

# **STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

## **CONGERS TRANSITIONAL HORIZONTAL DIRECTIONAL DRILL (HDD) PROJECT**

**TOWN OF CLARKSTOWN  
ROCKLAND COUNTY, NEW YORK**

**PSC Case Number: 10-T-0139**

**IN COMPLIANCE WITH THE  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL  
CONSERVATION GENERAL PERMIT GP-0-20-001  
FOR  
STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES**

Prepared for:

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- Owner/Operator Certification Form
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- NYSDEC NOI Acknowledgement Letter for Permit Coverage
- Notice of Termination (NOT) Form

### **Appendix B – General Permit GP-0-20-001**

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- Construction Contact List
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- Figure 1: Study Area Map
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## ACRONYMS & ABBREVIATIONS

CFR	Code of Federal Regulation
CHPE	Champlain Hudson Power Express, Inc.
CRIS	Cultural Resource Information System
ECL	Environmental Conservation Law
EI	Environmental Inspector
EM&CP	Environmental Management and Construction Plan
ERM	Environmental Resource Mapper
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GP	General Permit
HDD	Horizontal Directional Drill
HDPE	High-density polyethylene
HSG	Hydrologic Soil Group
HVDC	High Voltage Direct Current
IPaC	Information for Planning and Consultation
MS4	Municipal Separate Storm Sewer System
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NYCRR	New York Code, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
OPRHP	Office of Parks, Recreation, and Historic Preservation
Project	Congers Transitional HDD
PVC	Polyvinyl chloride
SDS	Safety Data Sheets
SMDM	Stormwater Management Design Manual
SPCC	Spill Prevention, Control, and Countermeasure
SPDES	State Pollutant Discharge Elimination System
SSESC	Standards and Specifications for Erosion and Sediment Control
SWPPP	Storm Water Pollution Prevention Plan
TRC	TRC Environmental Corporation
USDA	United States Department of Agriculture





USEPA	United States Environmental Protection Agency
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Survey



## **1.0 Introduction**

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared by TRC Environmental Corporation (TRC) for CHPE, LLC and CHPE Properties, Inc. (collectively “CHPE” and “Certificate Holders”) in regard to construction activities associated with the Congers Transitional Horizontal Directional Drill (HDD) Project (the Project) segment. The overall CHPE Project involves the construction of ±339 miles of High Voltage Direct Current (HVDC) terrestrial and submarine transmission line from the Canadian border to Queens, New York to deliver 10.4 Terawatt-hours of renewable energy annually into New York City by the end of 2025. Work associated with other segments of the CHPE Project will be permitted separately, and subject to separate SWPPPs submitted for each Segment.

The purpose of this SWPPP is to establish requirements and instructions for the management of construction-related stormwater discharges from the Project Site. Erosion and sediment controls have been designed and shall be installed and maintained to minimize the discharge of pollutants and prevent a violation of the water quality standards.

## **2.0 Regulatory Requirements**

The Project shall comply with all applicable local, state, and federal regulations as follows.

This SWPPP has been prepared in accordance with the “New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity” General Permit GP-0-20-001, effective January 29, 2020, through January 28, 2025. The NYSDEC requires coverage under GP-0-20-001 for any “construction activities involving soil disturbances of one 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.”

The Project is classified as the installation of an underground, linear utility with no increase in impervious area. Per Table 1 of GP-0-20-001 Appendix B, the Project involves construction activities that require the preparation of a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of the permit. A copy of the General Permit GP-0-20-001 is provided in Appendix B of this SWPPP.

The Project is located within a regulated Municipal Separate Storm Sewer System (MS4) for the Town of Clarkstown. The SWPPP has been prepared in accordance with applicable requirements of the MS4 permit and has been reviewed and approved by the Town’s MS4 representative. The signed MS4 SWPPP Acceptance Form has been included in Appendix A. The MS4 SWPPP Acceptance Form and Notice of Intent (NOI) will be submitted to NYSDEC, certifying that this Project complies with the technical requirements of GP-0-20-001.

The Project received a Department of the Army Permit (Permit No. NAN-2009-01089) on April 20, 2015, last modified on April 28, 2021, as well as a New York State Public Service Commission 401 Water Quality Certification on January 18, 2013. This Project is subject to the requirements of an Environmental Management and Construction Plan (EM&CP) as developed for compliance with this Project’s Article VII Certificate.



### **3.0 Permit Coverage Information**

This SWPPP serves as the minimum requirements necessary to address soil exposure and stormwater management during construction activities. This SWPPP is a living document that may be amended for unforeseen circumstances. If unanticipated site conditions warrant changes or additions to existing practices, the Owner/Operator and the Contractor(s), in consultation with the Qualified Inspector or Project Engineer, will be required to implement those measures in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (SSESC) and amendments to the SWPPP shall be made as appropriate. The SWPPP and associated documentation must be kept current to ensure the erosion and sediment control practices are accurately documented.

In accordance with GP-0-20-001, documented site inspections will be performed to ensure the required erosion and sediment control measures have been installed properly and are in good condition. Inspections will occur for the duration of construction, until earth-disturbing construction activities have ceased, and final stabilization has been achieved.

### **4.0 SWPPP Amendments**

The SWPPP and associated documents must be kept current at all times. Amendments to the SWPPP and associated documents, including EM&CP Plan and Profile Drawings, should be made:

- Whenever the current provisions are ineffective in minimizing impacts to the stormwater discharge from the Project Site;
- Whenever there is a change in design or construction activities and sequencing that has or could have an impact to the stormwater discharge; and
- To address deficiencies or issues identified during monitoring and inspection.

Refer to GP-0-20-001 for additional information on SWPPP amendment procedures and requirements. Amendments to the SWPPP shall be documented in Appendix I.

### **5.0 Project Site Information**

The proposed HDD entry point within Project Site is located on property owned by Isabella Rose Reality, LLC in the Town of Clarkstown, Rockland County, New York. The proposed HDD will continue northeast, terminating in the Hudson River. The Project Site is located within the NYSDEC Region 3 jurisdiction and the Haverstraw United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle. The Project Site location is depicted on the Study Area Map in Appendix E.

The HDD operation will install conduits to be used for future installation of submarine cable transition from the Hudson River to land cable for the overland route. The assembled conduit for this Project will span approximately 2,500 feet. The proposed HDD will begin on a barge within the Hudson River and will drill west towards the Project Site. Access to the Project Site will be provided from Route 9W. Temporary and permanent access roads are not required for the Project. Material and equipment staging and storage will remain within the Project Site area for the HDD.



The general scope of work for the Project which may result in soil disturbance includes, but is not limited to, minimal site clearing and vegetation management, grading, conduit installation, horizontal directional drilling (HDD), and installation of the temporary HDD work pad and erosion and sediment controls.

The Project Site is located within a 0.65-acre parcel, of which, approximately 0.60 acres will be disturbed by the Project. The existing groundcover of the Project Site is composed primarily of commercial development with grassed and paved areas and minimal forested area. The site topography is relatively flat, generally sloping to the east towards the Hudson River. Steep slopes are present to the east of the Project Site between the HDD entry pit and the Hudson River.

Notable features in the vicinity of this segment of the Project include the Rockland Lake Championship Golf Course (approximately 250 feet east of the HDD site), commercial businesses along Route 9W. The nearest residences are approximately 350 feet west of the HDD site along Lakeland Ave. The HDD corridor will pass underneath a railroad and the Hudson River Greenway Trail which run parallel to the Hudson River before making its in-river exit. It is not expected that the HDD will have significant impacts to any of the surrounding features. The Certificate Holder will utilize the pre-established Best Management Practices (BMPs) to mitigate risks to surrounding natural resources, nearby infrastructure (including the railroad line) and existing site features.

The HDD exit point in the Hudson River will be located approximately 250 feet from the western riverbank, in an area with water depths of approximately 27 feet.

The following subsections detail the soils, wetlands and waterbodies, environmental and cultural resources, and floodplain information for the Project. Refer to the environmental resource information in Appendix E and the EM&CP Plan and Profile Drawings in Appendix F for additional Project Site land cover, environmental and cultural resource, and topographic information.

## **5.1 Soils Classification**

Review of the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey indicated the predominant soil series mapped within the Project Site as the following:

- Holyoke-Rock outcrop complex, Hydrologic Soil Group (HSG) rating D;
- Udorthents, smoothed, HSG rating A; and
- Weathersfield gravelly silt loam, HSG rating C.

The Soil Conservation Service defines the HSGs as follows:

- Type A Soils: Soils having a high infiltration rate (low runoff potential).
- Type B Soils: Soils having a moderate infiltration rate.
- Type C Soils: Soils having a slow infiltration rate.
- Type D Soils: Soils having a very slow infiltration rate (high runoff potential).

For soils assigned to a dual hydrologic group, the first letter refers to drained areas and the second refers to undrained areas. In project areas of unknown soil type or areas not within agricultural land, the more conservative soil classification is typically assumed.



Refer to Appendix E for the USDA NRCS Soil Resource Report for the Project Site.

## **5.2 Wetlands and Waterbodies**

Review of the NYSDEC ERM indicated no wetlands, streams, or 100-foot adjacent areas are present within or adjacent to the Project Site. Wetland and stream delineations were completed by CHA in 2021 and 2022. No wetlands or streams were identified within or adjacent to the Project Site. Refer to the Wetland and Stream Delineation Report provided as Appendix K of the EM&CP for additional information regarding wetland and streams at the Project Site.

The Project Site ultimately discharges to the Hudson River, located east of the Project Site. The Project does not discharge to a 303(d) waterbody segment listed within Appendix E of GP-0-20-001 and is not located within a restricted watershed listed in Appendix C of GP-0-20-001, AA or AA-s waterbody, or a Sole Source Aquifer.

Impacts to wetlands and streams are not anticipated as a result of the Project.

## **5.3 Floodplains**

According to Federal Emergency Management Agency (FEMA), the Flood Insurance Rate Map (FIRM) Panel 36087C0116G, dated March 3, 2014, the Project Site is located within Zone X, with eastern portions of the Site along the Hudson River being located within Zone AE. FEMA defines the flood zones as follows:

- Zone X are areas determined to be outside the 0.2% annual chance floodplain.
- Zone AE are special flood hazard areas subject to inundation by the 1% (100-year flood) annual chance flood and is an area where base flood elevations have been determined.

The NYSDEC Environmental Resource Mapper (ERM) also identified the Project Site to be located adjacent to areas within a base flood elevation plus 72/75" sea-level rise. The base flood elevation for Flood Zone AE nearest to the Project Site is identified on the FIRM Panel as 7 feet above mean sea level.

## **5.4 Environmental Resource Information**

A review of the NYSDEC ERM indicated rare plants or animals, and significant natural communities are present within and immediately adjacent to the Project Site. The Project was identified as being located within the vicinity of the Hudson River Estuary tidal river Significant Natural Community. All appropriate avoidance and mitigation actions recommended by NYSDEC will be undertaken to protect this natural community. Additionally, the Project Site is within the vicinity of the Hook Mountain oak-tulip tree forest Significant Natural Community. No impacts to this natural community are proposed. All appropriate avoidance and mitigation actions recommended by NYSDEC will be undertaken to protect this natural community. In addition, these resources were addressed within the Article VII and federal permitting processes.

A review of the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system identified the Monarch Butterfly (*Danaus plexippus*), a candidate species, as having the potential to be present within the Project Site. No threatened or endangered species were identified at the Project Site. Consultation with the USFWS and the



New York Natural Heritage Program (NYNHP) is ongoing to confirm the presence or absence of State-listed and/or federally-listed rare, threatened, or endangered species that may be present within or near the Project Site. If rare, threatened, or endangered species or their critical habitats occur the Project Site, appropriate avoidance and mitigation actions will be completed to protect the identified species.

## **5.5 Cultural Resource Information**

A review of the NYS Office of Parks Recreation and Historic Preservation (OPRHP) Cultural Resources Information System (CRIS) database indicates that the Project Site does not contain sites that are listed on the National or State Registers of Historic Places. In addition, the Project Site was not identified on CRIS as being located within an archaeologically sensitive area. Impacts to the historic buildings are not anticipated as a result of the Project.

Consultation with OPRHP was completed on October 14, 2022. The OPRHP concluded that the State Historic Preservation Office (SHPO) has no archaeological concerns for the HDD pit locations and no archaeological survey is warranted. In addition, OPRHP concluded no historic properties, including archaeological and/or historic resources, will be adversely affected by the Project.

## **6.0 Contract Documents**

The Contractor is responsible for the implementation of this SWPPP, as well as the installation, construction, repair, replacement, inspection and maintenance of erosion and sediment control practices. Each Contractor shall sign the Contractor Certification Form provided in Appendix C prior to the commencement of construction activities.

This SWPPP and associated documentation, including but not limited to, a copy of the GP-0-20-001, NOI, NYSDEC NOI Acknowledgement Letter, MS4 SWPPP Acceptance Form, Contractor Certification Form, EM&CP Plan and Profile Drawings, inspection reports, and permit eligibility forms, must be maintained in a secure location for the duration of the Project.

## **7.0 Personnel Contact List**

The Construction Personnel Contact List for the Project is provided in Appendix C. The listed personnel are responsible for ensuring compliance with the SWPPP and associated permit conditions. Personnel responsibilities include, but are not limited to, the following:

- Implement the SWPPP;
- Oversee maintenance practices identified in the SWPPP;
- Conduct or provide for inspection and monitoring activities;
- Identify potential erosion, sedimentation, and pollutant sources during construction and ensure issues are addressed appropriately and in a timely manner;
- Identify necessary amendments to the SWPPP and ensure proper implementation; and,
- Document activities associated with the implementation of this SWPPP and supporting documents.

Refer to GP-0-20-001 for information regarding specific personnel responsibilities.



## **8.0 Project Construction and Sequencing**

The conduits will be installed via HDD, which is a trenchless installation method used to avoid obstacles and sensitive areas or features and reduce the amount of ground surface disturbance. HDD will also prevent the disturbance of banks and shorelines of waterbodies. HDD activities are a multi-stage process as detailed below.

This section provides the Owner/Operator and the Contractor with a suggested order of construction that will minimize erosion and the transport of sediments. The individual objectives of the construction techniques described herein shall be considered an integral component of the Project design. The construction sequence is not intended to prescribe definitive construction methods and should not be interpreted as a construction specification document.

The Contractor shall follow the general principles outlined below throughout the construction phase:

- Protect and maintain existing vegetation wherever possible;
- Minimize the area of disturbance;
- To the extent possible, route unpolluted flows around disturbed areas;
- Install approved erosion and sediment control devices as early as possible;
- Minimize the time disturbed areas are left un-stabilized; and,
- Maintain erosion and sediment control devices in proper condition.

The Contractor should use the suggested construction sequence and techniques as a general guide and modify the suggested methods and procedures as required to best suit seasonal and site-specific physical constraints for the purpose of minimizing the environmental impact due to construction. All exposed soil areas that remain undisturbed for greater than seven days shall be stabilized in accordance with this SWPPP and the SDESC.

The Project is anticipated to involve three general stages of work; site preparation, construction, and site restoration. Prior to the commencement of construction activities, temporary erosion and sediment control measures shall be installed per the General Permit requirements, the SDESC standards, and EM&CP Plan and Profile Drawings provided in Appendix F. The Project stages are detailed below, though some tasks may occur simultaneously or in a different order based on contractor's means and methods. Refer to Section 4.0 of the EM&CP for specific construction activities, methods, and sequencing.

### **Stage 1: Project Site Preparation**

- Establish access to the Project Site including the stabilized construction entrance and access road;
- Stake/flag construction limits, staging/storage areas, environmentally sensitive areas, and other associated work areas;
- Mark existing utilities and infrastructure;
- Conduct clearing and vegetation management, if necessary, and grading of work areas, as required;
- Install the erosion and sediment controls as detailed on the Erosion and Sediment Control Plans; and



- Set up offshore HDD reception area in the river and environmental protection measures such as gravity cell and conductor casings.

## **Stage 2: Construction**

- Stage HDD drill rig and equipment;
- Complete the HDD;
  - Drill the pilot hole;
  - Expand the pilot hole by reaming; and,
  - Pull back the drill string while installing the conduit.

## **Stage 3: Project Site Restoration**

- Remove and dispose of Project related waste material at an approved disposal facility;
- Prepare soils as needed (restoration of original grade, de-compaction, soil amendments, etc.), and seed and mulch all disturbed areas. Restore disturbed soils per NYSDEC standards and specifications;
- Remove the temporary erosion and sediment controls when 80% of natural vegetative cover has been achieved and erosion issues are no longer present;
- Request the MS4 representative sign the MS4 Acceptance statement on the NOT; and,
- Submit the NOT Form to the NYSDEC in accordance with the General Permit.

Soil disturbance of greater than five acres at any one time is not anticipated for construction. Disturbed areas will be stabilized as construction progresses to limit the area of total disturbance. Should greater than five acres of soil disturbance be required, a 5-Acre Waiver request, including a Phasing Plan, will be prepared for the Project and provided to the MS4 representative for approval. Refer to Section 11.2 for additional information regarding the 5-Acre Waiver request process.

## **9.0 Stormwater Management and Pollution Controls**

Prior to the commencement of construction activities, temporary erosion and sediment controls shall be installed to prevent erosion of the soils and prevent water quality degradation in wetlands and waterbodies. Erosion and sediment controls will be utilized to limit, control, and mitigate construction related impacts. The stormwater management and pollution controls shall include practices that involve runoff control, soil stabilization practices, and sediment control.

The erosion and sediment controls utilized at the Project Site must be installed and maintained in accordance with GP-0-20-001 and the SDESC. Improper installation of practices may result in an increase in water quality impacts to nearby waterbodies or sedimentation impacts to undisturbed lands. Deviations from the SDESC standards should be discussed with the Qualified Inspector/Qualified Professional prior to utilizing the alternative practice. If the alternative practice is acceptable, documentation is required to detail the reasoning for the alternative practice and to provide evidence that the alternative design is equivalent to the technical standard. The SWPPP shall be amended as appropriate to incorporate the alternative practice. In the event that an alternative practice fails and a standard SDESC practice is required, the Contractor shall install the required practice upon approval from the Qualified Inspector/Qualified Professional and



Owner/Operator. The SWPPP shall be amended as appropriate to document changes to the practice.

The following sections detail potential stormwater impacts due to construction related activities and the temporary and permanent erosion and sediment controls to be utilized throughout the construction of the Project to mitigate impacts. Refer to the SDESC for additional guidance on installation, maintenance, and removal.

## **9.1 Potential Stormwater Impacts**

Construction activities and processes that result in either increased stormwater runoff or the potential to add pollutants to runoff are subject to the requirements of this SWPPP. These activities may include areas of land disturbed by grading, excavation, construction, or material storage. Water that comes in contact with the surface of the Project Site as a result of precipitation (snow, hail, rain, etc.) is classified as stormwater associated with the Project and is subject to the requirements of this SWPPP.

Construction activities that may negatively impact stormwater include, but are not limited to, the following:

- Tree Clearing and Vegetation Removal: Removal of vegetation can expose and weaken soils and may result in erosion.
- Construction Site Entrance: Vehicles leaving the Project Site can track soils onto public roadways.
- Grading Operations: Exposed soils have the potential for erosion and sedimentation when not stabilized.
- Fugitive Dust: Dust generated by vehicles or from strong winds during a drought period can be deposited in wetlands, waterways, and other environmentally sensitive areas, or may negatively impact the air quality.
- General Site Construction Activities: Maintenance and heavy use of access roads can expose soils, creating significant erosion potential. Soil stockpiling from site excavations and grading may promote erosion and sedimentation. Dewatering activities may result in concentrated flows and has the potential to increase erosion.
- Construction Vehicles and Equipment: Refueling of vehicles may result in spilling or dripping gasoline and diesel fuel onto the ground. On-site maintenance of construction equipment may result in hydraulic oil, lubricants, or antifreeze dripping onto the ground. Sediment tracking and the spread of invasive species may occur if construction vehicles are improperly maintained. Ruts caused by equipment can create paths for concentrated water flows.
- Waste Management Practices: Typical construction projects often generate significant quantities of solid waste, such as wrappings, personnel-generated trash and waste, and construction debris.

Proper utilization of staging and storage areas, stockpiling areas, and erosion and sediment controls will mitigate potential impacts to the stormwater. Refer to Section 10, below, for additional information on spill prevention and waste management procedures for the Project.



## 9.2 Protection of Existing Vegetation

Natural vegetation shall be preserved to the maximum extent practicable. Preserving natural vegetation will reduce soil erosion and maintain the inherent integrity of the Project Site. Protection practices may include barrier fencing to prevent equipment and vehicle traffic in vegetated and environmentally sensitive areas.

## 9.3 Temporary Erosion and Sediment Controls

Temporary erosion and sediment controls shall be utilized to reduce erosion, sedimentation, and pollutants in stormwater discharges, and to prevent impacts to undisturbed areas, natural resources, wetlands, waterbodies, and downstream areas. Both stabilization techniques and structural methods will be utilized, as needed, to meet these objectives.

Temporary erosion and sediment control measures shall be applied during construction to:

- Minimize soil erosion and sedimentation through the stabilization of disturbed areas and removal of sediment from construction site discharges.
- Preserve existing vegetation to the maximum extent practicable and establish permanent vegetation on exposed soils following the completion of soil disturbance activities.
- Minimize the area and duration of soil disturbance through site preparation activities and construction sequencing.

Table 1, below, lists the erosion and sediment controls anticipated to be utilized at the Project Site.

**Table 1 - Proposed Erosion and Sediment Control Measures**

Construction Road Stabilization	Concrete Truck Washout
Dust Control	Protecting Vegetation During Construction
Site Pollution Prevention	Stabilized Construction Access
Temporary Access Waterway Crossing	Winter Stabilization
Check Dam	Water Bar
Anchored Stabilization Matting	Fertilizer Application
Fiber Roll	Landgrading
Lime Application	Mulching
Permanent Construction Area Planting	Soil Restoration
Surface Roughening	Temporary Construction Area Seeding
Topsoiling	Cofferdam Structures
Compost Filter Sock	Geotextile Filter Bag
Sediment Tank - Portable	Silt Fence
Straw Bale Dike	Turbidity Curtain



The standards and specifications for the erosion and sediment control measures listed in Table 1 are provided in Appendix G. Refer to the SSEC for the Standards and Specifications of alternate measures and practices, as needed. The temporary erosion and sediment control measures not detailed in the SSEC are detailed below.

### **9.3.1 Temporary Stockpiling**

Temporary stockpiling of granular material (gravel, excavated spoils, select backfill, topsoils, etc.) is expected on-site throughout the construction process. Stockpiling of materials is not permitted in areas where health or safety risks are present, or where impacts to water quality may occur.

Stockpile areas shall be contained and protected with the proper erosion and sediment controls such as silt fencing and mulch. Soil stockpiles shall be stabilized with vegetation, geotextile fabric, or plastic covers if not utilized for seven days.

Stockpile areas should be inspected and maintained as needed or directed by the Project Engineer (or Qualified Inspector/Qualified Professional).

Spoil material shall be segregated, conserving topsoil for revegetation. Spoils shall not be disposed of within wetlands, waterbodies, agricultural areas, or other environmentally sensitive areas. Excess topsoil is encouraged to be spread within the immediate disturbed areas if the material is free of rocks. Inorganic spoils shall be buried and capped with the previously stripped, native topsoil to ensure revegetation. Additional topsoil may be required to adequately cover the spoil area. If additional space is needed for on-site disposal, the SWPPP shall be amended as appropriate. Off-site disposal is not anticipated for the Project. Existing material at the Project Site will be graded

### **9.3.2 Timber Matting**

Timber (“swamp”) matting is often utilized to distribute vehicle loads on agricultural, lawn, and wetland areas. The matting aids in reducing rutting, soil compaction, and restoration activities in protected areas. Poorly drained upland soils may be matted to reduce rutting and sediment tracking.

An additional benefit of matting in wetlands is that mats can be arranged to act as a containment surrounding excavations. This may be especially helpful in standing water situations where conventional erosion and sediment controls are not practicable. The Contractor should be cognizant of the hydrology of the area by recognizing water staining and bank full indicators. The Qualified Inspector can assist in this identification.

Headers and stringers shall be used in deeper or open water wetlands to allow wetland inundation under the matted drivable surface. The SWPPP specified wetland access does not account for poorly drained or poorly structured soils that are not wetlands. Transitional areas may experience severe rutting due to high traffic associated with the installation of the wetland access matting. Additional matting is recommended to reduce track out and restoration efforts, however it is not required for access.

Submerged wetland matting can create a “pumping” effect as vehicles pass, resulting in disturbed wetland soils, turbidity and sedimentation. This disturbance is a violation of the associated



wetland permits. Although the presence of matting in this situation is still better than the alternative, pumping mats will require additional stabilization and sediment control practices not planned for in the EM&CP Plan and Profile Drawings. Matting will need to be re-installed, or access will be shut down until water recedes to eliminate the erosion concern.

### **9.3.3 Construction Access Systems**

Temporary construction access systems will be utilized to prevent or reduce impacts to sensitive areas, such as soft soil or wetlands. The construction access systems may include, but are not limited to, the use of portable mats, gravel access road, construction entrance or access during frozen weather conditions.

Access during frozen conditions may occur once the ground freezes. Snow cover may be packed down or removed for access. The frozen ground conditions will not experience rutting or sediment tracking. Periodic inspection of ground conditions is recommended to ensure frozen ground conditions are present.

Alternative construction access systems shall be approved by the Owner/Operator and the Qualified Professional prior to use. The alternate system shall be documented in the SWPPP amendments.

### **9.3.4 Dewatering**

During subsurface construction, dewatering may be necessary to remove water from the work area. Water removed from the excavated area shall be pumped into a portable sediment tank unless there is not sufficient room in the right-of-way, in which case a geotextile filter bag shall be used.

Portable sediment tanks provide a compartment in which sediment laden water is pumped and retains the sediment prior to release of the water from the tank. Sediment tanks shall be located in an area that allows for easy clean-out and disposal of the trapped sediment and an area that will not impede construction. Sediment tanks shall be cleaned when necessary.

Geotextile filter bags may be used to collect sediment laden water from excavated work areas. Sediment is retained within the bag water prior to discharging. Geotextile filter bags shall be located in a well vegetated, relatively level area at least 100 feet from wetlands, waterbodies, and environmentally sensitive areas, and at the direction of the EI. The bag shall be replaced when the bag flow area has been reduced by 75 percent (75%).

Sediment trapped during dewatering activities shall be graded onto the Project Site away from sensitive resources. The sediment shall be stabilized as soon as possible in accordance with this SWPPP.

### **9.3.5 Horizontal Directional Drilling (HDD)**

To avoid unnecessary disturbance or impact to the bed, banks, and aquatic habitat of the Hudson River, horizontal directional drilling (HDD) will be utilized for installation of the conduits. The HDD process involves drilling boreholes with a fluid mixture, primarily composed of water and bentonite, a naturally occurring clay. The drilling fluid aids in the removal of cuttings from the



borehole, stabilizes the borehole, and acts as a coolant and lubricant throughout the drilling process. The bentonite-water mixture is not classified as a toxic or hazardous substance, however, if released into waterbodies, bentonite has the potential to temporarily reduce water quality.

The Project Site is significantly elevated above the Hudson River, therefore HDD operations for this Project will be completed from a barge within the river. The bore will be drilled towards the land. HDD drilling fluid will naturally return to the barge since it will be located at a lower elevation. Containment buoys and turbidity curtains will be employed during HDD operations to prevent adverse impacts should an inadvertent return occur. In addition, a gravity cell (trench box) will be placed over the exit hole and sunk into the river bottom to capture any residual drill fluid that might escape.

To protect public health and safety and natural resources, the Contractor shall establish operational procedures and responsibilities for the prevention, containment, and cleanup of inadvertent releases associated with the proposed HDD. The operational procedures should:

- Minimize the potential for an inadvertent release of drilling fluids associated with HDD activities;
- Provide for the timely detection of inadvertent returns;
- Protect environmentally sensitive areas (streams, wetlands, etc.) while responding to an inadvertent release;
- Ensure an organized, timely and “minimum-impact” response in the event of an inadvertent return and release of drilling fluids; and,
- Ensure that all appropriate notifications are made immediately.

The Contractor shall comply with the Owner’s/Operator’s operational procedures for HDD. Refer to Appendix F of the EM&CP for CHPE’s HDD Installation Manual for additional information regarding the HDD process and safety procedures.

#### **9.4 Temporary Stabilization for Frozen Conditions**

Winter stabilization standards apply to construction activities with ongoing soil disturbance and exposure between November 15<sup>th</sup> and April 1<sup>st</sup>. Temporary winter stabilization measures shall be employed prior to frozen conditions as detailed in the Winter Stabilization specification in Appendix G.

Erosion and sediment control measures shall be inspected to ensure proper performance and winter stabilization function. Repairs should be made as necessary to prevent erosion and sedimentation during thawing or rain events.

#### **10.0 Construction Pollution Prevention**

Proper material storage, handling, and disposal practices shall be implemented during construction to reduce the risk of exposure of materials and hazardous substances to stormwater and environmental resources. The storage, handling, and disposal procedures to be enforced by the Owner/Operator, Contractor(s) and the Qualified Inspector are described below.



## 10.1 Management of Spills and Releases

The Owner/Operator must be notified in the event of a non-stormwater (fuel, oil, chemical, etc.) spill or release to ensure proper reporting and clean up. The Owner/Operator shall proceed as appropriate in accordance with the Owner/Operator's, local, state, and federal environmental policies and procedures.

A spill or release shall be reported to the NYSDEC Spill Hotline (1-800-457-7362), as applicable, within two hours of the release. Spills of chemicals other than petroleum must comply with the New York State Hazardous Substance regulations (6 NYCRR Part 595). The Contractor is responsible for retaining documentation containing the NYS spill number and spill information to provide to the Owner/Operator and the Qualified Inspector. The Contractor is responsible for the cleanup and response actions, in accordance with the on-site spill prevention procedures manual. Contaminated soil shall be removed from the Project Site and disposed of in accordance with the product specific Safety Data Sheets (SDS) and environmental guidance.

Potential pollutant sources are likely to be stored on the construction site. Bulk petroleum storage (1,100 gallon above ground tank and/or 110 below ground tank) and chemical storage (185 gallon above ground tank and/or any below ground tank) shall not be present onsite. Construction materials typically present on construction sites, as noted in the National Pollutant Discharge Elimination System (NPDES) Construction General Permit, include, but are not limited to, the following:

- Building Products: Asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures, and gravel and/or mulch stockpiles;
- Chemicals: Pesticides, herbicides, insecticides, fertilizers, and landscape materials;
- Petroleum Products: Diesel fuel, oil, hydraulic fluids, gasoline, etc.;
- Hazardous or Toxic Waste: Paints, caulks, sealants, fluorescent light ballasts, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids;
- Sanitary Facilities: Portable toilets; and,
- Construction Debris: Fill, vegetative debris, stumps, and construction waste.

Spill cleanup and response guidance from the NYSDEC is provided in Appendix H of this SWPPP. In addition, a Project-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan has been developed and is provided within Appendix F of the EM&CP.

### 10.1.1 Discharges within Navigable Waters

If oil discharges within navigable waters or adjoining shorelines occurs, the Owner/Operator is required to follow federal reporting requirements found in the United States Environmental Protection Agency (USEPA) 40 CFR Part 110 - Discharge of Oil and 40 CFR Part 112 - Oil Pollution Prevention. Any person in charge of a vessel or onshore/offshore facility is subject to the reporting requirements of the Discharge of Oil regulations if it discharges a harmful quantity of oil. A harmful quantity is any quantity of discharges oil that violates the state water quality standards causes a film or sheen on the water surface or leaves sludge or emulsion beneath the surface. Reporting of oil does not depend on the specific amount of oil discharged.

A discharge must be reported to the USEPA Regional Administrator if:



- More than 1,000 U.S. gallons of oil in a single discharge to navigable waters or adjoining shorelines; or
- More than 42 U.S. gallons of oil in each of two discharges to navigable waters or adjoining shorelines occurring within any 12-month period.

## **10.2 Construction Housekeeping**

The Owner/Operator or the Contractor shall coordinate with local fire officials regarding on-site fire safety and emergency response. The Contractor shall keep the Construction Supervisor and the Qualified Inspector/Qualified Professional aware of chemicals and waste present on site. The Contractor shall periodically conduct safety inspections at the Project Site to identify housekeeping issues and employ spill prevention procedures.

### **10.2.1 Material Stockpiling**

Material resulting from clearing and grubbing, grading, and other construction activities, or new material delivered to the Project Site, shall be stockpiled. The stockpile areas shall have the proper erosion and sediment controls installed to prevent the migration of sediments and materials.

### **10.2.2 Staging, Storage, and Marshalling Areas**

Construction materials and equipment should be stored in designated staging areas as indicated on the EM&CP Plan and Profile Drawings or as directed by the Project Engineer (or Qualified Inspector). The staging, storage, and marshalling areas should be located in an area that minimizes impacts to stormwater quality. Materials shall be properly stored and kept away from water resources and environmentally sensitive areas, including, but not limited to, wetlands, streams, storm drains, and ditches.

Chemicals, solvents, fertilizers, and other toxic materials must be stored in waterproof containers and must be kept in the proper storage facilities, except during use or application. Runoff containing such materials must be collected and disposed of at an approved solid waste or chemical disposal facility.

Bulk storage of materials will be staged at the Project marshalling yard per SDS specification and Environmental Health and Safety Standards, whichever is more restrictive. Contractor marshalling yards may be associated with other projects not covered under this SWPPP and General Permit. If the marshalling area is associated with this SWPPP, the yard shall be inspected by the Qualified Inspector until Project related activities have ceased. A Qualified Inspector shall inspect the marshalling yard to assess for environmental impacts prior to and throughout its use. If additional marshalling yards are required, they must abide by this SWPPP and GP-0-20-001. Amendments shall be made to the SWPPP, as necessary, for the additional marshalling areas.

### **10.2.3 Equipment Cleaning and Maintenance**

All on-site construction vehicles, including employee vehicles, shall be monitored for leaks and shall receive regular preventative maintenance to reduce the risk of leakage. Any equipment leaking oil, fuel, or hydraulic fluid shall be repaired immediately or removed from the Project Site.



Construction equipment and Contractor personal vehicles shall be parked, refueled and serviced at least 100 feet from a wetland, waterbody, or other ecologically sensitive area, at an upland location away from conveyance channels, unless approved by the Qualified Inspector/Qualified Professional.

Where there is no reasonable alternative, refueling may occur within these setbacks, but only under the observation of the Qualified Inspector or Trained Contractor and after proper precautions are taken to prevent an accidental spill. The Contractor shall take precautions to ensure that drips, spills, or seeps do not enter the ground. The use of absorbent towels and/or a portable basin beneath the fuel tank is recommended. Refueling activities shall be performed under continual surveillance with extreme care. In the event of a release, the spill shall be promptly cleaned up in accordance with the spill response and clean up procedures.

Petroleum products and hydraulic fluids that are not in vehicles shall be stored in tightly sealed containers that are clearly labeled. All gasoline and fuel storage vessels with greater than a 25-gallon capacity must have secondary containment constructed of an impervious material and be capable of holding 110% of the vessel capacity.

Vehicles and equipment shall be cleaned as necessary prior to exiting the Project Site to prevent sediment track out onto public roadways. Vehicles and equipment shall enter and exit the site at designated stabilized construction entrances only. Acceptable cleaning methods include sweeping/brushing sediment off of vehicles and equipment. Spraying water is not recommended for cleaning vehicles and equipment since it can generate sediment laden runoff.

### **10.3 Waste Management**

The Project right-of-way (ROW) shall be kept free of debris and waste material to the maximum extent practicable. The Contractor shall comply with all required regulations governing the on-site management and off-site disposal of solid and hazardous waste generated during construction of the Project. Substances and materials with the potential to pollute surface and groundwaters must be handled, controlled and contained as appropriate to ensure they do not discharge from the Project Site.

A solid waste management program will be implemented to support proper solid waste disposal and recycling practices. Solid waste and debris that cannot be recycled, reused, or salvaged shall be stored in on-site containers for off-site disposal. The containers shall be emptied periodically by a licensed waste transport service and hauled away from the site for proper disposal. Debris shall be disposed of at a State-approved solid waste disposal site in compliance with all applicable environmental regulations. No loose materials shall be allowed at the Project Site and all waste material shall be disposed of promptly and properly. Trucks hauling debris from the Project Site shall be covered in accordance with applicable regulations. The burning of debris, waste, and other refuse is not permitted. All debris shall be removed from the Project Site prior to completion of construction and restoration.

If a hazardous material spill occurs, it must be contained and disposed of immediately. Contaminated soil shall be removed from the Project Site and disposed of in accordance with product specific SDS and associated guidelines. Reporting spills to the NYSDEC may be required per 17 New York Code, Rules and Regulations (NYCRR) 32.3 and 32.4, and the Environmental Conservation Law (ECL) 17-1734.



## **11.0 Maintenance Inspections and Reporting Requirements**

### **11.1 Pre-Construction Inspection**

A site assessment shall be conducted by the Qualified Inspector prior to commencement of construction activities to ensure erosion and sediment controls have been adequately and appropriately installed. The Contractor is responsible for contacting the Qualified Inspector for the pre-construction inspection following the installation of the erosion and sediment control measures.

### **11.2 Construction Phase Inspections**

A Qualified Inspector shall conduct regular site inspections for the implementation of this SWPPP through final stabilization of the Project Site. Inspections shall occur at an interval of once every seven calendar days unless greater than five acres of soil is disturbed at any one time or if the Project Site directly discharges to a 303(d)-waterbody segment or is located in one of the watersheds listed in Appendix C of GP-0-20-001, in which inspections shall occur at least twice per every seven calendar days. The two inspections shall be separated by a minimum of two full calendar days. Written authorization from the MS4 representative is required prior to disturbance of greater than five acres. If a portion of the Project Site is permanently stabilized, inspections can cease in that area as long as the condition has been documented by amending the SWPPP.

The Qualified Inspector shall conduct site inspections to assess the performance of the erosion and sediment controls and identify areas requiring modification or repair. The Qualified Inspector shall complete an inspection report following each inspection.

The Owner/Operator and the Contractor(s) must ensure the erosion and sediment control practices implemented at the Project Site have been maintained in accordance with GP-0-20-001 and the SSESC. The trained Contractor shall regularly inspect the erosion and sediment control practices and pollution prevention measures to ensure they are being maintained in effective operating condition at all times. Corrective actions to the deficiencies shall be made within 24 hours of identification.

The Qualified Inspector/Qualified Professional shall inspect the debris removal on a continual basis during construction to ensure proper management and disposal. When construction and restoration are complete, the Contractor is responsible for ensuring the Project Site is free of all construction debris and materials.

### **11.3 Temporary Construction Activity Suspension**

The Contractor must temporarily stabilize all disturbed areas prior to temporary suspension of construction activities, including winter shutdown. For construction sites where soil disturbance activities have been temporarily suspended and the appropriate temporary stabilization measures have been installed and applied to all disturbed areas, the Qualified Inspector shall begin conducting site inspections in accordance with Part IV.C.2 of GP-0-20-001. The trained Contractor may cease the regular maintenance inspections until soil disturbance activities resume.



The Owner/Operator must notify the MS4 representative in writing prior to reducing the frequency of inspections. Correspondence with the MS4 representative shall be included in Appendix D of this SWPPP.

#### **11.4 Partial Project Completion**

Construction sites where soil disturbance activities have been shut down with partial Project completion, the Qualified Inspector can stop conducting inspections once all disturbed areas have achieved final stabilization in conformance with this SWPPP.

The Owner/Operator must notify the MS4 representative in writing prior to shut down. Correspondence with the MS4 representative shall be included in Appendix D of this SWPPP.

If soil disturbance activities have ceased for two years from the date of shutdown, the Owner/Operator shall have the Qualified Inspector complete a final inspection to certify final stabilization has been achieved and all temporary erosion and sediment control measures have been removed. The Owner/Operator shall complete the NOT form and submit the form to the NYSDEC. The MS4 representative shall sign the MS4 Acceptance statement on the NOT prior to submission to the NYSDEC. A copy of the completed NOT shall be included in Appendix A of this SWPPP.

#### **11.5 Reporting Requirements**

Inspection and maintenance reports shall be prepared in accordance with GP-0-20-001 from the commencement of construction activities until the NOT has been submitted to the NYSDEC. The Qualified Inspector shall provide a copy of the completed inspection report to the Owner/Operator and the Contractor(s) within one business day of inspection. A copy of the inspection report shall be included in Appendix J of the on-site SWPPP. A blank SWPPP Inspection Form is provided in Appendix J.

#### **11.6 Post-Construction Record Archiving**

The Owner/Operator shall retain a copy of the SWPPP, permit coverage forms and associated documentation that were prepared in conjunction with GP-0-20-001 for a period of at least five years from the date that the NYSDEC received the completed NOT.



## **Appendix A – SWPPP Permit Coverage Forms**

- Notice of Intent (NOI) -
- SWPPP Preparer Certification Form -
- Owner/Operator Certification Form -
- MS4 SWPPP Acceptance Form -
- NYSDEC NOI Acknowledgement Letter for Permit Coverage -
- Notice of Termination (NOT) Form -



## **Appendix A – Notice of Intent (NOI)**



# NOI for coverage under Stormwater General Permit for Construction Activity

version 1.35

(Submission #: HPN-YJ24-EV9N2, version 1)

## Details

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**Originally Started By** Chelsey Kniffen

**Alternate Identifier** Congers Transitional Horizontal Directional Drill (HDD) Project

**Submission ID** HPN-YJ24-EV9N2

**Submission Reason** New

**Status** Draft

## Form Input

---

### Owner/Operator Information

**Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)**

NTK, Inc.

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

Henssler

**Owner/Operator Contact Person First Name**

Michael

**Owner/Operator Mailing Address**

1255 Crescent Green, Suite 450

**City**

Cary

**State**

NC



**Zip**

27518

**Phone**

917-287-3989

**Email**

Michael.Henssler@ntk.com

**Federal Tax ID**

87-1765111

**Project Location****Project/Site Name**

Congers Transitional Horizontal Directional Drill (HDD) Project

**Street Address (Not P.O. Box)**

Route 9W

**Side of Street**

East

**City/Town/Village (THAT ISSUES BUILDING PERMIT)**

Congers

**State**

NY

**Zip**

10920

**DEC Region**

3

**County**

ROCKLAND

**Name of Nearest Cross Street**

Lakewood Drive

**Distance to Nearest Cross Street (Feet)**

1200

**Project In Relation to Cross Street**

South

**Tax Map Numbers Section-Block-Parcel**

See Question # 39



**Tax Map Numbers**

See Question #39

**1. Coordinates**

---

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

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

**Navigate to your location and click on the map to get the X,Y coordinates**

41.15791451675279,-73.92723113301788

**Project Details****2. What is the nature of this project?**

New Construction

**3. Select the predominant land use for both pre and post development conditions.****Pre-Development Existing Landuse**

Commercial

**Post-Development Future Land Use**

Commercial

**3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.**

NONE PROVIDED

---

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

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

**Total Site Area (acres)**

0.65

**Total Area to be Disturbed (acres)**

0.60

**Existing Impervious Area to be Disturbed (acres)**

0.6



**Future Impervious Area Within Disturbed Area (acres)**

0.6

**5. Do you plan to disturb more than 5 acres of soil at any one time?**

No

---

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

**A (%)**

1.5

**B (%)**

0

**C (%)**

35.3

**D (%)**

63.1

**7. Is this a phased project?**

No

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

NONE PROVIDED

**End Date**

NONE PROVIDED

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

Hudson River

**9a. Type of waterbody identified in question 9?**

River On Site

**Other Waterbody Type Off Site Description**

NONE PROVIDED

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

NONE PROVIDED

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

No



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

No

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

No

**If No, skip question 13.**

**13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?**

NONE PROVIDED

**If Yes, what is the acreage to be disturbed?**

NONE PROVIDED

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

No

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

No

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

N/A

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

No

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

No

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

No

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

No

## **Required SWPPP Components**



**21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?**

Yes

**22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?**

No

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

**23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?**

NONE PROVIDED

**24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:**  
Professional Engineer (P.E.)

**SWPPP Preparer**

TRC

**Contact Name (Last, Space, First)**

Bodenhamer, Kevin

**Mailing Address**

2087 East 71st Street

**City**

Tulsa

**State**

OK

**Zip**

74136

**Phone**

918-481-4302

**Email**

kbodenhamer@trccompanies.com

**Download SWPPP Preparer Certification Form**

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

- 1) Click on the link below to download a blank certification form
- 2) The certified SWPPP preparer should sign this form



3) Scan the signed form

4) Upload the scanned document

[Download SWPPP Preparer Certification Form](#)

**Please upload the SWPPP Preparer Certification**

SWPPP Preparer Certification Form.pdf - 11/29/2022 11:59 AM

**Comment**

NONE PROVIDED

## **Erosion & Sediment Control Criteria**

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

Yes

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

**Temporary Structural**

Construction Road Stabilization

Dust Control

Silt Fence

Stabilized Construction Entrance

Check Dams

Straw/Hay Bale Dike

Turbidity Curtain

Water Bars

**Biotechnical**

None

**Vegetative Measures**

Seeding

Mulching

Topsoiling

Protecting Vegetation

Straw/Hay Bale Dike

**Permanent Structural**

None

**Other**

Geotextile filter bag/dewatering facilities

## **Post-Construction Criteria**

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



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

NONE PROVIDED

**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).**

NONE PROVIDED

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

NONE PROVIDED

**29. Post-construction SMP Identification**

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

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

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

NONE PROVIDED

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

NONE PROVIDED

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

**32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)**

NONE PROVIDED

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

NONE PROVIDED

**If Yes, go to question 33.**

Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28)



must also be included in the SWPPP.

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

### **33. SMPs**

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

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

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

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

NONE PROVIDED

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

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

NONE PROVIDED

#### **35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?**

NONE PROVIDED

If Yes, go to question 36.

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

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

##### **CPv Required (acre-feet)**

NONE PROVIDED

##### **CPv Provided (acre-feet)**

NONE PROVIDED

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

NONE PROVIDED

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



**Overbank Flood Control Criteria (Qp)****Pre-Development (CFS)**

NONE PROVIDED

**Post-Development (CFS)**

NONE PROVIDED

**Total Extreme Flood Control Criteria (Qf)****Pre-Development (CFS)**

NONE PROVIDED

**Post-Development (CFS)**

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

**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.**

The Project is a segment of an overall approximate 339-mile HVDC transmission line project from the Canadian border to Queens, NY. The Project will extend approximately 2,500 feet to install conduit for future cable installations. Each Project segment will be permitted separately and will require separate SWPPPs. The Project is subject to the requirement of an EM&CP as developed for compliance with the Project's Article VII Certificate.

The HDD Project is located at approximately 150 Route 9W in the Hamlet of Congers, Town of Clarkstown. The Project is located at Tax Map Numbers Section-Block-Parcel 44.12-2-44; Tax Map Numbers Section-Block-Parcel 44.08-1-8 on Tax Map Book number 739, 1165; Tax Map Numbers Section-Block-Parcel 45.09-1-2 on Tax Map Book number 741, 554; Tax Map Numbers Section-Block-Parcel 45.05-1-2 on Tax Map Book number 741, 561; and Tax Map Numbers Section-Block-Parcel 45.05-1-1.

Kevin Bodenhamer's NY PE #093543-01.

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



Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

### **RR Techniques (Area Reduction)**

---

Round to the nearest tenth

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

### **RR Techniques (Volume Reduction)**

---

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED



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

NONE PROVIDED

**Standard SMPs with RRv Capacity**

---

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

**Total Contributing Impervious Acres for Bioretention (F-5)**

NONE PROVIDED

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

NONE PROVIDED

**Standard SMPs**

---

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED



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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

NONE PROVIDED

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

---

**Total Contributing Impervious Area for Hydrodynamic**

NONE PROVIDED

**Total Contributing Impervious Area for Wet Vault**

NONE PROVIDED

**Total Contributing Impervious Area for Media Filter**

NONE PROVIDED

**"Other" Alternative SMP?**

NONE PROVIDED

**Total Contributing Impervious Area for "Other"**

NONE PROVIDED

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

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

**Manufacturer of Alternative SMP**

NONE PROVIDED

**Name of Alternative SMP**

NONE PROVIDED



## **Other Permits**

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

Water Quality Certificate

**If SPDES Multi-Sector GP, then give permit ID**

NONE PROVIDED

**If Other, then identify**

NONE PROVIDED

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

No

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

NONE PROVIDED

**42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.**

NONE PROVIDED

## **MS4 SWPPP Acceptance**

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

Yes - Please attach the MS4 Acceptance form below

**If No, skip question 44**

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

NONE PROVIDED

### **MS4 SWPPP Acceptance Form Download**

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

[MS4 SWPPP Acceptance Form](#)

### **MS4 Acceptance Form Upload**

[MS4 SWPPP Acceptance Form.pdf](#) - 11/29/2022 12:00 PM

**Comment**

NONE PROVIDED

## **Owner/Operator Certification**



**Owner/Operator Certification Form Download**

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

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

**Upload Owner/Operator Certification Form**

Owner Operator Certification Form.pdf - 11/29/2022 11:59 AM

**Comment**

NONE PROVIDED

## Attachments

---

Date	Attachment Name	Context	User
11/29/2022 12:00 PM	MS4 SWPPP Acceptance Form.pdf	Attachment	Chelsey Kniffen
11/29/2022 11:59 AM	Owner Operator Certification Form.pdf	Attachment	Chelsey Kniffen
11/29/2022 11:59 AM	SWPPP Preparer Certification Form.pdf	Attachment	Chelsey Kniffen





## **Appendix A – SWPPP Preparer Certification Form**





Department of  
Environmental  
Conservation

# SWPPP Preparer Certification Form

---

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

## Project Site Information

**Project/Site Name**

## Owner/Operator Information

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

## Certification Statement – SWPPP Preparer

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

First name

MI

Last Name

Signature

Date





## **Appendix A – Owner/Operator Certification Form**





# **Owner/Operator Certification Form**

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

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

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

**eNOI Submitted by:**                      **Owner/Operator**                      **SWPPP Preparer**                      **Other**

### **Certification Statement - Owner/Operator**

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

**Owner/Operator First Name**                      **M.I.**                      **Last Name**

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**





## **Appendix A – MS4 SWPPP Acceptance Form**





Department of  
Environmental  
Conservation

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

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

for

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

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

### I. Project Owner/Operator Information

1. Owner/Operator Name:

2. Contact Person:

3. Street Address:

4. City/State/Zip:

### II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/State/Zip:

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

8. SWPPP Reviewed by:

9. Title/Position:

10. Date Final SWPPP Reviewed and Accepted:

### IV. Regulated MS4 Information

11. Name of MS4:

12. MS4 SPDES Permit Identification Number: NYR20A

13. Contact Person:

14. Street Address:

15. City/State/Zip:

16. Telephone Number:



## **MS4 SWPPP Acceptance Form - continued**

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

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

Printed Name:

Title/Position:

Signature:

Date:

### **VI. Additional Information**



## **Appendix A – NYSDEC NOI Acknowledgement Letter for Permit Coverage**



## **Appendix A – Notice of Termination (NOT) Form**



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

\*(NOTE: Submit completed form to address above)\*

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

**Please indicate your permit identification number:** NYR \_\_\_\_ \_

**I. Owner or Operator Information**

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:

4a. Telephone:

4b. Contact Person E-Mail:

**II. Project Site Information**

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

**III. Reason for Termination**

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

9b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR \_\_\_\_ \_

(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

**IV. Final Site Information:**

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

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

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

\_\_\_\_\_



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

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

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

- ☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.
- ☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
- ☐ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.
- ☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

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

11. Is this project subject to the requirements of a regulated, traditional land use control MS4?    ☐ yes  
☐ no  
(If Yes, complete section VI - "MS4 Acceptance" statement)

**V. Additional Information/Explanation:**  
(Use this section to answer questions 9c. and 10b., if applicable)

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

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

Printed Name:

Title/Position:

Signature:

Date:



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

**VII. Qualified Inspector Certification - Final Stabilization:**

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

Printed Name:

Title/Position:

Signature:

Date:

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

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

Printed Name:

Title/Position:

Signature:

Date:

**IX. Owner or Operator Certification**

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

Printed Name:

Title/Position:

Signature:

Date:

(NYS DEC Notice of Termination - January 2015)



## **Appendix B – General Permit GP-0-20-001**





NEW YORK  
STATE OF  
OPPORTUNITY

Department of  
Environmental  
Conservation

NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

From

**CONSTRUCTION ACTIVITY**

Permit No. GP- 0-20-001

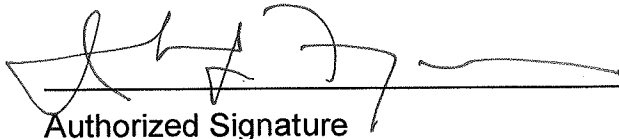
Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20  
Date

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



## PREFACE

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

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

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



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

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## Part 1. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

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

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

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

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

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



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

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



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

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



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

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

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

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

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



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

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

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

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

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

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



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

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

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

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



### c. Sizing Criteria for Redevelopment Activity

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

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

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



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

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

**D. Maintaining Water Quality**

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

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

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

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



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

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

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

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

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



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

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



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



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

d. Documentation that:

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

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

## Part II. PERMIT COVERAGE

### A. How to Obtain Coverage

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



## **B. Notice of Intent (NOI) Submittal**

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

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

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

## **C. Permit Authorization**

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



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

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



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

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

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



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

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



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

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

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

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

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

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



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

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

#### A. General SWPPP Requirements

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



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

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

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



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

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

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

## **B. Required SWPPP Contents**

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



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



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

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

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

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

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



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



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

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

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

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

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

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

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

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



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

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

### C. Qualified Inspector Inspection Requirements

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

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

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



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

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



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



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



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

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

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

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



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



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

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

### **A. Record Retention**

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

### **B. Addresses**

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

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

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

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



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

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

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

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

## **C. Enforcement**

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

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

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



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

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

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

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

### **G. Other Information**

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

### **H. Signatory Requirements**

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



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



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

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

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

## **I. Property Rights**

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

## **J. Severability**

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

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

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



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

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

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

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

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

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

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



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

## **N. Permit Actions**

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

## **O. Definitions**

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

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

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

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

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



## **R. Other Permits**

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



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

### **Acronyms**

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



## Definitions

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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



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

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

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

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

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

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

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

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



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

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

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

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

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

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

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



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

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

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

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

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

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



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

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

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

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

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

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

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

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



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

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

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

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

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



## APPENDIX B – Required SWPPP Components by Project Type

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

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



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

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

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



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

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

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



Table 2 (Continued)

