

## EXHIBIT 14

### EROSION & SEDIMENT CONTROL PLAN

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# **EROSION AND SEDIMENTATION CONTROL REPORT**

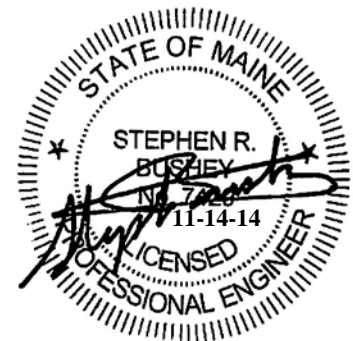
**midtown  
PORTLAND, MAINE**

## **PREPARED FOR:**

**THE FEDERATED COMPANIES  
3301 NE 1ST AVENUE, SUITE M-302  
MIAMI, FLORIDA 33137**

## **PREPARED BY:**

**FAY, SPOFFORD & THORNDIKE  
778 MAIN STREET, SUITE 8  
SOUTH PORTLAND, MAINE 04106  
(207) 775-1121**



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## **ATTACHMENTS**

- Attachment A – Seeding Plan
- Attachment B – Sample Erosion Control Compliance Certification and Inspection Forms
- Attachment C – Erosion Control Specifications
- Attachment D – DirtGlue™ Application and Use Requirements
- Attachment E – Special Dewatering Specification Prepared by Tewhey Associates and Edited by DeLuca-Hoffman Associates, Inc./Fay, Spofford & Thorndike
- Attachment F – Draft Specification for Groundwater Treatment System

## 1.0 INTRODUCTION

Fay, Spofford & Thorndike has been retained by The Federated Companies to prepare an Erosion and Sedimentation Control Plan employing BMP's customarily used in Maine and which are applicable to this project. The site was environmentally contaminated and has undergone partial remediation. The residual cleanup is anticipated to be completed before commencing construction on this project. Detailed information on the environmental contamination, the established level of cleanup and remediation, and test results are available at the City of Portland Planning Department. However, the groundwater is potentially contaminated and will require treatment using containerized systems. An outline of the performance standard for the treatment system is provided as Attachment F. The final standards will be established by environmental agencies through the City's selected environmental consultant. The contractor shall be responsible for obtaining and reviewing the final standards from the City of Portland. The Contractor will also need to coordinate work with the qualified environmental professionals working for the City or Federated. The Erosion and Sedimentation Control Plan consists of this report, the appended materials, and the erosion control plans and detail sheets of the drawing set. The erosion controls are the minimum required for each phase of the project and require monitoring during construction to assess their effectiveness for the specific weather conditions occurring during the construction periods. This project is tributary to a separated sewer system meaning that turbid discharges would flow almost immediately to Back Cove. This plan includes rigorous measures and sets a standard to avoid significant discharges of turbid stormwater or environmentally tainted groundwater.

The storm drains in the area include a system that serves the easterly end of the project area which was constructed in about 2003 as part of a sewer separation project. This drainage system ultimately discharges to Back Cove on the northerly side of I-295 near the Franklin Arterial Interchange. This new system starts at a manhole at the intersection of Marginal Way and Franklin Arterial on the existing 72-inch diameter storm drain downstream of the tide gate and combined sewer overflow structure for the Franklin Street Pumping Station. The 72-inch storm drain has an invert of about -4.43 at this location. The new system included approximately 556 feet of 30 to 42 inch storm drain between Marginal Way and Somerset Street with inverts ranging from approximately -1.5 to 2.1. The drain continues in a westerly direction along Somerset Street and is approximately 1,013 feet in length with 18 to 30 inch storm drain along Somerset Street to the end of the drainage system. This catchment area limit is located about 40 feet westerly of the intersection of Somerset and Chestnut Street. A branch line feeding the so called "A" system was constructed along the pedestrian trail which runs along the northerly side of this project. This branch includes piping up to 18 inches in diameter and drains portions of the rear of the subject parcel and along the trail behind the project site.

A second drainage system serves the westerly portion of the project site. Drainage from Somerset Street flows to Elm Street and then continues northerly to Preble Street to a 60-inch diameter line that crosses under Interstate 295 and discharges to Back Cove.

Finally, there is a small catchment that enters the Chestnut Street system identified as System "C".

The construction will result in the majority of the site cover being rooftops or parking decks. There will be very little residual area and these small areas will consist of connecting walkways, hardscape, and landscaping or turf. Somerset and Chestnut Streets will be raised either as part of this project or a separate City Project. Coordination and planning the project to avoid disruption of the lightweight concrete fill to be placed and placement of ballast will be key elements of construction sequencing.

It is anticipated the construction will involve periods where pedestrian and bicycle traffic are detoured around portions of the work site, parking restrictions that do not currently exist will be

made, and the use of a limited area of street pavements for storage of equipment trailers, containerized treatment systems, cranes, other construction equipment, and material stockpiles will occur at some periods during construction. These elements are discussed in more detail in the construction plan for the project, which is a separate document.

The erosion and sedimentation controls are quantified as follows:

- There shall not be any turbid release of storm runoff from the site.
- There shall be no tracking of mud onto the streets. Tracking is defined to be any visible and discernible soil, dirt, or deleterious debris on the street at the intersection of Pearl and Somerset to the east and Elm and Somerset to the west.
- There shall be no release of contaminated ground water from the site. The standard is defined in Attachment F.

Because there is a quantifiable standard, it will be the obligation of the contractor to monitor and meet the standards and the contractor may have options in selecting and locating erosion and sedimentation control devices provided the standards are met.

## 2.0 OVERVIEW OF SOIL EROSION AND SEDIMENTATION CONCERNS

The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. The “K” value is frequently used with the universal soil loss equation. The higher values are indicative of the more erodible soils. The relative K values of the underlying material (Au Gres) the site would be as follows:

Soil Symbol	Soil Description	“K” Value
Ag	Au Gres	0.15

The soils will be slightly to moderately susceptible to erosion. The site grades are currently flat and featureless which aids in reducing the erosion potential.

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

- **Temporary Measures:** Planning the project to have erosion resistant measures in place by implementing measures intended to prevent erosion from occurring.
- **Phasing Sequencing:** The plan includes measures to intercept and convey runoff to temporary control devices as the construction of the project occurs. The use of small collection sumps with a clean sand filter above an underdrained discharge is recommended to supplement the principal sumps to help reduce turbidity. Turbidity should be controlled in any discharge through the use of settling, filters, or chemical coagulants.
- **Limit in Area of Exposure:** The phased nature of the project will limit the amount of area exposed at a given time with the Phase 3 area currently stabilized with grass cover.
- **Internal Drainage:** The sites are flat enough to allow temporary grading such that runoff may be collected within the site and not directed to perimeter areas.
- **Use of Type 1 Settling:** Installing sediment traps and swales early in the construction sequence to provide secondary relief for erosion control measures within the site until late in the project when the sedimentation areas need to be removed for final restoration.

- **Restabilization:** Stabilization of areas denuded to underlying parent material must occur within stipulated time frame to minimize the period of soil exposure and stabilization of drainage paths to avoid rill and gully erosion.
- **Interim Entrapment:** The use of on-site measures to capture sediment (hay bales/silt fence, etc.) before it is conveyed to sediment traps.
- **Long Term Site Protection:** The implementation of long-term measures for erosion/sediment and pollutant treatment through the construction of permanent water quality measures.
- **Special Winter Construction Measures:** These will be required for work between September 15 and April 15.
- **Special Provision:** Special provision for pumping storage and treatment of groundwater pumped from the site.
- **Coordination of the Work:** Coordination of the work such that the lightweight concrete fill will not be disturbed after placement. Ballast shall be placed as soon as practicable to avoid damage to the concrete.

### 3.0 DESCRIPTION AND LOCATION OF LIMITS OF ALL PROPOSED EARTH MOVEMENTS

The construction of the project will disturb about 3.5 acres of land plus the right of way for Somerset Street between Elm Street and Pearl Street, on the Chestnut right of way near the project areas on the future Pearl Street Extension, and limited work on the trail and Elm Street. Chestnut and Somerset Streets will be raised in grade either as part of this project or a separate coordinated City project. The limit of disturbance is generally coincident with the limit of the land area plus the narrow strip of land between the right of way and the curb line of the street.

The earth moving will include trenching for underground utilities, excavation for water quality measures or below grade storage or treatment tanks (if any), earthwork attendant with the pile driving and foundation excavation, earthwork to prepare areas for placement of geofoam, earthwork to reshape the perimeter of the site and the area between the street curb and the property line along Somerset Street, earthwork to prepare and shape the building and parking garage pads, and placement of aggregates below the ground level building or structure pads. The project includes the placement of lightweight concrete fill in non-pile supported (i.e. outside of building) areas. This concrete is to be placed at specified thicknesses and depths and will be used when the finish grade is elevated by more than 6" above historic grades. The lightweight concrete will mitigate any increase in dead loads. The material overlying the lightweight concrete will serve as a ballast to prevent groundwater uplift of the concrete.

### 4.0 EROSION/SEDIMENTATION CONTROL DEVICES

As part of the site development, the Contractor will be obligated to implement erosion and sediment controls. The following devices are anticipated to be used and shall be installed as indicated on the plans or as described within this report. For further reference on these devices, see the *Maine DEP Best Management Practices for Erosion and Sediment Controls (August, 2005)*.

1. Siltation fence shall be installed down slope of any disturbed areas to trap runoff borne sediments until the site is constructed or revegetated. The silt fence shall be installed per the detail provided in the plan set and inspected immediately after each rainfall and at least daily during prolonged rainfall. The Contractor shall make repairs immediately if there are any signs of erosion or sedimentation below the erosion control fence line. If such erosion is observed, the Contractor shall take proactive action to identify the cause of the erosion and take action to

avoid its reoccurrence. Typically, this requires that stabilization measures be undertaken. Proper placement of stakes and keying the bottom of the fabric into the ground is critical to the fence's effectiveness. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence, the barrier shall be replaced with a stone check dam and measures taken to avoid the concentration of flows not directed to the silt fence.

2. Silt fence is shown by three types, depending upon the timing and intent, as follows:

<b>SCHEDULE OF SILT FENCE REQUIREMENTS</b>		
<b>Silt Fence</b>	<b>Type/Purpose</b>	<b>Time of Installation</b>
Condition 1	To trap sediment along the grading edge where the new contours nearly parallel existing contours and as a perimeter control to help control fugitive dust and grading that could temporarily direct water to an unintended perimeter area.	At initial site preparation, prior to other work.
Condition 2	To trap sediment from the work area; install in short sections parallel to existing contour; typically occurs where proposed and existing contours form a "V" shape.	At initial site preparation, prior to other work. On occasion, this needs to be deferred until the area for the silt fence installation can be reached.
Condition 3	To trap sediment along the base of proposed contours, typically in cut areas.	During construction after new grade is shaped. Time between work in area and shaping new grade to allow silt fence to be installed shall be minimized.

