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LAND
DEVELOPMENT

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Prepared for:

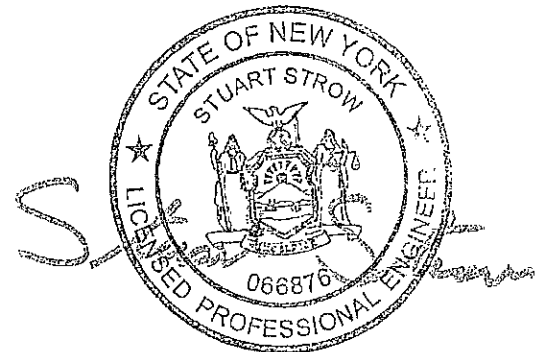
HILLSIDE COMMERCIAL PARK

N.Y.S. Route 304
Town of Orangetown
Rockland County, New York

REVISED: November 6, 2014

HYDROLOGIC
& HYDRAULIC

STRUCTURAL



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1.0 Introduction

1.1 Background

In 1972 Congress passed the Federal Water Pollution Control Act (FWPCA), also known as the Clean Water Act (CWA), to restore and maintain the quality of the nation's waterways. The ultimate goal was to make sure that rivers and streams were fishable, swimmable and drinkable. In 1987, the Water Quality Act (WQA) added provisions to the CWA that allowed the EPA to govern storm water discharges from construction sites. In 1998, the EPA published the final notice for General Permits for Storm Water Discharges from Construction Activities Disturbing 5 Acres or Greater (63 Federal Register 7898, February 14, 1998). The general permit includes provisions for development of a Storm Water Pollution Prevention Plan (SWPPP) to maximize the potential benefits of pollution prevention and sediment and erosion control measures at construction sites.

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater discharges from certain construction activities are unlawful unless they are authorized by a NPDES (National Pollutant Discharge Elimination System) permit or by a state permit program. New York State's SPDES (State Pollutant Discharge Elimination System) is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law ("ECL").

The New York State Department of Environmental Conservation (NYSDEC) issued the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001) in January, 2010. This general permit replaces the SPDES General Permit for Stormwater Discharges from Construction Activity (GP-08-001). An owner or operator of a construction activity that is eligible for coverage under the SPDES General Permit (GP-0-10-001) must obtain coverage under the permit prior to the commencement of construction activity.

Development, implementation, and maintenance of a Stormwater Pollution Prevention Plan (SWPPP) will provide the framework for reducing soil erosion and minimizing pollutants in storm water during construction of the project. The SWPPP will:

- Define the characteristics of the site and the type of construction which will be occurring.
- Describe the site plan for the facility to be constructed.
- Describe the practices that will be implemented to control erosion and the release of pollutants in storm water.
- Create an implementation schedule to ensure that the practices described in this SWPPP are in fact implemented and to evaluate the plan's effectiveness in reducing erosion, sediment, and pollutant levels in storm water discharged from the site.
- Describe the final stabilization/termination design to minimize erosion and prevent storm water impacts after construction is complete.

1.2 SWPPP Content

This SWPPP includes the following:

- Identification of the SWPPP coordinator with a description of this person's duties
- Identification of the storm water pollution prevention team that will assist in the implementation of the SWPPP during construction.
- Description of the existing site conditions including existing land use for the site (i.e., wooded areas, open grassed areas, pavement, buildings, etc.), soil types at the site, as well as the location of surface waters which are located on or next to the site (wetlands, streams, rivers, lakes, ponds, etc.)
- Identification of the body of water(s) which will receive runoff from the construction site, including the ultimate body of water that receives the storm water
- Identification of drainage areas and potential storm water contaminants
- Description of storm water management controls and various Best Management Practices (BMPs) necessary to reduce erosion, sediment and pollutants in storm water discharge
- Description of the facility monitoring plan and how controls will be coordinated with construction activities
- Description of the implementation schedule and provisions for amendment of the plan.

1.3 SWPPP Coordinator and Duties

The construction site SWPPP coordinator for the facility is:

Name: _____

Phone: _____

Company: _____

Mr./Mrs. _____ duties include the following:

- Implement the SWPPP plan with the aid of the SWPPP team
- Oversee maintenance practices identified as BMPs in the SWPPP
- Implement and oversee employees training
- Conduct or provide for inspection and monitoring activities
- Identify other potential pollutant sources and make sure they are added to the plan
- Identify any deficiencies in the SWPPP and make sure they are corrected
- Ensure that any changes in the construction plans are addressed in the SWPPP

2.0 Site Description

Project Name & Location: Hillside Commercial Park
N.Y.S. Route 304
Town of Orangetown, New York

Applicant Name and Address: Route 304 LLC
75 Michael Roberts Court
Orangeburg, New York 10962

General Contractor: T.B.D.

