

Wharf Construction
Port Bickerton East
Guysborough County, Nova Scotia
Project No. R.082082.001

General Instructions

PART 1 – GENERAL

- 1.1 Documents Required .1 Maintain at job site, one copy each of the following:
- .1 Contract drawings;
 - .2 Specifications;
 - .3 Addenda;
 - .4 Reviewed shop drawings/submissions;
 - .5 Change Orders;
 - .6 Other modifications to Contract;
 - .7 Field test reports;
 - .8 Copy of approved work schedule;
 - .9 Manufacturer's installation and application instructions.
- 1.2 Site Conditions .1 Records of existing structures and geotechnical reports may be available for inspection at the offices of Public Works and Government Services Canada, 1713 Bedford Row, Halifax, NS. This material is not necessarily up-to-date and is for information purposes only. It should be complemented with site visits and consultation with appropriate expertise. Most recent geotechnical investigation report is attached in Appendix A.
- 1.3 Work Schedule and Completion Dates .1 Prepare and submit to the *Departmental Representative* with five (5) days of notification of Contract award, one (1) copy of the construction schedule, in the form of a bar chart, showing the dates for commencement and completion of each major activity of the work, including the work of subcontractors; dates of submissions, review and return of all drawings, etc.; the dates of Substantial Completion; and intended man hours of labour and equipment for each major items of work. If the schedule as submitted is unacceptable in any way, submit without delay a revised schedule satisfactory to the *Departmental Representative*.
- .2 The *Departmental Representative* is to notify the Contractor in writing of acceptance of the Construction Schedule. Comply with the Dates of the Construction Schedule at all times. If, for any reason the Construction Schedule is not followed, immediately notify the *Departmental Representative* of the changes and submit a revised schedule for acceptance. Upon written acceptance by the *Departmental Representative*, this schedule will become the Construction Schedule.
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- .3 Whenever required, give further written particulars concerning this schedule. The submission to and acceptance by the *Departmental Representative* of the Contractor's Construction Schedule or the furnishing of details and particulars thereto will not relieve the Contractor of any duties and responsibilities under the Contract.

1.4 Measurement Responsibilities

- .1 Notify *Departmental Representative* sufficiently in advance of operations to permit required measurements for payment purposes.

1.5 Contractor's Use of Site

- .1 Cooperate with Harbour Authority and users of existing facilities. All work taking place will be coordinated and agreed to so that there will be minimal impact to the daily ongoing activities of the harbour.
 - .2 Should interference's occur, take directions from *Departmental Representative*.
 - .3 Do not unreasonably encumber site with materials or equipment.
 - .4 Move stored products or equipment which interfere with operations of *Departmental Representative* or other Contractors.
 - .5 Obtain and pay for use of additional storage or work areas needed for operations.
 - .6 Comply with all regulations and authorities having jurisdiction over the work, whether on land or on water.
 - .7 Ensure no damage occurs to existing structures as a result of operations. Any said damage will be repaired at Contractor's expense.
 - .8 Provide temporary barriers and warning signs in location where work is adjacent to areas used by public.
 - .9 Restricted access to existing wharf stem – contractor shall only use existing service area, and not existing wharf stem, during construction operations. Maintain access to existing wharf at all times for ongoing activities of the harbour.
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1.6 Codes and Standards

- .1 Perform work in accordance with National Building Code of Canada (NBC) 2010 and any other code of provincial or local application provided that in any case of conflict or discrepancy, the more stringent requirements will apply.
- .2 Meet or exceed requirements of specified standards, codes and referenced documents. When a standard or code is outdated, the latest edition will supersede the referenced date.
- .3 Observe and enforce construction safety measures by Canadian Construction Safety Code and Construction Safety Code of Nova Scotia. In the event of conflict between any provisions of above authorities the most stringent provision will apply.
- .4 Canadian Environmental Protection Act (CEPA), 1999, - Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, SOR/2008-197.
- .5 Canadian Council of the Ministers of Environment – Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, 2003 (CCME).
- .6 National Fire Code (NFC) of Canada 2015.
- .7 NS Regulation 44/2002 “Petroleum Management Regulations – Environment Act”.
- .8 Nova Scotia Standards for Construction and Installation for Petroleum Storage Tank Systems.

1.7 Project Meetings

- .1 *Departmental Representative* will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

1.8 Setting Out of Work

- .1 Do all detail surveys necessary for the work, including locating and maintaining working points, and establishing lines and elevations. Perform all layout work, and carefully preserve benchmarks, reference points and stakes.

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- .2 Provide such masts, scaffolds, batter boards, lines, straight edges, templates and other devices as may be necessary to facilitate layout, construction and inspection of the work. Whenever necessary, suspend work for such reasonable time as may be necessary to permit the *Departmental Representative* to check or inspect any portion of the Work. The Contractor will not be allowed any extra compensation or time for completion because of this suspension of work.
- .3 Elevations for the various grades and features of the specified works to be referenced and properly related to a benchmark, which will be approved by the *Departmental Representative*.
- .4 Verify all grades, lines, levels, and dimensions shown on the drawings and report any errors or inconsistencies to the *Departmental Representative* before commencing work. Provide and maintain well built batterboards at all points to facilitate the progress of the work. Establish all other grades, lines, levels required to facilitate the work.

1.9 Existing Services

- .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian, vehicular traffic, and services.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify *Departmental Representative* of findings.
- .3 Submit schedule to and obtain acceptance from *Departmental Representative* for any shut-down or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise *Departmental Representative* and confirm findings in writing.

1.10 Contract Documents

- .1 Contract Drawings:
 - .1 The drawings for the Work consist of all drawings listed in these "Plans and Specifications" marked "A" and any

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additional drawings issued at a later date by the *Departmental Representative*.

- .2 *Departmental Representative* may furnish additional drawings to assist in proper execution of work. These drawings will be issued for clarification only. Such drawings will have same meaning and intent as if they were included with plans referred to in Contract Documents.
- .3 The drawings indicate the extent and general dimensions of the work. Make all necessary measurements to ensure that the result of the work is in accordance with the intent.
- .4 Verify all existing conditions in field prior to proceeding with work.

.2 Contract Specifications:

- .1 The general requirements and technical specifications are written solely for the General Contractor. They are organized into the NMS format of separate divisions and sections.
- .2 Specification language is of the 'Short Form type' for example, where the word "provide" occurs, interpret it to mean "the Contractor shall furnish all labour, material and equipment necessary to complete the work".
- .3 This Specification and accompanying drawings are intended to describe and provide for a finished project. They are intended to be complementary, and what is called for by either will be as binding as if called for by both. The Contractor shall understand that the work herein described will be complete in every detail, notwithstanding that every item necessarily involved is not particularly mentioned, and Contractor will be held to provide all labour, materials and equipment necessary for the entire completion of the work and will not avail himself of any errors or omissions.

1.11 Permits and Regulations

- .1 Apply for, obtain and pay for all necessary permits, approvals and other authorizations required for the work.
 - .2 Comply with all by-laws, ordinances and regulations of all authorities having jurisdiction.
 - .3 Pay for any Municipal permits, per General Conditions as stated in the contract.
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- .4 Complete DFO CEPA-Regulated Storage Tank System Identification Form (Appendix B).

1.12 Cutting, Fitting
and Patching

- .1 Execute cutting (including excavation), fitting and patching required to make work fit properly.
- .2 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
- .3 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work.
- .4 Obtain *Departmental Representative's* approval before cutting, boring or sleeving, or excavating adjacent to load-bearing members.

1.13 Record of
Construction

- .1 As work progresses, maintain accurate records to show all deviations from the contract drawings, with particular reference to work which will be concealed. Prior to the inspection of the work for the issuance of the Final Certificate of Completion, provide the *Departmental Representative* with one set of white prints of the drawings with all deviations shown neatly thereon.
- .2 Provide "as built" cross sections of any excavation, dredging or fill work.

1.14 Payment

- .1 Payment for all work under this contract to be according to the Contract.
- .2 No separate payment will be made for work specified under General Conditions, Supplementary Conditions or any sections of Specification under Division 01. The cost of this work is to be considered as overhead and to be included in the unit prices of the Contract.
- .3 Dimensional changes as directed by the *Departmental Representative* to suit existing conditions, but not resulting in

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additional work or materials, will not be considered as extra to the Contract.

1.15 Site Examination

- .1 All parties tendering should visit the site of the work prior to submission of tenders and make themselves thoroughly acquainted with site conditions, conditions of existing objects to be removed, tides, degree of exposure and all information necessary for the proper carrying out of the work covered by the drawings and this Specification. Submission of Tender will be deemed that Contractor is conversant with site conditions.
- .2 The *Departmental Representative* will give no consideration whatsoever to any claim by the Contractor resulting from failure to have made all the necessary investigations prior to tendering.

1.16 Cooperation & Assistance to Departmental Representative

- .1 Co-operate with *Departmental Representative* on inspection of work.
- .2 Provide assistance when requested.
- .3 Provide small motor boat with operator and sounding chain for *Departmental Representative's* use when requested.

1.17 Datum

- .1 Datum referred to in this Specification is Chart Datum. Chart Datum is, by International Agreement a plane below which the tide will seldom fall. The Canadian Hydrographic Service has adopted the plane of the lowest normal tide (L.N.T.) as Chart Datum. As the rise, fall, and range of tides varies daily, the Canadian Tide and Current Tables, as issued by the Canadian Hydrographic Service, should be consulted for tidal predictions and other tidal information relating to the work.

1.18 Contractor's Representative

- .1 Continuously maintain on the site an authorized representative to whom communication may be addressed and who will be competent to speak for the Contractor in discussing work methods.

1.19 Workers

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<u>Compensation</u>	.1	Contractor and all sub-contractors must be registered under the Workers Compensation Act and provide evidence of good standing.
	.2	At completion of Contract and before final payment is made, the Contractor will present to the <i>Departmental Representative</i> a Letter of Certification from the Workers Compensation Board, showing that all required assessments are paid in connection with all trades.
1.20 Laws, Standards		
<u>Taxes and Fees</u>	.1	Comply with all laws and standards governing all or any part of the work, pay all applicable taxes and pay for all permits and certificates required in respect of the execution of the work. Where variances exist between the requirements of agencies governing all or any part of the work, the most restrictive will govern, but in no instance will the standards established by the drawings and this Specification, which exceed such requirements, be reduced.
1.21 Protection and		
<u>Repair</u>	.1	Repair any damage resulting from operations under this contract.
1.22 Location of		
Equipment and		
<u>Fixtures</u>	.1	Location of equipment, fixtures or any appurtenances indicated are to be considered approximate.
1.23 Inspection		
<u>And Testing</u>	.1	The <i>Departmental Representative</i> may employ an Inspector and/or Testing Company to ensure work conforms with contract.
1.24 Disposal of		
<u>Debris</u>	.1	Debris, including construction materials not incorporated in the work, oil products and containers, and other materials of this nature will be disposed of in suitable locations off the site. This includes costs of disposing of contaminated materials such as creosote treated timber. Disposal is the responsibility of the Contractor.

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- .2 Material from the work will not be permitted to go adrift or otherwise become a menace to navigation.
- .3 Refer section 02 65 00 – Aboveground Storage Tank Removal for disposal requirements o

1.25 Existing Soils
Conditions

- .1 Any information pertaining to soils and all boreholes logs are furnished by the *Departmental Representative* as a matter of general information only and borehole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those described by the boreholes themselves.
- .2 The site is known to contain cobbles and boulders. Contractor shall be prepared to advance through cobbles and boulders as required.

1.26 Relics And
Antiquities

- .1 Protect relics, antiquities, items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found during course of work.
- .2 Give immediate notice to *Departmental Representative* and await written instructions before proceeding with work in this area.
- .3 Relics, antiquities and items of historical or scientific interest remain her Majesty's property.

1.27 Temporary
Navigational Buoys

- .1 The Contractor is to maintain temporary buoy's to mark the position of the outer end of the structure as construction proceeds. All buoy's are to meet the requirements of Canadian Coast Guard Standard TP968 and be equipped with radar reflectors.
 - .2 During Construction, the wharf removal/construction area shall be marked with a yellow cautionary buoy, to be placed no more than 10 meters from the seaward end of the construction area in order to identify the location of the construction project.
 - .3 The Contractor shall coordinate the buoy installation with the local harbour authority.
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- .4 The Contractor is responsible for all costs associated with the supply, installation and removal of all temporary navigational buoy's.

END OF SECTION

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Project Particulars and Measurement

PROJECT PARTICULARS1.1 Description
of Work

- .1 The work under this contract involves the construction of a new wharf extension and service area for the Small Craft Harbour facility located in Port Bickerton East, Guysborough County, Nova Scotia.
- .2 The work includes but is not limited to:
 - .1 Demolition of the existing cribwork ell and storage building. (Existing ell and floating wharves serving the Coast Guard shall not be removed until the completed construction of the new structure and new floating docks are installed including electrical)
 - .2 Construction of approximately 12 m extension of existing wharf stem and 49 m wharf ell extension to the west.
 - .3 Construction of approximately 6 m wide service area with shore protection along the east side of the wharf stem.
 - .4 Relocation of the existing 2 floating wharves, gangways/strongarms to south side of west service area and installation of 2 new higher freeboard floating wharves.
 - .5 Construction of new retaining wall along west service area.
 - .6 Installation of a new electrical and lighting system to support the use of the new and existing structures.
 - .7 Fuel system removal and installation.

1.2 Fuel System Removals
and Installation

- .1 Petroleum Demolition work under this contract consists of the following:
 - .1 Removal and disposal of existing gasoline tank, including all mechanical and electrical equipment, support slab and traffic protection.
 - .2 Removal and disposal of existing diesel tank, including all mechanical and electrical equipment, support slab and traffic protection.
- .2 Petroleum Civil work under this contract consists of the following:
 - .1 Installation of concrete support slab for new diesel fuel storage tank, including curbing, catch basin with oil stop valve, and discharge piping to surface as per design drawings.

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Project Particulars and Measurement

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- .2 Excavation and backfill and compaction of drainage trench and underground electrical conduit trench.
 - .3 Repair of surface asphalt, gravels, and concrete to facilitate complete installation.

 - .3 Petroleum Mechanical work under this contract consists of the following:
 - .1 All mechanical work to be done by a petroleum contractor licensed in the province of Nova Scotia.
 - .2 Installation of new aboveground double wall stainless steel diesel storage tank (13,500 L). Tank to be equipped with:
 - .1 Stainless steel access stairs by tank manufacturer as detailed on design drawings.
 - .2 Tank dip stick holder mounted at top of stairs. Holder to be equipped with drain valve and weather tight cover.
 - .3 Dip port complete with camlock coupling and dust cap.
 - .4 Mechanical tank gauge that reads in cm of liquid.
 - .5 Atmospheric tank vent c/w vent alarm whistle.
 - .6 Minimum 3 spare 100 mm diameter openings.
 - .7 Submersible pump assembly, including the following:
 - .1 Normally closed, failsafe closed, continuous duty solenoid valve with internal pressure relief.
 - .3 Stainless steel fuel transfer piping from submersible pumps to fuel dispensing hose reels.
 - .4 Installation of new fuel dispensing hose, hose reel and nozzle holder for diesel fuel.
 - .5 Installation of new hose guide roller support as detailed in the drawings for diesel system

 - .4 Petroleum Electrical work under this contract consists of the following:
 - .1 All electrical work to be done by a licensed electrician.
 - .2 Installation of new electrical board as per design drawings, including emergency stop's (2), pump motor key switch, hose rewind momentary contact switch, submerged turbine pump and controller inside heated enclosure.
 - .3 Installation of underground electrical conduits as per design drawings.
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PROJECT MEASUREMENT2.1 General

.1 This section details the measurement method to be used for payment purposes. Incidental items covered in the various sections of the Specification are to be allowed for in the pricing of each pay item.

.2 The contractor will be requested to provide a breakdown of the lump sum items for payment purposes following award of the contract.

2.2 Measurement
For Payment**.1 Lump Sum Items (Accumulated Total)**

Note: All items designated as lump sum are to be combined into one accumulated lump sum total in the tender documents.

.1.1 Departmental Representative's Site Office: All work associated with the supply, maintenance, and removal of the Departmental Representative's site office per Section 01 51 00 of the Specification shall be measured for payment by the lump sum.

.1.2 Sitework, Demolition and Removals: All sitework, demolition, and removals required to complete the work shall be measured for payment by the lump sum. Any additional demolition and removals essential to complete the work will be considered incidental to this demolition item.

.1.3 Environment Controls: All environment controls required to complete the work shall be measured for payment by the lump sum.

.1.4 Mobilization and Demobilization: All work associated with the mobilization and demobilization of all equipment required to perform and complete the work as outlined in the Contract Drawings, shall be measured for payment by the lump sum.

.1.5 Relocation of Existing Floating Wharves: The relocation of existing floating wharves and gangways/strongarms shall be measured for payment by the lump sum.

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- .1.6 Electrical Work: All electrical work shown on the electrical drawings shall be measured for payment by the lump sum. This includes but is not limited to:
- .1 Eleven (11) power centers located along the wharf. Included are four (4) power centers on the floating wharves.
 - .2 Thirteen (13) lighting poles with twenty-seven (27) light fixtures.
 - .3 One (1) fuel storage tank power feed.
 - .4 One (1) fuel storage tank power feed.
 - .5 Two (2) electrical sheds as shown on drawings.
 - .6 600/347 Volt, 120/208 Volt, 3 Phase, 4 wire electrical system.
 - .7 120/240 Volt, 1 Phase, 3 wire electrical system.
 - .8 Spare conduits as noted on the drawings.
 - .9 Co-ordination with NSP for new overhead power lines and poles.
 - .10 Co-ordination and payment for all fees levied by power Supply Authority for the completion of the project. Contractor shall carry a lump sum allowance of \$15,000.00 (fifteen thousand dollars). Utility invoices are to be submitted to the Departmental Representative as proof of payment. All utility costs in excess of \$15,000.00 will be addressed as a change order to the contract.
- .2 **Unit Price Items**
- Note:** The following outlines the unit of measurement of the unit price items as indicated in the tender documents.
- .2.1 Reinforced Concrete Deck: Supply and placement of cast-in-place concrete for deck, including wheel guards and sub guards, shall be measured for payment by the cubic meter (m³). All inserts and drains are incidental to the work. Steel reinforcing, formwork and all supplementary materials will not be measured for payment but considered incidental to the work.
- .2.2 Reinforced Concrete Pile Caps: Supply and placement of cast-in-place concrete for pile caps shall be measured for payment by the cubic meter (m³). Cope beam for Berlin Wall is included in this item. Steel reinforcing, formwork and all supplementary materials shall not be measured for payment but considered incidental to the work.

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- .2.3 Miscellaneous Concrete: Supply and placement of miscellaneous cast-in-place concrete, not covered above, including the two concrete retaining walls and anchor block for Berlin Wall, shall be measured for payment by the cubic meter (m³). All inserts and drains are incidental to the work. Steel reinforcing, formwork and all supplementary materials shall not be measured for payment but considered incidental to the work.
- .2.4 Fiber Reinforced Concrete Pile Jackets: Supply and placement of cast-in-place fiber reinforced concrete for steel H-Piles will be measured for payment per each (ea.) concrete jacket installed. Price shall include cleaning of piles, pile jackets or forms, concrete and all other material, labour and equipment required to complete the work.
- .2.5 Tremie Concrete: Supply and placement of tremie concrete shall be measured for payment by the cubic meter (m³). Formwork and supplementary materials shall not be measured for payment but considered incidental to the work.
- .2.6 Precast Concrete Panels: Supply and installation of precast concrete panels for Berlin Wall shall be measured for payment per square meter (m²). All hardware, fasteners, and bolts shall be considered incidental to the work.
- .2.7 Steel Tie Rods: Supply and installation of steel tie rods shall be measured for payment per each (Ea.). For measurement purpose one tie rod installation will include one tie rod, nuts and washers and tie rod connection to H-Pile as shown on drawings.
- .2.8 Timber Wales: Supply and installation of wales shall be measured for payment by the cubic meter (m³). Installation of bolts and hardware shall not be measured but considered incidental to the work.
- .2.9 Timber Sheathing: Supply and installation of timber sheathing shall be measured for payment by the cubic meter (m³) as measured from the drawings. Bolts and hardware shall not be measured but considered incidental to the work.
- .2.10 Timber Blocking: Supply and installation of timber blocking for the end of Berlin Wall shall be measured for payment by the cubic

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meter (m³) as measured from the drawings. Bolts and hardware shall not be measured but considered incidental to the work.

- .2.11 Corestone: Supply and placement of Corestone shall be measured for payment by the cubic metre place measure (CMPM) based on neat lines from the drawings confirmed by as constructed survey information provided by the Contractor. Any material placed beyond the lines and grades shown shall not be measured for payment. Supply and installation of filter fabric shall be considered incidental to the work.
 - .2.12 Rip Rap: Supply and placement of rip rap is to be measured for payment by the cubic place measure (CMPM) based on neat lines from the drawings confirmed by as constructed survey information provided by the Contractor. Price to include entire cost of supply and placing the material in the work. Supply and installation of filter fabric shall be considered incidental to the work.
 - .2.13 Supply of Steel Bearing H-Piles: Supply of steel bearing H-Piles (HP 360x132) shall be measured for payment by the linear metre (m) of piling successfully installed.
 - .2.14 Supply of Steel Batter H-Piles: Supply of steel batter H-Piles (HP 360x132) shall be measured for payment by the linear metre (m) of piling successfully installed.
 - .2.15 Supply of Steel H-Piles: Supply of steel H-Piles (HP 360x152) for Berlin Wall shall be measured for payment by the linear metre (m) of piling successfully installed. Steel plate closures, C-Channels and panel support angles shall be considered incidental to this work.
 - .2.16 Installation of Steel Bearing H-Piles: The installation of steel bearing H-Piles, including piles for Berlin Wall, shall be measured for payment per each (ea.). All hardware, fasteners, bolts, and pile shoes shall be considered incidental to the work.
 - .2.17 Installation of Steel Batter H-Piles: The installation of steel batter H-Piles shall be measured for payment per each (ea.). All hardware, fasteners, bolts, and pile shoes shall be considered incidental to the work.
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- .2.18 Supply of Timber Fender Piles: Supply of timber fender piles shall be measured for payment by the linear metre (m) of piling successfully installed.
- .2.19 Installation of Timber Fender Piles: The installation of timber fender piles shall be measured for payment per each (ea.). All hardware, fasteners, bolts, and pile shoes shall be considered incidental to the work.
- .2.20 Granular Sub-Base: Supply and placement of granular sub-base (type 2) for service areas shall be measured for payment by the cubic metre place measurement (CMPM) based on the neat lines from the drawings confirmed by as constructed survey information provided by the Contractor. No variation from the neat measurement shall be allowed without prior approval from the Departmental Representative. This item includes supply and placement of gravel, compaction, grading, confirmation survey and all other required work to prepare the finished grades as indicated on the drawings. Any material placed beyond the lines and grades shown shall not be measured for payment. Supply and installation of filter fabric shall be considered incidental to the work.
- .2.21 Granular Base: Supply and placement of granular sub-base (type 1) for service areas shall be measured for payment by the cubic metre place measurement (CMPM) based on the neat lines from the drawings confirmed by as constructed survey information provided by the Contractor. No variation from the neat measurement shall be allowed without prior approval from the Departmental Representative. This item includes supply and placement of gravel, compaction, grading, confirmation survey and all other required work to prepare the finished grades as indicated on the drawings. Any material placed beyond the lines and grades shown shall not be measured for payment. Supply and installation of filter fabric shall be considered incidental to the work.
- .2.22 Clearstone: Supply and placement of clearstone shall be measured for payment by the cubic metre place measure (CMPM) based on neat lines from drawings confirmed by as constructed survey information provided by the Contractor. Any material placed beyond the lines and grades shown shall not be measured for

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payment. Supply and installation of filter fabric shall be considered incidental to the work.

- .2.23 Ladders: Supply and installation of treated timber ladders, including holdfasts and extensions, rungs and fastenings, shall be measured for payment per each (Ea.). Bolts and hardware shall not be measured but considered incidental to the work. Additional wale at the ladder locations shall be considered incidental to the work.
- .2.24 Mooring Cleats: Supply and installation of mooring cleats shall be measured for payment per each (Ea.). Bolts and hardware shall not be measured, but considered incidental to the work.
- .2.25 Mooring Rings: Supply and installation of mooring rings shall be measured for payment per each (Ea.). Bolts and hardware shall not be measured, but considered incidental to the work.
- .2.26 Aluminum Gangways: Supply and installation of aluminum gangways shall be measured for payment per each (Ea.) All hardware, hinges, handrails, aluminum grating, aluminum checker plates and accessories are to be considered incidental to the work.
- .2.27 Galvanized Steel Strongarms: Supply and installation of galvanized steel strongarms shall be measured for payment per each (Ea.). Each strong arm assembly includes one galvanized steel strongarm and two galvanized steel strut arms. All hardware, hinges and accessories are to be considered incidental to the work.
- .2.28 Floating Wharves: Supply and installation of floating wharves shall be measured for payment per each (Ea.). All hardware, anchoring, floatation devices and accessories are to be considered incidental to the work.
- .2.29 Fuel System Removals and Installation: All work associated with the removal and disposal of existing gasoline and diesel tanks and installation of new aboveground storage tank including support slab and electrical work.

END OF SECTION

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PROJECT MEETINGS

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submissions/Shop Drawings
- .2 Section 01 56 00 – Temporary Barriers and Enclosures
- .3 Section 01 78 00 – Closeout Submittals

1.2 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, attend a kick off meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Schedule of Work: in accordance with Section 01 10 10 General Instructions
 - .2 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00- Submittal Procedures.
 - .3 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences to facilitate complete installation.
 - .4 Site security in accordance with Section 01 56 00- Temporary Barriers and Enclosures.
 - .5 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .6 Owner provided products.
 - .7 Record drawings in accordance with Section 01 33 00- Submittal Procedures.
 - .8 Maintenance manuals in accordance with Section 01 78 00- Closeout Submittals.
 - .9 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00- Closeout Submittals.
 - .10 Monthly progress claims, administrative procedures, photographs, hold backs.
 - .11 Appointment of inspection and testing agencies or firms.
 - .12 Insurances, transcript of policies.

1.3 PROGRESS MEETINGS

- .1 During course of Work and bi-weekly.
- .2 Contractor, major Subcontractors involved in Work Departmental Representative are to be in attendance.

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PROJECT MEETINGS

- .3 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Other business.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

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Submissions / Shop Drawings

PART 1 – GENERAL1.1 General

- .1 Submit to *Departmental Representative*, for review, shop drawings, product data, samples and other information specified.
- .2 Until submission is reviewed, work involving relevant product may not proceed.

1.2 Shop Drawings

- .1 Drawings to be originals prepared by contractor, subcontractor, supplier or distributor, which illustrate appropriate portion of work, showing fabrication, layout, setting or erection details as specified in appropriate sections.
- .2 Identify details by reference to sheet and detail numbers shown on Contract Drawings.
- .3 Maximum sheet size 860mm X 1120 mm.
- .4 Reproductions for submissions: opaque diazo prints.

1.3 Product Data

- .1 Certain specification sections specify that manufacturer's standard schematic drawings, catalogue sheets, diagrams schedules, performance chart, illustrations and other standard descriptive data will be accepted in lieu of shop drawings.

1.4 Samples

- .1 Submit samples in sizes and quantities specified.
- .2 Construct field samples and mock-ups at locations acceptable to *Departmental Representative*.
- .3 Accepted samples will become standards of workmanship and material against which, installed work will be checked on project.

1.5 Miscellaneous Data

- .1 Provide certificates, methodologies, design and test results as required.

1.6 Coordination
of Submissions

- .1 Review shop drawings, product data, samples and miscellaneous data prior to submissions.
- .2 Verify:

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Submissions / Shop Drawings

- .1 Field Measurements.
- .2 Field Construction Criteria.
- .3 Catalogue numbers and similar data.

.3 Coordinate each submission with requirements of work and contract documents. Individual submissions will not be reviewed until all related information is available.

.4 Contractor's responsibility for errors and omissions in submission is not relieved by the *Departmental Representative's* review of submissions.

.5 Contractor's responsibility for deviations in submission from requirements in Contract documents is not relieved by *Departmental Representative's* review of submission, unless *Departmental Representative* gives written acceptance of specified deviations.

.6 Notify the *Departmental Representative*, in writing at time of submission, of deviations from requirements of contract documents stating reasons for deviations.

.7 After *Departmental Representative's* review, distribute copies.

1.7 Submission Requirements

.1 Schedule submissions at least 14 days before dates reviewed submissions will be needed.

.2 Submit number of opaque diazo copies of shop drawings, product data which Contractor requires for distribution, plus two (2) copies which will be retained by *Departmental Representative*.

.3 Accompany submissions with transmittal letter, in duplicate, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample submitted.
- .5 Other pertinent data.

.4 Submissions shall include:

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Submissions / Shop Drawings

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
 - .1 Contractor.
 - .2 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Separate details when pertinent.
- .4 Identification of product or material.
- .5 Relation to adjacent structure or materials.
- .6 Field dimensions, clearly identified as such.
- .7 Specification Section Number.
- .8 Applicable standards such as CSA or CGSB numbers.
- .9 Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with contract documents.

1.8 Shop Drawings Review

- .1 The review of shop drawings by Public Works and Government Services Canada or its authorized consultant, is for the sole purpose of ascertaining conformance with the general concept. This review shall not mean that Public Works and Government Services Canada approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the construction and contract documents. Without restricting the generality of the foregoing, the Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades.

1.9 Other Reviews

- .1 As for shop drawings above, other reviews are for the sole purpose of ascertaining the general concept.

END OF SECTION

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Special Procedures on Fire Safety Requirements

PART 1 – GENERAL

- 1.1 Related Sections
- .1 Refer to Section 01 33 00 for Shop Drawing/ Submissions requirements.
 - .2 Section 01 35 29 – Health and Safety
 - .2 Section 01 35 25 – Special Procedures on Lockout Requirements
- 1.2 References
- .1 National Fire Code 2015.
 - .2 National Building Code 2010.
- 1.3 Definitions
- .1 Hot Work defined as:
 - .1 Welding work
 - .2 Cutting of materials by use of torch or other open flame devices
 - .3 Grinding with equipment which produces sparks.
 - .4 Use of open flame torches such as for roofing work.
- 1.4 Submittals
- .1 Submit copy of Hot Work Procedures, to *Departmental Representative* for review, within 14 calendar days after contract award.
 - .2 Submit above documents in accordance with the submittal general requirements specified in Section 01 33 00.
- 1.5 Fire Safety Requirement
- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code 2015.
 - .2 National Building Code 2010.
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations.
 - .2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, *Departmental Representative* will advise on the course of action to be followed.
- 1.6 Hot Work
-

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Special Procedures on Fire Safety Requirements

Authorization

- .1 Obtain *Departmental Representative's* written "Authorization to Proceed for the performance of Hot Work on site as may be required in the course of Work.
- .2 To obtain authorization, submit to *Departmental Representative* for review:
 - .1 Contractor's Hot Work Procedures to be followed on site in accordance with clause 1.8 below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample of Hot Work Permit to be used.
- .3 Upon review and confirmation that effective fire safety measures will be implemented and followed during performance for hot work, *Departmental Representative* will give Authorization to Proceed.
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Subdivide the work into pre-determined, individual activities, each activity requiring a separately written authorization to proceed.
- .4 Requirement for individual authorization will be based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by *Departmental Representative* to ensure fire safety on premises.
- .5 Do not perform any Hot Work until receipt of *Departmental Representative's* written "Authorization to Proceed" for that portion of work.
- .6 In tenant occupied Facility, coordinate performance of Hot Work with Facility Manager through the *Departmental Representative*. When directed, perform Hot Work only during non-operative hours of the Facility. Follow *Departmental Representative's* directives in this regard.

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Special Procedures on Fire Safety Requirements

1.7 Hot Work
Procedures

- .1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.
- .2 Hot Work Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate work area beforehand for each hot work event in accordance with Safety Plan specified in section 01 35 29.
 - .2 Use of a Hot Work Permit system with individually issued permit by Contractor's Superintendent to worker or subcontractor granting permission to proceed with Hot Work.
 - .3 Permit required for each Hot Work event.
 - .4 Designation of a person on site as a Fire Safety Watcher responsible to conduct a fire safety watch for a minimum duration of 30 minutes immediately following the completion of the Hot Work.
 - .5 Compliance with fire safety codes, standards and occupational health and safety regulations specified.
 - .6 Site specific rules and procedures in force at the site as provided by the Facility Manager.
- .3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Label document as being the Hot Work Procedures for this contract.
- .4 Procedures shall clearly establish responsibilities of:
 - .1 Worker performing hot work,
 - .2 Person issuing the Hot Work Permit,
 - .3 Fire Safety Watcher,
 - .4 Subcontractor(s) and Contractor.
- .5 Brief all workers and subcontractors on Hot Work Procedures and of Permit system. Stringently enforce compliance.

1.8 Hot Work Permit

- .1 Hot Work Permit to include the following:
 - .1 Project name and project number;
 - .2 Building name and specific room or area where hot work will be performed;
 - .3 Date of issue;
 - .4 Description of hot work type needed;
 - .5 Special precautions to be followed, including type of fire extinguisher needed;
-

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- .6 Name and signature of permit issuer.
- .7 Name of worker to which the permit is issued.
- .8 Permit validity period not to exceed 8 hours. Indicate start time/date and termination time/date.
- .9 Worker's signature with time/date of hot work completion.
- .10 Stipulated time period of safety watch.
- .11 Fire Safety Watcher's signature with time/date.

.2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.

.3 Each Hot Work Permit to be completed in full, signed and returned to Contractor's Superintendent for safe keeping on site.

1.9 Fire Protection
And Alarm Systems

.1 Fire protection and alarm systems shall not be:

- .1 Obstructed.
- .2 Shut-off, unless approved by *Departmental Representative*.
- .3 Left inactive at the end of a working day or shift.

.2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.

.3 Costs incurred, from the fire department, Facility owner [and tenants], resulting from negligently setting off false alarms will be charged to the Contractor in the form of financial progress payment reductions and holdback assessments against the Contract.

1.10 Documents on Site

.1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.

.2 Upon request, make available to *Departmental Representative* or to authorized safety Representative for inspection.

END OF SECTION

Wharf Construction**Port Bickerton East****Guysborough County, Nova Scotia****Project No. R.082082.001****Special Procedures on Lockout Requirements**PART 1 – GENERAL

- 1.1 Section Includes .1 Procedures to isolate and lockout electrical facility or other equipment from energy source.
- 1.2 Related Sections .1 Refer to Section 01 33 00 for Shop Drawing/ Submissions requirements.
- .2 Section 01 35 24 – Fire Safety Requirements.
- .2 Section 01 35 29 – Health and Safety.
- 1.3 References .1 CSA C22.1-12, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
- .2 CAN/CSA-C22.3 No.1-15, Overhead Systems.
- .3 CSA C22.3 No. 7-15, Underground Systems.
- .4 COSH, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- 1.4 Definitions .1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.
- .2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated.
- .3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).
- .4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.
-

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.5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.

.6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 Compliance Requirements

.1 Comply with the following in regards to isolation and lockout of electrical facilities and equipment:

- .1 Canadian Electrical Code.
- .2 Federal and Provincial Occupational Health and Safety Acts and Regulations.
- .3 Regulations and code of practise as applicable to mechanical equipment or other machinery being de-energized.
- .4 Procedures specified herein.

.2 In event of conflict between any provisions of above authorities the most stringent provision will apply.

1.6 Submittals

.1 Submit copy of lockout procedures, sample of lockout permit and lockout tags proposed for use in accordance with Section 01 33 00. Submit within 14 calendar days of acceptance of bid.

1.7 Isolation of Existing Services

.1 Obtain *Departmental Representative's* written authorization prior to working on existing live or active electrical facilities and equipment and before proceeding with isolation of such item.

.2 To obtain authorization, submit to *Departmental Representative* following documentation:

- .1 Written request for isolation of the service or facility and;
- .2 Copy of Contractor's Lockout Procedures.

.3 Make a Request for Isolation for each event, unless directed otherwise by *Departmental Representative*, and as follows:

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Special Procedures on Lockout Requirements

- .1 Fill-out standard forms in current use at the Facility when so directed by *Departmental Representative* or;
- .2 Where no form exist at Facility, make request in writing identifying:
 - .1 The equipment, system or service to be isolated and it's location.
 - .2 Duration of isolation period (ie: start time & date and completion time & date).
 - .3 Voltage of service feed to system or equipment being isolated.
 - .4 Name of person making the request.
- .4 Do not proceed with isolation until receipt of written notification from *Departmental Representative* granting the Isolation Request and authorization to proceed with the work.
 - .1 Note that *Departmental Representative* may designate another person at the Facility being authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shutdown of equipment or facility. De-energize, isolate and lockout power and other sources of energy feeding the equipment or facility.
- .6 Determine in advance, as much as possible, in cooperation with the *Departmental Representative*, the type and frequency of situations which will require isolation of existing services.
- .7 Plan and schedule shut down of existing services in consultation with the *Departmental Representative* and the Facility Manager. Minimize impact and downtime of Facility operations. Follow *Departmental Representative's* directives in this regard.
- .8 Conduct hazard assessment as part of the process in accordance with health and safety requirements specified Section 01 35 29.

1.8 Lockouts

- .1 De-energize, isolate and lockout electrical facility, mechanical equipment and machinery from all potential sources of energy prior to working on such items.
 - .2 Develop and implement clear and specific lockout procedures to be followed as part of the Work.
-

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Special Procedures on Lockout Requirements

- .3 Prepare typed written Lockout Procedures describing safe work practices, procedures, worker responsibilities and sequence of activities to be followed on site by workforce to safely isolate an active piece of equipment or electrical facility and effectively lockout and tagout it's sources of energy.
- .4 Include as part of the Lockout Procedures a system of lockout permits managed by Contractor's Superintendent or other qualified person designated by him/her as being "in-charge" at the site.
 - .1 A lockout permit shall be issued to specific worker providing a Guarantee of Isolation before each event when work must be performed on a live equipment or electrical facility.
 - .2 Duties of person managing the permit system to include:
 - .1 Issuance of permits and lockout tags to workers.
 - .2 Determining permit duration.
 - .3 Maintaining record of permits and tags issued.
 - .4 Making a Request for Isolation to *Departmental Representative* when required as specified above.
 - .5 Designating a Safety Watcher, when one is required based on type of work.
 - .6 Ensuring equipment or facility has been properly isolated.
 - .7 Collecting and safekeeping lockout tags returned by workers as a record of the event.
- .5 Clearly establish, describe and allocate responsibilities of:
 - .1 Workers.
 - .2 Person managing the lockout permit system.
 - .3 Safety Watcher.
 - .4 Subcontractor(s) and General Contractor.
- .6 Generic procedures, if used, must be edited and supplemented with pertinent information to reflect specific project requirements.
 - .1 Incorporate site specific rules and procedures in force at site as provided by Facility Manager through the *Departmental Representative*.
 - .2 Clearly label the document as being the Lockout procedures applicable to work of this contract.

