

SPECIFICATION
WHARF REPAIRS (CRABBE'S RIVER)
ST. DAVID'S, NL
Project No.: 723247

PREPARED FOR:

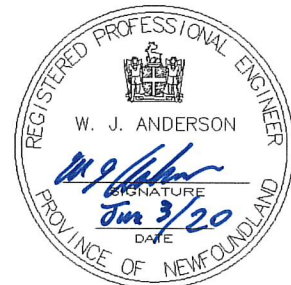
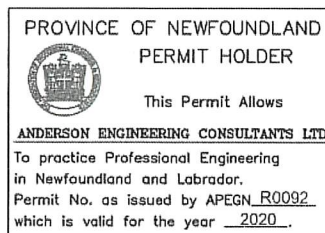
Small Craft Harbours

ON BEHALF OF:

Department of Fisheries and Oceans

DATE:

June 2020
For Tender



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PART 1 - GENERAL

1.1 SCOPE

- .1 The scope for this project includes, but is not limited to, the provision of construction activities to improve the safety, integrity and effectiveness of this wharf structure. More specifically described in the description of work in Section 1.2 and with the drawings and specifications. The work covered consists of the furnishing of all plant, labour, equipment and material for existing wharf repairs at St. David's, Newfoundland and Labrador, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract.
- .2 Note that the Contractor must incorporate COVID-19 standardized protocols in their site specific Health and Safety Plan. The protocols are to include:
 - .1 Prevention (signage, practices to reduce risk of transmission, encouragement of social distancing, use of PPE, use of individual modes of transportation, monitoring status of workers, construction jobsite and trailer cleaning protocols, etc.)
 - .2 Detection (screening at entry of construction site, unauthorized entry points, etc.)
 - .3 Response measures (shut down procedures, individual case handling, etc.)

1.2 DESCRIPTION OF WORK

- .1 In general, work under this contract consist of, but will not necessarily be limited to, the following:
 - .1 Partial or total demolition and removal of wheel guards and fenders and ladders as detailed on accompanying drawings.
 - .2 Replacement of the vertical wood fenders as detailed on drawings.
 - .3 Replacement of ladders along the wharf structure.
 - .4 Replace and repair existing wheel guards as directed.
 - .5 Repair/refurbish existing Type A mooring cleats and concrete cleat bases.
 - .6 Refurbish existing Type B1 mooring cleats.

1.3 SITE OF WORK

- .1 Work will be carried out at St. David's, Newfoundland and Labrador in the location as shown on the accompanying drawings.

1.4 DATUM

- .1 Datum used for this project is Lowest Normal Tides (LNT) and is assumed to be 2.486 metres. CHS brass plaque set in concrete deck as shown on accompanying drawings.
- .2 Bidders are advised to consult the Tide Tables issued by Fisheries and Oceans in order to make sure of the tidal conditions affecting work.

1.5 FAMILIARIZATION WITH SITE

- .1 Before submitting a bid, it is recommended that bidders visit the site and its surroundings to review and verify the form, nature and extent of the work, materials needed for the completion of the work, the means of access to the site, severity, exposure and uncertainty of weather, soil conditions, any accommodations they may require, and in general shall obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.
- .2 Contractors, bidders or those they invite to site are to review specification Section 01 35 29 - Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.

1.6 CODES AND STANDARDS

- .1 Perform work in accordance with the latest edition of the National Building Code of Canada, FCC Standard 373 - Standard for Piers and Wharves and any other code of provincial or local application including all amendments up to project bid closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.

1.7 TERM ENGINEER .1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative as defined in the General Conditions of the Contract.

1.8 SETTING OUT WORK .1 Set grades and layout work in detail from control points and grades established by Departmental Representative.

.2 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated or as directed by Departmental Representative.

.3 Provide devices needed to layout and construct work.

.4 Supply such devices as straight edges and templates required to facilitate Departmental Representative's inspection of work.

.5 Supply stakes and other survey markers required for laying out work.

1.9 COST BREAKDOWN .1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price. Departmental Representative will provide the required forms for application of progress payment.

.2 Provide cost breakdown in same format as the numerical and subject title system used in this specification project manual and thereafter sub-divided into major work components as directed by Departmental Representative.

.3 Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payment.

.4 All work items not designated in the unit price table as a measurement for payment, are to be included in the lump sum arrangement, as noted on the Bid and Acceptance Form.

- 1.10 WORK SCHEDULE
- .1 Submit within 7 work days of notification of acceptance of bid, a construction schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance letter.
 - .2 Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.
 - .3 As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time, e.g., show target dates for the placement of wheel guard, fenders and Type A1 cleat refurbishing if applicable. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.
 - .4 Submit schedule updates on a minimum monthly basis and more often, when requested by Departmental Representative, due to frequent changing project conditions. Provide a narrative explanation of necessary changes and schedule revisions at each update.
 - .5 The schedule, including all updates, shall be to Departmental Representative's approval. Take necessary measures to complete work within approved time. Do not change schedule without Departmental Representative's approval.
 - .6 All work on the project will be completed within the time indicated on the Bid and Acceptance Form.

- 1.11 ABBREVIATIONS
- .1 Following abbreviations of standard specifications have been used in this specification and on the drawings:
CGSB - Canadian Government Specifications Board
CSA - Canadian Standards Association
NLGA - National Lumber Grades Authority
ASTM - American Society for Testing and

1.11 ABBREVIATIONS
(Cont'd)

Materials

- .2 Where these abbreviations and standards are used in this project, latest edition in effect on date of bid call will be considered applicable.

1.12 QUARRY AND EXPLOSIVES

- .1 Make own arrangements with Provincial authorities and owners of private properties, for the quarrying and transportation of rock and all materials and machinery necessary for work over their property, roads or streets as case may be.

1.13 SITE OPERATIONS

- .1 Arrange for sufficient space adjacent to project site for conduct of operations, storage of materials and so on. Exercise care so as not to obstruct or damage public or private property in area. Do not interfere with normal day-to-day operations in progress at site. All arrangements for space and access will be made by Contractor.
- .2 Remove snow and ice as required to maintain safe access in a manner that does not damage existing structures or interfere with the operations of others.

1.14 PROJECT MEETINGS

- .1 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording minutes.
- .2 Project meetings will take place on site of work unless so directed by the Departmental Representative.
- .3 Departmental Representative will assume responsibility for recording minutes of meetings and forwarding copies to all parties present at the meetings.
- .4 Have a responsible member of firm present at all project meetings.

1.15 PROTECTION

- .1 Store all materials and equipment to be incorporated into work to prevent damage by any means.

1.15 PROTECTION
(Cont'd)

.2 Repair or replace all materials or equipment damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.16 DOCUMENTS
REQUIRED

.1 Maintain at job site, one copy of the following:

- .1 Contract Drawings
- .2 Specifications
- .3 Addenda
- .4 Reviewed Shop Drawing
- .5 List of outstanding shop drawings
- .6 Change Orders
- .7 Other modifications to Contract
- .8 Field Test Reports
- .9 Copy of Approved Work Schedule
- .10 Site specific Health and Safety Plan and other safety related documents
- .11 Other documents as stipulated elsewhere in the Contract Documents.

1.17 PERMITS

.1 Obtain and pay for all permits, certificates and licenses as required by Municipal, Provincial, Federal and other Authorities.

.2 Provide appropriate notifications of project to municipal and provincial inspection authorities.

.3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.

.4 Submit to Departmental Representative, copy of application submissions and approval documents received for above referenced authorities.

.5 Submit to Departmental Representative, copy of quarry permit, if applicable, prior to start of quarry operations.

.6 Comply with all requirements, recommendations and advise by all regulatory authorities unless otherwise agreed in writing by Departmental Representative. Make requests for such deviations to these requirements sufficiently in advance of related work.

1.18 CUTTING,
FITTING AND
PATCHING

- .1 Execute cutting, including excavation, fitting and patching required to make work fit properly.
- .2 Where new work connects with existing and where existing work is altered, cut, patch and make good to match existing work. This includes patching of openings in existing work resulting from removal of existing services.
- .3 Do not cut, bore, or sleeve load-bearing members.
- .4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.

1.19 EXISTING SUB-
SURFACE CONDITIONS

- .1 Information pertaining to the existing sub-surface conditions may be available by contacting the Departmental Representative.
- .2 Contractors are cautioned that any previous investigations that may be available for review, were intended to provide general site information only. Any interpolation and/or assumptions made relative to any previous investigations is the Contractor's responsibility.

1.20 LOCATION OF
EQUIPMENT

- .1 Location of ladders, shown or specified shall be considered as approximate. Actual location shall be as required to suit conditions at time of installation and as is reasonable. Obtain approval of Departmental Representative.
- .2 Inform Departmental Representative when impending installation conflicts with other new or existing components. Follow directives for actual location.
- .3 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.21 FISH HABITAT

- .1 This work is being conducted in an area where fish habitat may be affected. Perform work to conform with rules and regulations governing fish habitat and in accordance with authorization for work or undertakings affecting fish habitat.

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- 1.21 FISH HABITAT .2 Contact the Department of Fisheries and Oceans
(Cont'd) (Fisheries Protection Program) Marine Development
and Infrastructure Unit at (709) 772-3521 at least
10 days in advance of starting any work on site.
- 1.22 NOTICE TO .1 Notify the Marine Communications and Traffic
SHIPPING/MARINERS Services' Centre, of Fisheries and Oceans Canada, at
(709) 695-2168, ten (10) days prior to commencement
and upon completion of the work, in order to allow
for the issuance of Notices to Shipping/Mariners.
- .2 During construction any vessels or barges utilized
must be marked in accordance with the provisions of
the Canada Shipping Act Collision Regulations.
- 1.23 ACCEPTANCE .1 Prior to the issuance of the Certificate of
Substantial Performance, in company with
Departmental Representative, make a check of all
work. Correct all discrepancies before final
inspection and acceptance.
- 1.24 WORKS .1 Responsible for coordinating the work of the various
COORDINATION trades, where the work of such trades interfaces
with each other.
- .2 Convene meetings between trades whose work
interfaces and ensure that they are fully aware of
the areas and the extent of where interfacing is
required. Provide each trade with the plans and
specifications of the interfacing trade, as
required, to assist them in planning and carrying
out their respective work.
- .3 Canada will not be responsible for or held
accountable for any extra costs incurred as a result
of the failure to carry out coordination work.
Disputes between the various trades as a result of
those trades not being informed of the areas and
extent of interface work shall be the sole
responsibility of the General Contractor and shall
be resolved at no extra cost to Canada.
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1.25 CONTRACTOR'S
USE OF SITE

- .1 Construction operations, including storage of materials for this contract, not to interfere with the fishing activity and/or operations at this harbour facility.
- .2 Responsible for arranging the storage of materials on or off site, and any materials stored at the site which interfere with any of the day to day activities at or near the site will be moved promptly at the Contractor's expense, upon request by Departmental Representative.
- .3 Contractor will take adequate precautions to protect existing concrete decks and asphalt when operating tracked equipment.
- .4 Exercise care so as not to obstruct or damage public or private property in the area.
- .5 At completion of work, restore area to its original condition. Damage to ground and property will be repaired by Contractor. Remove all construction materials, residue, excess, etc., and leave site in a condition acceptable to Departmental Representative.

1.26 WORK
COMMENCEMENT

- .1 Mobilization to project site is to commence immediately after acceptance of bid and submission of Site Specific Safety Plan, unless otherwise agreed by Departmental Representative.
- .2 Project work on site is to commence as soon as possible, with a continuous reasonable work force, unless otherwise agreed by Departmental Representative.
- .3 Weather conditions, short construction season, delivery challenges and the location of the work site may require the use of longer working days and additional work force to complete the project within the specified completion time.
- .4 Make every effort to ensure that sufficient material and equipment is delivered to site at the earliest possible date after acceptance of bid and replenished as required.

1.27 FACILITY
SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions.

1.28 INTERPRETATION OF DOCUMENTS .1 Supplementary to the Order of Precedence article of the General Conditions of the Contract, the Division 01 sections take precedence over the technical specification sections in other Divisions of the Specification Manual.

PART 1 - GENERAL

1.1 GENERAL .1 Canada will supply certain material and equipment in the Contract for installation and incorporation into the Work by the Contractor.

1.2 MATERIAL SUPPLIED .1 490 pcs untreated hardwood vertical fenders. 100 mm x 150 mm x 2500 mm long.

.2 300 lin. meters of 100 mm x 150 mm of untreated hardwood horizontal fenders various lengths as supplied by DFO/SCH.

Note: the above noted items are correctly stored at the following address to be picked up by contractor.

DFO Storage Facility
121 Glencoe Drive
Donovan's Industrial Park
Mount Pearl, NL A1N 4S7

Contact Person:

Dion Upward
Small Craft Harbours, St. John's
Ph. 709-772-3244
dion.upward@dfo-mpo.gc.ca

1.3 DELIVERY REQUIREMENTS .1 Materials supplied by the Canada will be turned over to the Contractor.

.2 Within three (3) calendar days after pick-up of Canada-supplied material, the Contractor must:
.1 Conduct a complete and full verification audit of all materials received, including loose parts and individual components associated with a particular item supplied;
.2 Acknowledge, in writing, receipt of such items and;
.3 Provide copy of any delivery or transportation slips submitted by manufacturer and shipping company.

1.3 DELIVERY
REQUIREMENTS
(Cont'd)

- .3 Unless shortage of material or damaged items are identified in writing to the Departmental Representative within the above specified verification period, the Contractor will become responsible to supply all missing materials and repair or replace damaged items and missing parts discovered thereafter at own expense.
- .4 Failure of the Contractor to make a complete check of the Canada-supplied material and to acknowledge receipt of same within the specified verification period, shall not relieve contractor of this contractual responsibility to replace or repair any item subsequently found to be missing or damage.
- .5 Departmental Representative will make final determination as to whether an item can be repaired or must be replaced.
- .6 In the event of failure on the part of the Contractor to submit written proof within the specified verification period, Departmental Representative reserves the right to:
 - .1 Proceed with the supply or repair of missing items through independent sources and;
 - .2 Charge costs of such items, including related shipping charges, to Contractor by conduction a financial holdback assessment against the Contract.

1.4 CONTRACTOR'S
DUTIES

- .1 Pick-up Canada-supplied material, at location indicated.
- .2 Promptly inspect material. Report missing, damaged or defective items in writing to Departmental Representative in accordance with delivery requirements specified above.
- .3 Obtain and pay for services to load and transport to site.
- .4 Unload and handle at site, including lifting, uncrating, etc.
- .5 Store material on site at a location approved by Departmental Representative. Provide protection against inclement weather and site damage by use of appropriate covers.

1.4 CONTRACTOR'S
DUTIES
(Cont'd)

- .6 Make all arrangements and pay associated costs to provide temporary storage from date of receipt and until final incorporation into project.
 - .1 Type and location of storage to meet with Departmental Representative's approval.
- .7 Be responsible for the protection of such material against damage, loss, theft and fire from date of receipt, during transportation, loading, unloading, temporary storage and until final installation of work is accepted by the Departmental Representative.
- .8 Any damage or loss of such material shall result in the Contractor being responsible for replacement or repair of equipment at no cost to Canada.
- .9 The decision as to whether damage items may be repaired or must be replaced with new equipment shall be the Departmental Representative's decision.
- .10 Install such material and equipment and incorporate into the work. Perform assembly and make all connections as required to make item functional.
- .11 Dispose of containers, crating and protective covering at an approved disposal site, or as directed by the Departmental Representative.
- .12 All unused components supplied by Canada to be returned to location as identified by Departmental Representative.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Inspecting and testing by inspecting firms or testing laboratories designated by Departmental Representative.
- 1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under various sections.
- 1.3 APPOINTMENT AND PAYMENT .1 Departmental Representative will appoint and pay for services of testing laboratory except for the following:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Mill tests and certificates of compliance.
.4 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
.5 Tests requested by Departmental Representative to confirm material specifications when the applicable manufacturer's documentation or test results are unavailable.
.6 Additional tests specified in the following paragraph.
- .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 required by Departmental Representative to verify acceptability of corrected work.
- 1.4 CONTRACTOR'S RESPONSIBILITIES .1 Provide labour, equipment and facilities to: testing.
.1 Provide access to Work to be inspected and tested.
.2 Facilitate inspections and tests.
.3 Make good Work disturbed by inspection and test.

1.4 CONTRACTOR'S
RESPONSIBILITIES
(Cont'd)

- .1 (Cont'd)
 - .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.

PART 2 - PRODUCTS

- 2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

- 3.1 NOT USED .1 Not Used.

PART 1 - GENERAL

1.1 SECTION
INCLUDES

- .1 Shop drawings and product data.
- .2 Samples.
- .3 Certificates.

1.2 SUBMITTAL
GENERAL
REQUIREMENTS

- .1 Submit to Departmental Representative for review submittals listed, including shop drawings, samples, certificates and other data, as specified in other sections of the Specifications.
- .2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with Work until relevant submissions are reviewed by Departmental Representative.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, provide soft converted values.
- .6 Review submittals prior to submission to Departmental Representative. Ensure during review that necessary requirements have been determined and verified, required field measurements or data have been taken, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
 - .1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.
- .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .8 Verify field measurements and affected adjacent Work are co-ordinated.

1.2 SUBMITTAL
GENERAL
REQUIREMENTS
(Cont'd)

- .9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .11 Submit format: email, PDF, paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission.
- .12 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.
- .13 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 SHOP DRAWINGS
AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, product data, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Number of Shop Drawings: submit sufficient copies of shop drawings which are required by the General Contractor and sub-contractors plus (2) copies which will be retained by Departmental Representative. Ensure sufficient numbers are submitted to enable one complete set to be included in each of the maintenance manuals specified, if applicable.
- .3 Shop Drawings Content and Format:
 - .1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where items or equipment attach or connect to other items or equipment, confirm that all interrelated work have been coordinated, regardless of section or trade from which the adjacent work is being supplied and installed.

1.3 SHOP DRAWINGS
AND PRODUCT DATA
(Cont'd)

- .3 (Cont'd)
 - .2 Shop Drawings Format:
 - .1 Opaque white prints or photocopies of original drawings or standard drawings modified to clearly illustrate work specific to project requirements. Maximum sheet size to be 1000 x 707 mm.
 - .2 Product Data from manufacturer's standard catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products, to be original full colour brochures, clearly marked indicating applicable data and deleting information not applicable to project.
 - .3 Non or poorly legible drawings, photocopies or facsimiles will not be accepted and returned not reviewed.
 - .3 Supplement manufacturer's standard drawings and literature with additional information to provide details applicable to project.
 - .4 Delete information not applicable to project on all submittals.
 - .4 Allow 14 calendar days for Departmental Representative's review of each submission.
 - .5 Adjustments or corrections made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.
 - .6 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If shop drawings are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected shop drawings, through same submission procedures indicated above.
 - .7 Accompany submissions with transmittal letter, 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.
 - .5 Other pertinent data.
 - .8 Submissions include:
 - .1 Date and revision dates.

1.3 SHOP DRAWINGS
AND PRODUCT DATA
(Cont'd)

- .8 (Cont'd)
- .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Cross references to particular details of contract drawings and specifications section number for which shop drawing submission addresses.
 - .6 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
 - .9 After Departmental Representative's review, distribute copies.
 - .10 The review of shop drawings by the Departmental Representative or their delegated representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that the Departmental Representative approves the detail design inherent in the shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of the construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SCHEDULE,
PERMITS AND
CERTIFICATES

- .1 Upon acceptance of bid, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.
- .2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.
- .3 Submission of above documents to be in accordance with Submittal General Requirements procedures specified in this section

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Fire Safety Requirements.
.2 Hot Work Permit.
- 1.2 RELATED WORK .1 Section 01 35 29 - Health and Safety Requirements.
- 1.3 REFERENCES .1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
.1 FCC No. 301-June 1982 Standard for Construction Operations
(http://ccinfoweb2.ccohs.ca/legislation/documents/fpfcstde/fc301_e.htm).
.2 FCC No. 302-June 1982 Standard for Welding and Cutting
(http://ccinfoweb2.ccohs.ca/legislation/documents/fpfcstde/fc302_e.htm).
.2 National Fire Code 2015.
.3 National Building Code 2015.
- 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.
.4 Use of open flame torches such as for roofing work.
- 1.5 SUBMITTALS .1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within 14 calendar days after notification of acceptance of bid.
.2 Submit in accordance with the Submittal General Requirements specified in Section 01 33 00-Submittal Procedures.

1.6 FIRE SAFETY
REQUIREMENTS

- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code, 2015
 - .2 Fire Protection Standards FCC 301 and FCC 302.
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health and Safety Requirements.
- .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.

1.7 HOT WORK
AUTHORIZATION

- .1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot work on site.
- .2 To obtain authorization submit to Departmental Representative:
 - .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used.
- .3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Departmental Representative will provide authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Separate work, or segregate certain parts of work, into individual entities. Each entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.
- .4 Requirement for individual authorization based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.
- .5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.

1.8 HOT WORK
PROCEDURES

- .1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.
- .2 Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29 -Health and Safety Requirements.
 - .2 Use of a Hot Work Permit system for each hot work event.
 - .3 The step by step process of how to prepare and issue permit.
 - .4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
 - .5 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.
 - .6 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 29 Health and Safety Requirements.
- .3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.
- .4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:
 - .1 Worker(s),
 - .2 Authorized person issuing the Hot Work Permit,
 - .3 Fire Safety Watcher,
 - .4 Subcontractors and Contractor.
- .5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.
 - .1 Failure to comply with the established procedures 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 29 - Health and Safety Requirements.

1.9 HOT WORK
PERMIT

- .1 Hot Work Permit to include, as a minimum, the following data:

1.9 HOT WORK
PERMIT
(Cont'd)

- .1 (Cont'd)
 - .1 Project name and project number.
 - .2 Building name, address and specific room or area where hot work will be performed.
 - .3 Date when permit issued.
 - .4 Description of hot work type to be performed.
 - .5 Special precautions required, including type of fire extinguisher needed.
 - .6 Name and signature of person authorized to issue the permit.
 - .7 Name of worker (clearly printed) to which the permit is being issued.
 - .8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time and date, and completion time and date.
 - .9 Worker signature with date and time upon hot work termination.
 - .10 Specified time period requiring safety watch.
 - .11 Name and signature of designated Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that surrounding area was under continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.
- .2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.
- .3 Each Hot Work Permit to be completed in full and signed as follows:
 - .1 Authorized person issuing Permit before hot work commences.
 - .2 Worker upon completion of Hot Work.
 - .3 Fire Safety Watcher upon termination of safety watch.
 - .4 Returned to Contractor's Site Superintendent for safe keeping.

1.10 FIRE
PROTECTION AND
ALARM SYSTEMS

- .1 Fire protection and alarm systems shall not be:
 - .1 Obstructed.
 - .2 Shut-off, unless approved by Departmental Representative.
 - .3 Left inactive at the end of a working day or shift.
- .2 Do not use fire hydrants, standpipes and hose systems for purposes other than firefighting.

1.10 FIRE
PROTECTION AND
ALARM SYSTEMS
(Cont'd)

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

1.11 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.

PART 1 - GENERAL

- 1.1 RELATED WORK .1 Section 01 35 24 - Special Procedures on Fire Safety Requirements.
- 1.2 DEFINITIONS .1 COHS: 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 Knowledge 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 and 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 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan prior to commencement of Work.
.1 Submit within 10 work days of notification of Bid Acceptance. Provide 3 copies. Allow for 5-10 days for Departmental Review and recommendations prior to the commencement of work.
.2 Departmental Representative will review Health and Safety Plan and provide comments.
.3 Revise the Plan as appropriate and resubmit within 5 work days after receipt of comments.

1.3 SUBMITTALS
(Cont'd)

- .2 (Cont'd)
 - .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.
- .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 the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations made pursuant to the Act.
- .2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Safety and Health Regulations (COSH) as well as any other regulations made pursuant to the Act.
 - .1 The Canada Labour Code can be viewed at: <http://laws.justice.gc.ca/eng/L-2/>.
 - .2 COSH can be viewed at: <http://laws.justice.gc.ca/eng/SOR-86-304/ne.html>.
 - .3 A copy may be obtained at: 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).
- .3 Treasury Board of Canada Secretariat (TBS):

1.4 COMPLIANCE
REQUIREMENTS
(Cont'd)

- .3 (Cont'd)
 - .1 Treasury Board, Fire Protection Standard April 1, 2010
www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=17316§ion=text.
- .4 Canadian Standards Association (CSA):
 - .1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.
- .5 Observe construction safety measures of:
 - .1 Part 8 of National Building Code 2015.
 - .2 Provincial Worker's Compensation Board.
 - .3 Municipal by-laws and ordinances.
- .6 In case of conflict or discrepancy between any specified requirements, the more stringent shall apply.
- .7 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof of clearance through submission of Letter of Good Standing.
- .8 Medical Surveillance: Where prescribed by legislation or regulation, obtain and maintain worker medical surveillance documentation.

1.5 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property and for protection of persons and environment adjacent to the site to extent that they may be affected by conduct of the 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.

1.6 SITE CONTROL
AND ACCESS
(Cont'd)

- .1 (Cont'd)
 - .1 Departmental Representative will provide names of those persons authorized by Departmental Representative to enter onto Work Site and will ensure that such authorized personnel have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.
 - .2 Isolate work site from other areas of the premises by use of appropriate means.
 - .1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.
 - .2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.
 - .3 Use professionally made signs with bilingual message in the 2 official languages or international know 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 personal protective equipment (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 Should unforeseen or peculiar safety related hazard or condition become evident during performance of work, immediately take measures to rectify the situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.8 FILING OF
NOTICE

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

1.9 PERMITS

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

1.10 HAZARD
ASSESSMENTS

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

1.11 PROJECT/SITE
CONDITIONS

- .1 The following are known or potential project related safety hazards at site:
 - .1 The following are known or potential project related safety hazards at site:
 - .1 Working in close proximity of water.
 - .2 Wet and slippery conditions.
 - .3 Inclement weather.
 - .4 Rock moving activities involving large armour stone.
 - .5 Heavy equipment activity.
 - .6 Heavy lifting.
 - .7 Working at heights.
 - .8 Cutting tools and other construction power tools.
 - .9 Overhead and underground power/utility lines.
 - .10 Risk of electric shock.

1.11 PROJECT/SITE
CONDITIONS
(Cont'd)

- .1 (Cont'd)
 - .1 (Cont'd)
 - .11 Vehicular and pedestrian traffic.
 - .12 Hot/cold temperature extremes.
 - .13 Work with hazardous products.
 - .2 Above list shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work.
 - .3 Include above items into hazard assessment process.
 - .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 and Safety Site Representative.
 - .3 Subcontractors.
- .2 Conduct regularly schedule 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
SAFETY PLAN

- .1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.
- .2 Health and Safety Plan shall include the following components:
 - .1 List of health risks and safety hazards identified by hazard assessment.
 - .2 Control measures used to mitigate risks and hazards identified.
 - .3 On-Site Contingency and Emergency Response Plan as specified below.
 - .4 On-Site Communications Plan as specified below.

1.13 HEALTH AND
SAFETY PLAN
(Cont'd)

- .2 (Cont'd)
 - .5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.
 - .6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.
- .3 On-site Contingency and Emergency Response Plan shall include:
 - .1 Operational Procedures, evacuation measures and communication process to be implemented in the event of an emergency.
 - .2 Evacuation Plan: site and floor plan layouts showing escape routes, marshaling areas. Details on alarm notification methods, fire drills, location of fire fighting 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 or DFO 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 work 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.

1.13 HEALTH AND
SAFETY PLAN
(Cont'd)

- .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 Plan and updates, prominently on work site.

1.14 SAFETY
SUPERVISION

- .1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.
- .2 Health & Safety Site Representative may be the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:
 - .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work.
 - .2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
 - .3 Conduct site safety orientation session to persons granted access to Work Site.
 - .4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.
 - .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 Conduct formal inspections on a minimum monthly basis. Use standardized safety inspection forms. Distribute to subcontractors.
 - .3 Follow-up and ensure corrective measures are taken.

-
- 1.14 SAFETY SUPERVISION (Cont'd)
- .3 (Cont'd)
- .6 Cooperate with Facility's Occupational Health and Safety representative should one be designated by Departmental Representative.
- .7 Keep inspection reports and supervision related documentation on site.
-
- 1.15 TRAINING
- .1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.
- .2 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.
- .3 When unforeseen or peculiar safety-related hazard, or condition occur during performance or 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 the 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 personnel protective equipment (PPE) pertinent to the work or assigned task; minimum being hard hat, safety footwear, safety glasses and hearing protection.
- .2 Immediately report unsafe condition at site, near-miss accident, injury and damage.
- .3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
- .4 Obey warning signs and safety tags.
- .2 Brief persons of disciplinary protocols to be taken for non-compliance. Post rules 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.
-

1.17 CORRECTION OF
NON-COMPLIANCE
(Cont'd)

- .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 loss to a Federal Department in excess of \$5000.00.
- .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 TOOLS AND
EQUIPMENT SAFETY

- .1 Routinely check and maintain tools, equipment and machinery for safe operation.
- .2 Conduct checks as part of site safety inspections. When requested, submit proof that checks and maintenance have been carried out.
- .3 Tag and immediately remove from site items found faulty or defective.

1.21 BLASTING

- .1 Blasting or other use of explosives is not permitted on site without prior receipt of written permission and instructions from Departmental Representative.

- 1.21 BLASTING
(Cont'd)
- .2 Do blasting operations in accordance with local and provincial codes.
- 1.22 POWDER
ACTUATED DEVICES
- .1 Use powder actuated fastening devices only after receipt of written permission from Departmental Representative.
- 1.23 CONFINED
SPACES
- .1 Abide by occupational health and safety regulations regarding work in confined spaces.
- .2 Obtain an Entry Permit in accordance with Part XI of the Canada Occupational Health and Safety Regulations for entry into an existing identified confined space located at the Facility of premises of Work.
- .1 Obtain permit from Facility Manager.
- .2 Keep copy of permit issued.
- .3 Safety for Inspectors:
- .1 Provide PPE and training to Departmental Representative and other persons who require entry into confined space to perform inspections.
- .2 Be responsible for efficacy of equipment and safety of persons during their entry and occupancy in the confined space.
- 1.24 SITE RECORDS
- .1 Maintain on work site a copy of safety regulated 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.
- 1.25 POSTING OF
DOCUMENTS
- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.
- .2 Post other documents as specified herein, including:
- .1 Site specific Health and Safety Plan.
- .2 WHMIS data sheets.

PART 1 - GENERAL

1.1 RELATED SECTIONS .1 Section 01 74 19 - Waste Management and Disposal.

- 1.2 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 NL Provincial Environment Acts and Regulations.
 - .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.
-

1.3 DEFINITIONS

- .1 Archaeological resources: all tangible evidence of human activity that is of historical, cultural or scientific interest. Examples include features, structures, archaeological objects or remains or from an archaeological site, or an object recorded as an isolated archaeological find.
- .2 Buffer zone: a vegetated land that protects watercourses from adjacent land uses. It refers to the land adjacent to watercourses, such as streams, rivers, lakes, ponds, oceans, and wetlands, including the floodplain and the transitional lands between the watercourse and the drier upland areas.
- .3 Deleterious substance: (a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water.
- .4 Fish habitat: spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.
- .5 Hazardous material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .6 Navigable water: a canal and any other body of water created or altered as a result of the construction of any work.

1.3 DEFINITIONS
(Cont'd)

- .7 Surface watercourse: refers to the bed and shore of a river, stream, lake, creek, pond, marsh, estuary or salt-water body that contains water for at least part of each year.

1.4 FIRES

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

1.5 DISPOSAL OF
WASTES AND
HAZARDOUS MATERIALS

- .1 All creosote/CCA or preservative treated timber obtained from the demolition of the existing structure is to be transported and disposed of at an approved Waste Disposal Site and in accordance with applicable federal/provincial and municipal legislation and regulations.
- .2 Reuse/storage creosote/CCA or preservative treated timbers outside of the work site is strictly prohibited.
- .3 Dispose of construction waste materials and demolition debris, resulting from work, at approved landfill sites only. Carry out such disposal in strict accordance with provincial and municipal rules and regulations. Separate out and prevent improper disposal of items banned from landfills.
- .4 Do not bury rubbish and waste materials on site. Dispose at approved landfill sites as specified in Section 01 74 19 - Waste Management and Disposal.
- .5 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.
- .6 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.

1.5 DISPOSAL OF
WASTES AND
HAZARDOUS MATERIALS
(Cont'd)

- .7 Establish methods and undertake construction practices which will minimize waste and optimize use of construction materials. Separate at source all construction waste materials, demolition debris and product packaging and delivery containers into various waste categories in order to maximize recycling abilities of various materials and avoid disposal of debris at landfill site(s) in a "mixed state". Where recycling firms, specializing in recycling of specific materials exist, transport such materials to the recycling facility and avoid disposal at landfill sites.
- .8 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and renovation waste materials have been banned from disposal at the landfill and at transfer stations.

1.6 TRANSPORTATION

- .1 Transport hazardous materials and hazardous waste in compliance with the Transportation of Dangerous Goods Act.
 - .2 Eliminate free board spillage when excavating, loading and hauling excavated material.
 - .3 Trucks transporting excavated material will have watertight boxes.
 - .4 Do not overload trucks when hauling excavated material.
 - .5 Maintain trucks clean and free of mud, dirt and other foreign matter.
 - .6 Secure contents against spillage. Avoid potential release of contents and of any foreign matter onto highways, roads and access routes used for the work. Immediately clean any ground spills and soils to extent as directed by authority having jurisdiction.
 - .7 Prior to commencement of work, advise and seek approval from the Departmental Representative of the existing roads and temporary routes/roads proposed to be used to access work areas and to haul material to and from site, including roads to the excavated material disposal site.
 - .8 Construction material and debris is not to become waterborne.
-

1.6 TRANSPORTATION
(Cont'd)

- .9 Any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in navigable water are not to remain in place after the completion of the project.
- .10 Vessels are to be permitted safe access through the worksite at all times, and assisted as necessary.
- .11 All materials and equipment used in construction must be marked in accordance with the Collision Regulations of the Canada Shipping Act, 2001 when located on the waterway.
- .12 Advise the Canadian Coast Guard, Marine Communication and Traffic Services (MCTS) sufficiently in advance of commencement of work or when deploying or removing site markings order to allow for appropriate Notices to Shipping/Mariners action.
- .13 Work activities must comply with all/any conditions of the Navigation Protection Act (NPA) permit issued by Transport Canada.

1.7 DRAINAGE

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
 - .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
 - .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with governing regulations and requirements.
 - .4 Pumped water must meet applicable federal, provincial, and municipal standards before it can be discharged to a surface water body. If regulatory guidelines exceedences are noted, the Departmental Representative has the right to issue stop pumping instructions to the Contractor. Contractor will not be compensated for any delays associated with retrofitting equipment to meet guidelines.
-

- 1.7 DRAINAGE
(Cont'd)
- .5 Provide control devices such as filter fabrics, sediment traps and settling ponds to control drainage and prevent erosion of adjacent land. Maintain in good order for duration of work.
- 1.8 CONTAINMENT AND SPILL MANAGEMENT
- .1 Comply with Federal (CEPA Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations) and Provincial regulations, codes, standards and guidelines for the storage of fuel and allied petroleum products on or near the site.
- .2 Do not dump petroleum products or any other deleterious substances on ground or in the water.
- .3 Be diligent and take all necessary precautions to avoid spills and activities that may potentially contaminate the soil and water (both surface and subsurface) when handling petroleum products on site and during fueling and servicing of vehicles and equipment.
- .4 Maintain on site appropriate emergency spill response equipment consisting of at least one 250-litre (55 gallon) over pack spill kit for containment and cleanup of spills.
- .5 Maintain vehicles and equipment in good working order to prevent leaks on site.
- .6 In the event of a petroleum spill, immediately notify the Departmental Representative and the Canadian Coast Guard (CCG) at 1-800-565-1633 (24 hour report line). Perform clean-up in accordance with all regulations and procedures stipulated by authority having jurisdiction.
- .7 Materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, or other chemicals are not to enter the watercourse.
- 1.9 PERMIT
- .1 All guidelines and instructions stated on permits must be strictly adhered to.
- 1.10 WORK ADJACENT TO WATERWAYS
- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material.
-

1.10 WORK ADJACENT
TO WATERWAYS
(Cont'd)

- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 At borrow sites, design and construct temporary crossings to minimize erosion to waterways in strict conformance with provincial and federal environmental regulations.
- .5 Do not skid logs or construction materials across waterways.
- .6 Do not refuel any type of equipment within 100 meters of a water body. Maintain equipment in good working condition with no fluid leaks, loose hoses or fittings.

