

SUMMIT DRIVE PROPERTIES LLC

STORMWATER POLLUTION PREVENTION PLAN



183 Main Street
New Paltz, NY 12561
T 845.255.0210
www.willinghamengineering.com

Project Location:
Summit Drive
Town of Marlborough
Ulster County, New York

Owner:
Summit Drive Properties LLC
3121 Route 9W
New Windsor, New York 12553

September 2023
Revised: February 2024



Table of Contents

1.0 INTRODUCTION	1
1.1 OVERVIEW	1
1.2 LAND DISTURBANCE	2
2.0 EXISTING CONDITIONS	2
2.1 SITE SOILS AND GROUND COVER DESCRIPTION.....	2
2.2 HYDROLOGIC SOIL GROUP INFORMATION	3
2.3 NAME OF RECEIVING WATERS	3
2.4 ENVIRONMENTALLY SENSITIVE AREAS	3
3.0 STORMWATER OBJECTIVES	3
4.0 STORMWATER MANAGEMENT PLAN	5
4.1 NARRATIVE.....	5
4.2 CALCULATION METHODOLOGY.....	5
4.3 QUALITATIVE ANALYSIS.....	5
4.4 SITE DESIGN	7
4.5 PRE-DEVELOPMENT CONDITIONS	7
4.6 POST-DEVELOPMENT CONDITIONS	8
4.7 PRE-AND POST-DEVELOPMENT FLOW COMPARISON	8
4.8 WATER QUALITY TREATMENT	9
4.9 GREEN INFRASTRUCTURE PRACTICES	9
5.0 CONSTRUCTION SEQUENCING SCHEDULE.....	9
5.1 CONSTRUCTION SEQUENCE.....	10
6.0 EROSION AND SEDIMENT CONTROL MEASURES.....	10
6.1 GENERAL	10
6.2 TIMING OF CONTROL MEASURES	11
6.3 PLANNED EROSION AND SEDIMENT CONTROL PRACTICES	11
6.3.1 STABILIZED CONSTRUCTION ENTRANCE.....	11
6.3.2 SILT FENCING	11
6.3.3 DUST CONTROL	12
6.3.4 STRAW BALES.....	12
6.3.5 TEMPORARY SEDIMENT BASIN.....	12

6.3.6	STONE CHECK DAM.....	12
6.3.7	TEMPORARY DIVERSION SWALES	13
6.3.8	TREE PRESERVATION AND PROTECTION	13
6.3.9	TEMPORARY SOIL STOCKPILES	13
6.3.10	LIMIT OF DISTURBANCE	13
6.3.11	LAND GRADING	13
6.3.12	TEMPORARY VEGETATIVE COVER (DURING CONSTRUCTION)	14
6.3.13	PERMANENT VEGETATIVE COVER (AFTER CONSTRUCTION).....	14
6.3.14	WATER BARRIERS.....	15
6.3.15	DEWATERING.....	15
6.3.16	OUTLET STABILIZATION STRUCTURES	15
6.3.17	CONCRETE WASHOUT AREA	15
6.4	GENERAL INSPECTION AND MAINTENANCE PRACTICE	16
6.4.1	PRE-CONSTRUCTION INSPECTION AND MAINTENANCE	16
6.4.2	CONSTRUCTION INSPECTION AND MAINTENANCE	16
6.5	REPORTING.....	18
6.5.1	INSPECTION / MAINTENANCE REPORTS	18
6.5.2	SITE LOG BOOK	18
6.5.3	POST CONSTRUCTION	18

7.0 STORMWATER MEASURES 18

7.1	BIORETENTION AREA	18
7.1.1	BIORETENTION - DESIGN	18
7.1.2	MAINTENANCE AND INSPECTION.....	19
7.2	STORMWATER POND.....	19
7.2.1	DESIGN.....	19
7.2.2	MAINTENANCE AND INSPECTION.....	20
7.3	LEVEL SPREADER.....	20
7.3.1	DESIGN.....	20
7.3.2	MAINTENANCE AND INSPECTION.....	20

8.0 GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES 20

8.1	GENERAL	20
8.2	CHEMICAL	20
8.3	FUELS AND OIL	21
8.4	FERTILIZERS.....	21
8.5	SANITARY WASTE FACILITIES	21
8.6	CONCRETE AND ASPHALT TRUCKS.....	21

9.0 CERTIFICATIONS 22

9.1	PREPARER OF THE SWPPP.....	22
9.2	SITE CONTRACTOR AND SUB-CONTRACTORS.....	23

APPENDICES

APPENDIX A: SOILS DATA

APPENDIX B: EROSION AND SEDIMENT CONTROL PLANS

APPENDIX C: NOTICE OF INTENT (NOI)

APPENDIX D: GP-0-20-001

APPENDIX E: WEEKLY INSPECTION FORM

APPENDIX F: MS4 ACCEPTANCE FORM

APPENDIX G: HYDROCAD ANALYSIS

APPENDIX H: DRAINAGE MAPS

APPENDIX I: STORMWATER CALCULATIONS

APPENDIX J: CONSTRUCTION INSPECTION AND MAINTENANCE CHECKLISTS

APPENDIX K: NRCC MEAN PRECIPITATION FREQUENCY ESTIMATES

APPENDIX L: LEVEL SPREADER SPECIFICATIONS

1.0 INTRODUCTION

1.1 Overview

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the Applicant and Owner, Summit Drive Properties LLC. The property is approximately 7.32 acres in size. The parcel is currently vacant and wooded. Proposed site improvements include paved driveway and parking area, 4 multi-family residential buildings with 6 units per building, walkways, stormwater management practices and other associated site improvements. The property is bordered by single family homes sites to the north and west and business to the south and east.

The Applicant is proposing to construct (4) multifamily residential buildings. All proposed land disturbance is in relation to the development of the facility and its associated improvements.

This Stormwater Pollution Prevention Plan (SWPPP) has been developed in accordance with New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001, dated January 29, 2020 which 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 New York City, East of Hudson watershed, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

This project qualifies for SPDES coverage under provision 1 as stated above.

The objectives of this SWPPP are as follows:

- To develop a sediment and erosion control plan in accordance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, which implements best management practices to stabilize disturbed areas, protect off site areas and sensitive areas and minimize the transport of sediment.

- To develop the permanent stormwater management system for the site which will control the rate of stormwater discharge from the site after construction, reduce the overall volume of runoff being discharged from the site and treat the stormwater for runoff pollutants. The stormwater management system has been designed in accordance with the most current version of the technical standard, New York State Department of Environmental Conservation Stormwater Management Design Manual (the Design Manual).

Construction activities are not permitted to begin until such time that authorization is obtained under the General Permit. This project is located within a designated Municipal Separate Storm Sewer System (MS4) area and thus must be reviewed by the Municipalities designated Stormwater Officer. Authorization to commence construction activities may commence five (5) days following receipt of the Notice of Intent (NOI) accompanied by the MS4 Acceptance Form.

A copy of the General Permit, SWPPP, NOI, NOI acknowledgment letter, MS4 SWPPP acceptance form, inspection reports and accompanying plans shall be maintained on-site from the date of initiation of construction activities until final stabilization of all disturbed areas has been achieved and the Notice of Termination (NOT) has been submitted.

1.2 Land Disturbance

Per the General Permit, no more than five (5) acres of land disturbance may occur at any one time without written approval from the NYSDEC.

Disturbance of more than five (5) acres at any one time is not anticipated for this project, as the total disturbance is approximately 3.2 acres. For areas where construction activity temporarily or permanently ceases, stabilization measures must be initiated by the end of the next business day and be completed within fourteen (14) days of the date that the soil disturbance activity ceased in accordance with the SPDES permit.

2.0 EXISTING CONDITIONS

2.1 Site Soils and Ground Cover Description

The parcel proposed for development is currently developed with an office and single-family home with associated improvements; the remainder being wooded with wetlands. The soils encountered on the site consist of Bath-Nassau, Mardin-Nassau and Volusia soils. On-site soil classifications and their approximate boundaries have been taken from the *Ulster County Soil Survey*. The soil locations are shown on the attached Erosion & Sediment Control Plan. Site soils include the following:

Table 2.1 Soil Types		
Soil Name	Soil Symbol	Hydrologic Soil Group
Bath-Nassau Complex	BnC	D
Mardin-Nassau Complex	MgB	D
Nassau-Bath-Rock outcrop complex	NBF	D

2.2 Hydrologic Soil Group Information

Type A-Soils- These soils have low runoff potential when thoroughly wet. Soils are excessively drained and are typically comprised of less than 10 percent clay and more than 90 percent sand or gravel.

Type B-Soils- These soils have moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.

Type C-Soils- These soils have a moderately high runoff potential when thoroughly wet. These soils are poorly drained and typically contain between 20 and 40 percent clay and less than 50 percent sand or gravel.

Type D-Soils- These soils have high runoff potential, with low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, high water table, and shallow soils over impervious material.

Additional soils data can be found in the Appendices.

2.3 Name of Receiving Waters

Drainage from the site flows to the east to the US Rte 9W road adjacent stormwater conveyance system. Once in the road adjacent conveyance system, runoff flow to the south, discharging into an unnamed tributary to Lattintown Creek, a NYSDEC Class C stream.

2.4 Environmentally Sensitive Areas

There are no environmentally sensitive areas on site.

3.0 STORMWATER OBJECTIVES

Development of the site will result in several impacts to the existing drainage patterns at the site, both during and after construction. During construction, there is potential for erosion as disturbed areas are not yet vegetated. This lack of vegetation during construction creates the potential for significant amounts of sediment to enter the existing wetlands and watercourses. Excess sediment can be damaging to existing habitats both on-site and downstream.

Temporary and permanent erosion control measures shall be implemented to reduce sediment discharge from the site into wetlands and watercourses located on adjacent properties. Best Management Practices will be incorporated for all erosion and sediment control practices and may include the use of silt fence, temporary silt basins, silt barriers, diversion swales, sediment forebays, check dams, stone construction entrances, rip rap, and vegetative means both during and after construction. Permanent erosion and sediment control measures to be implemented may include, but are not limited to, establishment of a stabilizing ground cover in all areas, storm sewers, catch basins and water quality treatment units. Specific measures will be implemented to ensure the protection of the site's undisturbed areas, to limit soil transport and to provide for increased monitoring of stormwater management and erosion control facilities throughout the construction process.

This SWPPP will describe provisions for the treatment of the Water Quality Volume (WQv) and Runoff Reduction Volume (RRv) and for the attenuation of the Overbank Flood Flow (Q_p – “10 year storm”) and Extreme Flood Flow (Q_f – “100 year storm”) as defined by the NYSDEC Manual.

The stormwater management system has been designed to meet the Channel Protection (CPv) requirement set forth in the Design Manual. According to the NYSDEC Manual CPv is not required at sites where the resulting diameter of the ED orifice is too small to prevent clogging, which it was in the case of Pond P-1. Therefore, meeting the full CPv requirement is considered inappropriate for this pond. The outlet orifices within the pond outlet control structures, which are designed to outlet runoff from the 1-year storm event, have been sized as small as possible to prevent frequent clogging, which is discussed in Section 4.4 of the Design Manual. A 4” diameter outlet with a trash rack is proposed on the outlet control structure for P-1. The maximum flow rate exiting the pond during the 1-year storm is less than pre-development flow rate from the site, a level spreader will be utilized to ensure sheet flow discharge and therefore will not be erosive to downstream channels.

As noted above, the stormwater management system will meet all conditions set forth in the Design Manual with regards to Water Quality Volume (WQv). All of the stormwater runoff from disturbed / improved areas will be directed to either one of the bioretention areas or stormwater ponds where the runoff will be treated and discharged from the site, at rates no greater than existing runoff rates.

Runoff Reduction Volume (RRv) will also be achieved at the site to replicate pre-development hydrology, in accordance with conditions set forth in the Design Manual. The RRv requirement will be satisfied by the bioretention area, which is considered to be a standard stormwater management practice with RRv capacity. In accordance with the Design Manual, the Specific Reduction Factor may be applied to the total calculated RRv. This factor accounts for the absorptive capacity of on-site hydrologic soil groups in order to determine the RRv which is considered feasible for a specific site.

4.0 STORMWATER MANAGEMENT PLAN

4.1 Narrative

A Drainage Analysis was completed to assess the pre-and post-development runoff rates for the 1-year, 10-year and the 100-year storm events. This Drainage Analysis provides a calculation model for the operation of the stormwater management system and structures being proposed. The following summarizes the findings from this drainage analysis.

4.2 Calculation Methodology

The design storms analyzed in this study are the 1-year, 10-year and the 100-year, 24-hr. duration storm events. The Soil Conservation Service (SCS) TR 55 method for establishing runoff curve numbers and times of concentration was used along with the Soil Conservation Service TR 20 method to analyze peak runoff rates, and to develop hydrographs, routing, storage requirements and structure design. Applied Microcomputer Systems HydroCAD (v10.00) computer modeling software was utilized.

The time of concentration was computed to determine the time for an entire watershed to contribute runoff to a specific location. The method incorporates watershed characteristics such as slope, length, and runoff curve number. Flow paths used in this analysis of each watershed are shown on the attached Drainage Maps. Runoff curve numbers were calculated by takeoff of coverage areas using AutoCAD software.

Rainfall events and types were obtained from the Northeast Regional Climate Center, which provides local, specific rainfall events for a particular location. Rainfall information from the NRCC is included in the Appendix.

The quantitative analysis has been conducted to determine the optimal sizing and volumetric capacities of the proposed stormwater system components in order to prevent any increase in runoff rates at the Stormwater Discharge Points (SDP) as a result of the proposed site development. The analysis proves that there will not be an increased rate of runoff as a result of site development at either SDP during the 1 year, 10 year and 100-year storm events. The stormwater management system has been designed to meet the conditions for Q_p and Q_f as per the NYSDEC Design Manual. Pre and Post development drainage calculations and maps are included in the Appendix.

4.3 Qualitative Analysis

Stormwater run-off is recognized as a major contributor of pollution that can adversely affect the quality of receiving water bodies. Water quality contaminants are transported from land, particularly impervious surface, during the initial stages of storm events. The initial stormwater volume created as part of the storm event is referred to as the Water Quality Volume (WQv). This is the target volume to be treated with the proposed stormwater measures as per the Design Manual.

The Water Quality Volume (WQv) can be determined using the following equation from Section 4 of the New York State Stormwater Design Manual:

$$WQv = (P) * (R_v) * (A) / 12$$

Where:

WQv = Water quality volume (in acre-feet)

P = 90% Rainfall Event Number

$R_v = .05 + 0.009 * (I)$, where I is percent impervious

A = Site area in acres

One bioretention area and one stormwater pond were incorporated into the stormwater management system to capture and treat the WQv identified for the site. Each practice has been designed in accordance with the Design Manual, latest edition. Calculations for WQv are included as an Appendix.

In addition to the WQv treatment required, the Runoff Reduction Volume (RRv) must be satisfied / reduced by Green Infrastructure Practices (GIP's) or by standard stormwater management practices (SMP's) with RRv capacity as detailed in the Design Manual. Runoff Reduction of 100% of the post-development WQv must be achieved through stormwater infiltration, groundwater recharge, reuse, recycle, evaporation / evapotranspiration in order to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collections system. As mentioned above, this requirement can be accomplished by the application of GIP's and/or standard SMP's with RRv capacity.

Projects that cannot meet 100% of the runoff reduction requirement due to site limitations that prevent or limit the use of infiltration techniques shall identify the specific site limitations. As previously mentioned, the Specific Reduction Factor may be used to provide a reduction to the required RRv at a specific site if deemed appropriate.

The minimum RRv can be determined using the following equation from Section 4 of the Design Manual:

$$RRv = (P) * (R_v) * (A_i) / 12$$

Where:

RRv = Runoff Reduction Volume (in acre-feet)

$$A_i = (S) * (A_{ic})$$

A_i = Impervious cover targeted for runoff reduction

A_{ic} = Total area of new impervious cover

P = 90% Rainfall Event Number

$R_v = .05 + 0.009 * (I)$, where I is percent impervious

S = Hydrologic Soil Group (HSG) Specific Reduction Factor (HSG A = 0.55, HSG B = 0.40, HSG C = 0.30, HSB D = 0.20)

One bioretention areas with underdrains is proposed to provide the required minimum runoff reduction volume for the site. The practices were sized in accordance with the Design Manual and provided as an Appendix.

4.4 Site Design

As required by the SPDES permit, the majority of runoff from impervious surfaces at the site is directed to either an RR technique or standard SMP with RRv capacity. This runoff enters either the bioretention facility, or the stormwater pond, where the RRv requirement is satisfied and the WQv is treated. The runoff from the site outlets to the east of the site towards Route 9w. The “treatment train”, as required by the Design Manual provides a high level of water quality treatment, efficiently removing pollutants before discharging to the downstream wetland and watercourse system.

Pretreatment is provided for all stormwater management practices as needed. Pretreatment for the bioretention facilities is provided by sediment forebay, grass filter strip, a mulch layer over the bioretention planting bed and by grass channel. Much of the runoff from impervious surfaces entering the bioretention area comes from roof runoff which does not contain significant levels of sediments and pollutants found in surface runoff. Pretreatment for the pond will be provided by the bioretention area and all of its pretreatment practices which will collect sediments and pollutants.

Please see below for a summary table of the WQv and RRv. For additional information please see the Appendices.

Parameter	Required	Provided	Practice / Information
WQv	5,462 cf	5,464 cf	Bioretention Facility – 1,260 cf
			Pond Permanent Pool – 4,204 cf
RRv	434 cf	504 cf	Bioretention Facility – 504 cf

4.5 Pre-Development Conditions

The existing watershed area that will be impacted as a result of the proposed development is shown on the Pre-Development Drainage Map, which is included as an Appendix. Pertinent information relating to this watershed is summarized in the table below.

Table 4.2 Pre-Development Conditions

Sub catch	Area (acre)	Cover Condition	Curve Number	Soil Group	Time of Conc. (min)
EX-1	4.82	½ acre lots, Brush	78	D	12.9

For a more detailed description of the watershed, refer to the pre-development drainage calculations included in the Appendix.

4.6 Post-Development Conditions

The post-development watershed area is shown on the Post-Development Drainage Map, which is included in the Appendix. Pertinent information relating to the watershed is summarized in the table below.

Table 4.3 Post-Development Conditions

Sub catch	Area (acre)	Cover Condition	Curve Number	Soil Group	Time of Conc. (min)
PR- 1	4.82	½ acre lots, brush, pavement, roofs, concrete, grass	84	D	12.9

For a more detailed description of the watersheds, refer to the HydroCAD drainage calculations included as an Appendix.

4.7 Pre-and Post-Development Flow Comparison

The quantitative analysis focuses on pre-development verses post-development flow rates at the Stormwater Discharge Point (SDP). The analysis proves that no impact will result at any of the SDPs with respect to stormwater quantity for the 1, 10 or 100 year storm events.

The pre-and post-development watershed areas have been analyzed to determine stormwater runoff flow rates at each SDP. Table 4.4 compares pre-and post-development peak runoff rates during all storm events analyzed for the watershed area.

Table 4.4 Pre vs. Post Runoff Rates at SDPs

Design Point	1-Year Storm Event (cfs)		10-Year Storm Event (cfs)		100-Year Storm Event (cfs)	
	Pre	Post	Pre	Post	Pre	Post
SDP-1	3.64	0.56	10.80	10.57	24.57	21.00

As shown on Table 4.4, there is a decrease in runoff rates from pre-development to post-development conditions for each design storm. The HydroCAD drainage analysis which was used to calculate these values can be found in the Appendix.

4.8 Water Quality Treatment

The qualitative analysis focuses on the methods proposed to provide treatment of the Water Quality Volume (WQv) in order to prevent pollutants from being discharged into existing wetlands and watercourses, post-development and satisfaction of the Runoff Reduction Volume (RRv) in order to replicate pre-development hydrologic conditions. The WQv and RRv calculations have been provided in the Appendices. The following is a brief description of the water quality practices, which were designed in accordance with the Design Manual.

The bioretention area and pond have been designed to capture and treat the required Water Quality Volume (WQv) and Runoff Reduction Volume (RRv). Runoff from the building and paved surfaces will be directed into the bioretention area and pond, which have been sized according to the WQv and the required RRv for this portion of the site. The remaining WQv will be satisfied by the permanent pool in the ponds which collect the stormwater runoff from the remainder of the developed site. The bioretention area and pond meet the requirements set forth in the NYSDEC Design Manual, including but not limited to pretreatment, landscaping and maintenance access.

4.9 Green Infrastructure Practices

Green Infrastructure Planning Practices were utilized in order to preserve sensitive areas, reduce impervious cover and promote reduction of the total runoff volume discharging from the site.