Conditions 2 and 3 silt fence will be used extensively between project activities. In the event of frozen ground where silt fence cannot be installed, a wood waste berm may be used as a substitute.

Wood waste mulch and berms that are at least 18 inches in height and 12 inches across the top are an acceptable alternative to silt fence.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulching should be occurring several times per week when the site construction activity is high and at sufficient intervals to reduce the period of exposure of bare soils to the time limits set forth in this plan. Mulch placed on slopes of less than 10 percent shall be anchored by applying water; mulch placed on slopes steeper than 10 percent shall be covered with fabric netting as immediately after mulching as practicable and anchored with staples in accordance with the manufacturer's recommendations. Proposed drainage channels, which are to be revegetated, shall receive Curlex blankets by American Green selected for the slope, velocity, and whether the measure is temporary or intended to be in place for a sustained period. Mulch application rates are provided in Attachment A of this section. Hay mulch shall be available on site at all times in order to provide immediate temporary stabilization when necessary. Where necessary, a windrow of crushed stone and/or gravel shall be placed at the top of the slope and directed to a temporary stone channel or pipe sluice to convey runoff down slopes. A dissipation device such as stone or a plunge pool should be installed at the base of the slope and sluice outlet to dissipate the energy of the water from the sluice or channel. It is noted that very little area of the site will be revegetated. Therefore, the use of wood wastes, crushed stone, or materials with low erosive potential are expected to have much higher use than mulching for this project.

4. Temporary sediment traps will provide sedimentation control for stormwater runoff from disturbed areas during construction until stabilization has been achieved. The sediment traps need to include a sand filter above an underdrain or a chemical coagulant to remove fine-grained sediment. The Contractor is encouraged to temporarily drain the site to an internal location where water can accumulate and be pumped to a sediment sump or other treatment measures. This is a recommendation, not a requirement since the erosion control requirements are intended to protect from fugitive dust and turbidity in runoff, not prescribe contractor means and methods,
5. Riprap or stone check dams are intended to stabilize and protect denuded soil surfaces or dissipate the energy and erosive forces from concentrated flows. Installation details and stone sizes are provided in the construction plan set on the erosion control detail sheets.
6. A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto adjacent streets. It may be necessary to wash the wheels of vehicles exiting the site to avoid tracking mud or material that will generate fugitive dust during certain periods of construction. A wheel wash will be established for this purpose.
7. A pre-manufactured SiltSack™ shall be installed at catch basin inlets which may receive runoff from the construction activities on the site to prevent silt from entering the storm drain system.
8. Dirtbags™ will be required to be on site and available for construction dewatering. The Contractor will be required to have at least four (4) Dirtbags™ on the site with one prepared for operation prior to commencing any trenching operations. Dirtbags™ will need to be installed above filter sand and crushed stone in accordance with the details shown on the plan set.
9. The constructed surface (rooftop or parking deck) is intended to serve as the primary permanent erosion control device. Loam and seed or landscaped areas will be limited in size. Specific areas as will be shown on the landscape plans will receive sod or mulch for trees, shrubs, or planting beds. Application rates are provided in Attachment A of this section for temporary and permanent seeding.
10. Stone check dams will be installed in areas noted on the plan or as warranted, based upon observations prior to and during construction of the site.
11. Silt logs are an option for stone check dams and may be substituted provided the devices are well anchored.
12. Sorbent booms are intended to capture oils and the asphalt sheen from paved surfaces and shall be installed in all catch basins before pavement is installed.
13. DirtGlue™ is an acceptable means of temporary stabilization and is intended to form a “crust” on the surface that is resistant to erosion. However, applications where DirtGlue™ is used must be protected from traffic that would crack the “crust” and the DirtGlue™ has temperature limitations that restrict the periods of use. Use of this material shall conform to the requirements of Attachment D.
14. Concrete Wash Area: A concrete wash down area will be required and is detailed on the accompanying erosion control plans and details.

## **5.0 TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES**

The following are planned as temporary erosion/sedimentation control measures during construction:



1. Crushed stone-stabilized construction entrances shall be placed at any construction access points from adjacent streets. The locations of the construction entrances shown on the drawings should be considered illustrative and will need to be adjusted as appropriate and located at any area where there is the potential for tracking of mud and debris onto existing roads or streets. Stone stabilized construction entrances will require the stone to be removed and replaced, as it becomes covered or filled with mud and material tracked by vehicles exiting the site. Wash-off of tires from exiting vehicles will need to be used to supplement the stabilized stone entrance during certain periods of construction particularly those involving the handling or traversing through areas of fine-grained soils.
2. Conditions 1 and 2 silt fence or wood waste berms shall be installed along the downgradient side of the proposed work and staging areas. The silt fence or wood waste berms will remain in place and properly maintained until the site is acceptably stabilized and in proximity to the completion of the project. Condition 3 silt fence is to be used along the contour of significant fill slopes as illustrated on the erosion control plan site drawings. Silt fence needs to be checked to insure the bottom is properly keyed in and inspected after significant rains. Wood chips are often used on the construction side of the silt fence to provide an extra margin of safety and security for the silt fence. This practice is encouraged, provided the chips are removed when the fence is removed.
3. Dirtbags™ shall be installed in accordance with the details in the plan set. The purpose of the Dirtbags™ is to receive any water pumped from excavations during construction. A Dirtbag™ shall be installed and prepared for operation prior to any trenching on site. When Dirtbags™ are observed to be at 50% capacity, they shall be cleaned or replaced. Stone and filter sand under the Dirtbag™ shall be removed and replaced concurrently with the replacement of the Dirtbag™.
4. Temporary stockpiles of common excavation will be protected as follows:
  - a) Temporary stockpiles shall not be located within a portion of the site that drains to a sedimentation trap.
  - b) Inactive loam or fine-grained soil stockpiles shall be stabilized within five days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch. If necessary, mesh shall be installed to prevent wind from removing the mulch.
5. All denuded areas except gravel, crushed stone, or wood waste areas shall receive mulch, erosion control mesh fabric, or other approved temporary erosion sediment measure within 7 days of initial disturbance of soil or before a predicted rain event of >1/2" unless permanent measures are installed.
6. All soils disturbed between September 15 and April 15 will be covered with gravel, crushed stone wood wastes or mulch within five days of disturbance, prior to any predicted storm event of the equivalent of 1/2" of rainfall in a 24-hour period, or prior to any work shutdown lasting more than 35 hours (including weekends and holidays). The mulch rate shall be double the normal rate.

For work that is conducted between September 15 and April 15 of any calendar year, all denuded areas not covered with gravel, wood waste, or crushed stone will be covered with hay mulch, applied at twice the normal application rate, and (in areas over 10% grade) anchored with a fabric netting. If the gravel has fines which contribute to sedimentation, it shall be covered with stone or wood wastes. The time period for applying gravel, stone, wood wastes,

or mulch shall be limited to five days for all areas, or immediately in advance of a predicted rainfall event.

7. Stone check dams, silt logs, or hay bale barriers will be installed at any evident concentrated flow discharge points during construction and earthwork operations.
8. Silt fencing with a maximum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be properly anchored a minimum of 6" per the plan detail and backfilled. Any silt fence identified by the Owner or reviewing agencies as not being properly installed during construction shall be immediately repaired in accordance with the installation details.
9. Storm drain catch basin inlet protection shall be provided through the use of a premanufactured SiltSack™. Outside of areas subject to traffic or vehicular movements, the inlets shall be surrounded by rice straw wattles placed in a circumference of 20 feet and across areas where water flows to the inlet. The barriers or SiltSacks™ shall be inspected after each rainfall and repairs made as necessary, including the removal of sediment. Sediment shall be removed and the barrier or SiltSack™ restored to its original dimensions when the sediment has accumulated to one-half the design depth of the barrier. Sediment shall be removed from SiltSacks™ as necessary. Inlet protection shall be removed when the tributary drainage area has been stabilized.
10. All slopes steeper than 4:1 shall receive erosion control mesh.
11. Condition 3 silt fences shall be installed as construction progresses.
12. Areas of visible erosion and the temporary sediment traps shall be stabilized with crushed stone. The size of the stone shall be determined by the Contractor's designated representative in consultation with the Owner.
13. New catch basins within the site catch basins shall all be installed with an opening 2'-6" below finish grade to receive a 4" underdrain with an end cap except for inlets along underdrains. A 3'-0" stub of underdrain surrounded by 6" of ¾" crushed stone and filter fabric shall be installed. The purpose of this measure is to provide drainage relief until site grades are at finish elevations.
14. All catch basins, which receive runoff from current or paved areas being constructed as part of this project, shall have a sorbent boom installed prior to placing the basin in operation installing binder pavement, or overlays. These sorbent booms shall be checked weekly for the three weeks following paving and replaced as necessary with the booms disposed of in accordance with local and State regulations.
15. Any flow from the site that is concentrated must be directed to a sediment trap or Dirtbag with underlying sand filter, an underdrained filter discharge, or a containerized stormwater treatment device.
16. Concentrated runoff shall be diverted away from slopes of over 10 percent unless the slope is armored with stone.
17. Underground utilities must be installed in compliance with the following standards and other requirements of this erosion control plan:

- No more than 500 linear feet of trench may be opened at one time;
  - Excavated materials shall be placed on the uphill side of trenches;
  - Dewatering of the trench shall be pumped through a Dirtbag™ and appropriate sediment control facilities to avoid a turbid discharge; and
  - Stabilization shall occur as soon as practicable.
18. Truck wheel washes will be required if tracking of deleterious material onto local streets is observed.
  19. A concrete wash down area shall be provided.
  20. Maintenance of the erosion control, sedimentation facilities, and control of fugitive dust must occur until the site is stabilized with permanent erosion control measures. For turf areas, stabilization shall be defined to be the establishment of a 90 percent “catch of grass” with no areas larger than 2 square feet, and no spots that cumulatively add up to more than 5 square feet per 100 square feet.
  21. Treatment Tanks: Containerized water treatment devices required to treat any groundwater encountered and pumped from the excavation to the levels defined by the environmental remediation plan. A draft specification is provided as Attachment F. However, this shall be reviewed for consistency with the final requirements of the environmental cleanup plan.

## **6.0 STANDARDS FOR STABILIZING SITES FOR THE WINTER**

The construction of the project will require winter construction with the duration of each phase subject to variation. Winter construction will be allowed but the contractor should be aware that the minimum erosion control measures are substantially more stringent than during other periods of the year due to the cold temperatures and lack of weather conditions which aid in drying the subgrade soils through evaporation.