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

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

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

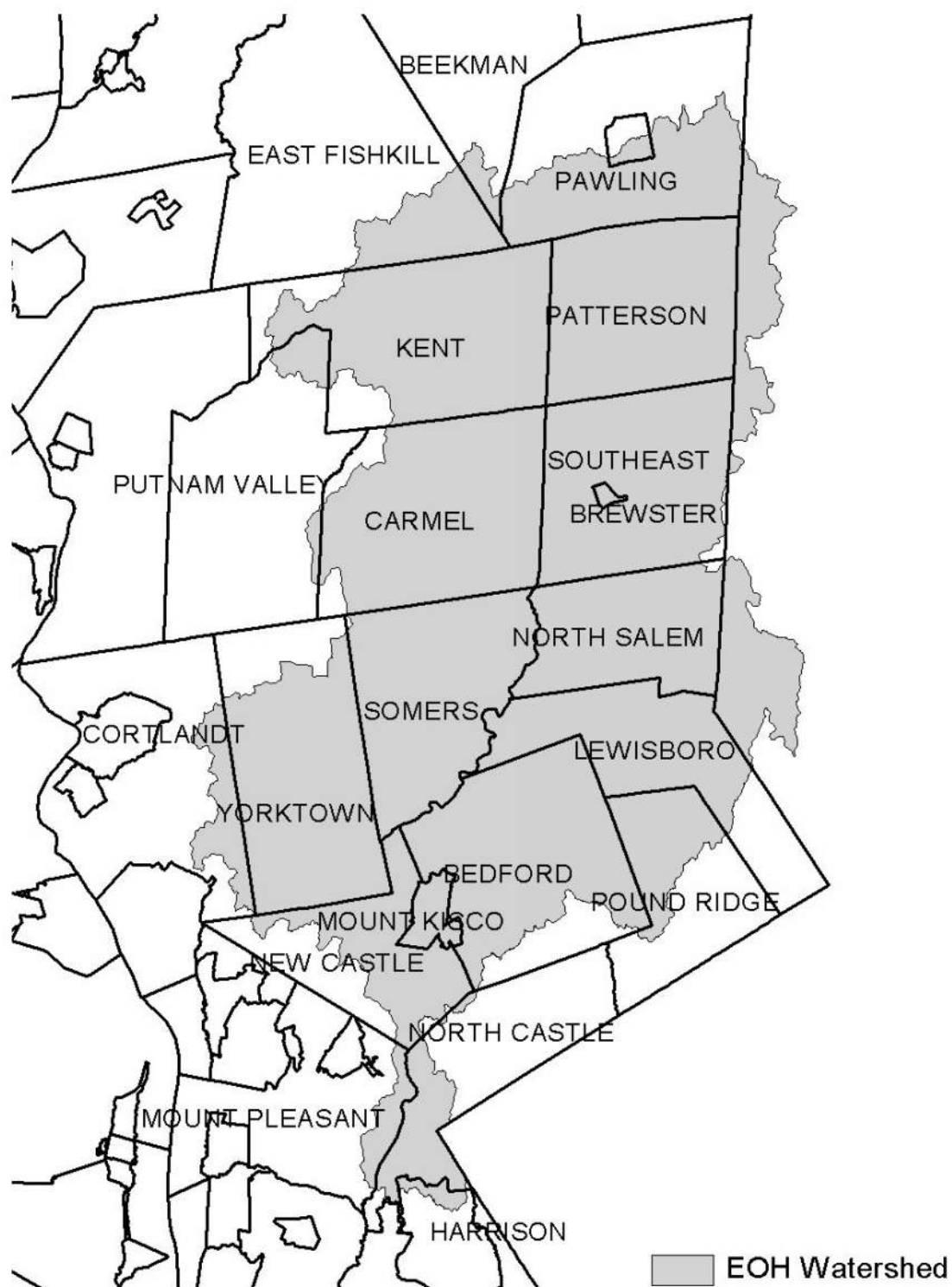


## APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

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

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



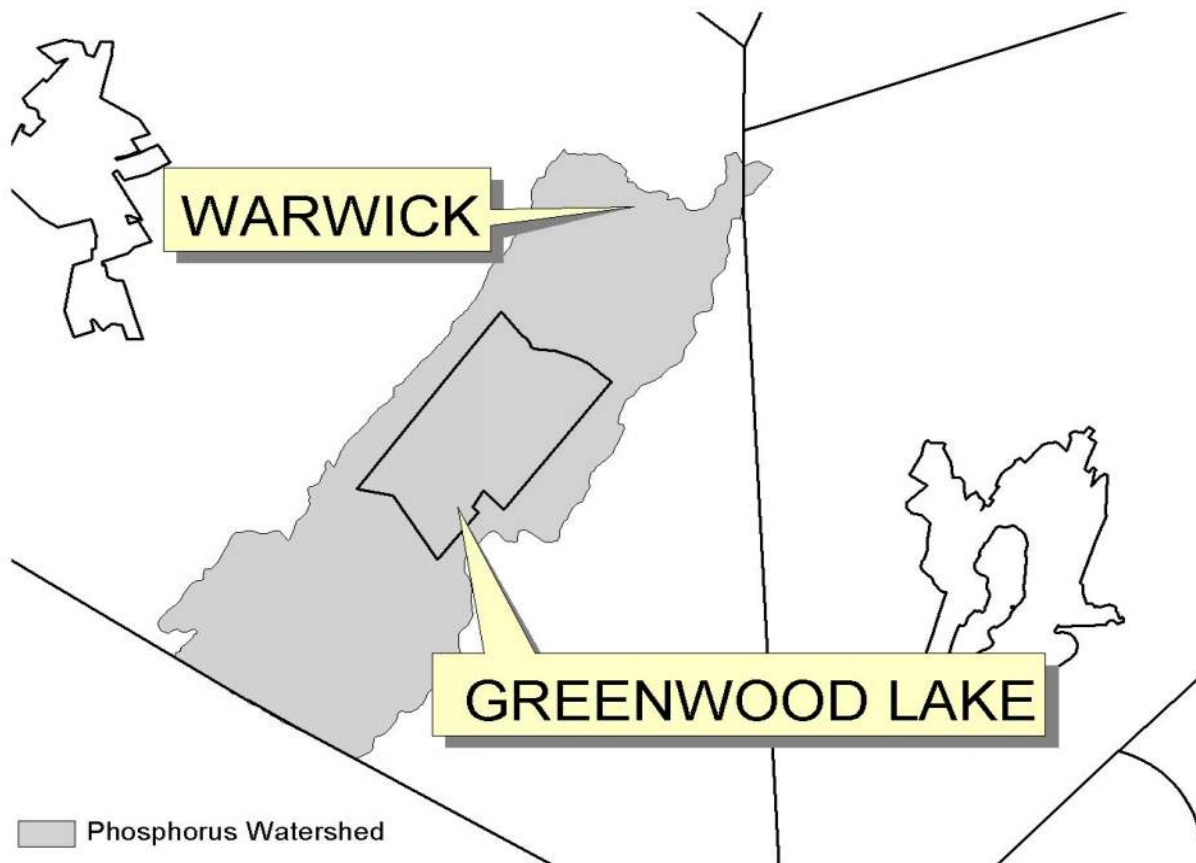
**Figure 1 - New York City Watershed East of the Hudson**



**Figure 2 - Onondaga Lake Watershed**

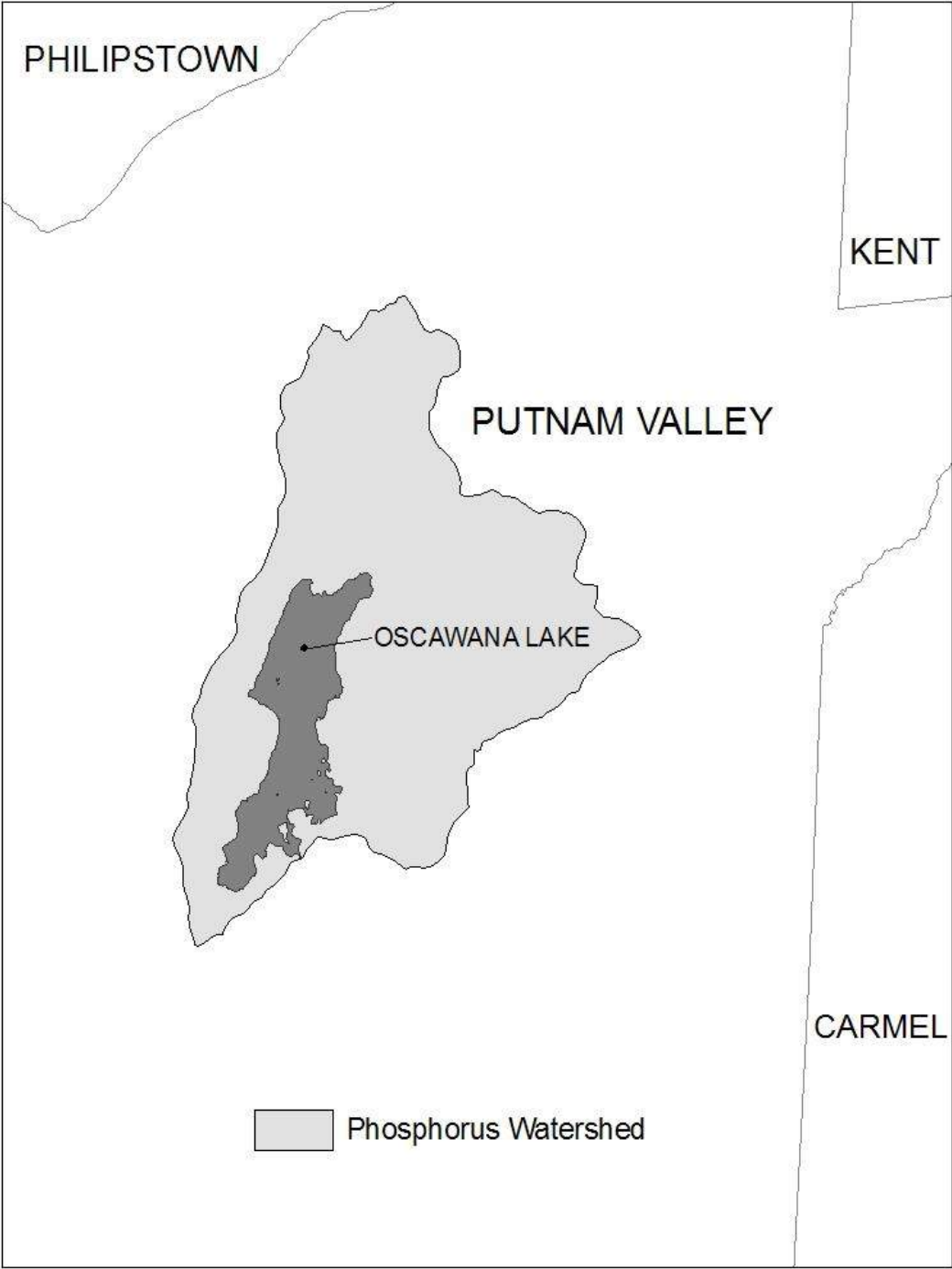


**Figure 3 - Greenwood Lake Watershed**



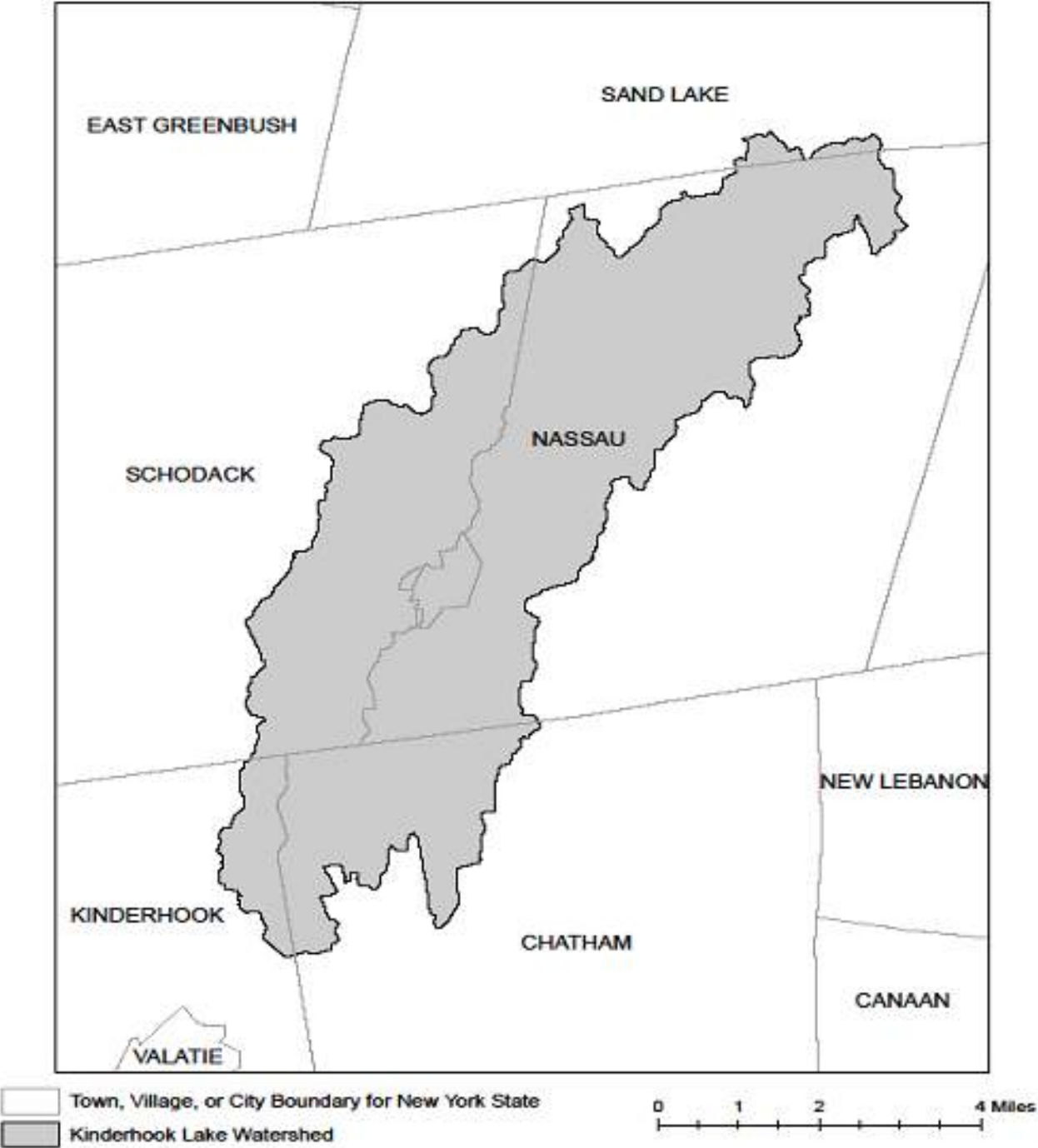


**Figure 4 - Oscawana Lake Watershed**





**Figure 5 - Kinderhook Lake Watershed**





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

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

Entire New York City Watershed that is located east of the Hudson River - See Figure 1 in Appendix C
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## APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

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

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



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

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



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

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



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

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



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

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



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

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



## APPENDIX F – List of NYS DEC Regional Offices

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



## **Appendix C – Construction Personnel Contact List**

- Construction Contact List -
- Contractor Certification Form -



## **Appendix C – Construction Contact List**





## SWPPP Construction Contact List

[illegible]





## **Appendix C – Contractor Certification Form**



## **Contractor Certification Form**

**Stormwater Pollution Prevention Plan (SWPPP)  
State Pollutant Discharge Elimination System (SPDES) General Permit for  
Stormwater Discharges from Construction Activity  
GP-0-20-001**

Congers Transitional HDD Project  
Town of Clarkstown, Rockland County, New York

All Contractors and Subcontractors performing construction activities shall sign the following certification before they commence construction activities. A copy of the certification shall be included in Appendix A of the on-site SWPPP. All Contractors and Subcontractors must identify at least one trained person from their company, who has met the requirements of a *Trained Contractor* as defined in GP-0-20-001, that will be responsible for the implementation of the SWPPP.

"I hereby certify under penalty of the 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 SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001) 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 of Construction Company

---

Address of Construction Company

---

Telephone Number

---

Printed Name of Authorized Representative

---

Title

---

Signature of Authorized Representative

---

Date

---

Printed Name of Trained Contractor(s)

---

Title(s)

---

Type of construction services to be provided:

---

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## **Appendix D – Agency Correspondence and Notifications**



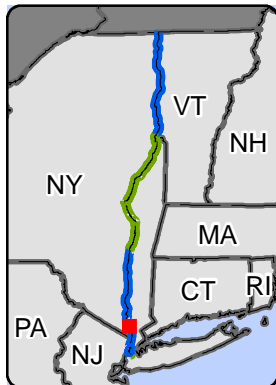
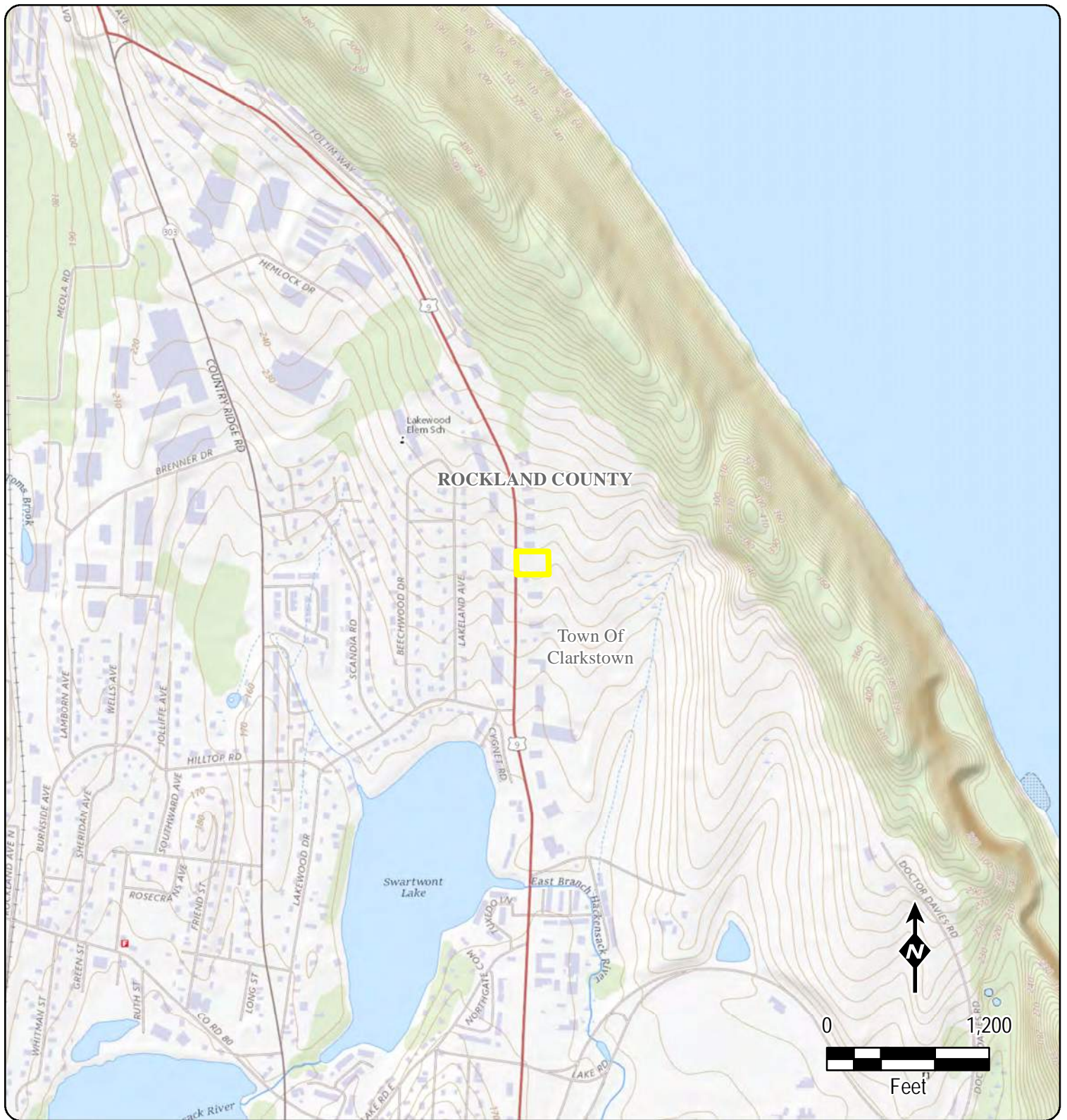
## **Appendix E – Environmental Background Information**

- Figure 1: Study Area Map –
- Figure 2: Environmental and Cultural Resources Map -
- Environmental and Cultural Resource Information -
- USDA NRCS Soil Resource Report -



## **Appendix E – Figure 1: Study Area Map**





Study Area



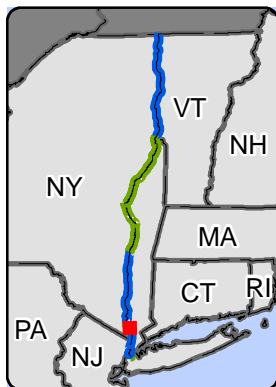
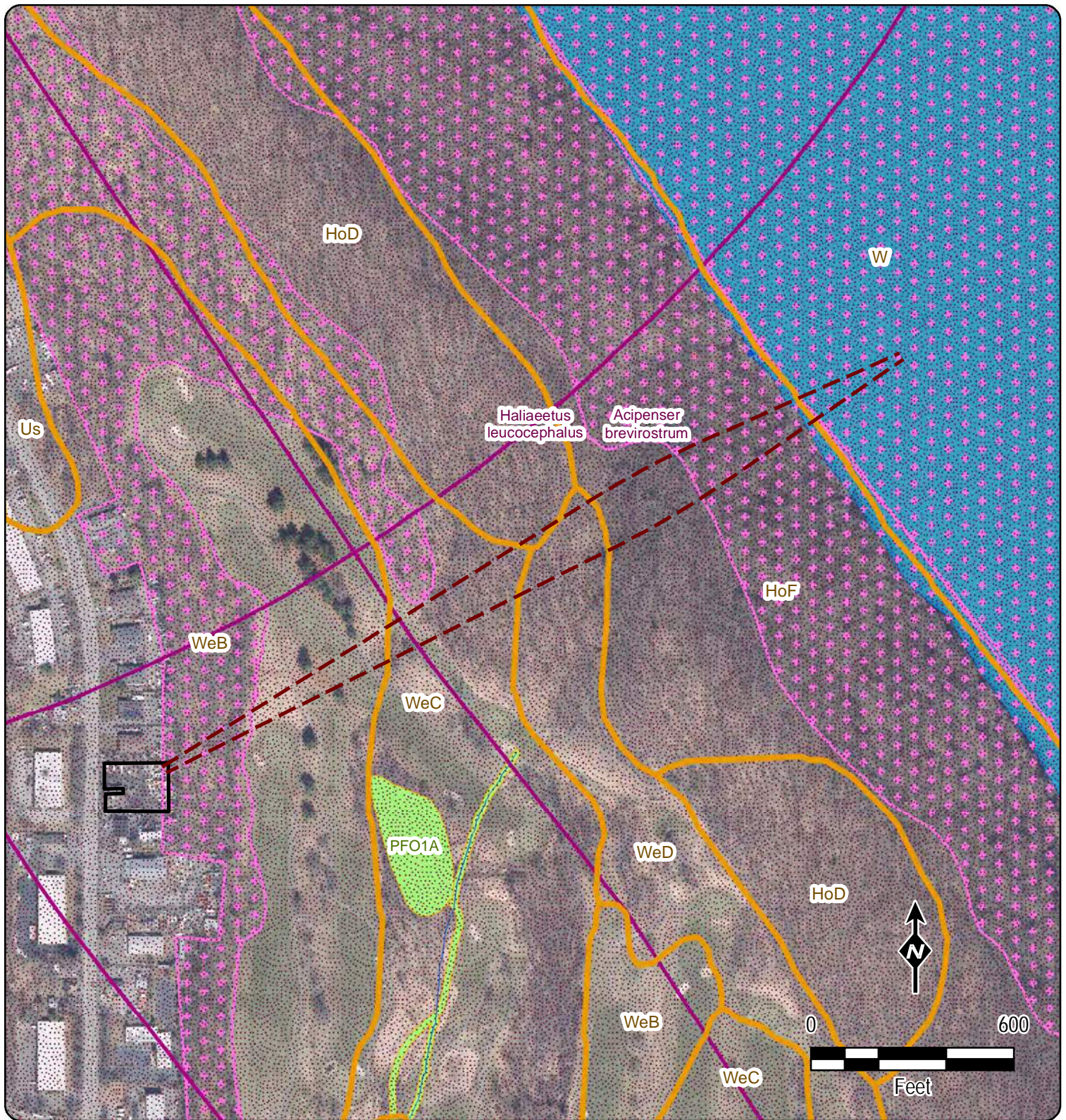
CHAMPLAIN HUDSON POWER EXPRESS  
Congers Transitional HDD  
**Figure 1**  
Study Area

Created: 10/28/2022



## **Appendix E – Figure 2: Environmental and Cultural Resources Map**





- HDD
- LOD
- Soils (SSURGO)
- NWI
- NHD Flowline
- NHD Waterbody
- NYSDEC Endangered/Threatened Species
- Significant Natural Community



CHAMPLAIN HUDSON POWER EXPRESS

Congers HDD

**Figure 2**  
Environmental and Cultural  
Resources

Created: 11/30/2022



## **Appendix E – Environmental and Cultural Resource Information**







# Wetland & Waterbodies Delineation Report



## Champlain Hudson Power Express Segment 12-Package 7B

### Route 9W - Rockland, New York

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*CHA Project Number: 066076*

*Prepared for:*  
**Transmission Developers Inc.**  
1301 Avenue of the Americas  
26<sup>th</sup> Floor  
New York, NY 10019

*Prepared by:*  
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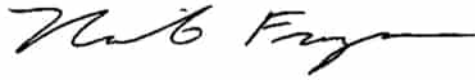
*June 2022*



SIGNATURE PAGE

This report has been prepared and reviewed by the following qualified personnel employed by  
CHA.

Report Prepared By:



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Nicole E. Frazer  
Principal Scientist

Report Reviewed By:



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Christopher R. Einstein, PWS  
Principal Scientist



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## LIST OF ATTACHMENTS

Attachment 1	Wetland Determination Data Sheets and Wetland Photographs
Attachment 2	NWI & State Wetland and Stream Mapping
Attachment 3	NRCS Soil Mapping
Attachment 4	Tables
Attachment 5	Wetlands and Waterbodies Delineation Mapping
Attachment 6	Waterbody Photographs



## 1.0 INTRODUCTION

CHA Consulting, Inc. (“CHA”) has prepared this wetland and waterbodies delineation report on behalf of Champlain Hudson Power Express, Inc. (“CHPE”) and Kiewit Construction (Kiewit) for the Champlain Hudson Power Express Project (Project). CHA was retained by Kiewit to identify and delineate jurisdictional wetlands and waterbodies regulated under Section 404 of the Clean Water Act (CWA), Section 10 of the Rivers and Harbors Act of 1899, Article 24 Freshwater Wetlands Act (FWW) & Article 15 (Protection of Waters) of the Environmental Conservation Law along the overland transmission cable route that predominantly follows State, county and local roadways rights-of-way (“ROW”), herein referred to as the Project Corridor. Delineations were conducted with the objective of verifying and updating previous wetland delineations performed for the Project Corridor as part of the Article VII and Section 10/404 permitting processes. This report describes the wetland delineation methodology and the existing wetland and waterbody resources that were identified in the Project Corridor (also defined as the Jurisdictional Determination (JD) limits) during field surveys for the overland portions of the Project.

The project also includes equipment staging, laydown areas and access roads. These areas were not confirmed when the delineation activities described in this report were being completed. A supplemental delineation report will include these areas and will be prepared as the design of the project progresses.



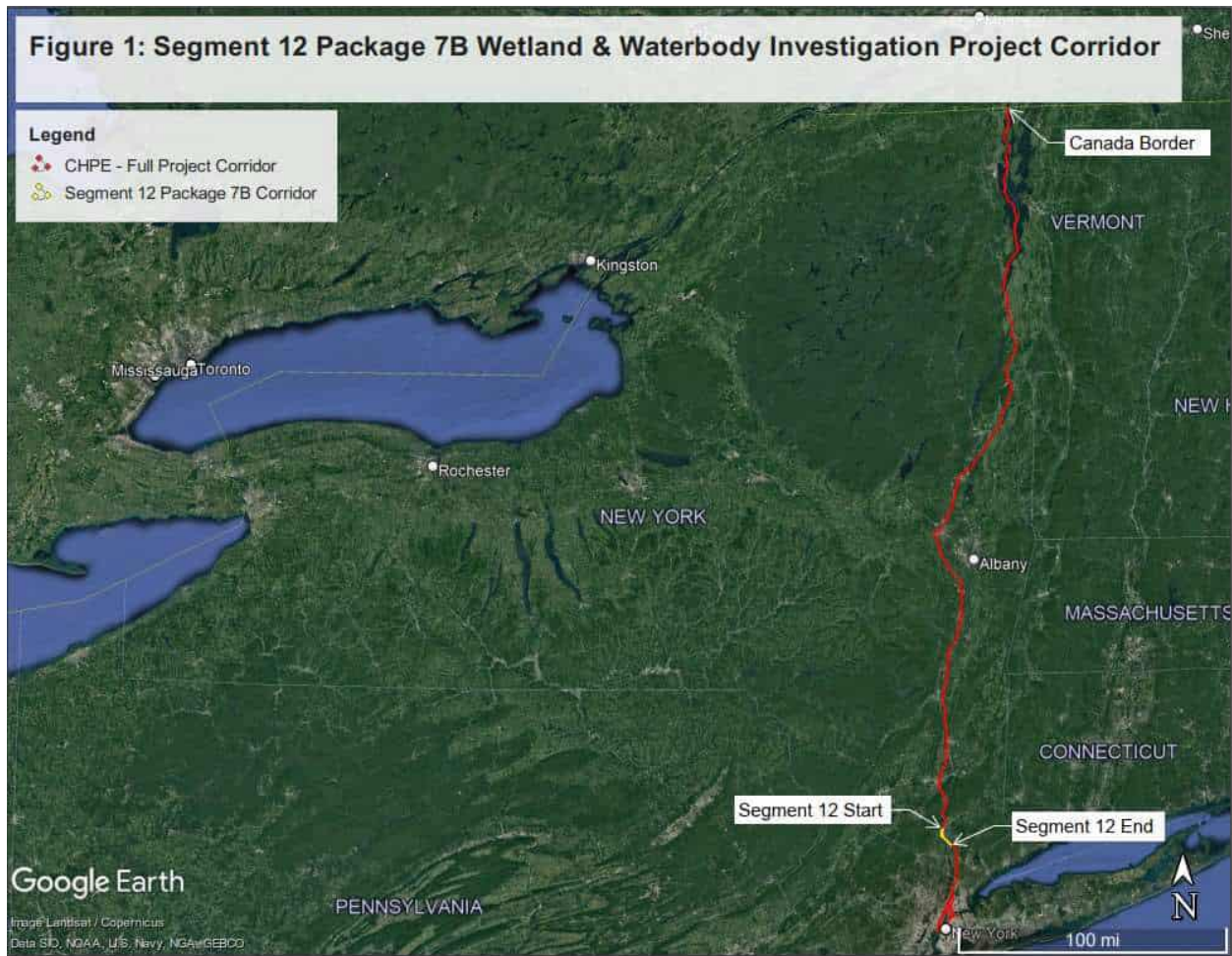
## 2.0 SEGMENT 12-PACKAGE 7B CORRIDOR OVERVIEW

The entire Project Corridor is approximately 339 miles from Montreal, Quebec, Canada to New York City, New York, USA. Figure 1 below shows the route from the Canadian border to New York City and highlights the approximately 7.6 miles of the Segment 12- Package 7B Project Corridor that was investigated for wetlands and waterbodies.

Segment 12- Package 7B begins in Haverstraw, NY at station 72500+00 and extends south approximately 7.6 miles along the following roads through Haverstraw, New York: Park Road, N. Liberty Drive, S. Liberty Drive, South Route 9W, Route 9W, Conger Avenue, and North Route 9W. Segment 12- Package 7B terminates at station 72898+72.52.



**Figure 1: Segment 12-Package 7B Wetland & Waterbody Investigation Project Corridor**





### 3.0 WETLAND DELINEATION METHODOLOGY

To determine the potential for wetland impacts from construction of the Project, Shumaker Consulting Engineering & Land Surveying, D.P.C. (Shumaker) assessed the Project Corridor in the field for the presence of federal (Section 404 CWA & Section 10 of the Rivers and Harbors Act of 1899) and state (Article 24 FWW & Article 15 Protection of Waters) jurisdictional wetlands. Wetland scientists conducted wetland delineations in November 2021 and May 2022. The delineation criteria and methodology were performed in accordance with the *1987 Corps of Engineers Wetland Delineation Manual*, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* Version 2.0 (January 2012), as well as the *New York State Freshwater Wetlands Delineation Manual* (Browne et. al., 1995).

The Project Corridor for the surveyed portions of the project included the land within the existing ROWs along Park Road, N. Liberty Drive, S. Liberty Drive, South Route 9W, Route 9W, Conger Avenue, and North Route 9W. The wetland delineation limits were approximately 50 feet from the edge of pavement, limited to the side of the road corridor on which the alignment follows and primarily within the ROW of the aforementioned roads.

In accordance with the procedures provided in the *Corps of Engineers Wetland Delineation Manual* (1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, Version 2.0 (January 2012), the "Routine Wetland Determination" method was used to delineate wetland boundaries.

The wetland boundaries were determined in the field based on the three-parameter approach, whereby an area is a wetland if it exhibits vegetation adapted to wet conditions (hydrophytes), hydric soils, and the presence or evidence of water at or near the soil surface during the growing season (hydrology).

Coded surveyor's ribbons (e.g. flag code A-1, A-2, etc.) were placed along the wetland boundaries based on observations of vegetation, soils and hydrologic conditions. Data points were recorded along the wetland boundaries at various locations across different vegetative community types correlating to each wetland. Wetland and upland data points were recorded to show the difference between the wetland and upland habitats. At a minimum, one data point set (wetland and upland)



was collected for each wetland. Additional data points were collected for large wetlands and for changes in vegetative communities. Wetland Determination Data Sheets corresponding to each point can be found in Attachment 1.

Wetlands within the Segment 12- Package 7B Project Corridor fall under the jurisdiction of the and the New York State Department of Environmental Conservation (NYSDEC) and/or the U.S. Army Corps of Engineers (USACE). The New York State methodology similarly recognizes the three parameters of vegetation, soils, and hydrology; however, under the New York State method the hydric vegetation criterion is mandatory, while the other two parameters are not (Browne et. al. 1995). Wetlands regulated by the NYSDEC must be at least 12.4 acres (5 hectares) in size, unless they are deemed to have unusual local importance (Article 24 FWW). The NYSDEC publishes maps of wetland areas under state jurisdiction; however, it uses field delineation to determine the precise boundaries of these wetland areas.

Prior to actual field delineations for wetland resources, CHA reviewed USGS 7.5-minute topographic maps, aerial photographs, National Wetland Inventory (NWI) mapping, United States Department of Agriculture Natural Resources Conservation Service (NRCS) soil mapping, and NYSDEC freshwater wetlands mapping to identify potential wetland features present within the Project Corridor. More importantly, CHA used the previous wetland delineations prepared for this Project Corridor for the purposes of verifying and modifying the previous delineation. Refer to Attachment 2 for NWI and NYSDEC Freshwater Wetland & Stream Mapping and Attachment 3 for NRCS Soil Mapping.

Waterbodies within the Project Corridor, including streams under NYSDEC Article 15 jurisdiction, were identified by the presence of an ordinary high-water mark (OHWM) or stream channel. Delineation and flagging were completed to identify the ordinary high-water mark (OHWM) for most perennial and intermittent streams.

This report documents the wetlands and waterbodies potentially under federal and State jurisdiction that were identified in the Project Corridor along the current proposed underground transmission cable route. Summaries of wetlands that were identified are provided in Table 4-1 in Attachment 4. Wetlands and Waterbodies Delineation Mapping is included in Attachment 5.



Wetland determination data forms and photographic documentation of the wetlands are included in Attachment 1.

## 4.0 WETLAND & WATERBODIES DELINEATION RESULTS

A total of four wetland areas were identified in the Project Corridor totaling approximately 0.49 acres. Table 4-1 in Attachment 4 provides a summary of the wetlands identified along the Project Corridor, including their classification in accordance with Cowardin et al. (1979) and their state or federal jurisdiction. Of these delineated wetlands, one (1) corresponds with a wetland mapped by the NYSDEC. This NYSDEC mapped wetland is HS-2.

Narrative descriptions of wetland vegetation, hydrology, and soils observed within the Project Corridor are presented in the following sections. The wetlands and waterbodies delineated within the surveyed areas are summarized in Table 4-1 and Table 4-2. Table 4-3 provides the soil series information. Refer to Attachment 4 for each of these tables. The Wetlands and Waterbodies Delineation Mapping provided in Attachment 5 shows the locations of delineated wetlands and waterbodies. Photographs of the waterbodies can be found in Attachment 6.

### 4.1 VEGETATION

Vegetative communities within wetlands are described according to *Ecological Communities of New York State, Second Edition* (Edinger 2014)<sup>1</sup> and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979)<sup>2</sup>. Using this hierarchical wetland classification system three primary cover types were identified for vegetated wetlands in the Project Corridor. These include palustrine emergent (PEM) and palustrine forested (PFO) wetlands. Open water areas (i.e. ponds) were identified as palustrine unconsolidated bottom (PUB).

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<sup>1</sup> Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero (editors). 2014. *Ecological Communities of New York State*. Second Edition. A revised and expanded edition of Carol Reshke's *Ecological Communities of New York State*. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.

<sup>2</sup> Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe, 1979. *Classification of wetlands and deepwater habitats of the United States*. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.



#### 4.1.1 Palustrine Emergent Wetland

The palustrine emergent wetland cover type is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens (Cowardin et. al., 1979), and with less than 50 percent aerial cover by shrubs and/or trees. The freshwater emergent wetlands along the Project Corridor primarily include shallow emergent marsh and common reed marsh (Edinger et. al., 2014).

Shallow emergent marshes occur on mineral soils or deep muck soils that are permanently saturated and seasonally flooded. Water depths range from 6 inches to 3.3 feet during flood stages (Edinger et. al., 2014). Characteristic vegetation of shallow emergent marshes within the Project Corridor includes goldenrod (*Solidago sp.*), sedge species (*Carex sp.* and *Cyperus sp.*) and willowherb species (*Epilobium sp.*).

Common reed marsh consists of disturbed marshes where common reed has become dominant (Edinger et. al., 2014).

#### 4.1.2 Palustrine Forested Wetland

Forested wetland cover types are dominated by trees and shrubs that have developed a tolerance to a seasonal high-water table. For a community to be characterized as forested, a wetland must be dominated by trees and shrubs that are at least six meters tall (Cowardin et. al., 1979). Forested wetlands typically have a mature tree canopy, and depending upon the species and density, can have a broad range of understory and groundcover community components (Edinger et al., 2014). Forested wetland communities along the Project Corridor include red maple hardwood swamp.

Red maple-hardwood swamps occur in poorly drained depressions, usually on inorganic soils. Red maple is either the only dominant tree species or is codominant with one or more hardwoods (Edinger et. al, 2014). Species observed within this community type within the Project Corridor include American elm (*Ulmus americana*), common reed and smartweed species (*Persicaria sp.*).

#### 4.1.3 Open Water

There are ponds located along the Project Corridor. As previously noted, these open water communities are identified as palustrine unconsolidated bottom (PUB). They are characterized by



a vegetation cover of less than 30 percent, although there may often be emergent or shrubby vegetation bordering the open water areas. Common duckweed (*Lemna minor*) is commonly present. Characteristic species observed along the edges of these ponds include goldenrod and sedge species. Substrates are silt, mud, cobble, or sand.

## **4.2 HYDROLOGY**

### **4.2.1 Streams**

Table 4-2 lists the 4 streams (perennial (3), intermittent (1)) identified within the Project Corridor, which is located within the Lower Hudson Watershed. This watershed extends from the Battery at the southern end of Manhattan to the Troy Dam at the confluence of the Mohawk River. The basin is 12,800 square miles, most of which is within New York State (NYSDEC 2022). Perennial waterbodies within the Project Corridor include Cedar Pond Brook and Minisceongo Creek as well as unnamed tributaries identified on USGS Topographic Maps and/or identified during the field delineation.

### **4.2.2 Wetlands**

Site hydrology was examined within each wetland and adjacent upland areas. Indicators of wetland hydrology included surface water (A1), high water table (A2), saturation (A3), presence of reduced iron (C4), and FAC-neutral test (D5) (Attachment 1). Hydrologic factors contributing to the presence of wetland hydrology within wetlands in the Project Corridor included inundation with river, pond, or stream water, temporarily ponded runoff, and seasonally to permanently shallow groundwater tables.

## **4.3 SOILS**

The United States Department of Agriculture NRCS soil map units for the Project Corridor are provided in Attachment 3. Hydric soil indicators include depleted matrix (F3) and redox dark surface (F6) (Attachment 1). Within the Project Corridor, a total of twenty five (25) different soil types are mapped by the NRCS. The mapped soil types range from excessively drained to very poorly drained soils. According to the soil map descriptions (Attachment 3 and Attachment 4-Table 4-3), two (2) of the soils mapped within the Project Corridor are rated as hydric soils



(Ipswich mucky peat and Rippowam sandy loam). Hydric soils are defined as soils “that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil” (Federal Register, 1994). Table 4-3 summarizes the soil series in the Project Corridor and lists the soils that are classified as hydric (or associated with wetland hydrology) in the Project Corridor.

Many soils within the Project Corridor are formed from glacial parent materials including outwash, dense till, loose till, and glaciomarine deposits. In active floodplains, soils are formed in recent alluvium. Anthropogenically disturbed soils, associated with road construction and operation, are common within the Project Corridor. The disturbed soils consist of disturbed natural deposits or human transported materials.

#### **4.4 NATURAL RESOURCE CONSERVATION SERVICE SOIL SERIES DESCRIPTIONS**

The following are the abbreviated descriptions of each of the relevant soil types taken from the USDA Web Soil Survey (NRCS 2022). Soils survey mapping and additional information regarding relevant soil characteristics are provided in Attachment 3.

##### **Charlton Series (CeB, CeC & CeD)**

These very deep, well drained soils formed in loamy melt-out till. These soils are nearly level to very steep on ridges, moraines and hills. Slopes range from 0 to 60 percent. The A horizon is a dark brown fine sandy loam with weak granular structure. The B horizon is brown, yellowish brown or light olive brown fine sandy loam with weak granular or subangular blocky structure. The C horizon is grayish brown gravelly fine sandy loam with lenses of loamy sand. This horizon is massive or has plates of geogenic origin.

##### **Chatfield Series (CoC & CoD)**

These well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. Slopes range from 0 to 70 percent. The surface layer is organic material 0-3 cm thick. The A horizon is very dark gray fine sandy loam with weak fine subangular blocky structure. The AB



horizon, where present, has similar texture to the A horizon. The B horizon is strong brown gravelly fine sandy loam. The structure is subangular blocky or granular structure and is friable or very friable. The C horizon, if present, has hue of 7.5YR to 5Y, value of 4 or 5, and chroma of 2 to 4. The texture is sandy loam, very fine sandy loam, loam or silt loam. This horizon is massive and may contain plate-like divisions. The 2R horizon is dominantly schist, gneiss bedrock or granite and is massive in places.

### **Hinckley Series (HcA, HcB, HcD & HdB)**

These very deep, excessively drained soils formed in glaciofluvial materials. These soils are nearly level to very steep and can be found on outwash terraces, outwash deltas, outwash plains, eskers, kames and kame terraces. The slopes range from 0 to 60 percent. The surface layer is 0-3 centimeters of moderately decomposed plant material derived from twigs and red pine needles. The A horizon is very dark grayish brown loamy sand with weak fine and medium granular structure. The B horizon is strong brown to yellowish brown gravelly loamy sand to very gravelly sand. The C horizon is light olive brown extremely gravelly sand consisting of stratified sand, gravel and cobbles.

### **Holyoke Series (HoC, HoD & HoF)**

These shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from basalt and red sandstone, conglomerate, and shale. Slopes range from 0 to 60 percent. The A horizon is dark brown silt loam with weak medium granular structure. The B horizon is comprised of two layers. From 8-20 centimeters, the soil is brown silt loam with weak coarse granular structure and from 20-46 centimeters, the soil is yellowish red silt loam with weak medium subangular blocky structure. The R horizon is composed of basalt bedrock.

### **Ipswich Series (Ip)**

These very deep, very poorly drained soils formed in thick herbaceous organic deposits. They are found on level tidal marshes subject to salt water inundation twice daily. The surface layer is dark grayish brown organic material. Below this layer is a layer of very dark grayish brown, mucky peat that is followed by a layer of very dark gray muck.



### **Rippowam Series (Ra)**

These very deep, poorly drained loamy soils formed in alluvial sediments. These nearly level soils are found on floodplains subject to frequent flooding. The slopes range from 0 to 3 percent. The A horizon is a very dark grayish brown fine sandy loam with weak medium granular structure. The B horizon is dark grayish brown to very dark gray fine sandy loam or sandy loam that is massive or has weak granular or subangular blocky structure. The C horizon is dark gray or grayish brown with textures ranging from loamy fine sand to coarse sand.

### **Udorthents (Ur & Us)**

These are very deep, nearly level to gently sloping areas of well drained loamy soils that are a result of man-made cuts and fills in loamy upland soils. Slopes range from 0 to 8 percent. Typically, the surface layer is dark brown silt loam extending to 5 inches. Layers below the surface are brown and yellowish-brown silt loam containing up to 80 percent rock fragments to a depth of 72 inches or more.

### **Urban Land (Ux)**

Urban land consists of nearly level to strongly sloping areas where asphalt, concrete, buildings, or other impervious materials cover more than 85 percent of the surface. Slopes range from 0 to 15 percent. This map unit includes very few areas of soil material, and those areas which are used mainly as lawns or landscaping have been disturbed by adjacent building activities.

### **Watchaug Series (Wc)**

These are very deep, moderately well drained loamy soils formed in meltout till. The soils are nearly level to strongly sloping on hill and till plains, typically on the lower slopes and in slight depressions. Slopes range from 0 to 15 percent. The A horizon is deep reddish brown fine sandy loam with weak medium and fine granular structure. The B horizon is reddish brown to yellowish brown fine sandy loam with weak medium subangular blocky structure. The C horizon is reddish brown gravelly sandy loam. This horizon is massive or has weak plates.



### **Wethersfield Series (WeB, WeC, WeD & WuB)**

These very deep, well drained loamy soils formed in dense glacial till on uplands. Slopes range from 0 to 35 percent. The surface layer is 0-3 centimeters of black, moderately decomposed plant material. The A horizon is dark brown loam with granular structure. The B horizon is reddish brown loam to gravelly loam with a weak medium subangular blocky structure. The C horizon is reddish brown gravelly loam with weak thick platy structure.

### **Yalesville Series (YaC & YaD)**

These moderately deep, well drained soils formed in a loamy till. They are nearly level to moderately steep soils on hills and ridges. Slopes range from 0 to 50 percent. The A horizon is dark brown fine sandy loam with weak medium granular structure. The B horizon is reddish brown fine sandy loam to loam. It has a weak medium subangular blocky structure. The C horizon is reddish brown gravelly sandy loam, and is massive. The R horizon is reddish brown hard sandstone bedrock.

## **5.0 SUMMARY**

Wetlands identified along the Project Corridor include shallow emergent marsh, common reed marsh, red maple hardwood swamp. Ponds also occur within the Project Corridor. Stream communities include intermittent and perennial streams.

Land use in the Project Corridor is ranges from undeveloped areas to residential and commercial areas. Because most of the Project Corridor consists of existing roadway corridors, some wetlands are characterized by previous anthropogenic disturbance and/or the presence of invasive plant species. The wetland boundaries abutting the road are typically defined by the edge of the soil fill for the highway embankments.

Confirmation of the wetland boundaries are the responsibility of the involved regulatory agencies with jurisdiction over wetlands and waterbodies within this Phase of the overall project. As previously noted, wetlands within Segment 12-Package 7B Project Corridor are regulated by USACE (Section 10/404) and the NYSDEC (Article 24). Streams and other waterbodies are



regulated by USACE (Section 10/404) and NYSDEC (Article 15). Based on review of the NYSDEC wetland mapping, one delineated wetland area is identified as regulated under Article 24. This wetland correspond to mapped wetland HS-2 and it is regulated by NYSDEC. It is anticipated that USACE will take jurisdiction over all the mapped wetlands within the Project Corridor and NYSDEC will take jurisdiction over the one wetland associated with the NYSDEC freshwater wetland. Final jurisdictional determinations will be made by the respective agencies.



## 6.0 REFERENCES

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**ATTACHMENT 1**  
**WETLAND DETERMINATION DATA SHEETS AND**  
**WETLAND PHOTOGRAPHS**

(No Wetlands Identified at Congers Transitional HDD Project Area)



**ATTACHMENT 2**  
**NWI & NYSDEC WETLAND & STREAM MAPS**

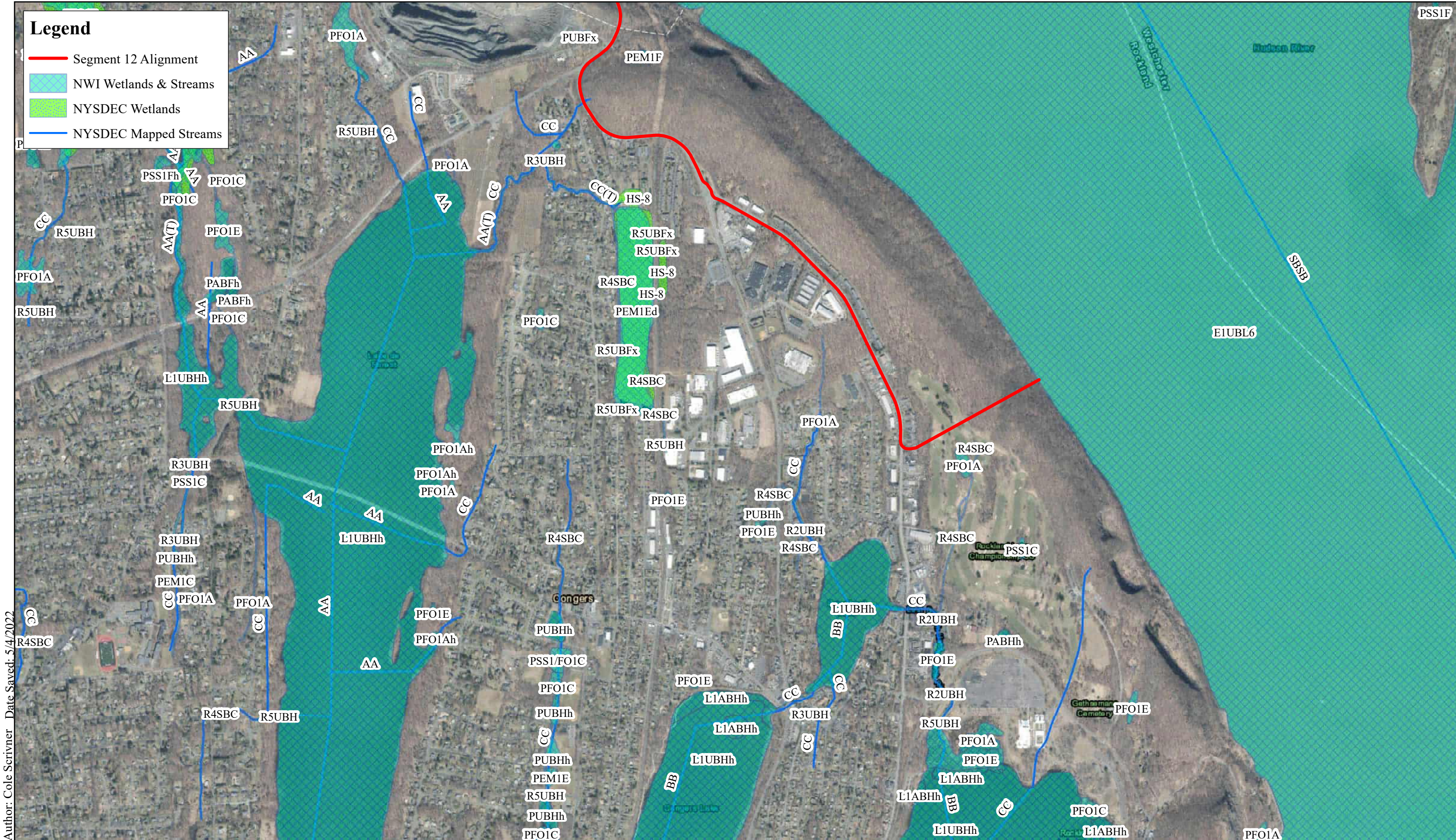












Author: Cole Scrivner Date Saved: 5/4/2022



**ATTACHMENT 3**  
**NRCS SOIL MAPS**



Author: Cole Scrivner Date Saved: 5/4/2022

Legend

Segment 12 Alignment

Rockland County Soils (NY087)

CeB; CeC; CeD

CkD

CoC; CoD

HaB

HcA; HcB; HcD

Ip

Pv

Ra

Ur

Us

Uw

W

WeB; WeC; WeD

YaC; YaD

N

Page 1 of 3

*Champlain Hudson Power Express  
Segment 12-Package 7B NRCS Soil Map*

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the



Legend

Segment 12 Alignment

Rockland County Soils (NY087)

HcA; HcB; HcD

HdB

HoC; HoD; HoF

Pv

Us

Ux

WeB; WeC; WeD

WuB

An aerial photograph of the Haverstraw and Clarkstown area in Rockland County, New York. A red line representing the Segment 12 Alignment runs from the top center, curves south and east, and then continues southeast towards the Hudson River. The map is overlaid with various colored polygons representing different soil types: light red (HcA; HcB; HcD), yellow (HdB), pink (HoC; HoD; HoF), light blue (Pv), orange (Us), light green (Ux), medium green (WeB; WeC; WeD), and magenta (WuB). The alignment starts near Samsondale and West Haverstraw, passes through Haverstraw, and ends near Centenary. The Hudson River is visible on the right side of the map. Other features include Lake Lucille, Hackensack River, and several parks like High Tor State Park and Bowline Point Town Park.

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The logo for the Champlain Hudson Power Express project, featuring the letters 'CIA' in a bold, black, sans-serif font. A stylized blue wave graphic is positioned behind the letters, extending from the 'C' to the 'A'.

N

Page 2 of 3

A horizontal scale bar with a black outline. It is divided into three segments: the first segment is labeled '0', the second segment is labeled '0.5', and the third segment is labeled '1 Miles'.