- Pavement areas, buildings and associated development were located at the less steep portion of the property to best fit site terrain.
- Post construction, all soil in disturbed areas will be restored to their original properties by way of deep tilling and compost amendment. After soil restoration has occurred, these areas will then be vegetated in order to maintain the restored soil structure which will help to absorb rainwater, prevent flooding and erosion and filter out pollutants.

5.0 CONSTRUCTION SEQUENCING SCHEDULE

Construction activities shall be scheduled in such a manner as to minimize the impacts that stormwater will have during construction on receiving waters both on and off-site. The total area of disturbance for the proposed project is approximately 3.18 acres.

5.1 Construction Sequence

The project will be constructed in controlled phases to minimize overall disturbance. Erosion Controls must be installed prior to the start of construction and must be maintained throughout the construction process. Each phase of the project will have a specific construction sequencing schedule to ensure proper temporary and permanent erosion controls are in place. The Contractor will be responsible for implementing the sequencing schedule.

A typical sequencing schedule will be provided on the "Erosion and Sediment Control Plan". The schedule will address the following items.

- Pre-Construction Activities
- Installation of erosion and sediment control (ESC) measures
- Approval of ESC measures
- Land clearing and grading activities
- Maintenance of ESC measures and installation of additional ESC measures
- Installation of utilities
- Surface stabilization
- Building construction
- Landscaping and final stabilization
- Final inspection

6.0 EROSION AND SEDIMENT CONTROL MEASURES

6.1 General

The most sensitive stage of the development cycle is the period when vegetation is cleared, and a site is graded. The potential impacts to on-site and off-site receiving waters and adjoining properties are particularly high at this stage. For example, trees and topsoil are removed, soils are exposed to erosion, and natural topography and drainage patterns are altered. Control of erosion and sediment during these periods is an essential function of this SWPPP and accompanying plans.

Effective and practical measures employed to minimize the erosion potential and prevent sediment from leaving the construction site and reaching streams or other water bodies have been recommended in accordance with:

- New York State Standards and Specifications for Erosion and Sediment Control, Latest Edition

In order to ensure the effectiveness of the measures recommended herein, routine inspections and documentation, along with procedures for monitoring the findings, maintenance, and corrective actions resulting from each inspection are outlined within this section of the SWPPP.

6.2 Timing of Control Measures

As indicated above in the Construction Sequence Schedule, all erosion and sediment control measures shall be installed prior to commencing any clearing or grading of the site. Structural controls (i.e. check dams) shall be installed concurrently with the applicable activity. Areas where construction activity temporarily or permanently ceases shall have stabilization initiated by the end of the next business day and be completed within fourteen (14) days of the last disturbance in accordance with the SPDES permit. Once construction activity ceases permanently in an area, silt fences and hay bale barriers and any earth/dikes shall be removed once permanent vegetation/stabilization is established.

The exposed areas or soil stockpile shall have stabilization initiated by the end of the next business day and be completed within the 14-day period. Stabilization measures to be used include temporary seeding, permanent seeding, mulching and stone riprap.

During construction, runoff shall be diverted around the site with earth dikes, piping, or stabilized channels where possible. Sheet runoff from the site shall be filtered through silt fences. All storm drain inlets shall be provided with barrier filters. Stone riprap shall be provided at the outlets of drainage pipes where erosive velocities are encountered.

After major site construction has been completed, soil restoration is required across areas of the developed site where soils have been disturbed and will be vegetated in order to recover the original properties and porosity of the soil. This practice is applied in the cleanup, restoration and landscaping phase of construction followed by the permanent establishment of an appropriate, deep-rooted groundcover to help maintain the restored soil structure. Soil restoration includes mechanical decompaction, compost amendment, or both. Refer to section 5.1.6 of the NYSDEC Stormwater Management Design Manual for additional information.

6.3 Planned Erosion and Sediment Control Practices

6.3.1 *Stabilized Construction Entrance*

A stabilized construction entrance consists of a pad of aggregate overlaying a geotextile fabric located at a point where construction vehicles enter or exit a site to reduce or eliminate the tracking of sediment onto public right of ways, street, alleys or parking areas, thereby preventing the transportation of sediment into local stormwater collection systems. Efficiency is greatly increased when a washing area is included as part of a stabilized construction entrance.

Stabilized construction entrances shall be a minimum of fifty (50) feet long and twelve (12) feet wide, but not less than the full width of points where vehicles enter and exit the site. Where there is only one access point to the site, the stabilized construction entrance shall be a minimum of twenty-four (24) feet wide. Stabilized construction entrances shall be a minimum of six (6) inches in depth consisting of one (1) to four (4) inch stone or reclaimed or recycled equivalent.

6.3.2 *Silt Fencing*

A silt fence is a temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts, entrenched, and supported with woven wire fence. Silt fences are

installed on the contours across a slope and used to trap sediment by intercepting and detaining sediment laden runoff from disturbed areas in order to promote sedimentation on the uphill side of the fence.

Silt fences are suitable for perimeter and interior control, placed below areas where runoff may occur in the form of sheet flow. It should not be placed in channels or areas where flow is concentrated. In addition to interior and perimeter control a silt fence can be applied in the following applications:

- Below the toe or down slope of exposed and erodible slopes.
- Along streams and channels banks.
- Around temporary spoil area and stockpiles.

6.3.3 Dust Control

Dust control measures reduce the surface and air transport of dust, thereby preventing pollutants from mixing into stormwater. Dust control measures for the construction activities associated within this project consist of windbreaks, minimization of soil disturbance (preserving buffer areas of vegetation where practical), mulching, temporary and permanent vegetation cover, barriers (i.e. geotextile on driving surfaces) and water spraying.

Construction activities shall be scheduled to minimize the amount of area disturbed at any one time.

6.3.4 Straw Bales

Straw bales will be placed around catch basins. Straw bales will be placed in a row with ends tightly abutting the adjacent bales. Each bale will be embedded in the soil a minimum of four inches. Bales will be securely anchored in place by stakes or re-bars driven through the bales. The first stake in each bale will be angled toward the previously laid bale to force the bales together.

6.3.5 Temporary Sediment Basin

Various types of sediment containment facilities, consisting of rip-rap outlet traps and pipe outlet traps may be proposed as part of the erosion and sediment control plan. These facilities purpose is to intercept sediment-laden surface runoff and enable sediment settlement prior to discharge from the site. The outlet for these traps will be properly stabilized to avoid erosion at the discharge point. Sediment traps shall be located and installed in all drainage ways, storm drain inlets, pipe outlets, grass outlets, stone outlets, riprap outlets and at other points of collection from the disturbed area. Sediment traps shall be located and installed prior to grading or filling the drainage area they are to protect.

6.3.6 Stone Check Dam

Check dams shall be placed in channels to reduce scour and erosion by reducing flow velocity and promoting sediment settlement. Check dams shall be spaced in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. Check dams, consisting of a well-graded stone two (2) – nine (9) inches in size (NYSDOT – Light Stone) shall maintain a height of two (2) feet with side slopes of 2:1 extending beyond the bank of the channel by a

minimum of one and a half (1.5) feet. Check dams shall be anchored in the channel by a cutoff trench of one and a half (1.5) feet in width by a half (0.5) foot in depth.

6.3.7 Temporary Diversion Swales

Temporary diversion swales will be constructed and installed to direct runoff away from disturbed areas, as required. Swales will be installed with stone check dams to prevent downstream siltation. Diverted runoff from disturbed areas will be directed into the temporary sediment basins. Temporary diversion swales will be stabilized and operational before land disturbing activities begin.

6.3.8 Tree Preservation and Protection

Fencing shall be used wherever trees are to be protected adjacent to areas of disturbance. Trees to be detained within 40 feet of any proposed structure or excavation shall be protected by fencing as specified on the Erosion and Sediment Control Plan. Fences may also be used to prevent compaction or disturbance of sensitive soils.

6.3.9 Temporary Soil Stockpiles

Material, such as topsoil, will be temporarily stockpiled (if necessary) on the site throughout the construction. Stockpiles will be located in areas away from the path of stormwater and will be protected from erosion by a surrounding silt fence barrier. Soil and topsoil stockpiles will be seeded or stabilized by the end of the next business day they are created and completed within 14 days.

6.3.10 Limit of Disturbance

Construction fence: a standard, 40" high construction fence shall be used as necessary. Construction fences shall be secured at all clearing limits, using standard steel fence posts set six feet apart. If plastic mesh "mirafi" fence is used, post spacing shall be as per manufacturer's specifications.

6.3.11 Land Grading

A waiver to disturb an area greater than five acres at any one time will not be required prior to construction as the total land disturbance associated with this project is less than 5 acres.

- Topsoil shall be distributed to form a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water.
- Topsoil placed and graded on slopes steeper than 5% shall be promptly fertilized, seeded, mulched and stabilized by "tracking" with suitable equipment.
- Apply topsoil in the following amounts for intended use:
 - Mowed lawn: four to six inches
 - Area not to be maintained: one to two inches
 - Complete rough grading and final grade, allowing for depth of topsoil to be added.

- Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5%.
- Remove refuse, woody plant parts, stones over three inches in diameter, and other litter.
- The furnishing of new topsoil shall be of a better or equal to quality of the existing adjacent topsoil. It shall meet the following criteria:
- Topsoil shall have at least 2% by weight of fine textured stable organic material, and no greater than 6%.
- Topsoil shall have not less than 20% fine texture material (passing the no. 200 sieve) and not more than 15% clay.
- Topsoil shall be relatively free of stones over 1½" diameter, thrash, noxious weeds, and shall have less than 10% gravel by volume.

6.3.12 Temporary Vegetative Cover (during construction)

Temporary seeding may be used in disturbed areas to minimize erosion and sediment loss. Any disturbed area that will not be redisturbed for 7 days or more will be stabilized by the 7th day after the last disturbance. After grass has appeared, those areas which fail to show a uniform stand of grass shall be reseeded. This process will be repeated until all areas are covered with satisfactory growth.

- Site Preparation: same as permanent vegetative cover
- Seed Mixtures:
- Rapidly germinating annual ryegrass (30 lbs. per acre)
- Perennial ryegrass (100 lbs. per acre)
- Cereal rye (30 lbs. per acre)
- Seeding: same as permanent vegetative cover

6.3.13 Permanent Vegetative Cover (after construction)

1. Site Preparation:

- Bring area to be seeded to required grade. A minimum of four inches of topsoil is required.
- Prepare seedbed-loosening soil to a depth of four to six inches.
- Remove all stones over one inch in diameter, sticks and foreign matter from the surface.
- Lime to pH of 6.5.
- Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
- Apply fertilizer at the rate of 600 pounds per acre of 5-10-10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three tons per acre.

- Incorporate lime and fertilizer in the top two to four inches of topsoil.
- Smooth and firm the seedbed.

2. Seeding:

- Apply seed uniformly by hand, cyclone seeder, or hydro-seeder (slurry including seed and fertilizer). Hydro-seeding, which includes mulch, may be left on soil surface. Seeding rates must be increased 10% when hydro-seeding.
- Mulch seeded areas with hay or straw mulch (2000 lbs./acre).
- Irrigate to fully saturate soil layer, but not to dislodge planting soil.
- Seed between April 1st and May 15th or August 15th and October 15th. Seeding may occur between May 15th and August 15th if adequate irrigation is provided.

6.3.14 *Water Barriers*

Water barriers will be used to prevent water from concentrating on unprotected road surfaces. The water barriers will be designed to divert runoff into a temporary sediment trap or stabilized drainage channel thereby protecting the road surface from gully erosion.

6.3.15 *Dewatering*

Dewatering will be used to intercept sediment-laden stormwater or pumped groundwater and allow it to settle out of the pumped discharge prior to being released from the site. Water resulting from dewatering operations shall be direct to temporary sediment traps or dewatering devices. Temporary sediment traps and dewatering bags will be provided, installed and maintained at down-gradient locations to control sediment deposits offsite. Water from dewatering operations shall be treated to eliminate the discharge of sediment and other pollutants.

6.3.16 *Outlet Stabilization Structures*

Rip Rap outlet protection will be placed at all pipe discharge locations, in order to reduce depth, velocity, and energy of the discharge flow and to minimize downstream erosion. A filter layer will be placed between the rip-rap and underlying soil surface to prevent soil movement into and through the rip-rap. Rock outlet protection will be designed in accordance with the New York State Guidelines for Urban Erosion and Sediment Control.

6.3.17 *Concrete Washout Area*

Best management practice objectives for concrete washout are to collect and retain all the concrete washout water and solids in leak proof containers, preventing caustic material from reaching the soil surface and migrating to surface waters or into ground waters. 100 percent of collected concrete washout water and solids should be recycled. Several different types of EPA approved washout containers are available, all of which are capable of containing all concrete washout materials. Washout containers should not be placed within 50 feet of storm drains, open ditches and water bodies. Washout facilities should be inspected daily during use and after heavy rains to check for leaks. When the contains has reached 75% capacity, the washwater

should be vacuumed off or allowed to evaporate to avoid overflows. The hardened materials should be removed and recycled.

6.4 General Inspection and Maintenance Practice

6.4.1 *Pre-Construction Inspection and Maintenance*

Prior to the commencement of construction, a qualified professional shall conduct an assessment of the site and certify that the appropriate erosion and sediment control structures have been adequately installed and implemented.

6.4.2 *Construction Inspection and Maintenance*

Owner or Operator Maintenance Inspection Requirements:

The owner or operator shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

Qualified Inspector Inspection Requirements:

The owner or operator shall have a qualified inspector conduct site inspection. In order to perform these inspections, the qualified inspector has to be a:

- Licensed Professional Engineer
- Certified Professional in Erosion and Sediment Control
- 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 hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity.

For construction sites where soil disturbance activities are on-going, the qualified inspector shall conduct a site inspection at least once every seven days.

For construction sites where soil disturbance activities are on-going and the owner or operator has received authorization in accordance with Part II.C.3 of GP-0-20-001 to disturb greater than five acres of soil at any one time, the qualified inspector shall conduct at least two site inspections every seven calendar days. The two inspections shall be separated by a minimum of two full calendar days.

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:

1. Date and time of inspection
2. Name and title of person performing inspection

3. A description of the weather and soil conditions at the time of inspection
4. 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 and overland flow.
5. 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
6. Identification of all erosion and sediment control practices that need repair or maintenance
7. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced
8. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and / or final) since the last inspection
9. 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
10. Corrective actions that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice
11. 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 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 calendar days of that inspection.

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 GP-0-20-001 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.

All inspection reports shall be signed by the qualified inspector. The inspection reports shall be maintained on site with the SWPPP.

The contractor is responsible for the installation and maintenance of all erosion and sediment control measures throughout the course of construction.

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.

6.5 Reporting

6.5.1 Inspection / Maintenance Reports

Inspection/maintenance reports will be prepared prior to and during construction in accordance with the schedule outlined above, by the qualified professional. All inspection reports shall be signed by the qualified inspector. Pursuant to Part II.C.2, the inspection reports shall be maintained on site with the SWPPP.

6.5.2 Site Log Book

During construction, the contractor shall maintain a record of all erosion and sediment control inspection reports at the site in a log book. The site log book shall be maintained on-site and made available to the permitting authority.

6.5.3 Post Construction

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 years from the date that the site achieves final stabilization. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

With the exception of the NOI, NOT and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.A.1), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate Department Regional Office listed in Appendix F of GP-0-20-001.

The operator shall also prepare a written summary of its status with respect to compliance with this general permit at a minimum frequency of every three months during which coverage under this permit exists. The summary should address the status of achieving the overall goal of the SWPPP. This summary shall be handled in the same manner as prescribed for SWPPP's under Part III, subsection B of the NYSDEC SPDES General Permit GP-0-20-001.

7.0 STORMWATER MEASURES

The following section describes the design of each stormwater measure and the maintenance requirements. All maintenance activities are the responsibility of the property owner. Construction specifications for each stormwater measure are identified on the approved plans.

7.1 Bioretention Area

7.1.1 Bioretention - Design

Stormwater runoff from the building and the pavement areas will be directed toward the bioretention area. This Stormwater Management practice will be integrated into the site to provide WQv treatment and to satisfy the RRv requirements.

The bioretention area has been sized to treat the WQv and satisfy the RRv for site runoff directed to the practices in accordance with the Design Manual. Runoff in excess capacity of the bioretention area will rise to the invert / rim elevation of an engineered outlet control structure and be conveyed to the stormwater management ponds.

Elements of the systems include sediment forebay, mulch, bioretention soil, filter fabric, gravel, 6" diameter perforated collection pipes, a 24" diameter outlet pipe and an outlet control structure.

The bioretention areas will be covered with two to three inches of mulch with grasses and various absorbent plantings, on top of a layer of engineered permeable soil 2.5 feet in depth. Captured runoff will infiltrate downward through the underlying soils, where it is filtered of pollutants. This filtered runoff will be collected by underground perforated pipes and then be directed to either the pond or the stormwater discharge point.

Pretreatment for the bioretention will be provided by a sediment forebay, grass filter strip, grass channels and mulch layer in accordance with the Design Manual.

The bioretention area will be incorporated to provide both water quality treatment and to reduce the runoff reduction volume of impervious surfaces as required.

7.1.2 Maintenance and Inspection

Silt / sediment shall be removed from the filter bed when the accumulation exceeds one inch. When the filtering capacity of the bioretention soil diminishes substantially (i.e. when water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and replaced with fresh material. The removed sediments shall be disposed of in an acceptable manner. Areas devoid of mulch shall be re-mulched on an annual basis. Dead or diseased plant material shall be replaced.

Long term operation and maintenance for bioretention areas will be the responsibility of lot owner.

7.2 Stormwater Pond

7.2.1 Design

The pond has been designed primarily to reduce peak flow rates discharging from the site. Additionally, the pond has a permanent pool which will capture and treat the remaining Water Quality Volume (WQv). The lowest outlet elevations have been set above the WQv elevation to ensure the full treatment volume. The ponds will have 3H:1V side slopes. The ponds meet the requirements set forth in the NYSDEC Design Manual, including but not limited to pretreatment, landscaping and maintenance access. Pretreatment for surface runoff conveyed to the pond is provided by the bioretention areas, sediment forebay, grass filter strip and grass channels.

7.2.2 *Maintenance and Inspection*

The pond shall be inspected by the owner annually and maintained as necessary. The pond berm and banks must be mowed a minimum of 2 times per year. Sediment removal should occur after 50% of total permanent pool capacity has been lost.

7.3 Level Spreader

7.3.1 *Design*

Discharge from the pond will be through a level spreader which is designed to disperse concentrated discharge from the pond uniformly over a hardened weir into a stabilized area as shallow, low velocity sheet flow. The level spreader has been designed in accordance with the attached standards and specifications including drainage area, discharge to flow spreader per length foot of lip, weir and channel.

7.3.2 *Maintenance and Inspection*

Long term maintenance of the flow spreader is essential to ensure its continued effectiveness. In the first year, the spreader should be inspected semiannually and following major storm events for any signs of channelization and should be immediately repaired. After the first year, at least one inspection per year of the spreader and pool should be conducted for overall condition and any accumulation and debris within the pool that may reduce capacity.

8.0 GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES

8.1 General

The following good housekeeping and material management practices shall be followed to reduce the risk of spills or exposure of materials to stormwater runoff.

8.2 Chemical

Chemicals used on-site shall be kept in small quantities and stored in closed water tight containers undercover in a neat and orderly manner and kept out of direct contact with stormwater. Chemical products shall not be mixed with one another unless recommended by manufacturer.

All on-site personnel shall have access to material safety data sheets (MSDS) and National Institute for Occupational Safety and Health (NIOSH) Guide to Chemical Hazards (latest edition) for all chemicals stored and used on-site.

Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with chemicals shall be contained, collected, cleaned up immediately and disposed of in accordance with Federal, State, County and Local regulations.

8.3 Fuels and Oil

All on-site vehicles, tools, and construction equipment shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. On-site vehicle and equipment refueling shall be conducted at a location away from access to surface waters and runoff. Any on-site storage tanks shall have a means of secondary containment. Oil products shall be kept in their original containers with original manufacturer's label. In the event of a spill, it shall be contained, cleaned up immediately and the material, including any contaminated soil, shall be disposed of in accordance with Federal, State, County and Local regulations.

Fuel and oil spills in excess of reportable quantities shall be reported to the NYSDEC as soon as the discharge is discovered.

8.4 Fertilizers

Fertilizers used on-site shall be stored in closed watertight containers undercover in a neat orderly manner and kept out of direct contact with stormwater. Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with fertilizers shall be contained, collected, cleaned up immediately, and disposed of in accordance with Federal, State, County and Local regulations.

