

1 GENERAL

1.01 GENERAL DESCRIPTION

- .1 This section specifies requirements for excavating Class "B" underwater materials in Tabusintac Gully, New Channel, interior and exterior Sections, and placing dredged material at the ocean disposal site.

1.02 DREDGE AREA

- .1 The dredge area is indicated on the drawing and as specified herein. The location and orientation of the dredge area (channel) may be revised upon completion the soundings. The Departmental Representative will advise on the final channel and dredging location.
- .2 The Interior dredge Area "A" area has been previously dredged to -1.5m, and is considered to be recently infilled.

1.03 DREDGE GRADE

- .1 The dredge area "A" (interior) is to be excavated to elevation -1.5 metres below Chart Datum (Elevation 0.00)
- .2 The dredge area "B" (exterior) is to be excavated to elevation -2.5 metres below Chart Datum (Elevation 0.00)

1.04 DISPOSAL SITE

- .1 Dredged materials from interior "A" and exterior "B" to be placed at ocean disposal sites, as shown on the plan.
 - .1 The ocean disposal site in the Disposal at Sea Permit is represented by rectangle "ABCD". Dredged materials disposal within rectangle is further restricted by Environmental Protection Plan to sites "RZ1" and "RZ2", in the locations indicated on the drawings, these can be revised upon the completion of the sounding survey.
 - .2 Material from interior dredge site "A" may be disposed by pipeline at disposal site RZ1 inside the estuary, or by barge at the RZ2 disposal site outside in Gulf of St Lawrence.
 - .1 Pipeline dredging from Area "A" can't be disposed of at the RZ2 disposal site.
 - .3 Material from the outside dredge site is to be disposed of in Gulf of St Lawrence, below LNT, south of the channel, at RZ2 (pipeline section and Barge section).

1.05 RELATED SECTIONS

- .1 Section 01 35 43 - Environmental Protection Section 01 35 29 - Health and

Safety

1.06 MEASUREMENT PROCEDURES

- .1 Only material excavated above grade plane and within side slopes indicated or specified will be measured.
- .2 **Mobilization and Demobilization:** Mobilization and demobilization of the dredge(s), support vessels, temporary facilities, 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 mobilization of dredging equipment 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 Protection Section 01 35 44.
 - .3 When multiple Dredging equipment is used, a single mobilization is still applicable.
- .3 **Dredging cubic metres in-place measurement (CMPM),** Dredging will be measured in cubic metres in-place measurement determined from soundings taken before and after dredging. For purpose of quantity computation, the existing seabed elevation will be measured before dredging, and then again after the dredge material has been removed, and the Contractor has demonstrated the depth was obtained in that section of the channel. Infilling of the dredged areas from natural events, should it occur, will not be measured.
 - .1 Measurement for payment will be based on cleared sections measured and observed each day. The final survey for acceptance, as per Section 35 20 23, Paragraph 1.17 will remain applicable so as to identify post dredge conditions.
- .4 Dredging equipment used for removal of obstructions will be paid for at rate negotiated in advance and authorized in writing by Departmental Representative.
- .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 There will be no additional payment for delays incurred during fishing seasons, weather, during periods when no dredging is permitted.
- .8 There will be no additional payment for downtime and for delays caused by vessel traffic.
- .9 There will be no additional payment for any accumulation of sea weeds and/or kelp which may hamper the dredging operation.

- .10 There will be no additional payment for mooring facilities fees for dredge plant.
- .11 There will be no additional payment for removal of ice.

1.07 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 CMPM: cubic meters place measurement.
- .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 to be above sub grade 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 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.
- .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 Sounding: Shallowest depth recorded inside a matrix block. 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 Minimum Sounding Plan: hydrographic survey plan in which the minimum Sounding is plotted for every matrix block.

- .15 Average Sounding: The average depth of all the soundings recorded in a matrix block.
- .16 Average Sounding Plan: a plan of Average depth of all soundings recorded within a matrix block.
- .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.