*Champlain Hudson Power Express  
Segment 12-Package 7B NRCS Soil Map*

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the



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**Legend**

Segment 12 Alignment

**Rockland County Soils (NY087)**

HoC; HoD; HoF

Pv

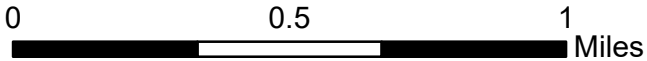
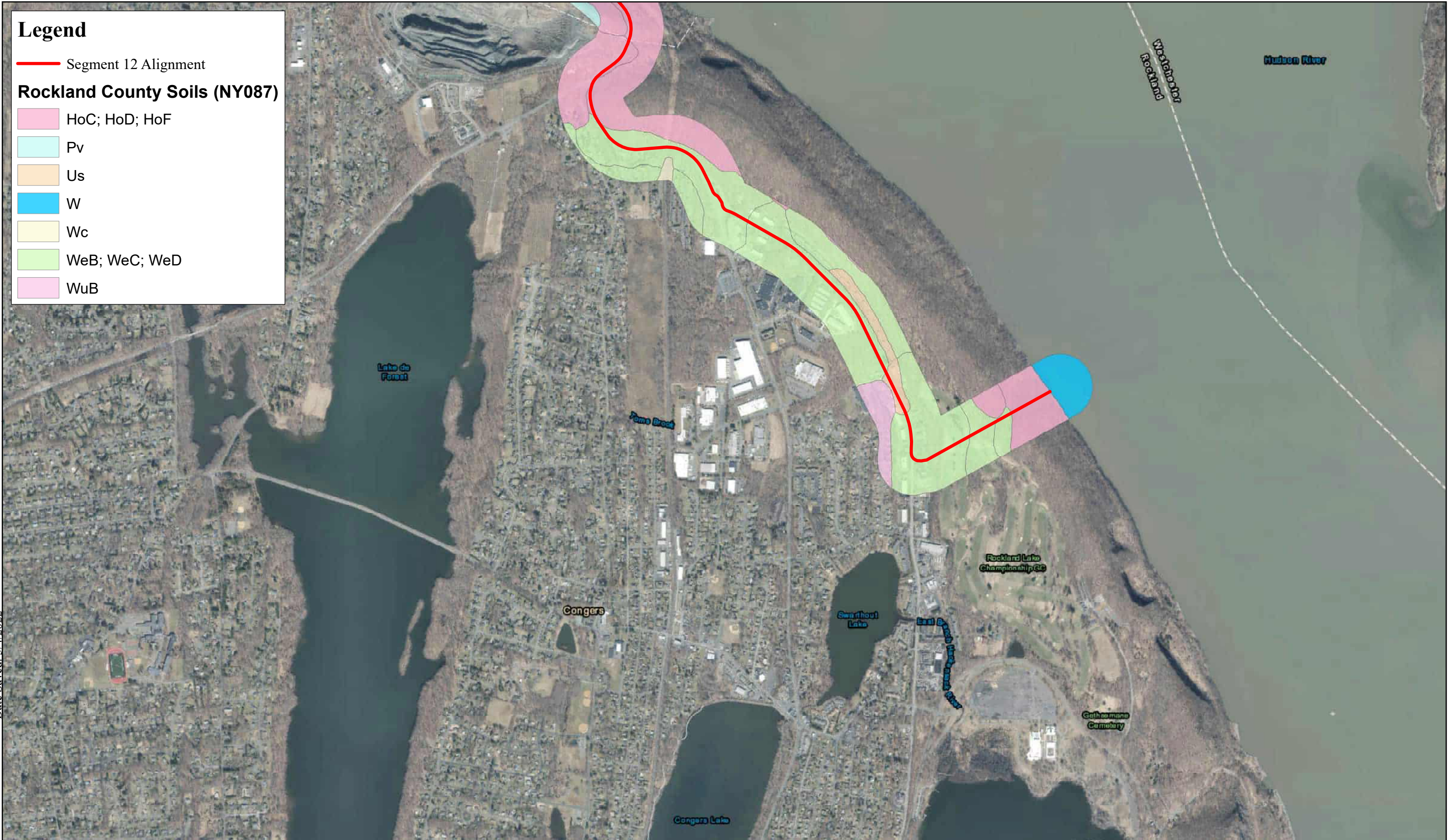
Us

W

Wc

WeB; WeC; WeD

WuB



*Champlain Hudson Power Express  
Segment 12-Package 7B NRCS Soil Map*

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the



## Map Unit Description

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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



Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

## Report—Map Unit Description

### Rockland County, New York

#### CeB—Charlton fine sandy loam, 3 to 8 percent slopes

##### Map Unit Setting

*National map unit symbol:* 2wh0n

*Elevation:* 0 to 1,440 feet



*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Charlton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Charlton****Setting**

*Landform:* Ridges, ground moraines, hills  
*Landform position (two-dimensional):* Backslope, shoulder, summit  
*Landform position (three-dimensional):* Side slope, crest, nose slope  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex  
*Parent material:* Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

**Typical profile**

*Ap - 0 to 7 inches:* fine sandy loam  
*Bw - 7 to 22 inches:* gravelly fine sandy loam  
*C - 22 to 65 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 6.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F144AY034CT - Well Drained Till Uplands  
*Hydric soil rating:* No

**Minor Components****Sutton**

*Percent of map unit:* 8 percent  
*Landform:* Hills, ground moraines



*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Paxton**

*Percent of map unit:* 5 percent  
*Landform:* Ground moraines, hills, drumlins  
*Landform position (two-dimensional):* Backslope, summit, shoulder  
*Landform position (three-dimensional):* Side slope, crest  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Chatfield**

*Percent of map unit:* 1 percent  
*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope, shoulder, summit  
*Landform position (three-dimensional):* Crest, side slope, nose slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear, convex  
*Hydric soil rating:* No

**Leicester**

*Percent of map unit:* 1 percent  
*Landform:* Depressions, drainageways  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**CeC—Charlton fine sandy loam, 8 to 15 percent slopes****Map Unit Setting**

*National map unit symbol:* 2wh0q  
*Elevation:* 0 to 1,440 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Charlton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Charlton****Setting**

*Landform:* Ridges, ground moraines, hills  
*Landform position (two-dimensional):* Backslope



*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex  
*Parent material:* Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

**Typical profile**

*Ap - 0 to 7 inches:* fine sandy loam  
*Bw - 7 to 22 inches:* gravelly fine sandy loam  
*C - 22 to 65 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 6.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3e  
*Hydrologic Soil Group:* B  
*Ecological site:* F144AY034CT - Well Drained Till Uplands  
*Hydric soil rating:* No

**Minor Components****Sutton, fine sandy loam**

*Percent of map unit:* 5 percent  
*Landform:* Ridges, hills, ground moraines  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Paxton**

*Percent of map unit:* 5 percent  
*Landform:* Ground moraines, hills, drumlins  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Chatfield**

*Percent of map unit:* 3 percent



*Landform:* Ridges, hills

*Landform position (two-dimensional):* Summit, backslope, shoulder

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

*Down-slope shape:* Convex

*Across-slope shape:* Linear, convex

*Hydric soil rating:* No

#### **Canton**

*Percent of map unit:* 2 percent

*Landform:* Ridges, ground moraines, hills

*Landform position (two-dimensional):* Shoulder, backslope, summit

*Landform position (three-dimensional):* Side slope, nose slope, crest

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex

*Hydric soil rating:* No

### **CeD—Charlton fine sandy loam, 15 to 25 percent slopes**

#### **Map Unit Setting**

*National map unit symbol:* 2wh0t

*Elevation:* 0 to 1,290 feet

*Mean annual precipitation:* 36 to 71 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 140 to 240 days

*Farmland classification:* Not prime farmland

#### **Map Unit Composition**

*Charlton and similar soils:* 85 percent

*Minor components:* 15 percent

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

#### **Description of Charlton**

##### **Setting**

*Landform:* Ridges, ground moraines, hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex

*Parent material:* Coarse-loamy melt-out till derived from granite, gneiss and/or schist

##### **Typical profile**

*Ap - 0 to 7 inches:* fine sandy loam

*Bw - 7 to 22 inches:* gravelly fine sandy loam

*C - 22 to 65 inches:* gravelly fine sandy loam

##### **Properties and qualities**

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* More than 80 inches



*Drainage class:* Well drained  
*Runoff class:* Medium  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 6.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* B  
*Ecological site:* F144AY034CT - Well Drained Till Uplands  
*Hydric soil rating:* No

**Minor Components****Paxton**

*Percent of map unit:* 5 percent  
*Landform:* Ground moraines, hills, drumlins  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Sutton, fine sandy loam**

*Percent of map unit:* 5 percent  
*Landform:* Ridges, hills, ground moraines  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Chatfield**

*Percent of map unit:* 3 percent  
*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope, shoulder, summit  
*Landform position (three-dimensional):* Nose slope, crest, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Canton**

*Percent of map unit:* 2 percent  
*Landform:* Moraines, hills, ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex, linear



*Across-slope shape:* Convex  
*Hydric soil rating:* No

## **CkD—Charlton-Rock outcrop complex, hilly**

### **Map Unit Setting**

*National map unit symbol:* 9v41  
*Elevation:* 0 to 1,200 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Charlton and similar soils:* 50 percent  
*Rock outcrop:* 25 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Charlton**

#### **Setting**

*Landform:* Till plains, ridges, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Acid loamy till derived mainly from schist, gneiss, or granite

#### **Typical profile**

*H1 - 0 to 5 inches:* fine sandy loam  
*H2 - 5 to 38 inches:* gravelly loam  
*H3 - 38 to 60 inches:* very gravelly sandy loam

#### **Properties and qualities**

*Slope:* 10 to 30 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 7.8 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* B  
*Ecological site:* F144AY034CT - Well Drained Till Uplands



*Hydric soil rating:* No

### **Description of Rock Outcrop**

#### **Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 10 to 30 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

### **Minor Components**

#### **Chatfield**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

#### **Hollis**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Paxton**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **CoC—Chatfield-Rock outcrop complex, rolling**

### **Map Unit Setting**

*National map unit symbol:* 9v44

*Elevation:* 100 to 1,000 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Chatfield and similar soils:* 60 percent

*Rock outcrop:* 15 percent

*Minor components:* 25 percent

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



## Description of Chatfield

### Setting

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till derived mainly from granite, gneiss, or schist

### Typical profile

*H1 - 0 to 9 inches:* gravelly sandy loam

*H2 - 9 to 25 inches:* gravelly sandy loam

*H3 - 25 to 35 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 4 to 16 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* B

*Ecological site:* F144AY034CT - Well Drained Till Uplands

*Hydric soil rating:* No

## Description of Rock Outcrop

### Typical profile

*H1 - 0 to 60 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 4 to 16 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydric soil rating:* Unranked

## Minor Components

### Charlton

*Percent of map unit:* 10 percent



*Hydric soil rating:* No

**Hollis**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**CoD—Chatfield-Rock outcrop complex, hilly**

**Map Unit Setting**

*National map unit symbol:* 9v45

*Elevation:* 100 to 1,000 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Chatfield and similar soils:* 50 percent

*Rock outcrop:* 25 percent

*Minor components:* 25 percent

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

**Description of Chatfield**

**Setting**

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till derived mainly from granite, gneiss, or schist

**Typical profile**

*H1 - 0 to 9 inches:* gravelly sandy loam

*H2 - 9 to 25 inches:* gravelly sandy loam

*H3 - 25 to 35 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 10 to 30 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.1 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* B

*Ecological site:* F144AY034CT - Well Drained Till Uplands

*Hydric soil rating:* No

**Description of Rock Outcrop****Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 10 to 30 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

**Minor Components****Charlton**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Hollis**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**HaB—Haven loam, 3 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v4f

*Elevation:* 20 to 510 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Haven and similar soils:* 80 percent

*Minor components:* 20 percent

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



## Description of Haven

### Setting

*Landform:* Outwash plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits

### Typical profile

*H1 - 0 to 5 inches:* loam

*H2 - 5 to 28 inches:* loam

*H3 - 28 to 60 inches:* stratified very gravelly sand

### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B

*Ecological site:* F144AY023CT - Well Drained Outwash

*Hydric soil rating:* No

## Minor Components

### Riverhead

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### Wethersfield

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### Hinckley

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### Fredon

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes



## HcB—Hinckley loamy sand, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2svm8

*Elevation:* 0 to 1,430 feet

*Mean annual precipitation:* 36 to 53 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 140 to 250 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Hinckley and similar soils:* 85 percent

*Minor components:* 15 percent

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

### Description of Hinckley

#### Setting

*Landform:* Outwash deltas, outwash terraces, kames, kame terraces, moraines, eskers, outwash plains

*Landform position (two-dimensional):* Summit, backslope, footslope, shoulder

*Landform position (three-dimensional):* Crest, base slope, side slope, nose slope, riser, tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Parent material:* Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

#### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material

*A - 1 to 8 inches:* loamy sand

*Bw1 - 8 to 11 inches:* gravelly loamy sand

*Bw2 - 11 to 16 inches:* gravelly loamy sand

*BC - 16 to 19 inches:* very gravelly loamy sand

*C - 19 to 65 inches:* very gravelly sand

#### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Excessively drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Very low (about 3.0 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* A

*Ecological site:* F144AY022MA - Dry Outwash

*Hydric soil rating:* No

**Minor Components****Windsor**

*Percent of map unit:* 8 percent

*Landform:* Outwash deltas, outwash terraces, moraines, eskers, kames, outwash plains, kame terraces

*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope

*Landform position (three-dimensional):* Nose slope, side slope, base slope, crest, tread, riser

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 5 percent

*Landform:* Outwash deltas, outwash terraces, moraines, outwash plains, kame terraces

*Landform position (two-dimensional):* Backslope, footslope

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

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, linear

*Hydric soil rating:* No

**Agawam**

*Percent of map unit:* 2 percent

*Landform:* Outwash deltas, outwash terraces, moraines, eskers, kames, outwash plains, kame terraces

*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope

*Landform position (three-dimensional):* Nose slope, side slope, base slope, crest, tread, riser

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

**HcD—Hinckley loamy sand, 15 to 25 percent slopes****Map Unit Setting**

*National map unit symbol:* 2svmc

*Elevation:* 0 to 1,460 feet

*Mean annual precipitation:* 36 to 71 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 140 to 240 days



*Farmland classification:* Not prime farmland

### Map Unit Composition

*Hinckley and similar soils:* 85 percent

*Minor components:* 15 percent

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

### Description of Hinckley

#### Setting

*Landform:* Kames, kame terraces, outwash deltas, outwash terraces, moraines, eskers, outwash plains

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Nose slope, side slope, crest, head slope, riser

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Parent material:* Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

#### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material

*A - 1 to 8 inches:* loamy sand

*Bw1 - 8 to 11 inches:* gravelly loamy sand

*Bw2 - 11 to 16 inches:* gravelly loamy sand

*BC - 16 to 19 inches:* very gravelly loamy sand

*C - 19 to 65 inches:* very gravelly sand

#### Properties and qualities

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Excessively drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 3.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* A

*Ecological site:* F144AY022MA - Dry Outwash

*Hydric soil rating:* No

### Minor Components

#### Merrimac

*Percent of map unit:* 8 percent



*Landform:* Eskers, outwash terraces, kames, outwash plains, moraines  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Nose slope, head slope, crest, side slope, riser  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Windsor**

*Percent of map unit:* 5 percent  
*Landform:* Kames, kame terraces, moraines, eskers, outwash deltas, outwash terraces, outwash plains  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Nose slope, side slope, crest, head slope, riser  
*Down-slope shape:* Concave, convex, linear  
*Across-slope shape:* Convex, linear, concave  
*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 2 percent  
*Landform:* Eskers, kame terraces, outwash deltas, moraines, outwash plains, outwash terraces  
*Landform position (two-dimensional):* Backslope, footslope  
*Landform position (three-dimensional):* Base slope, tread  
*Down-slope shape:* Convex, concave, linear  
*Across-slope shape:* Convex, concave, linear  
*Hydric soil rating:* No

**Ip—Ipswich mucky peat, 0 to 2 percent slopes, very frequently flooded****Map Unit Setting**

*National map unit symbol:* 2tyqj  
*Elevation:* 0 to 10 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 250 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Ipswich and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Ipswich****Setting**

*Landform:* Tidal marshes  
*Landform position (three-dimensional):* Dip



*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Partially- decomposed herbaceous organic material

**Typical profile**

*Oe - 0 to 42 inches:* mucky peat  
*Oa - 42 to 59 inches:* muck

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to very high (0.14 to 99.90 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* Very frequent  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Maximum salinity:* Nonsaline to strongly saline (0.7 to 111.6 mmhos/cm)  
*Sodium adsorption ratio, maximum:* 20.0  
*Available water supply, 0 to 60 inches:* Very high (about 26.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8w  
*Hydrologic Soil Group:* A/D  
*Ecological site:* R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded  
*Hydric soil rating:* Yes

**Minor Components****Westbrook**

*Percent of map unit:* 5 percent  
*Landform:* Tidal marshes  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded  
*Hydric soil rating:* Yes

**Pawcatuck**

*Percent of map unit:* 5 percent  
*Landform:* Tidal marshes  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear



*Ecological site:* R144AY002CT - Tidal Salt High Marsh mesic very frequently flooded, R144AY001CT - Tidal Salt Low Marsh mesic very frequently flooded  
*Hydric soil rating:* Yes

## **Pv—Pits, quarry**

### **Map Unit Setting**

*National map unit symbol:* 9v51  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Pits, quarry:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Pits, Quarry**

#### **Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* 0 inches to lithic bedrock  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Hydric soil rating:* Unranked

### **Minor Components**

#### **Chatfield**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### **Charlton**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### **Alden**

*Percent of map unit:* 4 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

#### **Water**

*Percent of map unit:* 1 percent  
*Hydric soil rating:* Unranked



## Ra—Rippowam sandy loam

### Map Unit Setting

*National map unit symbol:* 9v52

*Elevation:* 20 to 740 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Rippowam and similar soils:* 80 percent

*Minor components:* 20 percent

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

### Description of Rippowam

#### Setting

*Landform:* Flood plains

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Loamy over sandy alluvium derived mainly from crystalline rock

#### Typical profile

*H1 - 0 to 10 inches:* sandy loam

*H2 - 10 to 35 inches:* fine sandy loam

*H3 - 35 to 60 inches:* loamy sand

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to high (0.57 to 5.95 in/hr)

*Depth to water table:* About 0 to 18 inches

*Frequency of flooding:* NoneFrequent

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Moderate (about 6.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* A/D

*Ecological site:* F144AY014CT - Wet Sandy Low Floodplain

*Hydric soil rating:* Yes



**Minor Components****Hinckley**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Haven**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Sloan**

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Hydric soil rating:* Yes

**Ur—Udorthents, refuse substratum****Map Unit Setting**

*National map unit symbol:* 9v5c

*Elevation:* 100 to 1,600 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Udorthents, refuse substratum, and similar soils:* 100 percent

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

**Description of Udorthents, Refuse Substratum****Typical profile**

*H1 - 0 to 24 inches:* gravelly loam

*H2 - 24 to 70 inches:* variable

**Properties and qualities**

*Slope:* 0 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to very high (0.06 to 19.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very low (about 2.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified



*Land capability classification (nonirrigated): 8s*

*Hydrologic Soil Group: C*

*Hydric soil rating: Unranked*

## **Us—Udorthents, smoothed**

### **Map Unit Setting**

*National map unit symbol: 9v5d*

*Elevation: 0 to 890 feet*

*Mean annual precipitation: 47 to 50 inches*

*Mean annual air temperature: 48 to 52 degrees F*

*Frost-free period: 135 to 215 days*

*Farmland classification: Not prime farmland*

### **Map Unit Composition**

*Udorthents, smoothed, and similar soils: 80 percent*

*Minor components: 20 percent*

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

### **Description of Udorthents, Smoothed**

#### **Typical profile**

*H1 - 0 to 20 inches: channery loam*

*H2 - 20 to 70 inches: very gravelly loam*

#### **Properties and qualities**

*Slope: 0 to 8 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Somewhat excessively drained*

*Capacity of the most limiting layer to transmit water*

*(Ksat): Moderately low to high (0.06 to 5.95 in/hr)*

*Depth to water table: About 36 to 72 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 15 percent*

*Available water supply, 0 to 60 inches: Low (about 5.4 inches)*

#### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 6s*

*Hydrologic Soil Group: A*

*Hydric soil rating: No*

### **Minor Components**

#### **Udorthents, wet substratum**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Urban land**

*Percent of map unit: 4 percent*

*Hydric soil rating: Unranked*



**Alden**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

**Wallington**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Wethersfield**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Hollis**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 1 percent

*Hydric soil rating:* Unranked

**Uw—Udorthents, wet substratum****Map Unit Setting**

*National map unit symbol:* 9v5f

*Elevation:* 50 to 2,400 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Udorthents, wet substratum, and similar soils:* 80 percent

*Minor components:* 20 percent

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

**Description of Udorthents, Wet Substratum****Typical profile**

*H1 - 0 to 20 inches:* channery loam

*H2 - 20 to 70 inches:* very gravelly loam

**Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to high (0.06 to 5.95 in/hr)

*Depth to water table:* About 12 to 36 inches



*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* A  
*Hydric soil rating:* Yes

**Minor Components****Udorthents**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Urban land**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* Unranked

**Paxton**

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

**Hinckley**

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

**Rippowam**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Hydric soil rating:* Yes

**Sloan**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Hydric soil rating:* Yes

**Palms**

*Percent of map unit:* 2 percent  
*Landform:* Swamps, marshes  
*Hydric soil rating:* Yes

**Rock outcrop**

*Percent of map unit:* 1 percent  
*Hydric soil rating:* Unranked

**W—Water****Map Unit Setting**

*National map unit symbol:* 9v5s  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days



*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Water:* 100 percent

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

**WeB—Wethersfield gravelly silt loam, 3 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5l

*Elevation:* 30 to 690 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 80 percent

*Minor components:* 20 percent

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

**Description of Wethersfield****Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e



*Hydrologic Soil Group: C*  
*Ecological site: F145XY012CT - Well Drained Dense Till Uplands*  
*Hydric soil rating: No*

#### **Minor Components**

##### **Cheshire**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

##### **Charlton**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

##### **Riverhead**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

##### **Wallington**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

### **WeC—Wethersfield gravelly silt loam, 8 to 15 percent slopes**

#### **Map Unit Setting**

*National map unit symbol: 9v5m*  
*Elevation: 20 to 690 feet*  
*Mean annual precipitation: 47 to 50 inches*  
*Mean annual air temperature: 48 to 52 degrees F*  
*Frost-free period: 135 to 215 days*  
*Farmland classification: Farmland of statewide importance*

#### **Map Unit Composition**

*Wethersfield and similar soils: 80 percent*  
*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### **Description of Wethersfield**

##### **Setting**

*Landform: Till plains, hills*  
*Landform position (two-dimensional): Shoulder*  
*Landform position (three-dimensional): Crest*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt*

##### **Typical profile**

*H1 - 0 to 13 inches: gravelly silt loam*  
*H2 - 13 to 22 inches: gravelly loam*  
*H3 - 22 to 60 inches: gravelly fine sandy loam*



**Properties and qualities**

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

**Minor Components****Cheshire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Charlton**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Wallington**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Yalesville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**WeD—Wethersfield gravelly silt loam, 15 to 25 percent slope  
s****Map Unit Setting**

*National map unit symbol:* 9v5n

*Elevation:* 0 to 640 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 80 percent



*Minor components: 20 percent*

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

## **Description of Wethersfield**

### **Setting**

*Landform: Till plains, hills*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt*

### **Typical profile**

*H1 - 0 to 13 inches: gravelly silt loam*

*H2 - 13 to 22 inches: gravelly loam*

*H3 - 22 to 60 inches: gravelly fine sandy loam*

### **Properties and qualities**

*Slope: 15 to 25 percent*

*Depth to restrictive feature: 20 to 38 inches to densic material*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water*

*(Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)*

*Depth to water table: About 18 to 30 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Low (about 3.4 inches)*

### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 4e*

*Hydrologic Soil Group: C*

*Ecological site: F145XY012CT - Well Drained Dense Till Uplands*

*Hydric soil rating: No*

## **Minor Components**

### **Riverhead**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

### **Charlton**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

### **Cheshire**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

### **Wallington**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*



**Yalesville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**YaC—Yalesville sandy loam, 8 to 15 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5v

*Elevation:* 20 to 710 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Yalesville and similar soils:* 80 percent

*Minor components:* 20 percent

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

**Description of Yalesville****Setting**

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 10 inches:* sandy loam

*H2 - 10 to 27 inches:* gravelly loam

*H3 - 27 to 30 inches:* extremely channery loam

*H4 - 30 to 34 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B



*Ecological site:* F145XY013CT - Well Drained Till Uplands  
*Hydric soil rating:* No

### Minor Components

#### Cheshire

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Holyoke

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Hollis

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Wethersfield

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## YaD—Yalesville sandy loam, 15 to 25 percent slopes

### Map Unit Setting

*National map unit symbol:* 9v5w  
*Elevation:* 0 to 640 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Yalesville and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Yalesville

#### Setting

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

#### Typical profile

*H1 - 0 to 10 inches:* sandy loam  
*H2 - 10 to 27 inches:* gravelly loam  
*H3 - 27 to 30 inches:* extremely channery loam  
*H4 - 30 to 34 inches:* unweathered bedrock



**Properties and qualities**

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low  
to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* B

*Ecological site:* F145XY013CT - Well Drained Till Uplands

*Hydric soil rating:* No

**Minor Components****Holyoke**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Cheshire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Wethersfield**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Hollis**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Data Source Information**

Soil Survey Area: Rockland County, New York

Survey Area Data: Version 19, Sep 1, 2021



## Map Unit Description

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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



Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

## Report—Map Unit Description

### Rockland County, New York

#### HcA—Hinckley loamy sand, 0 to 3 percent slopes

##### Map Unit Setting

National map unit symbol: 2svm7

Elevation: 0 to 1,420 feet



*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Hinckley and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Hinckley****Setting**

*Landform:* Outwash terraces, outwash plains, kame terraces, outwash deltas  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave, convex, linear  
*Across-slope shape:* Convex, linear, concave  
*Parent material:* Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

**Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 8 inches:* loamy sand  
*Bw1 - 8 to 11 inches:* gravelly loamy sand  
*Bw2 - 11 to 16 inches:* gravelly loamy sand  
*BC - 16 to 19 inches:* very gravelly loamy sand  
*C - 19 to 65 inches:* very gravelly sand

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144AY022MA - Dry Outwash  
*Hydric soil rating:* No

**Minor Components****Merrimac**

*Percent of map unit:* 5 percent



*Landform:* Outwash deltas, outwash terraces, kame terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

#### **Windsor**

*Percent of map unit:* 5 percent

*Landform:* Outwash deltas, kame terraces, outwash terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

#### **Sudbury**

*Percent of map unit:* 5 percent

*Landform:* Outwash deltas, outwash terraces, kame terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

### **HcB—Hinckley loamy sand, 3 to 8 percent slopes**

#### **Map Unit Setting**

*National map unit symbol:* 2svm8

*Elevation:* 0 to 1,430 feet

*Mean annual precipitation:* 36 to 53 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 140 to 250 days

*Farmland classification:* Farmland of statewide importance

#### **Map Unit Composition**

*Hinckley and similar soils:* 85 percent

*Minor components:* 15 percent

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

#### **Description of Hinckley**

##### **Setting**

*Landform:* Outwash deltas, outwash terraces, kames, kame terraces, moraines, eskers, outwash plains

*Landform position (two-dimensional):* Summit, backslope, footslope, shoulder

*Landform position (three-dimensional):* Crest, base slope, side slope, nose slope, riser, tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Parent material:* Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist



**Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material

*A - 1 to 8 inches:* loamy sand

*Bw1 - 8 to 11 inches:* gravelly loamy sand

*Bw2 - 11 to 16 inches:* gravelly loamy sand

*BC - 16 to 19 inches:* very gravelly loamy sand

*C - 19 to 65 inches:* very gravelly sand

**Properties and qualities**

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Excessively drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Very low (about 3.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* A

*Ecological site:* F144AY022MA - Dry Outwash

*Hydric soil rating:* No

**Minor Components****Windsor**

*Percent of map unit:* 8 percent

*Landform:* Outwash deltas, outwash terraces, moraines, eskers, kames, outwash plains, kame terraces

*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope

*Landform position (three-dimensional):* Nose slope, side slope, base slope, crest, tread, riser

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

**Sudbury**

*Percent of map unit:* 5 percent

*Landform:* Outwash deltas, outwash terraces, moraines, outwash plains, kame terraces

*Landform position (two-dimensional):* Backslope, footslope

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

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, linear

*Hydric soil rating:* No



**Agawam**

*Percent of map unit:* 2 percent

*Landform:* Outwash deltas, outwash terraces, moraines, eskers, kames, outwash plains, kame terraces

*Landform position (two-dimensional):* Summit, shoulder, backslope, footslope

*Landform position (three-dimensional):* Nose slope, side slope, base slope, crest, tread, riser

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

**HdB—Hinckley-Urban land complex, 0 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 2svm0

*Elevation:* 0 to 460 feet

*Mean annual precipitation:* 36 to 71 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 145 to 240 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Hinckley and similar soils:* 45 percent

*Urban land:* 40 percent

*Minor components:* 15 percent

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

**Description of Hinckley****Setting**

*Landform:* Kame terraces, kames, outwash deltas, moraines, outwash plains, outwash terraces, eskers

*Landform position (two-dimensional):* Summit, footslope, toeslope, shoulder, backslope

*Landform position (three-dimensional):* Nose slope, crest, head slope, side slope, tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Parent material:* Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

**Typical profile**

*A - 0 to 8 inches:* loamy sand

*Bw1 - 8 to 11 inches:* gravelly loamy sand

*Bw2 - 11 to 16 inches:* gravelly loamy sand

*BC - 16 to 19 inches:* very gravelly loamy sand

*C - 19 to 65 inches:* very gravelly sand

**Properties and qualities**

*Slope:* 0 to 8 percent



*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very low (about 2.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144AY022MA - Dry Outwash  
*Hydric soil rating:* No

**Description of Urban Land****Typical profile**

*M - 0 to 10 inches:* cemented material

**Properties and qualities**

*Slope:* 0 to 8 percent  
*Depth to restrictive feature:* 0 inches to manufactured layer  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)  
*Available water supply, 0 to 60 inches:* Very low (about 0.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8  
*Hydrologic Soil Group:* D  
*Hydric soil rating:* Unranked

**Minor Components****Greenbelt**

*Percent of map unit:* 5 percent  
*Landform position (two-dimensional):* Footslope, summit, backslope  
*Landform position (three-dimensional):* Interfluvium, base slope, crest, side slope  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 5 percent  
*Landform:* Moraines, outwash plains  
*Landform position (two-dimensional):* Summit, backslope, shoulder, footslope, toeslope



*Landform position (three-dimensional):* Crest, head slope, nose slope, side slope, tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Hydric soil rating:* No

**Fredon, poorly drained**

*Percent of map unit:* 5 percent

*Landform:* Outwash deltas, outwash plains, kame terraces, outwash terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* Yes

**HoC—Holyoke-Rock outcrop complex, rolling**

**Map Unit Setting**

*National map unit symbol:* 9v4p

*Elevation:* 0 to 850 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Holyoke and similar soils:* 60 percent

*Rock outcrop:* 15 percent

*Minor components:* 25 percent

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

**Description of Holyoke**

**Setting**

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till

**Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material

*H1 - 2 to 6 inches:* silt loam

*H2 - 6 to 18 inches:* silt loam

*H3 - 18 to 28 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 4 to 16 percent

*Surface area covered with cobbles, stones or boulders:* 1.6 percent

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

*Drainage class:* Well drained



*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D

*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands

*Hydric soil rating:* No

#### **Description of Rock Outcrop**

##### **Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

##### **Properties and qualities**

*Slope:* 4 to 16 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

##### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydric soil rating:* Unranked

#### **Minor Components**

##### **Chatfield**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

##### **Charlton**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

##### **Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **HoD—Holyoke-Rock outcrop complex, hilly**

##### **Map Unit Setting**

*National map unit symbol:* 9v4q

*Elevation:* 0 to 740 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland



**Map Unit Composition**

*Holyoke and similar soils: 55 percent*

*Rock outcrop: 20 percent*

*Minor components: 25 percent*

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

**Description of Holyoke****Setting**

*Landform: Ridges, hills*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Loamy till*

**Typical profile**

*Oi - 0 to 2 inches: slightly decomposed plant material*

*H1 - 2 to 6 inches: silt loam*

*H2 - 6 to 18 inches: silt loam*

*H3 - 18 to 28 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 10 to 30 percent*

*Surface area covered with cobbles, stones or boulders: 1.6 percent*

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

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Low (about 3.4 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 7s*

*Hydrologic Soil Group: D*

*Ecological site: F145XY011CT - Well Drained Shallow Till Uplands*

*Hydric soil rating: No*

**Description of Rock Outcrop****Typical profile**

*H1 - 0 to 60 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 10 to 30 percent*

*Depth to restrictive feature: 0 inches to lithic bedrock*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*



**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

**Minor Components****Charlton**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Chatfield**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**HoF—Holyoke-Rock outcrop complex, very steep****Map Unit Setting**

*National map unit symbol:* 9v4r

*Elevation:* 0 to 890 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Holyoke and similar soils:* 45 percent

*Rock outcrop:* 30 percent

*Minor components:* 25 percent

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

**Description of Holyoke****Setting**

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till

**Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material

*H1 - 2 to 6 inches:* silt loam

*H2 - 6 to 18 inches:* silt loam

*H3 - 18 to 28 inches:* unweathered bedrock



**Properties and qualities**

*Slope:* 25 to 50 percent

*Surface area covered with cobbles, stones or boulders:* 1.6 percent

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

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low  
to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands

*Hydric soil rating:* No

**Description of Rock Outcrop****Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 25 to 50 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low  
to moderately high (0.00 to 0.20 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

**Minor Components****Charlton**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Chatfield**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Us—Udorthents, smoothed****Map Unit Setting**

*National map unit symbol:* 9v5d

*Elevation:* 0 to 890 feet



*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Udorthents, smoothed, and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Udorthents, Smoothed****Typical profile**

*H1 - 0 to 20 inches:* channery loam  
*H2 - 20 to 70 inches:* very gravelly loam

**Properties and qualities**

*Slope:* 0 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat excessively drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.06 to 5.95 in/hr)  
*Depth to water table:* About 36 to 72 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* A  
*Hydric soil rating:* No

**Minor Components****Udorthents, wet substratum**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Urban land**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* Unranked

**Alden**

*Percent of map unit:* 2 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

**Wallington**

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No



**Wethersfield***Percent of map unit: 2 percent**Hydric soil rating: No***Riverhead***Percent of map unit: 2 percent**Hydric soil rating: No***Hollis***Percent of map unit: 2 percent**Hydric soil rating: No***Rock outcrop***Percent of map unit: 1 percent**Hydric soil rating: Unranked***Ux—Urban land****Map Unit Setting***National map unit symbol: 9v5g**Mean annual precipitation: 47 to 50 inches**Mean annual air temperature: 48 to 52 degrees F**Frost-free period: 135 to 215 days**Farmland classification: Not prime farmland***Map Unit Composition***Urban land: 75 percent**Minor components: 25 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Urban Land****Typical profile***H1 - 0 to 6 inches: variable***Interpretive groups***Land capability classification (irrigated): None specified**Land capability classification (nonirrigated): 8s**Hydric soil rating: Unranked***Minor Components****Riverhead***Percent of map unit: 5 percent**Hydric soil rating: No***Yalesville***Percent of map unit: 5 percent**Hydric soil rating: No***Holyoke***Percent of map unit: 5 percent**Hydric soil rating: No*



**Udorthents**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Udorthents, wet substratum**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**WeB—Wethersfield gravelly silt loam, 3 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5l

*Elevation:* 30 to 690 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 80 percent

*Minor components:* 20 percent

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

**Description of Wethersfield****Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified



*Land capability classification (nonirrigated): 2e*  
*Hydrologic Soil Group: C*  
*Ecological site: F145XY012CT - Well Drained Dense Till Uplands*  
*Hydric soil rating: No*

### **Minor Components**

#### **Cheshire**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

#### **Charlton**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

#### **Riverhead**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

#### **Wallington**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

## **WeC—Wethersfield gravelly silt loam, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol: 9v5m*  
*Elevation: 20 to 690 feet*  
*Mean annual precipitation: 47 to 50 inches*  
*Mean annual air temperature: 48 to 52 degrees F*  
*Frost-free period: 135 to 215 days*  
*Farmland classification: Farmland of statewide importance*

### **Map Unit Composition**

*Wethersfield and similar soils: 80 percent*  
*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Wethersfield**

#### **Setting**

*Landform: Till plains, hills*  
*Landform position (two-dimensional): Shoulder*  
*Landform position (three-dimensional): Crest*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt*

#### **Typical profile**

*H1 - 0 to 13 inches: gravelly silt loam*  
*H2 - 13 to 22 inches: gravelly loam*  
*H3 - 22 to 60 inches: gravelly fine sandy loam*



**Properties and qualities**

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

**Minor Components****Cheshire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Charlton**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Wallington**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Yalesville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**WeD—Wethersfield gravelly silt loam, 15 to 25 percent slope  
s****Map Unit Setting**

*National map unit symbol:* 9v5n

*Elevation:* 0 to 640 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 80 percent



*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Wethersfield**

#### **Setting**

*Landform:* Till plains, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

#### **Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam  
*H2 - 13 to 22 inches:* gravelly loam  
*H3 - 22 to 60 inches:* gravelly fine sandy loam

#### **Properties and qualities**

*Slope:* 15 to 25 percent  
*Depth to restrictive feature:* 20 to 38 inches to densic material  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* C  
*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands  
*Hydric soil rating:* No

### **Minor Components**

#### **Riverhead**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### **Charlton**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### **Cheshire**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### **Wallington**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No



**Yalesville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**WuB—Wethersfield-Urban land complex, 2 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5p

*Elevation:* 0 to 710 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 50 percent

*Urban land:* 25 percent

*Minor components:* 25 percent

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

**Description of Wethersfield****Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 2 to 8 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e



*Hydrologic Soil Group: C*

*Ecological site: F145XY012CT - Well Drained Dense Till Uplands*

*Hydric soil rating: No*

### **Description of Urban Land**

#### **Typical profile**

*H1 - 0 to 6 inches: variable*

#### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 8s*

*Hydric soil rating: Unranked*

### **Minor Components**

#### **Wallington**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Charlton**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Udorthents**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Cheshire**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Riverhead**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

### **Data Source Information**

Soil Survey Area: Rockland County, New York

Survey Area Data: Version 19, Sep 1, 2021



## Map Unit Description

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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



Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

## Report—Map Unit Description

### Rockland County, New York

#### HoC—Holyoke-Rock outcrop complex, rolling

##### Map Unit Setting

*National map unit symbol:* 9v4p

*Elevation:* 0 to 850 feet



*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Holyoke and similar soils:* 60 percent  
*Rock outcrop:* 15 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Holyoke****Setting**

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy till

**Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H1 - 2 to 6 inches:* silt loam  
*H2 - 6 to 18 inches:* silt loam  
*H3 - 18 to 28 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 4 to 16 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands  
*Hydric soil rating:* No

**Description of Rock Outcrop****Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 4 to 16 percent



*Depth to restrictive feature:* 0 inches to lithic bedrock  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydric soil rating:* Unranked

**Minor Components****Chatfield**

*Percent of map unit:* 10 percent  
*Hydric soil rating:* No

**Charlton**

*Percent of map unit:* 10 percent  
*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**HoD—Holyoke-Rock outcrop complex, hilly****Map Unit Setting**

*National map unit symbol:* 9v4q  
*Elevation:* 0 to 740 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Holyoke and similar soils:* 55 percent  
*Rock outcrop:* 20 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Holyoke****Setting**

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy till

**Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H1 - 2 to 6 inches:* silt loam  
*H2 - 6 to 18 inches:* silt loam



*H3 - 18 to 28 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 10 to 30 percent*

*Surface area covered with cobbles, stones or boulders: 1.6 percent*

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

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Low (about 3.4 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 7s*

*Hydrologic Soil Group: D*

*Ecological site: F145XY011CT - Well Drained Shallow Till Uplands*

*Hydric soil rating: No*

**Description of Rock Outcrop**

**Typical profile**

*H1 - 0 to 60 inches: unweathered bedrock*

**Properties and qualities**

*Slope: 10 to 30 percent*

*Depth to restrictive feature: 0 inches to lithic bedrock*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 7s*

*Hydric soil rating: Unranked*

**Minor Components**

**Charlton**

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

**Chatfield**

*Percent of map unit: 10 percent*

*Hydric soil rating: No*

**Watchaug**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**HoF—Holyoke-Rock outcrop complex, very steep**

**Map Unit Setting**

*National map unit symbol: 9v4r*



*Elevation:* 0 to 890 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Holyoke and similar soils:* 45 percent  
*Rock outcrop:* 30 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Holyoke****Setting**

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy till

**Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H1 - 2 to 6 inches:* silt loam  
*H2 - 6 to 18 inches:* silt loam  
*H3 - 18 to 28 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 25 to 50 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D  
*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands  
*Hydric soil rating:* No

**Description of Rock Outcrop****Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock



**Properties and qualities**

*Slope:* 25 to 50 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

**Minor Components****Charlton**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Chatfield**

*Percent of map unit:* 10 percent

*Hydric soil rating:* No

**Watchaug**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Pv—Pits, quarry****Map Unit Setting**

*National map unit symbol:* 9v51

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Pits, quarry:* 85 percent

*Minor components:* 15 percent

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

**Description of Pits, Quarry****Typical profile**

*H1 - 0 to 60 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 0 to 5 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8s



*Hydric soil rating:* Unranked

### **Minor Components**

#### **Chatfield**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Charlton**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Alden**

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### **Water**

*Percent of map unit:* 1 percent

*Hydric soil rating:* Unranked

## **Us—Udorthents, smoothed**

### **Map Unit Setting**

*National map unit symbol:* 9v5d

*Elevation:* 0 to 890 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Udorthents, smoothed, and similar soils:* 80 percent

*Minor components:* 20 percent

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

### **Description of Udorthents, Smoothed**

#### **Typical profile**

*H1 - 0 to 20 inches:* channery loam

*H2 - 20 to 70 inches:* very gravelly loam

#### **Properties and qualities**

*Slope:* 0 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to high (0.06 to 5.95 in/hr)

*Depth to water table:* About 36 to 72 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)



**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

**Minor Components****Udorthents, wet substratum**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Urban land**

*Percent of map unit:* 4 percent

*Hydric soil rating:* Unranked

**Alden**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

**Wallington**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Wethersfield**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Hollis**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 1 percent

*Hydric soil rating:* Unranked

**W—Water****Map Unit Setting**

*National map unit symbol:* 9v5s

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Water:* 100 percent

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



## **Wc—Watchaug fine sandy loam**

### **Map Unit Setting**

*National map unit symbol:* 9v5j  
*Elevation:* 50 to 750 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Watchaug and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Watchaug**

#### **Setting**

*Landform:* Till plains, hills  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

#### **Typical profile**

*Oe - 0 to 2 inches:* moderately decomposed plant material  
*H1 - 2 to 7 inches:* fine sandy loam  
*H2 - 7 to 23 inches:* gravelly fine sandy loam  
*H3 - 23 to 64 inches:* gravelly fine sandy loam

#### **Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* High (about 9.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* C  
*Ecological site:* F144AY008CT - Moist Till Uplands  
*Hydric soil rating:* No



**Minor Components****Cheshire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Wethersfield**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Alden**

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

**WeB—Wethersfield gravelly silt loam, 3 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5l

*Elevation:* 30 to 690 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 80 percent

*Minor components:* 20 percent

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

**Description of Wethersfield****Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)



*Depth to water table:* About 18 to 30 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands  
*Hydric soil rating:* No

**Minor Components****Cheshire**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Charlton**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Wallington**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**WeC—Wethersfield gravelly silt loam, 8 to 15 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5m  
*Elevation:* 20 to 690 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Wethersfield and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Wethersfield****Setting**

*Landform:* Till plains, hills  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex



*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

**Minor Components****Cheshire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Charlton**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Wallington**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Yalesville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**WeD—Wethersfield gravelly silt loam, 15 to 25 percent slope**

**s**

**Map Unit Setting**

*National map unit symbol:* 9v5n

*Elevation:* 0 to 640 feet

*Mean annual precipitation:* 47 to 50 inches



*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Wethersfield and similar soils:* 80 percent

*Minor components:* 20 percent

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

### **Description of Wethersfield**

#### **Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

#### **Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

#### **Properties and qualities**

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

### **Minor Components**

#### **Riverhead**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### **Charlton**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No



**Cheshire**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Wallington**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

**Yalesville**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

**WuB—Wethersfield-Urban land complex, 2 to 8 percent slopes****Map Unit Setting**

*National map unit symbol:* 9v5p

*Elevation:* 0 to 710 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Wethersfield and similar soils:* 50 percent

*Urban land:* 25 percent

*Minor components:* 25 percent

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

**Description of Wethersfield****Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

**Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

**Properties and qualities**

*Slope:* 2 to 8 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water*

*(Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches



*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands  
*Hydric soil rating:* No

**Description of Urban Land****Typical profile**

*H1 - 0 to 6 inches:* variable

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8s  
*Hydric soil rating:* Unranked

**Minor Components****Wallington**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Charlton**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Udorthents**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Cheshire**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Riverhead**

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Data Source Information**

Soil Survey Area: Rockland County, New York  
Survey Area Data: Version 19, Sep 1, 2021



**ATTACHMENT 4**  
**TABLES**



**Table 4-1**  
**Summary of Wetlands Within the Project Corridor<sup>1</sup>**

Approximate Station	Wetland ID	Cowardin Classification <sup>2</sup>	Associated Water Course	Area w/in JD Limits (Square Feet)	USACE & NYSDEC Jurisdiction	Coordinates (lat., long.)
72500+00	D	PEM	Unnamed Tributary to Hudson River (Stream 3/S-3)	18,670	USACE/ NYSDEC (HS-2)	N041° 14' 26.41", W073° 58' 57.36"
72643+25	C	PUB	-	0	USACE	N041° 12' 15.95", W073° 59' 1.32"
72808+75	B	PFO	-	1,074	USACE	N041° 10' 28.92", W073° 56' 38.76"
72840+25	A	PEM	-	1,552	USACE	N041° 10' 11.71", W073° 56' 21.84"

<sup>1</sup> Wetlands identified include both wetlands that are directly crossed by the overland transmission cable corridor as well as wetlands that are adjacent to the Project Corridor that were delineated during field surveys.

<sup>2</sup> Cowardin et al. 1979 categories include: Palustrine Emergent (PEM), Palustrine Forested (PFO) and Palustrine Unconsolidated Bottom (PUB).



**Table 4-2**  
**Summary of Waterbodies within the Project Corridor**

Approximate Station	Waterbody Name	NYSDEC Classification	Waterbody Field ID	Flow Status	Substrate	Width (ft.) <sup>1</sup>	Depth (ft.) <sup>1</sup>	Length w/in JD Limits (ft.)	Coordinates (lat., long.)
72503+00	Unnamed Tributary to Hudson River	SC/C	Stream 3 (S-3)	Perennial	Cobbles and Gravel	4	0.5	92	N041° 14' 25.08", W073° 58' 57.61"
72515+00	Unnamed Tributary to Hudson River	Unmapped	Stream 5.10 (S-4)	Intermittent	Cobbles and Gravel	4	0.5	46	N041° 14' 15.09", W073° 59' 05.94"
72551+00	Cedar Pond Brook	B/B	Stream 2 (S-2)	Perennial	Cobbles and Gravel	15	1	35	N041° 13' 41.76", W073° 59' 14.29"
72643+50	Minisceongo Creek	SC/C	Stream 1 (S-1)	Perennial	Cobbles	20	1-3	3	N041° 12' 15.37", W073° 59' 01.65"

<sup>1</sup> Bankfull width and bankfull depth measurements are approximate.



**Table 4-3**  
**Soil Description Summary**

County	Soil Name	Symbol	% Slopes	Hydric (y/n)	Drainage Class
<b>Hydric Soils</b>					
Rockland	Ipswich mucky peat	Ip	0-2	Y	Very Poorly Drained
Rockland	Rippowam sandy loam	Ra	0-2	Y	Poorly Drained
<b>Non-hydric Soils</b>					
Rockland	Charlton fine sandy loam	CeB	3-8	N	Well Drained
Rockland	Charlton fine sandy loam	CeC	8-15	N	Well Drained
Rockland	Charlton fine sandy loam	CeD	15-25	N	Well Drained
Rockland	Chatfield-Rock outcrop complex, rolling	CoC	4-16	N	Well Drained
Rockland	Chatfield-Rock outcrop complex, hilly	CoD	10-30	N	Well Drained
Rockland	Hinckley loamy sand	HcA	0-3	N	Excessively Drained
Rockland	Hinckley loamy sand	HcB	3-8	N	Excessively Drained
Rockland	Hinckley loamy sand	HcD	15-25	N	Excessively Drained
Rockland	Hinckley-Urban land complex	HdB	0-8	N	Excessively Drained
Rockland	Holyoke-Rock outcrop complex, rolling	HoC	4-16	N	Well Drained
Rockland	Holyoke-Rock outcrop complex, hilly	HoD	10-30	N	Well Drained
Rockland	Holyoke-Rock outcrop complex, very steep	HoF	25-50	N	Well Drained
Rockland	Pits, quarry	Pv	0-5	-	-
Rockland	Udorthents, refuse substratum	Ur	0-8	N	Well Drained
Rockland	Udorthents, smoothed	Us	0-8	N	Somewhat Excessively Drained
Rockland	Urban land	Ux	-	-	-



**Table 4-3**  
**Soil Description Summary**

<b>County</b>	<b>Soil Name</b>	<b>Symbol</b>	<b>% Slopes</b>	<b>Hydric (y/n)</b>	<b>Drainage Class</b>
Rockland	Watchaug fine sandy loam	Wc	0-3	N	Moderately Well Drained
Rockland	Wethersfield gravelly silt loam	WeB	3-8	N	Well Drained
Rockland	Wethersfield gravelly silt loam	WeC	8-15	N	Well Drained
Rockland	Wethersfield gravelly silt loam	WeD	15-25	N	Well Drained
Rockland	Wethersfield-Urban land complex	WuB	2-8	N	Well Drained
Rockland	Yalesville sandy loam	YaC	8-15	N	Well Drained
Rockland	Yalesville sandy loam	YaD	15-25	N	Well Drained



**ATTACHMENT 5**  
**WETLANDS AND WATERBODIES DELINEATION MAPPING**

(Congers Transitional HDD Project Area Plans Only)



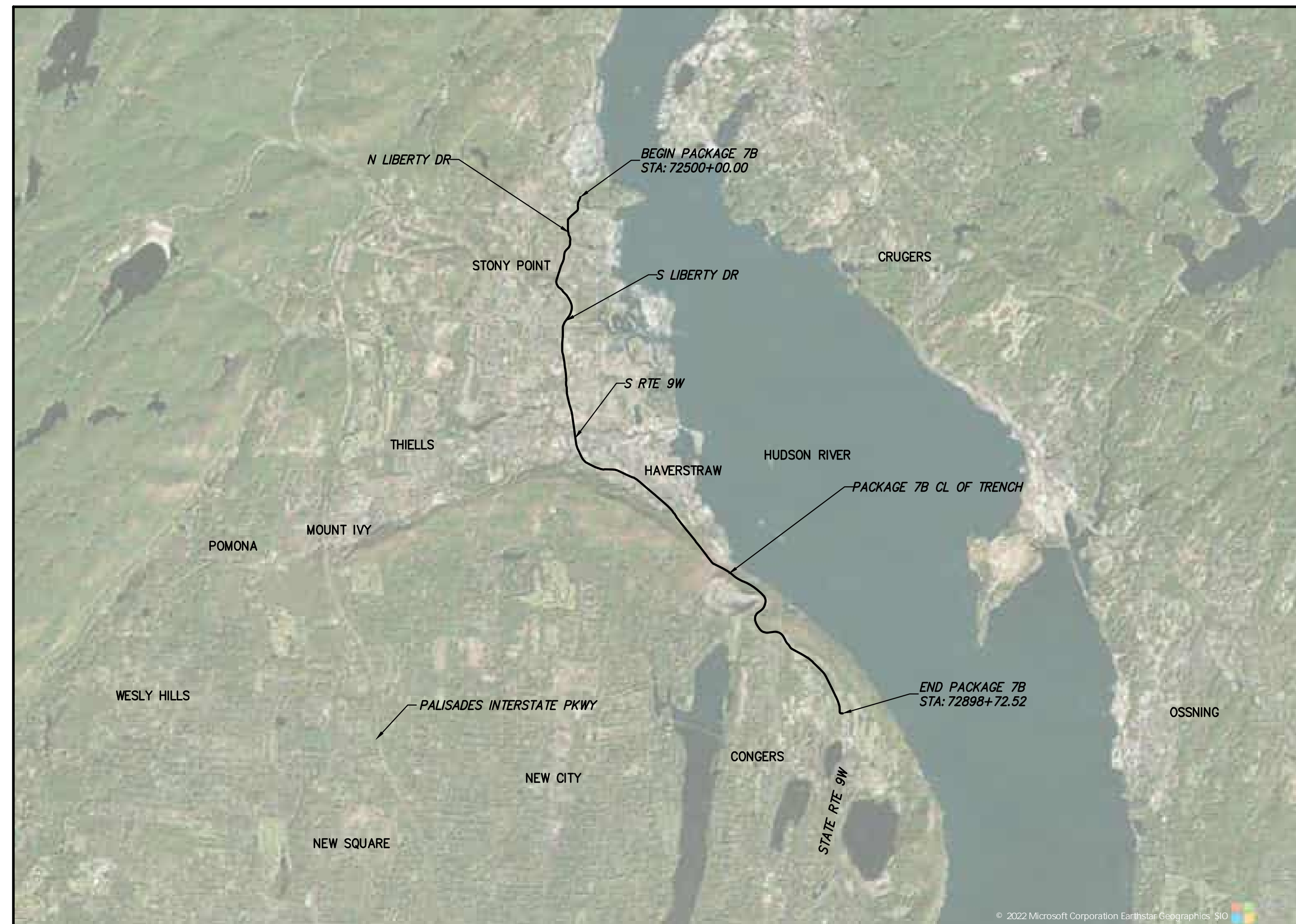
# CHAMPLAIN HUDSON POWER EXPRESS

## SEGMENT 12 - PACKAGE 7B - ROUTE 9W: ROCKLAND

### ROCKLAND COUNTY, NEW YORK

## INTERIM DESIGN DEVELOPMENT PLANS

MAY 20, 2022



SITE LOCATION MAP  
SCALE: 1" = 5000'



#### NOTES TO REVIEWERS

- Supplemental topographic information for numerous areas including Temp Site Access Roads is in the process of being obtained. Utility, Right-of-Way, Geotech and Wetland information from the beginning of Package 7A to Sta. 72500+00 is not currently available and is in the process of being obtained.
- The design of the Horizontal Directional Drill (HDD) alignments and locations is in progress and should be considered preliminary.
- Permanent and Temporary Easements are preliminary (in some cases approximate) and are shown to indicate potential and likely areas where easements may be required.



