

SECTION 02230 – GEOTEXTILES

PART 1 - GENERAL

1.01 SUMMARY

- A. This section covers the furnishing of all labor, materials and equipment for the placement of geotextiles. This section is suitable for applications where the geotextile is used as a separation material to prevent mixing of dissimilar material and to control migration of backfill material through granular pipe embedment and joints in structural elements. Applications include, but are not limited to, the following:
 - 1. Geotextile above granular drainage layers.
 - 2. Geotextile below granular drainage layers.
 - 3. Geotextile around granular pipe embedment.
 - 4. Geotextile above the cover soil.
 - 5. Geotextile below the cohesive material layer.
 - 6. Geotextile as a bedding material for riprap.
- B. This section does not cover geotextiles used for temporary silt fence, permanent erosion control, erosion control blankets, turf reinforcement mats or pavement applications.

1.02 SPECIFICATION MODIFICATIONS

- A. It is understood that throughout this section these Specifications may be modified by appropriate items in Section 01015 – Specific Project Requirements or as otherwise indicated on the Contract Drawings.

1.03 RELATED SECTIONS

- A. Section 01015 – Specific Project Requirements.
- B. Section 02200 – Earthwork.
- C. Section 02250 – Trenching, Pipe Embedment and Backfill.
- D. Section 02273 – Riprap.

1.04 CODES AND STANDARDS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. American Association of State Highway and Transportation Officials (AASHTO):
 - AASHTO M288 Standard Specification for Geotextile Specification for Highway Applications.
- C. American Society for Testing and Materials (ASTM):
 - ASTM D4873 Standard Guide for Identification, Storage and Handling Geotextile Rolls and Samples.

1.05 SUBMITTALS

- A. Submit as specified in Section 01300 – Submittals.
- B. Product Data submittals:
 - 1. Geotextile Material:
 - (a) 12-inch square sample of fabric.
 - (b) Manufacturer's descriptive product data.

- (c) Manufacturer's installation instructions.
- C. Certificates submittals:
 - 1. Geotextile Material – Furnish manufacturer's certification for each lot of material furnished. Certificate shall state the name of the manufacturer and the chemical composition of all materials, filaments or yarns used to manufacture. The Certificate shall state that the material supplied is in accordance with this specification. The certification shall also include the results of tests from specific lots for all specified requirements. Additionally, the certification shall contain a statement by the manufacturer that the material meets the requirements of AASHTO M288 and the Class/Classes specified for the project.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Store and handle geotextiles according to ASTM D4873. Do not use torn or punctured geotextiles.
- B. Receive, store and handle geotextile materials as recommended by manufacturer.
- C. Completely cover all materials while being stored on-site.
- D. Damaged material shall be cut out and removed from the site.

PART 2 - PRODUCTS

2.01 GEOTEXTILE

- A. A fibrous filter fabric shall be installed below the bedding material to increase soil stabilization.
- B. Geotextile shall be manufactured with new, high quality materials designed specifically for filtering out soil fines while maintaining good drainage characteristics.
- C. Geotextile shall be manufactured and packaged so as to be free of tears, punctures and contamination by foreign matter. Any such defect found in the material on-site shall be repaired or replaced in accordance with the manufacturer's recommendations.
- D. Geotextile shall be woven or nonwoven, polyester or polypropylene material that complies with the physical and geotextile property requirements for subsurface drainage, separation and stabilization in accordance with AASHTO M288.
 - 1. Subsurface Drainage Geotextile:
 - (a) Subsurface drainage geotextile shall be used as a filter to protect drainage media from clogging with fines from adjacent soil. Typical applications include the lining of drainage trenches and the wrapping of drain pipes.
 - (b) The minimum permittivity shall be 1.0 sec-1.
 - (c) Material shall be AASHTO M288, Class 2.
 - 2. Separation Geotextile:
 - (a) Separation geotextile shall be used as a material to prevent the mixing of dissimilar material and to control migration of backfill material through granular pipe embedment or joints in structural elements. Additionally, separation geotextiles shall be used as a bedding material/filter layer for riprap.
 - (b) The minimum permittivity shall be 1.0 sec-1.
 - (c) The material shall be AASHTO M288, Class 1.
- E. The type of geotextile (either woven or nonwoven) shall be as indicated on the Drawings or as specified in Section 01015 – Specific Project Requirements.

PART 3 - EXECUTION

3.01 SUBGRADE PREPARATION

- A. Prepare subgrade in accordance with Section 02200 – Earthwork or Section 02273 – Riprap.
- B. All surfaces to be lined shall be smooth, free of all debris, foreign material and sharp objects.
- C. All surfaces to be lined shall have a firm foundation with no sharp or abrupt breaks in grade.
- D. Do not place fabric on snow or standing water. Prior to fabric installation, all surfaces to be lined shall be dry – free of standing water and surface moisture.

3.02 INSTALLATION

- A. Install geotextile on prepared surfaces following procedures specified herein and in accordance with the manufacturer's installation instructions.
- B. Unroll panels as close to their final position as possible.
- C. Filter fabric joints shall be lapped in accordance with the manufacturer's installation instructions, but not less than least 3 feet.
- D. A minimum 2 percent slack shall be provided in both directions.
- E. Fabric shall be installed in conformity with all other manufacturer's requirements.
- F. Adhere to the following stipulations while working with or near geotextile fabric:
 - 1. Smoking is prohibited.
 - 2. Remove all glass, metal and other sharp objects from the application area.
 - 3. No construction installation equipment shall pass over any exposed fabric.
 - 4. Geotextile shall be covered within 5 calendar days after placement.
 - 5. As applicable, the placement of cover soil shall be by low pressure equipment (2-4 psi). Place cover soil in the direction of the seam overlaps and in a manner that does not pull, separate or puncture the geotextile. Spreading equipment and hauling equipment shall not make sudden stops or sharp turns when spreading cover soil over the geotextile.

3.03 INSTALLATION FOR TRENCH APPLICATIONS

- A. See Section 02250 – Trenching, Pipe Embedment and Backfill for additional requirements.

END OF SECTION