Stormwater Report
&
Erosion & Sedimentation Control Plan

Unitil Regulator & Meter Station Relocation Project
40 West Commercial Street
Portland, Maine

Prepared for:

City of Portland Planning Department
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STORMWATER REPORT

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) has prepared a stormwater report in accordance with the City of Portland (City) and Maine Department of Environmental Protection (MeDEP) standards for the new Unitil regulator and meter station project at 40 West Commercial Street in the City. The new station will be relocated approximately 400 feet north of the existing station. This facility will be located between the planned cold storage building and the International Marine Terminal (IMT) container storage area. The facility will be surrounded by a grounded chain-linked fence.

This stormwater report is supplemental to a stormwater report developed by HNTB on behalf of the Maine Department of Transportation and titled "Port of Portland International Marine Terminal Existing Laydown and Connecting Corridor Connection" dated March 26, 2014. The recently completed project consisted of rail improvements, Commercial Street improvements, and chassis storage yard improvements as part of the planned cold storage building and recently completed laydown and connecting corridor connection project.

Project Description

The new Unitil regulator and meter station will be relocated to within the site area associated with the chassis storage yard improvements project. This new facility will consist of two precast concrete buildings. Each building will be set upon engineered concrete foundations. A data acquisition building will measure 10 foot wide x 12 foot long x 9 foot high, and will house the supervisory control and SCADA equipment. A natural gas metering and regulator building will measure 28 foot wide x 50 foot long x 11-4 foot high, and will house a meter, gas regulators and supplying three separate distribution systems.

The site will be provided with a 22 foot wide circular paved access drive with two ingress/egress locations off an existing paved drive providing access to the IMT, six parking spaces, and chain link fencing with three 16 foot electric sliding gates. Geotextile fabric and crushed rock will be installed within the station's fenced-in area. These areas are not to be paved.

The gas pipelines will be relocated westerly on the site to a pipeline easement corridor extending from West Commercial Street to the relocated Gas Regulator and Meter Station. After the new regulator and meter station is constructed and in service, Unitil will isolate the existing pressure regulating facilities from the distribution systems. Removal and disposal of the remaining piping and components and demolition of the existing buildings will be the responsibility of MeDOT. All excavations will be done in accordance with the Soil Management Plan approved by the MeDEP for Unitil's VRAP remediation plan, as amended by joint Unitil/Department petition.

MeDOT Port of Portland IMT Stormwater Management Strategy

The HNTB Portland International Marine Terminal Existing Laydown and Connecting Corridor Connection stormwater report provided information that the existing soils in the 7.4 acre chassis storage yard watershed are manmade cut and fill lands that are moderately well drained with groundwater levels approximately 6-9 feet below existing grade and that the development improvements included removal of an undesirable organic layer and installation of a 4-inch thick

MeDOT 411.12 crushed stone surface over a 20-inch thick MeDOT 304.10 Type D aggregate subbase per Section 7.7 – Manmade Pervious Surfaces Best Management Practices (BMP) from the MeDEP BMP Technical Design Manual.

The HNTB report provided additional information that the MeDEP Manmade Pervious Surface BMP was designed to handle heavy IMT vehicle loads, provide water quality treatment of runoff flows by filtration through the 20-inch aggregate subbase and infiltration through the existing soils and provide water quantity control of runoff flows with storage of the 1-inch water quality rain event within the voids (40%) of the 4-inch crushed stone layer in accordance with MeDEP Chapter 500 General Standard requirements.

The HNTB report provides a summary for the 7.4 acre chassis storage yard watershed that includes the following:

- Existing Impervious = 1.38 acres
- Proposed Impervious = 7.38 acres
- New Impervious = 7.38 acres – 1.38 acres = 6.0 acres
- MeDEP Crushed Stone Surface = 6.90 acres
- 6.90 acres/6.0 acres = 115% Water Quality Treatment to New Impervious Areas
- 6.90 acres (300,564 SF) X (1") X (1'/12") = 25,050 CF of Runoff Volume Provided
- (300,564 SF) X (40% Voids/1") X (1'/12") = 10,020 CF storage/1" = 2.5 Inches Minimum Thickness Crushed Stone Surface Required for Water Quantity Control
- 4-inch Thick MeDOT 411.12 Crushed Stone Surface Provided

Unitil Stormwater Management ty Control Strategy

The stormwater management for the Unitil project will utilize the same MeDEP Manmade Pervious Surface BMP to provide water quality treatment and water quantity control to runoff flows from the Unitil station.