8.5 Sanitary Waste Facilities

Should portable units be located on-site, they shall be placed in upland areas away from direct contact with surface waters. They shall be serviced and cleaned on a weekly basis by a licensed portable toilet and septic disposal service. Any spills occurring during service shall be cleaned up immediately and disposed of in accordance with Federal, State, County, and Local regulations.

8.6 Concrete and Asphalt Trucks

Concrete and asphalt trucks shall not be allowed to wash out or discharge surplus material on-site unless within an approved washout facility.

9.0 CERTIFICATIONS

9.1 Preparer of the SWPPP

The following certification will be signed by the preparer of the final SWPPP to accompany the site plan and subdivision set.

"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."

Name	Andrew Willingham, PE
*Title	Principal
Firm/Business Name	Willingham Engineering, PLLC
Address	183 Main Street
Telephone Number	(845) 255-0210
Signature	_____
Date	_____

* Person providing signature shall meet the requirements of Part V.H. of General Permit GP-0-20-001

9.2 Site Contractor and Sub-Contractors

The general contractor, and all subcontractor's involved with construction activity that disturbs site soil or who implement erosion and sediment control measures identified in this preliminary SWPPP, and subsequent SWPPP's for the project are responsible for complying with the requirements set forth in the NYSDEC SPDES Permit GP-0-20-001 and therefore must provide the following 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."

Name _____

*Title _____

Firm/Business Name _____

Address _____

Telephone Number _____

Signature _____

Date _____

Person providing signature shall meet the requirements of Part V.H. of General Permit GP-0-20-001

APPENDICES

APPENDIX A: SOILS DATA

APPENDIX B: EROSION AND SEDIMENT CONTROL PLANS

APPENDIX C: NOTICE OF INTENT (NOI)

APPENDIX D: GP-0-20-001

APPENDIX E: WEEKLY INSPECTION FORM

APPENDIX F: MS4 ACCEPTANCE FORM

APPENDIX G: HYDROCAD ANALYSIS

APPENDIX H: DRAINAGE MAPS

APPENDIX I: STORMWATER CALCULATIONS

APPENDIX J: CONSTRUCTION INSPECTION AND MAINTENANCE CHECKLISTS

APPENDIX K: NRCC MEAN PRECIPITATION FREQUENCY ESTIMATES

APPENDIX L: LEVEL SPREADER SPECIFICATIONS

APPENDIX A

SOILS DATA



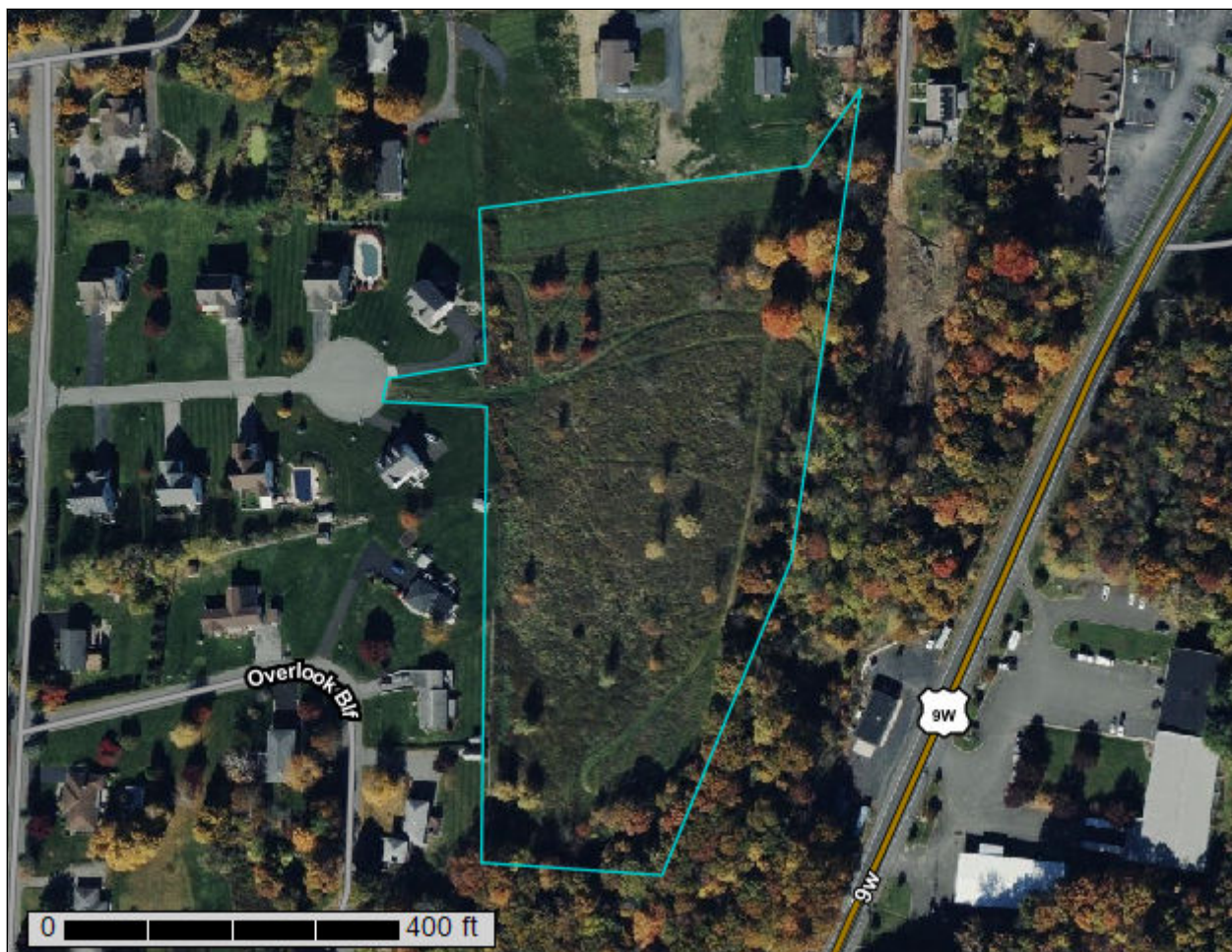
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Ulster County, New York**



June 18, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Ulster County, New York.....	13
BnC—Bath-Nassau complex, 8 to 25 percent slopes.....	13
MgB—Mardin-Nassau complex, 3 to 8 percent slopes.....	15
NBF—Nassau-Bath-Rock outcrop complex, very steep.....	17
References	20

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ulster County, New York
Survey Area Data: Version 21, Sep 10, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BnC	Bath-Nassau complex, 8 to 25 percent slopes	3.2	47.5%
MgB	Mardin-Nassau complex, 3 to 8 percent slopes	3.3	48.5%
NBF	Nassau-Bath-Rock outcrop complex, very steep	0.3	3.9%
Totals for Area of Interest		6.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Ulster County, New York

BnC—Bath-Nassau complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 9xft
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 62 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 110 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Bath and similar soils: 50 percent
Nassau and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bath

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

H1 - 0 to 6 inches: gravelly silt loam
H2 - 6 to 28 inches: gravelly loam
H3 - 28 to 48 inches: very gravelly loam
H4 - 48 to 52 inches: bedrock

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: 26 to 38 inches to fragipan; 40 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Description of Nassau

Setting

Landform: Till plains, ridges, benches

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 6 inches: channery silt loam

H2 - 6 to 16 inches: very channery silt loam

H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 25 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

Minor Components

Hudson

Percent of map unit: 5 percent

Hydric soil rating: No

Cambridge

Percent of map unit: 5 percent

Hydric soil rating: No

Volusia

Percent of map unit: 5 percent

Hydric soil rating: No

Manlius

Percent of map unit: 5 percent

Hydric soil rating: No

MgB—Mardin-Nassau complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2v30k

Elevation: 330 to 2,460 feet

Mean annual precipitation: 31 to 70 inches

Mean annual air temperature: 39 to 52 degrees F

Frost-free period: 105 to 180 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Mardin and similar soils: 55 percent

Nassau and similar soils: 25 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mardin

Setting

Landform: Mountains, hills

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy till

Typical profile

Ap - 0 to 8 inches: gravelly silt loam

Bw - 8 to 15 inches: gravelly silt loam

E - 15 to 20 inches: gravelly silt loam

Bx - 20 to 72 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: 14 to 26 inches to fragipan

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 13 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Custom Soil Resource Report

Hydric soil rating: No

Description of Nassau

Setting

Landform: Till plains, ridges, benches

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Convex, concave

Across-slope shape: Convex, linear

Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 6 inches: channery silt loam

H2 - 6 to 16 inches: very channery silt loam

H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

Minor Components

Manlius

Percent of map unit: 5 percent

Landform: Till plains, ridges, benches

Landform position (two-dimensional): Shoulder, footslope

Landform position (three-dimensional): Crest, side slope

Down-slope shape: Convex, concave

Across-slope shape: Convex, linear

Hydric soil rating: No

Volusia

Percent of map unit: 5 percent

Landform: Mountains, hills

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Interfluvium, base slope, side slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Churchville

Percent of map unit: 5 percent

Landform: Till plains, lake plains

Custom Soil Resource Report

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Side slope, base slope, tread

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Schoharie

Percent of map unit: 5 percent

Landform: Lake plains

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Side slope, tread

Down-slope shape: Concave

Across-slope shape: Convex, linear

Hydric soil rating: No

NBF—Nassau-Bath-Rock outcrop complex, very steep

Map Unit Setting

National map unit symbol: 9xhh

Elevation: 600 to 1,800 feet

Mean annual precipitation: 41 to 62 inches

Mean annual air temperature: 41 to 50 degrees F

Frost-free period: 110 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Nassau and similar soils: 35 percent

Bath and similar soils: 25 percent

Rock outcrop: 20 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassau

Setting

Landform: Till plains, ridges, benches

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 6 inches: channery silt loam

H2 - 6 to 16 inches: very channery silt loam

H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 65 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Custom Soil Resource Report

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

Description of Bath

Setting

Landform: Till plains, hills, drumlinoid ridges

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

H1 - 0 to 6 inches: gravelly silt loam

H2 - 6 to 28 inches: gravelly loam

H3 - 28 to 48 inches: very gravelly loam

H4 - 48 to 52 inches: bedrock

Properties and qualities

Slope: 25 to 45 percent

Depth to restrictive feature: 26 to 38 inches to fragipan; 40 to 80 inches to lithic bedrock

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 24 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: F140XY030NY - Well Drained Dense Till

Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 45 percent

Custom Soil Resource Report

Depth to restrictive feature: 0 inches to lithic bedrock

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydric soil rating: Unranked

Minor Components

Hoosic

Percent of map unit: 5 percent

Hydric soil rating: No

Valois

Percent of map unit: 5 percent

Hydric soil rating: No

Arnot

Percent of map unit: 5 percent

Hydric soil rating: No

Manlius

Percent of map unit: 5 percent

Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX B

EROSION & SEDIMENT CONTROL PLANS

APPENDIX C

NOTICE OF INTENT (NOI)

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.37

(Submission #: HPX-DBV9-5KCC7, version 1)

Details

Originally Started By Matt Towne

Alternate Identifier Summit Drive Properties LLC

Submission ID HPX-DBV9-5KCC7

Submission Reason New

Status Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Summit Drive Properties LLC

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

Owner/Operator Contact Person First Name
Nick

Owner/Operator Mailing Address
3121 Route 9W

City
New Windsor

State
NY

Zip
12553

Phone

845-742-4060

Email

ng12547@gmail.com

Federal Tax ID

82-276-4997

If the owner/operator is an organization, provide the Federal Tax ID number, or Employer Identification Number (EIN), in the format xx-xxxxxxx. If the owner/operator is an individual and not an organization, enter "Not Applicable" or "N/A" and do not provide the individual's social security number.

Project Location**Project/Site Name**

Summit Drive Properties LLC

Street Address (Not P.O. Box)

Summit Drive

Side of Street

East

City/Town/Village (THAT ISSUES BUILDING PERMIT)

Town of Marlborough

State

NY

Zip

12542

DEC Region

3

The DEC Region must be provided. Please use the NYSDEC Stormwater Interactive Map (<https://gisservices.dec.ny.gov/gis/stormwater/>) to confirm which DEC Region this site is located in. To view the DEC Regions, click on "Other Useful Reference Layers" on the left side of the map, then click on "DEC Administrative Boundary." Zoom out as needed to see the Region boundaries.

For projects that span multiple Regions, please select a primary Region and then provide the additional Regions as a note in Question 39.

County
ULSTER

Name of Nearest Cross Street
Dragotta Road

Distance to Nearest Cross Street (Feet)
390

Project In Relation to Cross Street
East

Tax Map Numbers Section-Block-Parcel
108.4-6-29.311

Tax Map Numbers
108.4-6-29.311

If the project does not have tax map numbers (e.g. linear projects), enter "Not Applicable" or "N/A".

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:

- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
41.59865874427106,-73.97575224735773

Project Details

2. What is the nature of this project?
New Construction

For the purposes of this eNOI, "New Construction" refers to any project that does not involve the disturbance of existing impervious area (i.e. 0 acres). If existing impervious area will be disturbed on the project site, it is considered redevelopment with either increase in impervious area or no increase in impervious area.

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse

Pasture/Open Land

Post-Development Future Land Use

Multifamily Residential

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.NONE PROVIDED

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage) within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)

7.3

Total Area to be Disturbed (acres)

3.2

Existing Impervious Area to be Disturbed (acres)

0.0

Future Impervious Area Within Disturbed Area (acres)

0.7

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

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

A (%)

0

B (%)

0

C (%)

0

D (%)

100

7. Is this a phased project?

No

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

05/01/2024

End Date

11/30/2024

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

unnamed tributary to Lattintown Creek

Drainage ditches and storm sewer systems are not considered surface waterbodies. Please identify the surface waterbody that they discharge to. If the nearest surface waterbody is unnamed, provide a description of the waterbody, such as, "Unnamed tributary to Niagara River."

9a. Type of waterbody identified in question 9?

Stream/Creek Off Site

Other Waterbody Type Off Site Description

NYSDEC Class C Stream

9b. If "wetland" was selected in 9A, how was the wetland identified?

NONE PROVIDED

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?

No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?

No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?

No

Please use the DEC Stormwater Interactive Map (<https://gisservices.dec.ny.gov/gis/stormwater/>) to confirm if this site is located in one of the watersheds of an AA or AA-S classified water. To view the watershed areas, click on "Permit Related Layers" on the left side of the map, then click on "Class AA AAS Watersheds."

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 D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?

No

If Yes, what is the acreage to be disturbed?

NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?

No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?

Yes

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

US Rte 9W road adjacent ditch

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?

No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?

No

19. Is this property owned by a state authority, state agency, federal government or local government?

No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)

No

Required SWPPP Components

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

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

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

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

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

Professional Engineer (P.E.)

SWPPP Preparer

Willingham Engineering

Contact Name (Last, First)

Willingham Andrew

Mailing Address

183 Main Street

City

New Paltz

State

NY

Zip

12561

Phone

845-255-0210

Email

mtowne@willinghamengineering.com

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

- 1) Click on the link below to download a blank certification form
- 2) The certified SWPPP preparer should sign this form
- 3) Scan the signed form
- 4) Upload the scanned document

[Download SWPPP Preparer Certification Form](#)

Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?

Yes

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

Check Dams
Dust Control
Level Spreader
Sediment Basin
Silt Fence
Stabilized Construction Entrance
Storm Drain Inlet Protection

Biotechnical

None

Vegetative Measures

Mulching
Seeding
Topsoiling

Permanent Structural

Land Grading
Rock Outlet Protection

Other

NONE PROVIDED

Post-Construction Criteria

*** 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.

Locating Development in Less Sensitive Areas
Reduction of Clearing and Grading

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).

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

0.125

29. Post-construction SMP Identification

Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques (Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing 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 the Post-Construction SMP Identification section 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.

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

0.012

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

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)] (acre-feet)

0.010

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

Yes

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; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs

Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section 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. (acre-feet)

0.125

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 - 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).

0.137

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

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, 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 (acre-feet)

0.314

CPv Provided (acre-feet)

0.314

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

NONE PROVIDED

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

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)

10.80

Post-Development (CFS)

10.57

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)

24.57

Post-Development (CFS)

21.00

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

NONE PROVIDED

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?

Yes

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

Owner

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.

CPv was reduced as much as possible utilizing a 4" diameter outlet orifice, which could not be reduced in size as this would provide maintenance / clogging potential. Discharge during the 1-year storm event is reduced in post-development conditions and discharge from the pond will be from a level spreader ensuring sheet flow discharge.

Post-Construction SMP Identification**Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs**

Identify the Post-construction SMPs to be used by providing 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.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)

NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)

NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)

NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)

NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)

NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)

NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)

NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)

NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)

NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)

NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)

NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)

NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)

NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)

NONE PROVIDED

Standard SMPs with RRV Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)

NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)

NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)

NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)

NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)

0.67

Total Contributing Impervious Acres for Dry Swale (O-1)

NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)

NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)

0.67

Total Contributing Impervious Acres for Wet Extended Detention (P-3)

NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)

NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)

NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)

NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)

NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)

NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)

NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)

NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)

NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)

NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)

NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)

NONE PROVIDED

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

Total Contributing Impervious Area for Hydrodynamic

NONE PROVIDED

Total Contributing Impervious Area for Wet Vault

NONE PROVIDED

Total Contributing Impervious Area for Media Filter

NONE PROVIDED

"Other" Alternative SMP?

NONE PROVIDED

Total Contributing Impervious Area for "Other"

NONE PROVIDED

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

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.

Manufacturer of Alternative SMP

NONE PROVIDED

Name of Alternative SMP

NONE PROVIDED

Other Permits

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

None

If SPDES Multi-Sector GP, then give permit ID

NONE PROVIDED

If Other, then identify

NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?

No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth

NONE PROVIDED

42. 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.

NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?

Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?

NONE PROVIDED

MS4 SWPPP Acceptance Form Download

Download form from the link below. Complete, sign, and upload.

[MS4 SWPPP Acceptance Form](#)

MS4 Acceptance Form Upload

NONE PROVIDED

Comment

NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.

