

SECTION 1056 GEOSYNTHETICS

1

2

1056-1 DESCRIPTION

4 The section addresses geosynthetics consisting of geotextiles and geocomposites to be used
5 for subsurface drainage, separation, stabilization, reinforcement, erosion control, filtration,
6 temporary silt fence and other applications in accordance with the contract.

7 Use geotextile fabrics that meet Article 4.1 of AASHTO M 288 and have been evaluated by
8 NTPEP. Use prefabricated geocomposite drain strips consisting of a non-woven
9 polypropylene geotextile bonded to one side of a high density polyethylene or polystyrene
10 drainage core, e.g., sheet drain.

11 1056-2 HANDLING AND STORING

12 Load, transport, unload and store geosynthetics so geosynthetics are kept clean and free of
13 damage. Label, ship and store geosynthetics in accordance with Section 7 of
14 AASHTO M 288. Geosynthetics with defects, flaws, deterioration or damage will be
15 rejected. Do not unwrap geosynthetics until just before installation. Do not leave
16 geosynthetics exposed for more than 7 days before covering except for geotextiles for erosion
17 control devices and mechanically stabilized earth (MSE) wall faces.

18 If necessary or required, hold geosynthetics in place with wire staples that meet
19 Subarticle 1060-8(D) or anchor pins. Use steel anchor pins with a diameter of at least 3/16"
20 and a length of at least 18" with a point at one end and a head at the other end that will retain
21 a steel washer with an outside diameter of at least 1.5".

22 1056-3 CERTIFICATIONS

23 Provide Type 1, Type 2 or Type 4 material certifications in accordance with Article 106-3 for
24 geosynthetics. Define "minimum average roll value" (MARV) in accordance with
25 ASTM D4439. Provide certifications with MARV for geosynthetic properties except as noted
26 in Tables 1056-1 and 1056-2. Test geosynthetics using laboratories accredited by the
27 Geosynthetic Accreditation Institute (GAI) to perform the required test methods. For testing
28 geosynthetics, define a "lot" as a single day's production.

29 1056-4 GEOTEXTILES

30 When required, sew geotextiles together in accordance with Article X1.1.4 of
31 AASHTO M 288. Provide sewn seams with seam strengths meeting the required strengths for
32 the geotextile type and class specified.

33 Provide geotextile types and classes in accordance with the contract. Use woven or
34 nonwoven geotextiles with properties that meet Table 1056-1. Define "machine direction"
35 (MD) and "cross-machine direction" (CD) in accordance with ASTM D4439.

Section 1060

**TABLE 1056-1
GEOTEXTILE REQUIREMENTS**

Property	Requirement (MARV ^A)					Test Method
	Type 1	Type 2	Type 3 ^B	Type 4	Type 5 ^C	
<i>Typical Application</i>	<i>Shoulder Drains</i>	<i>Under Rip Rap</i>	<i>Temporary Silt Fence</i>	<i>Soil Stabilization</i>	<i>Temporary MSE Walls</i>	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	90 lb	205 lb	100 lb	180 lb	-	ASTM D4632
Tear Strength (MD & CD)	40 lb	80 lb	-	70 lb	-	ASTM D4533
Puncture Strength	220 lb	440 lb	-	370 lb	-	ASTM D6241
Wide Width Tensile Strength @ Ultimate (MD & CD)	-	-	-	-	2,400 lb/ft (unless required otherwise in the contract)	ASTM D4595
Permittivity	0.20 sec ⁻¹	0.20 sec ⁻¹	0.05 sec ⁻¹	0.05 sec ⁻¹	0.20 sec ⁻¹	ASTM D4491
Apparent Opening Size ^D	#60	#60	#30	#40	#30	ASTM D4751
UV Stability (Retained Strength) ^E	50%	50%	70%	50%	50%	ASTM D4355

- 1 **A.** MARV does not apply to elongation
- 2 **B.** Minimum roll width of 36" required
- 3 **C.** Minimum roll width of 13 ft required
- 4 **D.** US Sieve No. per AASHTO M 92
- 5 **E.** After 500 hours of exposure

6 **1056-5 GEOCOMPOSITES**

7 Provide geocomposite drain strips with widths of at least 12" and cores that meet
8 Table 1056-2.

**TABLE 1056-2
CORE REQUIREMENTS**

Property	Requirement (MARV ^A)	Test Method
Thickness	1/4" - 1/2"	ASTM D5199
Compressive Strength	40 psi	ASTM D1621
Flow Rate (with gradient of 1.0)	5 gpm ^B	ASTM D4716

- 9 **A.** MARV does not apply to thickness
- 10 **B.** Per foot of width tested

**SECTION 1060
LANDSCAPE DEVELOPMENT MATERIALS**

13 **1060-1 GENERAL**

14 Supply certifications for all landscape development materials as required below. If no
15 certification is required, supply the Department with a statement certifying that all materials
16 conform to these Specifications and those of the NC Department of Agriculture or both. All
17 landscape development materials shall comply with all applicable Federal and State domestic
18 plant quarantines.