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CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
COVER SHEET

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	G-000
DATE	05/19/2022
SH.NO.	1 OF 100

DRAWN BY:	AH	DESIGNED BY:	AC	APPROVED BY:	EK	SCALE	AS SHOWN	DATE	05/19/2022
						REV. NO.	D	SH.NO.	1 OF 100



SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
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G-001	SHEET INDEX
G-002	GENERAL NOTES
G-003	LEGEND, & ABBREVIATIONS
G-004	PLAN AND PROFILE KEY MAP
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C-103	STA. 72530+00.00 TO STA. 72545+00.00 PLAN AND PROFILE
C-104	STA. 72545+00.00 TO STA. 72560+00.00 PLAN AND PROFILE
C-105	STA. 72560+00.00 TO STA. 72575+00.00 PLAN AND PROFILE
C-106	STA. 72575+00.00 TO STA. 72590+00.00 PLAN AND PROFILE
C-107	STA. 72590+00.00 TO STA. 72605+00.00 PLAN AND PROFILE
C-108	STA. 72605+00.00 TO STA. 72620+00.00 PLAN AND PROFILE
C-109	STA. 72620+00.00 TO STA. 72635+00.00 PLAN AND PROFILE
C-110	STA. 72635+00.00 TO STA. 72650+00.00 PLAN AND PROFILE
C-111	STA. 72650+00.00 TO STA. 72665+00.00 PLAN AND PROFILE
C-112	STA. 72665+00.00 TO STA. 72680+00.00 PLAN AND PROFILE
C-113	STA. 72680+00.00 TO STA. 72695+00.00 PLAN AND PROFILE
C-114	STA. 72695+00.00 TO STA. 72710+00.00 PLAN AND PROFILE
C-115	STA. 72710+00.00 TO STA. 72725+00.00 PLAN AND PROFILE
C-116	STA. 72725+00.00 TO STA. 72740+00.00 PLAN AND PROFILE
C-117	STA. 72740+00.00 TO STA. 72755+00.00 PLAN AND PROFILE
C-118	STA. 72755+00.00 TO STA. 72770+00.00 PLAN AND PROFILE
C-119	STA. 72770+00.00 TO STA. 72785+00.00 PLAN AND PROFILE
C-120	STA. 72785+00.00 TO STA. 72800+00.00 PLAN AND PROFILE
C-121	STA. 72800+00.00 TO STA. 72815+00.00 PLAN AND PROFILE
C-122	STA. 72815+00.00 TO STA. 72830+00.00 PLAN AND PROFILE
C-123	STA. 72830+00.00 TO STA. 72845+00.00 PLAN AND PROFILE
C-124	STA. 72845+00.00 TO STA. 72860+00.00 PLAN AND PROFILE
C-125	STA. 72860+00.00 TO STA. 72875+00.00 PLAN AND PROFILE
C-126	STA. 72875+00.00 TO STA. 72890+00.00 PLAN AND PROFILE
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O-5XXA	WORK ZONE TRAFFIC CONTROL DETIALS
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O-5XXC	WORK ZONE TRAFFIC CONTROL DETIALS

O-5XXA	WORK ZONE TRAFFIC CONTROL DETIALS
O-5XXB	WORK ZONE TRAFFIC CONTROL DETIALS
O-5XXC	WORK ZONE TRAFFIC CONTROL DETIALS
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C-400	KEY PLAN E&SC
C-401	STA. 72500+00.00 TO STA. 72530+00.00
C-402	STA. 72530+00.00 TO STA. 72560+00.00
C-403	STA. 72560+00.00 TO STA. 72590+00.00
C-404	STA. 72590+00.00 TO STA. 72620+00.00
C-405	STA. 72620+00.00 TO STA. 72650+00.00
C-406	STA. 72650+00.00 TO STA. 72680+00.00
C-407	STA. 72680+00.00 TO STA. 72710+00.00
C-408	STA. 72710+00.00 TO STA. 72740+00.00
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C-411	STA. 72800+00.00 TO STA. 72830+00.00
C-412	STA. 72830+00.00 TO STA. 72860+00.00
C-413	STA. 72860+00.00 TO STA. 72890+00.00
C-414	STA. 72890+00.00 TO STA. 72898+73.00
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S-701	SPLICE VAULT SECTION & DETAILS
S-710	LINK BOX HANDHOLE PLAN ELEVATION & SECTION
S-720	SELF SUPPORTING STRUCTURE OVER UTILITIES
S-730	TRANSITION VAULT PLAN & ELEVATION
S-731	TRANSITION VAULT SECTION & DETAILS
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C-202	TOMKINS COVE LAYDOWN YARD

A

B

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CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
SHEET INDEX

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	G-001
DATE	05/19/2022
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GENERAL NOTES:

- THE PLANS SHOW SUBSURFACE STRUCTURES, ABOVE GROUND STRUCTURES AND/OR UTILITIES FROM FIELD LOCATION AND RECORD MAPPING, EXACT LOCATION OF WHICH MAY VARY FROM THE LOCATIONS INDICATED. IN PARTICULAR, THE CONTRACTOR IS WARNED THAT THE EXACT OR EVEN APPROXIMATE LOCATION OF SUCH PIPELINES, SUBSURFACE STRUCTURES AND/OR UTILITIES IN THE AREA MAY BE DIFFERENT FROM THAT SHOWN OR MAY NOT BE SHOWN, AND IT SHALL BE HIS RESPONSIBILITY TO PROCEED WITH GREAT CARE IN EXECUTING ANY WORK. 48 HOURS BEFORE YOU DIG, DRILL, OR BLAST, CALL U.F.P.O. 1--(800)--962--7962 TOLL FREE.
- THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY CONDITIONS THAT VARY FROM THOSE SHOWN ON THE PLANS. THE CONTRACTOR'S WORK SHALL NOT VARY FROM THE PLANS WITHOUT THE EXPRESSED APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND INCURRING THE COST OF ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES, ETC. AND SHALL COMPLY WITH ALL REQUIRED PERMITS.
- ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES, STANDARDS, ORDINANCES, RULES, AND REGULATIONS.
- ALL PROPOSED UTILITIES AND APPURTENANCES TO BE CONSTRUCTED IN COMPLIANCE WITH THE LOCAL MUNICIPALITIES' CODES AND REGULATIONS GOVERNING THE INSTALLATION OF SUCH UTILITIES.
- THE ENGINEER RESERVES THE RIGHT TO EXAMINE ANY WORK DONE ON THIS PROJECT AT ANY TIME TO DETERMINE THE CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OF THIS PROJECT.
- THE CONTRACTOR SHALL PROTECT EXISTING PROPERTY LINE MONUMENTATION. ANY MONUMENTATION DISTURBED OR DESTROYED, AS JUDGED BY THE ENGINEER OR OWNER, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE UNDER THE SUPERVISION OF A NEW YORK STATE LICENSED LAND SURVEYOR.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLAN SHEETS AND COORDINATE WORK WITH ALL OTHER CONTRACTS FOR THE SITE.
- THE CONTRACTOR SHALL:
  - VERIFY ALL CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
  - EXAMINE THE SITE AND INCLUDE IN HIS WORK THE EFFECT OF ALL EXISTING CONDITIONS ON THE WORK.
  - PROVIDE AND INSTALL ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH RECOGNIZED GOOD STANDARD PRACTICE.
- ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISIONS OF NEW YORK STATE INDUSTRIAL CODE RULE 23 AND OSHA REGULATIONS FOR CONSTRUCTION. SHEET PILING SHALL BE DESIGNED AND SEALED BY A NEW YORK STATE PROFESSIONAL ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF WORK AND SHALL SUBMIT A DEWATERING PLAN DESIGNED AND SEALED BY A NEW YORK STATE PROFESSIONAL ENGINEER. CONTRACTOR SHALL MAINTAIN EXISTING SITE DRAINAGE PATTERNS THROUGHOUT CONSTRUCTION UNLESS OTHERWISE SHOWN ON THE PLANS.
- MAINTAIN FLOW FOR ALL EXISTING UTILITIES.
- ALL FRAMES/COVERS WITHIN PAVED AREAS SHALL HAVE THE TOPS SET FLUSH WITH THE EXISTING PAVEMENT GRADE. IN LANDSCAPED AREAS, ALL FRAMES SHALL BE 0.1' ABOVE GRADE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT. THE CONTRACTOR SHALL TAKE TIES TO ALL UTILITY CONNECTIONS AND PROVIDE MARKED-UP AS-BUILT PLANS FOR ALL UTILITIES SHOWING TIES TO CONNECTIONS, BENDS, VALVES, LENGTHS OF LINES, AND INVERTS. AS-BUILT PLANS SHOWING ALL UNDERGROUND UTILITIES INSTALLED OR ENCOUNTERED SHALL BE REVIEWED BY THE OWNER AND HIS REPRESENTATIVES. THE CONTRACTOR SHALL PROVIDE ANY CORRECTION OR ADMISSIONS TO THE SATISFACTION OF THE OWNER AND HIS REPRESENTATIVES BEFORE UTILITIES WILL BE ACCEPTED.
- TEMPORARY PAVEMENT SHALL BE PLACED WITHIN 48 HOURS OF COMPLETION OF BACKFILL OPERATIONS WITHIN THE EXISTING PAVEMENT LIMITS.
- CONTRACTOR SHALL MAINTAIN ALL TRAFFIC IN ALL AREAS IN ACCORDANCE WITH THE NYSDOT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- ALL EXCAVATIONS SHALL BE PROTECTED AT THE END OF EACH WORK DAY.
- CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO EXISTING UTILITIES. DAMAGED UTILITIES SHALL BE IMMEDIATELY REPAIRED BY CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- THE MINIMUM BENDING RADIUS OF CONDUITS WITHIN THE DUCT BANK SHALL BE 400 FEET, EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS. ALL BENDS OF RADII LESS THAN 100 FEET SHALL BE FACTORY FORMED AND MANDREL TESTED PRIOR TO CONCRETE ENCASEMENT. CONDUIT SHALL NOT BE FIELD BENT BY HEATING, WITHOUT ENGINEER APPROVAL. FIELD BENT CONDUIT SHALL BE MANDREL TESTED PRIOR TO INSTALLATION AND PRIOR TO ENCASEMENT.

NYSDOT NOTES

- MAINTAIN EXISTING GUIDE RAIL, MEDIAN BARRIER, AND BRIDGE RAIL. WHEN CONSTRUCTION OPERATIONS REQUIRE THE TEMPORARY REMOVAL OF EXISTING BRIDGE RAIL, GUIDE RAIL OR MEDIAL BARRIER; OR WHEN EXISTING RAIL WILL BE REMOVED AND REPLACED WITH NEW RAIL, THE CONTRACTOR SHALL SCHEDULE OPERATIONS TO MINIMIZE THE TIME PERIOD THAT RAIL IS NOT INSTALLED.
- UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, GUIDE RAIL OR MEDIAN BARRIER SHALL BE REPLACED OR THE LOCATION OTHERWISE PROTECTED WITHIN 14 CALENDAR DAYS. BRIDGE RAIL SYSTEMS SHALL BE MAINTAINED IN SERVICE AT ALL TIMES ON ANY STRUCTURE ON WHICH VEHICLE OR PEDESTRIAN TRAFFIC IS MAINTAINED, UNLESS A TEMPORARY BARRIER IS INSTALLED, OR OTHER MEANS ARE USED TO ENSURE THAT VEHICLES, BICYCLISTS AND PEDESTRIANS ARE NOT EXPOSED TO THE UNPROTECTED EDGE OF A BRIDGE.
- DURING NON-WORK HOURS WHEN TRAFFIC IS BEING MAINTAINED ON THE FACILITY, ALL TEMPORARY ENDS (FREE ENDS) OF GUIDE RAIL, MEDIAN BARRIER AND BRIDGE RAIL SHALL BE TEMPORARILY TERMINATED AND MARKED WITH A CHANNELIZING DRUM OR OBJECT MARKER EQUIPPED WITH A TYPE OF FLASHING WARNING LIGHT. CORRUGATED BEAM GUIDE RAIL AND MEDIAN BARRIER, AND HEAVY-POST, BLOCKED-OUT, CORRUGATED BEAM GUIDE RAIL AND MEDIAN BARRIER SHALL BE TEMPORARILY TERMINATED BY HAVING THE EXPOSED ENDS (FREE ENDS) DROPPED TO THE GROUND AND PINNED.
- THE APPROACH ENDS OF BOX BEAM GUIDE RAIL, MEDIAN BARRIER AND BRIDGE RAIL SHALL BE TEMPORARILY TERMINATED WITH BOX BEAM GUIDE RAIL END ASSEMBLIES UTILIZING TWO SPLICE PLATES AND THE PROPER NUMBER OF BOLTS PER CONNECTION. NO POSTS FOR ANCHORAGES WILL BE REQUIRED. SPECIAL TEMPORARY SPLICE PLATES ARE REQUIRED TO ADAPT BOX BEAM GUIDE RAIL END ASSEMBLIES TO BOX BEAM MEDIAN BARRIERS.
- DURING ANY OVERNIGHT PERIOD WHEN EXISTING GUIDE RAIL OR MEDIAN BARRIER IS TEMPORARILY REMOVED, THE CONTRACTOR SHALL INSTALL CHANNELIZING DEVICES IN THE LOCATION WHERE THE GUIDE RAIL OR MEDIAN BARRIER WAS REMOVED IN ACCORDANCE WITH 619-3.02J.6. REMOVED EXISTING GUIDE RAIL OR MEDIAN BARRIER.
- GUIDERAIL REPLACEMENT TYPE TO BE COORDINATE WITH NYSDOT.
- THE PLANS DEPICT AREAS OF EXPANDED LIMIT OF WORK AT EXISTING CULVERTS THAT WILL BE EVALUATED WITH NYSDOT AND THE CERTIFICATE HOLDERS FOR POTENTIAL REPLACEMENT OR REPAIR. IF ANY REPAIRS OR REPLACEMENTS ARE DETERMINED, THE WORK WILL BE DONE IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.
- ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISIONS OF NEW YORK STATE INDUSTRIAL CODE RULE 23 AND OSHA REGULATIONS FOR CONSTRUCTION. SHEET PILING SHALL BE DESIGNED AND SEALED BY A NEW YORK STATE PROFESSIONAL ENGINEER. WHERE WITHIN RAIL ROAD ROW, ANY EXCAVATION AND SHORING SHALL BE DESIGNED TO MINIMUM CP AND AREAMA REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING AND THE MAINTENANCE OF SURFACE DRAINAGE DURING THE COURSE OF WORK AND SHALL SUBMIT A DEWATERING PLAN. CONTRACTOR SHALL MAINTAIN EXISTING SITE DRAINAGE PATTERNS THROUGHOUT CONSTRUCTION UNLESS OTHERWISE SHOWN ON THE PLANS.
- MAINTAIN FLOW FOR ALL EXISTING UTILITIES.
- ALL FRAMES/COVERS WITHIN PAVED AREAS SHALL HAVE THE TOPS SET FLUSH WITH THE EXISTING PAVEMENT GRADE. IN LANDSCAPED AREAS, ALL FRAMES SHALL BE 0.1' ABOVE GRADE.
- TEMPORARY PAVEMENT SHALL BE PLACED WITHIN 48 HOURS OF COMPLETION OF BACKFILL OPERATIONS WITHIN THE EXISTING PAVEMENT LIMITS.
- CONTRACTOR SHALL MAINTAIN ALL TRAFFIC IN ALL AREAS IN ACCORDANCE WITH THE NYSDOT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- ALL EXCAVATIONS SHALL BE PROTECTED AT THE END OF EACH WORK DAY PER OSHA AND NYSDOT REQUIREMENTS.
- WITHIN NYSDOT ROW ALL OPEN EXCAVATIONS TO BE PROTECTED BY CONCRETE BARRIERS OR BE COVERED BY A STEEL PLATE, 3/4" THICK MINIMUM. A SINGLE PLATE SHOULD COVER THE ENTIRE EXCAVATION AND HAVE ENOUGH BEARING ON SURROUNDING SURFACES TO SUPPORT A VEHICLE.
- CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO EXISTING UTILITIES. UTILITIES DAMAGED BY CONTRACTOR SHALL BE IMMEDIATELY REPAIRED BY CONTRACTOR AT THE CONTRACTOR'S EXPENSE. IF DURING EXCAVATION PREVIOUSLY DAMAGED UTILITIES ARE UNCOVERED, CONTRACTOR SHALL DOCUMENT THE DAMAGE AND REPORT DAMAGE TO THE APPROPRIATE OWNER.
- DEPTH OF BURY FOR EXISTING CABLED UTILITIES FIBER/ELECTRICAL/TELECOM AND WATERLINES UNKNOWN. ASSUMED DEPTH OF BURY FOR CABLED UTILITIES IS 30" UNLESS OTHERWISE SHOWN. ASSUMED DEPTH OF BURY FOR WATERLINES IS 5' UNLESS OTHERWISE SHOWN.
- CONTRACTOR TO COORDINATE ALL DRIVEWAY CROSSINGS WITH THE PROPERTY OWNERS PRIOR TO EXCAVATING. ACCESS TO ALL DRIVEWAYS FOR THE RESIDENTS AND COMMERCIAL PROSPERITIES, WILL NEED TO BE MAINTAINED DURING THE PROJECT. ALL EXCAVATIONS IN THE ENTRANCES/DRIVEWAYS WILL NEED TO BE BACKFILLED AT THE END OF EACH WORKDAY, OR STEEL PLATES SHALL BE INSTALLED TO ALLOW ACCESS DURING CONSTRUCTION. REFER TO THE EM&CP FOR EMERGENCY ACCESS MANAGEMENT PLAN.



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CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
GENERAL NOTES

DRAWN BY:	AH	DESIGNED BY:	AC	APPROVED BY:	EK	SCALE	AS SHOWN	DATE	05/19/2022
						REV. NO.	D	SH.NO.	3 OF 100

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	G-002



LEGEND

	CL OF TRENCH/CONDUITS
	PROPOSED TEMP ACCESS RD OR OFF-SITE ACCESS RD
	PROPOSED TEMP OFF-SITE ACCESS ROUTE (EXISTING ROAD OR PAVEMENT)
	PROPOSED LAYDOWN YARDS, PARKING, STORAGE, AND MUSTER AREAS
	PROPOSED WORK AREAS
	LIMITS OF WORK
	PERMANENT EASEMENT
	TEMPORARY EASEMENT
	RAILROAD TRACK
	7' FOUL ZONE: NO VEHICLES, MATERIALS, DISTURBANCE, PERSONNEL, OR WORK SHALL ENCROACH THE ZONE WITHIN 7 FEET OF THE NEAREST RAIL WITHOUT CSX COORDINATION AND APPROVAL
	WETLAND BOUNDARY
	RIGHT OF WAY
	FIBER OPTIC LINE
	GAS LINE
	UNDERGROUND STORM
	UNDERGROUND ELECTRIC
	OVERHEAD ELECTRIC

WETLAND COMMUNITY TYPES LEGEND

	PEM — PALUSTRINE EMERGENT
	PSS — PALUSTRINE SCRUB-SHRUB
	PFO — PALUSTRINE FORESTED
	PUB — PALUSTRINE UNCONSOLIDATED BOTTOM
	L1 — LACUSTRINE LIMNETIC
	L2 — LACUSTRINE LITTORAL
	NYSDEC FWW 100-FOOT ADJACENT AREA
	GIS — WETLAND
	JD BOUNDARY

	HYDRANT
	WATER VALVE
	WATER MARKER
	CATCH BASIN
	MANHOLE STORM
	MANHOLE SANITARY
	ELECTRIC MARKER
	UTILITY POLE
	FIBER BOX
	FIBER OPTIC
	TELEPHONE PEDESTAL
	CAPPED IRON ROD
	IRON PIPE
	CONCRETE BOUND
	POST
	POST
	GAS
	VENT GAS
	BORE HOLE

ABBREVIATIONS

APP	APPROVED
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
DB	DESIGNED BY
DEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DEG	DEGREES
DR	DRIVE
DZ	DEVIATION ZONE
E	EASTING
ELECTRIC	ELECTRIC CABLE
ELEV	ELEVATION
FIBER	FIBER OPTIC CABLE
FT	FEET
GAS	GAS PIPE
H	HORIZONTAL
HDD	HORIZONTAL DIRECTIONAL DRILLING
HVDC	HIGH-VOLTAGE DIRECT CURRENT TRANSMISSION LINE
INV	INVERT ELEVATION
LOD	LIMITS OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
N	NORTHING
NO	NUMBER
NY	NEW YORK
P#	PACKAGE #
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REV	REVISION
ROW	RIGHT-OF-WAY
RTE	ROUTE
SEWER	SANITARY SEWER PIPE
SH	SHEET
ST	STREET
STA	STATION
STORM	STORM DRAIN PIPE
TELECOM	TELECOMMUNICATIONS CABLE
TEMP	TEMPORARY
TYP	TYPICAL
V	VERTICAL
WATER	WATERLINE

WILLIAMS AERIAL & MAPPING, INC.  
MAPPING FEATURES LEGEND

<p><b>TRANSPORTATION</b></p> <p>BRIDGE DECK</p> <p>PAVED DRIVEWAY</p> <p>UNPAVED DRIVEWAY</p> <p>PAVED PARKING</p> <p>UNPAVED PARKING</p> <p>ABANDONED ROAD</p> <p>CURBED ROAD</p> <p>PAVED ROAD</p> <p>UNPAVED ROAD</p> <p>RAILROAD</p> <p>INACTIVE RAILROAD</p> <p>RAILROAD SWITCH/BOX/SIGNAL/POLE</p> <p>PAVED SHOULDER</p> <p>UNPAVED SHOULDER</p> <p>SIDEWALK</p> <p>TRAIL</p>	<p><b>STRUCTURES</b></p> <p>BUILDING</p> <p>RUIN</p> <p>TANK</p> <p>CONCRETE</p> <p>CONCRETE SPILLWAY</p> <p>DECK</p> <p>DOCK</p> <p>FENCE</p> <p>FENCE, OBSCURED/INDEFINITE</p> <p>RAILING</p> <p>GIRDER BRIDGE FRAME</p> <p>GIRDER BRIDGE PILING</p> <p>GUARDRAIL</p> <p>MAILBOX</p> <p>MISCELLANEOUS OVERHEAD</p> <p>MISCELLANEOUS</p> <p>PATIO</p> <p>PEDESTAL</p> <p>PLANTER</p> <p>PLATFORM</p> <p>POOL</p> <p>POST</p> <p>SATELLITE DISH</p> <p>SIGN</p> <p>STEPS</p> <p>STONEWALL</p> <p>WALL</p> <p>RETAINING WALL</p>	<p><b>TOPOGRAPHY</b></p> <p>CONTOUR, INDEX</p> <p>CONTOUR, DEPRESSION INDEX</p> <p>CONTOUR, INTERMEDIATE</p> <p>CONTOUR, DEPRESSION INTERMEDIATE</p> <p>SPOT ELEVATION</p> <p><b>CULTURAL</b></p> <p>DEBRIS</p> <p>FIELD LINE</p> <p>LANDSCAPE AREA</p> <p>PILE</p> <p>STORAGE AREA</p> <p><b>HYDROGRAPHIC</b></p> <p>HYDROGRAPHIC</p> <p>CULVERT</p> <p>CULVERT, OBSCURED</p> <p>INUNDATED AREA</p> <p>RIP-RAP</p> <p>STREAM</p> <p>SWAMP</p> <p>WATER LEVEL</p> <p><b>NATURAL</b></p> <p>BOULDER</p> <p>SCRUB</p> <p>TREE LINE</p> <p>SINGLE TREE/BUSH</p> <p><b>PROJECT</b></p> <p>MAPPING BOUNDARY</p> <p>GROUND CONTROL</p>
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D	05/19/2022	ISSUED FOR INTERIM REVIEW	AH	EK	
C	03/22/2022	PRELIMINARY DESIGN DEVELOPMENT	BV	TK	
B	03/07/2022	PRELIMINARY DESIGN DEVELOPMENT IDR-CR	BV	TK	
A	02/18/2022	PRELIMINARY PROGRESS	BV	TK	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
LEGEND & ABBREVIATIONS

DRAWN BY:	AH	DESIGNED BY:	AC	APPROVED BY:	EK	SCALE	AS SHOWN	DATE	05/19/2022
						REV. NO.		SH. NO.	4 OF 100

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	G-003



File: C:\P\WORKING\RE\1\DM55141\21162\_7B\_G-004.DWG Saved: 5/19/2022 9:53:54 PM Plotted: 5/19/2022 9:54:49 PM Current User: Woger, Mike LastSavedBy: Mike Woger

1

2

3

4

STRUCTURE TABLE				
STRUCTURE NAME	STATION	NORTHING	EASTING	FINISHED GRADE
LINK VAULT 244	72500+24.0	877436.5	634424.1	11.606’
LINK VAULT 247	72591+01.4	869241.4	633381.7	121.736’
LINK VAULT 249	72677+01.7	861516.9	635730.3	133.634’
LINK VAULT 251	72785+16.1	854988.7	643905.7	199.636’
LINK VAULT 252	72898+38.0	847220.0	649769.8	214.774’
TRANSITION VAULT 3	72500+00.0	877458.0	634435.5	12.584’
SPLICE VAULT 245	72538+52.8	873987.0	633471.6	122.367’
SPLICE VAULT 246	72590+77.4	869265.2	633386.4	122.893’
SPLICE VAULT 247	72631+45.1	865234.5	633799.2	104.489’
SPLICE VAULT 248	72676+77.7	861524.8	635707.3	132.380’
SPLICE VAULT 249	72729+47.7	858831.8	640026.8	155.311’
SPLICE VAULT 250	72784+92.1	855002.1	643885.3	198.627’
SPLICE VAULT 251	72842+01.8	851458.9	646478.9	257.329’
TRANSITION VAULT 4	72898+62.0	847216.0	649793.8	215.527’



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B	03/07/2022	PRELIMINARY DESIGN DEVELOPMENT IDR-CR	BV	TK
A	02/18/2022	PRELIMINARY PROGRESS	BV	TK
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP

CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
SPLICE LOCATION TABLE & SURVEY NOTES

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	G-004
DATE	05/19/2022
SH.NO.	5 OF 100

DRAWN BY:	AH	DESIGNED BY:	AC	APPROVED BY:	EK	SCALE	AS SHOWN
						REV. NO.	D





PLAN AND PROFILE KEY MAP  
SCALE: 1" = 2000'



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D	05/19/2022	ISSUED FOR INTERIM REVIEW	AH	EK	
C	03/22/2022	PRELIMINARY DESIGN DEVELOPMENT	BV	TK	
B	03/07/2022	PRELIMINARY DESIGN DEVELOPMENT IDR-CR	BV	TK	
A	02/18/2022	PRELIMINARY PROGRESS	BV	TK	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
PLAN AND PROFILE KEY MAP

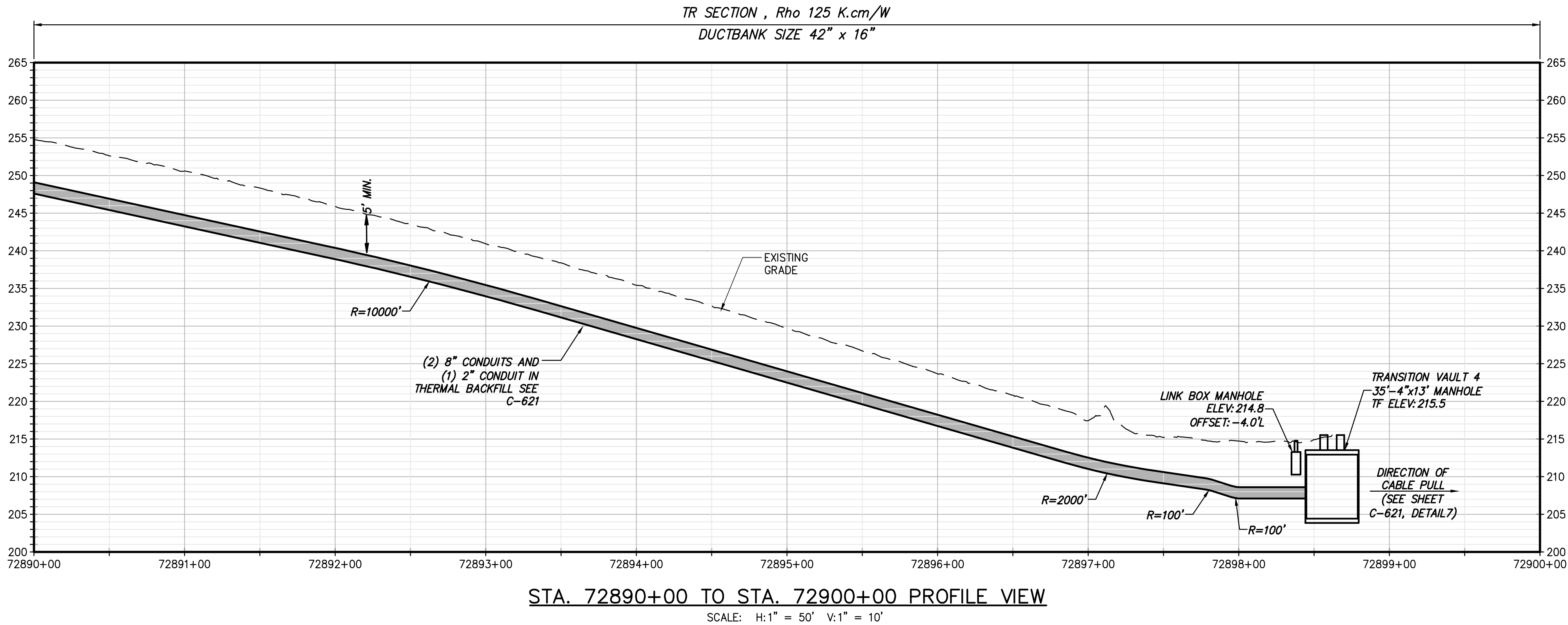
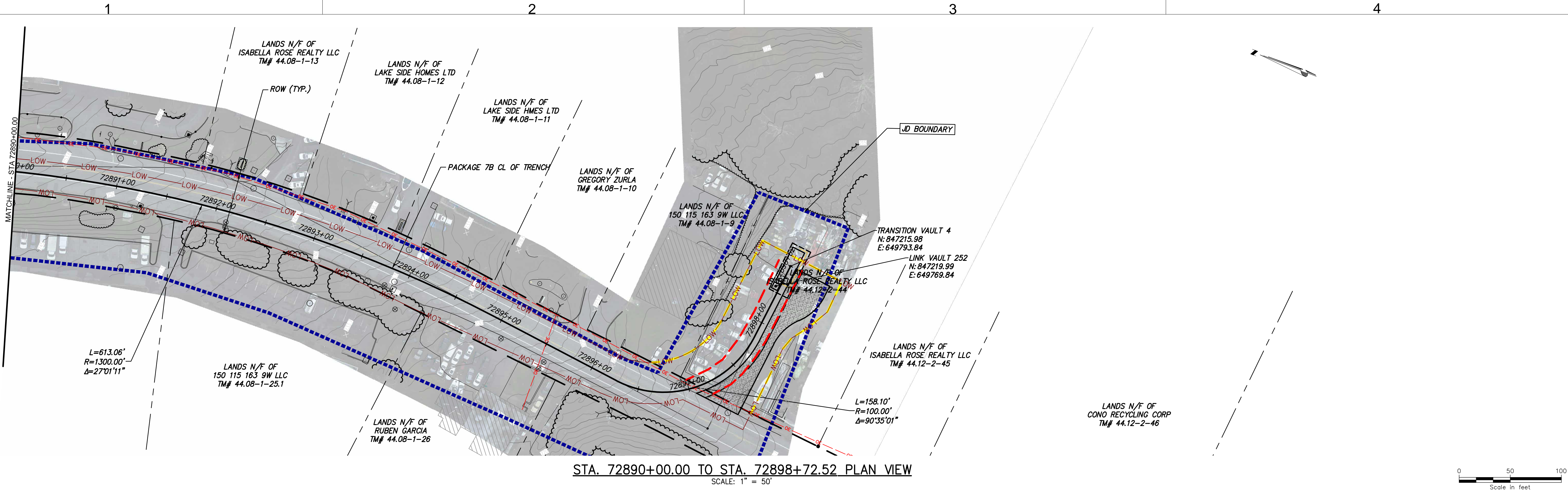
DRAWN BY:	AH	DESIGNED BY:	AC	APPROVED BY:	EK	SCALE	AS SHOWN	DATE	05/19/2022
						REV. NO.	D	SH. NO.	6 OF 100

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	G-005

A

B





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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
D	05/19/2022	ISSUED FOR INTERIM REVIEW	AH	EK
C	03/22/2022	PRELIMINARY DESIGN DEVELOPMENT	BV	TK
B	03/07/2022	PRELIMINARY DESIGN DEVELOPMENT IDR-CR	BV	TK
A	02/18/2022	PRELIMINARY PROGRESS	BV	TK

CHAMPLAIN HUDSON POWER EXPRESS  
SEGMENT 12 (PACKAGE 7B) - ROUTE 9W:  
ROCKLAND  
STA. 72890+00.00 TO STA. 72898+72.52

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	C-127
DATE	05/19/2022
SH.NO.	33 OF 100

DRAWN BY:	AH	DESIGNED BY:	AC	APPROVED BY:	EK	SCALE	AS SHOWN	DATE	05/19/2022
						REV. NO.	D	SH.NO.	33 OF 100



**ATTACHMENT 6**  
**WATERBODY PHOTOGRAPHS**

(No Waterbodies Identified at Congers Transitional HDD Project Area)



DRAFT





**Laura Darling**

---

**From:** Laura Darling  
**Sent:** Wednesday, October 19, 2022 10:07 PM  
**To:** Smith, Matthew (DPS); Maraglio, Matthew (DOS); sita.crounse; Behnke, Heather (DPS); Rahm, Patrick J (DEC); Gaidasz, Karen M (DEC); Drexler, David (DPS); Craig.Michaels@apa.ny.gov  
**Cc:** Josh.Bagnato; dave.albers  
**Subject:** Case 10-T-0139, 3 Transitional HDDs Wetland Delineation Report and Waterbody Inventory

DPS, DEC and DOS Staffs,

Pursuant to Certificate Conditions 113(a) and 114(a), below is a link to the Wetland Delineation Reports for the three Remaining Transitional HDDs of the Champlain Hudson Power Express (CHPE) transmission line (Putnam Station, Cementon and Congers), including shapefiles. These conditions require that, at least 30 days prior to filing of a proposed segment Environmental Management and Construction Plan (EM&CP), the Certificate Holder must share these documents with DPS, DEC and DOS. One of these transitional HDDs (Putnam Station) is located in the Adirondack Park, therefore the APA is also included in this distribution.

The geographic scope of the three Transitional HDD Segment EM&CP involves transitional HDDs connecting land segments with segments in Lake Champlain and the Hudson River at three locations in the Town of Putnam, Washington County (Putnam Station), Town of Catskill, Greene County (Cementon) and Town of Clarkstown, Rockland County (Congers). We anticipate filing the EM&CP for this segment on **December 1, 2022**.

The report and related shapefiles can be accessed here:

 [CHPE Transitional HDDs \(Congers, Cementon, Putnam Station\) Wetland and Waterbody Reports](#)

Please feel free to reach out with any questions, or if you have difficulty accessing the documents.

Sincerely,

Laura Bomyea Darling  
Associate Attorney

**Young / Sommer LLC**

ATTORNEYS AT LAW

office: 518.438.9907 Ext. 249

fax: 518.438.9914

[ldarling@youngsommer.com](mailto:ldarling@youngsommer.com)

Executive Woods, Five Palisades Drive, Albany, NY 12205

[www.youngsommer.com](http://www.youngsommer.com)

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# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Rockland County, New York



## Local offices

Long Island Ecological Services Field Office

☎ (631) 286-0485

📠 (631) 286-4003



340 Smith Road  
Shirley, NY 11967-2258

New York Ecological Services Field Office

☎ (607) 753-9334

📅 (607) 753-9699

✉ [fw5es\\_nyfo@fws.gov](mailto:fw5es_nyfo@fws.gov)

3817 Luker Road  
Cortland, NY 13045-9385

NOT FOR CONSULTATION



# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).



2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds  
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds  
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation->



[measures.pdf](#)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31
<b>Black Skimmer</b> <i>Rynchops niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/5234">https://ecos.fws.gov/ecp/species/5234</a>	Breeds May 20 to Sep 15
<b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a>	Breeds May 15 to Oct 10
<b>Blue-winged Warbler</b> <i>Vermivora pinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
<b>Bobolink</b> <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31



<b>Canada Warbler</b> <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
<b>Cerulean Warbler</b> <i>Dendroica cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a>	Breeds Apr 29 to Jul 20
<b>Chimney Swift</b> <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds elsewhere
<b>Kentucky Warbler</b> <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
<b>Lesser Yellowlegs</b> <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a>	Breeds elsewhere
<b>Long-eared Owl</b> <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3631">https://ecos.fws.gov/ecp/species/3631</a>	Breeds Mar 1 to Jul 15
<b>Prairie Warbler</b> <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
<b>Prothonotary Warbler</b> <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31



**Red-headed Woodpecker** *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Ruddy Turnstone** *Arenaria interpres morinella*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

**Rusty Blackbird** *Euphagus carolinus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

**Wood Thrush** *Hylocichla mustelina*

Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

## Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence



at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is  $0.25/0.25 = 1$ ; at week 20 it is  $0.05/0.25 = 0.2$ .

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

### Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

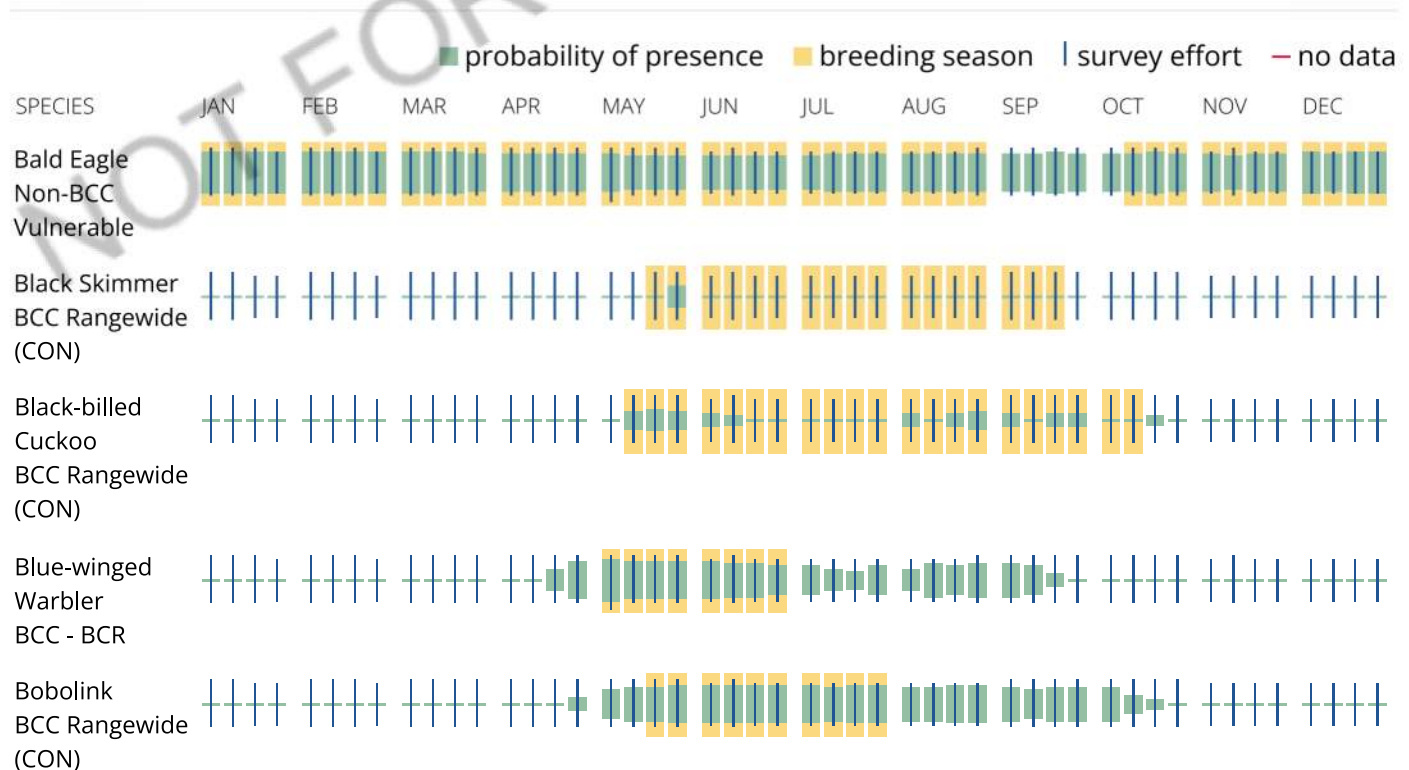
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

### No Data (—)

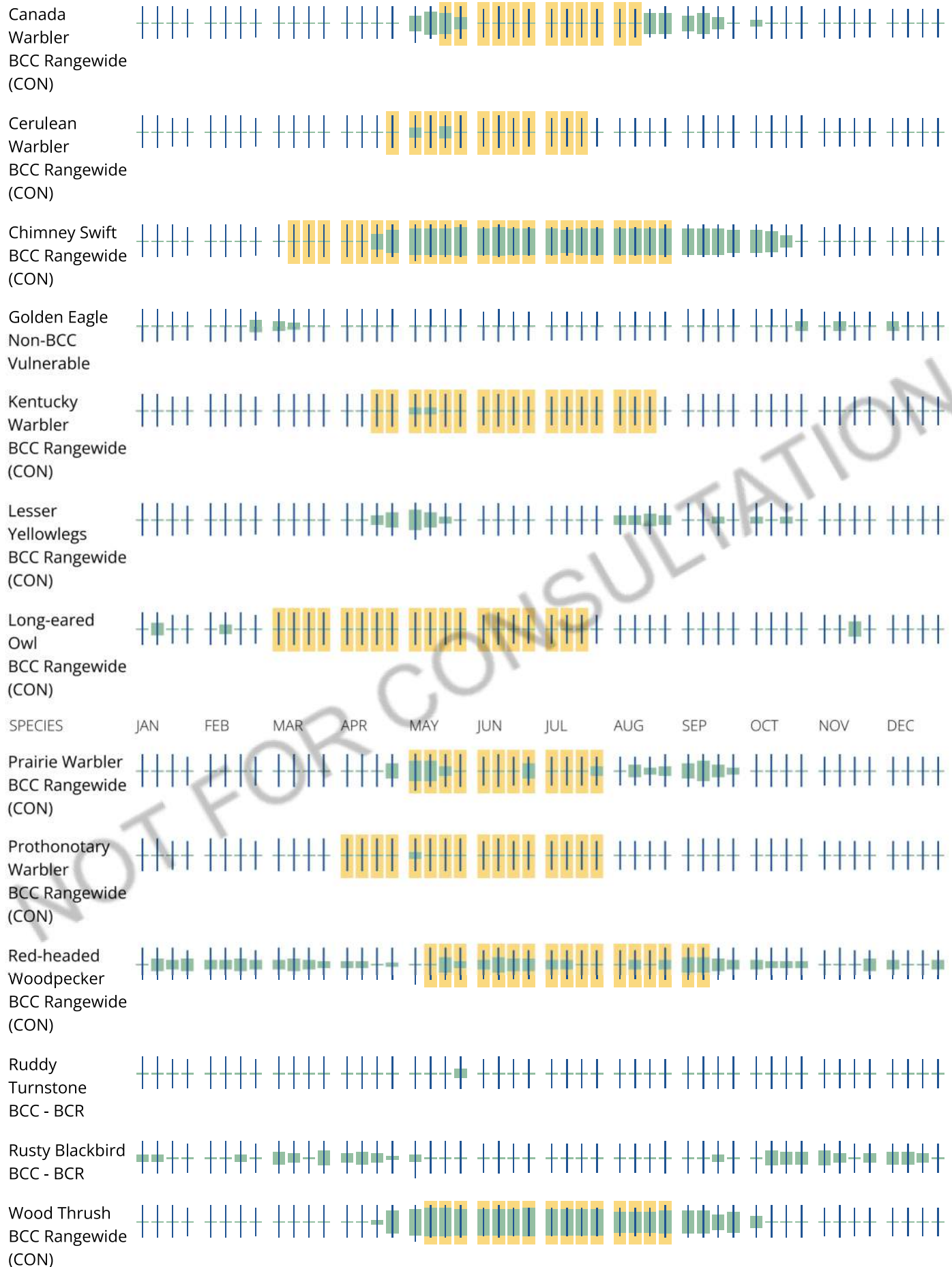
A week is marked as having no data if there were no survey events for that week.

### Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.









**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:



1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

### Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

### What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

### Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn



more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

## Coastal Barrier Resources System

Projects within the [John H. Chafee Coastal Barrier Resources System](#) (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local [Ecological Services Field Office](#) or visit the [CBRA Consultations website](#). The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

### Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the [official CBRS maps](#). The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation>

### Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact [CBRA@fws.gov](mailto:CBRA@fws.gov).

## Facilities

### National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.



There are no refuge lands at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

### Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### Data exclusions



Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION





**New York State  
Parks, Recreation and  
Historic Preservation**

**KATHY HOCHUL**  
Governor

**ERIK KULLESEID**  
Commissioner

October 14, 2022

Sean Murphy  
Senior Project Manager  
VHB  
500 Southborough Drive  
Suite 105B  
South Portland, ME 04106-6928

Re: DOE  
Champlain Hudson Power Express/TDI/Underwater HVdc Transmission Line  
**Cementon and Congers HDD Pit Locations**  
09PR03910

Dear Sean Murphy:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

SHPO has reviewed TRC's evaluation of the project's Area of Potential Effects (APE) for the Cementon and Congers HDD pit locations (September 2022). SHPO has no archaeological concerns for the Cementon and Congers HDD pit locations. No archaeological survey is warranted for either location.

It is the opinion of the New York SHPO that no historic properties, including archaeological and/or historic resources, will be Adversely Affected by this undertaking at the Cementon and Congers HDD pit locations. If you have any questions, I can be reached at

[Jessica.Schreyer@parks.ny.gov](mailto:Jessica.Schreyer@parks.ny.gov).

Sincerely,

Jessica Schreyer  
Scientist Archaeology





**Parks, Recreation,  
and Historic Preservation**

**ANDREW M. CUOMO**  
Governor

**ERIK KULLESEID**  
Commissioner

May 5, 2020

Mr. Andrew Davis  
NYS Department of Public Works  
#3 Empire State Plaza  
Albany, NY 12223

Re: CORPS, PSC  
Champlain Hudson Power Express/TDI/Underwater HVdc Transmission Line  
*Catskill, Fort Ann, Putnam Station, Rockland County, Schenectady and Selkirk Yard  
Preferred Alternative Routes*  
09PR03910

Dear Mr. Davis:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the April 24, 2020 *Revised Phase IA Archaeological Assessment of the Champlain-Hudson Alternative Routes, New York*, prepared by TRC, in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources.

Based on this review, the SHPO has no further comments on this report and concurs that archaeological testing is not warranted for the Catskill, Fort Ann, Putnam Station, Rockland County, Schenectady and Selkirk Yard Preferred Alternative Routes.

If you have any questions, I can be reached at [nancy.herter@parks.ny.gov](mailto:nancy.herter@parks.ny.gov).

Sincerely,

A handwritten signature in black ink that reads "Nancy Herter".

Nancy Herter  
Archaeology Unit Program Coordinator



## **Appendix E – USDA NRCS Soil Resource Report**





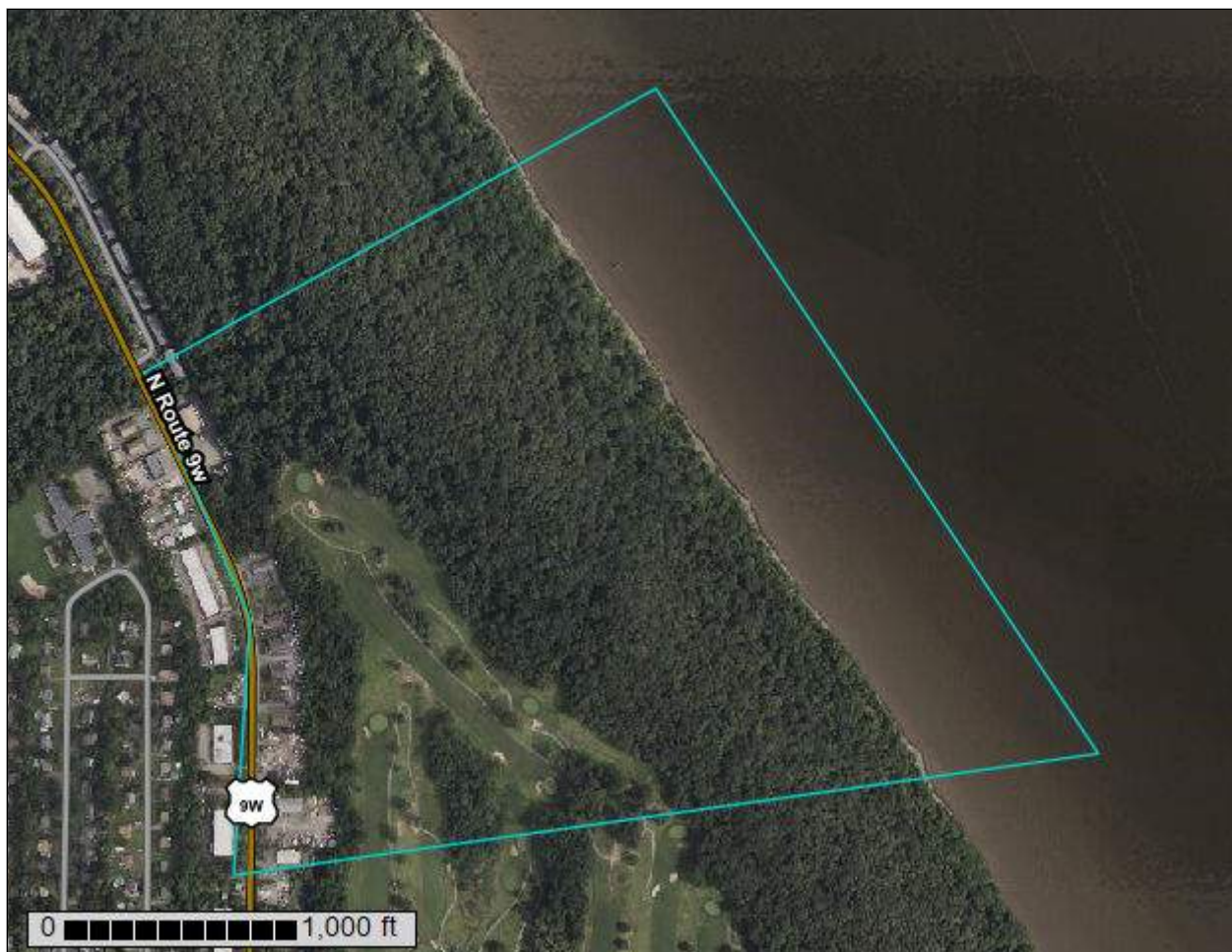
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

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

# Custom Soil Resource Report for **Rockland County, New York**



November 7, 2022



# Preface

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

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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

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

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

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

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# How Soil Surveys Are Made

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

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

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

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

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



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

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

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

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

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

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

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



## Custom Soil Resource Report

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



# Soil Map

---

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



# Custom Soil Resource Report Soil Map








# Custom Soil Resource Report

## MAP LEGEND




















### Area of Interest (AOI)







Area of Interest (AOI)

### Soils


-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points

### Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


### Water Features

-  Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

### Background

-  Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Rockland County, New York  
Survey Area Data: Version 20, Sep 10, 2022

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

Date(s) aerial images were photographed: Apr 13, 2021—Sep 14, 2021

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



## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HoD	Holyoke-Rock outcrop complex, hilly	20.3	10.8%
HoF	Holyoke-Rock outcrop complex, very steep	49.0	26.0%
Us	Udorthents, smoothed	2.8	1.5%
W	Water	49.4	26.3%
WeB	Wethersfield gravelly silt loam, 3 to 8 percent slopes	39.0	20.7%
WeC	Wethersfield gravelly silt loam, 8 to 15 percent slopes	21.0	11.1%
WeD	Wethersfield gravelly silt loam, 15 to 25 percent slope s	6.7	3.5%
<b>Totals for Area of Interest</b>		<b>188.2</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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



mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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



## Rockland County, New York

### HoD—Holyoke-Rock outcrop complex, hilly

#### Map Unit Setting

*National map unit symbol:* 9v4q  
*Elevation:* 0 to 740 feet  
*Mean annual precipitation:* 47 to 50 inches  
*Mean annual air temperature:* 48 to 52 degrees F  
*Frost-free period:* 135 to 215 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Holyoke and similar soils:* 55 percent  
*Rock outcrop:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Holyoke

##### Setting

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Loamy till

##### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H1 - 2 to 6 inches:* silt loam  
*H2 - 6 to 18 inches:* silt loam  
*H3 - 18 to 28 inches:* unweathered bedrock

##### Properties and qualities

*Slope:* 10 to 30 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s  
*Hydrologic Soil Group:* D  
*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands  
*Hydric soil rating:* No

#### Description of Rock Outcrop

##### Typical profile

*H1 - 0 to 60 inches:* unweathered bedrock



**Properties and qualities**

*Slope:* 10 to 30 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

**HoF—Holyoke-Rock outcrop complex, very steep**

**Map Unit Setting**

*National map unit symbol:* 9v4r

*Elevation:* 0 to 890 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Holyoke and similar soils:* 45 percent

*Rock outcrop:* 30 percent

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

**Description of Holyoke**

**Setting**

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till

**Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material

*H1 - 2 to 6 inches:* silt loam

*H2 - 6 to 18 inches:* silt loam

*H3 - 18 to 28 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 25 to 50 percent

*Surface area covered with cobbles, stones or boulders:* 1.6 percent

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

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* More than 80 inches



## Custom Soil Resource Report

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* F145XY011CT - Well Drained Shallow Till Uplands

*Hydric soil rating:* No

### Description of Rock Outcrop

#### Typical profile

*H1 - 0 to 60 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 25 to 50 percent

*Depth to restrictive feature:* 0 inches to lithic bedrock

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydric soil rating:* Unranked

## Us—Udorthents, smoothed

### Map Unit Setting

*National map unit symbol:* 9v5d

*Elevation:* 0 to 890 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Udorthents, smoothed, and similar soils:* 80 percent

*Minor components:* 2 percent

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

### Description of Udorthents, Smoothed

#### Typical profile

*H1 - 0 to 20 inches:* channery loam

*H2 - 20 to 70 inches:* very gravelly loam

#### Properties and qualities

*Slope:* 0 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively drained



## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 5.95 in/hr)

*Depth to water table:* About 36 to 72 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* A

*Hydric soil rating:* No

### **Minor Components**

#### **Alden**

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **W—Water**

### **Map Unit Setting**

*National map unit symbol:* 9v5s

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Water:* 100 percent

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

## **WeB—Wethersfield gravelly silt loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9v5l

*Elevation:* 30 to 690 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Wethersfield and similar soils:* 80 percent

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



## **Description of Wethersfield**

### **Setting**

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

### **Typical profile**

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

### **Properties and qualities**

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

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

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

## **WeC—Wethersfield gravelly silt loam, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9v5m

*Elevation:* 20 to 690 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Wethersfield and similar soils:* 80 percent

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

## **Description of Wethersfield**

### **Setting**

*Landform:* Till plains, hills



## Custom Soil Resource Report

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

### Typical profile

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

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

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No

## WeD—Wethersfield gravelly silt loam, 15 to 25 percent slope s

### Map Unit Setting

*National map unit symbol:* 9v5n

*Elevation:* 0 to 640 feet

*Mean annual precipitation:* 47 to 50 inches

*Mean annual air temperature:* 48 to 52 degrees F

*Frost-free period:* 135 to 215 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Wethersfield and similar soils:* 80 percent

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

### Description of Wethersfield

#### Setting

*Landform:* Till plains, hills

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex



## Custom Soil Resource Report

*Parent material:* Loamy acid till derived mainly from reddish sandstone, shale, and conglomerate, with some basalt

### Typical profile

*H1 - 0 to 13 inches:* gravelly silt loam

*H2 - 13 to 22 inches:* gravelly loam

*H3 - 22 to 60 inches:* gravelly fine sandy loam

### Properties and qualities

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 20 to 38 inches to densic material

*Drainage class:* Well drained

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

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 3.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* C

*Ecological site:* F145XY012CT - Well Drained Dense Till Uplands

*Hydric soil rating:* No



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## Custom Soil Resource Report

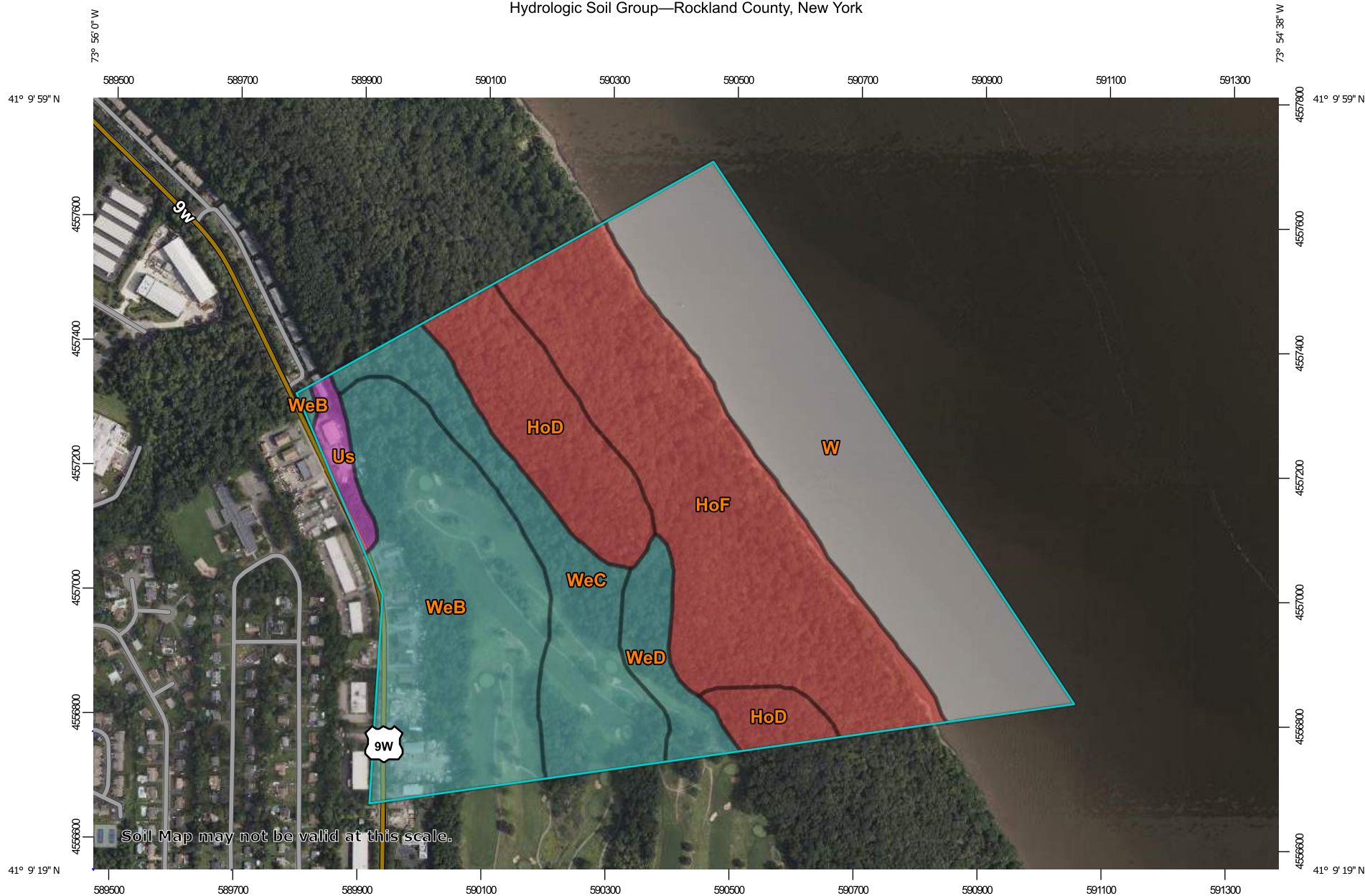
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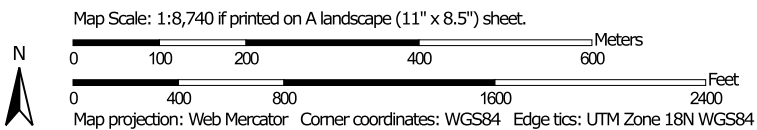
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# Hydrologic Soil Group—Rockland County, New York



Soil Map may not be valid at this scale.




