

PART 1 - GENERAL

1.1 General
Description

- .1 This section specifies requirements for excavating Class "B" underwater materials at Chockpish, Kent Co., NB and for transporting and disposing of excavated materials at the ocean disposal site.
- .2 The dredge depth is 1.80 metres below Chart Datum, or rock if encountered first. The disposal site is approximately 300 from the dredge site, located on a shallow bar, (0.0m to -1.0m deep).
- .3 The approximate volume above grade based on the pre-dredge survey September 2014 is 10 000 cubic metres place measure. This is an estimate only for the purposes of planning for environmental permits. This Contract does NOT pay by volume.

1.2 Related
Sections

- .1 Section 01 35 43 - Environmental Procedures
Section 01 35 29 - Health and Safety

1.3 Measurement
Procedures

- .1 Only material excavated above grade plane and within dredge limits indicated or specified will be measured.
- .2 **Mobilization and Demobilization:** Mobilization and demobilization of the dredge(s), support vessels and pipeline(s) to be paid as a fixed lump sum payment covering all items of work. Half of the sum allocated for mobilization and demobilization, shall be payable upon commencement of dredging and the remainder shall be payable after project completion.
 - .1 Moving off the channel to accommodate fishing vessels is incidental to the work, and will not be measured.
 - .2 Any remediation to prevent the possible transport of alien species from port to port will be included in the demobilization costs. See Environmental Procedures Section 01 35 43.

1.3 Measurement
Procedures
(Cont'd)

- .3 **Square metres (SQM):** Dredging will be measured by the square metre over the area of work completed to the specified cut. Side slopes are not measured for payment, but in the calculation of the area to dredge it must be considered that the side slope will either be shaped or will fall to about two horizontal to one vertical. The Square metre area will be calculated by using AREA command of AutoCAD of a polygon within the dredge limits forming the contour line of the dredge depth, minus any areas within the polygon not to grade. The dredge depth is -1.8 m,. In areas where rock is proved, the dredge depth is to rock elevation.
- .4 Payment will include disposal of dredge material to the ocean disposal site.
- .5 Dredging equipment used for removal of obstructions will be paid for at rate negotiated in advance and authorized in writing by Engineer.
- .6 All operations in connection with field positioning of dredging equipment will not be measured separately for payment.
- .7 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
- .8 There will be no additional payment for delays incurred during fishing seasons, weather, during periods when no dredging is permitted.
- .9 There will be no additional payment for downtime and for delays caused by vessel traffic.
- .10 Removal of infilling material will not be measured for payment.
- .11 There will be no additional payment for any accumulation of sea weeds and/or kelp which may hamper the dredging operation.
- .12 There will be no additional payment for mooring facilities fees for dredge plant.

1.4 Definitions

- .1 Dredging: excavating, transporting and disposing of underwater materials.
- .2 Class A material: solid rock requiring drilling and blasting to loosen, and boulders or rock fragments of individual volumes 1.5 m³ or more.
- .3 Class B material: loose or shale rock, silt, sand, quick sand, mud, shingle, gravel, clay, sand, gumbo, boulders, hardpan and debris of individual volumes less than 1.5 m³.
- .4 Obstructions: material other than class A, having individual volumes of 1.5 m³ or more.
- .5 SQM, Area, in square metres, projected horizontal.
- .6 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials.
- .7 Grade: plane above which material is to be dredged.
- .8 Estimated quantity:
 - .1 Volume of material calculated above grade within dredge limits and within specified side slopes unless otherwise specified.
 - .2 Areas in square metres of material calculated horizontally above grade and within dredge limits, not including side slopes.
- .9 Side slope: inclined surface or plane from grade at side limit of dredging area to intersect original ground line outside of side limit and to be expressed as ratio of horizontal to vertical.
- .10 Chart Datum: permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (L.N.T.).
- .11 Coordinates:
 - .1 U.T.M.: universal transverse mercator projection..
- .12 Minimum Mode: mode of operation of hydrographic survey equipment where minimum

