



SPECIFICATIONS

STEVESTON (PARAMOUNT)

DREDGING

2019

FISHERIES AND OCEANS CANADA

SMALL CRAFT HARBOURS – PACIFIC REGION

200 – 401 Burrard Street

Vancouver, British Columbia

V6C 3S4

SECTION NO. SECTION TITLE***Division 01 – General Requirements***

01 11 00	Summary of Work
01 13 00	General Instructions
01 35 29.06	Health and Safety Requirements
01 35 43	Environmental Procedures
01 50 00	Mobilization and Demobilization
01 77 00	Closeout Procedures

Division 35 – Waterway and Marine Construction

35 20 23	Dredging
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DRAWING NO. DRAWING TITLE

56178-001	Steveston Paramount Dredge Area
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APPENDIX APPENDIX TITLE

A	Paramount Site – Bathymetric Monitor Aug 2018
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END OF SECTION

Part 1 General

1.1 SITE LOCATION

- .1 Steveston Small Craft Harbours (the site) is located at 12740 Trites Road, Richmond, BC.

1.2 DEFINITIONS

- .1 **Contractor**: The party accepted by the Owner with whom a formal contract is entered to complete the work of this project.
- .2 **Engineer/Departmental Representative**: Employee(s) that represents the Owner who act as the Engineer and Technical Authority for the project.
- .3 **Harbour Authority**: Steveston Harbour Authority, 12740 Trites Road, Richmond BC.
- .4 **Owner**: Small Craft Harbours Program of the Department of Fisheries and Oceans, 200-401 Burrard Street Vancouver B.C. V6C 3S4.

1.3 NATURE OF WORK

- .1 In general, work consists of dredging and disposing “Class B” material from Steveston Paramount Small Craft Harbour.
- .2 The proposed dredge area is provided on tender drawing: 56279-001
- .3 The target depth of dredging is to achieve -4.0m Chart Datum ground elevation.
- .4 Transport and dispose of 10,000 cubic meters of “Class B” material to Point Grey Disposal at Sea Location (DAS). DAS permit by Owner.

1.4 COMMENCEMENT AND COMPLETION

- .1 No site work shall begin before **December 1st, 2019**.
- .2 All work including clean-up and demobilization must be completed by **February 28th, 2020**.

1.5 DESCRIPTION OF UNIT PRICE ITEM

- .1 **Mobilization/Demobilization**
 - .1 This item includes the lump sum cost for mobilization and demobilization including moving all crew, equipment and material on and off site and site clean up after completion of the work.
 - .2 Specified in Section 01 50 00.
- .2 **Dredging of “Class B” Material**



- .1 The unit rate cost per cubic meter for dredge and remove 10,000 cubic meters “Class B” material as per drawings and specifications.
- .2 Specified in Section 35 20 23.
- .3 Disposal of “Class B” Material
 - .1 Transport and dispose of 10,000 cubic meters of Class B material to Point Grey Disposal.
 - .2 Point Grey DAS site location is within 1 nautical mile radius of **49.26777 N 123.36500 W**.
 - .3 Specified in Section 35 20 23.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

Part 3 Execution**3.1 NOT USED**

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 NOTIFICATION

- .1 The Contractor shall give the Departmental Representative **minimum 2 week notice** prior to mobilization to site.

1.2 HOURS OF WORK

- .1 Normal work hours are between 0700 hrs to 1700 hrs Monday through Friday not including statutory holidays.
- .2 Contractor may request to work outside the above-mentioned normal work hours. Submit written request to Departmental Representative to work outside of the normal work hours a minimum of forty (48) hours in advance.

1.3 SCHEDULING

- .1 Submit to the Departmental Representative within 2 weeks after award of the Contract, the schedule of work including time periods during which each operation involved in work will be undertaken. At time of submission of schedule, meet with the 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 the Departmental Representative of corrective action to be taken.

1.4 CONSTRUCTION WORK SCHEDULE

- .1 The Contractor shall work whatever shifts while abiding to the noise-by-law required in order to ensure the work meets regulatory windows and is completed by the completion date of the contract.
- .2 The Contractor shall normally perform all work within daylight hours, except in instances where the Contractor has requested and received approval for shift changes from the Owner.
- .3 Within 14 days of award the Contractor shall supply a week by week schedule of proposed activities related to the contract.
- .4 The Contractor must notify the Owner immediately whenever a variation from the construction schedule is expected to occur.
- .5 Time lost by the Contractor due to stoppage on account of adverse weather conditions may be allowed, at the discretion of the Departmental Representative, as an extension of time for the completion of the work over and above the date of completion specified in the contract agreement.



