

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 35 43 - Environmental Procedures.
- .4 Section 01 78 00 - Closeout Submittals.

1.2 DESCRIPTION

- .1 This section specifies requirements for dredging Class B materials as noted on the drawings.
- .2 Supply equipment with sufficient reach capabilities and choose methodology such that dredge depths can be achieved as shown on the drawings. No dredging will be permitted atop the existing infrastructure. In addition, no temporary dredge roads will be permitted in the harbour, unless approved by the Departmental representative.

1.3 DEFINITIONS

- .1 Dredging: Excavating, transporting and disposing of underwater materials.
- .2 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 4.0 m³.
- .3 Obstructions: material other than Class A, having individual volumes of 4.0 m³ or more.
- .4 CMPM: cubic metres place measurement. SQM: area in square metres projected horizontal. CMSM: cubic meters scow measurement.
- .5 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials.
- .6 Grade: plane above which material is to be dredged.
- .7 Estimated quantity:

1.3 DEFINITIONS
(Cont'd)

- .7 (Cont'd)
 - .1 Volume of material calculated to be above grade and within specified side slopes unless otherwise specified.
 - .2 Areas in square metres of material calculated horizontally to exist above grade and within dredge limits, unless otherwise specified.
- .8 Side slope: inclined surface or plane from subgrade 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.
- .9 Chart Datum: permanently established plane from which soundings or tide heights are referenced, usually Lowest Normal Tide (LNT).
- .10 Coordinates: Contractor to request GPS co-ordinates from Departmental Representative when required.
 - .1 U.T.M.: universal transverse mercator projection.
 - .2 M.T.M.: modified transverse mercator projection.
 - .3 U.T.M. or M.T.M. Coordinates: plane rectangular coordinates used in grid system in which grid network is applied to U.T.M. or M.T.M. projection. Horizontal control information as indicated.
- .11 Minimum Mode: mode of operation of hydrographic survey equipment where minimum 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.
- .12 Matrix Block: each dredge area is presented as number of 3.0 x 3.0 m long blocks. Dependent on position of sounding, block may have 1 to 6 soundings contained within it.
- .13 Least of Minimum Plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.
- .14 Instantaneous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.

1.3 DEFINITIONS
(Cont'd)

- .15 Average of Instantaneous Plan: hydrographic survey plan in which average sounding in appropriate grouping of matrix blocks is plotted.
- .16 Lowest Normal Tide (LNT): plane so low that tide will seldom fall below it.
- .17 Cleared Area: area of dredging accepted as achieving the required grade and verified by a PWGSC survey.

1.4 REGULATORY REQUIREMENTS

- .1 Comply with municipal, provincial and national codes and regulations relating to project.
- .2 Mark floating equipment with lights in accordance with the provisions of the Canada Shipping Act Collision Regulations and Notices to Mariners.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Contaminated sediments must be disposed of in confined disposal facility capped disposal site.
- .3 Metals, wood and recyclable materials removed during the dredging activities must be diverted appropriate recycling facilities.

1.6 SCHEDULING

- .1 Submit to Departmental Representative, within 2 weeks after acceptance of bid, schedule of work including time periods during which each operation involved in work will be undertaken. At time of submission of schedule, meet with Departmental Representative to review schedule.
- .2 Adhere to schedule and take immediate action to correct any slippage by effectively altering existing dredging operations or mobilizing other equipment. Notify Departmental Representative of corrective action to be taken.

1.7 WATER QUALITY

- .1 Conduct all work activities in such a manner to limit turbidity and reduce sediment suspension in the water to an absolute minimum at all times.

1.7 WATER QUALITY
(Cont'd)

- .1 (Cont'd)
- .1 Maintain appropriate production speed and momentum of the excavation equipment. Make adjustments as required and as approved by Departmental Representative.
 - .2 Strategically position excavator equipment and haul vehicles to avoid over the water swings of excavated material whenever possible.
 - .3 Avoid bottom stockpiling, dragging or side casting material during excavation. If these activities are being proposed, the Contractor must:
 - .1 Employ suitable operational and engineering controls e.g., silt curtain), as approved by the Departmental Representative, around the excavation work area, or
 - .4 Where work may affect the water quality adjacent to water intake lines used by lobster holding facilities, fish processing facilities and other harbour users, schedule work in cooperation with the Harbour Authority as directed by Departmental Representative to minimize interference and impact to harbour users.
 - .5 Do not wash down equipment within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
 - .6 Where required, install effective sediment control measures before starting work to prevent the entry or re-suspension of sediment in the water body. Inspect sediment control measures regularly to ensure they are functioning properly, and make all necessary repairs if any damage occurs. Upon completion of use, remove these control measures in a way that prevents the escape of settled sediment.

1.8 OPERATION OF
MACHINERY

- .1 Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
- .2 Whenever possible, operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the water body.
- .3 Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.