Description:

The Hillside Commercial Park property is comprised of three existing tax lots (68.11-1-39, 68.11-1-40 and 68.16-1-1) totaling 10.23 acres. The property is located on the easterly side of New York State Route 304, at the intersection with Hillside Avenue. The parcel is vacant and wooded, and includes a wetland of approximately 2 acres on its southwesterly corner and a smaller wetland of approximately 0.1 acre near its northwesterly corner. The topography of the property features a downward slope from east to west, toward the wetlands adjacent to Route 304.

The property also includes a delineated 100 year floodplain associated with Muddy creek. Muddy Creek, a County regulated stream, runs southerly adjacent to the southbound lanes of Route 304. The stream crosses Route 304 through a concrete box culvert at the intersection of Hillside Avenue, where it continues to flow southerly adjacent to the northbound lanes of Route 304. The delineated 100 year floodplain of Muddy Creek includes a backwater area that generally surrounds the southerly wetland on the project site. The backwater is created by flow backing through the small box culvert or overtopping Hillside Avenue and flowing down into the wetland. According to the most recent FEMA Flood Insurance Rate Maps for the Town of Orangetown, the 100 year floodplain elevation on the project site is elevation 225.0 NAVD88, which is equal to elevation 226.0 NGVD29.

Under existing conditions, the project site drains in two directions. The majority of the project site drains to the larger wetland on the southerly part of the property. The southerly wetland then drains through a small box culvert under Hillside Avenue and discharges into Muddy Creek. The northerly portion of the project site drains to the smaller wetland near the northwesterly corner of the property. That wetland then drains through a 24 inch diameter corrugated metal pipe under Route 304 and into Muddy Creek.

The proposed project features the construction of a new mini-storage facility on the southerly part of the property, and a new warehouse/light manufacturing building on the northerly part of the property. A driveway from Hillside Avenue will provide access to both of the facilities. There will be no direct access from Route 304.

Under proposed conditions, the project site will continue to drain in two directions, but the area draining to the north will be reduced and the area draining to south will be increased. The large majority of the project site will drain to the larger wetland on the southerly part of the property. The southerly wetland then drains through a small box culvert under Hillside Avenue and discharges into Muddy Creek. The remaining area from the northerly portion of the site will drain to the smaller wetland near the northwesterly corner of the property.

According to the Soil Survey of Rockland County, the soils present on the site are Wethersfield-urban land complex (WuC), which are very deep, strongly sloping, well-drained soils with areas of covered by buildings, streets and other impervious surfaces. All of the soils on the project site are categorized as Hydrologic Soil Group "C".

The total area to be disturbed by construction activities is approximately 7 acres. Soil disturbing activities will include: clearing and grubbing; installing stabilized construction entrances, perimeter and other erosion and sediment control measures; grading (cuts and fills); excavation for the installation of drainage, electric and other utilities; excavation for building foundations; construction of driveways and parking lots; preparation for final seeding and planting.

2.2 Sequence of Major Activities

The work shall be performed in two major phases. The first phase will include the construction of the two-story warehouse/light manufacturing building on the northerly side of the property, the construction of the infiltration basin, and the construction of the required access roads and utilities to serve the warehouse building. The second phase will include the construction of the two self-storage buildings on the southerly side of the site. The maximum disturbance area will not exceed 5 acres at any time. The general sequence of major construction activities will be as follows:

1. Perform clearing and grubbing activities for the site access road, infiltration basin, building pad, and parking lots for the warehouse building.
2. Install erosion and sediment controls, including silt fence, hay bales, temporary berms, swales, and temporary sediment traps.
3. Perform grading, filling, excavation, and related earthwork operations for the road construction and warehouse site.
4. Install utilities, curbs, and building foundation for the access road and warehouse site.
5. Construct infiltration basin on northerly side of site.
6. Complete construction of warehouse building.
7. Pave access road and parking lots around warehouse building.
8. Perform clearing and grubbing activities for the self-storage buildings.
9. Perform grading, filling, excavation, and related earthwork operations for the self-storage buildings.
10. Install utilities, curbs, and foundations for the self-storage buildings.
11. Complete construction of self-storage buildings.
12. Pave access road and parking lots around self-storage buildings.
13. Install final landscaping, and remove all erosion control measures.