If construction activities involving earth disturbance continue past September 15 or begin before April 15, the following must be incorporated with the erosion control plan and implementation:

1. Enlarged access points must be stabilized to provide for snow stockpiling.
2. Limits of disturbance shall be reduced to the extent practicable.
3. A snow management plan including adequate storage and control of snowmelt, requiring cleared snow to be stored downgradient of all areas of disturbance shall be prepared by the Contractor and submitted to the Owner for review and approval.
4. Snow shall not be stored in sediment basins or to preclude drainage structures from operating as intended.
5. A minimum 25-foot buffer maintained from perimeter controls such as silt fence shall be maintained on the “work area side” of staging and stockpile areas where possible to allow for snow clearing and maintenance.
6. Drainage systems intended to operate during the winter shall be catalogued, shown on a plan, and inspected after each snow removal period to make sure the drainage structures are open and free of snow and ice dams.
7. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:

- If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
  - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
8. Standard for the timely stabilization of disturbed slopes: The Contractor shall construct and stabilize stone-covered slopes by September 15. The Contractor shall seed and mulch all slopes to be vegetated by September 1. The Owner will consider any area having a grade greater than 15% to be a slope. If the Contractor fails to stabilize any slope to be vegetated by September 1, then the Contractor shall take one of the following actions to stabilize the slope for late fall and winter.
- i. Stabilize the soil with temporary vegetation and erosion control mesh. By September 15, the Contractor shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The Contractor shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed slope by September 15, then the Contractor shall cover the slope with a layer of wood waste compost as described in item iii of this standard or with stone rip rap as described in item iv of this standard.
  - ii. Stabilize the slope with sod. The Contractor shall stabilize the disturbed slope with properly installed sod by September 15. Proper installation includes the Contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The Contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V) or having groundwater seeps on the slope face.
  - iii. Stabilize the slope with wood waste compost. The Contractor shall place a six-inch layer of wood waste compost on the slope by September 15. Prior to placing the wood waste compost, the Contractor shall remove any snow accumulation on the disturbed slope. The Contractor shall not use wood waste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.
  - iv. Stabilize the slope with stone rip rap. The Contractor shall place a layer of stone riprap on the slope by September 15. The Contractor shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.
9. Standard for the timely stabilization of disturbed soil (not in slope areas): By September 1, the Contractor shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the Contractor fails to stabilize these soils by this date, then the Contractor shall take one of the following actions to stabilize the soil for late fall and winter.
- i. Stabilize the soil with temporary vegetation. By September 15, the Contractor shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1,000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1,000 square feet, and anchor the mulch with plastic netting. The Contractor shall monitor the growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before September 15, then the Contractor shall mulch the area for over-winter protection as described in Item iii of this standard.
  - ii. Stabilize the soil with sod. The Contractor shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the Contractor pinning the sod

onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

- iii. Stabilize the soil with mulch or wood waste mulch. By September 15, the Contractor shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1,000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the Contractor shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the Contractor shall anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil. Wood waste mulch shall be uniformly applied and a minimum of 3 inches in thickness.
- iv. Stabilize all stockpiles with mulch within 24 hours.

## **7.0 SPECIAL MEASURES FOR SUMMER CONSTRUCTION**

The summer period is generally optimum for construction in Northern New England but it is also the period when intense short duration storms are most common, making denuded areas very susceptible to erosion, when dust control needs to be the most stringent, and when the potential to establish vegetation is often restricted by moisture deficit. During these periods, the Contractor must:

1. Implement a program to apply dust control measures on a daily basis except those days where the precipitation exceeds 0.25 inch. This program shall extend to and include adjacent streets used by construction vehicles and include multiple street washings per day. Wheel washing of construction vehicles leaving the site may be necessary.
2. Spray any mulches with water after anchoring to dampen the soil and encourage early growth. Spraying may be required several times. Temporary seed may be required until the late summer seeding season.
3. Mulch, cover, and moisten stockpiles of fine-grained materials, which are susceptible to erosion. In the summer months, the potential for wind erosion is of concern, as well as erosion from the intense, short-duration storms, which are more prevalent in the summer months.
4. Take additional steps needed to control fugitive dust emissions to minimize reductions in visibility and the airborne disbursement of fine-grained soils.

These measures may also be required in the spring and fall during the drier periods of these seasons.

## **8.0 SEDIMENTATION TRAPS**

The sediment trap shall provide 3,600 cubic feet of storage per acre of treated area.

Discharge must be through a sand filter over an underdrained outlet to aid in the control of turbidity levels in the discharge. In the event that two events where the turbidity is excessive, the Contractor will be required to install containerized treatment systems with proper additives to meet the discharge standard.

The contractor may elect not to construct the sedimentation sumps if the work area is covered with non-erodible materials such as gravel, stone or wood waste mulch, and alternative runoff treatment is provided using containerized treatment units and Dirtbags provided they appear to be adequate for turbidity controls.

## 9.0 GROUNDWATER PUMPED FROM ON SITE EXCAVATIONS

Groundwater pumped from excavations on the site shall be considered contaminated. The contaminated groundwater is to be pumped, stored, and treated.

Only contaminated groundwater that needs to be extracted during site excavations, grading, during construction of foundation systems and other structures, during the installation of underground utilities, and during the construction of other below grade elements of the project items will require storage and treatment. Contaminated groundwater that is not encountered during construction will not be addressed and will remain below the ground surface. All liquids if removed by excavation dewatering requires handling, storage, and treatment in accordance with applicable local, State, and Federal regulations prior to discharge to the municipal stormwater system:

- **Pumping:** Pumping shall be from a sump where the inlet screen has been placed within an encasement of crushed stone. The crushed stone is intended to minimize the unnecessary removal of soil that could otherwise be dislodged during the pumping operation. The amount of stone should be based upon in-situ operations of the discharge stream and turbidity measurements. Testing of groundwater collected before pumping begins shall be used as a baseline. Testing of the discharge stream shall be compared with the pre-pump conditions to determine if unnecessary sediment is being mixed with the groundwater during the pumping process. If excess sediment is being removed either the pump rate needs to be reduced or the amount of stone around the intake needs to be increased.
- **Storage:** Store groundwater that is collected at the Site, as necessary, as part of construction dewatering in frac tanks compliance with all applicable provisions of the federal, state and local laws, regulations, or bylaws for subsequent treatment. Only groundwater that is pumped from the excavation on the site needs to be treated prior to disposal.
- **Treatment:** The treatment requirements are outlined in Attachment F. The requirements shall also be subject to the final land use restrictions included in land deeds and prepared after the final remediation has been completed,.

## 10.0 PERMANENT EROSION CONTROL MEASURES

The following permanent erosion control measures have been designed as part of the Erosion and Sedimentation Control Plan:

1. The drainage conveyance systems will be or have been designed to intercept and convey the 25-year storm event.
2. All areas disturbed during construction, but not subject to other restoration (rooftops, parking decks, hardscape, mulched planting beds or trees) will be loamed, limed, fertilized, mulched, and seeded or sodded if required by the landscape plan for a particular phase of the project. Fabric netting, anchored with staples, shall be placed over the mulch in areas where the finish grade slope is greater than 10 percent. Native topsoil shall be stockpiled and temporarily stabilized with seed and mulch and reused for final restoration when it is of sufficient quality.
3. Catch basins shall be provided with sediment traps for all outlet pipes that are 12" in diameter or greater. Catch basins within the site have been designed with an under drain connection to allow the subbase gravel to drain and reduce frost heave and movement at the basin. A sediment collection bag and an oil sorbent pillow shall be installed in all basins.

4. Permanent seeding shall be conducted only in April through May and in late summer until September 15.
5. Water quality units and underground storage systems will be incorporated into the project to meet water quality standards. These systems shall not be activated until the site is stabilized and the pavement has “cured” for at least 30 days.

#### **11.0 TIMING AND SEQUENCE OF EROSION/SEDIMENTATION CONTROL MEASURES**

The site is quite stable and drained to stable or depressional areas before entering the City’s drainage system. Only limited areas of erosion were noted where Catchment B-1 discharges over the driveway apron to Somerset Street. A stone check dam to spread this flow is recommended to be installed early during construction.

The construction sequence will require the scheduling of work below the planned lightweight concrete fill to be in place before the lightweight concrete fill is placed. The lightweight concrete fill will need to be ballasted as soon as possible to prevent potential damage from hydrostatic uplift.

During construction, the following sequence should be used:

- Safety and security fence should be installed around the work areas and any staging or stockpile areas.
- The site should be inspected and any areas that exhibit erosion should be stabilized.
- Inlets to the work area and in close proximity should be protected with silt sacs. The silt sacs have the advantage of not interfering with traffic movements. Where possible, rice straw wattles should be placed circumferally around the portion of the inlet that receives runoff from the project.
- Dirtbags™ should be installed above a sand and crushed stone cushion as depicted on the erosion control detail sheets.
- Stabilized construction entrances should be installed to work and staging areas.
- Silt fence or silt barriers constructed of wood waste should be installed around the perimeter of the site and perpendicular to contours.
- The concrete wash area should be prepared.
- Sedimentation sumps or treatment tanks should be constructed or installed.
- The perimeter of the site should be inspected. Stone check dams should be installed about 30 feet upstream of any discharge leaving the site or flowing to an inlet.
- Material that is highly erodible in the work area or should be either covered with wood waste, stone, or an erosion resistant cover (even a free drainage gravel will be very beneficial).
- Containerized treatment systems should be set up for the treatment of any groundwater encountered and pumped from the work area excavations.

Once construction begins, it will be important to maintain the stabilized construction entrance. Wash-off of the tires from trucks and equipment entering and leaving the site depending upon the time of year and extent of activity to prevent dust or turbidity along the public right of ways.

A discrete parking lot is recommended for construction workers during construction. During some of the work, the use of the parking garage or a leased lot may be required. Any partial or temporary street closures will require the approval from the City of Portland. This element of the project is discussed in the construction phasing portion of the application.