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| 1.4 Definitions
(Cont'd) | .12 | Minimum Mode: (Cont'd)
sounding over length of travel between position updates will be retained in memory. Soundings taken in this mode may be shallower than actual bottom elevations due to variations in water depths due to wave action. |
| | .13 | Matrix Block: each dredge area is presented as number of 1.2 x 3.0 m long blocks. Dependent on position of sounding, block may have 0 to 4 soundings contained within it. |
| | .14 | Least of Minimum Plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted. |
| | .15 | Instantaneous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory. |
| | .16 | Average of Instantaneous Plan: hydrographic survey plan in which average sounding in appropriate grouping of matrix blocks is plotted. |
| | .17 | Lowest Normal Tide (L.N.T.): plane so low that tide will seldom fall below it. |
| | .18 | Cleared Area: area of dredging accepted as complying with plans and specifications. |
| 1.5 Regulatory Requirements | .1 | Mark floating equipment with lights in accordance with Regulations for the Prevention of Collisions. |
| 1.6 Waste Management and Disposal | .1 | Metals, wood and recyclable materials removed during the dredging activities must be diverted appropriate recycling facilities. |
| 1.7 Interference to Navigation and Fishing | .1 | Be familiar with vessel movements and fishery activities in area affected by dredging operations. Plan and execute Work in manner that will not interfere with fishing operations, marina operations, construction |

1.7 Interference to .1
Navigation and
Fishing
(Cont'd)

- (Cont'd)
- .1 activities at wharf sites, or access to wharves by land or water.
- .2 Engineer will not be responsible for loss of time, equipment, material or any other cost related to interference with moored vessels in harbour or due to other Contractor's operations.
- .3 Keep District Manager, Canadian Coast Guard, Fisheries and Oceans, informed of dredging operations in order that necessary Notices to Mariners will be issued.
- .4 Become familiar with fishery activity. Clearly mark dredging area(s), disposal area(s) and routes to and from dredging and disposal area, during periods when fishing gear is set in areas adjacent to dredging operations with "Cautionary Buoys", in accordance with Coast Guard Standard TP968-1984. All Buoys must be colored cautionary yellow - CGSB #505-108. The Contractor is responsible for all costs associated with the supply, installation and removal of all necessary temporary aids.
- .5 Execute the work to ensure damage does not occur to fishing gear and interference to fishing operations is minimized, by conducting operations within the areas so marked.
- .6 Be responsible for damage to fishing gear from dredging activities outside marked areas and, if damage occurs, assume responsibility for replacement or repair costs and cost of lost fishing opportunity.

1.8 Datum, Water
Gauges and Targets

- .1 Elevations used in this specification and contract drawings are in metres referred to Chart Datum.
- .2 Areas to be dredged are to be referenced to vertical bench marks for each location of dredging as indicated.

- 1.9 Floating Plant .1 Dredges or other floating plants to be employed on this Work, to be of Canadian registry, make or manufacture, or, must receive certificate of qualification from Industry Canada, Marine Directorate. Submit this certificate with equipment information.
- .2 Requests for certification in format of attached questionnaire to be directed to Senior Director, Marine, Energy and Marine Branch, Marine Directorate, Industry Canada, 235 Queen Street, Ottawa, Ontario, K1A 0H5, and to be received there not less than 14 days prior to tender closing.
- .3 The Contractor shall determine the equipment required to dredge the material specified. The material to be dredged is as described in Paragraph 1.1 of this Section.
- 1.10 Inspection of Site .1 Contractor to visit site of Work and become thoroughly familiar with extent and nature of Work and conditions affecting Work before tendering.
- 1.11 Site Information .1 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.
- 1.12 Survey Requirements .1 The Contractor shall provide, at his expense, a survey vessel for equipment and crew to set up and maintain control for the location of dredge limits and to sound areas, immediately after dredging, to verify that grade depth has been attained.
- 1.13 Surveys and Acceptance of Work .1 No area will be dredged prior to Engineer's and Contractor's mutual acceptance of pre-dredge survey for that area.
- .2 Post-dredge survey will be undertaken by Engineer upon completion of dredging. Survey will confirm if dredging is completed as specified and whether area can be considered