2.3 Construction Sequence -- Erosion Control Measures

1. Notify all involved agencies of proposed construction schedule.
2. Install snow fencing around trees, structures, or other features identified by the owner to be protected during construction.
3. Install stabilized construction entrance.
4. Install silt fence barriers at the base of all proposed slopes as designated on erosion control plans.
5. Construct temporary sediment traps at the locations of concentrated storm water runoff, including swales and berms as needed to direct storm water runoff to the traps.
6. Prior to the start of grading operations, the contractor shall demonstrate, to the satisfaction of the owner's representative, that the areas designated to remain protected or undisturbed are protected by the uninterrupted system of silt fence barriers, basins, berms, and/or swales.
7. Clear and grub vegetation in areas to be graded.
8. Strip topsoil and stockpile in approved locations, as designated on the plan.
9. Stabilize topsoil stockpile areas and install silt fence.
10. Install temporary diversion measures.
11. Perform earthwork to grade out infiltration basin.
12. Perform earthwork to rough grade roadway.
13. Install sanitary sewer, storm drainage and utilities.

14. Install curbs and base course for the roads.
15. Restore any existing site features disturbed during construction that were not part of the original scope.
16. The construction shall maintain all sediment and erosion control measures in proper condition throughout the construction period:
 - All Control measures shall be inspected at least once a week and following any storm event of 0.5 inches or greater. If a repair is necessary, it shall be implemented within 24 hours of report.
 - Built-up sediment shall be removed from silt fence when it has reached one-third the height of the fence.
 - Silt fence shall be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
 - Temporary and permanent seeding plantings shall be inspected for bare spots, washout, and healthy growth.
 - Sediment shall be removed from sediment traps once it has accumulated to one-half the design depth of the basin. Removed sediment shall be deposited in a suitable area in a manner such that it will not erode.
17. As construction proceeds, all disturbed areas shall be planted or seeded in a timely manner to prevent unnecessary erosion. Once disturbed uphill areas have been properly stabilized, temporary berms, temporary swales, temporary sediment traps, silt fence barriers, hay bales, crushed stone filter outlets, etc. shall be removed.
18. Perform final grading, soil restoration, and soil de-compaction. Soil restoration and de-compaction shall be performed for all areas that were cut, filled or subject to heavy vehicle traffic. Soil restoration and de-compaction shall be completed in conformance with the NYSDEC publication "Deep Ripping and De-compaction, 2008."
19. Upon completion of the construction activities, remove soil erosion and sediment control measures.
20. Prepare As-Builts and post construction measures and procedures in accordance with all applicable federal, state and local requirements.

3.0 Controls

3.1 Erosion and Sediment Controls

3.1.1 Description of Work

Provide all means necessary to install, inspect, maintain, and remove temporary erosion and sediment control measures as shown on the drawings and as required to minimize the erosion and unspecified transport of soil from the site.

3.1.2 Quality Assurance

- A. General
- Install in accordance with the drawings or New York Standards and Specifications for Erosion and Sediment Control, latest edition, whichever is stricter.
 - Grade and maintain site at all times such that all storm water runoff from disturbed areas is diverted to soil erosion and sedimentation control facilities.
 - No changes to the soil erosion and Sedimentation Control Plan shall be made without approval of the Owner's Representative.
 - The Contractor shall comply with applicable Federal, State, and local regulations relating to the prevention and abatement of pollution.
 - The municipal Engineer may require additional erosion and sediment control measures to mitigate unforeseen siltation.
- B. Product Stockpiling: Stockpiles of stabilization measures such as hay bales and mulch shall be maintained at site for use in stabilizing disturbed areas in advance of severe weather conditions.

3.1.3 Work Schedule

- A. General: Install and remove measures as noted in the "Construction Sequence" narrative and plans. The measures shall be maintained until permanent protection of the contributing watershed is approved by the Municipal Representative. All storm drainage outlets will be stabilized, as required, before the discharge points become operational.
- B. Inspections: Inspect measures at least once a week and within 24 hours of the end of a 0.5 inch or greater storm event. Stabilized areas will be inspected monthly until the entire site is stabilized.
- C. Maintenance: Complete maintenance within seven calendar days determining its need, as determined by the Municipal Engineer.
- D. Stabilization/Planting: Temporarily or permanently stabilize within 24 hours after the end of construction activities in an area unless there is snow cover or construction activities will resume within 21 days.

