

Containment Berm Construction**Newellton Harbour SCH****Shelburne County Nova Scotia****Project No: R.106630.001**

Rubblemound Breakwater

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PART 1 - GENERAL

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| 1.1 | <u>Description</u> | .1 | This section specifies requirements for construction of a containment berm consisting of corestone material, and to dimensions indicated. |
| 1.2 | <u>Reference Standards</u> | .1 | ASTM C127-88(1993) e1 (or latest edition) Specific Gravity and Absorption of Coarse Aggregate |
| | | .2 | AASHTO T85-88 (or latest edition) Specific Gravity and Absorption of Coarse Aggregate |
| 1.3 | <u>Related Work</u> | .1 | Refer to other Specification Sections for related information. |
| 1.4 | <u>Source Sampling</u> | .1 | Inform <i>Departmental Representative</i> of proposed source of materials and provide access for sampling at least 2 weeks prior to commencing work. Forward, prepaid, a sample rock to be used to a testing consultant to be determined by the Departmental Representative for approval. Sample to be between 5 and 10 kg, representative of quarry and submitted minimum two [2] weeks prior to starting work. |
| 1.4 | <u>Existing Conditions and Haul Road</u> | .1 | <p>It is important that Contractors intending to bid on work visit the site and ascertain what preparatory work will be required for the following:</p> <ul style="list-style-type: none">.1 Condition of existing structures over which material must be hauled..2 Preparation, maintenance and removal of temporary roadways to and on the breakwater for the use of trucks, cranes, excavators, draglines, etc..3 Preparation, maintenance and removal of all temporary causeways and/or fills as required for trucks, loaders, excavators, cranes, draglines, etc. |
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- .4 The land surrounding the site is the property of Her Majesty the Queen in the Right of Canada as well as privately owned and the Contractor will exercise extreme care to prevent damage to the land.
 - .5 Contractor shall be solely responsible for construction and maintenance of haul roads which shall be considered incidental to the work. Contractor shall avoid disturbing the brook and brook embankment with any temporary haul roads and/or overpass structures. All temporary roads shall be removed at the completion of the project and the land restored to its original condition.

1.5 Measurement for Payment

- .1 Corestone 0.1-100 kilograms will be measured in accordance with **Section 01 29 00.**
 - .2 Mobilization and demobilization will be considered incidental to work.
 - .3 Transportation of material to the site and any excavation and preparation of the foundation base will not be measured for payment but will be considered incidental to the work.
 - .4 No payment will be made for material used to construct and/or maintain haul roads, causeways, fills or working roadways on top of filter and armour layers.
 - .5 Clearing, grubbing and stripping of quarries to be incidental to the work.
 - .6 Making good to the satisfaction of the *Departmental Representative*, any damage to the existing structures will be considered incidental to the work.
 - .7 Do not mix different categories of material in the same truckload. Only one class of material will be weighed for payment at any given time. If rocks of markedly different sizes are present, *Departmental Representative* reserves the right to weigh
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such rocks separately for payment. There will be no additional payment for weighing individual stone units which do not meet the category of material listed for the truckload.

PART 2 - PRODUCTS2.1 Materials

.1 Rock Material

.1 All rock materials to be tested and approved by the *Departmental Representative* prior to installation in the work.

.2 All rock materials to be free from cracks, seams and other defects which may impair durability.

.3 **Corestone to meet the following requirements:**

.1 Specific Gravity minimum 2.50.

.4 Actual Specific Gravity and absorption will be determined by testing selected samples of material being incorporated into the works. Materials with a specific gravity less than 2.50 or an absorption rate in excess of 2% will be rejected.

.2 Corestone:

.1 To be pit run or quarried material rough and angular in shape requiring approval by the *Departmental Representative* prior to being used in the work.

.2 Material not to contain organic matter, frozen lumps, sod, roots, logs, stumps or any other objectionable matter.

.3 Corestone gradation shall be within the following limits:

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METRIC SIZE	% PASSING BY MASS
400 mm	100
200 mm	44 - 75
100 mm	25 - 50
50 mm	7 - 14

- .4 Material to be screened, if fine content is in greater than 3% by mass. Fines are defined as particles of less than 2 mm in diameter.
- .5 In the absence of a core material sieve analysis, the department representative will make a visual determination of the fine content.
- .6 Material to be blended so that a homogeneous mix of smaller and larger sizes within the approved range is attained.