1.11 POLLUTION
CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this contract.
 - .2 Control emissions from equipment and plant to local authorities' emission requirements.
 - .3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
 - .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and around entire construction site.
 - .5 Maintain inventory of hazardous materials and hazardous waste stored on site. List items by product name, quantity and date when storage began.
 - .6 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at site. Locate adjacent to work and where hazardous materials are stored. Provide personal protective equipment as required for clean-up.
 - .7 Report, to Federal and Provincial Department of the Environment, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment. Also notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.
-

- 1.11 POLLUTION CONTROL
(Cont'd)
- .8 Provide a floating debris containment boom whenever any of the Contractors methods of work allow for the potential of floating debris.
-
- 1.12 WILDLIFE PROTECTION
PROTECTION
- .1 Should nests of migratory birds be encountered during work, immediately notify Departmental Representative for directives to be followed.
- .1 Do not disturb nest site and neighbouring vegetataion 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.
 - .4 Minimize disturbance to all birds on site and adjacent areas during the entire course of the Work.
 - .5 Do not approach concentrations of seabirds, waterfowl and shorebirds when anchoring equipment, accessing wharves or ferrying supplies.
 - .6 During night time work, shield and position flood lights downwards and the in opposite direction of nearby bird nesting habitat.
 - .7 Do not use beaches, dunes and other natural previously undisturbed areas of the site to conduct work unless specifically approved by the Departmental Representative.
-
- 1.13 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.
- .3 Work can only resume in the vicinity of the find when authorized by the DFO Project Manager.
- .4 In the event of the discovery of human remains or evidence or burials, the excavation work will immediately cease and nearest law enforcement agency will be contacted immediately by the Departmental Representative.

PART 1 - GENERAL

1.1 SECTION
INCLUDES

- .1 Inspection and testing, administrative and enforcement requirements.
- .2 Tests and mix designs.
- .3 Mock-ups.
- .4 Mill tests.
- .5 Equipment and system adjust and balance.

1.2 RELATED
SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 78 00 - Closeout Submittals.

1.3 INSPECTION

- .1 Facilitate Departmental Representative's access to Work. If part of Work is being fabricated at locations other than construction site, make preparations to allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection of Work designated for special tests, inspections or approvals by Departmental Representative or by inspection authorities having jurisdiction.
- .3 If Contractor covers or permits to be covered Work designated for special tests, inspections or approvals before such is made, uncover Work until particular inspections or tests have been fully and satisfactorily completed and until such time as Departmental Representative gives permission to proceed. Pay costs to uncover and make good such Work.
- .4 In accordance with the General Conditions, Departmental Representative may order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

1.4 INDEPENDENT
INSPECTION AGENCIES

- .1 Departmental Representative will engage and pay for service of Independent Inspection and Testing Agencies for purpose of inspecting and testing portions of Work except for the following which remain part of Contractor's responsibilities:
 - .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 as specified within various sections designated to be carried out by Contractor under the supervision of Departmental Representative.
 - .6 Additional tests specified in Clause 1.4.2.
- .2 Where tests or inspections by designated Testing Agency reveal work not in accordance with contract requirements, Contractor shall pay costs for additional tests or inspections as Departmental Representative may require to verify acceptability of corrected work.
- .3 Employment of inspection and testing agencies by Departmental Representative does not relax responsibility to perform Work in accordance with Contract Documents.

1.5 ACCESS TO WORK

- .1 Furnish labour and facility to provide access to the work being inspected and tested.
- .2 Co-operate to facilitate such inspections and tests.
- .3 Make good work disturbed by inspections and tests.

1.6 PROCEDURES

- .1 Notify Departmental Representative sufficiently in advance of when work is ready for tests, in order for Departmental Representative to make attendance arrangements with Testing Agency. When directed by Departmental Representative, notify such Agency directly.

1.6 PROCEDURES
(Cont'd)

- .2 Submit representative samples of materials specified to be tested. Deliver in required quantities to Testing Agency. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.
- .3 Provide labour and facilities to obtain and handle samples on site. Provide sufficient space on site for Testing Agency's exclusive use to store equipment and cure test samples.

1.7 REJECTED WORK

- .1 Remove and replace defective Work, whether result of poor workmanship, use of defective or damaged products and whether incorporated in Work or not, which has been identified by Departmental Representative as failing to conform to Contract Documents.
- .2 Make good damages to existing or new work, including work of other Contracts, resulting from removal or replacement of defective work.

1.8 TESTING BY CONTRACTOR

- .1 Provide all necessary instruments, equipment and qualified personnel to perform tests designated as Contractor's responsibilities herein or elsewhere in the Contract Documents.
- .2 At completion of test, turn over 2 copies of fully documented test reports to Departmental Representative. Additionally, obtain other copies in sufficient quantities to enable one complete set of test reports to be placed in each of the maintenance manuals specified in Section 01 78 00 - Closeout Submittals.
- .3 Submit mill test certificates and other certificates as specified in various sections.
- .4 Furnish test results and mix designs as specified in various sections.

1.9 MOCK-UPS

- .1 Prepare mock-ups for Work specifically requested in various trade sections. Include in each mock-up all related work components representative of final assembly.

- 1.9 MOCK-UPS
(Cont'd)
- .2 Construct in locations acceptable to Departmental Representative.
 - .3 Prepare mock-ups for Departmental Representative's review with reasonable promptness and in orderly sequence, so as not to cause any delay in Work.
 - .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
 - .5 If requested, Departmental Representative will assist in preparing schedule fixing dates for preparation.
 - .6 Remove mock-up at conclusion of Work or when acceptable to Departmental Representative unless approval is given to remain as part of Work.

PART 1 - GENERAL

- 1.1 ACCESS
- .1 Provide and maintain adequate access to project site.
 - .2 Maintain access roads for duration of contract and make good damage resulting from Contractors' use of roads.
- 1.2 CONTRACTOR'S SITE OFFICE
- .1 Be responsible for and provide own site office, if required, including electricity, heat, lights and telephone. Locate site office as directed by Departmental Representative.
- 1.3 DEPARTMENTAL REPRESENTATIVE'S SITE OFFICE
- .1 Provide or construct a separate site office for the use of the Departmental Representative and the Site Representative. The building must be in place prior to commencement of work.
 - .2 Provide heating system to maintain 22°C inside temperature at -20°C outside temperature.
 - .3 The building will be approximately 2400 mm x 3600 mm. It will have a suitable frame covered with a weatherproof siding and lined with plywood or other approved material. The floor will be of 19 mm thick material. It will be provided with suitable window with at least 1 m² of glass and arranged to provide at least 0.5 m² of screened opening. The door will be fitted with a lockset and 2 keys.
 - .4 The office will be equipped with a drafting chair and a 900 mm x 1500 mm table having a hinged, smooth wooden top suitable for drafting.
 - .5 Install electrical lighting system to provide minimum 750 lux using surface mounted, shielded commercial fixtures with 10% upward light component.
 - .6 Maintain office in clean condition.
 - .7 Provide sanitary facilities for the Departmental Representative in accordance with governing regulations and accepted by Departmental Representative.

1.3 DEPARTMENTAL
REPRESENTATIVE'S
SITE OFFICE
(Cont'd)

- .8 Arrange and pay for telephone, internet access, and facsimile machine in the Departmental Representative's Office for Site Representative's exclusive use. Long distance calls or faxes placed on this phone by the Departmental Representative or the Site Representative will be paid by the Departmental Representative.
- .9 Contractor may, on approval of Departmental Representative, provide cellular or mobile phone. If approval to use cellular or mobile phone is granted, be responsible for all services, airtime, license and network access fees, and all other fees or charges required to utilize the phone as intended by the manufacturer.

1.4 SANITARY
FACILITIES

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

1.5 POWER

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

1.6 WATER SUPPLY

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

1.7 SCAFFOLDING

- .1 Design, construct and maintain scaffolding in rigid, secure and safe manner in accordance with Z797-09 (R2014).
- .2 Erect scaffolding independent of walls. Remove when no longer required.

1.8 CONSTRUCTION
SIGN AND NOTICES

- .1 Contractor or subcontractor advertisement signboards are not permitted on site.
- .2 Only notices of safety or instructions are permitted on site.
- .3 Safety and Instruction Signs and Notices:
 - .1 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall conform to CAN/CSA-Z321-96 (R2006).
 - .4 Maintenance and Disposal of Site Signs:
 - .1 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.9 REMOVAL OF
TEMPORARY
FACILITIES

- .1 Remove temporary facilities from site when directed by Departmental Representative.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Barriers.
.2 Traffic Controls.
- 1.2 INSTALLATION AND REMOVAL .1 Provide temporary controls in order to execute Work expeditiously.
.2 Remove from site all such work after use.
- 1.3 HOARDING .1 Erect temporary site fenching using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m centes. Maintain fence in good repair.
- 1.4 GUARD RAILS AND BARRICADES .1 Provide secure, rigid guard rails and barricades around open excavations.
.2 Provide barricades along wharf structure when wheelguard is not in place.
.3 Provide as required by governing authorities.
- 1.5 ACCESS TO SITE .1 Provide and maintain access to adjacent harbour facilities.
- 1.6 PUBLIC TRAFFIC FLOW .1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.
- 1.7 FIRE ROUTES .1 Maintain access to property including overhead clearances for use by emergency response vehicles.
-

1.8 PROTECTION FOR
OFF-SITE AND PUBLIC
PROPERTY

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

PART 1 - GENERAL

1.1 DESCRIPTION

- .1 This section specifies requirements for board, lodgings and related services to be provided by the Contractor for the Inspector.
- .2 Due to the location of this site, it is a requirement of this contract that the Contractor provide and pay for all board and lodgings for the Inspector's sole use for the duration of the project. Provide for and maintain acceptable living accommodations for the Inspector's sole use. The minimum requirement would be a self-contained unit with private sleeping accommodation and shower or bath or other arrangement approved by the Inspector.

1.2 BOARD AND LODGINGS

- .1 For the purpose of this contract board and lodgings shall include but not necessarily be limited to: sleeping accommodation, meals and dining facilities, washroom facilities, laundry facilities, electrical and heating service, linens and bedding, etc. and any reasonable service as directed by the Inspector.
- .2 Board and lodgings must be approved by the Inspector and Contractor will cooperate in providing all services required to maintain an acceptable standard of living during construction period.
- .3 The Contractor shall include all calendar days, including weekends and statutory holidays in determining the cost.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Comply with any or all applicable Agencies regulation of the Province of Newfoundland and Labrador, relating to the set up, servicing and maintenance of accommodations for the Inspector.

1.4 MEASUREMENT FOR PAYMENT

- .1 No measurement for payment to be made under this section including all cost of this section in the lump sum items of this contract.

PART 1 - GENERAL

1.1 GENERAL

- .1 Use new material and equipment unless otherwise specified.
- .2 Within 7 days of written request by Departmental Representative, submit following information for any materials and products proposed for supply:
 - .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;
 - .6 evidence of manufacturer delivery problems or unforeseen delays.
- .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 classifications unless otherwise specified.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.2 PRODUCT QUALITY
AND REFERENCED
STANDARDS

- .1 Contractor shall be solely responsible for submitting relevant technical data and independent test reports to confirm whether a product or system proposed for use meets contract requirements and specified standards.
- .2 Final decision as to whether a product or system meets contract requirements rest solely with the Departmental Representative in accordance with the General Conditions.

1.3 ACCEPTABLE
MATERIALS AND
ALTERNATIVES

- .1 Acceptable Materials: When materials specified include trade names or trade marks or manufacturer's or supplier's name as part of the material description, select and only use one of the names listed for incorporation into the Work.

1.3 ACCEPTABLE
MATERIALS AND
ALTERNATIVES
(Cont'd)

- .2 Alternative Materials: Submission of alternative materials to trade names or manufacturer's names specified must be done during the bidding period following procedures indicated in the Instructions to Bidders.
- .3 Substitutions: After acceptance of bid, substitution of a specified material will be dealt with as a change to the Work in accordance with the General Conditions of the Contract.

