

## GEOTEXTILE FABRIC

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section Includes:

1. Nonwoven geotextile material.

B. Related Requirements:

1. Aggregate Base Courses: Subbase and base course for placement under paving.

#### 1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.

B. ASTM International:

1. ASTM D4355/D4355M - Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
2. ASTM D4491/D4491M - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
3. ASTM D4533/D4533M - Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
4. ASTM D4632/D4632M - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
5. ASTM D4751 - Standard Test Method for Determining Apparent Opening Size of a Geotextile.
6. ASTM D4833/D4833M - Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
7. ASTM D4873 - Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples.
8. ASTM D4884/D4844M - Standard Test Method for Strength of Sewn or Bonded Seams of Geotextiles.
9. ASTM D4886 - Standard Test Method for Abrasion Resistance of Geotextiles (Sand Paper/Sliding Block Method).

#### 1.3 SUBMITTALS

- A. Product Data: Submit manufacturer information including tensile strength, elongation, thickness, UV resistance, and other material specifications.

- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

#### 1.4 QUALITY ASSURANCE

- A. Perform Work according to applicable standards.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Comply with ASTM D4873.
- C. Store materials according to manufacturer instructions.
- D. Protection:
  - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
  - 2. Provide additional protection according to manufacturer instructions.

### PART 2 - PRODUCTS

#### 2.1 NONWOVEN GEOTEXTILE MATERIALS

- A. Description:
  - 1. Non-biodegradable, UV-resistant, nonwoven geotextile fabric.
  - 2. Material: Polypropylene.
  - 3. Edges: Selvaged or finished to prevent separation of outer material.
- B. Performance and Design Criteria:
  - 1. Minimum Unseamed Sheet Width: 10 feet.
  - 2. Fabric Weight: **8** oz.
  - 3. Apparent Opening Size:
    - a. No. 80 U.S. standard sieve size.
    - b. Comply with ASTM D4751.
  - 4. Water Permittivity: 1.3 to 1.4 per second, minimum average roll value.
  - 5. Vertical Water Flow Rate:
    - a. 90 gpm/sq. ft., minimum average roll value.
    - b. Comply with ASTM D4491/D4491M.

6. Tensile Strength:
  - a. 205 lbf, minimum average roll value.
  - b. Comply with ASTM D4632/D4632M.
7. Elongation:
  - a. 50 percent, minimum average roll value.
  - b. Comply with ASTM D4632/D4632M.
8. Trapezoidal Tear Strength:
  - a. 80 lbf, minimum average roll value.
  - b. Comply with ASTM D4533/D4533M.
9. Puncture Strength:
  - a. 500 lbf, minimum average roll value.
  - b. Comply with ASTM D4833/D4833M.
10. UV Resistance at 500 Hours:
  - a. Strength Retention: 70 percent.
  - b. Comply with ASTM D4355/D4355M.

## 2.2 ACCESSORIES

- A. Sewing Thread:
  1. Material: Polypropylene or Kevlar.
  2. Durability: Equal to or greater than durability of geotextile.
- B. Securing Pins:
  1. Material: Steel rods or bars.
  2. Diameter: 3/16 inch.
  3. Minimum Length: 12 inches.
  4. Washers:
    - a. Material: Steel.
    - b. Thickness: 1/8 inch.
- C. Wire Staples:
  1. Material: Steel.
  2. Minimum Size: 10 gage.
  3. Minimum Length: 6 inches.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Verify that underlying surface is smooth and free of ruts or protrusions that could damage geotextile material.

### 3.2 PREPARATION

- A. Subgrade Material and Compaction Requirements: According to Spec Section “Rough Grading”.

### 3.3 INSTALLATION

#### A. Geotextile Material:

1. Lay and maintain smooth and free of tensile stresses, folds, wrinkles, or creases.
2. Ensure that material is in direct contact with subgrade.
3. Minimum Unseamed Joints Overlap: 18 inches.

#### B. Securement Pins:

1. Insert through geotextile midway between edges of overlaps and minimum **6** inches from free edges.
2. Minimum Spacing:
  - a. Slopes Flatter than 4 Horizontal on 1 Vertical: 5 feet o.c.
3. Ensure that washer bears against geotextile.

#### C. Repairing Damaged Geotextiles:

1. Repair torn or damaged geotextile by placing patch of same type of geotextile over damaged area minimum of **12** inches beyond edge of damaged area, and fasten as recommended by geotextile manufacturer.
2. Remove and replace geotextile rolls which cannot be repaired.

#### D. Fill and Cover:

1. Place fill to prevent tensile stress or wrinkles in geotextile.
2. Do not drop fill from height greater than **3** feet.

### 3.4 PROTECTION

- A. Ballast: Adequate to prevent uplift of material by wind.
- B. UV Exposure: Do not leave material uncovered for more than **14** days after installation.

- C. Do not use staples or pins to hold geotextiles in place where located adjacent to other geosynthetic layers that could be damaged.
- D. Do not operate equipment directly on top of geotextile.

END OF SECTION