PART 1 - GENERAL

1.1 Description

.1 This section specifies requirements for excavating underwater materials to lines and grades indicated, transporting and placing the material at the new containement cell at Miller Brook Wharf. The quantities do not include the material excavated below grade as Overdredge.

1.2 Definitions

.1 Class "A" material: solid rock requiring drilling and blasting to loosen, and boulders or rock fragments of individual volumes 1.5m^3 or more.

.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 1.5m^3.

.3 CMPM: Cubic metres place measure.

.4 SQM: area in square metres projected horizontal.

.5 Dredging: excavating, transporting and disposing of underwater materials.

.6 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials typical of a harbour operation.

.7 Grade: plane above which all material is to be dredged.

.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 a ratio of horizontal to vertical.

.9 Chart Datum: By international agreement, a plane below which the tide will seldom fall. The Canadian Hydrographic Services has adopted the plane of Lowest Normal Tide (LNT) as Chart Datum. As the rise, fall and ranges of tides varies daily, The Canadian Hydrographic

1.2 Definitions (Cont'd)

.9 Chart Datum:(Cont'd)
Services should be consulted for tidal prediction and other tidal information relating to the work.

.10 U.T.M. Coordinates: Universal Transverse Mercator grid system (NAD83) to be used for all horizontal control of dredging operation as indicated on Plan.

.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 a number of 1.2 x 3.0m long blocks. Dependent on position of sounding, block may have 0 to 4 soundings contained within it.

.13 Least of Minimum Plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.

.14 Instanteous Mode: mode of operation of hydrographic survey equipment where only sounding observed at predetermined distance interval is retained in memory.

.15 Average of Instanteous Plan: hydrographic survey plan in which average sounding in an appropriate grouping of matrix blocks is plotted.

.16 Low Normal Tide (L.N.T.): plane so low that the tide will seldom fall below it. Also referenced the Chart Datum definition above.

.17 Cleared Sector: A sector of channel in which all dredging areas contained within are acceptably dredged as per the plans and specifications.

.18 Dredging Area: A rectangle or a polygon defined by coordinates in which dredging is to take place.

.19 Average of Instanteous Plan: hydrographic survey plan in which average sounding in an

1.2 Definitions (Cont'd)	.19	Average of Instanteous Plan:(Cont'd) appropriate grouping of matrix blocks is plotted.
1.3 Dredging Area	.1	The work consist of dredging the areas indicated on the drawing and as specified herein.
	.2	All property outside of the work areas shown on plan are to be considered out of bounds.
1.4 Dredge Grade	.1	The harbour is to be dredged at elevation 1.50 meters below Chart Datum (Elevation 0.00)
1.5 Disposal Sites	.1	Dredged materials to be placed in the new containement cell at Miller Brook Wharf.
1.6 Requirements of Regulatory Agencies	.1	Perform work, in accordance with National Building Code of Canada (NBC) and any other municipal, provincial and/or national codes relating to project. In any case of conflict or discrepancy, the more stringent requirements will apply.
	.2	Meet or exceed requirements of specified standards, codes and reference documents.
	.3	Mark floating equipment with lights in accordance with regulations for the Prevention of Collisions.
1.7 Interface to Fisheries Operations and Damage to Fishing Gear	.1	Become familiar with fishery activities. Clearly mark dredging area, disposal areas and routes to and from dredging and disposal areas 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.

1.7 Interface to Fisheries Operations and Damage to Fishing Gear (Cont'd)

.2 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.

.3 Be responsible for damage to fishing gear outside marked areas and, if damage occurs, assume responsibility for replacement or repair costs and cost of lost fishing opportunity.

1.8 Site Information

.1 Results of most recent soundings are included with drawings. This data is made available for tendering purposes only. It should be noted that this information may differ from present site condition and the Contractor should take this into consideration when submitting his tender.

1.9 Site Conditions

.1 The Contractor shall take the necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

1.10 Survey Requirements

.1 The Contractor shall provide, at his expense, a 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 a sounding printout display of at least a 3 meter by 3 meter UTM grid to the approval of the Departmental representative.

1.11 Measurement for Payment

.1 Mobilization and demobilization of dredging equipment to be included as Site Work, under Section 31 23 13.