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- 1.9 LOCATION .1 Work comprises dredging of areas as indicated.
- 1.10 INTERFERENCE TO NAVIGATION .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, marine operations and construction activities at wharf sites, or access to wharves by land or water.
- .2 Departmental Representative 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 the Marine Communications and Traffic Services' Centre, Fisheries and Oceans Canada, informed of dredging operations in order that necessary Notices to Mariners will be issued.
- 1.11 DATUM, WATER GAUGES AND TARGETS .1 Elevations used in this specification and contract drawings are in metres referred to UTM datum.
- .2 Areas to be dredged are to be referenced to vertical bench marks for each location of dredging as indicated.
- 1.12 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, Aerospace, Defence and Marine Branch and this certificate to accompany bid submission.
- .2 Requests for certification in format of form PWGSC-TPSGC 2843 (06/2007) attached to the Bid and Acceptance Form to be directed to Mr. Emile Rochon, Aerospace, Defence and Marine Branch, Industry Canada, CD Howe Building - Room 733C, 235 Queen Street, Ottawa, Ontario, K1A 0H5, and to be received there not less than 14 days prior to bid closing.
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1.13 TEMPORARY
CAUSEWAYS AND
ACCESS ROADS

- .1 It will be the Contractor's responsibility to gain access to the work area. The construction and removal of temporary causeways and access roads will be at the Contractor's expense and will be removed immediately after clearance of the excavated area.
- .2 It will be the Contractor's responsibility to identify a location for the disposal of material imported by the Contractor for the construction of temporary causeways and access roads.
- .3 All material used for construction of temporary causeways and access roads must be clean and free from excessive fines, organics, debris and non-toxic (i.e., free of fuel, oil, grease and/or any other contaminants), non-ore bearing and from a provincially approved non-water source.
- .4 Heavy machinery and equipment must be operated from a dry platform only. Temporary causeways and access roads shall be constructed at an elevation such that machinery and equipment is operating completely out of the water at all stages of the tide. If tidal work is being carried out, machinery and equipment shall be relocated back to a suitable elevation to prevent operating in submerged waters.
- .5 Maintain temporary buoys to mark the position of the access road including the outer toe as construction proceeds. All buoys are to meet requirements of the applicable Canadian Coast Guard standard and be equipped with radar reflectors.

1.14 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 bidding.

1.15 SITE
INFORMATION

- .1 Results of prior soundings are included in the drawing set and are available for inspection at: Public Works and Government Services Canada, P.O. Box 4600, 6th floor The John Cabot Building, 10 Barbers Hill, St. John's, NL, A1C 5T2.

1.15 SITE
INFORMATION
(Cont'd)

- .2 Results of prior soundings are made available for bidding purposes only. It should be noted that this information may differ from site condition. Take this into consideration when submitting bid.
- .3 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

1.16 SURVEY
REQUIREMENTS

- .1 Provide, at own expense, survey vessel, equipment and crew to set up and maintain control for location of dredge limits and to sound areas immediately after dredging to verify that grade depth has been attained. Areas are to be sounded to provide sounding printout display of at least 3.0 x 3.0 m UTM grid to approval of Departmental Representative.

1.17 SURVEYS AND
ACCEPTANCE OF WORK

- .1 As soon as practical after acceptance of bid, Departmental Representative will complete pre-dredge survey of all dredge area locations Contractor has 7 days to accept sounding survey in contract. If any differences are found, Departmental Representative will complete new pre-dredge survey of all dredge area locations within 7 days of the request. Survey will be by electronic survey equipment sounding in instantaneous mode. Survey plan at 1:250 scale plotting average of instantaneous depths obtained in this survey will define actual pre-dredge seabed areas.
- .2 No area will be dredged prior to Departmental Representative and Contractor's mutual acceptance of pre-dredge survey for that area.
- .3 Post-dredge survey will be undertaken by Departmental Representative upon completion of dredging. Survey will confirm if dredging is completed as specified and whether area can be considered cleared area. Survey will be by electronic sweep equipment. Survey plan at 1:250 plotting least of minimum depths obtained in this survey will identify areas requiring reworking to obtain following elevations using least of minimum mode.

1.17 SURVEYS AND
ACCEPTANCE OF WORK
(Cont'd)

- .4 Contractor to redredge as necessary to remove all material within dredge areas which is found to be above grade.
- .5 One additional survey will be undertaken at Departmental Representative's cost, for those areas not meeting acceptance criteria for dredging. All additional surveys required to clear areas will be undertaken by the Departmental Representative at Contractor's cost.