[Owner/Operator Certification Form \(PDF, 45KB\)](#)

Upload Owner/Operator Certification Form

NONE PROVIDED

Comment

NONE PROVIDED

APPENDIX D

GP-0-20-001



Department of
Environmental
Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

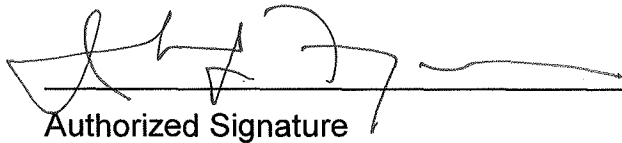
Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20
Date

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

PREFACE

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

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

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

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

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS	1
A. Permit Application	1
B. Effluent Limitations Applicable to Discharges from Construction Activities	1
C. Post-construction Stormwater Management Practice Requirements	4
D. Maintaining Water Quality	8
E. Eligibility Under This General Permit.....	9
F. Activities Which Are Ineligible for Coverage Under This General Permit	9
Part II. PERMIT COVERAGE	12
A. How to Obtain Coverage	12
B. Notice of Intent (NOI) Submittal	13
C. Permit Authorization	13
D. General Requirements For Owners or Operators With Permit Coverage	15
E. Permit Coverage for Discharges Authorized Under GP-0-15-002.....	17
F. Change of Owner or Operator	17
Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)	18
A. General SWPPP Requirements	18
B. Required SWPPP Contents	20
C. Required SWPPP Components by Project Type.....	24
Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS	24
A. General Construction Site Inspection and Maintenance Requirements	24
B. Contractor Maintenance Inspection Requirements	24
C. Qualified Inspector Inspection Requirements	25
Part V. TERMINATION OF PERMIT COVERAGE	29
A. Termination of Permit Coverage	29
Part VI. REPORTING AND RETENTION RECORDS	31
A. Record Retention	31
B. Addresses	31
Part VII. STANDARD PERMIT CONDITIONS.....	31
A. Duty to Comply.....	31
B. Continuation of the Expired General Permit.....	32
C. Enforcement.....	32
D. Need to Halt or Reduce Activity Not a Defense.....	32
E. Duty to Mitigate	33
F. Duty to Provide Information.....	33
G. Other Information	33
H. Signatory Requirements.....	33
I. Property Rights	35
J. Severability.....	35

K.	Requirement to Obtain Coverage Under an Alternative Permit	35
L.	Proper Operation and Maintenance	36
M.	Inspection and Entry	36
N.	Permit Actions	37
O.	Definitions	37
P.	Re-Opener Clause	37
Q.	Penalties for Falsification of Forms and Reports	37
R.	Other Permits	38
APPENDIX A – Acronyms and Definitions		39
Acronyms.....		39
Definitions.....		40
APPENDIX B – Required SWPPP Components by Project Type		48
Table 1.....		48
Table 2.....		50
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal		52
APPENDIX D – Watersheds with Lower Disturbance Threshold		58
APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)		59
APPENDIX F – List of NYS DEC Regional Offices		65

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

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

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

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

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

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

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

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

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

C. Post-construction Stormwater Management Practice Requirements

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

a. Sizing Criteria for New Development

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

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

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

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

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

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

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

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

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

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

c. Sizing Criteria for Redevelopment Activity

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

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

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

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

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

D. Maintaining Water Quality

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

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

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

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

E. Eligibility Under This General Permit

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

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

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

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

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

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

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

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

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

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

B. Notice of Intent (NOI) Submittal

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

**NOTICE OF INTENT
NYS DEC, Bureau of Water Permits
625 Broadway, 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 not subject to the requirements of a *regulated, traditional land use control MS4*:
 - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
 - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
 - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

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

D. General Requirements For Owners or Operators With Permit Coverage

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

use control MS4, the regulated, traditional land use control MS4 (provided the regulated, traditional land use control MS4 is not the owner or operator of the construction activity). At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

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

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

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

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

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

F. Change of Owner or Operator

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

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

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

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

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

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

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

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

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

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

B. Required SWPPP Contents

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

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

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

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

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

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

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

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

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

C. Required SWPPP Components by Project Type

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

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

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

B. Contractor Maintenance Inspection Requirements

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

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

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

C. Qualified Inspector Inspection Requirements

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

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

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

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

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

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

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

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

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

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

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

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

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

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

B. Addresses

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

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

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

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

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

B. Continuation of the Expired General Permit

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

C. Enforcement

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

D. Need to Halt or Reduce Activity Not a Defense

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

E. Duty to Mitigate

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

F. Duty to Provide Information

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

G. Other Information

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

H. Signatory Requirements

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

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

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

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

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

I. Property Rights

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

J. Severability

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

K. Requirement to Obtain Coverage Under an Alternative Permit

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

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

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

L. Proper Operation and Maintenance

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

M. Inspection and Entry

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

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

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

N. Permit Actions

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

O. Definitions

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

P. Re-Opener Clause

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

Q. Penalties for Falsification of Forms and Reports

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

R. Other Permits

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

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX B – Required SWPPP Components by Project Type

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

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 <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E • Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E • Construction of a barn or other <i>agricultural building</i>, 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

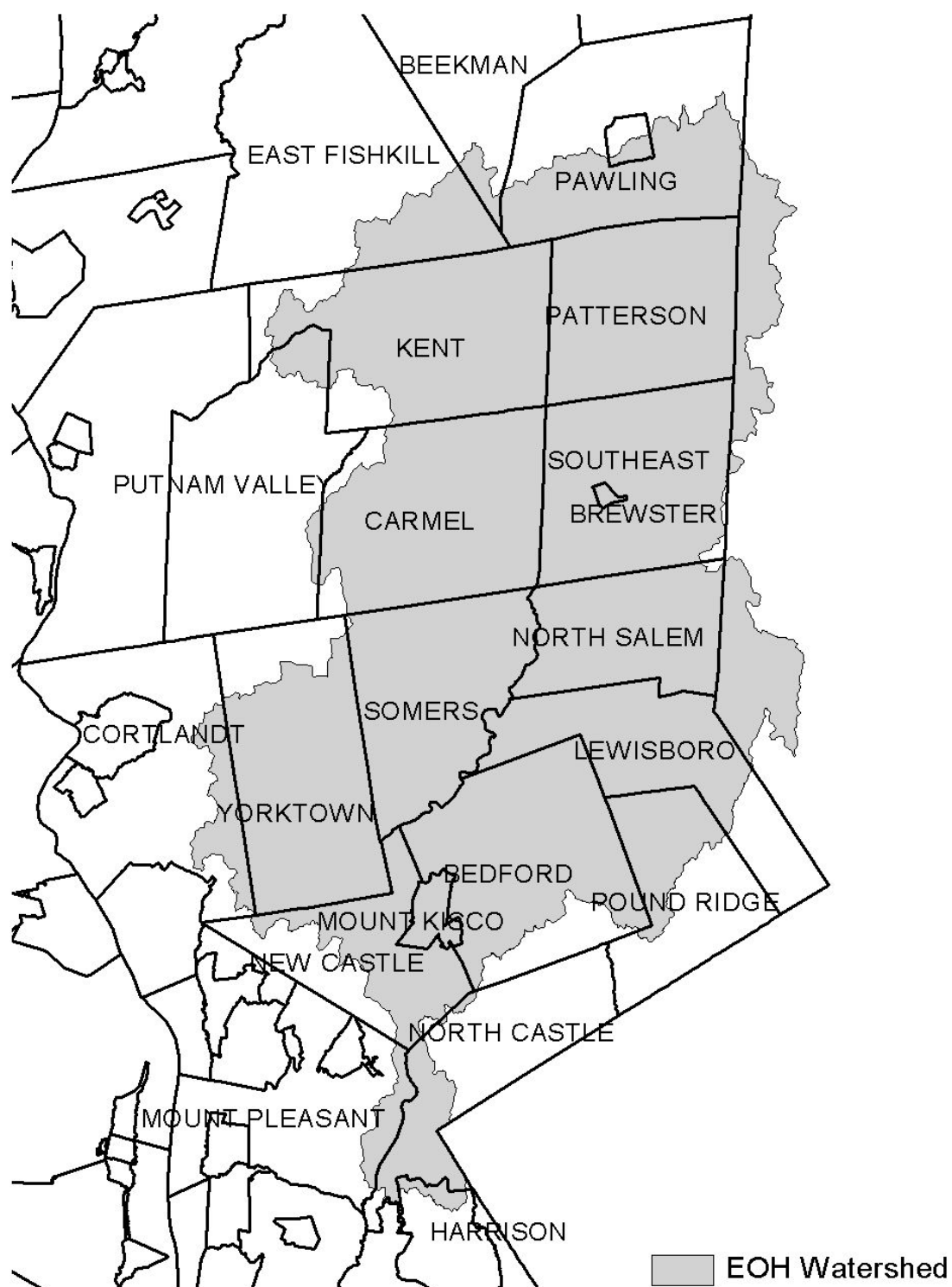
Figure 1 - New York City Watershed East of the Hudson

Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

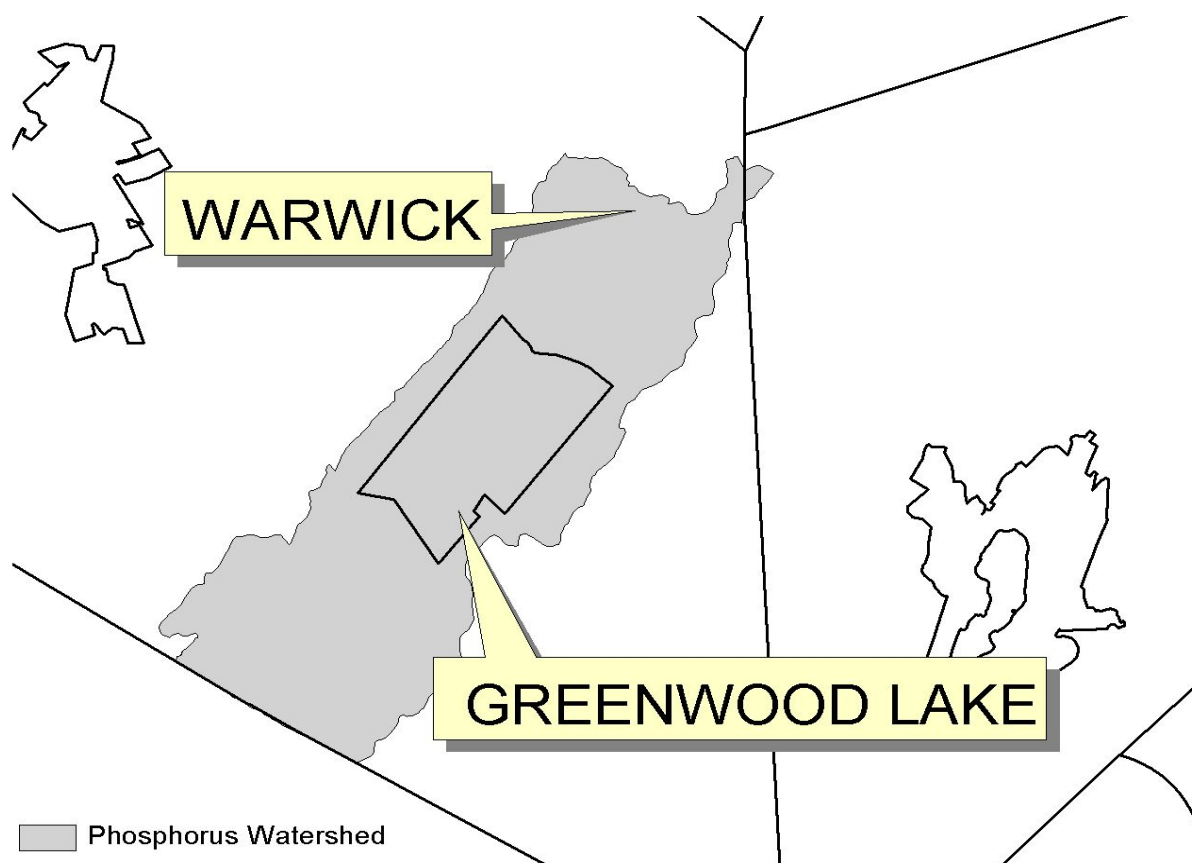


Figure 4 - Oscawana Lake Watershed

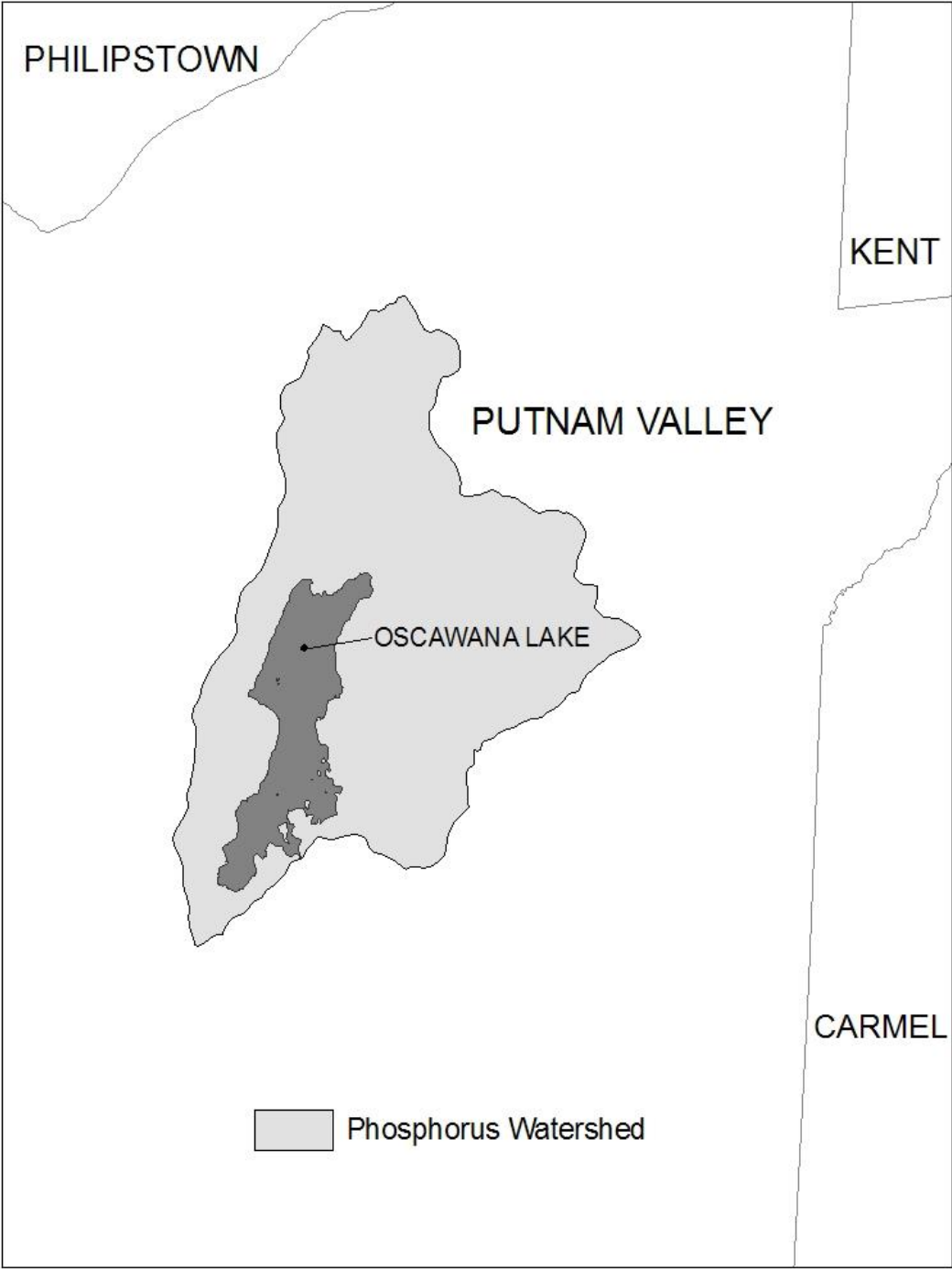
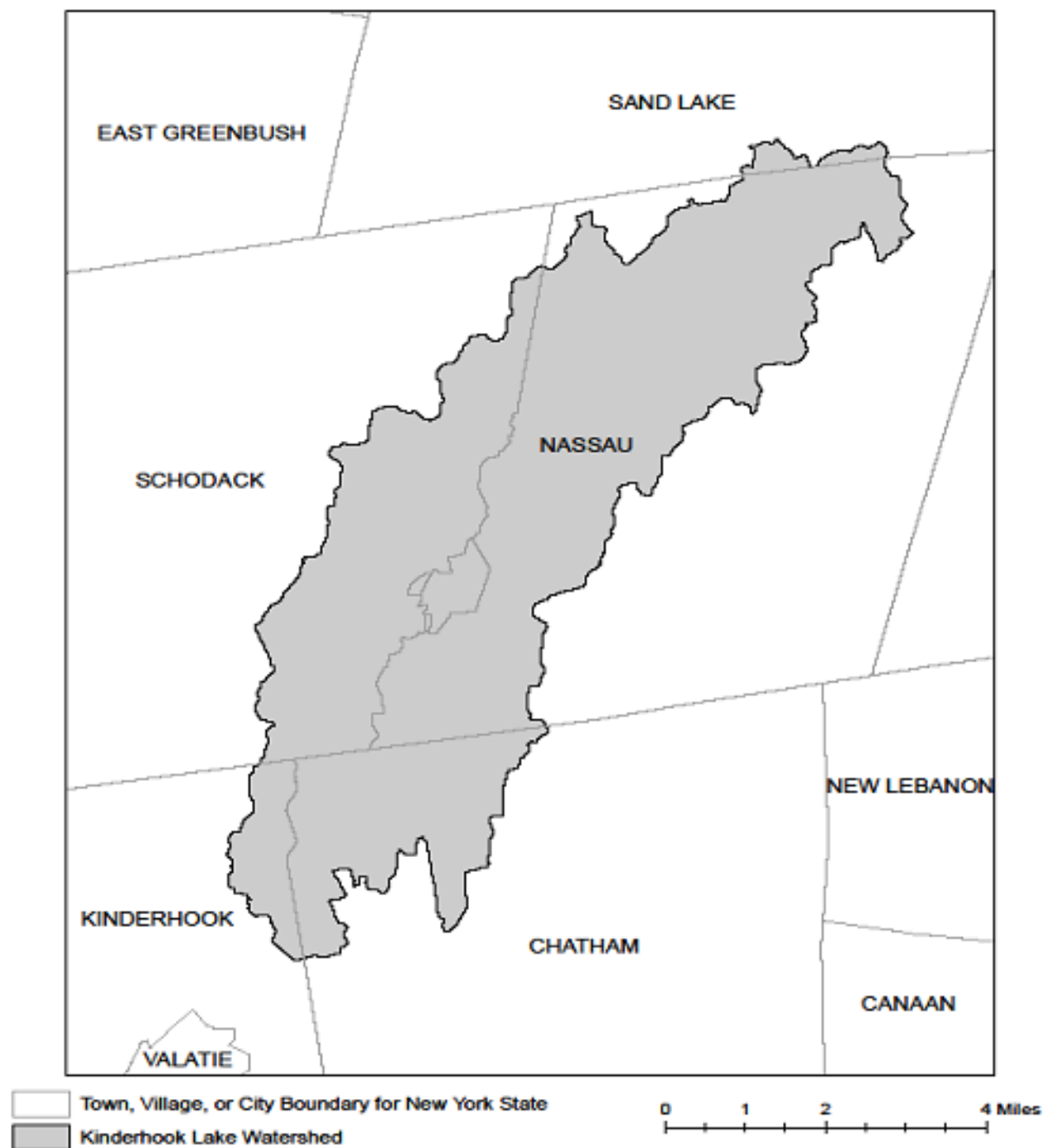


Figure 5 - Kinderhook Lake Watershed



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

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

APPENDIX E

WEEKLY INSPECTION FORM

183 Main Street
New Paltz, NY 12561
845-255-0210

Stormwater Pollution Prevention Plan (SWPPP)

Construction Duration Inspections

Project Name and Location:		Date:	Page Number:
		Permit Number:	Weather:
On-site Representative(s):		Entry Time:	Report Number:
			Overall Inspection Rating:
Phone Number: _____		Exit Time:	
SPDES Permittee Contact:		Contacted:	
		Yes No	
Comments:			

Status of Site Work / Additional Notes:

Inspector (Print Name)

Date of Inspection

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.

Stormwater Pollution Prevention Plan (SWPPP)
Construction Duration Inspections

Page 2 of 4

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 or grease?
			All disturbance is within the limits of the approved plans.
			Have receiving lake/bay, stream, and/or wetland been impacted by silt from the project?

Housekeeping

Yes No NA

1. General Site Conditions

			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 property?
			Is dust adequately controlled?

2. Temporary Stream Crossing

			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

Yes No NA

1. Excavation Dewatering

			Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
			Clean water from upstream pool is being pumped to the downstream pool.
			Sediment laden water from work area is being discharged to a silt-trapping device.
			Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

			Installed per plan.
			Constructed on disturbed 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

			Installed per plan with minimum side slopes 2H:1V or flatter.
			Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
			Sediment-laden runoff directed to sediment trapping structure.



Stormwater Pollution Prevention Plan (SWPPP)
Construction Duration Inspections

Runoff Control Practices (continued)

Yes No NA

4. Stone Check Dam

			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 structure.)
			Has accumulated sediment been removed?

5. Rock Outlet Protection

			Installed per plan.
			Installed concurrently with pipe installation.

Soil Stabilization

Yes No NA

1. Topsoil and Spoil Stockpiles

			Stockpiles are stabilized with vegetation and/or mulch.
			Sediment control is installed at the toe of the slope.

2. Revegetation

			Temporary seedings and mulch have been applied to idle areas.
			4 inches minimum of topsoil has been applied under permanent seedings.

Sediment Control Practices

Yes No NA

1. Stabilized Construction Entrance

			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 site?
			Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

			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
			0 % of design capacity.

3. Storm Drain Inlet Protection (Use for Stone & Block, Filter Fabric, Curb, or Excavated Practices)

			Installed concrete blocks lengthwise so open ends face outward, not upward.
			Placed 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 2H:1V.

Stormwater Pollution Prevention Plan (SWPPP) **Construction Duration Inspections**

Sediment Control Practices (continued)

Yes No NA

3. Storm Drain Inlet Protection (continued)

☐	☐	☐	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.
		NA	% Design capacity of sediment accumulation.

4. Temporary Sediment Trap

☐	☐	☐	Outlet structure is constructed per the approved plan or drawing.
☐	☐	☐	Geotextile fabric has been placed beneath rock fill.
		NA	% Design capacity of sediment accumulation.

5. Temporary Sediment Basin

☐	☐	☐	Basin and outlet structure constructed per the approved plan.
☐	☐	☐	Basin side slopes are stabilized with seed/mulch.
☐	☐	☐	Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
		0	% Design capacity of sediment accumulation.

Note:

Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York State Stormwater Management Design Manual.

