

- 1.1 Documents Required .1 Maintain at job site, one (1) 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, 1045 Main Street, Moncton, NB. 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.
- 1.3 Work Schedule and Completion Dates .1 Prepare and submit to the Departmental Representative within 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.

- .3 Submit an updated construction schedule with each claim for payment. Payment will not be made until the updated construction schedule is submitted.
 - .4 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. Harbour contacts are as follows: Daniel Landry, Harbour Master, (506) 727-8695.
 - .2 Some dates may vary to some degree depending on openings and closings.
 - .3 Should interferences occur, take directions from Departmental Representative.
 - .4 Do not unreasonably encumber site with materials or equipment.
 - .5 Move stored products or equipment which interfere with operations of Departmental Representative or other Contractors.
 - .6 Obtain and pay for use of additional storage or work areas needed for operations.
 - .7 Comply with all regulations and authorities having jurisdiction over the work, whether on land or on water.
 - .8 Ensure no damage occurs to existing structures as a result of operations. Any said damage will be repaired at Contractor's expense.

- .9 Provide temporary barriers and warning signs in location where work is adjacent to areas used by public.
- .10 Provide and implement an approved traffic control plan.
- 1.6 Codes and Standards
 - .1 Perform work in accordance with National Building Code of Canada (NBC) 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 WorkSafe NB. In the event of conflict between any provisions of above authorities, the most stringent provision will apply.
- 1.7 Project Meeting
 - .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.
 - .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 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. Establish all grades, lines, levels required to facilitate the work.

1.9 Traffic Control

- .1 Provide traffic control in accordance with Work Area Traffic Control Manual issued by New Brunswick Transportation and Infrastructure.
- .2 In urban areas, consult with local authorities having jurisdiction for possible additional or special requirements.
- .3 Meet with local authorities having jurisdiction prior to start of construction to determine allowable diversions of traffic, pedestrian and access to construction area.
- .4 Provide traffic control personnel, signals, lights and other traffic control methods where required.
- .5 Provide and maintain signs, delineators, barricades, barriers, and miscellaneous warning devices to indicate construction activities or other temporary and unusual conditions.

1.10 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 and vehicular traffic.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Department 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 the Departmental Representative and confirm findings in writing.

1.11 Contract Documents

- .1 Contract Drawings:
 - .1 The drawings listed in these "Plans and Specifications" marked "A" and any 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 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 These Specifications 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.

- | | | |
|---|----|---|
| 1.12 <u>Permits and Regulations</u> | .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 and all required Municipal permits at no additional expense to the Contract. |
| 1.13 <u>Cutting, Fitting & Patching</u> | .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 ensure flush transitions between new and existing work. |
| | .4 | Obtain the Departmental Representative's approval before cutting, boring or sleeving, or excavating adjacent to load-bearing members. |
| 1.14 <u>Record of Construction</u> | .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. |
| 1.15 <u>Payment</u> | .1 | See Section 01 29 00 for work item payment breakdown. |
| | .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 directed by the Departmental Representative to suit existing conditions, but not resulting in additional work or materials, will not be considered as extra to the Contract.

1.16 Site Examination

- .1 All parties tendering must 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.

1.17 Maintenance of Shipping

- .1 Liaise with the local port officials to coordinate activities such that any interference is minimized.

1.18 Cooperation and 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.

1.19 Datum

- .1 The 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 work.

- | | | |
|---|----|---|
| 1.20 Contractor's
<u>Representative</u> | .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. |
| 1.21 Workers'
<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 Departmental Representative a Letter of Certification from the Workers Compensation Board, showing that all required assessments are paid in connection with all trades. |
| 1.22 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. |
| 1.23 Protection
<u>and Repair</u> | .1 | Repair any damage resulting from operations under this contract. |
| | .2 | Maintain protection to basin and wharf/floats throughout fishing season. |
| 1.24 Location of
<u>Equipment Fixtures</u> | .1 | Location of equipment, fixtures or any and appurtenances indicated are to be considered approximate. |

- | | | |
|--|----|---|
| 1.25 <u>Inspection and Testing</u> | .1 | The Departmental Representative may employ an Inspector and/or Testing Company to ensure work conforms with contracts. |
| 1.26 <u>Disposal of Debris</u> | .1 | Dispose of debris, including construction materials not incorporated in the work, oil products and containers and other materials of this nature in suitable locations off the site. |
| | .2 | Material from the work will not be permitted to go adrift or otherwise become a menace to navigation. |
| 1.27 <u>Existing Soils Conditions</u> | .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. |
| 1.28 <u>Relics and Antiquities</u> | .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 Departmental Representative's property. |
| 1.29 <u>Temporary Navigational Buoys</u> | .1 | Maintain temporary navigation light to mark the position of the outer end of the structure as construction proceeds. Navigation light is to meet the requirements of Canadian Coast Guard Standard TP968 and be equipped with radar reflectors. |
| | .2 | Maintain temporary floating buoys at 30m intervals along the seaward face (maximum 10m offset) of the work area as construction proceeds. Navigation light shall be Go Deep |

International Inc GDI-0.25 buoy with internal radar reflector and M502 lantern, or approved equivalent. Place the yellow cautionary buoy farthest from the shoreward end of the wharf and 20m from ongoing construction. It must carry the following:

- .1 Radar reflector.
- .2 2nm amber light displaying characteristic (Fl) 4S from dusk to dawn and during periods of reduced visibility.
- .3 Coordinate the navigation light installation with the local Harbour Authority.
- .4 Contractor is responsible for all costs associated with the supply, installation and removal of all temporary navigation light.

1.30 Operations and
Maintenance Data

- .1 Submit Operations and Maintenance data in accordance with the requirements set forth in Section 01 33 00 - Submissions/Shop Drawing; and for any Section in these Specifications that require operation and maintenance data to be submitted.
- .2 Provide cut sheets, manufacturer's literature, spare part information, maintenance schedules, operational data and any other material deemed useful by the Departmental Representative.
- .3 Provide three (3) hard copies and one (1) electronic copy of all Operation and Maintenance data to the Departmental Representative.

END OF SECTION

PROJECT PARTICULARS

- 1.1 Description of Work
- .1 The work covered by the Plans and Specifications prepared by the Consultant includes, but is not limited to:
- .1 Construction of new steel sheet pile (SSP) wharf 410P encapsulating existing wharf 405 complete with tie rods, granular infill between existing SSP and new SSP, reinforced concrete copewall (between new SSP and welded steel plates), and a reinforced concrete/asphalt deck above graded fill.
 - .2 Provide ladders, concrete anchors, bollards, cleats, fenders, and wheel guards as noted.
 - .3 Provide fresh water supply piping system and service block.
 - .4 Maintain the stability and integrity of the existing structure at all times during the work.
 - .5 With regards to the electrical repairs and upgrades:
 - .1 The detailed electrical scope of work at the power centers and elsewhere on the wharf is listed on drawing E5 and E6 of 20 and in the specifications.
 - .2 Power center #1, 2, 3, 6, 8, 9, 10, 17, 18, 19, 20, 21, 23, 24, 45 to be repaired as indicated.
 - .3 Power center #4 and #5 to be replaced with new power center c/w new service and feeders from transformer #2 as indicated.
 - .4 Power source #2, pad transformer #2 to have concrete pad upgraded to accommodate pad transformer change from 150KVA to 300KVA as indicated.
 - .5 Power center #7 to be replaced with new power center c/w new service and feeders from transformer #3 as indicated.
 - .6 Power center #22 to be repaired and upgraded, new service and feeders from transformer #4 as indicated.