PART 3 - EXECUTION3.1 Toe Protection

- .1 Provide toe protection by placing armourstone as indicated on drawings.

3.2 Corestone

- .1 Place core material to lines, grades and dimensions indicated on the plan.
- .2 Place material on clean harbour bottom to specified grades, and after the removal of kelp, debris, snow, ice, etc.
- .3 Execute work in such a manner to protect core material from storm wave action or tidal erosion damage. Replacement of material lost due to storm or erosion damage will be the responsibility of the Contractor.

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| | .4 | Corestone material may be placed by end dumping. However, Contractor shall note that due to the side slopes of the containment berm that mechanical placing of the core will be necessary to produce the slopes and shapes required. |
| | .6 | Grades, lines, dimensions, slope and quantity of core, to be reviewed and approved by the <i>Departmental Representative</i> . |
| 3.3 | | Existing Corestone Removal, Salvage & <u>Installation</u> |
| | .1 | Remove the existing corestone berm material, as indicated on the Contract drawings. Stockpile and reinstall in new work where shown. |
| | .2 | Salvaged armour units are to be positioned along the crest of the new corestone crest as directed by the <i>Departmental Representative</i> . |
| 3.4 | | <u>Tolerances</u> |
| | .1 | Completed component layers to be within following tolerances of line and grades indicated:

.1 Core: <u>+100 mm</u> |
| 3.5 | | <u>Cross Sections</u> |
| | .1 | During construction the Contractor shall submit cross-section sheets to the <i>Departmental Representative</i> showing the following:

.1 Cross-sections at stations every 10 metres along the containment berm centerline.

.2 The design cross-section showing corestone section. |
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- .3 Superimposed in dashed lines as-constructed elevations on top of corestone at:
- Centreline
 - Top of slopes
 - Toe of slopes
- .4 Cross-sections to be referenced to the plan view of the breakwater with stations shown for reference.
- .5 Cross-sections to be submitted each Monday for the work completed the previous week until the work is completed.
- .6 After construction is complete and before the Final Certificate of Completion will be paid, Contractor to submit detailed as-built survey plan to *Departmental Representative* to show that contract grades and elevations have been achieved. Provide an electronic file and two sets of prints. Divers will be required to assist with survey for elevations required below chart datum. The following minimum requirements to be met:
- .1 Elevations every 10 meters along the centreline of the breakwater and every 6 meters perpendicular to the centreline, on the end cone, and top and toe of slopes.

3.6 Protection

- .1 Take into account anticipated weather conditions and degree of exposure of site and tidal conditions in setting requirements for protection.
- .2 Schedule and carry out construction so that each phase of work is not left exposed longer than necessary.
- .3 Progress of placement of core and stone to be recorded daily by *Departmental*
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Representative's inspector with Contractor's concurrence. Replacement of material lost due to storm wave action or tidal erosion damage to be based on daily journal of work progress and to be considered incidental to the work.

3.7 Roadways

- .1 Construction, maintenance and removal of working roadway layers to be the responsibility of the Contractor and is to be considered incidental to the work.
- .2 Construction, maintenance and removal of causeways, fills, etc. as required, to be the responsibility of the Contractor and is to be considered incidental to the work.

**3.8 Temporary
Navigational
Buoys**

- .1 The Contractor is to maintain temporary buoy's to mark the position of the outer end of the breakwater toe as construction proceeds. All buoy's are to meet the requirements of Canadian Coast Guard Standard TP968 and be equipped with radar reflectors.

http://www.ccg-gcc.gc.ca/eng/CCG/ATN_Aids_To_Navigation_System

- .2 The Contractor shall coordinate the buoy installation with the local harbour authority.
- .3 The Contractor is responsible for all costs associated with the supply, installation and removal of all temporary navigational buoy's.

3.9 Final Cleaning

- .1 In preparation of final certificate of completion of the project perform final cleaning.
- .2 Maintain the work, at least on a daily basis, free from accumulations of waste material and debris.
- .3 Remove waste materials, and debris from site.