## **12.0 CONTRACTING PROCEDURE**

The project will be constructed by a General Contractor under contract to the lessee. The Contractor shall submit a schedule for the completion of the work, which will satisfy the following criteria:

1. The installation of the “prior to construction activities” shall be completed before other site construction begins. The runoff throughout the duration of the construction shall be pretreated with a Dirtbag™, discharges to a sedimentation trap, and/or treated using containerized treatment systems.
2. The schedule shall be subject to the approval of the Owner.
3. The Contractor must maintain an accurate set of record drawings indicating the date when an area is first denuded, the date of temporary stabilization, and the date of final stabilization. On September 15 of any calendar year, the Contractor shall submit a detailed plan for stabilizing the site for the winter and a description of what activities are planned during the winter.
4. The Contractor must install any added measures which may be necessary to control erosion/sedimentation and fugitive dust emissions from the site, with adjustments made dependent upon forecasted and actual site and weather conditions.
5. Certain erosion control products (such as DirtGlue™) come in a form that a release could occur on the site or into the environs. The Contractor shall include MSDS information for all products that have the potential for release to the environment and shall be responsible for implementing a safety control program for proper handling of these materials on the site.
6. The Stormwater Pollution Prevention Plan (SWPPP) is defined to consist of the Erosion Control Report, the Stormwater Management Plan, and the Stormwater O&M Plan. The SWPPP shall be maintained at a secure locked location at the Contractor’s field trailer from commencement of the project. These documents shall be moved to a designated locked location inside the store at the period when the Contractor’s trailers are removed and maintained until the Notice of Termination has been filed by the Owner. A notice and point of contact with cell phone number shall be posted at the trailer to permit access to the records during normal work hours.

All additions and construction records shall be copied via e-mail to the following addresses:

sbuskey@fstinc.com  
bkennedy@fstinc.com

The Owner reserves the right to add additional personnel to this list at the pre-construction conference or at reasonable intervals during the project.



7. The Owner will provide a copy of the NOI acceptance letter to the Contractor. This letter shall be maintained at the site with the SWPPP.
8. Any revisions to the SWPPP must be authorized in writing by the Preparer of the Plan (Fay, Spofford & Thorndike) The Preparer of the Plan shall be permitted reasonable time to review and notify the City of Portland and other agencies of said changes. Revisions to the SWPPP will be required:
  - a. Whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater *discharges* from the site;
  - b. Whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and
  - c. To address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department, or other regulatory authority.
9. Should the Owner notify the Contractor that the activity on the site is in violation of the SWPPP, the Contractor shall correct the deficiencies and file a photographic log with a list of corrective actions with the Owner within seven (7) days of notification by the Owner.
10. The Contractor shall engage a qualified inspector to monitor the work. This inspector shall be approved by the Owner prior to the individual being engaged on the project. This inspection shall be a part of the Contractor's Quality Control Plan for the project by the Contractor. The inspector's qualifications and duties that he shall perform are as follows:
  - a. Licensed Professional Engineer or Certified Professional in Erosion Control
  - b. Covered by Workman's Compensation Insurance
  - c. Experienced in this type of work, the specific erosion controls applicable to this project with a resume approved by the engineer
  - d. Compensated on a unit rate basis with no incentives for reduced costs or subject to any type of compensation for passing inspections
  - e. Approved by the Owner and the preparer of this plan

The *qualified inspectors* shall conduct site inspections in accordance with the following timetable:

- a. Where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
- b. 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 *inspector* shall notify the Owner's designated representative if any problems or corrective measures are required.

- c. 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 Owner's representative and the City of Portland in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the Contractor 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 MeDEP and the City of Portland.

At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices 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 water bodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

1. Date and time of inspection;
2. Name and title of person(s) performing inspection;
3. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
4. A description of the condition of the runoff at all points of discharge from the construction site and sampling results. 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;
5. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which received runoff from disturbed areas. This shall include identification of any *discharge* of sediment to the surface water body;
6. Identification of all erosion and sediment control practices that need repair or maintenance;
7. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
8. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;
9. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

10. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
11. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (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.
12. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the Owner the appropriate Contractor or Subcontractor 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.
13. All inspection reports shall be signed by the *qualified inspector*. The inspection reports shall be maintained on site with the SWPPP and distributed via email at the time of filing.
14. The Owner reserves the right to have quality assurance monitoring of the work. The Contractor shall cooperate with the Owner and their quality assurance monitoring of the work including maintaining an accurate schedule for performing the work. The Owner will notify the Contractor if any particular elements of the work should be uncovered or available for observation by the Quality Assurance Monitor selected by the Owner. The Owner reserves the right to conduct the quality assurance monitoring during working hours at any time during the project.

### **13.0 PROVISIONS FOR MAINTENANCE OF THE EROSION/SEDIMENTATION CONTROL FEATURES**

The project will be contracted to a General Contractor. The project is subject to the requirements of the local permits, and a state regulated Construction General Permit (MCGP).

This project requires the Contractor to prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection, and maintenance of all erosion control measures identified within this section and as contained in the Erosion and Sedimentation Control Plan of the contract drawings. Specific responsibilities of the inspector(s) will include:

1. Execution of the Contractor/Subcontractor Certification contained in Attachment B by any and all parties responsible for erosion control measures on the site as required by the permit authorities.
2. Assuring and certifying the Owner's construction sequence is in conformance with the specified schedule of this section. A weekly certification stating compliance, any deviations, and corrective measures necessary to comply with the erosion control requirements of this section shall be prepared and signed by the inspector(s).

3. In addition to the weekly certifications, the inspector(s) shall maintain written reports recording construction activities on site which include:
  - Dates when major grading activities occur in a particular area.
  - Dates when major construction activities cease in a particular area, either temporarily or permanently.
  - Dates when an area is stabilized.
  
4. Inspection of this project work site on a weekly basis and after each significant rainfall event (0.5 inch or more within any consecutive 24-hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of the project work site shall include:
  - Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.
  - Determine whether each erosion control measure is properly operating. If not, identify damage to the control device and determine remedial measures.
  - Identify areas which appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.
  - Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 90 percent is required prior to removal of erosion control measures.
  - All erosion controls shall be removed within 30 days of permanent stabilization except for mulch and netting not detrimental to the project. Removals shall include, but not be limited to, all silt fence, hay bales, inlet protection, and stone check dams.
  - Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.
  - Silt sacks should be removed and replaced at least every three months and at any time where the weekly inspection reveals that siltation has significantly retarded the rate of flow through the silt sack.
  - Documentation of coordination of raw and treated groundwater sampling with the qualified environmental specialist, a summary of groundwater pumping activity since the last site report, and identification of where sample results can be obtained with any exceedance of the standards noted.
  
5. If inspection of the site indicates a change should be made to the Erosion Control Plan, to either improve effectiveness or correct a site-specific deficiency, the inspector shall immediately implement the corrective measure and notify the Owner of the change.
  
6. Arranging for an on-site meeting prior to commencing winter construction to assure that all special winter construction measures will be implemented and to review the specific requirements of this plan for winter construction.

All certifications, inspection forms, and written reports prepared by the inspector(s) shall be filed with the Owner, and the Permit File contained on the project site. All written certifications, inspection forms, and written reports must be filed within one (1) week of the inspection date.

**The Contractor has sole responsibility for complying with the Erosion and Sedimentation Control Report, including control of fugitive dust, and shall be responsible for any monetary penalties resulting from failure to comply with these standards.**

**The contract specifications for erosion and sedimentation control have additional requirements and are appended to this narrative (Attachment C). The Contractor shall also comply with the Cumberland County Soils Conservation and the MeDEP Best Management Practices in effect at the time of construction.**

Once construction has been completed, long-term maintenance of the stormwater management system will be the responsibility of the Applicant. Inspection and Maintenance items with a list of maintenance requirements and frequency are described in a separate document.

#### **14.0 PRECONSTRUCTION CONFERENCE**

Prior to any construction at the site, representatives of the Contractor, the Owner, and the site design engineer and any personnel identified in the permit conditions shall meet to discuss the scheduling of the site construction and the designation of the responsible parties for implementing the plan. The Contractor shall be responsible for scheduling the meeting. Prior to the meeting, the Contractor will prepare a detailed schedule and a marked-up site plan indicating areas and components of the work and key dates showing date of disturbance and completion of the work. The Contractor shall conduct a meeting with employees and sub-contractors to review the erosion control plan, the construction techniques which will be employed to implement the plan, and provide a list of attendees and items discussed at the meeting to the Owner. Three copies of the schedule, the Contractor's meeting minutes, and marked-up site plan shall be provided to the Owner.

#### **15.0 ATTACHMENTS**

Attachment A – Seeding Plan

Attachment B – Sample Erosion Control Compliance Certification and Inspection Forms

Attachment C – Erosion Control Specifications

Attachment D – DirtGlue™ Application and Use Requirements

Attachment E – Special Dewatering Specification Prepared by Tewhey Associates and Edited by DeLuca-Hoffman Associates, Inc./Fay, Spofford & Thorndike

Attachment F – Draft Specification for Groundwater Treatment System

#### **16.0 PLAN REFERENCES**

Drawings C-6.0 to C-6.5      Erosion & Sedimentation Control Plans and Details

# **ATTACHMENT A**

## **Seeding Plan**

**PERMANENT SEEDING PLAN (LAWNS)**

**Project:** midtown

**Site Location:** Portland, Maine

Permanent Seeding       Temporary Seeding

1. **Area to be Seeded:** Approximately     acre(s) or 12 /M. Sq. Ft.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used (do not over compact).
3. **Apply Lime as Follows:**                    #/acres or 138# /M Sq. Ft. or per soil test
4. **Fertilize:**            pounds of                    -                    N-P-K/ac.  
20 pounds of 10-20-20 N-P-K/M Sq. Ft. or per soil test
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the following mixture:**
  - 35% Kentucky Bluegrass
  - 20% Creeping Red Fescue
  - 15% Chewings Fescue
  - 15% Perennial Ryegrass
  - 15% Annual Ryegrass
7. **Mulching Instructions:** Apply at the rate of        tons per acre or 230 pounds per M. Sq. Ft.
8. **Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	5	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other		

9. **Remarks:**

Seeding dates April 15 to May 31 and August 1 until September 1. Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 8%.

Deep tine aerate if soil is compact.



**TEMPORARY SEEDING PLAN (EROSION CONTROL MIX)**

**Project:** midtown

**Site Location:** Portland, Maine

Permanent Seeding       Temporary Seeding

1. **Area to be Seeded:** Approximately 1.5 acre(s) or \_\_\_\_\_/M. Sq. Ft.
2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used.
3. **Apply Lime as Follows:** \_\_\_\_\_ #/acres or 138#/M Sq. Ft. or per soil test
4. **Fertilize:** \_\_\_\_\_ pounds of \_\_\_\_\_ - \_\_\_\_\_ N-P-K/ac.  
20 pounds of 10-10-10 N-P-K/M Sq. Ft. or per soil test
5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.
6. **Seed with the following mixture:**

Annual Rye-grass	50%
Timothy	25%
Winter Rye	25%

7. **Mulching Instructions:** Apply at the rate of \_\_\_\_\_ tons per acre or 230 pounds per M. Sq. Ft.

