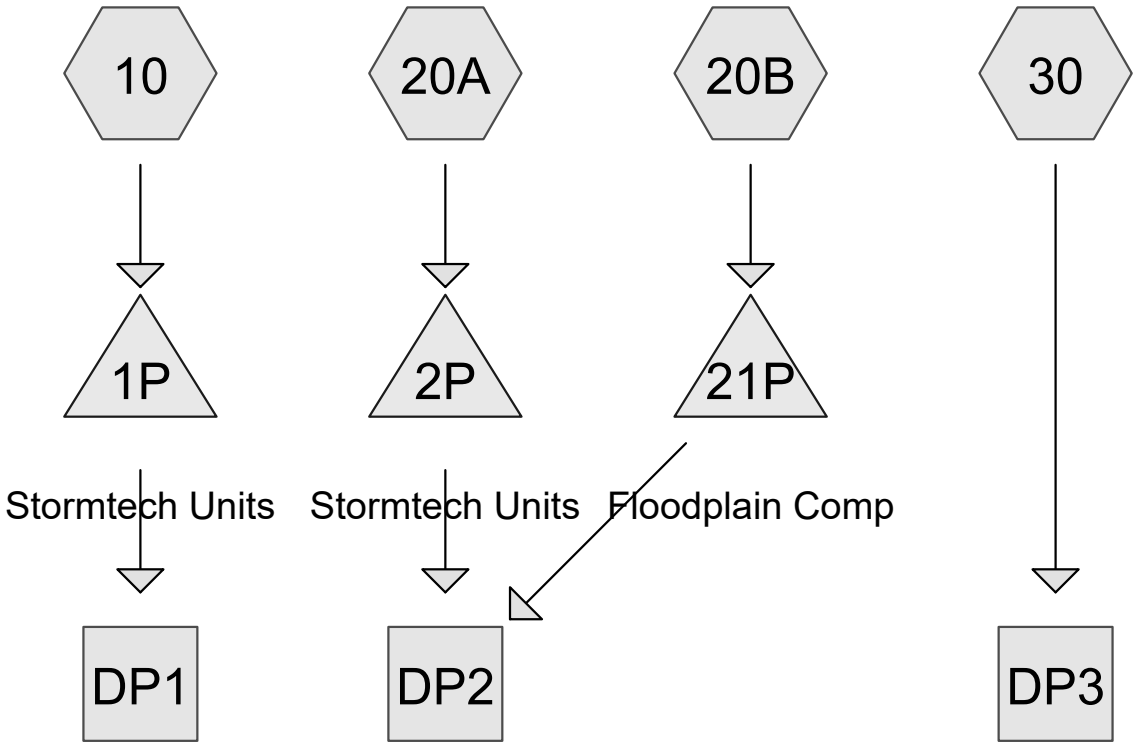
Project No. 190085001
Date 01/30/2023
Drawn By GN
Checked By MT

Figure FG06

Sheet 1 of 6

Date: 10/5/2023 Time: 09:12 User: gnyambura Style Table: Langan.stb Layout: Layout1 Document Code: FG06-190085001-0201-CS101-0101

LANGAN
Project No. 190085001



Subcat Reach Pond Link

Routing Diagram for 10-03-2023 Post Development Watershed Analysis
Prepared by Langan Engineering, Printed 10/5/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.913	61	>75% Grass cover, Good, HSG B (10, 20A, 20B, 30)
2.159	98	Impervious (10, 20A, 30)
4.072	**81**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=21,666 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=104,901 sf 77.69% Impervious Runoff Depth=1.81"
Tc=6.0 min CN=90 Runoff=4.98 cfs 0.363 af

Subcatchment20B: Runoff Area=45,554 sf 0.00% Impervious Runoff Depth=0.30"
Flow Length=110' Tc=14.1 min CN=61 Runoff=0.14 cfs 0.026 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=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP3: Inflow=0.10 cfs 0.008 af
Outflow=0.10 cfs 0.008 af

Pond 1P: Stormtech Units Peak Elev=367.29' Storage=518 cf Inflow=0.45 cfs 0.044 af
Discarded=0.11 cfs 0.044 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.044 af

Pond 2P: Stormtech Units Peak Elev=366.85' Storage=4,087 cf Inflow=4.98 cfs 0.363 af
Discarded=1.02 cfs 0.363 af Primary=0.00 cfs 0.000 af Outflow=1.02 cfs 0.363 af

Pond 21P: Floodplain Comp Peak Elev=368.17' Storage=1,123 cf Inflow=0.14 cfs 0.026 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 4.072 ac Runoff Volume = 0.441 af Average Runoff Depth = 1.30"
46.98% Pervious = 1.913 ac 53.02% Impervious = 2.159 ac

Summary for Subcatchment 10:

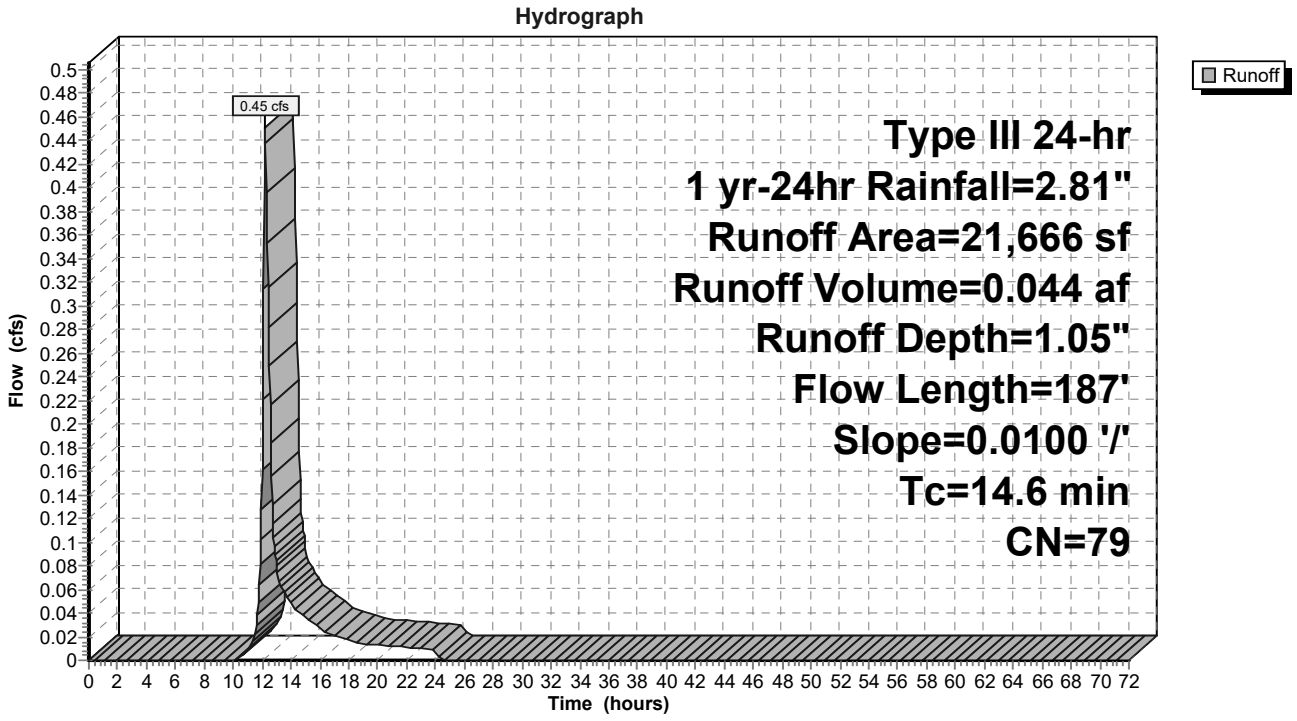
Runoff = 0.45 cfs @ 12.21 hrs, Volume= 0.044 af, Depth= 1.05"
Routed to Pond 1P : Stormtech Units

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
	11,028	61	>75% Grass cover, Good, HSG B
*	10,638	98	Impervious
	21,666	79	Weighted Average
	11,028		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		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

Subcatchment 10:



Summary for Subcatchment 20A:

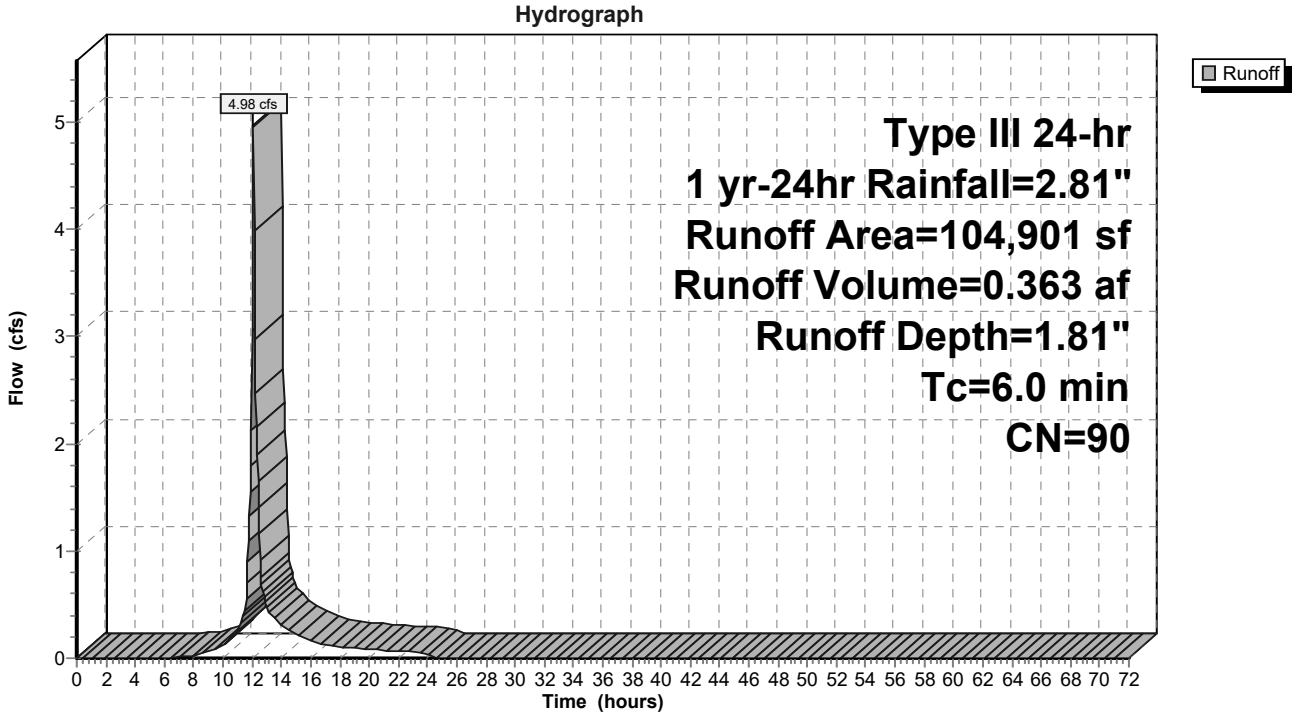
Runoff = 4.98 cfs @ 12.09 hrs, Volume= 0.363 af, Depth= 1.81"
Routed to Pond 2P : Stormtech Units

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
	23,403	61	>75% Grass cover, Good, HSG B
	104,901	90	Weighted Average
	23,403		22.31% Pervious Area
	81,498		77.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A:



Summary for Subcatchment 20B:

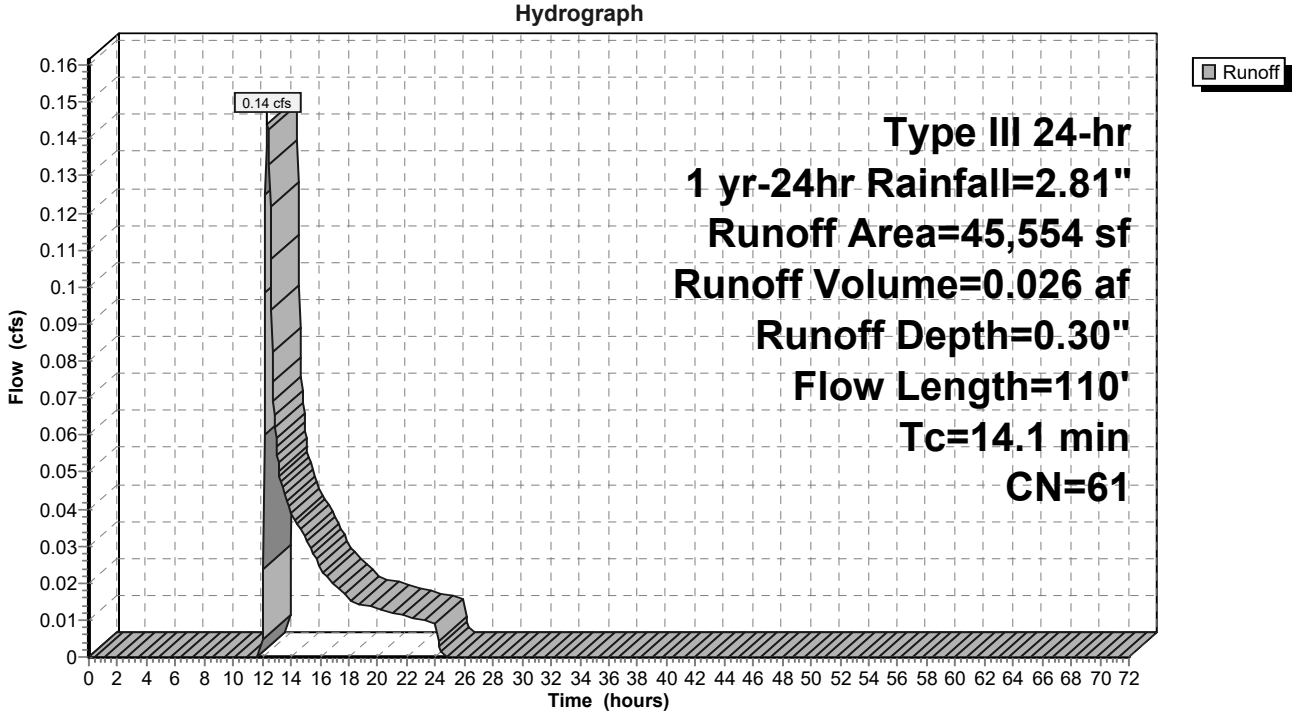
Runoff = 0.14 cfs @ 12.39 hrs, Volume= 0.026 af, Depth= 0.30"
Routed to Pond 21P : Floodplain Comp

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
45,554	61	>75% Grass cover, Good, HSG B
45,554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	81	0.0050	0.10		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
0.2	29	0.1700	2.89		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.1	110	Total			

Subcatchment 20B:



Summary for Subcatchment 30:

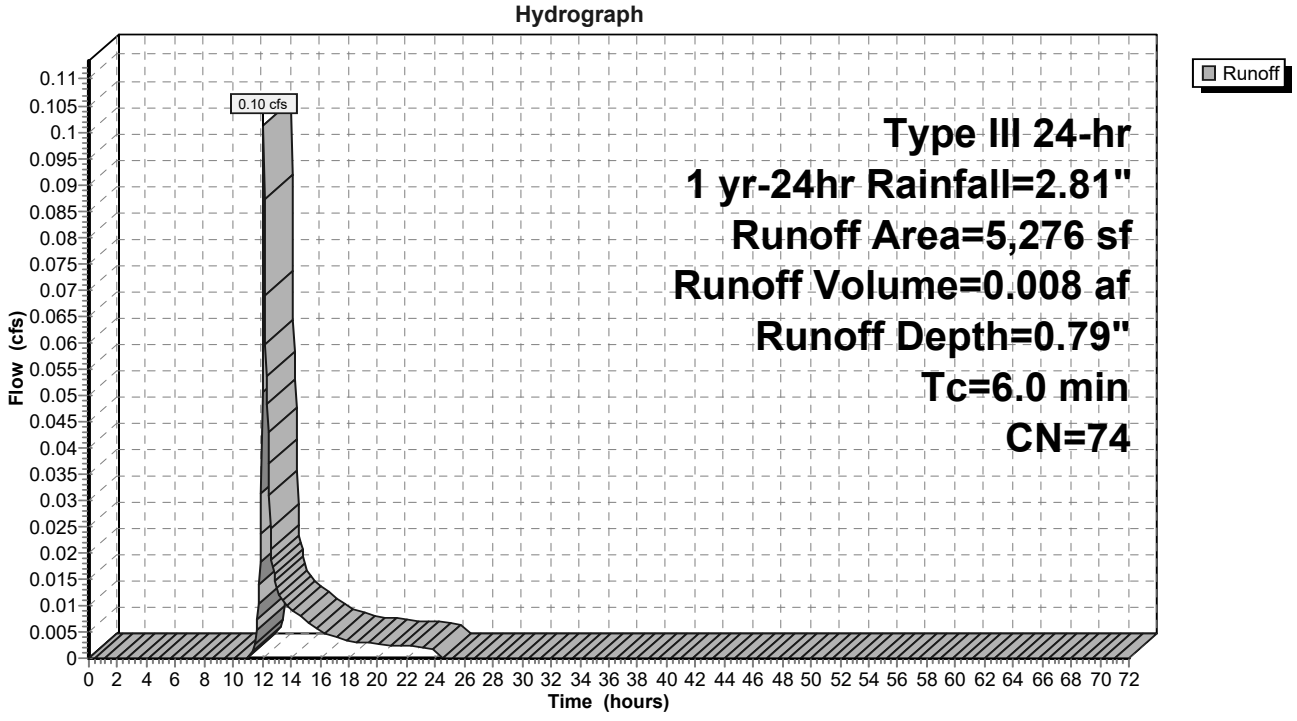
Runoff = 0.10 cfs @ 12.10 hrs, Volume= 0.008 af, Depth= 0.79"
Routed to Reach DP3 :

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:

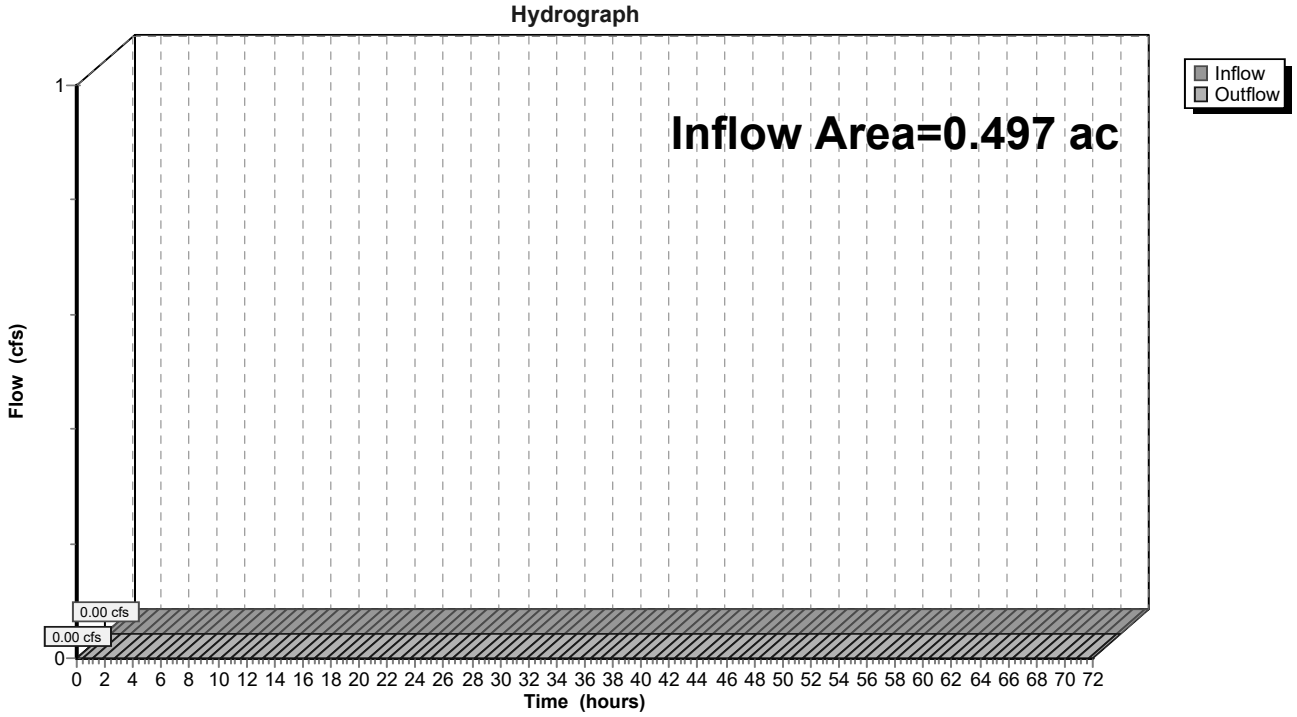


Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 0.00" for 1 yr-24hr event
Inflow = 0.00 cfs @ 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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP1:

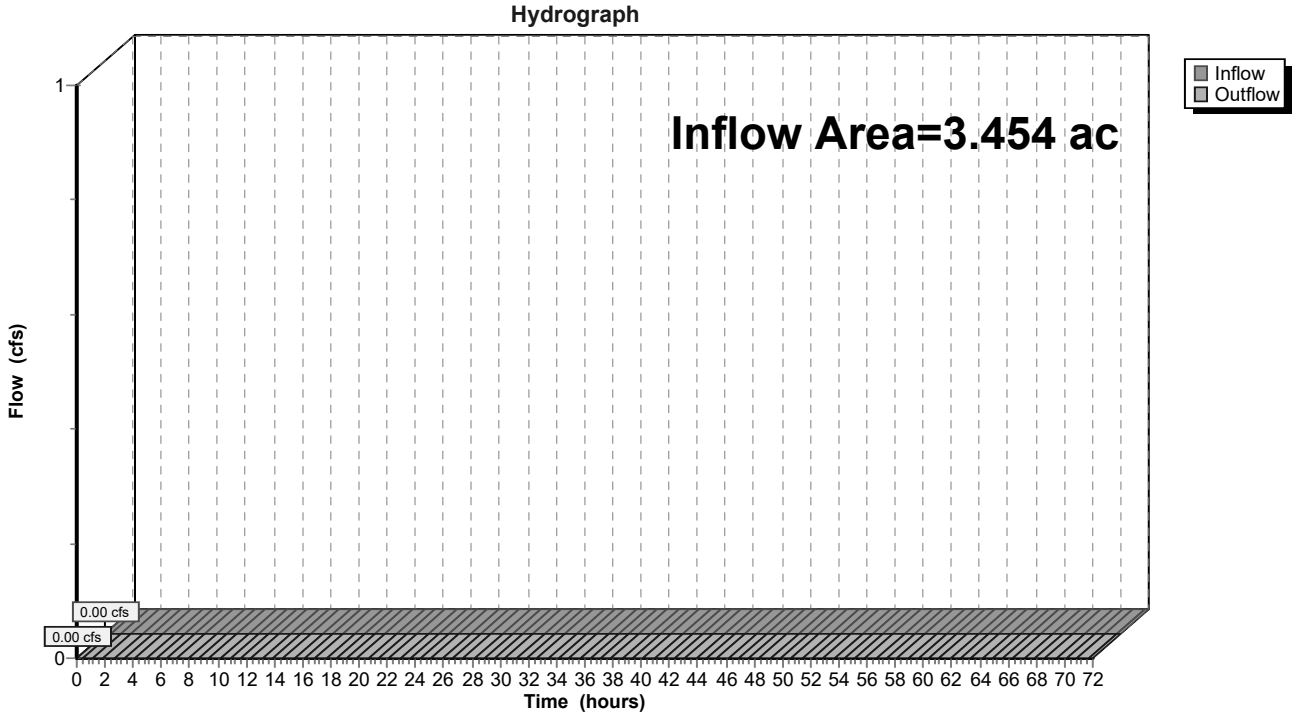


Summary for Reach DP2:

Inflow Area = 3.454 ac, 54.17% 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

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP2:

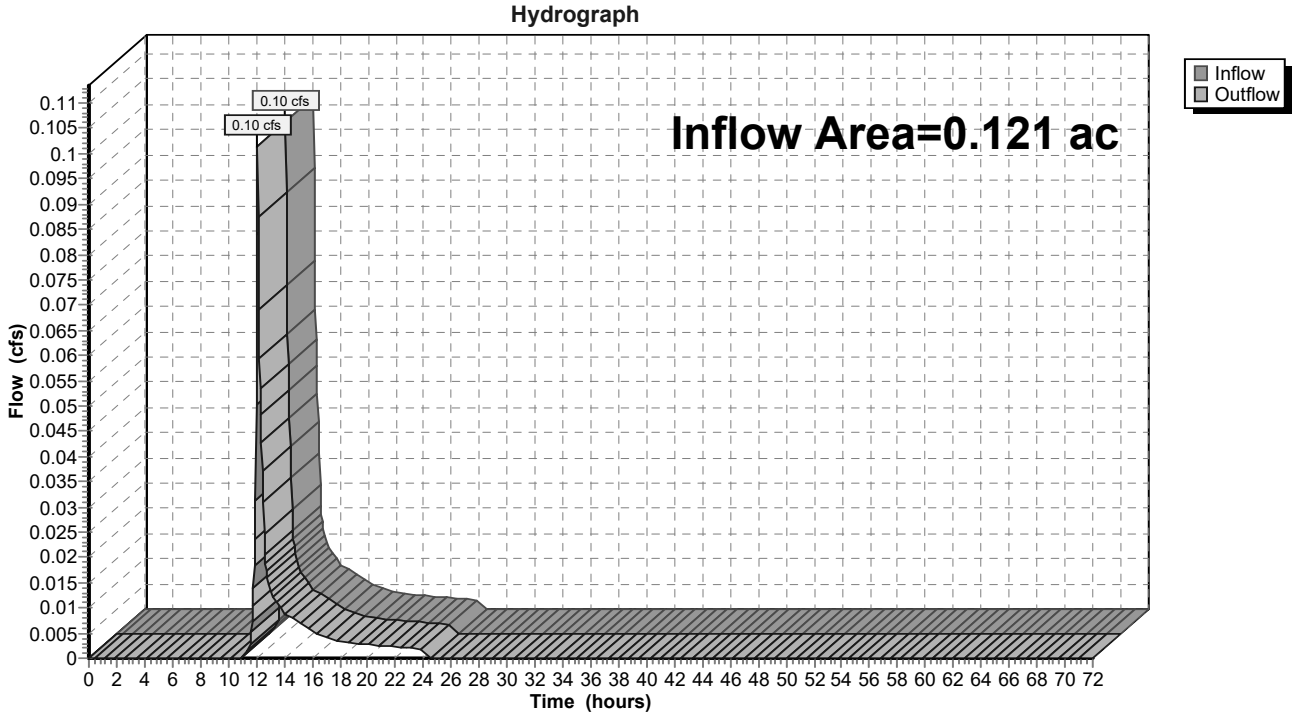


Summary for Reach DP3:

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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP3:



Summary for Pond 1P: Stormtech Units

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 = 0.11 cfs @ 12.78 hrs, Volume= 0.044 af, Atten= 76%, Lag= 33.7 min
Discarded = 0.11 cfs @ 12.78 hrs, Volume= 0.044 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 367.29' @ 12.78 hrs Surf.Area= 450 sf Storage= 518 cf

Plug-Flow detention time= 34.8 min calculated for 0.044 af (100% of inflow)
Center-of-Mass det. time= 34.8 min (895.9 - 861.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.25'	910 cf	**29.00'W x 15.52'L x 7.00'H Field A** 3,150 cf Overall - 876 cf Embedded = 2,274 cf x 40.0% Voids
#2A	366.25'	876 cf	**ADS_StormTech MC-4500 b +Cap**x 6 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		1,786 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 370.00' S= -0.0286 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	365.25'	**7.500 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=0.11 cfs @ 12.78 hrs HW=367.29' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=365.25' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 1P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

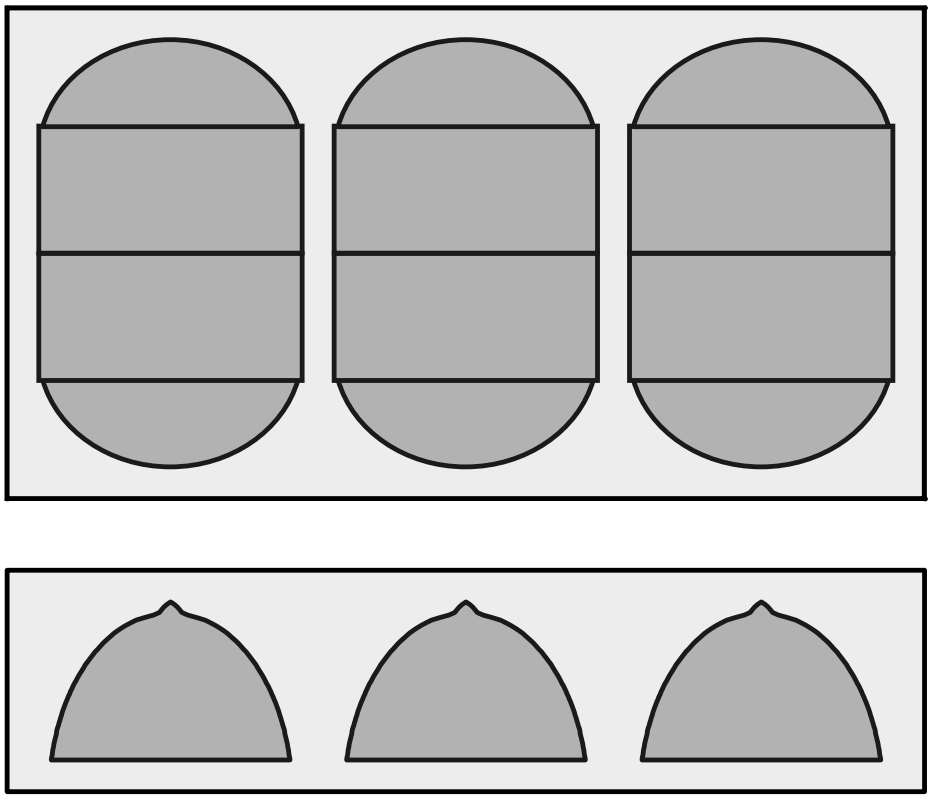
2 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 13.52' Row Length +12.0" End Stone x 2 = 15.52' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

6 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 875.9 cf Chamber Storage

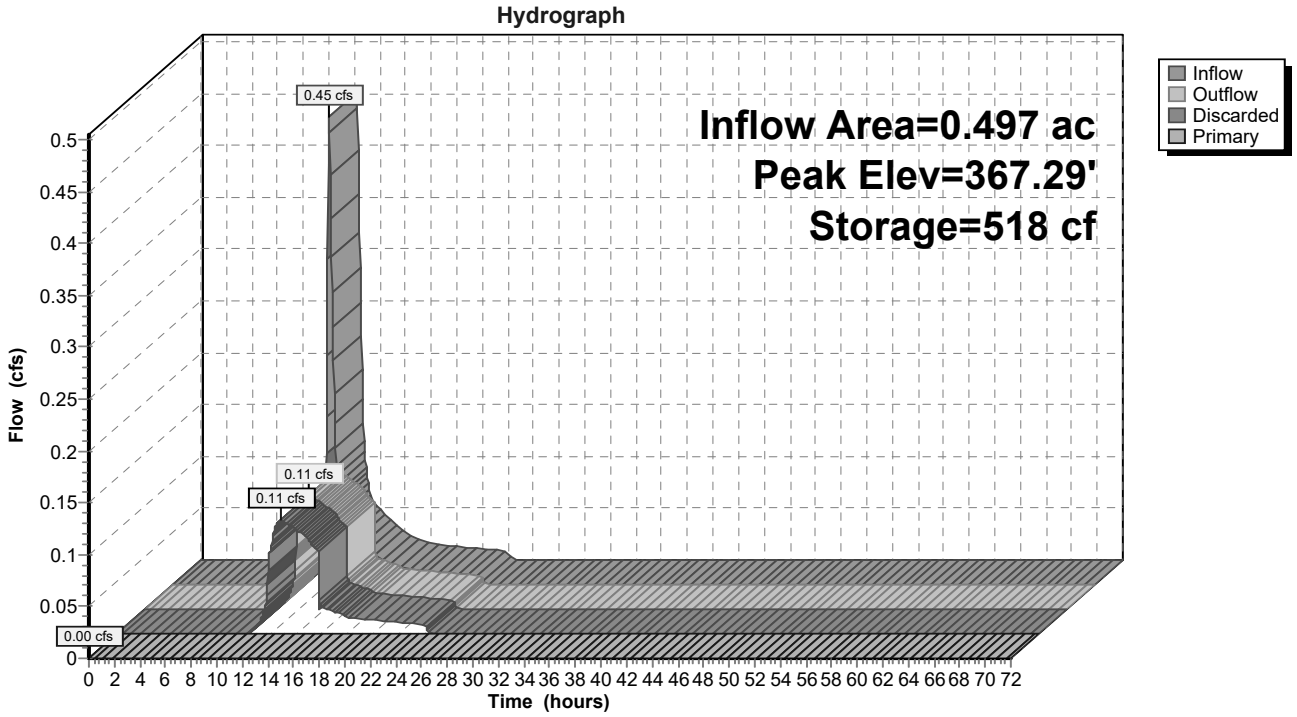
3,149.9 cf Field - 875.9 cf Chambers = 2,273.9 cf Stone x 40.0% Voids = 909.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,785.5 cf = 0.041 af
Overall Storage Efficiency = 56.7%
Overall System Size = 15.52' x 29.00' x 7.00'

6 Chambers
116.7 cy Field
84.2 cy Stone



Pond 1P: Stormtech Units



Summary for Pond 2P: Stormtech Units

Inflow Area = 2.408 ac, 77.69% Impervious, Inflow Depth = 1.81" for 1 yr-24hr event
Inflow = 4.98 cfs @ 12.09 hrs, Volume= 0.363 af
Outflow = 1.02 cfs @ 12.53 hrs, Volume= 0.363 af, Atten= 80%, Lag= 26.3 min
Discarded = 1.02 cfs @ 12.53 hrs, Volume= 0.363 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 366.85' @ 12.53 hrs Surf.Area= 4,302 sf Storage= 4,087 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 23.8 min (835.8 - 812.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.20'	7,478 cf	**29.00'W x 148.34'L x 7.00'H Field A** 30,113 cf Overall - 11,418 cf Embedded = 18,695 cf x 40.0% Voids
#2A	366.20'	11,418 cf	**ADS_StormTech MC-4500 b +Cap**x 105 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 105 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		18,896 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	368.80'	**18.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.80' / 368.50' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	365.20'	**9.000 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=1.02 cfs @ 12.53 hrs HW=366.85' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 1.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=365.20' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 2P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

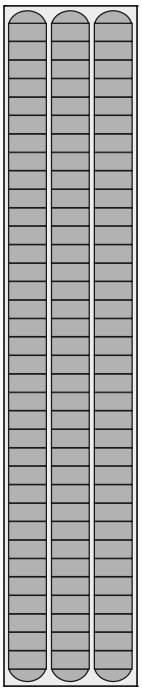
35 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 146.34' Row Length +12.0" End Stone x 2 = 148.34' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

105 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 11,418.5 cf Chamber Storage

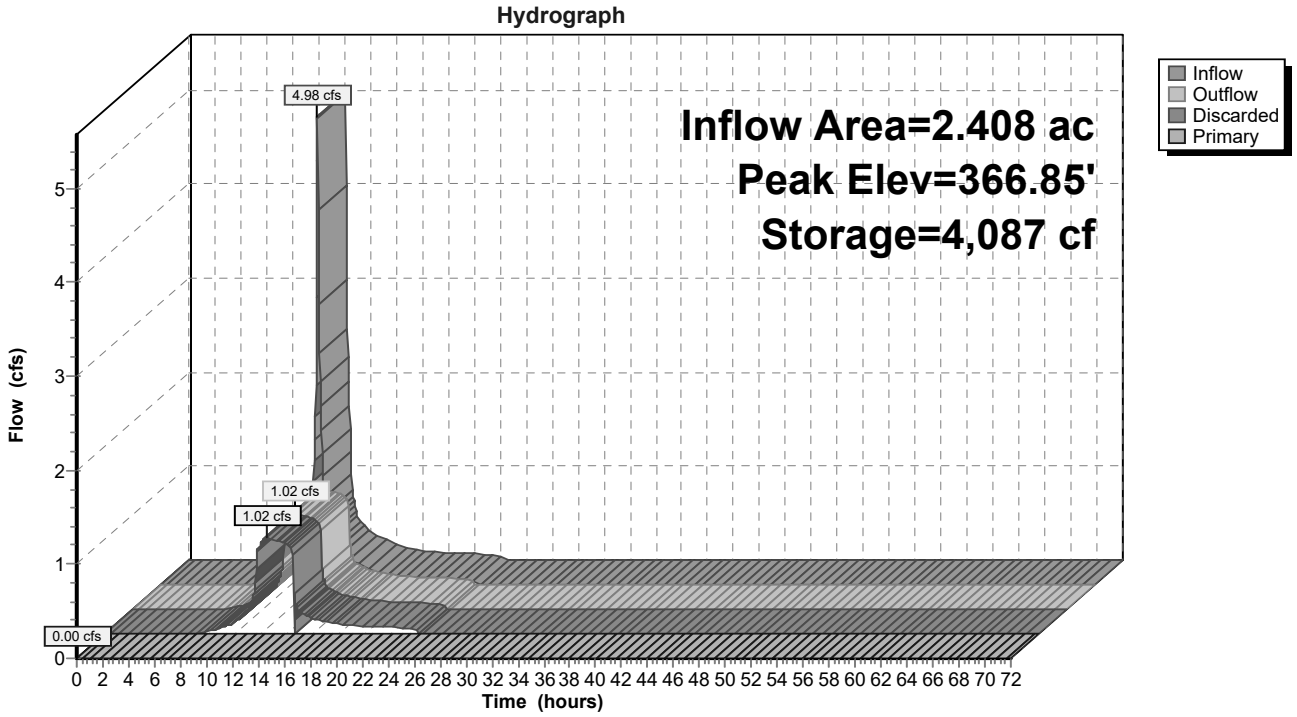
30,113.4 cf Field - 11,418.5 cf Chambers = 18,694.9 cf Stone x 40.0% Voids = 7,477.9 cf Stone Storage

Chamber Storage + Stone Storage = 18,896.4 cf = 0.434 af
Overall Storage Efficiency = 62.8%
Overall System Size = 148.34' x 29.00' x 7.00'

105 Chambers
1,115.3 cy Field
692.4 cy Stone



Pond 2P: Stormtech Units



Summary for Pond 21P: Floodplain Comp

Inflow Area = 1.046 ac, 0.00% Impervious, Inflow Depth = 0.30" for 1 yr-24hr event
Inflow = 0.14 cfs @ 12.39 hrs, Volume= 0.026 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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 368.17' @ 24.85 hrs Surf.Area= 6,834 sf Storage= 1,123 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

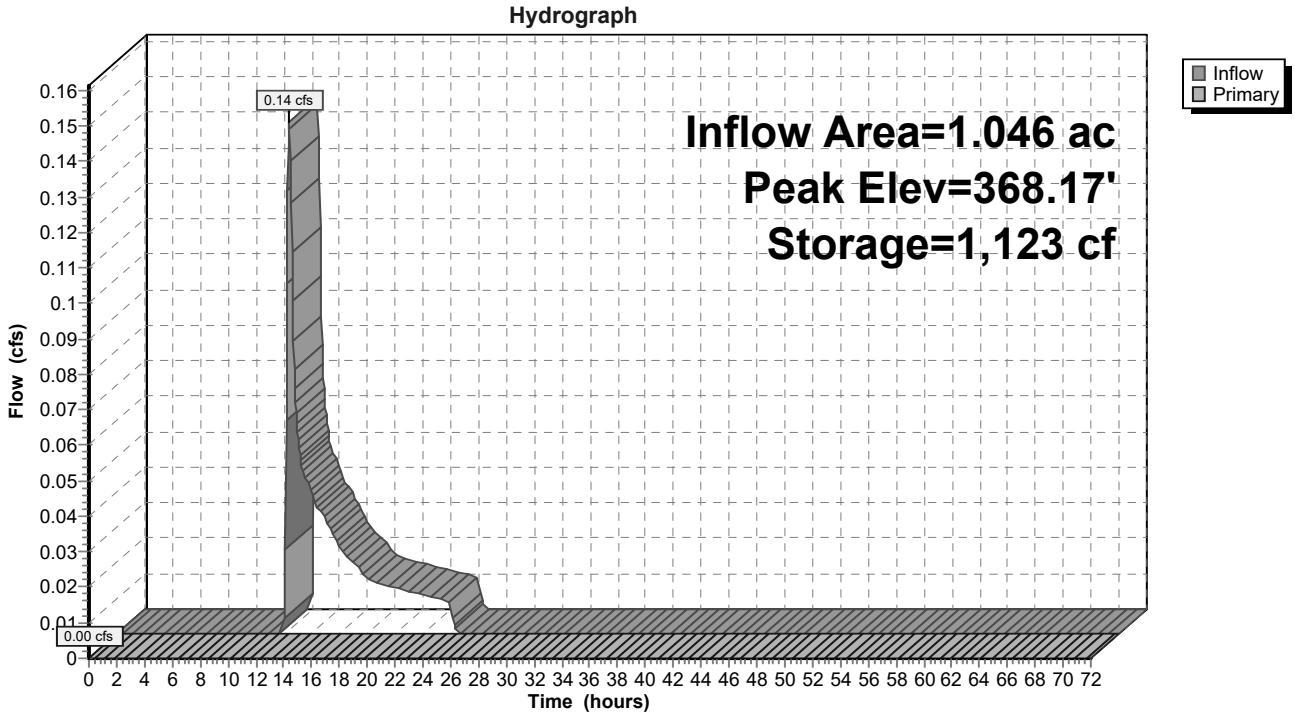
Volume	Invert	Avail.Storage	Storage Description
#1	368.00'	47,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
368.00	6,398	0	0
369.00	8,964	7,681	7,681
370.00	11,663	10,314	17,995
371.00	14,534	13,099	31,093
372.00	17,465	16,000	47,093

Device	Routing	Invert	Outlet Devices
#1	Primary	368.50'	**12.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.50' / 368.20' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	371.00'	**24.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	368.50'	**12.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=368.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
└─**2=Grate** (Controls 0.00 cfs)
└─**3=Orifice** (Controls 0.00 cfs)

Pond 21P: Floodplain Comp



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=21,666 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=104,901 sf 77.69% Impervious Runoff Depth=4.00"
Tc=6.0 min CN=90 Runoff=10.64 cfs 0.803 af

Subcatchment20B: Runoff Area=45,554 sf 0.00% Impervious Runoff Depth=1.45"
Flow Length=110' Tc=14.1 min CN=61 Runoff=1.25 cfs 0.126 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=0.73 cfs 0.018 af
Outflow=0.73 cfs 0.018 af

Reach DP2: Inflow=0.48 cfs 0.063 af
Outflow=0.48 cfs 0.063 af

Reach DP3: Inflow=0.34 cfs 0.025 af
Outflow=0.34 cfs 0.025 af

Pond 1P: Stormtech Units Peak Elev=370.50' Storage=1,452 cf Inflow=1.29 cfs 0.121 af
Discarded=0.16 cfs 0.102 af Primary=0.73 cfs 0.018 af Outflow=0.89 cfs 0.121 af

Pond 2P: Stormtech Units Peak Elev=369.19' Storage=12,087 cf Inflow=10.64 cfs 0.803 af
Discarded=1.19 cfs 0.783 af Primary=0.48 cfs 0.020 af Outflow=1.68 cfs 0.803 af