- .7 Power centers #12, 13, 14, 15 and 16 are to be upgraded under a future contract.
- .8 The high voltage transformer at power source #4 is to be replaced and relocated along with power center #11 c/w relocated line and load feeders as indicated.
- .9 Provide electrical testing, commissioning, as-built drawings and O&M manuals.

PRODUCT MEASUREMENT

1.2 General

- .1 Unit and lump sum prices are full compensation for the work necessary to complete each item in the contract, in combination for all work necessary to complete the Work and provided in accordance with the Construction Schedule and other plans indicated requiring submittal to and approval by the Departmental Representative.
- .2 The unit and lump sum prices for all items herein shall be full compensation for the work of the Item and shall include the cost of furnishing all labour, materials, tools, construction utilities and equipment necessary to complete the work in accordance with the Contract, Drawings and Specifications, and shall cover all costs of surety, management, supervision, labour, materials, plant and services, security provisions, and all operations and allowances customary and necessary to complete each item and the Contract as a whole notwithstanding the fact that not every such necessary operation is mentioned or included specifically for measurement.

1.3 Measurement for Payment

- .1 Lump Sum Item: the following item, to be read in conjunction with both the project drawings and the technical specifications is to cover all miscellaneous work activities that do not lend themselves easily to measurement and quantification:
 - .1 Site Organization & Demolition and/or Waste Disposal: Project Management, construction site control and coordination, plan and

schedule submissions, assistance to the Departmental Representative, mobilization and demobilization, Departmental Representative's and Contractor's site offices as required, permitting and/or permissions in accordance with requirements of Authorities having jurisdiction, regulatory requirements, coordination of work by external utilities (ex - NB Power), safety, environmental protection, pollution and sedimentation control, water quality monitoring Quality Control, Independent laboratory testing and reporting, Preconstruction Condition Survey and Post-Construction Condition Survey, reports as specified, inspections as specified, provision of weigh scales, selective site demolitions and removals, security provisions and allowances, traffic control, temporary works, temporary roads and access as required, snow clearing, any site modifications including temporary power/utilities, filling, grading, site improvements and reinstatement required to perform the work, construction hoarding, shoring, dewatering, disposal of surplus materials, disposal of wastes, marker tape, marker stakes, abandonment of any affected underground utilities and works, reinstatement of disturbed surfaces with matching materials and thicknesses, interim record and topographic survey data submissions, field records and topographic survey, record drawings, warranties, cleaning, and all incidentals.

Division 26

- .2 Electrical: The replacement of the power distribution system including the supply and install new power distribution from Power Centre #11 to Power Centers 12, 13, 14, 15 & 16 as detailed on drawings E2, E4, E5 & E6 and associated work described in the drawings and specifications; the upgrade of the power centres #12, 13, 14, 15 and 16 as detailed on drawings E5, E6 & E15 and Section 26 05 31, cl. 2.3 c/w all associated work described in the drawings and specifications; the supply and installation

of light pole foundations; installation of wires and aim LED light poles and fixtures (supplied by Harbour Authority) as detailed on drawings E2, E5, E6, E21, E22 & E23 and associated work described in the drawings and the specifications.

Division 33

- .3 Mechanical Installations: The following items are included in the lump sum item:
- .1 2100mm Precast Concrete Drainage Structures: Work included under this section consists of all necessary operations to supply, and install all precast concrete structures and all related appurtenances within the Contract limits, as shown on the Drawings or specified herein. All risers, frames, grates, excavation, backfill, compaction, and supplementary materials will be considered incidental to the work.
 - .2 100mm PVC Watermain: Work included under this section consists of all necessary operations to supply, install and test all water mains and all related appurtenances within the Contract limits, as shown on the Drawings or specified herein. All bends, tees, couplings, bedding, excavation, backfill, compaction, chlorination/dechlorination and supplementary materials will be considered incidental to the work.
 - .3 50mm PEX Service Lateral: Work included under this section consists of all necessary operations to supply, install and test all PEX water service laterals and all related appurtenances within the Contract limits, as shown on the Drawings or specified herein. All bends, tees, couplings, bedding, excavation, backfill, compaction, chlorination/dechlorination and supplementary materials will be considered incidental to the work.

- .4 50mm Stainless Steel SCH40 Service Lateral: Work included under this section consists of all necessary operations to supply, install and test all stainless steel water service laterals and all related appurtenances within the Contract limits, as shown on the Drawings or specified herein. All bends, tees, couplings, bedding, excavation, backfill, compaction, chlorination/dechlorination and supplementary materials will be considered incidental to the work.
- .5 Drain Assemblies: Work included under this section consists of all necessary operations to supply, install and test all drain assemblies and all related appurtenances within the Contract limits, as shown on the Drawings or specified herein. All hardware, valves, fasteners, and supplementary materials will be considered incidental to the work.
- .6 50mm Water Service Blocks: Work included under this section consists of all necessary operations to supply, install and test all stainless steel water service blocks and all related appurtenances within the Contract limits, as shown on the Drawings or specified herein. All valves, fasteners, sleeves, and supplementary materials will be considered incidental to the work.
- .2 Unit Price Items: the following outlines the unit of measurement of the unit price items as indicated in the Contract Documents:

Division 03

- .1 Concrete Filling of Sheet Pile: The concrete infill for the sheet pile will be measured for payment by the vertical linear metre. This will include supply, transportation and installation of

concrete, concrete formwork, reinforcement, plates, end plates and all supplementary materials incidental to the work.

- .2 Concrete Deck and Bollard Bases: The concrete deck and bollard bases will be measured for payment by the square metre. This will include supply, transportation and installation of concrete, concrete formwork, reinforcement and all supplementary materials incidental to the work. The concrete cap at the ramp and closure infill on east end where new wall meets existing wharf will be considered incidental to this item.
- .3 Concrete Light Bases: The concrete light bases will be measured for payment for each. This will include supply, transportation and installation of concrete, concrete formwork, reinforcement and all supplementary materials incidental to the work.

Division 05

- .4 HSS Wheel Guard: The HSS wheel guard will be measured for payment by the linear metre. This will include supply, transportation and installation of the wheel guard system, hardware, anchors, connections, welding, and all supplementary materials incidental to the work.
- .5 Net Guard: The net guard will be measured for payment by the linear metre. This shall include the supply, transportation, and installation of the net guard sections, connections, fasteners, welds, hardware and supplementary materials will be considered incidental to the work.

Division 31

- .6 Excavation and Disposal of Soils: The excavation and disposal of soils will be measured for payment by the cubic metre based on the Project Drawings. This will

include the supply, transportation, disposal, of all granular materials, and all materials considered incidental to work. Dispose to meet requirements of the New Brunswick Department of Transportation and Infrastructure and any other authority having jurisdiction.

