MARLBORO II DISTRIBUTION

STORMWATER POLLUTION PREVENTION PLAN

10 Main Street Suite 321
New Paltz, NY 12561
T 845.255.0210
www.willinghamengineering.com

Project Location:
1100 US Route 9W
Town of Marlborough
Ulster County, New York

Owner:
West Rac Contracting Corporation
687 Old Willets Path
Hauppauge, New York 11788

January 2018

Table of Contents

APPENDICES

1.0 INTRODUCTION

1.1 Overview

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for the Applicant and Owner, West Rac Contracting Corporation. The property is approximately 7.8 acres in size and is located at 1100 Route 9W in the Town of Marlborough. The existing use of the parcel is vacant, with two small buildings located on site which served the previous business on-site, a bulk materials storage yard. Additional site improvements remaining from the previous use include subsurface wastewater disposal system, water supply well, paved driveway entrance and interior gravel driveways. The property is bordered to the north by an automotive business, to the east by forest, to the west by Route 9W and to the south by woods and orchard.

The Applicant is proposing to development of a storage facility on the site. All proposed land disturbance is in relation to the development of the storage 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-0-15-002, dated January 12, 2015 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 4.3 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 7.8-acre parcel proposed for development is partially wooded with the majority of development occurring in previously developed areas. The soils encountered on the portion of the site proposed for development consist of Bath and Nassau 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 soil types:

Table 2.1 Soil Types

Soil Name	Soil Symbol	Hydrologic Soil Group
Bath-Nassau-Rock Outcrop Complex	BOD	C

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 course 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

All drainage flows from the property into an existing unnamed stream on the east side of the property. The stormwater is conveyed to the north into Lattintown Creek which outlets into the Hudson River, approximately 1mile northeast of the project site.

2.4 Environmentally Sensitive Areas

There are no environmentally sensitive areas located on the project 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 (Qp – "10 year storm") and Extreme Flood Flow (Qf – "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 this case. Therefore, meeting the full CPv requirement is considered inappropriate for this site. The outlet orifices within the pond outlet control structure, 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. The maximum flow rate exiting the pond during the 1-year storm is 0.58 cfs, a flow that 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, and/or the stormwater pond where the runoff will be treated and discharged into the existing stormwater conveyance system located east of 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 areas, which are considered to be standard stormwater management practices 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. As noted in the redevelopment section, RRv is not required for areas of the site proposed as redevelopment.

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 rain events. The stormwater management system has been designed to meet the conditions for Qp, and Qf 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

Two bioretention areas, and a 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:

$RRv = (P) * (Rv) * (Ai) / 12$

Where:

RRv = Runoff Reduction Volume (in acre-feet)

Ai = (S) * (Aic)

Ai = Impervious cover targeted for runoff reduction

Aic = Total area of new impervious cover

P = 90% Rainfall Event Number

Rv = .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)

Two bioretention areas with underdrains are 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 Redevelopment Activity

Redevelopment of previously developed sites is encouraged from a watershed protection standpoint because it often provides an opportunity to conserve natural resources in less impacted areas by targeting development to areas with existing services and infrastructures. At the same time, redevelopment provides an opportunity to correct existing problems and reduce pollutant discharges from older developed areas that were constructed without effective stormwater pollution controls.

In accordance with the Design Manual, redevelopment activity is considered when a project includes disturbance and reconstruction of existing impervious surfaces. As described above, the prior use of the site was a bulk materials storage yard, which included existing buildings, interior gravel roadways among other improvements. This site was operational until sometime after 2009, after which, the site became vacant but the improvements remained. A historic aerial image of the site from 2009 is included to aid in the identification of existing ground cover, much of which, is now overgrown with weeds. This image clearly shows the impervious surfaces (interior gravel driveway areas and buildings) which will be removed as part of the proposed development. These impervious surfaces proposed to be removed on the site are considered redevelopment areas.

The Design Manual provides alternative sizing criteria for stormwater management practices proposed as part of redevelopment activities. Implementation of the alternative sizing criteria will result in pollution reductions over existing conditions with no or substandard practices in place.

The alternative sizing criteria to be utilized for water quality volume at this site is described in option 2 of Chapter 9 of the manual. Option 2 states that a minimum of 25% of the WQv from the disturbed impervious area is captured and treated by the implementation of standard stormwater management practices or reduced by application of green infrastructure techniques. RRv is not required for redevelopment areas. The stormwater management practices proposed to treat impervious surfaces not considered redevelopment activity are required to satisfy the full WQv and RRv.

4.5 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 one of the bioretention facilities or the stormwater pond, where the RRv requirement is satisfied and the WQv is treated. The runoff outlets to the existing stream east of the site. 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. Pretreatment for the bioretention facilities is provided by a pea gravel diaphragm, grass filter strip and mulch layer over the bioretention planting bed. Additional pretreatment for the bioretention areas is provided by grass channels. Pretreatment for the pond will be provided by the sediment forebays which are designed to 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	7,810 cf	10,443 cf	Bioretention Facility 1 – 2,100 cf
			Bioretention Facility 2 – 2,160 cf
			Pond Permanent Pool – 6,183 cf
RRv	1,602 cf	1,704 cf	Bioretention Facility 1 – 840 cf
			Bioretention Facility 2 – 864 cf

4.6 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	5.387	Paved Parking, Buildings, Gravel, Woods, Brush, Grass	80	C	20.9

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

4.7 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	4.88	Paved Parking, Buildings, Gravel, Woods, Brush, Grass	87	C	14.3
PR-2	0.50	Grass	74	C	14.9

Please note in the post-development calculations and on Drainage Map DM-POST, the area east and southeast of the proposed building was assumed to be impervious. Although this area will be grass for this project, should future development occur in these areas all stormwater practices will have been sized accordingly and do not need to be enlarged to accommodate the additional impervious surface. For a more detailed description of the watersheds, refer to the HydroCAD drainage calculations included as an Appendix.

4.8 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	5.44	0.84	15.06	11.78	33.10	23.63

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.

4.9 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 areas have been designed to capture and treat the required Water Quality Volume (WQv) and Runoff Reduction Volume (RRv). Runoff from the building and paved surface adjacent to the bioretention areas will be directed into the bioretention areas, 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 pond which collect the stormwater runoff from the remainder of the developed site. The bioretention areas, and pond meet the requirements set forth in the NYSDEC Design Manual, including but not limited to pretreatment, landscaping and maintenance access.

4.10 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.

- Development is located in areas previously developed to preserve undisturbed areas and locate development in less sensitive areas.
- All planned development is located away from the steep slopes which exist on the property. 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 4.3 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, August 2005

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 cease 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 diversions 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. 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-0-15-002 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-0-15-002 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-0-15-002.

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-0-15-002.

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 portions of the driveway will be directed toward the bioretention areas. This Stormwater Management practice will be integrated into the site to provide WQv treatment and to satisfy the RRv requirements.

The bioretention areas have 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 facility will rise to the invert / rim elevation of an engineered outlet control structure and be conveyed to the stormwater management pond.

Elements of the systems include pea gravel diaphragm, grass filter strip, mulch, bioretention soil, filter fabric, gravel, 6" diameter perforated collection pipes, a 12” 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 the pond.

Pretreatment for the bioretention will be provided by a pea gravel diaphragm, grass filter strip 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.

7.2 Stormwater Ponds

7.2.1 *Design*

The pond has been designed primarily to reduce peak flow rates discharging from the site. Additionally, the pond will have a permanent pool which will capture and treat the remaining Water Quality Volume (WQv). The lowest outlet elevation has been set above the WQv elevation to ensure the full treatment volume. The pond will have 3H:1V side slopes. The pond meets the requirements set forth in the NYSDEC Design Manual, including but not limited to pretreatment, landscaping and maintenance access.

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.

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 water tight 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-0-15-002. 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	10 Main Street – Suite 321
Telephone Number	(845) 255-0210

Signature _____

Date _____

* Person providing signature shall meet the requirements of Part V.H. of General Permit GP-0-15-002

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-0-15-002 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-0-15-002

APPENDICES

APPENDIX A: SOILS DATA

APPENDIX B: EROSION AND SEDIMENT CONTROL PLANS

APPENDIX C: NOTICE OF INTENT (NOI)

APPENDIX D: GP-0-15-002

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

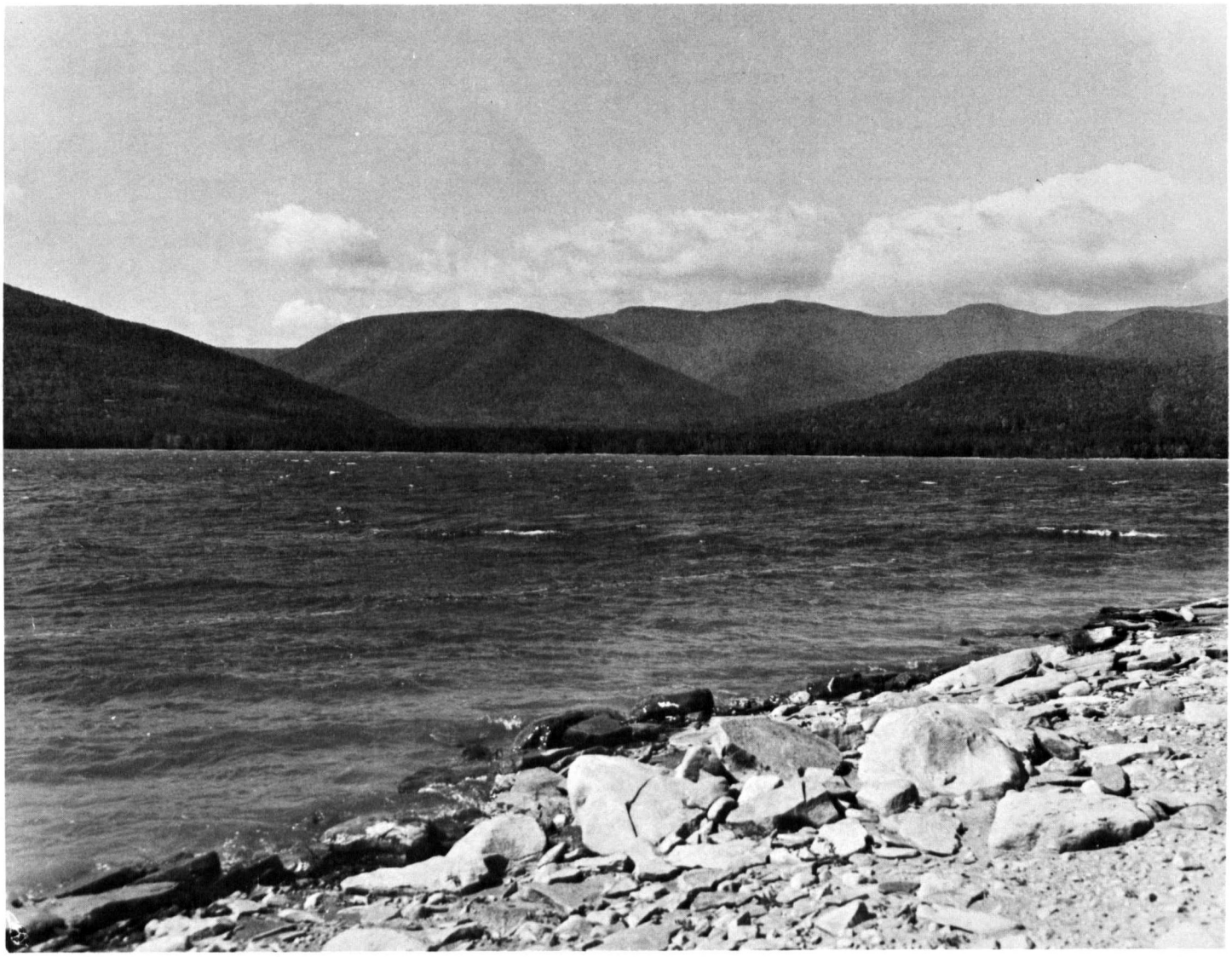
APPENDIX L: HISTORICAL AERIAL IMAGERY

APPENDIX A

SOILS DATA

SOIL SURVEY OF

Ulster County, New York



United States Department of Agriculture
Soil Conservation Service
in cooperation with
Cornell University Agricultural Experiment Station

on the sides and tops of the bedrock ridges. Areas are 10 to more than 500 acres in size. They vary in shape.

This unit is made up of 50 percent Bath gravelly silt loam, 30 percent Nassau shaly silt loam, and 20 percent other soils. Bath and Nassau soils are in such an intricate pattern that they are not shown separately on the soil map.

Typically, the surface layer of the Bath soil is dark brown gravelly silt loam about 6 inches thick. The upper part of the subsoil extends to a depth of about 28 inches. It is friable, yellowish brown gravelly loam. The lower part of the subsoil extends to a depth of 48 inches. It is a firm, dark yellowish brown gravelly loam fragipan. Dark gray shale bedrock is at a depth of about 48 inches.

Typically, the surface layer of the Nassau soil is brown shaly silt loam 6 inches thick. The upper part of the subsoil extends to a depth of 10 inches. It is very friable, yellowish brown very shaly silt loam. The lower part of the subsoil extends to a depth of 16 inches. It is friable, brown very shaly silt loam. Dark gray shale bedrock is at a depth of about 16 inches.

Included with these soils in mapping are small areas of well drained and excessively drained Manlius soils that are underlain with folded bedrock at a depth of 20 to 40 inches. They are intermingled with the major soils on the ridges and between the ridges. The somewhat poorly drained Volusia soils are in a few small depressions between the ridges. A few rock outcrop and wet spots are included, and most of these are shown on the soil map by special symbols. A strip about 3 miles wide in the Shawangunk Kill and Wallkill Valleys has the moderately well drained Cambridge soil in the Bath position. Also included are very small areas of lake-deposited Hudson, Cayuga, Schoharie, Raynham, Churchville, and Rhinebeck soils that are intermingled with the Bath soil between the ridges.

The Bath soil generally has free water above the fragipan for brief periods late in fall, in winter, and early in spring. Roots are confined mainly to the 26- to 38-inch zone above the slowly permeable fragipan. Available water capacity is moderate. Depth to bedrock is more than 40 inches. Permeability is moderate in the surface layer and in the upper part of the subsoil.

Roots in the Nassau soil are confined mainly to the 10 to 20 inches of soil above the bedrock. A few roots penetrate fractures in bedrock in some areas. Because of shallowness to bedrock, available water capacity is very low, and plants wilt quickly during dry periods. Permeability is moderate in the Nassau soil.

Runoff is rapid from both soils. In unlimed areas, the Bath soil is very strongly acid to medium acid in the surface layer and subsoil. The Nassau soil is very strongly acid or strongly acid in the surface layer and subsoil.

This unit is used mainly for orchards, permanent pasture, and woodland. Potential is good for these uses. This unit is poor for cultivated crops. Some areas of this unit are used for vineyards and hay. The variable depth to bedrock; irregular relief; and the dense, slowly permeable fragipan in the Bath soil limit intensive use of these soils.

These soils can be cropped, but the cropping system needs to include a high proportion of sod-forming crops and pasture. Available water capacity varies within short distances. Erosion is a severe hazard. Conservation practices, other than sod-forming crops and minimum tillage, are very difficult to install because of the uneven topography.

Orchards maintained in permanent sod cover are suited to these soils. Driving lanes are needed in some areas to avoid the hazard of machinery upset. Because vineyards are clean cultivated, they are poorly suited to these soils because of the hazard of erosion.

Woodland productivity is moderately high on the Bath soils and poor on the Nassau soils. Machine planting of tree seedlings is practical in large areas of these soils.

The variable depth to bedrock, irregular relief, and the dense, slowly permeable fragipan in the Bath soil are severe limitations for most urban uses. Some esthetic homesite areas are in this unit but sites for sewage disposal can be very limiting. Most areas have potential for dwellings without basements if public sewers are available. Erosion is a hazard during construction. A vegetative cover maintained on the site helps prevent erosion. Capability subclass IVe.

BOD—Bath-Nassau-Rock outcrop complex, hilly. This map unit consists of a deep, well drained Bath soil; a shallow, somewhat excessively drained Nassau soil; and small areas of exposed bedrock. The soils formed in glacial till. Areas are mainly on a series of ridges that are cored by folded shale, slate, siltstone, and sandstone bedrock. The ridges are generally oriented in a northeast-southwest direction. The Bath soil mainly is in convex inter-ridge areas where runoff does not accumulate. The Nassau soil is on ridgesides and is intermingled with rock outcrops on ridgetops. Relief is very irregular. Slopes are short and generally complex. They are mainly 10 to 25 percent, but range from 10 to 30 percent. Areas vary in size and shape. Some areas are as much as 1,000 acres in size.

This unit is made up of about 40 percent Bath gravelly silt loam, about 25 percent Nassau shaly silt loam, about 15 percent Rock outcrop, and 20 percent other soils. These soils and Rock outcrop are in such an intricate pattern that they are not shown separately on the soil map.

Typically, the surface layer of Bath soil is dark brown gravelly silt loam about 6 inches thick. The upper part of the subsoil extends to a depth of about 28 inches. It is friable, yellowish brown gravelly loam. The lower part of the subsoil extends to a depth of about 48 inches. It is a firm, dark yellowish brown gravelly loam fragipan. Dark gray shale bedrock is at a depth of 48 inches.

Typically, the surface layer of the Nassau soil is brown shaly silt loam about 6 inches thick. The upper part of the subsoil extends to a depth of 10 inches. It is very friable, yellowish brown, very shaly silt loam. The lower part of the subsoil extends to a depth of 16 inches. It is friable, brown, very shaly silt loam. Dark gray shale bedrock is at a depth of about 16 inches.