Amec Foster Wheeler has assumed that the entire new 16,638 square foot **(0.38 acre)** Unitil station site consisting of buildings, paved access drives, parking spaces, and all areas within the proposed fenceline and area between the two ingress/egress locations consisting of geotextile fabric and crushed rock will be considered new impervious area within the existing chassis storage yard. See Erosion & Sedimentation Control Report and Unitil Station watershed delineation on Drawing C-1 included as Appendix A.

Amec Foster Wheeler's MeDEP water quality treatment and water quantity control calculations with the relocated Unitil regulator and meter station within the 7.4 acre chassis storage yard watershed include the following:

- Existing Impervious = 1.38 acres
- Proposed Impervious = 7.38 acres + **0.38 acres** = 7.76 acres
- New Impervious = 7.76 acres -1.38 acres = 6.38 acres
- MeDEP Crushed Stone Surface = 6.90 acres – **0.38 acres** = 6.52 acres
- 6.52 acres/6.38 acres = 102% Water Quality Treatment to Impervious Areas

- (previously provided 6.90 acre crushed stone surface area) / (proposed 6.52 acre crushed stone surface area) X (previously required 2.5 Inches Minimum Thickness Crushed Stone Surface for Water Quantity Control) = 2.65 Minimum Thickness Crushed Stone Surface Required for Water Quantity Control
- 4-inch Thick MeDOT 411.12 Crushed Stone Surface Provided

Conclusion

The 0.38 acre reduction in surface area to the chassis yard MeDEP Manmade Pervious Surface BMP associated with the relocation of the Unitil station did not adversely affect the overall water quality treatment and water quantity control of the Port of Portland International Marine Terminal Existing Laydown and Connecting Corridor Connection site.

Project Erosion & Sedimentation Control Strategy

The project will provide disturbances of less than one (1) acre but will include erosion and sedimentation measures to meet the MeDEP Basic Standards requiring BMP Standards for development projects disturbing one (1) acre or more of area to ensure that the planned improvements will not create potential degradation of water quality treatment and water quantity control to the MeDEP Manmade Pervious Surface BMP chassis yard.

Amec Foster Wheeler has developed an Erosion and Sediment Control Report to address any possible erosion and sedimentation during and after the construction of the Unitil regulator and meter station project. This plan incorporates the standards and specifications for erosion prevention for development projects contained in the MeDEP *Erosion and Sediment Control Handbook for Construction: Best Management Practices* (March 2003).

Appendix A

Erosion & Sedimentation Control Report

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EROSION AND SEDIMENTATION CONTROL PLAN REPORT

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) has prepared an Erosion and Sediment Control Plan Report for the new Unitil regulator and meter station project at 40 West Commercial Street in the City of Portland (City).

This erosion and sediment control plan report will address any possible erosion and sedimentation during the construction of the Unitil station Relocation Project and incorporates the standards and specifications for erosion prevention for development projects contained in the Maine Department of Environmental Protection (MeDEP) *Erosion and Sediment Control Handbook for Construction: Best Management Practices* (March 2003). See Erosion and Sedimentation Control Drawings included as Appendix A.

Project Erosion & Sedimentation Control Strategy

The project is anticipated to produce minor excess earth materials that the contractor will be required to dispose of off-site in accordance with all local, state, and federal requirements.

The erosion and sediment control strategy to be employed during the construction and stabilization of the proposed development will be to contain sediment on the site. This strategy will not allow the introduction of sediment-laden runoff to the 7.4 acre MeDEP Manmade Pervious Surface BMP chassis yard. To accomplish this strategy, temporary erosion and sediment control measures will be used at the construction site and will stay in effect until the site has been stabilized permanently. These control measures will consist of the placement of a MeDEP siltation log Best Management Practices (BMP) along the perimeter of the construction site stabilization of disturbed areas by paving or installation of Geotextile fabric and crushed rock to site areas.

Project Site Data

The project site will be located between the planned cold storage building and the International Marine Terminal (IMT) container storage area and is bounded by The Fore River to the south and Commercial Street to the west.

The existing soils in the 7.4 acre chassis storage yard watershed are manmade cut and fill lands that are moderately well drained with groundwater levels approximately 6-9 feet below existing grade. See the Natural Resources Conservation Services Custom Soil Resource Report for Cumberland County included as Appendix B.