- .7 150mm Granular Infill Between SSP Walls:
The 150mm granular infill between the new and existing steel sheet pile walls will be measure for payment by the tonne. This will include supply, transportation and installation of all granular material, compaction, grading, and all supplementary materials considered incidental to the work.
- .8 75mm or 150mm Quarried Crushed Rock:
The 75mm or 150mm quarried crushed rock will be measured for payment by the tonne based on the Project Drawings confirmed by as constructed survey information provided by the Contractor. Any material placed beyond the lines and grades shown will not be measured for payment. This will include supply, transportation and installation of all granular material, compaction, grading, surveying, and all supplementary materials considered incidental to the work.
- .9 31.5mm Crushed Rock: 31.5mm crushed rock will be measured for payment by the tonne based on the Project Drawings confirmed by as constructed survey information provided by the Contractor. Any material placed beyond the lines and grades shown will not be measured for payment. This will include supply, transportation and installation of all granular material, compaction, grading, surveying, and all supplementary materials considered incidental to the work.
- .10 Non-Woven Geotextile: The non-woven geotextile will be measured for payment by the square metre based on the dimensions indicated on the Project Drawings. Any material placed beyond the lines and grades shown, as well as overlapping will not be measured for payment. This will include

supply, transportation and installation of non-woven geotextiles and all supplementary materials incidental to the work.

- .11 Steel Sheet Piles: The supply and installation of steel sheet piles will be measured by the square metre based on the dimensions indicated on the Project Drawings. Steel sheet piles placed beyond the dimensions shown will not be measured. All temporary bracing, shoring, hardware, fasteners, bolts, connections and supplementary materials will be considered incidental to the work. This includes but is not necessarily limited to drains, channel cap, protection plate, fender mounting plate, wale sections, connections, hardware, shims, weldable Nelson dowels fasteners and bolts.
- .12 Tie Rods: Tie rods will be measured for payment by the linear metre. This will include supply, transportation and installation of all ties, connectors, hardware, fasteners, bolts, and all supplementary materials incidental to the work.
- .13 Concrete Anchor Blocks: Concrete anchor blocks will be measured by the cubic metre. This will include the supply, transportation and installation of concrete, concrete formwork, concrete additives, reinforcement and all supplementary materials incidental to the work.
- .14 456mm Diameter Pipe Piles: The 456mm diameter steel pipe piles will be measured for payment per each. This will include the supply, transportation, and installation of the steel pipe piles. Including the cost of cut-off and damaged material, hardware, and all supplementary materials incidental to the work.

Division 32

- .15 Asphalt (100mm thick): Asphalt will be measured for payment by the square metre

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 will not be measured for payment. This will include supply, transportation and installation of the asphalt, coating, all equipment, machinery, and all supplementary materials considered incidental to the work.

Division 35

- .16 Rubber Tire Fenders: The rubber tire fenders will be measured for payment per each. This will include salvage from existing wharf, handling, storage and re-installation of rubber tire fenders on new wharf, hardware, fasteners, bolts, and all other supplementary materials considered incidental to the work.
- .17 Rubber D-Fender System: The rubber tire D-fenders will be measured for payment per each. This will include salvage from existing wharf, handling, storage and re-installation of rubber tire D-fenders on new wharf, hardware, fasteners, bolts, and all other supplementary materials considered incidental to the work.
- .18 10 Tonne Mooring Cleats: The 10 tonne mooring cleats will be measured for payment per each. This will include supply, transportation and installation of cleats, hardware, fasteners, bolts, and supplementary materials considered incidental to the work.
- .19 50 Tonne Mooring Bollards: The 50 tonne mooring bollards will be measured per each. This will include supply, transportation and installation of bollards, mooring rings, hardware, fasteners, bolts, and supplementary materials considered incidental to the work.
- .20 Ladders: The ladders will be measured for payment per each. This will include supply, transportation and installation of the

ladders, holdfasts, hardware, fasteners,
bolts, field touch ups, and all
supplementary materials considered
incidental to the work.

END OF SECTION

- | | | |
|---|------------------------------------|---|
| 1 | <u>General</u> | <ul style="list-style-type: none">.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. |
| 2 | <u>Shop Drawings</u> | <ul style="list-style-type: none">.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. |
| 3 | <u>Product Data</u> | <ul style="list-style-type: none">.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. |
| 4 | <u>Samples</u> | <ul style="list-style-type: none">.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. |
| 5 | <u>Miscellaneous Data</u> | <ul style="list-style-type: none">.1 Provide certificates, methodologies, design and test results as required. |
| 6 | <u>Coordination of Submissions</u> | <ul style="list-style-type: none">.1 Review shop drawings, product data, samples and miscellaneous data prior to submissions..2 Verify:<ul style="list-style-type: none">.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 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 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.

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. Provide one (1) electronic file in pdf file format for all submittals.
- .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 to include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 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.

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.

9 Other Reviews

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

END OF SECTION

PART 1 - GENERAL

- 1.1 Work Included
 - .1 Fire Safety Requirements
 - .2 Hot Work Permit
 - .3 Existing Fire Protection and Alarm Systems
- 1.2 Related Work
 - .1 Section 01 35 28: Health and Safety
 - .2 Section 01 35 25: Special Procedures on Lockout Requirements
- 1.3 References
 - .1 FCC No. 301-June 1982 Standard for Construction Operations.
 - .2 FCC No. 302-June 1982 Standard for Welding and Cutting.
- 1.4 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.
- 1.5 Submittals
 - .1 Submit a copy of Hot Work Procedures, to Departmental Representative for review, within 14 calendar days after contract award.
 - .2 Include sample of Hot Work Permit.
 - .3 Submit above documents in accordance with the submittal general requirements specified in Section 01 33 00.
- 1.6 Fire Safety & Hot Work Requirement
 - .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code, 2010.
 - .2 Fire Protection Standards FCC 301, Standard for Construction Operations and FCC 302, Standard for Welding and Cutting as issued by the Fire Protection Services of Human Resources Development Canada

- .3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 28.
- .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.
- .3 Hot Work Requirements:
 - .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 Type of work and frequency of situations which will require Hot Work.
 - .3 Upon confirmation that effective fire safety measures will be implemented for hot work, Departmental Representative will grant Authorization to Proceed.
 - .4 In most cases, Departmental Representative will issue only one written authorization covering the entire construction project and duration of work. However in some cases, depending on the nature or phasing of work, the quantity of various trades needing to perform welding and cutting on site, or other deemed situation, Departmental Representative might designate certain portions of the work as separate entities, each entity requiring individual written authorization to proceed. Follow Departmental Representative's directives in this regard.
- .4 Do not perform any Hot Work until receipt of Departmental Representative's written Authorization to Proceed.