1.08 SUBMITTALS

- .1 Submit to Departmental Representative, within seven days of notice of award, a schedule of work including time periods during which each operation involved in work will be undertaken up to final completion.
- .2 Submit to Departmental Representative, within seven days of notice of award, a site specific safety plan. This plan is to have emergency numbers and contacts specific to Harbour Authority, property owner's emergency response, and operators of water intakes.

1.09 REGULATORY REQUIREMENTS

- .1 Mark floating equipment with lights in accordance with Regulations for the Prevention of Collisions.

1.10 WASTE MANAGEMENT AND DISPOSAL

- .1 Metals, wood and recyclable materials removed during the dredging activities must be diverted to appropriate recycling facilities.

1.11 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 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 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.

1.12 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.
- .3 Depths (soundings) will be adjusted to chart datum using DGPS-RTK technology. The Contractor will be responsible for obtaining, by its own means and at its own expense, all relevant water level data needed for performance of the work.

1.13 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, Defence and Marine Directorate, Aerospace, Defence and Marine Branch, 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.

1.14 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 tendering.

1.15 SITE INFORMATION

- .1 Take necessary steps to become fully familiar with potential for inclement

weather and sea conditions in this area. Include weather related incidents in the schedule.

- .2 Take necessary steps to become familiar with the conditions of the channel to access the wharf safely. At the time when working activities will commence, safe access to the wharf may be very limited.

1.16 SURVEY REQUIREMENTS

- .1 The Contractor shall provide, at his expense, 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.
- .2 The contractor is to provide at his expense a GPS unit with differential corrected position, with accuracy to the nearest centimeter in x,y,z dimensions.

1.17 SURVEYS AND ACCEPTANCE OF WORK

- .1 Pre-dredge Lidar survey of December 2021 is shown on Plans. Channel alignment may be reassessed at time of mobilization.
- .2 No area will be dredged prior to Departmental Representative's 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 1:500 plotting "minimum" depths obtained in this survey will identify areas requiring reworking.

2 PRODUCTS

2.01 DREDGING EQUIPMENT

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

3 EXECUTION

3.01 LAYOUT OF WORK

- .1 The contractor will layout the work based on sketches provided by the Departmental Representative, taking into account the dynamics of the sand bars which may change from what is depicted on surveys or a sketch.
- .2 The contractor shall be equipped with a computerized Global Positioning

system capable of accurately displaying on a monitor the location the dredge, its digging tool, the geographic coordinates, the dredge parameter limits and the bathymetric data as provided by the departmental representative. The contractor is responsible to ensure GPS instrumentation is verified for accuracy every three months.

- .3 The horizontal datum North American Datum 1983(NAD83) and Map Projection Universal Mercator Projection shall be the horizontal coordinate system used by the contractor to position the dredge. The horizontal position accuracy of the real time tracking system of the dredge shall be less than 1.0 meters.
- .4 Depths (soundings) will be adjusted to chart datum using DGPS-RTK technology. The Contractor will be responsible for obtaining, by its own means and at its own expense, all relevant water level data needed for performance of the work.

3.02 GENERAL

- .1 Before commencing work, the Contractor must:
 - .1 Having received from the Departmental Representative the written approval of its deadlines.
 - .2 Have a disposal permit issued by Environment Canada if required.
 - .3 Have permission issued by Transport Canada - Protection of Navigation if required.
 - .4 Comply with the notice periods referred to in the Environment Canada Disposal Permit and the Transport Canada Protection of Navigation Authorization.
- .2 Dredge areas within limits and to grade depth or up to bedrock as indicated on drawings.
- .3 Total area above depth level, as shown on the plan, shall be dredged.
- .4 The Contractor shall dredge as close as is feasible to the specified dredging level in a manner that clears up the area over the horizontal plane. Any excess dredging shall be done at the Contractor's responsibility and own expense.
- .5 The coordinates of control points to determine the horizontal limits of the sectors to be dredged will be provided by the Departmental Representative.
- .6 The Contractor is responsible for tracking the horizontal positioning of its own dredge.
- .7 The Departmental Representative may, at his or her discretion, check the accuracy of any positioning systems used by the Contractor.
- .8 The Contractor shall be solely responsible for all primary, intermediate