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- .7 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
- .8 Use industry standard lockout tags.
- .9 Provide appropriate safety grounding and guards as required.

1.9 Conformance

- .1 Brief all workers and subcontractors on requirements of this section. Stringently enforce use and compliance.

1.10 Documents On Site

- .1 Post Lockout Procedures on site in common location for viewing by workers.
- .2 Keep copies of Request for Isolation forms and lockout permits and tags issued to workers on site for full duration of Work.
- .3 Upon request, make available to *Departmental Representative* or to authorized safety representative for inspection.

END OF SECTION

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Health and Safety

PART 1 – GENERAL1.1 Related Work

- .1 Refer to Section 01 33 00 for Shop Drawing/ Submissions requirements.
- .2 Section 01 35 24 – Special Procedures on Fire Safety Requirements.
- .3 Section 01 35 25 – Special Procedures on Lockout Requirements.

1.2 Definitions

- .1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- .2 Competent Person: means a person who is:
 - .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
 - .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
 - .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.
- .3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
- .4 PPE: personal protective equipment.
- .5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.

1.3 Submittals

- .1 Make submittals in accordance with Section 01 33 00.
- .2 Submit site-specific Health and Safety Plan prior to commencement of Work.
 - .1 Submit within 10 work days of notification of Bid Acceptance. Allow for 5-10 days for Department review and recommendations prior to the commencement of work.

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Health and Safety

- .2 *Departmental Representative* will review Health and Safety Plan and provide comments.
- .3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.
- .4 *Departmental Representative's* review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.
- .5 Submit revisions and updates made to the Plan during the course of Work.

.3 Submit name of designated Health and Safety Site Representative and support documentation specified in the Safety Plan.

.4 Submit building permit, compliance certificates and other permits obtained.

.5 Submit copy of Letter in Good Standing from Provincial Workers Compensation or other Department of Labour organization.

- .1 Submit update of Letter of Good Standing whenever expiration date occurs during the period of Work.

.6 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.7 Submit copies of incident reports.

.8 Submit WHMIS MSDS - Material Safety Data Sheets.

1.4 Compliance Requirements

- .1 Comply with Occupational Health and Safety Act for Province of Nova Scotia, and Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code - Part II (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations as well as any other regulations made pursuant to the Act.
 - .1 The Canada Labour Code can be viewed at:
[www.http://laws-lois.justice.gc.ca/eng/acts/L-2/fulltext.html](http://laws-lois.justice.gc.ca/eng/acts/L-2/fulltext.html).

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- .2 Canadian Occupational Health and Safety Regulations can be viewed at:<http://lawslois.justice.gc.ca/eng/regulations/SOR-86-304/index.html>.
 - .3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: 819-956-4800 or 1-800-635-7943 Publication No. L31-85/2000 (E or F).
 - .3 Treasury Board of Canada Secretariat (TBS):
 - .1 Treasury Board, Fire Protection Standard April 1, 2010 www.tbs-sct.gc.ca/poldoceng.aspx?id=17316§ion=text.
 - .4 Canadian Standards Association (CSA):
 - .1 CSA S350-M1980(R2003), Code of Practice for Safety in Demolition of Structures.
 - .5 Observe construction safety measures of:
 - .1 NBC 2010, Division B, Part 8.
 - .2 Municipal by-laws and ordinances.
 - .6 In case of conflict or discrepancy between above specified requirements, the more stringent shall apply.
 - .7 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter in Good Standing.
 - .8 Medical Surveillance: Where prescribed by legislation or regulation, obtain and maintain worker medical surveillance documentation.
- 1.5 Responsibility
- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of Work.
 - .2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to Work Site with safety requirements of Contract Documents, applicable federal, provincial, and local by-laws, regulations, and ordinances, and with site-specific Health and Safety Plan.

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- 1.6 Site Control and Access .1 Control the Work and entry points to Work Site. Approve and grant access only to workers and authorized persons. Immediately stop and remove non-authorized persons.
- .1 *Departmental Representative* will provide names of those persons authorized by *Departmental Representative* to enter onto Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.
- .2 Isolate Work Site from other areas of the premises by use of appropriate means.
- .1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.
- .2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.
- .3 Use professionally made signs with bilingual message in the 2 official languages or international known graphic symbols.
- .3 Provide safety orientation session to persons granted access to Work Site. Advise of hazards and safety rules to be observed while on site.
- .4 Ensure persons granted site access wear appropriate PPE. Supply PPE to inspection authorities who require access to conduct tests or perform inspections.
- .5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm.
- 1.7 Protection .1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.
- .2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take
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measures to rectify situation and prevent damage or harm. Advise *Departmental Representative* verbally and in writing.

1.8 Filing of Notice

- .1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.
 - .1 *Departmental Representative* will assist in locating address if needed.

1.9 Permits

- .1 Post permits, licenses and compliance certificates, specified in section 01 10 10, at Work Site.
- .2 Where a particular permit or compliance certificate cannot be obtained, notify *Departmental Representative* in writing and obtain approval to proceed before carrying out applicable portion of work.

1.10 Hazard Assessments

- .1 Perform site specific health and safety hazard assessment of the Work and its site.
- .2 Carryout initial assessment prior to commencement of Work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.
- .3 Record results and address in Health and Safety Plan.
- .4 Keep documentation on site for entire duration of the Work.

1.11 Project / Site Conditions

- .1 Existing site conditions include overhead power line and an active harbour facility.

1.12 Meetings

- .1 Attend pre-construction health and safety meeting, convened and chaired by *Departmental Representative*, prior to commencement of Work, at time, date and location determined by *Departmental Representative*. Ensure attendance of:
 - .1 Superintendent of Work.
 - .2 Designated Health & Safety Site Representative.
 - .3 Subcontractors.
- .2 Conduct regularly scheduled tool box and safety meetings during the Work in conformance with Occupational Health and Safety regulations.

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1.13 Health and
Safety Plan

- .3 Keep documents on site.

 - .1 Prior to commencement of Work, develop written Health and Safety Plan specific to the Work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.

 - .2 Health and Safety Plan shall include the following components:
 - .1 List of health risks and safety hazards identified by hazard assessment.
 - .2 Control measures used to mitigate risks and hazards identified.
 - .3 On-site Contingency and Emergency Response Plan as specified below.
 - .4 On-site Communication Plan as specified below.
 - .5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
 - .6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.

 - .3 On-site Contingency and Emergency Response Plan shall include:
 - .1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.
 - .2 Evacuation Plan: site and floor plan layouts showing escape routes, marshalling areas. Details on alarm notification methods, fire drills, location of firefighting equipment and other related data.
 - .3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.
 - .4 Emergency Contacts: name and telephone number of officials from:
 - .1 General Contractor and subcontractors.
 - .2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.
 - .3 Local emergency resource organizations.
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- .5 Harmonize Plan with Facility's Emergency Response and Evacuation Plan. *Departmental Representative* will provide pertinent data including name of PWGSC and Facility Management contacts.
- .4 On-site Communication Plan:
 - .1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.
 - .2 List of critical work activities to be communicated with Facility Manager which have a risk of endangering health and safety of Facility users.
- .5 Address all activities of the Work including those of subcontractors.
- .6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.
- .7 *Departmental Representative* will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.
- .8 Post copy of the Plan, and updates, prominently on Work Site
- 1.14 Safety Supervision
 - .1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.
 - .2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:
 - .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work
 - .2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
 - .3 Conduct site safety orientation session to persons granted access to Work Site.
 - .4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.

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- .5 Stop the Work as deemed necessary for reasons of health and safety.
- .3 Health & Safety Site Representative must:
 - .1 Be qualified and competent person in occupational health and safety.
 - .2 Have site-related working experience specific to activities of the Work.
 - .3 Be on Work Site at all times during execution of the Work.
- .4 All supervisory personnel assigned to the Work shall also be competent persons.
- .5 Inspections:
 - .1 Conduct regularly scheduled safety inspections of the Work on a minimum bi-weekly basis. Record deficiencies and remedial action taken.
 - .2 Follow-up and ensure corrective measures are taken.
- .6 Cooperate with Facility's Occupational Health and Safety representative should one be designated by *Departmental Representative*.
- .7 Keep inspection reports and supervision related documentation on site.
- 1.15 Training
 - .1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.
 - .2 Maintain employee records and evidence of training received. Make data available to *Departmental Representative* upon request.
 - .3 When unforeseen or peculiar safety-related 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 *Departmental Representative* verbally and in writing.

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1.16 Minimum Site
Safety Rules

- .1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:
 - .1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.
 - .2 Immediately report unsafe condition at site, near-miss accident, injury and damage.
 - .3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
 - .4 Obey warning signs and safety tags.
- .2 Brief persons of disciplinary protocols to be taken for noncompliance.

1.17 Correction Of
Non Compliance

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by *Departmental Representative*.
- .2 Provide *Departmental Representative* with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 *Departmental Representative* will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.

1.18 Incident Reporting

- .1 Investigate and report the following incidents to *Departmental Representative*:
 - .1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
 - .2 Medical aid injuries.
 - .3 Property damage in excess of \$10,000.00,
 - .4 Interruptions to Facility operations resulting in an operational lost to a Federal department in excess of \$5,000.00.
- .2 Submit report in writing.

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- 1.19 Hazardous Products .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site.
- .1 Post on site.
- .2 Submit copy to *Departmental Representative*.
- 1.20 Blasting .1 Blasting or other use of explosives is not permitted on site.
- 1.21 Powder Actuated Devices .1 Use powder actuated fastening devices only after receipt of written permission from *Departmental Representative*.
- 1.22 Confined Spaces .1 Abide by occupational health and safety regulations regarding work in confined spaces.
- 1.23 Site Records .1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.
- .2 Upon request, make available to *Departmental Representative* or authorized Safety Officer for inspection.
- 1.24 Posting of Documents .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.
- .2 Post other documents as specified herein, including:
- .1 Site specific Health and Safety Plan.
- .2 WHMIS data sheets.

END OF SECTION

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PART 1 – GENERAL

1.1 References

- .1 Canada Shipping Act, Transport Canada, 2001, amended 2013-12-01.
- .2 Canadian Coast Guard Regulations, Fisheries and Oceans Canada.
- .3 Canadian Environmental Assessment Act, 2012, amended 2013-11-25.
- .4 Canadian Environmental Protection Act, 1999, amended on 2014-03-28.
- .5 Fisheries Act, 1985, Fisheries and Oceans Canada, amended 2013-11-25.
- .6 Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, 1998.
- .7 Migratory Birds Convention Act, 1994, Environment Canada, amended 2010-12-10.
- .8 Navigation Protection Act, 1985. Transport Canada, amended 2014-04-01.
- .9 Nova Scotia – Environment Act.
- .10 Species at Risk Act, 2002, amended 2013-03-08.
- .11 The Federal Policy on Wetland Conservation, 1991, Environment Canada.
- .12 Transportation of Dangerous Goods Act, 1992, Transport Canada, amended 2009-06-16.
- .13 Workplace Hazardous Materials Information System, Health Canada.

1.2 Definitions

- .1 Archaeological Resources: All tangible evidence of human activity that is of historical, cultural or scientific interest. (Examples can include features, structures, archaeological objects or remains
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at or from an archaeological site, or an object recorded as an isolated archaeological find.)

- .2 Buffer zone: a vegetated land that protects watercourses from adjacent land uses. It refers to the land adjacent to watercourses, such as streams, rivers, lakes, ponds, oceans, and wetlands, including the floodplain and the transitional lands between the watercourse and the drier upland areas.
 - .3 Deleterious substance: (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.
 - .4 Fish habitat: spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.
 - .5 Hazardous material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
 - .6 Invasive or alien species: refers to a species or subspecies introduced outside its normal distribution whose establishment and spread threaten ecosystems, habitats or species with economic or environmental harm.
 - .7 Navigable water: a canal and any other body of water created or altered as a result of the construction of any work.
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.8 Surface watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.

.9 Wetlands: land where the water table is at, near or above the surface or which is saturated for a long enough period to promote such features as wet-altered soils and water tolerant vegetation. Wetlands include organic wetlands or "peatlands," and mineral wetlands or mineral soil areas that are influenced by excess water but produce little or no peat.

1.3 Transportation

.1 Transport hazardous materials and hazardous waste in compliance with the Transportation of Dangerous Goods Act.

.2 Eliminate free board spillage when excavating, loading and hauling excavated material.

.3 Trucks transporting any wet excavated material will have watertight boxes.

.4 Do not overload trucks when hauling excavated material.

.5 Maintain trucks clean and free of mud, dirt and other foreign matter.

.6 Secure contents against spillage. Avoid potential release of contents and of any foreign matter onto highways, roads and access routes used for the work. Immediately clean any ground spills and soils to extent as directed by authority having jurisdiction.

.7 Prior to commencement of work, advise and seek approval from the *Departmental Representative* of the existing roads and temporary routes / roads proposed to be used to access work areas and to haul material to and from the site.

.8 Construction material and debris is not to become waterborne.

.9 Any tools, equipment, vehicles, temporary structures or part thereof used or maintained for the purpose of building or placing work in navigable water are not to remain in place after the completion of the project.

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- .10 Vessels shall be permitted safe access through the worksite at all times, and shall be assisted as necessary.
- .11 All materials and equipment used in construction must be marked in accordance with the Collision Regulations of the Canada Shipping Act, 2001 when located on the waterway.
- .12 Advise the Canadian Coast Guard, Marine Communication and traffic Services (MCTS) at (902) 564-7751 or toll free at 1-800-686-8676 sufficiently in advance of commencement of work or when deploying or removing site markings in order to allow for appropriate Notices to Shipping/Mariners action.
- .13 Work activities must comply with all / any conditions of the **Navigation Protection Act (NPA) approval issued by Transport Canada**. A copy of the NPA approval will be provided to the Contractor and must be kept on-site while work in in progress.

1.4 Construction Activities and Materials

- .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 project 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 and/or 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. Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.
 - .4 Material is to be screened, if required, to ensure that no fines or stones less than 0.2 kilograms are placed in the work. Gradation of the material to be imported for the construction of the causeways, roads etc. shall be within the following limits:
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IMPERIAL SIZE	METRIC SIZE	PERCENT PASSING
18"	450 mm	100
8"	200 mm	44-75
4"	100 mm	24-50
2"	50 mm	7-14

- .5 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.
- .6 The Contractor is to maintain temporary buoys to mark the position of any access road. All buoys are to meet requirements of the applicable Canadian Coast Guard standard and be equipped with radar reflectors.

1.5 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.

1.6 Containment and Spill Management

- .1 Comply with Federal (CEPA *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*) and Provincial regulations, codes, standards and guidelines for the storage of fuel and allied petroleum products on site.
- .2 Do not dump petroleum products or any other deleterious substances on ground or in the water.

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- .3 Be diligent and take all necessary precautions to avoid spills and contaminate the soil and water (both surface and subsurface) when handling petroleum products on site and during fueling and servicing of vehicles and equipment.
- .4 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) overpack spill kit for containment and cleanup of spills.
- .5 Maintain vehicles and equipment in good working order to prevent leaks on site.
- .6 In the event of a petroleum spill, immediately notify the *Departmental Representative* and the Canadian Coast Guard (CCG) at 1-800-565-1633 (24 hour report line). Perform clean-up in accordance with all regulations and procedures stipulated by authority having jurisdiction.
- .7 Materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals are not to enter the watercourse.
- .8 Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance.

1.7 Hazardous
Material Handling

- .1 Store and handle hazardous materials in accordance with applicable federal and provincial regulations, codes, standards and guidelines. Store in location that will prevent spillage into the environment.
 - .2 Label containers to WHMIS requirements and keep MSDS data sheets on site for all hazardous materials.
 - .3 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage.
 - .4 Store and handle flammable and combustible materials in accordance with National Fire Code.
-

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1.8 Disposal of Wastes

- .1 Do not bury rubbish, construction and demolition debris (i.e., concrete, creosote timbers, steel, impacted soil materials etc.) and waste materials on site. Remove construction materials/debris from site upon project completion.
- .2 Construction material and debris are not allowed to become waterborne.
- .3 No person shall permit any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in a navigable water to remain in such water after the completion of the project.
- .4 All work(s) and associated equipment shall be removed from the waterway at Contractor's expense in the event the operation of the work(s) is terminated.
- .5 Dispose and recycle construction and demolition debris and waste materials in accordance with Provincial Waste Management Regulations and the project waste management requirements specified in section 01 74 21 – Construction & Demolition Waste Management and Disposal.
- .6 Do not dispose of hazardous waste, volatile materials (such as mineral spirits, paints, thinners etc.) and petroleum products into waterways, storm or sanitary sewers or in waste landfill sites.
- .7 Dispose of hazardous waste in accordance with applicable federal and provincial, regulations, codes, standards and guidelines.
- .8 Concrete waste:
 - .1 Do not discharge residual or rejected concrete on site.
 - .2 Immediately clean any accidental release of concrete on site prior to solidification.
 - .3 Do not wash and clean concrete vehicles on site.
 - .4 Perform dumping of residual material and truck cleaning operations only at the concrete plant. Follow environmental regulations and good practices as approved by the Provincial Department of the Environment and other authorities having jurisdiction.
- .9 Removal of piles potentially containing creosote-treated timber:

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- .1 Remove any piles using a slow steady pull to minimize the disturbance of the substrate and avoid bringing contaminated sediments to the surface.
- .2 A reasonable attempt should be made to remove entire pile. Depending on the sensitivity of the habitat at the site, if a pile breaks off it may not be advisable to dredge the remainder out.
- .3 Remove spoil materials in a way that ensures sediment or debris does not enter the watercourse.

1.9 Water Quality

- .1 Minimize duration of in-water work.
 - .2 Conduct work in such a manner to limit turbidity and reduce sediment suspension in the water to an absolute minimum at all times.
 - .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 Restrict the amount of material excavated to the work area.
 - .4 Avoid bottom stockpiling, dragging or side casting material during excavation.
 - .3 Visual monitoring of the turbidity will be required in the vicinity of the project to ensure that the turbidity is limited. If excessive change occurs in the turbidity that differs from the existing conditions of the surrounding water body (i.e., distinct colour difference) as a result of the project activities, the work a *Departmental Representative* will be contacted to determine if additional mitigation measures are required.
 - .4 Creosote timbers are to be removed in a manner that minimizes the remobilization and re-suspension of sediment. Floating booms are to be used to catch any debris and absorbent booms to collect any creosote sheen during removals. Buckets must be used to store used booms in on site.
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- .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 and once site is stabilized, remove these control measures in a way that prevents the escape of settled sediment.

- .7 Stabilize waste material (e.g., excavated material, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby water bodies to prevent re-entry.

- .8 Water contamination by preservative treated wood:
 - .1 Preservative treated lumber and timber, whether plant or site treated, shall be cured for a minimum of 30 days from date of the treatment application before their installation in areas which will be in contact with the water.
 - .2 Do not cut treated wood lumber over the surface of a watercourse or wetland.
 - .3 Do not use liquid applied preservative products over the surface of a watercourse or wetland.
 - .4 Wood treated with Chromate Copper Arsenate (CCA) or Ammoniac Copper Zinc Arsenate (ACZA) must be CSA or American Wood Preserver Association (AWPA)
 - .5 Do not use timber and lumber treated with creosote, petroleum and pentachlorophenol for any part of the work.

1.10 Blasting

- .1 Blasting will not be permitted on site.

1.11 Socioeconomic
Restrictions

- .1 Abide by municipal and provincial regulations for any restrictions on work performed during the night time and on flood lighting of the site. Obtain applicable permits.

 - .2 Place flood lights in opposite direction of adjacent residential and business areas.
-

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- .3 Work equipment and machinery must be equipped with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.

1.12 Bird and Bird Habitat

- .1 Become knowledgeable with and abide by the Migratory Birds Convention Act (MBCA) in regards to the protection of migratory birds, their eggs, nests and their young encountered on site and in the vicinity.
- .2 Minimize disturbance to all birds on site and adjacent areas during the entire course of the Work.
- .3 Do not approach concentrations of seabirds, waterfowl and shorebirds when anchoring equipment, accessing wharves or ferrying supplies.
- .4 During night time work, position flood lights in opposite direction of nearby bird nesting habitat.
- .5 Do not use beaches, dunes and other natural previously undisturbed areas of the site to conduct work unless specifically approved by the *Departmental Representative*.
- .6 Should nests of migratory birds in wetlands be encountered during work, immediately notify *Departmental Representative* for directives to be followed.
 - .1 Do not disturb nest site and neighboring vegetation until nesting is completed.
 - .2 Minimize work immediately adjacent to such areas until nesting is completed.
 - .3 Protect these areas by following recommendations of Canadian Wildlife Service.
- .7 Time work to protect birds, including their young and / or the organisms upon which they feed. Ensure loss or disturbance to terrestrial habitat is minimized and sensitive nesting habitats are avoided.

1.13 Fish Protection

- .1 Avoid wet, windy and rainy periods that may increase erosion and sedimentation.
-

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- .2 Time work in water to protect fish, including their eggs, juveniles, spawning adults and / or the organisms upon which they feed. Ensure loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided.
 - .3 Weather conditions are to be assessed on a daily basis to determine the potential risk of extreme weather in the project area. Avoid work during periods which Environment and Climate Change Canada (ECCC) has issued rainfall or wave warning for the work area that may increase erosion and/or sedimentation.
 - .4 Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
 - .5 Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.
 - .6 Be aware of the risk for contamination of the fish habitat at the site as a result of alien species being introduced in the water.
 - .7 To minimize the possibility of fish habitat contamination and the spread of aquatic invasive (alien species), all construction equipment which will be immersed into the water of a watercourse, or has the possibility of coming into contact with such water during the course of the work, must be cleaned and washed to ensure that they are free of marine growth and alien species.
 - .1 Equipment shall include boats, barges, cranes, excavators, haul trucks, pumps, pipe lines and other all miscellaneous tools and equipment previously used in a marine environment.
 - .8 Cleaning and washing of equipment shall be performed immediately upon their arrival at the site and before use in or over the body of water.
 - .9 Conduct cleaning and washing operations as follows:
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- .1 Scrape and remove heavy accumulation of mud and dispose appropriately.
 - .2 Wash all surfaces of equipment by use of a pressurized fresh water supply.
 - .3 Immediately follow with application of a heavy sprayed coating of undiluted vinegar or other environmentally approved cleaning agent to thoroughly remove all plant matter, animals and sediments.
 - .4 Check and remove all plant, animal and sediment matter from the all bilges and filters.
 - .5 Drain standing water from equipment and let fully dry before use.
 - .6 Upon removal from the water, drain standing water from equipment and let fully dry before removal off the site.
-
- .10 Do not perform cleaning and washdown within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
 - .11 Record of Assurance Logbook:
 - .1 Maintain an on-going log of past and present usage and washdowns of all equipment to illustrate mitigation measures undertaken against fish habitat contamination by alien species.
 - .2 Write data in a hard cover bound logbook to include the following:
 - .1 Date and location where equipment was previously used in a watercourse or wetland;
 - .2 Type of work performed.
 - .3 Dates of wash down for each piece of equipment;
 - .4 Cleaning method and cleaning agent(s) used.
 - .12 Keep Record of Assurance Logbook updated from project to project. Upon request, submit logbook to *Departmental Representative* for review.
 - .13 Abide by requirements and recommendations from Fisheries and Oceans Canada – Fisheries Protection Program in cleaning and wash down of equipment.
-

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.14 Work activities must comply with all conditions of the DFO Letter of Advice (LOA) issued on April 21, 2017 (17-HMAR-00101). The *Departmental Representative* shall provide a copy of the LOA, which must remain onsite at all times, while work is in progress.

.15 All project works and mitigation measures shall be implemented to the satisfaction of the *Departmental Representative*.

.16 The deposition of a deleterious substance in water frequented by fish is not permitted. The *Fisheries Act* prohibits the deposit of any deleterious substance into waters frequented by fish.

1.14 Air Quality

.1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.

.2 Dust suppression by the application of water must be employed, when required. Apply dust control measures to roads, parking lots and work areas. The *Departmental Representative* shall determine locations where water is to be applied, the amount of water to be applied, and the times at which it shall be applied. Waste oil must not to be used for dust control under any circumstances.

.3 Spray surfaces with water or other environmentally approved product. Use purposely suited equipment or machinery and apply in sufficient quantity and frequency to provide effective result and continued dust control during the entire course of the work.

.4 Do not use oil or any other petroleum products for dust control.

1.15 Fires

.1 Fires and burning of rubbish on site is not permitted.

1.16 Archaeological

.1 All construction personnel are responsible for reporting any unusual materials unearthed during construction to the construction supervisor. If the find is believed to be an archaeological resource, the Construction Supervisor will immediately stop work in the vicinity of the find and notify *Departmental Representative*.

.2 If an archaeological and / or historically significant item is discovered during the work activities, work in the area will be stopped immediately and the *Departmental Representative* will be contacted as well as the provincial Archaeological Services unit.

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- a) Nova Scotia – NS Department of Communities, Culture and Heritage, Special Places Program, telephone: (902) 424-6475

- .3 Work can only resume in the vicinity of the find when authorized by the PWGSC *Departmental Representative* and Construction Supervisor, after approval has been granted by the Nova Scotia Department of Communities, Culture and Heritage.
- .4 In the event of the discovery of human remains or evidence of burials, the excavation work will immediately cease and nearest law enforcement agency will be contacted immediately by the *Departmental Representative* and/or the Construction Supervisor.

END OF SECTION

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Testing Laboratory Services

PART 1 – GENERAL

- 1.1 Related Requirements .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by *Departmental Representative* are specified under various sections.
- 1.2 Appointment And Payment .1 *Departmental Representative* will appoint and pay for services of testing laboratory except for the following:
- .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Tests specified to be carried out by the Contractor under the supervision of *Departmental Representative*.
 - .6 Pile Driving Analyzer – refer to Section 31 61 13 – Pile Foundations – General for all requirements of PDA testing.
- .2 Where tests or inspections by designated testing laboratory reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as *Departmental Representative* may require to verify acceptability of corrected work.
- 1.3 Contractor's Responsibilities .1 Furnish labour and facilities to:
- .1 Provide access to work to be inspected and tested.
 - .2 Facilitate inspections and tests.
 - .3 Make good work disturbed by inspection and test.
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify *Departmental Representative* sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

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- .4 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by *Departmental Representative*.
- .5 Refer to section 31 61 13 – Pile Foundations – General for requirements of PDA testing.

END OF SECTION

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Temporary Facilities

PART 1 – GENERAL1.1 Access

- .1 Provide and maintain adequate access to project site.
- .2 If authorized to use existing roads or structures for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads.
- .3 The Contractor is to maintain full access to the work site. Should a court injunction be required ordering a person or group to refrain from impeding access to the site, such as a demonstration, picketing or union action, then obtaining the injunction and any associated costs will be considered incidental to this Contract. Any delays associated with such activity will be considered incidental to this Contract.

1.2 Contractor's
Site Office

- .1 Establish on the site of the work and keep open at all times during the execution of the work an office where all letters, orders, notices and other communications may be received or acknowledged either by the Contractor or his authorized agent or representative. Provide a telephone in the office.
- .2 Keep one up-to-date copy of contract documents, bulletins and other materials as specified under Section 01 10 10.

1.3 Departmental
Representative's
Site Office

- .1 Provide temporary office for sole use of *Departmental Representative*, complete with heat and lights. Insulated office required during October to May. Locate on or adjacent to site.
- .2 Inside dimensions minimum 5 m long x 3 m wide x 2.4 m high, with floor 0.3 m above grade, complete with 4-50% opening windows and one lockable door.
- .3 Arrange and pay for telephone, computer with internet service, and printer installation and service in *Departmental Representative's* office for the *Departmental Representative's* exclusive use. Long distance calls placed on this phone by the *Departmental Representative* will be paid for by *Departmental Representative*.

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Temporary Facilities

- .4 Washroom facilities not required in the office. Provide outside sanitary facilities to approval.
- .5 Equip office with six chairs, flat 1200 X 2400 X 25 mm table with writing surface and 4 drawer lockable filing cabinet.
- .6 Maintain in clean condition.

1.4 Storage Sheds

- .1 Provide adequate weather tight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather.
- .2 Contractor to make his own arrangements for on-site storage areas.

1.5 Sanitary
Facilities

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.6 Parking

- .1 Contractor to make own arrangements to provide parking space for work force.

1.7 Power

- .1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.
- .2 Install temporary facilities for power such as pole lines and cables to approval of local power supply authority

1.8 Water Supply

- .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.

1.9 Barricades

- .1 Provide and maintain sufficient barricades, fencing, notices, warning signs, light signals, etc. for the protection of adjoining property and to warn others and workmen engaged on the job of the dangers caused by the work.

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Temporary Facilities

- .2 Types and location of barricades, etc. to be in accordance with local regulations and to the satisfaction of *Departmental Representative*.
- .3 The presence of such barricades, lights, etc. shall not relieve the Contractor of the responsibility for any damages.

1.10 Security

- .1 Contractor to make his own arrangements for security of his equipment, materials, damages resulting from fire and theft.

1.11 Site Signs and Notices

- .1 Only Project Identification and Consultant/ Contractor signboards and notices for safety or instruction are permitted on site.
- .2 Format, location and quantity of site signs and notices to be accepted by *Departmental Representative*.
- .3 Signs and notices for safety or instruction to be in English and French languages, or commonly understood graphic symbols.

1.12 Removal of Temporary Facilities

- .1 Remove temporary facilities from site when directed by *Departmental Representative*.
- .2 When project is closed down for a period of time, keep temporary facilities operational until no longer required by *Departmental Representative*.

END OF SECTION

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Project No. R.082082.001 TEMPORARY BARRIERS AND ENCLOSURES

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 74 21 – Construction/Demolition Waste Management and Disposal

1.2 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.3 CONSTRUCTION FENCING AND BARRICADES

- .1 Provide secure, rigid 1.8 m tall modular construction fence around construction area.
- .2 Affix to fencing or in alternative prominent location Contractor company name and site contact information in case of emergency.
- .3 Provide additional site construction signage as required by governing authorities, and as dictated in Contractor Safety Plan.

1.4 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.5 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21- Construction/Demolition Waste Management And Disposal.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Wharf Construction**Port Bickerton East****Guysborough County, Nova Scotia****Project No. R.082082.001**

Materials and Equipment

PART 1 – GENERAL1.1 General

- .1 Use new material and equipment unless otherwise specified.
- .2 Submit following information for any or all materials and products proposed for supply within seven (7) days of request by *Departmental Representative*:
 - .1 name and address of manufacturer
 - .2 trade name, model and catalogue number
 - .3 performance, descriptive and test data
 - .4 manufacturer's installation or application instructions
 - .5 evidence of arrangements to procure.
- .3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
- .4 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.

1.2 Manufacturer's Instructions

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.
- .2 Notify *Departmental Representative* in writing of any conflict between these specifications and manufacturers' instructions. *Departmental Representative* will designate which document is to be followed.

1.3 Fastenings – General

- .1 All fastenings are to be the sizes indicated on the contract plans and are to be hot dipped galvanized to ASTM A123 unless otherwise noted.

1.4 Delivery and Storage

- .1 Deliver, store and maintain packaged material and equipment with manufacturer's seal and labels intact.
- .2 Prevent damage, adulteration and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.
- .3 Store material and equipment in accordance with supplier's instructions.

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Materials and Equipment

1.5 Conformance

- .1 When material or equipment is specified by standard or performance specifications, upon request of *Departmental Representative*, obtain from manufacturer an independent testing laboratory report, stating that material or equipment meets or exceeds specified requirements.

1.6 Substitution

- .1 Proposals for substitution may be submitted only after award of Contract. Such requests must include statements of respective costs of items originally specified and proposed substitutions.
- .2 Proposals will be considered by *Departmental Representative* if:
- .1 Products selected by tenderer from those specified, are not available, or
 - .2 Delivery date of products from those specified would unduly delay completion of Contract, or
 - .3 Alternative products to those specified, which are brought to attention of, and considered by *Departmental Representative* as equivalent to those specified and will result in a credit to Contract amount.
- .3 Should proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on project. Pay for design or drawing changes required as result of substitution.
- .4 Amounts of all credits arising from approval of substitutions will be determined by *Departmental Representative* and Contract price will be reduced accordingly. No substitutions will be permitted without prior written approval of *Departmental Representative*.
- .5 *Departmental Representative* reserves the right for acceptance or rejection of substitution of materials.

1.7 Construction
Equipment and Plant

- .1 On request, prove to the satisfaction of *Departmental Representative* that the construction equipment and plant are adequate to manufacture, transport, place and finish work to quality and production rates specified. If inadequate, replace or provide additional equipment or plant as directed.

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Materials and Equipment

- .2 Maintain construction equipment and plant in good operating order.
- .3 Contractor shall submit construction methodology and provide a stamped letter from a professional engineer registered in Nova Scotia confirming the proposed construction equipment is within the design capacity of all structures that will be loaded by such construction equipment.

1.8 Damaged and Rejected Materials

- .1 Immediately replace, repair or otherwise make good any material damaged, broken or defaced during construction to the satisfaction of *Departmental Representative*.
- .2 Remove rejected materials from site.

END OF SECTION

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Project Record Documents

PART 1 – GENERAL

1.1 Record
Drawings

- .1 Departmental Representative will provide two (2) sets of white prints for record drawing purposes.
- .2 Maintain project record drawings and accurately record deviations from contract documents caused by site conditions and changes ordered by *Departmental Representative*.
- .3 Mark changes in red coloured ink.
- .4 Record following information:
 - .1 Elevations of various elements in relation to Chart Datum.
 - .2 Field changes in dimensions and details.
 - .3 Changes made by Change Order.
- .5 At completion of project and prior to final inspection, neatly transfer notations to second set and submit both sets to Departmental Representative.
- .6 Before any product enters the new fuel system as built drawings stamped by a professional engineer must be on site in accordance with section 34 of the CEPA SOR/2008-197 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

END OF SECTION

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Cleaning

PART 1 – GENERAL

1.1 General

- .1 Conduct cleaning and disposal operations to comply with local ordinances and antipollution laws.
- .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .3 Prevent accumulation of waste which creates hazardous conditions.

1.2 Cleaning During Construction

- .1 Maintain the work, at least on a daily basis free from accumulations of waste material and debris.
- .2 Provide on-site containers for collection of waste materials, and debris.
- .3 Remove waste materials, and debris from site.
- .4 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces.

1.3 Final Cleaning

- .1 In preparation for acceptance of the project on an interim or final certificate of completion perform final cleaning.
- .2 Remove grease, dust, dirt, stains, and other foreign materials, from exterior finished surfaces.

END OF SECTION

Wharf Construction

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Construction & Demolition Waste Management and Disposal

PART 1 – GENERAL

1.1 Definitions

- .1 Demolition Waste Audit (DWA): Relates to actual waste generated from project.
 - .2 Materials Source Separation Program (MSSP): Consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
 - .3 Recyclable: Ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse by others.
 - .4 Recycle: Process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
 - .5 Recycling: Process of sorting, cleaning, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
 - .6 Reuse: Repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from remodeling projects before demolition stage for resale, reuse on current project or as storage for use on a future project.
 - .2 Returning reusable items including pallets or unused products to vendors.
 - .7 Salvage: Removal of structural and non-structural materials from deconstruction and disassembly projects for the purpose of reuse or recycling.
 - .8 Separate Condition: Refers to waste sorted into individual types.
 - .9 Source Separation: Acts of keeping different types of waste materials separate beginning from first time they became waste.
-

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Construction & Demolition Waste Management and Disposal

1.2 Materials Source
Separation Program
(MSSP)

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Authorities Having Jurisdiction.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize material damage.
- .7 Collect, handle, store on-site and transport off-site, salvaged materials in separate condition and transport to recycling facility.

1.3 Storage, Handling
and Protection

- .1 Unless specified otherwise, materials for removal become the Contractor's property.
 - .2 Protect, stockpile, store and catalogue salvaged items.
 - .3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to approved local facility.
 - .4 Protect structural components not removed for demolition from movement or damage.
 - .5 Support affected structures. If safety of facility is endangered, cease operations and immediately notify the *Departmental Representative* and Authorities Having Jurisdiction.
 - .6 Protect surface drainage, mechanical and electrical from damage and blockage.
-

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- .7 Separate and store materials produced during dismantling of structures in designated areas.
- .8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities. On-site source separation is recommended.

1.4 Disposal of Wastes

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of any waste into waterways, storm or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.
- .4 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.5 Use of Site and Facilities

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Provide security measures which are to be approved by *Departmental Representative*.

1.6 Scheduling

- .1 Coordinate Work with other activities on site to ensure timely and orderly progress of Work.

PART 2 – PRODUCTS

Not applicable

PART 3 – EXECUTION

3.1 Application

- .1 Handle waste materials not reused, salvaged or recycled in accordance with applicable acts, regulations and codes.

3.2 Cleaning

- .1 remove tools and waste materials at completion of Work and leave work area in clean and orderly condition.
 - .2 Clean-up work area as work progresses.
-

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.3 Source separate materials to be reused or recycled into specified sort areas.

3.3 Diversion of
Materials

.1 Separate materials from general waste stream and stockpile in separate piles or containers, as reviewed by *Departmental Representative* and consistent with applicable fire regulations and as follows, at a minimum:

1. Mark containers or stockpile areas.
2. Provide instruction on disposal practices.

.2 On-site sale or distribution of salvaged materials to third parties will not be permitted.

END OF SECTION

Wharf Construction**Port Bickerton East****Guysborough County, Nova Scotia****Project No. R.082082.001****CLOSEOUT PROCEDURES****Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 01 74 11 – Cleaning
- .3 Section 01 74 21 – Construction/Demolition Waste Management and Disposal

1.2 REFERENCE STANDARDS

- .1 Canadian Environmental Protection Act (CEPA)
 - .1 SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative inspection.
 - .2 Departmental Representative Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Equipment and systems: tested, and fully operational.
 - .4 Operation of systems: demonstrated to Owner's personnel.
 - .5 Commissioning and decommissioning of mechanical systems: completed in accordance with 01 91 13- General Commissioning (Cx) Requirements
 - .6 Aboveground storage tank inspection documentation, registration, forms, decommissioning and removal in accordance with CEPA SOR/2008-197.
 - .7 Work: complete and ready for final inspection.
- .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.