3.1.4 Products And Execution

A. Sediment Traps:

- Sediment traps are temporary devices formed by excavating and/or constructing an embankment to intercept sediment laden runoff and trap sediment to protect drainage ways from sedimentation.
- Sediment traps shall be designed to provide a minimum capacity of 1,800 cubic feet of storage per acre of drainage area contributing to the trap.
- Sediment traps should be located so that they can be installed prior to grading or filling. They should also be installed to benefit from the terrain and to be easily accessible for maintenance and disposal of the trapped sediment.
- Outlets shall discharge to stabilized ground, into a watercourse, or into a storm or storm drainage system.

Sediment Trap Design Data:

Three sediment traps have been designed to treat a contributing drainage area of 3.0 acres from the southerly side of the project site. In accordance with the New York State Standards and Specifications for Erosion and Sediment Control, the minimum sediment storage volume is 1,800 cubic feet per acre of drainage area. The required storage volume is calculated as follows:

$$(1,800 \text{ cu. ft.}) \times (3.0 \text{ acres of drainage area}) = 5,400 \text{ cubic feet}$$

The proposed sediment trap volume is calculated as follows:

$$\begin{aligned} \text{Surface area @ top elevation 230} &= 800 \text{ sq. ft.} \\ \text{Surface area @ bottom elevation 227} &= 500 \text{ sq. ft.} \\ \text{Depth} &= (230) - (227) = 3 \text{ feet} \end{aligned}$$

$$\text{Volume} = (3 \text{ basins}) \times [(800 \text{ sf}) + (500 \text{ sf})] / (2) \times (3.0 \text{ ft}) = 5,850 \text{ cubic feet}$$

B. Earth Dikes: Compact dikes with earth moving equipment. Erosion control blankets shall be North American Green S150 or equal.

C. Stabilized Construction Entrance:

- A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.
- These entrances/exits will be used where dirt or mud can be tracked onto public roads; adjacent to water bodies; where poor soils are encountered; where dust is a problem during dry weather.
- The filter fabric shall be Mirafi 600X or equal. The contractor shall keep the roadways within the project clear of soil and debris and is responsible for any street cleaning necessary during the duration of construction.

D. Sediment Basins:

- Sediment basins are temporary basins formed by excavating and/or constructing an embankment so that sediment laden runoff is temporarily detained under slow-moving or inactive conditions, allowing sediment to settle out before the runoff is discharged.
- Sediment basins shall be designed to provide a minimum capacity of 3,600 cubic feet of storage per acre of drainage area contributing to the basin.
- Locate the basin so that it is accessible for maintenance.
- When possible, temporary sediment basins shall be located where permanent, post-construction detention basins will be constructed, except when the post-construction basin is an infiltration basin.
- Outflow structures and emergency spillways must be provided.
- When possible, the outflow structure can consist of the permanent outflow structure, provided that the low flow orifice is sufficiently blocked so as to be watertight and non-functional.
- The outflow shall be provided with outlet protection to prevent scouring and erosion of the embankment and channel.

Sediment Basin Design Data:

The sediment basin has been designed to treat a contributing drainage area of 7 acres from the northerly side of the project site. In accordance with the New York State Standards and Specifications for Erosion and Sediment Control, the minimum sediment storage volume is 3,600 cubic feet per acre of drainage area. The required storage volume is calculated as follows:

$$(3,600 \text{ cu. ft.}) \times (7 \text{ acres of drainage area}) = 25,200 \text{ cubic feet}$$

The proposed sediment basin volume is calculated as follows:

$$\begin{aligned} \text{Surface area @ top elevation 230} &= 6,000 \text{ sq. ft.} \\ \text{Surface area @ bottom elevation 225} &= 4,500 \text{ sq. ft.} \\ \text{Depth} &= (230) - (225) = 5 \text{ feet} \end{aligned}$$

$$\text{Volume} = [(6,000 \text{ sf}) + (4,500 \text{ sf})] / (2) \times (5 \text{ ft}) = 26,250 \text{ cubic feet}$$

In accordance with Figure 5A.28 in the New York State Standards and Specifications for Erosion and Sediment Control manual, the dewatering device for the temporary sediment basin shall be 6" diameter perforated PVC riser surrounded by filter cloth, with a continuous crushed stone core around its base. A copy of this detail is included in Attachment 2 of this SWPPP.

E. Silt Fence:

- A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

- Silt fences will be placed below the toe of exposed and erodible slopes; down-slope of exposed soil areas; around temporary stockpiles; along streams and channels; along the perimeter of a project.
 - Silt fence fabric shall be Mirafi 100X or equal.
 - Wood posts shall be of sound quality hardwood, a minimum 36 inches long and two inches square.
 - Metal posts shall be standard T and U section weighing not less than one pound per linear foot.
 - Wire fence backing shall be a minimum 14-1/2 gage with a maximum six inch mesh opening and securely attached to fence posts.
 - Posts shall extend a minimum of 16 inches into the ground.
- F. Hay Bale Barriers:
- A hay bale barrier is a temporary linear sediment barrier consisting of straw bales, designed to intercept and slow sediment-laden sheet flow runoff. Straw bale barriers allow sediment to settle from runoff before water leaves the construction site.
 - This BMP will be implemented on a project-by-project basis determined by the Engineer.
 - The hay bales will be placed along the perimeter of the site; along streams and channels; below the toe of exposed and erodible slopes; down slope of exposed soil areas; around stockpiles; across minor swales or ditches with small catchments; around above grade type temporary concrete washouts; parallel to a roadway to keep sediment off paved areas.
- G. Modified Control Structure: All pipe connections and the barrel connection to the control structure shall be watertight.
- H. Check Dams: The filter fabric shall be Mirafi 600X or equal.
- I. Temporary Stabilization:
- Establishment of Temporary Grass Cover: Prepare seed bed, scarify if compacted, remove debris and obstacles such as rocks and stumps, and seed within 24 hours. Amend soil, lime soil to pH of 6.0 and fertilize at a rate of 1/2 lbs. per 1,000 square feet with a 5-10-10 or equivalent fertilizer. Work amendments a minimum of four inches into soil. If seeding in October/November seed shall be Certified Aroostook winter rye at 100 lbs. per acre, otherwise seed shall be ryegrass (annual).
 - Mulch: Small grain straw mulch as specified on the drawings. Straw mulch shall be applied at a rate of two tons (100 to 120 bales) per acre.
- J. Permanent Stabilization: Riprap: See erosion control for details (if required).
- K. Dust Control: Treat all disturbed areas within 500 feet of an inhabited dwelling as necessary to provide dust control. Conform to all local and state regulations governing these activities.
- L. Rock Removal: Rock ripping shall be used wherever possible in place of blasting. Observations made during test blasting shall be used in the development of a controlled rock removal program.
- M. Temporary Soil and Rock Stockpiling:
- Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, and paving materials such as Portland cement concrete (PCC) rubble, asphalt concrete

(AC), asphalt concrete rubble, aggregate base, aggregate sub-base or pre-mixed aggregate, asphalt binder (so called "cold mix" asphalt) and pressure treated wood.

- Materials shall not be stockpiled on steep slopes, drainage swales, wetland areas, or wetland setback arrears. Stockpiles shall be surrounded with silt fence and re-vegetated following completion of construction activities.

N. Inlet Protection:

- Devices used at storm drain inlets that are subject to runoff from construction activities to detain and/or to filter sediment-laden runoff to allow sediment to settle and/or to filter sediment prior to discharge into storm drainage systems or watercourses.
- Where ponding will not encroach into highway traffic; where sediment laden surface runoff may enter an inlet; where disturbed drainage areas have not yet been permanently stabilized; where drainage area is 0.4 ha (1 ac) or less; appropriate during wet and snow-melt seasons.

O. Soil Restoration and De-compaction:

- Soil restoration is applied in the cleanup, restoration, and landscaping phase of construction, and is followed by the permanent establishment of an appropriate, deep-rooted groundcover.
- All soil restoration and de-compaction activities shall be conducted in accordance with the NYSDEC publication "Deep Ripping and De-compaction, 2008."
- Grade disturbed subsoil to rough final grade and apply the following soil restoration steps:
 1. Apply 3 inches of compost over subsoil
 2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller.
 3. Mix and circulate air and compost into subsoil.
 4. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site
 5. Apply topsoil to a depth of 6 inches.
 6. Vegetate as required by approved plan

3.1.5 Maintenance

- A. Repair or replace all damaged erosion and sediment control measures.
- B. Sediment Traps: Clean out traps when sediment levels reach specified clean out levels. See Sediment Trap Schedule (if required).
- C. Inlet Protection:
- Inspect fabric barriers after every rain event and repair as needed.
 - Straw bales shall be kept tight, with bottom edge adhering to the ground.
 - Only clean stone or gravel shall be used.
 - Remove accumulated sediment as necessary and dispose on site.
- D. Stabilized Construction Entrance:

- Inspect routinely for damage and assess effectiveness of the BMP. Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
 - Keep all temporary roadway ditches clear
 - Inspect for damage and repair as needed.
- E. Sediment Basins:
- Inspect before and after rainfall events and weekly during rainy season.
 - Examine banks for seepage and structural soundness.
 - Check inlets and outlet structure for damage or obstructions; repair damage and remove obstructions as needed.
 - Remove accumulated sediment when its volume reaches one-third of the volume of the sediment storage.
- F. Silt Fence:
- Silt fence shall be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
 - Repair undercut silt fences.
 - Repair or replace split, torn, slumping, or weathered fabric.
 - Inspect silt fence when rain is forecast. Perform all necessary maintenance.
 - Inspect silt fence following rainfall events. Perform repairs, maintenance, or replacement as necessary.
 - Maintain silt fences to provide adequate sediment holding capacity.
 - Built-up sediment shall be removed when the sediment accumulation reaches 1/3 of the height of the silt fence. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the right-of-way in conformance with the Standard Specifications.
 - Silt fences that are damaged and become unsuitable for the intended purpose, shall be removed from the site, properly disposed of, and replaced with new silt fence barriers.
 - Remove silt fence when no longer needed. Fill and compact holes and anchorage trench, remove sediment accumulation, and grade fence alignment to blend with adjacent ground.
- G. Hay Bale Barriers:
- Inspect straw bale barriers before and after each rainfall event, and weekly throughout the rainy season.
 - Inspect straw bale barriers for sediment accumulations and remove sediment when depth reaches 1/3 the barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.
 - Replace or repair damaged bales as needed or as directed by the RE
 - Repair washouts or other damages as needed or as directed by the RE
 - Remove hay bales when no longer needed. Remove sediment accumulation, and clean, re-grade, and stabilize the area.
- H. Modified Control Structure: Clean or replace filter fabric when it becomes clogged.
- I. Construction Vehicles:

- Procedures and practices to minimize or eliminate the discharge of pollutants to the storm drain systems or to watercourses from vehicle and equipment maintenance procedures.
 - These maintenance procedures will be applied to all construction projects where the storage and maintenance of heavy equipment and vehicles is necessary.
 - Maintain waste fluid containers in leak proof condition.
 - Vehicle and equipment maintenance areas shall be inspected regularly
 - Vehicles and equipment shall be inspected on each day of use. Leaks shall be repaired immediately or the problem vehicles(s) or equipments shall be removed from the project site.
 - Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.
- J. Temporary Soil and Rock Stockpiling:
- Repair and/or replace perimeter controls and covers as needed, or as directed by the RE, to keep them functioning properly. Sediment shall be removed when sediment accumulation reached 1/3 of the barrier height.

3.2 Storm Water Management Control

3.2.1 Peak Flow Attenuation

The proposed site development plan was analyzed for potential impacts to downstream properties and watercourses. The proposed project will increase the impervious surfaces on the property by adding buildings, driveways and paved parking areas. To offset the increased runoff associated with the increase in impervious surfaces, a stormwater infiltration basin will be constructed to the north of the existing wetlands. The basin has been sized to provide zero net increase in runoff leaving the site in the southerly direction, and it reduces peak discharges for rainfall events having recurrence intervals ranging from 1 to 100 years. Discharges from the site to the northerly wetland are reduced by the reduction in contributing drainage area from the site.

The outflow from the infiltration basin will be discharged to the existing wetland, which provides additional, natural stormwater detention and filtering. The proposed infiltration basin has been designed to collect as much runoff from proposed impervious surfaces as possible. Roof leaders will direct runoff from the roofs of the proposed mini-storage and warehouse buildings to the infiltration basin, and runoff from the majority of the parking lot and driveways will be discharged to the basin from the stormwater collection system.

The proposed stormwater management facility has been designed as a "pocket pond" as outlined in the *New York State Stormwater Management Design Manual*. According to the physical feasibility selection matrix in Table 7.2 of the design manual, the maximum contributing drainage area for an infiltration basin is 10 acres. The drainage area to the proposed infiltration basin is approximately 8 acres. The use of the infiltration basin was selected in consideration of several physical factors that included the drainage area, slope, geometry, groundwater table elevation, and available head. In consideration of these factors, the infiltration basin is an appropriate practice for this site.

3.2.2 Water Quality

The infiltration basin has also been designed to provide water quality and quantity controls as required by the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction. The design incorporates sizing for Water Quality Volume Control (WQv), Channel Protection Storage Volume (CPv), Overbank Flood Control (Qp) and Extreme Storm Flood Control (Qf). These four components of the water quality sizing criteria are further described as follows:

- The Water Quality Volume (WQv) is designed to improve water quality by capturing and treating 90% of the average annual stormwater runoff volume. The WQv is directly related to the amount of impervious cover on a project site. 50% of the required water quality volume is provided in a permanent pool and 50% is provided in extended detention to be released over a 24 hour period.
- The Channel Protection Storage Volume (Cpv) is designed to protect stream channels from erosion. The CPv is accomplished by providing 24 hour extended detention of the one-year, 24 hour storm event.
- The purpose of Overbank Flood Control (Qp) is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. Overbank Flood Control is accomplished by attenuating the post development 10 year, 24 hour peak discharge rate from the site to the pre-development rate.
- The purpose of Extreme Flood Control (Qf) is to prevent an increased risk of flood damage from large storm events, to maintain the boundaries of the pre-development 100 year floodplain, and to protect the physical integrity of stormwater management practices. Extreme Flood Control is accomplished by attenuating the post development 100 year, 24 hour peak discharge rate from the site to the pre-development rate.

The required Water Quality Volume and Channel Protection Storage Volume were calculated in accordance with the procedure outlined in the *New York State Stormwater Management Design Manual*. The Overbank Flood Control and Extreme Storm Flood Control are provided by controlling the peak discharge from the project site for the 10 year and 100 year storms to pre-development rates.

The proposed infiltration basin is located upstream of an existing natural wetland that is to remain largely undisturbed by the proposed project. The wetland will provide additional natural water quality treatment functions before stormwater discharges leave the project site.

Vegetated swales are being utilized to provide water quality treatment for paved driveway areas on the southerly side of the project site. The portions of the driveway that are being treated by the vegetated swales are located downstream of the proposed infiltration basin, and are at elevations that are too low to be discharged to the infiltration basin. They are being used on this project as means to provide some water quality treatment to paved areas that cannot be directed to another water quality treatment practice due to elevation and grading limitations.

3.2.4 Maintenance

The maintenance of the stormwater management facilities is the self-responsibility of the property owners, and a legally binding maintenance agreement has been filed in the Office of the Rockland County Clerk as instrument ID #2010-00035244. The maintenance agreement includes provisions for any necessary easements. This mechanism will protect the practice from neglect, adverse alteration and/or unauthorized removal.

The infiltration basin has been designed with a pond drain to assure dewatering of the basin. The infiltration basin should be maintained in accordance with the procedures and guidelines contained in the latest edition of the New York State Stormwater Management Design Manual. An Operation and Maintenance (O&M) plan for the post-construction stormwater management practices is included in Section 12 of this SWPPP.

3.3 Other Controls

Waste Materials:

All waste materials will be collected and stored in securely lidded metal dumpsters rented from _____ which is a solid waste management company located in _____ County. The dumpsters will meet all Town, County, and New York state solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpsters. The dumpsters will be emptied as necessary, and the trash will be hauled off-site. No construction waste materials will be buried on site.

Hazardous Waste:

All hazardous waste materials will be disposed of in the manner specified by local or State regulation or by the manufacturer. Site personnel will be instructed in these practices and the individual, who manages day-to-day site operations, will be responsible for seeing that these practices are followed.

Sanitary Waste:

All sanitary waste will be collected from the portable units by a licensed sanitary waste management contractor.

Offsite Vehicle Tracking:

A Stabilized construction entrance will be provided to help reduce vehicle tracking of sediments. Existing paved roadways located adjacent to the construction site entrances will be swept daily to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

3.4 Timing of Controls/Measures

As indicated in the Sequence of Major Activities, the stabilized construction entrances and other sediment and erosion controls will be constructed prior to earthwork activities on any part of the site. Areas where construction activity temporarily ceases for at least 21 days will be stabilized with a temporary seed and mulch within 14 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent seed and

mulch. After the entire site is stabilized, accumulated sediments will be removed from the sediment and erosion control structures and the controls will be removed.

3.5 Certification of Compliance with Federal, State and Local Regulations

The storm water pollution plan reflects New York State Department of Environmental Conservation requirements for storm water management and erosion and sediment control, as established in Article 17, Titles 7, 8 and Article 70 of the Environmental Conservation Law. To ensure compliance, this plan was prepared in accordance with guidelines issued with the SPDES General Permit for Storm Water Discharges From Construction Activities That Are Classified as "Associated with Construction Activity," published by the New York State Department of Environmental Conservation.

3.5.1 Historic Places or Archeological Resources

According to a search that was conducted using the New York State Office of Parks, Recreation and Historic Places (OPRHP) geographic information system online resource, there are no historic places listed, or eligible for listing, on the State or National Registers of Historic Places in the vicinity of the proposed project. A similar search indicated that there are no known areas of archeological sensitivity that may indicate the need for a survey in the vicinity of the proposed project.