**8. Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	1	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other		

**9. Remarks:**

For areas with slopes >10% and fall and winter erosion control areas, mulch netting shall be used per manufacturer's specifications.

Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

## **ATTACHMENT B**

### **Sample Erosion Control Compliance Certification and Inspection Forms**

**MAINE CONSTRUCTION GENERAL PERMIT  
CONTRACTOR/SUBCONTRACTOR CERTIFICATION**

PROJECT INFORMATION

Project Name:           midtown  
Address:                 Portland, Maine

CONTRACTOR/SUBCONTRACTOR INFORMATION

Firm Name:  
Address:  
Telephone:  
Type of Firm:

CERTIFICATION STATEMENT

“I certify under penalty of law that I understand the terms and conditions of the Maine Construction General Permit (MCGP) permit that authorizes the stormwater discharges associated with construction activity from the project site identified as part of this certification.”

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Typed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**MAINE CONSTRUCTION GENERAL PERMIT**

**INSPECTION REPORT**

PROJECT INFORMATION

Project Name:            midtown  
Address:                 Portland, Maine

INSPECTOR INFORMATION

Inspector Name:         \_\_\_\_\_

Firm:                     \_\_\_\_\_

Title:                    \_\_\_\_\_

Qualifications:         \_\_\_\_\_

Weather and Soil Conditions: \_\_\_\_\_

INSPECTION SUMMARY

Date of Inspection:     \_\_\_\_\_

Major Observations:    \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1. Attach the following to the Report:
  - a. 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;
  - b. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which received runoff from disturbed areas. This shall include identification of any discharge of sediment to the surface water body;
  - c. Identification of all erosion and sediment control practices that need repair or maintenance.
  - d. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
  - e. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

- f. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPP and technical standards;
  - g. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
  - h. 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.
2. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the owner the appropriate contractor or subcontractor 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.
  3. All inspection reports shall be signed by the *qualified inspector*. The inspection reports shall be maintained on site with the SWPP and distributed via email at the time of filing.

THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN WITH THE FOLLOWING EXCEPTIONS:

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ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

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REQUIRED MODIFICATIONS TO STORMWATER POLLUTION PREVENTION PLAN (MUST BE SUBMITTED WITHIN 2 DAYS OF INSPECTION TO OWNER FOR APPROVAL):

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CERTIFICATION STATEMENT:

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

---

Signature

---

Typed Name

---

Title

---

Date

# **ATTACHMENT C**

## **Erosion Control Specifications**

## SECTION 312513 – EROSION CONTROLS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Temporary and permanent erosion control systems.
- B. Slope Protection Systems.

#### 1.2 RELATED SECTIONS

- A. Section 017000.01 – Site Permit Requirements
- B. Section 311000 – Site Clearing
- C. Section 312000 – Earth Moving
- D. Erosion and Sedimentation Control Report
- E. Construction Requirements

#### 1.3 ENVIRONMENTAL REQUIREMENTS

- A. The Contractor shall protect adjacent properties and water resources from erosion and sediment damage throughout the life of the construction contract in accordance with the Erosion and Sediment Control Report prepared for this project and in accordance with the requirements of the MeDEP Chapter 500 Stormwater Standards and special conditions of the permits. The Erosion and Sediment Control Report and Site Permits have specific restrictions on seasonal work limits, the amount of area which can be exposed at a given time, the general sequence of construction, and contractor monitoring. These affect the scheduling of the work.

Protected resources as referred to in this document include wetlands, streams or water bodies, and trees or vegetation outside of the work limit.

Prior to grubbing, orange safety fence shall be installed between the limit of grading and any protected resource. When the protected resource is a tree, the safety fence shall be installed at the drip line of the tree. If disturbance of the root system occurs, the Contractor shall have an Arborist or Nurseryman inspect the root system and provide recommendations to preserve the tree. This information shall be included in the logs for the Erosion Control Plan maintained by the Contractor.

- B. The General Contractor will be required to designate, by name, a Registered Professional Engineer or equivalent person responsible for implementation of all erosion control measures as required by the MCGP for this project and this specification. Specific responsibilities will include:



**midtown**  
PORTLAND, MAINE

1. Assuring and certifying the contractor's construction sequence is in conformance with the specified schedule. In addition, a weekly certification stating compliance, any deviations, and corrective measures shall be filed with the owner by this person.

A copy of the certification form is contained the Erosion and Sedimentation Control Report.

2. Inspection of the project work site on a weekly basis, with the installation of added erosion control measures in areas which appear vulnerable to erosion. The erosion and sediment measures shown on the contract documents are minimum provisions. Any additional measures required to comply with the permit or intent of the Erosion and Sedimentation Control plan shall be incidental to the contract.
  3. Inspection of all erosion control measures and drainage inlets after any significant rainfall. Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches. A significant rainfall shall be defined as over ½ inch of precipitation in any consecutive 24-hour period.
  4. Inspect areas for catch of grass. A minimum catch of 90 percent is required prior to removal of erosion control measures.
  5. Maintaining precipitation records and monitoring forecast activity.
- C. The Owner/Engineer, Engineer will provide either an FTP site or email address for the erosion control monitoring reports to be provided to the Owner.
- D. It shall be the responsibility of the Contractor to implement, maintain, monitor, and document compliance with the erosion and sediment control plan for the project and to avoid turbid discharges from the site, to avoid fugitive dust emissions, to avoid sediment from leaving the site, or affecting areas outside of the project work limits.

The work includes the submission of logs and photographic evidence of compliance with the plan at the time each pay requisition is submitted. These records shall be certified as complying with the Erosion Control Plan and this specification. Deficiencies in the logs or photographic records identified by the Owner or Engineer shall be corrected before the pay requisition is processed.

The photographic documentation must include:

1. A minimum of 10 digital photos per week showing the appropriate erosion control measures in place.
2. Evidence of stabilization of areas that are not being actively worked.
3. Documentation of any observed releases of turbid runoff or failure of any erosion control measure.

- E. The erosion control measures specified are required to be installed in accordance with the details provided with the construction plans and manufacturer's recommendations. The method and details of the installation of these erosion control methods are of vital importance to insure the effectiveness of the erosion control measures. While precipitation amounts cannot be predicted, the Erosion Control Plan is designed to minimize erosion by restricting the amount of the site that can be open at a given time, limiting the period that an area can be open without stabilization, and requiring weather forecasts to be monitored. It is a requirement of the contract documents that these methods be incorporated on the site.
- F. Monthly Training: The Contractor and the designated person responsible for erosion control shall conduct monthly training meetings for anyone working on the site work of the project. A log shall be maintained recording the attendance and the topics of discussion. Each meeting shall include a discussion of problems that occurred in the past month, any approved changes to the Erosion Control Plan, the anticipated upcoming four-week schedule, and a general discussion of the plan requirements.
- G. Rain Gauge: The Contractor shall provide and maintain a rain gauge on the site and record the precipitation on the site during the period between the start of construction and substantial completion. A sample log is appended to these specifications.
- H. A Stormwater Pollution Control Prevention Plan Log is attached to this specification for use by the Contractor. The Engineer, Regulatory Officials, and the Engineer shall attend the first training session. This shall be conducted prior to any clearing or other land disturbing activities on the site. The Contractor shall have samples and catalog cuts for the erosion control materials that will be employed at the site for review at this initial meeting.
- I. Prior to submitting a pay requisition, the Contractor must certify that any employee or subcontractor and their employees working on site work for the project have received training and attended a training session for this project within the past 30 days. Any employee not trained shall not be permitted to work on the site.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Quick growing grasses for temporary seeding (see seed mixes contained in Erosion and Sedimentation Report).
- B. Hay or straw bales.
- C. Fencing for siltation control as specified on the plans. Mirafi® prefabricated silt fence or approved equal.
- D. Curlex blankets by American Excelsior Company or approved equal. Curlex® single net except Curlex double net in winter months.

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- E. Bale stakes shall be a minimum of 4 feet in length and 1" in width.
- F. Temporary mulches such as loose hay, straw, netting, wood cellulose, or agricultural siltage.
- G. Fence stakes shall be metal stakes a minimum of 8 feet in length.
- H. Stone check dams shall be spaced according to the Erosion Control Detail Plan.
- I. Stone Sediment Barriers or SiltSacks<sup>TM</sup>, or approved equal for inlet protection.
- J. A stabilized construction entrance to be constructed of the materials identified on the contract drawings.
- K. Riprap for slopes, culvert, storm drain inlet, and outlet aprons.
- L. Sand blankets, or non-erodible native material, to protect clay or erodible subgrades.
- M. Reinforced turf. American Green P300 or approved equal.
- N. Wood mulch.
- O. Calcium chloride and water for dust control.
- P. DIRTBAG® as outlined on the contract drawings and specified in Section 31.
- Q. Catch basin inserts. SiltSacks<sup>TM</sup> or approved equal.
- R. Sorbent booms. Ecotech "Hula" Bug or equal.
- S. DirtGlue<sup>TM</sup> Polymar Emulsion Mixes. DirtGlue<sup>TM</sup> emulsion formulation must be approved by Owner prior to installation.
- T. Erosion Control Net. American Excelsior Curlex® "Net Free" or equal.
- U. Level Lip Spreader: The level lip spreaders shall consist of the materials depicted on the drawing set including the concrete foundations, the mastic, the Linear low density polyethylene strip, and the rip rap and aggregates depicted on the details and the aluminum plates and components as shown on the drawings.. The aluminum plate shall be cut to meet the V notch specified, have notches to allow leveling and adjustment.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Review site erosion control plan.
- B. Deficiencies or changes in the erosion control plan as it is applied to current conditions will be brought to the attention of the Engineer and Owner and a remedial action prepared and implemented by the Contractor.

#### 3.2 EROSION CONTROL AND SLOPE PROTECTION IMPLEMENTATION

- A. Provide catalog cuts and information concerning the erosion control products which will be used for construction for review by the Owner.

- B. Provide information concerning the installation of the erosion sedimentation control including anchorage trench provisions anchorage devices, and spacing for review by the Owner.
- C. Place erosion control systems in accordance with the erosion control plan and in accordance with approved installation procedures.
- D. This contract limits the surface area of erodible earth material exposed any time by clearing and grubbing, excavation, borrow and embankment operations. The Owner has the authority to direct the Contractor to provide immediate permanent or temporary pollution control measures. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practical time to minimize the need for temporary controls. Cut slopes shall be permanently seeded and mulched as the excavation proceeds to the extent considered desirable and necessary to comply with the erosion control plan.
- E. The temporary erosion control systems installed by the Contractor shall be maintained to control siltation at all times during the life of the Contract. The Contractor must respond to any maintenance or additional work to comply with this specification within a 48-hour period.
- F. DIRTBAGS® are required for the discharge of any construction dewatering or pumping, and the DIRTBAG® shall be operational before any trenching.
- G. Certain erosion control measures require staged restoration. For example, reinforced cuts must be completed in 5-foot vertical increments.
- H. Areas of water quality filters may be used as temporary sediment sumps but must be removed and the subgrade reworked before the filter is constructed.
- I. Catch basins may require an Underdrain connection below subgrade. If the crushed stone and Underdrain fabric become fouled during construction they shall be replaced.
- J. Fugitive dust shall be controlled through construction.
- K. Sorbent booms must be installed in the catch basin before paving. These shall be replaced prior to requesting substantial completion.
- L. DirtGlue™ may be substituted to the Engineer for approval when DirtGlue™ is to be substituted for mulch, dust control, and other erosion controls of the emulsion mix, application rate, and weather condition that exist at the time of proposed installation must be approved by the Engineer.