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- .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
- .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
- .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
- .7 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
- .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work, submit application for payment of holdback amount in accordance with contractual agreement.
- .2 Acceptance of Work Procedures:
 - .1 Include any and all information for continued use of the system to submit to the Departmental Representative. Information may include but not be limited to the following:
 - .1 Shop drawings
 - .2 Operating instructions
 - .3 Maintenance instructions and documents
 - .4 Equipment/material warranties
 - .5 Tank removal documentation as per SOR 2008-197, Section 44 complete with Environment Canada identification number reference stating the tank is de-gased.
 - .6 Tank disposal confirmation
 - .7 Affidavit disposal slips for the tanks, product, sludge, etc.
 - .8 DFO CEPA – Regulated Storage Tank System Identification Form (see Appendix B for form)

1.4 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11- Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21- Construction/Demolition Waste Management and Disposal.

Part 2 Products**2.1 NOT USED**

- .1 Not Used.

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CLOSEOUT PROCEDURES

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

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Closeout Submittals

PART 1 – GENERAL

- 1.1 Related Work
- .1 Refer to other Specification Sections for related information..
 - .2 Refer to Section 01 33 00 for Shop Drawing/ Submissions requirements.
- 1.2 Submittals
- .1 Make submittals in accordance with Section 01 33 00.
 - .2 Defective products shall be rejected, regardless of previous inspections. Replace products at Contractor's expense.
- 1.3 Final Cleaning
- .1 In preparation for acceptance of the project on an interim or final certificate of completion, perform final cleaning.
 - .2 Remove grease, dust, dirt, stains and other foreign materials from finished surfaces.
- 1.4 As-Builts and Samples
- .1 Maintain, in addition to requirements in General Conditions, at site for *Departmental Representative*, at least one record copy of:
 - .1 Contract Drawings;
 - .2 Specifications;
 - .3 Addenda;
 - .4 Change Orders and other modifications to the Contract;
 - .5 Reviewed shop drawings, product data and samples;
 - .6 Field test records;
 - .7 Inspection certificates;
 - .8 Manufacturer's certificates.
 - .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks and secure storage.
 - .3 Label record documents and file in accordance with Section numbers used in this Specification Document. Label each document "PROJECT RECORD" in neat, large, printed letters.
 - .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

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Closeout Submittals

-
- .5 Keep record documents and samples available for viewing and inspection by *Departmental Representative*.
- 1.5 Recording Actual Site Conditions
- .1 Record information on set of blue line opaque drawings, and in copy of Project Manual, as provided by the *Departmental Representative*.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 On Contract Drawings and shop drawings mark each item to record actual construction including, at a minimum:
- .1 Measured depths of pile tips and driving records.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on the original Contract Drawings.
 - .7 References to related shop drawings and modifications.
 - .8 Other pertinent information as specified or indicated.
- .5 Specifications: Mark each item to record actual construction including, at a minimum:
- .1 Manufacturer, trade name and catalogue number of each product actually installed, particularly optional items and substituted items.
 - .2 Changes made by Addenda and Change Orders.
- .6 Other Documents: Maintain manufacturer's certifications and field test records required by individual specification sections.
- 1.6 Final Survey
- .1 Submit final site survey certificate in accordance with Section 01 71 00 certifying that elevations and locations of completed Work are
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in conformance, or where not in conformance, with Contract Documents.

END OF SECTION

Wharf Construction**Port Bickerton East****Guysborough County, Nova Scotia****Project No. R.082082.001****DEMONSTRATION AND TRAINING****Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 01 91 13 – General Commissioning (Cx) Requirements

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel prior to date of final inspection.
- .2 Owner: provide list of personnel to receive instructions, and co-ordinate their attendance at agreed-upon times.
- .3 Preparation:
 - .1 Verify conditions for demonstration and instructions comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure testing, adjusting, and balancing has been performed in accordance with Section 01 91 13- General Commissioning (Cx) Requirements and equipment and systems are fully operational.
- .4 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing and maintenance of each item of the equipment at the agreed upon location.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00- Submittal Procedures.
- .2 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Departmental Representative's approval.
- .3 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.
- .4 Give time and date of each demonstration, with list of persons present.
- .5 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

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DEMONSTRATION AND TRAINING

1.4 QUALITY ASSURANCE

- .1 When specified in individual Sections requiring manufacturer to provide authorized representative to demonstrate operation of equipment and systems:
 - .1 Instruct Owner's personnel.
 - .2 Provide written report that demonstration and instructions have been completed.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Wharf Construction**Port Bickerton East****Guysborough County, Nova Scotia GENERAL COMMISSIONING****Project No. R.082082.001****(CX) REQUIREMENTS****Part 1 General****1.1 SUMMARY**

- .1 Section Includes:
 - .1 General requirements relating to commissioning of project's components and systems, specifying general requirements to PV of components, equipment, sub-systems, systems, and integrated systems.
- .2 Related Requirements
 - .1 Section 01 33 00 – Submittal Procedures
 - .2 Section 01 91 31 – Commissioning (Cx) Plan
- .3 Acronyms:
 - .1 AFD - Alternate Forms of Delivery, service provider.
 - .2 Cx - Commissioning.
 - .3 EMCS - Energy Monitoring and Control Systems.
 - .4 O&M - Operation and Maintenance.
 - .5 PI - Product Information.
 - .6 PV - Performance Verification.
 - .7 TAB - Testing, Adjusting and Balancing.

1.2 GENERAL

- .1 Cx is a planned program of tests, procedures and checks carried out systematically on systems and integrated systems of the finished Project. Cx is performed after systems and integrated systems are completely installed, functional and Contractor's Performance Verification responsibilities have been completed and approved. Objectives:
 - .1 Verify installed equipment, systems and integrated systems operate in accordance with Contract Documents and design criteria and intent.
 - .2 Effectively train O&M staff.
- .2 Contractor assists in Cx process, operating equipment and systems, troubleshooting and making adjustments as required.
 - .1 Systems to be operated at full capacity under various modes to determine if they function correctly and consistently at peak efficiency. Systems to be interactively with each other as intended in accordance with Contract Documents and design criteria.
 - .2 During these checks, adjustments to be made to enhance performance to meet environmental or user requirements.
- .3 Design Criteria: as per client's requirements or determined by designer. To meet Project functional and operational requirements.

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- .4 AFD managed projects the term Departmental Representative in Cx specifications to be interpreted as AFD Service Provider.

1.3 COMMISSIONING OVERVIEW

- .1 For Cx responsibilities refer to Section 01 91 31- Commissioning (Cx) Plan.
- .2 Cx to be a line item of Contractor's cost breakdown and schedule.
- .3 Cx activities supplement field quality and testing procedures described in relevant technical sections.
- .4 Cx is conducted in concert with activities performed during stage of project delivery. Cx identifies issues in Planning and Design stages which are addressed during Construction and Cx stages to ensure the upgraded system is constructed and proven to operate satisfactorily under weather, environmental and occupancy conditions to meet functional and operational requirements. Cx activities includes transfer of critical knowledge to facility operational personnel.
- .5 Departmental Representative will issue Interim Acceptance Certificate when:
 - .1 Completed Cx documentation has been received, reviewed for suitability and approved by Departmental Representative.
 - .2 Equipment, components and systems have been commissioned.
 - .3 O&M training has been completed.

1.4 NON-CONFORMANCE TO PERFORMANCE VERIFICATION REQUIREMENTS

- .1 Should equipment, system components, and associated controls be incorrectly installed or malfunction during Cx, correct deficiencies, re-verify equipment and components within the unfunctional system, including related systems as deemed required by Departmental Representative, to ensure effective performance.
- .2 Costs for corrective work, additional tests, inspections, to determine acceptability and proper performance of such items to be borne by Contractor. Above costs to be in form of progress payment reductions or hold-back assessments.

1.5 PRE-CX REVIEW

- .1 Before Construction:
 - .1 Review Contract Documents, confirm by writing to Departmental Representative.
 - .1 Adequacy of provisions for Cx.
 - .2 Aspects of design and installation pertinent to success of Cx.
- .2 During Construction:
 - .1 Co-ordinate provision, location and installation of provisions for Cx.
- .3 Before start of Cx:
 - .1 Have completed Cx Plan up-to-date.
 - .2 Ensure installation of related components, equipment, sub-systems, systems is complete.
 - .3 Fully understand Cx requirements and procedures.

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- .4 Have Cx documentation shelf-ready.
- .5 Understand completely design criteria and intent and special features.
- .6 Submit complete start-up documentation to Departmental Representative.
- .7 Have Cx schedules up-to-date.
- .8 Ensure systems have been cleaned thoroughly.
- .9 Complete TAB procedures on systems, submit TAB reports to Departmental Representative for review and approval.
- .10 Ensure "As-Built" system schematics are available.

.4 Inform Departmental Representative in writing of discrepancies and deficiencies on finished works.

1.6 CONFLICTS

- .1 Report conflicts between requirements of this section and other sections to Departmental Representative before start-up and obtain clarification.
- .2 Failure to report conflict and obtain clarification will result in application of most stringent requirement.

1.7 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00- Submittal Procedures.
 - .1 Submit no later than 4 weeks after award of Contract:
 - .1 Name of Contractor's Cx agent.
 - .2 Draft Cx documentation.
 - .3 Preliminary Cx schedule.
 - .2 Submit proposed Cx procedures to Departmental Representative where not specified and obtain written approval at least 2 weeks prior to start of Cx.
 - .3 Provide additional documentation relating to Cx process required by Departmental Representative.

1.8 COMMISSIONING SCHEDULE

- .1 Provide adequate time for Cx activities prescribed in technical sections and commissioning sections including:
 - .1 Approval of Cx reports.
 - .2 Verification of reported results.
 - .3 Repairs, retesting, re-commissioning, re-verification.
 - .4 Training.

1.9 STARTING AND TESTING

- .1 Contractor assumes liabilities and costs for inspections. Including disassembly and re-assembly after approval, starting, testing and adjusting, including supply of testing equipment.

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- .1 Provide 14 days notice prior to commencement.
- .2 Departmental Representative to witness of start-up and testing.
- .3 Contractor's Cx Agent to be present at tests performed and documented by sub-trades, suppliers and equipment manufacturers.

1.11 MANUFACTURER'S INVOLVEMENT

- .1 Factory testing: manufacturer to:
 - .1 Coordinate time and location of testing.
 - .2 Provide testing documentation for approval by Departmental Representative.
 - .3 Arrange for Departmental Representative to witness tests.
 - .4 Obtain written approval of test results and documentation from Departmental Representative before delivery to site.
- .2 Obtain manufacturers installation, start-up and operations instructions prior to start-up of components, equipment and systems and review with Departmental Representative
 - .1 Compare completed installation with manufacturer's published data, record discrepancies, and review with manufacturer.
 - .2 Modify procedures detrimental to equipment performance and review same with manufacturer before start-up.
- .3 Integrity of warranties:
 - .1 Use manufacturer's trained start-up personnel where specified elsewhere in other divisions or required to maintain integrity of warranty.
 - .2 Verify with manufacturer that testing as specified will not void warranties.
- .4 Qualifications of manufacturer's personnel:
 - .1 Experienced in design, installation and operation of equipment and systems.
 - .2 Ability to interpret test results accurately.
 - .3 To report results in clear, concise, logical manner.

1.12 PROCEDURES

- .1 Verify that equipment and systems are complete, clean, and operating in normal and safe manner prior to conducting start-up, testing and Cx.
- .2 Conduct start-up and testing in following distinct phases:
 - .1 Included in delivery and installation:
 - .1 Verification of conformity to specification, approved shop drawings and completion of PI report forms.
 - .2 Visual inspection of quality of installation.
 - .2 Start-up: follow accepted start-up procedures.

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- .3 Operational testing: document equipment performance.
- .4 System PV: include repetition of tests after correcting deficiencies.
- .5 Post-substantial performance verification: to include fine-tuning.
- .3 Document require tests on approved PV forms.
- .4 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative. If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement following:
 - .1 Minor equipment/systems: implement corrective measures approved by Departmental Representative.
 - .2 Major equipment/systems: if evaluation report concludes that damage is minor, implement corrective measures approved by Departmental Representative.
 - .3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment.
 - .1 Rejected equipment to be remove from site and replace with new.
 - .2 Subject new equipment/systems to specified start-up procedures.

1.13 START-UP DOCUMENTATION

- .1 Assemble start-up documentation and submit to Departmental Representative for approval before commencement of commissioning.
- .2 Start-up documentation to include:
 - .1 Factory and on-site test certificates for specified equipment.
 - .2 Pre-start-up inspection reports.
 - .3 Signed installation/start-up check lists.
 - .4 Start-up reports,
 - .5 Step-by-step description of complete start-up procedures, to permit Departmental Representative to repeat start-up at any time.

1.14 OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEMS

- .1 After start-up, operate and maintain equipment and systems as directed by equipment/system manufacturer.
- .2 With assistance of manufacturer develop written maintenance program and submit Departmental Representative for approval before implementation.
- .3 Operate and maintain systems for length of time required for commissioning to be completed.
- .4 After completion of commissioning, operate and maintain systems until issuance of certificate of interim acceptance.

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- .1 If start-up, testing and/or PV produce unacceptable results, repair, replace or repeat specified starting and/or PV procedures until acceptable results are achieved.
- .2 Provide manpower and materials, assume costs for re-commissioning.

1.16 START OF COMMISSIONING

- .1 Notify Departmental Representative at least 14 days prior to start of Cx.