.2 **Dredging (CMPM):** will be measured in cubic metres, in-place measurement (CMPM), determined from soundings taken before and after dredging. For purpose of quantity computation, existing seabed elevation will be represented by "Average of Instantaneous" sounding for each matrix block of survey by

1.11 Measurement for Payment (Cont'd)

.2 Dredging (CMPM):(Cont'd)
Departmental representative as soon as practical after Contract award. Post dredging elevation for quantity computations will be shallowest of grade, bedrock or "Average of Instantaneous" sounding for each matrix block.

.3 The cost of accessing the dredge site and removal of ice, roads construction, will be included in the price for dredging.

.4 All operations in connection with the field positioning of dredging equipment will be considered incidental to the work and will not be measured separately for payment.

.5 No payment will be made for the Contractor's survey vessel, equipment and crew.

.6 There will not be any additional payment for the construction and removal of any temporary roads or causeways to access the site. Include the cost of doing this work in the above items for payment. Material used for roads is to be taken off site at contractor's expense.

.7 There will not be any additional payment for the temporary removal and reinstallation of floating docks. Include the cost of doing this work in the above items for payment.

.8 There will be no additional payment for delays caused by weather conditions or down time.

.9 There will be no additional payment for weight restrictions.

.10 There will be no additional payment for removal of ice and snow.

.11 There will be no additional payment for delays, for example, storms, ice.

.12 There will be no additional payment for delays, for example vessel traffic, debris, kelp, tides, wave conditions.

.13 There will be no additional payment for down time.

1.11 Measurement for Payment (Cont'd)

.14 Excavation of the containement cell is paid under Section 31 23 13.

1.12 Sequence of Acceptance of Work

.1 No area will be dredged prior to Departmental Representative and Contractor's mutual acceptance of the pre-dredge survey for that area.

.2 In winter months, if ice prevents obtaining electronic sounding data, a manual post-dredge survey will be undertaken by Departmental Representative to clear the dredge. An electronic survey will be carried out in the spring. The contractor is not obliged to return in the spring to dredge any high spots missed during dredging in Area A.

PART 2 - PRODUCTS

.3 None.

PART 3 - EXECUTION

3.1 General

.1 The Contractor shall do the following in executing the work:

.1 Place and maintain buoys, ranges, markers and lights required to define work. The Departmental representative will provide the coordinate values for dredge limits not adjacent to the structures.

.2 Maintain and lay out work from bench marks and control points as shown on Plan. Any additional control points and tidal reference stations required to control dredging operations are the responsibility of the Contractor. The Contractor is to maintain these control points and tidal reference stations for duration of project and at the Contractor's cost.

.3 All survey equipment provided by the Contractor is to be made accessible to the Departmental Representative for his use.

.4 Establish accurately and maintain water level gauges or tide boards from bench marks shown on drawing in order proper depth of dredging can be determined. Locate gauges or

3.1 General (Cont'd)

.1 (Cont'd)

.4 (Cont'd)
tide boards so as to be clearly visible at all times.

.5 Remove all materials above specified grade depths, within limits indicated. Material removed from below grade depth or outside specified area is not part of work and will not be measured.

.6 Remove shoaling which occurs as a result of the work at no expense to the Crown.

.7 Remove material cast-over on to surrounding area and dispose of it as dredged material at Contractor's expense. The side casting over of material into the water is not permissible unless authorized by the Departmental Representative.

.8 The Contractor is responsible for the removal of infilling in dredge areas which occurs prior to acceptance by the Departmental Representative.

.9 Immediately notify the Departmental representative, upon encountering any object which might be classified as an obstruction. By-pass the object, after clearly marking its location, by coordinates and continue work.

3.2 Dredge Material

.1 The material to be dredged in this contract is classified as Class "B" material and consist generally of: gravel, clay, silt, sand, seaweed and debris.

3.3 Cooperation and Assistance to Departmental Representative

.1 Cooperate with Departmental Representative on inspection 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 monitor work. The duty boat must be of adequate size and power to operate safely in conditions encountered. It must have communication capability with the dredge and be fitted sufficient number of

3.3 Cooperation and Assistance to Departmental Representative (Cont'd)

.2 (Cont'd) approved life jackets and hard hats for inspection staff.

3.4 Dredging in Vicinity to Structures

.1 Use extreme care when dredging adjacent to existing structures. Any damage to these structures to be repaired at Contractor's

3.5 Cleaning During Construction

.1 Maintain public properties free from accumulations of waste materials and new materials being delivered to site.

.2 Clean surfaces of approach roads as directed by Departmental Representative.

