PART 1 - GENERAL

1.1 DESCRIPTION

.1 Materials and installation of polymeric geotextiles used in breakwaters, cribwork retaining wall structures, filtration, drainage structures and roadbeds, 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 WORK

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 31 23 25 - Rock and Gravel Fill.

.4 Section 31 53 13 - Timber Cribwork.

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM).
- .1 ASTM D 4491-99a (2004) el, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
- .2 ASTM D 4595-05, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
- .3 ASTM D 4716-04, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
- .4 ASTM D 4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
- .5 ASTM A123/A123M-09, Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.2 Canadian General Standards Board (CGSB).
- .1 CAN/CGSB-4.2-M88, Textile Test Methods.
- .2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Geomembranes.
  - .1 No. 2-M85, Mass per Unit Area.
  - .2 No. 3-M85, Thickness of Geotextiles.
  - .3 No. 7.3-92, Grab Tensile Test for Geotextiles.
  - .4 No.6.1-93, Bursting Strength of Geotextiles Under No Compressive Load.

PART 1 - GENERAL (CONT'D)

1.3 REFERENCES (CONT'D)

.3 Canadian Standards Association (CSA).

.1 CAN/CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel.

1.4 SAMPLES

.1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Departmental Representative the following samples at least two (2) weeks prior to commencing work.

.1 Minimum length of 1 m of roll width of geotextile.

1.5 MILL CERTIFICATES

.1 Submit to Departmental Representative a copy of mill test data and certificate at least two (2) weeks prior to start of work.

1.6 DELIVERY AND STORAGE

.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, corrugated cardboard, and 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: woven or non-woven synthetic fibre fabric, supplied in rolls.
- .1 Width: 3.5 m minimum.
- .2 Length: 50 m 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.

.2 Physical properties:
- .1 Thickness: to CAN/CGSB-148.1, No. 3, minimum 2.5 mm.
- .2 Mass per unit area: to CAN/CGSB-148.1, No. 2, minimum 400 g/m^2.
- .3 Tensile strength and elongation (in any principal direction): to ASTM D 4595.
  - .1 Tensile strength: minimum 1200 N, wet condition.
  - .2 Elongation at break: 50 to 100 percent.
  - .3 Seam strength: equal to or greater than tensile strength of fabric.
  - .4 Mullen burst strength: to CAN/CGSB-4.2, method 11.1, minimum 3100 kPa.

.3 Hydraulic properties:
- .1 Apparent opening size (AOS): to ASTM D 4751, 50 to 150 micrometers.
- .2 Permittivity: to ASTM D 4491, 0.25 cm per second.

.4 Securing pins and washers: to CAN/CSA-G40.21, Grade 300W, hot-dipped, galvanized with minimum zinc coating of 600 g/m^2 to ASTM A123/A123M-09.

PART 3 - EXECUTION

3.1 INSTALLATION

.1 Place one (1) layer of geotextile material from base elevation of crib to top of crib, or as detailed on the drawings, and retain in position with securing pins and washers. Contractor shall protect geotextile at all times and replace any damaged or torn sections due to placement of rock fill.

.2 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with securing pins and washers.

.3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.

.4 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.5 Overlap each successive strip of geotextile 600 mm over previously laid strip.

PART 3 - EXECUTION (CONT'D)

3.1 INSTALLATION (CONT'D)

.6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.

.7 After installation, cover with overlying layer within four (4) hours of placement.

.8 Replace damaged or deteriorated geotextile to approval of Departmental Representative.

.9 Place and compact soil layers in accordance with Section 31 23 25 - Rock and Gravel Fill.

3.2 CLEANING

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

3.3 PROTECTION

.1 Vehicular traffic not permitted directly on geotextile.