1.4 MANUFACTURERS
INSTRUCTIONS

- .1 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods to be used. Do not rely on labels or enclosure provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing of any conflict between these specifications and manufacturers instructions, so that Departmental Representative will designate which document is to be followed.

1.5 AVAILABILITY

- .1 Immediately notify Departmental Representative in writing of unforeseen or unanticipated material delivery problems by manufacturer. Provide support documentation as per Clause 1.1.2 above.

1.6 WORKMANSHIP

- .1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed.
- .2 Remove unsuitable or incompetent workers from site as stipulated in General Conditions.
- .3 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision on site at all times.
- .4 Coordinate work between trades and subcontractors.
- .5 Coordinate placement of openings, sleeves and accessories.

1.7 FASTENINGS -
GENERAL

- .1 Provide metal fastenings and accessories in same texture, colour and finish as base metal in which they occur. Prevent electrolytic action between dissimilar metals. Use non-corrosive fasteners, anchors and spacers for securing exterior work and in humid areas.
- .2 Space anchors within limits of load bearing or shear capacity and ensure that they provide positive permanent anchorage. Wood or organic material plugs not acceptable.
- .3 Keep exposed fastenings to minimum, space evenly and lay out neatly.
- .4 Fastenings which cause spalling or cracking of material to which anchorage is made, are not acceptable.
- .5 Do not use explosive actuated fastening devices unless approved by Departmental Representative. See Section 01 35 29 - Health and Safety Requirements in this regard.

1.8 FASTENINGS -
EQUIPMENT

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified.
- .3 Bolts may not project more than one diameter beyond nuts.
- .4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.9 STORAGE,
HANDLING AND
PROTECTION

- .1 Deliver, handle and store materials in manner to prevent deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled materials in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work. Provide additional cover where manufacturer's packaging is insufficient to provide adequate protection.

1.9 STORAGE,
HANDLING AND
PROTECTION

(Cont'd)

- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Immediately remove damaged or rejected materials from site.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

PART 1 - GENERAL

- 1.1 GENERAL
- .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
 - .3 Prevent accumulation of wastes which create hazardous conditions.
 - .4 Provide adequate ventilation during use of volatile or noxious substances.
- 1.2 MATERIALS
- .1 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- 1.3 CLEANING DURING CONSTRUCTION
- .1 Maintain project grounds and public properties in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.
 - .2 Provide on-site garbage containers for collection of waste materials and debris.
 - .3 Remove waste materials and debris from site on a daily basis.
- 1.4 FINAL CLEANING
- .1 In preparation for acceptance of the Work perform final cleaning.
 - .2 Inspect finishes, fitments and equipment. Ensure specified workmanship and operation.
 - .3 Broom clean exterior paved and concrete surfaces; rake clean other surfaces of grounds.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 01 35 43 - Environmental Procedures.
- .2 Section 02 41 16 - Sitework, Demolition and Removal.

1.2 WASTE
MANAGEMENT PLAN

- .1 Prior to commencement of work, prepare waste Management Workplan.
- .2 Workplan to include:
 - .1 Waste audit.
 - .2 Waste reduction practices.
 - .3 Material source separation process.
 - .4 Procedures for sending recyclables to recycling facilities.
 - .5 Procedures for sending non-salvageable items and waste to approved waste processing facility or landfill site.
 - .6 Training and supervising workforce on waste management at site.
- .3 Workplan to incorporate waste management requirements specified herein and in other sections of the Specifications.
- .4 Develop Workplan in collaboration with all subcontractors to ensure all waste management issues and opportunities are addressed.

1.3 WASTE AUDIT

- .1 At project start-up, conduct waste audit of:
 - .1 Site conditions identifying salvageable and non-salvageable items and waste resulting from demolition and removal work.
 - .2 Projected waste resulting from product packaging and from material leftover after installation work.
- .2 Develop written list. Record type, composition and quantity of various salvageable items and waste anticipated, reasons for waste generation and operational factors which contribute to waste.

1.4 WASTE REDUCTION

- .1 Based on waste audit, develop waste reduction program.
-

1.4 WASTE REDUCTION
(Cont'd)

- .2 Structure program to prioritize actions, with waste reduction as first priority, followed by salvage and recycling effort, then disposal as solid waste.
- .3 Identify materials and equipment to be:
 - .1 Protected and turned over to Departmental Representative when indicated.
 - .2 Salvaged for resale by Contractor.
 - .3 Sent to recycling facility.
 - .4 Sent to waste processing/landfill site for their recycling effort.
 - .5 Disposed of in approved landfill site.
- .4 Reduce construction waste during installation work. Undertake practices which will minimize waste and optimize full use of new materials on site, such as:
 - .1 Use of a central cutting area to allow for easy access to off-cuts;
 - .2 Use of off-cuts for blocking and bridging elsewhere.
 - .3 Use of effective and strategically placed facilities on site for storage and staging of left-over or partially cut materials to allow for easy incorporation into work whenever possible avoiding unnecessary waste.
- .5 Develop other strategies and innovative procedures to reduce waste such as minimizing the extent of packaging used for delivery of materials to site, etc.

1.5 MATERIALS
SOURCE SEPARATION
PROCESS

- .1 Develop and implement material source separation process at commencement of work as part of mobilization and waste management at site.
 - .2 Provide on-site facilities to collect, handle, and store anticipated quantities of reusable, salvageable and recyclable materials.
 - .1 Use suitable containers for individual collection of items based on intended purpose.
 - .2 Locate to facilitate deposit but without hindering daily operations of existing building tenants.
 - .3 Clearly mark containers and stockpiles as to purpose and use.
 - .3 Perform demolition and removal of existing components and equipment following a systematic deconstruction process.
-

1.5 MATERIALS
SOURCE SEPARATION
PROCESS

(Cont'd)

- .3 (Cont'd)
 - .1 Separate materials and equipment at source, carefully dismantling, labelling and stockpiling alike items for the following purposes:
 - .1 Reinstallation into the work where indicated.
 - .2 Salvaging reusable items not needed in project which Contractor may sell to other parties. Sale of such items not permitted on site.
 - .3 Sending as many items as possible to locally available recycling facility.
 - .4 Segregating remaining waste and debris into various individual waste categories for disposal in a "non-mixed state" as recommended by waste processing/landfill sites.
 - .4 Isolate product packaging and delivery containers from general waste stream. Send to recycling facility or return to supplier/manufacturer.
 - .5 Send leftover material resulting from installation work for recycling whenever possible.
 - .6 Establish methods whereby hazardous and toxic waste materials, and their containers, encountered or used in the course work are properly isolated, stored on site and disposed in accordance with applicable laws and regulations from authorities having jurisdiction.
 - .7 Isolate and store existing materials and equipment identified for re-incorporation into the Work. Protect against damage.

1.6 WORKER
TRAINING AND
SUPERVISION

- .1 Provide adequate training to workforce, through meetings and demonstrations, to emphasize purpose and worker responsibilities in carrying out the Waste Management Plan.
 - .2 Waste Management Coordinator: designate full-time person on site, experienced in waste management and having knowledge of the purpose and content of Waste Management Plan to:
 - .1 Oversee and supervise waste management during work.
 - .2 Provide instructions and directions to all workers and subcontractors on waste reduction, source separation and disposal practices.
-

1.6 WORKER
TRAINING AND
SUPERVISION
(Cont'd)

- .3 Post a copy of Plan in a prominent location on site for review by workers.

1.7 CERTIFICATION
OF MATERIAL
DIVERSION

- .1 Submit to Departmental Representative, copies of certified weigh bills from authorized waste processing sites and sale receipts from recycling/reuse facilities confirming receipt of building materials and quantity of waste diverted from landfill.
- .2 Submit data at pre-determined project milestones as determined by Departmental Representative.
- .3 Compare actual quantities diverted from landfill with projections made during waste audit.

1.8 DISPOSAL
REQUIREMENTS

- .1 All creosote/CCA or preservative treated timber obtained from the demolition of the existing structure is to be transported and disposed of at an approved Waste Disposal Site and in association with applicable federal/provincial and municipal legislation and regulations.
- .2 Reuse/storage of creosote/CCA or preservative treated timbers outside of the work site is strictly prohibited.
- .3 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.
- .4 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.
- .5 Dispose of waste only at approved waste processing facility or landfill sites approved by authority having jurisdiction.

1.8 DISPOSAL
REQUIREMENTS
(Cont'd)

- .6 Dispose of treated wood, end pieces, wood scraps and sawdust at a sanitary landfill.
- .7 Do not dispose of preservative treated wood through incineration.
- .8 Disposal of waste, volatile materials, mineral spirits, oil, paint, paint thinner or unused preservative material into waterways, storm, or sanitary sewers is prohibited.
- .9 Burying or burning of rubbish and waste materials is prohibited.
- .10 Collect, bundle and transport salvaged materials to be recycled in separated categories and condition as directed by recycling facility. Ship materials only to approved recycling facilities.
- .11 Sale of salvaged items by Contractor to other parties not permitted on site.

1.9 SUBCONTRACTOR'S
RESPONSIBILITY

- .1 Subcontractors shall cooperate fully with the Contractor to implement the waste management work plan.
- .2 Failure to cooperate may result in the Owner not achieving their environmental goals, and may result in penalties being assessed by the Contractor to the responsible Subcontractors.

PART 1 - GENERAL

1.1 SECTION
INCLUDES

- .1 Project Record Documents as follows:
 - .1 As-built drawings;
 - .2 As-built specifications;
 - .3 Reviewed shop drawings.

1.2 PROJECT RECORD
DOCUMENTS

- .1 Departmental Representative will provide two white print sets of contract drawings and two 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 at any time during construction.
- .4 As-Built Drawings:
 - .1 Record changes in red ink on the prints. Mark only on one set of prints and at completion of project and prior to final inspection, neatly transfer notations to second set (also by use of red ink). Submit both sets to Departmental Representative. All drawings of both sets shall be stamped "As-Built Drawings" and be signed and dated by Contractor.
 - .2 Show all modifications, substitutions and deviations from what is shown on the contract drawings or in specifications.
 - .3 Record following information:
 - .1 Horizontal and vertical location of various elements in relation to CHS Chart Datum.
 - .2 Field changes of dimension and detail.
 - .3 All design elevations, sections, and details dimensioned and marked-up to consistently report finished installation conditions.
 - .4 Any details produced in the course of the contract by the Departmental Representative to supplement or to change existing design drawings must also be marked-up and dimensioned to reflect final as-built conditions and appended to the as-built drawing document.

-
- 1.2 PROJECT RECORD DOCUMENTS
(Cont'd)
- .4 (Cont'd)
 - .3 (Cont'd)
 - .5 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. Frequency of reviews will be subject to Departmental Representative's discretion. 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.
 - .7 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
 - .8 Provide digital photos, if requested, for site records.
- 1.3 EQUIPMENT AND SYSTEMS
SYSTEMS
- .1 For each item of equipment and each system include description of unit or system and component specifications.
 - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communication.
 - .3 Include installed colour coded wiring diagrams.
-

1.3 EQUIPMENT AND
SYSTEMS
(Cont'd)

- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 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 Provide servicing and lubrication schedule, and list of lubricants required.
- .7 Include manufacturer's printed operation and maintenance instructions.
- .8 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .9 Provide installed control diagrams by controls manufacturer.
- .10 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- .11 Additional requirements: as specified in individual specification sections.

1.4 WARRANTIES AND
BONDS

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled.
- .3 Submit Warranty information made available during construction phase to Departmental Representative for approval prior to each monthly pay estimate.
- .4 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

- 1.4 WARRANTIES AND BONDS
(Cont'd)
- .4 (Cont'd)
- .2 List subcontractor, supplier and manufacturer with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- .4 Retain warranties and bonds until time specified for submittal.
- .5 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .6 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- 1.5 REVIEWED SHOP DRAWINGS
DRAWINGS
- .1 Compile 2 full sets of all reviewed shop drawings.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 01 35 43 - Environmental Procedures.
- .2 Section 01 74 19 - Waste Management and Disposal.

1.2 DESCRIPTION

- .1 This section specifies requirements for demolishing and removing wholly or in part various items designated to be removed or partially removed.

1.3 GENERAL
REQUIREMENTS

- .1 A Notice to Shipping is to be issued prior to commencement and upon completion of work.
- .2 During construction, any vessels or barges utilized must be marked in accordance with the provisions of the Canada Shipping Act Collision Regulations.
- .3 Upon completion of the project, a written Notice to Mariners must be issued.

