**SP-155044c**
**(Replaces SP-155044b)**

**SPECIAL PROVISIONS**
**FOR**
**FLOW THROUGH AND LANDSCAPE PLANTERS**

**Des Moines County**
**EDP-0977(650)--7Y-29**
**EDP-0977(653)--7Y-29**

**Effective Date**
~~**October 20, 2020**~~ **June 15, 2021**

**THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

## 155044c.01 DESCRIPTION.

**A.** Flow through planters consist of vegetated basins which contain conditioned planting soil beds and planting materials that are used to filter stormwater runoff. The planters combine physical filtering and absorption with biological processes in dense urban areas. The planters act as a short-term stormwater detention structure and allow suspended solids in runoff to settle out.

**B.** Landscape planters consist of backfilling raised curb and wall planters.

**C.** Construction of flow through planters shall consist of furnishing necessary materials, constructing the vertical containment curb, curb opening including grate and frame, excavating for and installing the swale bottom filter media zone which consists of engineered soil, geotextile fabric, perforated and non-perforated subdrains, gravel filter, and amended subgrade as shown in the contract documents. All planters shall be installed at the locations and to the grades and elevations shown in the contract documents. Installation of trees and plant material, fertilizing, and watering of the planters are not included in this item.

**D.** Construction of landscape planter shall consist of furnishing necessary materials, constructing the vertical containment curb, excavating for and installing planting soil and amended subgrade as shown in the contract documents. All planters shall be installed at the locations and to the grades and elevations shown in the contract documents. Installation of walls, trees and plant material, fertilizing, and watering of the planters are not included in this item.

## 155044c.02 MATERIAL.

**A.** Base material shall meet the requirements of Section 2201 of the Standard Specifications.

**B.** Concrete shall meet the requirements of Section 4101 of the Standard Specifications.

**C.** Steel Reinforcement shall meet the requirements of Article 4151.03 of the Standard Specifications. Steel reinforcement shall be epoxy coated.

**D.** Open curb box basis of design is Neenah Foundry, Inc. Model R-3010-0007 with back cut out, or equal.

**E.** Solid cover between curb box and flow through planter curb basis of design is Neenah Foundry, Inc. Model R-4990-HX bolted to Type "X" frame, or equal.

**F.** Engineering fabric shall meet the requirements of Article 4196.01, B of the Standard Specifications.

**G.** Gravel filter shall be porous backfill material and shall meet the requirements of Section 4131 of the Standard Specifications.

**H.** Pipe for subdrains shall be of the size and type shown in the contract documents and shall meet the requirements of Sections 4143 and 2502 of the Standard Specifications.

**I.** Root Barrier used in flow through planters basis of design is NDS Pro, EP-3650, 36" high x 24" wide panels, or approved equal.

**1.** EP Series Panels have a minimum thickness of 0.090 inches, and are made of 50% post consumer High Impact Polypropylene with built in U.V. inhibitors to ensure longevity.

**2.** The EP Root Barrier Panels have 1/2 inch raised vertical ribs running perpendicular to the panel and 6 inches on center.

**3.** All EP Series Panels feature a 3/8 inch wide "T" top edge and an external ground anchor base flange that is 1/8 inch wide.

**J.** Material Test Reports: For standardized ASTM D 5268 topsoil

**K.** Topsoil for planters and turf areas:

**1.** Use suitable topsoil of uniform quality, free from hard clods, roots, sod, stiff clay, hard pan, stones larger than 1 inch (1/2 inch for turfgrass seeding), lime cement, ash, slag, concrete, tar residue, tarred paper, boards, chips, sticks, or any undesirable material.