### 3.3 CONSTRUCTION OF TEMPORARY EROSION CONTROL MEASURES

- A. Earth Dike Construction:
  - 1. All dikes shall be compacted by earth-moving equipment.
  - 2. All dikes shall have positive drainage to an outlet.
  - 3. Top width may be wider and side slopes be flatter if desired to facilitate crossing by construction traffic.

4. Field location should be adjusted as needed to utilize a stabilized safe outlet.
5. Earth dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.
6. Stabilization shall be (A) in accordance with standard specifications for seed and straw mulch if not in seeding season, (B) flow channel as per the chart on the previous page.

**B. Temporary Swale Construction:**

1. All temporary swales shall have uninterrupted positive grade to an outlet.
2. Diverted runoff from a disturbed area shall be conveyed to a sediment trapping device.
3. Diverted runoff from an undisturbed area shall outlet directly into an undisturbed stabilized area at non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fills shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Stabilization shall be as per the flow channel stabilization chart below:

Type of Treatment	Channel Grade	A (5 AC. or Less)	B (5 AC. or Less)
1	0.5-3.0%	Seed and Straw Mulch	Seed and Straw Mulch
2	3.1-5.0%	Seed and Straw Mulch	Seed Using Jute or Excelsior
3	5.1-8.0%	Seed with Jute or Excelsior, Sod	Lined with 4-8' Rip-Rap or Recycled Concrete Equivalent
4	8.1-20%	Lined with 4-8' Rip-Rap	Engineered Design

9. Periodic inspection and required maintenance must be provided after each rain event.

**C. Perimeter Dike/Swale Construction**

1. All perimeter dike/swale shall have uninterrupted positive grade to an outlet.
2. Diverted runoff from a disturbed area shall be conveyed to a sediment trapping device.
3. Diverted runoff from an undisturbed area shall outlet into an undisturbed stabilized area at non-erosion velocity.
4. The swale shall be excavated or shaped to line grade and cross section as required to meet the criteria specified in the standard.
5. Stabilization of the area disturbed by the dike and swale shall be done in accordance with the standard and specifications for temporary seeding and mulching, and shall be done within 10 days.

6. Periodic inspection and required maintenance must be provided after each rain event.

Max. Drainage Area Limit: 2 Acres.

D. Level Spreader Construction (Non-Metallic Without V Notch Weirs)

1. The matting should be a minimum of 4 ft. wide extending 6 inches over the lip and buried 6 inches deep in a vertical trench on the lower edge. The upper edge should butt against smoothly cut sod and be securely held in place with closely spaced heavy duty wire staples at least 12 inches in length.
2. Ensure that the lip is level to uniformly spread discharge.
3. The lip shall be constructed on undisturbed soil not fill.
4. A 20 foot transition section will be constructed from the diversion channel to the spreader to smoothly blend the different dimension and grades.
5. The runoff discharge will be outleted onto a stabilized vegetated slope not exceeding 10%.
6. Seed and mulch the disturbed area immediately after construction.

E. Level Lip Spreader

The intent of the level lip spreader is to disperse the flow along the weir and not permit the flow to concentrate. This requires the weir be set level and erosion control provided to protect the area on the downstream side of the spreader. The grades at the end of the spreaders shall be higher than the spreader and consist of a compacted material to prevent washout and bypass around the end of the weir.

In many cases the area downstream of the weir will need to be inspected to make sure there is no inadvertent or unintentional concentration of flows. Erosion control blankets, mats, or crushed stone may be necessary to proven rill erosion. Downstream areas shall be inspected with a representative of the Owner after the weir location has been established in the field, at the time of construction, and a final inspection before substantial completion is issued for the site work.

The level lip spreader shall be checked for level and observed during heavy precipitation to make sure the flow is uniform along the length of the spreader.

F. Straw Bale Dike Construction

1. Bales shall be placed at the toe of a slope or on the contour and in a row with ends tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a minimum of (4) inches, and placed so the bindings are horizontal.
3. Bales shall be securely anchored in place by either two stakes or re-bars driven through the bale. The first stake in each bale shall be driven toward the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the bale.
4. Inspection shall be frequent and repair placement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

G. Silt Fence Construction

1. Woven wire fence to be fastened securely to fence posts with wire ties or staples. Posts shall be steel either 'T' or 'U' type or hardwood.
2. Filter cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section. Fence shall be woven wire, 12 ½ gauge, 6" maximum mesh opening.
3. When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded. Filter cloth shall be either Filter X, Mirafi 100X, Stabilinka T140N, or approved equivalent.
4. Prefabricated units shall be Geofab, EnviroFence, or approved equivalent.
5. Maintenance shall be performed as needed and material removed when 'bulges' develop in the silt fence.

H. Check Dam Construction

1. Stone will be placed on a filter fabric foundation to the lines, grades and locations shown in the plan.
2. Set spacing of check dams to assume that the elevations of the crest of the downstream dam are at the same elevation of the toe of the upstream dam.
3. Extend the stone a minimum of 1.5 feet beyond the ditch banks to prevent cutting around the dam.
4. Protect the channel downstream of the lowest check dam from scour and erosion with stone or liner as appropriate.
5. Ensure that channel appurtenances such as culvert entrances below check dams are not subject to damage or blockage from displaced stone.

Maximum drainage area 2 acres.

I. Rock Dam Construction

1. The area under the rock dam shall be cleared and stripped of roots and other objectionable material. The reservoir shall be cleared as needed to facilitate sediment removal.
2. Dimensions shown are minimum. Trench shall be excavated from abutment to abutment on the dam centerline. Filter fabric shall be placed from upstream edge of key trench to downstream edge of apron. Joints will lap a minimum of 1 ft. with upstream strip on top.
3. Construct the rock embankment to the dimensions shown on the drawing. Rock abutments shall be maintained 2 ft. above the crest.
4. The rock dam shall be constructed prior to clearing the basin area. Stabilize all disturbed areas, except the basin area, with temporary seeding.
5. Fencing and warning signs should be placed as appropriate.

Maximum drainage area 50 acres.

**J. Excavated Drop Inlet Protection Construction**

1. Clear the area of all debris that will hinder excavation.
2. Grade approach to the inlet uniformly around the basin.
3. Weep holes shall be protected by gravel.
4. Upon stabilization of contributing drainage area, seal weep holes, fill basin with stable soil to final grade, compact it properly and stabilize with permanent seeding.

Maximum drainage area 1 acre.

**K. Filter Fabric Drop Inlet Protection Construction**

1. Filter fabric shall have an EOS of 40-85. Burlap may be used for short term applications.
2. Cut fabric from a continuous roll to eliminate joints. If joints are needed they will be overlapped to the next stake.
3. Stake materials will be standard 2' x 4' wood or equivalent. Metal with a minimum length of 3 feet.
4. Space stakes evenly around inlet 3 feet apart and drive a minimum 18 inches deep. Spans greater than 3 feet may be bridged with the use of wire mesh behind the filter fabric for support.
5. Fabric shall be embedded 1 foot minimum below ground and backfilled. It shall be securely fastened to the stakes and frame.
6. A 2' x 4' wood frame shall be completed around the crest of the fabric for over flow stability.

Maximum drainage area 1 acre.

**L. Stone and Block Drop Inlet Protection Construction**

1. Lay one block on each side of the structure on its side for dewatering. Foundation shall be 2 inches minimum below rest of inlet and blocks shall be placed against inlet for support.
2. Hardware cloth or ½" wire mesh shall be placed over block openings to support stone.
3. Use clean stone or gravel ½ - ¾ inch in diameter placed 2 inches below top of the block on a 2:1 slope or flatter.
4. For stone structures only, a 1 foot thick layer of the filter stone will be placed against the 3 inch stone as shown on the drawings.

Maximum drainage area 1 acre.

**M. Curb Drop Inlet Protection Construction**

1. Filter fabric shall have an EOS of 40-85.
2. Wooden frame shall be constructed of 2' x 4' construction grade lumber.
3. Wire mesh across throat shall be a continuous piece 30 inch minimum width with a length 4 feet longer than the throat. It shall be shaped and securely nailed to a 2' x 4' weir.



4. The weir shall be securely nailed to 2' x 4' spacers 9 inches long spaced no more than 6 feet apart.
5. The assembly shall be placed against the inlet and secured by 2' x 4' anchors 2 feet long extending across the top of the inlet and held in place by sandbags or alternate weights.

Maximum drainage area 1 acre.

N. Pipe Outlet Sediment Trap Construction

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. Volume of sediment storage shall be 3600 cubic feet per acre of contributory drainage.
4. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
5. The structure shall be inspected after each rain and repairs made as needed.
6. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.
8. All fill slopes shall be 2:1 or flatter, cut slopes 1:1 or flatter.
9. All pipe connections shall be watertight.
10. The top 2/3 of the riser shall be perforated with one (1) inch diameter holes or slits spaced six (6) inches vertically and horizontally and placed in the concave portion of pipe. No holes will be allowed within six (6) inches of the horizontal barrel.
11. The riser shall be wrapped with ¼ to ½ inch hardware cloth wire then wrapped with filter cloth (having an equivalent sieve size of 40-80). The filter cloth shall extend six (6) inches above the highest hole and six (6) inches below the lowest hole. Where ends of the filter cloth come together, they shall be over-lapped, folded and stapled to prevent bypass.
12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
13. Fill material around the pipe spillway shall be hand compacted in four (4) inch layers. A minimum of two (2) feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.
14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. For concrete based the depth shall be twelve (12) inches with the riser embedded nine (9) inches. A ¼ inch minimum thickness steel plate shall be attached to the riser by a continuous weld around the bottom to form a watertight connection and then place two (2) feet of stone, gravel, or tamped earth on the plate.