Included with this unit in mapping are somewhat poorly drained Volusia soils and moderately well drained Mardin soils that are intermingled with the Bath soils on foot slopes and in depressions in areas between ridges; well drained to excessively drained Manlius soils that have bedrock at a depth of 20 to 40 inches and are intermingled with the major soils on ridges and between ridges; and lake-deposited Hudson, Cayuga, and Schoharie soils that are intermingled with the Bath soil between ridges. Also included are some very stony areas; areas that have slopes of 3 to 10 percent; and a strip about 3 miles wide in the Wallkill and Shawangunk Kill Valleys in which moderately well drained Cambridge soils are in the Bath position.

The Bath soil generally has free water above the fragipan for short periods late in fall, in winter, and early in spring. Roots are confined mainly to the 26- to 38-inch zone above the slowly permeable fragipan. Available water capacity is moderate. Depth to bedrock is more than 40 inches. Permeability is moderate in the surface layer and in the upper part of the subsoil.

In the Nassau soil, roots are confined mainly to the 10 to 20 inches of soil above the bedrock. A few roots penetrate fractures in some areas. Because of the shallowness to bedrock, available water capacity is very low, and plants wilt early during dry periods. Permeability is moderate in the Nassau soil.

Runoff is medium to very rapid. In unlimed areas, the Bath soil is very strongly acid to medium acid in the surface layer and subsoil. The Nassau soil is strongly acid or very strongly acid in the surface layer and subsoil.

This unit is used mainly for woodland and for wildlife habitat to which it is well suited. Some areas are in permanent pasture and orchards. The unit has poor potential for farming. It has potential for some types of recreational developments.

Farm uses are affected by the variable depth to bedrock, slope, rock outcrops, and the dense, slowly permeable fragipan in the deeper soils of this unit. The rock outcrops hinder fertilizing and mowing of pasture.

Fruit trees are generally widely spaced, and orchards have open spaces in areas of rock outcrops and where the soils are quite shallow. Vineyards are poorly suited to these soils because of the hazard of erosion, variable depth to bedrock, and rock outcrops.

Woodland productivity is moderately high on the Bath soil and is poor on the Nassau soil. The rock outcrops interfere with machine planting of tree seedling.

The variable depth to bedrock, the slope, rock outcrops, and the dense, slowly permeable fragipan in the Bath soil are severe limitations for most urban uses. Some esthetic homesites are in areas of this unit, but sites for sewage disposal can be very limiting. Most areas have potential for dwellings without basements if public sewers are available. Slope and rock outcrops are minor limitations to uses such as paths and trails. A vegetative cover maintained on the site during construction helps prevent erosion. Capability subclass VIs.

BRC—Bath and Mardin very stony soils, sloping. This map unit consists of well drained Bath soils and moderately well drained Mardin soils that are mainly on convex hilltops and hillsides and on foot slopes. These deep, very stony soils formed in glacial till. Slope ranges from 8 to 15 percent. Areas are oblong or irregular in shape and are 10 to 300 acres in size.

Many areas of this unit are made up of both soils, but some areas consist only of the Bath soils and others of only the Mardin soils. Surface stoniness dominates the capabilities of the unit so much that the difference between the Bath and Mardin soils is relatively unimportant.

Typically, the surface layer of the Bath soil is dark grayish brown, very stony silt loam about 5 inches thick. The upper part of the subsoil extends to a depth of 28 inches. It is friable, yellowish brown gravelly loam. The lower part of the subsoil extends to a depth of about 55 inches. It is a firm, dark yellowish brown gravelly loam fragipan. The substratum to a depth of about 65 inches is firm, dark yellowish brown gravelly loam.

Typically, the surface layer of the Mardin soil is very dark grayish brown, very stony silt loam about 6 inches thick. The upper part of the subsoil extends to a depth of about 17 inches. It is friable, yellowish brown gravelly silt loam and has mottles below a depth of 14 inches. A thin leached layer of firm, mottled, pale brown gravelly loam 4 inches thick separates the upper part of the subsoil from the lower part. The lower part of the subsoil extends to a depth of about 46 inches. It is a firm fragipan that is mottled, olive brown gravelly light loam. The substratum to a depth of 56 inches is firm, mottled, yellowish brown gravelly loam.

Included with these soils in mapping are areas of somewhat poorly drained Volusia and Churchville soils that are on foot slopes and in depressions and make up about 10 percent of some areas; moderately well drained Cambridge soils that are in the Wallkill and Shawangunk Kill Valleys; and narrow strips of Manlius and Lordstown soils that have bedrock at a depth of 20 to 40 inches. Also included are a few small areas of nonstony soils that were cleared for crops and some areas of soils that have slopes of 3 to 8 percent and 15 to 25 percent.

Bath and Mardin soils have a temporary seasonal high water table that is perched above the slowly permeable fragipan and substratum. The water table is at a depth of about 24 to 48 inches in the Bath soils and is slightly

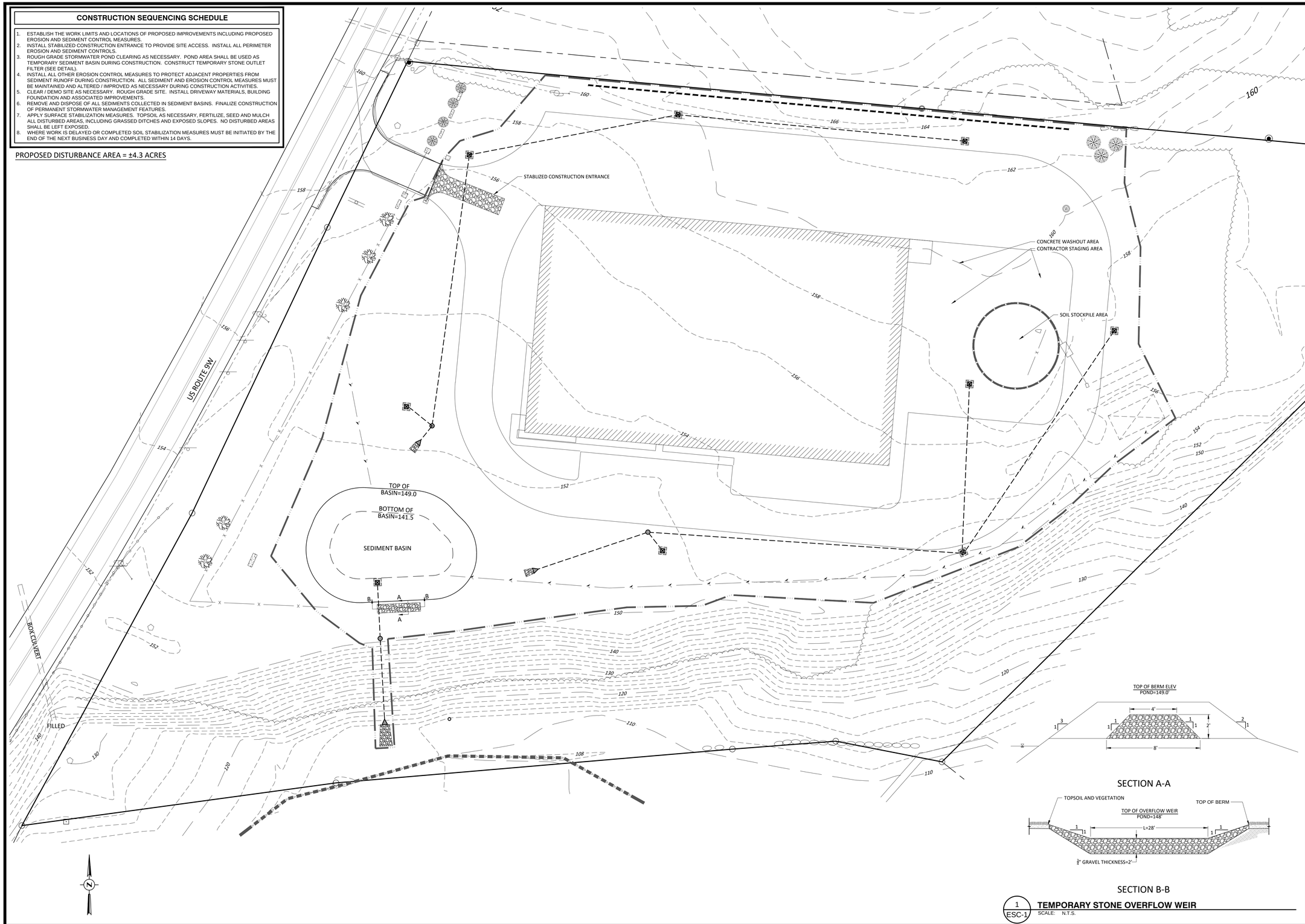
APPENDIX B

EROSION & SEDIMENT CONTROL PLANS

CONSTRUCTION SEQUENCING SCHEDULE

1. ESTABLISH THE WORK LIMITS AND LOCATIONS OF PROPOSED IMPROVEMENTS INCLUDING PROPOSED EROSION AND SEDIMENT CONTROL MEASURES.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE TO PROVIDE SITE ACCESS. INSTALL ALL PERIMETER EROSION AND SEDIMENT CONTROLS.
3. ROUGH GRADE STORMWATER POND CLEARING AS NECESSARY. POND AREA SHALL BE USED AS TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION. CONSTRUCT TEMPORARY STONE OUTLET FILTER (SEE DETAIL).
4. INSTALL ALL OTHER EROSION CONTROL MEASURES TO PROTECT ADJACENT PROPERTIES FROM SEDIMENT RUNOFF DURING CONSTRUCTION. ALL SEDIMENT AND EROSION CONTROL MEASURES MUST BE MAINTAINED AND ALTERED / IMPROVED AS NECESSARY DURING CONSTRUCTION ACTIVITIES.
5. CLEAR / DEMO SITE AS NECESSARY. ROUGH GRADE SITE. INSTALL DRIVEWAY MATERIALS, BUILDING FOUNDATION AND ASSOCIATED IMPROVEMENTS.
6. REMOVE AND DISPOSE OF ALL SEDIMENTS COLLECTED IN SEDIMENT BASINS. FINALIZE CONSTRUCTION OF PERMANENT STORMWATER MANAGEMENT FEATURES.
7. APPLY SURFACE STABILIZATION MEASURES. TOPSOIL AS NECESSARY, FERTILIZE, SEED AND MULCH ALL DISTURBED AREAS, INCLUDING GRASSED DITCHES AND EXPOSED SLOPES. NO DISTURBED AREAS SHALL BE LEFT EXPOSED.
8. WHERE WORK IS DELAYED OR COMPLETED SOIL STABILIZATION MEASURES MUST BE INITIATED BY THE END OF THE NEXT BUSINESS DAY AND COMPLETED WITHIN 14 DAYS.

PROPOSED DISTURBANCE AREA = ±4.3 ACRES



SECTION A-A

SECTION B-B

1 ESC-1 **TEMPORARY STONE OVERFLOW WEIR**
SCALE: N.T.S.

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- BUILDING SETBACK
- PROPERTY BOUNDARY CORNER
- EXISTING MONUMENT
- EXISTING REBAR
- EXISTING IRON PIPE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING CONTOUR (LIDAR)
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- EXISTING DITCH
- EXISTING STONE WALL
- EXISTING TREE LINE
- EXISTING PINE TREE
- EXISTING TREE
- EXISTING GUIDE RAIL
- EXISTING WOOD FENCE
- EXISTING WELL
- EXISTING DRAINAGE CULVERT
- EXISTING DRAINAGE CATCH BASIN
- UTILITY POLE & OVERHEAD LINE
- PROPOSED SILT FENCE
- PROPOSED OVERFLOW WEIR
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED INLET PROTECTION
- PROPOSED CHECK DAM
- PROPOSED GRASS LINED DIVERSION SWALE
- PROPOSED RETAINING WALL
- PROPOSED DRAINAGE CULVERT
- PROPOSED CATCH BASIN
- PROPOSED DRAINAGE MANHOLE
- PROPOSED END SECTION WITH RIP-RAP OUTLET PROTECTION
- PROPOSED BUILDING
- PROPOSED EDGE OF PAVEMENT

0 1 2 3
ORIGINAL SIZE IN INCHES

STATE OF NEW YORK ★ ANDREW V. WILLINGHAM ★ 083984 ★ PROFESSIONAL ENGINEER

willingham engineering
10 Main Street - Suite 321
New Paltz, New York 12561
T 845.255.0210 F 845.256.8110
www.willinghamengineering.com

REV	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL PLAN

MARLBORO II DISTRIBUTION

1100 US ROUTE 9W

TOWN OF MARLBOROUGH, ULSTER COUNTY, NEW YORK

DRAWN BY	CHECKED BY
MLT	AVW
DATE	SCALE
01/05/18	1"=30'
PROJECT NO.	
17003	
SHEET NO.	
ESC-1	

EROSION AND SEDIMENT CONTROL NOTES - GENERAL

ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE STANDARDS AND PRINCIPLES AS OUTLINED IN THE "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL" AND THE LOCAL MUNICIPALITY'S EROSION AND SEDIMENT CONTROL STANDARDS AND PRACTICES, IF SUCH A DOCUMENT EXISTS. THE INTENT OF THE OUTLINED MEASURES IS TO MINIMIZE EROSION AND SEDIMENTATION DURING CONSTRUCTION, STABILIZE AND PROTECT THE SITE FROM EROSION AFTER CONSTRUCTION IS COMPLETE AND MITIGATE ANY ADVERSE IMPACTS TO STORMWATER QUALITY RESULTING FROM SEDIMENT RUNOFF CAUSED BY DEVELOPMENT ACTIVITIES.

NO SOIL STOCKPILE OR GRADED AREA SHALL REMAIN EXPOSED FOR MORE THAN 14 DAYS. THE EXPOSED AREAS OR SOIL STOCKPILE SHALL BE STABILIZED WITHIN THE 14 DAY PERIOD. STABILIZATION MEASURES TO BE USED INCLUDE TEMPORARY SEEDING, PERMANENT SEEDING, MULCHING AND STONE RIP RAP. 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 PROVIDED WITH BARRIER FILTERS. STONE RIP RAP SHALL BE PROVIDED AT THE OUTLETS OF DRAINAGE PIPES WHERE EROSIVE VELOCITIES ARE ENCOUNTERED.

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 SHALL BE INSTALLED CONCURRENTLY WITH THE APPLICABLE ACTIVITY, AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN TWENTY ONE (21) DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN FOURTEEN (14) DAYS OF THE LAST DISTURBANCE. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, SILT FENCES AND HAY BALE BARRIERS AND ANY EARTH DIKES WILL BE REMOVED ONCE PERMANENT MEASURES AND STABILIZATION ARE ESTABLISHED.

GENERAL INSPECTION AND MAINTENANCE PRACTICE

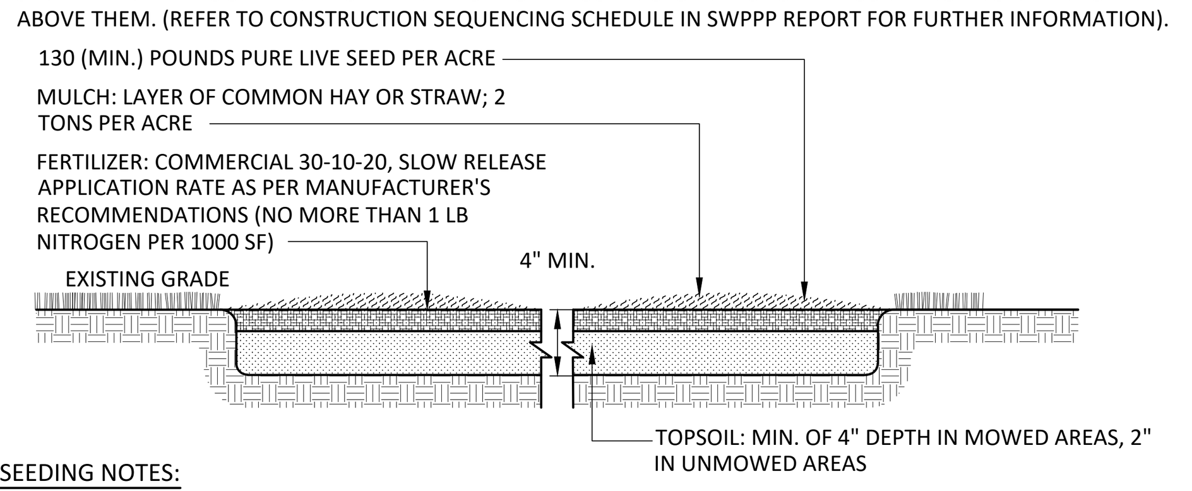
THESE ARE THE GENERAL INSPECTION AND MAINTENANCE PRACTICES THAT WILL BE USED TO IMPLEMENT THE PLAN DURING CONSTRUCTION.

1. THE SMALLEST PRACTICAL PORTION OF THE SITE WILL BE DISTURBED AT ONE TIME.
2. ALL CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE EACH WEEK.
3. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT.
4. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION.

INSTALLATION NOTES

1. TEMPORARY SEEDING SHOULD BE MADE WITHIN 24 HOURS OF CONSTRUCTION OR DISTURBANCE. IF NOT, THE SOIL MUST BE SCARIFIED PRIOR TO SEEDING.
2. IN ORDER FOR MULCH TO BE EFFECTIVE IT MUST BE PLACED PRIOR TO MAJOR STORM EVENTS. IT WILL BE NECESSARY TO CLOSELY MONITOR WEATHER PREDICTIONS TO HAVE ADEQUATE WARNING OF SIGNIFICANT STORMS.
3. THE TIME PERIOD TO MULCH CAN RANGE FROM 14 TO 21 DAYS OF INACTIVITY ON AN AREA, THE LENGTH OF TIME VARYING WITH SITE CONDITIONS. PROFESSIONAL JUDGMENT SHALL BE USED TO EVALUATE THE INTERACTION OF SITE CONDITIONS (SOIL ERODABILITY, SEASON OF YEAR, EXTENT OF DISTURBANCE, PROXIMITY TO SENSITIVE RESOURCES, ETC.) AND THE POTENTIAL IMPACT OF EROSION ON ADJACENT AREAS IN ORDER TO CHOOSE AN APPROPRIATE TIME RESTRICTION.
4. WHEN MULCH IS APPLIED TO PROVIDE PROTECTION OVER WINTER (PAST THE GROWING SEASON) IT SHALL BE AT THE RATE OF 6,000 LBS OF HAY OR STRAW PER ACRE. A TACKIFIER MAY BE ADDED TO THE MULCH.

SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. (REFER TO CONSTRUCTION SEQUENCING SCHEDULE IN SWPPP REPORT FOR FURTHER INFORMATION).



SEEDING NOTES:

1. PROVIDE FRESH, CLEAN, NEW SEED COMPLYING WITH ESTABLISHED TOLERANCES FOR GERMINATION AND PURITY IN ACCORDANCE WITH THE U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE LATEST EDITION OF THE FEDERAL SEED ACT. SEED SHALL BE MIXED BY THE DEALER AND SHALL BE DELIVERED TO THE SITE IN SEALED CONTAINERS WHICH SHALL BEAR THE DEALER'S GUARANTEE ANALYSIS.
2. SEED MIXTURES:
   FOR TEMPORARY SEEDING - OR - AREAS THAT WILL NOT BE MAINTAINED:
   RAPIDLY GERMINATING ANNUAL RYEGRASS: 30 LBS PER ACRE PERENNIAL
   RYEGRASS: 100 LBS PER ACRE
   CEREAL RYE: 30 LBS PER ACRE
   FOR USE ON LAWN AREAS (AREAS TO BE MAINTAINED)
   ALTERNATE A (SUNNY SITE)
   65% KENTUCKY BLUE GRASS BLEND: 85-114 LBS PER ACRE
   20% PERENNIAL RYEGRASS: 26-35 LBS PER ACRE
   15% FINE FESCUE: 19-26 LBS PER ACRE
   TOTAL: 130-175 LBS PER ACRE
   ALTERNATE B (SHADY SITE)
   80% KENTUCKY BLUE GRASS BLEND*: 105-138 LBS PER ACRE
   20% PERENNIAL RYEGRASS: 25-37 LBS PER ACRE
   TOTAL: 130-175 LBS PER ACRE
   * SHADE TOLERANT
3. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDRO SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDRO-SEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDRO-SEEDING.
4. MULCH SEEDED AREAS WITH STRAW MULCH (2000 LBS PER ACRE).
5. IRRIGATE TO FULLY SATURATE SOIL LAYER, BUT NOT TO DISLODGE PLANTING SOIL.
6. 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.

TOPSOIL APPLICATION NOTES:

1. TOPSOIL SHALL BE DISTURBED TO A UNIFORM DEPTH OVER THE AREA. IT SHALL NOT BE PLACED WHEN IT IS PARTIALLY FROZEN, MUDDY OR ON FROZEN SLOPES OVER ICE, SNOW OR STANDING WATER.
2. TOPSOIL PLACED AND GRADED ON SLOPES STEEPER THAN 5% SHALL BE PROMPTLY FERTILIZED, SEEDED AND STABILIZED BY "TRACKING" WITH SUITABLE EQUIPMENT.
3. APPLY TOPSOIL IN THE FOLLOWING AMOUNTS FOR INTENDED USE:
   MOWED LAWN: 4-8 INCHES
   UNMOWED AREA: 2-4 INCHES
4. 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%.
5. REMOVE REFUSE, WOODY PLANT PARTS, STONES OVER 3 INCHES IN DIAMETER, AND OTHER LITTER.

TOPSOIL MATERIAL NOTES:

THE FURNISHINGS OF NEW TOPSOIL SHALL BE OF A BETTER OR EQUAL QUALITY OF THE EXISTING ADJACENT TOPSOIL AND SHALL MEET THE FOLLOWING CRITERIA;

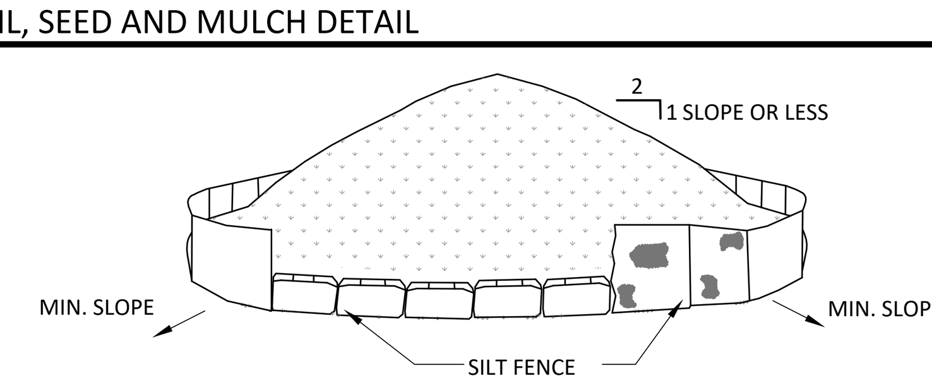
- TOPSOIL SHALL HAVE AT LEAST 2%, BUT NOT MORE THAN 6% BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL.
- TOPSOIL SHALL HAVE NOT LESS THAN 20% FINE TEXTURED MATERIAL (PASSING THE NO. 200 SIEVE) AND NOT MORE THAN 15% CLAY.
- TOPSOIL SHALL BE RELATIVELY FREE OF STONES OVER 1" DIAMETER, THRASH, NOXIOUS WEEDS, AND WILL HAVE LESS THAN 10% GRAVEL BY VOLUME.

INSPECTION & MAINTENANCE NOTES:

1. TEMPORARY SEEDING AND PLANTING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND UNHEALTHY GROWTH.
2. TEMPORARY SEEDINGS SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM. (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.)
3. ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE APPLIED IMMEDIATELY.
4. AERATE COMPACTED OR HEAVY USED AREAS, ANNUALLY AS SOON AS THE SOIL MOISTURE CONDITIONS PERMIT. AERATE AREA 6 TO 8 TIMES USING A SPOON HOLLOW TINE TYPE AERATION. DO NOT USE SPIKE EQUIPMENT.
5. RESEED BARE AND THIN AREAS ANNUALLY WITH ORIGINAL SPECIES.
6. SOIL SHALL MAINTAIN A pH OF 6.0-7.0.

TOPSOIL, SEED AND MULCH DETAIL

SCALE: NTS



SPECIFICATION AND INSTALLATION NOTES:

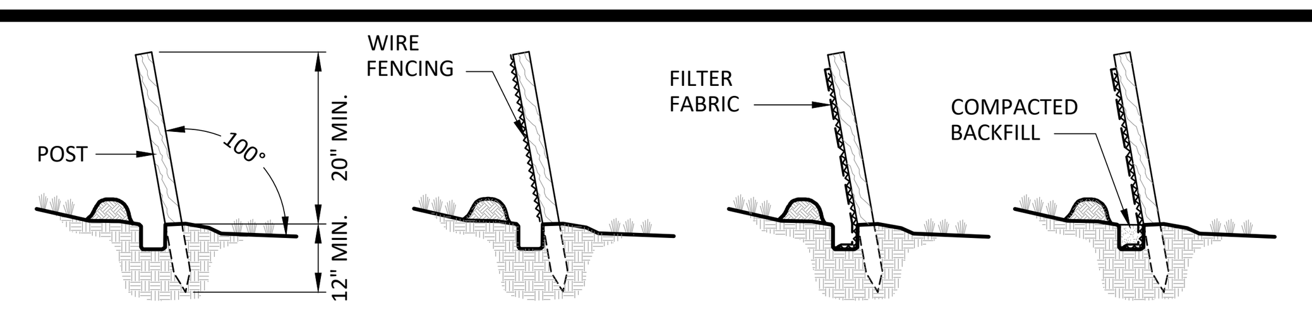
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR HAY BALES AND STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS ON INSTALLATION OF SILT FENCE.

INSPECTION & MAINTENANCE NOTES:

1. SOIL AND TOPSOIL STOCKPILE SHOULD BE SEEDED IF THEY ARE TO REMAIN DORMANT FOR 30 DAYS.
2. SEE SILT FENCE DETAIL FOR MAINTENANCE AND INSPECTIONS.

SOIL STOCKPILE DETAIL

SCALE: NTS



STEP 1
SET POSTS AND EXCAVATE A 6"x6" TRENCH, SET POST DOWNSLOPE.
ANGLE POST 10° UPSLOPE FOR STABILITY AND SELF CLEANING.

STEP 2
STAPLE WIRE MESH FENCING TO FENCE POSTS.

STEP 3
ATTACH FILTER FABRIC TO THE WIRE FENCING AND EXTEND IT INTO THE TRENCH.

STEP 4
BACKFILL THE TRENCH AND COMPACT THE EXCAVATED SOIL.

MATERIAL NOTES:

1. SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES TO 120 DEGREE F. SYNTHETIC FILTER FABRIC SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIERS AS CONFORMING TO THE FOLLOWING REQUIREMENTS:

FABRIC PROPERTIES	MIN. ACCEPTED VALUE	TEST METHOD
GRAB TENSILE STRENGTH (lbs)	90	ASTM D1682
ELONGATION FAILURE AT (%)	50	ASTM D1682
MULLEN BURST STRENGTH (PSI)	190	ASTM D3786
PUNCTURE STRENGTH (lbs)	40	ASTM D751 (MODIFIED)
SLURRY FLOW RATE (gal/min/sf)	0.3	
EQUIVALENT OPENING SIZE	40-80	US STD SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY (%)	90	ASTM G-26

2. THE HEIGHT OF THE SILT FENCE SHALL NOT EXCEED 36 INCHES.
3. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POSTS, WITH A 6 INCH OVERLAP MINIMUM AND SHALL BE SECURELY SEALED.

INSTALLATION NOTES:

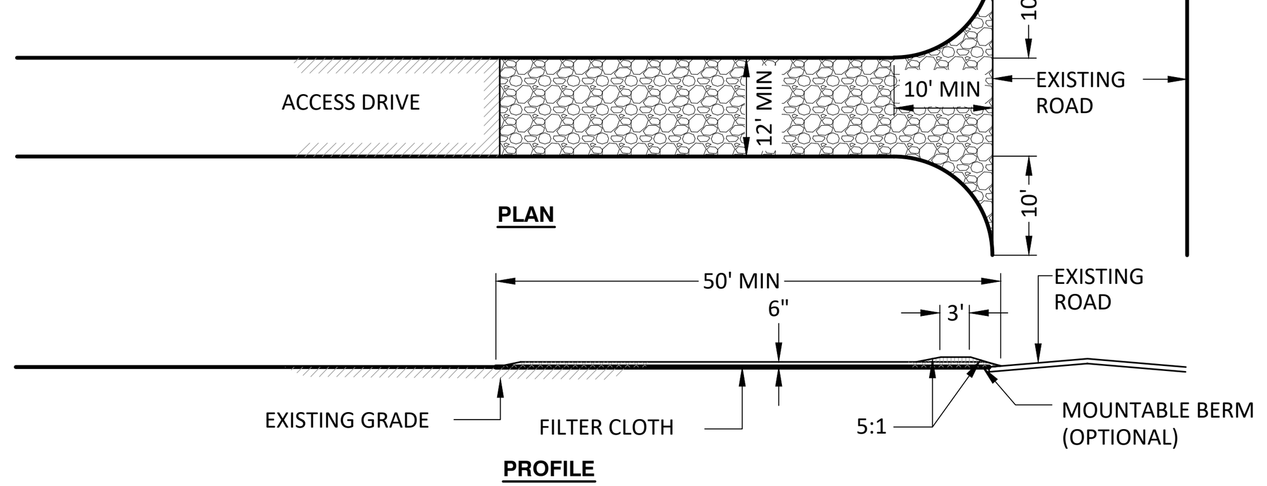
1. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST ONE (1) INCH LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND NO MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACES.
2. THE "STANDARD STRENGTH" FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND EIGHT (8) INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
3. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS APPLYING.
4. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
5. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AND DRIVEN SECURELY INTO THE GROUND .

INSPECTION AND MAINTENANCE NOTES:

1. STRAW BALE BARRIER AND SILT FENCE BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. THEY SHALL BE REPAIRED IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. ANY REQUIRED REPAIRS SHALL BE MADE WITHIN 24 HOURS OF CONTRACTOR NOTIFICATION. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM.
2. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE THIRD (1/3) THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED, AND SEEDED.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" IN THE SILT FENCES DEVELOP.

SILT FENCE DETAIL

SCALE: NTS



SPECIFICATIONS AND INSTALLATION NOTES:

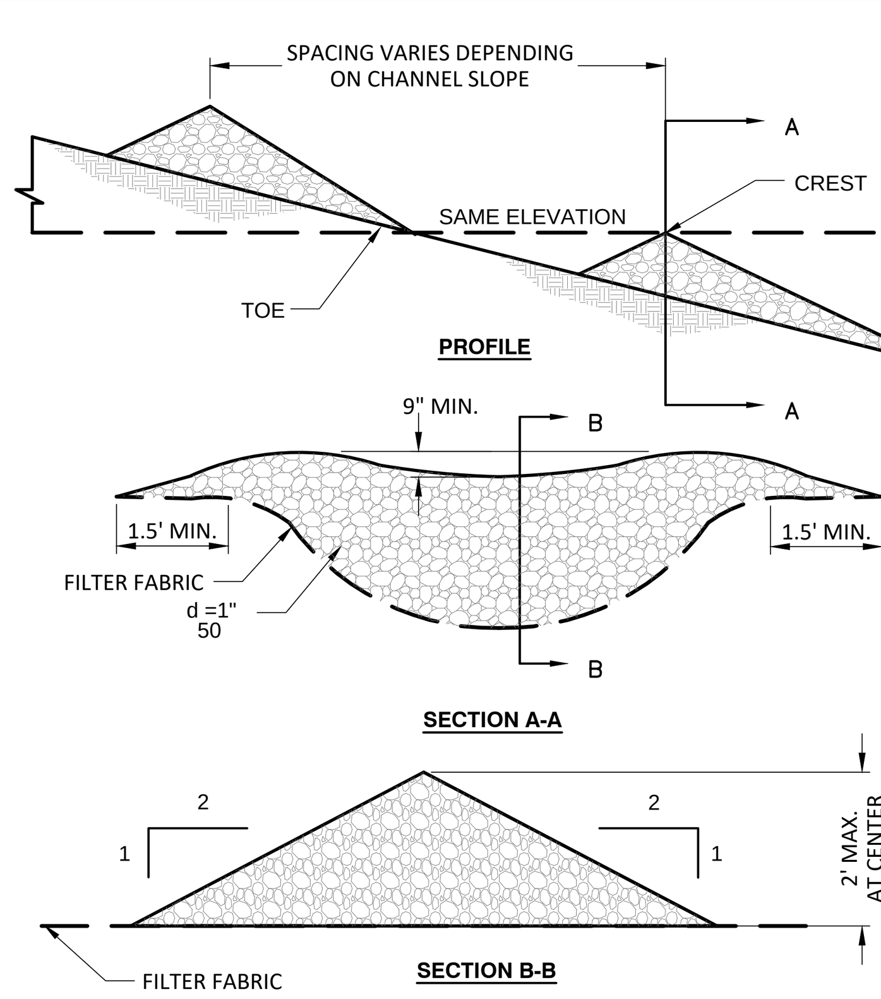
1. PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES AT THE PROJECT SITE, STABILIZED CONSTRUCTION ENTRANCED SHALL BE CONSTRUCTED AT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS.
2. STONE SIZE - USE 2" STONE OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
3. THICKNESS - NOT LESS THAN 6 INCHES.
4. WIDTH - 12 FEET MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET.
6. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. THE FILTER CLOTH SHALL BE WOVEN .
7. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

INSPECTION & MAINTENANCE NOTES:

1. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAINFALL.
2. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ON TO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES OR WATERWAYS.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

SCALE: NTS



SPECIFICATIONS AND INSTALLATION NOTES:

1. STONE SHALL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. SET SPACING OF CHECK DAMS SUCH THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS THE SAME AS THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCE SUCH AS CULVERT ENTRANCED BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

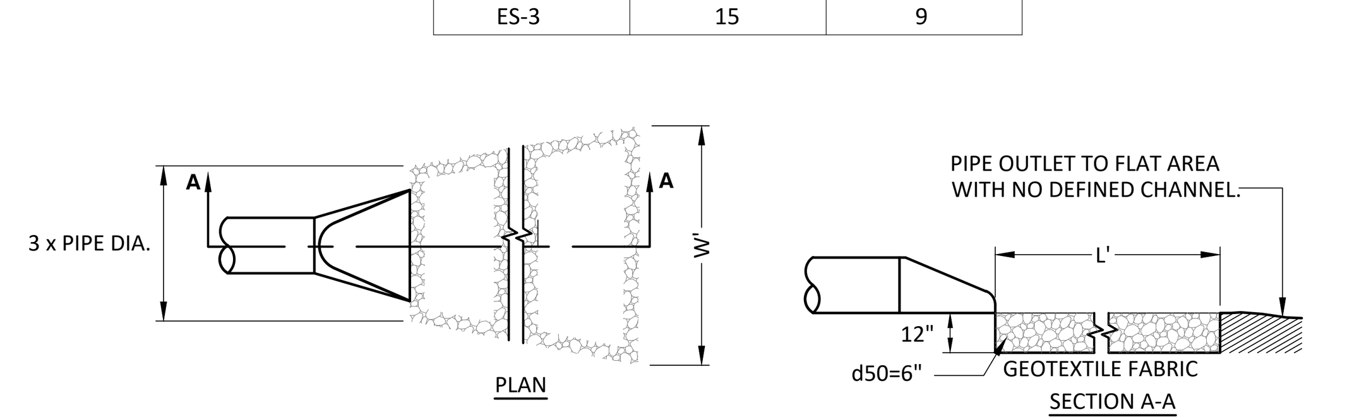
INSTALLATION AND MAINTENANCE NOTES:

1. THE CHECK DAMS SHALL BE INSPECTED PERIODICALLY. CONTRACTOR SHALL CORRECT THE DAMAGE WITHIN 24 HOURS OF NOTIFICATION.
2. REMOVE SEDIMENT ACCUMULATED BEHIND DAM AS NEEDED TO ALLOW CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM.
3. REPLACE STONE AS NEEDED TO MAINTAIN THE DESIGN CROSS SECTION OF THE STRUCTURES.

STONE CHECK DAM DETAIL

SCALE: NTS

ID	L (FT)	WIDTH (FT)
ES-1	6	4
ES-2	6	4
ES-3	15	9



SPECIFICATIONS AND INSTALLATION NOTES:

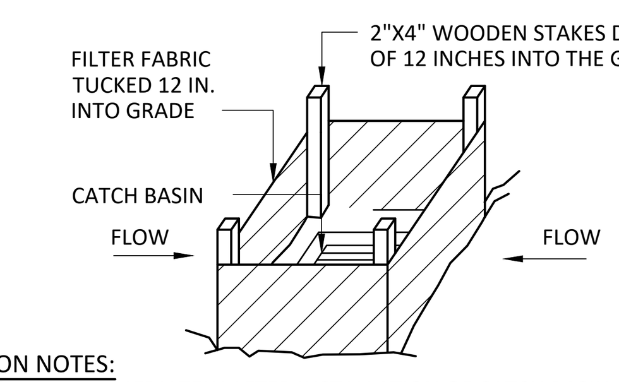
1. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE SUITABLY COMPACTED.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS.
3. FILTERING CLOTH SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN THE OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF CLOTH OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE CLOTH. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF CLOTH SHALL BE A MINIMUM OF 1 FOOT.
4. STONE FOR RIP RAP MAY BE PLACED BY EQUIPMENT. IT SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE RIP RAP SHALL BE PLACED IN A MANNER THAT WILL INSURE THAT THE RIP RAP IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER CLOTH.

INSPECTION & MAINTENANCE NOTES:

1. INSPECT THE STRUCTURE PERIODICALLY AND AFTER MAJOR STORM EVENTS.
2. REPAIR OR REPLACE FAILING STRUCTURES IMMEDIATELY.
3. CHECK CHANNEL FOR SCOUR OR DEBRIS AND LOSS OF ROCK FROM APRONS.

RIPRAP OUTLET PROTECTION DETAIL

SCALE: NTS



SPECIFICATIONS AND INSTALLATION NOTES:

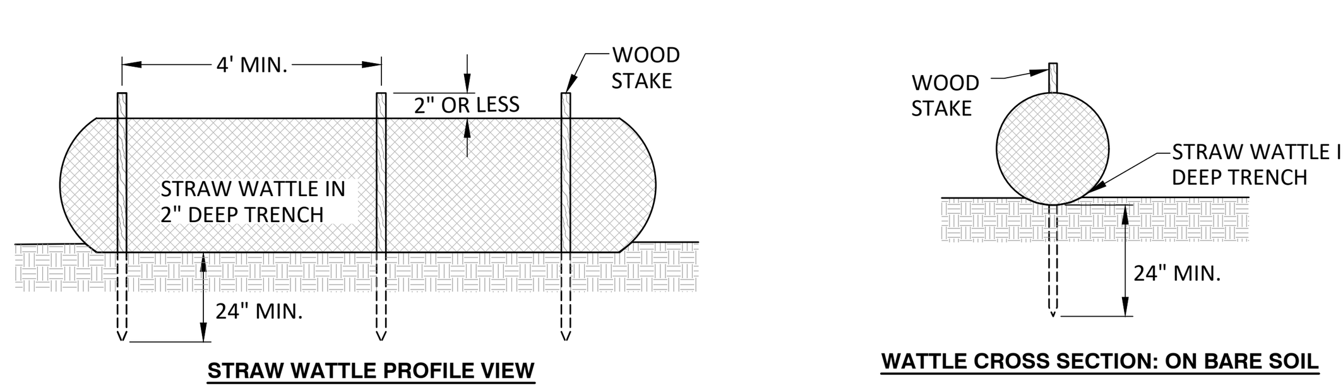
1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER INSTALLATION OF CATCH BASIN OR YARD DRAIN AND BE MAINTAINED UNTIL UNTIL DRAINAGE AREA IS STABILIZED.
2. REFER TO SILT FENCE DETAIL. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2X4 WOOD WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET, 3 FEET APART AND DRIVE INTO THE GROUND A MINIMUM OF 18 INCHES. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GRADE AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.

INSPECTION & MAINTENANCE NOTES:

1. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER REACHING $\frac{1}{3}$ OF THE HEIGHT OF THE FABRIC, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.
2. THE INLET PROTECTION SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL, OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION.
3. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/ OR CAUSING SURFACE FLOODING.
4. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED WITHIN 24 HOURS OF CONTRACTOR NOTIFICATION.

CATCH BASIN / YARD INLET PROTECTION DETAIL

SCALE: NTS



MATERIAL NOTES:

1. WATTLES SHALL BE AMERICAN EXCELSIOR COMPANY'S PREMIER STRAW WATTLES OR APPROVED EQUAL.
2. ORGANIC, AGRICULTURAL STRAW FIBERS MUST BE WEED FREE ENCASED IN POLYPROPYLENE OR FIBERNET.
3. 75% OF FIBERS MUST BE A MINIMUM OF 4" LONG.
4. NET OPENINGS MUST BE APPROXIMATELY 0.5" WIDE BY 1.0" LONG.
5. ALL COMPONENTS MUST BE BIODEGRADABLE.

INSTALLATION NOTES:

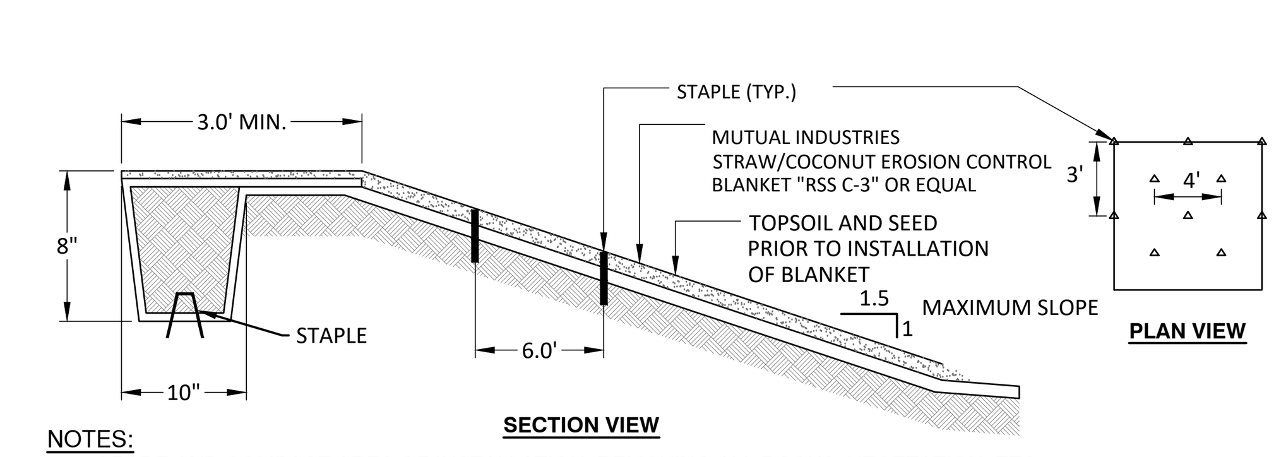
1. INSTALL WATTLE IN A 2" DEEP TRENCH CONSTRUCTED ALONG THE CONTOUR, PERPENDICULAR TO THE SLOPE OR DIRECTION OF FLOW.
2. ENDS OF WATTLES SHALL BE TURNED UP THE SLOPE SO AS TO RETAIN WATER AND PREVENT ITS RELEASE FROM THE END OF THE WATTLE.
3. WATTLES SHALL BE SECURED TO THE SUBGRADE BY WOODEN STAKES SPACED EVERY FOUR LINEAL FEET ACROSS THE LENGTH OF THE WATTLE. STAKES SHALL BE DRIVEN THROUGH THE CENTER OF THE WATTLE AND INTO THE GROUND A MINIMUM OF 24" WITH LESS THAN TWO INCHES PROJECTING ABOVE THE TOP OF THE WATTLE. A STAKE SHALL BE PLACED WITHIN 2 FEET OF THE END OF THE WATTLE.
4. IF WATTLES ARE JOINED TOGETHER BY ABUTTING THE ENDS, TIE THE ENDS TOGETHER USING HEAVY TWINE OR PLASTIC LOCKING TIES.
5. WHEN INSTALLING IN A CHANNEL BOTTOM, WATTLE INSTALLATION SHALL CONTINUE THREE FEET ABOVE THE ANTICIPATED HIGH WATER MARK.
6. WATTLE SHALL REMAIN IN PLACE UNTIL FULLY ESTABLISHED VEGETATION AND ROOT SYSTEMS ARE PRESENT AND CAN SURVIVE ON THEIR OWN. WATTLES ARE NOT INTENDED TO DEGRADE IN PLACE.

INSPECTION AND MAINTENANCE NOTES:

1. STRAW WATTLES SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. THEY SHALL BE REPAIRED IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. ANY REQUIRED REPAIRS SHALL BE MADE WITHIN 24 HOURS OF CONTRACTOR NOTIFICATION. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM.
2. SHOULD THE STRAW WATTLE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, IT SHALL BE REPLACED.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF (1/2) THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE WATTLE IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED, AND SEEDED. WHEN THE WATTLE IS NO LONGER NEEDED, STAKES SHALL BE REMOVED.

STRAW WATTLE DETAIL

SCALE: NTS



NOTES:

1. GRADE AND COMPACT AREA OF INSTALLATION, REMOVING ALL ROCKS, VEGETATION, ETC.
2. INSTALL TOPSOIL, SEED AND MULCH PER DETAIL.
3. EXTEND BLANKET 2'-0" OVER CREST OF SLOPE AND EXCAVATE A 12"X6" TERMINAL ANCHOR TRENCH.
4. ANCHOR BLANKET IN TRENCH WITH STAPLES @ SPACING PER MANUFACTURER , BACKFILL AND COMPACT SOIL.
5. UNROLL BLANKET DOWN SLOPE.
6. OVERLAP ADJACENT ROLLS AT LEAST 3" AND ANCHOR PER MANUFACTURER.
7. LAY BLANKET LOOSE TO MAINTAIN DIRECT CONTACT WITH SOIL (DO NOT PULL TAUGHT).
8. SECURE BLANKET TO GROUND SURFACE STAPLES WITH PATTERN PER MANUFACTURER..
9. TRIM TO BE STAPLED PARALLEL TO CONTOUR.
10. EROSION CONTROL BLANKET SHALL BE CURLEX DOUBLE NET (CURLEX II).
11. EROSION CONTROL BLANKET SHALL BE COMPOSED OF BIODEGRADABLE MATERIALS.

EROSION CONTROL BLANKET DETAIL

SCALE: NTS

CONDITIONS WHERE PRACTICE APPLIES:

WASHOUT FACILITIES SHALL BE PROVIDED FOR EVERY PROJECT WHERE CONCRETE WILL BE POURED OR OTHERWISE FORMED ON THE SITE. THIS FACILITY WILL RECEIVE HIGHLY ALKALINE WASH WATER FROM THE CLEANING OF CHUTES, MIXERS, HOPPERS, VIBRATORS, PLACING EQUIPMENT, TROWELS, AND SCREEDS. UNDER NO CIRCUMSTANCES WILL WASH WATER FROM THESE OPERATIONS BE ALLOWED TO INFILTRATE INTO THE SOIL OR ENTER SURFACE WATERS.

DESIGN CAPACITY:

THE WASHOUT FACILITY SHOULD BE SIZED TO CONTAIN SOLIDS, WASH WATER, AND RAINFALL AND SIZED TO ALLOW FOR THE EVAPORATION OF THE WASH WATER AND RAINFALL. WASH WATER SHALL BE ESTIMATED AT 7 GALLONS PER CHUTE AND 50 GALLONS PER HOPPER OF THE CONCRETE PUMP TRUCK AND/OR DISCHARGING DRUM. THE MINIMUM SIZE SHALL BE 8 FEET BY 8 FEET AT THE BOTTOM AND 2 FEET IF EXCAVATED, THE SIDE SLOPES SHALL BE 2 HORIZONTAL TO 1 VERTICAL.

LOCATION:

LOCATE THE FACILITY A MINIMUM OF 100 FEET FROM DRAINAGE SWALES, STORM DRAIN INLETS, WETLANDS, STREAMS AND OTHER SURFACE WATERS. PREVENT SURFACE WATER FROM ENTERING THE STRUCTURE EXCEPT FOR THE ACCESS ROAD. PROVIDE APPROPRIATE ACCESS WITH A GRAVEL ACCESS ROAD SLOPED DOWN TO THE STRUCTURE. SIGNS SHALL BE PLACED TO DIRECT DRIVERS TO THE FACILITY AFTER THEIR LOAD IS DISCHARGED.

LINER:

ALL WASHOUT FACILITIES WILL BE LINED TO PREVENT LEACHING OF LIQUIDS INTO THE GROUND. THE LINER SHALL BE PLASTIC SHEETING WITH A MINIMUM THICKNESS OF 10 MILS WITH NO HOLES OR TEARS, AND ANCHORED BEYOND THE TOP OF THE PIT WITH AN EARTHEN BERM, SAND BAGS, STONE, OR OTHER STRUCTURAL APPURTENANCE EXCEPT AT THE ACCESS POINT. IF PRE-FABRICATED WASHOUTS ARE USED THEY MUST ENSURE THE CAPTURE AND CONTAINMENT OF THE CONCRETE WASH AND BE SIZED BASED ON THE EXPECTED FREQUENCY OF CONCRETE POURS. THEY SHALL BE SITED AS NOTED IN THE LOCATION CRITERIA.

MAINTENANCE:

1. ALL CONCRETE WASHOUT FACILITIES SHALL BE INSPECTED DAILY. DAMAGED OR LEAKING FACILITIES SHALL BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. EXCESS RAINWATER THAT HAS ACCUMULATED OVER HARDENED CONCRETE SHOULD BE PUMPED TO A STABILIZED AREA, SUCH AS A GRASS FILTER STRIP.
2. ACCUMULATED HARDENED MATERIAL SHALL BE REMOVED WHEN 75% OF THE STORAGE CAPACITY OF THE STRUCTURE IS FILLED. ANY EXCESS WASH WATER SHALL BE PUMPED INTO A CONTAINMENT VESSEL AND PROPERLY DISPOSED OF OFF SITE.
3. DISPOSE OF THE HARDENED MATERIAL OFF-SITE IN A CONSTRUCTION/DEMOLITION LANDFILL. ON-SITE DISPOSAL MAY BE ALLOWED IF THIS HAS BEEN APPROVED AND ACCEPTED AS PART OF THE PROJECTS SWPPP. IN THAT CASE, THE MATERIAL SHOULD BE RECYCLED AS SPECIFIED, OR BURIED AND COVERED WITH A MINIMUM OF 2 FEET OF CLEAN COMPACTED EARTHFILL THAT IS PERMANENTLY STABILIZED TO PREVENT EROSION.
4. THE PLASTIC LINER SHALL BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.
5. INSPECT THE PROJECT SITE FREQUENTLY TO ENSURE THAT NO CONCRETE DISCHARGES ARE TAKING PLACE IN NON-DESIGNATED AREAS.

CONCRETE WASHOUT FACILITY

SCALE: NTS

CONDITIONS WHERE PRACTICE APPLIES:

ON CONSTRUCTION ROADS, ACCESS POINTS, AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING WHERE OFF-SITE DAMAGE MAY OCCUR IF DUST IS NOT CONTROLLED.

DESIGN CRITERIA:

CONSTRUCTION OPERATIONS SHOULD BE SCHEDULED TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ONE TIME. BUFFER AREAS OF VEGETATION SHOULD BE LEFT WHERE PRACTICAL. TEMPORARY OR PERMANENT STABILIZATION MEASURES SHALL BE INSTALLED. NO SPECIFIC DESIGN CRITERIA IS GIVEN; SEE CONSTRUCTION SPECIFICATIONS BELOW FOR COMMON METHODS OF DUST CONTROL.

WATER QUALITY MUST BE CONSIDERED WHEN MATERIALS ARE SELECTED FOR DUST CONTROL. WHERE THERE IS A POTENTIAL FOR THE MATERIAL TO WASH OFF TO A STREAM, INGREDIENT INFORMATION MUST BE PROVIDED TO THE NYSDEC.

NO POLYMER APPLICATION SHALL TAKE PLACE WITHOUT WRITTEN APPROVAL FROM THE NYSDEC.

DESIGN CRITERIA:

A. NON-DRIVING AREAS – THESE AREAS USE PRODUCTS AND MATERIALS APPLIED OR PLACED ON SOIL SURFACES TO PREVENT AIRBORNE MIGRATION OF SOIL PARTICLES.

VEGETATIVE COVER – FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.

MULCH (INCLUDING GRAVEL MULCH) – MULCH OFFERS A FAST EFFECTIVE MEANS OF CONTROLLING DUST. THIS CAN ALSO INCLUDE ROLLED EROSION CONTROL BLANKETS.

SPRAY ADHESIVES – THESE ARE PRODUCTS GENERALLY COMPOSED OF POLYMERS IN A LIQUID OR SOLID FORM THAT ARE MIXED WITH WATER TO FORM AN EMULSION THAT IS SPRAYED ON THE SOIL SURFACE WITH TYPICAL HYDROSEEDING EQUIPMENT. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC SOILS ON THE SITE. IN NO CASE SHOULD THE APPLICATION OF THESE ADHESIVES BE MADE ON WET SOILS OR IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS AND OTHERS WORKING WITH THE MATERIAL.