3.6 Final Cleaning

.1 Clean surfaces and restore to original condition all surfaces being used, approach roads, storage sites, and any other areas used by Contractor as directed by the Departmental Representative.

.2 Return backup area, transportation routes, etc..., to original or better condition.

END

PART 1 - GENERAL

1.1 Description

.1 This section will specify the operations of the containment cell at Miller Brook Wharf, which is designed to accomodate the dredged materials.

.2 Operation of the cell extends from the time soils and water are placed in the cell until consolidation is near completion and subgrade can support pedestrian and equipment loads.

1.2 Related Sections

.1 Dredging Section 35 20 23

.2 Site Work Section 31 23 13

.3 Geotextiles Section 31 32 21

1.3 Measurement of Payment

.1 Payment is under the Section Site Work, Section 31 23 13

PART 2 - PRODUCTS

2.1 Silt Curtain

.1 Physical Properties to ASTM D4595, CAN/CGSB-4.2 No.4.2, CAN/CGSB-148.1 No 14 and ASTM D4751; supplied in rolls of minimum 3.0 metres width and to 3 the following properties or equivalent:

.1 Mass(g/m2) 259 to 270
.2 Specific Gravity 1.38
.3 Thickness (mm) 3.15
.4 Tensile Strength (N) 635 -660
.5 Elongation at Break(%) 100-105
.6 Mullen Burst Strength (kPa) 1700
.7 Opening Size (um) 2.0 X10-1

.2 The properties listed meet a Terrafix Terrafix 360R or Mirafi P150.

2.2 Filter fabric .1 Same as 2.1.1

2.3 Safety Fencing .1 High-density Polyethylene, International Orange, UV Stabilized, Rot and Rust Proof, Reusable, fencing in rolls 1.22m x 15m. Mesh sizes 38mm x 75mm.

.2 Wooden or Tee Posts, 1.8 meters in length.

.3 Wire ties.

2.4 Signs .1 300mm x 450mm corigated plastic, white, Font 50 mm, black

.2 RESTRICTED ACCESS UNSTABLE GROUND / ACCESS RESTREINT SOL INSTABLE

PART 3 - EXECUTION

3.1 Security .1 Provide safety fencing around perimeter of containment cell, clearly delinating the hazard of the water/spoil filled pond and eroding side slopes.

.2 Manage the closed area on a daily basis by securing gates and maintaining restricted access signs.

.3 Have permenantly installed on each face of the fence, inside the secured area, throw ropes of sufficient length to reach across more than half of the cell, attached to a floating ring for use to rescue from water/spoils.

.4 The security fence and rope and floation rings will be removed as soon as the spoil pile is firm enough to support foot traffic.

3.2 Decant Area

.1 The decant area is required should a suction dredge be employed to carry out dredging. Alternative dredging techniques where water and solids do not pour our of the containment cell may not require a decant cell.

.2 Supply full depth silt curtain. Silt curtain will be installed full depth from high water to the harbour bottom at high tide, and weighted on the bottom to prevent drifting and leaking.

.3 The curtain will be installed in such a manner along the shore lines to prevent the drift of finer sediments past the curtain.

.4 The Contractor is to submit details how the silt curtain will be constructed and attached, its anchoring detail, and plans for its removal.

.5 Dredge decant area after harbour dredging is completed to elevation 1.5m to remove any overflow materials.

.6 The curtain will remain in place for 96 hours after in-water activity has ceased.

3.3 Water Control

.1 The functioning containment cell will allow sediments and water to be emptied into the cell, where most of the solids will separate from the water, and the water to return to the Harbour. The quantity of water to be managed depending upon the dredging method used.

.2 Cutter suction dredging or similar systems requires a holding period within the cell to allow water to decant its solids before exiting the weir. As the height of the spoils inside the cell increases, so must the height of water. Water is to be ponded above the spoils at all times.

.3 If the velocity of water increases to a point that sediments do not separate from water, it may be necessary to either reconfigure sediment inside the pond or slow dredging production.

3.4 Draining Cell

.1 During dredging, excess water from pumping is to be returned to the harbour via an artifical channel or pipelines.

.2 The details of the construction and maintenance of artificial channels is to be provided to Departmental Representative.

.3 The water will be emptied behind a silt curtain.

.4 Water draw down when dredging is completed may be required. Excess water draining from the cell is not to enter the harbour directly.

.5 Ensure water from the spill way doesn't enter the brook, water must be returned to the harbour via boat ramp location.

END