The existing site consists of a 4-inch thick MeDOT 411.12 crushed stone surface over a 20-inch thick MeDOT 304.10 Type D aggregate subbase per Section 7.7 – Manmade Pervious Surfaces Best Management Practices (BMP) from the MeDEP BMP Technical Design Manual associated with the Portland International Marine Terminal Existing Laydown and Connecting Corridor Connection project.

In general, the MeDEP Manmade Pervious Surface BMP was designed to handle heavy IMT vehicle loads, provide water quality treatment of runoff flows by filtration through the 20-inch aggregate subbase and infiltration through the existing soils and provide water quantity control

of runoff flows with storage of the 1-inch water quality rain event within the voids (40%) of the 4-inch crushed stone layer in accordance with MeDEP Chapter 500 General Standard requirements.

Erosion & Sedimentation Control Plan

The project will provide disturbances of less than one (1) acre but will include erosion and sedimentation measures to meet the MeDEP Basic Standards requiring BMP Standards for development projects disturbing one (1) acre or more of area to ensure that the planned improvements will not create potential degradation of water quality to locations downstream of the developments site.

The general contractor will be responsible for maintenance during construction. An Inspection and Maintenance Plan is included as Appendix C that provides information for the applicant or hired subcontractors for inspections and restoration activities. Additionally, MeDEP Housekeeping Standards are included as Appendix D of this report.

The primary emphasis of the erosion and sedimentation control plan to be implemented for this project is as follows:

1. Developing a project layout that avoids excessive earth disturbance.

2. Development of a careful construction sequence that limits the area and duration of soil exposure.

3. Rapid stabilization of disturbed areas to minimize the period of soil exposure.

4. The use of on-site measures to capture initial sediment (siltation logs/hay bales/silt fence, etc.).

5. Protection of natural resource areas.

6. Any loam or soil stockpiles will be in suitable areas approved by the MeDOT.

7. Additional erosion control methods will be implemented during winter construction, between November 1 and April 15, if necessary.

Erosion & Sedimentation Control Requirements

The equipment anticipated to be used for the construction includes the following: backhoes, bulldozers, loaders, trucks, cranes, and compactors. The following measures will be undertaken to provide maximum protection to the soil, water, and abutting lands:

1. Prior to excavation and earth moving operations, perimeter siltation logs/silt fence will be installed along the perimeter of the site.

2. In areas of construction dewatering, if necessary, pumped discharge sediment devices will be utilized adjacent to the activity. Sediment traps will be constructed utilizing

dirtbags, or other similar devices that do not require additional soil disturbance. Additional sedimentation protection will be provided by the installation of hay bale barriers between the sediment traps and the receiving drainage course.

3. All siltation BMPs will be inspected by the contractor on a weekly basis or following any significant rainfall (1/2 inch or more) or snowmelt. All damaged erosion control devices will be repaired and/or replaced immediately. Trapped sediment will be removed before it has accumulated to one-half of the installed siltation fence or hay bale barrier height. Devices no longer serviceable due to sediment accumulation will also be repaired and/or replaced as necessary.

4. Intercepted sediment will be returned to the site and incorporated into the project area and stabilized.

5. Should construction occur after November 15, additional erosion control methods will be implemented. All disturbed areas will be minimized as much as possible. Prior to freezing, additional erosion control devices will be installed as appropriate. Inspection of these erosion control items will be constant, with particular attention paid to weather predictions to ensure that these measures are properly in place to handle large amounts of runoff from heavy rains or thaws.

Monitoring Program

Sedimentation and erosion control measures will be inspected continually by the contractor and all measures damaged by construction equipment, vandals, or the elements will be repaired immediately. Following rainstorms and during runoff events, the site and all structures will be inspected for erosion and damage. All damaged structures will be repaired and/or additional erosion control structures will be installed prior to continuing the construction.

After the project area is stabilized, the contractor shall remove all temporary erosion control measures.

Dust Control Program

If dusty conditions occur on-site as a result of increased vehicular traffic during dry conditions, dust control measures will need to be implemented.

1. Water: Water should be applied at a rate sufficient enough to moisten exposed soil to prevent dust transport but not at a rate that produces any amount of silt-laden runoff or muddy pools in the travel way.

2. Calcium Chloride: Liquid of fine-flaked calcium chloride may be used. Calcium chloride should not be applied adjacent to wetlands, lakes, pools or other naturally sensitive areas. Limit application rates to 30% calcium chloride or as recommended by manufacturer.