- or secondary points (x,y), (x, y, z) and (lat, long) used by it, whether determined by it or provided by the Departmental Representative or any other party and at its own risk.
- .9 Buoys necessary for the contract: The Contractor shall supply, place in position, moor and maintain at its own expense all buoys/markers required to properly execute the work. In the event that any of these buoys/markers sink or go adrift by chance or by accident, they shall be re-floated and/or recovered by the Contractor at its own expense to the satisfaction of the Departmental Representative. The Contractor shall assume responsibility for all accidents of any kind whatsoever due to the buoys/markers being improperly placed or insufficiently visible during the day or improperly lighted during the night or for any other reason.
 - .10 Navigation buoys: The Contractor shall not at any time remove or relocate any main navigation buoys. Relocation of said buoys, where warranted, will be done by the Department of Fisheries and Oceans; requests for such service must be made to the Departmental Representative at least five (5) business days in advance. The Departmental Representative reserves the right to determine whether such requests by the Contractor are warranted.
 - .11 Keep functional all signals and lights having to be installed on all dredging equipment required for the work in accordance with the Collision Regulations and the Navigation Safety Regulations on the St. Lawrence River. All equipment required for the work shall be properly identified and/or visible at all times.
 - .12 Subject to the Departmental Representative's authorization, disposal of dredged material in any other area that that designated herein is not permitted. The Contractor shall have the necessary equipment to meet the required position for the dumping of dredged materials.
 - .13 The Contractor shall complete daily activity reports. The forms will be provided by the Departmental Representative before the start of work.
 - .14 Perform the work in such a way that no damage is caused to fishing gear, and minimize interference with fishing operations when dredging in the identified areas.
 - .15 While the contract is being executed, all equipment must be kept in good working order and adequately repaired as needed. All equipment used must be seaworthy and in good condition.
 - .16 While the work is being carried out, if, in the opinion of the Departmental Representative, the equipment provided is not suitable and sufficient to perform properly or the Contractor has delayed the work schedule, the Contractor shall, within 15 days following receipt of written notice from the Departmental Representative, provide other equipment subject to advance approval from the Departmental Representative.
 - .17 Establish and maintain tide boards in order that proper depth of dredging can be determined. Locate tide boards so as to be clearly visible.

- .18 Remove materials above specified grade depths, within limits indicated. Material removed from below subgrade depth or outside specified area or side slope is not part of Work.
- .19 Remove shoaling which occurs as result of Work at no expense to Departmental Representative.
- .20 Remove infilling in dredge areas which occurs prior to acceptance by Departmental Representative.
- .21 Immediately notify Departmental Representative upon encountering object which might be classified as obstruction. By-pass object after clearly marking its location and continue Work.

3.03 DISPOSAL OF DREDGED MATERIAL

- .1 Dispose of dredged material to the ocean disposal site in manner approved by Departmental Representative.
- .2 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.
 - .1 Dispose of dredged material exclusively approved by the Departmental Representative and according to the Ocean Dumping Permit requirements.
 - .2 Demarcate the disposal site area with lighted and reflective marker buoys.
 - .3 Dumping shall be positioned along with DGPS positioning system.
- .3 A copy of the permit approved by Environment Canada pursuant to the provisions of part VI of the Canadian Environmental Protection Act will be transmitted to the Contractor. The permit must be accessible in the dredging equipment and all vessels at all times.
- .4 The Contractor shall provide details of capacity (volume) of equipment to be used for sediment transport to disposal sites or land disposal.
- .5 The Contractor shall ascertain the exact position of immersion mentioned site disposal permit issued by Environment Canada and positioning equipment for sea disposal with adequate precision.

3.04 RE-DREDGING

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

3.05 CO-OPERATION AND ASSISTANCE TO DEPARTMENTAL REPRESENTATIVE

- .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.

END OF SECTION