1.5 MEASUREMENT AND PAYMENT

- .1 Before submitting the first progress claim, submit a breakdown of the Contract unit rates and lump sum prices in detail as requested by Departmental Representative, aggregating to the Contract price.
- .2 Measurement and payment for work completed to Departmental Representative's satisfaction will be made as stipulated in the relevant technical Section of the Specification for that work item and the Unit Price Table.

1.6 HEALTH AND SAFETY

- .1 Specified in Section 01 35 29.06

1.7 ENVIRONMENTAL PROCEDURES

- .1 Specified in Section 01 35 43

1.8 REGULATORY REQUIREMENT

- .1 The Contractor must, at his own expense, procure all permits, certificates and licenses required of him by law for the execution of his work under this contract.
- .2 The Contractor shall comply with all Federal, Provincial or Municipal laws, ordinances or rules and regulations relating to the performance of his work and in force during the duration of this contract.
- .3 The Contractor is required to give all required notices, comply with all local, municipal, provincial, and federal laws, ordinances, codes, by-laws, rules and regulations relating to the work.
- .4 All work to be done in accordance with Work Safe BC regulations.
- .5 The Contractor shall comply with Federal and Provincial laws, orders and regulations concerning the control and abatement of water and air pollution.
- .6 The Contractor shall comply with the requirements of any local or other Noise By-Laws.
- .7 In the absence of other standards specified in the contract documents, all work is to conform to, or exceed, the minimum standards of the Canadian Government Specifications Boards, the Canadian Standards Association, the American Society for Testing of Materials, or the National Building Code of Canada, whichever is applicable.

1.9 EXECUTION REQUIREMENTS

- .1 The Contractor is expected to familiarize themselves with the site, facilities and amenities within.



- .2 The Contractor's representative on site shall be completely familiar with the method of work to be employed. Such personnel shall remain on site for the duration of the work.
- .3 The Contractor shall protect all finished work from injury, defacement, unauthorized entry, or trespass until such time as the work described in the contract documents is substantially complete.
- .4 The site shall be left in a safe condition at the completion of each work day.

1.10 INTERFERENCE WITH OPERATION

- .1 The Contractor shall obey all navigation regulations and conduct operations so as to interfere as little as possible with the use of berthing spaces, fairways and passages.
- .2 The Contractor shall develop a construction plan that minimizes disruption to harbour operations.
- .3 During the course of construction and clean-up, do not dispose of surplus, waste or demolished materials in navigable waters.
- .4 The Contractor shall upon instruction of the Owner or Engineer, promptly remove any of the Contractor's equipment located outside the specified work area and obstructing any harbour operation.

1.11 CONSTRUCTION AREA

- .1 The Contractor shall not enter on nor occupy with men, tools, equipment or material, any ground outside the property of the Harbour Authority without the written consent of the party owning such ground. Other Contractors or employees or representatives of the Department may, for all necessary purposes, enter upon the work and premises used by the Contractor, and the Contractor shall conduct his work so as not to impede unnecessarily any work being done by others nor adjacent to the site.
- .2 The Contractor shall regulate construction traffic on public areas and comply with all local ordinances in connection therewith, including load limitation and removal of debris.
- .3 The Contractor shall confine his operations on the site to those areas actually required for the work including routes and regulations approved by the Owner for haulage of materials.

1.12 CLEAN UP

- .1 At all times the Contractor shall keep the site free from accumulation of waste material and debris and leave the site clean and tidy on completion.



1.13 PROTECTION OF EXISTING STRUCTURES

- .1 Existing structures, adjacent marine facilities, roads, services, piping or equipment within the work area which are not to be replaced shall be properly protected from any injury or damage, direct or indirect.
- .2 Any damage that is caused as a result of the operations of the Contractor shall be repaired and made good at the Contractor's expense to the satisfaction of the Engineer.

1.14 TEMPORARY SERVICES

- .1 Contractor shall make his own arrangements for supply of water and electricity onsite.
- .2 The Contractor shall supply for his own use; sanitary, first aid, and all other temporary services and facilities required for the work.

1.15 PROGRESS REPORT

- .1 The Contractor shall keep a daily record of progress of the work available for inspection by the Departmental Representative.
- .2 The daily record shall include particulars of weather conditions, number of men working, plant and equipment working and work performed.

