EROSION AND SEDIMENT CONTROL NOTES

The primary emphasis of the erosion/sedimentation control plan to be implemented for this project are as follows:
Development of a careful construction sequence. Rapid revegetation of denuded areas to minimize the period of soil exposure. Rapid stabilization of drainage paths to avoid rill and gully erosion. The use of onsite measures to capture sediment (hay bales/silt fence, etc.) The provisions for long term erosion/sediment and pollutant treatment by the incorporation of permanent Best Management Practices.

Description and Location of Limits of All Proposed Earth Movements

The construction of the development will require the following on-site improvements.

Earthwork activity including cuts and fills to bring the paved and gravel areas to subgrade.

Construction of stormwater measures.
Construction of parking lots, drive aisles, walkways and installation of underground utilities and storm drains for the buildings and paved areas.

Erosion/Sedimentation Control Devices

The following erosion and sediment control devices will be implemented by the Contractor as part of the site development. These devices shall be installed as indicated on the plans. For further reference, see the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices.

Siltation fence shall be installed downstream of any disturbed areas to trap runoff borne sediments until the site is 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. Repairs shall be made immediately by the Contractor if there are any signs of erosion or sedimentation below the fence line. Proper placement of stakes and 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.
Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. 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 a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 which are to be revegetated shall receive curlex blankets by American Excelsior or equal. 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.
Riprap slopes, ditch linings, stone check dams, hay bale barriers and culvert outlet aprons are intended to reduce runoff velocities and protect denuded soil surfaces from concentrated flows. Installation details and stone sizes are provided in the construction plan set on the erosion control detail sheets.
A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto Riverside Street.
Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or a premanufactured SiltSack™ as distributed by A. H. Harris. Stone sediment barrier installation details are provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. The barrier shall be removed when the tributary drainage area has been stabilized.
Loam and seed is intended to serve as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Specific areas as shown on the landscape plan will receive sod. Application rates are provided for temporary and permanent seeding in non-wetland areas.

Temporary Erosion/Sedimentation Control Measures

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

A crushed stone stabilized construction entrance(s) shall be placed at the site access onto Riverside Street.

Siltation fence or an organic filter barrier shall be installed along the downgradient side of the and of all fill sections. The siltation barrier will remain in place and properly maintained until the site is acceptably revegetated.

Temporary stockpiles of stumps, grubbings, or common excavation will be protected as follows:

> Temporary stockpiles shall not be located within 100 feet of the wetlands or 25' from the top of bank and shall be located away from drainage swales.
>
> Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch.

All denuded areas that are within 100 feet of a wetland which have been rough graded and are not located within the building pad or pavement subbase area, shall receive mulch or erosion control mesh fabric within 7 days of initial disturbance of soil. In other areas, the time period may be extended to 14 days.

For work which is conducted between November 1 and April 15 of any calendar year, all denuded areas will be covered with hay mulch, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 7 days for all areas or immediately in advance of a predicted rainfall event.

Riverside Street shall be swept to control mud and dust as necessary. A street sweeper shall be available on immediate notice.

During grubbing operations stone check dams or hay bale barriers will be installed at any evident concentrated flow discharge points.

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.

Permanent Erosion Control Measures

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

All storm drain pipes shall have riprap aprons and plunge pools at their outlet to protect the outlet and receiving channel of the culverts from scour and deterioration. Installation details are provided in the plan set. The aprons and plunge pools shall be installed and stabilized prior to directing runoff to the tributary pipe or culvert.

The water quality units will discharge through a riprap outlet apron and level lip spreader which will direct sheet flow toward the existing drainageway.

All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas where the finish grade slope is greater than 10 percent. All areas within 100' of a wetland shall receive protection within 7 days. Native topsoil shall be stockpiled temporarily stabilized with seed and mulch and reused for final restoration when it is of sufficient quality.

Catch basins will be provided with 2' sediment sumps and Casco traps over the outlet pipe. (12" or smaller)

Timing and Sequence of Erosion/Sedimentation Control Measures

The following construction sequence shall be required to insure the effectiveness of the erosion and sedimentation control measures are optimized. The sequence applies to all phases of construction.

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site by limiting the disturbed area.
Install crushed stone stabilized construction entrance as shown on plans.
Install perimeter siltation barrier as indicated on the plans.
Clear and grub areas necessary for the stormwater system.
Begin excavation.
Excess material shall be stockpiled and stabilized for use as fill for later grading operations. Install silt barrier at toe of berm for erosion protection.
Perform earthwork to bring pavement areas to subgrade.
Begin installation of drainage appurtenances and piping.
Foundation preparation area shall be excavated for installation of the building footings.
Commence additional earthwork in fill areas of the parking area.
Complete earthwork and grading to subgrade as necessary for parking areas.
Complete installation of storm drainage appurtenances within paved areas.
Structures within the parking area shall be temporarily set to subgrade and shall be reset upon placement of gravel and asphalt during a future phase.
Commence installation of utilities from the street.
Commence installation of remaining portions of sanitary sewer and other utilities.
Commence installation of underground power, and utilities.
Complete installation of underground utilities to within 5' of building.
Install dumpster pad.
Complete all remaining earthwork operations including fine grading of slopes.
Install subbase and base gravels within paved and gravel areas.
Install base course paving for parking area.
Loam, lime, fertilize, seed and mulch disturbed areas, parking area and complete all landscaping.
Install surface course paving for pavement areas. Stripe per plans.
Remove accumulated sediment from ahead of any sediment barriers as necessary.
Once the site is stabilized and a 75% catch of vegetation has been obtained, remove all temporary erosion control measures.
Touch up loam and seed.
Note: All denuded areas not subject to final paving, riprap or gravel, shall be revegetated.
Due to the timing and size of the project, completion of the facility within a summer construction season may not occur. For all work which will be conducted between November 1 and April 15 of the calendar year, the Contractor shall submit a schedule which will satisfy the following criteria:

Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 15 days.
During the construction process, all disturbed areas shall be covered with mulch within 7 days of final grading.
Once final grade has been established, the contractor may choose to dormant seed the disturbed areas prior to placement of mulch and placement of fabric netting anchored with staples.
If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5#/1000 s.f.