Additional Notes:



APPENDIX F

MS4 ACCEPTANCE FORM



Department of
Environmental
Conservation

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

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

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

I. Project Owner/Operator Information

1. Owner/Operator Name:

2. Contact Person:

3. Street Address:

4. City/State/Zip:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/State/Zip:

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

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

IV. Regulated MS4 Information

11. Name of MS4:

12. MS4 SPDES Permit Identification Number: NYR20A

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:

MS4 SWPPP Acceptance Form - continued

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

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

Printed Name:

Title/Position:

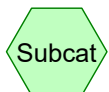
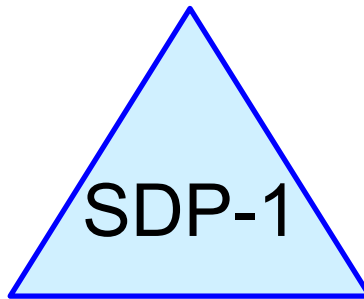
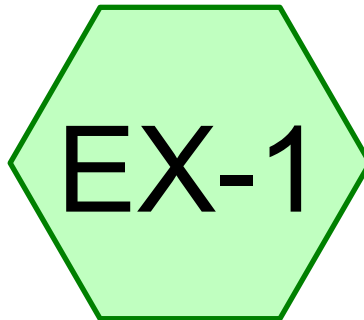
Signature:

Date:

VI. Additional Information

APPENDIX G

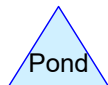
HYDROCAD ANALYSIS



Subcat



Reach



Pond



Link

Routing Diagram for PRE

Prepared by {enter your company name here}, Printed 2/22/2024
HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

PRE

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Printed 2/22/2024

Page 2

Project Notes

Defined 3 rainfall events from SUMMIT IDF

PRE

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 3

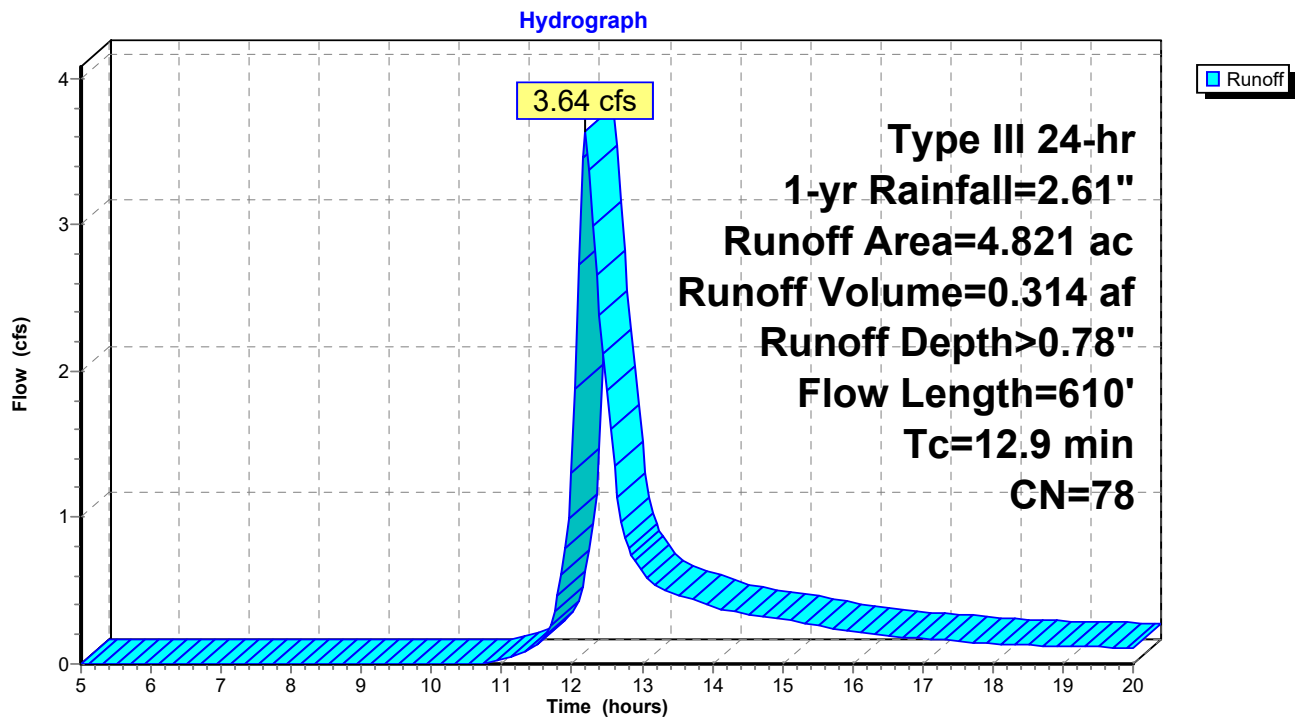
Summary for Subcatchment EX-1:

Runoff = 3.64 cfs @ 12.20 hrs, Volume= 0.314 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.61"

Area (ac)	CN	Description
2.024	85	1/2 acre lots, 25% imp, HSG D
2.797	73	Brush, Good, HSG D
4.821	78	Weighted Average
4.315		89.50% Pervious Area
0.506		10.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	150	0.0467	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.15"
0.2	90	0.1000	6.42		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0	370	0.0840	2.03		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	610	Total			

Subcatchment EX-1:

PRE

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 4

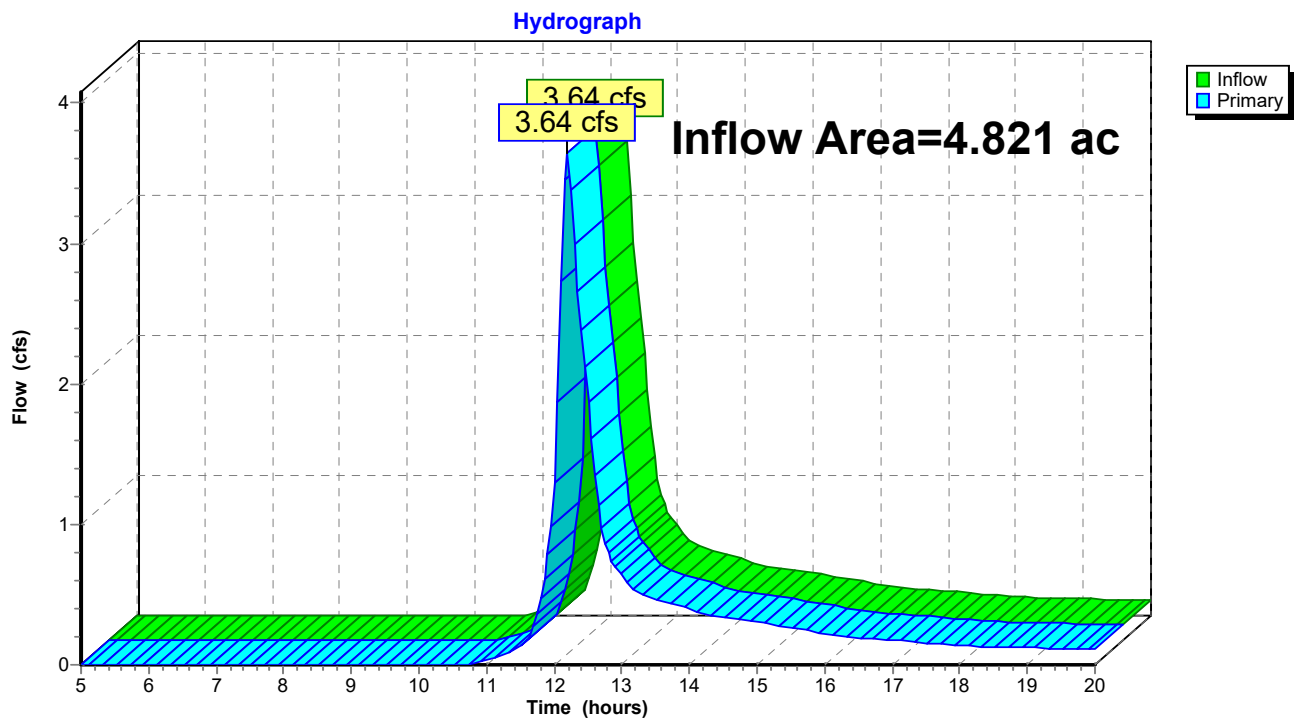
Summary for Pond SDP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.821 ac, 10.50% Impervious, Inflow Depth > 0.78" for 1-yr event
Inflow = 3.64 cfs @ 12.20 hrs, Volume= 0.314 af
Primary = 3.64 cfs @ 12.20 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SDP-1:



PRE

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 5

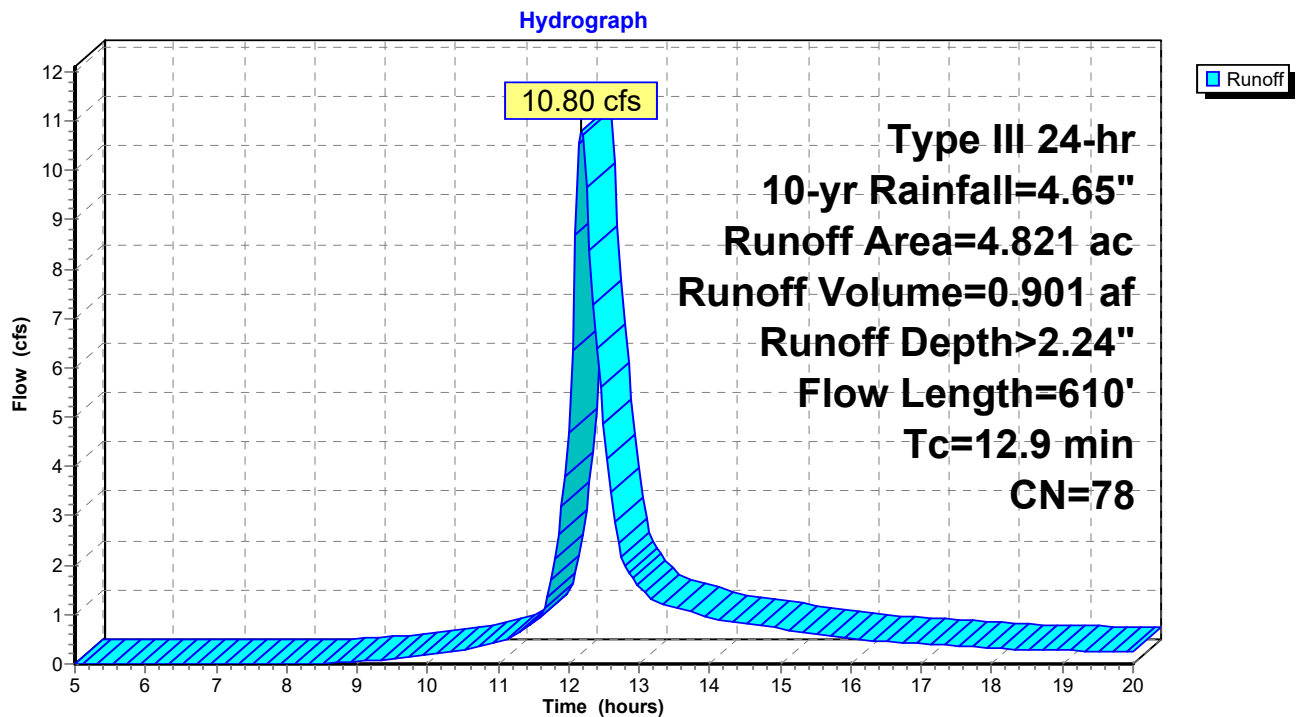
Summary for Subcatchment EX-1:

Runoff = 10.80 cfs @ 12.18 hrs, Volume= 0.901 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.65"

Area (ac)	CN	Description
2.024	85	1/2 acre lots, 25% imp, HSG D
2.797	73	Brush, Good, HSG D
4.821	78	Weighted Average
4.315		89.50% Pervious Area
0.506		10.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	150	0.0467	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.15"
0.2	90	0.1000	6.42		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0	370	0.0840	2.03		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	610	Total			

Subcatchment EX-1:

PRE

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 6

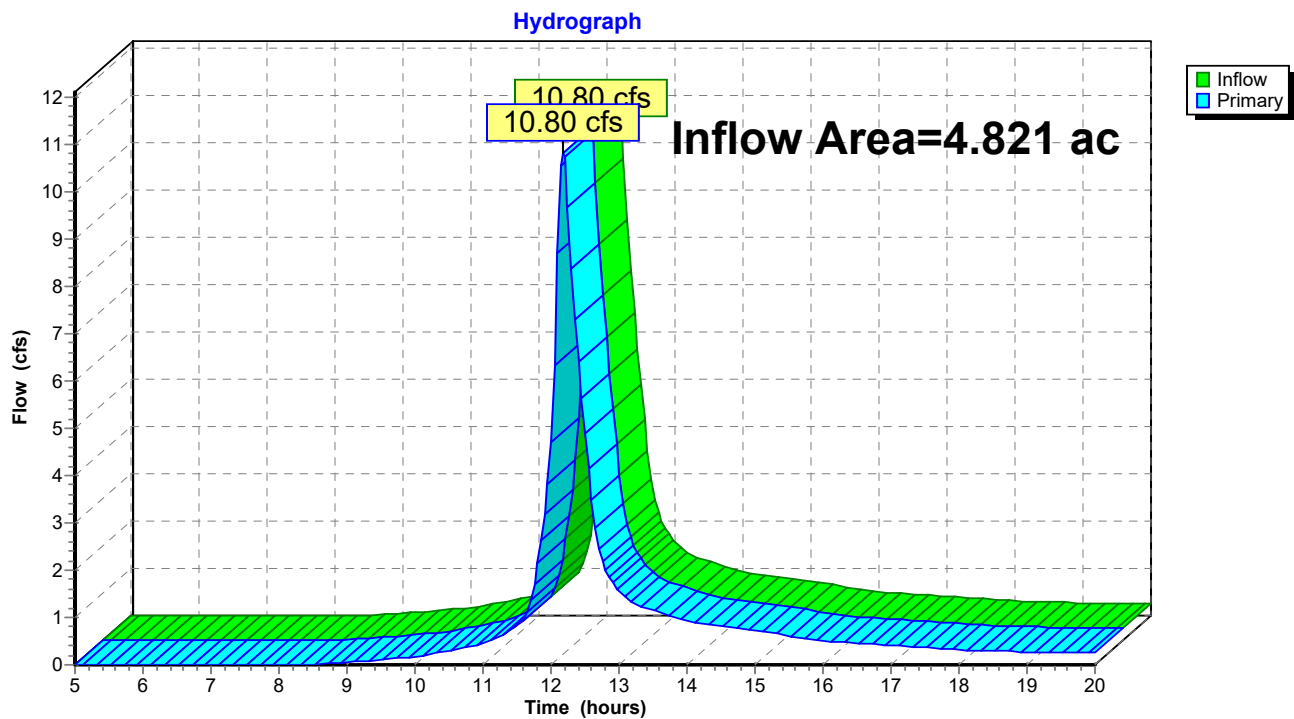
Summary for Pond SDP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.821 ac, 10.50% Impervious, Inflow Depth > 2.24" for 10-yr event
Inflow = 10.80 cfs @ 12.18 hrs, Volume= 0.901 af
Primary = 10.80 cfs @ 12.18 hrs, Volume= 0.901 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SDP-1:



PRE

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.16"

Printed 2/22/2024

Page 7

Summary for Subcatchment EX-1:

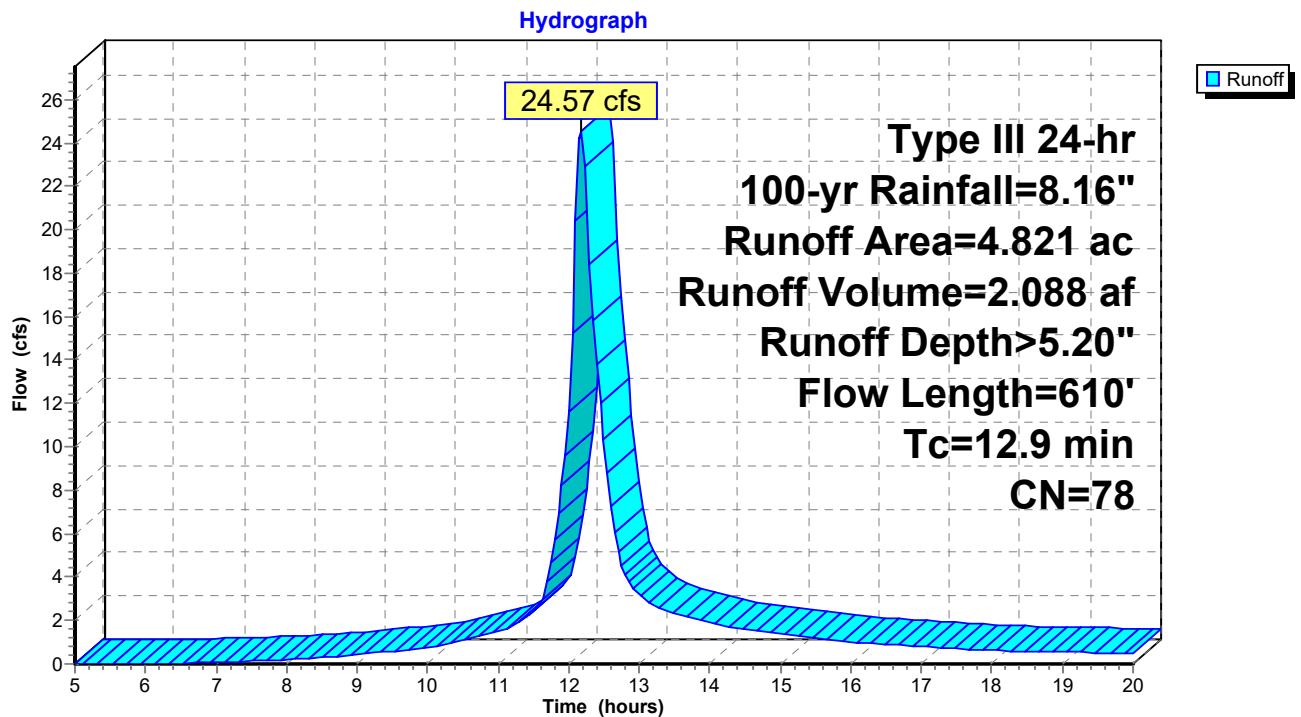
Runoff = 24.57 cfs @ 12.18 hrs, Volume= 2.088 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.16"

Area (ac)	CN	Description
2.024	85	1/2 acre lots, 25% imp, HSG D
2.797	73	Brush, Good, HSG D
4.821	78	Weighted Average
4.315		89.50% Pervious Area
0.506		10.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	150	0.0467	0.26		Sheet Flow, Grass: Short n= 0.150 P2= 3.15"
0.2	90	0.1000	6.42		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.0	370	0.0840	2.03		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.9	610	Total			

Subcatchment EX-1:

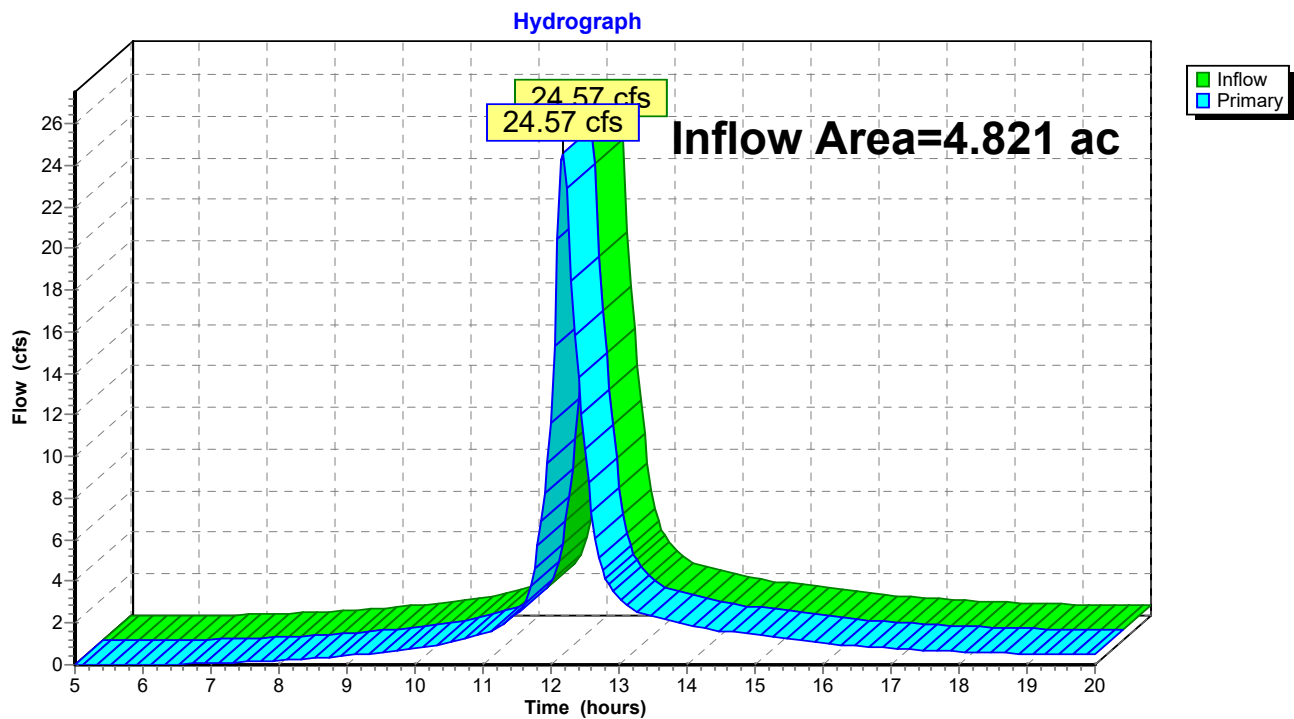


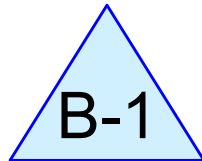
Summary for Pond SDP-1:

[40] Hint: Not Described (Outflow=Inflow)

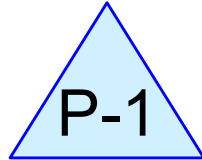
Inflow Area = 4.821 ac, 10.50% Impervious, Inflow Depth > 5.20" for 100-yr event
Inflow = 24.57 cfs @ 12.18 hrs, Volume= 2.088 af
Primary = 24.57 cfs @ 12.18 hrs, Volume= 2.088 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

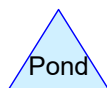
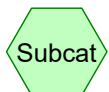
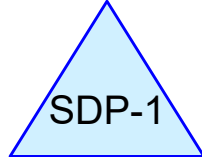
Pond SDP-1:



Bioretention



Pond



Routing Diagram for POST

Prepared by {enter your company name here}, Printed 2/22/2024
HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

POST

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 2

Project Notes

Defined 3 rainfall events from SUMMIT IDF

POST

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 3

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	PR-1	0.00	0.00	44.0	0.0100	0.013	15.0	0.0	0.0
2	PR-1	0.00	0.00	107.0	0.1000	0.013	24.0	0.0	0.0
3	PR-1	0.00	0.00	23.0	0.0100	0.013	12.0	0.0	0.0
4	PR-1	0.00	0.00	84.0	0.0100	0.013	24.0	0.0	0.0
5	B-1	317.80	314.40	34.0	0.1000	0.013	24.0	0.0	0.0
6	P-1	314.40	312.00	85.0	0.0282	0.013	24.0	0.0	0.0

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 4

Summary for Subcatchment PR-1:

Runoff = 5.33 cfs @ 12.19 hrs, Volume= 0.446 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-yr Rainfall=2.61"

Area (ac)	CN	Description
2.024	85	1/2 acre lots, 25% imp, HSG D
0.451	73	Brush, Good, HSG D
0.458	98	Paved parking, HSG D
0.165	98	Roofs, HSG D
* 0.047	98	Concrete, HSG D
1.675	80	>75% Grass cover, Good, HSG D
4.820	84	Weighted Average
3.644		75.60% Pervious Area
1.176		24.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0467	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.15"
0.2	90	0.1000	6.42		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.9	480	0.0840	2.03		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	230	0.0400	3.00		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.1	44	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.1	107	0.1000	22.77	71.54	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	23	0.0100	4.54	3.56	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.2	84	0.0100	7.20	22.62	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
12.9	1,158	Total			

POST

Prepared by {enter your company name here}

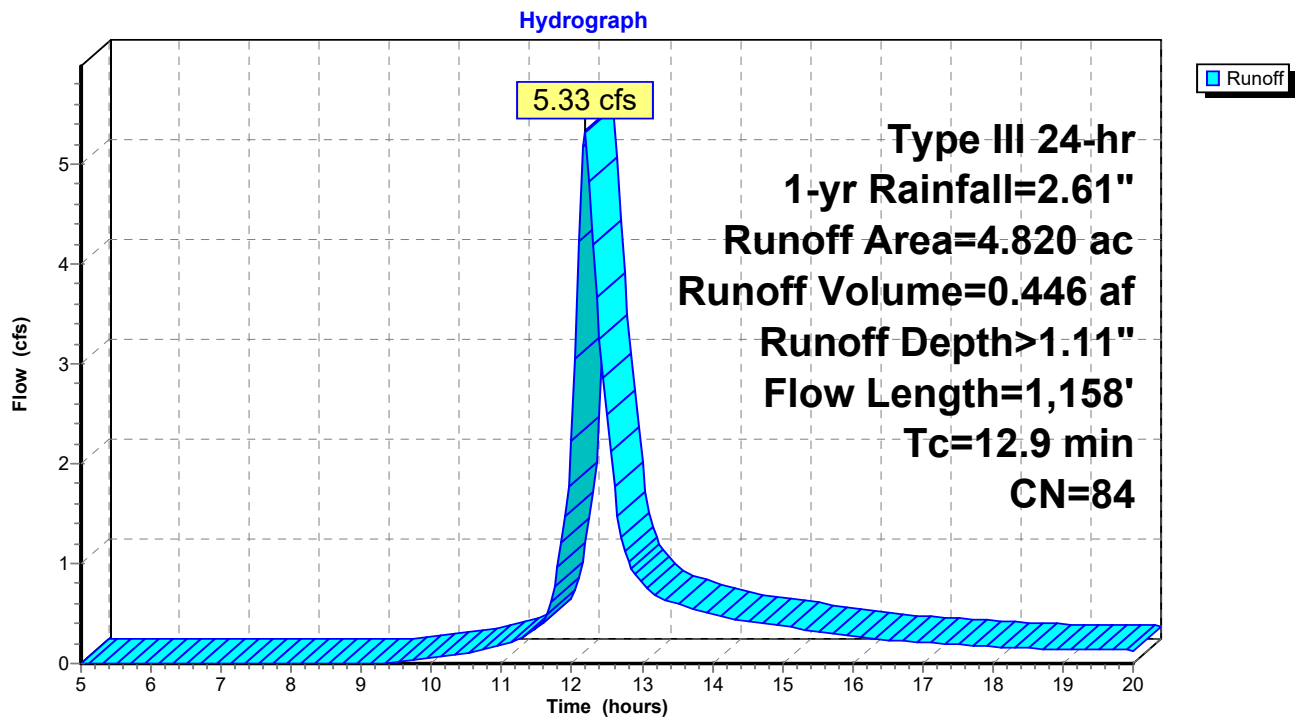
HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 5

Subcatchment PR-1:



POST

Type III 24-hr 1-yr Rainfall=2.61"

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 6

Summary for Pond B-1: Bioretention

[92] Warning: Device #4 is above defined storage

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 1.11" for 1-yr event
 Inflow = 5.33 cfs @ 12.19 hrs, Volume= 0.446 af
 Outflow = 4.48 cfs @ 12.29 hrs, Volume= 0.335 af, Atten= 16%, Lag= 6.4 min
 Primary = 4.48 cfs @ 12.29 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 321.76' @ 12.29 hrs Surf.Area= 4,276 sf Storage= 5,545 cf

Plug-Flow detention time= 95.9 min calculated for 0.335 af (75% of inflow)
 Center-of-Mass det. time= 34.9 min (841.2 - 806.4)

Volume	Invert	Avail.Storage	Storage Description
#1	317.80'	1,810 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 4,525 cf Overall x 40.0% Voids
#2	318.00'	4,443 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		6,253 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.80	1,414	0	0
321.00	1,414	4,525	4,525

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	80	0	0
320.00	426	506	506
321.00	2,187	1,307	1,813
322.00	3,074	2,631	4,443

Device	Routing	Invert	Outlet Devices
#1	Device 2	321.50'	30.0" x 30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	317.80'	24.0" Round Culvert L= 34.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 317.80' / 314.40' S= 0.1000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	317.80'	1.000 in/hr Exfiltration over Surface area
#4	Primary	322.00'	80.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.42 cfs @ 12.29 hrs HW=321.76' (Free Discharge)

2=Culvert (Passes 4.42 cfs of 22.96 cfs potential flow)
 1=Orifice/Grate (Weir Controls 4.32 cfs @ 1.67 fps)
 3=Exfiltration (Exfiltration Controls 0.10 cfs)
 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

POST

Prepared by {enter your company name here}

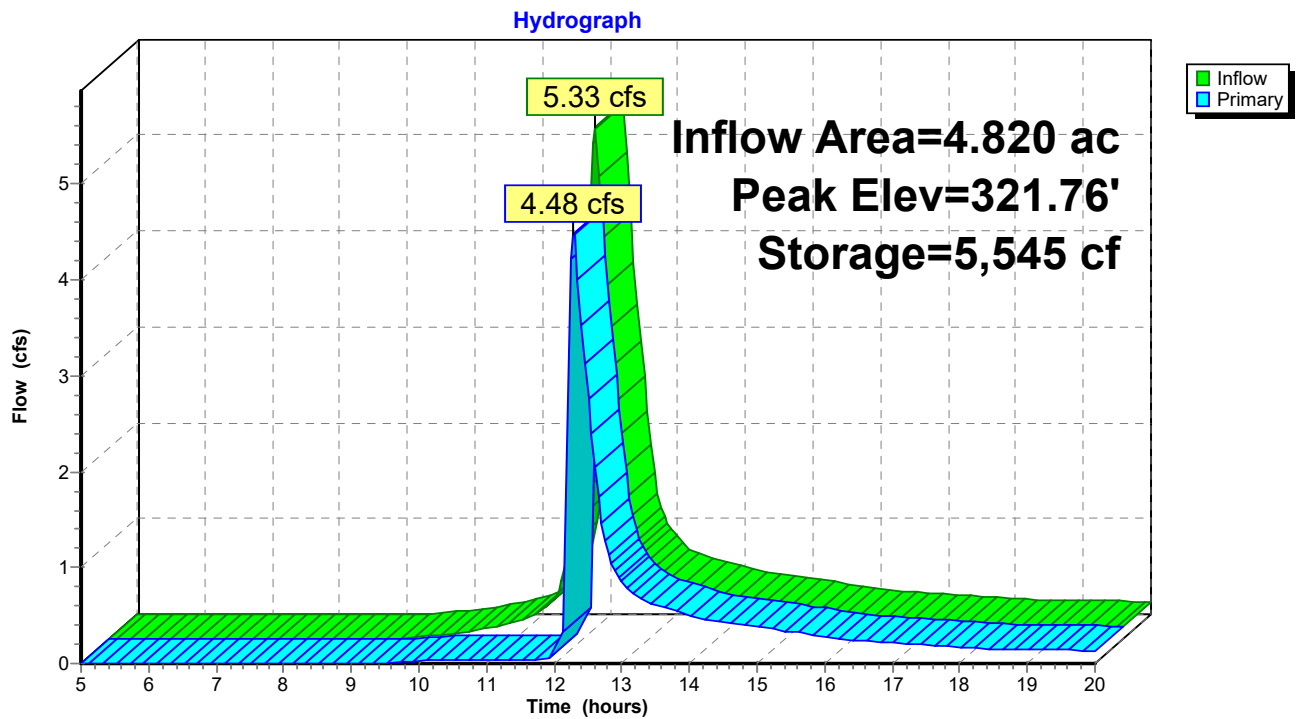
HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 7

Pond B-1: Bioretention



POST

Type III 24-hr 1-yr Rainfall=2.61"

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 8

Summary for Pond P-1: Pond

[79] Warning: Submerged Pond B-1 Primary device # 2 OUTLET by 1.94'

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 0.83" for 1-yr event
 Inflow = 4.48 cfs @ 12.29 hrs, Volume= 0.335 af
 Outflow = 0.56 cfs @ 13.73 hrs, Volume= 0.299 af, Atten= 87%, Lag= 86.1 min
 Primary = 0.56 cfs @ 13.73 hrs, Volume= 0.299 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Starting Elev= 314.40' Surf.Area= 2,395 sf Storage= 4,204 cf
 Peak Elev= 316.34' @ 13.73 hrs Surf.Area= 3,629 sf Storage= 10,030 cf (5,827 cf above start)
 Flood Elev= 320.00' Surf.Area= 6,514 sf Storage= 28,380 cf (24,176 cf above start)

Plug-Flow detention time= 257.3 min calculated for 0.202 af (60% of inflow)
 Center-of-Mass det. time= 104.3 min (945.5 - 841.2)

Volume	Invert	Avail.Storage	Storage Description
#1	312.00'	28,380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.00	1,146	0	0
314.00	2,149	3,295	3,295
316.00	3,378	5,527	8,822
318.00	4,833	8,211	17,033
320.00	6,514	11,347	28,380

Device	Routing	Invert	Outlet Devices
#1	Primary	314.40'	24.0" Round Culvert L= 85.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 314.40' / 312.00' S= 0.0282 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	314.40'	4.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	316.40'	26.0" W x 8.0" H Vert. Orifice/Grate X 2.00 C= 0.600
#4	Device 1	318.50'	30.0" x 30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Primary	319.50'	20.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.56 cfs @ 13.73 hrs HW=316.34' (Free Discharge)

1=Culvert (Passes 0.56 cfs of 14.80 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.56 cfs @ 6.42 fps)
 3=Orifice/Grate (Controls 0.00 cfs)
 4=Orifice/Grate (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

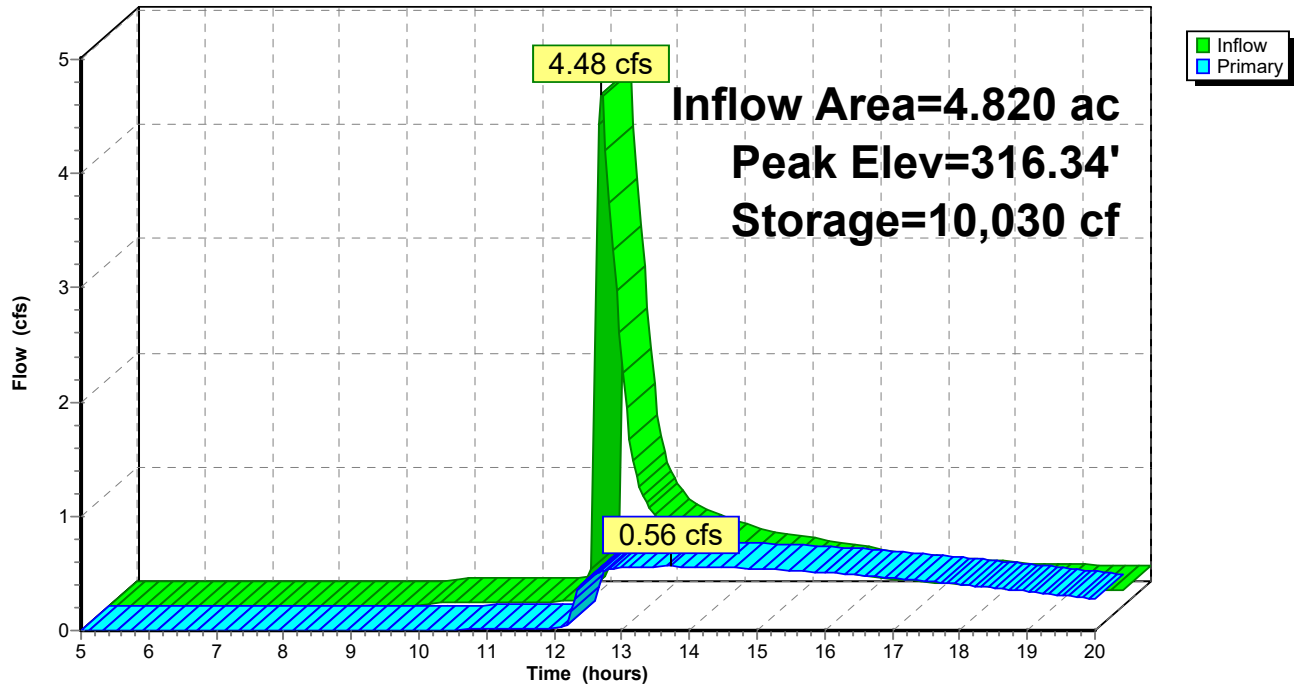
Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 9

Pond P-1: Pond

Hydrograph



POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 1-yr Rainfall=2.61"

Printed 2/22/2024

Page 10

Summary for Pond SDP-1:

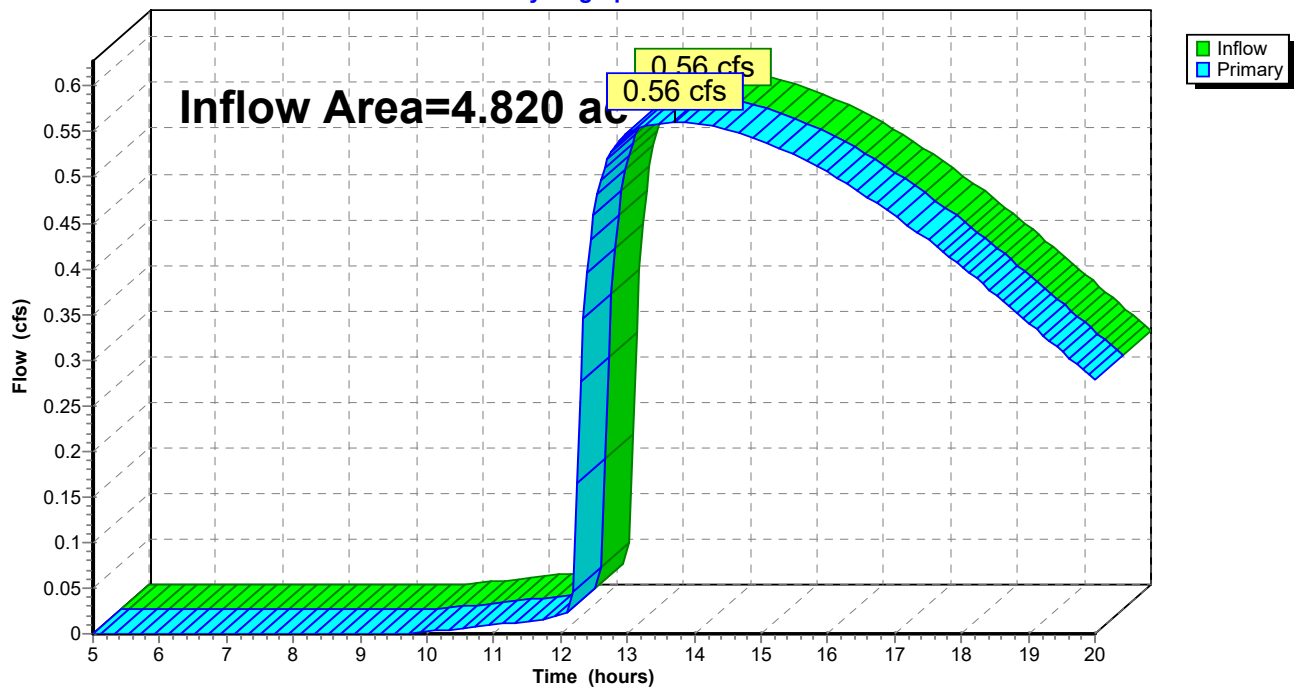
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 0.74" for 1-yr event
Inflow = 0.56 cfs @ 13.73 hrs, Volume= 0.299 af
Primary = 0.56 cfs @ 13.73 hrs, Volume= 0.299 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SDP-1:

Hydrograph



POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 11

Summary for Subcatchment PR-1:

Runoff = 13.16 cfs @ 12.18 hrs, Volume= 1.109 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.65"

Area (ac)	CN	Description
2.024	85	1/2 acre lots, 25% imp, HSG D
0.451	73	Brush, Good, HSG D
0.458	98	Paved parking, HSG D
0.165	98	Roofs, HSG D
* 0.047	98	Concrete, HSG D
1.675	80	>75% Grass cover, Good, HSG D
4.820	84	Weighted Average
3.644		75.60% Pervious Area
1.176		24.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0467	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.15"
0.2	90	0.1000	6.42		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.9	480	0.0840	2.03		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	230	0.0400	3.00		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.1	44	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.1	107	0.1000	22.77	71.54	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	23	0.0100	4.54	3.56	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.2	84	0.0100	7.20	22.62	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
12.9	1,158	Total			