- 1.7 Conformance
- .1 Stringently follow Hot Work Procedures, as established for project and agreed upon with Departmental Representative. Enforce use and compliance by all workers.
 - .2 Brief all workers and subcontractors on Hot Work Procedures and Permit system.
 - .3 Failure to comply with the established hot work procedures may result in the issuance of a Noncompliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Health & Safety Section 01 35 29.
- 1.8 Hot Work Procedures
- .1 Develop Hot Work Procedures, to be followed when Hot Work is required as part of the work.
 - .2 Describe safe work practices and sequence of activities to be followed on site by Contractor and workers to minimize the potential occurrence of a fire resulting from Hot Work.
 - .3 Hot Work Procedures to include:
 - .1 Requirement to perform hazard assessment of the site or immediate work area, based on type and extent of Hot Work required, in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29. Carry out hazard assessment for each hot work event.
 - .2 Use of a Hot Work Permit system, issued by an authorized person in Contractor's employ, for each event when Hot Work is required, granting permission to carry out hot work.
 - .3 Provision of a designated person (s) to carryout a Fire Safety Watch for a minimum of 30 minutes immediately upon completion of the hot work.
 - .4 Procedures to comply with fire safety codes and standards specified herein and specified in Section 01 35 29.
 - .5 Generic procedures, if used, must be edited, supplemented with pertinent information and

tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

- .6 Include within procedures the step by step process on how to prepare and issue the Hot Work Permit.
- .7 Hot Work Procedures to be in typewritten format, listing step by step procedures and worker instructions, clearly establishing and allocating responsibilities of:
 - .1 Worker (s)
 - .2 Designated person authorized to issue the Hot Work Permit,
 - .3 Fire Safety Watcher,
 - .4 Subcontractors and Contractor.

1.9 Hot Work Permit

- .1 Develop "Hot Work Permit" form in typewritten format.
- .2 Hot Work Permit form to include, as a minimum, the following data:
 - .1 Project name and project number.
 - .2 Building name, address and specific floor, room or area where hot work will be performed.
 - .3 Date when permit issued.
 - .4 Description on type of hot work to be carried out.
 - .5 Special precautions required, including type of fire extinguisher needed.
 - .6 Name and signature of authorized person, designated by Contractor, to issue the permit
 - .7 Name of worker (s) (clearly printed) to which the permit is being issued.
 - .8 Time duration of permit (not to exceed 8 hours) indicating "Start" time & date and "Completion" time & date when Hot Work permit will be in effect.
 - .9 Worker signature with date and time when hot work terminated.
 - .10 Specified period of time requiring Safety Watch.
 - .11 Name and signature of person designated Fire Safety Watcher, complete with time & date when safety watch terminated, certifying that the surrounding area was

under his continual watch and inspection for the minimum time period specified in Permit and commenced immediately upon the completion of Hot Work.

- .3 Only use Industry Standard forms if all data specified above is included on form.
- .4 Each Hot Work Permit to be completed in full and signed as follows:
 - .1 Authorized person issuing Permit before hot work commences;
 - .2 Worker(s) upon completion of Hot Work;
 - .3 Fire Safety Watcher upon termination of safety watch and;
 - .4 Returned to Contractor's Site Superintendent for safe keeping.

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

- | | | | |
|-----|---------------------|----|---|
| 1.1 | <u>Description</u> | .1 | Procedures to isolate and lockout electrical facility or other equipment from energy source. |
| 1.2 | <u>Related Work</u> | .1 | Section 01 35 28: Health and Safety. |
| | | .2 | Section 01 35 24: Special Procedures on Fire Safety Requirements. |
| 1.3 | <u>References</u> | .1 | CSA C22.1-2010 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations. |
| | | .2 | CSA C22.3 No. 1-01 - Overhead Systems. |
| | | .3 | CSA C22.3 No. 7-94 (R2004) - Underground Systems. |
| | | .4 | COSH, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code. |
| 1.4 | <u>Definitions</u> | .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. |
| | | .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 Perform lockouts in compliance with:
 - .1 Canadian Electrical Code
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 28.
 - .3 Regulations and code of practice 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. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.
- 1.6 Submittals
 - .1 Submit copy of proposed Lockout Procedures and sample of lockout tags for review.
 - .2 Submit documentation within 7 calendar days of contract award. Do not proceed with work until submittal has been reviewed by Departmental Representative.
 - .3 Submit above documents in accordance with the submittal - general requirements specified in Section 01 33 00.
 - .4 Resubmit Lockout Procedures with noted revisions as may result from Departmental Representative's review.
- 1.7 Isolation of Existing Services
 - .1 Obtain Departmental Representative's written authorization prior to conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.
 - .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:
 - .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 Identification of system or equipment to be isolated, including its location;
 - .2 Time duration, indicating Start time & date and Completion time & date when isolation will be in effect.
 - .3 Voltage of service feed to system or equipment being isolated.
 - .4 Name of person making the request.
- .3 Document to be in typewritten format.
- .4 Do not proceed until receipt of written notification from Departmental Representative granting the Isolation Request and authorizing to proceed with the isolation of designated equipment or facility. Departmental Representative may designate other individual at the Facility as the person authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.
- .6 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.
- .7 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require a Request for Isolation. Follow Departmental Representative's directives in this regard.
- .8 Conduct hazard assessment as part of the planning

process of isolating existing equipment and facilities. Hazard Assessments to conform to requirements of Health and Safety Section 01 35 28.

1.8 Conformance

- .1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.
- .2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this section.
- .3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 28.

1.9 Documents on Site

- .1 Post Lockout Procedures on site in common location for viewing by workers.
- .2 Keep copies of Request for Isolation submitted to Departmental Representative and lockout procedures issued to workers during the course of work for full project duration.
- .3 Upon request, make such data available to Departmental Representative or to authorized safety representative for inspection.

END OF SECTION

- 1.1 Related Work
 - .1 Section 01 35 24: Special Procedures on Fire Safety Requirements.
 - .2 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 15 work days of notification of Bid Acceptance. Provide three (3) copies.
 - .2 Departmental Representative will review Health and Safety Plan and provide comments.
 - .3 Revise the Plan as appropriate and resubmit within 10 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 & 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 New Brunswick, 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 (COSH) as well as any other regulations made pursuant to the Act.
 - .1 The Canada Labour Code can be viewed at the following web address: [www.http://laws-lois.justice.gc.ca/eng/acts/L-2fulltest.html](http://laws-lois.justice.gc.ca/eng/acts/L-2fulltest.html) .
 - .2 Canadian Occupational Health and Safety Regulations can be viewed at: <http://laws-lois.juctice.gc.ca/eng/regulations/SOR-86-304/index.html>.

- .3 A copy may be obtained by contacting: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F)
- .4 Observe and enforce construction safety measures of:
 - .1 Part 8 of National Building Code.
 - .2 Provincial Workers Compensation Board.
 - .3 Municipal by-laws and ordinances.
- .5 In case of conflict or discrepancy between above specified requirements, the more stringent shall apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.
- .6 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter in Good Standing.
- .7 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.

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. See Section 01 51 00 for minimum acceptable requirements.
 - .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. Provide security guard where adequate protection cannot be achieved by other means.

1.7 Protection

- .1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.
- .2 Provide temporary facilities for protection and safe passage of public pedestrians and vehicular traffic around and adjacent to work site.

