

UNDERDRAIN PIPE, DRY SWALE

**\*\*From Richmond STP 0284(17) Richmond CMG PARK(31)**

xx. DESCRIPTION. This work shall consist of furnishing and placing underdrain pipe in dry swales for use as stormwater treatment as shown in the Plans and as directed by the Engineer.

The work under this Section shall be performed in accordance with these provisions, the Plans, and Sections 605 and 649 of the Standard Specifications.

xx. MATERIALS. Materials shall meet the following requirements:

- (a) Underdrain Pipe. Material for underdrain pipe shall be one of the pipe materials specified in Subsection 605.02.
- (b) Drainage Aggregate. Drainage Aggregate shall meet the requirements of Subsection 704.16.
- (c) Dry Swale Soil. Dry Swale Soil shall meet the requirements for Planting Soil as specified in Table B.8 Materials Specifications for Bioretention of the Vermont Stormwater Management Manual.

Dry Swale Soil shall consist of the following gradation by weight:

Sand	35% - 60%
Silt	30% - 55%
Clay	10% - 25%

Dry Swale Soil shall be classified as USDA soil type Loamy Sand, Sandy Loam or Loam. Dry Swale Soil shall be independently tested and approved by the Engineer prior to use.

- (d) Geotextile Fabric. Geotextile fabric shall meet the requirements of Section 649 for Geotextile for Underdrain Trench Lining.
- (e) Stone Fill. Stone for stone fill shall meet the requirements of Subsection 706.04(a).

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- xx. CONSTRUCTION REQUIREMENTS. Underdrain installation shall be performed in accordance with the Plans and Section 605.

Compaction of the aggregate shall be achieved through compacting the material in 150 mm (6 inch) lifts by air or mechanical tampers. The aggregate shall not be placed directly from haul vehicles or by pushing material by bulldozers, graders, or other equipment. Equipment for placing aggregate shall be limited to hand shovels, backhoes, front end loaders, or other similar types of equipment as approved by the Engineer.

The Contractor shall provide care to ensure that the Dry Swale Soil remains relatively uncompacted for adequate infiltration. Compaction of the soil shall be achieved through compacting the material in 150 mm (6 inch) lifts by hand only. Stone fill shall be placed to the depth and configuration shown on the Plans.

Geotextile installation shall be performed in accordance with the Plans and Section 649.

- xx. METHOD OF MEASUREMENT. The quantity of Special Provision (6 Inch Underdrain Pipe, Dry Swale) and Special Provision (6 Inch Underdrain Pipe, Dry Swale with Stone Fill) to be measured for payment will be the number of meters (linear feet) of underdrain installed in the complete and accepted work. When it is necessary to cut underdrain or carrier pipe in the field, the quantity of underdrain or carrier pipe to be measured for payment will be the length necessary, rounded to the next whole 300 mm (1 foot) increment.

- xx. BASIS OF PAYMENT. The accepted quantity of Special Provision (6 Inch Underdrain Pipe, Dry Swale) and Special Provision (6 Inch Underdrain Pipe, Dry Swale with Stone Fill) will be paid for at the Contract unit price per meter (linear foot). Payment will be full compensation for fabricating, furnishing, transporting, handling, and placing the material specified, including coupling bands and fittings, drainage aggregate, dry swale soil, stone fill, and geotextile fabric, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Excavation for underdrain pipe will be paid for as Trench Excavation of Earth.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
900.640 Special Provision (150 mm (6 Inch) Underdrain Pipe, Dry Swale)	Meter (Linear Foot)
900.640 Special Provision (6 Inch Underdrain Pipe, Dry Swale with Stone Fill)	Linear Foot