

GEOTEXTILES

Part 1 General

1.1 SECTION INCLUDES

- .1 Materials and installation of polymeric geotextiles. Purpose of which is to:
 - .1 Separate and prevent mixing of granular materials of different grading.
 - .2 Act as hydraulic filters permitting passage of water while retaining soil strength of granular structure.

1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Section 31 23 10 - Excavating, Trenching and Backfilling.

1.3 MEASUREMENT PROCEDURES

- .1 Measure geotextiles in square metres of surface covered by material. No allowance will be made for seams and overlaps. Overlap as defined by the drawings is 600 mm at each pile an additional 4 square metres at each tie rod.

1.4 REFERENCES

- .1 All standards used shall be of latest edition.
- .2 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D4491- Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
 - .2 ASTM D4595- Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
 - .3 ASTM D4716- Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
 - .4 ASTM D4751- Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .3 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-4.2 No. 11.2- Textile Test Methods - Bursting Strength - Ball Burst Test (Extension of September 1989).
 - .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Complete Geomembranes.
 - .1 No.2 - Methods of Testing Geosynthetics - Mass per Unit Area.
 - .2 No.3 - Methods of Testing Geosynthetics - Thickness of Geotextiles.
 - .3 No.6.1 - Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.

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- .4 No.7.3 - Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
 - .5 No. 10 - Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

1.5 SUBMITTALS

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental representative following samples at least 4 weeks prior to beginning Work.
 - .1 Minimum length of 2 m of roll width of geotextile.
 - .2 Submit to departmental representative copies of mill test data and certificate at least 4 weeks prior to start of Work.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .4 Fold up metal banding, flatten and place in designated area for recycling.

Part 2 Products

2.1 MATERIAL

- .1 Geotextile: non-woven synthetic fibre fabric, supplied in rolls. Shall be rot proof, unaffected by action of oil or salt water and not subject to attack by marine life, insects or rodents.
 - .1 Width: 3.5 m minimum.
 - .2 Thickness 4.0 mm minimum
 - .3 Composed of: minimum 85% by mass of polyester with inhibitors added to base plastic to resist deterioration by ultra-violet and heat exposure for 60 days.
- .2 Physical properties:
 - .1 Mass per unit area: to CAN/CGSB-148.1, No.2, minimum 600 g/m².
 - .2 Grab tensile strength and elongation: to CAN/CGSB-148.1, No.7.3.
 - .1 Breaking force: minimum 1000 N, wet condition.

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- .2 Elongation at break: minimum maximum 70-100%.
 - .3 Bursting strength: to CAN/CGSB-148.1, No.6.1 minimum 3,700 kPa, wet condition.
 - .3 Hydraulic properties:
 - .1 Apparent opening size (AOS): 50 to 150 micrometres.
 - .2 Filtration opening size (FOS): to CAN/CGSB-148.1 No.10 OPSS 1860.
 - .3 Permittivity: 0.2 K cm/sec.
 - .4 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m² to CAN/CSA G164.
 - .5 Factory seams: sewn in accordance with manufacturer's recommendations.

Part 3 Execution

3.1 INSTALLATION

- .1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with securing pins and washers or weights.
- .2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.
- .3 Overlap each successive strip of geotextile 600 mm over previously laid strip.
- .4 Pin successive strips of geotextile with securing pins as recommended by manufacturer.
- .5 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.
- .6 After installation, cover with overlying layer within 4 hours of placement.
- .7 Replace damaged or deteriorated geotextile to approval of Departmental Representative.
- .8 Place and compact soil layers in accordance with Section 31 23 10 - Excavating Trenching and Backfilling
- .9 Clean all geotextile seams at each tie rod box to prevent leaching of fines.
- .10 Place a separate 2 m square piece of geotextile, flush with wall over tie rod connector boxes prior to the placement of the continuous geotextile material.
- .11 No traffic is permitted on the geotextile.

3.2 CLEANING

- .1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

END OF SECTION