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

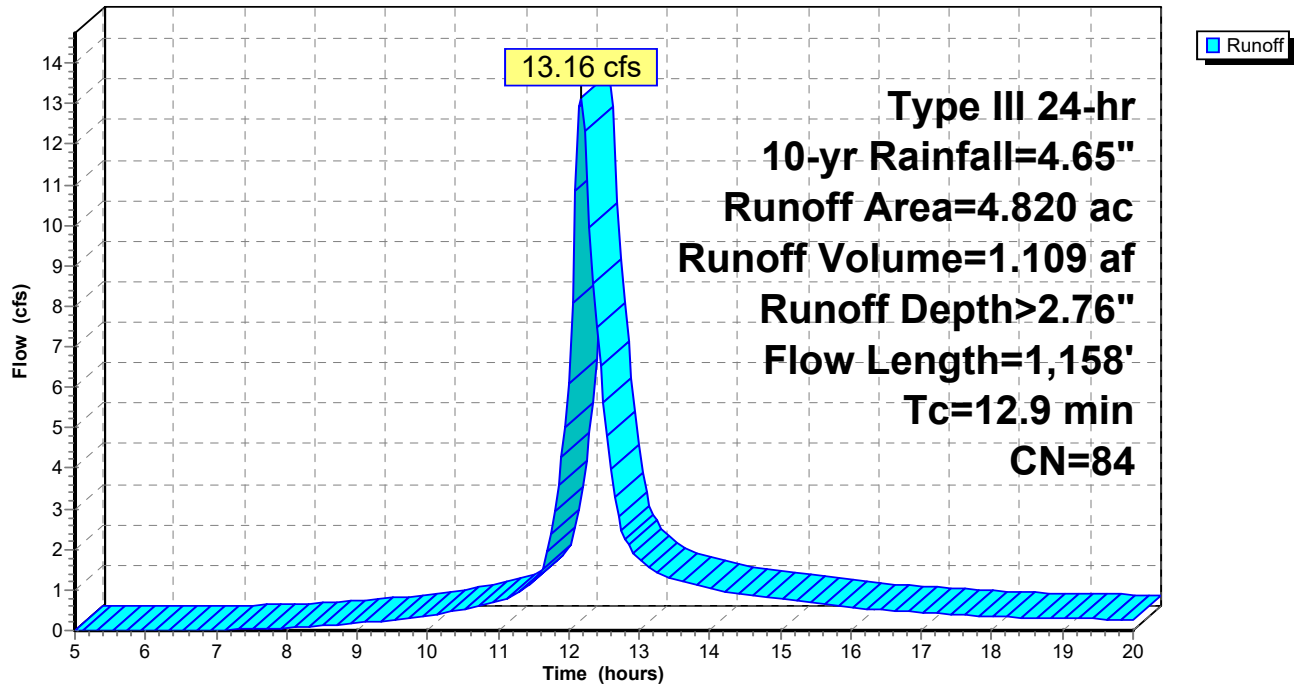
Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 12

Subcatchment PR-1:

Hydrograph



POST

Type III 24-hr 10-yr Rainfall=4.65"

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 13

Summary for Pond B-1: Bioretention

[92] Warning: Device #4 is above defined storage

[93] Warning: Storage range exceeded by 0.03'

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 2.76" for 10-yr event
 Inflow = 13.16 cfs @ 12.18 hrs, Volume= 1.109 af
 Outflow = 13.86 cfs @ 12.19 hrs, Volume= 0.997 af, Atten= 0%, Lag= 1.0 min
 Primary = 13.86 cfs @ 12.19 hrs, Volume= 0.997 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 322.03' @ 12.19 hrs Surf.Area= 4,488 sf Storage= 6,253 cf

Plug-Flow detention time= 51.5 min calculated for 0.994 af (90% of inflow)
 Center-of-Mass det. time= 19.5 min (805.1 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	317.80'	1,810 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 4,525 cf Overall x 40.0% Voids
#2	318.00'	4,443 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		6,253 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.80	1,414	0	0
321.00	1,414	4,525	4,525

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	80	0	0
320.00	426	506	506
321.00	2,187	1,307	1,813
322.00	3,074	2,631	4,443

Device	Routing	Invert	Outlet Devices
#1	Device 2	321.50'	30.0" x 30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	317.80'	24.0" Round Culvert L= 34.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 317.80' / 314.40' S= 0.1000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	317.80'	1.000 in/hr Exfiltration over Surface area
#4	Primary	322.00'	80.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 14

Primary OutFlow Max=13.45 cfs @ 12.19 hrs HW=322.03' (Free Discharge)

2=Culvert (Passes 12.61 cfs of 23.98 cfs potential flow)

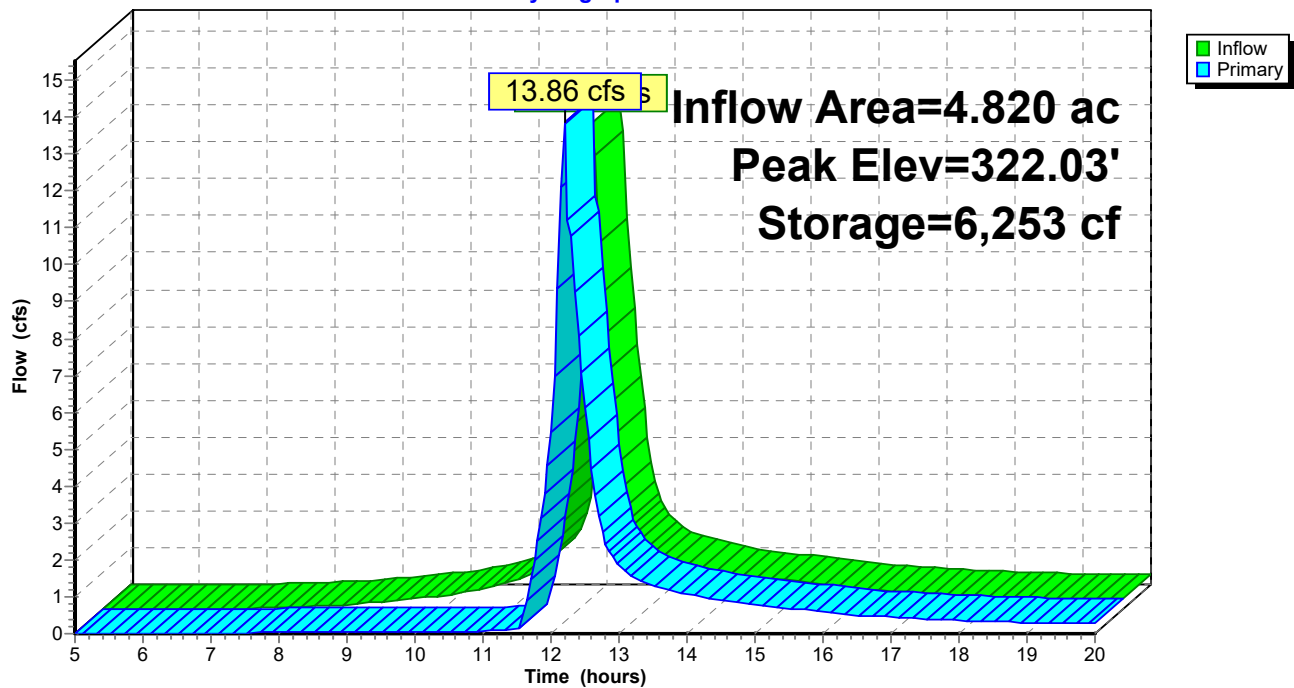
1=Orifice/Grate (Weir Controls 12.51 cfs @ 2.37 fps)

3=Exfiltration (Exfiltration Controls 0.10 cfs)

4=Broad-Crested Rectangular Weir (Weir Controls 0.84 cfs @ 0.39 fps)

Pond B-1: Bioretention

Hydrograph



POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 15

Summary for Pond P-1: Pond

[79] Warning: Submerged Pond B-1 Primary device # 2 OUTLET by 2.86'

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 2.48" for 10-yr event
 Inflow = 13.86 cfs @ 12.19 hrs, Volume= 0.997 af
 Outflow = 10.57 cfs @ 12.30 hrs, Volume= 0.908 af, Atten= 24%, Lag= 6.5 min
 Primary = 10.57 cfs @ 12.30 hrs, Volume= 0.908 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Starting Elev= 314.40' Surf.Area= 2,395 sf Storage= 4,204 cf
 Peak Elev= 317.26' @ 12.30 hrs Surf.Area= 4,293 sf Storage= 13,646 cf (9,442 cf above start)
 Flood Elev= 320.00' Surf.Area= 6,514 sf Storage= 28,380 cf (24,176 cf above start)

Plug-Flow detention time= 98.8 min calculated for 0.809 af (81% of inflow)
 Center-of-Mass det. time= 35.8 min (840.9 - 805.1)

Volume	Invert	Avail.Storage	Storage Description
#1	312.00'	28,380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.00	1,146	0	0
314.00	2,149	3,295	3,295
316.00	3,378	5,527	8,822
318.00	4,833	8,211	17,033
320.00	6,514	11,347	28,380

Device	Routing	Invert	Outlet Devices
#1	Primary	314.40'	24.0" Round Culvert L= 85.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 314.40' / 312.00' S= 0.0282 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	314.40'	4.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	316.40'	26.0" W x 8.0" H Vert. Orifice/Grate X 2.00 C= 0.600
#4	Device 1	318.50'	30.0" x 30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Primary	319.50'	20.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=10.57 cfs @ 12.30 hrs HW=317.26' (Free Discharge)

1=Culvert (Passes 10.57 cfs of 20.61 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.69 cfs @ 7.90 fps)
 3=Orifice/Grate (Orifice Controls 9.88 cfs @ 3.42 fps)
 4=Orifice/Grate (Controls 0.00 cfs)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

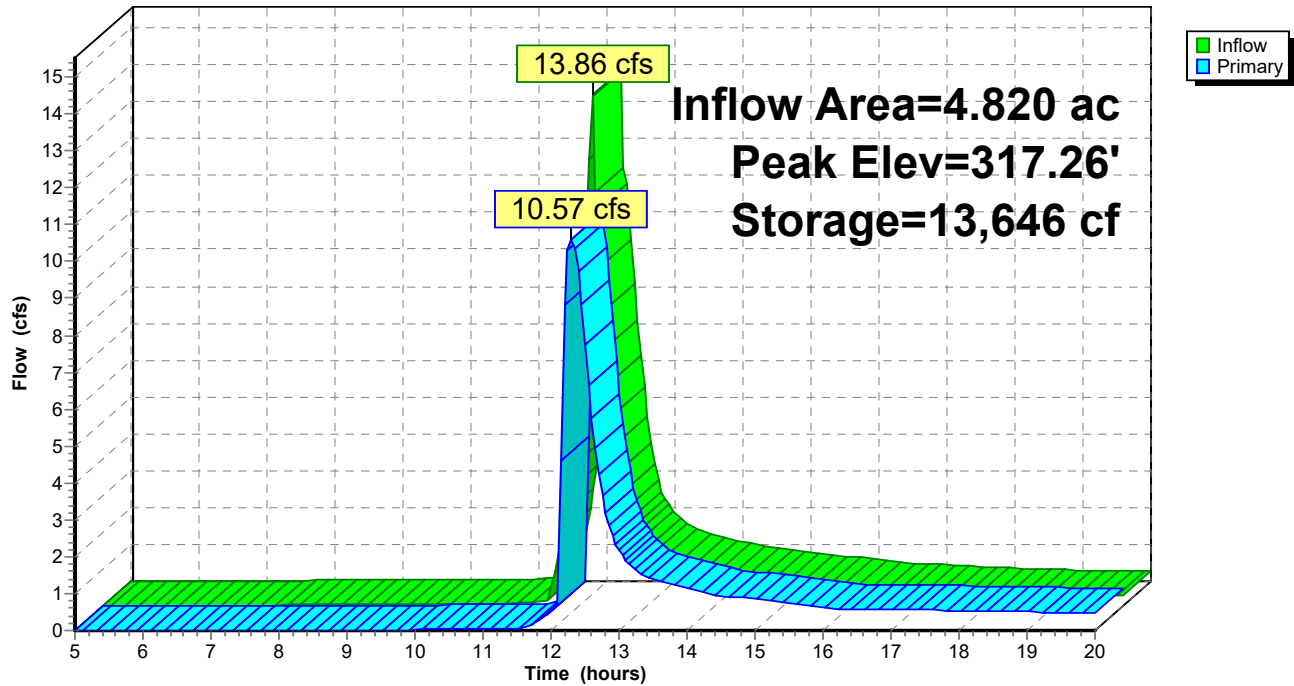
Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 16

Pond P-1: Pond

Hydrograph



POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 10-yr Rainfall=4.65"

Printed 2/22/2024

Page 17

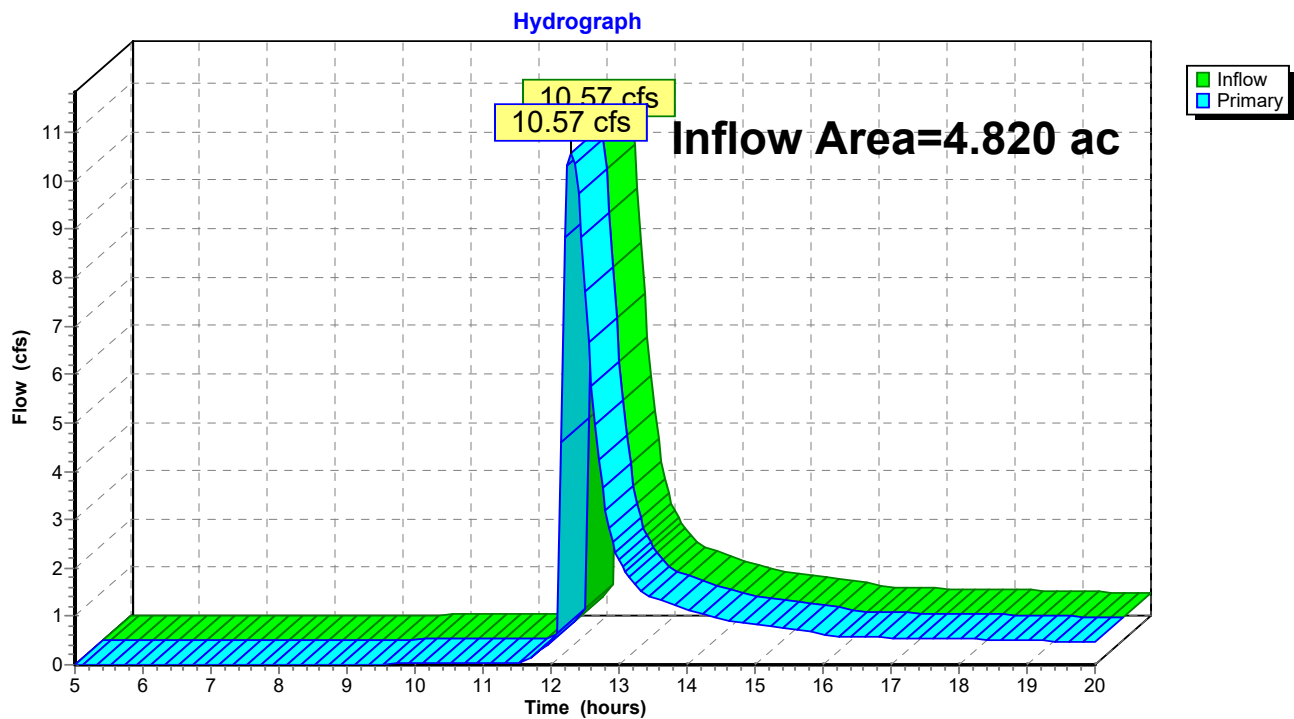
Summary for Pond SDP-1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 2.26" for 10-yr event
Inflow = 10.57 cfs @ 12.30 hrs, Volume= 0.908 af
Primary = 10.57 cfs @ 12.30 hrs, Volume= 0.908 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SDP-1:



POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.16"

Printed 2/22/2024

Page 18

Summary for Subcatchment PR-1:

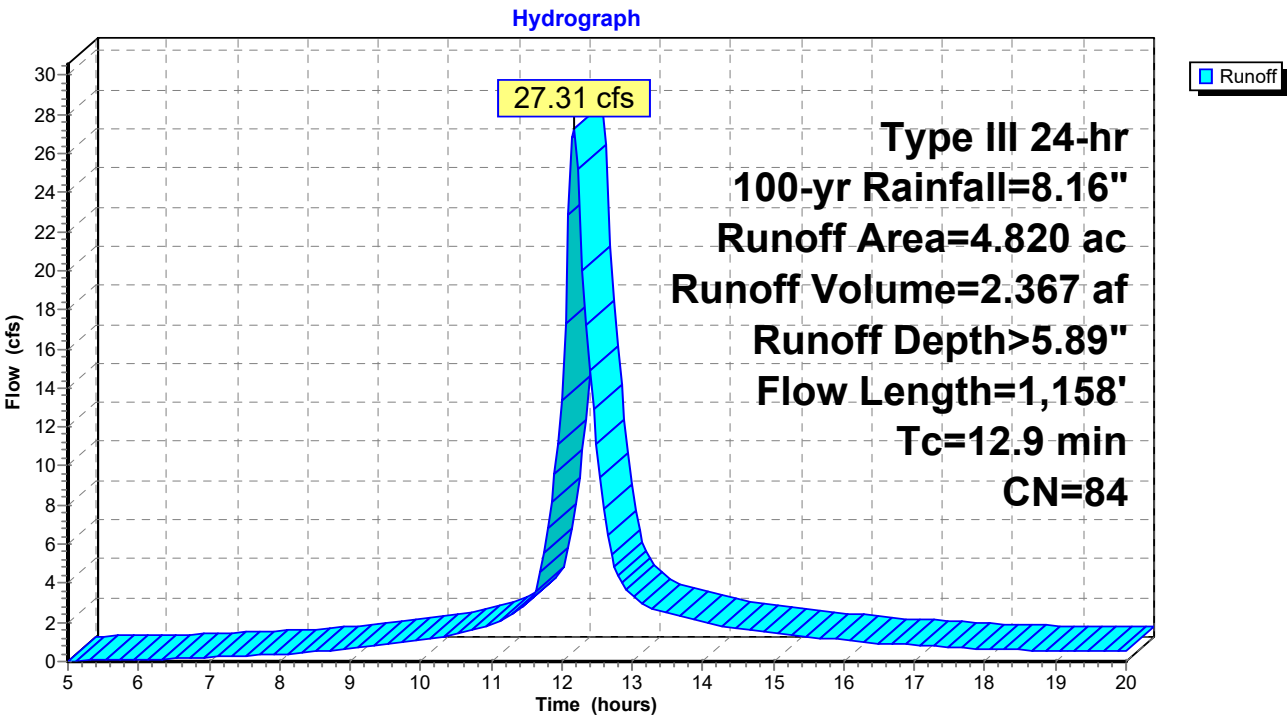
Runoff = 27.31 cfs @ 12.17 hrs, Volume= 2.367 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=8.16"

Area (ac)	CN	Description
2.024	85	1/2 acre lots, 25% imp, HSG D
0.451	73	Brush, Good, HSG D
0.458	98	Paved parking, HSG D
0.165	98	Roofs, HSG D
* 0.047	98	Concrete, HSG D
1.675	80	>75% Grass cover, Good, HSG D
4.820	84	Weighted Average
3.644		75.60% Pervious Area
1.176		24.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0467	0.24		Sheet Flow, Grass: Short n= 0.150 P2= 3.15"
0.2	90	0.1000	6.42		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.9	480	0.0840	2.03		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.3	230	0.0400	3.00		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
0.1	44	0.0100	5.26	6.46	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.1	107	0.1000	22.77	71.54	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.1	23	0.0100	4.54	3.56	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.2	84	0.0100	7.20	22.62	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
12.9	1,158	Total			

Subcatchment PR-1:



POST

Type III 24-hr 100-yr Rainfall=8.16"

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 20

Summary for Pond B-1: Bioretention

[82] Warning: Early inflow requires earlier time span

[92] Warning: Device #4 is above defined storage

[93] Warning: Storage range exceeded by 0.15'

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 5.89" for 100-yr event
 Inflow = 27.31 cfs @ 12.17 hrs, Volume= 2.367 af
 Outflow = 27.68 cfs @ 12.17 hrs, Volume= 2.253 af, Atten= 0%, Lag= 0.0 min
 Primary = 27.68 cfs @ 12.17 hrs, Volume= 2.253 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 322.15' @ 12.17 hrs Surf.Area= 4,488 sf Storage= 6,253 cf

Plug-Flow detention time= 32.7 min calculated for 2.245 af (95% of inflow)
 Center-of-Mass det. time= 14.9 min (782.6 - 767.7)