**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey









11/7/2022  
Page 1 of 4



**MAP LEGEND****Area of Interest (AOI)**
 Area of Interest (AOI)
**Soils****Soil Rating Polygons**





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

**Soil Rating Lines**

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available


**Soil Rating Points**

-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

**Water Features**
 Streams and Canals
**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**
 Aerial Photography
**MAP INFORMATION**

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Rockland County, New York  
Survey Area Data: Version 20, Sep 10, 2022

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

Date(s) aerial images were photographed: Apr 13, 2021—Sep 14, 2021

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



## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HoD	Holyoke-Rock outcrop complex, hilly	D	20.3	10.8%
HoF	Holyoke-Rock outcrop complex, very steep	D	49.0	26.0%
Us	Udorthents, smoothed	A	2.8	1.5%
W	Water		49.4	26.3%
WeB	Wethersfield gravelly silt loam, 3 to 8 percent slopes	C	39.0	20.7%
WeC	Wethersfield gravelly silt loam, 8 to 15 percent slopes	C	21.0	11.1%
WeD	Wethersfield gravelly silt loam, 15 to 25 percent slopes	C	6.7	3.5%
<b>Totals for Area of Interest</b>			<b>188.2</b>	<b>100.0%</b>



## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher



## **Appendix F – EM&CP Plan and Profile Drawings**



**Refer to EM&CP Appendix A for the  
EM&CP Plan and Profile Drawings.**



## **Appendix G – Standards and Specifications for Erosion and Sediment Controls**



# STANDARD AND SPECIFICATIONS FOR CONSTRUCTION ROAD STABILIZATION



## **Definition & Scope**

The stabilization of temporary construction access routes, on-site vehicle transportation routes, and construction parking areas to control erosion on temporary construction routes and parking areas.

## **Conditions Where Practice Applies**

All traffic routes and parking areas for temporary use by construction traffic.

## **Design Criteria**

Construction roads should be located to reduce erosion potential, minimize impact on existing site resources, and maintain operations in a safe manner. Highly erosive soils, wet or rocky areas, and steep slopes should be avoided. Roads should be routed where seasonal water tables are deeper than 18 inches. Surface runoff and control should be in accordance with other standards.

**Road Grade** – A maximum grade of 12% is recommended, although grades up to 15% are possible for short distances.

**Road Width** – 12 foot minimum for one-way traffic or 24 foot minimum for two-way traffic.

**Side Slope of Road Embankment** – 2:1 or flatter.

**Ditch Capacity** – On-site roadside ditch and culvert capacities shall be the 10 yr. peak runoff.

**Composition** – Use a 6-inch layer of NYS DOT sub-base Types 1,2,3, 4 or equivalent as specified in NYSDOT Standard Specifications.

## **Construction Specifications**

1. Clear and strip roadbed and parking areas of all vegetation, roots, and other objectionable material.
2. Locate parking areas on naturally flat areas as available. Keep grades sufficient for drainage, but not more than 2 to 3 percent.
3. Provide surface drainage and divert excess runoff to stabilized areas.
4. Maintain cut and fill slopes to 2:1 or flatter and stabilized with vegetation as soon as grading is accomplished.
5. Spread 6-inch layer of sub-base material evenly over the full width of the road and smooth to avoid depressions.
6. Provide appropriate sediment control measures to prevent offsite sedimentation.

## **Maintenance**

Inspect construction roads and parking areas periodically for condition of surface. Top dress with new gravel as needed. Check ditches for erosion and sedimentation after rainfall events. Maintain vegetation in a healthy, vigorous condition. Areas producing sediment should be treated immediately.



# STANDARD AND SPECIFICATIONS FOR CONCRETE TRUCK WASHOUT



## **Definition & Scope**

A temporary excavated or above ground lined constructed pit where concrete truck mixers and equipment can be washed after their loads have been discharged, to prevent highly alkaline runoff from entering storm drainage systems or leaching into soil.

## **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 Criteria**

**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 deep. 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**

- 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.
- 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.
- 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.
- The plastic liner shall be replaced with each cleaning of the washout facility.
- Inspect the project site frequently to ensure that no concrete discharges are taking place in non-designated areas.



# STANDARD AND SPECIFICATIONS FOR DUST CONTROL



dust control (see Section 3).

**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.

## **Definition & Scope**

The control of dust resulting from land-disturbing activities, to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

## **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.

## **Construction Specifications**

**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

**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.



# STANDARD AND SPECIFICATIONS FOR PROTECTING VEGETATION DURING CONSTRUCTION



## **Definition & Scope**

The protection of trees, shrubs, ground cover and other vegetation from damage by construction equipment. In order to preserve existing vegetation determined to be important for soil erosion control, water quality protection, shade, screening, buffers, wildlife habitat, wetland protection, and other values.

## **Conditions Where Practices Applies**

On planned construction sites where valued vegetation exists and needs to be preserved.

## **Design Criteria**

### **1. Planning Considerations**

#### **A. Inventory:**

1) Property boundaries, topography, vegetation and soils information should be gathered. Identify potentially high erosion areas, areas with tree windthrow potential, etc. A vegetative cover type map should be made on a copy of a topographic map which shows other natural and manmade features. Vegetation that is desirable to preserve because of its value for screening, shade, critical erosion control, endangered species, aesthetics, etc., should be identified and marked on the map.

2) Based upon this data, general statements should be prepared about the present condition, potential problem areas, and unique features of the property.

#### **B. Planning:**

1) After engineering plans (plot maps) are prepared, another field review should take place and

recommendations made for the vegetation to be saved. Minor adjustments in location of roads, dwellings, and utilities may be needed. Construction on steep slopes, erodible soils, wetlands, and streams should be avoided. Clearing limits should be delineated (See "Determine Limits of Clearing and Grading" on page 2.2).

2) Areas to be seeded and planted should be identified. Remaining vegetation should blend with their surroundings and/or provide special function such as a filter strip, buffer zone, or screen.

3) Trees and shrubs of special seasonal interest, such as flowering dogwood, red maple, striped maple, serviceberry, or shadbush, and valuable potential shade trees should be identified and marked for special protective treatment as appropriate.

4) Trees to be cut should be marked on the plans. If timber can be removed for salable products, a forester should be consulted for marketing advice.

5) Trees that may become a hazard to people, personal property, or utilities should be removed. These include trees that are weak-wooded, disease-prone, subject to windthrow, or those that have severely damaged root systems.

6) The vigor of remaining trees may be improved by a selective thinning. A forester should be consulted for implementing this practice.

### **2. Measures to Protect Vegetation**

A. Limit soil placement over existing tree and shrub roots to a maximum of 3 inches. Soils with loamy texture and good structure should be used.

B. Use retaining walls and terraces to protect roots of trees and shrubs when grades are lowered. Lowered grades should start no closer than the dripline of the tree. For narrow-canopied trees and shrubs, the stem diameter in inches is converted to feet and doubled, such that a 10 inch tree should be protected to 20 feet.

C. Trenching across tree root systems should be the same minimum distance from the trunk, as in "B". Tunnels under root systems for underground utilities should start 18 inches or deeper below the normal ground surface. Tree roots which must be severed should be cut clean. Backfill material that will be in contact with the roots should be topsoil or a prepared planting soil mixture.

D. Construct sturdy fences, or barriers, of wood, steel, or other protective material around valuable



vegetation for protection from construction equipment. Place barriers far enough away from trees, but not less than the specifications in "B", so that tall equipment such as backhoes and dump trucks do not contact tree branches.

E. Construction limits should be identified and clearly marked to exclude equipment.

F. Avoid spills of oil/gas and other contaminants.

G. Obstructive and broken branches should be pruned properly. The branch collar on all branches whether living or dead should not be damaged. The 3 or 4 cut method should be used on all branches larger than two inches at the cut. First cut about one-third the way through the underside of the limb (about 6-12 inches from the tree trunk). Then (approximately an inch further out) make a second cut through the limb from the upper side. When the branch is removed, there is no splintering of the main tree trunk. Remove the stub. If the branch is larger than 5-6 inches in diameter, use the four cut system. Cuts 1 and 2 remain the same and cut 3 should be from the underside of the limb, on the outside of the branch collar. Cut 4 should be from the top and in alignment with the 3rd cut. Cut 3 should be 1/4 to 1/3 the way through the limb. This will prevent the bark from peeling down the trunk. Do not paint the cut surface.

H. Penalties for damage to valuable trees, shrubs, and herbaceous plants should be clearly spelled out in the contract.

## **PROTECTING TREES IN HEAVY USE AREAS**

The compaction of soil over the roots of trees and shrubs by the trampling of recreationists, vehicular traffic, etc., reduces oxygen, water, and nutrient uptake by feeder roots. This weakens and may eventually kill the plants. Table 2.6 rates the "Susceptibility of Tree Species to Compaction."

Where heavy compaction is anticipated, apply and maintain a 3 to 4 inch layer of undecayed wood chips or 2 inches of No. 2 washed, crushed gravel. In addition, use of a wooden or plastic mat may be used to lessen compaction, if applicable.



**Table 2.6**  
**Susceptibility of Tree Species to Compaction<sup>1</sup>**

Resistant:

Box elder.....	<i>Acer negundo</i>	Willows.....	<i>Salix spp.</i>
Green ash.....	<i>Fraxinus pennsylvanica</i>	Honey locust.....	<i>Gleditsia triacanthos</i>
Red elm.....	<i>Ulmus rubra</i>	Eastern cottonwood.....	<i>Populus deltoides</i>
Hawthornes.....	<i>Crataegus spp.</i>	Swamp white oak.....	<i>Quercus bicolor</i>
Bur oak.....	<i>Quercus macrocarpa</i>	Hophornbeam.....	<i>Ostrya virginiana</i>
Northern white cedar....	<i>Thuja occidentalis</i>		

Intermediate:

Red maple.....	<i>Acer rubrum</i>	Sweetgum.....	<i>Liquidambar styraciflua</i>
Silver maple.....	<i>Acer saccharinum</i>	Norway maple.....	<i>Acer platanoides</i>
Hackberry.....	<i>Celtis occidentalis</i>	Shagbark hickory.....	<i>Carya ovata</i>
Black gum.....	<i>Nyssa sylvatica</i>	London plane.....	<i>Platanus x hybrida</i>
Red oak.....	<i>Quercus rubra</i>	Pin oak.....	<i>Quercus palustris</i>
Basswood.....	<i>Tilia americana</i>		

Susceptible:

Sugar maple.....	<i>Acer saccharum</i>	Austrian Pine.....	<i>Pinus nigra</i>
White pine.....	<i>Pinus strobus</i>	White ash.....	<i>Fraxinus americana</i>
Blue spruce.....	<i>Picea pungens</i>	Paper birch.....	<i>Betula papyrifera</i>
White oak.....	<i>Quercus alba</i>	Mountain ash.....	<i>Sorbus aucuparia</i>
Red pine.....	<i>Pinus resinosa</i>	Japanese maple.....	<i>Acer palmatum</i>

<sup>1</sup> If a tree species does not appear on the list, insufficient information is available to rate it for this purpose.



# STANDARD AND SPECIFICATIONS FOR SITE POLLUTION PREVENTION



## **Definition & Scope**

A collection of management practices intended to control non-sediment pollutants associated with construction activities to prevent the generation of pollutants due to improper handling, storage, and spills and prevent the movement of toxic substances from the site into surface waters.

## **Conditions Where Practice Applies**

On all construction sites where the earth disturbance exceeds 5,000 square feet, and involves the use of fertilizers, pesticides, petroleum based chemicals, fuels and lubricants, as well as sealers, paints, cleared woody vegetation, garbage, and sanitary wastes.

## **Design Criteria**

The variety of pollutants on a particular site and the severity of their impacts depend on factors such as the nature of the construction activity, the physical characteristics of the construction site, and the proximity of water bodies and conveyances to the pollutant source.

1. All state and federal regulations shall be followed for the storage, handling, application, usage, and disposal of pesticides, fertilizers, and petroleum products.
2. Vehicle and construction equipment staging and maintenance areas will be located away from all drainage ways with their parking areas graded so the runoff from these areas is collected, contained and treated prior to discharge from the site.
3. Provide sanitary facilities for on-site personnel.
4. Store, cover, and isolate construction materials including topsoil, and chemicals, to prevent runoff of

pollutants and contamination of groundwater and surface waters.

5. Develop and implement a spill prevention and control plan. The plan should include NYSDEC's spill reporting and initial notification requirements.
6. Provide adequate disposal for solid waste including woody debris, stumps, and other construction waste and include these methods and directions in the construction details on the site construction drawings. Fill, woody debris, stumps and construction waste shall not be placed in regulated wetlands, streams or other surface waters.
7. Distribute or post informational material regarding proper handling, spill response, spill kit location, and emergency actions to be taken, to all construction personnel.
8. Refueling equipment shall be located at least 100 feet from all wetlands, streams and other surface waters.





# STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ACCESS



## Definition & Scope

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction access is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

## Conditions Where Practice Applies

A stabilized construction access shall be used at all points of construction ingress and egress.

## Design Criteria

See Figure 2.1 on page 2.31 for details.

**Aggregate Size:** Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

**Thickness:** Not less than six (6) inches.

**Width:** 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

**Length:** As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

**Geotextile:** To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

**Criteria for Geotextile:** The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be

inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties as shown:

Fabric Properties <sup>3</sup>	Light Duty <sup>1</sup> Roads Grade Sub-grade	Heavy Duty <sup>2</sup> Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Burst Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 Modified
Equivalent	40-80	40-80	US Std Sieve
Opening Size			CW-02215
Aggregate Depth	6	10	-

<sup>1</sup>Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional multi-axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

<sup>2</sup>Heavy Duty Road: Area sites with only rough grading, and where most travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

<sup>3</sup>Fabrics not meeting these specifications may be used only when design procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

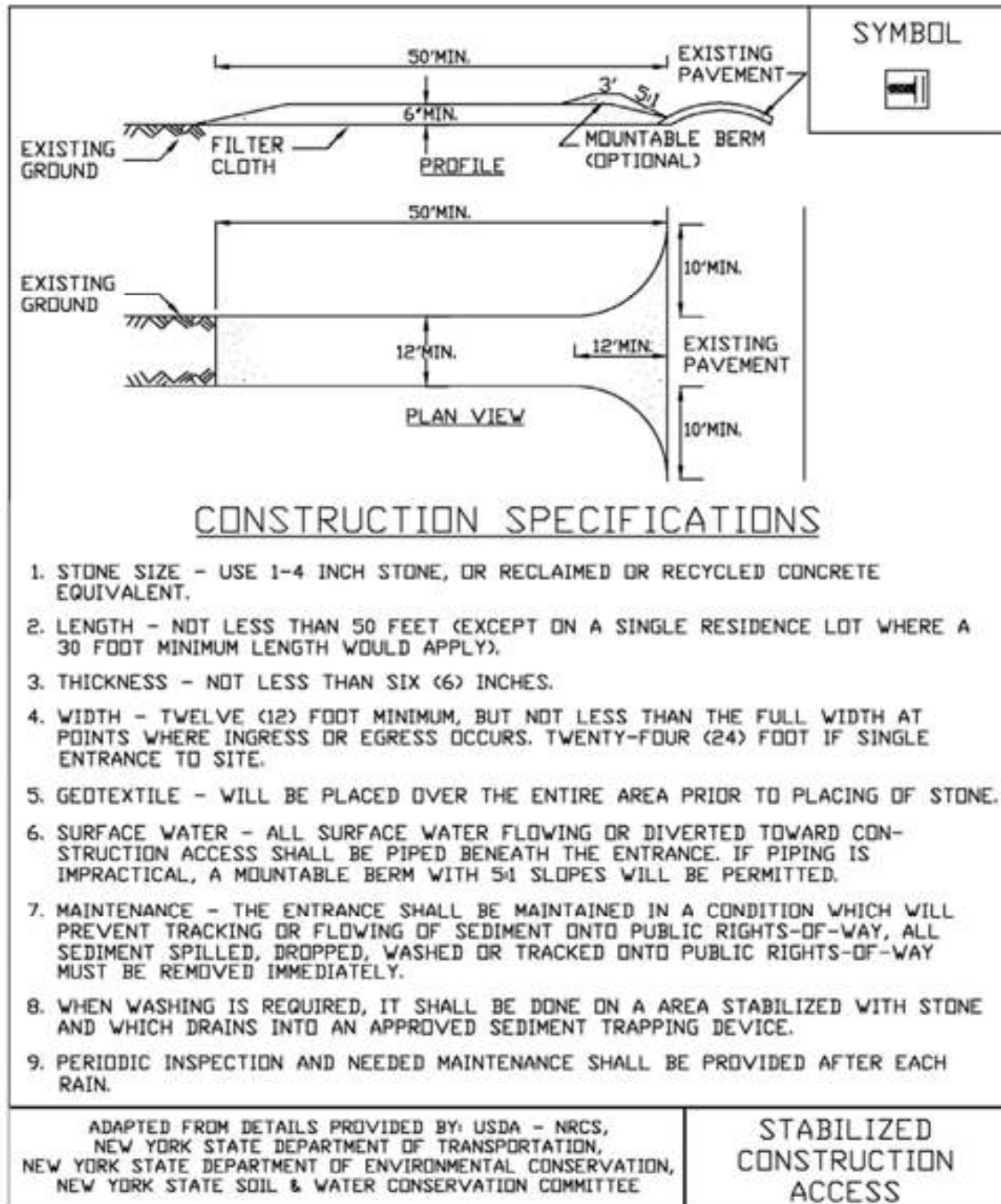
## Maintenance

The access shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-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 watercourses.



**Figure 2.1**  
**Stabilized Construction Access**





# STANDARD AND SPECIFICATIONS FOR TEMPORARY ACCESS WATERWAY CROSSING



## **Definition & Scope**

A temporary access waterway crossing is a structure placed across a waterway to provide access for construction purposes for a period of less than one year. Consideration should be given to stream flow capacity and velocity anticipated during the period of time that the temporary structures will be in place. Temporary access crossings shall not be utilized to maintain traffic for the general public. The purpose of the temporary access waterway crossing is to provide safe, environmentally sound access across a waterway for construction equipment by establishing minimum standards and specifications for the design, construction, maintenance, and removal of the structure. This standard and specification may represent a channel constriction, thus, the temporary nature of waterway access crossing must be stressed. They should be planned to be in service for the shortest practical period of time and removed as soon as their function is completed.

## **Conditions Where Practice Applies**

This standard and specification for temporary access waterway crossings is applicable in non-tidal waterways. It provides designs based on waterway geometry rather than the drainage area contributing to the point of crossing.

The principal consideration for development of the standard and specifications is concern for erosion and sediment control, tracking soil into waterways, blocking fish passage and destruction of aquatic habitat. Structural utility and safety must also be considered when designing temporary access waterway crossings to withstand expected loads.

The three types of standard temporary access

waterway crossings are bridges, culverts, and fords.

## **General Requirements**

1. **In-Stream Excavation:** In-Stream excavation shall be limited to only that necessary to allow installation of the standard methods as presented in Subsection “Temporary Access Waterway Crossing Methods.”
2. **Elimination of Fish Migration Barriers:** Of the two basic methods presented in Subsection “Temporary Access Waterway Crossing Methods,” bridges pose the least potential for creating barriers to aquatic migration. The construction of any specific crossing method as presented in Subsection “Temporary Access Waterway Crossing Methods,” shall not cause a significant water level difference between the upstream and downstream water surface elevations. Fish spawning or migration within waterways generally occurs between October 1 to May 31 for water classified for trout and from March 15 to July 15 for other streams. Fish spawning or migration dates can vary across New York and restrictions imposed by the NYS Department of Environmental Conservation may vary and must be checked.
3. **Crossing Alignment:** The temporary waterway crossing shall be at right angles to the stream. Where approach conditions dictate, the crossing may vary 15 degrees from a line drawn perpendicular to the centerline of the stream at the intended crossing location.
4. **Road Approaches:** The centerline of both roadway approaches shall coincide with the crossing alignment centerline for a minimum distance of 50 feet from each bank of the waterway being crossed. If physical or right-of-way restraints preclude the 50 feet minimum, a shorter distance may be provided. All fill materials associated with the roadway approach shall be limited to a maximum height of 2 feet above the existing flood plain elevation.
5. **Surface Water Diverting Structure:** A water diverting structure such as a swale shall be constructed (across the roadway on both roadway approaches) 50 feet (maximum) on either side of the waterway crossing. This will prevent roadway surface runoff from directly entering the waterway. The 50 feet is measured from the top of the waterway bank. Design criteria for this diverting structure shall be in accordance with the “Standard and Specification” for



the individual design standard of choice. If the roadway approach is constructed with a reverse grade away from the waterway, a separate diverting structure is not required.

6. Road Width: All crossings shall have one traffic lane. The minimum width shall be 12 feet with a maximum width of 20 feet.

7. Time of Operation: All temporary crossing shall be removed within 14 calendar days after the structure is no longer needed. Unless prior written approval is obtained, all structures shall be removed within one year from the date of the installation.

8. Materials

A. Aggregate: There shall be no earth or soil materials used for construction within the waterway channel. NYS DOT specifications for coarse aggregate designation No. 4 (2" to 4"), also referenced as AASHTO designation No. 1, shall be the minimum acceptable aggregate size for temporary crossings. Larger aggregates will be allowed.

B. Filter Cloth: Filter cloth is a fabric consisting of either woven or nonwoven plastic, polypropylene, or nylon used to distribute the load, retain fines, allow increased drainage of the aggregate and reduce mixing of the aggregate with the subgrade soil. The designer shall specify the appropriate filter fabric/cloth for a specific use.

### **Temporary Access Waterway Crossing Methods**

The following criteria for erosion and sediment control shall be considered when selecting a specific temporary access waterway crossing standard method:

1. Site aesthetics: Select a standard design method that will least disrupt the existing terrain of the stream reach. Consider the effort that will be required to restore the area after the temporary crossing is removed.

2. Site location: Locate the temporary crossing where there will be the least disturbance to the soils of the existing waterway banks. When possible, locate the crossing at a point receiving minimal surface runoff.

3. Physical site constraints: The physical constraints of a site may preclude the selection of one or more of the standard methods.

4. Time of year: The time of year may preclude the selection of one or more of the standard methods due to fish spawning or migration restrictions.

5. Vehicular loads and traffic patterns: Vehicular loads, traffic patterns, and frequency of crossing should be considered in choosing a specific method.

6. Maintenance of crossing: The standard methods will require various amounts of maintenance. The bridge method should require the least maintenance, whereas the ford method will probably require more intensive maintenance.

7. Removal of the Structure: Ease of removal and subsequent damage to the waterway should be primary factors in considering the choice of a standard method.

### **Temporary Access Bridge (Figure 2.2 on page 2.36)**

A temporary access bridge is a structure made of wood, metal, or other materials, which provides access across a stream or waterway.

#### **Considerations:**

1. This is the preferred method for temporary access waterway crossings. Normally, bridge construction causes the least disturbance to the waterway bed and banks when compared to the other access waterway crossings.

2. Most bridges can be quickly removed and reused.

3. Temporary access bridges pose the least chance for interference with fish migration when compared to the other temporary access waterway crossings.

4. Span width will be limited by the length of the bridging material and weight of equipment that will drive over the temporary bridge. Spans of over 10 feet are difficult to construct.

5. Restrictions and Permits: A permit from the New York State Department of Environmental Conservation, Division of Environmental Permits, Regional Permit Administrator, will be needed to install and remove temporary access culverts in streams with a classification of C(T) and higher. Installation and removal may not be permitted during the period of time from the start of trout spawning until the eggs have hatched. In some instances, restrictions may also be applied to bass spawning waters.

#### **Construction Specifications:**

1. Restriction: Construction, use, or removal of a temporary access bridge will not normally have any time of year restrictions if construction, use, or



removal does not disturb the stream or its banks.

2. **Bridge Placement:** A temporary bridge structure shall be constructed at or above bank elevation to prevent the entrapment of floating materials and debris.

3. **Abutments:** Abutments shall be placed parallel to and on stable banks.

4. **Bridge Span:** Bridges shall be constructed to span the entire channel. If a footing, pier, or bridge support is constructed within the waterway, a stream-disturbance permit may be required.

5. **Stringers:** Stringers shall either be logs, saw timber, pre-stressed concrete beams, metal beams, or other approved materials.

6. **Deck Material:** Decking shall be of sufficient strength to support the anticipated load. All decking members shall be placed perpendicular to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway below.

7. **Run Planks (optional):** Run planking shall be securely fastened to the length of the span. One run plank shall be provided for each track of the equipment wheels. Although run planks are optional, they may be necessary to properly distribute loads.

8. **Curbs or Fenders:** Curbs or fenders may be installed along the outer sides of the deck. Curbs or fenders are an option, which will provide additional safety.

9. **Bridge Anchors:** Bridges shall be securely anchored at only one end using steel cable or chain. Anchoring at only one end will prevent channel obstruction in the event that floodwaters float the bridge. Acceptable anchors are large trees, large boulders, or driven steel anchors. Anchoring shall be sufficient to prevent the bridge from floating downstream and possibly causing an obstruction to the flow.

10. **Stabilization:** All areas disturbed during installation shall be stabilized within 14 calendar days of that disturbance in accordance with the Standard and Specification for Temporary Construction Area Seeding on page 4.58.

### **Bridge Maintenance Requirements**

1. **Inspection:** Periodic inspection shall be performed by the user to ensure that the bridge, streambed, and streambanks are maintained and not damaged.

2. **Maintenance:** Maintenance shall be performed, as needed to ensure that the structure complies with the standard and specifications. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of outside of the floodplain and stabilized.

### **Bridge Removal and Clean-Up Requirements**

1. **Removal:** When the temporary bridge is no longer needed, all structures including abutments and other bridging materials shall be removed within 14 calendar days. In all cases, the bridge materials shall be removed within one year of installation.

2. **Final Clean-Up:** Final clean-up shall consist of removal of the temporary bridge from the waterway, protection of banks from erosion, and removal of all construction materials. All removed materials shall be stored outside the waterway floodplain.

3. **Method:** Removal of the bridge and clean-up of the area shall be accomplished without construction equipment working in the waterway channel.

4. **Final Stabilization:** All areas disturbed during removal shall be stabilized within 14 calendar days of that disturbance in accordance with the Standard and Specifications for Permanent Construction Area Planting on page 4.42.

### **Temporary Access Culvert (Figure 2.3 on page 2.37)**

A temporary access culvert is a structure consisting of a section(s) of circular pipe, pipe arches, or oval pipes of reinforcing concrete, corrugated metal, or structural plate, which is used to convey flowing water through the crossing.

### **Considerations**

1. Temporary culverts are used where a) the channel is too wide for normal bridge construction, b) anticipated loading may prove unsafe for single span bridges, or c) access is not needed from bank to bank.

2. This temporary waterway crossing method is normally preferred over a ford type of crossing, since disturbance to the waterway is only during construction and removal of the culvert.

3. Temporary culverts can be salvaged and reused.

### **Construction Specifications**

1. **Restrictions and Permits:** A permit from the New York State Department of Environmental



Conservation, Division of Environmental Permits, Regional Permit Administrator, will be needed to install and remove temporary access culverts in streams with a classification of C(T) and higher. Installation and removal may not be permitted during the period of time from the start of trout spawning until the eggs have hatched. In some instances, restrictions may also be applied to bass spawning waters.

2. Culvert Strength: All culverts shall be strong enough to support their cross sectional area under maximum expected loads.

3. Culvert Size: The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is 12-inch diameter pipe.

4. Culvert Length: The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.

5. Filter Cloth: Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.

6. Culvert Placement: The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).

7. Culvert Protection: The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used, they shall be separated by at least 12 in. of compacted aggregate fill. At the minimum, the bedding and fill material used in the construction of the temporary access culvert crossings shall conform with the aggregate requirements cited in the General Requirements subsection.

8. Stabilization: All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for Permanent Construction Area Plantings.

ensure that the culverts, streambed, and streambanks are not damaged, and that sediment is not entering the stream or blocking fish passage or migration.

2. Maintenance: Maintenance shall be performed, as needed in a timely manner to ensure that structures are in compliance with this standard and specification. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of and stabilized outside the waterway flood plain.

### **Culvert Removal and Clean-Up Requirements**

1. Removal: When the crossing has served its purpose, all structures, including culverts, bedding, and filter cloth materials shall be removed within 14 calendar days. In all cases, the culvert materials shall

be removed within one year of installation. No structure shall be removed during the spawning season (generally October 1 through May 31 for trout waters and March 15 through July 15 for other waters).

2. Final Clean-Up: Final clean-up shall consist of removal of the temporary structure from the waterway, removal of all construction materials, restoration of original stream channel cross section, and protection of the streambanks from erosion. Removed material shall be stored outside of the waterway floodplain.

3. Method: Removal of the structure and clean-up of the area shall be accomplished without construction equipment working in the waterway channel.

4. Final Stabilization: All areas disturbed during culvert removal shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for Permanent Construction Area Plantings.

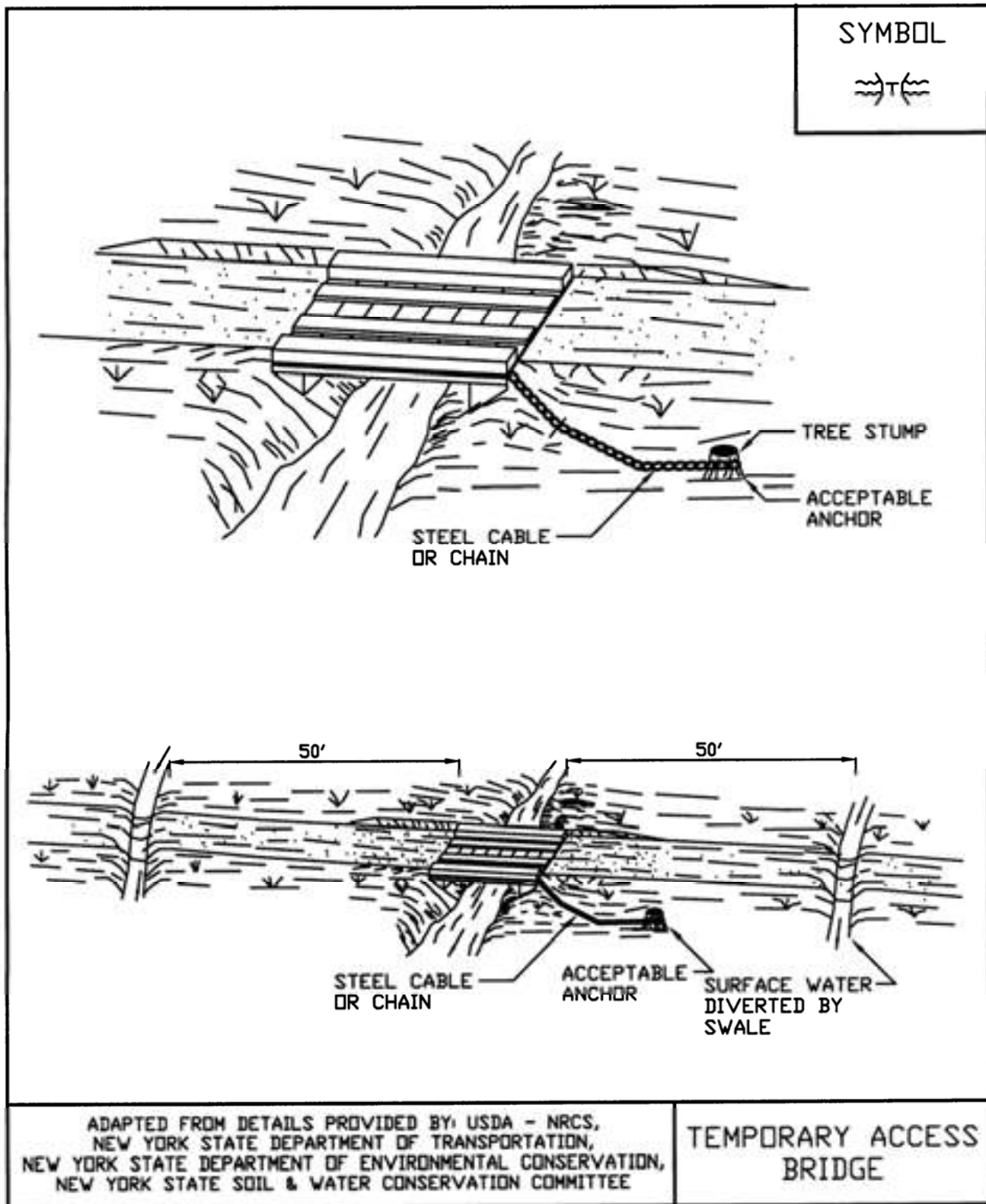
**NOTE:** Any temporary access crossing shall conform to the technical requirements of this Standard and Specifications as well as any specific requirement imposed by the New York State Department of Environmental Conservation and the US Army Corps of Engineers. Permits may be required for streambank disturbance.

### **Culvert Maintenance Requirements**

1. Inspection: Periodic inspection shall be performed to

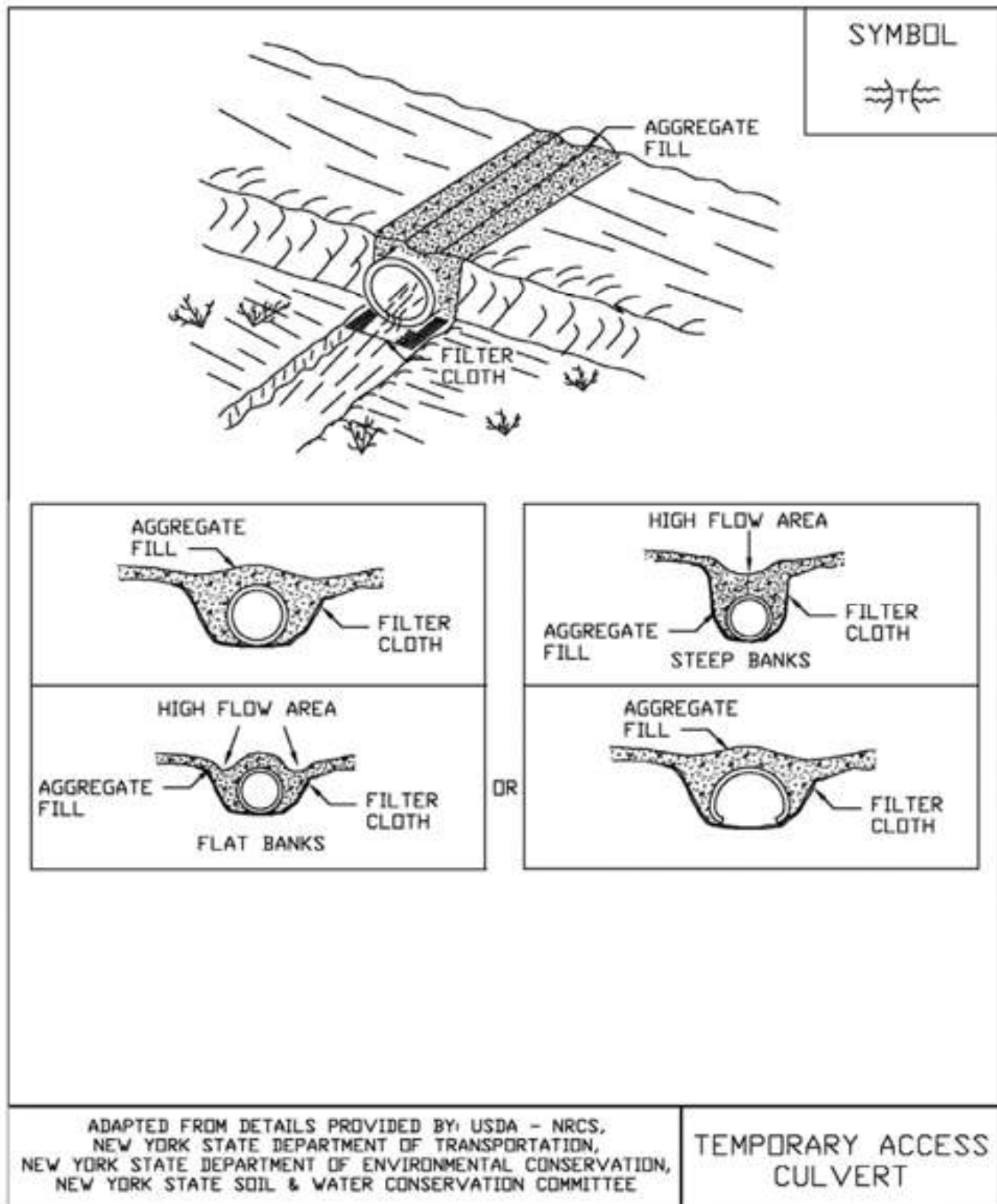


**Figure 2.2**  
**Temporary Access Bridge**





**Figure 2.3**  
**Temporary Access Culvert**





# STANDARD AND SPECIFICATIONS FOR WINTER STABILIZATION



## **Definition & Scope**

A temporary site specific, enhanced erosion and sediment control plan to manage runoff and sediment at the site during construction activities in the winter months to protect off-site water resources.

## **Conditions Where Practice Applies**

This standard applies to all construction activities involved with ongoing land disturbance and exposure between November 15<sup>th</sup> to the following April 1<sup>st</sup>.

## **Design Criteria**

1. Prepare a snow management plan with adequate storage for snow and control of melt water, requiring cleared snow to be stored in a manner not affecting ongoing construction activities.
2. Enlarge and stabilize access points to provide for snow management and stockpiling. Snow management activities must not destroy or degrade installed erosion and sediment control practices.
3. A minimum 25 foot buffer shall be maintained from all perimeter controls such as silt fence. Mark silt fence with tall stakes that are visible above the snow pack.
4. Edges of disturbed areas that drain to a waterbody within 100 feet will have 2 rows of silt fence, 5 feet apart, installed on the contour.
5. Drainage structures must be kept open and free of snow and ice dams. All debris, ice dams, or debris from plowing operations, that restrict the flow of runoff and meltwater, shall be removed.
6. Sediment barriers must be installed at all appropriate

perimeter and sensitive locations. Silt fence and other practices requiring earth disturbance must be installed before the ground freezes.

7. Soil stockpiles must be protected by the use of established vegetation, anchored straw mulch, rolled stabilization matting, or other durable covering. A barrier must be installed at least 15 feet from the toe of the stockpile to prevent soil migration and to capture loose soil.
8. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures should be initiated by the end of the next business day and completed within three (3) days. Rolled erosion control blankets must be used on all slopes 3 horizontal to 1 vertical or steeper.
9. If straw mulch alone is used for temporary stabilization, it shall be applied at double the standard rate of 2 tons per acre, making the application rate 4 tons per acre. Other manufactured mulches should be applied at double the manufacturer's recommended rate.
10. To ensure adequate stabilization of disturbed soil in advance of a melt event, areas of disturbed soil should be stabilized at the end of each work day unless:
  - a. work will resume within 24 hours in the same area and no precipitation is forecast or;
  - b. the work is in disturbed areas that collect and retain runoff, such as open utility trenches, foundation excavations, or water management areas.
11. Use stone paths to stabilize access perimeters of buildings under construction and areas where construction vehicle traffic is anticipated. Stone paths should be a minimum 10 feet in width but wider as necessary to accommodate equipment.

## **Maintenance**

The site shall be inspected frequently to ensure that the erosion and sediment control plan is performing its winter stabilization function. If the site will not have earth disturbing activities ongoing during the "winter season", **all** bare exposed soil must be stabilized by established vegetation, straw or other acceptable mulch, matting, rock, or other approved material such as rolled erosion control products. Seeding of areas with mulch cover is preferred but seeding alone is not acceptable for proper stabilization.

Compliance inspections must be performed and reports filed properly in accordance with the SWPPP for all sites under a winter shutdown.



# STANDARD AND SPECIFICATIONS FOR CHECK DAM



## Definition & Scope

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable materials across a drainageway to reduce erosion in a drainage channel by reducing the velocity of flow in the channel.

## Conditions Where Practice Applies

This practice is used as a **temporary** and, in some cases, a **permanent** measure to limit erosion by reducing velocities in open channels that are degrading or subject to erosion or where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

## Design Criteria

**Drainage Area:** Maximum drainage area above the check dam shall not exceed two (2) acres.

**Height:** Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

**Side Slopes:** Shall be 2:1 or flatter.

**Spacing:** The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore:

$$S = \frac{h}{s}$$

Where:

S = spacing interval (ft.)  
h = height of check dam (ft.)  
s = channel slope (ft./ft.)

Example:

For a channel with  
and 2 ft. high stone  
they are spaced as

$$S = \frac{2 \text{ ft}}{0.04 \frac{\text{ft}}{\text{ft}}} = 50 \text{ ft}$$

a 4% slope  
check dams,  
follows:

**For stone check dams:** Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 3.1 on page 3.3 for details.

Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

**For filter sock or fiber roll check dams:** The check dams will be anchored by staking the dam to the earth contact surface. The dam will extend to the top of the bank. The check dam will have a splash apron of NYS DOT #2 crushed stone extending a minimum 3 feet downstream from the dam and 1 foot up the sides of the channel. The compost and materials for a filter sock check dam shall meet the requirements shown in the standard for Compost Filter Sock on page 5.7.

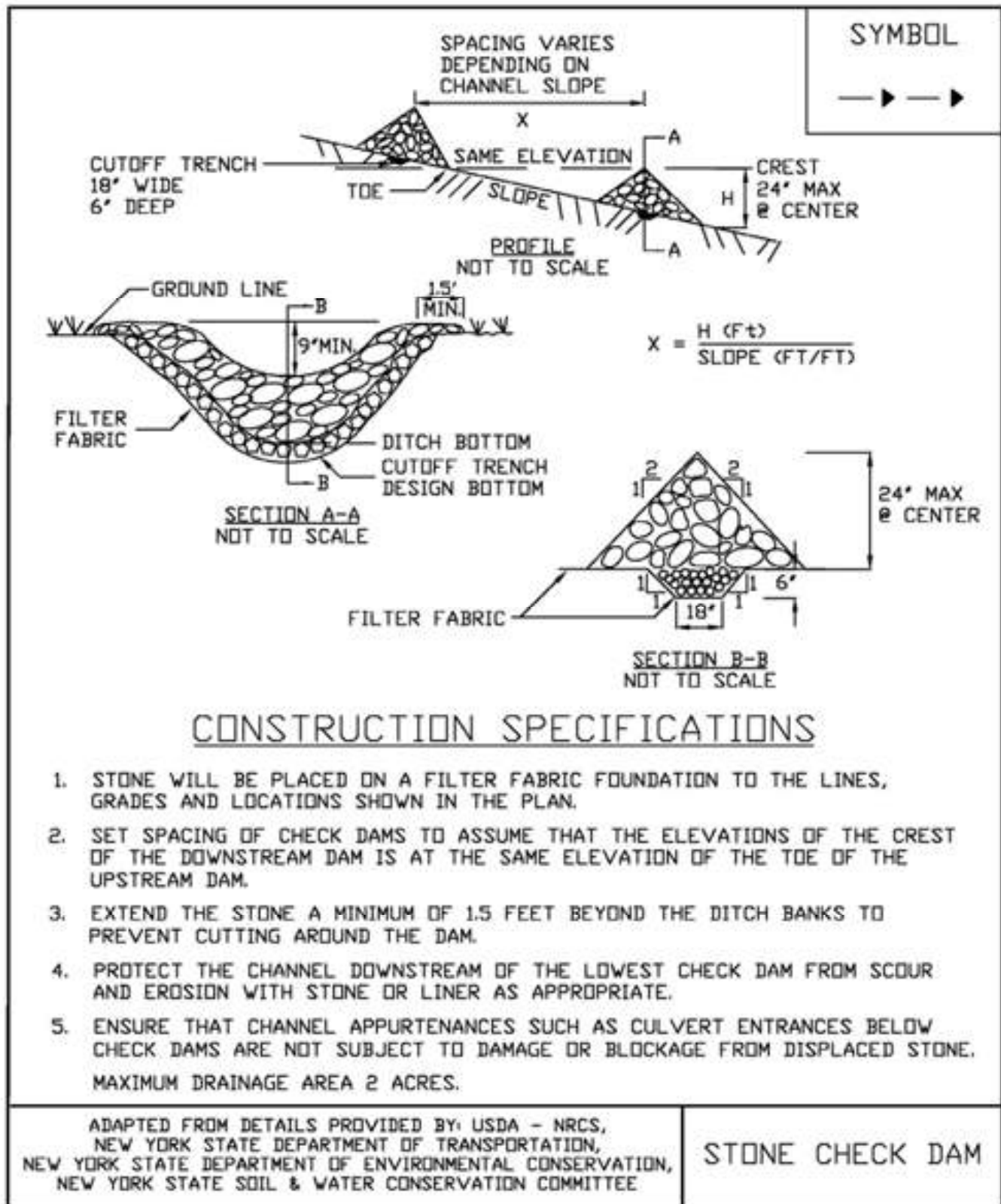
## Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel or additional check dams added.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.



**Figure 3.1**  
**Stone Check Dam Detail**





# STANDARD AND SPECIFICATIONS FOR WATER BAR



## **Definition & Scope**

A **permanent** or **temporary** ridge, ridge and channel, a structural channel, or flow deflector, constructed diagonally across a sloping road or utility right-of-way that is subject to erosion to limit the accumulation of erosive velocity of water by diverting surface runoff at pre-designed intervals.

## **Conditions Where Practice Applies**

Where runoff protection is needed to prevent erosion from increased concentrated flow on narrow, steep access roads, driveways, and entrance ways to lot parcels as well as utility access right-of-ways generally up to 100 feet in width

## **Design Criteria**

Design computations are not required.

1. The design height shall be minimum of 12 inches measured from channel bottom to ridge top.
2. The side slopes shall be 2:1 or flatter, a minimum of 4:1 where vehicles cross.
3. The base width of the ridge shall be six feet minimum.
4. The spacing of the water bars shall be as follows (Site spacing may need to be adjusted for field conditions to use the most suitable areas for water disposal):

Slope (%)	Spacing (ft.)
<5	125
5 TO 10	100
10 TO 20	75
20 TO 35	50
>35	25

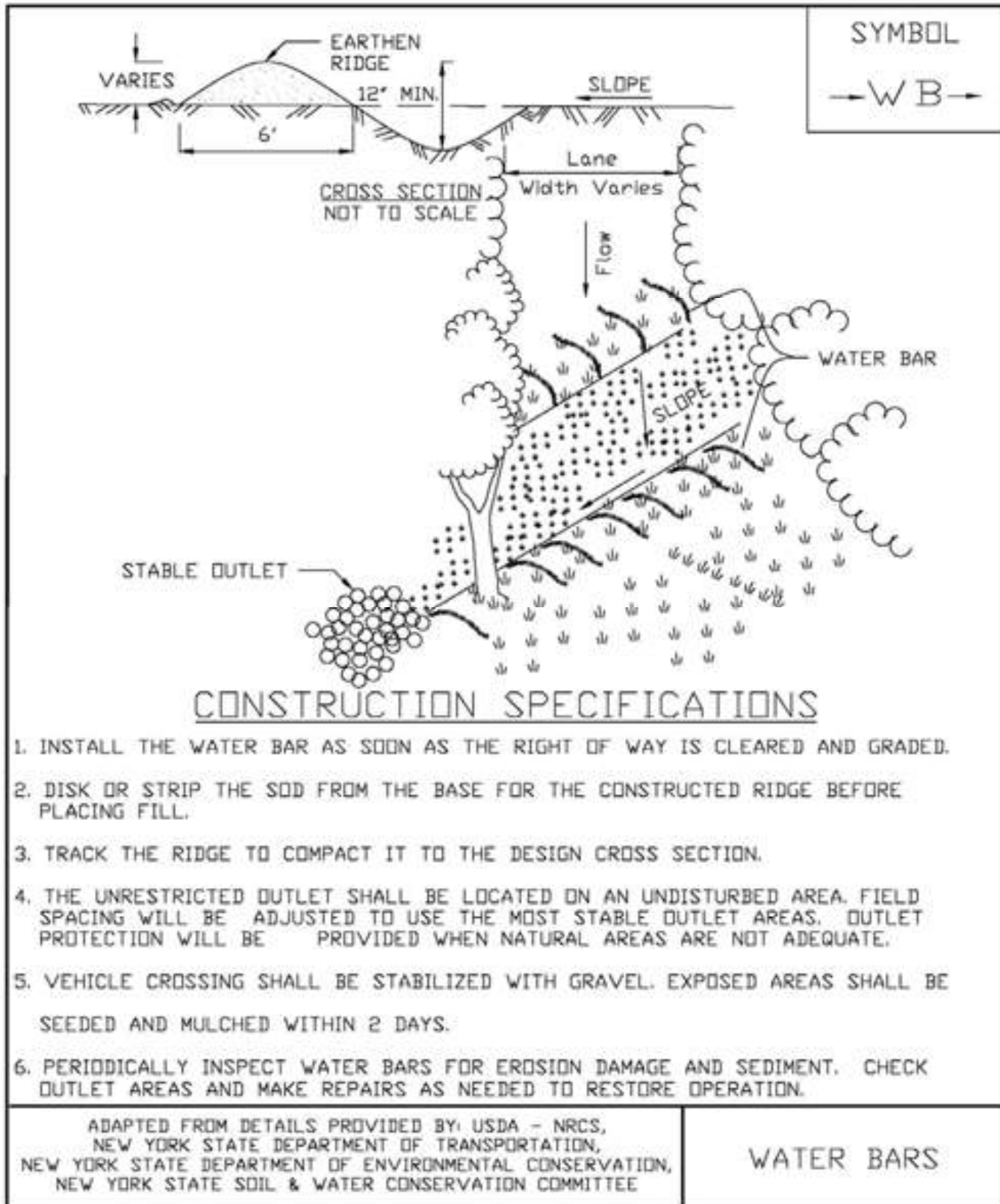
5. The positive grade of the water bar shall not exceed 2%. A crossing angle of approximately 60 degrees is preferred.
6. Once diverted, water must be conveyed to a stable system (i.e. vegetated swale or storm sewer system). Water bars should have stable, unrestricted outlets, either natural or constructed.

See Figure 3.22 on page 3.53 for details.





**Figure 3.22**  
**Water Bar Detail**





# STANDARD AND SPECIFICATIONS FOR ANCHORED STABILIZATION MATTING



## Definition and Scope

A **temporary** or **permanent** protective covering placed on a prepared, seeded planting area that is anchored in place by staples or other means to aid in controlling erosion by absorbing rain splash energy and withstand overland flow as well as provide a microclimate to protect and promote seed establishment.

## Conditions Where Practice Applies

Anchored stabilization mats are required for seeded earthen slopes steeper than 3 horizontal to 1 vertical; in vegetated channels where the velocity of the design flow exceeds the allowable velocity for vegetation alone (usually greater than 5 feet per second); on streambanks and shorelines where moving water is likely to erode newly seeded or planted areas; and in areas where wind prevents standard mulching with straw. This standard does not apply to slopes stabilized with sod, rock riprap or hard armor material.

## Design Criteria

Slope Applications - Anchored stabilization mats for use on slopes are primarily used as mulch blankets where the mesh material is within the blanket or as a netting over previously placed mulch. These stabilization mats are NOT effective in preventing slope failures.

1. Required on all slopes steeper than 3:1
2. Matting will be designed for proper longevity need and strength based on intended use.
3. All installation details and directions will be included on the site erosion and sediment control plan and will follow manufactures specifications.

Channel Applications - Anchored stabilization mats, for use in supporting vegetation in flow channels, are generally a non-degradable, three dimensional plastic structure which can be filled with soil prior to planting. This structure provides a medium for root growth where the matting and roots become intertwined forming a continuous anchor for the vegetated lining.

1. Channel stabilization shall be based on the tractive force method.
2. For maximum design shear stresses less than 2 pounds per square foot, a temporary or bio-degradable mat may be used.
3. The design of the final matting shall be based on the mats ability to resist the tractive shear stress at bank full flow.
4. The installation details and procedures shall be included on the site erosion and sediment control plan and will follow manufacturers specifications.



## Construction Specifications

1. Prepare soil before installing matting by smoothing the surface, removing debris and large stone, and applying lime, fertilizer and seed. Refer to manufacturers installation details.
2. Begin at the top of the slope by anchoring the mat in a 6" deep x 6" wide trench. Backfill and compact the trench after stapling.
3. In channels or swales, begin at the downslope end, anchoring the mat at the bottom and top ends of the blanket. When another roll is needed, the upslope roll



should overlay the lower layer, shingle style, so that channel flows do not peel back the material.

4. Roll the mats down a slope with a minimum 4" overlap. Roll center mat in a channel in direction of water flow on bottom of the channel. Do not stretch blankets. Blankets shall have good continuous contact with the underlying soil throughout its entire length.
5. Place mats end over end (shingle style) with a 6" overlap, use a double row of staggered staples 4" apart to secure mats.
6. Full length edge of mats at top of side slopes must be anchored in 6" deep x 6" wide trench; backfill and compact the trench after stapling.
7. Mats on side slopes of a channel must be overlapped 4" over the center mat and stapled.
8. In high flow channel applications, a staple check slot is recommended at 30 to 40 foot intervals. Use a row of staples 4" apart over entire width of the channel. Place a second row 4" below the first row in a staggered pattern.
9. The terminal end of the mats must be anchored in a 6"x6" wide trench. Backfill and compact the trench after stapling.
10. Stapling and anchoring of blanket shall be done in accordance with the manufactures recommendations.

### **Maintenance**

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 80% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 2 calendar days.



# STANDARD AND SPECIFICATIONS FOR FERTILIZER APPLICATION



## Definition & Scope

The **permanent** incorporation of fertilizer into the planting zone of the soil profile to provide nutrient amendments to the soil for vigorous support to plant and vegetation growth.

## Conditions Where Practice Applies

This standard applies to all areas where permanent seeding, sodding, and plant establishment is required. All application of fertilizer shall be in accordance with Nutrient Runoff Law - ECL Article 17, Title 21. Phosphorus runoff poses a threat to water quality. Therefore, under New York Law, fertilizer containing phosphorus may only be applied to lawn or non-agricultural turf when:

1. A soil test indicates that additional phosphorus is needed for growth of that lawn or non-agricultural turf, or
2. The fertilizer is used for newly established lawn or non-agricultural turf during the first growing season.

For projects located within watersheds where enhanced phosphorus removal standards are required as part of its post-construction stormwater management plan, use of any fertilizer containing more than 0.67 percent phosphate ( $P_2O_5$ ) content will be done only with a valid soil test demonstrating the need for that formulation.

## Design Criteria

Fertilizer is sold with an analysis printed on the tag or bag shown as three numbers separated by a dash, such as 5-10-5. The first number is the percent of the total weight of the bag that is nitrogen (N), the second is the percent of

phosphate (phosphorus, P), and the third is the percent of potash (potassium, K). Other elements are sometimes included and are listed with these three basic components.

For example a 40 lb bag of 5-10-5 fertilizer contains 5% of 40 lbs of Nitrogen which equals 2 lbs. There is 10% of 40 lbs of phosphate (phosphorus) which equals 4 lbs, and there is 5% of potash (potassium), another 2 lbs., for a total of 8 lbs of active fertilizer in the 40 lb bag. The rest is filler to aid in spreading the material over the area to be treated.

Specify the design fertilizer mix and application rates based on the results of the soil tests.