**2.** Use on-site topsoil, unless compost-amended or off-site topsoil is specified.
- **a.** On-site Topsoil: On-site topsoil material is material excavated from the top 12 inches of the site. Use of on-site topsoil material is subject to the Engineer's approval.
- **b.** Compost-amended On-site Topsoil: Amend low-quality on-site topsoil, not meeting the requirements specified for off-site topsoil, with a minimum of 1 inch of compost for every 3 inches of topsoil.
- **c.** Off-site Topsoil: Contains at least 3% organic matter, according to ASTM D 2974, has a high degree of fertility, is free of herbicides that prohibit plant growth, has a pH level between 6.0 and 8.0, and meets the following mechanical analysis requirements:

| Sieve | Percent Passing |
|---|---|
| 1" | 100 |
| 1/2" | 95* to 97* |
| 1/4" | 40 to 60 |
| No. 100 | 40 to 60 |
| No. 200 | 10 to 30 |

* 100% for turfgrass

The Engineer will approve the source of off-site topsoil. Surface soils from ditch bottoms, drained ponds, and eroded areas, or soils that are supporting growth of noxious weeds or other undesirable vegetation, will not be accepted. The Engineer will determine if testing is necessary. The Contractor will be responsible for payment of the testing if the off-site topsoil does not meet the above requirements. If the testing verifies the off-site topsoil does meet the above requirements, payment for the testing will be the responsibility of the Contracting Authority.

~~I~~ **L.** Engineered soils for flow through planters shall be as follows.

**1.** Organic Material: Provide suitable organic material composed of products from plant material such as:
- **a.** Compost shall be derived from a well-decomposed source of organic matter.
- **b.** Produced using an aerobic composting process, meeting Code of Federal Regulations (CFR) 503 for time, temperature, and heavy metal concentrations.
- **c.** No visible admixture of refuse or other physical contaminants, nor any material toxic to plant growth.
- **d.** Certified by the U.S. Composting Council's Seal of Testing Assurance (STA) program.
- **e.** Finely chipped bark (3/8 inch diameter or less).
- **f.** Finely shredded, partially decomposed mulch.
- **g.** Peat and sphagnum peat moss.
- **h.** Conforms to chemical, physical, and biological parameters of AASHTO MP 10-03, with the following additional requirements:
  - **1)** Follow U.S. Composting Council's TMECC guidelines for all testing.
  - **2)** Organic Matter Content: 30% minimum.
  - **3)** pH: between 6.0 and 8.0.
  - **4)** Maturity (growth screening): Minimum 90% emergence for all compost to be vegetated.
  - **5)** Particle Size:

| Sieve Size | Percent Passing* |
|---|---|
| 2" | 100 |
| 1" | 90-100 |
| 3/4" | 65-100 |
| 3/8" | 0-75 |

- **i.** Other organic material approved by the Engineer provided it has no detrimental chemical compounds, does not have high nutrient content that would increase nutrient loading in leachate, will increase the water holding capacity of the soil media and will enhance the ability of the media to capture and hold pollutants to facilitate breakdown is also acceptable.

**2.** Sand: Provide clean sand complying with Section 4110 of the Standard Specifications.

**3.** Soil: Provide soil taken from the top 6 inches of the A-horizon, have a dark brown to black color, have a granular structure and clay content less than 25% verified with a ribbon test that yields no more than 1 inch.

**4.** Mixture: The texture of the modified soil mixture will be loamy sand or sandy loam according to the USDA Soil Classification system, soil textural triangle. A laboratory analysis for particle size or a simplified dispersal method for sand content only can also be used to verify soil texture. Thoroughly blend organic materials, sand and soil to provide a mixture with 10% suitable organic material, 80% sand and 10% soil by volume.

~~**J.** Topsoil for plant materials in curbed and walled raised landscape planters shall meet the requirements of Article 4170.09 of the Standard Specifications.~~

~~K~~ **L.** Amended subgrade shall be a combination of the specified sand and native soil as shown in the contract documents.

**155044c.03 CONSTRUCTION.**

Construction of flow through planters shall be as shown in the contract documents. Contractor shall make all efforts to limit soil compaction of the surface soils within the bioswale side slopes and bottom. Concrete finishes shall be smooth, consistent, and without surface defects for all exposed surfaces including inner planter exposed curb walls. Trench shall be formed smooth and consistent with pitch into planter. Street curb shall be formed clean and true to receive the curb box casting and trench grate.