Winter Construction (If Necessary)

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, by November 15, then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement, or gravel base.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. Soil Stockpiles: Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. Trench Dewatering and Temporary Stream Diversion: Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

3. Inspection and Monitoring: After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Appendix A

Erosion and Sedimentation Control Drawings

Appendix B

Natural Resources Conservation Services Custom Soil Resource Report

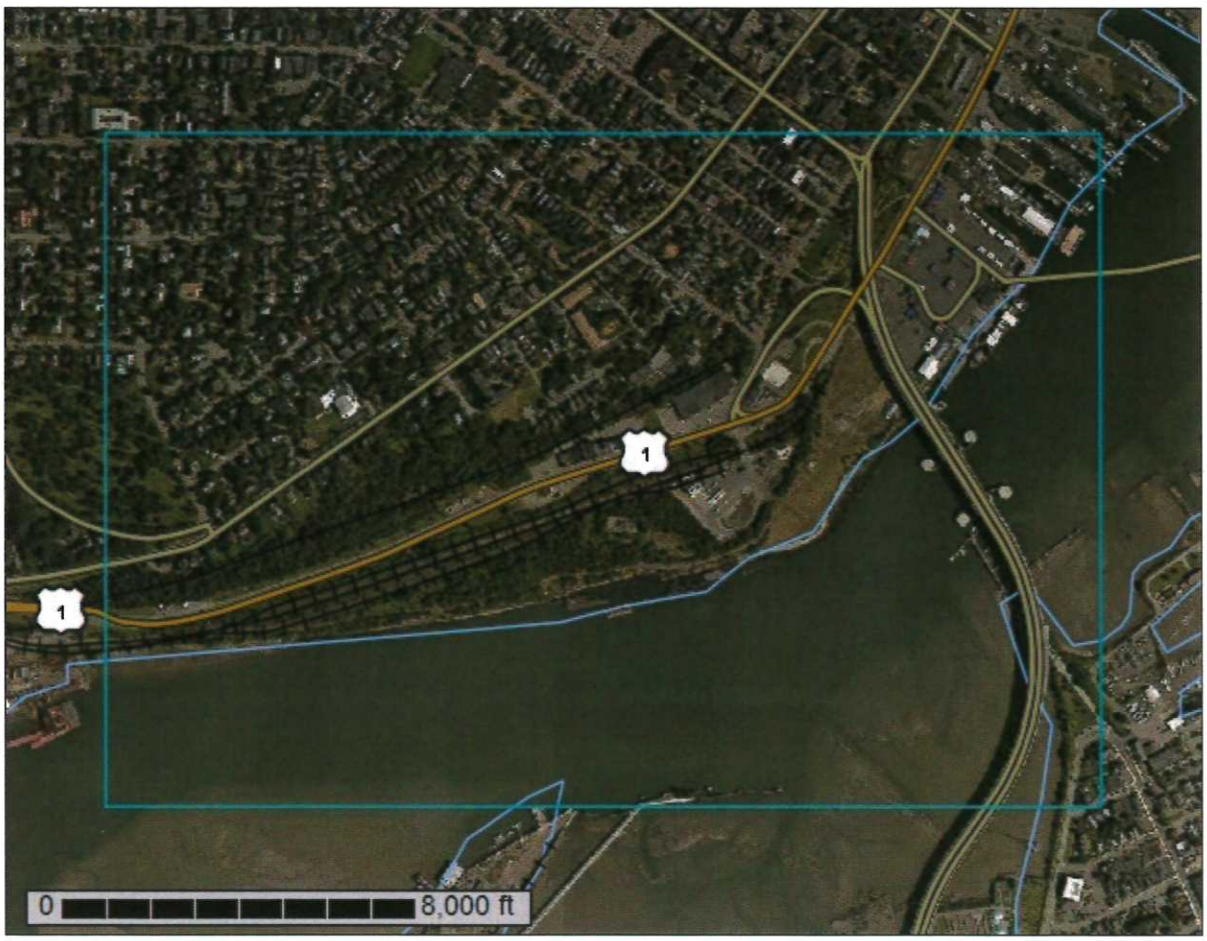
United States Department of Agriculture

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 Cumberland County and Part of Oxford County, Maine