1.16 CLOSEOUT PROCEDURES

- .1 Specified in Section 01 77 00.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

Part 3 Execution**3.1 NOT USED**

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

- .1 Health and safety considerations are required to ensure that Small Craft Harbours/DFO shows due diligence towards health and safety on construction sites, and meets the requirements laid out in PWGSC Departmental Policy DP 073 - Occupational Health and Safety – Construction.

1.2 MEASUREMENT AND PAYMENT

- .1 Health and Safety Requirements are considered incidental to the work and will not be measured separately. No separate payment will be made under this Section.

1.3 REFERENCES

- .1 Government of Canada:
 - .1 Canada Labour Code – Part II
 - .2 Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
- .3 Province of British Columbia:
 - .1 Workers Compensation Act. Part 3 Occupational Health and Safety.
 - .2 Occupational Health and Safety Regulation
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS):
 - .1 Material Safety Data Sheets (MSDS).

1.4 SUBMITTALS

- .1 Submit site-specific Health and Safety Plan: Within 14 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must at least include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
 - .3 Safe work plan.
 - .4 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations



- .2 The Engineer review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .3 Submit copies of incident and accident reports if requested.

1.5 WORKERS COMPENSATION BOARD COVERAGE

- .1 Comply fully with the Workers' Compensation Act, regulations and orders made pursuant thereto, and any amendments up to the completion of the work.
- .2 Maintain Workers' Compensation Board coverage during the term of the Contract, until and including the date that the Certificate of Final Completion is issued.

1.6 COMPLIANCE WITH REGULATIONS

- .1 PSPC may terminate the Contract without liability to PSPC where Contractor, in the opinion of PSPC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .2 It is Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.7 RESPONSIBILITY

- .1 Assume responsibility as the Prime Contractor under this Contract.
- .2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .3 Comply with and enforce compliance by employees with safety requirements of contract documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
- .4 Report all safety and environmental incident to the Department Representative as soon as it happened.

1.8 BARRICATION

- .1 Provide safety barricades around work site as required to provide a safe working environment for workers and protection for pedestrian traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.



- .1 Provide appropriate means by use of barricades, fences, and warning signs as required.
- .2 Secure site at night time as deemed necessary to protect site against entry.

1.9 REGULATORY REQUIREMENTS

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at the Contractor's Work Site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representatives will advise on the course of action to be followed.

1.10 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Provide copies of all notices to Departmental Representative.

1.11 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.
- .2 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site.
- .3 Schedule and administer Health and Safety meeting prior to commencement of Work.

1.12 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Engineer verbally and in writing.

1.13 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction, and in consultation with Engineer.

1.14 CORRECTION OF NON-COMPLIANCE



- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by the Engineer.
- .2 Provide the Engineer with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 The Engineer may stop Work if non-compliance of health and safety regulations is not corrected.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION



Part 1 General

1.1 DESCRIPTION

- .1 This Section describes environmental procedures that are required for the Contract. Contractor shall be responsible for adhering to these special procedures while completing all work under this Contract.
- .2 Environmental degradation arising from construction activities shall be prevented, abated, controlled, and minimized by complying with all applicable federal, provincial, and local laws and regulations concerning environmental pollution control and abatement, as well as the specific requirements in the Project Permits.
- .3 Contractor shall comply with all permit conditions. Although provincial laws and municipal by-laws generally do not apply on federal lands, Contractor will respect provincial laws and municipal bylaws and rules at the Site.
- .4 Contractor is responsible for environmental protection during all construction activities at all locations it performs work.

1.2 MEASUREMENT AND PAYMENT

- .1 Environmental Procedures are considered incidental to the work and will not be measured separately. No separate payment will be made under this Section.

1.3 SUBMITTALS

- .1 Contractor shall submit a Spill Response Emergency Plan for review and acceptance by Departmental Representative within fourteen (14) calendar days following Contract Award.

1.4 ENVIRONMENTAL RESPONSIBILITY

- .1 Contractor shall demonstrate in the performance of the work that it is environmentally responsible by complying with environmental legislation, regulations, and authorizations.
- .2 Follow all Departmental Representative instructions and policies, practices, and procedures established by Departmental Representative with respect to the environment that are communicated by Departmental Representative to Contractor from time to time.
- .3 Be observant for, and immediately notifying Departmental Representative of, any environmental problems that develop at the Work Site.