- .3 Provide safety barricades, lights and signage on work site as required to provide a safe working environment for workers.
 - .4 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take 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.
 - .2 Upon request, 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. Submit copies to Departmental Representative.
 - .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 prior to commencement of work.
 - .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, a Change Order is issued or when a potential hazard or weakness in current health and safety practices are identified by Departmental Representative or by an authorized safety representative.
 - .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 Following are potential health, environmental and safety hazards at the site for which Work may involve contact with:
 - .1 Existing hazardous substances or contaminated wharf materials:
 - .1 Pressure treated timber.
 - .2 Known latent site and environmental conditions:
 - .1 Wildlife activity.
 - .2 Water tidal action.
 - .3 Electrical.
 - .3 Facility on-going operations:
 - .1 Continued pedestrian use of wharf.
 - .2 Continued vehicular use of wharf.
 - .3 Continued vessel use of wharf for fisheries industry.
 - .4 Vessel travel around area of Work.
 - .2 Above items shall not be construed as being complete and inclusive of potential health and safety hazard encountered during Work.
 - .3 Include above items in the hazard assessment of the Work.
 - .4 MSDS data sheets of pertinent hazardous and controlled products stored on site can be obtained from Departmental Representative.
- 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.
 - .3 Keep documents on site.
- 1.13 Health And
- .1 Prior to commencement of Work, develop written

Safety Plan

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 On-site Contingency and Emergency Response Plan as specified below.
 - .3 On-site Communication Plan as specified below.
 - .4 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
 - .5 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 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.
 - .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.
- .9 Submission of the Health and Safety Plan, and updates, to the Departmental Representative is for review and information only. Its submission shall not be construed to imply approval by Departmental Representative, be interpreted as a warranty of being complete, accurate and legislative compliant and shall not relieve Contractor of their legal obligations for the provision of Health and Safety on the construction project.

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.
- .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 confirm corrective measure 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 Ensure that workers, subcontractors and other authorized persons granted access to site are trained and have been fully instructed by a competent instructor, on:
 - .1 Safe operation of tools and equipment.
 - .2 Proper wearing and use of personal protective equipment (PPE) as applicable to the purpose and activities to be conducted on site.

- .3 Safe work practices and procedures to be followed during the performance of their given work tasks or function on site.
 - .4 Site conditions and minimum site safety rules provided through site orientation sessions.
 - .3 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.
 - .4 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.
- 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 workers on site safety rules, and on the disciplinary measures to be taken for violation or non-compliance of such rules. Post such information on site.
- 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.
- 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 Maintain on site copy of safety documentation as specified in this section and other safety related reports and documents issued to or received from authorities having jurisdiction, including:
- .1 Site specific Health and Safety Plan.
- .2 WHMIS data sheets.
- .3 Make available to Departmental Representative, or authorized safety representative, for inspection upon request.

END OF SECTION

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 New Brunswick Clean 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 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.
- .2 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.

- .3 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.
- .4 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.
- .5 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.

1.3 Transportation

- .1 Transport hazardous materials and hazardous waste in compliance with Federal Transportation of Dangerous Goods Act.
- .2 The Harbour Authority will coordinate all construction/vessel activities within the harbour for the duration of the project so as to avoid unnecessary interference with harbour users. Any and all stipulations of federal, provincial, or municipal authorities or their officers must be strictly followed.
- .3 Any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable water shall not be permitted to remain in place after the completion of the project.
- .4 Do not overload trucks when hauling material. Secure contents against spillage.
- .5 Maintain trucks clean and free of mud, dirt and other foreign matter.
- .6 Avoid potential release of contents and of any foreign matter onto highways, roads and access

routes used for the Work. Take extra care when hauling material and other hazardous materials. Immediately clean any spillage and soils.

- .7 Before commencement of work, advise the Departmental Representative of the existing roads and temporary routes proposed to be used to access work areas and to haul material to and from the site.
- .8 Vessels must be permitted safe access through the worksite at all times, and shall be assisted as necessary.
- .9 All materials and equipment used in construction must be marked in accordance with the Collision Regulations of the Canadian Shipping Act, 2001 when located on the waterway.

1.4 Temporary Causeway
and Access Roads

- .1 It will be the Contractor's responsibility to gain access to the work area. Construct temporary causeways and access roads and remove immediately after work is deemed complete by the Departmental Representative.
- .2 Identify a location for the disposal of material imported by the Contractor for the construction of temporary causeways and access roads.
- .3 All material used for construction of temporary causeways and access roads must be clean and free from excessive fines, organics, debris and non-toxic (i.e., free of fuel, oil, grease and/or any other contaminants), non-ore bearing and from a provincially approved non-water source.
- .4 Screen material, 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. must be within the following limits:

SIZE	PERCENT PASSING
450mm	100
200mm	44-75
100mm	24-50
50mm	7-14

- .5 Heavy machinery and equipment must be operated from a dry platform only. Construct temporary causeways and access roads 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, relocate machinery and equipment back to a suitable elevation to prevent operating in submerged waters.
 - .6 Maintain temporary buoys to mark the position of the access road including the outer toe as construction proceeds. All buoys must meet requirements of the applicable Canadian Coast Guard standard and be equipped with radar reflectors.
- 1.5 Operation of Machinery
 - .1 Confirm 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 and Provincial laws, regulations, codes, standards and guidelines for the storage of fuel and petroleum products on site.
 - .2 Do not place fuel storage tanks and store fuel or other petroleum products within a 30 metre buffer zone of watercourses and wetlands. Do not fuel or lubricate equipment within this 30 metre buffer zone. Obtain approval from Departmental Representative of acceptable location on site for fuel storage and equipment service.
 - .3 Do not dump petroleum products or any other deleterious substances on ground or in the water.

- .4 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.
 - .5 Maintain vehicles and equipment in good working order to prevent leaks on site.
 - .6 Onsite crews must have emergency spill cleanup equipment, adequate for the activity involved, on-site. Spill equipment will include, as a minimum, at least one 250L (i.e., 55 gallon) overpak spill kit containing items to prevent a spill from spreading; absorbent booms, pillows, and mats; rubber gloves; and plastic disposal bags.
 - .7 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.
- 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 written inventory of all hazardous materials kept on site. List product name, quantity and storage date.
 - .4 Store and handle flammable and combustible materials in accordance with National Fire Code.
- 1.8 Disposal of Wastes
- .1 Do not bury rubbish, demolition debris and waste materials on site.

- .2 Dispose and recycle demolition debris and waste materials in accordance with Provincial Waste Management requirements.
- .3 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.
- .4 Dispose of hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.
- .5 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.

1.9 Water Quality

- .1 Conduct visual monitoring for suspended solids daily during periods of in-water works, and other related works. If any changes occur in the turbidity of the water in the vicinity of the work area as a result of construction activities, the work should immediately stop and the Department of Fisheries and Oceans - Fisheries Protection Program contacted at (902) 426-3909 to determine if additional mitigation measures are required.
- .2 Where work may affect the water quality adjacent to water intake lines used by lobster holding facilities, fish processing facilities and other harbor users, schedule work in cooperation with the Harbour Authority as directed by the Departmental Representative to minimize interference and impact to harbour users.