## Specifications

1. In no case shall fertilizer be applied between December 1 and April 1 annually.
2. Fertilizer shall not be spread within 20 feet of a surface water.
3. Any fertilizer falling or spilled into impervious surface areas such as parking lots, roadways, and sidewalks should be immediately contained and legally applied or placed in an appropriate container.
4. Incorporate the fertilizer, and lime if specified, into the top 2-4 inches of the topsoil or soil profile.
5. When applying fertilizer by hydro seeding care should be taken to apply mix only to seed bed areas at an appropriate flow rate to prevent erosion and spraying onto impervious areas.





# STANDARD AND SPECIFICATIONS FOR FIBER ROLL



## **Definition & Scope**

A fiber roll is a coir (coconut fiber), straw, or excelsior roll encased in netting of jute, nylon, or burlap to dissipate energy along streambanks, channels, and bodies of water and to reduce sheet flow on slopes.

## **Conditions Where Practice Applies**

Fiber rolls are used where the water surface levels are relatively constant. Artificially controlled streams for hydropower are not good candidates for this technique. The rolls provide a good medium for the introduction of herbaceous vegetation. Planting in the fiber roll is appropriate where the roll will remain continuously wet.

## **Design Criteria**

1. The roll is placed in a shallow trench dug below baseflow or in a 4 inch trench on the slope contour and anchored by 2" x 2", 3-foot long posts driven on each side of the roll (see Figure 4.8).
2. The roll is contained by a 9-gauge non-galvanized wire placed over the roll from post to post. Braided nylon rope (1/8" thick) may be used.
3. The anchor posts shall be spaced laterally 4 feet on center on both sides of the roll and driven down to the top of the roll.
4. Soil is placed behind the roll and planted with suitable herbaceous or woody vegetation. If the roll will be continuously saturated, wetland plants may be planted into voids created in the upper surface of the roll.
5. Where water levels may fall below the bottom edge of the roll, a brush layer of willow should be installed so

as to lay across the top edge of the roll.

6. Where fiber rolls are used to reduce sheet flow on slopes they should be at least 12" in diameter and spaced according to the straw bale dike standard for sediment control.

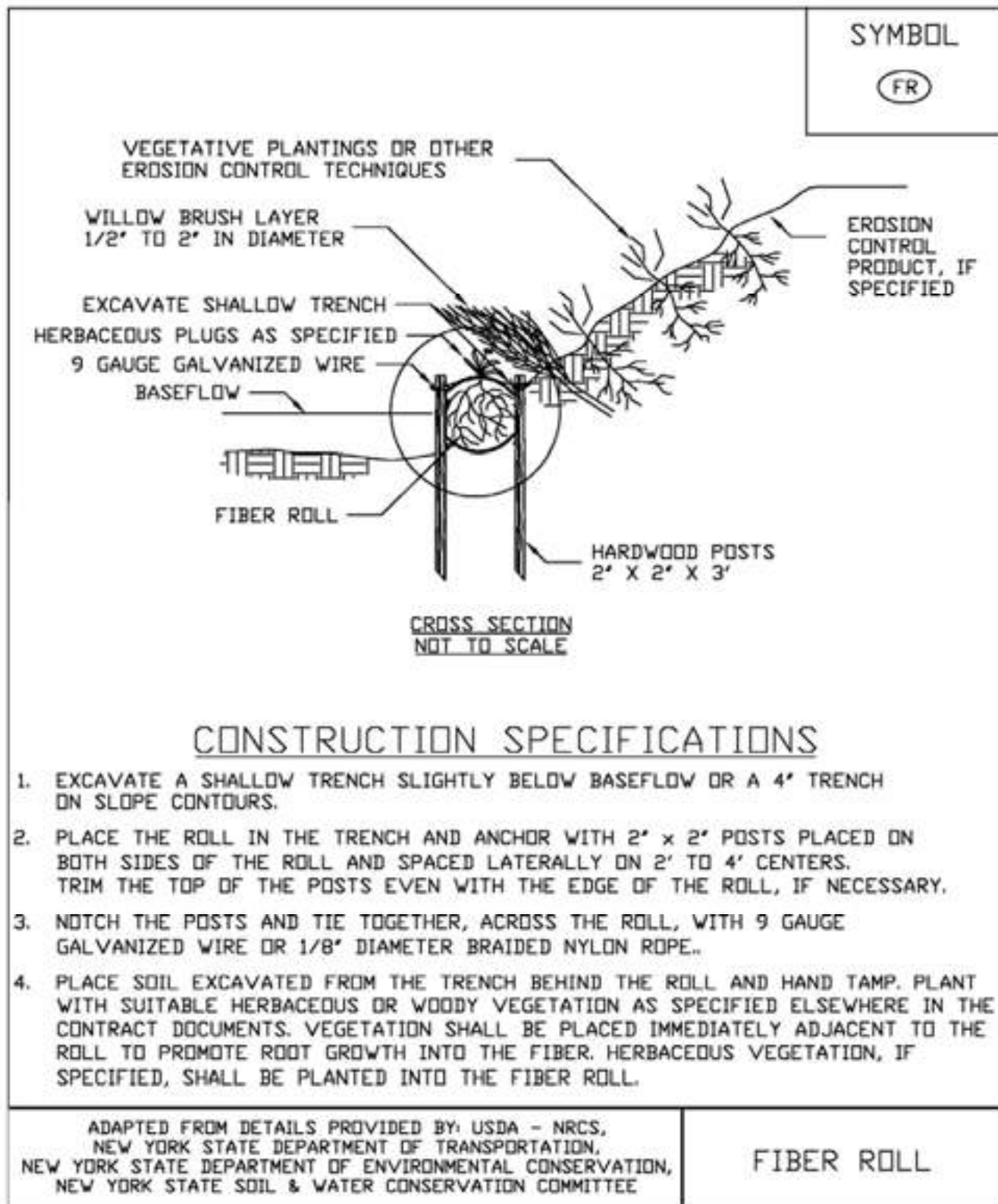
## **Maintenance**

Due to the susceptibility of plant materials to the physical constraints of the site, climate conditions, and animal populations, it is necessary to inspect installations frequently. This is especially important during the first year or two of establishment. Plant materials missing or damaged should be replaced as soon as possible. Sloughs or breaks in drainage pattern should be reestablished for the site as quickly as possible to maintain stability.





**Figure 4.8**  
**Fiber Roll**





# STANDARD AND SPECIFICATIONS FOR LANDGRADING



## **Definition & Scope**

**Permanent** reshaping of the existing land surface by grading in accordance with an engineering topographic plan and specification to provide for erosion control and vegetative establishment on disturbed, reshaped areas.

## **Design Criteria**

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surrounding to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal, and vegetative treatment, etc.

Many municipalities and counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed.

The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

1. Provisions shall be made to safely convey surface runoff to storm drains, protected outlets, or to stable water courses to ensure that surface runoff will not

damage slopes or other graded areas; see standards and specifications for Grassed Waterway, Diversion, or Grade Stabilization Structure.

2. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. When slopes exceed 2:1, special design and stabilization consideration are required and shall be adequately shown on the plans. (Note: Where the slope is to be mowed, the slope should be no steeper than 3:1, although 4:1 is preferred because of safety factors related to mowing steep slopes.)
3. Reverse slope benches or diversion shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.
  - A. Benches shall be a minimum of six feet wide to provide for ease of maintenance.
  - B. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.
  - C. The flow length within a bench shall not exceed 800 feet unless accompanied by appropriate design and computations; see Standard and Specifications for Diversion on page 3.9
4. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of diversions, ditches and swales or conveyed downslope by the use of a designed structure, except where:
  - A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.
  - B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainage ways, graded ditches, downspouts, etc.
  - C. The face of the slope will be protected by anchored stabilization matting, sod, gravel, riprap, or other stabilization method.



5. Cut slopes occurring in ripable rock shall be serrated as shown in Figure 4.9 on page 4.26. The serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1 ½: 1. These steps will weather and act to hold moisture, lime, fertilizer, and seed thus producing a much quicker and longer-lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carried to a suitable outlet.
6. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.
7. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.
8. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.
9. Stockpiles, borrow areas, and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.
10. All disturbed areas shall be stabilized structurally or vegetatively in compliance with the Permanent Construction Area Planting Standard on page 4.42.
4. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.
5. Areas that are to be topsoiled shall be scarified to a minimum depth of four inches prior to placement of topsoil.
6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc., shall be compacted in accordance with local requirements or codes.
7. All fill shall be placed and compacted in layers not to exceed 9 inches in thickness.
8. Except for approved landfills or nonstructural fills, fill material shall be free of frozen particles, brush, roots, sod, or other foreign objectionable materials that would interfere with, or prevent, construction of satisfactory fills.
9. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.
10. Fill shall not be placed on saturated or frozen surfaces.
11. All benches shall be kept free of sediment during all phases of development.
12. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain on page 3.48 or other approved methods.
13. All graded areas shall be permanently stabilized immediately following finished grading.
14. Stockpiles, borrow areas, and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

## **Construction Specifications**

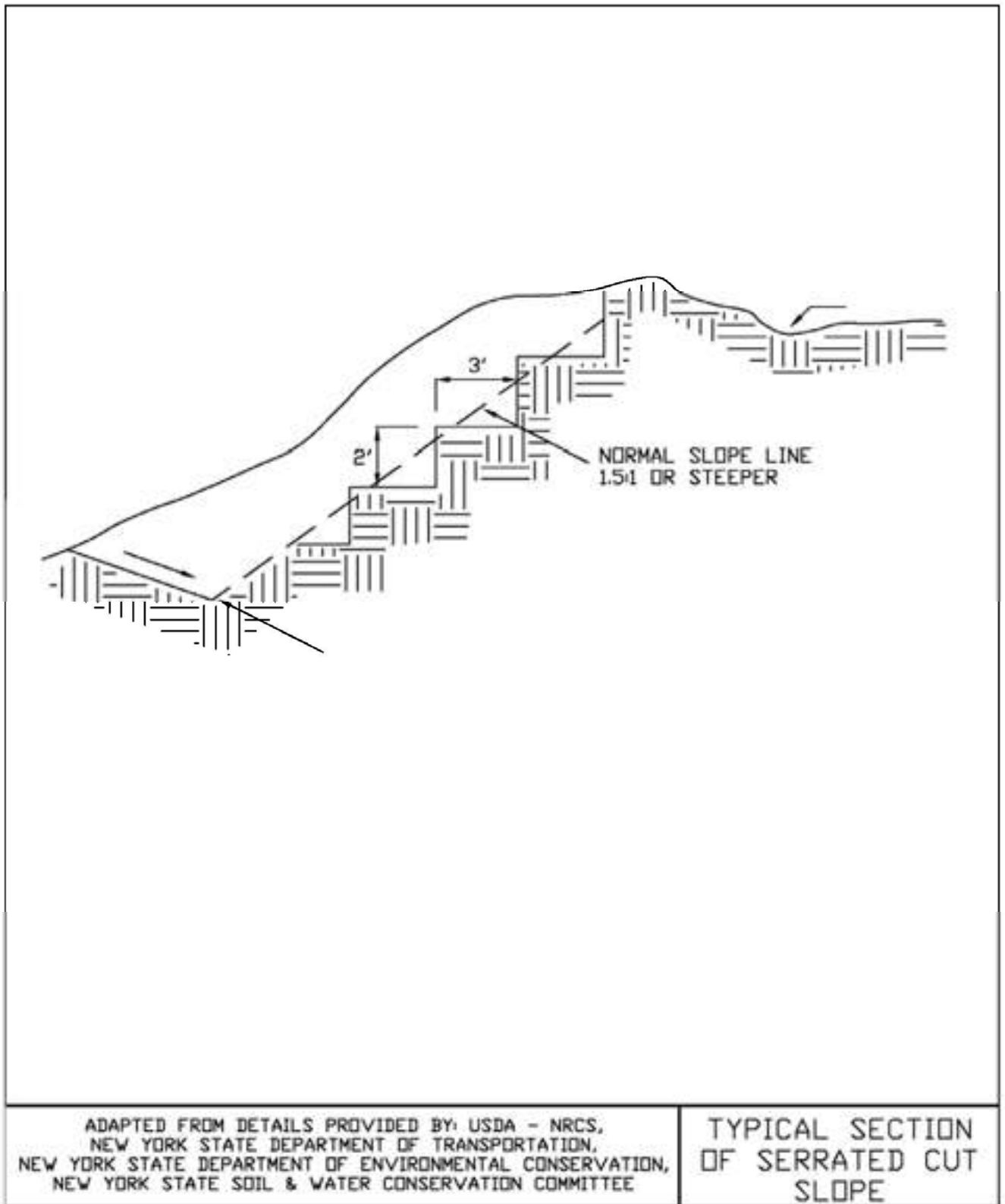
See Figures 4.9 and 4.10 for details.

1. All graded or disturbed areas, including slopes, shall be protected during clearing and construction in accordance with the erosion and sediment control plan until they are adequately stabilized.
2. All erosion and sediment control practices and measures shall be constructed, applied and maintained in accordance with the erosion and sediment control plan and these standards.
3. Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.



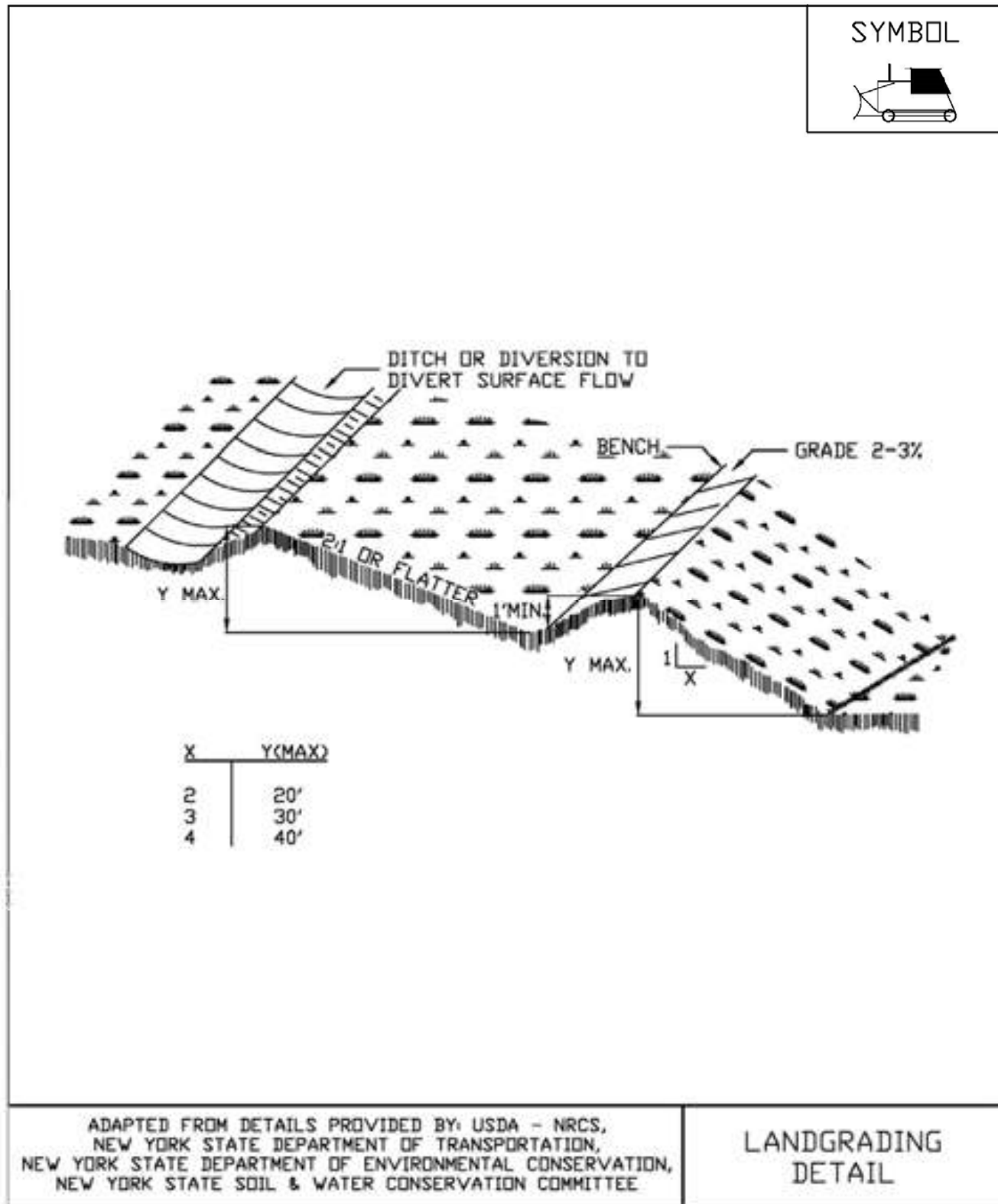


**Figure 4.9**  
**Typical Section of Serrated Cut Slope**





**Figure 4.10**  
**Landgrading**





**Figure 4.11**  
**Landgrading - Construction Specifications**

<u>CONSTRUCTION SPECIFICATIONS</u>	
<ol style="list-style-type: none"> <li>1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.</li> <li>2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.</li> <li>3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.</li> <li>4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.</li> <li>5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.</li> <li>6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.</li> <li>7. ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.</li> <li>8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.</li> <li>9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.</li> <li>10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.</li> <li>11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.</li> <li>12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.</li> <li>13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.</li> <li>14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.</li> </ol>	
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	<b>LANDGRADING SPECIFICATIONS</b>



# STANDARD AND SPECIFICATIONS FOR LIME APPLICATION



The amount of limestone needed can be estimated by using the following table. A soil test is the only way to determine the soil pH. This table is very general, but it is useful for planning.

## **Definition & Scope**

**Permanent** incorporation of agricultural ground limestone within the top 2 to 6 inches of the soil profile to increase the soil pH from an acidic level to a neutral level to provide an active growth medium for vegetation.

## **Conditions Where Practice Applies**

At all locations where a vigorous growth of vegetation is desired and the soil pH is less than 7.0 or neutral.

## **Design Criteria**

Liming material sold in New York varies considerably in several ways. The mineral content (calcium and magnesium) of the limestone may be high or low and, the fineness or particle sizes vary between suppliers. Two types of limestone are sold. The most common is limestone high in calcium. Dolomitic limestone contains magnesium (Mg) and calcium (Ca). Limestone sold in NY varies from 0 to 20% Mg while the calcium content of lime varies from 14.7% to 51.5%. Particle size determines how rapidly the calcium and magnesium will react with the acid in the soil. The finer the particle sizes, the quicker the reaction.

When obtaining agricultural limestone, one should state on the specification that the amount should be adjusted to 100% effective neutralizing value (ENV). This is the way to compare materials as it adjusts for the reactive Ca and Mg and the particle size. The ENV is stated as the ratio needed to convert a limestone recommendation to 100% ENV. Thus, if the recommendation is 4 tons/acre of 100% ENV lime and the lime being used had an 80% ENV ( $1/ENV = 1.25$ ), 4 times 1.25 or 5 tons/acre would be required.

**General lime guidelines (at 100% ENV)**

Initial Soil pH	Sands	Sandy Loams	Loam and Silt Loams	Silty Clay Loams
4.5	2.5	6.0	9.5	13.0
4.6-4.7	2.5	6.0	9.0	12.5
4.8-4.9	2.5	5.5	8.5	12.0
5.0-5.1	2.0	5.0	7.5	10.5
5.2-5.3	1.5	4.0	6.5	8.5
5.4-5.5	1.0	3.0	4.0	6.0
5.6-5.7	1.0	2.0	3.0	4.5
5.8-5.9	0.7	1.5	2.5	3.5
6.0-6.1	0.6	1.5	2.0	3.0
6.2-6.3	0.4	1.0	1.5	2.0
6.4-6.5	0.3	0.7	1.0	1.5
6.6-6.7	0.2	0.5	0.7	1.0
Lime guidelines are in tons per acre and are based on a plow depth of 8.0 inches. Correct rate if plowing to a different depth.				
Conversion for small areas: 1 ton/acre = 2,000#/43,560 ft <sup>2</sup> , 46#/1,000 ft <sup>2</sup>				

Note: Lime should not be applied within 50 feet of streams and wetlands.



# STANDARD AND SPECIFICATIONS FOR MULCHING



## **Definition and Scope**

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch can also be used alone for temporary stabilization in non-growing months. Use of stone as a mulch could be more permanent and should not be limited to non-growing months.

## **Conditions Where Practice Applies**

On soils subject to erosion and on new seedlings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

## **Criteria**

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Hay mulch shall not be used in wetlands or in areas of permanent seeding. Clean straw mulch is preferred alternative in wetland application. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.





**Table 4.2**  
**Guide to Mulch Materials, Rates, and Uses**

<b>Mulch Material</b>	<b>Quality Standards</b>	<b>per 1000 Sq. Ft.</b>	<b>per Acre</b>	<b>Depth of Application</b>	<b>Remarks</b>
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4' x 112.5' or 8' x 112.5'.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.



**Table 4.3**  
**Mulch Anchoring Guide**

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45 <sup>0</sup> Fahrenheit are required.



# STANDARD AND SPECIFICATIONS FOR PERMANENT CONSTRUCTION AREA PLANTING



## Definition & Scope

Establishing **permanent** grasses with other forbs and/or shrubs to provide a minimum 80% perennial vegetative cover on areas disturbed by construction and critical areas to reduce erosion and sediment transport. Critical areas may include but are not limited to steep excavated cut or fill slopes as well as eroding or denuded natural slopes and areas subject to erosion.

## Conditions Where Practice Applies

This practice applies to all disturbed areas void of, or having insufficient, cover to prevent erosion and sediment transport. See additional standards for special situations such as sand dunes and sand and gravel pits.

## Criteria

All water control measures will be installed as needed prior to final grading and seedbed preparation. Any severely compacted sections will require chiseling or disking to provide an adequate rooting zone, to a minimum depth of 12", see Soil Restoration Standard. The seedbed must be prepared to allow good soil to seed contact, with the soil not too soft and not too compact. Adequate soil moisture must be present to accomplish this. If surface is powder dry or sticky wet, postpone operations until moisture changes to a favorable condition. If seeding is accomplished within 24 hours of final grading, additional scarification is generally not needed, especially on ditch or stream banks. Remove all stones and other debris from the surface that are greater than 4 inches, or that will interfere with future mowing or maintenance.

Soil amendments should be incorporated into the upper 2 inches of soil when feasible. **The soil should be tested to determine the amounts of amendments needed.** Apply

ground agricultural limestone to attain a pH of 6.0 in the upper 2 inches of soil. If soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 600 lbs. per acre of 5-5-10 or equivalent. If manure is used, apply a quantity to meet the nutrients of the above fertilizer. This requires an appropriate manure analysis prior to applying to the site. Do not use manure on sites to be planted with birdsfoot trefoil or in the path of concentrated water flow.

Seed mixtures may vary depending on location within the state and time of seeding. Generally, warm season grasses should only be seeded during early spring, April to May. These grasses are primarily used for vegetating excessively drained sands and gravels. See Standard and Specification for Sand and Gravel Mine Reclamation. Other grasses may be seeded any time of the year when the soil is not frozen and is workable. When legumes such as birdsfoot trefoil are included, spring seeding is preferred. See Table 4.4, "Permanent Construction Area Planting Mixture Recommendations" for additional seed mixtures.

General Seed Mix:	Variety	lbs./acre	lbs/1000 sq. ft.
Red Clover <sup>1</sup> <u>OR</u>	Acclaim, Rally, Red Head II, Renegade	8 <sup>2</sup>	0.20
Common white clover <sup>1</sup>	Common	8	0.20
<u>PLUS</u>			
Creeping Red Fescue	Common	20	0.45
<u>PLUS</u>			
Smooth Bromegrass <u>OR</u>	Common	2	0.05
Ryegrass (perennial)	Pennfine/Linn	5	0.10
<sup>1</sup> add inoculant immediately prior to seeding <sup>2</sup> Mix 4 lbs each of Empire and Pardee <u>OR</u> 4 lbs of Birdsfoot and 4 lbs white clover per acre. All seeding rates are given for Pure Live Seed (PLS)			

Pure Live Seed, or (PLS) refers to the amount of live seed in a lot of bulk seed. Information on the seed bag label includes the type of seed, supplier, test date, source of seed, purity, and germination. Purity is the percentage of pure seed. Germination is the percentage of pure seed that will produce normal plants when planted under favorable conditions.



To compute Pure Live Seed multiply the “germination percent” times the “purity” and divide that by 100 to get Pure Live Seed.

$$\text{Pure Live Seed (PLS)} = \frac{\% \text{ Germination} \times \% \text{ Purity}}{100}$$

For example, the PLS for a lot of Kentucky Blue grass with 75% purity and 96% germination would be calculated as follows:

$$\frac{(96) \times (75)}{100} = 72\% \text{ Pure Live Seed}$$

For 10lbs of PLS from this lot =

$$\frac{10}{0.72} = 13.9 \text{ lbs}$$

Therefore, 13.9 lbs of seed is the actual weight needed to meet 10lbs PSL from this specific seed lot.

Time of Seeding: The optimum timing for the general seed mixture is early spring. Permanent seedings may be made any time of year if properly mulched and adequate moisture is provided. Late June through early August is not a good time to seed, but may facilitate covering the land without additional disturbance if construction is completed. Portions of the seeding may fail due to drought and heat. These areas may need reseeding in late summer/fall or the following spring.

Method of seeding: Broadcasting, drilling, cultipack type seeding, or hydroseeding are acceptable methods. Proper soil to seed contact is key to successful seedings.

Mulching: Mulching is essential to obtain a uniform stand of seeded plants. Optimum benefits of mulching new seedings are obtained with the use of small grain straw applied at a rate of 2 tons per acre, and anchored with a netting or tackifier. See the Standard and Specifications for Mulching for choices and requirements.

Irrigation: Watering may be essential to establish a new seeding when a drought condition occurs shortly after a new seeding emerges. Irrigation is a specialized practice and care must be taken not to exceed the application rate for the soil or subsoil. When disconnecting irrigation pipe, be sure pipes are drained in a safe manor, not creating an erosion concern.



80% Perennial Vegetative Cover



50% Perennial Vegetative Cover



**Table 4.4**  
**Permanent Construction Area Planting Mixture Recommendations**

Seed Mixture	Variety	Rate in lbs./acre (PLS)	Rate in lbs./ 1, 000 ft <sup>2</sup>
<b>Mix #1</b>			
Creeping red fescue	Ensylva, Pennlawn, Boreal	10	.25
Perennial ryegrass	Pennfine, Linn	10	.25
*This mix is used extensively for shaded areas.			
<b>Mix #2</b>			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	20	.50
*This rate is in pure live seed, this would be an excellent choice along the upland edge of a wetland to filter runoff and provide wildlife benefits. In areas where erosion may be a problem, a companion seeding of sand lovegrass should be added to provide quick cover at a rate of 2 lbs. per acre (0.05 lbs. per 1000 sq. ft.).			
<b>Mix #3</b>			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	4	.10
Big bluestem	Niagara	4	.10
Little bluestem	Aldous or Camper	2	.05
Indiangrass	Rumsey	4	.10
Coastal panicgrass	Atlantic	2	.05
Sideoats grama	El Reno or Trailway	2	.05
Wildflower mix		.50	.01
*This mix has been successful on sand and gravel plantings. It is very difficult to seed without a warm season grass seeder such as a Truax seed drill. Broadcasting this seed is very difficult due to the fluffy nature of some of the seed, such as bluestems and indiangrass.			
<b>Mix #4</b>			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	10	.25
Coastal panicgrass	Atlantic	10	.25
*This mix is salt tolerant, a good choice along the upland edge of tidal areas and roadsides.			
<b>Mix #5</b>			
Saltmeadow cordgrass ( <i>Spartina patens</i> )—This grass is used for tidal shoreline protection and tidal marsh restoration. It is planted by vegetative stem divisions.			
'Cape' American beachgrass can be planted for sand dune stabilization above the saltmeadow cordgrass zone.			
<b>Mix #6</b>			
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	.45
Chewings Fescue	Common	20	.45
Perennial ryegrass	Pennfine, Linn	5	.10
Red Clover	Common	10	.45
*General purpose erosion control mix. Not to be used for a turf planting or play grounds.			



# STANDARD AND SPECIFICATIONS FOR SOIL RESTORATION



## Definition & Scope

The decompaction of areas of a development site or construction project where soils have been disturbed to recover the original properties and porosity of the soil; thus providing a sustainable growth medium for vegetation, reduction of runoff and filtering of pollutants from stormwater runoff.

## Conditions Where Practice Applies

Soil restoration is to be applied to areas whose heavy construction traffic is done and final stabilization is to begin. This is generally applied in the cleanup, site restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate ground cover to maintain the soil structure. Soil restoration measures should be applied over and adjacent to any runoff reduction practices to achieve design performance.



## Design Criteria

1. Soil restoration areas will be designated on the plan views of areas to be disturbed.

2. Soil restoration will be completed in accordance with Table 4.6 on page 4.53.

## Specification for Full Soil Restoration

During periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following Soil Restoration steps applied:

1. Apply 3 inches of compost over subsoil. The compost shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table, except for "Particle Size" 100% will pass the 1/2" sieve. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content.**



2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor mounted disc, or tiller, to mix and circulate air and compost into the subsoil.
3. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.
4. Apply topsoil to a depth of 6 inches.
5. Vegetate as required by the seeding plan. Use appropriate ground cover with deep roots to maintain the soil structure.
6. Topsoil may be manufactured as a mixture or a mineral component and organic material such as compost.



At the end of the project an inspector should be able to push a 3/8" metal bar 12 inches into the soil just with body weight. This should not be performed within the drip line of any existing trees or over utility installations that are within 24 inches of the surface.

## **Maintenance**

Keep the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths.

**Table 4.6**  
**Soil Restoration Requirements**

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only - no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	
	Aerate* and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.		
* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.			
** Per “Deep Ripping and De-compaction, DEC 2008”.			



# STANDARD AND SPECIFICATIONS FOR SURFACE ROUGHENING



## **Definition & Scope**

Roughening a bare soil surface whether through creating horizontal grooves across a slope, stair-stepping, or tracking with construction equipment to aid the establishment of vegetative cover from seed, to reduce runoff velocity and increase infiltration, and to reduce erosion and provide for trapping of sediment.

## **Conditions Where Practice Applies**

All construction slopes require surface roughening to facilitate stabilization with vegetation, particularly slopes steeper than 3:1.

## **Design Criteria**

There are many different methods to achieve a roughened soil surface on a slope. No specific design criteria is required. However, the selection of the appropriate method depends on the type of slope. Methods include tracking, grooving, and stair-stepping. Steepness, mowing requirements, and/or a cut or fill slope operation are all factors considered in choosing a roughening method.

## **Construction Specifications**

### **1. Cut Slope, No mowing.**

- A. Stair-step grade or groove cut slopes with a gradient steeper than 3:1 (Figure 4.18).
- B. Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes of soft rock with some soil are particularly suited to stair-step grading.

- C. Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the “step” to the vertical wall.
- D. Do not make vertical cuts more than 2 feet in soft materials or 3 feet in rocky materials.

Grooving uses machinery to create a series of ridges and depressions that run perpendicular to the slope following the contour. Groove using any appropriate implement that can be safely operated on the slope, such as disks, tillers, spring harrows, or the teeth of a front-end loader bucket. Do not make the grooves less than 3 inches deep or more than 15 inches apart.

### **2. Fill Slope, No mowing**

- A. Place fill to create slopes with a gradient no steeper than 2:1 in lifts 9 inches or less and properly compacted. Ensure the face of the slope consists of loose, uncompacted fill 4 to 6 inches deep. Use grooving as described above to roughen the slope, if necessary.
- B. Do not back blade or scrape the final slope face.

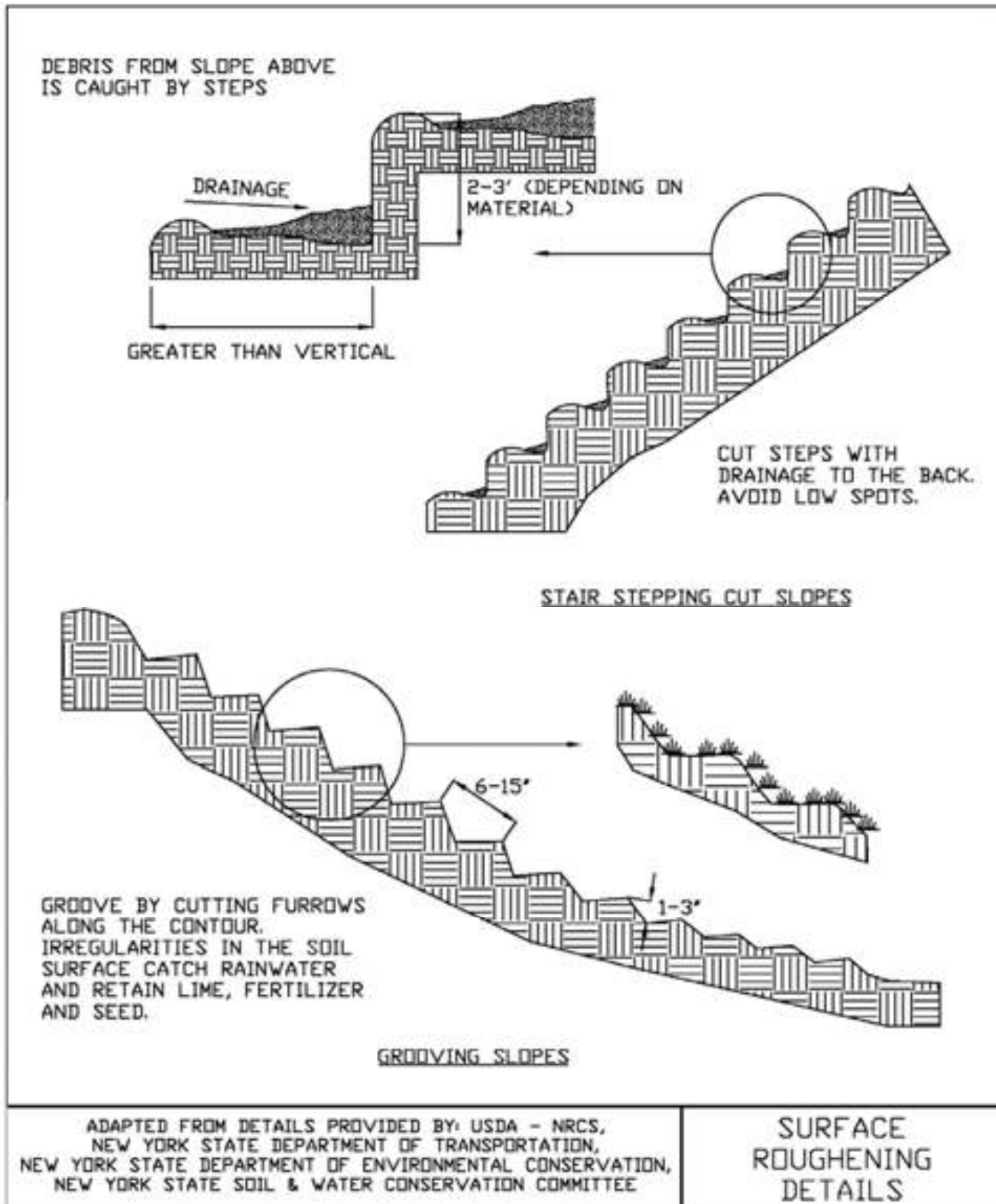
### **3. Cuts/Fills, Mowed Maintenance**

- A. Make mowed slopes no steeper than 3:1.
- B. Roughen these areas to shallow grooves by normal tilling, disking, harrowing, or use of cultipacker-seeder. Make the final pass of such tillage equipment on the contour.
- C. Make grooves at least 1 inch deep and a maximum of 10 inches apart.
- D. Excessive roughness is undesirable where mowing is planned.

Tracking should be used primarily in sandy soils to avoid undue compaction of the soil surface. Tracking is generally not as effective as the other roughening methods described. (It has been used as a method to track down mulch.) Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.



**Figure 4.18**  
**Surface Roughening**





# STANDARD AND SPECIFICATIONS FOR TEMPORARY CONSTRUCTION AREA SEEDING



## **Definition & Scope**

Providing temporary erosion control protection to disturbed areas and/or localized critical areas for an interim period by covering all bare ground that exists as a result of construction activities or a natural event. Critical areas may include but are not limited to steep excavated cut or fill slopes and any disturbed, denuded natural slopes subject to erosion.

## **Conditions Where Practice Applies**

Temporary seedings may be necessary on construction sites to protect an area, or section, where final grading is complete, when preparing for winter work shutdown, or to provide cover when permanent seedings are likely to fail due to mid-summer heat and drought. The intent is to provide temporary protective cover during temporary shutdown of construction and/or while waiting for optimal planting time.

## **Criteria**

Water management practices must be installed as appropriate for site conditions. The area must be rough graded and slopes physically stable. Large debris and rocks are usually removed. Seedbed must be seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding.

Fertilizer or lime are not typically used for temporary seedings.

IF: Spring or summer or early fall, then seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb./1000 sq. ft. or use 1 lb./1000 sq. ft.).

IF: Late fall or early winter, then seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs./1000 sq. ft.).

Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact.

Mulch the area with hay or straw at 2 tons/acre (approx. 90 lbs./1000 sq. ft. or 2 bales). Quality of hay or straw mulch allowable will be determined based on long term use and visual concerns. Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydromulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specification. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding and can be a hazard to young wildlife species.



# STANDARD AND SPECIFICATIONS FOR TOPSOILING



## **Definition & Scope**

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas to provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

## **Conditions Where Practice Applies**

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

## **Design Criteria**

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.
2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established. Topsoil stockpiles must be stabilized. Stockpile surfaces can be stabilized by vegetation, geotextile or plastic covers. This can be aided by orientating the stockpile lengthwise into prevailing winds.
3. Refer to USDA Natural Resource Conservation Service soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

## **Site Preparation**

1. As needed, install erosion and sediment control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.
2. Complete rough grading and final grade, allowing for depth of topsoil to be added.
3. 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 percent. Areas that have been overly compacted shall be decompacted in accordance with the Soil Restoration Standard.
4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

## **Topsoil Materials**

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.
2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.
3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.
4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.
5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.
6. Topsoil may be manufactured as a mixture of a mineral component and organic material such as compost.

## **Application and Grading**

1. Topsoil shall be distributed to 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 puddles.
2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by "tracking" with suitable equipment.
3. Apply topsoil in the amounts shown in Table 4.7 below:



<b>Table 4.7 - Topsoil Application Depth</b>		
<b>Site Conditions</b>	<b>Intended Use</b>	<b>Minimum Topsoil Depth</b>
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, clay loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.



# STANDARD AND SPECIFICATIONS FOR COFFERDAM STRUCTURES



## **Definition & Scope**

A **temporary** barrier placed at a worksite to prevent water from flooding the work area so that construction can take place without discharging sediment into the water resource.

## **Condition Where Practice Applies**

Temporary coffer dams are used to separate streams, rivers, lakes, and other sources of surface water from adjacent locations where soil disturbances are undertaken to complete construction. These barriers can be constructed of manufactured components such as geotextile/plastic tubes filled with water, portable dams formed by metal framing with a geo-membrane, or conventionally constructed earth and stone dike systems.

## **Design Criteria**

The maximum height for this application is 10 feet. No construction activity shall commence in the area of the cofferdam until it is completed and stabilized.

## **Water Filled Structures**

1. These structures shall be sized and installed according to the manufacturers recommendations.
2. Adequate freeboard must be provided to prevent flotation during high water events and periods of below freezing temperatures.
3. The foundation shall be prepared to provide full bottom contact prior to filling.
4. An interior dewatering system shall be designed within

the work area to manage seepage.

5. The ends of the water structures shall be anchored on the stream banks or shorelines at an elevation at least above the top of the structure.

## **Structural Component Dams**

1. These structures shall be sized and installed in accordance with the manufacturers recommendations.
2. The foundation area for the placement of the structural steel framing and the impervious fabric membrane shall be as directed by the manufacturer or by qualified personnel.
3. Dewatering the interior of the coffer dam will be done in a manner that does not disturb the foundation area of the structural frame.
4. A minimum of 2 feet of freeboard shall be provided above the expected high water elevation.

## **Earthen Cofferdams**

1. The earthen coffer dam shall be constructed of fill material that will preclude the transmission of water through the dam, or contain an impermeable core.
2. The minimum top width shall be 8 feet with 2:1 side slopes, and compacted in 9 inch lifts with a minimum of 4 passes of construction equipment.
3. The outside slope shall be covered with a 1 foot layer of rock riprap over a graded stone bedding or geotextile to prevent erosion of soil material into water. An alternative method is to cover the outside slope with an anchored plastic cover with a minimum thickness of 20 mil.
4. Interior work will be conducted in a manner that will not disturb or undermine the earthen coffer dam or its foundation.

## **Inspection and Maintenance**

1. All cofferdams will be inspected daily to assure proper performance and stability as vibration from construction equipment can cause disturbance of the structures.
2. Particular attention should be given to the foundation support system at perimeter of structural component dams. Any undermined or settled areas shall be restored immediately.



3. Any holes, leaks, or torn areas in the geo-membranes or fabric shall be repaired immediately.
4. Any shifting, movement, or settling of the coffer dam shall be addressed immediately to protect workers in the construction area.
5. Inspect the interior dewatering system and ensure that the system is discharging clean water, or is being pumped to appropriate sediment control facility prior to returning to the water resource.
6. Repair or replace any loss of rock riprap or fill that may occur and assure the top of the coffer dam is level without any low spots due to settling.
7. Upon completion of the construction work, remove all excess material, accumulated sediment and debris from the work area, and remove the cofferdam in accordance with the site stabilization plan.



# STANDARD AND SPECIFICATIONS FOR COMPOST FILTER SOCK



that 8" diameter socks may be used for residential lots to control areas less than 0.25 acres.

- The flat dimension of the sock shall be at least 1.5 times the nominal diameter.
- The **Maximum Slope Length** (in feet) above a compost filter sock shall not exceed the following limits:

Dia. (in.)	Slope %						
	2	5	10	20	25	33	50
8	225*	200	100	50	20	—	—
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35
32	450	325	275	150	120	75	50

\* Length in feet

## Definition & Scope

A **temporary** sediment control practice composed of a degradable geotextile mesh tube filled with compost filter media to filter sediment and other pollutants associated with construction activity to prevent their migration offsite.

## Condition Where Practice Applies

Compost filter socks can be used in many construction site applications where erosion will occur in the form of sheet erosion and there is no concentration of water flowing to the sock. In areas with steep slopes and/or rocky terrain, soil conditions must be such that good continuous contact between the sock and the soil is maintained throughout its length. For use on impervious surfaces such as road pavement or parking areas, proper anchorage must be provided to prevent shifting of the sock or separation of the contact between the sock and the pavement. Compost filter socks are utilized both at the site perimeter as well as within the construction areas. These socks may be filled after placement by blowing compost into the tube pneumatically, or filled at a staging location and moved into its designed location.

## Design Criteria

- Compost filter socks will be placed on the contour with both terminal ends of the sock extended 8 feet upslope at a 45 degree angle to prevent bypass flow.
- Diameters designed for use shall be 12" – 32" except



- The compost infill shall be well decomposed (matured at least 3 months), weed-free, organic matter. It shall be aerobically composted, possess no objectionable odors, and contain less than 1%, by dry weight, of man-made foreign matter. The physical parameters of the compost shall meet the standards listed in Table 5.2 - Compost Standards Table. **Note: All biosolids compost produced in New York State (or approved for importation) must meet NYS DEC's 6 NYCRR Part 360 (Solid Waste Management Facilities) requirements. The Part 360 requirements are equal to or more stringent than 40 CFR Part 503 which ensure safe standards for pathogen reduction and heavy metals content. When using compost filter socks adjacent to surface water, the compost should have a low nutrient value.**
- The compost filter sock fabric material shall meet the



7. Compost filter socks shall be anchored in earth with 2" x 2" wooden stakes driven 12" into the soil on 10 foot centers on the centerline of the sock. On uneven terrain, effective ground contact can be enhanced by the placement of a fillet of filter media on the disturbed area side of the compost sock.
8. All specific construction details and material specifications shall appear on the erosion and sediment control constructions drawings when compost filter socks are included in the plan.
3. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired in the manner required by the manufacturer or replaced within 24 hours of inspection notification.
4. Biodegradable filter socks shall be replaced after 6 months; photodegradable filter socks after 1 year. Polypropylene socks shall be replaced according to the manufacturer's recommendations.
5. Upon stabilization of the area contributory to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed in accordance with the stabilization plan. For removal the mesh can be cut and the compost spread as an additional mulch to act as a soil supplement.

### **Maintenance**

1. Traffic shall not be permitted to cross filter socks.
2. Accumulated sediment shall be removed when it reaches half the above ground height of the sock and disposed of in accordance with the plan.

**Table 5.1 - Compost Sock Fabric Minimum Specifications Table**

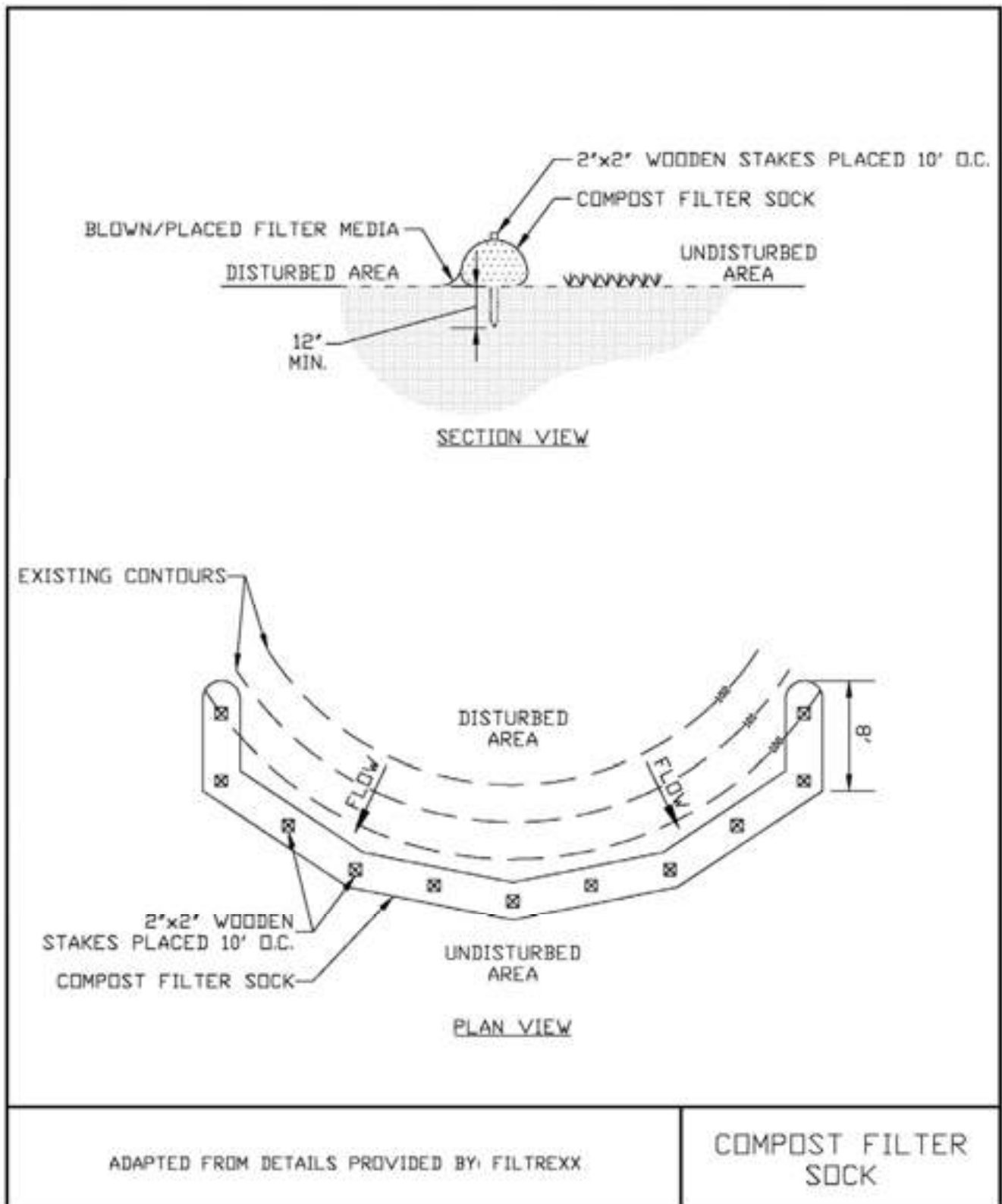
Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photodegradable	Photodegradable	Biodegradable	Photodegradable	Photodegradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years

**Table 5.2 - Compost Standards Table**

Organic matter content	25% - 100% (dry weight)
Organic portion	Fibrous and elongated
pH	6.0 – 8.0
Moisture content	30% - 60%
Particle size	100% passing a 1" screen and 10 - 50% passing a 3/8" screen
Soluble salt concentration	5.0 dS/m (mmhos/cm) maximum



**Figure 5.2**  
**Compost Filter Sock**





# STANDARD AND SPECIFICATIONS FOR GEOTEXTILE FILTER BAG



## **Definition & Scope**

A **temporary** portable device through which sediment laden water is pumped to trap and retain sediment prior to its discharge to drainageways or off-site.

## **Condition Where Practice Applies**

On sites where space is limited such as urban construction or linear projects (e.g. roads and utility work) where rights-of-way are limited and larger de-silting practices are impractical.

## **Design Criteria**

1. Location - The portable filter bag should be located to minimize interference with construction activities and pedestrian traffic. It should also be placed in a location that is vegetated, relatively level, and provides for ease of access by heavy equipment, cleanout, disposal of trapped sediment, and proper release of filtered water.

The filter bag shall also be placed at least 50 feet from all wetlands, streams or other surface waters.

2. Size - Geotextile filter bag shall be sized in accordance with the manufacturers recommendations based on the pump discharge rate.

## **Materials and Installation**

1. The geotextile material will have the following attributes:

Minimum Grab Tensile Strength	200 lbs.
Minimum Grab Tensile Elongation	50 %
Minimum Trapezoid Tear Strength	80 lbs.
Mullen Burst Strength	380 psi
Minimum Puncture Strength	130 lbs
Apparent Opening Size	40 - 80 US sieve
Minimum UV Resistance	70%
Minimum Flow Thru Rate	70 gpm/sq ft

2. The bag shall be sewn with a double needle machine using high strength thread, double stitched "Joe" type capable of minimum roll strength of 100 lbs/inch (ASTM D4884).
3. The geotextile filter bag shall have an opening large enough to accommodate a 4 inch diameter discharge hose with an attached strap to tie off the bag to the hose to prevent back flow.
4. The geotextile shall be placed on a gravel bed 2 inches thick, a straw mat 4 inches thick, or a vegetated filter strip to allow water to flow out of the bag in all directions.

## **Maintenance**

1. The geotextile filter bag is considered full when remaining bag flow area has been reduced by 75%. At this point, it should be replaced with a new bag.
2. Disposal may be accomplished by removing the bag to an appropriate designated upland area, cut open, remove the geotextile for disposal, and spread sediment contents and seeded and mulched according to the vegetative plan.



# STANDARD AND SPECIFICATIONS FOR SEDIMENT TANK - PORTABLE



## **Definition & Scope**

A sediment tank is a compartmented tank or vessel container to which sediment laden water is pumped to trap and retain the sediment prior to releasing the water to drainage-ways, and rights-of-way below the sediment tank site.

## **Conditions Where Practice Applies**

A sediment tank is to be used on sites where excavations are deep, and space is limited, such as urban construction, where direct discharge of sediment laden water to stream and storm drainage systems is to be avoided.

## **Design Criteria**

### **Location**

The sediment tank shall be located for ease of clean-out and disposal of the trapped sediment, and to minimize the interference with construction activities and pedestrian traffic.

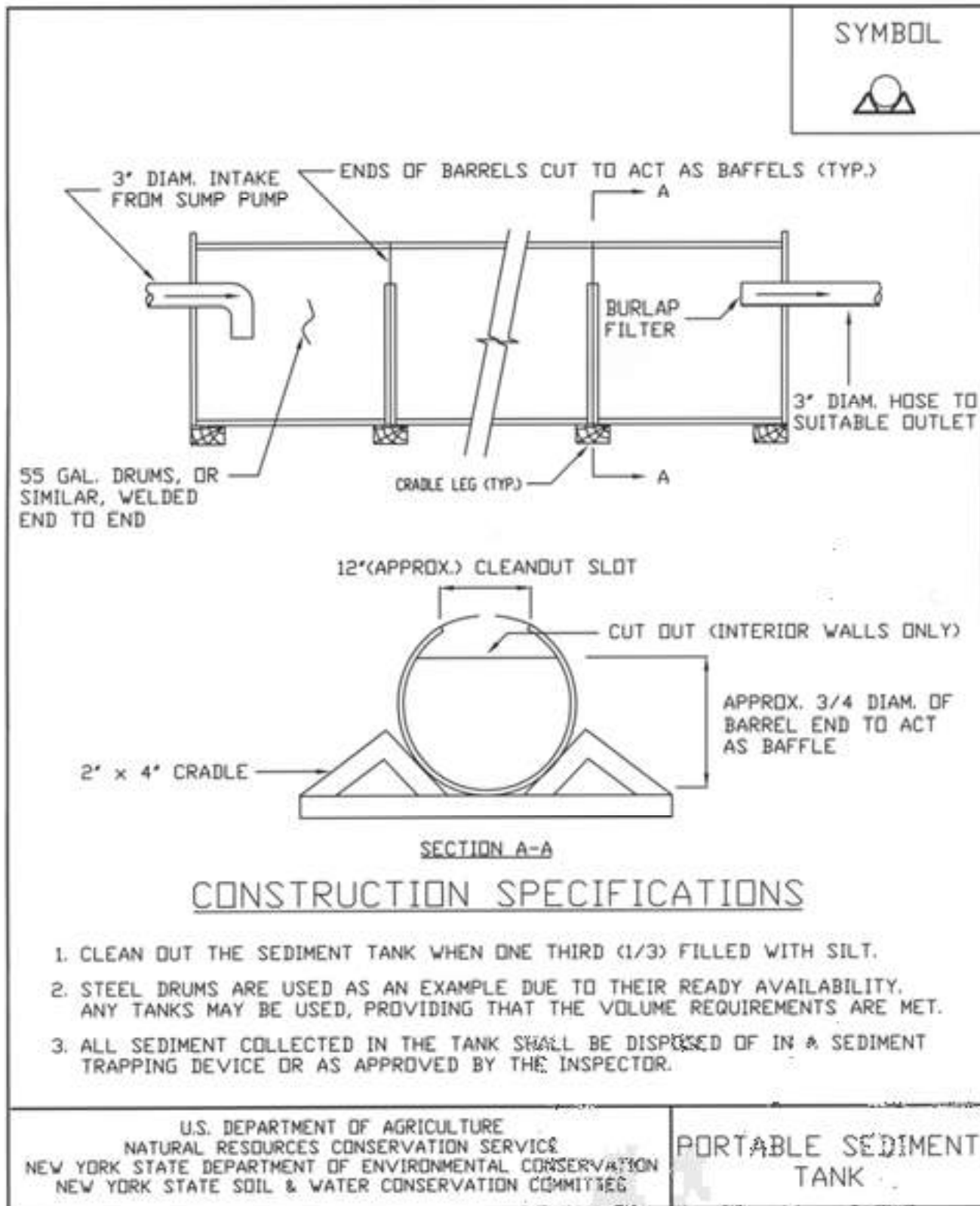
### **Tank Size**

The following formula should be used in determining the storage volume of the sediment tank; pump discharge (G.P.M.) x 16 = Cubic Foot Storage.

An example of a typical sediment tank is shown on Figure 5.24 on page 5.45. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency. Commercially manufactured tanks are also available.



**Figure 5.24**  
**Portable Sediment Tank**





# STANDARD AND SPECIFICATIONS FOR SILT FENCE



## Definition & Scope

A **temporary** barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil by temporarily ponding the sediment laden runoff allowing settling to occur. The maximum period of use is limited by the ultraviolet stability of the fabric (approximately one year).

## Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope length and fence length will not exceed the limits shown in the Design Criteria for the specific type of silt fence used ; and
2. Maximum ponding depth of 1.5 feet behind the fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier; and
5. Soil conditions allow for proper keying of fabric, or other anchorage, to prevent blowouts.

