

2. **Soil retention mats** shall consist of a machine-produced mat of wood fibers, wood excelsior, or manmade fiber that shall intertwine or interlock. Matting shall be nontoxic to vegetation and germination of seed and shall not be injurious to the unprotected skin of the human body.

Mats shall be of consistent thickness, with fiber evenly distributed over its entire area, and covered on the top and bottom side with netting having a high web strength or covered on the top side with netting having a high web strength and machine sewn on two inch centers along the longitudinal axis of the material. Netting shall be entwined with the mat for maximum strength and ease of handling.

3. **Soil stabilization mats** shall be from the Department's approved products list for the use specified.

## **SECTION 245—GEOSYNTHETICS**

### **245.01—Description.**

These specifications cover artificial fiber textile products to be used in transportation construction work.

### **245.02—Detail Requirements.**

Geotextile fabric shall be protected from mud, dirt, dust, sunlight, and debris during transport and storage. Material shall be inert to commonly encountered chemicals; resistant to mildew, rot, insects, and rodents; and biologically and thermally stable. Geotextile fabric for subsurface installation shall not be exposed to direct sunlight for more than 24 hours during installation.

Tensile strength requirements are in the machine and cross-machine directions.

### **245.03—Testing and Documentation.**

Geosynthetics shall be tested by an independent commercial laboratory, to verify the material requirements specified herein. The Contractor shall provide written documentation of all tests specified. Documentation shall include style, lot, roll numbers, and actual results of each test. In addition, the name, address, phone number of the testing laboratory, and date of testing shall be provided.

- (a) **Geotextile Fabric for Use in Silt Fences, Silt Barriers, or Filter Barriers:** Fabric shall contain ultraviolet inhibitors and stabilizers to provide at

least 6 months of expected, usable construction life at a temperature range of 0 degrees F to 125 degrees F. The tensile strength of the material after 6 months of installation shall be at least 50 percent of the initial strength.

**1. Silt fences:**

<b>Physical Property</b>	<b>Test Method</b>	<b>Requirements (Min.)</b>
Filtering efficiency	VTM-51	75%
Flow rate	VTM-51	0.2 gal/sq ft/minute
Tensile strength @ 20% (max.) elongation	VTM-52	Extra strength: 60 lb/lin inch Standard strength: 30 lb/lin inch

**2. Silt barriers and filter barriers:**

<b>Physical Property</b>	<b>Test Method</b>	<b>Requirements (Min.)</b>
Filtering efficiency	VTM-51	75%
Flow rate	VTM-51	0.2 gal/sq ft/minute
Tensile strength @ 20% (max.)	VTM-52	Standard strength: 30 lb/lin inch

**(b) Riprap Bedding Material:**

<b>Physical Property</b>	<b>Test Method</b>	<b>Requirements (Min.)</b>
Apparent opening size	ASTM D4751	Equal to or greater than No. 50 sieve
Tensile strength @ 20% (max.) elongation	VTM-52	Min. 30 lb/lin inch
Puncture strength	ASTM D4833	Min. 80 lb

Seams shall be equal in strength to the basic material.

Additional fabric material or noncorrosive steel wire may be incorporated into fabric to increase overall strength.

**(c) Drainage Fabric:**

<b>Physical Property</b>	<b>Test Method</b>	<b>Requirements</b>
Apparent opening size	ASTM D4751	Equal to or smaller than 0.300 mm
Permittivity	ASTM 4491	Min. 0.8 sec
Tensile strength @ 20% elongation	VTM-52	Min. 25 lb/lin inch

**(d) Subgrade Stabilization:**

<b>Physical Property</b>	<b>Test Method</b>	<b>Requirements</b>
Tensile Strength @ 20% elongation	ASTM D4595	80 lbs./lin inch (Min.)
Apparent Opening Size (AOS)	ASTM D4751	Equal to or smaller than 0.85 mm
Secant Modulus @10% Strain	ASTM D4595	500 lbs./lin inch (Min.)
*Soil Fabric Friction Angle	ASTM D5321	24 deg. (Min.)
Tear Strength	ASTM D4533	75 lbs. (Min.)
Puncture Strength	ASTM D4833	75 lbs. (Min.)

\*For test, use Ottawa Sand that passes the No. 20 sieve but can be retained on the No. 30 sieve. Use normal loads of 0.5 ton/sq ft, 1.0 ton/sq ft and 2.0 ton/sq ft.

**(e) Geotextile for Embankment Stabilization up to 6 feet in height:**

<b>Physical Property</b>	<b>Test Method</b>	<b>Requirements</b>
Tensile Strength (Ultimate)	ASTM D4595	200 lbs./lin inch (Min.)
Apparent Opening Size (AOS)	ASTM D4751	Equal to or smaller than 0.85 mm
Secant Modulus @10% Strain	ASTM D4595	1700 lbs./lin inch (Min.)
*Soil Fabric Friction Angle	ASTM D5321	24 deg. (Min.)
Tear Strength	ASTM D4533	75 lbs. (Min.)
Puncture Strength	ASTM D4833	75 lbs. (Min.)

\*For test, use Ottawa Sand that passes the No. 20 sieve but can be retained on the No. 30 sieve. Use normal loads of 0.5 ton/sq ft., 1.0 ton/sq ft and 2.0 ton/sq ft.

**SECTION 246—PAVEMENT MARKING****246.01—Description.**

These specifications cover material for use in the various retroreflective pavement-marking applications.

**246.02—Detail Requirements.**

Materials that must be heated for application shall not exude fumes that are toxic or injurious to persons or property when heated to the application temperature.

Materials shall withstand air and roadway temperature variations from 0 degrees F to 140 degrees F without deforming, bleeding, staining, or discoloring and shall