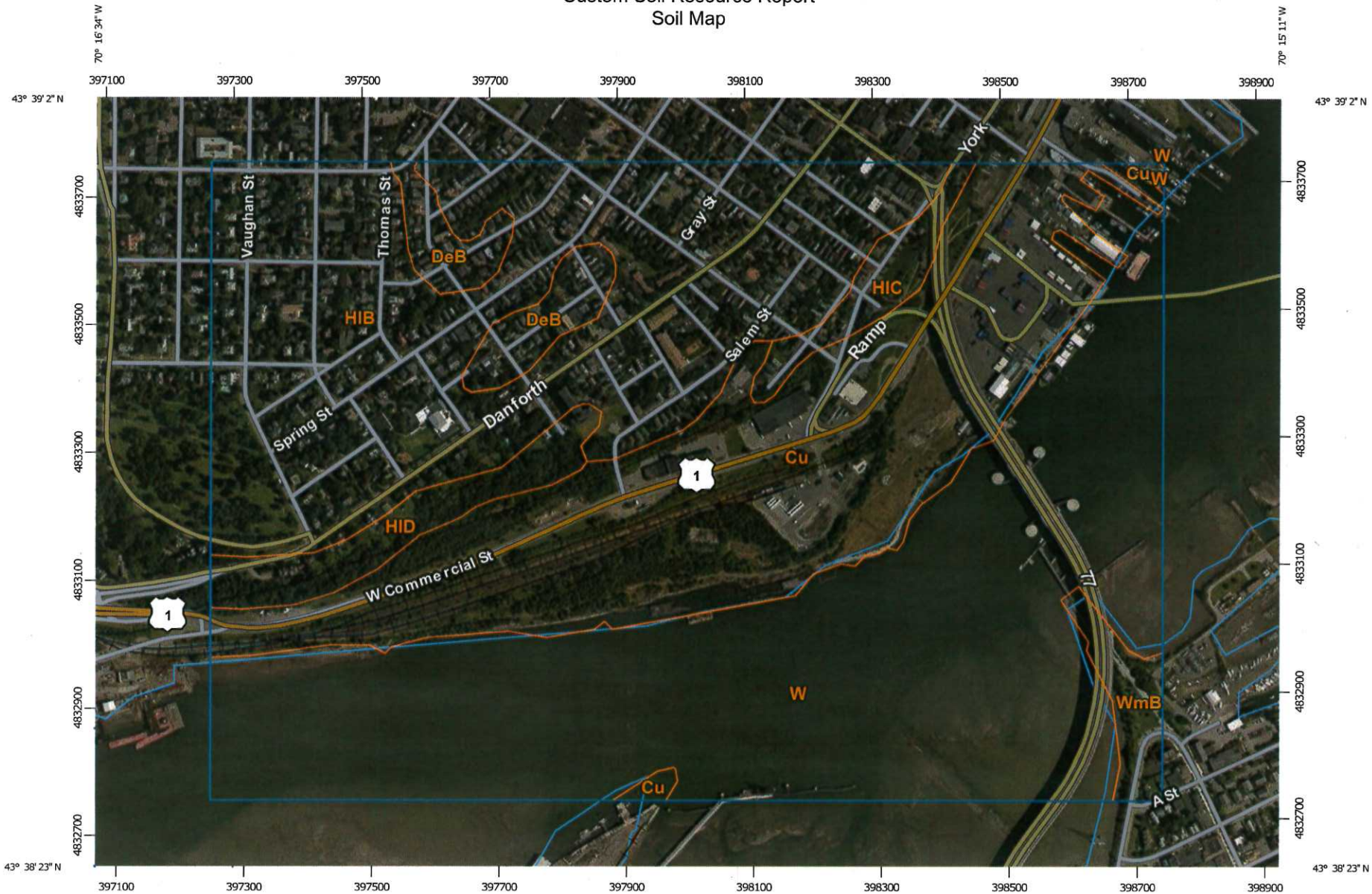


April 4, 2016

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



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: http://websoilsurvey.nrcs.usda.gov
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: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 11, Sep 17, 2015

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

Date(s) aerial images were photographed: Jul 31, 2013—Aug 11, 2013

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

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cu	Cut and fill land	89.5	24.1%
DeB	Deerfield loamy sand, 3 to 8 percent slopes	10.4	2.8%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	107.6	29.0%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	6.6	1.8%
HID	Hinckley loamy sand, 15 to 25 percent slopes	11.0	3.0%
W	Water	139.7	37.7%
WmB	Windsor loamy sand, 0 to 8 percent slopes	5.8	1.6%
Totals for Area of Interest		**370.6**	**100.0%**