- .4 Take all reasonable and necessary measures in the performance of the work to avoid causing negative impacts to the environment. Where negative impacts occur, Contractor shall immediately advise Departmental Representative and shall be solely liable to undertake all reasonable and necessary measures to minimize the effect of such negative impacts and restoring the site to pre-impact conditions.
- .5 Maintain key pollution control systems in working condition throughout the project and undertake all works such that there are no unauthorized discharges of liquids or solids to the marine environment, or of gas to the atmosphere.
- .6 Maintain a neat work area free of unnecessary debris, tools, equipment, or materials; dispose of sewage, refuse, and chemical wastes in compliance with the Best Management Practices and applicable federal, provincial, and municipal or local legislation, regulations, or laws; and remove all tools, equipment, supplies, and wastes from the site upon completion of the work.
- .7 Ensure that workers and supervisory staff are knowledgeable with the provisions of the proposed Spill Emergency Response Plan and are adequately trained to implement the measures contained therein.

1.5 FIRES

- .1 Fires and burning of rubbish on Site is not permitted.

1.6 SPILL OR RELEASE OF DELETERIOUS SUBSTANCES

- .1 Contractor shall immediately contain and assess the spill, provide appropriate notifications, and take the necessary steps to prevent further discharge. Contractor is responsible for immediate cleanup of the spill and restoration of the area to the satisfaction of Departmental Representative and other regulatory agencies, where involved.
- .2 All workers shall be fully aware of the spill prevention and response procedures including notification of Departmental Representative.
- .3 Departmental Representative shall be immediately informed of all spills that occur at the Work Site.
- .4 Further information on dangerous goods emergency cleanup and precautions including a list of companies performing this work can be obtained from the Transport Canada 24-hour number (613) 996-6666 collect.
- .5 Spill kits will be kept at the Work Site at all times.
- .6 Contractor shall take due care to ensure no deleterious materials, including sediment-laden runoff, leave the Work Site or enter any surface water or stormwater at or near the Work Site.



- .7 The application of paints, corrosion protective coatings, wood preservatives or any other potentially deleterious substance should occur away from water wherever possible to ensure no accidental release of deleterious chemicals by runoff or overspray.
- .8 Any equipment remaining on site overnight shall have appropriately placed drip pans or other spill/leak containment measures.

1.7 NOISE AND LIGHT CONTROL

- .1 All construction equipment shall be operated with exhaust systems in good repair to minimize noise.
- .2 Ensure that noise control devices (i.e. mufflers and silencers) on construction equipment are properly maintained.
- .3 Contractor shall implement use of lighting shrouds for work to be completed during night-time hours to minimize lighting disruptions to local residents.

1.8 ENVIRONMENTAL MONITOR

- .1 The Owner may retain a third party environmental monitor for the project.
- .2 The environmental monitor will follow requirements in the Environmental Monitoring Plan and assess the effectiveness of the measures and standards put in place.

1.9 HISTORICAL/ARCHAEOLOGICAL CONTROL

- .1 The Owner may retain a third party archaeological monitor for the project.
- .2 Contractor must notify the archaeological monitor and the Owner if potential historical archaeological, cultural resources and biological resources are discovered during construction.

1.10 NOTIFICATION

- .1 The Departmental Representative will notify Contractor, in writing, of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 The Contractor shall inform the Engineer of proposed corrective action after receipt of such notice, and take such action for approval by the Engineer.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.



Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION



Part 1 General**1.1 DESCRIPTION**

- .1 This Section covers mobilization and demobilization for the work at Steveston Work Site.

1.2 MEASUREMENT AND PAYMENT

- .1 Mobilization and Demobilization will be paid for the lump sum tendered price for MOBILIZATION AND DEMOBILIZATION.
- .2 Mobilization and demobilization will not be measured for payment.
- .3 Mobilization will be paid for at the Lump Sum price tendered for MOBILIZATION. Payment shall include for all costs in connection with mobilization as described in Clause 1.4 of this Section. The Lump Sum tendered for Mobilization shall be paid on completion of all applicable items listed in Clause 1.4 to the satisfaction of Departmental Representative.
- .4 Demobilization will be paid for at the Lump Sum price tendered for DEMOBILIZATION. Payment shall include for all costs in connection with demobilization as described in Clause 1.4 of this Section. The Lump Sum tendered for Demobilization shall be paid on completion of all applicable items listed in Clause 1.4 to the satisfaction of Departmental Representative.

1.3 SUBMITTALS

- .1 Submit heavy equipment or plant specifications and/or drawings upon request.

