

SECTION 212—GEOTEXTILES

212.1 DESCRIPTION—This work is furnishing and installing geotextiles for the class specified.

212.2 MATERIAL—Use geotextiles as specified in [Section 735](#) for the specified class and type.

For bedding use open-graded stone conforming to the requirements of Type C or better aggregate, as specified in [Section 703.2](#), except do not use No. 2-A or No. 10 coarse aggregate.

Use steel securing pins 460 mm long x 4.75 mm (18 inches long by 3/16 inch) in diameter, pointed at one end, and with a 40 mm (1 1/2-inch) washer head at the other end. If permitted, alternate securing devices may be used. Certify as specified in [Section 106.03\(b\)3](#).

Use cover material as specified or indicated.

212.3 CONSTRUCTION—As shown on the [Standard Drawings](#), and as follows:

(a) General. Remove and replace fabric areas damaged during construction. Lap or sew replaced fabric as specified for the class of fabric used. Do not allow traffic or construction equipment on the fabric.

(b) Class 1—Subsurface Drainage. Provide smooth side and bottom trench surfaces so the fabric does not bridge depressions in the soil and is not damaged by rock projections. Use fabric of a width to permit a minimum trench-width overlap across the backfill at the trench top. Lay the fabric flat in the prepared trench without stretching. Lay the top of the fabric back on the sides to allow for the placement of the aggregate backfill and pipe. Overlap ends of rolls an amount equal to the trench width before placing fabric. Fill pockets or cavities in the trench bottom or sides with acceptable granular material to prevent distortion or damage to the fabric.

Backfill aggregate and install pipe in a manner to prevent damage to the fabric. Compact aggregate and overlap the fabric across the trench top. Do not allow the fabric to be exposed for more than 2 weeks without covering with aggregate.

(c) Class 2—Erosion Control. Use Type A or Type B fabric as indicated or specified. Remove vegetation, large stones, and other debris from the area to be protected and grade the surface to a relatively smooth condition. Undercut areas of soft material and replace with acceptable compacted material, as directed.

Lay the fabric on the prepared area in a loose and unstretched condition to minimize shifting, puncturing, or tearing the fabric. Join adjacent edges and ends with a folded seam and sew using a single lock-type stitch seam or a double chain type stitch seam equivalent in strength to the fabric tensile strength. Sewing may be done on-site or by the manufacturer. Overlap only when directed. Provide a minimum overlap of 300 mm (1 foot). For underwater placement, overlap a minimum of 1 m (3 feet). Offset adjacent roll ends a minimum of 1.5 m (5 feet) when lapped.

Lay and overlap the fabric in the direction shown in Table A for the indicated use.

Anchor the fabric in place by securing pins or other acceptable methods, along sewn seams or overlaps, at the spacing shown in Table B. Place securing pins on a maximum 1.8 m (6 foot) grid on the unsewn or unlapped portions of the fabric.

Eliminate securing pins for slopes flatter than 1:6 (6:1), provided that aggregate, rock, or other acceptable means are used to secure the fabric.

TABLE A
Fabric Placement

Operation	Slope Stabilization Runoff Protection and Internal Seepage Piping	Stream Slope Protection	Wave Protection
Direction of fabric laying	Up and down (parallel with slope direction)	Parallel to stream flows from upstream to downstream	Up and down (parallel with slope direction)
Overlap direction	Upslope over downslope	Upstream over downstream and upslope over downslope	Upslope over downslope

TABLE B
Securing Pin Spacing *

Slope	Steeper Than 1:3 (3:1)	1:4 (4:1)	Flatter Than 1:4 (4:1)
Pin Spacing along sewn seams or overlaps	0.6 m (2 feet)	1 m (3 feet)	1.5 m (5 feet)

* Place additional pins to secure unlapped portions as specified.

Cover the fabric with the covering material as soon as possible. Do not expose the fabric for more than 4 weeks for Type A and 2 weeks for Type B. Prevent slippage of the cover material on the fabric.

Do not drop rocks, 600 mm (2 feet) or larger in dimension, directly on the fabric from a height greater than 300 mm (1 foot). Do not allow the rock placement procedure to puncture or damage the fabric. Use a minimum 150 mm (6-inch) layer of bedding stone and a greater drop-height combination if the combination produces the placement, thickness, gradation and fabric integrity requirements, and if permitted.

(d) Class 3—Sedimentation Control. Use Type A or B fabric as indicated or specified. Install as specified in [Section 865.3](#).

(e) Class 4—Layer Separation (Type A). Use to separate the subgrade and other layers. Place the fabric on a prepared subgrade area covering the full width of the subbase layer being protected. Place fabric in a loose and unstretched condition to minimize shifting, puncture, and/or tearing of the fabric. Overlap fabric roll-ends and edges a minimum of 300 mm (12 inches) with adjacent material. Place subbase material within 2 weeks after placement of fabric to minimize exposure. Place subbase material in a manner to minimize slippage of the fabric. Use steel securing pins, as specified in [Section 212.2](#), at a maximum spacing of 1.8 m (6 feet) if excessive slippage occurs.

(f) Class 4—Stabilization (Type B). Fine grade the subgrade as specified in [Section 210.3\(c\)](#), as indicated, and in compliance with the cross sections. Remove any object that may puncture the geotextile. Roll out the geotextile over the prepared subgrade as indicated. Place the geotextile free of wrinkles. Do not drag the geotextile on the ground during placement or handling. Overlap parallel rolls or intersecting rolls a minimum of 610 mm (2 feet) in the direction of fill. For curves fold and overlap the geotextile in the direction of the turn. Do not allow any equipment directly on the geotextile until it is covered to full plan depth of subbase. Do not back dump the subbase material directly onto the geotextile. Place subbase material by back dumping then spread the subbase ahead of all equipment at full plan depth. Compact the subbase material with a roller in static mode, if directed. Fill any wheel ruts that form during construction with additional subbase to maintain plan profile. Do not remove the wheel ruts by blading the wheel ruts level.

(g) Class 4—Reinforcement (Type C). [Section 212.3\(f\)](#) except as follows: For a subgrade with a CBR value of 0.5 or lower, overlaps must be stitched. Use a 401 lock chain stitch seam with a 100 mm (4-inch) lap.

212.4 MEASUREMENT AND PAYMENT—

(a) Geotextiles, Class 1. Meter (Linear Foot)
Measured by the length of trench.

(b) Geotextiles, Class 2. Square Meter (Square Yard)
For the type indicated or specified.

(c) Geotextiles, Class 3. Meter (Linear Foot)
For the type indicated or specified. Measured by the length of sedimentation device.

(d) Geotextiles, Class 4. Square Meter (Square Yard)
For the type indicated or specified.