Map Unit Descriptions

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

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

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

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Cumberland County and Part of Oxford County, Maine

Cu—Cut and fill land

Map Unit Composition

Cut and fill land: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cut And Fill Land

Typical profile

H1 - 0 to 65 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)
Depth to water table: About 24 to 42 inches
Available water storage in profile: Moderate (about 6.6 inches)

DeB—Deerfield loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh6
Elevation: 150 to 1,200 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 10 inches: loamy sand
H2 - 10 to 24 inches: loamy sand
H3 - 24 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A

HIB—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 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting
Landform: Eskers, kames, kame terraces, outwash plains, outwash terraces, moraines, outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Base slope, crest, nose slope, side slope, tread, riser
Down-slope shape: Linear, convex, concave
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
Natural 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
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A

HIC—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2svm9
Elevation: 0 to 1,480 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
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting
Landform: Eskers, kames, kame terraces, outwash plains, outwash terraces, moraines, outwash deltas
Landform position (two-dimensional): Shoulder, toeslope, footslope, backslope
Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser
Down-slope shape: Convex, concave, linear
Across-slope shape: Concave, linear, convex
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: 8 to 15 percent
Depth to restrictive feature: More than 80 inches

Natural 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
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A

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

Description of Hinckley

Setting
Landform: Eskers, kames, kame terraces, outwash plains, outwash terraces, moraines, outwash deltas
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser
Down-slope shape: Convex, concave, linear
Across-slope shape: Concave, linear, convex
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
Natural 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
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2
Elevation: 0 to 1,410 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

Windsor and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Deltas, dunes, outwash plains, outwash terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural 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
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A

Appendix C

Inspection and Maintenance Plan

INSPECTION & MAINTENANCE PLAN

Stormwater runoff from construction areas can contain a significant amount of non-point contaminants which can have an adverse impact on the receiving waters. The installation of MeDEP Best Management Practices (BMP) measures can significantly reduce the non-point pollutant discharge from the developed area.

This inspection and maintenance plan defines the inspection and maintenance requirements for the stabilization of the project site.

During Construction

The following standards must be met during construction.

A. Inspection and Corrective Action

Inspection disturbed and impervious areas, erosion control measures, materials, storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control shall conduct the inspections.

B. Maintenance

Maintain all measures in effective operating condition until areas are permanently stabilized. If BMP's need to be maintained or modified, additional BMP's are necessary, or other corrective action is needed, implementation must be completed within 7 days and prior to any storm event (rainfall).

C. Documentation

Keep a log (Report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major observations must include BMP's that need maintenance, BMP's that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMP's are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMP's, note in the log the corrective action taken and when it was taken.

The log must be made accessible to City staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

Post Construction

Persons knowledgeable of erosion and stormwater controls and the standards and conditions of MeDEP permits should conduct the inspections, identify deficiencies, and perform maintenance to assure that the stormwater management system functions as intended on a long-term basis.

After the project area has stabilized, the contractor shall remove all siltation fences, temporary siltation control risers, and any other temporary erosion control measures.

Summary Checklist – Inspection & Maintenance

Maintenance Program
Summary Checklist

BMP ITEM	Commentary	Frequency			
		After Storm Event	Weekly	At Final Stabilization	Prior to City Approval
Resurfaced Areas					

Inspected By: Date:

Appendix D

MeDEP Housekeeping Standards

MAINE DEP – Chapter 500: Stormwater Management

Housekeeping

These performance standards apply to all projects.

1. **Spill prevention.** Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater and appropriate spill prevention, containment and response planning and implementation. If required, the general contractor shall review the Jetport Stormwater Pollution Prevention Plan and follow all established spill control plans and maintenance report logs as necessary.

2. **Groundwater protection.** During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in the Park.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R. S.A. §465-C(1).

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3. **Fugitive sediment and dust.** Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

4. **Debris and other materials.** Litter, construction debris and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules, Maine oil conveyance and storage rules and Maine pesticide requirements.

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5. **Trench or foundation de-watering.** Trench de-watering is the removal of water from trenches, foundations, coffer dams, ponds and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a coffer dam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Measures may require approval by the Department.

Note: For guidance on de-watering controls, consult the Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection.

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6. Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Follow manufacturer's recommendations and MeDEP requirements for all non-stormwater discharges.