- .3 Do not wash down equipment within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
- .4 Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the water body during all phases of the work. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the water body or settling basin and runoff water is clear. The plan should, where applicable, include:
 - .1 Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
 - .2 Measures for managing water flowing onto the site, as well as water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a water body (via settling basin or other filtration system).
 - .3 Site isolation measure (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., excavation, dredging, underwater cable installation).
 - .4 Measures for containing and stabilizing waste material (e.g., excavated material, dredging spoils, 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.
 - .5 Regular inspection and maintenance of erosion and sediment control measures and structures during the course of the work.
 - .6 Repairs to erosion and sediment control measures and structures if damage occurs.
 - .7 Removal of non-biodegradable erosion and sediment control materials once site is stabilized.
- .5 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) approved.
- .5 Do not use timber and lumber treated with creosote, petroleum and pentachlorophenol for any part of the work.
- .6 Any construction debris/material that enters the marine environment will be removed immediately.

1.10 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.
- .3 Use work equipment and machinery with purposely designed mufflers to reduce noise on site to lowest possible level. Maintain mufflers in good operating condition at all times.

1.11 Bird And
Bird Habitat

- .1 Comply with Federal and Provincial laws, 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 neighbouring 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 All machinery must be well muffled. If necessary, trucks may be required to avoid the use of "hammer" braking along specific sections of the route.
- .8 Contractors must ensure that food scraps and garbage are not left at the work site.
- .9 All equipment to be used in or over the marine environment is to be free from leaks or coating of hydrocarbon based fluids and/or lubricants harmful to the environment. Hoses and tanks are to be inspected on a regular basis to prevent fractures and breaks.
- .10 Construction activities will be carried out during times acceptable to local authorities.

1.12 Fish and
Fish Habitat

- .1 Avoid wet, windy and rainy periods that may increase erosion and sedimentation.
- .2 Confirm in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
- .3 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.

- .4 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.
- .5 To minimize the possibility of fish habitat contamination, 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.
- .6 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.
- .7 Conduct cleaning and washing operations as follows:
 - .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.
- .8 Do not perform cleaning and washdown within a 30 metre buffer zone of a wetland, watercourse or other identified environmentally sensitive area.
- .9 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,
- .3 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 washdown for each piece of equipment;
 - .4 Cleaning method and cleaning agent(s) used.
- .10 Keep Record of Assurance Logbook updated from project to project. Upon request, submit logbook to Departmental Representative for review.
- .11 Abide by requirements and recommendations of Environment Canada and the Department of Fisheries and Oceans - Oceans and Habitat Branch in cleaning and washdown of equipment.
- .12 Marine equipment may be inspected by PWGSC or DFO to ensure invasive species are not introduced to the marine environment.

1.13 Air Quality

- .1 Keep airborne dust and dirt resulting from the work on site to an absolute minimum.
- .2 Employ dust suppression by the application of water when required. Apply dust control measures to roads, parking lots and work areas. The Departmental Representative will determine locations where water is to be applied and the times at which is to be applied. Waste oil must not 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.
- .5 Construction activities must be carried out during times acceptable to local authorities and smaller, less disturbing equipment will be used where possible.

1.14 Fires

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

1.15 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 his/her immediate supervisor.
- .2 If an archaeological and/or historically significant item is discovered during excavation, work in the area will be stopped immediately and the Departmental Representative will be contacted as well as the provincial Archaeological Services unit: 506-543-2738
- .3 Work can only resume in the vicinity of the find when authorized by the PWGSC Project Manager and Construction Supervisor, after approval has been granted by the provincial Archeological Services Unit.
- .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 PWGSC Project Manager and/or the Construction Supervisor.

END OF SECTION

- | | | | |
|---|--------------------------------------|----|--|
| 1 | <u>Related Requirements</u> | .1 | Particular requirements for inspection and testing of concrete to be carried out by testing laboratory designated by Departmental Representative are specified under various sections. |
| 2 | <u>Appointment and Payment</u> | .1 | Departmental Representative will appoint and pay for services of testing laboratory except for the following: <ul style="list-style-type: none">.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. |
| | | .2 | Where tests or inspections by designated testing laboratory reveal work not in accordance with contract requirements. Pay costs for additional tests or inspections as Departmental Representative may require to verify acceptability of corrected work. |
| 3 | <u>Contractor's Responsibilities</u> | .1 | Furnish labour and facilities to: <ul style="list-style-type: none">.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. |
| | | .4 | Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Departmental Representative. |

Wharf Construction

Section 01 41 00

Structure 410P

Caraquet

Project No. R.081895.001

Testing Laboratory Services

Page 2

END OF SECTION

- | | | |
|---|--|--|
| 1 | <u>Access</u> | <p>.1 Provide and maintain adequate access to project site.</p> <p>.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.</p> <p>.3 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.</p> |
| 2 | <u>Contractor's Site Office</u> | <p>.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 and fax machine in the office.</p> <p>.2 Keep one up-to-date copy of the Contract Documents, bulletins and other materials as specified under Section 01 10 10 - General Instructions.</p> |
| 3 | <u>Departmental Representative's Site Office</u> | <p>.1 Provide furnished temporary office for sole use of Departmental Representative complete with heat, lights, phone/fax connection and internet connection. Insulated office required if used during October to May. Locate on or adjacent to site.</p> <p>.2 Types and location of barricades, etc. to be in accordance with local regulations and to the satisfaction of Departmental Representative.</p> <p>.3 The presence of such barricades, lights, etc. will not relieve the Contractor of the responsibility for any damages.</p> |

- | | | | |
|---|----------------------------|----|--|
| 4 | <u>Storage Sheds</u> | .1 | Provide adequate weather tight sheds with raised floors, for storage of materials, tools and equipment which are subject to damage by weather. |
| | | .2 | Make arrangements with the Departmental Representative for on-site storage areas. |
| 5 | <u>Sanitary Facilities</u> | .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. |
| 6 | <u>Parking</u> | .1 | Make arrangements with the Departmental Representative to provide parking space for work force. |
| 7 | <u>Power</u> | .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. |
| 8 | <u>Water Supply</u> | .1 | Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances. |
| 9 | <u>Barricades</u> | .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. |
| | | .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. will not relieve the Contractor of the responsibility for any damages. |

- | | | | |
|----|--|----|---|
| 10 | <u>Security</u> | .1 | Make arrangements with the Departmental Representative for security of his equipment, materials, damages resulting from fire and theft. |
| 11 | <u>Site Signs and Notices</u> | .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. |
| 12 | <u>Temporary Shoring</u> | .1 | Contractor to ensure stability of existing wharf structure at all times during work. |
| | | .2 | Provide the Departmental Representative a temporary shoring plan for approval. Plan must be stamped and signed by a professional engineer licensed to practice in the Province of New Brunswick. Particular attention to be paid to shoring existing west end concrete anchor block during excavation and installation of new SSP tie rod system. |
| 13 | <u>Removal of Temporary Facilities</u> | .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

- 1.1 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 and Storage with supplier's instructions.
- 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
 - .1 On request, prove to the satisfaction of the Departmental Representative that the construction

Plan

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.