1.4 PROTECTION

- .1 Protect existing objects designated to remain. In event of damage, immediately replace or make repairs to approval of and at no additional cost to Canada.
- .2 Place a floating boom around entire demolition site to prevent loss of any materials.
- .3 Remove all floating debris from water on a routine and timely basis.

1.5 MEASUREMENT FOR
PAYMENT

- .1 All cost for items in this section is to be measured in fixed price items including all plant, labour, material required to complete this work as indicated on drawings and specifications.

PART 3 - EXECUTION

3.1 EXECUTION

- .1 Inspect site and verify with Departmental Representative objects designated for removal.
- .2 Locate and protect utility lines. Preserve in operating condition active utilities traversing site.

3.2 REMOVAL

- .1 Demolition, removal and disposal of existing wheel guard, wheel guard blocking, fenders, and ladders as indicated on drawings.
- .2 Remove in their entirety all materials and objects specified for removal.
- .3 Do not disturb adjacent work designated to remain in place.

3.3 DISPOSAL OF MATERIAL

- .1 All demolished materials, except materials designated to be reused, relocated or turned over to owner, will become property of contractor and will be removed from site and disposed of to satisfaction of Departmental Representative and in accordance with environmental guidelines. It is the sole responsibility of the contractor to dispose of all demolished materials at an approved disposal site. Ensure that disposal site is approved and willing to accommodate any materials disposed of from work site. Refer to Sections 01 35 43 - Environmental Procedures and Section 01 74 19 - Waste Management and Disposal for disposal requirements.
- .2 Contractor shall obtain and pay for all necessary permits and disposal fees for use of an approved waste disposal site.

3.4 RESTORATION

- .1 Upon completion of work, remove debris, trim surfaces and leave work site in clean condition.
- .2 Reinstate areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES
- .1 Work requirements for concrete restoration in accordance with Section 01 10 00 - General Instructions including the following:
- .1 Chipping and breaking out all deteriorated, spalled and delaminated concrete, and the subsequent filling of voids, cracks and rebuilding of exterior surface profiles.
 - .2 General surface preparation of all Type A mooring cleat anchor blocks as indicated on accompanying project drawings.
- 1.2 MEASUREMENTS AND PAYMENTS
- .1 Repair Cleat Pedestals: The repair of the Type "A" mooring cleat anchor blocks will be measured by the unit. The contractor to provide all plant, equipment, materials and labour.
- .2 No separate payment will be made for any other ingredient or feature of concrete restoration work, and all factors, including cold weather placement, reinforcing, sealants, grout, cement, plant and labour will be considered as being included in the unit price for item.
- 1.3 ADMINISTRATIVE REQUIREMENTS
- .1 Site Visit: Schedule a site visit with Departmental Representative to examine existing site conditions
- 1.4 RELATED REQUIREMENTS
- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 03 10 00 - Concrete Forming and Accessories.
- .3 Section 07 92 10 - Joint Sealing.
- 1.5 REFERENCE STANDARDS
- .1 ASTM International (ASTM)
- .1 ASTM C 109/C 109M-16a, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. (50-mm) Cube Specimens).
- .2 CAN/CSA-A23.1 (latest edition) - Concrete Materials and Methods of Concrete Construction.

-
- 1.5 REFERENCE STANDARDS
(Cont'd)
-
- .3 Technical guidelines by the International Concrete Repair Institute Guideline No. 310.1R-2008.
- .4 Standards and guidelines referenced in product data for materials used.
- .5 Canadian General Standards Board (CGSB):
.1 CAN/CGSB-19.24-M90, Multicomponent, Chemical-Curing Sealing Compound.
- .6 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act, 1992, c. 34 (TDGA).
- 1.6 ACTION AND INFORMATIONAL SUBMITTALS
-
- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for repair of deteriorated concrete and migrating corrosion inhibitor, include product characteristics, performance criteria, physical properties, finish and limitations.
- .3 Submit a proposed work plan for approval by Departmental Representative. Work plan to include a list of materials and proposed plan to be implemented to perform the work.
- .4 Submit a list of 2 jobs of a similar nature that he has completed within the previous year, before signing of contract, for review Departmental Representative.
- 1.7 CLOSEOUT SUBMITTALS
-
- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- 1.8 QUALITY ASSURANCE
-
- .1 Manufacturer's Instructions: submit manufacturer's application instructions and special handling criteria, cleaning procedures.
- .2 Provide reports for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters are found.
-

1.8 QUALITY ASSURANCE (Cont'd) .2 (Cont'd)
.1 Submit in accordance with Section 01 45 00 - Quality Control.

.3 Maintain a record of the batch numbers of all materials supplied on this project.

1.9 EXISTING CONDITIONS .1 Examine Site conditions and existing surfaces to be restored.

.2 Apply repair mortar during dry weather and when imminent weather forecast is favourable to proper application and curing in accordance with manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 PRODUCT DELIVERY, STORAGE AND HANDLING .1 Deliver materials to the site in an undamaged condition, with the manufacturer's wrappings and labels intact.

.2 Store materials in a clean, cool, dry area. Insure that materials remain dry and free of contaminants.

2.2 JOB CONDITIONS .1 Protect surrounding surfaces against damage due to work of this trade.

.2 Maintain a minimum temperature at 40°F (4°C) max temp @ 90°F (32°C) during application and for a minimum of two days after installation.

.3 Protect finished surface from accelerated drying.

.4 Co-ordinate work of this section with the work of other trades.

2.3 WARRANTY .1 Provide one (1) year unconditional warranty on all materials and workmanship.

-
- 2.4 SAFETY .1 Comply with all requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials.
- 2.5 BONDING AGENT .1 Water based epoxy-cementitious bonding agent and rebar coating master Emaco P124 or approved equal.
- 2.6 REPAIR MORTAR .1 Non-sage concrete repair mortar with integral corrosion inhibitor master Emaco N425 or approved equal.
- 2.7 WATER .1 Potable.
- PART 3 - TRAFFIC
- 3.1 GENERAL .1 Not used.
- 3.2 MIXING .1 Precondition material to 70°F ±5° (21°C ±3°) before mixing.
- .2 Mechanically mix at slow speed with a ¾" drill and mixing paddle.
- .3 Add approximately 2¾ quarts (2.6 L) of potable water into a clean mixing container. Gradually sift in powder 1/3 at a time while mixing continuously at slow speed (high speeds may entrain air). Mix for a minimum of 3 minutes to ensure a uniform, lump-free consistency. Do not exceed a total of 3 quarts (2.8 L) of mixing water per 43 lb (19.8 kg) bag.
- 3.3 PREPARATION .1 Obtain Departmental Representative's approval before placing mortar. Provide 24 hours notice prior to placing of repair mortar.
-

3.3 PREPARATION
(Cont'd)

- .2 Deteriorated and delaminated concrete should be located and marked prior to starting the removal process. Delaminated concrete can be located using sounding or other suitable techniques. The repair area should extend a minimum of 25 mm beyond the actual delaminated concrete. Note that during concrete removal, repair areas can grow in size beyond the areas identified due to incipient delaminations that are not readily identifiable by sounding. Repair configurations should be kept as simple as possible, preferably square or rectangular with square corners. This may result in the removal of sound concrete. Reentrant corners should be minimized or avoided.
- .3 Remove concrete from the marked areas and undercut exposed reinforcing steel using impact breakers, hydrodemolition, or another suitable method. Undercutting will provide clearance under the reinforcing steel for cleaning and full bar circumference bonding to the repair material and the surrounding concrete.
- .4 Do not cut or remove rebar from repair area.
- .5 All concrete, corrosion products, and scale should be removed from the reinforcing steel by oil-free abrasive blasting or high-pressure water blasting. Verify that the reinforcing steel and concrete surface are free from dirt, oil, cement fines (slurry), or any material that may interfere with the bond of the repair material.
- .6 Immediately prior to placing the repair material, inspect the repair cavity to verify that all bond-inhibiting materials (dirt, concrete slurry, loosely bonded aggregates, or any material that may interfere with the bond of the repair material to the existing concrete) have been removed. If bond-inhibiting materials are present, the repair cavity should be recleaned.

3.4 PLACEMENT

- .1 Dampen the surface with potable water; it must be saturated surface-dry (SSD) with no standing water.
- .2 Apply bonding agent with a stiff bristled broom or sprayer. Work the bonding agent thoroughly into the surface. Apply 2 coats to the exposed rebar. Follow manufacturer's fill instructions.

3.4 PLACEMENT
(Cont'd)

- .3 With a gloved hand, scrub a small quantity of mixed material into the SSD substrate. Thoroughly key in and work the material throughout the cavity to promote bond. Do not apply more of the bond coat than can be covered with mortar before the bond coat dries.
- .4 Apply material in lifts of ¼-2" (6-51 mm). Avoid featheredging. For optimum mechanical bond on successive lifts, thoroughly score each lift and allow to reach initial set before the next layer is applied.
- .5 Trowel, shave or shape material to the desired finish after initial set.
- .6 Cure with approved water based curing compound compliant with ASTM C 309 or preferably ASTM C1315. If the repair area will receive a coating, wet curing is recommended.
- .7 Clean tools and equipment with clean water immediately after use. Cured material must be removed mechanically.

3.5 SEALANT
MATERIAL
DESIGNATIONS

- .1 Polyurethane Sealant:
 - .1 Self-leveling multi-component polyurethane sealant to CAN/CGSB-19.13 M87, Classification C01025-B-N, Premium Grade, colour to match concrete.
 - .2 Meets ASTM C920, Type M, Grade P, Class 25.
 - .3 Federal specifications TT-S-00227E, Type 1, Class A.
 - .4 Service temperature range of -44 to 77 °C.

3.6 SURFACE
PREPARATION

- .1 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair work.
- .2 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .3 Ensure joint surfaces are dry and frost free.
- .4 Prepare surfaces in accordance with manufacturer's directions.

3.6 SURFACE
PREPARATION
(Cont'd)

- .5 Cleanup.
 - .1 Clean adjacent surfaces immediately and leave work neat and clean.
 - .2 Remove excess and droppings, using recommended cleaners as work progresses.
 - .3 Remove masking tape after initial set of sealant.

3.7 INSPECTION

- .1 Departmental Representative will inspect work for:
 - .1 Adherence to specific procedures and materials.
- .2 Final cleanliness and completion.
- .3 No additional costs will be allowed by Contractor for additional labour or materials required to provide specified performance level.

3.8 CLEANING

- .1 Progress cleaning in accordance with Section 01 74 00 - Cleaning.
- .2 Leave work area clean at end of each working day.
- .3 Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.
- .4 Use trigger operated spray nozzles for water hoses.
- .5 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .6 Waste Management: separate waste materials in accordance with Section 01 74 19 - Waste Management and Disposal.

3.9 PROTECTION OF
COMPLETED WORK

- .1 Protect adjacent finished work against damage which may be caused by on-going work.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 03 01 37 - Concrete Restoration.
- .2 Section 07 92 10 - Joint Sealing.
- .3 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-A23.1-14/A23.2-14, Concrete Materials and Methods of Concrete Construction.
 - .2 CAN/CSA-O86-14, Engineering Design in Wood.
 - .3 CSA O121-08 (R2013), Douglas Fir Plywood.
 - .4 CSA O151-09, Canadian Softwood Plywood.
 - .5 CSA O153-13, Poplar Plywood.
 - .6 CAN3-0188.0-M78, Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.
 - .7 CSA O437 Series-93 (R2011), Standards for OSB and Waferboard.
 - .8 CSA S269.1-16 (R2003), Falsework and Formwork for Construction Purposes.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings for formwork and falsework in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1-16, for falsework drawings Comply with CAN/CSA-S269.1-16 for formwork drawings.
- .3 Indicate formwork design data, such as permissible rate of concrete placement, and temperature of concrete, in forms.
- .4 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.
- .5 Each shop drawing submission shall bear stamp and signature of qualified Professional Engineer registered or licensed in Province of Newfoundland and Labrador, Canada.