1.4 MOBILIZATION & DEMOBILIZATION

- .1 Mobilization shall include the following activities:
 - .1 All pre-construction submittals;
 - .2 Establishment of necessary site offices;
 - .3 Workshops and other temporary facilities, including utility connections;
 - .4 Development and implementation of all environmental protection measures;
 - .5 All work required to prepare and move to the Work Site the Contractor's plant and equipment to be used for the above mentioned work tasks;
 - .6 Move all crew and tools to site;
 - .7 Making ready for work; and,
 - .8 The cost of maintaining bonds and insurance as required.
- .2 Demobilization shall include the following activities:



- .1 Project closeout and required closeout submittals;
- .2 Removal of all construction equipment, plant and excess materials from the Steveston Work Site;
- .3 Clean up of the Steveston Work Site to a condition satisfactory to Departmental Representative at completion of the work.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION



Part 1 General

1.1 DESCRIPTION

- .1 This Section provides project closeout requirements for post-construction submittals that Contractor is required to submit to Departmental Representative following completion of the work.
- .2 This Section also presents process and requirements for inspection and declaration that the work has been completed as required by the Contract documents. Upon formal review and acceptance of the work by Departmental Representative, the work will be determined to be complete and Contractor shall then demobilize from the Work Site.

1.2 MEASUREMENT AND PAYMENT

- .1 Closeout Procedures are considered incidental to the work and will not be measured separately. No separate payment will be made under this Section.

1.3 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
- .2 Notify Owner in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
- .3 Request inspection by Departmental Representative.
- .4 Departmental Representative, accompanied by Contractor, will inspect the work to identify defects or deficiencies in the work and then compile a deficiency list describing all noted defects and deficiencies.
- .5 Contractor shall correct work accordingly, as advised by Departmental Representative, at no cost to the Owner.
- .6 Final Inspection: When items noted above are completed, request Final Inspection of work by Departmental Representative, accompanied by Contractor. If work is still deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection. Repeat this process until the work is complete to Departmental Representative's satisfaction.

1.4 COMPLETION

- .1 Submit a written certificate that the following actions have been performed:
 - .1 Work has been completed and inspected for compliance with the Contract documents.



- .2 Defects have been corrected and deficiencies have been completed.
- .3 Work is complete and ready for final inspection.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION



Part 1 General

1.1 DESCRIPTION

- .1 Regular dredging is required to maintain a safe harbour for fishing vessels, tugs and barges, commercial and pleasure traffic.
- .2 This section describes the details regarding harbour dredging at the Steveston Paramount Site.

1.2 MEASUREMENT AND PAYMENT

- .1 Only material excavated below existing seabed elevation and above proposed sub-grade dredge elevation indicated or specified will be measured.
- .2 Dredged volumes will be displacement-measured on the barge.
- .3 Post dredging elevations for quantity computations will be shallowest of grade, bedrock or "Average of Instantaneous" sounding for each matrix block. The post dredging soundings will be performed by the Departmental Representative to confirm the work according to the specifications.
- .4 Under-dredge: Contractor will be instructed to re-dredge at the owner's discretion and will be paid per unit volume set out in the tender unit price table.
- .5 Over-dredge: No payment will be made for over-dredge volume.
- .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, crew, survey or diving services, board, lodging and transportation of the Contractor's personnel and subcontractors. These costs shall be incorporated into the bid prices.
- .8 No separate payment will be made for sweeping.

1.3 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 Debris: pieces of wood, wire rope, scrap steel, pieces of concrete and other waste materials associated with site operation.
- .6 Grade: plane above which material is to be dredged.
- .7 Sub-grade: plane parallel to and 500 mm below grade.
- .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 (L.N.T.).
- .10 Matrix Block: each dredge area is presented as number of 5 x 5 m long blocks. Dependent on position of sounding, block may have 2 to 4 soundings contained within it.
- .11 Least of Minimum Plan: hydrographic survey plan in which least sounding in grouping of matrix blocks is plotted.
- .12 Lowest Normal Tide (L.N.T.): plane so low that tide will seldom fall below it.

1.4 SUBMITTALS

- .1 Submit to the Departmental Representative the proposed methodology of dredging and transportation of material to disposal site.
- .2 Bathymetry survey in PDF format and AutoCAD files of the proposed dredge area pre and post dredging as specified in the clause 1.10 of this Section.