1.17 INSTRUMENTS / EQUIPMENT

- .1 Submit to Departmental Representative for review and approval:
 - .1 Complete list of instruments proposed to be used.
 - .2 Listed data including, serial number, current calibration certificate, calibration date, calibration expiry date and calibration accuracy.
- .2 Provide the following equipment as required:
 - .1 2-way radios.
 - .2 Ladders.
 - .3 Measuring tape.
 - .4 Digital Camera.
 - .5 Equipment as required to complete work.

1.18 COMMISSIONING PERFORMANCE VERIFICATION

- .1 Carry out Cx:
 - .1 Under accepted simulated operating conditions, over entire operating range, in all modes.
- .2 Cx procedures to be repeatable and reported results are to be verifiable.
- .3 Follow equipment manufacturer's operating instructions.

1.19 WITNESSING COMMISSIONING

- .1 Departmental Representative to witness activities and verify results.

1.20 AUTHORITIES HAVING JURISDICTION

- .1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of authority having jurisdiction, arrange for authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance of facility.
- .2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction.
- .3 Provide copies to Departmental Representative within 5 days of test and with Cx report.

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- .1 Assume costs incurred by Departmental Representative for third and subsequent verifications where:
 - .1 Verification of reported results fail to receive Departmental Representative's approval.
 - .2 Repetition of second verification again fails to receive approval.
 - .3 Departmental Representative deems Contractor's request for second verification was premature.

1.22 DEFICIENCIES, FAULTS, DEFECTS

- .1 Correct deficiencies found during start-up and Cx to satisfaction of Departmental Representative.
- .2 Report problems, faults or defects affecting Cx to Departmental Representative in writing. Stop Cx until problems are rectified. Proceed with written approval from Departmental Representative.

1.23 COMPLETION OF COMMISSIONING

- .1 Upon completion of Cx leave systems in normal operating mode.
- .2 Except for warranty and seasonal verification activities specified in Cx specifications, complete Cx prior to issuance of Interim Certificate of Completion.
- .3 Cx to be considered complete when contract Cx deliverables have been submitted and accepted by Departmental Representative.

1.24 ACTIVITIES UPON COMPLETION OF COMMISSIONING

- .1 When changes are made to baseline components or system settings established during Cx process, provide updated Cx form for affected item.

1.25 MAINTENANCE MATERIALS, SPARE PARTS, SPECIAL TOOLS

- .1 Supply, deliver, and document maintenance materials, spare parts, and special tools as specified in contract.

1.26 INSTALLED INSTRUMENTATION

- .1 Use instruments installed under Contract for TAB and PV if:
 - .1 Accuracy complies with these specifications.
 - .2 Calibration certificates have been deposited with Departmental Representative.

1.27 OWNER'S PERFORMANCE TESTING

- .1 Performance testing of equipment or system by Departmental Representative will not relieve Contractor from compliance with specified start-up and testing procedures.

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Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Wharf Construction**Port Bickerton East****Guysborough County, Nova Scotia****Project No. R.082082.001****COMMISSIONING
(CX) PLAN****Part 1 General****1.1 SUMMARY****.1 Section Includes:**

- .1 Description of overall structure of Cx Plan and roles and responsibilities of Cx team.

1.2 RELATED REQUIREMENTS

- .1 Section 01 79 00 – Demonstration and Training
- .2 Section 01 91 13 – General Commissioning (Cx) Requirements

1.3 GENERAL**.1 Provide a fully functional systems:**

- .1 Facility user and O&M personnel have been fully trained in aspects of installed systems.
- .2 Complete documentation relating to installed equipment and systems.

.2 Term "Cx" in this section means "Commissioning".**.3 Use this Cx Plan as master planning document for Cx:**

- .1 Outlines organization, scheduling, allocation of resources, documentation, pertaining to implementation of Cx.
- .2 Communicates responsibilities of team members involved in Cx Scheduling, documentation requirements, and verification procedures.
- .3 Sets out deliverables relating to O&M, process and administration of Cx.
- .4 Describes process of verification of how built works meet design requirements.
- .5 Produces a complete functional system prior to issuance of Certificate of Occupancy.
- .6 Management tool that sets out scope, standards, roles and responsibilities, expectations, deliverables, and provides:
 - .1 Overview of Cx.
 - .2 General description of elements that make up Cx Plan.
 - .3 Process and methodology for successful Cx.

.4 Acronyms:

- .1 Cx - Commissioning.
- .2 MSDS - Material Safety Data Sheets.
- .3 PI - Product Information.
- .4 PV - Performance Verification.
- .5 TAB - Testing, Adjusting and Balancing.
- .6 WHMIS - Workplace Hazardous Materials Information System.

.5 Commissioning terms used in this Section:

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- .1 Bumping: short term start-up to prove ability to start and prove correct rotation.
- .2 Deferred Cx - Cx activities delayed for reasons beyond Contractor's control due to lack of occupancy, weather conditions, need for heating/cooling loads.

1.4 DEVELOPMENT OF 100% CX PLAN

- .1 Cx Plan to be 100% completed within 6 weeks of award of contract to take into account:
 - .1 Approved shop drawings and product data.
 - .2 Approved changes to contract.
 - .3 Contractor's project schedule.
 - .4 Cx schedule.
 - .5 Contractor's, sub-contractor's, suppliers' requirements.
 - .6 Project construction team's and Cx team's requirements.
- .2 Submit completed Cx Plan to Departmental Representative.

1.5 REFINEMENT OF CX PLAN

- .1 During construction phase, revise, refine and update Cx Plan to include:
 - .1 Changes resulting from Client program modifications.
 - .2 Approved design and construction changes.
- .2 Revise, refine and update during construction phase. At each revision, indicate revision number and date.
- .3 Submit each revised Cx Plan to Departmental Representative for review and obtain written approval.
- .4 Include testing parameters at full range of operating conditions and check responses of equipment and systems.

1.6 COMPOSITION, ROLES AND RESPONSIBILITIES OF CX TEAM

- .1 Departmental Representative to maintain overall responsibility for project and is sole point of contact between members of commissioning team.
- .2 Project Manager will select Cx Team consisting of following members:
 - .1 Departmental Representative is responsible for:
 - .1 Monitoring operations Cx activities.
 - .2 Witnessing, certifying accuracy of reported results.
 - .3 Witnessing and certifying TAB and other tests.
 - .4 Conducting periodic site reviews during construction to observe general progress.
 - .2 Construction Team: contractor, sub-contractors, suppliers and support disciplines, is responsible for construction/installation in accordance with Contract Documents, including:
 - .1 Testing.
 - .2 TAB.
 - .3 Performance of Cx activities.

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- .4 Delivery of training and Cx documentation.
- .5 Implementation of Training Plan.
- .6 Ensuring implementation of final Cx Plan.
- .7 Performing verification of performance of installed systems and equipment.
- .8 Demonstrations.
- .9 Training.
- .10 Testing.
- .11 Preparation, submission of test reports.

1.7 CX PARTICIPANTS

- .1 Employ the following Cx participants to verify performance of equipment and systems:
 - .1 Installation contractor/subcontractor:
 - .1 Equipment and systems except as noted.
 - .2 Equipment manufacturer: equipment specified to be installed and started by manufacturer.
 - .1 To include performance verification.
 - .3 Specialist subcontractor: equipment and systems supplied and installed by specialist subcontractor.

1.8 EXTENT OF CX

- .1 Commission mechanical systems and associated equipment:
 - .1 Single walled piping
 - .2 Gauges
 - .3 Valves
 - .4 Normal vent
 - .5 Overfill protection devices
 - .6 Submersible pump
 - .7 Dispensing hoses and reels

1.9 DELIVERABLES RELATING TO O&M PERSPECTIVES

- .1 General requirements:
 - .1 Compile English documentation.
- .2 Provide deliverables:
 - .1 Warranties.
 - .2 Project record documentation.
 - .3 Inventory of spare parts, special tools and maintenance materials.
 - .4 WHMIS information.
 - .5 MSDS data sheets.

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- .6 Electrical Panel inventory containing detailed inventory of electrical circuitry for each panel board. Duplicate of inventory inside each panel.

1.10 DELIVERABLES RELATING TO THE CX PROCESS

- .1 General:
 - .1 Start-up, testing and Cx requirements, conditions for acceptance and specifications form part of relevant technical sections of these specifications.
- .2 Definitions:
 - .1 Cx as used in this section includes:
 - .1 Cx of components, equipment, systems, subsystems, and integrated systems.
 - .2 Factory inspections and performance verification tests.
- .3 Deliverables: provide:
 - .1 Cx Specifications.
 - .2 Startup, pre-Cx activities and documentation for systems, and equipment.
 - .3 Completed installation checklists (ICL).
 - .4 Completed product information (PI) report forms.
 - .5 Completed performance verification (PV) report forms.
 - .6 Results of Performance Verification Tests and Inspections.
 - .7 Description of Cx activities and documentation.
 - .8 Description of Cx of integrated systems and documentation.
- .4 Departmental Representative to participate.

1.11 PRE-CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Items listed in this Cx Plan include the following:
 - .1 Pre-Start-Up inspections: by Departmental Representative prior to permission to start up and rectification of deficiencies to Departmental Representative's satisfaction.
 - .2 Departmental Representative to use approved check lists.
 - .3 Departmental Representative will witness all of these pre-start-up inspections.
 - .4 Include completed documentation with Cx report.
 - .5 Conduct pre-start-up tests: conduct pressure, static, flushing, cleaning, and "bumping" during construction as specified in technical sections. To be witnessed and certified by Departmental Representative and does not form part of Cx specifications.
 - .6 Departmental Representative will monitor some of these inspections and tests.
 - .7 Include completed documentation in Cx report.

1.12 CX ACTIVITIES AND RELATED DOCUMENTATION

- .1 Perform Cx by specified Contractors and sub-contractors using procedures developed by the manufacturer.

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- .2 Departmental Representative to monitor Cx activities.
- .3 Upon satisfactory completion, Cx agency performing tests to prepare Cx Report using approved PV forms.
- .4 Departmental Representative to witness, certify reported results of Cx activities.

1.13 CX OF INTEGRATED SYSTEMS AND RELATED DOCUMENTATION

- .1 Cx to be performed by specified Cx specialist, using procedures developed by Contractor and approved by Departmental Representative.
- .2 Tests to be witnessed by Departmental Representative and documented on approved report forms.
- .3 Upon satisfactory completion, Cx specialist to prepare Cx Report, to be certified by Departmental Representative and submitted to Departmental Representative for review.
- .4 Departmental Representative reserves right to verify percentage of reported results.
- .5 Integrated systems to include:
- .6 Identification:
 - .1 In later stages of Cx, before hand-over and acceptance Departmental Representative and Cx Manager to co-operate to complete inventory data sheets and provide assistance to PSPC in full implementation of MMS identification system of components, equipment, sub-systems, systems.

1.14 INSTALLATION CHECK LISTS (ICL)

- .1 Completed in accordance with manufacturer recommended installation and warranty registration requirements.

1.15**PRODUCT INFORMATION (PI) REPORT FORMS**

- .1 In conformance with Manufacturer's recommendations.

1.16**CX SCHEDULES**

- .1 Prepare detailed Cx Schedule and submit to Departmental Representative for review and approval same time as project Construction Schedule. Include:
 - .1 Milestones, testing, documentation, training and Cx activities of components, equipment, subsystems, systems and integrated systems, including:
 - .1 Design criteria, design intents.
 - .2 Pre-TAB review: before construction starts.
 - .3 Cx agents' credentials: 30 days before start of Cx.
 - .4 Cx procedures: 14 days prior of contract.
 - .5 Submission of list of instrumentation with relevant certificates: 14 days before start of Cx.

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- .6 TAB: after successful start-up, correction of deficiencies and verification of normal and safe operation.
- .7 Notification of intention to start Cx: 14days before start of Cx.
- .8 Notification of intention to start Cx of integrated systems: after Cx of related systems is completed 14 days before start of integrated system Cx.
- .9 Identification of deferred Cx.
- .10 Implementation of training plans.
- .11 Cx reports: immediately upon successful completion of Cx.
- .2 Detailed training schedule to demonstrate no conflicts with testing, completion of project and hand-over to Operator.
- .2 After approval, incorporate Cx Schedule into Construction Schedule.
- .3 Consultant, Contractor, Contractor's Cx agent, and Departmental Representative will monitor progress of Cx against this schedule.

1.17 CX REPORTS

- .1 Submit reports of tests, witnessed and certified by Departmental Representative for review.
- .2 Include completed and certified PV reports in properly formatted Cx Reports.
- .3 Before reports are accepted, reported results to be subject to verification by Departmental Representative.

1.18 TRAINING PLANS

- .1 Refer to Section 01 79 00 – Demonstration and Training.

1.19 FINAL SETTINGS

- .1 Upon completion of Cx to satisfaction of Departmental Representative lock control devices in their final positions, indelibly mark settings marked and include in Cx Reports.

1.20 PAYMENTS FOR CX

- .1 Contractor to cover cost associated with any special equipment, Contractor or specialized personnel required to be present to complete all required Cx task.

Part 2 Products**2.1 NOT USED****END OF SECTION**