

PART 1 - GENERAL

- 1.1 SUMMARY .1 Section Includes:
- .1 Materials, application, and installation of crushed rock mattresses to provide uniform bearing surface for support of timber cribs.
- 1.2 RELATED REQUIREMENTS .1 Related Sections:
- .1 Section 01 35 29 - Health and Safety Requirements.
 - .2 Section 01 35 43 - Environmental Procedures.
 - .3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .4 Section 03 30 00 - Cast-in-Place Concrete.
 - .5 Section 31 23 33.01 - Excavating, Trenching and Backfilling.
 - .6 Section 31 53 13 - Timber Cribwork.
- .2 Measurement Procedures:
- .1 Measure crushed rock mattress in cubic metres of crushed rock placed as indicated.
- 1.3 MEASUREMENT FOR PAYMENT .1 Rock Mattress (85 - 90%) (75 mm - 200 mm): as specified including base layer, bearing layer, the cost of all plant, labour, equipment and materials required to complete the work, will be measured in cubic metres (m³) of material placed in work within the limits indicated. The volume of material will be determined in place from measurements taken prior to and at completion of the work.
- .2 Scour Protection Rock (150 mm - 300 mm): Supply, placement, and compaction of rock fill will be measured by the cubic metre. The volume of material will be determined in place from measurements taken prior to and at completion of the work. Include the cost of all plant, labour, equipment, and materials required to complete the work as specified.
- .3 Excavation of material from area where rock mattress is to be placed will be measured in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

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- 1.3 MEASUREMENT FOR PAYMENT (Cont'd)
- .4 Rock fill required to compensate for excessive removal of suitable material under crib area to bring area to grade elevation will not be measured.
 - .5 Rock fill placed in area under crib where unsuitable material is removed will be measured.
 - .6 Provide a sounding survey to DFO following placement of rock mattress. No separate payment will be made for the sounding survey.
- 1.4 REFERENCES
- .1 American Society for Testing and Materials International, (ASTM).
 - .1 ASTM C 117-03, Standard Test Method for Material Finer Than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
 - .2 ASTM C 127-01, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.
 - .3 ASTM C 136-01, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- 1.5 QUALITY ASSURANCE
- .1 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 28 - Health and Safety Requirements.
- 1.6 DELIVERY, STORAGE AND HANDLING
- .1 Environmental Protection:
 - .1 Provide erosion and sediment control measure to prevent migration or suspended sediments in downstream areas and erosion of on-site soils/sediments during execution of Work in accordance with Section 01 35 43 - Environmental Procedures.
 - .2 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 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
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- 1.6 DELIVERY, STORAGE AND HANDLING
(Cont'd)
- .2 (Cont'd)
- .3 Divert unused metal materials from landfill to metal recycling facility as reviewed by Departmental Representative.
- .4 Fold up metal and plastic banding, flatten and place in designated area for recycling.
- .5 Divert left over aggregate material from landfill to a local quarry recycling facility as reviewed by Departmental Representative.
- .6 Divert left over geotextiles from landfill to local plastic recycling facility as reviewed by Departmental Representative.

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Mattress material to following requirements:
- .1 Crushed quarry stone consisting of hard durable particles free from clay lumps, frozen material and other deleterious materials, and free from splits, seams or defects likely to impair its soundness during handling or under action of water.
- .2 Relative density (formally specific gravity): to ASTM C 127, not less than 2.65.
- .3 Rock size to be 85% - 90% 75 mm - 200 mm and with rock no greater than 250 mm dia.
- .4 Top 300 mm layer of mattress: graded with maximum particle size of 75 mm.
2. Rock scour protection:
- .5 Quarried rock: uniformly graded.
- .6 Quarried rock: to be free from splits, seams or defects likely to impair its soundness during handling or by action of water and to approval of Departmental Representative.
- .7 Rock, cubical and angular in shape with ratio of maximum to minimum dimensions of less than:
- .1 Maximum rock size: 350 mm.
- .2 Minimum rock size: 100 mm.

PART 3 - EXECUTION

3.1 PREPARATION

- .1 Excavate area where mattress is to be placed to elevation as indicated. If directed by Departmental Representative, depending on site conditions, excavated sea bottom material must be stockpiled on site for a minimum of 24 hours to drain before transporting to designated waste disposal site using water tight trucks.
- .2 Confirm with Departmental Representative that excavated area is adequate for placement of rock mattress.
- .3 Sound area in presence of Departmental Representative before placing mattress material, and record elevation of bottom on which mattress to be placed.

3.2 PLACEMENT

- .1 Ensure that no frozen material is used in placing.
- .2 Do not place rock material until bottom area has been reviewed by Departmental Representative.
- .3 Place mattress materials to dimensions as indicated.
- .4 Prevent segregation in placing of material sizes.
- .5 Do not place material during weather judged unsuitable by Departmental Representative.
- .6 Place material immediately prior to planned placement of timber cribs.
- .7 Level top surface of mattress to specified grade.
 - .1 Use sweep beam suspended from barge as screed to level surface of each mattress layer.
 - .2 Other methods of levelling may be employed subject to review of Departmental Representative.
- .8 In areas where the depth of the rock mattress to be placed is less than the 600 mm required for the full thickness of the bearing layer, only place the required thickness of bearing layer to reach the required crib seat elevation.

3.3 TOLERANCES

- .1 Surface of mattress to be parallel with elevation as indicated with mean elevation of surface within 50 mm of elevations as indicated.
- .2 Establish mean elevation from spot elevations taken at 1.2 m intervals.
 - .1 Do not allow spot elevation to differ more than 50 mm from mean.

3.4 SCOUR PROTECTION

- .1 Place scour protection to details as indicated as soon as practicable after placement of cribs.
- .2 Do not place rock material until bottom area has been reviewed by Departmental Representative.
- .3 Place scour protection materials to dimensions as indicated.
- .4 Prevent segregation in placing of material sizes.
- .5 Do not place material during weather judged unsuitable by Departmental Representative.

3.5 ROCK MATERIAL WASHED OUT OF WORK

- .1 Should during the progress of the work, any rock material be washed out of the work, or through neglect of carelessness of the Contractor or workmen 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.

3.6 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.

3.6 CLEANING
(Cont'd)

- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.