B. DRIVING AREAS – THESE AREAS UTILIZE WATER, POLYMER EMULSIONS, AND BARRIERS TO PREVENT DUST MOVEMENT FROM THE TRAFFIC SURFACE INTO THE AIR.

SPRINKLING – THE SITE MAY BE SPRAYED WITH WATER UNTIL THE SURFACE IS WET. THIS IS ESPECIALLY EFFECTIVE ON HAUL ROADS AND ACCESS ROUTE TO PROVIDE SHORT TERM LIMITED DUST CONTROL.

POLYMER ADDITIVES – THESE POLYMERS ARE MIXED WITH WATER AND APPLIED TO THE DRIVING SURFACE BY A WATER TRUCK WITH A GRAVITY FEED DRIP BAR, SPRAY BAR OR AUTOMATED DISTRIBUTOR TRUCK. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INCORPORATION OF THE EMULSION INTO THE SOIL WILL BE DONE TO THE APPROPRIATE DEPTH BASED ON EXPECTED TRAFFIC. COMPACTION AFTER INCORPORATION WILL BE BY VIBRATORY ROLLER TO A MINIMUM OF 95%. THE PREPARED SURFACE SHALL BE MOIST AND NO APPLICATION OF THE POLYMER WILL BE MADE IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS WORKING WITH THE MATERIAL.

BARRIERS – WOVEN GEO-TEXTILES CAN BE PLACED ON THE DRIVING SURFACE TO EFFECTIVELY REDUCE DUST THROW AND PARTICLE MIGRATION ON HAUL ROADS. STONE CAN ALSO BE USED FOR CONSTRUCTION ROADS FOR EFFECTIVE DUST CONTROL.

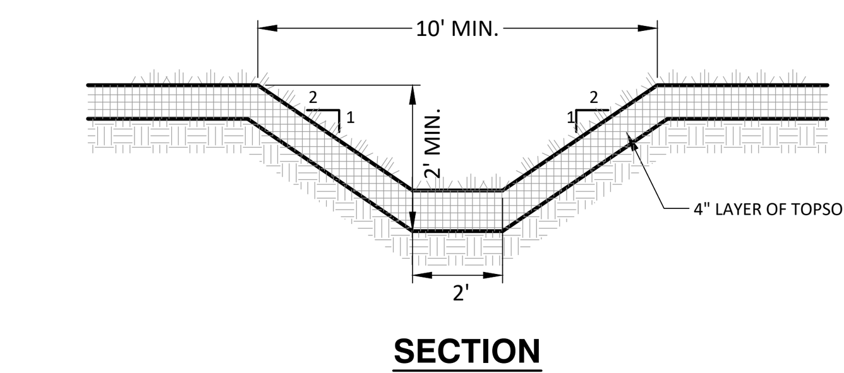
WINDBREAK – A SILT FENCE OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AT INTERVALS EQUAL TO TEN TIMES THE BARRIER HEIGHT. PRESERVE EXISTING WIND BARRIER VEGETATION AS MUCH AS PRACTICAL.

MAINTENANCE:

MAINTAIN DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.

DUST CONTROL NOTES

SCALE: NTS



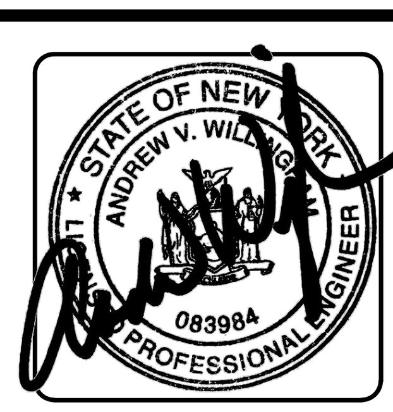
NOTES:

1. STABILIZATION OF THE SWALE SHALL BE COMPLETED WITHIN 10 DAYS OF INSTALLATION.
2. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO OUTLET.
3. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
4. ALL TREES, BRUSH , STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. SWALE SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH TOPSOIL, SEED AND MULCH DETAIL.
7. CONTRACTOR IS RESPONSIBLE FOR PERIODIC INSPECTION AND REQUIRED MAINTENANCE.
8. ALL DRAINAGE SWALES SHALL BE KEPT FREE OF DEBRIS AND THE VEGETATION SHALL BE MAINTAINED TO ALLOW FLOW OF STORMWATER.

GRASS LINED DIVERSION SWALE DETAIL

SCALE: NTS

0 1 2 3
ORIGINAL SIZE IN INCHES



willingham engineering
10 Main Street - Suite 321
New Paltz, New York 12561
T 845.255.0210 F 845.256.8110
www.willinghamengineering.com

REV	DATE	DESCRIPTION

EROSION AND SEDIMENT CONTROL DETAILS

MARLBORO II DISTRIBUTION

1100 US ROUTE 9W

TOWN OF MARLBOROUGH, ULSTER COUNTY, NEW YORK

DRAWN BY	CHECKED BY
MLT	AVW
DATE	SCALE
01/05/18	AS NOTED
PROJECT NO.	
17003	
SHEET NO.	
ESC-2	

APPENDIX C

NOTICE OF INTENT (NOI)

0644089821

NOTICE OF INTENT

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

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
West Rac Contracting Corp.

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

Owner/Operator Contact Person First Name
Gary

Owner/Operator Mailing Address
687 Old Willets Path

City
Hauppauge

State
NY

Zip
11788-

Phone (Owner/Operator)
631 445 5818

Fax (Owner/Operator)
631 273 6773

Email (Owner/Operator)
gpk33fly@aol.com

FED TAX ID
81 4619359 (not required for individuals)

Project Site Information

Project/Site Name
Marlboro II Distribution

Street Address (NOT P.O. BOX)
1100 US Route 9w

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

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Town of Marlborough

State: NY
Zip: **12542**-
County: Ulster
DEC Region: 3

Name of Nearest Cross Street
Mill House Road

Distance to Nearest Cross Street (Feet)
2400

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

Tax Map Numbers
Section-Block-Parcel
108.4-5-27

Tax Map Numbers
108.4-5-27

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

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

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

X Coordinates (Easting): 585268

Y Coordinates (Northing): 4606055116644

2. What is the nature of this construction project?

○ **New Construction**

● **Redevelopment with increase in impervious area**

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

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

Pre-Development Existing Land Use

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

Post-Development Future Land Use

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

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

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

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
7.87.8	4.34.3	1.51.5	2.52.5

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

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

A	B	C	D
8 %	0 %	92 %	0 %

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

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

Start Date 05/01/2018 - **End Date** 05/01/2019

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

Name

Unnamed Stream

9a. Type of waterbody identified in Question 9?

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

9b. How was the wetland identified?

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

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ○ **Yes** ● **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

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

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

.

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

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

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

Town of Marlborough

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

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

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

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

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

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

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

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

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

SWPPP Preparer: Willingham Engineering PLLC

Contact Name (Last, Space, First): Willingham Andrew

Mailing Address: 10 Main Street, Suite 321

City: New Paltz

State: NY Zip: 12561-1764

Phone: 845-256-2010 Fax: 845-256-1810

Email: awillingham@willinghamengineering.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name Andrew **MI** V

Last Name Willingham

Signature

Date 01/25/2018

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

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

Temporary Structural

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

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

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

Permanent Structural

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

Other

Post-construction Stormwater Management Practice (SMP) Requirements

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

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

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

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

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

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

Total WQv Required

0.107979 **acre-feet**

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

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

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

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

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)		and/or	
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)		and/or	
○ Tree Planting/Tree Pit (RR-3)		and/or	
○ Disconnection of Rooftop Runoff (RR-4)		and/or	
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			
○ Rain Garden (RR-6)			
○ Stormwater Planter (RR-7)			
○ Rain Barrel/Cistern (RR-8)			
○ Porous Pavement (RR-9)			
○ Green Roof (RR-10)			
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			
○ Infiltration Basin (I-2)			
○ Dry Well (I-3)			
○ Underground Infiltration System (I-4)			
● Bioretention (F-5)	1.41	1.545	
○ Dry Swale (O-1)			
Standard SMPs			
○ Micropool Extended Detention (P-1)			
● Wet Pond (P-2)	1.11	1.717	
○ Wet Extended Detention (P-3)			
○ Multiple Pond System (P-4)			
○ Pocket Pond (P-5)			
○ Surface Sand Filter (F-1)			
○ Underground Sand Filter (F-2)			
○ Perimeter Sand Filter (F-3)			
○ Organic Filter (F-4)			
○ Shallow Wetland (W-1)			
○ Extended Detention Wetland (W-2)			
○ Pond/Wetland System (W-3)			
○ Pocket Wetland (W-4)			
○ Wet Swale (O-2)			

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

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

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

Name

Manufacturer

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

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

Total RRv provided

0.00393 **acre-feet**

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

○ **Yes** ● **No**

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

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

Minimum RRv Required

0.00396 **acre-feet**

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

● **Yes** ○ **No**

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

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

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

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

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

WQv Provided

0.203239 **acre-feet**

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

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

0.207279

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

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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

CPv Required

0.503530 **acre-feet**

CPv Provided

0.503530 **acre-feet**

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

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

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

Total Overbank Flood Control Criteria (Qp)

Pre-Development

15.506660 **CFS**

Post-development

11.178880 **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

33.310100 **CFS**

Post-development

23.263630 **CFS**

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

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

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

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

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.

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

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

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

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

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

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

Owner/Operator Certification

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

Print First Name: Gary

MI:

Print Last Name: Krupnick

Owner/Operator Signature:

Date: 01/05/17

APPENDIX D

GP-0-15-002

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-15-002

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

Effective Date: January 29, 2015 Expiration Date: January 28, 2020

Modification Date:
July 14, 2015 – Correction of typographical error in definition of "New Development", Appendix A

John J. Ferguson
Chief Permit Administrator

Authorized Signature 7-15-15 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's *State Pollutant Discharge Elimination System ("SPDES")* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law ("ECL").*

This general permit ("permit") is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation ("the Department") regional office (see Appendix G).They are also available on the Department's website at:

http://www.dec.ny.gov/

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 Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They 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

Part I. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

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

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

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

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the Stormwater Pollution Prevention Plan (“SWPPP”) the reason(s) for the deviation or alternative design and provide information

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

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s to *minimize* channel and streambank erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted; and

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from dewatering activities, including *discharge*s

from dewatering of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste 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 *Discharge*s.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion

at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

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

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

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

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

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

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

that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:

(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or

(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) Overbank Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or

(2) A downstream analysis reveals that overbank control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or

(2) A downstream analysis reveals that overbank control is not required.

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

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or

standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

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

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:

(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or

(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) Overbank Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that overbank control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that overbank control is not required.

c. ***Sizing Criteria* for *Redevelopment Activity***

(Part I.C.2.c.i)

(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.

(Part I.C.2.c.iv)

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

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

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

D. Maintaining Water Quality

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

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

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

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or

if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater *discharges* may be authorized by this permit: *discharge*s from firefighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated *groundwater* or spring water; uncontaminated *discharge*s from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who *discharge* as noted in this paragraph, and with the exception of flows from firefighting activities, these *discharge*s 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:

(Part I.F)

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an endangered or threatened species unless the *owner or operator* has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.C.2 of this permit.

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which disturb one or more acres of land with no existing *impervious cover*; and

   c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture (“USDA”) Soil Survey for the County where the disturbance will occur.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which disturb two or more acres of land with no existing *impervious cover*; and

   c. Which are undertaken on land with a Soil Slope Phase that is identified as an E or F, or the map unit name is inclusive of 25% or greater slope, on the USDA Soil Survey for the County where the disturbance will occur.

(Part I.F.8)

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.C.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

(Part I.F.8.c.iii)

(iii) Executed Memorandum of Agreement, or

d. Documentation that:

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

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

II. Part II. OBTAINING PERMIT COVERAGE

A. Notice of Intent (NOI) Submittal

1. An *owner or operator* of a *construction activity* that is <u>not</u> 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 NOI form to the Department in order to be authorized to *discharge* under this permit. 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. 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 its 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. An *owner or operator* shall use either the electronic (eNOI) or paper version of the NOI.

The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the address in Part II.A.1.

(Part II.A.2)

The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *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.E. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4*.

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.

B. 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) 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.B.2 above

(Part II.B.3)

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. The Department may suspend or deny an *owner's or operator's* coverage

(Part II.B.4)

under this permit if the Department determines that the SWPPP does not meet the permit requirements. In accordance with statute, regulation, and the terms and conditions of this permit, the Department may deny coverage under this permit and require submittal of an application for an individual SPDES permit based on a review of the NOI or other information pursuant to Part II.

5. 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.B. of this permit.

C. 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-0-15-002), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, 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

(Part II.C.3.a)

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 August 2005.

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. 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*.

5. 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

(Part II.D)

D. Permit Coverage for Discharges Authorized Under GP-0-10-001

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-10-001), an *owner or operator* of *a construction activity* with coverage under GP-0-10-001, as of the effective date of GP-0-15-002, shall be authorized to *discharge* in accordance with GP-0-15-002, 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-0-15-002.

E. Change of *Owner or Operator*

2. 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. 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.A.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.

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)

III. 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:

   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*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority.

5. The Department may notify the *owner or operator* at any time that the

(Part III.A.5)

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.C.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

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

   > "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

   In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the

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

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

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated August 2005. 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 August 2005, 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 August 2005;

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 August 2005. 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)

IV. 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

(Part IV.C)

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),
- 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.C.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.A.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;

(Part IV.C.4.i)

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.C.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

V. 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.A.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.

(Part V.A.2)

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.E. 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.

(Part V.A.5)

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.

VI. Part VI. REPORTING AND RETENTION OF 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.A.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)

VII. 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

(Part VII.H.2.b)

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 *discharge*r authorized by a general permit to apply for an individual SPDES permit, it shall notify the *discharge*r 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.

(Part VII.N)

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.

VIII. **APPENDIX A**

Definitions

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.

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.

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).

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

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*.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

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.

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, 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 required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

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,
- Stream bank restoration projects (does not include the placement of spoil material),
- 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 makes 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 with a Soil Slope Phase that is identified as an E or F, or

the map unit name is inclusive of 25% or greater slope, on the United States Department of Agriculture (“USDA”) Soil Survey for the County where the disturbance will occur.

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, 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.

IX. APPENDIX B

Required SWPPP Components by Project Type

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

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

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

The following construction activities that involve soil disturbances 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
- Bike paths and trails
- Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), 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 less than five acres and construction activities that include the construction or reconstruction of impervious area

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.

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 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 townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- 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, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- 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
- 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

