Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

- .1 ASTM A276 / A276M - 16 Standard Specification for Stainless Steel Bars and Shapes
- .2 ASTM D4491-99a (2009), Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
- .3 ASTM D4595-09, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
- .4 ASTM D4716-08, Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
- .5 ASTM D4751-04, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

.2 CSA International

- .1 CSA-A23.1/A23.2-2014, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .2 CSA A3000-13, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.3 Canadian General Standards Board (CGSB)

- .1 CAN/CGSB-4.2 No. 11.2-2004, 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-M85, Methods of Testing Geosynthetics - Mass per Unit Area.
  - .2 No.3-M85, Methods of Testing Geosynthetics - Thickness of Geotextiles.
  - .3 No.6.1-93, Methods of Testing Geotextiles and Geomembranes - Bursting Strength of Geotextiles Under No Compressive Load.
  - .4 No.7.3-92, Methods of Testing Geotextiles and Geomembranes - Grab Tensile Test for Geotextiles.
  - .5 No. 10-94, Methods of Testing Geosynthetics - Geotextiles - Filtration Opening Size.

1.2 DEFINITIONS

.1 **Articulated concrete block mats**: The articulated concrete block mat, commonly called scour protection mat or ACBM, is made up of concrete blocks connected by wires. A geotextile is placed underneath the blocks. Placed on the seabed beside wharf, it it helps to prevent scouring.

- .1 In order to make the text lighter, we will use ACBM in these specifications.

1.3 ACTION/INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets for product and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Methods of joining

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements, with manufacturer's written instructions.

.2 Storage and Handling Requirements:

.1 Store and handle ACBM such that they are protect against spalling and cable breakage

.2 Store and protect ACBM from direct sunlight and UV rays.

.3 Replace defective or damaged materials with new.

.3 Packaging Waste Management: remove for reuse or elimination in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.4 Use appropriated tools for ABCM’s handling operation.

Part 2 Products

2.1 MATERIALS

.1 ACBM with integrated geotextile: provide in section

.1 Width of section: minimum 3.6 m

.2 Lenght of section: minimum 4.8 m

.3 Total thickness of TBBA: between 140-150 mm.

.4 Mats interconnexions available on 4 sides

.5 Stainless steel wire of grade 316

.6 Mats interconnexion: Forged wire rope clips, stainless steel 316

.7 Concrete compressive strength at 28 days : 35 Mpa

.8 Concrete air content: 5 - 8%

.2 Geotextile’s minimums physical properties:

.1 Thickness: to CAN/CGSB-148.1, No.3, minimum 1.7 mm.

.2 Mass per unit area: to CAN/CGSB-148.1, No.2, minimum 203 g/m^2.

.3 Tensile strength and elongation in any principal direction: to ASTM D4595.

.1 Tensile strength: minimum 734 N, wet condition.

.4 Grab tensile strength and elongation: to CAN/CGSB-148.1, No.7.3.

.1 Breaking force: minimum 289 N, wet condition.

.2 Elongation at future: minimum 50%.

.5 Bursting strength: to CAN/CGSB-148.1, No.6.1 minimum 2137 kPa, wet condition.

.3 Minimum hydraulic properties of the geotextile

.1 Filtration openings (dry sieving) 180 micrometres, according to ASTM D4751 standards.

.2 Filtration openings (hydrodynamic sieving): according to CAN/CGSB-148.1 standards, number 10.

.3 Permittivity: 1.1 per second, according to ASTM D4491 standards.

Part 3 Execution

3.1 EXAMINATION

.1 Checking conditions: before installing the ACMB, ensure that the condition of surfaces/materials that were previously carried out under other sections or contracts is acceptable and can allow works to be completed according to manufacturer's instructions.

.1 Do a visual inspection of surfaces/materials in the presence of Departmental Representative.

.2 Immediately inform the Departmental Representative of any identified unacceptable condition.

.3 Start installation only after correcting the unacceptable conditions and receiving a written approval from the Departmental Representative.

3.2 PLACING

.1 Place the ACMB directly on the seabed so they rest uniformly at the bottom without creating undesired artificial deformation and rise vertically to the surface of the cribs.

.2 Secure the ACMBs to the dock following the method described in the plans and specifications

.3 Then connect the ACMBs to each other with a sufficient number of connections, following the directives of the manufacturer

.4 Replace damaged ACMBs, to the satisfaction of the Departmental Representative.

3.3 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse/recycling or elimination in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION