

## 1.0 GENERAL

### 1.1 Scope

1.1.1 This specification governs all operations necessary for, and pertaining to, the supply and installation of geotextile fabrics for separation and reinforcement and under riprap.

### 1.2 Related Sections

1.2.1 Section 02110 - Excavation

1.2.2 Section 02120 – Embankments

1.2.3 Section 02130 – Subgrade Preparation

1.2.4 Section 02210 – Subdrainage Sand

1.2.5 Section 02220 – Subbase

1.2.6 Section 02271 – Rip Rap

## 2.0 PRODUCTS

### 2.1 Geotextiles

**Note to Specifiers:** These specifications are intended to provide a general guideline for geotextiles. It is the specifier’s responsibility to ensure the geotextiles used meet the specific soil conditions of each project. Geogrids are to be specified by the Engineer. In general geogrids may be used in high, heavy traffic areas. When using geotextiles and geogrids consideration should be given to buried infrastructure and the need for potential future utility repairs.

2.1.1 Unless otherwise specified or directed by the Engineer, use AASHTO M288 Class 1 or Class 2 survivability as per the following table. Geotextile placed under rip rap shall also be Class 1 survivability.

Property	Test Method	Units	Stabilization (Class 1)		Separation (Class 2)	
			Woven	Nonwoven	Woven	Nonwoven
Elongation	ASTM D 4632	%	< 50	≥ 50	< 50	≥ 50
Grab Strength (min)	ASTM D 4632	N	1400	900	1100	700
Tear Strength (min)	ASTM D 4632	N	500	350	400	250
Puncture Strength (min)	ASTM D 6241	N	2750	1925	2200	1375
Permittivity	ASTM D 4491	sec <sup>-1</sup>	0.7 min or as specified.			
Apparent Opening Size (AOS)	ASTM D 4751	mm	0.22 max or as specified.			
Ultraviolet Stability	ASTM D 4355	%	50 min			

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- 2.1.2 Each geotextile roll shall be labelled or tagged to provide product identification sufficient for inventory and quality control purposes.
  - 2.1.3 Geotextile rolls shall be furnished with suitable wrapping for protection against moisture and extended ultra-violet exposure prior to placement. If stored outdoors, they shall be elevated and protected with a waterproof cover.

### 3.0 EXECUTION

#### 3.1 Separation and Stabilization

3.1.1 Unless otherwise directed in the manufacturer's specification and approved by the Engineer, the preparation and placement of geotextile shall be as specified herein.

#### 3.1.2 Surface Preparation

- .1 Prepare the surface, in advance of placing the geo-textile, to achieve a smooth, even surface, clear of any aggregates or deleterious materials and constructed to the cross section and profile indicated on the plans.

#### 3.1.3 Geotextile Placement

- .1 The geotextile shall be rolled onto the surface free of wrinkles, rolls, or bulges. All seams shall be sewn by an approved method or overlapped a minimum of 600 mm.
- .2 The geotextile shall not be dragged across the surface. Geotextile shall not be rolled out more than 40 m ahead of the placement of the fill material and shall be overlapped both side to side and end to end in the direction of the fill material placement. The required width of geotextile and the minimum overlap shall be maintained during road construction.
- .3 Should the surface be required to remain open to traffic, installation of the geotextile shall be on one-half of the surface at a time.

#### 3.1.3 Damage to Geotextile

- .1 If the geotextile is damaged, torn, or punctured during installation or placement of the fill material, the damaged section shall be repaired at the Contractor's expense. The damaged section shall be exposed and a patch of geotextile placed over the damaged section. Where the patch is not sewn it shall be large enough to overlap 700 mm onto the undamaged geotextile. Any fill material on the damaged area shall be replaced and compacted to the required standard.
- .2 Fill material shall be placed, spread, and compacted on the geotextile. The fill material shall be end-dumped onto the ground in front of the leading edge of the geotextile and levelled using a track

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type dozer to a uniform lift thickness of no less than 150 mm or as directed by the Engineer. Initial compaction shall be achieved by walking a track dozer back and forth over the lift. Subsequent loads shall be dumped onto previously spread fill material. Dumping of fill material directly on the geotextile will not be permitted. The use of “bellydump” type trailers or any other vehicles will not be allowed on the geotextile.

3.2 Geotextile Under Rip-Rap

3.2.1 Unless otherwise directed in the manufacturer’s specification and approved by the Engineer, the preparation and placement of geotextile shall be as specified herein.

3.2.2 Surface Preparation

.1 The ground surface shall be shaped neatly and trimmed to the lines as shown on the plans or as staked by the Engineer in the field prior to the placing of any geotextile. Ground surface preparation shall be incidental to the Supply and Installation of Geotextile Fabric.

3.2.3 Geotextile Placement

- .1 The geotextile shall be placed and temporarily anchored in such a manner that placement of the riprap will not excessively stretch or tear the fabric and such that seam overlaps will be maintained.
- .2 Stones, staples, steel pins with washers, or other means approved by the manufacturer or Engineer shall be used as necessary to temporarily anchor the geotextile. Temporary anchoring shall be incidental to the Supply and Installation of Geotextile Fabric.
- .3 Where geotextile may be exposed to high velocity flows such as an overflow or chute structure, geotextile shall be permanently anchored using a keyway trench.
- .4 All seams shall be sewn by an approved method or overlapped a minimum of 700 mm in the direction of the flow of water (shingle style). Heating to join seams together is acceptable if approved by the Engineer.
- .5 Terminal sides and ends of the geotextile shall be anchored as shown on the plans or as directed by the Engineer in the field.