- .2 Maintain construction equipment and plant in good operating order.

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

- 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.

END OF SECTION

- | | | |
|---|--|---|
| 1 | <u>General</u> | <ul style="list-style-type: none">.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. |
| 2 | Cleaning During
<u>Construction</u> | <ul style="list-style-type: none">.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. |
| 3 | <u>Final Cleaning</u> | <ul style="list-style-type: none">.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

PART 1 - GENERAL

1.1 Definitions

- .1 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .2 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .3 Recycling: process of sorting, cleansing, 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.
- .4 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project.
 - .2 Returning reusable items including pallets or unused products to vendors.
- .5 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .6 Separate Condition: refers to waste sorted into individual types.
- .7 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .8 Waste Management Coordinator (WMC): Contractor representative responsible for supervising waste management activities.

1.2 Waste Management Workplan

- .1 Prior to commencement of work, prepare a Waste Management Workplan.
- .2 Workplan to include:
 - .1 Waste reduction practices.
 - .2 Material source separation process.
 - .3 Procedures for sending recyclables to recycling facilities.

- .4 Procedures for sending non-salvageable items and waste to approved waste processing facility or landfill site.
- .5 Training and supervising workforce on waste management at site.
- .6 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.
- .7 Schedule of selective demolition.
- .8 Number and location of dumpsters.
- .9 Anticipated frequency of tippage.
- .10 Name and address of haulers, waste facilities and waste receiving organizations.
- .3 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.
- .4 Implement and manage all aspects of Waste Management Workplan for duration of work.
- .5 Revise Workplan as work progresses addressing new opportunities for diversion of waste from landfill.
- .6 Workplan to identify a Waste Management Coordinator. This individual will be the Contractor's representative responsible for supervising all waste management activities as well as coordinating related required submittals and reporting.
- 1.3 Submittals
 - .1 Provide submittals, including the Waste Management Work Plan, in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit copies of certified receipts from authorized disposal sites and reuse and recycling facilities for material removed from site on a weekly basis.
 - .1 Written authorization from the Departmental Representative is required to deviate from haulers, facilities and receiving organizations listed in Waste Management Workplan.
 - .2 Include copy of weigh bills, scale tickets and disposal receipts for all waste disposed.
- 1.4 Storage, Handling and Protection
 - .1 Store materials to be reused, recycled and salvaged in locations as directed by the Departmental

Representative.

- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Handle, stockpile and protect material destined for removal off Site in accordance with Section 01 35 44, subsection 1.6.

1.5 Disposal
Requirements

- .1 Burying or burning of waste materials on site is prohibited.
- .2 Disposal of waste, volatile materials, mineral spirits, oil, paint, paint thinner or unused preservative material into waterways, storm, or sanitary sewers is prohibited.
- .3 Do not dispose of preservative treated wood through incineration.
- .4 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.
- .5 Dispose of treated wood, end pieces, wood scraps and sawdust at a construction and demolition waste approved facility.
- .6 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.
- .7 Contact the authority having jurisdiction prior to commencement of work, to determine what, if any, demolition and construction waste materials have been banned from disposal in landfills and at transfer stations. Take appropriate action to isolate such banned materials at site of work and dispose in strict accordance with provincial and municipal regulations.
- .8 Transport waste intended for landfill in separated condition, following rules and recommendations of Landfill Operator in support of their effort to divert, recycle and reduce amount of solid waste placed in landfill.
- .9 Sale of salvaged items is not permitted on site.
- .10 Remove materials from deconstruction as deconstruction/disassembly work progresses.

1.6 Tipping Fees .1 All tipping fees are to be covered in the Stipulated Price provided. No additional payments will be made to cover waste disposal.

1.7 Scheduling .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

PART 2 - PRODUCTS Not Applicable

PART 3 - EXECUTION

3.1 Application .1 Dispose of all materials as required by regulatory codes, regulations, acts and municipal by-laws.
.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes

3.2 Cleaning .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
.2 Clean-up work area as work progresses.
.3 Separate materials to be reused/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 approved by the Departmental Representative, and consistent with applicable fire regulations.
.1 Mark containers or stockpile areas.
.2 Provide instruction on disposal practices.

END OF SECTION

- 1.1 Related Sections .1 Section 01 78 00 - Closeout Submittals.
- 1.2 Inspection and Declaration .1 Contractor's Inspection: Coordinate and perform, in concert with subcontractors, an inspection and check of all Work. Identify and correct deficiencies, defects, repairs and perform outstanding items as required to complete work in conformance with Contract Documents.
 - .1 Notify the Departmental Representative in writing when deficiencies from Contractor's inspection have been rectified and that Work is deemed to be complete and ready for Departmental Representative's inspection of the completed work.
 - .2 Departmental Representative's Inspection: Accompany the Departmental Representative during all interim and final inspections of the Work.
 - .1 Address defects, faults and outstanding items of work identified by such inspections.
 - .2 Advise Departmental Representative when all deficiencies identified have been rectified.
 - .3 Note the Departmental Representative will not issue a Certificate of Substantial Performance of the work until such time that the Contractor performs the following work and turns over the specified documents:
 - .1 Project record as-built documents;
 - .2 Final Operations and Maintenance manuals;
 - .3 Maintenance materials, parts and tools;
 - .4 Compliance certificates from applicable authorities;
 - .5 Reports resulting from designated tests;
 - .6 Demonstration and training complete with user manuals;
 - .7 Manufacturer's Guarantee certificates.
 - .8 Testing, adjusting and balancing of equipment and systems complete with submission of test reports.
 - .9 Commissioning of equipment and systems specified.
 - .4 Correct all discrepancies before the Departmental Representative will issue the Certificate of Completion.

END OF SECTION

- 1.1 Project Record Documents
- .1 Departmental Representative will provide two (2) white print sets of contract drawings and two (2) copies of Specifications Manual specifically for "as-built" purposes.
 - .2 Maintain at site one set of the contract drawings and specifications to record actual as-built site conditions.
 - .3 Maintain up-to-date, real time as-built drawings and specifications in good condition and make available for inspection by the Departmental Representative upon request.
 - .4 As-Built Drawings:
 - .1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of work, neatly transfer notations to second set (also by use of red ink).
 - .2 Submit both sets to Departmental Representative prior to application for Certificate of Substantial Performance.
 - .3 Stamp all drawings with "As-Built Drawings". Label and place Contractor's signature and date.
 - .4 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
 - .5 Record following information:
 - .1 Horizontal and vertical location of exterior underground utilities and appurtenances referenced to permanent surface improvements.
 - .2 Horizontal and vertical location of various elements in relation to Geodetic Datum;
 - .3 Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure;
 - .4 Field changes of dimension and detail;
 - .5 Location of all capped or terminated services and utilities.
 - .6 Chases for mechanical, electrical and other services;
 - .7 Ceiling and floor elevations;
 - .8 Reflected ceiling plan condition showing finished layout of all ceiling-mounted services and devices;
 - .9 Electrical service installation locations; all to be dimensioned and referenced to building columns or load