## Design Criteria

1. Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff.
2. All silt fences shall be placed as close to the disturbed area as possible, but at least 10 feet from the toe of a slope steeper than 3H:1V, to allow for maintenance and

roll down. The area beyond the fence must be undisturbed or stabilized.

3. The type of silt fence specified for each location on the plan shall not exceed the maximum slope length and maximum fence length requirements shown in the following table:

		Slope Length/Fence Length (ft.)		
Slope	Steepness	Standard	Reinforced	Super
<2%	< 50:1	300/1500	N/A	N/A
2-10%	50:1 to 10:1	125/1000	250/2000	300/2500
10-20%	10:1 to 5:1	100/750	150/1000	200/1000
20-33%	5:1 to 3:1	60/500	80/750	100/1000
33-50%	3:1 to 2:1	40/250	70/350	100/500
>50%	> 2:1	20/125	30/175	50/250

**Standard Silt Fence (SF)** is fabric rolls stapled to wooden stakes driven 16 inches in the ground.

**Reinforced Silt Fence (RSF)** is fabric placed against welded wire fabric with anchored steel posts driven 16 inches in the ground.

**Super Silt Fence (SSF)** is fabric placed against chain link fence as support backing with posts driven 3 feet in the ground.

4. Silt fence shall be removed as soon as the disturbed area has achieved final stabilization.

The silt fence shall be installed in accordance with the appropriate details. Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. Butt joints are not acceptable. A detail of the silt fence shall be shown on the plan. See Figure 5.30 on page 5.56 for Reinforced Silt Fence as an example of details to be provided.

## Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.



Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	110	ASTM D 4632
Elongation at Failure (%)	20	ASTM D 4632
Mullen Burst Strength (PSI)	300	ASTM D 3786
Puncture Strength (lbs)	60	ASTM D 4833
Minimum Trapezoidal Tear Strength (lbs)	50	ASTM D 4533
Flow Through Rate (gal/min/sf)	25	ASTM D 4491
Equivalent Opening Size	40-80	US Std Sieve ASTM D 4751
Minimum UV Residual (%)	70	ASTM D 4355

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.5 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot. Posts for super silt fence shall be standard chain link fence posts.
3. Wire Fence for reinforced silt fence: Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.
4. Prefabricated silt fence is acceptable as long as all material specifications are met.

#### Super Silt Fence

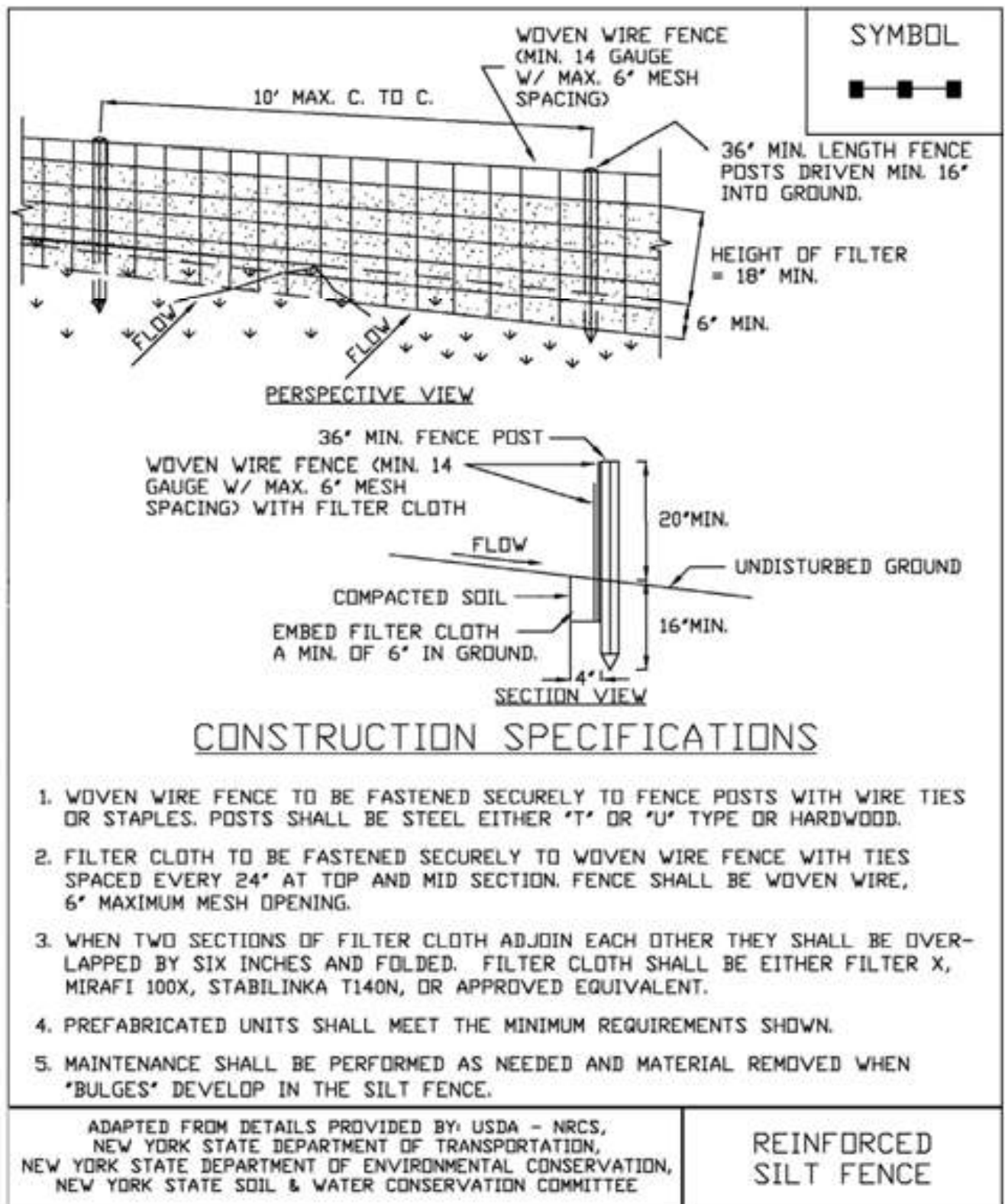


#### Reinforced Silt Fence





**Figure 5.30  
Reinforced Silt Fence**





# STANDARD AND SPECIFICATIONS FOR STRAW BALE DIKE



quarter of an acre per 100 feet of dike and the length of slope above the dike shall be less than 100 feet.

## Design Criteria

The above table is adequate, in general, for a one-inch rain-fall event. Larger storms could cause failure of this practice. Use of this practice in sensitive areas for longer than one month should be specifically designed to store expected runoff. All bales shall be placed on the contour with cut edge of bale adhering to the ground. See Figure 5.34 on page 5.64 for details.

## Definition & Scope

A **temporary** barrier of straw, or similar material, used to intercept sediment laden runoff from small drainage areas of disturbed soil to reduce runoff velocity and effect deposition of the transported sediment load. Straw bale dikes have an estimated design life of three (3) months.

## Condition Where Practice Applies

The straw bale dike is used where:

1. No other practice is feasible.
2. There is no concentration of water in a channel or other drainageway above the barrier.
3. Erosion would occur in the form of sheet erosion.
4. Length of slope above the straw bale dike does not exceed the following limits with the bale placed 10 feet from the toe of the slope:

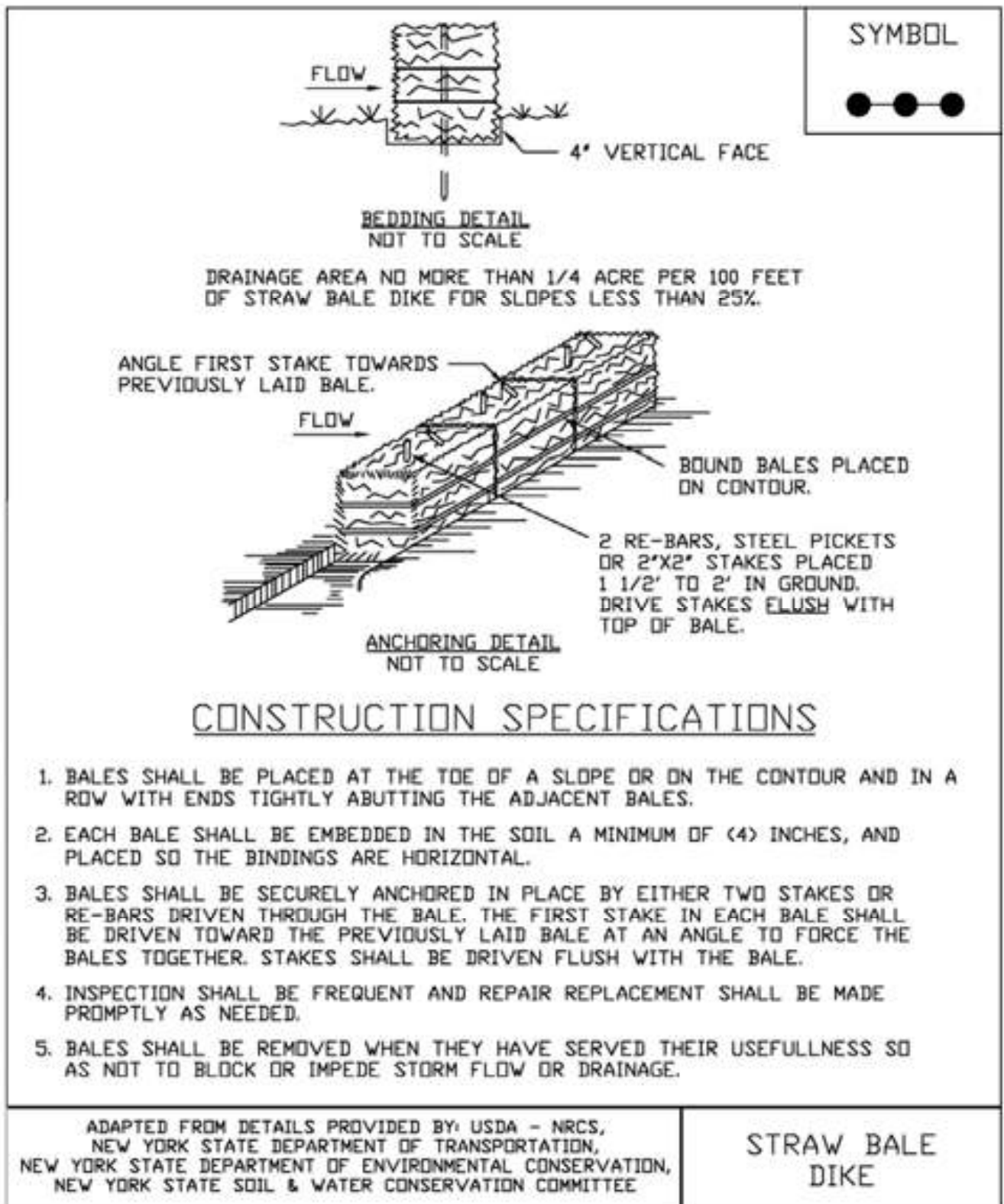
Constructed Slope	Percent Slope	Slope Length (ft.)
2:1	50	25
3:1	33	50
4:1	25	75

Where slope gradient changes through the drainage area, steepness refers to the steepest slope section contributing to the straw bale dike.

The practice may also be used for a single family lot if the slope is less than 15 percent. The contributing drainage areas in this instance shall be less than one



**Figure 5.34**  
**Straw Bale Dike**





# STANDARD AND SPECIFICATIONS FOR TURBIDITY CURTAIN



## **Definition & Scope**

A **temporary** flexible, impenetrable barrier used to trap sediment in water bodies. This curtain is weighted at the bottom to achieve closure while supported at the top through a flotation system and used to prevent the migration of silt from a work site in a water environment into the larger body of water. Top bar float has to support weight of curtain material. Bottom anchor has to be flexible so that it will lie along the contour of the water body bottom.

## **Condition Where Practice Applies**

A turbidity curtain is generally used when construction activity occurs within a waterbody or along its shoreline and is of short duration, generally less than one month. Curtains are used in calm water surfaces and not in areas of flowing water. **Turbidity curtains are not to be used across flowing watercourses.**

## **Design Criteria**

The turbidity curtain shall be located beyond the lateral limits of the construction site and firmly anchored in place. The alignment should be set as close to the work area as possible but not so close as to be disturbed by applicable construction equipment. The height of the curtain shall be 20 percent greater than the depth of the water to allow for water level fluctuations. The area that the turbidity curtain protects shall not contain large culverts or drainage areas that if flows occur behind the curtain would cause a breach or lost contact at the bottom surface.

If water depths at the design alignment are minimal, the toe can be anchored in place by staking.

See Figure 5.35 on page 5.66.

## **Construction Specifications**

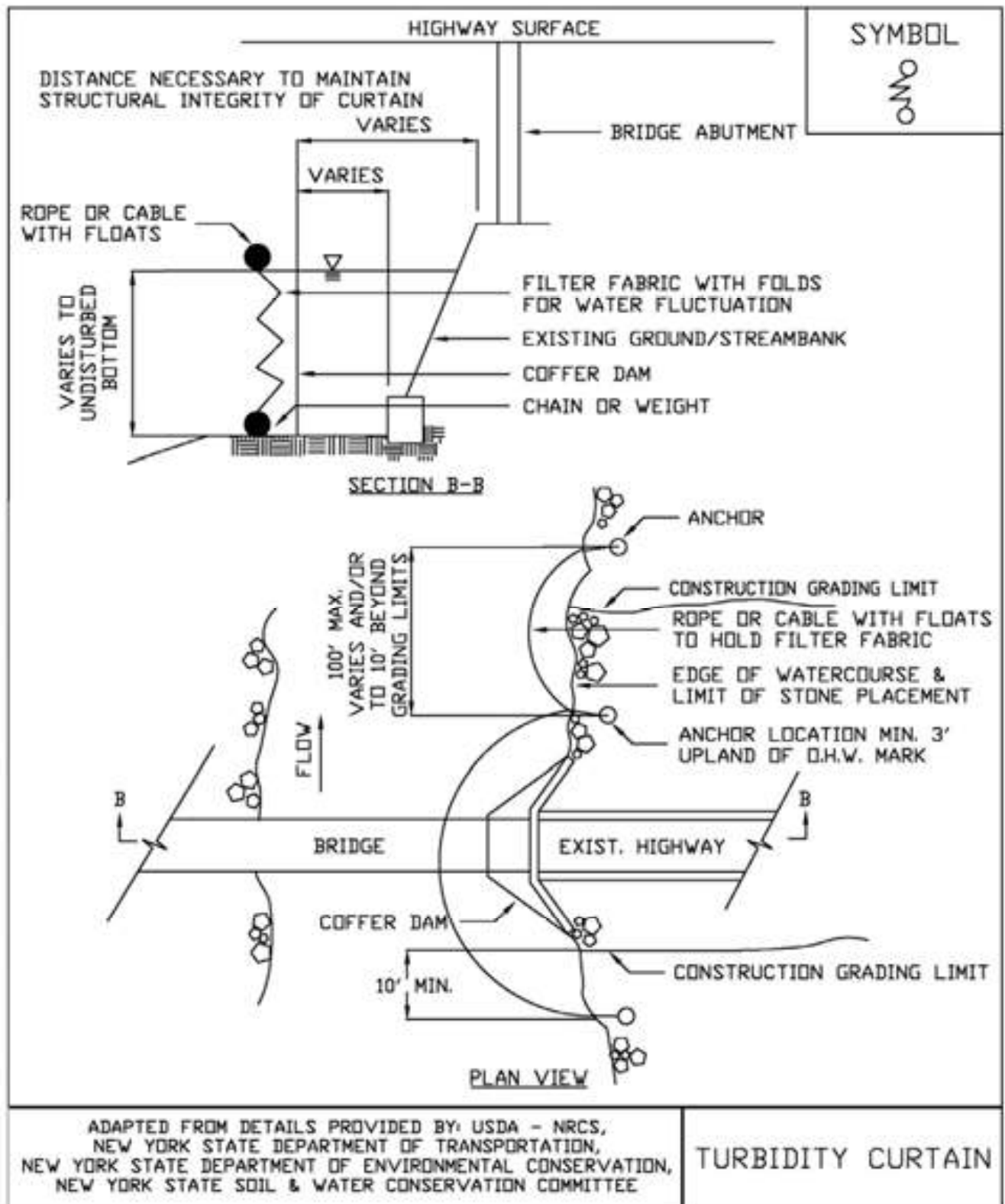
The area of proposed installation of the curtain shall be inspected for obstacles and impediments that could damage the curtain or impair its effectiveness to retain sediment. All materials shall be removed so they cannot enter the waterbody. Shallow installations can be made by securing the curtain by staking rather than using a flotation system. Supplemental anchors of the turbidity curtain toe shall be used, as needed, depending on water surface disturbances such as boats and wave action by winds.

## **Maintenance**

The turbidity curtain shall be inspected daily and repaired or replaced immediately. It is not normally necessary to remove sediment deposited behind the curtain; but, when necessary, removal is usually done by hand prior to removal of the barrier. All removed silt is stabilized away from the waterbody. The barrier shall be removed by carefully pulling it toward the construction site to minimize the release of attached sediment. Any floating construction or natural debris shall be immediately removed to prevent damage to the curtain. If the curtain is oriented in a manner that faces the prevailing winds, frequent checks of the anchorage shall be made.



**Figure 5.35**  
**Turbidity Curtain**





## **Appendix H – Spill Cleanup and Reporting Guidance**

- NYSDEC Technical Field Guidance: Spill Reporting and Initial Notification Requirements -
- NYSDEC CP-51: Soil Cleanup Guidance -





## **Appendix H – NYSDEC Technical Field Guidance: Spill Reporting and Initial Notification Requirements**



TECHNICAL  
FIELD GUIDANCE

**SPILL REPORTING AND INITIAL  
NOTIFICATION REQUIREMENTS**



## NOTES

### **Spill Reporting and Initial Notification Requirements**

#### **GUIDANCE SUMMARY AT-A-GLANCE**

- Reporting spills is a crucial first step in the response process.
- You should understand the spill reporting requirements to be able to inform the spillers of their responsibilities.
- Several different state, local, and federal laws and regulations require spillers to report petroleum and hazardous materials spills.
- The state and federal reporting requirements are summarized in Exhibit 1.1-1.
- Petroleum spills must be reported to DEC unless they meet all of the following criteria:
  - The spill is known to be less than 5 gallons; and
  - The spill is contained and under the control of the spiller; and
  - The spill has not and will not reach the State's water or any land; and
  - The spill is cleaned up within 2 hours of discovery.

All reportable petroleum spills and most hazardous materials spills must be reported to DEC hotline (1-800-457-7362) within New York State; and (1-518 457-7362) from outside New York State. For spills not deemed reportable, it is strongly recommended that the facts concerning the incident be documented by the spiller and a record maintained for one year.

- Inform the spiller to report the spill to other federal or local authorities, if required.
- Report yourself those spills for which you are unable to locate the responsible spiller.
- Make note of other agencies' emergency response telephone numbers in case you require their on-scene assistance, or if the response is their responsibility and not BSPR's.



## **NOTES**

### **1.1.1 Notification Requirements for Oil Spills and Hazardous Material Spills**

Spillers are required under state law and under certain local and federal laws to report spills. These various requirements, summarized in Exhibit 1.1-1, often overlap; that is, a particular spill might be required to be reported under several laws or regulations and to several authorities. Under state law, all petroleum and most hazardous material spills must be reported to DEC Hotline (1-800-457-7362), within New York State, and to 1-518-457-7362 from outside New York State. Prompt reporting by spillers allows for a quick response, which may reduce the likelihood of any adverse impact to human health and the environment. You will often have to inform spillers of their responsibilities.

Although the spiller is responsible for reporting spills, other persons with knowledge of a spill, leak, or discharge is required to report the incident (see Appendices A and B). You will often have to inform spillers of their responsibilities. You may also have to report spills yourself in situations where the spiller is not known or cannot be located. However, it is the legal responsibility of the spiller to report spills to both state and other authorities.

BSPR personnel also are responsible for notifying other response agencies when the expertise or assistance of other agencies is needed. For example, the local fire department should be notified of spills that pose a potential explosion and/or fire hazard. If such a hazard is detected and the fire department has not been notified, call for their assistance immediately. Fire departments are trained and equipped to respond to these situations; you should not proceed with your response until the fire/safety hazard is eliminated. For more information on interagency coordination in emergency situations see Part 1, Section 3, Emergency Response.

Another important responsibility is notifying health department officials when a drinking water supply is found to be contaminated as a result of a spill. It will be the health department's responsibility to advise you on the health risk associated with any contamination.

Exhibits 1.1-1 and 1.1-2 list the state and federal requirements to report petroleum and hazardous substance spills, respectively. The charts describe the type of material covered, the applicable act or regulation, the agency that must be notified, what must be reported, and the person responsible for reporting. New York state also has a emergency notification network for spill situations (e.g., major chemical releases) that escalate beyond the capabilities of local and regional response agencies/authorities to provide adequate response. The New York State Emergency Management Office (SEMO) coordinates emergency response activities among local, state, and federal government organizations in these cases.



**Exhibit 1.1-1**

**State and Federal Reporting Requirements for Petroleum Spills, Leaks, and Discharges**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Petroleum from any source	Navigation Law Article 12; 17 NYCRR 32.3 and 32.4	DEC Hotline 1-800-457-7362	<p>The notification of a discharge must be immediate, but in no case later than two hours after discharge.</p> <ol style="list-style-type: none"> <li>1. Name of person making report and his relationship to any person which might be responsible for causing the discharge.</li> <li>2. Time and date of discharge.</li> <li>3. Probable source of discharge.</li> <li>4. The location of the discharge, both geographic and with respect to bodies of water.</li> <li>5. Type of petroleum discharges.</li> <li>6. Possible health or fire hazards resulting from the discharge.</li> <li>7. Amount of petroleum discharged.</li> <li>8. All actions that are being taken to clean up and remove the discharge.</li> <li>9. The personnel presently on the scene.</li> <li>10. Other government agencies that have been or will be notified.</li> </ol>	Any person causing discharge of petroleum. Owner or person in actual or constructive control must notify DEC unless that person has adequate assurance that such notice has already been given.
All aboveground petroleum and underground storage facilities with a combined storage capacity of over 1100 gallons.	ECL §17-1007; 6 NYCRR §613.8	DEC Hotline 1-800-457-7362	<ol style="list-style-type: none"> <li>1. Report spill incident within two hours of discovery.</li> <li>2. Also when results of any inventory, record, test, or inspection shows a facility is leaking, that fact must be reported within two hours of discovery.</li> </ol>	Any person with knowledge of a spill, leak, or discharge.
Petroleum contaminated with PCB.	Chemical Bulk Storage Act 6 NYCRR Parts 595, 596, 597	DEC Hotline 1-800-457-7362	Releases of a reportable quantity of PCB oil.	Owner or person in actual or constructive possession or control of the substance, or a person in contractual relationship, who inspects, tests, or repairs for owner.



**Exhibit 1.1-1**

**State and Federal Reporting Requirements for Petroleum Spills, Leaks, and Discharges  
(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Any liquid (petroleum included) that if released would be likely to pollute lands or waters of the state.	ECL §17-1743	DEC Hotline 1-800-457-7362	Immediate notification that a spill, release, or discharge of any amount has occurred. Owner or person in actual or constructive possession or control of more than 1,100 gallons of the liquid.	
Petroleum Discharge in violation of §311(b)(3) of the Clean Water Act	40 CFR §110.10 (Clean Water Act)	<ol style="list-style-type: none"> <li>1. National Response Center (NRC) 1-800-424-8802.</li> <li>2. If not possible to notify NRC, notify Coast Guard or predesignated on-scene coordinator.</li> <li>3. If not possible to notify either 1 or 2, reports may be made immediately to nearest Coast Guard units, provided NRC notified as soon as possible.</li> </ol>	Immediate notification as soon as there is knowledge of an oil discharge that violates water quality standards or causes sheen on navigable waters. Procedures for notice are set forth in 33 CFR Part 153, Subpart B, and in the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, Subpart E.	Person in charge of vessel or on-shore or off-shore facility.
Petroleum, petroleum by-products or other dangerous liquid commodities that may create a hazardous or toxic condition spilled into navigable waters.	33 CFR 126.29 (Ports and Waters Safety Act)	Captain of the Port or District Commander	As soon as discharge occurs, owner or master of vessel must immediately report that a discharge has occurred.	Owner or master of vessel or owner or operator of the facility at which the discharge occurred.



**Exhibit 1.1-1**

**State and Federal Reporting Requirements for Petroleum Spills, Leaks, and Discharges  
(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Petroleum or hazardous substance from a vessel, on-shore or off-shore facility in violation of §311(b)(3) of the Clean Water Act.	33 CFR 153.203 (Clean Water Act)	<ol style="list-style-type: none"> <li>1. NRC U.S. Coast Guard, 2100 Second Street, SW, Washington, DC 20593; 1-800-424-8802.</li> <li>2. Where direct reporting not practicable, reports may be made to the Coast Guard (District Offices), the 3rd and 9th district of the EPA regional office at 26 Federal Plaza, NY, NY 10278; 1-201-548-8730.</li> <li>3. Where none of the above is possible, may contact nearest Coast Guard unit, provided NRC notified as soon as possible.</li> </ol>	Any discharger shall immediately notify the NRC of such discharge.	Person in charge of vessel or facility.



**Exhibit 1.1-2**

**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Any hazardous substance pursuant to Article 37. Does not include petroleum.	Chemical Bulk Storage Act 6 NYCRR Parts 595, 596, 597; ECL 40-0113(d)	DEC Hotline 1-800-457-7362	Releases of a reportable quantity of a hazardous substance.	Owner or person in actual or constructive possession or control of the substance, or a person in contractual relationship, who inspects, tests, or repairs for owner.
Hazardous materials or substances as defined in 49 CFR §171.8 that are transported. (See federal reporting requirements.)	Transportation Law 14(f); 17 NYCRR 507.4(b)	Local fire department or police department or local municipality	<p>Immediate notification must be given of incident in which any of the following occurs as a direct result of a spill of hazardous materials:</p> <ol style="list-style-type: none"> <li>1. Person is killed.</li> <li>2. Person receives injuries requiring hospitalization.</li> <li>3. Estimated damage to carrier or other property exceeds \$50,000.</li> <li>4. Fire, breakage, spillage, or suspected contamination due to radioactive materials.</li> <li>5. Fire, breakage, spillage, or suspected contamination involving etiologic agents.</li> <li>6. Situation is such that, in the judgment of the carrier, a continuing danger to life or property exists at the scene of the incident.</li> </ol>	All persons and carriers engaged in the transportation of hazardous materials.



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

Materials Covered	Act or Regulation	Agency to Notify	What Must Be Reported and When	Who Must Report
Hazardous materials (wastes included) that are transported, whose carrier is involved in an accident.	Department of Transportation Regulations 49 CFR 171.15; 17 NYCRR Part 924; 17 NYCRR Part 507	<ol style="list-style-type: none"> <li>1. U.S. Department of Transportation 1-800-424-8802</li> <li>2. DEC Hotline 1-800-457-7362</li> <li>3. Rail Carrier <u>On-Duty</u> 518-457-1046 <u>Off-Duty</u> 518-457-6164</li> <li>4. Notify local police or fire department.</li> </ol>	<p>Notice should be given by telephone at the earliest practicable moment and should include:</p> <ol style="list-style-type: none"> <li>1. Name of reporter.</li> <li>2. Name and address of carrier represented by reporter.</li> <li>3. Phone number where reporter can be contacted.</li> <li>4. Date, time, and location of incident.</li> <li>5. The extent of injuries, if any.</li> <li>6. Classification, name and quantity of hazardous materials involved, if available.</li> <li>7. Type of incident and nature of hazardous material involved and whether a continuing danger to life exists at scene.</li> <li>8. Each carrier making this report must also make the report required by §171.16.</li> </ol>	<p>Each carrier that transports hazardous materials involves in an accident that causes any of the following as a direct result:</p> <ol style="list-style-type: none"> <li>1. A person is killed</li> <li>2. A person receives injuries requiring hospitalization</li> <li>3. Estimated damage to carrier or other property exceeds \$50,000</li> <li>4. Fire, breakage, spillage, suspected or otherwise involving radioactive material.</li> <li>5. Fire, breakage, spillage, suspected contamination involving etiologic agents.</li> <li>6. Situation is such that carrier thinks it should be reported in accordance with paragraph b.</li> </ol>



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Reportable quantity of a hazardous substance into navigable waters or adjoining shorelines. Substances are listed in 40 CFR 302.4.	Department of Transportation Regulations 49 CFR §171.16 as authorized by the Hazardous Materials Transportation Act	U.S. Coast Guard National Response Center (NRC), 1-800-424-8802 or 1-202-267-2675	<p>As soon as person in charge becomes aware of a spill incident, he must notify NRC and provide the following information:</p> <ol style="list-style-type: none"> <li>1. The information required by 49 CFR §171.15 (see above).</li> <li>2. Name of shipper of hazardous substance.</li> <li>3. Quantity of hazardous substance discharged, if known.</li> <li>4. If person in charge is incapacitated, carrier shall make the notification.</li> <li>5. Estimate of quantity of hazardous substance removed from the scene and the manner of disposition of any unremoved hazardous substance shall be entered in Part (H) of the report required by 49 CFR 171.16 (see above).</li> </ol>	Person in charge of aircraft, vessel, transport vehicle, or facility. Must inform NRC directly, or indirectly through carrier.
Reportable quantity of a hazardous substance from vessel, on-shore or off-shore facility. Substances and requirements specified in 40 CFR §117.3.	40 CFR §117.21 as authorized under the FWPCA	NRC 1-800-424-8802. If not practicable report may be made to the Coast Guard (3rd or 9th Districts) District Offices or to EPA, designated On-Scene Coordinator, Region II, 26 Federal Plaza, NY, NY 10278; 1-201-548-8730	Immediate notification is required.	Person in charge of vessel, or on-shore or off-shore facility



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

Materials Covered	Act or Regulation	Agency to Notify	What Must Be Reported and When	Who Must Report
Facilities where a hazardous chemical is produced, used, or stored, and there is a reportable quantity of any extremely hazardous substance as set out in Appendix A to 40 CFR 355 or a CERCLA hazardous substance as specified in 40 CFR 302.4. (This section does not apply to a release that does not go beyond the facility, that emanates from a facility that is federally permitted, is continuous as defined under §103(f) of CERCLA or to any release exempt from CERCLA §103(a) reporting under §101(22) of CERCLA.)	40 CFR 355.40 (SARA)  Releases of CERCLA Hazardous Substances are subject to release reporting requirements of CERCLA §103, codified at 40 CFR Part 302, in addition to being subject to the requirements of this Part.	Community emergency coordinator for the local emergency planning committee of any area likely to be affected and the State Emergency Response Commission of any state likely to be affected by the release. If there is no local emergency planning commission notification shall be made to relevant local emergency response personnel.	<p>Immediately notify agencies at left and provide the following information when available:</p> <ol style="list-style-type: none"> <li>1. Chemical name or identity of any substance involved in the release.</li> <li>2. Indication of whether the substance is an extremely hazardous substance.</li> <li>3. An estimate of the quantity released.</li> <li>4. Time and duration of release.</li> <li>5. Medium or media into which the release occurred.</li> <li>6. Known health risks associated with emergency and where appropriate advice regarding medical attention for those exposed.</li> <li>7. Proper precautions/actions that should be taken, including evacuation.</li> <li>8. Names and telephone numbers of person to be contacted for further information.</li> </ol> <p>As soon as practicable after release, followup notification by providing the following information:</p> <ol style="list-style-type: none"> <li>1. Actions taken to respond to and contain the release.</li> <li>2. Health risks.</li> <li>3. Advice on medical attention for exposed individuals.</li> </ol>	Owner or operator of facility



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

Materials Covered	Act or Regulation	Agency to Notify	What Must Be Reported and When	Who Must Report
Hazardous liquids transported in pipelines, a release of which results in any circumstances as set out in 195.50(a) through (f). Also any incident that results in circumstances listed in 195.52(g).	49 CFR 195.50, 195.52 and 195.54 (Hazardous Liquid Pipeline Safety Act).	NRC, 1-800-424-8802	<p>Notice must be given at the earliest practicable moment and the following information provided:</p> <ol style="list-style-type: none"> <li>1. Name and address of the operator.</li> <li>2. Name and telephone number of the reporter.</li> <li>3. Location of the failure.</li> <li>4. The time of the failure.</li> <li>5. The fatalities and personal injuries, if any.</li> <li>6. All other significant facts known by the operator that are relevant to the cause of the failure or extent of the damages.</li> </ol>	Operator of system.
Hazardous wastes in transport	40 CFR §263.30(a) (RCRA)	<ol style="list-style-type: none"> <li>1. Local authorities</li> <li>2. If required by 49 CFR 171.15, notify the NRC at 1-800-424-8802 or 1-202-426-2675</li> <li>3. Report in writing to Director of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation, Washington, DC 20590</li> </ol>	<p>Notification must be immediate.</p> <p>For discharge of hazardous waste by air, rail, highway, or water, the transporter must:</p> <ol style="list-style-type: none"> <li>1. Give notice as in 49 CFR 161.15 (if applicable).</li> <li>2. Report in writing as in 49 CFR 171.16.</li> </ol> <p>Wastes transporter (bulk shipment) must give same notice as required by 33 CFR 153.20.</p>	Transporter by air, rail, highway, or water.



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Vinyl Chloride from any manual vent valve, or polyvinyl chloride plants	Clean Air Act 40 CFR 61.64	Administrator of EPA	<p>Within 10 days of any discharge from any manual vent valve, report must be made, in writing, and the following information provided:</p> <ol style="list-style-type: none"> <li>1. Source, nature and cause of the discharge</li> <li>2. Date and time of the discharge</li> <li>3. Approximate total vinyl chloride loss during discharge</li> <li>4. Method used for determining loss</li> <li>5. Action taken to prevent the discharge</li> <li>6. Measures adopted to prevent future discharges.</li> </ol>	Owner or operator of plant.
Radioactive Materials	6 NYCRR §380.7	Commissioner of DEC	<ol style="list-style-type: none"> <li>1. Notify immediately by telephone when concentration, averaged over a 24-hour period, exceeds or threatens to exceed 5000 times the limits set forth in Schedule 2 of 380.9 (in uncontrolled areas).</li> <li>2. Notify within 24 hours by telephone when concentration, averaged over 24- hour period, exceeds or threatens to exceed 500 times the limits set forth in Schedule 2 above (in uncontrolled areas).</li> <li>3. Report within 30 days the concentration and quantity of radioactive material involved, the cause of the discharge, and corrective steps taken or planned to ensure no recurrence of the discharge.</li> </ol>	Operator of the radiation installation.



**Exhibit 1.1-2**  
**State and Federal Reporting Requirements for Hazardous Substance Spills, Leaks, and Discharges**  
**(continued)**

<b>Materials Covered</b>	<b>Act or Regulation</b>	<b>Agency to Notify</b>	<b>What Must Be Reported and When</b>	<b>Who Must Report</b>
Low Level radioactive wastes in transport. Any suspected or actual uncontrolled releases.	6 NYCRR 381.16 ECL §27-0305 Waste Transporter Permits	DEC and Department of Health	Immediate notification.	Transporter



TECHNICAL  
FIELD GUIDANCE

**SPILL REPORTING AND INITIAL NOTIFICATION  
ENFORCEMENT OF SPILLER RESPONSIBILITY**



## **NOTES**

### **Spill Reporting and Initial Notification - Enforcement of Spiller Responsibility**

#### **GUIDANCE SUMMARY-AT-A-GLANCE**

# Use the "Notification Procedures Checklist" (Exhibit 1.1-3) to document conversations with the responsible party or potentially responsible party (PRP/RP) concerning his or her clean-up responsibilities.

# The steps to follow when you inform the PRP/RP of his or her legal responsibility are:

- Give your name and identify yourself as a DEC employee;
- Inform them that they have been identified as the party responsible for the spill;
- Inform PRP/Rps of their liability for all clean-up and removal costs. (If necessary, cite Section 181 of the Navigation Law);
- Ask PRP/Rps "point blank" if they will accept responsibility for the cleanup; and
- If the PRP/RP does not accept responsibility, or does not admit to being the PRP/RP, inform him or her that DEC will conduct the cleanup and send the bill to whoever is the PRP/RP. Also inform them that a DEC-conducted cleanup could be more costly than a PRP/RP-conducted cleanup, and that the PRP/RP could face interest charges and penalties for refusing to clean up the spill.

# If the PRP/RP accepts responsibility for the cleanup:

- (1) Send the PRP/RP a "Spiller Responsibility Letter" (Exhibit 1.1-5) and an "Acceptance of Financial Responsibility Form" (Exhibit 1.1-6) and
- (2) Send the PRP/RP an "Option Letter," which should outline the options available to the PRP/RP to clean up the spill. See Exhibit 1.1-4 for a summary of how and when to use these forms and what they may include.



## **NOTES**

### **1.1.2 Spill Reporting and Initial Notification - Enforcement of Spiller Responsibility**

This section provides guidance on those steps you take to inform responsible parties or potentially responsible parties (PRP/Rps) or spillers of their responsibility under state law for cleaning up spills. This guidance applies to all contacts (by phone, by mail, or in person) you have with Rps throughout the response process concerning their fulfillment of this legal responsibility. The possible consequences of an RP's refusal or inability to conduct the spill response are also discussed.

#### **1. State Law and Policy**

Under Article 12 of the Navigation Law and Article 71 of the Environmental Conservation law (ECL), those parties responsible for a petroleum release are liable for all costs associated with cleaning up the spill as well as third party damages (see Introduction-A for more information). Section 181 of the Navigation Law states:

*Any person who has discharged petroleum shall be strictly liable, without regard to fault, for all cleanup and removal costs and all direct damages, no matter by whom sustained as defined in this section.*

There are two ways by which PRP/RPs can pay for the costs associated with cleanups. First, the PRP/RP can reimburse the state for site investigation, clean-up, and remediation costs incurred by the State Oil Spill Fund or federal Leaking Underground Storage Tank (LUST) Trust Fund. Second, the PRP/RP can assume full responsibility for the cleanup from the beginning and bear all costs throughout the clean-up process. It is DEC's policy to make every effort to have PRP/RPs pay for cleanups from the outset.<sup>1</sup>

To achieve PRP/RP-directed and PRP/RP-financed cleanups, your responsibilities are to: (1) identify the PRP/RP(s), (2) inform them of their legal responsibilities for the spill, and (3) ensure that they carry out these responsibilities. All investigations of spills and PRP/RPs should be pursued vigorously and without prejudice. Use to your advantage the argument that having the PRP/RP assume responsibility for clean-up costs benefits both DEC and the spiller. It saves DEC the expense of cost-recovery procedures. It also allows the PRP/RP to be more involved in clean-up decisions (e.g., choosing their clean-up contractors) and, more significantly, it usually results in lower clean-up costs. Because the PRP/RP is responsible for all indirect costs incurred if DEC conducts the cleanup, the spiller will pay for the DEC contractor's clean-up work, as well as the supervision costs incurred by DEC, any third-party claims associated with the spill, and any punitive fines levied.

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<sup>1</sup> Spillers are not only responsible for assuming the costs of a cleanup, but also can be subject to a \$25,000 per day fine for not paying the clean-up costs (among other violations). The Navigation Law provides for these penalties in Section 192, which states:

Any person who knowingly gives or causes to be given any false information as a part of, or in response to, any claim made pursuant to this article for cleanup and removal costs, direct or indirect damages resulting from a discharge, or who otherwise violates any of the provisions of this article or any rule promulgated thereunder or who fails to comply with any duty created by this article shall be liable to a penalty of not more than twenty-five thousand dollars for each offense in court of competent jurisdiction. If the violation is of a continuing nature each day during which it continues shall constitute an additional, separate, and distinct offense. (emphasis added)



## **NOTES**

### **2. Notification Process**

Part 1, Section 4, of this manual discusses the process of identifying the PRP/RP as part of the spill investigation for a particular site. Once you identify the PRP/RP, follow the guidance provided below for informing the PRP/RP of his or her responsibilities for spill cleanup. If you are uncertain about who the PRP/RP is, apply the procedures outlined below with all suspected RPs until the responsible party or parties are identified.

#### **a. Informing RPs of Their Responsibility at the Spill Scene**

It is important to inform PRP/RPs of their legal responsibility to clean up a spill as soon as possible. When you arrive at a spill site, you should immediately inform the representative of any PRP/RP of their liability under the Navigation Law and the Environmental Conservation Law. In doing so, follow the steps covered in the "Notification Procedures Checklist" (Exhibit 1.1-3).

Document completion of the notification steps, and identify your contact(s).

Although you should be firm and direct in informing the PRP/RP of their responsibility, you should make every attempt to avoid an adversarial relationship with the RP. The full cooperation of the PRP/RP will result in a more efficient and effective cleanup.

#### **b. Informing Spillers of Their Responsibility in Writing**

You should send three different letters to the PRP/RP to inform them of their responsibility (see Exhibit 1.1-4, "Notification Forms Summary"). If a site response was initiated and you are able to confirm the spill visually, the "Spiller Responsibility Letter" (Exhibit 1.1-5) along with an "Acceptance of Financial Responsibility Form" (Exhibit 1.1-6) should be sent as soon as possible. In addition, an "Option Letter" that informs the PRP/RP of their possible options for addressing a spill should be sent. These letters should be kept as part of the Corrective Action Plan (CAP) (see Part 1, Section 5, "Corrective Action Plans.")



**Exhibit 1.1-3  
Notification Procedures Checklist**

Completed	Step	Date	Contact(s)
_____	1. Give your name and identify yourself as a DEC employee.		
_____	2. Inform the PRP/RP that he/she has been identified as the party responsible for the spill.		
_____	3. Inform PRP/RPs of their responsibility to pay for all clean-up costs. (As necessary, cite Section 181 of the Navigation Law or Article 71 of the ECL.)		
_____	4. Ask PRP/RPs "point blank" if they will accept responsibility for the cleanup.		
	Response:		
	_____		
	_____		
	_____		
_____	5. If the PRP/RP does not accept responsibility, or does not admit to being the spiller, inform him/her that DEC will conduct the cleanup and send the bill to whoever is the spiller.		
_____	6. If the PRP/RP does not accept responsibility also inform him or her that a DEC-conducted cleanup could be more costly than a spiller-conducted cleanup, and that the spiller could face interest charges and a fine for refusing to pay for the billed clean-up costs.		



**Exhibit 1-A-4**

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**Notification Forms Summary  
(Send Forms by Certified Mail)**

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<b>Notification Form</b>	<b>When and How to Use</b>	<b>Information to be Included</b>
Spiller Responsibility Letter	Send by certified mail to PRP/RP for confirmed spill.	<ul style="list-style-type: none"><li># Spill location;</li><li># Spiller's responsibility under the Navigation Law;</li><li># Penalties that can be levied if the spiller does not cooperate; and</li><li># Deadline for spiller to begin containment and removal of the spill.</li></ul>
Acceptance of Spiller Responsibility Form	Send by certified mail to PRP/RP for confirmed spill.	<ul style="list-style-type: none"><li># Request for spiller's signature acknowledging his or her acceptance of responsibility for the spill cleanup.</li></ul>
Option Letter	Send by certified mail to PRP/RP for confirmed or suspected release (e.g., failed tightness test).	<ul style="list-style-type: none"><li># Spill number;</li><li># Date spill was discovered or reported;</li><li># Exact location of the spill;</li><li># Authority of Article 12 of the Navigation Act; and</li><li># Penalties for noncompliance.</li></ul>

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Exhibit 1.1-5

Spiller Responsibility Letter

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[Date]

[Addressee]

[Address]

Dear [ ]:

This is to inform you that as a result of investigation by our Department, we consider you responsible for Petroleum Spill Number \_\_\_\_\_, dated \_\_\_\_\_, at \_\_\_\_\_. Under Article 12 of the Navigation Law, Section 192, any person who discharges petroleum without a permit and fails to promptly clean up such prohibited discharge may be subject to a penalty of up to \$25,000 a day.

Containment and removal of this spill must be initiated within \_\_\_\_\_ hours.

Your failure to initiate timely spill cleanup and removal, in addition to the penalty stated above, will result in your being billed for all actual costs incurred by New York State as set forth in Section 181 of the Navigation Law. These costs include cleanup and removal, all direct and indirect damages, including damages incurred by third parties.

Sincerely,

Regional Spill Engineer  
Region

---



Exhibit 1.1-6  
Acceptance of Spiller Responsibility Letter

---

[Date]

SPILL # \_\_\_\_\_

ACCEPTANCE OF FINANCIAL RESPONSIBILITY

\_\_\_\_\_, hereby assumes responsibility for containment and  
(Name of Company and Person)

cleanup of \_\_\_\_\_ discharged from \_\_\_\_\_  
(Substance) (Source)

on \_\_\_\_\_, and recognizes that the determination of the adequacy and propriety of  
(Date)

the containment and cleanup operation continues to rest with the New York State  
Department of Environmental Conservation On-Scene Coordinator.

\_\_\_\_\_  
(Authorized Signature and Title)

\_\_\_\_\_  
(Name and Title Printed)

\_\_\_\_\_  
(Address of Company)

\_\_\_\_\_  
(Date and Time)

\_\_\_\_\_  
(Witness)



## NOTES

The "Spiller Responsibility Letter" informs spillers of their responsibility under the Navigation Law and explains the penalties that can be levied if the spiller does not cooperate. It should be sent to the spiller or suspected spiller as soon as a petroleum spill has been confirmed. The letter notifies the spiller that he or she is required to initiate containment and removal of the spill within a period of time you specify.

There are at least three factors you should consider when specifying a deadline in this letter:

- # The size and nature of the spill;
- # The proximity of the spill to, or its possible effects on, water supplies (surface or ground water), nearby homes and other structures, and/or sensitive environmental areas; and The possible environmental, safety, and/or human health effects of delaying containment and removal.

The "Acceptance of Spiller Responsibility Form" requires the spiller's signature acknowledging his or her responsibility for containment and cleanup of the spill. This form and the "Spiller Responsibility Letter" should be sent by certified mail.

The "Option Letter" outlines the possible options available to the PRP/RP for cleanup of the spill. The contents of this letter can vary somewhat depending on how the release was discovered (e.g., through a complaint or a failed tightness test), the extent and type of spill, and the policies and procedures of your regional office. There is, however, some information that should appear in every "Option Letter." All "Option Letters" should contain the following: spill number, date the spill was discovered, and exact location of the spill. In addition, the letter should cite the response authority provided DEC by Article 12 of the Navigation Act and describe the penalties for noncompliance.

Each "Option Letter" should outline clearly the options open to the PRP/RP to address the spill and the information you wish submitted, and may also specify certain deadlines for taking action. However, it is up to you to determine the particular options, information requirements, and dates you include in the letter. Depending on the circumstances, you may list in your letter one or several options from which the PRP/RP can choose. For example, when an UST fails an initial tank test the following options could be included:

- # Conduct separate integrity tests on the piping and the tanks in order to verify the release source within the tank system.
- # Remove the "non-tight" tank and either remove and dispose of all contaminated soils, or install monitoring wells.



## NOTES

- # Install monitoring wells and abandon the "non-tight" tank in-place.
- # Remove the tank within 30 days, according to the requirements for tank removal (outline these requirements in the letter).

The "Option Letter" should always be sent by certified mail. In addition, you should have the PRP/RP inform you as soon as possible about the option(s) he or she has chosen.

Several examples of possible "Option Letters" are included as Exhibits 1.1-7 through 1.1-12. These are provided as examples only; you should use "Option Letters" developed by your own office, or develop your own.

Exhibit 1.1-7 is a sample option letter to an PRP/RP for removal of contaminated soil from an UST release. Note that this option letter includes: (a) specific requirements for removal of the contaminated soil; (b) dates for when the removal must be completed, and (c) requirements for the PRP/RP to forward to DEC copies of the landfill disposal receipt and ample test results. The additional sample option letters apply to the following situations: when an UST has failed an initial tightness test (Exhibit 1.1-8), when an UST fails an isolation tank test (Exhibit 1.1-9), when an UST fails a Petro-tite Systems Test (Exhibit 1.1-10), and ground-water contamination cleanup (Exhibit 1.1-11).

### 3. Dealing with Uncooperative Spillers

There are generally two ways in which an PRP/RP may fail to fulfill his or her legal responsibilities for spill cleanup: (1) a PRP/RP may refuse from the beginning to accept responsibility, or (2) an PRP/RP may fail to conduct a cleanup in the manner, or in as timely a fashion, as agreed upon with the DEC. If a PRP/RP refuses to cooperate from the outset, try again to change the RP's mind. Send additional notices of spiller responsibility (Exhibit 1.1-12) and/or initiate phone conversations with PRP/RPs to inform them again of the consequences of not cooperating (i.e., higher clean-up costs and possible penalties). If a party claims not to be the PRP/RP, you should inform them of your reasons for believing they are the PRP/RP under the Navigation Law.

If a PRP/RP agrees to conduct and pay for the cleanup and then does not proceed in the manner agreed upon or as quickly as agreed upon, you should inform the PRP/RP immediately that you are dissatisfied with the progress of the cleanup and that DEC is considering taking it over. There are no hard-and-fast rules for deciding when you should take over a cleanup. If possible, you should always work toward having the PRP/RP continue the cleanup in the agreed-upon manner. Attempt to determine why the cleanup is not proceeding as planned and consider means of helping the PRP/RP-directed cleanup get back on track.



**Exhibit 1.1-7**

Sample Option Letter:  
Soil Cleanup Spill

[Date]

[Addressee]

[Address]

Dear [ ]:

This letter is to confirm your - (site meeting) (telephone conversation) with  
\_\_\_\_\_ of this Department on \_\_\_\_\_,  
(Name) (day) (date) (year)  
in regards to the above-mentioned spill site. This site involves \_\_\_\_\_  
(explanation)

The following items were discussed and agreed upon:

1. All contaminated material must be removed and stored on site until it can be properly disposed of at a properly permitted landfill.
2. All contaminated material must be sampled for \_\_\_\_\_. The results must be  
(analyses)  
negative for the material to be considered non-hazardous oily debris. You must contact your selected sanitary landfill to verify the sample analyses that they require for disposal.
3. A hauler with a Part 364 permit must be used to haul the contaminated soil to your selected landfill.
4. Please notify this Department after the work is completed but prior to any backfilling of the spill area so that an inspection of the excavation may be made.
5. Please forward to us a copy of the landfill disposal receipt and the sample results.

A schedule for this work is required by \_\_\_\_\_.  
(day) (date) (year)

Cleanup must be performed by no later than \_\_\_\_\_.  
(day) (date) (year)

If you have any questions, please feel free to contact \_\_\_\_\_  
(Name)

at 847-4590. Your cooperation will be appreciated.

Very truly yours,

Senior Sanitary Engineer



## Exhibit 1.1-8

### Sample Option Letter: Initial Tank Failure

---

[Date]

[Addressee]

[Address]

Dear [ ]:

This Department received notification on \_\_\_\_\_ that (a)  
\_\_\_\_\_  
(day) (date) (year)  
\_\_\_\_\_ tank(s) failed its (their) tank test performed by  
(gallons) (product stored)  
\_\_\_\_\_. On \_\_\_\_\_, Mr. \_\_\_\_\_ of this Department  
(contractor) (date) (name)  
discussed with \_\_\_\_\_ that one of the following options must be done concerning this tank.  
(person)

- OPTION 1:
1. The tank is to be immediately isolated from the piping and is to be retested. If the tank tests tight, it may remain in service.
  2. The lines are to be repaired, if necessary, and retested by a state-approved method. Exposed piping may be air tested.
  3. A copy of any test results are to be sent to this office.

OPTION 2: If the tank fails the retest, or if you decide not to retest, the following must now be done:

1. All product must be immediately removed from the tank.
2. The tank itself must be removed within thirty days. A Petroleum Bulk Storage form must be submitted to this Department prior to tank removal.
3. The interior surface of the tank must be cleaned, and all sludge and residue generated by this process must be properly disposed. The tank must be cut open to allow for this work and to ensure proper ventilation of the tank interior.
4. All safety precautions regarding the opening, cleaning and entering of the tank must be followed. The interior atmosphere of the tank may be explosive and proper procedures must be followed.
5. Once the tank has been cleaned out, it may be disposed as scrap.

Mr. \_\_\_\_\_ must be notified when you have a firm date for retesting or removal. Please note, we must be present when this tank is removed to determine if any groundwater or soil contamination exists. If groundwater or soil contamination is found, further remedial work will be required.

If you have any questions, please contact \_\_\_\_\_ at 847-4590. Your cooperation will be appreciated.

Sincerely,

[ ]



## Exhibit 1.1-9

### Sample Option Letter: Retest Failure, Tank Removal

---

[Date]

[Addressee]

[Address]

Dear [ ]:

On \_\_\_\_\_, a \_\_\_\_\_gallon \_\_\_\_\_, underground store storage tank at the  
(day) (date) (year) (#) (material)  
above-mentioned address failed a system tank test. On \_\_\_\_\_, this tank failed an isolation tank test.  
(day) (date) (year)

Since the tank failed the retest, the following must now be done:

1. All product must be immediately removed from the tank.
2. The tank itself must be removed within thirty days. A Petroleum Bulk Storage form (enclosed) must be submitted to this Department prior to tank removal.
3. The interior surface of the tank must be cleaned, and all sludge and residue generated by this process must be properly disposed. The tank must be cut open to allow for this work and to ensure proper ventilation of the tank interior.
4. All safety precautions regarding the opening, cleaning and entering of the tank must be followed. The interior atmosphere of the tank may be explosive and proper procedures must be followed.
5. Once the tank has been cleaned out, it may be disposed as scrap.

\_\_\_\_\_ of this Department must be notified when you have a firm  
(Name)

date for removal. We must be present when this tank is removed to determine if any groundwater or soil contamination exists. If groundwater or soil contamination is found, further remedial work will be required.

For your use, enclosed is a list of contractors that are known by this Department to do this type of work. This list is by no means complete. Any contractor may be used by you for this work.

If you have any questions, please feel free to call \_\_\_\_\_ at 847-4590.  
(Name)

Your cooperation will be appreciated.

Sincerely,

[ ]



**Exhibit 1.1-10**

Sample Option Letter:  
Failed Tank Test

[Date]

CERTIFIED - RETURN RECEIPT REQUESTED

[Addressee]

[Address]

RE: Spill No.

Gentlemen:

This office has been informed by \_\_\_\_\_ (Name) that \_\_\_\_\_ (tank) failed a Petrotite systems test. In accordance with Article 12 of the New York State Navigation Law, I must determine if there has been any harm to the lands or the groundwater of the State. In order for me to make this determination, you have three options:

1. Prove that it was not a leaking tank by removing all the piping from the tank and separately Petrotite test the tank. If the tank passes the Petrotite test, it is a piping leak. The tank may then be abandoned or the piping can be repaired, attached to the tank, and the system Petrotite tested.
2. Excavate and remove the tank in the presence of a representative from this office so that an inspection of the tank and the soil can be made. If the tank is sound, and there is no evidence of product loss, nothing further need be done. If there is a problem, proceed as in 3 below.
3. Abandon the tank in-place and install several four (4) inch diameter PVC site wells extending five (5) feet into the groundwater with a screen length of ten (10) feet, with slot size of .020 inches. The exact location and number of wells will be determined by a representative from this office. These wells will be checked for a period of twelve months by New York State, and if there is no evidence of product for that period, the spill will be removed from our listing. If free or dissolved product appears, cleanup must begin immediately.

If cleanup does not begin by \_\_\_\_\_ (Date) by the responsible party, the State will begin the cleanup and bill the responsible party.