1.4 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management and Disposal and the Waste Reduction Workplan.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .4 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low VOC's.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Formwork materials:
 - .1 Use formwork materials to CAN/CSA-A23.1-16.
- .2 Form ties:
 - .1 Removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface.
- .3 Form release agent: non-toxic, chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing set of film of concrete in contact with form.
- .4 Falsework materials: to CSA-S269.1-16.
 - .1 Materials required to bear grade marks, or be accompanied with certificates, test reports or other proof of conformity.
- .5 Premoulded joint fillers:
 - .1 Bituminous impregnated fiberboard to ASTM D1751.
- .6 Bond Breaker:
 - .1 Impermeable tube formed of polyvinylchloride, rubber or similar material to the approval of the Departmental Representative. Internal diameter equal to dowels.
- .7 Sealant: to Section 07 92 10 - Joint Sealing.

PART 3 - EXECUTION

3.1 FABRICATION AND
ERECTION

- .1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.
- .2 Obtain Departmental Representative's approval for use of earth forms framing openings not indicated on drawings.
- .3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.
- .4 Fabricate and erect falsework in accordance with CSA S269.1-16.
- .5 Fabricate and erect formwork in accordance with CAN/CSA-S269.-16 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.1-16.
- .6 Align form joints and make watertight. Keep form joints to minimum.
- .7 Use 25 mm chamfer strips on external corners and/or 25 mm fillets at interior corners, joints, unless specified otherwise.
- .8 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .9 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections. Assure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.
- .10 Clean formwork in accordance with CAN/CSA-A23.1-16, before placing concrete.

3.2 REMOVAL AND
RESHORING

- .1 Leave formwork in place for following minimum periods of time after placing concrete.
 - .1 5 days for beams, slabs, decks and other structural members, or 3 days when replaced immediately with adequate shoring to standard specified for falsework.

3.2 REMOVAL AND
RESHORING
(Cont'd)

- .2 Remove formwork when concrete has reached 75% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.
- .3 Provide all necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.
- .4 Space reshoring in each principal direction at not more than 3000 mm apart.
- .5 Re-use formwork and falsework subject to requirements of CAN/CSA-A23.1-16.

3.3 JOINT FILLERS

- .1 Locate and form expansion joints as indicated. Intall joint filler in all joints.
- .2 Use 13 mm thick joint filler to separate slab-on-grade and extend joint filler from bottom of slab to within 25 mm of finished slab surface unless indicated otherwise.

3.4 JOINT SEALANT

- .1 Fill expansion and control joints with sealer as per manufacturer instructions.

PART 1 - GENERAL

1.1 RELATED
SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 19 - Waste Management and Disposal.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A53/A53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Steamless.
 - .2 ASTM A269-15a, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - .4 ASTM B241/B241M-16, Standard Specification for aluminum and aluminum alloy seamless pipe and seamless extruded tube.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181-92, Ready-Mixed, Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20-13/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .2 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA-S16-14, Design of Steel Structures.
 - .4 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding.
 - .5 CSA W59-13, Welded Steel Construction (Metal Arc Welding).
 - .6 CAN/CSA-S157-05/S157.1-05 (R2015), Strength Design in Aluminum.
 - .7 CSA W59.2-M1991 (R2013), Welded Aluminum Construction.
- .4 The Environmental Choice Program
 - .1 CCD-047a-98, Paints, Surface Coatings.
 - .2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
 - .2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 19 - Waste Management and Disposal.

1.6 WASTE
MANAGEMENT AND
DISPOSAL
(Cont'd)

- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material for recycling in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

1.7 MEASUREMENT FOR
PAYMENT

- .1 Pipe Bollards: All costs associated with the supply and placement of bollards for the existing lightpoles at St. David's will be by the unit. Contractor to include all plant, labour, material required to complete this work as detailed on the accompanying drawings.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 350W.
- .2 Aluminum and aluminum - alloy sheet and plate: to CAN/CSA W59.2-M1991 (R2013).
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts and anchor bolts: to ASTM A307.
- .6 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Where possible, fit and shop assemble work, ready for erection.
- .3 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600 g/m² to CAN/CSA-G164.
- .2 Shop coat primer: to CAN/CGSB-1.40.
- .3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.
- .4 Finish exposed surfaces of aluminum components in accordance with Aluminum Association (AA), Designation System for Aluminum Finishes.

2.4 SHOP PAINTING

- .1 Apply one shop coat of primer to metal items, with exception of aluminum or concrete encased items.
- .2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.
- .3 Clean surfaces to be field welded; do not paint.
- .4 Prepare and coat outdoor fabrications as follows:
 - .1 Surface Preparation: Abrasive blast to SSPC-SP-10 near white metal to achieve an anchor profile of 2.0 mils.
 - .2 Primer: One coat of Amercoat 68A zinc epoxy primer to 3 mils dry film thickness, or approved equal.
 - .3 Intermediate Coat: One coat of Amerlock # 2 surface tolerant epoxy to 6 mils dry film thickness, or approved equal.
 - .4 Top Coat: One coat of Amershield abrasion resistant urethane to 4 mils dry film thickness, or approved equal. Colour to be safety yellow for bollards, black for other applications unless noted.

2.5 BOLLARDS

- .1 Steel pipe: 125 mm dia. x 1200 mm long Schedule 40 galvanized nominal outside diameter pipe. Install bollards at locations as shown on drawings.
- .2 Base Plate: 305 mm x 305 mm x 15 mm thick plate, weld to steel pipe, complete with openings for anchoring devices.
- .3 Finish: Paint two coats marine enamel, safety yellow.

2.5 BOLLARDS .4 Supply and install reflector tape, 50 mm wide,
(Cont'd) color red.

PART 3 - EXECUTION

3.1 ERECTION .1 Do welding work in accordance with CSA W59 unless
specified otherwise.

.2 Erect metal work square, plumb, straight, and
true, accurately fitted, with tight joints and
intersections.

.3 Provide suitable means of anchorage acceptable to
Departmental Representative such as dowels, anchor
clips, bar anchors, expansion bolts and shields,
and toggles.

.4 The joints will be spaced such that two (2) 12mm
fillet welds can be made all around each channel.

.5 Exposed fastening devices to match finish and be
compatible with material through which they pass.

.6 Make field connections with bolts to
CAN/CSA-S16.1, or weld.

.7 Touch-up rivets, field welds, bolts and burnt or
scratched surfaces after completion of erection
with primer.

.8 Touch-up galvanized surfaces with zinc rich primer
where burned by field welding.

3.2 BOLLARDS .1 Install bollards at locations, as indicated on
drawings.

.2 Secure bollards using 18 mm dia. heavy-duty
expansion anchors, stainless steel or approved
equal. See details.

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Wood-Preservers' Association (AWPA)
 - .1 AWPA M2-16, Standard Inspection of Treated Wood Products.
 - .2 AWPA M4-15, Standard for the Care of Preservative-Treated Wood Products.
- .2 Canadian Standards Association (CSA)
 - .1 CSA O80 Series-15 - Wood Preservation.
 - .2 CSA O80.201-97, Standard for Hydrocarbon Solvents for Preservatives. This Standard covers hydrocarbon solvents for preparing solutions of preservatives. This is not stand alone specification.
 - .3 CSA O322-15, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.

1.2 QUALITY ASSURANCE

- .1 Testing of products treated with preservative by pressure impregnation will be carried out by the manufacturer's testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.
- .2 Inspection and testing of timber materials will be carried out by the manufacturer.

1.3 CERTIFICATES AND ASSAY RETENTION RESULTS

- .1 Submit certificates and assay retention results in accordance with Section 01 33 00 - Submittal Procedures.
- .2 For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
 - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
 - .2 Moisture content after drying following treatment with water-borne preservative.
 - .3 Assay retentions results representing each treated batch of supplied timber.
 - .4 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.4 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Do not dispose of preservative treated wood through incineration.
- .2 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.
- .3 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by Departmental Representative.
- .4 Dispose of unused wood preservative material at official hazardous material collections site approved by Departmental Representative.
- .5 Do not dispose of unused preservative material into sewer system, into streams, lakes, onto ground or in other location where they will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Preservative: to CSA-080 Series.
- .2 Solvent: to CSA-080.201.

2.2 PRESERVATIVE
TREATMENTS

- .1 Treat to CSA 080, commodity standard 080.18, Table referenced standards, with the following minimum assay retentions:

Species	CCA kg/m ³	ACA kg/m ³
Dimension Timber		
-Coast Douglas Fir	24	24
-Western/Eastern Hemlock	24	24
-Hemlock, Douglas Fir (Wheelguard, Wheelguard Blocking)	10	10
-Birch or Maple	Treat to Refusal	
Wood Piles		
-Red Pine/Southern Yellow Pine	30	30

Note: Birch or maple must be air dried for six (6) months in weather protected environment or kiln dried.

PART 3 - EXECUTION

- 3.1 FIELD TREATMENT .1 Handle pressure treated material in a manner that will avoid damage which may expose untreated material. Rejection of any damaged material may result and replacement will be at the Contractor's expense.
- .2 Fill all bored bolt holes with preservative immediately after boring. Use a pressurized container with hose to apply preservative, or some alternate method acceptable to the Departmental Representative.
- .3 Fill all unused bored holes and spike holes with tight fitting treated wooden plugs.
- 3.2 CUTTING .1 Field cuts, if authorized, are to receive three (3) liberal coats of the applicable preservative applied to dry wood on each application.
- 3.3 FIELD QUALITY .1 Timber which contain rot, splits exposing untreated wood, excessive wane, or timbers which cannot be fastened in the work so as to be structurally sound are unacceptable.
- .2 The Departmental Representative reserves the right to carry out field testing of treated timber for penetration and retention of preservative. Timber not meeting the requirements of the specification may be rejected for use under the contract.

PART 1 - GENERAL

- 1.1 SECTION INCLUDES .1 Materials, preparation and application for caulking and sealants.
- 1.2 RELATED SECTIONS .1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 45 00 - Quality Control.
.3 Section 01 61 00 - Common Product Requirements.
.4 Section 01 74 19 - Waste Management and Disposal.
.5 Section 03 01 37 - Concrete Restoration.
.6 Section 03 10 00 - Concrete Forming and Accessories.
- 1.3 REFERENCES .1 Canadian General Standards Board (CGSB)
.2 CAN/CGSB-19.24-M90, Multi-component, Chemical Curing Sealing Compound.
.3 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act, 1999 (CEPA).
.4 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).
.5 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- 1.4 SUBMITTALS .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
.2 Manufacturer's product to describe.
.1 Caulking compound.
.2 Primers.
.3 Sealing compound, each type, including compatibility when different sealants are in contact with each other.

1.4 SUBMITTALS
(Cont'd)

- .3 Submit manufacturer's instructions in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Instructions to include installation instructions for each product used.

1.5 DELIVERY,
STORAGE, AND
HANDLING

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.

1.6 WASTE
MANAGEMENT AND
DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard, packaging material, in appropriate on-site bins, for recycling in accordance with Waste Management Plan.
- .4 Place materials defined as hazardous or toxic in designated containers.
- .5 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.
- .6 Unused sealant material must not be disposed of into sewer system, into streams, lakes, onto ground or in other location where it will pose health or environmental hazard.
- .7 Divert unused joint sealing material from landfill to official hazardous material collections site approved by Departmental Representative.
- .8 Empty plastic joint sealer containers are not recyclable. Do not dispose of empty containers with plastic materials destined for recycling.
- .9 Fold up metal banding, flatten, and place in designated area for recycling.

1.7 PROJECT
CONDITIONS

- .1 Environmental Limitations:
 - .1 Do not proceed with installation of joint sealants under following conditions:
 - .1 When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 4.4 degrees C.
 - .2 When joint substrates are wet.
 - .2 Joint-Width Conditions:
 - .1 Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
 - .3 Joint-Substrate Conditions:
 - .1 Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 ENVIRONMENTAL
REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS) acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

1.9 MEASUREMENT FOR
PAYMENT

- .1 No measurement for payment to be made under this section. Include costs in unit prices for items in which joint sealing is required.

PART 2 - PRODUCTS

2.1 SEALANT
MATERIALS

- .1 Where sealants are qualified with primers use only these primers.