3.5.2 Stormwater "Hot Spot" Uses

There are no stormwater "hot spot" uses presently proposed at this site. Any future "hot spot" uses on this property, as defined in the NYSDEC Stormwater Management Design Manual, must comply with all applicable water quality requirements for the "hot spot" as specified in the NYSDEC Stormwater Management Design Manual.

4.0 Maintenance/Inspection Procedures

4.1 Sediment & Erosion Control Inspection and Maintenance Practices

The owner or operator must ensure that all erosion and sediment control practices and all post-construction stormwater management practices are maintained in effective operating condition at all times. All measures will be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours of report.

A qualified inspector shall conduct site inspections for all construction activities in accordance with the following practices and procedures:

- Where soil disturbance activities are on-going, the inspector shall conduct a site inspection at least once every seven (7) calendar days.
- For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the owner or operator can stop conducting the maintenance inspections. Maintenance inspections shall be resumed as soon as soil disturbance activities resume.
- The inspector shall inspect all erosion and sediment control practices to ensure integrity and effectiveness.

- All post-construction stormwater management practices under construction shall be inspected to ensure that they are constructed in conformance with the SWPPP and the supporting construction plans and specifications.
- Inspections shall be made at all areas of disturbance that have not achieved final stabilization; at all points of discharge to natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site; and at all points of discharge from the construction site.

An Inspection and Maintenance Report shall be prepared after each inspection. The report, at a minimum, must include the following:

- Name of inspector
- Date and time of inspection
- Description of weather and soil conditions
- Description of the condition of the runoff at all points of discharge the site
- Description of condition of natural surface water bodies located on or adjacent to the site
- Identification of all erosion control practices that need repair or maintenance
- Identification of practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced
- Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized since the last inspection
- Current state of construction of post-construction stormwater practices and identification of construction not in conformance with technical standards
- Corrective action that must be taken to install, repair, replace or maintain erosion control practices, or to correct deficiencies in the construction of the post-construction stormwater management practices
- Digital photographs showing the condition of all practices that have been identified as needing corrective actions.

5.0 Non-Storm Water Discharges

It is expected that the following non-storm water discharges will occur from the site during the construction period:

- Water from water line flushing.
- Waste water from power washing.
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred).

6.0 Inventory for Pollution Prevention Plan

The materials or substances listed below are expected to be present on the site during construction:

Concrete and Mortar	Fertilizers
Detergents	Petroleum Based Products
Paints (enamel and latex)	Cleaning Solvents
Metal Pipe	Wood (treated and untreated)
Concrete	Masonry

7.0 Spill Control & Prevention

7.1 Material Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff.

Good Housekeeping:

The following good housekeeping practices will be followed on site during construction:

- An effort will be made to store only enough product required to do the job
- All materials stored on site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The Job Supervisor will inspect daily to ensure proper use and disposal of materials on site.

Hazardous Products:

The following practices will be used to reduce the risks associated with hazardous materials:

- Products will be kept in original containers unless they are not re-sealable.
- Original labels and material safety data will be retained; they contain important product information.
- If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal will be followed.

7.2 Product Specific Practices

The following product specific practices will be followed on site.

Petroleum Products:

All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used on site will be applied according to the manufacturer's recommendations.

Fertilizers:

Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer or specified. Once applied fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

Paints:

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm drainage system, but will be properly disposed of according to manufacturers' instructions or State and local regulations.

Concrete Trucks:

Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash on the site.

Detergents and Cleaning Solvents:

Detergents and cleaning solvents will only be utilized on site when needed for immediate maintenance of construction equipment. Detergents and cleaning solvents will be stored in sealed containers, and will not be disposed of on the site or discharged to the storm drainage system. Environmentally friendly solvents and cleaners will be utilized when available.

8.0 Spill Control and Prevention Log

Date of Spill	Material Spilled	Spill Location	Cause

Cleanup	Agency Reported (Toxic/Hazardous)	Reoccurrence Prevention Measure

8.1 Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanups:

- Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on site. Equipment and materials will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size of the spill.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from re-occurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

The Job Supervisor responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase or prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer on site.

9.0 Supporting Plans & Analyses

- Site Plans, including Soil Erosion and Sediment Control Plans, entitled "Hillside Commercial Park" last revised November 6, 2014, by Brooker Engineering, P.L.L.C.
- Drainage Analysis, by Brooker Engineering, P.L.L.C., last revised November 6, 2014.

10.0 Pollution Prevention Plan Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: _____

Date: _____