Construction of curbed and walled landscape planters shall be as shown in the contract documents. Contractor shall make all efforts to limit soil compaction of the surface soils within the planters. Concrete curb finishes shall be smooth, consistent, and without surface defects for all exposed surfaces including inner planter exposed curb walls. See Detail on sheet U.3 of the plans for raised planter wall finishes and Section 2403 of Standard Specifications for construction

**155044c.04 METHOD OF MEASUREMENT.**

~~The areas of flow through planters will be measured by the Engineer to the nearest square yard measured from outside face of planter curb. The length of non-perforated subdrain pipe connections beneath the intercepting side roads will not be measured and will be incidental to this bid item.~~

~~The areas of raised landscape planters will be measured by the Engineer to the nearest square yard measured from outside face of planter curb or wall. Curbs, where used, will not be measured and will be incidental to this bid item. The length of raised planter walls will not be measured with this bid item.~~

Flow through planter and landscape planter components will be measured as follows:

- Payment for planting soil shall be per square yard at 12 inch minimum depth.
- Engineered soil will be per cubic yard.
- Flow through planter flume will be per each.
- Landscape Curb shall be per linear foot.
- Root barrier will be per square foot.
- Subdrain pipe will be per linear foot.
- Flow through planter overflow will be per linear foot.

**155044c.05 BASIS OF PAYMENT.**

~~**A.** For the number of square yards of flow through planter and raised landscape planter of the size specified, furnished, and installed, the Contractor will be paid the contract unit price per square foot.~~

~~**B.** This payment shall be full compensation for excavating, furnishing material, labor and tools necessary for construction of the planter curbs, placement of the flow through planter bottom filter media zone, removal of excess excavated material from the project, furnishing and placing the engineered soils, planting soil, furnishing and placing the geotextile fabric, furnishing and placing perforated subdrain, furnishing and placing the curb box opening and trench frame and grate, non-perforated subdrain, outlets, subdrain end caps, elbows, tees, and other necessary subdrain connections, planting materials, water, and furnishing and placing the amended subgrade as shown in the contract documents as directed by the Engineer.~~

~~**C.** For flow through or landscape planter built in accordance with the contract documents, no extra compensation will be allowed for over-depth, rock excavation, tamping backfill, and removal of surplus material from the project.~~

Payment will be for the measured quantity at the contract unit price for the type and size of each bid item. This payment shall be full compensation for, fabrication, delivery to site, furnishing material, labor, tools necessary, and installation of items

**A.** Payment for planting soil will be per square yard. This payment shall be full compensation for excavating, furnishing material, labor and tools necessary for furnishing and placing the planting soils, removal of excess excavated material from the project, and furnishing and placing the amended subgrade as shown in the contract documents as directed by the Engineer.

**B.** Payment for engineered soil will be per cubic yard. This payment shall be full compensation for excavating, furnishing material, labor and tools necessary for furnishing and placing the engineered soils, removal of excess excavated material from the project, and furnishing and placing the amended subgrade as shown in the contract documents as directed by the Engineer.

**C.** Payment for the flow through planter flume will be per each. This payment shall be full compensation for furnishing and placing the curb box opening, trench frame and grate, and concrete flume.

**D.** Payment for landscape curb shall be per linear foot. This payment shall be full compensation for excavating, furnishing material, labor and tools necessary for furnishing and placing the concrete, reinforcing, and concrete finishing as shown in the contract documents as directed by the Engineer.

**E.** Payment for the root barrier will be per square foot of installed root barrier.

**F.** Payment for subdrain pipe will be per linear foot. This payment shall be full compensation for furnishing and placing the geotextile fabric, porous backfill material, furnishing and placing perforated subdrain, non-perforated subdrain, outlets, stand pipes, subdrain end caps, elbows, tees, and other necessary subdrain connections.

**G.** Payment for flow through planter overflow shall be per linear foot.