Sincerely,

[            ]



## Exhibit 1.1-11

### Sample Option Letter: Ground-water Cleanup

[Date]

[Addressee]

[Address]

Dear [ ]:

This letter is to confirm your (site meeting) (telephone conversation) with (Name) of this Department on (day) (date) (year). Groundwater at this spill site is contaminated with (free floating oil) (dissolved oil components). The following items were discussed and agreed upon:

1. (#) additional four-inch monitoring wells will be installed at the agreed upon locations. A sketch of a typical monitoring well is enclosed for your use.
2. One recovery well will be installed to recover oil product. Groundwater must be pumped to depress the groundwater table. The groundwater must be pumped to an oil-water separator tank. Accumulated oil may be recovered from the well by bailing or by a second pump. A second type of recovery well pumps both oil and water to a separator tank. Oil from the tank is then recovered. You should check with your contractor to determine the best method for the recovery well. Groundwater must be pumped to depress the groundwater table.
3. The discharge water must be sampled for (Contaminates). Dependent upon the sampling results, it may be discharged with a SPDES permit to (Name). The water must at all times be sheenless. An air stripper or a carbon filter may be necessary for the discharge water.
4. All collected oil must be properly disposed. Copies of receipts indicating the disposal site must be forwarded to this office.

It was also agreed that these actions be completed by (Date). Should you have any questions, please do not hesitate to contact (Name) at 847-4590. Your cooperation will be appreciated.

Sincerely,

[ ]



**Exhibit 1.1-12**

Sample Option Letter:  
Soil Disposal, Soil Still On Site

[Date]

[Addressee]

[Address]

Dear [ ]:

A recent inspection by       (Name)       of this office indicated that the contaminated soil at your facility still remains on site. We are requesting this oil be removed by       (day) (date) (year)       to an acceptable landfill. Please send a copy of the disposal receipt to this office.

If you cannot remove the soil by that date, please contact this office immediately. If you do not contact this office and the soil still remains on site past       (Date)      , DEC will have the soil removed from your site. You will then be billed for the costs of removal and disposal as well any relevant penalties.

If you have any questions, please feel free to contact       (Name)       at 847-4590. Your cooperation will be appreciated.

Very truly yours,

Senior Sanitary Engineer



## **NOTES**

If all efforts to encourage a PRP/RP to continue the cleanup fail, send a certified letter (Exhibit 1.1-13) notifying them that their actions have been unsatisfactory and that DEC will assume responsibility for the cleanup. This letter again informs the PRP/RP of his or her liability for all costs incurred by DEC during its cleanup.



**Exhibit 1.1-13**

Unsatisfactory Cleanup Notice Letter

[Date]

CERTIFIED MAIL

SPILL #

[Addressee]

[Address]

Dear Sir:

My letter of (Date) notified you of New York State's interest in a pollution incident for which you are presently considered responsible.

You are hereby given notice that your actions to remove the pollutant and mitigate its effects have been evaluated as unsatisfactory. Effective (Date), the New York State Department of Environmental Conservation will conduct all cleanup activities under the authority of Article 12 of the Navigation Law. Removal will be effected in accordance with the regulations of the Department of Environmental Conservation. You will be billed for all actual costs incurred by New York State as set forth in Section 181 of the Navigation Law, as well as interest and penalties.

Should you require further information concerning this matter, contact: (Name)

Sincerely,

[ ]

Received and Acknowledged

\_\_\_\_\_

Time

Date



**TECHNICAL  
FIELD GUIDANCE**

**SPILL REPORTING AND INITIAL NOTIFICATIONS -  
ACCESS AND RIGHT-OF-ENTRY**



## **NOTES**

### **Spill Reporting and Initial Notifications - Access and Right-of-Entry**

#### **GUIDANCE SUMMARY AT-A-GLANCE**

- # Section 178 of the Navigation Law gives you the authority to enter private property to investigate or clean up a suspected spill.
- # In general, you should inform the property owner of your right to enter onto private property and obtain consent from the owner. This consent can be either written or verbal.
- # Detailed information and procedures for access and right-of-entry is considered confidential for spill responders. This information is contained in Appendix L, and is marked confidential.



## NOTES

### 1.1.3 Access and Right-of-Entry

This section addresses the right of NYSDEC personnel to enter private property on which a spill has occurred or is suspected, for the purpose of investigating, containing, and/or cleaning up the spill. Detailed information and procedures of access and right-of-entry are considered confidential. Therefore, this information can be found in Appendix L, including your legal rights to enter property and the procedures to follow to ensure that no charges of trespassing are brought against the Department.

#### 1. State Law and Policy

You have the authority, under the Navigation Law, to enter property to investigate or clean up a real or suspected spill. Specifically, Section 178 of the Navigation Law states:

*The department is hereby authorized to enter and inspect any property or premises for the purpose of inspecting facilities and investigating either actual or suspected sources of discharges or violation of this article or any rule or regulations promulgated pursuant to this article. The department is further authorized to enter on property or premises in order to assist in the cleanup or removal of the discharge. Any information relating to secret processes or methods of manufacture shall be kept confidential.*

In any emergency or non-emergency, you must possess information supporting a reasonable belief to suspect that a spill has occurred or is occurring, or that the spill is impacting the premises for which access is sought. A reasonable belief may be based on a report of a spill or visual observation. For example, if a gasoline station operator reports an unexpected loss of product from his underground storage tanks that are located near private household wells, you might want to investigate those wells and check the water.

Although you have the authority to enter the premises, *it is always advisable to obtain the consent of the property owner or his or her agent before entering the property.* This consent can be either written or verbal. Obtaining this consent may help avoid civil or criminal charges for trespass being logged. In cases where the owner/agent is not available or not ascertainable, entry should be made.



## **Appendix H – NYSDEC CP-51: Soil Cleanup Guidance**



# CP-51 / Soil Cleanup Guidance

New York State Department of Environmental Conservation

## DEC Policy

**Issuing Authority:** Alexander B. Grannis, Commissioner

**Date Issued:** October 21, 2010

**Latest Date Revised:**

### I. Summary

This policy provides the framework and procedures for the selection of soil cleanup levels appropriate for each of the remedial programs in the New York State Department of Environmental Conservation (DEC) Division of Environmental Remediation (DER). This policy applies to the Inactive Hazardous Waste Disposal Site Remedial Program, known as the State Superfund Program (SSF); Brownfield Cleanup Program (BCP); Voluntary Cleanup Program (VCP); Environmental Restoration Program (ERP); Spill Response Program - Navigation Law (NL) section 176 (SRP); and the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. It replaces *Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels* (January 24, 1994); the *Petroleum Site Inactivation and Closure Memorandum* (February 23, 1998); and Sections III and IV of *Spill Technology and Remediation Series (STARS) #1* (August 1992).

This document is used in conjunction with the applicable statutes, regulations and guidance. Site-specific soil cleanup levels, determined in accordance with this guidance, are only applied after:

- the site, or area of concern, is fully investigated to determine the nature and extent of contamination;
- all sources of contamination are addressed consistent with the hierarchy provided in 6 NYCRR 375-1.8(c) or consistent with the RCRA Corrective Action Program (as appropriate);
- groundwater, if contaminated, has been evaluated for appropriate remedial actions consistent with 6 NYCRR 375-1.8(d) or consistent with the RCRA Corrective Action Program (as appropriate); and
- impacts on adjacent residential properties, surface water, aquatic ecological resources are evaluated, as well as indoor air, soil vapor, vapor intrusion and other appropriate media.

### II. Policy

It is DEC's policy, consistent with applicable statutes and regulations, that all remedies will be protective of public health and the environment. DEC's preference is that remedial programs, including the selection of soil cleanup levels, be designed such that the performance standard results in the implementation of a permanent remedy resulting in no future land use restrictions. However, some of



DEC's remedial programs are predicated on future site use. Further, it is not always feasible to return to a condition where no restrictions are required.

The procedures set forth herein are intended for the use and guidance of both DEC and remedial parties to provide a uniform and consistent process for the determination of soil cleanup levels. This guidance is not intended to create any substantive or procedural rights, enforceable by any party in administrative or judicial litigation with DEC. DEC reserves the right to act at variance with these procedures to address site-specific circumstances and to change the procedures in this guidance at any time.

Please note that this guidance focuses only on soil cleanup levels. All remedies must be fully protective of public health and the environment and must prevent further off-site migration to the extent feasible, with special emphasis on preventing or minimizing migration onto adjacent residential properties. A remedial party is required to evaluate and investigate, if necessary, all environmental media including soil, groundwater, surface water, sediments, soil vapor, ambient air, and biota. [See 6 NYCRR 375-1.8(a)(6) or RCRA Corrective Action Program (as appropriate)]. This investigation will determine if any of the referenced media are, or may be, impacted by site contamination. Applicable guidance should be consulted for media other than soil.

Nothing contained in this guidance, in itself, forms the basis for changes to previously selected remedies. However, a change in the site remedy may be considered consistent with *DER-2: Making Changes to Selected Remedies* (April 1, 2008). [See Section VI, Related References.] To the extent that a change to a selected remedy at a site in one of DER's remedial programs is necessary as provided in DER-2, as applicable, the Soil Cleanup Objectives (SCOs) may be considered in the evaluation of appropriate changes to the selected remedy. For sites in other programs, applicable regulations and guidance must be used.

### **III. Purpose and Background**

DEC has a number of different remedial programs that were developed over time based on separate and distinct authorities. These programs use different procedures to determine the extent of soil cleanup necessary to satisfy the remedial program goals. The purpose of this document is to set forth how soil cleanup levels are selected for the different programs.

Legislation establishing New York State's Brownfield Cleanup Program (Article 27, Title 14 of the Environmental Conservation Law [ECL]) required DEC, in consultation with the New York State Department of Health (NYSDOH), to develop an approach for the remediation of contamination at brownfield sites. The resulting regulation includes seven sets of SCOs. Four sets provide for the protection of public health for different land uses (residential, restricted residential, commercial, and industrial); two sets provide for the protection of other resources (groundwater and ecological resources); and one set includes SCOs for protection of public health and the environment for all uses (unrestricted use).

With the promulgation of the SCOs, it is necessary to discuss how the SCOs, and soil cleanup levels generally, are arrived at for a specific site. Some key definitions in understanding how cleanup levels for soil are arrived at follow.



**Feasible**, which means suitable to site conditions, capable of being successfully carried out with available technology, implementable and cost effective [see 6 NYCRR 375-1.2(s)].

**Presumptive remedy**, which means a technology or technique where experience has shown the remedy to be a proven solution for specific types of sites and/or contaminant classes [See *DER-15: Presumptive/Proven Remedial Technologies* February 27, 2007. Refer to Section VI, Related References.]

**Soil cleanup level**, which means the concentration of a given contaminant for a specific site that must be achieved under a remedial program for soil. Depending on the regulatory program, a soil cleanup level may be based on the regulation [6 NYCRR 375-6.8(a) or (b)], modified from the regulatory value based on site-specific differences, or based on other information, including background levels or feasibility. Soil cleanup levels may include:

- SCOs promulgated at 6 NYCRR 375-6;
- Supplemental Soil Cleanup Objectives (SSCOs);
- a “totals” approach for a family of contaminants known as Polycyclic Aromatic Hydrocarbons (PAHs);
- Presumptive remedy for Polychlorinated Biphenyls (PCBs); and
- Nuisance Condition.

**Soil Cleanup Objective (SCO)**, which means the chemical concentrations for soil cleanup of individual chemicals contained in 6 NYCRR 375-6.8(a) or (b). The SCOs were developed using the process outlined in the Technical Support Document (TSD). The SCOs and the SSCO defined below are applicable statewide and do not account for many site-specific considerations which could potentially result in higher levels. Soil concentrations that are higher than the SCOs and SSCO are not necessarily a health or environmental concern. When an SCO (or SSCO) is exceeded, the degree of public health or environmental concern depends on several factors, including the magnitude of the exceedance, the accuracy of the exposure estimates, other sources of exposure to the contaminant, and the strength and quality of the available toxicological information on the contaminant.

**Supplemental Soil Cleanup Objective (SSCO)**, which means a) an existing soil cleanup level for a contaminant which had been included in former TAGM 4046 and was not included in 6 NYCRR 375-6; b) has been developed using the same process used for development of the SCOs; and c) new cleanup levels for soil developed by the remedial party following the approach detailed in Appendix E of the TSD. The TSD provides information relative to the development of cleanup objectives for soil that are not set forth in 6 NYCRR 375-6. Cleanup objectives that have been established at the direction of DEC or the election of remedial parties are included in Table 1.

**Technical Support Document (TSD)**, which refers to the document dated December 2006 detailing the development of the SCOs that were promulgated in 6 NYCRR 375-6. It provides the technical background and provides a detailed discussion of the considerations for development of the SCOs for the different land uses and exposure pathways. The TSD is available on DEC’s website [see Section VI, Related References].

The purpose of this guidance is NOT to focus on media other than soil. Accordingly, the remedial program may require remedial activities to address media other than soil (e.g., groundwater, surface



water, sediment, and vapor). Applicable guidance should be consulted for media other than soil. This guidance is to be used in conjunction with the applicable statutes, regulations and guidance. Site-specific soil cleanup levels, determined in accordance with this guidance, are only applied after:

- the site, or area of concern, is fully investigated to determine the nature and extent of contamination;
- all sources of contamination are addressed consistent with the hierarchy provided in 6 NYCRR 375-1.8(c) or consistent with the RCRA Corrective Action Program (as appropriate);
- groundwater, if contaminated, has been evaluated for appropriate remedial actions consistent with 6 NYCRR 375-1.8(d) or consistent with the RCRA Corrective Action Program (as appropriate); and
- an evaluation of impacts on adjacent residential properties, surface water, aquatic ecological resources, as well as indoor air, soil vapor, vapor intrusion and other appropriate media.

## **IV. Responsibility**

The responsibility for maintaining and updating this policy lies with DER. DEC staff are responsible for implementing this policy, with input (as applicable) from NYSDOH.

## **V. Procedures**

### **A. General Approaches to the Selection of Soil Cleanup Levels**

The determination of soil cleanup levels for a site is dependent on:

1. The regulatory program pursuant to which the site is being addressed;
2. Whether the groundwater beneath or down gradient of the site is, or may become contaminated with site-related contaminants;
3. Whether ecological resources constitute an important component of the environment at or adjacent to a site, and which are, or may be, impacted by site-related contaminants; and
4. Other impacted environmental media such as surface water, sediment, and soil vapor.

After fully evaluating the nature and extent of soil contamination associated with a site, the soil cleanup levels will be based on one, or a combination of, the following four approaches.

**Approach 1: Utilize the Unrestricted Use Soil Cleanup Objectives** [see 6 NYCRR Table 375-6.8(a)]. Under this approach, the soil cleanup levels will be established consistent with the SCOs set forth in 6 NYCRR Table 375-6.8(a). For contaminants of concern which are not included in the rule, DEC may direct development of a soil cleanup level which is protective of public health and the environment without restrictions following the procedure outlined in Appendix E of the TSD. Under this approach, the unrestricted SCOs are applied throughout the soil matrix to the top of bedrock (including the saturated zone).

**Approach 2: Utilize the Restricted Use Soil Cleanup Objectives** [see 6 NYCRR Table 375-6.8(b)]. Under this approach, soil cleanup levels will be established consistent with the SCOs set forth in 6 NYCRR Table 375-6.8(b) selecting the lowest SCO in the categories described in A



through C below. Generally, after source removal, the soil cleanup levels do not need to be achieved to more than 15 feet below ground surface or to the top of bedrock, whichever is shallower.

- A. Select the applicable land use category for the protection of public health (residential, restricted residential, commercial or industrial);
- B. Determine if the SCOs for the protection of groundwater are applicable (see Section V.D); and
- C. Determine if the SCOs for the protection of ecological resources are applicable (see Section V.C).

**Approach 3: Limited Site-Specific Modifications to Soil Cleanup Objectives.** This approach allows for consideration of site-specific information to modify the SCOs promulgated in 6 NYCRR Tables 375-6.8 (a) and (b) following the approach detailed in Appendix E of the TSD. The equations and basic methodology specified for calculating the 6 NYCRR 375-6.8 (a) and (b) values may not be modified under this approach. However, in instances where site-specific parameters were used in the calculation of the SCOs, site data different from the assumptions used to calculate the SCOs may be used to modify the soil cleanup levels for a specific site. These instances are very limited and occur only in certain pathways that are listed below.

- Protection of groundwater pathway
- Particulate inhalation pathway
- Volatile inhalation pathway
- Protection of ecological resources pathway

It should be noted that even if site-specific data modifies these pathways, it may not result in modifying the SCOs because the lowest value from all applicable pathways is used to determine each SCO. The inhalation pathway is very seldom the controlling pathway in the determination of the protection of public health. The specific parameters that can be modified are identified in Appendix E of the TSD (e.g., inhalation dispersion terms, fraction of organic carbon in soil, etc.).

The remedial party should consider the cost of collecting the data necessary to support a request to modify the SCOs with the potential for deriving a higher SCO that provides an appropriate level of protection. The remedial party may be required to submit additional data to support the use of modified SCOs. Once DEC approves one or more modified SCOs, they are applied in the manner described under Approach 2.

**Approach 4: Site-Specific Soil Cleanup Objectives.** Under this approach, the remedial party may propose site-specific cleanup levels or approaches for soil which are protective of public health and the environment based on other information. This approach sets forth a flexible framework to develop soil cleanup levels by allowing the remedial party to conduct a more detailed evaluation of site information in an effort to calculate protective soil cleanup levels or approaches unique to a site. Under this approach, the remedial party may propose a remedy that does not include specific soil cleanup levels (e.g., excavate the top 6 feet in an area extending 75 feet in all directions from boring B12); modify the input parameters used in the SCO calculations; use site data to improve or confirm predictions of exposures to receptors to contaminants of concern; analyze site-specific risks using



risk assessments; use toxicological information available from alternate sources; or consider site background and historic fill. Data supporting these site-specific adjustments or use of alternate methodologies must also be provided to DEC for review and approval to ensure that the resulting soil cleanup levels are protective.

The Approach 4 framework leaves DEC with discretion to determine whether a different approach is appropriate for the site and, if a different approach is to be used, the proper method of implementation. The remedial party should consider the cost of collecting the data necessary to develop site-specific soil cleanup levels (or approaches) with the potential for deriving a soil cleanup level which is higher than a particular SCO and which provides an appropriate level of protection. The remedial party may also be required to submit additional data to support the use of methodologies in the calculation of site-specific soil cleanup levels or to support the proposed approach.

**B. Application of Soil Cleanup Levels for the Specific Remedial Programs:** Soil cleanup levels are determined on a site-specific basis depending on the program under which the site is being remediated. In some cases (e.g., BCP Track 1 or Track 2), the soil cleanup levels are the SCOs taken directly from 6 NYCRR 375-6. In other cases, soil cleanup levels may be derived from the Part 375 SCOs but modified based on other information. In yet other cases, the soil cleanup levels may have no relationship or connection to the SCOs, but rather be developed in accordance with DEC-approved methodologies or approaches.

**1. Inactive Hazardous Waste Disposal Site Remedial Program (State Superfund Program):** The goal of the remedial program for a specific site is to restore that site to pre-disposal conditions, to the extent feasible. The unrestricted use SCOs are considered to be representative of pre-disposal conditions unless an impact to ecological resources has been identified (see 6 NYCRR 375-2.8(b)(2)). However, it must be recognized that achievement of this goal may not be feasible in every case. At a minimum, all remedies must be protective of public health and the environment. The following procedure is used to determine the most feasible remedy.

- (a) The remedial party shall evaluate, and if feasible, implement a cleanup utilizing Approach 1 (application of unrestricted SCOs).
- (b) Where DEC determines that achieving unrestricted SCOs is not feasible as documented in a feasibility study, the remedial party may evaluate alternatives to remediate the site to the greatest extent feasible (see *DER-10: Technical Guidance for Site Investigation and Remediation*, Chapter 4.3). [See Section VI, Related References.] In this event, the remedial party may propose soil cleanup levels in accordance with any of the general approaches. However, when considering restricted use soil cleanup levels, the remedial party should apply the least restrictive use category feasible. For purposes of this discussion, residential use is the least restrictive use and industrial use is the most restrictive category. This process starts with consideration of residential use, followed by restricted residential use, commercial use, and then industrial use. The evaluation proceeds through the different land uses until a feasible remedy is found. This evaluation is not bound to the SCOs in regulation or SSCOs set forth in this guidance but may result in a site-specific soil cleanup level that is between the SCOs or soil cleanup level for two different land uses (e.g., above the restricted residential SCO and below the commercial SCO).



**2. Brownfield Cleanup Program** The remedy shall be fully protective of public health and the environment, including, but not limited to, groundwater according to its classification pursuant to ECL 17-0301, drinking water, surface water, air (including indoor air), sensitive populations (including children), and ecological resources (including fish and wildlife). Soil cleanup levels corresponding to the cleanup track under which the site is being remediated are required to be met. The four cleanup tracks are:

**Track 1:** Cleanups pursuant to this track must achieve unrestricted use of the site. This track requires that the remedial party implement a cleanup utilizing Approach 1. Institutional and engineering controls are allowed only for periods of less than five years (defined as short-term controls) except in the limited instance where a volunteer has conducted remedial activities resulting in a bulk reduction in groundwater contamination to asymptotic levels.

**Track 2 :** Cleanups pursuant to this track may consider the current, intended, or reasonably anticipated future use in determining the appropriate cleanup levels for soil. This track requires that the remedial party implement a cleanup that achieves the SCOs in the tables in 6 NYCRR 375-6.7(b) for the top 15 feet of soil (or bedrock if less than 15 feet). This track follows approach 2. Institutional and engineering controls are allowed for soil (for the top 15 feet of soil or bedrock if less than 15 feet) for less than five years (defined as short-term controls). Institutional and engineering controls which limit site use and the use of onsite groundwater can be used without regard to duration. Track 2 cleanups at restricted residential, commercial or industrial use sites require site management plans to ensure that material removed from the site (post remedial action) is managed appropriately and to ensure that any buffer zone protecting adjacent residential use sites or ecological resources is maintained.

**Track 3:** Cleanups pursuant to this track may consider the current, intended, or reasonably anticipated use in determining the appropriate cleanup levels for soil. This track requires that the remedial party implement a cleanup utilizing Approach 3 for those SCOs which the remedial party seeks to modify an established SCO. Institutional and engineering controls are allowed for soil (for the top 15 feet of soil or bedrock if less than 15 feet) for less than 5 years (defined as short-term controls). Institutional and engineering controls which limit site use and the use of on-site groundwater can be used without regard to duration. Track 3 cleanups at restricted residential, commercial or industrial use sites require site management plans to ensure that material removed from the site (post remedial action) is managed appropriately and to ensure that any buffer zone protecting adjacent residential use sites or ecological resources is maintained.

**Track 4:** Cleanups pursuant to this track may consider the current, intended, or reasonably anticipated use in determining the appropriate cleanup levels for soil. This track allows for the development of site-specific soil cleanup levels below the cover system in accordance with Approach 4. Track 4 remedies must address all sources as a component of the remedy. Short- and long-term institutional and engineering controls are allowed to achieve protection of public health and the environment. The remedy under Track 4 must provide a cover system over exposed residual soil contamination. Soils which are not otherwise covered by structures such as buildings, sidewalks or pavement (i.e., exposed surface soils) must be covered with soil that complies with the use-based SCOs in 6 NYCRR Table 375-6.8(b) levels for the top one foot (non-residential uses) or top two feet (restricted residential use).



**3. Environmental Restoration Program:** The goal of the program for a specific site is to select a remedy that is protective of public health and the environment, including, but not limited to, groundwater according to its classification pursuant to ECL 17-0301, drinking water, surface water and air (including indoor air), sensitive populations (including children) and ecological resources (including fish and wildlife). At a minimum, the remedy selected shall eliminate or mitigate all significant threats to public health and to the environment presented by contaminants disposed at the site through the proper application of scientific and engineering principles. Soil cleanup levels may be developed in accordance with Approaches 1 – 4 without restriction.

**4. Voluntary Cleanup Program:** The goal of the program for a specific site is to select a remedy that is protective of public health and the environment for the contemplated use. The soil cleanup levels may be developed in accordance with Approaches 1 – 4 without restriction.

**5. Petroleum Spill Response Program:** The goal of the Petroleum Spill Response Program is to achieve pre-spill conditions [6 NYCRR 611.6(a)(4)]. Remedial activities under this program shall be undertaken relative to the petroleum contamination that was released along with any co-mingled contamination from other sources. The remedial party shall achieve, to the extent feasible, the unrestricted SCOs for petroleum-related contaminants listed in 6 NYCRR Table 375-6.8(a). For petroleum contaminants not included in 6 NYCRR Table 375-6.8(a) (discussed in Section E below), the remedial party shall apply, to the extent feasible, the soil cleanup levels provided in Table 1. For ease of implementation, two lists of petroleum contaminants (Gasoline and Fuel Oil, Tables 2 and 3) are attached. The tables combine the applicable petroleum-related SCOs from 6 NYCRR 375-6.8(a) and the applicable petroleum related SSCOs from Table 1. Where DEC determines that it is not feasible to achieve the soil cleanup levels as set forth in this paragraph, the remedial party may propose soil cleanup levels in accordance with any of the general approaches. However, when considering restricted use soil cleanup levels, the remedial party should apply the least restrictive use category feasible.

For purposes of this discussion, residential use is the least restrictive use, and industrial use is the most restrictive category. This process starts with consideration of residential use, followed by restricted residential use, commercial use, and then industrial use. The evaluation proceeds through the different land uses until a feasible remedy is found. If the protection of groundwater or ecological SCOs apply, the lower of the applicable protection of the public health SCO or the applicable protection of groundwater or ecological SCO should be achieved to the extent feasible. This evaluation is not bound to the SCOs in regulation or the SSCOs set forth in this guidance but may result in a site-specific soil cleanup level that is between the SCOs or soil cleanup level for two different land uses (e.g., above the restricted residential SCO and below the commercial SCO).

**6. RCRA Corrective Action Program:** The RCRA program was promulgated to regulate facilities that actively manage hazardous waste. DER administers the RCRA Corrective Action Program, with a goal of achieving soil cleanup levels at Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) that eliminate risks to public health and the environment (i.e., clean the site to unrestricted use) or control said risks (i.e., clean the site or unit(s) to the lowest possible soil cleanup objective, regardless of site use), to the extent feasible. This goal takes into account that certain units at the facility may be permitted to manage hazardous waste under New York State's Hazardous Waste Management (HWM) regulations (6 NYCRR Part 373). The requirements of active HWM facilities, as well as the site's history, will be considered when soil cleanup levels are determined. Selected remedies must be protective of public health and the environment. Soil cleanup levels will be selected using the following procedure.



- (a) The remedial party shall evaluate, and if feasible, implement a cleanup utilizing Approach 1. Under this approach, the unrestricted SCOs apply to the entire soil matrix to the top of bedrock. For contaminants not listed in 6 NYCRR 375-6, a new or existing SSCO may be used.
- (b) If DEC determines that achieving unrestricted SCOs is not feasible, the remedial party may evaluate other alternatives to remediate the site. In this event, the remedial party may propose soil cleanup levels in accordance with any of the general approaches. However, when considering restricted use soil cleanup levels, the remedial party shall apply the use category which is both feasible and least restricted. For purposes of this discussion, residential use is the least restricted category and industrial use is the most restricted category. A soil cleanup level between two different land uses (e.g., residential and restricted residential) may be determined to be feasible, and if selected, must be achieved.

Any soil cleanup levels specified in regulation (i.e., 6 NYCRR 373-2.6(b)-(k) for “regulated units” as defined in 6 NYCRR 373-2.6 (a)(1)(ii)) or in a DEC enforceable document (Part 373 permits, Consent Orders, etc.) shall take precedence over the soil cleanup levels which could be established through use of this document.

**C. Determination of Whether Ecological Resources SCOs Apply to a Site:** SCOs developed to protect ecological resources (ESCOs) are incorporated in the Unrestricted Use SCO in 6 NYCRR Table 375-6.8(a) and are included as a separate category in 6 NYCRR Table 375-6.8(b). For contaminants of concern which do not have a calculated ESCO in regulation, DEC may direct the remedial party to develop a soil cleanup level which is protective of ecological resources where appropriate, based on the process outlined in Appendix E of the TSD.

The presence of ecological resources and any impact to those resources will be assessed during the remedial investigation. For sites where there is the potential for an ecological resource impact to be present, or where it is likely to be present, an assessment of fish and wildlife resource impacts will be performed. For sites in DER’s SSF, BCP, VCP and ERP, the assessment will be performed in accordance with DEC’s guidance, *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites*, October, 1994, as described in DER-10, Section 3.10. For sites in the RCRA Corrective Action Program, the assessment will be performed using the above referenced fish and wildlife impact analysis document as guidance, and by consulting with appropriate personnel in DEC’s Division of Fish, Wildlife and Marine Resources.

Soil cleanup levels which are protective of ecological resources must be considered and applied, as appropriate, for the upland soils (not sediment) at sites where DEC determines, based on the foregoing analysis, that:

- ecological resources are present, or will be present, under the reasonably anticipated future use of the site, and such resources constitute an important component of the environment at, or adjacent to, the site;
- an impact or threat of impact to the ecological resource has been identified; and
- contaminant concentrations in soil exceed the ESCOs as set forth in 6 NYCRR 375-6.8(b) or the Protection of Ecological Resources SSCOs contained in this document.



Sites or portions thereof that will be covered by buildings, structures or pavement are not subject to the ESCOs. Further, ecological resources do not include pets, livestock, agricultural or horticultural crops, or landscaping in developed areas. (See 6 NYCRR 375-6.6 for more detail.)

**D. Determination of Whether Protection of Groundwater SCOs Apply:** SCOs developed to protect groundwater are incorporated in the Unrestricted Use SCOs in 6 NYCRR Table 375-6.8(a) and are included as a separate category in 6 NYCRR Table 375-6.8(b). For contaminants of concern which do not have a protection of groundwater SCO, DEC may direct the remedial party to develop a soil cleanup level which is protective of groundwater using the process in Appendix E of the TSD.

1. Except as provided for in (2) below, the protection of groundwater SCOs will be applicable where:
  - (i) contamination has been identified in on-site soil by the remedial investigation; and
  - (ii) groundwater standards are, or are threatened to be, contravened by the presence of soil contamination at concentrations above the protection of groundwater SCOs.
2. DEC may provide an exception to the applicability of the protection of groundwater SCOs, as set forth in 6 NYCRR 375-6.5(a)(1), when (i), (ii), and (iii) exist and either (iv) or (v) also apply, as described below.
  - (i) The groundwater standard contravention is the result of an on-site source which is addressed by the remedial program.
  - (ii) An environmental easement or other institutional control will be put in place which provides for a groundwater use restriction.
  - (iii) DEC determines that contaminated groundwater at the site:
    - (a) is not migrating, nor is likely to migrate, off-site; or
    - (b) is migrating, or is likely to migrate, off-site; however, the remedy includes active groundwater management to address off-site migration.
  - (iv) DEC determines the groundwater quality will improve over time.
  - (v) The groundwater contamination migrating from the site is the result of an off-site source of contamination, and site contaminants are not contributing consequential amounts to the groundwater contamination.
3. In determining whether to provide the exemption set forth in subparagraph 2 above, DEC will consider:
  - (i) all of the remedy selection criteria at 6 NYCRR 375-1.8(h) or in the RCRA Corrective Action program;
  - (ii) the amount of time that the groundwater will need to be actively managed for the protection of public health and the environment; and
  - (iii) the potential impact that groundwater contamination may have on media not specifically addressed by the SCOs (e.g., vapor intrusion, protection of surface water, and protection of aquatic ecological resources).



**E. Supplemental Soil Cleanup Objectives:** SSCOs are either existing cleanup levels in Table 1 or are new soil cleanup levels developed by the remedial party as part of its remedial program. These SSCOs are in addition to the SCOs that are included in Part 375.

**Existing SSCOs:** The Table 1 list of SSCOs includes contaminants from former TAGM 4046 that were not included in 6 NYCRR 375-6.8 and soil cleanup levels developed using the process detailed in Appendix E of the TSD but not promulgated. For those contaminants which were part of the former TAGM 4046, soil cleanup levels exist for the protection of public health (based on ingestion) and for the protection of groundwater. In some cases, to be determined on a site-by-site basis, evaluation of other factors is likely needed for the protection of public health, especially when the use of a site includes residential use.

These other factors include other exposure pathways (e.g., homegrown vegetable ingestion, inhalation and dermal contact), potential non-site exposures to the contaminant and current toxicological data on the contaminant. In these instances, DEC (in consultation with NYSDOH) will determine if the additional factors have been adequately addressed. The SSCOs identified in Table 1 (subject to the limitation described above) may be used as if they were included in Part 375. A remedial party is not required to use the SSCOs set forth in Table 1. In lieu of applying an SSCO, the remedial party may elect to develop a soil cleanup level (using the process described in Appendix E of the TSD and discussed below.) Table 1 also includes SSCOs that were developed for some pathways using the same process detailed in the TSD. A remedial party may elect to use those SSCOs directly or confirm that the calculated value for that pathway is correct.

**New SSCOs:** The remedial party may elect to, or DEC may direct a remedial party to, develop a contaminant-specific SCO for any contaminant not included in 6 NYCRR Tables 375-6.8(a) or (b). Generally, DEC will request that an SCO be developed only where the contaminant is a predominant contaminant of concern (COC) at the site and is not otherwise being addressed to DEC's satisfaction as part of the proposed remedy. This could happen, for example, when a remedial party is seeking a Track 1 cleanup and non-SCO/SSCO contaminants are present and may not be satisfactorily addressed by the remedial activities addressing the SCOs or SSCOs. Guidance on the process for developing new SCOs is provided in Appendix E of the TSD. DEC will include all newly developed soil cleanup levels, developed and approved pursuant to this paragraph in a revised Table 1. The developed SSCO must:

1. be developed utilizing the same methodologies that were used by DEC to develop SCOs that are set forth in Part 375; and
2. apply the maximum acceptable soil concentrations (caps), as set forth in section 9.3 of the TSD.

**F. Use of SCOs and SSCOs as a Screening Tool:** The SCOs and SSCOs may be used to identify areas of soil contamination and to determine the extent of soil contamination. As noted in Section V.K, consideration of other media is required to determine if remedial action is needed.

1. At sites or areas of concern where contaminant concentrations are equal to or below the unrestricted SCOs in 6 NYCRR Table 375-6.8(a), no action or study is warranted because of soil contamination.



2. The exceedance of one or more applicable SCOs or SSCOs, (which is the lower of protection of public health, protection of groundwater, or protection of ecological resources soil cleanup objectives as described in Section III below), alone does not trigger the need for remedial action, define “unacceptable” levels of contaminants in soil, or indicates that a site qualifies for any DEC remedial program (e.g., BCP, SSF). As noted in the definition of SCO above, SCOs and SSCOs are applicable statewide and do not account for many site-specific considerations which could potentially result in higher levels. Therefore, soil concentrations that are higher than the applicable SCOs or SSCOs are not necessarily health or environmental concerns.
3. When an applicable SCO or SSCO is exceeded, the degree of public health or environmental concern depends on several factors, including:
  - magnitude of the exceedance;
  - accuracy of the exposure estimates;
  - other sources of exposure to the contaminant; and
  - strength and quality of the available toxicological information on the contaminant.

**G. Soil Cleanup Levels for Nuisance Conditions:** Experience has shown that contaminants in soil that meets the DEC-approved soil cleanup levels can exhibit a distinct odor or other type of nuisance (e.g., staining). This is true even though the contaminants will not leach from the soil (e.g., certain soils with more insoluble substances at higher concentrations). When DEC determines that soil remaining after the remedial action will result in the continuation of a nuisance (e.g., odors, staining, etc), DEC will require that additional remedial measures be evaluated, and may require additional remedial actions be taken to address the nuisance condition.

**H. Subsurface Soil Cleanup for Total Polycyclic Aromatic Hydrocarbons:** For non-residential use sites (i.e., commercial or industrial use sites) where the ESCOs are not applicable, DEC may approve a remedial program which achieves a soil cleanup level of 500 parts per million (ppm) for total PAHs for all subsurface soil. The 500 ppm soil cleanup level is in lieu of achieving all of the PAH-specific SCOs in 6 NYCRR 375-6. For purposes of this provision, subsurface soil shall mean the soil beneath permanent structures, pavement, or similar cover systems; or at least one foot of soil cover (which must meet the applicable SCOs). Institutional controls (e.g., an environmental easement) along with a site management plan will be required when this soil cleanup level is employed at a site. This cleanup level is determined to be feasible and protective based on DEC's experience in its various remedial programs. This approach has existed in TAGM 4046 since it was first issued in 1992.

**I. Soil Cleanup for PCBs:** DEC may approve a remedial program which achieves a soil cleanup level for PCBs as set forth herein:

1. **For Non-BCP sites:** An acceptable presumptive remedy for soil where neither the unrestricted SCOs nor the ESCOs are applied in the remedial program may include a soil cleanup level for PCBs of 1 ppm in the surface soils and 10 ppm in subsurface soils.
2. **For BCP sites:** An acceptable presumptive remedy for soil may include a soil cleanup level for PCBs of 1 ppm (the applicable SCO) in the surface soils and 10 ppm in subsurface in limited circumstances as follows:



- cleanup track is Track 4;
  - site use will be restricted residential, commercial or industrial; and
  - ESCOs do not apply.
3. **At industrial use sites**, a level of 25 ppm for PCBs provided that access is limited and individual occupancy is restricted to less than an average of 6.7 hours per week.

For purposes of this provision, subsurface soil shall mean:

- soil beneath permanent structures, pavement, or similar cover systems;
- soil beneath 1 foot of soil cover for commercial and industrial uses; or
- soil beneath 2 feet of soil cover for residential and restricted residential uses.

Institutional controls (i.e., an environmental easement), along with a site management plan, will be required when this soil cleanup level is employed at a site. As with all presumptive remedies, just because a remedy is presumptive does not mean that it will work at every site. For example, this presumptive remedy for PCBs in soil is not applicable at most landfills. This cleanup level is determined to be feasible and protective based on DEC's experience in its various remedial programs. Further, this approach has existed in TAGM 4046 since it was first issued in 1992.

**J. Sampling and Compliance with Soil Cleanup Levels:** The number of samples to determine if the SCOs have been achieved should be sufficient to be representative of the area being sampled. See attached Table 4 for suggested sampling frequency and subdivision 5.4(e) of DER-10 for details. This frequency can be used for confirmatory samples or for backfill. It is DEC's goal that all confirmatory samples demonstrate that the remedy has achieved the DEC-approved soil cleanup levels. However, recognizing the heterogeneity of contaminated sites and the uncertainty of sampling and analysis, DEC project manager has limited discretion to determine that remediation is complete where some discrete samples do not meet the soil cleanup levels established for a site. See DER-10 for more information regarding the determination that remediation is complete.

**K. Other Considerations:** All remedies must be fully protective of public health and the environment and prevent off-site migration to the extent feasible with special emphasis for the prevention or minimization of migration onto adjacent residential properties or into ecological resources. A remedial party is required to investigate all environmental media including soil, groundwater, surface water, sediments, soil vapor, indoor air, and biota. (See 6 NYCRR 375-1.8(a)(6) or RCRA Corrective Action Program). This investigation will determine if any of the referenced media are, or may be, impacted by site contamination. However, the SCOs do not directly address these other media. DEC may require remedial actions to address such media and impacts, including but not limited to the application of lower soil cleanup levels or buffer zones where it determines, based on the investigation, that any of these media are, or may be, impacted by site contamination.

## **VI. Related References:**

- ◆ Environmental Conservation Law, Article 27 Titles 3, 5, 9, 13 and 14.
- ◆ Article 12 of the Navigation Law, Section 178.



- ♦ 6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.
- ♦ 6 NYCRR Subparts 373-1, 373-2 and 373-3, Requirements for Hazardous Waste Management Facilities. September 6, 2006.
- ♦ 6 NYCRR Part 611, Environmental Priorities and Procedures in Petroleum Cleanup and Removal. November 5, 1984 (amended).
- ♦ [Development of Soil Cleanup Objectives: Technical Support Document](#). New York State Department of Environmental Conservation. December 14, 2006.
- ♦ Supplemental Guidance to RAGS: Calculating the Concentration Term. United States Environmental Protection Agency. Publication 9285.7-081. May 1992.
- ♦ New York State Guidelines for Urban Erosion and Sediment Control. 1997.
- ♦ Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites. New York State Department of Environmental Conservation. October 1994.
- ♦ [Program Policy DER-2, Making Changes to Selected Remedies](#). New York State Department of Environmental Conservation. April 1, 2008.
- ♦ [Program Policy DER-10, Technical Guidance for Site Investigation and Remediation](#). New York State Department of Environmental Conservation. May 3, 2010.
- ♦ [Program Policy DER-15, Presumptive/Proven Remedial Technologies](#). New York State Department of Environmental Conservation. February 27, 2007.

## **TABLES**

- 1 - Supplemental Soil Cleanup Objectives**
- 2 - Soil Cleanup Levels for Gasoline Contaminated Soils**
- 3 - Soil Cleanup Levels for Fuel Oil Contaminated Soils**
- 4 - Recommended Number of Soil Samples for Soil Imported to or Exported From a Site**



**Table 1**  
**Supplemental Soil Cleanup Objectives**  
(ppm)

Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
<b>METALS</b>							
Aluminum	7429-90-5					10,000 <sup>a,b</sup>	
Antimony	7440-36-0					12 <sup>c</sup>	
Boron	7440-42-8					0.5	
Calcium	7440-70-2					10,000 <sup>a,b</sup>	
Cobalt	7440-48-4	30				20	
Iron	7439-89-6	2,000					
Lithium	7439-93-2					2	
Molybdenum	7439-98-7					2	
Technetium	7440-26-8					0.2	
Thallium	7440-28-0					5 <sup>c</sup>	
Tin	7440-31-5					50	
Uranium	7440-61-1					5	
Vanadium	7440-62-2	100 <sup>a</sup>				39 <sup>b</sup>	
<b>PESTICIDES</b>							
Biphenyl	92-52-4					60	
Chlordecone (Kepone)	143-50-0					0.06	
Dibenzofuran	132-64-9						6.2
2,4-D (2,4-Dichloro-phenoxyacetic acid)	94-75-7	100 <sup>a</sup>					0.5
Furan	110-00-9					600	
Gamma Chlordane	5103-74-2	0.54					14
Heptachlor Epoxide	1024-57-3	0.077					0.02
Methoxychlor	72-43-5	100 <sup>a</sup>				1.2	900



Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
Parathion	56-38-2	100 <sup>a</sup>					1.2
2,4,5-T	93-76-5	100 <sup>a</sup>					1.9
2,3,7,8-TCDD	1746-01-6					0.000001	
2,3,7,8-TCDF	51207-31-9					0.000001	
<b>SEMIVOLATILE ORGANIC COMPOUNDS</b>							
Aniline	62-53-3	48	100 <sup>a</sup>	500 <sup>a</sup>	1000 <sup>a</sup>		0.33 <sup>b</sup>
Bis(2-ethylhexyl) phthalate	117-81-7	50				239	435
Benzoic Acid	65-85-0	100 <sup>a</sup>					2.7
Butylbenzyl-phthalate	85-68-7	100 <sup>a</sup>					122
4-Chloroaniline	106-47-8	100 <sup>a</sup>					0.22
Chloroethane	75-00-3						1.9
2-Chlorophenol	95-57-8	100 <sup>a</sup>				0.8	
3-Chloroaniline	108-42-9					20	
3-Chlorophenol	108-43-0					7	
Di-n-butyl-phthalate	84-74-2	100 <sup>a</sup>				0.014	8.1
2,4-Dichlorophenol	120-83-2	100 <sup>a</sup>				20	0.40
3,4-Dichlorophenol	95-77-2					20	
Diethylphthalate	84-66-2	100 <sup>a</sup>				100	7.1
Di-n-hexyl-phthalate	84-75-3					0.91	
2,4-Dinitrophenol	51-28-5	100 <sup>a</sup>				20	0.2
Dimethylphthlate	131-11-3	100 <sup>a</sup>				200	27
Di-n-octylphthlate	117-84-0	100 <sup>a</sup>					120
1,2,3,6,7,8-HCDF	57117-44-9					0.00021	
Hexachloro-benzene	118-74-1	0.41					1.4
2,6-Dinitrotoluene	606-20-2	1.03					1.0
Isophorone	78-59-1	100 <sup>a</sup>					4.4



Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
2-methyl-naphthalene	91-57-6	0.41					36.4
2-Nitroaniline	88-74-4						0.4
3-Nitroaniline	99-09-2						0.5
Nitrobenzene	98-95-3	3.7	15	69	140	40	0.17 <sup>b</sup>
2-Nitrophenol	88-75-5					7	0.3
4-Nitrophenol	100-02-7					7	0.1
Pentachloroaniline	527-20-8					100	
2,3,5,6-Tetrachloroaniline	3481-20-7					20	
2,3,4,5-Tetrachlorophenol	4901-51-3					20	
2,4,5-Trichloroaniline	636-30-6					20	
2,4,5-Trichlorophenol	95-95-4	100 <sup>a</sup>				4	0.1
2,4,6-Trichlorophenol	88-06-2					10	
<b>VOLATILE ORGANIC COMPOUNDS</b>							
2-Butanone	78-93-3	100 <sup>a</sup>					0.3
Carbon Disulfide	75-15-0	100 <sup>a</sup>					2.7
Chloroacetamide	79-07-2					2	
Dibromochloromethane	124-48-1					10	
2,4-Dichloro aniline	554-00-7					100	
3,4-Dichloroaniline	95-76-1					20	
1,2-Dichloropropane	78-87-5					700	
1,3-Dichloropropane	142-28-9						0.3
2,6-Dinitrotoluene	606-20-2	1.03					0.17 <sup>b</sup>
Ethylacetate	141-78-6					48	



Contaminant	CAS Number	Residential	Restricted Residential	Commercial	Industrial	Protection of Ecological Resources	Protection of Ground-water
4-methyl-2-pentanone	108-10-1						1.0
113 Freon (1,1,2- TFE)	76-13-1	100 <sup>a</sup>					6
isopropylbenzene	98-82-8	100 <sup>a</sup>					2.3
p-isopropyltoluene	99-87-6						10
Hexachlorocyclopentadiene	77-47-4					10	
Methanol	67-56-1					6.5	
N-nitrosodiphenylamine	86-30-6					20	
Pentachlorobenzene	608-93-5					20	
Pentachloronitrobenzene	82-68-8					10	
Styrene	100-42-5					300	
1,2,3,4-Tetrachlorobenzene	634-66-2					10	
1,1,2,2-Tetrachloroethane	79-34-5	35					0.6
1,1,2,2-Tetrachloroethylene	127-18-4					2	
1,2,3-Trichlorobenzene	87-61-6					20	
1,2,4-Trichlorobenzene	120-82-1					20	3.4
1,2,3-Trichloropropane	96-18-4	80					0.34

<sup>a</sup> SCOs for organic contaminants (volatile organic compounds, semivolatile organic compounds, and pesticides) are capped at 100 ppm for residential use, 500 ppm for commercial use, 1000 ppm for industrial use. SCOs for metals are capped at 10,000 ppm.

<sup>b</sup> Based on rural background study

<sup>c</sup> SCO limited by contract required quantitation limit.



**Table 2****Soil Cleanup Levels for Gasoline Contaminated Soils**

Contaminant	CAS Registry Number	Soil Cleanup Level (ppm)
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12.0
sec-Butylbenzene	135-98-8	11.0
Ethylbenzene	100-41-4	1.0
Isopropylbenzene	98-82-8	2.3
p-Isopropyltoluene	99-87-6	10.0
Methyl-Tert-Butyl-Ether	1634-04-4	0.93
Naphthalene	91-20-3	12.0
n-Propylbenzene	103-65-1	3.9
Tert-Butylbenzene	98-06-6	5.9
Toluene	108-88-3	0.7
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5-Trimethylbenzene	108-67-8	8.4
Xylene (Mixed)	1330-20-7	0.26



**Table 3****Soil Cleanup Levels for Fuel Oil Contaminated Soil**

<b>Contaminant</b>	<b>CAS Registry Number</b>	<b>Soil Cleanup Level (ppm)</b>
Acenaphthene	83-32-9	20
Acenaphthylene	208-96-8	100
Anthracene	120-12-7	100
Benz(a)Anthracene	56-55-3	1.0
Dibenzo(a,h)Anthracene	53-70-3	0.33
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12.0
sec-Butylbenzene	135-98-8	11.0
Tert-Butylbenzene	98-06-6	5.9
Chrysene	218-01-9	1.0
Ethylbenzene	100-41-4	1.0
Fluoranthene	206-44-0	100
Benzo(b)Fluoranthene	205-99-2	1.0
Benzo(k)Fluoranthene	207-08-9	0.8
Fluorene	86-73-7	30
Isopropylbenzene	98-82-8	2.3
p-Isopropyltoluene	99-87-6	10.0
Naphthalene	91-20-3	12.0
n-Propylbenzene	103-65-1	3.9
Benzo(g,h,i)Perylene	191-24-2	100
Phenanthrene	85-01-8	100
Pyrene	129-00-0	100
Benzo(a)Pyrene	50-32-8	1.0
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5-Trimethylbenzene	108-67-8	8.4
Toluene	108-88-3	0.7
Xylene (Mixed)	1330-20-7	0.26



**Table 4****Recommended Number of Soil Samples for Soil Imported To or Exported From a Site**

Contaminant	VOCs <sup>a</sup>	SVOCs, Inorganics & PCBs/Pesticides	
Soil Quantity (cubic yards)	Discrete Samples	Composite	Discrete Samples/Composite
0-50	1	1	Each composite sample for analysis is created from 3-5 discrete samples from representative locations in the fill.
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
➤ 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER. <sup>b</sup>		

<sup>a</sup> VOC samples cannot be composited. Discrete samples must be taken to maximize the representativeness of the results.

<sup>b</sup> For example, a 3,000 cubic yard soil pile to be sampled and analyzed for VOCs would require 11 discrete representative samples. The same pile to be sampled for SVOCs would require 4 composite samples with each composite sample consisting of 3-5 discrete samples.



## **Appendix I – SWPPP Amendments**

The Owner/Operator shall have a Qualified Professional amend the SWPPP when one or more of the following occur:

There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or

The SWPPP proves to be ineffective in:

Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or

Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity.

Additionally, the SWPPP shall be amended to identify any new Contractor or Subcontractor that will implement any measure of the SWPPP.

The following information should be documented in this section:

- Dates when major grading activities occur;
- Dates when construction activities temporarily or permanently cease on a portion of the Project Site; and
- Dates when stabilization measures (temporary and permanent) are initiated.





## AMENDMENTS TO STORMWATER POLLUTION PREVENTION PLAN

[illegible]



[illegible]



## **Appendix J – SWPPP Inspection Reports**

- Blank SWPPP Inspection Form -
- Completed SWPPP Inspection Reports -





## **Appendix J – Blank SWPPP Inspection Form**





General Project Information					
Project Name:					
SPDES Permit Number:		Type of Construction Activities Being Completed:			
Date of Inspection:					
Inspector's Name:					
Time On Site:					
Time Off Site:		Inspection Type:			
General Project Notes:					
SWPPP Amendment Required:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	If yes, describe:		

Weather Information		
Has there been a storm event since the last inspection?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, what was the approx. amount of precipitation (inches) since the last inspection:		
Weather conditions at the time of inspection?		Temperature: °F
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Snow <input type="checkbox"/> Fog <input type="checkbox"/> High Winds		
Does the Project Site discharge to natural surface waterbodies located within or immediately adjacent to the Project area?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, describe:		
Were there any discharges observed at the time of inspection?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, were sediment laden discharges observed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Describe:		
If yes, was erosion or sedimentation observed at the discharge location?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Describe:		
<b>Soil Condition:</b>		
Were areas of soil disturbance observed at the time of inspection?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, describe:		

### Maintaining Water Quality

Water Quality Observations	Yes	No	N/A
Is there an increase in turbidity causing a substantial visual contrast to natural conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is there residue from oil and floating substances, visible oil film, or grease or globules?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are all disturbances within the approved limits, as outlined on the plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have receiving waterbodies and/or wetland been impacted by the Project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the concrete washout facilities located a minimum of 100 feet from sensitive areas and properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			

### General Housekeeping

Site Conditions	Yes	No	N/A
Is construction site litter and debris appropriately managed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are facilities and equipment necessary for implementation of erosion and sediment controls in working and/or properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is construction impacting adjacent properties?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is dust adequately controlled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			





## Runoff Control Practices

Temporary Stream Crossings	Yes	No	N/A
Are the maximum necessary diameter pipes installed to span stream without dredging?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is non-woven geotextile fabric installed beneath the approaches?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is fill composed of aggregate (no earthen or soil material)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the rock on approaches clean enough to remove mud/sediment from vehicles and prevent sediment from entering the stream during high flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			

Excavation Dewatering	Yes	No	N/A
Are upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is clean water from the upstream pool being pumped to the downstream pool?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is sediment laden water from the work area being discharged to a sediment trapping device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the water discharging from the sediment trapping device clear and free of sediment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the constructed upstream berm have a minimum of one-foot freeboard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			

Flow Spreader(s)	Yes	No	N/A
Is the flow spreader installed per the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was the flow spreader constructed on undisturbed soil, not on fill?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the flow spreader receive only clear, non-sediment laden flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the discharge from the flow spreader sheet flow out of the spreader without erosion downstream?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			

Interceptor Dikes and Swales	Yes	No	N/A
Is the dike/swale installed per the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has the dike/swale been stabilized by geotextile fabric, seed, and/or mulch?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was erosion observed within the dike/swale?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is sediment-laden runoff directed to a sediment trapping device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			

Stone Check Dam(s)	Yes	No	N/A
Are the check dams in good condition (rocks in place and no ponding behind the dams)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has geotextile fabric been placed beneath the rock fill?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sediment accumulation greater than 50% of the design capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was erosion observed within the channel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>			





Rock Outlet Protection	Yes	No	N/A
Is the rock outlet protection installed per approved plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was the outlet protection installed concurrently with pipe installation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have the rocks been displaced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the sediment accumulation 0% of the design capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

### Soil Stabilization

Topsoil and Spoil Stockpiles	Yes	No	N/A
Are stockpiles properly stabilized and contained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are sediment control installed at the toe of the slope?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are idle soil stockpiles are stabilized with vegetation and/or mulch?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

Revegetation	Yes	No	N/A
Has temporary seed and mulch been applied to idle areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has a minimum of 4 inches of topsoil been applied under permanent seeding areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

### Sediment Control Practices

Stabilized Construction Entrance(s)	Yes	No	N/A
Is the entrance installed per the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the stone clean enough to effectively remove mud/sediment from vehicle tires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does all traffic enter and exit the site at the stabilized construction entrance(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is adequate drainage provided to prevent ponding at the entrance(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

Linear Sediment Control Barriers	Yes	No	N/A
Are the sediment controls installed along the contour, 10 feet from toe of slope and not within conveyance channels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are silt fence joints constructed by wrapping the two ends together for continuous support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the silt fence fabric is buried a minimum of 6 inches?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the posts stable and the fabric is tight and without rips/frayed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the compost filter sock have good contact with the soil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the sediment accumulation 0% of the design capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			





Storm Drain Inlet Protection	Yes	No	N/A
Is the inlet protection installed in accordance with the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the inlet protection structurally sound?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the posts stable and the fabric is tight and without rips/frayed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the sediment accumulation greater than 50% of the design capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

Temporary Sediment Basin	Yes	No	N/A
Is the basin and outlet structure constructed per the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the basin side slopes stabilized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was the drainage structure flushed and basin surface restored upon removal of the sediment basin facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the sediment basin dewatering at an appropriate rate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the sediment accumulation greater than 50% of the design capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

Temporary Sediment Trap	Yes	No	N/A
Is the outlet structure constructed per the Construction Drawings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has geotextile fabric been placed beneath the rock fill?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are the sediment trap slopes and disturbed areas are stabilized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is the sediment accumulation greater than 50% of the design capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

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. All practices shall be maintained in accordance with their respective standards.

\_\_\_\_\_  
Qualified Inspector

\_\_\_\_\_  
Qualified Inspector Signature

\_\_\_\_\_  
Qualified Professional

\_\_\_\_\_  
Qualified Professional Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided in this report is accurate and complete. If there are any questions, comments, or concerns regarding the contents of this report, feel free to contact Inspector's Name at XXX-XXX-XXXX or email address.



## Sketch Map

<b>Legend:</b>		Area of Active Soil Disturbance		Area has Achieved Temporary Stabilization
		Area of Inactive Soil Disturbance		Area has Achieved Final Stabilization





### Inspection Photographs

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3		4	



5		6	

7		8	



9		10	

11		12	



## **Appendix J – Completed SWPPP Inspection Reports**