O. Grass Outlet Sediment Trap Construction

1. Volume of sediment storage shall be 3,600 cubic feet per acre of contributory drainage area.
2. Minimum crest width shall be 4x drainage area.
3. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to  $\frac{1}{2}$  the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
4. The structure shall be inspected after each rain and repairs made as needed.
5. Construction operations shall be carried out in such a manner that erosion and water pollution shall be minimized.
6. The sediment trap shall be removed and area stabilized when the remaining drainage drainage area has been properly stabilized.
7. All cut slopes shall be 1:1 or flatter.  
Maximum drainage area 5 acres.

P. Catch Basin Sediment Trap Construction

1. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to  $\frac{1}{2}$  the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
2. The volume of sediment storage shall be 3600 cubic feet per acre of contributory drainage.
3. The structure shall be inspected after each rain and repairs made as needed.
4. Construction operations shall be carried out in such a manner that erosion and water pollution shall be minimized.
5. The sediment trap shall be removed and the area stabilized when the constructed drainage area has been properly stabilized.
6. All cut slopes shall be 1:1 or flatter.  
Maximum drainage area 3 acres.

Q. Stone Outlet Sediment Trap Construction

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small riprap 4"-8" along with a 1' thickness of 2' aggregate placed on the upgrade side on the small riprap or embedded filter cloth in the riprap.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to  $\frac{1}{2}$  the design depth of the trap.

6. The structure shall be inspected after each rain and repairs made as needed.
7. Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
8. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

Maximum drainage area 5 acres.

R. Riprap Outlet Sediment Traps Construction

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
3. All fill slopes shall be 2:1 or flatter, cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance outlet channel.
7. Stone used in the outlet channel shall be four (4) to eight (8) inch riprap to provide a filtering effect. A layer of filter cloth shall be embedded one (1) foot with section nearest entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
8. Sediment shall be removed and trap restored to its original dimensions when sediment has accumulated to  $\frac{1}{2}$  the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 15 acres or less.

S. Portable Sediment Tank Construction

1. Clean out the sediment tank when one third (1/3) filled with silt.
2. Steel drums are used as an example due to their ready availability. Any tanks may be used, providing that the volume requirements are met.
3. All sediment collected in the tank shall be disposed of in a sediment trapping device or as approved by the inspector.

T. Stabilized Construction Entrance

1. Stone Size – Use 2” stone, or reclaimed or recycled concrete equivalent.
2. Length – Not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness – Not less than six (6) inches.
4. Width – Twelve (12) foot minimum, but not less than the full width at points where ingress or egress occurs. Twenty-four (24) foot if single entrance to site.
5. Filter Cloth – Will be placed over the entire area prior to placing of stone.
6. Surface Water – All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance – The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way, all sediment spilled, dropped, washed or tracted onto public rights-of-way must be removed immediately.
8. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

U. Sump Pit Construction

1. Pit dimensions are optional.
2. The standpipe should be constructed by perforating a 12-24” diameter corrugated or PVC pipe.
3. A base of 2” aggregate should be placed in the pit to a depth of 12” after installing the standpipe, the pit surrounding the standpipe should be backfilled with 2” aggregate.
4. The standpipe should extend 12-18” above the lip of the pit.
5. If discharge will be pumped directly to a storm drainage system, the standpipe should be wrapped with filtercloth before installation. If desired, ¼” – ½” hardware cloth may be placed around the standpipe, prior to attaching the filtercloth.

3.4 MULCH ANCHORING REQUIREMENTS

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divid 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	Hall 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, possible 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. Chemical	Hay or Straw	Apply Terra Tack AR 120 lbs./ac. in 480 gal. of water (#156/ac.) or Aerospray 70 (60 gal/ac.) according to manufacturer’s instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45° Fahrenheit are required.

END OF SECTION 312513

# **STORMWATER POLLUTION PREVENTION PLAN**

**STORM WATER POLLUTION PREVENTION PLAN**  
**MODIFICATION REPORT**

**midtown**  
**PORTLAND, MAINE**

**CHANGES REQUIRED FOR STORM WATER POLLUTION PREVENTION PLAN**

The SWPPP must be amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has a significant effect on the discharge of pollutants to the waters of the United States that has not been previously addressed in the SWPPP, if inspections or investigations by site staff, local, state or federal officials determine that discharges are causing water quality exceedances or the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site, or based on the results of an inspection, or there is a release containing a Hazardous Substance or Oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24 hour period, the SWPPP must be modified to include additional or modified BMPs designed to correct identified problems. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection. Modifications that are the result of inspections shall be initialed within 24 hours and completed within 48 hours. All modifications are to be referenced on both Form D-1 and on Progress Drawing.

<b>To:</b>	<b>Project Manager</b>	<b>Date:</b>	
<b>Address:</b>		<b>Project Name:</b>	
<b>Telephone:</b>			
<b>Facsimile:</b>			
<b>Sent Via:</b>	<input type="checkbox"/> <b>Facsimile</b>	<input type="checkbox"/> <b>Courier</b>	<input type="checkbox"/> <b>US Mail</b>

MODIFICATION DATE: \_\_\_\_\_

MODIFICATION NUMBER: \_\_\_\_\_

INSPECTOR: \_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Inspector Signature)

QUALIFICATIONS OF INSPECTOR: \_\_\_\_\_

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN: \_\_\_\_\_

\_\_\_\_\_

REASONS FOR CHANGES: \_\_\_\_\_

\_\_\_\_\_

TO BE PERFORMED BY: \_\_\_\_\_ ON OR BEFORE: \_\_\_\_\_

Operator: \_\_\_\_\_

Approved by Owner: \_\_\_\_\_

**STORM WATER POLLUTION PREVENTION PLAN**

**TRAINING LOG**

(The Contractor shall provide training sessions at least every 30 days per Section 801(K))

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Storm Water Pollution Prevention Plan Topic: (Check as appropriate, and attach agenda)

- |  |  |
|--|--|
| <input type="checkbox"/> Temporary Soil Stabilization    | <input type="checkbox"/> Temporary Sediment Control                          |
| <input type="checkbox"/> Wind Erosion Control            | <input type="checkbox"/> Tracking Control                                    |
| <input type="checkbox"/> Non-Storm Water Management      | <input type="checkbox"/> Waste Management and Materials<br>Pollution Control |
| <input type="checkbox"/> Erosion & Sediment Control Plan |  |

Specific Training Objective: \_\_\_\_\_

Date: \_\_\_\_\_

Instructor: \_\_\_\_\_

Location: \_\_\_\_\_

Telephone: \_\_\_\_\_

**Attendance Roster**

Name	Company	Telephone Number	Signature

Operator: \_\_\_\_\_

Approved by Owner: \_\_\_\_\_



**STORM WATER POLLUTION PREVENTION PLAN**

**FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST**

midtown  
PORTLAND, MAINE

- All soil disturbing activities are complete.
- 2.  Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.
- 3.  All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 90% or equivalent measures have been employed.

**CONTRACTOR'S CERTIFICATION:** *[modify the following statement to be consistent with that on the Notice of Termination for the permitting agency]*

*“I certify under penalty of law that all storm water discharges associated with Construction Activity from the identified project that are authorized by the NPDES Construction General Permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time.”*

**Company Name** \_\_\_\_\_

**Name (Print)** \_\_\_\_\_

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

**Title** \_\_\_\_\_

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

Date: \_\_\_\_\_

Received by: \_\_\_\_\_  
[Name]





STORM WATER POLLUTION PREVENTION PLAN

**CONSTRUCTION SITE NOTICE**

The following information is posted in compliance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP)

Information must be typed

Contact Name and Phone Number:	
Brief Project Description:	<a href="#">[Reference Section 804 of the SWPPP]:</a>
Location of Storm Water Pollution Prevention Plan (SWPPP):	

A Storm Water Pollution Prevention Plan (SWPPP) has been developed and implemented according to Permit requirements. A full copy of the SWPPP for this construction project can be found at the location identified above.

This permit does not provide the public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the public access to a construction site.

\*This notice must be posted conspicuously at the main entrance of the construction site and inside the job trailer and shall also include the NPDES Permit Number for the Project or a “completed” copy of the Notice of Intent (NOI) or other form of request required to obtain coverage under the applicable storm water permit if a number has not yet been assigned. The notice of Coverage (NOC) [or other State or local Jurisdiction approval notice] notifying the applicant that coverage under the applicable permit has been obtained must also be posted, once received. This notice must be updated whenever information related to the contact person has changed or the location of the SWPPP has changed.





# **ATTACHMENT D**

## **DirtGlue™ Application and Use Requirements**

**DIRTGLUE™**  
**APPLICATION INSTRUCTIONS FOR DUST CONTROL**

**METHODOLOGY**

**A. Heavy Duty Driving Surface**

**Application Rates (per surface area):**

*DirtGlue™* polymer emulsion: 2,400 gallons  
Water: 3,600 -14,400 gallons

**Application Process:**

1. Loosen the existing soil using a scarifying attachment mounted on a grader (or similar piece of equipment) or a tractor with an agriculture disk attachment. If additional soil is required, it should be applied and mixed into the existing soil at this time. It is important to loosen the soil to ensure penetration of the *DirtGlue™*/water mixture into the soil.
2. Apply *DirtGlue™*/water mixture to soil using a water truck equipped with a gravity feed drip bar, spray bar, or automated distributor truck. Multiple passes will be necessary to get the desired amount of *DirtGlue™* polymer emulsion for the specific application. Multiple passes will also ensure gradual, thorough saturation of the soil.
3. Thoroughly blend the *DirtGlue™*/water mixture into the soil with a rototiller, “S” harrow, or similar attachment. The soil must be evenly mixed and saturated with the *DirtGlue™*/water mixture to a depth of four (4”) inches.
4. Grade the soil to finish grade with a grader, a small dozer or other suitable equipment.
5. Compact the soil with a vibratory roller. The final compaction should be greater than asphalt (Strive for 100% compaction, but always in excess of 95%).
6. Immediately after compacting, apply a topcoat of *DirtGlue™* polymer emulsion to seal the road surface. In order to ensure a longer life and superior performance of the application, an additional coat should be applied between twenty four to forty eight hours after completion and then annually as an ongoing maintenance procedure. This topcoat should be applied at a rate of 250 gallons per surface acre.

**B. Temporary Light Duty Driving Surface**

This type of application will provide acceptable performance when used by cars and light trucks. It is not intended for constant use by heavy-duty trucks and/or tracked construction equipment. Areas that will be used by this type of equipment should be treated as a heavy-duty application as noted above.

