

## PART 1 - GENERAL

### 1.1 DESCRIPTION

- .1 This section specifies requirements for the supply, installation and placement of a nominally 20 m long rubblemound groyne consisting of rock fill core and armour stone to the dimensions shown and in the locations indicated on the drawings.

### 1.2 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 19 - Construction/Demolition Waste Management and Disposal.

### 1.3 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM C117-04, Standard Test Method for Material Finer than 0.075 mm Sieve in Mineral Aggregates by Washing.
  - .2 ASTM C136-06, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire.
  - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

### 1.4 DEFINITIONS

- .1 Cleared: Finally accepted or complying with plans and specifications.
- .2 Grade: plane or planes above which all material is to be placed.
- .3 Side Slope: inclined surface or plane from the crest elevation to the original ground line outside.

### 1.5 HAUL ROADS

- .1 The Contractor is solely responsible for the construction and maintenance of haul roads. Haul roads are to be removed after completion of work and sites returned to their original condition.

### 1.6 SUBMITTALS

- .1 Submit to Departmental Representative for approval, two (2) weeks before blasting, details of proposed blasting operations showing types and quantities of explosives, loading charges and patterns, type of blasting caps, blasting techniques, blast protection measures, time of blasting and other pertinent details. Submit subsequent changes to Departmental Representative before proceeding.
- .2 Submit to Departmental Representative complete photographic and descriptive record of buildings, roads and structures in general area of Project Work, before blasting is started. Describe buildings both inside and out. Record existing cracks in walls or structural components.
- .3 Samples

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- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Inform Departmental Representative of proposed source of materials and provide access for sampling at least 2 weeks prior to commencing Work.
  - .3 Submit 20 to 70 kg samples representative of quarry, minimum two (2) weeks prior to beginning Work.
  - .4 Ship samples prepaid to Departmental Representative for approval.

#### 1.7 WASTE

- .1 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.
- .2 Divert unused geotextiles from landfill to plastic recycling facility as approved by Departmental Representative.
- .3 Divert unused metal materials from landfill to metal recycling facility as approved by Departmental Representative.
- .4 Divert unused concrete materials from landfill to local quarry facility as approved by Departmental Representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

#### 1.8 INTERFERENCE TO NAVIGATE

- .1 Plan and execute work, in a manner that will not interfere with fishing operations or access to marine structures by land or water.
- .2 Departmental Representative will not be responsible for loss of time, equipment, material or any other charges related to interference with moored vessels in the harbour or other operations.

#### 1.9 REGULATORY REQUIREMENTS

- .1 Comply with municipal, provincial and national codes and regulations relating to project.

#### 1.10 MEASUREMENT FOR PAYMENT

- .1 There will be no measurement for payment for the addition of the groyne or for any other activity related to it. The price for performing this scope of work to be included in the lump sum portion of the project.
- .2 There will be no additional payment for delays resulting from fishing operations.
- .3 There will be no additional payment for delays caused by vessel traffic.
- .4 There will be no additional payment for downtime.
- .5 There will be no payment for any rock fill core, filter stone or armour stone that is washed out, removed, missing or deteriorated by weather or wave action.
- .6 Contractor is to provide cross sections to the Departmental Representative at 5 metre stations to show that lines and grades have been achieved as shown on the drawings over each type of material.
- .7 Construction and maintenance and removal of haul roads will not be measured for payment.

## PART 2 - PRODUCTS

### 2.1 ROCK MATERIAL

- .1 Hard, angular rock free from cracks, seams and other defects which may impair durability.
- .2 Relative density, 2.65 minimum.
- .3 Absorption, 1.5 to 2.0% maximum as determined by ASTM C127 test procedure.
- .4 Durability, less than 35% abrasion Wear, ASTM C535 test procedure.
- .5 Sulphate Soundness Determination maximum 12% by ASTM C88.

### 2.2 ROCK FILL CORE

- .1 Material for new rock fill core to be blasted rock.
- .2 Stone size shall be well graded between 400 kg to 800 kg.
- .3 No more than 15% of core stone to weigh less than 20 kg.
- .4 Silt content to be less than 3% by mass.

### 2.3 ARMOUR STONE

- .1 Material for armour stone to be blasted rock or field stones.
- .2 Stone sizes to be in the range of 2 tonnes to 4 tonnes, in categories specified, well graded within each category.
- .3 Greatest dimension of each stone not to exceed two (2) times least dimension.

## PART 3 - EXECUTION

### 3.1 GENERAL

- .1 Contractors will not be permitted to work from any existing concrete wharf deck unless it is protected to the satisfaction of the Departmental Representative. Any damage will be the responsibility of the contractor to repair.

### 3.2 PREPARATION

- .1 Haul roads: construct and maintain haul roads.

### 3.3 ROCK FILL CORE

- .1 Place rock fill core to lines, grades and dimensions indicated on the drawings. Contractor should realize the large distance required to place the rock fill core out into the water, supply necessary equipment to complete as shown on drawings.
- .2 Side slopes to be 1.5 horizontal to 1.0 vertical unless otherwise indicated on the drawings.
- .3 Sequence construction operations such that sufficient armour and filter stone is placed to protect the core at all times.
- .4 The contractor is to provide cross sections to the Departmental Representative at 5 metre stations to show that lines and grades have been achieved as shown on the drawings.

### 3.4 ARMOUR STONE

- .1 Place armour stone to lines, grades and dimensions indicated on the drawings. Contractor should realize the large distance required to place the armour stone out into the water, supply necessary equipment to complete as shown on drawings.
- .2 Dumping of armour stone will not be permitted. Each stone will be lifted and individually placed.
- .3 Side slopes to be 1.5 horizontal to 1.0 vertical unless otherwise indicated on the drawings.
- .4 Place armour stone to a total layer thickness as indicated on the drawings.
- .5 Choose stones and place them in such a way that the whole structure will be bonded and consolidated to as great an extent as nature or rock will allow. Rocks should vary in size so they do not create steep slopes when placing to the grade lines as indicated on the drawings.
- .6 Do not transport different categories of material in the same truck load. If rocks of markedly different sizes are present in the same load, Departmental Representative reserves the right to have each rock measured separately and sorted prior to installing in structure.
- .7 Contractor to provide cross sections to the Departmental Representative at 5 metre stations to show that lines and grades have been achieved as shown on the drawings.

### 3.5 SALVAGE MATERIAL

- .1 Contractor to salvage any armour stone and filter stone at the start of the new work area and incorporate into the new work.

### 3.6 ROCK MATERIAL

- .1 Should during the progress of the Work, any WASHED OUT OF WORK rock material be washed out of the Work, or through neglect or carelessness of the Contractor or their employees or from any other cause, be dumped into the water near the Work or anywhere within the harbour or channel so as to interfere in the opinion of the Departmental Representative with actual depths of water and/or impede navigation, it will be removed by the Contractor when ordered to do so by the Departmental Representative. Any material washed out of the Work or displaced beyond the contract limits will be replaced by the Contractor at no cost to Canada.

### 3.7 TOLERANCES

- .1 Note: These tolerances are not to be considered pay limits but are specified to ensure contractor keeps within acceptable lines and grades.
- .2 Completed component layers to be within the following tolerances of lines and grades indicated:
  - .1 Rock fill core +/-100 mm.
  - .2 Armour stone +/-300 mm.

END