Pond 21P: Floodplain Comp Peak Elev=368.61' Storage=4,419 cf Inflow=1.25 cfs 0.126 af
Outflow=0.04 cfs 0.043 af

Total Runoff Area = 4.072 ac Runoff Volume = 1.075 af Average Runoff Depth = 3.17"
46.98% Pervious = 1.913 ac 53.02% Impervious = 2.159 ac

Summary for Subcatchment 10:

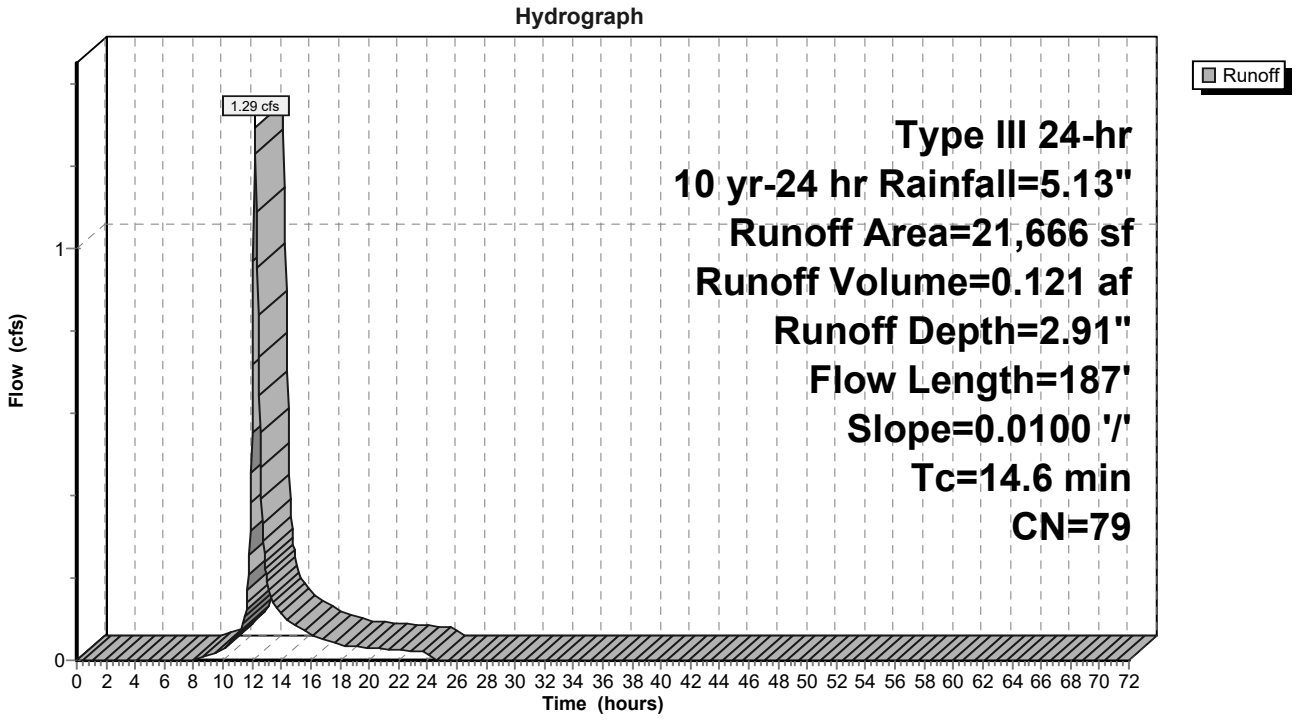
Runoff = 1.29 cfs @ 12.20 hrs, Volume= 0.121 af, Depth= 2.91"
Routed to Pond 1P : Stormtech Units

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
	11,028	61	>75% Grass cover, Good, HSG B
*	10,638	98	Impervious
	21,666	79	Weighted Average
	11,028		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		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

Subcatchment 10:



Summary for Subcatchment 20A:

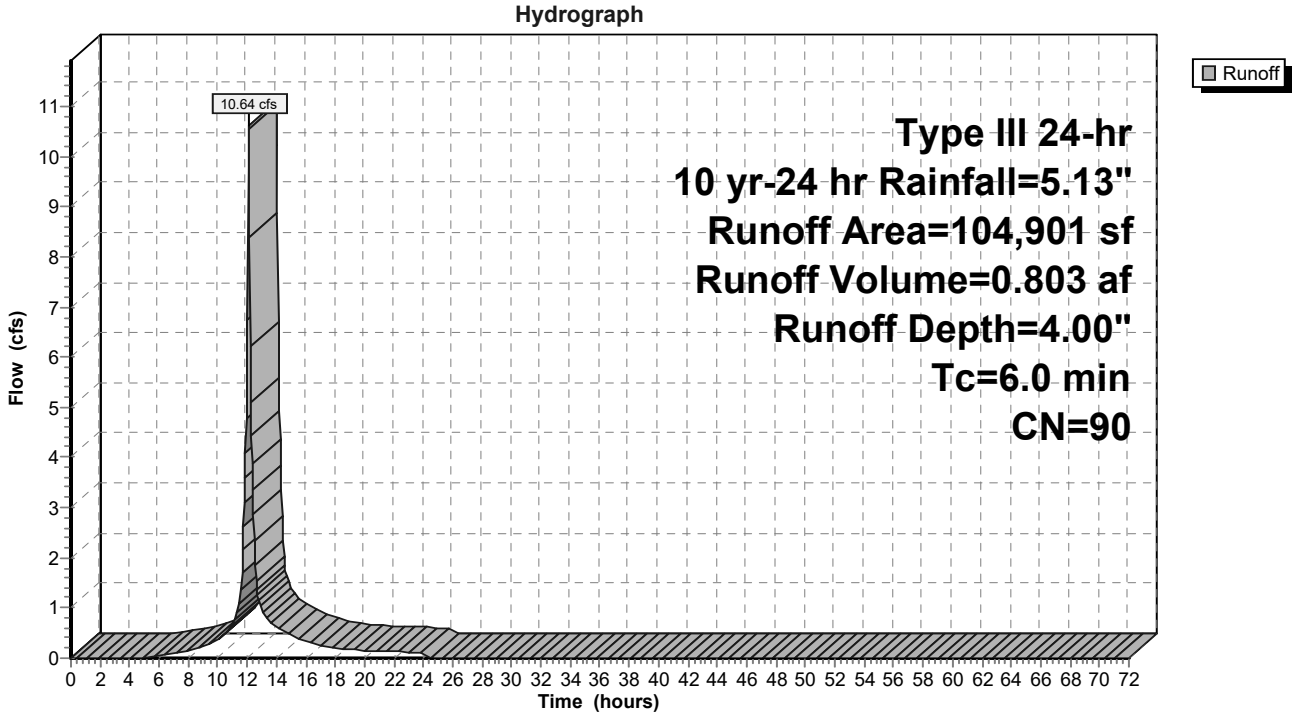
Runoff = 10.64 cfs @ 12.09 hrs, Volume= 0.803 af, Depth= 4.00"
Routed to Pond 2P : Stormtech Units

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
	23,403	61	>75% Grass cover, Good, HSG B
	104,901	90	Weighted Average
	23,403		22.31% Pervious Area
	81,498		77.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A:



Summary for Subcatchment 20B:

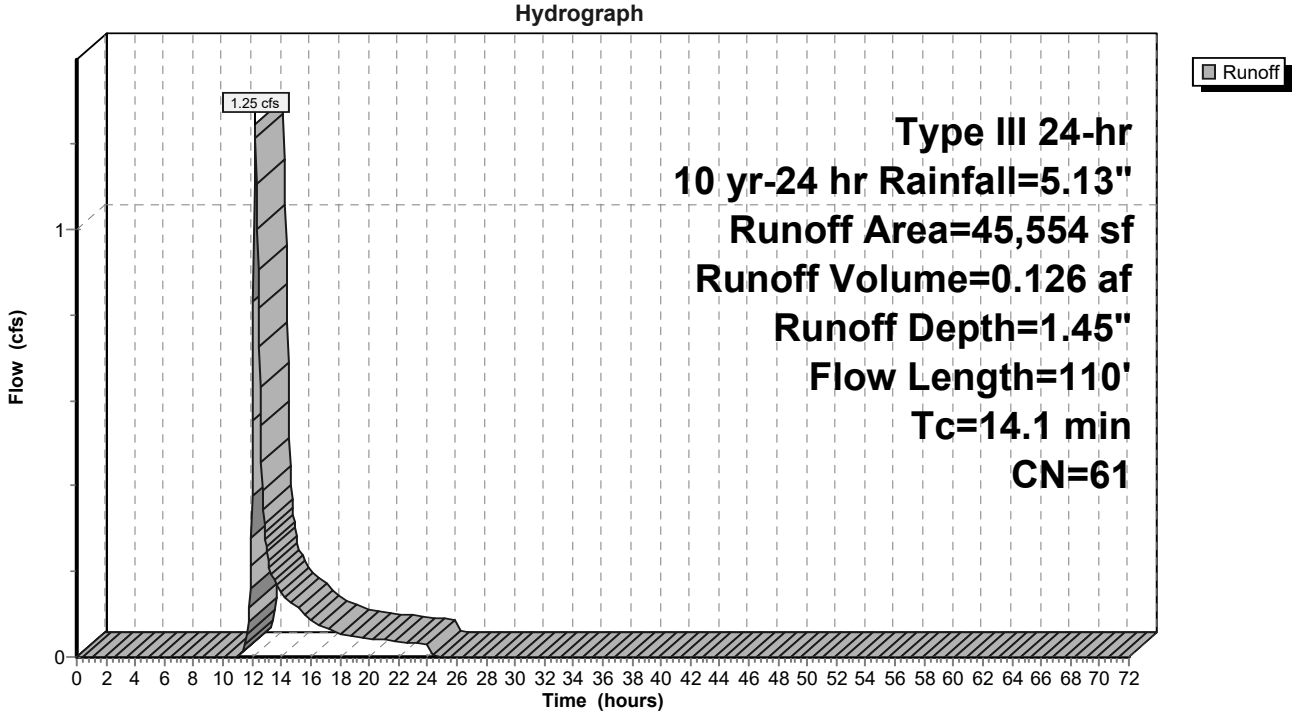
Runoff = 1.25 cfs @ 12.22 hrs, Volume= 0.126 af, Depth= 1.45"
Routed to Pond 21P : Floodplain Comp

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
45,554	61	>75% Grass cover, Good, HSG B
45,554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	81	0.0050	0.10		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
0.2	29	0.1700	2.89		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.1	110	Total			

Subcatchment 20B:



Summary for Subcatchment 30:

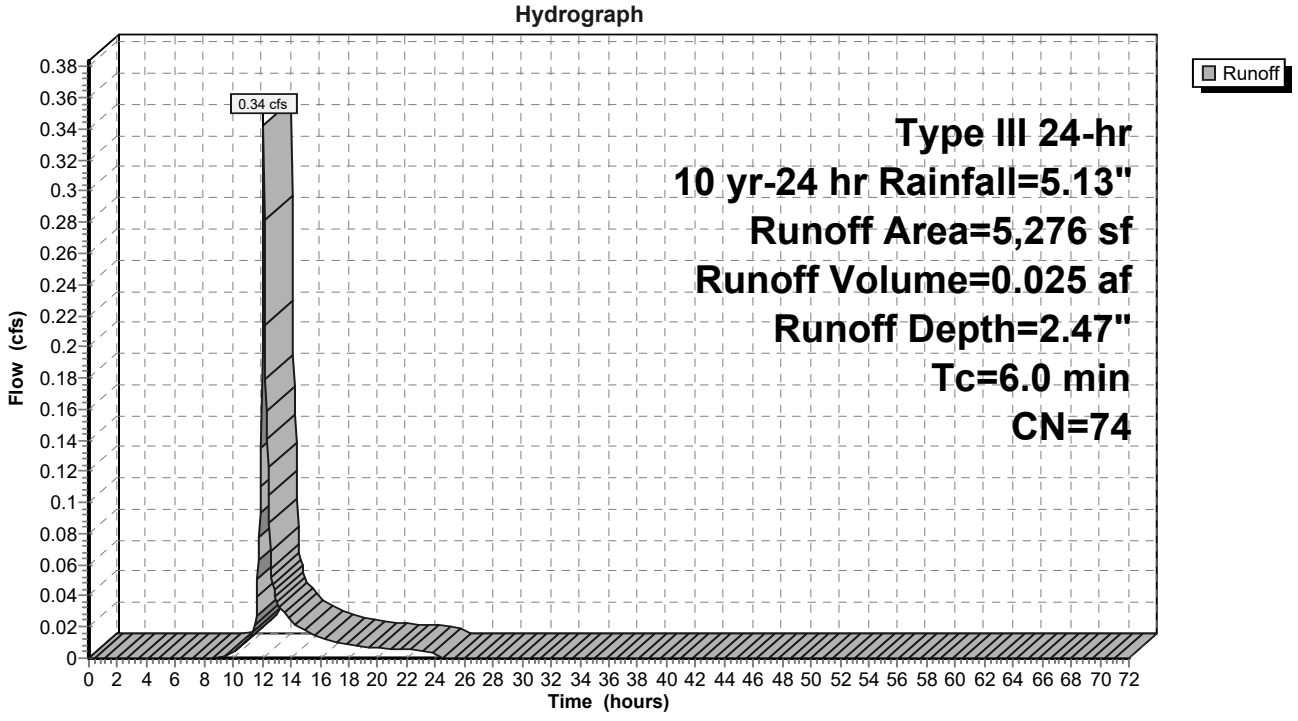
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 2.47"
Routed to Reach DP3 :

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:

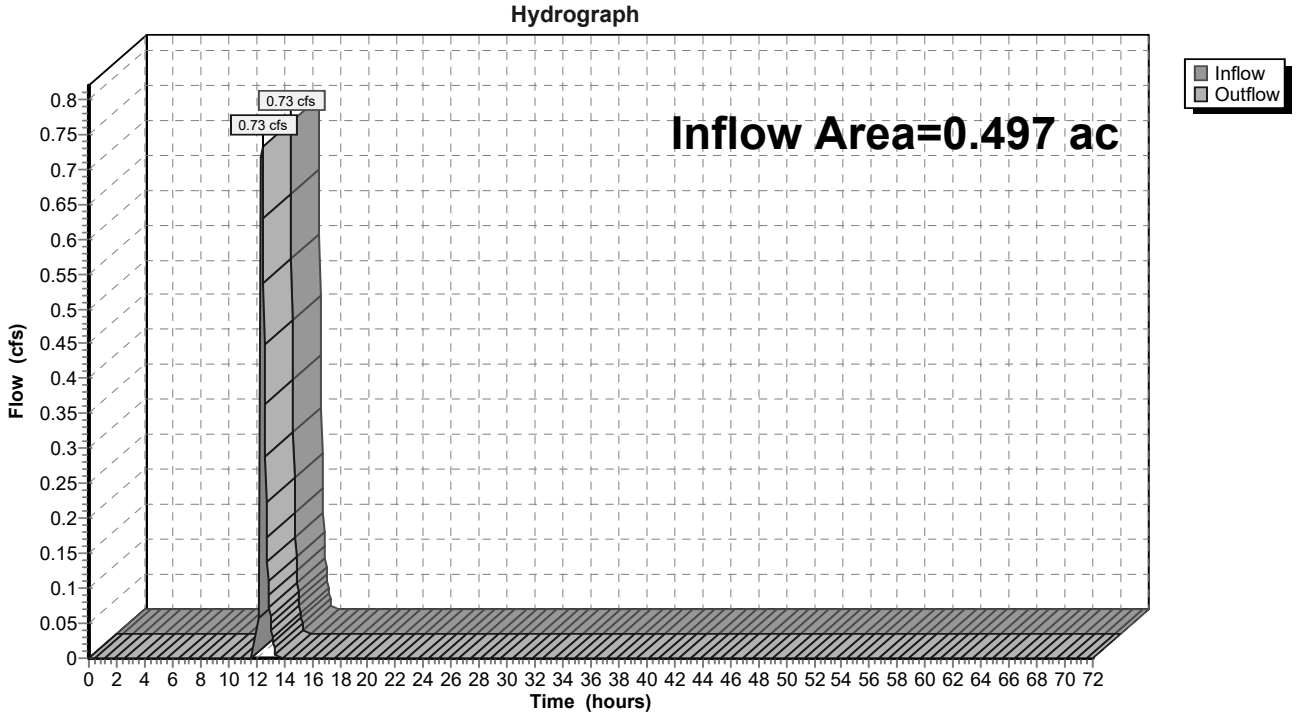


Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 0.44" for 10 yr-24 hr event
Inflow = 0.73 cfs @ 12.41 hrs, Volume= 0.018 af
Outflow = 0.73 cfs @ 12.41 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP1:

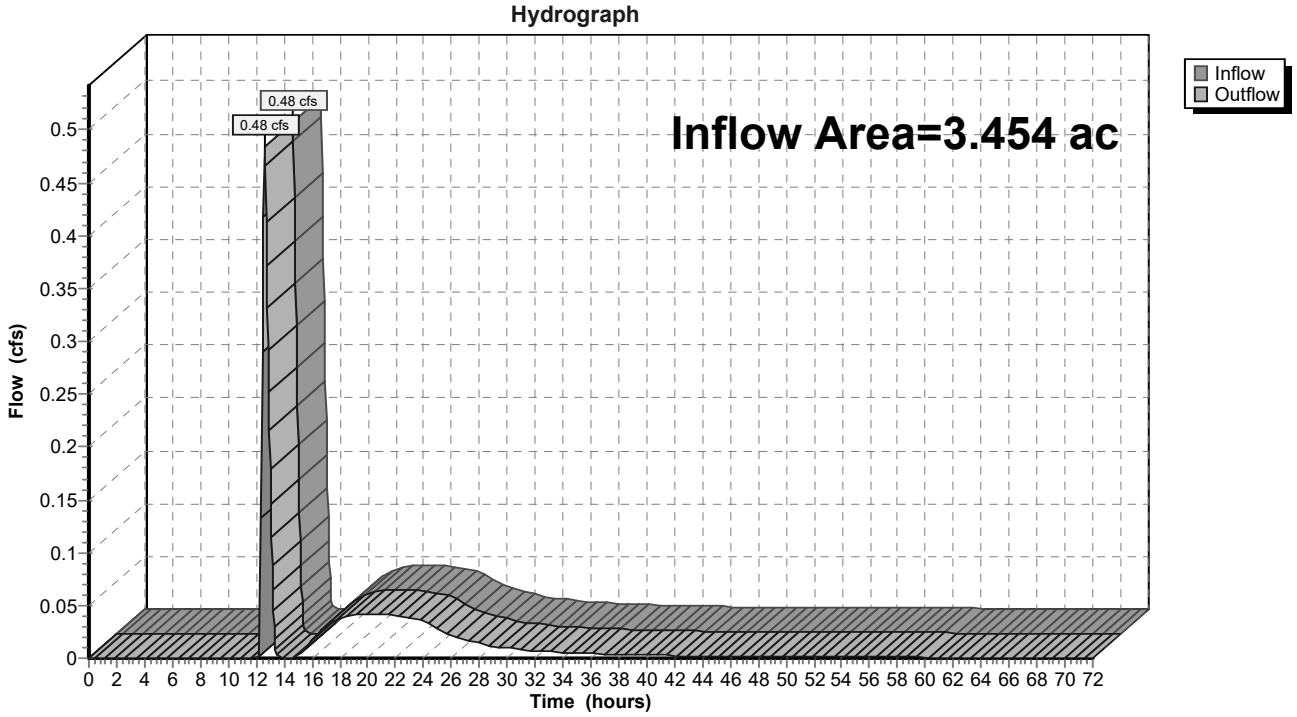


Summary for Reach DP2:

Inflow Area = 3.454 ac, 54.17% Impervious, Inflow Depth > 0.22" for 10 yr-24 hr event
Inflow = 0.48 cfs @ 12.58 hrs, Volume= 0.063 af
Outflow = 0.48 cfs @ 12.58 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP2:

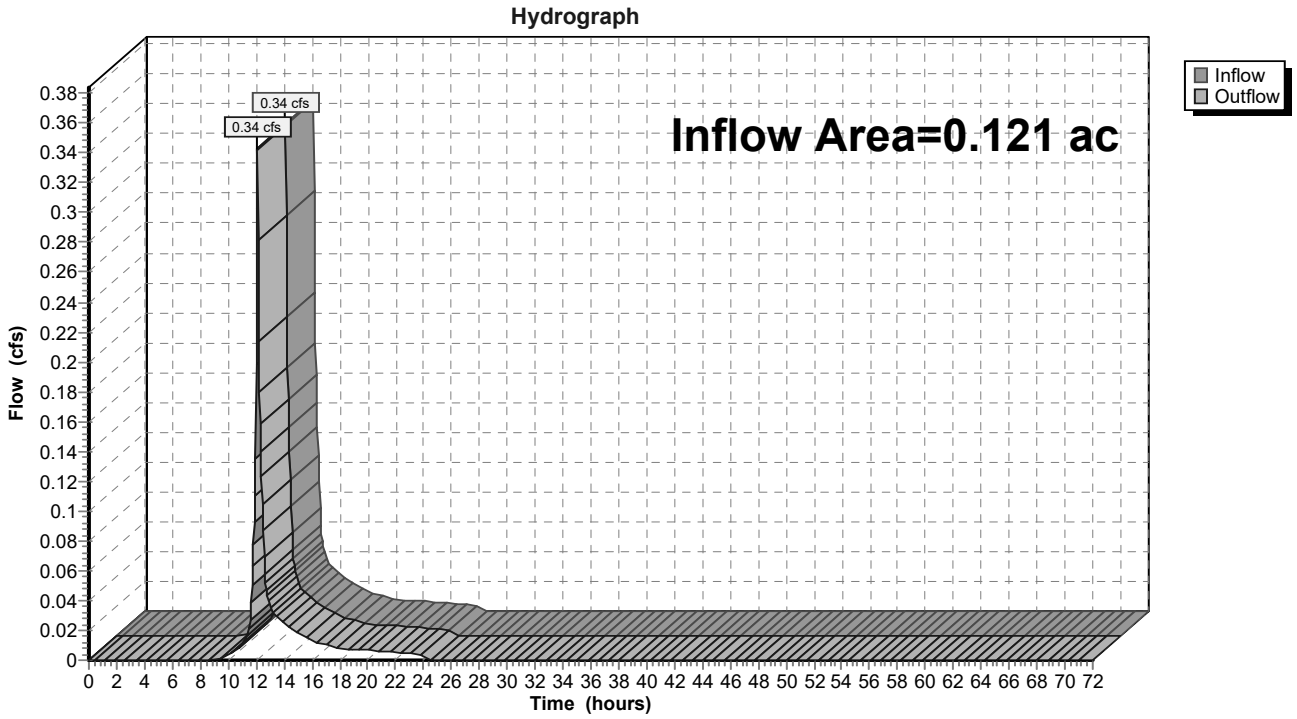


Summary for Reach DP3:

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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP3:



Summary for Pond 1P: Stormtech Units

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 = 0.89 cfs @ 12.41 hrs, Volume= 0.121 af, Atten= 31%, Lag= 12.6 min
Discarded = 0.16 cfs @ 12.41 hrs, Volume= 0.102 af
Primary = 0.73 cfs @ 12.41 hrs, Volume= 0.018 af
Routed to Reach DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 370.50' @ 12.41 hrs Surf.Area= 450 sf Storage= 1,452 cf

Plug-Flow detention time= 74.2 min calculated for 0.121 af (100% of inflow)
Center-of-Mass det. time= 74.2 min (905.5 - 831.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.25'	910 cf	**29.00'W x 15.52'L x 7.00'H Field A** 3,150 cf Overall - 876 cf Embedded = 2,274 cf x 40.0% Voids
#2A	366.25'	876 cf	**ADS_StormTech MC-4500 b +Cap** x 6 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		1,786 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 370.00' S= -0.0286 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	365.25'	**7.500 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=0.16 cfs @ 12.41 hrs HW=370.48' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=0.69 cfs @ 12.41 hrs HW=370.48' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.69 cfs @ 1.86 fps)

Pond 1P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

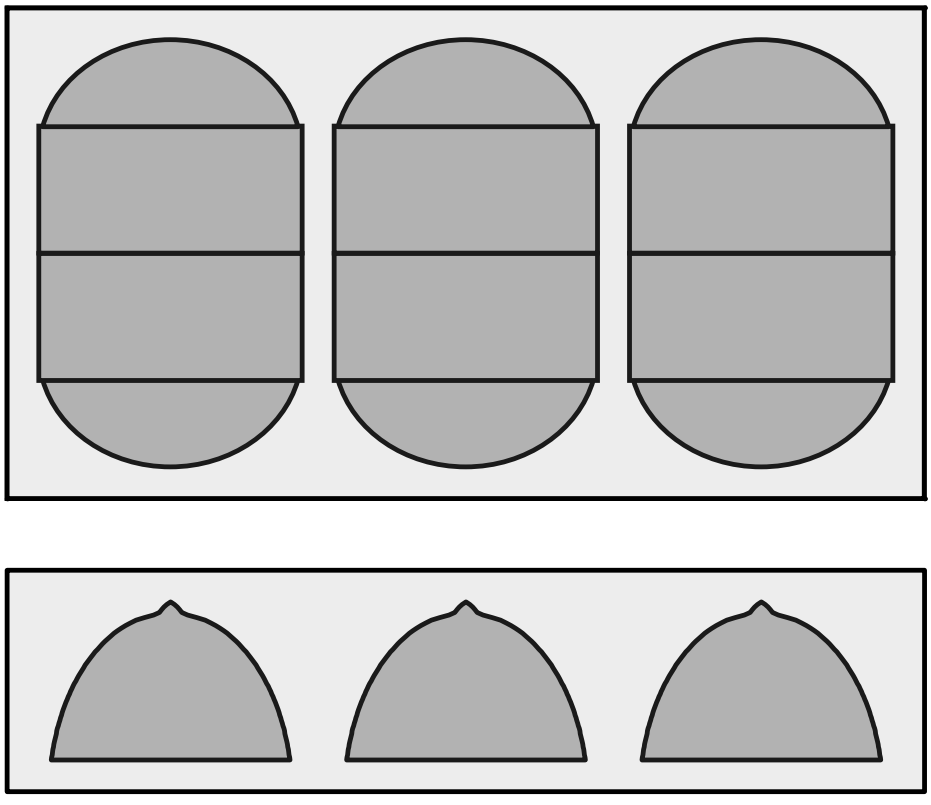
2 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 13.52' Row Length +12.0" End Stone x 2 = 15.52' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

6 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 875.9 cf Chamber Storage

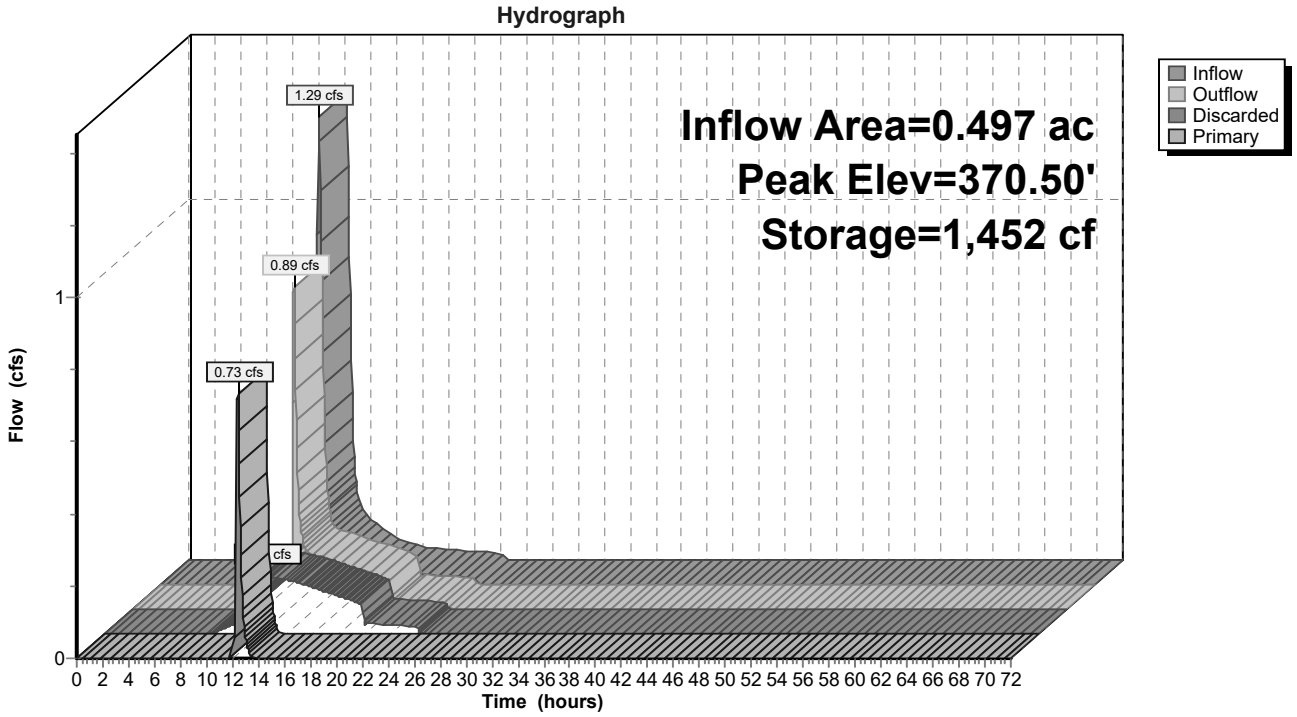
3,149.9 cf Field - 875.9 cf Chambers = 2,273.9 cf Stone x 40.0% Voids = 909.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,785.5 cf = 0.041 af
Overall Storage Efficiency = 56.7%
Overall System Size = 15.52' x 29.00' x 7.00'

6 Chambers
116.7 cy Field
84.2 cy Stone



Pond 1P: Stormtech Units



Summary for Pond 2P: Stormtech Units

Inflow Area = 2.408 ac, 77.69% Impervious, Inflow Depth = 4.00" for 10 yr-24 hr event
Inflow = 10.64 cfs @ 12.09 hrs, Volume= 0.803 af
Outflow = 1.68 cfs @ 12.58 hrs, Volume= 0.803 af, Atten= 84%, Lag= 29.4 min
Discarded = 1.19 cfs @ 12.58 hrs, Volume= 0.783 af
Primary = 0.48 cfs @ 12.58 hrs, Volume= 0.020 af
Routed to Reach DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 369.19' @ 12.58 hrs Surf.Area= 4,302 sf Storage= 12,087 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 74.1 min (863.9 - 789.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.20'	7,478 cf	**29.00'W x 148.34'L x 7.00'H Field A** 30,113 cf Overall - 11,418 cf Embedded = 18,695 cf x 40.0% Voids
#2A	366.20'	11,418 cf	**ADS_StormTech MC-4500 b +Cap**x 105 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 105 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		18,896 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	368.80'	**18.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.80' / 368.50' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	365.20'	**9.000 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=1.19 cfs @ 12.58 hrs HW=369.19' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 1.19 cfs)

Primary OutFlow Max=0.48 cfs @ 12.58 hrs HW=369.19' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.48 cfs @ 1.96 fps)

Pond 2P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

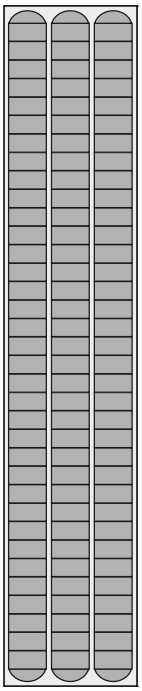
35 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 146.34' Row Length +12.0" End Stone x 2 = 148.34' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

105 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 11,418.5 cf Chamber Storage

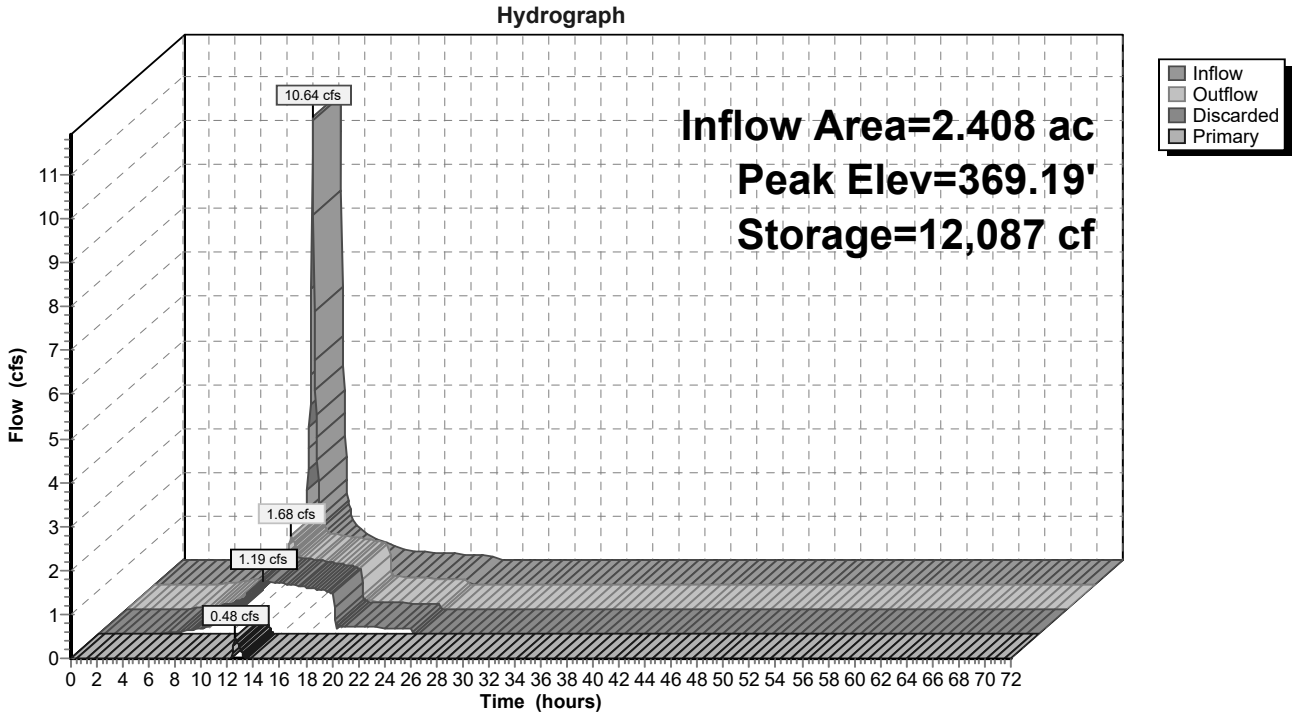
30,113.4 cf Field - 11,418.5 cf Chambers = 18,694.9 cf Stone x 40.0% Voids = 7,477.9 cf Stone Storage

Chamber Storage + Stone Storage = 18,896.4 cf = 0.434 af
Overall Storage Efficiency = 62.8%
Overall System Size = 148.34' x 29.00' x 7.00'

105 Chambers
1,115.3 cy Field
692.4 cy Stone



Pond 2P: Stormtech Units



Summary for Pond 21P: Floodplain Comp

Inflow Area = 1.046 ac, 0.00% Impervious, Inflow Depth = 1.45" for 10 yr-24 hr event
Inflow = 1.25 cfs @ 12.22 hrs, Volume= 0.126 af
Outflow = 0.04 cfs @ 20.09 hrs, Volume= 0.043 af, Atten= 97%, Lag= 472.1 min
Primary = 0.04 cfs @ 20.09 hrs, Volume= 0.043 af
Routed to Reach DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 368.61' @ 20.09 hrs Surf.Area= 7,976 sf Storage= 4,419 cf

Plug-Flow detention time= 782.0 min calculated for 0.043 af (34% of inflow)
Center-of-Mass det. time= 636.2 min (1,514.2 - 878.0)

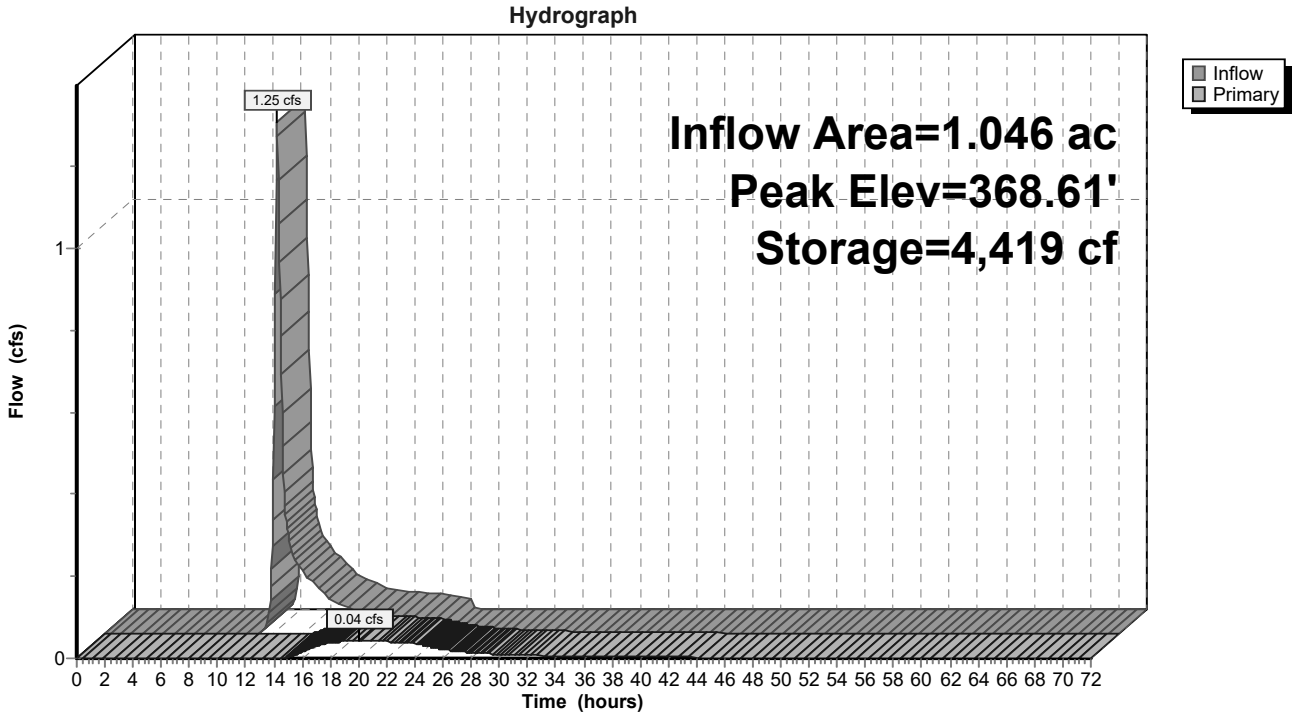
Volume	Invert	Avail.Storage	Storage Description
#1	368.00'	47,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
368.00	6,398	0	0
369.00	8,964	7,681	7,681
370.00	11,663	10,314	17,995
371.00	14,534	13,099	31,093
372.00	17,465	16,000	47,093

Device	Routing	Invert	Outlet Devices
#1	Primary	368.50'	**12.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.50' / 368.20' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	371.00'	**24.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	368.50'	**12.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 20.09 hrs HW=368.61' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.04 cfs @ 1.29 fps)
  ├─**2=Grate** (Controls 0.00 cfs)
  └─**3=Orifice** (Passes 0.04 cfs of 0.06 cfs potential flow)

Pond 21P: Floodplain Comp



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=21,666 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=104,901 sf 77.69% Impervious Runoff Depth=7.95"
Tc=6.0 min CN=90 Runoff=20.32 cfs 1.595 af

Subcatchment20B: Runoff Area=45,554 sf 0.00% Impervious Runoff Depth=4.35"
Flow Length=110' Tc=14.1 min CN=61 Runoff=4.08 cfs 0.379 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=2.64 cfs 0.120 af
Outflow=2.64 cfs 0.120 af

Reach DP2: Inflow=9.74 cfs 0.750 af
Outflow=9.74 cfs 0.750 af

Reach DP3: Inflow=0.82 cfs 0.060 af
Outflow=0.82 cfs 0.060 af

Pond 1P: Stormtech Units Peak Elev=371.28' Storage=1,612 cf Inflow=2.88 cfs 0.273 af
Discarded=0.17 cfs 0.153 af Primary=2.64 cfs 0.120 af Outflow=2.82 cfs 0.273 af

Pond 2P: Stormtech Units Peak Elev=371.70' Storage=18,042 cf Inflow=20.32 cfs 1.595 af
Discarded=1.38 cfs 1.141 af Primary=9.69 cfs 0.454 af Outflow=11.07 cfs 1.595 af

Pond 21P: Floodplain Comp Peak Elev=369.02' Storage=7,832 cf Inflow=4.08 cfs 0.379 af
Outflow=0.77 cfs 0.296 af

Total Runoff Area = 4.072 ac Runoff Volume = 2.308 af Average Runoff Depth = 6.80"
46.98% Pervious = 1.913 ac 53.02% Impervious = 2.159 ac

Summary for Subcatchment 10:

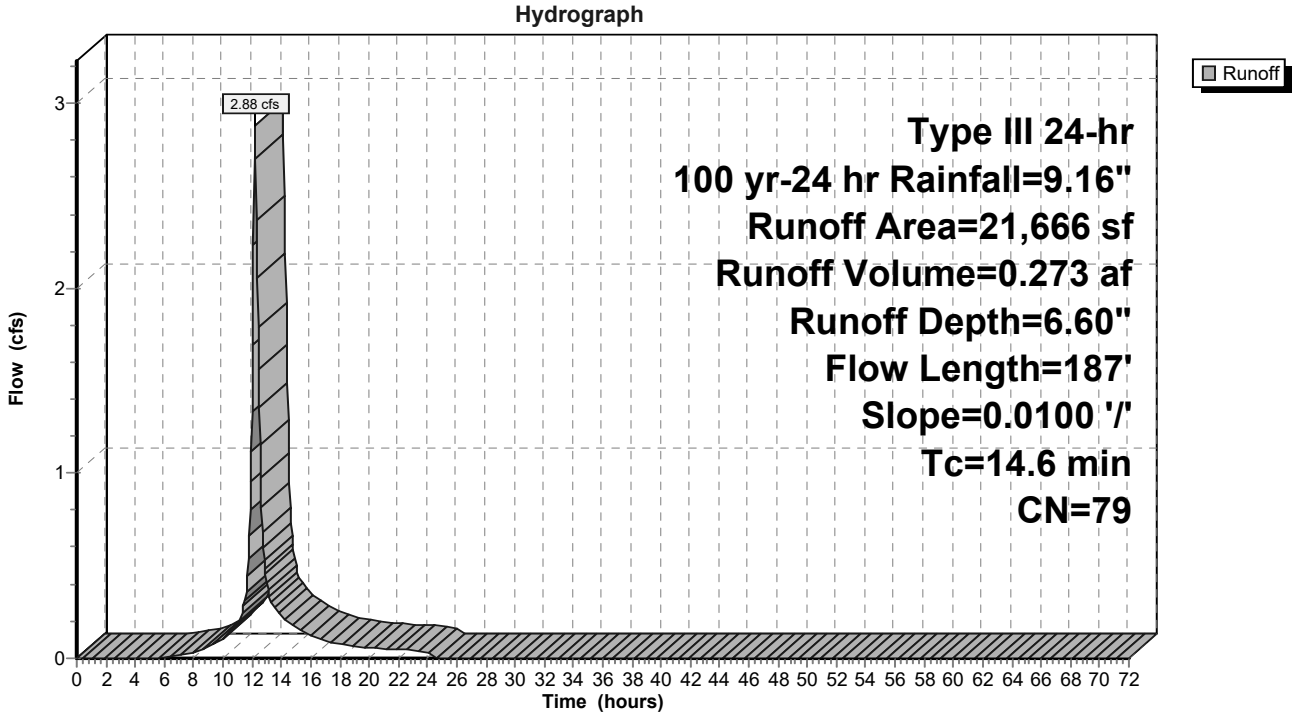
Runoff = 2.88 cfs @ 12.20 hrs, Volume= 0.273 af, Depth= 6.60"
Routed to Pond 1P : Stormtech Units