1.5 DREDGED MATERIAL DISPOSAL

- .1 All dredged material will be disposed to the Disposal-at-Sea (DAS) site at Point Grey. The permit for the DAS will be provided by the Owner.
- .2 The Contractor becomes the owner of, and is responsible for, any soil, sediment, debris, effluent, or other material once it is removed, dredged or excavated exception that may be valued for their historical, archaeological, architectural and paleontological significance as determined by the Archaeological Monitor.
- .3 Type of basin material in the vicinity of the general site area was investigated in 2014 and is primarily classified as Class B material:
 - .1 0.0 – 0.8m: silty sand and shells (grey), occasional gravel, loose to compact;
 - .2 0.8 – 1.8m: silty medium to fine sand (grey), trace to some shells, compacted ;
 - .3 1.8 – 2.4m: some gravel dense with depth;



- .4 The contractor is responsible for transporting the dredge material to the disposal site. The transportation and handling of the dredge material should be compliant with, but not limited to safety and environmental requirements under all associated permits and approvals.
- .5 Metals, wood and recyclable materials, if any, removed during the dredging activities must be diverted appropriate recycling facilities.

1.6 DREDGE LOCATION

- .1 The location of the dredge boundary is provided on the contract drawing. The Owner will specify the priority of areas within the dredge boundary prior to construction. Generally, the Contractor will be requested to dredge from West to East of the “dredge area”.

1.7 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, marina operations, construction activities at wharf sites, or access to wharves by land or water.
- .2 Keep the Harbour Manager, Canadian Coast Guard, Fisheries and Oceans, informed of dredging operations in order that necessary Notices to Mariners will be issued.

1.8 DATUM, WATER GAUGES AND TARGETS

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

1.9 SITE INFORMATION

- .1 Results of prior soundings are made available for reference only found in Appendix A. It should be noted that this information may differ from the current site condition.
- .2 Take necessary steps to become fully familiar with potential inclement weather and sea conditions in this area.

1.10 SURVEYS AND ACCEPTANCE OF WORK

- .1 The Contractor is required to conduct pre and post dredging surveys at the Contractors’ expense to determine dredge volumes and assess project progress



and performance. The Departmental Representative may conduct independent dredging surveys for quality control.

- .2 No area will be dredged prior to the Departmental Representative and Contractor's mutual acceptance of pre dredge survey for that area.
- .3 Post dredge surveys will be undertaken by the Contractor upon completion of dredging. The survey will confirm if dredging is completed as specified and whether area can be considered cleared area. All surveys will be conducted in accordance with the "Canadian Hydrographic Survey Standards".
- .4 The Contractor shall re-dredge as necessary to remove all material within dredge areas which is found to be above design dredge depth of indicated on the Drawings, taking into account the over dredge tolerance.
- .5 Additional survey will be undertaken at the Contractor's expense, for those areas not meeting acceptance criteria for dredging. All additional surveys required to clear areas will be undertaken at Contractor's expense.
- .6 All elevations obtained within specified areas of dredging must be at or deeper than the specified dredge elevation within tolerance before area will be considered completed.

Part 2 Products

2.1 DREDGING EQUIPMENT

- .1 Contractor is to determine required equipment necessary to dredge material specified and to dispose of dredged material at the proposed and approved locations.
- .2 Dredging equipment shall be equipped with working real-time GPS tracking, so that the operator can accurately dredge to GPS coordinates.
- .3 Mark floating equipment with lights in accordance with International Rules of Road and maintain radio watch on board.

Part 3 Execution

3.1 GENERAL

- .1 Lay out work from bench marks and base lines established by the Departmental Representative. Be responsible for accuracy of work relative to established bench marks 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.



- .2 Establish and maintain tide boards in order that proper depth of dredging can be determined. Locate gauges or tide boards so as to be clearly visible.
- .3 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.
- .4 Dredge volume is estimated to be approximately 10,000 cubic meters and an allowable over dredge of 0.5m (unless specified otherwise in the DAS permit).
- .5 Dredge side slopes to two horizontal to one vertical.
- .6 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.
- .7 Do not cast-over material unless authorized by the Departmental Representative.
- .8 Immediately notify the Departmental Representative upon encountering object which might be classified as Class A or obstruction. By-pass object after clearly marking its location and continue work.

3.2 SWEEPING

- .1 Sweep dredged areas on completion of dredging to confirm that grade depth has been achieved.
- .2 If, as result of incomplete work, additional verification of depths by sounding or sweeping becomes necessary, additional costs involved shall be paid by Contractor.

3.3 CO-OPERATION AND ASSISTANCE TO ENGINEER

- .1 Co-operate with the Departmental Representative on inspection of work and provide assistance requested.

On request of the 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 the Departmental Representative.

END OF SECTION