X. **APPENDIX C**

Watersheds Where Enhanced Phosphorus Removal Standards Are Required

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

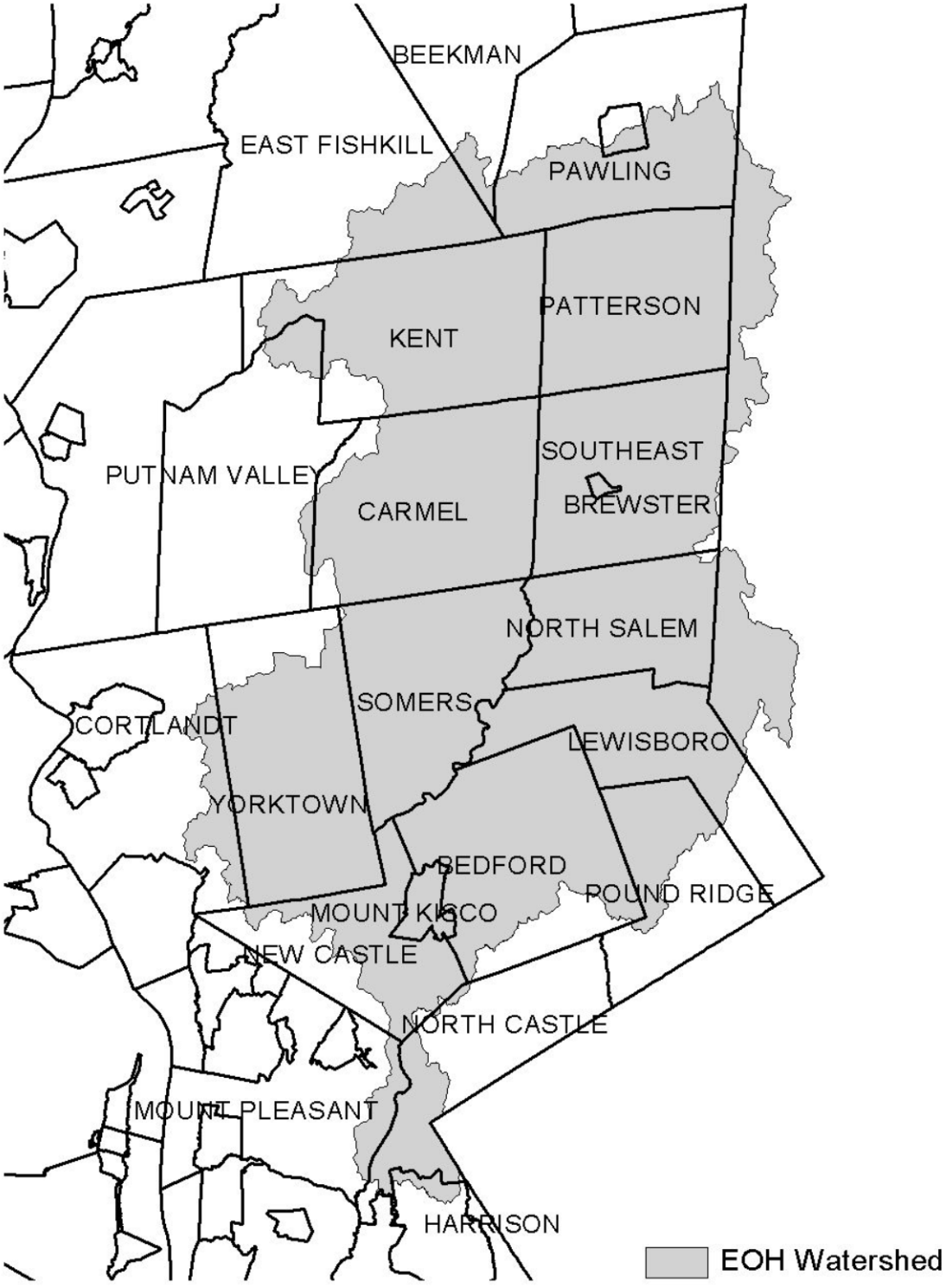


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

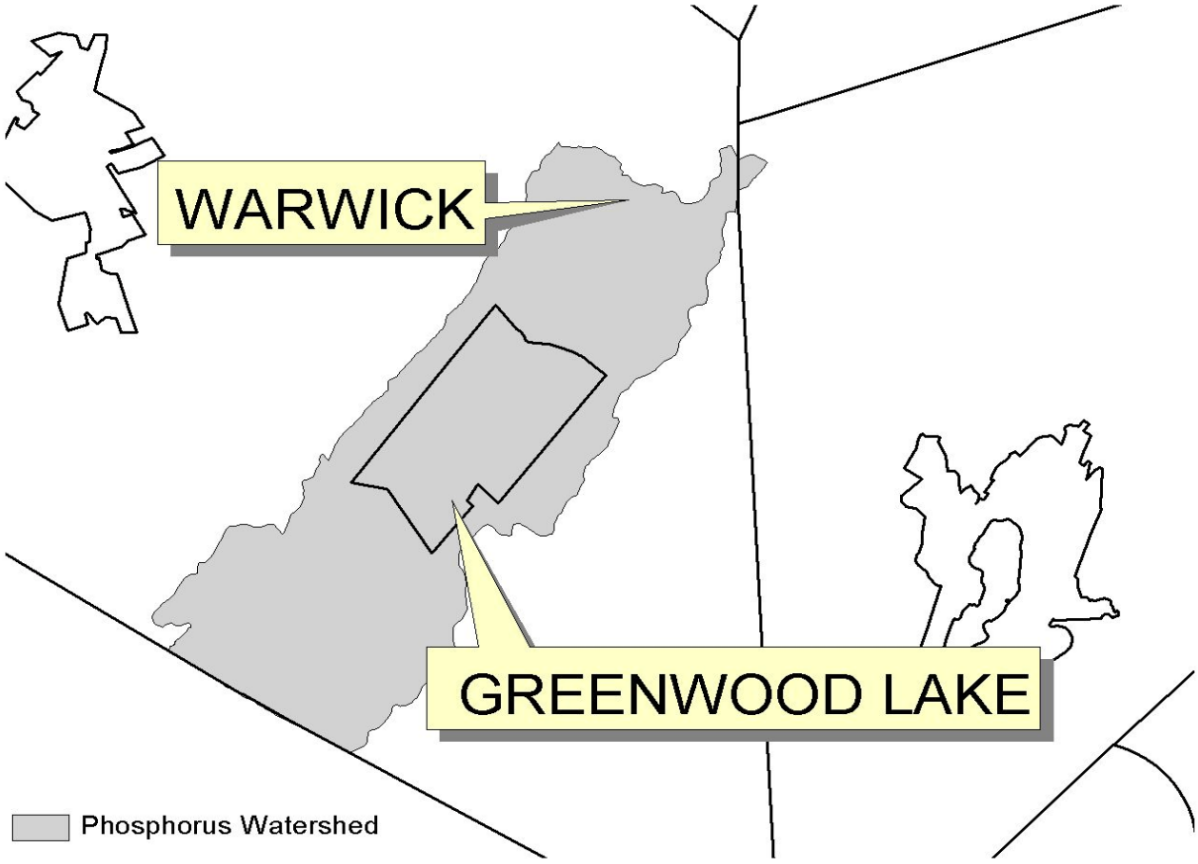


Figure 4 - Oscawana Lake Watershed

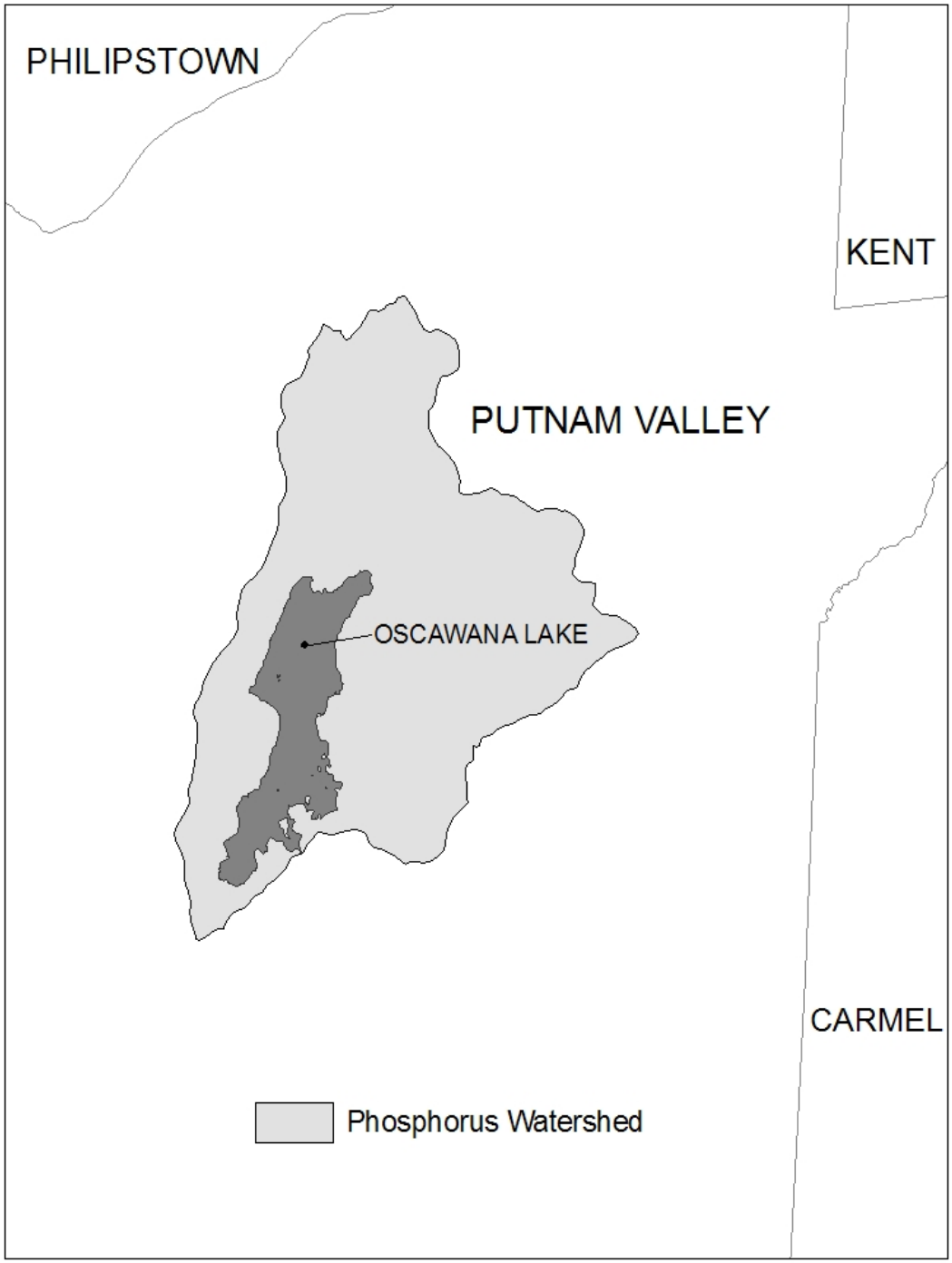
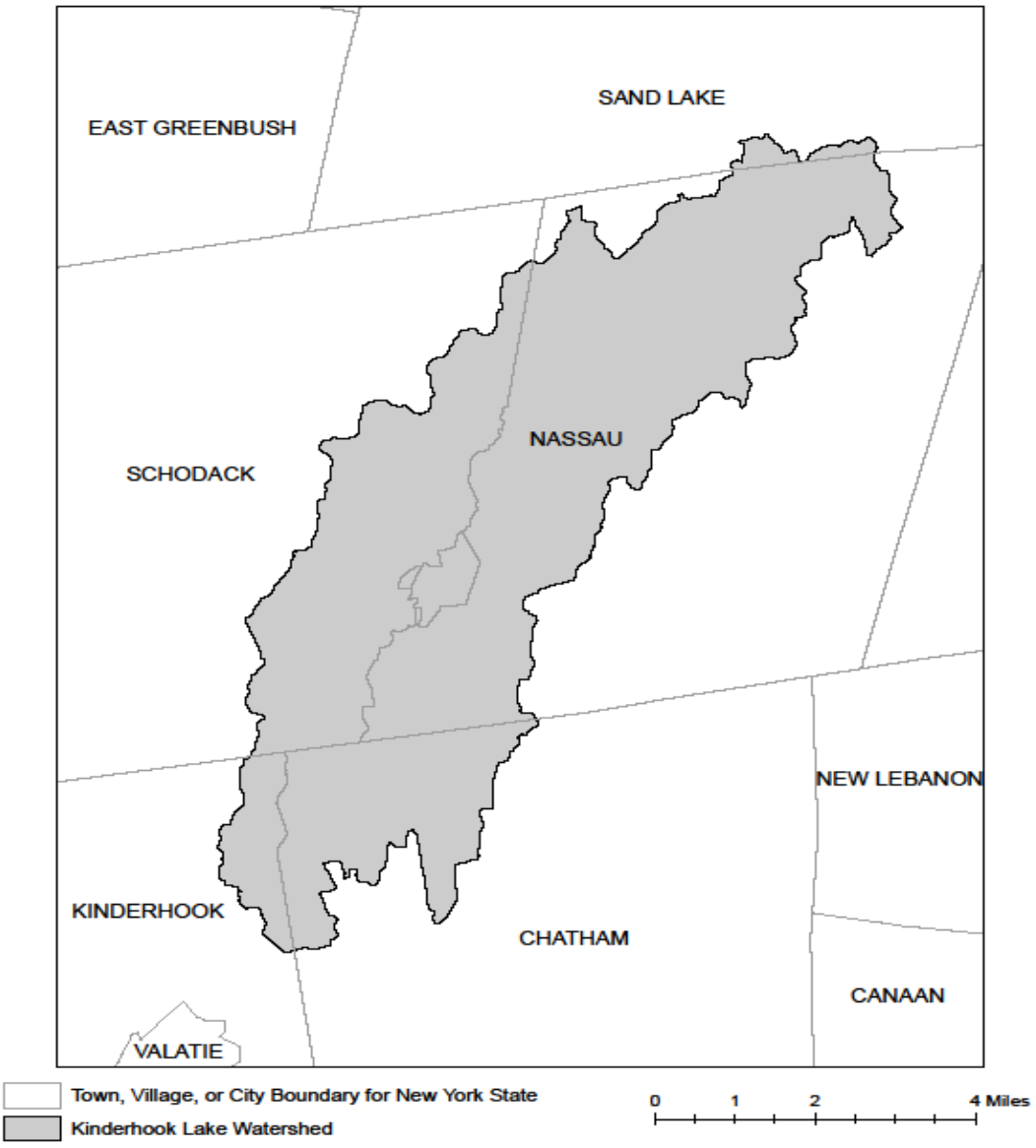


Figure 5: Kinderhook Lake Watershed



XI. APPENDIX D

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

XII. APPENDIX E

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). *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
Albany	Ann Lee (Shakers) Pond, Stump Pond
Albany	Basic Creek Reservoir
Allegheny	Amity Lake, Saunders Pond
Bronx	Van Cortlandt Lake
Broome	Whitney Point Lake/Reservoir
Broome	Fly Pond, Deer Lake
Broome	Minor Tribs to Lower Susquehanna (north)
Cattaraugus	Allegheny River/Reservoir
Cattaraugus	Case Lake
Cattaraugus	Linlyco/Club Pond
Cayuga	Duck Lake
Chautauqua	Chautauqua Lake, North
Chautauqua	Chautauqua Lake, South
Chautauqua	Bear Lake
Chautauqua	Chadakoin River and tribs
Chautauqua	Lower Cassadaga Lake
Chautauqua	Middle Cassadaga Lake
Chautauqua	Findley Lake
Clinton	Great Chazy River, Lower, Main Stem
Columbia	Kinderhook Lake
Columbia	Robinson Pond
Dutchess	Hillside Lake
Dutchess	Wappinger Lakes
Dutchess	Fall Kill and tribs
Erie	Green Lake
Erie	Scajaquada Creek, Lower, and tribs
Erie	Scajaquada Creek, Middle, and tribs
Erie	Scajaquada Creek, Upper, and tribs
Erie	Rush Creek and tribs
Erie	Ellicott Creek, Lower, and tribs
Erie	Beeman Creek and tribs
Erie	Murder Creek, Lower, and tribs
Erie	South Branch Smoke Cr, Lower, and tribs
Erie	Little Sister Creek, Lower, and tribs
Essex	Lake George (primary county: Warren)
Genesee	Black Creek, Upper, and minor tribs
Genesee	Tonawanda Creek, Middle, Main Stem
Genesee	Oak Orchard Creek, Upper, and tribs
Genesee	Bowen Brook and tribs
Genesee	Bigelow Creek and tribs
Genesee	Black Creek, Middle, and minor tribs
Genesee	LeRoy Reservoir
Greene	Schoharie Reservoir
Greene	Sleepy Hollow Lake
Herkimer	Steele Creek tribs
Kings	Hendrix Creek
Lewis	Mill Creek/South Branch and tribs
Livingston	Conesus Lake
Livingston	Jaycox Creek and tribs
Livingston	Mill Creek and minor tribs
Livingston	Bradner Creek and tribs
Livingston	Christie Creek and tribs
Monroe	Lake Ontario Shoreline, Western
Monroe	Mill Creek/Blue Pond Outlet and tribs
Monroe	Rochester Embayment - East
Monroe	Rochester Embayment - West
Monroe	Unnamed Trib to Honeoye Creek
Monroe	Genesee River, Lower, Main Stem
Monroe	Genesee River, Middle, Main Stem
Monroe	Black Creek, Lower, and minor tribs
Monroe	Buck Pond
Monroe	Long Pond
Monroe	Cranberry Pond
Monroe	Mill Creek and tribs
Monroe	Shipbuilders Creek and tribs
Monroe	Minor tribs to Irondequoit Bay
Monroe	Thomas Creek/White Brook and tribs
Nassau	Glen Cove Creek, Lower, and tribs
Nassau	LI Tribs (fresh) to East Bay
Nassau	East Meadow Brook, Upper, and tribs
Nassau	Hempstead Bay
Nassau	Hempstead Lake
Nassau	Grant Park Pond
Nassau	Beaver Lake
Nassau	Camaans Pond
Nassau	Halls Pond
Nassau	LI Tidal Tribs to Hempstead Bay
Nassau	Massapequa Creek and tribs
Nassau	Reynolds Channel, east
Nassau	Reynolds Channel, west
Nassau	Silver Lake, Lofts Pond
Nassau	Woodmere Channel
Niagara	Hyde Park Lake
Niagara	Lake Ontario Shoreline, Western
Niagara	Bergholtz Creek and tribs
Oneida	Ballou, Nail Creeks
Onondaga	Ley Creek and tribs
Onondaga	Onondaga Creek, Lower and tribs

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity, cont'd.

COUNTY	WATERBODY	COUNTY	WATERBODY
Onondaga	Onondaga Creek, Middle and tribs	Suffolk	Great South Bay, West
Onondaga	Onondaga Creek, Upp, and minor tribs	Suffolk	Mill and Seven Ponds
Onondaga	Harbor Brook, Lower, and tribs	Suffolk	Moriches Bay, East
Onondaga	Ninemile Creek, Lower, and tribs	Suffolk	Moriches Bay, West
Onondaga	Minor tribs to Onondaga Lake	Suffolk	Quantuck Bay
Onondaga	Onondaga Creek, Lower, and tribs	Suffolk	Shinnecock Bay (and Inlet)
Ontario	Honeoye Lake	Sullivan	Bodine, Montgomery Lakes
Ontario	Hemlock Lake Outlet and minor tribs	Sullivan	Davies Lake
Ontario	Great Brook and minor tribs	Sullivan	Pleasure Lake
Orange	Monhagen Brook and tribs	Sullivan	Swan Lake
Orange	Orange Lake	Tompkins	Cayuga Lake, Southern End
Orleans	Lake Ontario Shoreline, Western	Tompkins	Owasco Inlet, Upper, and tribs
Oswego	Pleasant Lake	Ulster	Ashokan Reservoir
Oswego	Lake Neatahwanta	Ulster	Esopus Creek, Upper, and minor tribs
Putnam	Oscawana Lake		
Putnam	Palmer Lake	Ulster	Esopus Creek, Lower, Main Stem
Putnam	Lake Carmel	Ulster	Esopus Creek, Middle, and minor tribs
Queens	Jamaica Bay, Eastern, and tribs (Queens)		
Queens	Bergen Basin	Warren	Lake George
Queens	Shellbank Basin	Warren	Tribs to L.George, Village of L George
Rensselaer	Nassau Lake		
Rensselaer	Snyders Lake	Warren	Huddle/Finkle Brooks and tribs
Richmond	Grasmere, Arbutus and Wolfes Lakes	Warren	Indian Brook and tribs
Rockland	Congers Lake, Swartout Lake	Warren	Hague Brook and tribs
Rockland	Rockland Lake	Washington	Tribs to L.George, East Shr Lk George
Saratoga	Ballston Lake		
Saratoga	Round Lake	Washington	Cossayuna Lake
Saratoga	Dwaas Kill and tribs	Washington	Wood Cr/Champlain Canal, minor tribs
Saratoga	Tribs to Lake Lonely		
Saratoga	Lake Lonely	Wayne	Port Bay
Schenectady	Collins Lake	Wayne	Marbletown Creek and tribs
Schenectady	Duane Lake	Westchester	Lake Katonah
Schenectady	Mariaville Lake	Westchester	Lake Mohegan
Schoharie	Engleville Pond	Westchester	Lake Shenorock
Schoharie	Summit Lake	Westchester	Reservoir No.1 (Lake Isle)
Schuyler	Cayuta Lake	Westchester	Saw Mill River, Middle, and tribs
St. Lawrence	Fish Creek and minor tribs	Westchester	Silver Lake
St. Lawrence	Black Lake Outlet/Black Lake	Westchester	Teatown Lake
Steuben	Lake Salubria	Westchester	Truesdale Lake
Steuben	Smith Pond	Westchester	Wallace Pond
Suffolk	Millers Pond	Westchester	Peach Lake
Suffolk	Mattituck (Marratooka) Pond	Westchester	Mamaroneck River, Lower
Suffolk	Tidal tribs to West Moriches Bay	Westchester	Mamaroneck River, Upp, and tribs
Suffolk	Canaan Lake	Westchester	Sheldrake River and tribs
Suffolk	Lake Ronkonkoma	Westchester	Blind Brook, Lower
Suffolk	Beaverdam Creek and tribs	Westchester	Blind Brook, Upper, and tribs
Suffolk	Big/Little Fresh Ponds	Westchester	Lake Lincolndale
Suffolk	Fresh Pond	Westchester	Lake Meahaugh
Suffolk	Great South Bay, East	Wyoming	Java Lake
Suffolk	Great South Bay, Middle	Wyoming	Silver Lake

Note: The list above identifies those waters from the final New York State "2014 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy", dated January 2015, that are impaired by silt, sediment or nutrients.