Volume	Invert	Avail.Storage	Storage Description
#1	317.80'	1,810 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 4,525 cf Overall x 40.0% Voids
#2	318.00'	4,443 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		6,253 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
317.80	1,414	0	0
321.00	1,414	4,525	4,525

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
318.00	80	0	0
320.00	426	506	506
321.00	2,187	1,307	1,813
322.00	3,074	2,631	4,443

Device	Routing	Invert	Outlet Devices
#1	Device 2	321.50'	30.0" x 30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	317.80'	24.0" Round Culvert L= 34.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 317.80' / 314.40' S= 0.1000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	317.80'	1.000 in/hr Exfiltration over Surface area
#4	Primary	322.00'	80.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.16"

Printed 2/22/2024

Page 21

Primary OutFlow Max=26.93 cfs @ 12.17 hrs HW=322.14' (Free Discharge)

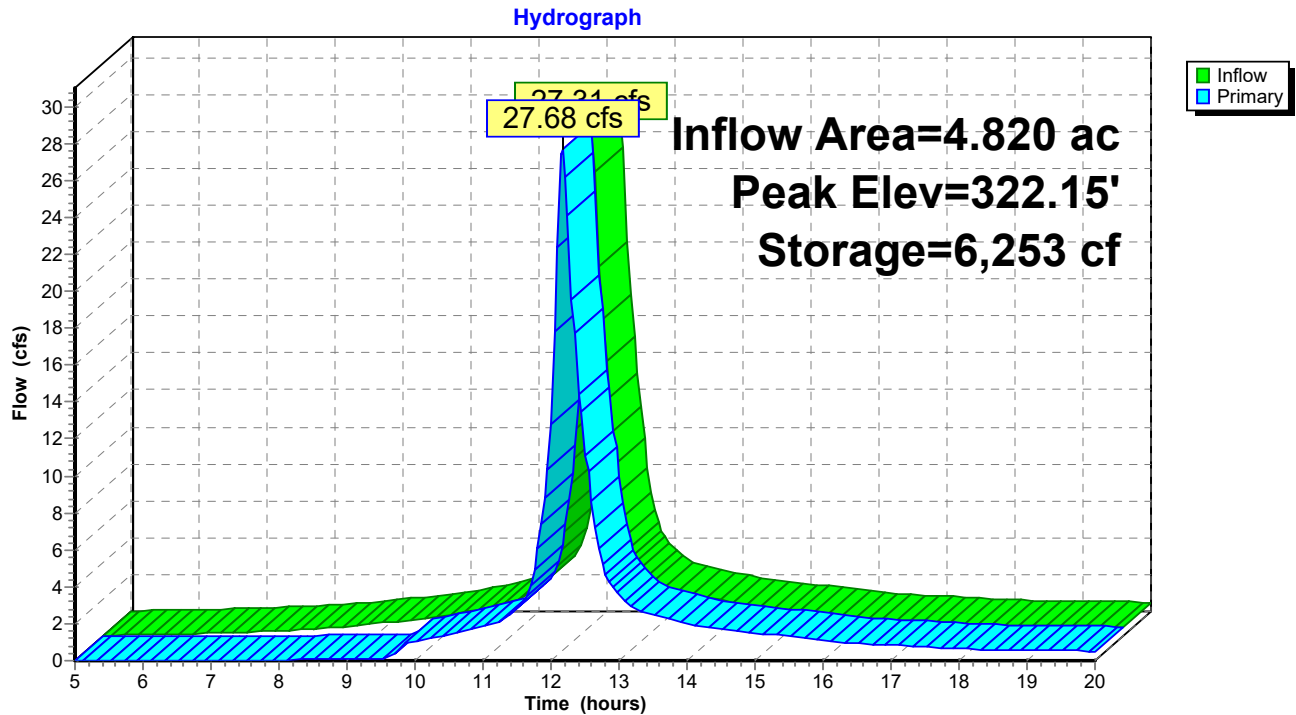
2=Culvert (Passes 16.89 cfs of 24.40 cfs potential flow)

1=Orifice/Grate (Weir Controls 16.78 cfs @ 2.62 fps)

3=Exfiltration (Exfiltration Controls 0.10 cfs)

4=Broad-Crested Rectangular Weir (Weir Controls 10.04 cfs @ 0.89 fps)

Pond B-1: Bioretention



POST

Type III 24-hr 100-yr Rainfall=8.16"

Prepared by {enter your company name here}

Printed 2/22/2024

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Page 22

Summary for Pond P-1: Pond

[79] Warning: Submerged Pond B-1 Primary device # 2 INLET by 0.80'

Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 5.61" for 100-yr event
 Inflow = 27.68 cfs @ 12.17 hrs, Volume= 2.253 af
 Outflow = 21.00 cfs @ 12.30 hrs, Volume= 2.117 af, Atten= 24%, Lag= 7.9 min
 Primary = 21.00 cfs @ 12.30 hrs, Volume= 2.117 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Starting Elev= 314.40' Surf.Area= 2,395 sf Storage= 4,204 cf
 Peak Elev= 318.60' @ 12.30 hrs Surf.Area= 5,341 sf Storage= 20,107 cf (15,904 cf above start)
 Flood Elev= 320.00' Surf.Area= 6,514 sf Storage= 28,380 cf (24,176 cf above start)

Plug-Flow detention time= 56.6 min calculated for 2.014 af (89% of inflow)
 Center-of-Mass det. time= 17.2 min (799.8 - 782.6)

Volume	Invert	Avail.Storage	Storage Description
#1	312.00'	28,380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
312.00	1,146	0	0
314.00	2,149	3,295	3,295
316.00	3,378	5,527	8,822
318.00	4,833	8,211	17,033
320.00	6,514	11,347	28,380

Device	Routing	Invert	Outlet Devices
#1	Primary	314.40'	24.0" Round Culvert L= 85.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 314.40' / 312.00' S= 0.0282 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf
#2	Device 1	314.40'	4.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	316.40'	26.0" W x 8.0" H Vert. Orifice/Grate X 2.00 C= 0.600
#4	Device 1	318.50'	30.0" x 30.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#5	Primary	319.50'	20.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=20.88 cfs @ 12.30 hrs HW=318.60' (Free Discharge)

1=Culvert (Passes 20.88 cfs of 27.06 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.84 cfs @ 9.67 fps)
 3=Orifice/Grate (Orifice Controls 18.98 cfs @ 6.57 fps)
 4=Orifice/Grate (Weir Controls 1.05 cfs @ 1.04 fps)
 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

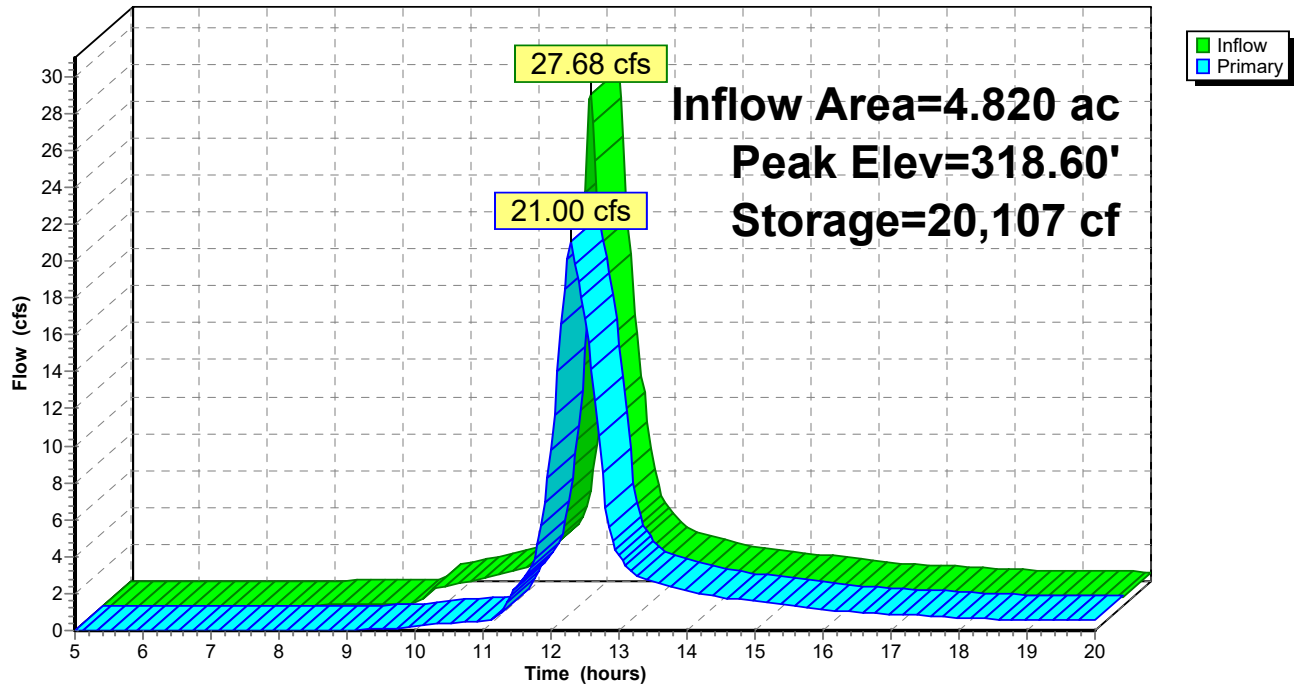
Type III 24-hr 100-yr Rainfall=8.16"

Printed 2/22/2024

Page 23

Pond P-1: Pond

Hydrograph



POST

Prepared by {enter your company name here}

HydroCAD® 10.00-26 s/n 08522 © 2020 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.16"

Printed 2/22/2024

Page 24

Summary for Pond SDP-1:

[40] Hint: Not Described (Outflow=Inflow)

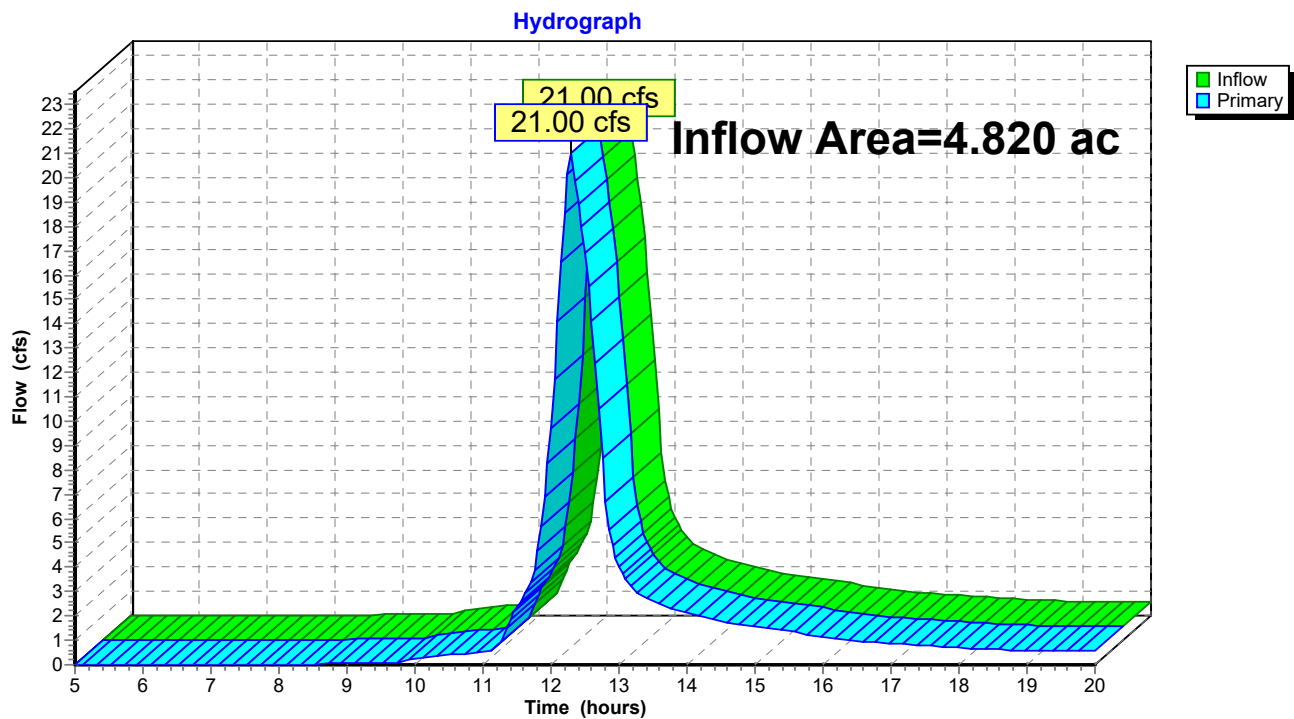
Inflow Area = 4.820 ac, 24.40% Impervious, Inflow Depth > 5.27" for 100-yr event

Inflow = 21.00 cfs @ 12.30 hrs, Volume= 2.117 af

Primary = 21.00 cfs @ 12.30 hrs, Volume= 2.117 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SDP-1:



APPENDIX H

DRAINAGE MAPS

APPENDIX I

STORMWATER CALCULATIONS



<u>WQv and RRv Summary Sheet</u>			
Total WQv Required =		5,462	cf
WQv Provided by:	Bioretention-	1,260	cf
	Pond Permanent Pool-	4,204	cf
Total WQv Provided=		5,464	cf
Total Minimum RRv Required using specific reduction factor=		434	cf
RRv Provided by:	Bioretention -	504	cf
Total RRv Provided =		504	cf



New Impervious Surfaces

		Total Impervious	0.67	Ac
		Total Site	3.18	Ac
P=	1.4			
Rv=	0.05 + 0.009 (I)			
Rv=	0.338			
		Specific Reduction Factor		
I=	Impervious Cover (percent)	HSG A		0.55
I=	21%	HSG B		0.4
A=	3.18	HSG C		0.3
S=	0.1342	HSG D		0.2

$$WQ_v = \{[(P)(R_v)(A)]/12\}$$

WQ_v= 5462 (cf) for new impervious surfaces

$$RR_v = \{[(P)(R_v)(A)(S)]/12\}$$

RR_v= 434 (cf) with specific reduction factor

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

$$A_f = WQv * (df) / [k * (hf + df)(tf)]$$

A_f	Required Surface Area (ft ²)	
WQv	Water Quality Volume (ft ³)	
df	Depth of the Soil Medium (feet)	k
hf	Average height of water above the planter bed	
tf	Volume Through the Filter Media (days)	

The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: **Sand** - 3.5 ft/day (City of Austin 1988); **Peat** - 2.0 ft/day (Galli 1990); **Leaf Compost** - 8.7 ft/day (Claytor and Schueler, 1996); **Bioretention Soil** (0.5 ft/day (Claytor &

Design Point:	(Acres)						
Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Precipitation (in)	Description
1	2.10	0.67	0.32	0.34	3598.06	1.40	Bioretention
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	32%	0.34	3,598	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						ft ³	
Soil Information							
Soil Group		D					
Soil Infiltration Rate		0.00	in/hour	Okay			
Using Underdrains?		Yes	Okay				
Calculate the Minimum Filter Area							
				Value	Units	Notes	
WQv				3,598	ft ³		
Enter Depth of Soil Media				df	2.5	ft	2.5-4 ft
Enter Hydraulic Conductivity				k	0.5	ft/day	
Enter Average Height of Ponding				hf	0.5	ft	6 inches max.
Enter Filter Time				tf	2	days	
Required Filter Area				Af	2998	ft ²	
Determine Actual Bio-Retention Area							
Filter Width		75	ft				
Filter Length		14	ft				
Filter Area		1050	ft ²				
Actual Volume Provided		1260	ft ³				
Determine Runoff Reduction							
Is the Bioretention contributing flow to another practice?			Yes	Select Practice	Other/Standard SMP		
RRv		504					
RRv applied		504	ft ³	This is 40% of the storage provided or WQv whichever is less.			
Volume Treated		0	ft ³	This is the portion of the WQv that is not reduced in the practice.			

APPENDIX J

CONSTRUCTION INSPECTION AND MAINTENANCE CHECKLISTS

Stormwater/Wetland Pond Construction Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under “haunches” of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for "honeycomb" prior to backfilling; parge if necessary		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly place at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil amendments		
Excelsior mat or other stabilization, as per plan		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place Reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Bioretention Construction Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact subsoils.		
Longitudinal slopes within design range		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slightly textured appearance and is set against a dark background.

This image shows a full page of white paper with horizontal black lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines in total. A thicker, bolder line runs horizontally across the middle of the page, dividing it into two roughly equal sections. This style of paper is commonly used for writing or drawing.

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
 Location: _____
 Site Status: _____

 Date: _____
 Time: _____

 Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6. Pond, toe & chimney drains clear and functioning		
7. Seeps/leaks on downstream face		
8. Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam "As-Built"		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____		
1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1. Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4. Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3. Aesthetics		
a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants "choked" with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaterers between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Comments:

Actions to be Taken:

APPENDIX K

NRCC MEAN PRECIPITATION FREQUENCY ESTIMATES



Northeast Regional Climate Center Extreme Precipitation Estimates (inches)
for Marlborough, Ulster County, New York

Mean precipitation frequency estimates

Duration	90%-Storm	1-Year	10-Year	100-Year
Inches	1.4	2.61	4.65	8.16

APPENDIX L

LEVEL SPREADER SPECIFICATIONS

STANDARD AND SPECIFICATIONS FOR FLOW SPREADER



Definition & Scope

A **permanent or temporary**, non-erosive outlet for concentrated runoff, constructed to disperse concentrated flow uniformly over a hardened weir into a stabilized area as shallow, low velocity, sheet flow.

Conditions Where Practice Applies

Where sediment-free storm runoff can be released in sheet flow down a stabilized slope without causing erosion; where a hardened level weir can be constructed without filling; where the area below the weir is uniform with a slope of 10% or less and the runoff will not re-concentrate after release; and where no traffic will disturb the flow spreader.

Design Criteria

1. **Drainage area:** The maximum drainage area to the spreader may not exceed 5 acres.
2. **Discharge to a flow spreader:** The peak stormwater flow rate to a flow spreader due to runoff from a 10-year 24-hour storm must be less than 0.5 cubic feet per second (0.5 cfs) per foot length of flow spreader lip.
3. **Length of flow spreader:** The flow spreader length may not be more than 30 feet if flow is entering from one end of the spreader. Longer lengths require flow to split evenly from the center of the spreader.
4. **Receiving area of buffer:** Each flow spreader shall have a vegetated receiving area with the capacity to pass the flow without erosion. The receiving area shall be stable prior to the construction of the flow spreader. The receiving area shall have topography regular enough to prevent undue flow concentration before entering a stable watercourse but it shall have a slope that is less than 10%. If the receiving area is not presently stable, then the receiving area shall be stabilized prior to construction of the flow spreader. The receiving area below the flow spreader shall be protected from harm during construction. Sodding and/or turf reinforced mat in combination with vegetative measures shall stabilize disturbed areas. The receiving area shall not be used by the flow spreader until stabilization has been accomplished. A temporary diversion may be necessary in this case.
5. **Weir:** The weir of the flow spreader should consist of a pressure treated 2"x12" timber plank laid on edge and set at level elevation perpendicular to flow. Alternate hardened weir structures may be used as long as a hard, durable, continuous weir is maintained.
6. **Channel:** The flow spreader entrance channel shall be a minimum of 1 foot deep with a minimum 2 foot bottom width to trap sediment and reduce lateral flow velocities. Side slopes shall be 2:1 or flatter. The channel shall be constructed with a 0% grade to ensure uniform flow distribution. Velocity entering the channel shall be reduced to ensure non-erosive low approach velocity in the weir.
7. **Maintenance:** Long term maintenance of the flow spreader is essential to ensure its continued effectiveness. The following provisions should be followed. In the first year the flow spreader should be inspected semi annually and following major storm events for any signs of channelization and should be immediately repaired. After the first year, annual inspection should be sufficient. Spreaders constructed of wood, asphalt, stone or concrete curbing require periodic inspection to check for damage and to be repaired as needed.
 - A. **Inspections:** At least once a year, the spreader pool should be inspected for sand accumulation and debris that may reduce capacity.
 - B. **Maintenance Access:** Flow spreaders should be sited to provide easy access for removal of accumulated sediment and rehabilitation of the berm.
 - C. **Debris Removal:** Debris buildup within the channel should be removed when it has accumulated to approximately 10 to 20% of design volume or channel capacity. Remove debris such as leaf litter, branches, tree growth and any sediment build-up from the spreader and dispose of appropriately.
 - D. **Mowing:** Vegetated spreaders may require mowing.

Figure 3.7
Flow Spreader Detail