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
	11,028	61	>75% Grass cover, Good, HSG B
*	10,638	98	Impervious
	21,666	79	Weighted Average
	11,028		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		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

Subcatchment 10:



Summary for Subcatchment 20A:

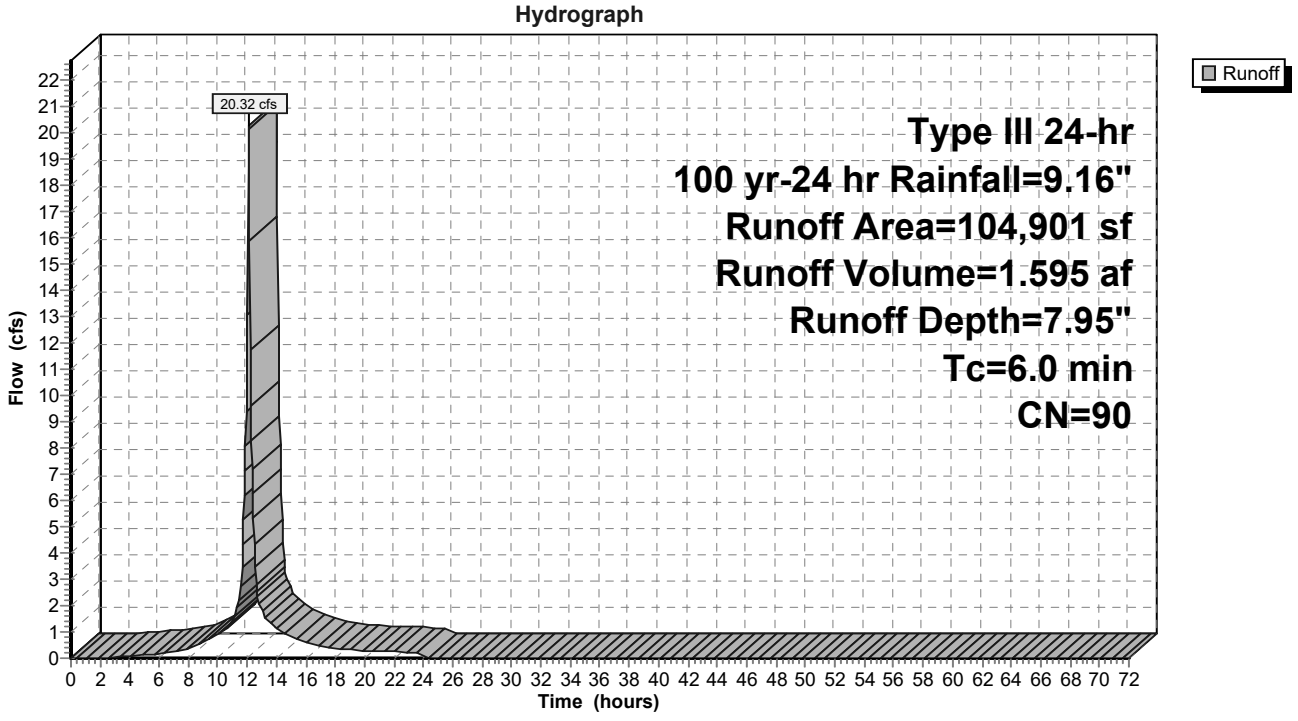
Runoff = 20.32 cfs @ 12.09 hrs, Volume= 1.595 af, Depth= 7.95"
Routed to Pond 2P : Stormtech Units

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
	23,403	61	>75% Grass cover, Good, HSG B
	104,901	90	Weighted Average
	23,403		22.31% Pervious Area
	81,498		77.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A:



Summary for Subcatchment 20B:

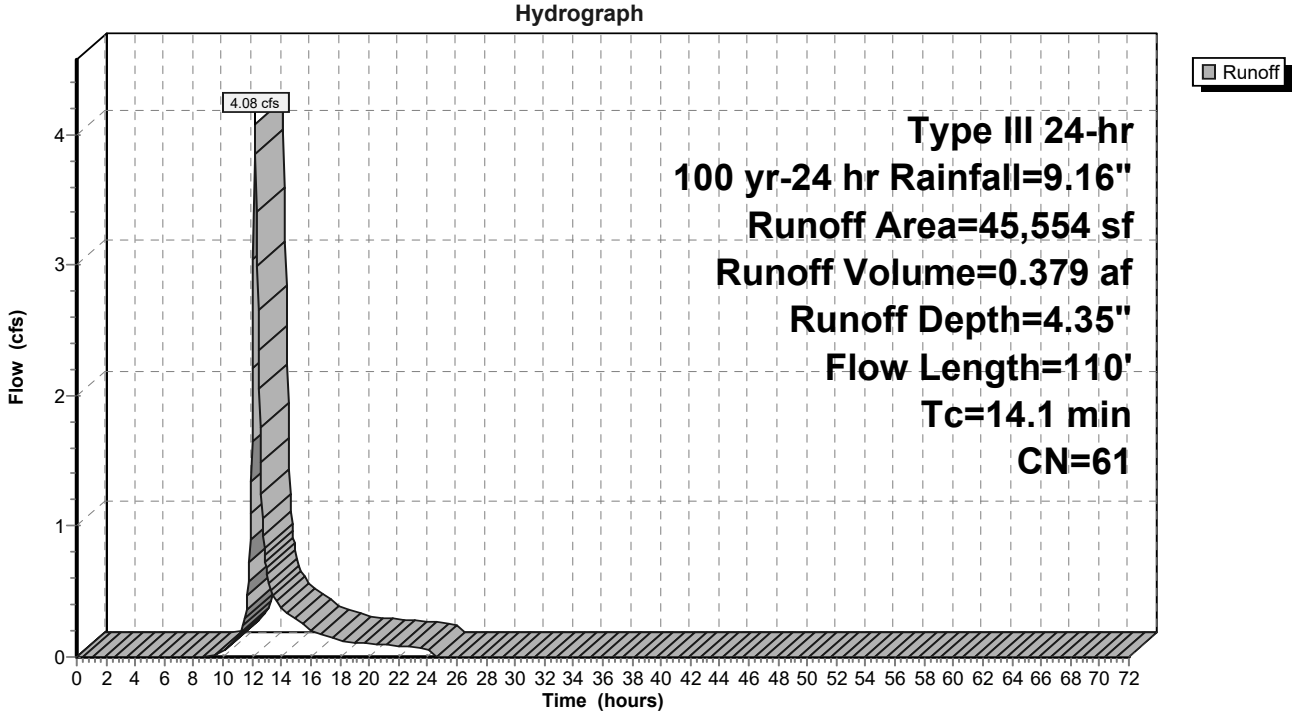
Runoff = 4.08 cfs @ 12.20 hrs, Volume= 0.379 af, Depth= 4.35"
Routed to Pond 21P : Floodplain Comp

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
45,554	61	>75% Grass cover, Good, HSG B
45,554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	81	0.0050	0.10		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
0.2	29	0.1700	2.89		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.1	110	Total			

Subcatchment 20B:



Summary for Subcatchment 30:

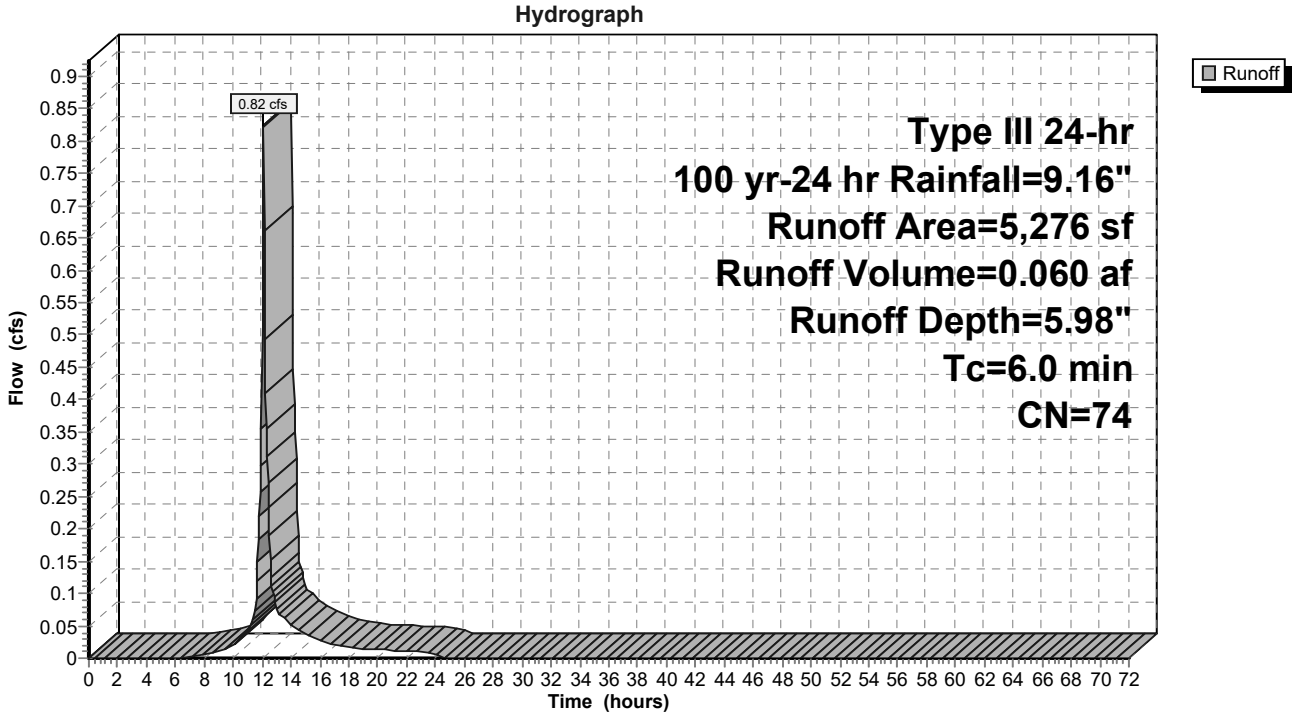
Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.060 af, Depth= 5.98"
Routed to Reach DP3 :

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:

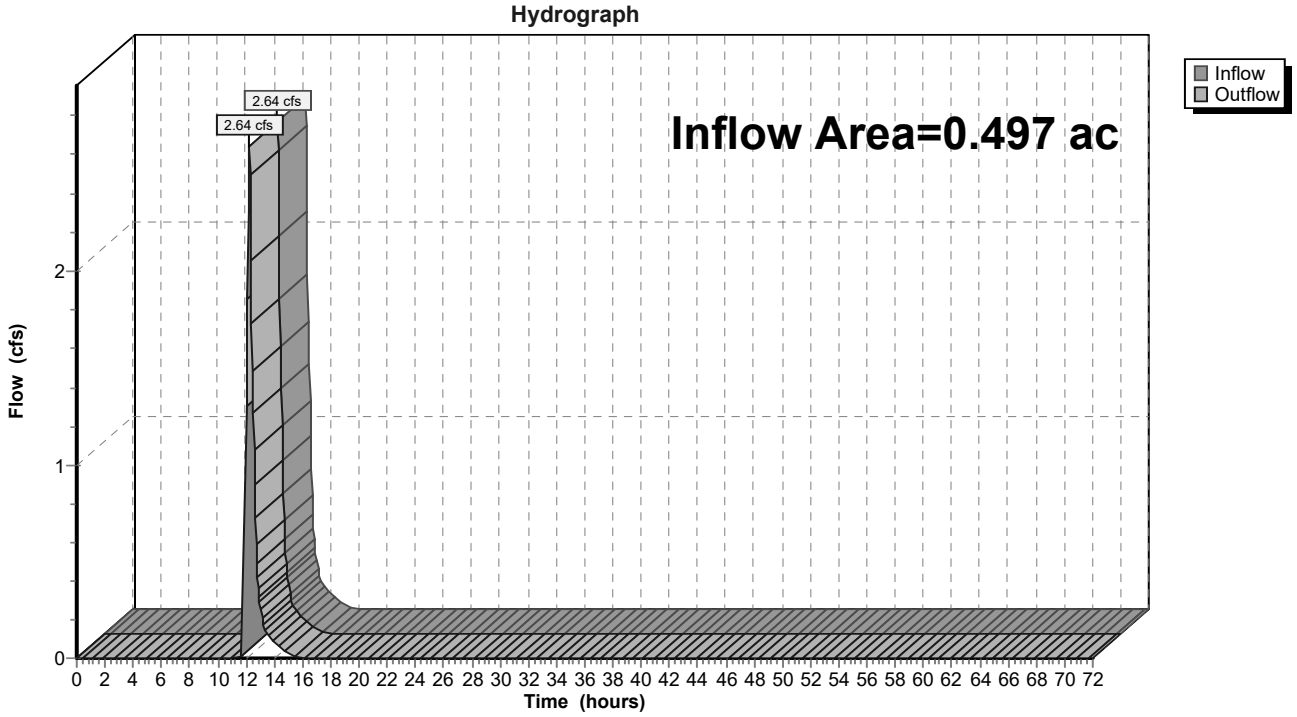


Summary for Reach DP1:

Inflow Area = 0.497 ac, 49.10% Impervious, Inflow Depth = 2.89" for 100 yr-24 hr event
Inflow = 2.64 cfs @ 12.23 hrs, Volume= 0.120 af
Outflow = 2.64 cfs @ 12.23 hrs, Volume= 0.120 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP1:

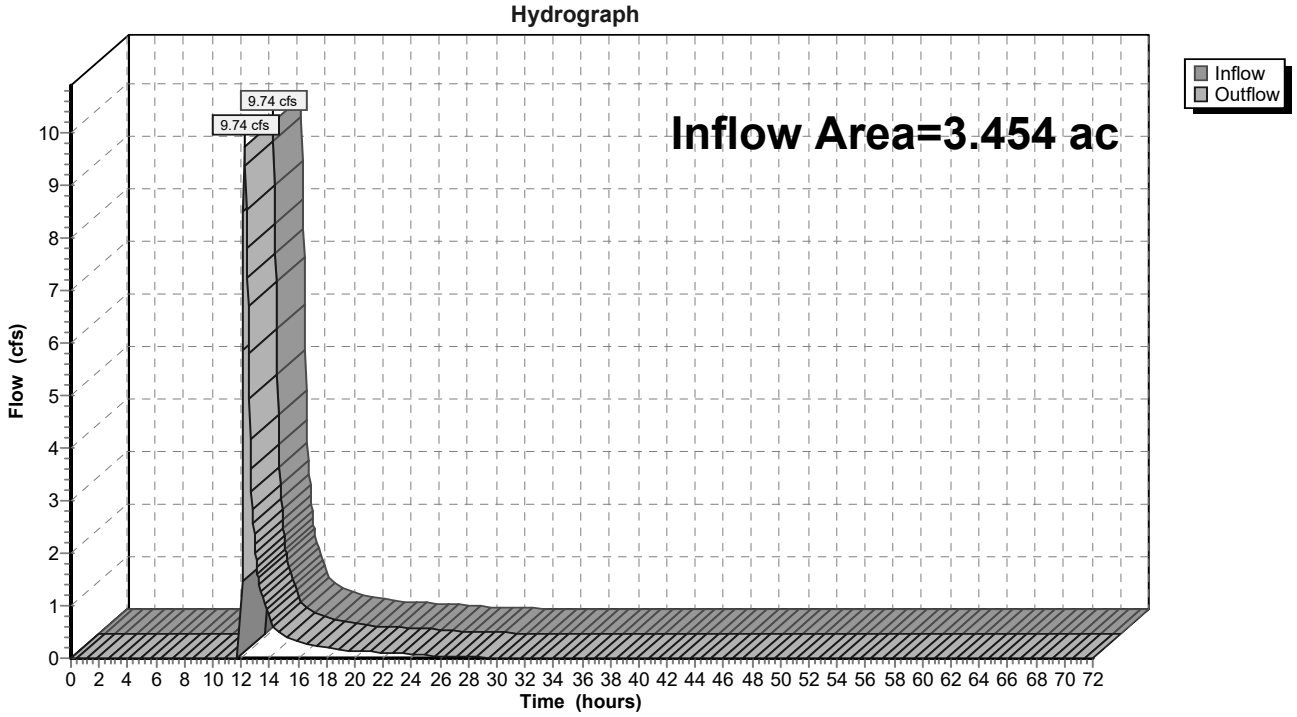


Summary for Reach DP2:

Inflow Area = 3.454 ac, 54.17% Impervious, Inflow Depth = 2.61" for 100 yr-24 hr event
Inflow = 9.74 cfs @ 12.22 hrs, Volume= 0.750 af
Outflow = 9.74 cfs @ 12.22 hrs, Volume= 0.750 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP2:

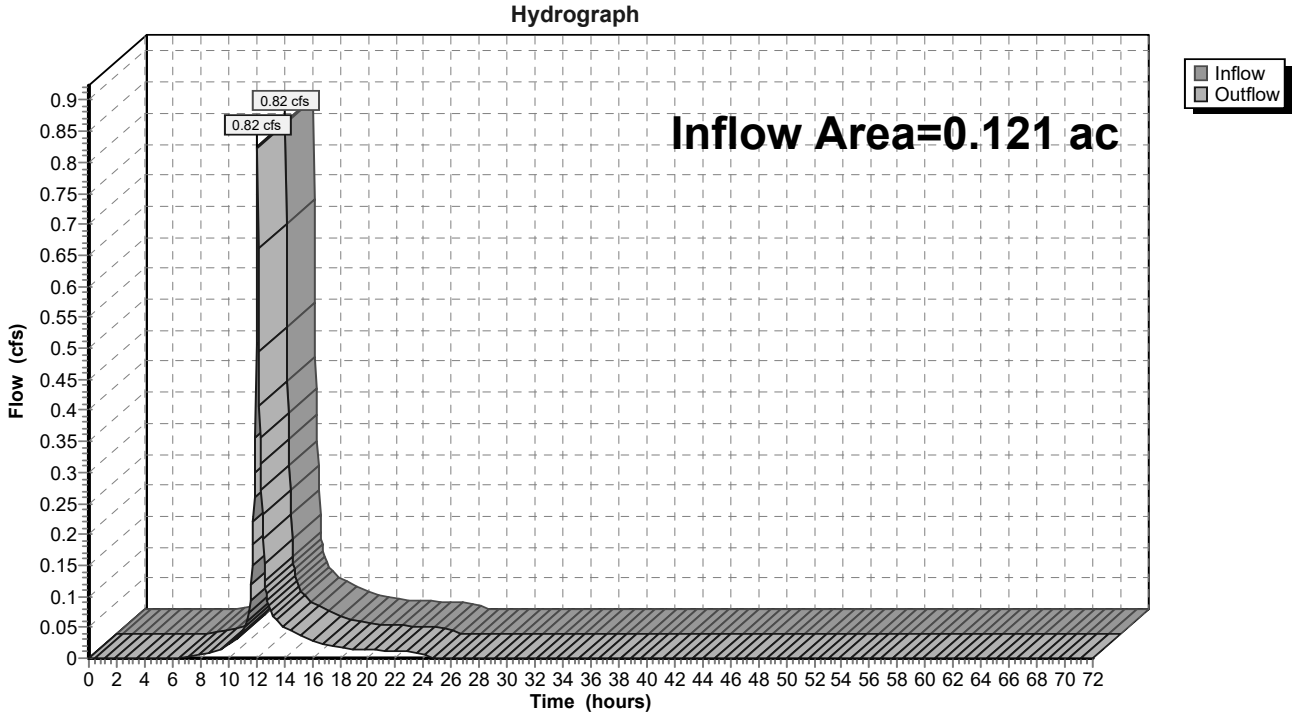


Summary for Reach DP3:

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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP3:



Summary for Pond 1P: Stormtech Units

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 = 2.82 cfs @ 12.23 hrs, Volume= 0.273 af, Atten= 2%, Lag= 1.7 min
Discarded = 0.17 cfs @ 12.23 hrs, Volume= 0.153 af
Primary = 2.64 cfs @ 12.23 hrs, Volume= 0.120 af
Routed to Reach DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 371.28' @ 12.23 hrs Surf.Area= 450 sf Storage= 1,612 cf

Plug-Flow detention time= 55.2 min calculated for 0.273 af (100% of inflow)
Center-of-Mass det. time= 55.2 min (863.3 - 808.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.25'	910 cf	**29.00'W x 15.52'L x 7.00'H Field A** 3,150 cf Overall - 876 cf Embedded = 2,274 cf x 40.0% Voids
#2A	366.25'	876 cf	**ADS_StormTech MC-4500 b +Cap** x 6 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		1,786 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 370.00' S= -0.0286 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	365.25'	**7.500 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=0.17 cfs @ 12.23 hrs HW=371.27' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=2.61 cfs @ 12.23 hrs HW=371.27' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.61 cfs @ 3.33 fps)