- bearing walls;
 - .10 Any details produced in the course of the contract by the Departmental Representative to supplement or to change existing design drawings;
 - .11 All change orders issued over the course of the contract must be documented on the finished as-built documents, accurately and consistently depicting the changed condition as it applies to all affected drawing details.
- .5 As-built Specifications: legibly mark in red each item to record actual construction, including:
- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly items substituted from that specified.
 - .2 Changes made by Addenda and Change Orders.
 - .3 Mark up both copies of specifications; stamp "as-built", sign and date similarly to drawings as per above clause.
- .6 Maintain As-built documents current as the contract progresses. Departmental Representative will conduct reviews and inspections of the documents on a regular basis. Failure to maintain as-builts current and complete to satisfaction of the Departmental Representative shall be subject to financial penalties in the form of progress payment reductions and holdback assessments.
- 1.2 Reviewed Shop Drawings
- .1 Provide a complete set of all shop drawings reviewed for project to incorporate into each copy of the Operations & Maintenance manuals.
 - .2 Submit full sets at same time and as part of the contents of the Operation and Maintenance manuals specified.
- 1.3 Updating of Digital Drawings
- .1 Be aware that beyond the requirement to provide "red marked" as-built paper documents, as specified in Clause 1.3 above, Contractor shall also provide the service of updating the digital drawings which were used to produce the contract drawings.
 - .2 The Departmental Representative will provide one set of AutoCad Lite Release 2010 drawing files specifically for "as-built" purposes. The AutoCad

drawing files shall be updated to record same as-built information as specified in above clauses for the provision of paper as-built drawing documentation.

- .3 All "As-Built" changes to the electronic files provided shall be done following the standards as specified in the Atlantic Region CADD Data Specification manual. A copy of this manual will be provided by the Departmental Representative upon request.
- .4 Make revisions to electronic files found to be in non-conformance with the CADD Data Specifications Manual as directed by Departmental Representative.
- .5 In regards to updating the digital files to reflect changes resulting from Change Orders, the change in cost of completing the As-Built documentation of changes is to be included in the amount for each Change Order issued. The amount included will constitute only the increase or decrease in CADD related costs resulting directly from the change. In determining the cost difference, full consideration will be given to the fact that other clauses of this section require As-Built CADD updates to the drawings irrespective of any Change Orders.
- .6 Deliver the digital information in same format and sequence as per contract drawings. Submit on CD diskettes.
- .7 Submit the digital as-built files at the same time as submission of the marked-up paper white prints. Supply of digital documents does not replace the requirement to provide marked-up white prints specified.
- .8 Also provide 1 set of reproducible velum plots of the updated electronic as-built CADD drawing files.

1.4 Operation and
Maintenance Manual

- .1 Definition: an organized compilation of operating and maintenance data including detailed technical information, documents and records describing operation and maintenance of individual products or systems as specified in individual sections of the specifications.
- .2 Manual Language: final manuals to be in both

English and French languages.

- .3 Number of copies required:
 - .1 Submit interim pdf digital copy and one (1) hard copy binder of the manual for review and inspection by Departmental Representative. Make revisions and additions as directed and resubmit.
 - .2 Upon review and acceptance by Departmental Representative, final pdf digital copy and one (1) hard copy binder. Interim copies are not to be considered as part of the final copies unless they have been fully revised and are identical to the final approved version.
- .4 Submission Date: submit complete operation and maintenance manual to Departmental Representative 3 weeks prior to application for Certificate of Substantial Performance of the work.
- .5 Binding:
 - .1 Assemble, coordinate, bind and index required data into Operation and Maintenance Manual.
 - .2 Use vinyl, hard covered, 3 "D" ring binders, loose leaf, sized for 215 x 280 mm paper, with spine pocket.
 - .3 Where multiple binders are needed, correlate data into related consistent groupings.
 - .4 Identify contents of each binder on spine.
 - .5 Organize and divide data following same numerical system as the section numbers of the Specification Manual.
 - .6 Dividers: separate each section by use of cardboard dividers and labels. Provide tabbed fly leaf for each individual product and system and give description of product or component.
 - .7 Type lists and notes. Do not hand write.
 - .8 Drawings, diagrams and manufacturers' literature must be legible. Provide with reinforced, punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .6 Manual Contents:
 - .1 Cover sheet containing:
 - .1 Date submitted.
 - .2 Project title, location and project number.
 - .3 Names and addresses of Contractor, and

- all Sub-contractors.
- .2 Table of Contents: provide full table of contents in each binder(s), clearly indicate which contents are in each binder.
- .3 List of maintenance materials.
- .4 List of spare parts.
- .5 List of special tools.
- .6 Original or certified copy of warranties and product guarantees.
- .7 Copy of approval documents and certificates issued by Inspection Authorities.
- .8 Copy of reports and test results performed by Contractor as specified.
- .9 Product Information (PI Data) on materials, equipment and systems as specified in various sections of the specifications. Data to include:
 - .1 List of equipment including manufacturer's name, supplier, local source of supplies and service depot(s). Provide full addresses and telephone numbers.
 - .2 Nameplate information including equipment number, make, size, capacity, model number and serial number.
 - .3 Parts list.
 - .4 Installation details.
 - .5 Operating instructions.
 - .6 Maintenance instructions for equipment.
 - .7 Maintenance instructions for finishes.
- .7 Shop drawings:
 - .1 Include complete set of reviewed shop drawings into each copy of the operations and maintenance manual.
 - .2 Fold and bind material professionally in a manner that corresponds with the specification section numbering system.
 - .3 When large quantity of data is submitted, place into separate binders of same size as O&M binders.
- .8 Equipment and Systems Data: the following list indicates the type of data and extent of information required to be included for each item of equipment and for each system:
 - .1 Description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and

- complete nomenclature and commercial number of replaceable parts.
 - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
 - .3 Include installed colour coded wiring diagrams.
 - .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
 - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .6 Servicing and lubrication schedule, and list of lubricants required.
 - .7 Manufacturer's printed operation and maintenance instructions.
 - .8 Sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
 - .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Include test and balancing reports.
 - .15 Additional requirements as specified in individual specification sections.
- .9 Materials and Finishes Maintenance Data:
- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
 - .2 Instructions for cleaning agents and methods, precautions against detrimental

- agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

1.5 Spare Parts, Tools
and Maintenance Materials

- .1 Provide spare parts, special tools and extra materials for maintenance purposes in quantities specified in individual specification sections.
- .2 Tag all items with associated function or equipment.
- .3 Provide items of same manufacture and quality as items in Work.
- .4 Deliver to site in well packaged condition. Store in location as directed by Departmental Representative.
- .5 Clearly mark as to contents indicating:
 - .1 Part number.
 - .2 Identification of equipment or system for which parts are applicable.
 - .3 Installation instructions or intended use as applicable.
 - .4 Name, address and telephone number of nearest supplier.
- .6 Prepare and submit complete inventory list of items supplied. Include list within Maintenance Manual.

END OF SECTION