1.13 Surveys and
Acceptance of Work
(Cont'd)

- .2 (Cont'd)
cleared area. Survey will be by electronic sweep equipment. Survey plan at 1:500 plotting least of minimum depths obtained in this survey will identify areas requiring reworking to obtain following elevations using least of minimum mode
- .3 Contractor to redredge as necessary to remove all material within dredge areas which is found to be above grade.
- .4 One additional survey will be undertaken at Engineer's cost, for those areas not meeting acceptance criteria for dredging. All additional surveys required to clear areas will be undertaken by the Engineer at Contractor's cost.
- .5 After dredging soundings will be taken by the Engineer upon completion of the Contractor's dredging and no dredge area shall be determined complete until after it has been cleared to the specified grade depth or until so directed by the Engineer.

PART 2 - PRODUCTS

2.1 Dredging
Equipment

- .1 Contractor to determine required equipment necessary to dredge material specified and to dispose of dredged material at locations indicated.

PART 3 - EXECUTION

3.1 Layout of
Work

- .1 The contractor will layout the work based on sketches provided by the Engineer, taking into account the dynamics of the sand bars which may change from what is depicted on surveys or a sketch. Similarly the disposal site may change location. (to be located on top of the offshore sand bar)
- .2 Install pins at the corners of the dredging area to be dredged. When dredging under square

3.1 Layout of
Work
(Cont'd)

- .2 (Cont'd)
metre measurement, install pins where average
cut changes as per measurement of payment.
- .3 Positions of pins may be verified in the
field by PWGSC.

3.2 General

- .1 Mark floating equipment with lights in
accordance with International Rules of Road
and maintain radio watch on board.
- .2 Place and maintain buoys, pins, ranges,
markers and lights required to define work and
disposal areas.
- .3 Lay out Work from bench marks ranges and base
lines established by Engineer. Be responsible
for accuracy of Work relative to established
bench marks ranges and baseline. Provide and
maintain electronic position fixing and
distance measuring equipment, laser transits
and such other equipment as normally required
for accurate dredging control.
- .4 Establish and maintain tide boards in order
that proper depth of dredging can be
determined. Locate tide boards so as to be
clearly visible.
- .5 Dredge side slopes to two horizontal to one
vertical.
- .6 Remove materials above specified grade
depths, within limits indicated. Material
removed from below grade depth or outside
specified area or side slope is not part of
Work.
- .7 Remove shoaling which occurs as result of
Work at no expense to Engineer.
- .8 Remove infilling in dredge areas which occurs
prior to acceptance by Engineer.
- .9 Immediately notify Engineer upon encountering
object which might be classified as
obstruction. By-pass object after clearly
marking its location and continue Work.

3.3 Disposal of
Dredged Material

- .1 Dispose of dredged material by depositing in disposal areas in manner approved by Engineer.
- .2 Define area of disposal site with marker buoys and maintain minimum depth of water of 0.0m below Chart Datum at disposal site.
- .3 Disposal of dredged material will be carried out in accordance with the terms and conditions set down in permits issued by Environment Canada pursuant to the Canadian Environmental Protection Act and Regulations there under.
- .4 The disposal site may shift from actual co-ordinates and may be related to physical features found at the site. Disposal sites are commonly located along the offshore sand bars, and these are to be located by soundings and the pipeline repositioned if required. Record GPS position of the pipeline outfall and submit to Engineer.

3.4 Re-dredging

- .1 Re-dredge unsatisfactory Work and verify depths with additional sounding to approval of Engineer.

3.5 Co-operation
and Assistance to
Engineer

- .1 Co-operate with Engineer on inspection of Work and provide assistance requested.
- .2 On request of Engineer, furnish use of such boats, equipment, labour and materials forming ordinary and usual part of dredging plant as may be reasonably necessary to inspect and supervise work.