1.18 MEASUREMENT
FOR PAYMENT

- .1 Dredging (Class B): will be measured in cubic metres, determined in-place measurement from existing seabed elevation established from the current sounding survey down to grade depth elevation. Quantities will be determined by a sounding survey performed by the PWGSC Survey crew using electronic sounding and DPGS positioning equipment. PWGSC will perform only one survey to quantify the amount of Class "B" material which has been removed. If in the opinion of the Departmental Representative all Class "B" material has not been removed, the Contractor will re-dredge. PWGSC will perform a second survey to quantify the amount of Class "B" material, and the second survey will be at the Contractor's expense. The Contractor will formally request at least seven (7) days in advance that all Class "B" material has been removed and the site is ready for the PWGSC survey crew.
- .2 The dredge area is defined by the grade plane contour line and the side slopes as shown on the drawings and in the specifications. Only material excavated above grade plane and within side slopes indicated or specified will be measured.
- .3 Obstructions.
 - .1 Removal of obstructions, authorized by Departmental Representative will not be measured separately for payment and will be included in unit price for dredging.
- .4 Remove existing debris along the edge of the existing wharf from demolition of existing wharf. These items will not be measured separately for payment and will be included in unit price for dredging.

1.18 MEASUREMENT
FOR PAYMENT
(Cont'd)

- .5 All operations in connection with field positioning of dredging equipment will not be measured separately for payment.
- .6 No separate payment will be made for Contractor's survey vessel, equipment and crew or diving services.
- .7 Payment will include disposal of dredge material, using water tight boxes, at locations specified or as directed by the Departmental Representative.
- .8 Payment will include disposal of dredge material, using water tight boxes, at locations specified or as directed by the Departmental Representative. The Contractor is to note that any rock dredged from the site may, at the discretion of the Departmental Representative, be re-used to shape the uplands area at the approach. All excess material is to be removed from site.
- .9 There will be no additional payment for delays and/or downtime for vessel traffic, fishery operations, marine operations, during periods when no dredging is permitted. Contractor should contact the Harbour Authority to determine schedules of operations.
- .10 There will be no additional payment for downtime and for delays caused by vessel traffic.
- .11 Removal of infilling material will not be measured for payment.
- .12 No separate payment will be made for sweeping.
- .13 The contractor will be responsible for acquiring permits to operate his equipment on or near private structures and wharves on government wharves. There will be no additional payment for this item.
- .14 The contractor to dispose of all unsuitable material at the approved landfill as per Regulatory including transportation, tipping fees, and whatever work required to bury old creosote crib timber at approved locations.

1.18 MEASUREMENT
FOR PAYMENT
(Cont'd)

- .15 "Dredged/excavated materials from the project are to be disposed of at an approved provincial landfill only, pending prior approval from the site owner/operator. Disposal of dredged material must be done so in accordance with applicable federal/provincial legislation. Sediments are not permitted to be reused or disposed of at any other location other than a provincial landfill.

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 specified indicated.

PART 3 - EXECUTION

3.1 GENERAL

- .1 Mark floating equipment with lights in accordance with the provisions of the Canada Shipping Act Collision Regulations and maintain radio watch on board.
- .2 Place and maintain buoys, markers and lights required to define work and disposal areas.
- .3 Lay out Work from control points and baselines established by Departmental Representative. Be responsible for accuracy of Work relative to established bench marks. 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 Establish and maintain on-land targets for location and definition of designated dredge area limits. Targets to be suitable for control of dredging operations and locating soundings. Remove targets on completion of Work.
- .6 Dredge area to grade depth of EL -2.0 m below LNT for Class B dredging as indicated on drawings.

3.1 GENERAL
(Cont'd)

- .7 Dredge side slopes to 1.5 horizontal to one vertical.
- .8 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.
- .9 Remove shoaling which occurs as a result of work at no expense to Departmental Representative.
- .10 Remove material cast-over on surrounding area and dispose of it as dredged material. Do not cast-over material unless authorized by Departmental Representative.
- .11 Remove infilling in dredge areas which occurs prior to acceptance of Departmental Representative.
- .12 Immediately notify Departmental Representative upon encountering an object which might be classified as an obstruction. By-pass object after clearly marking its location and continue work.

3.2 DISPOSAL OF
DREDGED MATERIAL

- .1 Dispose of dredged material by depositing in approved disposal areas in manner approved by Departmental Representative. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

3.3 DREDGING IN
VICINITY OF
STRUCTURES

- .1 Do not dredge material from areas lying within 2 m of existing structure unless authorized by Departmental Representative.

3.4 SWEEPING

- .1 Sweep dredged areas on completion of dredging to confirm that grade depth has been achieved.
- .2 Sweeping equipment to consist of heavy steel beam suspended from scow at required grade depth or other approved method. Beam to be capable of adjustment and calibration and approved by Departmental Representative.

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| <u>3.4 SWEEPING</u>
(Cont'd) | .3 | If, as result of incomplete Work, additional verification of depths by sounding or sweeping becomes necessary, additional costs involved shall be paid by Contractor. |
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| <u>3.5 RE-DREDGING</u> | .1 | Re-dredge unsatisfactory Work and verify depths with additional sounding or sweeping to approval of Departmental Representative. |
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| <u>3.6 CO-OPERATION
AND ASSISTANCE TO
DEPARTMENTAL
REPRESENTATIVE</u> | .1 | Co-operate with Departmental Representative on inspection of Work and provide assistance requested. |
| | .2 | On request of Departmental Representative, 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. Volume of material transported in partially filled scows will be determined by Departmental Representative. |