Pond 1P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

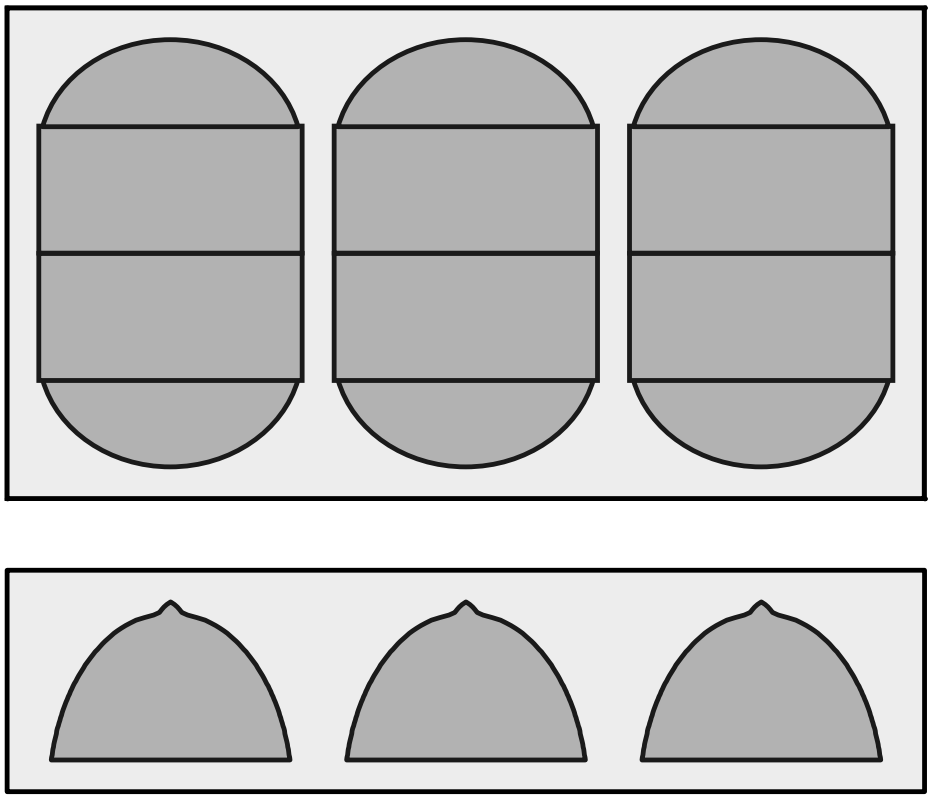
2 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 13.52' Row Length +12.0" End Stone x 2 = 15.52' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

6 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 875.9 cf Chamber Storage

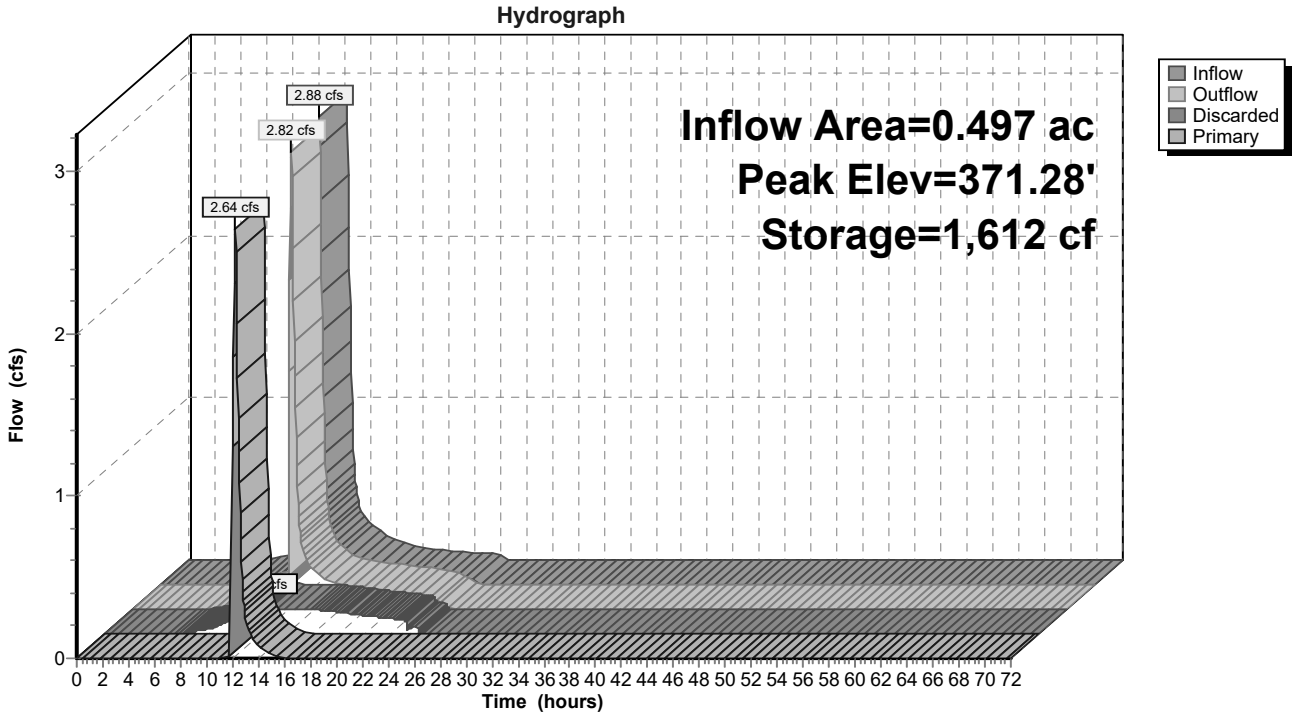
3,149.9 cf Field - 875.9 cf Chambers = 2,273.9 cf Stone x 40.0% Voids = 909.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,785.5 cf = 0.041 af
Overall Storage Efficiency = 56.7%
Overall System Size = 15.52' x 29.00' x 7.00'

6 Chambers
116.7 cy Field
84.2 cy Stone



Pond 1P: Stormtech Units



Summary for Pond 2P: Stormtech Units

Inflow Area = 2.408 ac, 77.69% Impervious, Inflow Depth = 7.95" for 100 yr-24 hr event
Inflow = 20.32 cfs @ 12.09 hrs, Volume= 1.595 af
Outflow = 11.07 cfs @ 12.22 hrs, Volume= 1.595 af, Atten= 46%, Lag= 8.1 min
Discarded = 1.38 cfs @ 12.22 hrs, Volume= 1.141 af
Primary = 9.69 cfs @ 12.22 hrs, Volume= 0.454 af
Routed to Reach DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 371.70' @ 12.22 hrs Surf.Area= 4,302 sf Storage= 18,042 cf

Plug-Flow detention time= 61.1 min calculated for 1.594 af (100% of inflow)
Center-of-Mass det. time= 61.1 min (833.2 - 772.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.20'	7,478 cf	**29.00'W x 148.34'L x 7.00'H Field A** 30,113 cf Overall - 11,418 cf Embedded = 18,695 cf x 40.0% Voids
#2A	366.20'	11,418 cf	**ADS_StormTech MC-4500 b +Cap** x 105 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 105 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		18,896 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	368.80'	**18.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.80' / 368.50' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	365.20'	**9.000 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=1.37 cfs @ 12.22 hrs HW=371.66' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 1.37 cfs)

Primary OutFlow Max=9.55 cfs @ 12.22 hrs HW=371.66' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 9.55 cfs @ 5.40 fps)

Pond 2P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

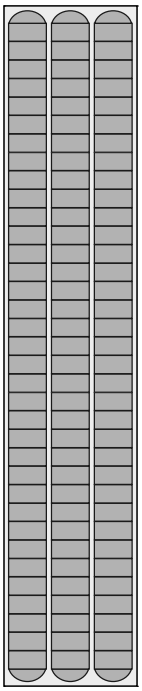
35 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 146.34' Row Length +12.0" End Stone x 2 = 148.34' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

105 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 11,418.5 cf Chamber Storage

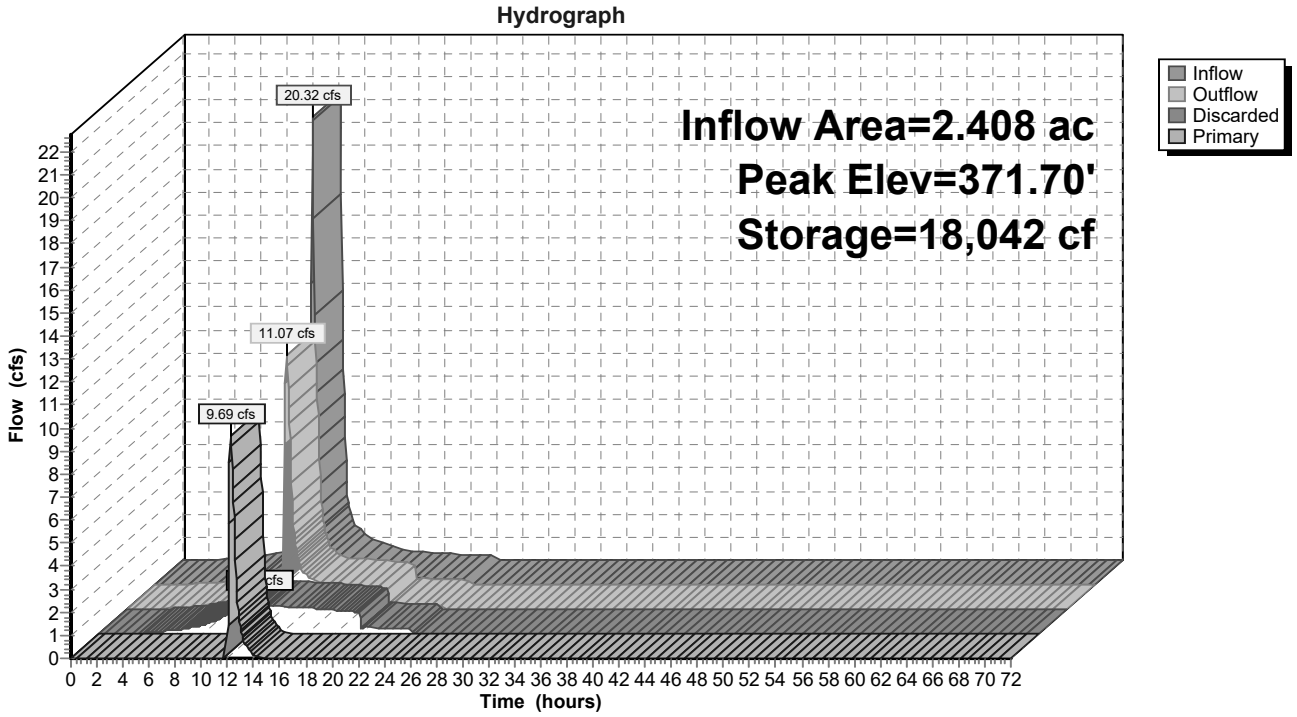
30,113.4 cf Field - 11,418.5 cf Chambers = 18,694.9 cf Stone x 40.0% Voids = 7,477.9 cf Stone Storage

Chamber Storage + Stone Storage = 18,896.4 cf = 0.434 af
Overall Storage Efficiency = 62.8%
Overall System Size = 148.34' x 29.00' x 7.00'

105 Chambers
1,115.3 cy Field
692.4 cy Stone



Pond 2P: Stormtech Units



Summary for Pond 21P: Floodplain Comp

Inflow Area = 1.046 ac, 0.00% Impervious, Inflow Depth = 4.35" for 100 yr-24 hr event
Inflow = 4.08 cfs @ 12.20 hrs, Volume= 0.379 af
Outflow = 0.77 cfs @ 12.86 hrs, Volume= 0.296 af, Atten= 81%, Lag= 39.4 min
Primary = 0.77 cfs @ 12.86 hrs, Volume= 0.296 af
Routed to Reach DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 369.02' @ 12.86 hrs Surf.Area= 9,009 sf Storage= 7,832 cf

Plug-Flow detention time= 279.3 min calculated for 0.296 af (78% of inflow)
Center-of-Mass det. time= 197.8 min (1,042.4 - 844.6)

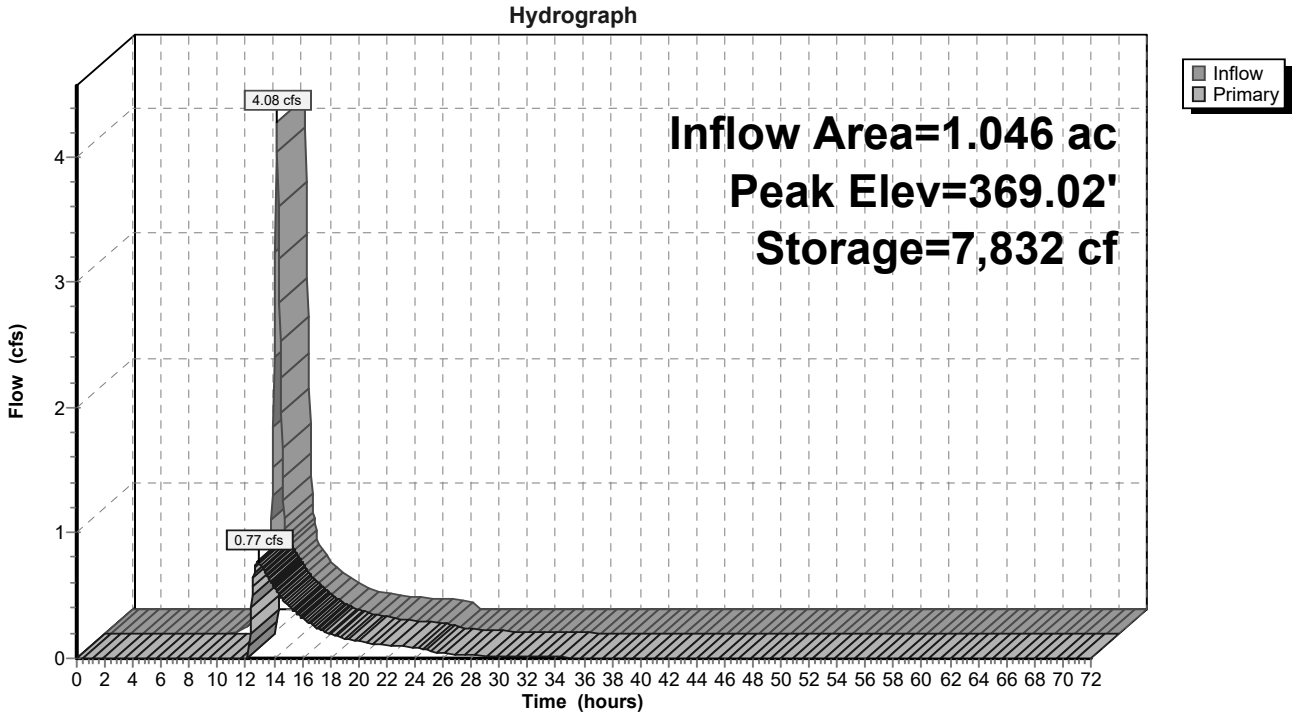
Volume	Invert	Avail.Storage	Storage Description
#1	368.00'	47,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
368.00	6,398	0	0
369.00	8,964	7,681	7,681
370.00	11,663	10,314	17,995
371.00	14,534	13,099	31,093
372.00	17,465	16,000	47,093

Device	Routing	Invert	Outlet Devices
#1	Primary	368.50'	**12.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.50' / 368.20' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	371.00'	**24.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	368.50'	**12.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.77 cfs @ 12.86 hrs HW=369.02' TW=0.00' (Dynamic Tailwater)
↑└─**1=Culvert** (Barrel Controls 0.77 cfs @ 2.72 fps)
↑ ├─**2=Grate** (Controls 0.00 cfs)
└─**3=Orifice** (Passes 0.77 cfs of 1.00 cfs potential flow)

Pond 21P: Floodplain Comp



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment10: Runoff Area=21,666 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=104,901 sf 77.69% Impervious Runoff Depth=0.68"
Tc=6.0 min CN=90 Runoff=1.88 cfs 0.137 af

Subcatchment20B: Runoff Area=45,554 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=110' Tc=14.1 min CN=61 Runoff=0.00 cfs 0.001 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: Stormtech Units Peak Elev=365.27' Storage=4 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 2P: Stormtech Units Peak Elev=365.51' Storage=531 cf Inflow=1.88 cfs 0.137 af
Discarded=0.92 cfs 0.137 af Primary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.137 af

Pond 21P: Floodplain Comp Peak Elev=368.00' Storage=28 cf Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 4.072 ac Runoff Volume = 0.150 af Average Runoff Depth = 0.44"
46.98% Pervious = 1.913 ac 53.02% Impervious = 2.159 ac

Summary for Subcatchment 10:

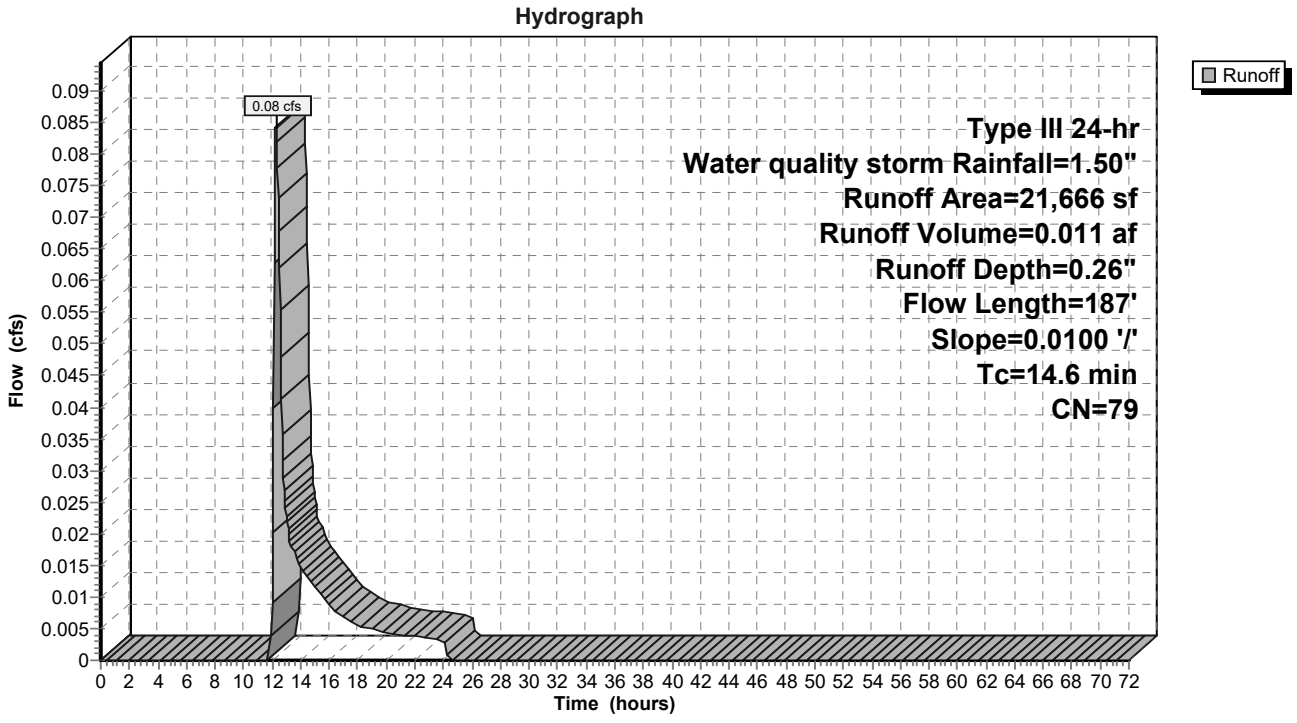
Runoff = 0.08 cfs @ 12.26 hrs, Volume= 0.011 af, Depth= 0.26"
Routed to Pond 1P : Stormtech Units

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
	11,028	61	>75% Grass cover, Good, HSG B
*	10,638	98	Impervious
	21,666	79	Weighted Average
	11,028		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		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
2.1	87	0.0100	0.70		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.6	187	Total			

Subcatchment 10:



Summary for Subcatchment 20A:

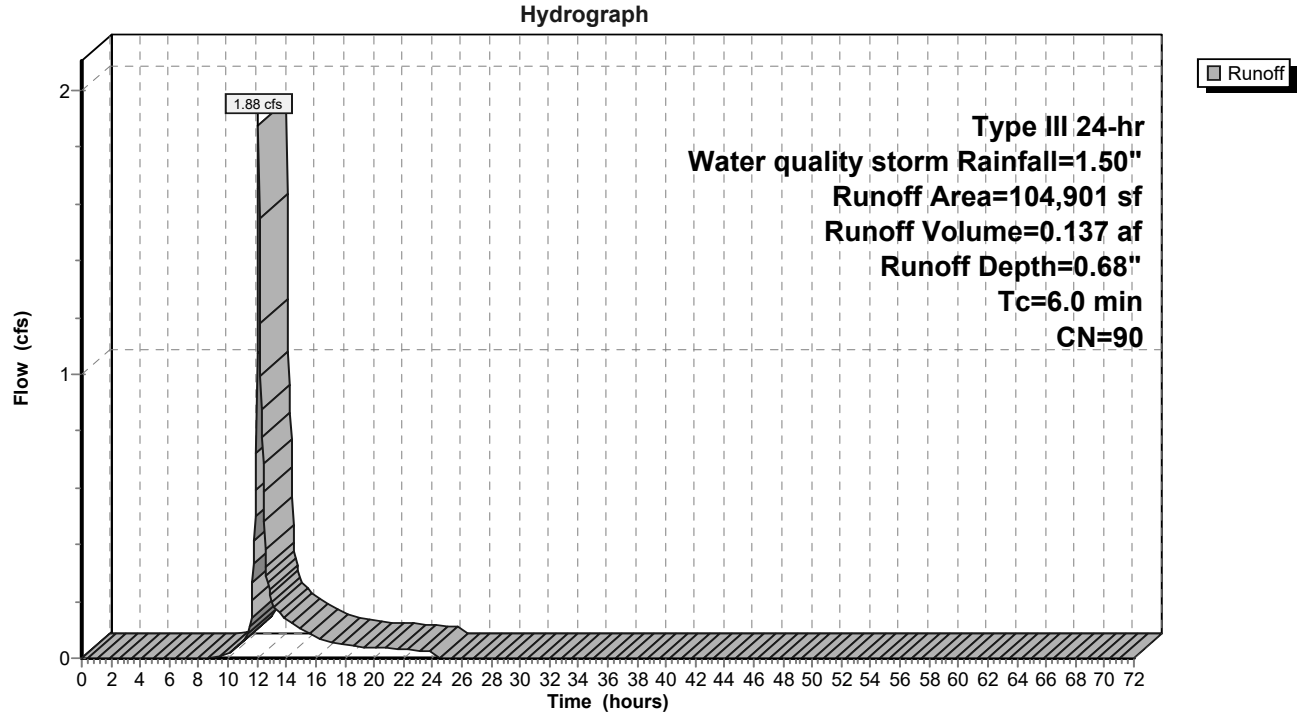
Runoff = 1.88 cfs @ 12.10 hrs, Volume= 0.137 af, Depth= 0.68"
Routed to Pond 2P : Stormtech Units