NOTE:
Earthwork activities performed after October 15, shall be completed in accordance with the MeDEP Standards for stabilizing sites for the winter.

All areas seeded during the winter months will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 percent catch) shall be revegetated by replacing loam, seed and mulch.
If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.
The area of denuded non-stabilized construction shall be limited to the minimum area practicable. An area shall be considered to be denuded until the subbase gravel is installed in parking areas, the base slab gravel is installed in building areas, or the areas of future loam and seed have been loamed, seeded, and mulched. The mulch rate shall be twice the rate specified. [For example, 115#/1,000 s.f. x 2 = 230#/s.f.] Within the exposed work area, temporary sedimentation sumps shall be provided at the interface between parking areas and graded slopes. This shall be accomplished by creating an area 18" below adjacent temporary grades. The sedimentation area shall have a bottom width of 3' and 3:1 side slopes.
Culverts to allow access shall be installed by the Contractor. Along the sedimentation sumps, barriers shall be provided at sufficient intervals to permit runoff to be accumulated to a minimum depth of 12" before overflowing. The schedule shall be subject to the approval of the Owner.

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

The Contractor shall note that no area within 100 feet of a wetland shall remain denuded for a period of over 7 days before it is temporarily stabilized. Temporary stabilization shall be the installation of gravel or mulching. All other areas shall be stabilized within 14 days. For construction between November 1 and April 15 of any calendar year, all areas shall be temporarily stabilized within 7 days or prior to a forecasted rainfall event.

PERMANENT SEEDING PLAN NON-WETLAND AREAS

Project Second Tee Condominium Association Business Park Expansion
Site Location Portland, Maine
Permanent Seeding
1.Area to be seeded: <1 acre
2.Instructions on preparation of soil: Prepare a good seed bed for planting method used.
3.Apply lime as follows: 138#/M Sq. Ft.
4.Fertilize with pounds of N-P-K/ac. OR
18.4 pounds of 10 – 20 – 20 N-P-K/M Sq. Ft.
5.Method of applying lime and fertilizer: Spread and work into the soil before seeding.
6.Seed with the following mixture:
45% Kentucky Bluegrass
45% Creeping Red Fescue
10% Perennial Ryegrass
When using small grain as nurse crop seed it at one-half the normal seeding rate.
7.Mulching instructions: Apply at the rate of
115 pounds per M. Sq. Ft.
Amount Unit #, Tons, Etc.
8.TOTAL LIME 138 #/1000 sq. ft.
9.TOTAL FERTILIZER 18.4 #/1000 sq. ft.
10.TOTAL SEED 8 #/1000 sq. ft.
11.TOTAL MULCH 115 #/1000 sq. ft.
12.TOTAL other materials, seeds, etc.
13.REMARKS
Spring seeding is recommended, however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 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.

TEMPORARY SEEDING PLAN NON-WETLAND AREAS

Project Second Tee Condominium Association Business Park Expansion
Site Location Portland, Maine
Temporary Seeding
1.Area to be seeded: <1 acre
2.Instructions on preparation of soil: Prepare a good seed bed for planting method used.
3.Apply lime as follows: 138#/M Sq. Ft.
4.Fertilize with pounds of N-P-K/ac. OR
18.4 pounds of 10 – 20 – 20 N-P-K/M Sq. Ft.
5.Method of applying lime and fertilizer: Spread and work into the soil before seeding.
6.Seed with the following mixture:
50% Perennial Ryegrass
50% Winter Rye
When using small grain as nurse crop seed it at one-half the normal seeding rate.
7.Mulching instructions: Apply at the rate of
180 pounds per M. Sq. Ft.
AmountUnit #, Tons, Etc.
8.TOTAL LIME 138#/1000 sq. ft.
9.TOTAL FERTILIZER 18.4#/1000 sq. ft.
10.TOTAL SEED 6#/1000 sq. ft.
11.TOTAL MULCH 180#/1000 sq. ft.
12.TOTAL other materials, seeds, etc.
13.REMARKS
Recommended seeding dates after August 15.
For areas with slopes >10%, waterways, areas within 100 feet of wetlands, and fall and winter erosion control areas, mulch netting shall be used per manufacturer's specifications.

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

REV	DATE	DESCRIPTION
3	12.09.15	RELEASED FOR CONSTRUCTION - FINAL PLANS TO CITY
2	07.17.15	REVISED SUBMISSION TO CITY
1	06.12.15	AMENDED SITE PLAN SUBMISSION

REVISIONS

STATE OF MAINE
STEPHEN R. BUSHEY
No. 7429
LICENSED PROFESSIONAL ENGINEER
12/9/15

P.E. STEPHEN BUSHEY
LIC. #7429

PROJECT
SECOND TEE CONDOMINIUM ASSOCIATION
BUSINESS PARK EXPANSION

SHEET TITLE
EROSION CONTROL NOTES

CLIENT
1039 RIVERSIDE LLC

FST 100 YEARS
FAY, SPOFFORD & THORNDIKE
ENGINEERS · PLANNERS · SCIENTISTS
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN:	DED	DATE:	MAY 2015
DESIGNED:	SRB	SCALE:	AS NOTED
CHECKED:	SRB	JOB NO.	SP-M164
FILE NAME:	SP-M168 DETAILS		
SHEET	C-11		