APPENDIX F.3 BLENDED SOIL SPECIFICATION FOR VEGETATED STORMWATER SYSTEMS

The following specification is taken from the *2010 City of Portland Standard Construction Specifications,* as amended or corrected. Facilities include swales, planters, curb extensions, and basins.

01040.14(d) Stormwater Facility Blended Soil

NOTE: This specification is required for all public facilities.. Private facilities must use blended topsoil that meets the General Composition requirements of 01040.14 (d) (1). Testing and submittals are not required for private facilities unless they are requested by the Bureau permitting the work.

01040.14 Topsoil - Furnish topsoil containing no substance detrimental to the growth of plants and that is free of plants designated by the Oregon Department of Agriculture as Type "A" or Type "B" weeds. Unsuitable topsoil, or topsoil placed without approval in areas to be planted, may be required to be replaced at no additional cost.

(d) Stormwater Facility Blended Soil – Following the general provisions for topsoil, and incorporating the following requirements, furnish imported blended soil for all vegetated stormwater facilities conforming to the following:

(1) General Composition - Use material that is any blend of loamy soil, sand, and compost that is 30-40% compost (by volume) and meets the other criteria in this specification.

(2) Analysis Requirements for the Blended Material:

a. Particle Gradation - A sieve analysis of the blended material, including compost, shall be conducted in conformance with ASTM C117/C136, AASHTO T11/T27, ASTM D422/D1140, or ASTM D6913. The analysis shall include the following sieve sizes: 1 inch, 3/8 inch, #4, #10, #20, #40, #60, #100, #200. The gradation of the blend shall meet the following gradation criteria.

Sieve Size	Percent Passing
1 inch	100
# 4	75 -100
# 10	40-100
# 40	15-50
# 100	5-25
# 200	5-15

b. Acidity - The pH (Power of Hydrogen) of the blended material shall be tested and be between 6 to 8**.**

(3) General Requirements for the Blended Material:

a. The material shall be loose and easily broken into small pieces

b. It shall be well mixed and homogenous.

c. It shall be free of wood pieces, plastic, and other foreign matter.

d. It shall have no visible free water.

(4) Compost - The compost shall be derived from plant material and provided by a member of the US Composting Council Seal of Testing Assurance (STA) program. See www.compostingcouncil.org for a list of local providers.

The compost shall be the result of the biological degradation and transformation of plant-derived materials under conditions designed to promote aerobic decomposition. The material shall be well composted, free of viable weed seeds, and stable with regard to oxygen consumption and carbon dioxide generation. The compost shall have no visible free water and produce no dust when handled. It shall meet the following criteria, as reported by the US Composting Council STA Compost Technical Data Sheet provided by the vendor.

- 100% of the material must pass through a 1/2-inch screen.
- The pH of the material shall be between 6 min. and 8.5 max.
- Manufactured inert material (plastic, concrete, ceramics, metal, etc.) shall be less than 1.0% by weight.
- The organic matter content shall be between 30 and 70% (dry weight basis).
- Soluble salt content shall be less than 6.0 mmhos/cm.
- Maturity Indicator shall be greater than 80% for Germination and Vigor.
- Stability shall be 'Stable' to 'Very Stable'.
- Carbon/Nitrogen (C/N) ratio shall be less than 25:1.
- Trace metals test result = "Pass."

(5) Submittals - At least 14 working days in advance of construction, submit the following:

a. Documentation for the two analyses described in section 01040.14(d)(2) of this specification (particle gradation and pH) shall be performed by an accredited laboratory with current certification. The date of the analyses shall be no more than 90 calendar days prior to the date of the submittal. Iinclude the following information in the report:

- Name and address of the laboratory.

- Phone contact and e-mail address for the laboratory.
- Test data, including the date and name of the test procedure.

b. For the compost component of the blended soil, a compost technical data sheet from the vendor. The analysis and report must conform to the sampling and reporting requirements of the US Composting Council Seal of Testing Assurance (STA) program. The analysis shall be performed and reported by an approved independent STA program laboratory and be no more than 90 calendar days prior to the date of the submittal.

c. Up to two 5-gallon buckets of the blended material, as requested.

(6) Stormwater Facility Blended Soil Installation - See 01040.43(e).

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01040.43(e) Stormwater Facility Blended Soil:

(1) Protection of the Soil - The material shall be protected from all sources of contamination, including weed seeds, while at the supplier, in conveyance, and at the project site.

(2) Wet and Winter Conditions - Hauling and placement of the material will not be allowed when the weather is too wet or the ground is frozen or saturated as determined by the Owners Representative.

(3) Placement of the Soil – Place the material in loose lifts, not to exceed 8 inches each and each lift shall be compacted with a water-filled landscape roller. Do not otherwise mechanically compact the material.

(4) Timing of Plant Installation - Weather permitting and as approved, install plants as soon as possible after placing and grading the soil in order to minimize erosion and further compaction.

(5) Erosion Control - Temporary erosion control measures are required until permanent stabilization measures are functional.

(6) Protection of the Installed Soil - In all cases, the protect installed material from foot or equipment traffic and surface water runoff. Install temporary fencing or walkways as needed to keep workers, pedestrians, and equipment out of the area. Under no circumstances should materials and equipment be stored on top of the installation area.