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
	23,403	61	>75% Grass cover, Good, HSG B
	104,901	90	Weighted Average
	23,403		22.31% Pervious Area
	81,498		77.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 20A:



Summary for Subcatchment 20B:

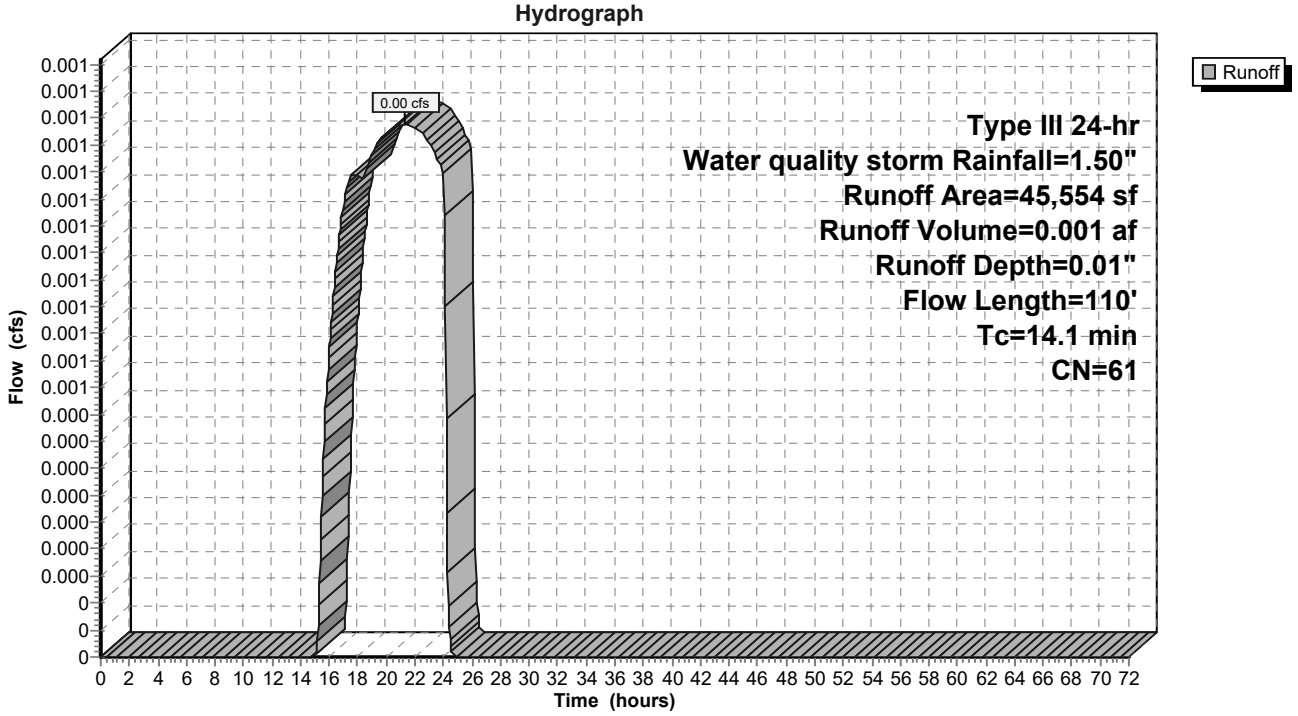
Runoff = 0.00 cfs @ 21.30 hrs, Volume= 0.001 af, Depth= 0.01"
Routed to Pond 21P : Floodplain Comp

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
45,554	61	>75% Grass cover, Good, HSG B
45,554		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	81	0.0050	0.10		**Sheet Flow, a-b** Grass: Short n= 0.150 P2= 3.43"
0.2	29	0.1700	2.89		**Shallow Concentrated Flow, b-c** Short Grass Pasture Kv= 7.0 fps
14.1	110	Total			

Subcatchment 20B:



Summary for Subcatchment 30:

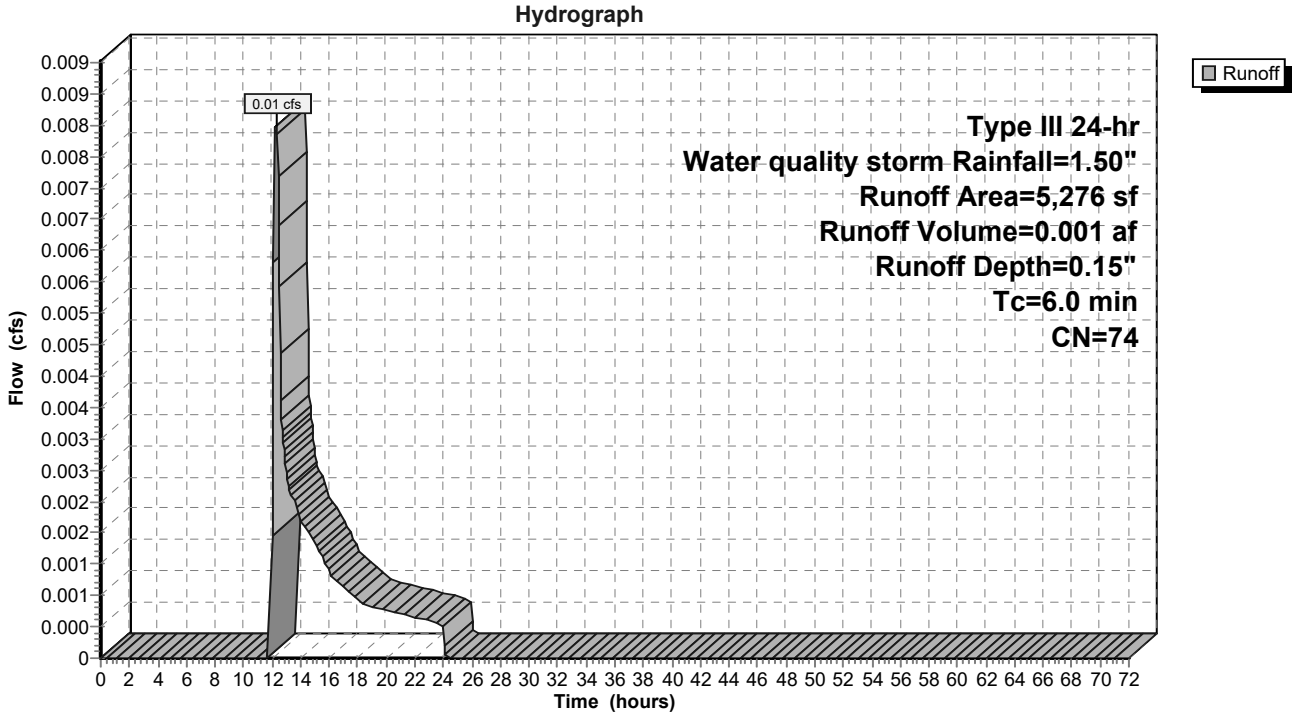
Runoff = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af, Depth= 0.15"
Routed to Reach DP3 :

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:

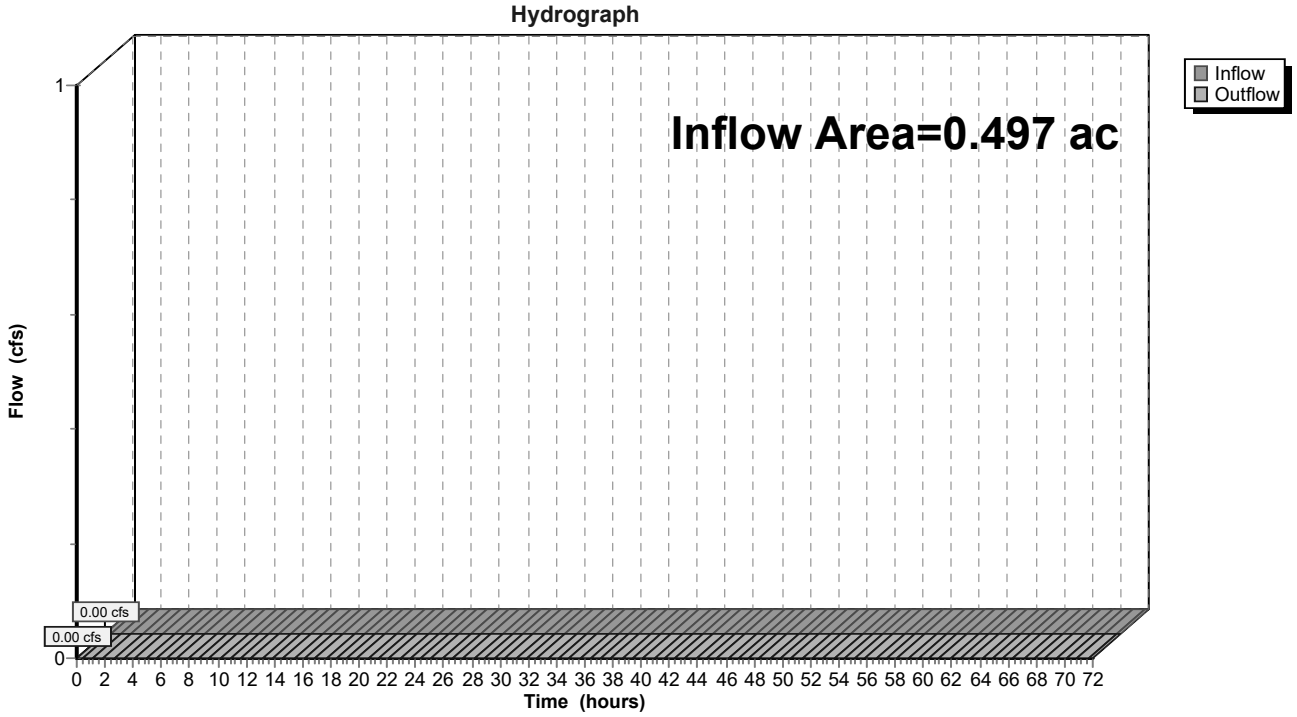


Summary for Reach DP1:

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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP1:

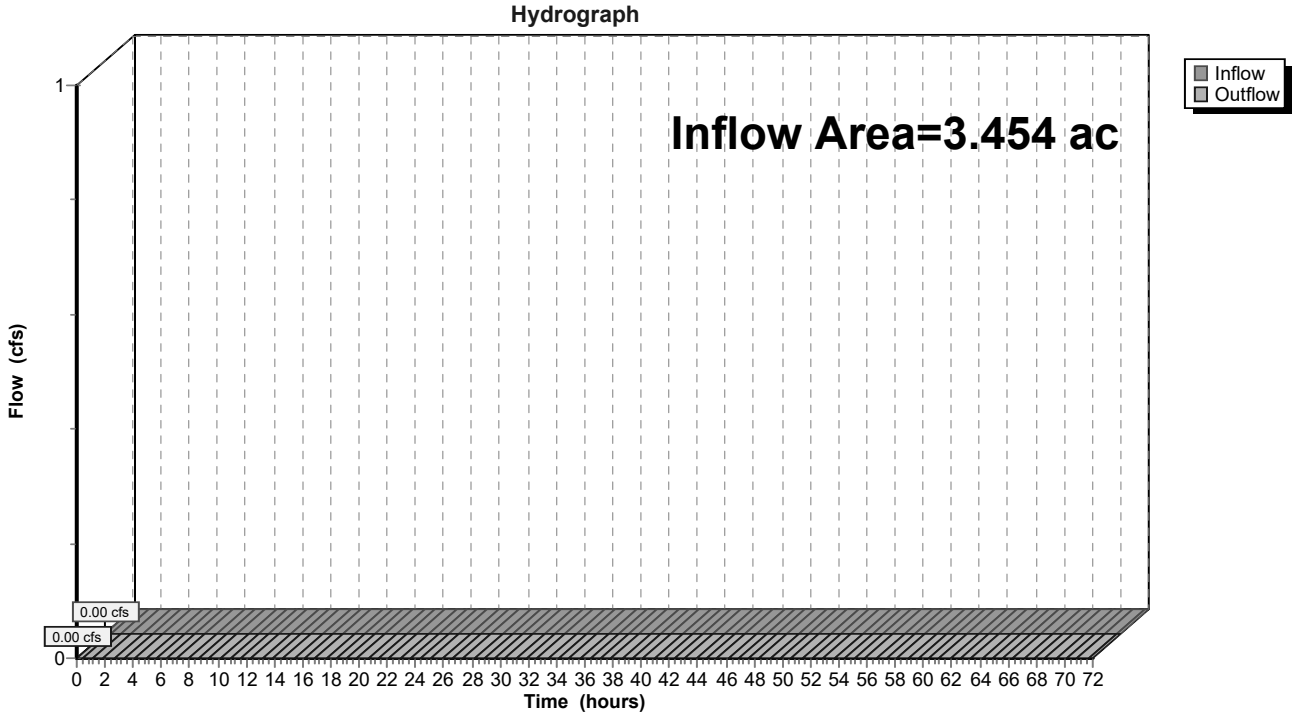


Summary for Reach DP2:

Inflow Area = 3.454 ac, 54.17% 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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP2:

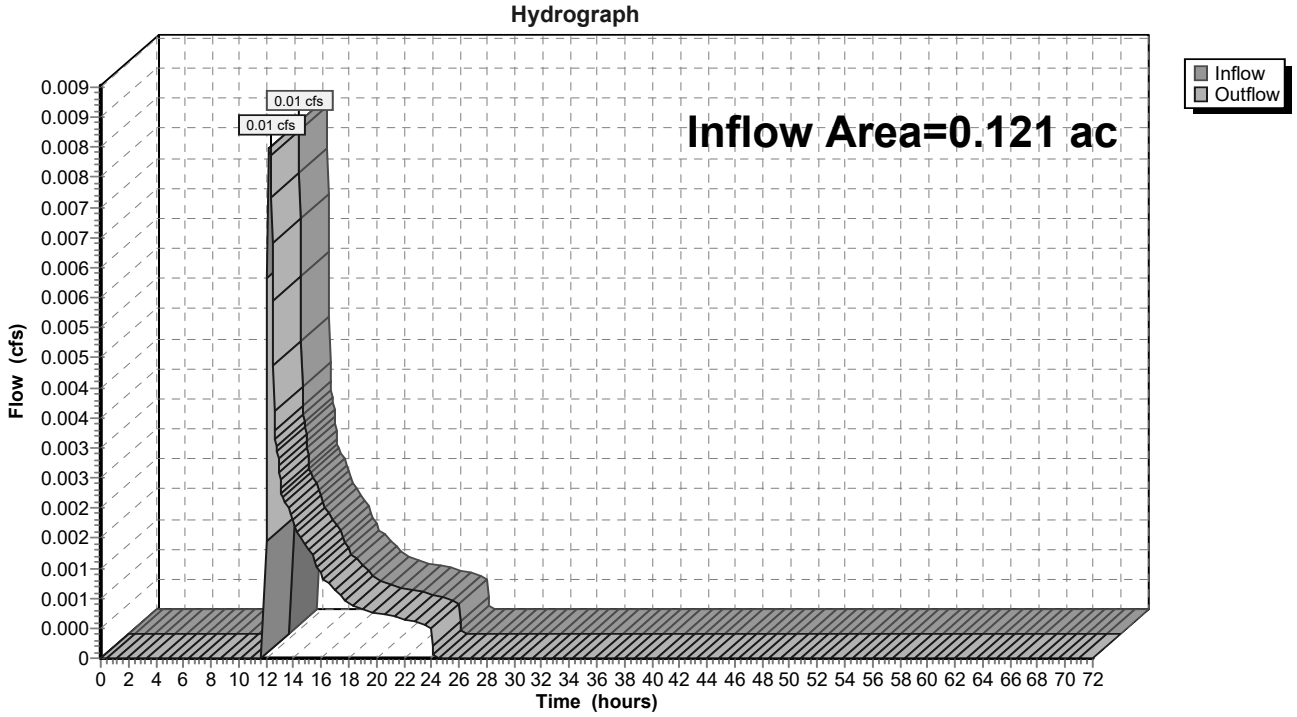


Summary for Reach DP3:

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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4

Reach DP3:



Summary for Pond 1P: Stormtech Units

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 @ 12.34 hrs, Volume= 0.011 af, Atten= 7%, Lag= 4.8 min
Discarded = 0.08 cfs @ 12.34 hrs, Volume= 0.011 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 365.27' @ 12.34 hrs Surf.Area= 450 sf Storage= 4 cf

Plug-Flow detention time= 0.4 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (909.1 - 908.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.25'	910 cf	**29.00'W x 15.52'L x 7.00'H Field A** 3,150 cf Overall - 876 cf Embedded = 2,274 cf x 40.0% Voids
#2A	366.25'	876 cf	**ADS_StormTech MC-4500 b +Cap** x 6 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		1,786 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	370.00'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 369.00' / 370.00' S= -0.0286 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	365.25'	**7.500 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=0.08 cfs @ 12.34 hrs HW=365.27' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=365.25' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 1P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

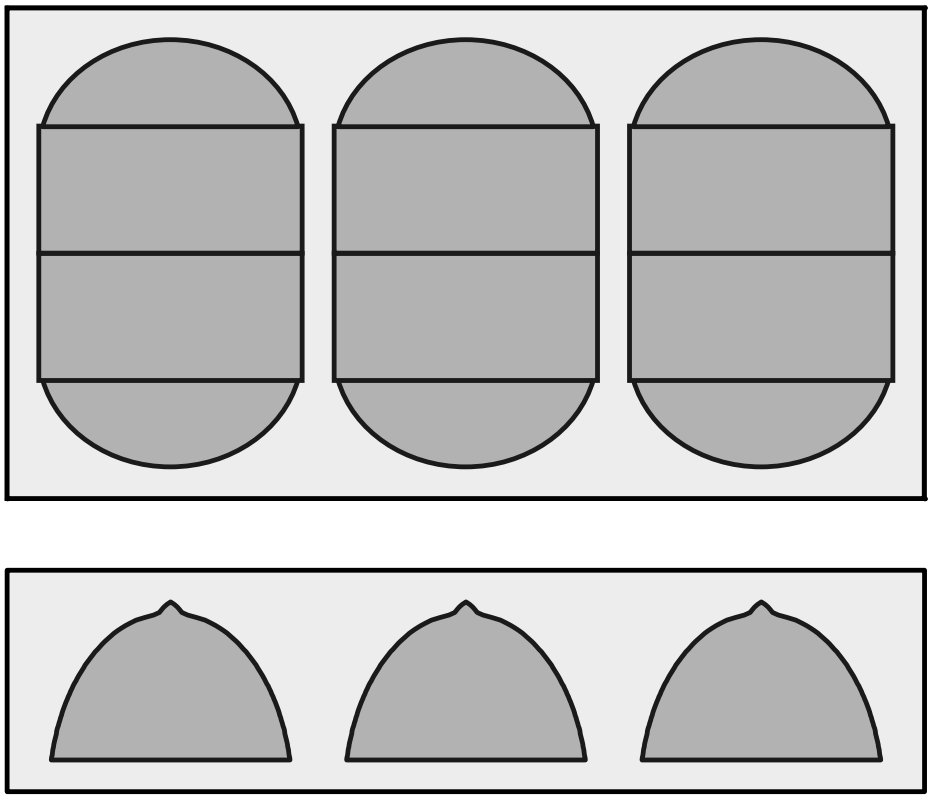
2 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 13.52' Row Length +12.0" End Stone x 2 = 15.52' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

6 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 875.9 cf Chamber Storage

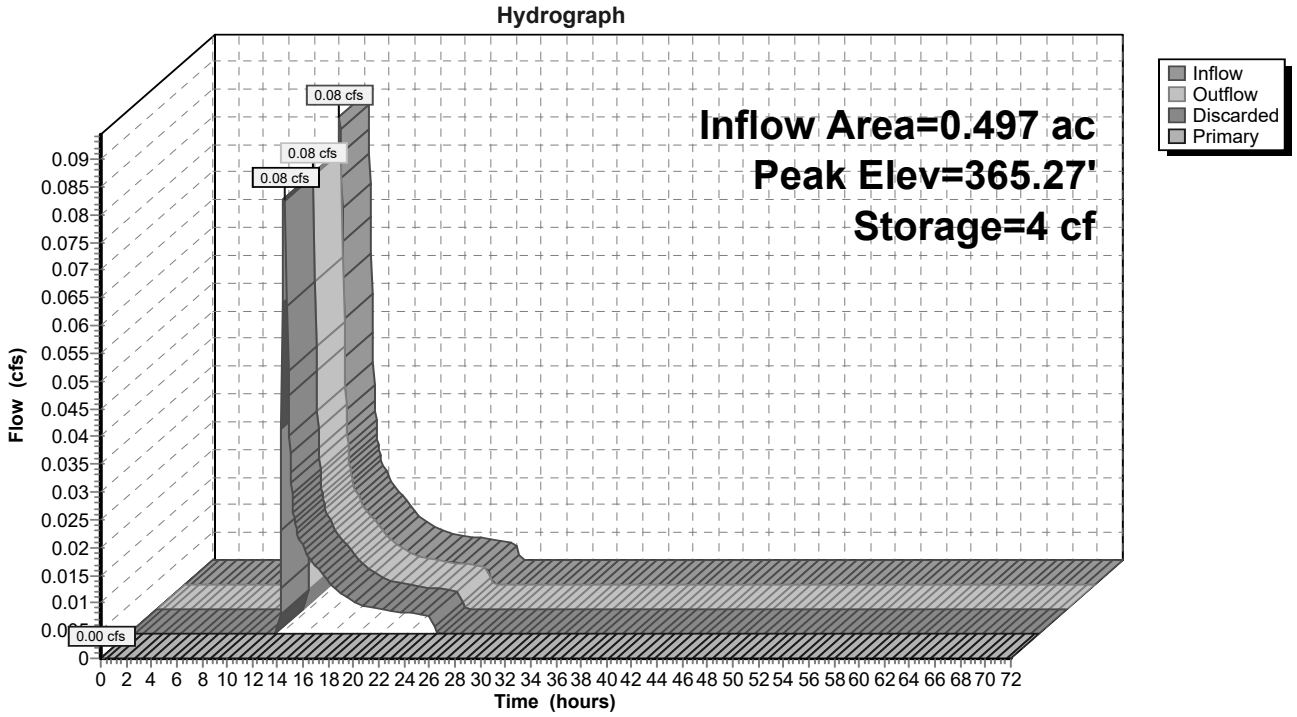
3,149.9 cf Field - 875.9 cf Chambers = 2,273.9 cf Stone x 40.0% Voids = 909.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,785.5 cf = 0.041 af
Overall Storage Efficiency = 56.7%
Overall System Size = 15.52' x 29.00' x 7.00'