**Application Rates (per surface acre):**

*DirtGlue™* polymer emulsion: 1,200 gallons  
Water: 3,600-6000 gallons



### **Application Process:**

1. Loosen the existing soil for a depth of two (2") inches using a scarifying attachment mounted on a grader (or similar piece of equipment) or a tractor with a rototiller or agriculture disk attachment. If additional soil is required, it should be applied and mixed into the existing soil at this time. It is important to loosen the soil to ensure penetration of the **DirtGlue™**/water mixture into the soil.
2. Apply **DirtGlue™**/water mixture to soil using a water truck equipped with gravity feed drip bar, spray bar, or automated distributor truck. Multiple passes will be necessary to get the desired amount of **DirtGlue™** polymer emulsion for the specific application. Multiple passes will also ensure gradual, thorough saturation of the soil. Do not apply the **DirtGlue™**/water mixture so heavy as to create run-off.
3. Grade the soil to finish grade with a grader, a small dozer or other suitable equipment.
4. Compact with a vibratory roller. The final compaction should be greater than asphalt (Strive for 100% compaction, but always in excess of 95%).
5. Immediately after compacting, apply a topcoat of **DirtGlue™** polymer emulsion to seal the road surface. In order to ensure a longer life and superior performance of the application, an additional coat should be applied between twenty four to forty eight hours after completion and then again annually as an ongoing maintenance procedure.

### **C. Dust & Erosion Control (Non-driving Areas)**

This type of application is intended for pedestrian use only. Vehicular use will break through the skin and adversely affect the performance of the application. Areas that will require any vehicular use should be treated as a light-duty application as noted above or retreated as traffic damage occurs.

### **Application Rates (per surface acre):**

<i>DirtGlue™</i> polymer emulsion:	300 gallons (windblown dust control) 600 gallons (bank stabilization, erosion/silt, run-off control)
Water:	2,000-6,000 gallons

### **Application Process**

1. Apply *DirtGlue™*/water mixture to existing soil using a water truck equipped with a gravity feed spray bar or tank and pump (i.e. hydro seeder).
2. Add *DirtGlue™* to water rather than water to *DirtGlue™* or place a fill hose at bottom of tank, underneath surface of liquid to prevent foaming.
3. When applying *DirtGlue™*/water mixture, dispense large droplets. Avoid any fine mist. The intent is to apply a sheet of liquid onto the soil.
4. It is important to determine the moisture content of the soil prior to starting an application. The moisture content will have an effect on the dilution ratio of the *DirtGlue™*/water mixture. Your *DirtGlue™* representative will assist you in determining the correct dilution ratio for the conditions on your site.

5. Temperature and, to a lesser extent, humidity have a significant effect on curing/drying time. Testing has shown that applications should be done only when the air temperature will be above 50° F for at least 72 hours following the application. Soil temperature must be above 40° F for several days.
6. The *DirtGlue*<sup>TM</sup> application must be protected from the rain until the curing process has formed a skin on the surface. Uncured *DirtGlue*<sup>TM</sup> is water soluble. If the application is exposed to rain before it has the opportunity to cure, the rainwater will dilute the polymer and wash it out of the soil. If this happens, the application will not be as strong.

**CONDITIONS FOR USE OF DIRTGLUE™ (REGISTERED TRADEMARK OF  
DIRTGLUE™ ENTERPRISES)  
APPROVED MATERIALS LIST**

**Applicant: DirtGlue™ Enterprises**

**General Conditions**

1. DirtGlue™ Enterprises shall ensure that every applicator of DirtGlue™™ is provided a copy of these conditions.
2. These Conditions do not override the need for any applicator to obtain permits (including DEP permits) or approvals that may be required (e.g., use associated with activities in or near regulated wetlands, surface waters, or other regulated natural resources).
3. DirtGlue™ shall only be used as stated in these conditions and shall not be mixed with any other chemicals, including petroleum products.
4. No application shall be conducted when the National Weather Service forecasts greater than 25% probability of precipitation in the application area to occur within 24 hours, or the temperature will drop below 35° F anytime within 24 hours after the application.
5. Applications shall not be conducted when the ground is saturated (due to precipitation or wetting) as defined by visible pools of water at or in the vicinity of the application, in order to prevent movement of DirtGlue™ beyond the shoulder of the road.
6. DirtGlue™ must not be applied or handled in a manner that could result in spillage or application within 100 feet of a wetland regulated by New York State, or 50 feet of all other water bodies and bridges.
7. Any spill which could enter the waters of the state shall be reported to the DEC Spills Hotline within two hours (1-800-457-7362). Any required response (including any needed cleanup) in addition to that being conducted shall then be determined by the DEC regional office.
8. The time of application shall be chosen to take meteorological conditions into account, to avoid significant potential airborne or odor impacts.
9. Prior to application, DirtGlue™ Material Safety Data Sheet shall be provided to applicators and others who would come in proximity or contact with the material.

**ATTACHMENT E**

**Special Treatment Procedures for Groundwater  
Prepared by City of Portland  
Environmental Consultant**

**ATTACHMENT E**  
**DRAFT DEWATERING SPECIFICATION**

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**SECTION 02240 – DEWATERING**

PART 1 - GENERAL

1.01 Description of Work

- A. Provide, install, and maintain all necessary material and equipment used to keep excavation free of standing or flowing water and to transport water to a suitable discharge point.
- B. Provide measures to store water in accordance with all local, state and federal regulations. Notify the City of Portland Environmental Engineering Department prior to conduction dewatering operations. Provide treatment as specified in Attachment G of the Erosion Sediment Control Report.

- C. Related Work elsewhere includes:

Earthmoving:	Section 312000
Erosion Control:	Section 312513
Water System Distribution:	Section 331100
Sanitary Sewer:	Section 333100
Stormwater Treatment Systems:	Section 334419.20

1.02 Submittals

- A. At least 2 weeks prior to the start of construction in any areas of anticipated dewatering, submit to the Engineer and City of Portland Environmental Engineering Department, a written plan for removal, storage, treatment, and discharge of groundwater from excavations. Do not proceed with construction in any of these areas until the plan has been reviewed and approved by the Engineer and City of Portland Environmental Engineering Department.

PART 2 – PRODUCTS (not applicable)

PART 3 – EXECUTION

3.01 General:

- A. Only trained personnel are authorized to conduct dewatering, storage, and discharge operations.

3.02 Dewatering Excavations:

- A. Perform all work in the dry. Prevent surface water or groundwater from flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations.
- B. Provide and maintain pumps, well points, sumps, hoses, filters, and all other dewatering system components necessary to convey water away from excavations.

- C. Minimize the suspended solids content in the water by lining the excavation collection area with crushed stone and placing the pump intake in a perforated bucket.
- D. Convey water removed from excavations to a frac tank. Do not use trench excavations as temporary drainage ditches. Do not allow silt laden water to discharge to gutters or storm drainage system. Do not discharge water directly to the storm or sanitary sewer.
- E. Any damages to existing facilities or new work resulting from the failure of the Contractor to maintain the work areas in a dry condition shall be repaired by the Contractor, as directed by the Engineer, at no additional expense to the Owner. Pumping shall be continuous where specified or directed or as necessary to protect the work and to maintain satisfactory progress.

### 3.03 Storage/Treatment/Discharge Process:

- A. Water removed from excavations shall be stored in a frac tank to allow settling of solids and testing prior to treatment. The dewatering pump line shall be placed at the opposite end from the tank outlet.
- B. Limit circulating tank contents to prevent freezing. Do not discharge from the tank while the circulation pump is operating to allow adequate settling time before discharge.
- C. If needed for additional storage and treatment volume, provide a second tank to be placed in series for secondary settlement. Transfer the water from the first tank to the second tank by suspending the intake line immediately below the water level to minimize disturbance of sediment at the bottom of the tank.
- D. Prior to discharge of each tank load, collect a water sample for laboratory analysis for Total Petroleum Hydrocarbons (TPH) by EPA Method 8015. Provide test results to the Engineer and City of Portland Environmental Engineering Department. Provide access to the tanks for the City of Portland Environmental Engineering Department to take independent water samples. Do not add water or other materials to the frac tank after collecting the water sample.
- E. Follow direction provided by the City of Portland Environmental Engineering Department on further testing and disposal requirements.
- F. Obtain all local, state, and federal approvals necessary for the discharge of the water. If water is discharged to the sanitary sewer, bag filters must be installed on the discharge piping and water must meet the Portland POTW discharge limitations.

### 3.04 Diversion of Water

- A. The Contractor shall be responsible for providing and maintaining all ditching, grading, sheeting, and bracing, pumping and appurtenant work for the protection from flooding as necessary to permit the construction of work in the dry.
- B. Upon completion of the contract work, the Contractor shall remove all temporary construction and shall do all necessary earthwork and grading to restore the areas disturbed to their original condition or to such other conditions as indicated or directed by the Owner.

- C. Water shall not be permitted to flow into or through excavations in which work is under way or has been partially completed. The Contractor shall not restrict or close off the natural flow of water in such a way that ponding or flooding will occur, and shall at all times prevent flooding of public and private property. All damages resulting from flooding or restriction of flows shall be the sole responsibility of the Contractor, at no additional expense to the Owner.

**End of Section 02240**

# **ATTACHMENT F**

## **Draft Specification for Groundwater Treatment System**



**DRAFT**  
**GENERAL CONDITIONS APPLICABLE TO ALL DISCHARGES TO  
TREATMENT OF GROUNDWATER PUMPED FROM ONSITE EXCAVATION  
WITH DISCHARGE OPTIONS**

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1. Advance notice shall be given to the City of Portland of any planned operation of the groundwater treatment facility or activity which may result in noncompliance with effluent limitations. The City will determine whether the discharge should be to the storm drain or sanitary sewer.
2. Any noncompliance which may endanger health or the environment must be reported orally within 24 hours from the time City of Portland becomes aware of the circumstances. A written report shall also be provided within 5 days. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if it has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance and its recurrence.
3. Wastewater Discharge Limits: Wastewater discharges are classified according to the discharge point i.e. surface water, or publicly-owned treatment works (POTW). The discharge limits are standardized according to these discharge points (surface water or POTW), regardless of the technology being used to treat the wastewater, and regardless of the quality of the receiving stream. Discharges to the storm drain shall not exceed drinking water standard by over 50%. Discharges to the POTW must be authorized by the City of Portland and the Portland Water District using applicable industrial pretreatment protocol.

A surface water discharge is a wastewater stream which enters a surface water, a lined drainage ditch leading to a surface water, or a portion of the City of Portland's separated storm sewer.

A discharge to a POTW is a wastewater stream which enters a municipal sewage treatment plant by connection to a pipeline, or is otherwise transported to the treatment plant. The POTW determines the limits appropriate for each wastewater stream according to the operational capacities of the treatment plant.

The Contractor also has the option to containerize the groundwater and transport it to an approved disposal area provided documentation of the facilities approved and certified bills of laden are provided to the Owner with a copy to the City of Portland.