XIII. APPENDIX F

LIST OF NYS DEC REGIONAL OFFICES

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

APPENDIX E

WEEKLY INSPECTION FORM

10 Main Street, Suite 321
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:
Phone Number:	Exit Time:	
		Overall Inspection Rating:
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.

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 maintainted?
			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.

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.

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.

Contruction 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

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:	Gary Krupnick
2. Contact Person:	Gary Krupnick
3. Street Address:	687 Old Willets Path
4. City/State/Zip:	Hauppauge, NY 11788
II. Project Site Information	
5. Project/Site Name:	Marlboro II Distribution
6. Street Address:	1100 Route 9W
7. City/State/Zip:	Marlborough, NY 12542
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

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

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

Printed Name:

Title/Position:

Signature:

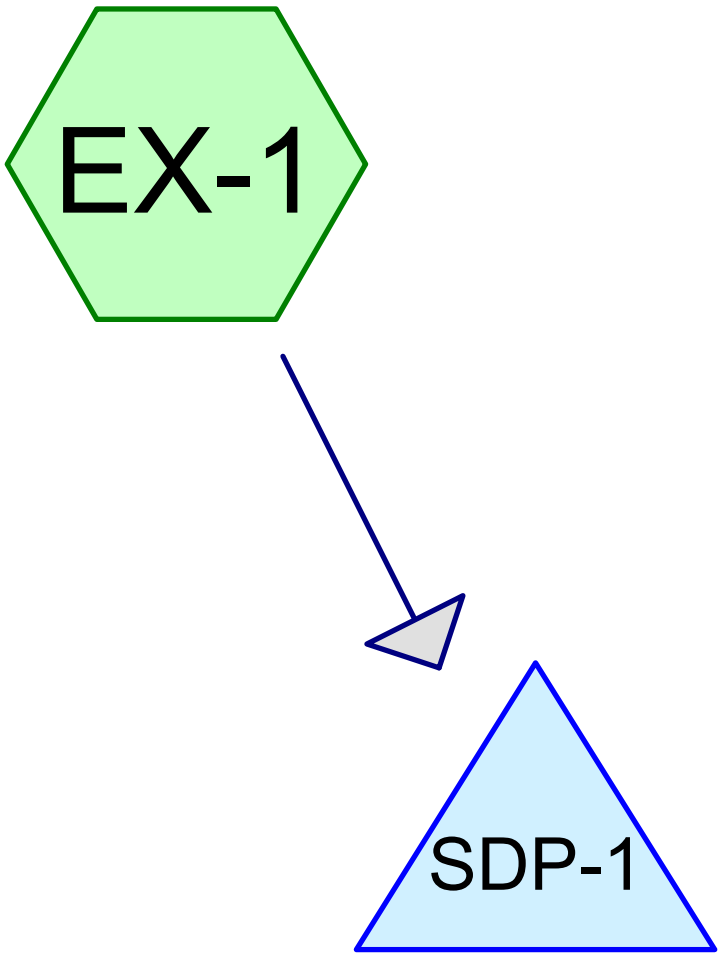
Date:

VI. Additional Information

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

APPENDIX G

HYDROCAD ANALYSIS



Subcat Reach Pond Link

Routing Diagram for Pre
Prepared by Microsoft, Printed 1/4/2018

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.769	74	>75% Grass cover, Good, HSG C (EX-1)
0.162	65	Brush, Good, HSG C (EX-1)
1.616	96	Gravel surface, HSG C (EX-1)
0.100	98	Paved parking, HSG C (EX-1)
0.740	70	Woods, Good, HSG C (EX-1)

Summary for Subcatchment EX-1:

Runoff = 5.44 cfs @ 12.15 hrs, Volume= 0.391 af, Depth> 0.87"

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

Area (ac)	CN	Description
0.100	98	Paved parking, HSG C
2.769	74	>75% Grass cover, Good, HSG C
0.162	65	Brush, Good, HSG C
0.740	70	Woods, Good, HSG C
1.616	96	Gravel surface, HSG C
5.387	80	Weighted Average
5.287		98.14% Pervious Area
0.100		1.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	150	0.0667	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.6	45	0.0320	1.25		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	95	0.0320	1.25		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.9	370	Total			

Summary for Pond SDP-1:

Inflow Area = 5.387 ac, 1.86% Impervious, Inflow Depth > 0.87" for 1-yr event
Inflow = 5.44 cfs @ 12.15 hrs, Volume= 0.391 af
Primary = 5.44 cfs @ 12.15 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment EX-1:

Runoff = 15.06 cfs @ 12.14 hrs, Volume= 1.070 af, Depth> 2.38"

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

Area (ac)	CN	Description
0.100	98	Paved parking, HSG C
2.769	74	>75% Grass cover, Good, HSG C
0.162	65	Brush, Good, HSG C
0.740	70	Woods, Good, HSG C
1.616	96	Gravel surface, HSG C
5.387	80	Weighted Average
5.287		98.14% Pervious Area
0.100		1.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	150	0.0667	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.6	45	0.0320	1.25		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	95	0.0320	1.25		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.9	370	Total			

Summary for Pond SDP-1:

Inflow Area = 5.387 ac, 1.86% Impervious, Inflow Depth > 2.38" for 10-yr event
Inflow = 15.06 cfs @ 12.14 hrs, Volume= 1.070 af
Primary = 15.06 cfs @ 12.14 hrs, Volume= 1.070 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment EX-1:

Runoff = 33.10 cfs @ 12.13 hrs, Volume= 2.414 af, Depth> 5.38"

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

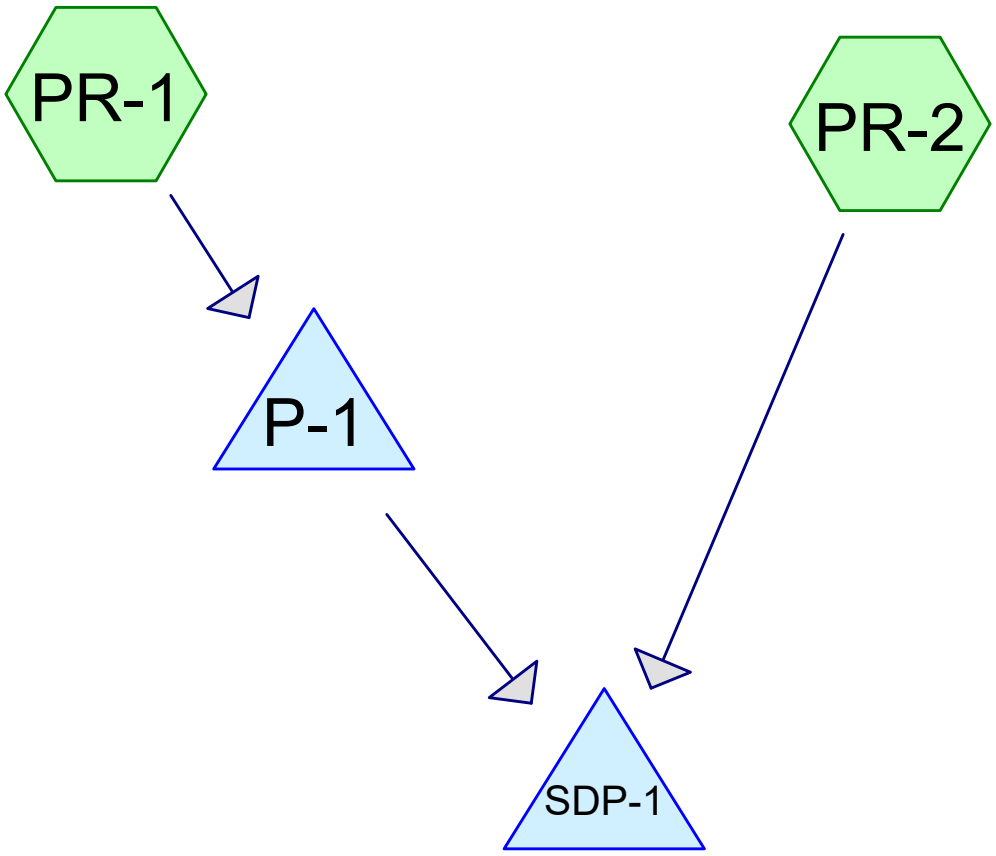
Area (ac)	CN	Description
0.100	98	Paved parking, HSG C
2.769	74	>75% Grass cover, Good, HSG C
0.162	65	Brush, Good, HSG C
0.740	70	Woods, Good, HSG C
1.616	96	Gravel surface, HSG C
5.387	80	Weighted Average
5.287		98.14% Pervious Area
0.100		1.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.5	150	0.0667	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.6	45	0.0320	1.25		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	80	0.0320	2.88		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.3	95	0.0320	1.25		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
20.9	370	Total			

Summary for Pond SDP-1:

Inflow Area = 5.387 ac, 1.86% Impervious, Inflow Depth > 5.38" for 100-yr event
Inflow = 33.10 cfs @ 12.13 hrs, Volume= 2.414 af
Primary = 33.10 cfs @ 12.13 hrs, Volume= 2.414 af, Atten= 0%, Lag= 0.0 min

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



Subcat Reach Pond Link

Routing Diagram for Post
Prepared by Microsoft, Printed 1/4/2018

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.116	74	>75% Grass cover, Good, HSG C (PR-1, PR-2)
0.162	65	Brush, Good, HSG C (PR-1)
0.187	96	Gravel surface, HSG C (PR-1)
2.620	98	Paved parking, HSG C (PR-1)
0.302	70	Woods, Good, HSG C (PR-1)

Summary for Subcatchment PR-1:

Runoff = 9.02 cfs @ 12.06 hrs, Volume= 0.526 af, Depth> 1.29"

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

Area (sf)	CN	Description
114,137	98	Paved parking, HSG C
70,397	74	>75% Grass cover, Good, HSG C
7,057	65	Brush, Good, HSG C
13,155	70	Woods, Good, HSG C
8,146	96	Gravel surface, HSG C
212,892	87	Weighted Average
98,755		46.39% Pervious Area
114,137		53.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0950	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.1	22	0.6600	5.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	585	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
14.3	707	Total			

Summary for Subcatchment PR-2:

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 0.60"

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

Area (sf)	CN	Description
21,766	74	>75% Grass cover, Good, HSG C
21,766		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	32	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.9	132	Total			

Summary for Pond P-1:

Inflow Area = 4.887 ac, 53.61% Impervious, Inflow Depth > 1.29" for 1-yr event
Inflow = 9.02 cfs @ 12.06 hrs, Volume= 0.526 af
Outflow = 0.58 cfs @ 13.36 hrs, Volume= 0.357 af, Atten= 94%, Lag= 78.1 min
Primary = 0.58 cfs @ 13.36 hrs, Volume= 0.357 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 143.00' Surf.Area= 5,177 sf Storage= 6,183 cf
Peak Elev= 145.06' @ 13.36 hrs Surf.Area= 6,902 sf Storage= 19,549 cf (13,367 cf above start)

Plug-Flow detention time= 331.8 min calculated for 0.215 af (41% of inflow)
Center-of-Mass det. time= 151.5 min (941.6 - 790.1)

Volume	Invert	Avail.Storage	Storage Description
#1	141.50'	57,319 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
141.50	3,339	0	0
142.00	3,679	1,755	1,755
143.00	5,177	4,428	6,183
144.00	6,902	6,040	12,222
146.00	6,902	13,804	26,026
147.00	7,849	7,376	33,402
148.00	12,859	10,354	43,756
149.00	14,267	13,563	57,319

Device	Routing	Invert	Outlet Devices
#1	Device 2	143.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	141.00'	**18.0" Round Culvert** L= 38.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.00' / 140.00' S= 0.0263 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	145.10'	**22.0" W x 8.0" H Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 2	146.30'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	148.33'	**30.0' 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=0.58 cfs @ 13.36 hrs HW=145.06' (Free Discharge)
- **2=Culvert** (Passes 0.58 cfs of 15.48 cfs potential flow)
  - **1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 6.63 fps)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SDP-1:

Inflow Area = 5.387 ac, 48.64% Impervious, Inflow Depth > 0.85" for 1-yr event
Inflow = 0.84 cfs @ 12.12 hrs, Volume= 0.382 af
Primary = 0.84 cfs @ 12.12 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment PR-1:

Runoff = 20.42 cfs @ 12.06 hrs, Volume= 1.230 af, Depth> 3.02"

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

Area (sf)	CN	Description
114,137	98	Paved parking, HSG C
70,397	74	>75% Grass cover, Good, HSG C
7,057	65	Brush, Good, HSG C
13,155	70	Woods, Good, HSG C
8,146	96	Gravel surface, HSG C
212,892	87	Weighted Average
98,755		46.39% Pervious Area
114,137		53.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0950	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.1	22	0.6600	5.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	585	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
14.3	707	Total			

Summary for Subcatchment PR-2:

Runoff = 1.34 cfs @ 12.07 hrs, Volume= 0.079 af, Depth> 1.91"

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

Area (sf)	CN	Description
21,766	74	>75% Grass cover, Good, HSG C
21,766		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	32	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.9	132	Total			

Summary for Pond P-1:

Inflow Area = 4.887 ac, 53.61% Impervious, Inflow Depth > 3.02" for 10-yr event
Inflow = 20.42 cfs @ 12.06 hrs, Volume= 1.230 af
Outflow = 10.95 cfs @ 12.21 hrs, Volume= 0.972 af, Atten= 46%, Lag= 9.1 min
Primary = 10.95 cfs @ 12.21 hrs, Volume= 0.972 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 143.00' Surf.Area= 5,177 sf Storage= 6,183 cf
Peak Elev= 146.20' @ 12.21 hrs Surf.Area= 7,092 sf Storage= 27,429 cf (21,246 cf above start)

Plug-Flow detention time= 147.4 min calculated for 0.828 af (67% of inflow)
Center-of-Mass det. time= 57.6 min (828.7 - 771.1)

Volume	Invert	Avail.Storage	Storage Description
#1	141.50'	57,319 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
141.50	3,339	0	0
142.00	3,679	1,755	1,755
143.00	5,177	4,428	6,183
144.00	6,902	6,040	12,222
146.00	6,902	13,804	26,026
147.00	7,849	7,376	33,402
148.00	12,859	10,354	43,756
149.00	14,267	13,563	57,319

Device	Routing	Invert	Outlet Devices
#1	Device 2	143.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	141.00'	**18.0" Round Culvert** L= 38.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.00' / 140.00' S= 0.0263 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	145.10'	**22.0" W x 8.0" H Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 2	146.30'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	148.33'	**30.0' 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=10.90 cfs @ 12.21 hrs HW=146.19' (Free Discharge)
- **2=Culvert** (Passes 10.90 cfs of 17.93 cfs potential flow)
  - **1=Orifice/Grate** (Orifice Controls 0.73 cfs @ 8.38 fps)
  - **3=Orifice/Grate** (Orifice Controls 10.17 cfs @ 4.16 fps)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SDP-1:

Inflow Area = 5.387 ac, 48.64% Impervious, Inflow Depth > 2.34" for 10-yr event
Inflow = 11.78 cfs @ 12.19 hrs, Volume= 1.052 af
Primary = 11.78 cfs @ 12.19 hrs, Volume= 1.052 af, Atten= 0%, Lag= 0.0 min

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

Summary for Subcatchment PR-1:

Runoff = 40.19 cfs @ 12.06 hrs, Volume= 2.518 af, Depth> 6.18"

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

Area (sf)	CN	Description
114,137	98	Paved parking, HSG C
70,397	74	>75% Grass cover, Good, HSG C
7,057	65	Brush, Good, HSG C
13,155	70	Woods, Good, HSG C
8,146	96	Gravel surface, HSG C
212,892	87	Weighted Average
98,755		46.39% Pervious Area
114,137		53.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0950	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.15"
0.1	22	0.6600	5.69		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.6	585	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
14.3	707	Total			

Summary for Subcatchment PR-2:

Runoff = 3.25 cfs @ 12.07 hrs, Volume= 0.196 af, Depth> 4.70"

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

Area (sf)	CN	Description
21,766	74	>75% Grass cover, Good, HSG C
21,766		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.15"
0.5	32	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.9	132	Total			

Summary for Pond P-1:

Inflow Area = 4.887 ac, 53.61% Impervious, Inflow Depth > 6.18" for 100-yr event
Inflow = 40.19 cfs @ 12.06 hrs, Volume= 2.518 af
Outflow = 20.98 cfs @ 12.21 hrs, Volume= 2.206 af, Atten= 48%, Lag= 9.3 min
Primary = 20.98 cfs @ 12.21 hrs, Volume= 2.206 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 143.00' Surf.Area= 5,177 sf Storage= 6,183 cf
Peak Elev= 147.83' @ 12.21 hrs Surf.Area= 11,997 sf Storage= 41,617 cf (35,435 cf above start)

Plug-Flow detention time= 98.3 min calculated for 2.056 af (82% of inflow)
Center-of-Mass det. time= 34.7 min (790.4 - 755.6)

Volume	Invert	Avail.Storage	Storage Description
#1	141.50'	57,319 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
141.50	3,339	0	0
142.00	3,679	1,755	1,755
143.00	5,177	4,428	6,183
144.00	6,902	6,040	12,222
146.00	6,902	13,804	26,026
147.00	7,849	7,376	33,402
148.00	12,859	10,354	43,756
149.00	14,267	13,563	57,319

Device	Routing	Invert	Outlet Devices
#1	Device 2	143.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	141.00'	**18.0" Round Culvert** L= 38.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.00' / 140.00' S= 0.0263 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	145.10'	**22.0" W x 8.0" H Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 2	146.30'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	148.33'	**30.0' 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=20.96 cfs @ 12.21 hrs HW=147.82' (Free Discharge)
- **2=Culvert** (Inlet Controls 20.96 cfs @ 11.86 fps)
  - **1=Orifice/Grate** (Passes < 0.91 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 18.17 cfs potential flow)
  - **4=Orifice/Grate** (Passes < 23.74 cfs potential flow)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SDP-1:

Inflow Area = 5.387 ac, 48.64% Impervious, Inflow Depth > 5.35" for 100-yr event
Inflow = 23.63 cfs @ 12.11 hrs, Volume= 2.401 af
Primary = 23.63 cfs @ 12.11 hrs, Volume= 2.401 af, Atten= 0%, Lag= 0.0 min

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

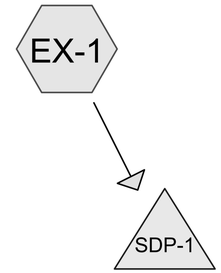
Stage-Area-Storage for Pond P-1:

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
141.50	3,339	0
141.60	3,407	337
141.70	3,475	681
141.80	3,543	1,032
141.90	3,611	1,390
142.00	3,679	1,755
142.10	3,829	2,130
142.20	3,979	2,520
142.30	4,128	2,926
142.40	4,278	3,346
142.50	4,428	3,781
142.60	4,578	4,232
142.70	4,728	4,697
142.80	4,877	5,177
142.90	5,027	5,672
143.00	5,177	6,183
143.10	5,349	6,709
143.20	5,522	7,252
143.30	5,695	7,813
143.40	5,867	8,391
143.50	6,040	8,987
143.60	6,212	9,599
143.70	6,384	10,229
143.80	6,557	10,876
143.90	6,730	11,540
144.00	6,902	12,222
144.10	6,902	12,912
144.20	6,902	13,602
144.30	6,902	14,293
144.40	6,902	14,983
144.50	6,902	15,673
144.60	6,902	16,363
144.70	6,902	17,053
144.80	6,902	17,744
144.90	6,902	18,434
145.00	6,902	19,124
145.10	6,902	19,814
145.20	6,902	20,504
145.30	6,902	21,195
145.40	6,902	21,885
145.50	6,902	22,575
145.60	6,902	23,265
145.70	6,902	23,955
145.80	6,902	24,646
145.90	6,902	25,336
146.00	6,902	26,026
146.10	6,997	26,721
146.20	7,091	27,425
146.30	7,186	28,139
146.40	7,281	28,863
146.50	7,376	29,595
146.60	7,470	30,338
146.70	7,565	31,089
146.80	7,660	31,851
146.90	7,754	32,621
147.00	7,849	33,402
147.10	8,350	34,211
147.20	8,851	35,071
147.30	9,352	35,982
147.40	9,853	36,942
147.50	10,354	37,952
147.60	10,855	39,013
147.70	11,356	40,123
147.80	11,857	41,284
147.90	12,358	42,495
148.00	12,859	43,756
148.10	13,000	45,048
148.20	13,141	46,355
148.30	13,281	47,677
148.40	13,422	49,012
148.50	13,563	50,361
148.60	13,704	51,724
148.70	13,845	53,102
148.80	13,985	54,493
148.90	14,126	55,899
149.00	**14,267**	**57,319**

APPENDIX H

DRAINAGE MAPS

HYDROCAD ROUTING DIAGRAM



LEGEND

- SUBCATCHMENT BOUNDARY
- TIME OF CONCENTRATION / REACH SEGMENT
- MgB — SOIL TYPE DESIGNATION / SOIL TYPE BOUNDARY
- EX-1 — SUBCATCHMENT
- 1* — STORMWATER DISCHARGE POINT - SDP
- EXISTING PROPERTY LINE
- 110 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 110 — EXISTING CONTOUR (LIDAR)
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- EXISTING BUILDING
- EXISTING TREE LINE

SUBCATCHMENT AREA SUMMARY

SUBCATCHMENT EX-1	SOIL TYPE	CN	AREA (AC)
PAVED, IMPERVIOUS	C	98	0.100
>75% GRASS COVER, GOOD	C	74	2.769
BRUSH, GOOD	C	65	0.162
WOODS, GOOD	C	70	0.740
GRAVEL SURFACE	C	96	1.616

Total= 5.387

0 1 2 3
ORIGINAL SIZE IN INCHES

STATE OF NEW YORK
ANDREW V. WILLINGHAM
08398A
PROFESSIONAL ENGINEER

willingham engineering
10 Main Street - Suite 321
New Paltz, New York 12561
T 845.255.0210 F 845.256.8110
www.willinghamengineering.com

REV	DATE	DESCRIPTION

PRE-DEVELOPMENT DRAINAGE MAP

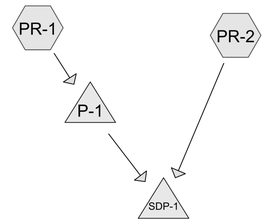
MARLBORO II DISTRIBUTION

1100 US ROUTE 9W

TOWN OF MARLBOROUGH, ULSTER COUNTY, NEW YORK

DRAWN BY	CHECKED BY
MLT	AVW
DATE	SCALE
01/05/18	1"=50'
PROJECT NO.	
17003	
SHEET NO.	
DM-PRE	

HYDROCAD ROUTING DIAGRAM



L E G E N D

- SUBCATCHMENT BOUNDARY
- TIME OF CONCENTRATION / REACH SEGMENT
- MgB — SOIL TYPE DESIGNATION / SOIL TYPE BOUNDARY
- EX-1 — SUBCATCHMENT
- P-1 — STORMWATER MANAGEMENT POND
- 1 — STORMWATER DISCHARGE POINT - SDP
- EXISTING PROPERTY LINE
- 110 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 110 — EXISTING CONTOUR (LIDAR)
- EXISTING EDGE OF GRAVEL
- EXISTING TREE LINE
- PROPOSED BUILDING
- PROPOSED EDGE OF PAVEMENT
- PROPOSED 10 FT CONTOUR
- PROPOSED 2 FT CONTOUR
- PROPOSED DRAINAGE CULVERT

SUBCATCHMENT AREA SUMMARY

SUBCATCHMENT PR-1	SOIL TYPE	CN	AREA (AC)
PAVED, BUILDINGS, IMPERVIOUS	C	98	2.620
>75% GRASS COVER, GOOD	C	74	1.616
BRUSH, GOOD	C	65	0.162
WOODS, GOOD	C	70	0.302
GRAVEL SURFACE	C	96	0.187
		Total=	4.887

SUBCATCHMENT PR-2	SOIL TYPE	CN	AREA (AC)
>75% GRASS COVER, GOOD	C	74	0.500
		Total=	0.500

0 1 2 3
ORIGINAL SIZE IN INCHES

STATE OF NEW YORK — ANDREW V. WILLINGHAM — 083984 — PROFESSIONAL ENGINEER

willingham engineering
10 Main Street - Suite 321
New Paltz, New York 12561
T 845.255.0210 F 845.256.8110
www.willinghamengineering.com

REV	DATE	DESCRIPTION

POST-DEVELOPMENT DRAINAGE MAP

MARLBORO II DISTRIBUTION

1100 US ROUTE 9W

TOWN OF MARLBOROUGH, ULSTER COUNTY, NEW YORK

DRAWN BY	CHECKED BY
MLT	AVW
DATE	SCALE
01/05/18	1"=50'
PROJECT NO.	
17003	
SHEET NO.	
DM-POST	

APPENDIX I

STORMWATER CALCULATIONS

Redevelopment Calculations

Existing Impervious to be removed and redeveloped

Buildings		1,054	sf
Gravel		62,210	sf
	Total	63,264	sf
		1.45	Ac

Proposed Impervious

Building		40,132	sf
Pavement		54,004	sf
Future Building		15,800	sf
Sidewalk		934	sf
	Total	110,870	sf
		2.55	Ac

Impervious surface requiring Full WQv and RRv

		47606	sf
		1.09	ac
P=	1.4		
Rv=	0.05 + 0.009 (I)		
Rv=	0.284		
I=	Impervious Cover (percent)		
I=	26%		
A=	3.94		

WQv=[(P)(Rv)(A)]/12

WQv= 6060 cf for portion of site with new impervious surfaces

Redevelopment impervious surface requiring 25% WQv treatment and no RRv requirement

		63264	sf
		1.45	ac
P=	1.4		
Rv=	0.05 + 0.009 (I)		
Rv=	0.95		
I=	Impervious Cover (percent)		
I=	100%		
A=	1.45		

WQv={[(P)(Rv)(A)]/12} * 25% reduction for redevelopment

WQv= 1,750 cf for portion of site to be redeveloped

Total WQv required for new impervious and redevelopment areas

Total WQv = 7,810 cf

Minimum RRV required

P=	1.4
Rv=	0.05 + 0.009 (I) where I is 100% Impervious cover
Rv=	0.95
I=	100%
Aic=	1.01
S=	0.3

RRv=[(P)(Rv)(Aic)(S)]/12

RRv= 1,602 cf for new impervious cover

Note - RRv is not required for areas of redevelopment

Version 1.6 Total Water Quality Volume Calculation

Last Updated: 03/28/2014 WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	Total Area	
P=	1.40	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	1.97	0.55	28%	0.30	3,030	Bioretention
2	1.97	0.55	28%	0.30	3,030	Bioretention
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	3.94	1.11	28%	0.30	**6,060**	**Subtotal 1**
Total	3.94	1.11	28%	0.30	**6,060**	**Initial WQv**

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C	3.94	30%
D		20%
Total Area	3.94	
Calculate the Minimum RRv		
S =	**0.30**	
Impervious =	1.11	*acre*
Precipitation	1.4	*in*
Rv	0.95	
Minimum RRv	**1,602**	***ft3***
	0.04	af

Bioretention Worksheet

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

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

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — 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	1.97	0.55	0.28	0.30	3029.89	1.40	Bioretention
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	28%	0.30	3,030	<<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	C		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		3,030	*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***	**2525**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	50	*ft*	
Filter Length	35	*ft*	
Filter Area	1750	*ft^2*	
Actual Volume Provided	2100	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?		Yes	Select Practice	Other/Standard SMP
RRv	840			
RRv applied	**840**	***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.*	

Bioretention Worksheet

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

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

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — 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 & Schueler, 1996)

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**
2	1.97	0.55	0.28	0.30	3029.89	1.40	Bioretention
Enter Impervious Area Reduced by Disconnection of Rooftops			28%	0.30	3,030	<<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	C		
Soil Infiltration Rate	0.00	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area

		Value	Units	Notes
WQv		3,030	*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***	**2525**	***ft^2***	

Determine Actual Bio-Retention Area

Filter Width	90	*ft*	
Filter Length	20	*ft*	
Filter Area	1800	*ft^2*	
Actual Volume Provided	2160	*ft^3*	

Determine Runoff Reduction

Is the Bioretention contributing flow to another practice?		Yes	Select Practice	Other/Standard SMP
RRv	864			
RRv applied	**864**	***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.*	

WQv and RRv Summary Sheet

Total WQv Required =			7,810	cf
WQv Provided by:	Bioretention -		4,260	cf
	Pond Permanent Pool-		6,183	cf
Total WQv Provided=			10,443	cf
Total Minimum RRv Required using specific reduction factor=			1,602	cf
RRv Provided by:	Bioretention (40% of WQv) -		1,704	cf
Total RRv Provided =			1,704	cf

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 susoils.		
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		

Comments:

Actions to be Taken:

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)		
Dewaters 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

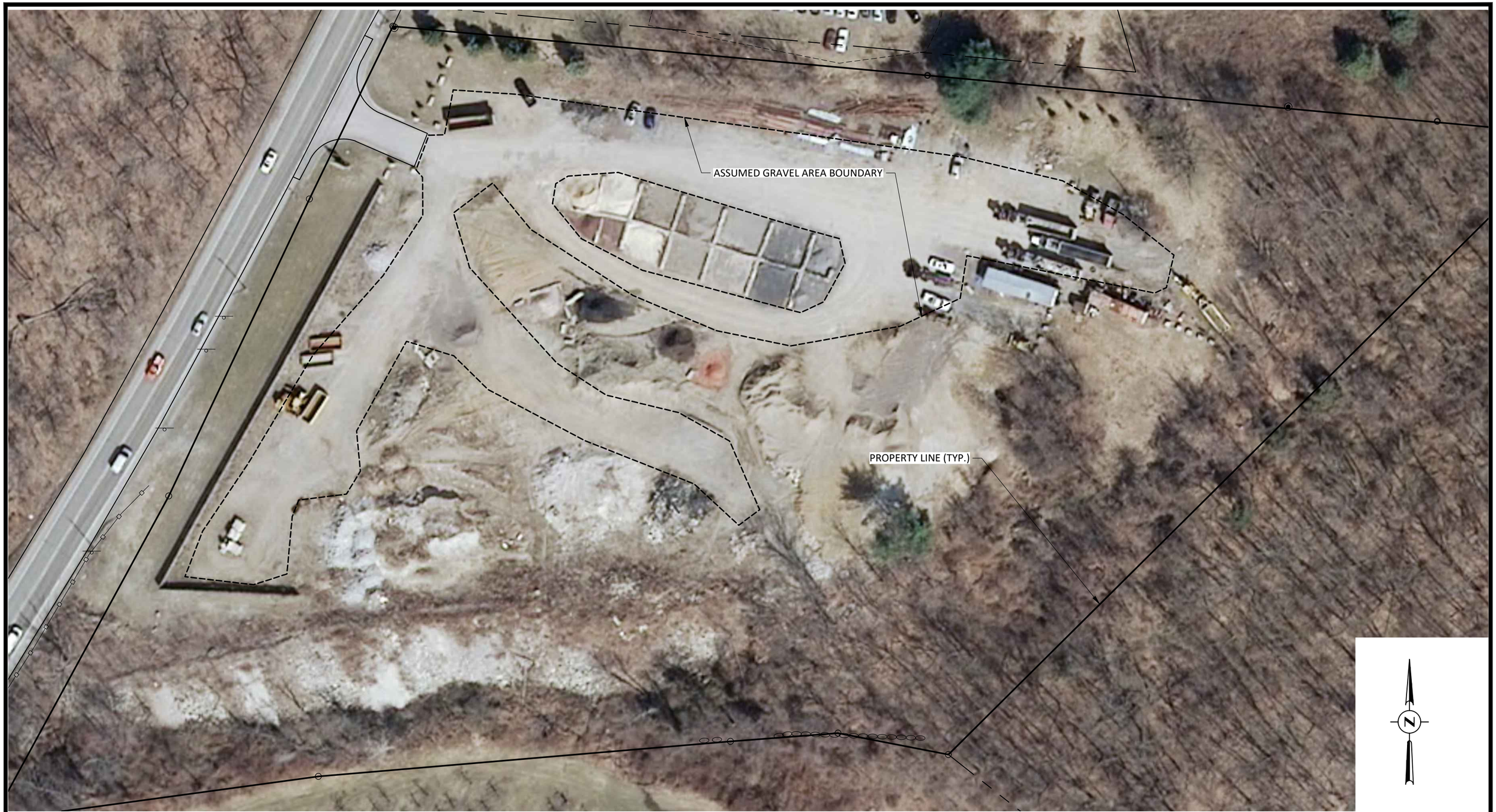
Northeast Regional Climate Center Extreme Precipitation Estimates (inches)
for Marlborough, Ulster County, New York

Mean precipitation frequency estimates

Duraction	1-Year	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Inches	2.61	3.15	3.93	4.65	5.81	6.89	8.16

APPENDIX L

HISTORICAL AERIAL IMAGERY



SCALE: 1"=60'

0 1 2

ORIGINAL SIZE IN INCHES

REV	DATE	DESCRIPTION

willingham engineering

10 Main Street - Suite 321
New Paltz, New York 12561
T 845.255.0210 F 845.256.8110
www.willinghamengineering.com

HISTORICAL IMAGERY (2009)

MARLBORO II DISTRIBUTION

1100 US ROUTE 9W
TOWN OF MARLBOROUGH, ULSTER COUNTY, NEW YORK

DATE	DRAWN BY
01/05/17	MLT
PROJECT NO.	
17003	
SHEET NO.	
APP-L	