6 Chambers
116.7 cy Field
84.2 cy Stone



Pond 1P: Stormtech Units



Summary for Pond 2P: Stormtech Units

Inflow Area = 2.408 ac, 77.69% Impervious, Inflow Depth = 0.68" for Water quality storm event
Inflow = 1.88 cfs @ 12.10 hrs, Volume= 0.137 af
Outflow = 0.92 cfs @ 12.28 hrs, Volume= 0.137 af, Atten= 51%, Lag= 11.3 min
Discarded = 0.92 cfs @ 12.28 hrs, Volume= 0.137 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 365.51' @ 12.28 hrs Surf.Area= 4,302 sf Storage= 531 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.6 min (842.6 - 840.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	365.20'	7,478 cf	**29.00'W x 148.34'L x 7.00'H Field A** 30,113 cf Overall - 11,418 cf Embedded = 18,695 cf x 40.0% Voids
#2A	366.20'	11,418 cf	**ADS_StormTech MC-4500 b +Cap**x 105 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 105 Chambers in 3 Rows Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf
		18,896 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	368.80'	**18.0" Round Culvert** L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.80' / 368.50' S= 0.0031 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Discarded	365.20'	**9.000 in/hr Infiltration over Wetted area** Phase-In= 0.01'

Discarded OutFlow Max=0.92 cfs @ 12.28 hrs HW=365.51' (Free Discharge)
↑—**2=Infiltration** (Exfiltration Controls 0.92 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=365.20' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 2P: Stormtech Units - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 3 rows = 237.0 cf

100.0" Wide + 12.0" Spacing = 112.0" C-C Row Spacing

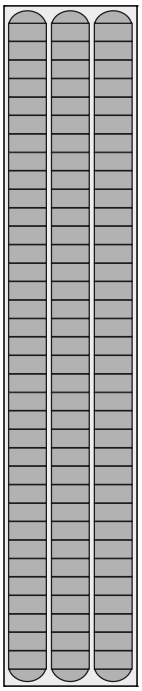
35 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 146.34' Row Length +12.0" End Stone x 2 = 148.34' Base Length
3 Rows x 100.0" Wide + 12.0" Spacing x 2 + 12.0" Side Stone x 2 = 29.00' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

105 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 3 Rows = 11,418.5 cf Chamber Storage

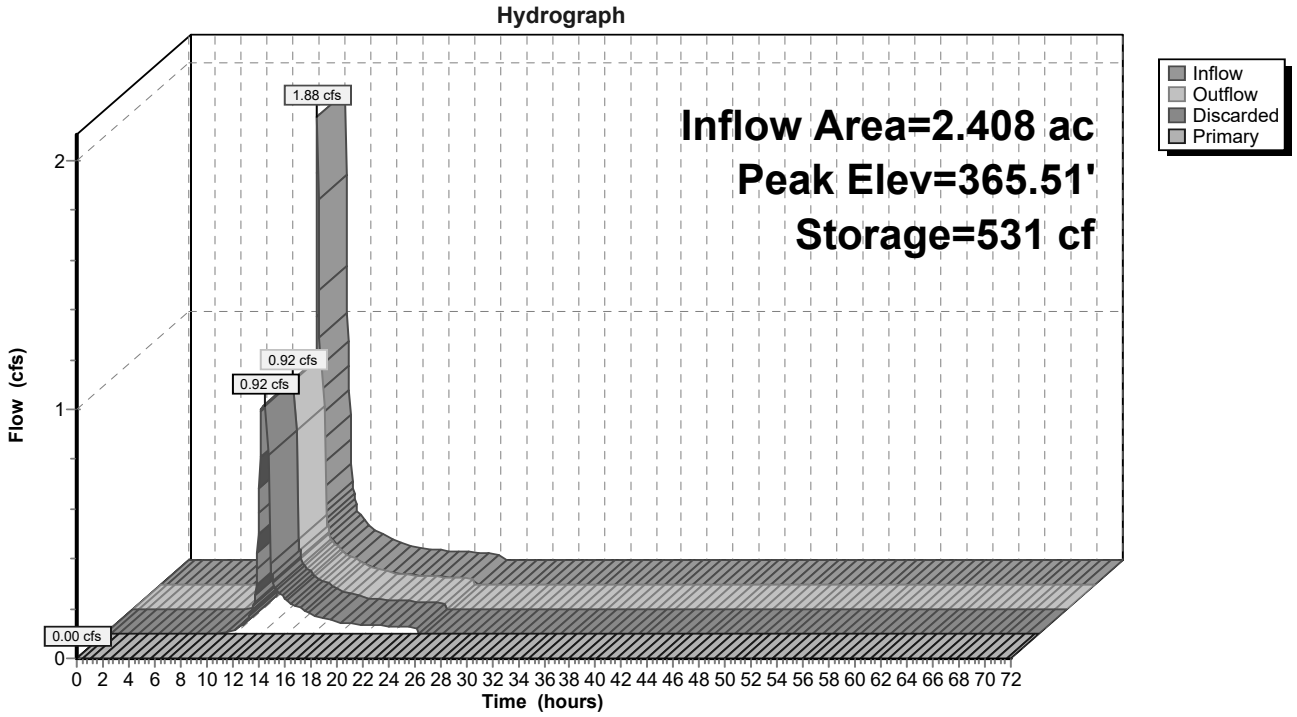
30,113.4 cf Field - 11,418.5 cf Chambers = 18,694.9 cf Stone x 40.0% Voids = 7,477.9 cf Stone Storage

Chamber Storage + Stone Storage = 18,896.4 cf = 0.434 af
Overall Storage Efficiency = 62.8%
Overall System Size = 148.34' x 29.00' x 7.00'

105 Chambers
1,115.3 cy Field
692.4 cy Stone



Pond 2P: Stormtech Units



Summary for Pond 21P: Floodplain Comp

Inflow Area = 1.046 ac, 0.00% Impervious, Inflow Depth = 0.01" for Water quality storm event
Inflow = 0.00 cfs @ 21.30 hrs, Volume= 0.001 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 Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 4
Peak Elev= 368.00' @ 24.85 hrs Surf.Area= 6,409 sf Storage= 28 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

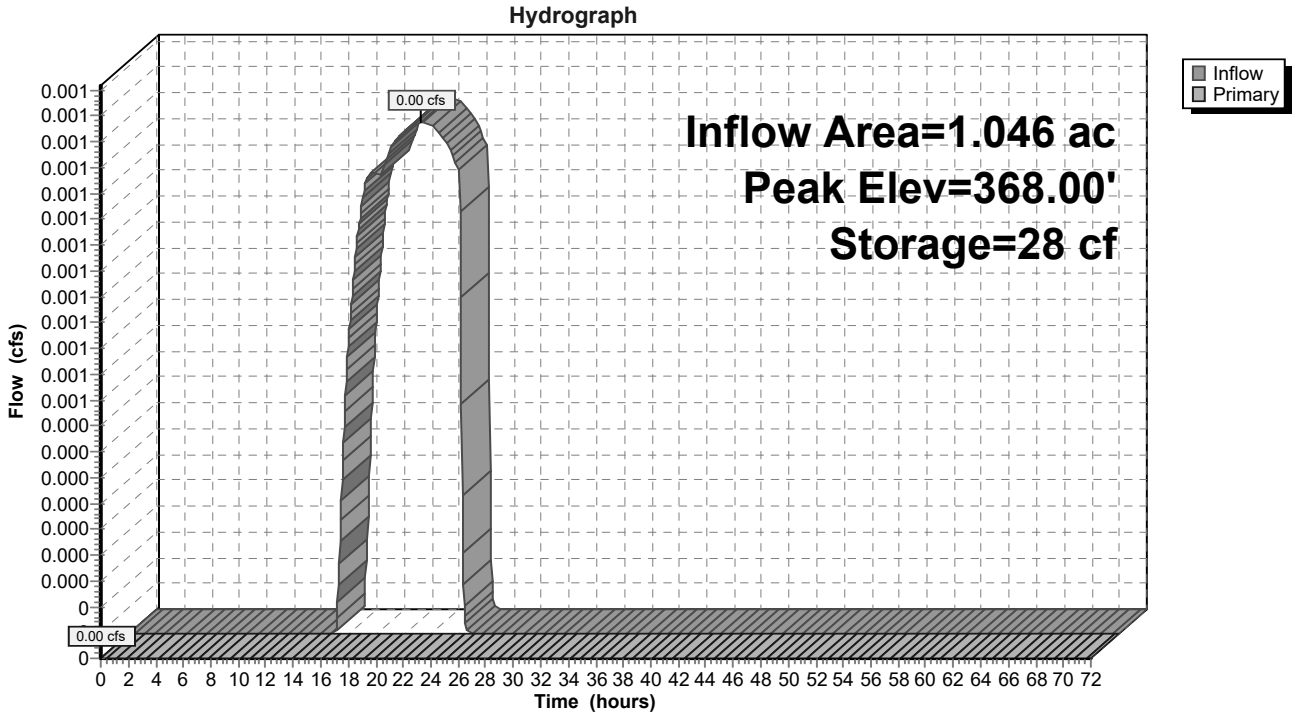
Volume	Invert	Avail.Storage	Storage Description
#1	368.00'	47,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
368.00	6,398	0	0
369.00	8,964	7,681	7,681
370.00	11,663	10,314	17,995
371.00	14,534	13,099	31,093
372.00	17,465	16,000	47,093

Device	Routing	Invert	Outlet Devices
#1	Primary	368.50'	**12.0" Round Culvert** L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 368.50' / 368.20' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	371.00'	**24.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	368.50'	**12.0" Vert. Orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=368.00' TW=0.00' (Dynamic Tailwater)
↑└─**1=Culvert** (Controls 0.00 cfs)
↑└─**2=Grate** (Controls 0.00 cfs)
└─**3=Orifice** (Controls 0.00 cfs)

Pond 21P: Floodplain Comp



Appendix G: Certification Statements

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 _____

_____

_____

_____

Trained Individual Name (please print) _____

Title _____ **Date** _____

Signature _____

SWPPP Responsibilities _____

_____

_____

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.

Appendix H: Example Inspection Form

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 damns, 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 occuring.
☐	☐	☐	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

LANGAN

Post Construction Inspection and Maintenance Checklist
Underground Infiltration System

1. Inlet and Outlet Structures

(Frequency: Annual)	**Yes**	**No**	**NA**
a. Concrete structure	☐	☐	☐
i. In good condition, no need for repairs.	☐	☐	☐
a. Cracks or displacement. *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.*	☐	☐	☐
b. Minor spalling (<1"). *Maintenance: Repair any minor spalling.*	☐	☐	☐
c. Major spalling (rebars exposed). *Maintenance: Replace structure.*	☐	☐	☐
d. Joint failures. *Maintenance: Replace structure.*	☐	☐	☐
e. Water tightness. *Maintenance: Reseal structure for water tightness if minor leaks are observed. Replace structure if significant leaks are observed.*	☐	☐	☐
ii. Clear of sediment. *Maintenance: Remove and properly dispose of any accumulated sediment when at 50% of sump height.*	☐	☐	☐
iii. Clear of debris and trash. *Maintenance: Remove and properly dispose of any debris and trash.*	☐	☐	☐
iv. Pipes free from damage, corrosion, and sediment. *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.*	☐	☐	☐

2. Header System

(Frequency: Annual)	**Yes**	**No**	**NA**
a. Clear of debris and litter. *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.*	☐	☐	☐
b. Clear of sediment. *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.*	☐	☐	☐

3. Isolator/Containment Row

(Frequency: Annual)	**Yes**	**No**	**NA**
a. Clear of debris and litter. *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.*	☐	☐	☐
b. Clear of sediment. *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.*	☐	☐	☐

4. Underground Chambers

(Frequency: Annual)	**Yes**	**No**	**NA**
a. Chambers are in good condition. *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.*	☐	☐	☐
b. Clear of debris and litter. *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.*	☐	☐	☐
c. Clear of sediment. *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.*	☐	☐	☐
d. Dewaters between storms. *Maintenance: If standing water during inspection, recheck after 48 hours. If standing water is still present, contact a NYS licensed Professional Engineer.*	☐	☐	☐

5. Surrounding Site

(Frequency: Monthly)	**Yes**	**No**	**NA**
a. Vegetation and ground cover adequate. *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.*	☐	☐	☐
b. Area free from depressions. *Maintenance: Immediately repair. Re-grade and compact the soil. Topsoil, rake and seed the area. Re-inspect in 6 months.*	☐	☐	☐

	Yes	No	NA
c. Unauthorized plants over system. *<u>Maintenance</u>: Remove any unauthorized plants, including roots. Do not use herbicides. Topsoil, rake and seed the area disturbed by their removal.*	☐	☐	☐
d. Unauthorized structures over system. *<u>Maintenance</u>: 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.*	☐	☐	☐

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:

Actions to be taken:

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: The Gateway		
Project Location (describe, and attach a general location map): 45 Bedford Road, Armonk, NY. Tax ID number 108.03-1-65.		
Brief Description of Proposed Action (include purpose or need): Redevelopment of a 4.2-acre site as a 34-unit multi-family residential development and associated site improvements.		
Name of Applicant/Sponsor: NCD Acquisitions	Telephone: E-Mail:	
Address: 399 Knollwood Road		
City/PO: White Plains	State: NY	Zip Code: 10603
Project Contact (if not same as sponsor; give name and title/role): Same	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor): Same	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	Special Permit	Obtained
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	Site Plan Approval	August, 2023
c. City, Town or Village Zoning Board of Appeals ☑Yes ☐No	Zoning Variance - Lot Coverage	September, 2023
d. Other local agencies ☑Yes ☐No	Town of North Castle - MS4 SWPPP approval; Building Permit, Floodplain Development Permit	November 2023
e. County agencies ☑Yes ☐No	County Planning Board Referral, County Stream Control Permit	September, 2023
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC - SPDES General Permit	November 2023
h. Federal agencies ☐Yes ☑No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☑Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
Residential - Multifamily - Downtown Armonk (R-MF-DA)

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Byram Hills School District

b. What police or other public protection forces serve the project site?
North Castle Police Department

c. Which fire protection and emergency medical services serve the project site?
Armonk Fire District

d. What parks serve the project site?
North Castle Community Park, Wampus Brook Park, John A. Lombardi Park

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Multi-Family Residential

b. a. Total acreage of the site of the proposed action? 4.2 acres
b. Total acreage to be physically disturbed? 3.9 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 4.2 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 24 months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☑ Yes ☐ No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	0	5	0	6
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☐ Yes ☑ No

If Yes,

i. Total number of structures 11

ii. Dimensions (in feet) of largest proposed structure: 30' height; 63' width; and 93' length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑ Yes ☐ No

If Yes,

i. Purpose of the impoundment: Compensatory flood storage

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☑ Surface water streams ☐ Other specify: Only during flood events

iii. If other than water, identify the type of impounded/contained liquids and their source.

iv. Approximate size of the proposed impoundment. Volume: 0.5 million gallons; surface area: 0.4 acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐ Yes ☑ No

If Yes:

i .What is the purpose of the excavation or dredging? _____

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

iv. Will there be onsite dewatering or processing of excavated materials? ☐ Yes ☐ No

If yes, describe. _____

v. What is the total area to be dredged or excavated? _____ acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐ Yes ☐ No

ix. Summarize site reclamation goals and plan: _____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☑ Yes ☐ No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): Wetland buffer associated with a non-jurisdictional stream.

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
No impacts to streams or wetlands, only the 100-foot locally enforced bufferzone.

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☑ No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☑ No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No
If Yes:

i. Total anticipated water usage/demand per day: 12,980 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No
If Yes:

- Name of district or service area: North Castle Water District #4
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☑ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☑ No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑ Yes ☐ No
If Yes:

i. Total anticipated liquid waste generation per day: 7,480 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
Sanitary wastewater

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑ Yes ☐ No
If Yes:

- Name of wastewater treatment plant to be used: Sewer District #2 wastewater treatment plant
- Name of district: Sewer District #2
- Does the existing wastewater treatment plant have capacity to serve the project? ☑ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☑ No
- Is expansion of the district needed? ☐ Yes ☑ No

- Do existing sewer lines serve the project site? ☑ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☐ Yes ☑ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☑ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑ Yes ☐ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 2.1 acres (impervious surface) (Reduction of 1.04 acres)

_____ Square feet or 4 acres (parcel size)

ii. Describe types of new point sources. Controlled discharges from on-site stormwater management practices.

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Groundwater and on-site wetlands/streams.

- If to surface waters, identify receiving water bodies or wetlands: _____
- Will stormwater runoff flow to adjacent properties? ☑ Yes ☐ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐ Yes ☑ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐ Yes ☑ No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____ Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____ Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____ Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____ Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____ Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____ Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☑ Morning ☑ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing 51 Proposed 75 Net increase/decrease 24

iv. Does the proposed action include any shared use parking? ☐Yes ☑No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☑Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☑No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☑No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

TBD

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

Westchester Power

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7AM - 5PM
- Saturday: 7AM - 5PM
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 24 Hours
- Saturday: 24 Hours
- Sunday: 24 Hours
- Holidays: 24 Hours

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

Typical construction noise during the construction period, no noticeable noise during operation.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: _____

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

The outdoor lighting will consist of limited building and pedestrian scale lighting.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: _____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: TBD tons per _____ (unit of time)
- Operation : 9 tons per Month (unit of time) (Assuming +/- 18lbs/unit/day)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: Construction debris will be recycled to the extent possible.
- Operation: Recyclable materials will be collected separately and recycled at an appropriate facility.

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: Construction debris will be disposed of at a licensed landfill facility.
- Operation: Waste will be picked up and hauled to a licensed landfill facility for disposal.

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	3.17	2.13	- 1.04
• Forested	0	0	0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	.10	.10	0
• Non-vegetated (bare rock, earth or fill)	.02	.02	0
• Other Describe: Grass and landscape area	0.91	1.95	+ 1.04

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑ Yes ☐ No

If Yes,

i. Identify Facilities:

HC Crittenden Middle School, Wampus Elementary School

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑ Yes ☐ No

If yes, provide DEC ID number(s): 360005

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☑ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? Over 8 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

UvB - Urban land-Riverhead Comp.	100 %
	%
	%

d. What is the average depth to the water table on the project site? Average: Over 8 feet

e. Drainage status of project site soils:

☐	Well Drained:	% of site
☑	Moderately Well Drained:	100 % of site
☐	Poorly Drained	% of site

f. Approximate proportion of proposed action site with slopes:

☑	0-10%:	10+ % of site
☐	10-15%:	% of site
☐	15% or greater:	% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name 935-106 Classification C
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☑ Yes ☐ No

j. Is the project site in the 100-year Floodplain? ☑ Yes ☐ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☑ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☑ Yes ☐ No
If Yes:

i. Name of aquifer: Principal Aquifer

m. Identify the predominant wildlife species that occupy or use the project site:
Various Birds, Skunk
Racoon
Chipmunk

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No
If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No
If Yes:
i. Species and listing:

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: Eligible property:TOWN HALL, Bedford Road Historic District

iii. Brief description of attributes on which listing is based:

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s):

ii. Basis for identification:

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☑ No

If Yes:

i. Identify resource:

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.):

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation:

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

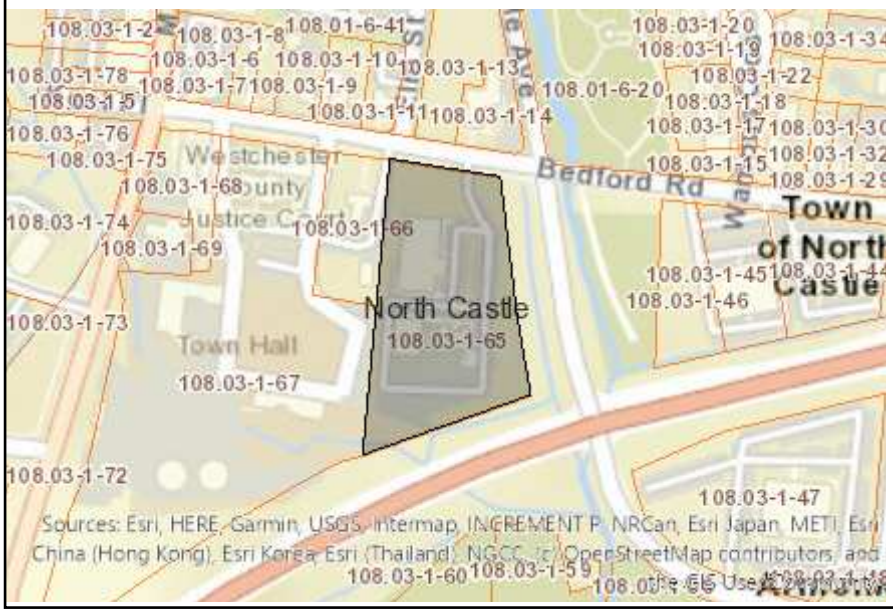
Applicant/Sponsor Name JD SUMMA Date 08-03-2023

Signature Title CEO

PRINT FORM

EAF Mapper Summary Report

Tuesday, July 25, 2023 8:08 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	360005
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	935-106
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	Yes

E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:TOWN HALL, Bedford Road Historic District
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No