- 2.2 SEALANT MATERIAL DESIGNATIONS
- .1 Polyurethane: Premium-Grade.
 - .1 Self-Leveling to CAN/CGSB-19.13-M87, Type 1, Class A, colour to match concrete.
 - .2 Preformed Compressible and Non-Compressible back-up materials.
 - .1 Polyethylene or Neoprene Foam.
 - .1 Extruded closed cell foam backer rod.
 - .2 Size: oversize 30 to 50%.
 - .2 Neoprene or Butyl Rubber.
 - .1 Round solid rod, Shore A hardness 70.
 - .3 High Density Foam.
 - .1 Extruded closed cell polyvinyl chloride (PVC), extruded polyethylene, closed cell, Shore A hardness 20, tensile strength 140 to 200 kPa, extruded polyolefin foam, 32 kg/m³ density, or neoprene foam backer, size as recommended by manufacturer.
 - .4 Bond Breaker Tape.
 - .1 Polyethylene bond breaker tape which will not bond to sealant.

- 2.3 JOINT CLEANER
- .1 Non-corrosive and non-staining type, compatible with joint forming materials and sealant recommended by sealant manufacturer.
 - .2 Primer: as recommended by manufacturer.

PART 3 - EXECUTION

- 3.1 PROTECTION
- .1 Protect installed Work of other trades from staining or contamination.

- 3.2 SURFACE PREPARATION
- .1 Examine joint sizes and conditions to establish correct depth to width relationship for installation of backup materials and sealants.
 - .2 Clean bonding joint surfaces of harmful matter substances including dust, rust, oil grease, and other matter which may impair Work.
 - .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

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- 3.2 SURFACE PREPARATION
(Cont'd)
- .4 Ensure joint surfaces are dry and frost free.
 - .5 Prepare surfaces in accordance with manufacturer's directions.
- 3.3 PRIMING
- .1 Where necessary to prevent staining, mask adjacent surfaces prior to priming and caulking.
 - .2 Prime sides of joints in accordance with sealant manufacturer's instructions immediately prior to caulking.
- 3.4 BACKUP MATERIAL
- .1 Apply bond breaker tape where required to manufacturer's instructions.
 - .2 Install joint filler to achieve correct joint depth and shape, with approximately 30% compression.
- 3.5 MIXING
- .1 Mix materials in strict accordance with sealant manufacturer's instructions.
- 3.6 APPLICATION
- .1 Sealant.
 - .1 Apply sealant in accordance with manufacturer's written instructions.
 - .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
 - .3 Apply sealant in continuous beads.
 - .4 Apply sealant using gun with proper size nozzle.
 - .5 Use sufficient pressure to fill voids and joints solid.
 - .6 Form surface of sealant with full bead, smooth, free from ridges, wrinkles, sags, air pockets, embedded impurities.
 - .7 Tool exposed surfaces before skinning begins to give slightly concave shape.
 - .8 Remove excess compound promptly as work progresses and upon completion.
 - .2 Curing.
 - .1 Cure sealants in accordance with sealant manufacturer's instructions.
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3.6 APPLICATION
(Cont'd)

- .2 (Cont'd)
 - .2 Do not cover up sealants until proper curing has taken place.
- .3 Cleanup.
 - .1 Clean adjacent surfaces immediately and leave Work neat and clean.
 - .2 Remove excess and droppings, using recommended cleaners as work progresses.
 - .3 Remove masking tape after initial set of sealant.

PART 1 - GENERAL

- 1.1 DESCRIPTION .1 This section specifies requirements for supply and installation of structural timber as follows:
- .1 Supply and installation of treated dimension timber wheelguard, wheelguard blocking, and associated painting.
 - .2 Supply and installation of untreated dimension hardwood timber horizontal and vertical fenders.
 - .3 Supply and installation of untreated timber hardwood ladders, ladder handgrips, and associated hardware and painting.
- 1.2 RELATED WORK .1 Section 02 41 16 - Sitework, Demolition and Removal.
- .2 Section 06 05 73 - Wood Treatment.
- 1.3 REFERENCES .1 American Society for Testing and Materials (ASTM International)
- .1 ASTM A307-12, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile.
 - .2 ASTM-A123/A123M, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
 - .3 ASTM F1667-13, Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
 - .4 American Wood-Preserver's Association (AWPA)
 - .1 AWPA M4-11, Standard for the Care of Preservation - Treated Wood Products.
 - .5 Canadian Standards Association (CSA International)
 - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
 - .2 CAN/CSA-G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Steel.
 - .3 CAN/CSA-O80 Series-08 (R2012), Wood Preservation.
 - .6 Canadian Wood Council
 - .1 Wood Design Manual.

1.3 REFERENCES
(Cont'd)

- .7 National Lumber Grades Authority (NLGA)
 - .1 Standard Grading Rules for Canadian Lumber 2014 edition.

1.4 DIMENSIONS

- .1 Check existing site dimensions and report discrepancies to Departmental Representative before commencing work.

1.5 PROTECTION

- .1 Avoid dropping, bruising or breaking of wood fibres.
- .2 Avoid breaking surfaces of treated timber.
- .3 Do not damage surfaces of treated timber by boring holes or driving nails or spikes into them to support temporary material or staging.
- .4 Treat cuts, breaks or abrasions on surfaces of treated timber with 3 brush coats of preservative to CSA 080.
- .5 Treat bolt holes, cutoffs and field cuts in accordance with CSA 080.

1.6 DELIVERY AND STORAGE

- .1 Store timber horizontally, evenly supported and open piled permit circulation when stored for prolonged period.
- .2 When handling long timber, provide support at sufficient number of points, properly located to prevent damage due to excessive bending.
- .3 Handle treated timber with hemp, manila or sisal rope slings or other approved means of support that will not damage surface.
- .4 Do not use sharp pointed tools to handle treated timber. Any timber so handled will be rejected and be replaced at Contractor's expense.

1.7 MEASUREMENT FOR
PAYMENT

- .1 Structural Timber (Supply and Install):
- .1 Treated Dimension Timber: The supply and installation of treated dimension timber for wheelguard and wheelguard blocking coping will be measured by the cubic metre (m³) of timber secured in place, including all timber, fastenings, plant, material, equipment, labour, wheelguard bolt hole levelling sealant, painting of wheelguard and wheelguard blocking.
- .2 Untreated Dimension Hardwood Timber: The installation of untreated dimension hardwood timber for vertical hardwood fenders, and horizontal fenders as specified will be measured by the cubic metre (m³) of timber secured in place including all timber, fastenings, plant, material, equipment, and labour.
- .3 Ladders - (Untreated): The supply and installation of untreated ladders will be measured by the unit secured in place. Contractor will provide all timber, fastenings, plant, material, equipment, and labour, including untreated timber hardwood ladder uprights, ladder rungs, ladder handgrips, and painting of ladder uprights.

PART 2 - PRODUCTS

2.1 TIMBER
MATERIALS

- .1 Timber: Use timber graded and stamped in accordance with applicable grading rules and standards of associations or agencies approved to grade lumber by Canadian Lumber Standards Administration Board of CSA.
- .2 Species
- .1 Wheelguard, wheelguard blocks: Hemlock or Douglas Fir (CCA or ACA treated).
- .2 Hardwood fenders, and ladder uprights: Birch or Maple untreated).
- .3 Grade: No. 1 Structural Grade
- .4 Grading Authority: NLGA
- .5 Preservative Treatment: Treat to CSA 080, for coastal waters and Section 06 05 73 - Wood Treatment. Timbers will be treated in the lengths required. Unnecessary field cutting will not be permitted.
- .6 Primer: Alkyd undercoat, exterior oil wood primer, similar to Pittsburgh 6-9.

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- 2.1 TIMBER MATERIALS
(Cont'd)
- .7 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Safety Yellow" Product ID 7-808C. Paint to conform to CAN/CGSB-1.61-2004.
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- 2.2 MISCELLANEOUS STEEL AND FASTENINGS
- .1 Miscellaneous Steel: All steel and fastenings to be CSA G40.21, Grade 300 W, galvanized.
- .2 Nails and Spikes: to CSA B111 or ASTM F1667.
- .3 Machine Bolts and Nuts: to ASTM A307. All machine bolts and nuts to be galvanized.
- .4 Drift Bolts: to G40.21 from round stock button head and diamond or wedge point. All drift bolts to be galvanized.
- .5 Washers:
.1 Round Plate Washers: for 16 mm machine bolts will be 76 mm diameter by 6.4 mm thick, for 19 mm machine bolts will be 79 mm diameter by 7.9 mm thick and have a hole diameter of 18 mm and 21 mm diameter respectively. Washers to conform to G40.21. All washers to be galvanized.
.2 Plain Washers: to CSA B19.1, Class 2. All washers to be galvanized.
.3 Square washers are not permitted.
- .6 Galvanizing: will conform to ASTM/A123/A123M. Unless otherwise specified, minimum weight of zinc coating will be as stated in this Standard. Fabricator is to adhere to recommendations of Standard.
- .7 Ladder Rungs and Hand Grips: to CSA G40.21, galvanized and as detailed on drawings.
- .8 Lag Screws: to CSA B34, galvanized lag screw washers will conform to CSA B19.1
- .9 Welding in accordance with CSA Standards. The welders will be qualified to the appropriate classification as stated in CSA W47.1 "Certification of Companies for Fusion Welding of Steel Structures." Conform welding to all appropriate requirements and recommendations of CSA Standard W59 "Welded Steel Construction" (metal arc welding).
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- 2.3 ANCHOR BOLTING SYSTEM
- .1 Anchor bolts, where required, for anchoring coping and/or wheelguard to existing concrete deck will be 19 mm diameter resin cartridge anchors.
 - .2 Submit shop drawings and manufacturer's specification for anchor bolts for approval.
 - .3 Anchor bolts to be installed with strict adherence to manufacture specifications.

PART 3 - EXECUTION

- 3.1 PREPARATION
- .1 Install structural timbers to details shown on drawings or as specified.

- 3.2 WHEELGUARD AND WHEELGUARD BLOCKING
- .1 Wheelguard timbers to be 200 mm x 200 mm and will be in minimum lengths of 6100 mm or as specially required with butt joints made over wheelguard blocking. Wheelguard timbers to be chamfered on top, 25 mm on each horizontal and vertical surface.
 - .2 Wheelguard blocks will be installed at 1500 mm on centre or as required to support the wheelguard.
 - .3 Wheelguard will be secured through wheelguard blocking, coping and two (2) crib timbers below with two (2) 25 mm diameter drift bolts as shown on detail drawings.
 - .4 The installation of wheelguard and wheelguard blocking as per detail.

- 3.3 COPING
- .1 Install 200 mm x 250 mm or 200 mm x 200 mm treated timber coping in minimum length as required. Perimeter of wharf as indicated on drawings.
 - .2 Secure coping to timber below with 19 mm diameter drift bolts spaced at 1500 mm on centre and to concrete deck with existing machine bolts spaced at 1500 mm on centre. The machine bolts will be countersunk on the exterior face; the nut installed on the outside and each bolt equipped with 2 washers.

- 3.3 COPING
(Cont'd)
- .3 Secure coping to existing concrete deck using coping anchor bolts where approved by Departmental Representative. Secure coping 1500 mm on centre. All bolts to be countersunk on the exterior face. All countersinking to be drilled.
- 3.3 FENDERS
- .1 Horizontal Fenders:
.1 Install hardwood timber fenders in minimum length of 4880 mm along top perimeter of wharf. Stagger joints in coping from joints in horizontal fender.
.2 Top horizontal fender to be chamfered 25 mm on top seaward face.
.3 Secure horizontal fender to coping with 16 mm diameter lag screws, minimum of three (3) each drift bolts per fender, spaced at 1500 mm on centre. All lag screws to be countersunk on the exterior face.
- .2 Vertical Fenders:
.1 Install hardwood timber fenders spaced at 300 mm on centre along face of wharf.
.2 Secure each fender with four (4) each 16 mm diameter lag screws evenly spaced from LNT to underside of horizontal fender. All lag screws to be countersunk.
.3 All fenders to extend from underside of horizontal fender to 300 mm below LNT.
.4 Do not notch or cut fenders to provide straight wharf face. Continuous blocking will be installed behind fenders and chocks to provide straight face.
- 3.4 LADDERS
- .1 Install ladders on face of wharf in locations shown on drawings or designated by Departmental Representative.
- .2 Ladder uprights to be 150 mm x 200 mm installed from 1100 mm below LNT to wheelguard elevation. Uprights to be bevelled at 45° on top and painted as specified.
- .3 Construction details and steel handgrips as per detail.
- .4 Secure each upright with four (4) each evenly spaced 19 mm diameter galvanized lag screws. All lag screws to be countersunk.

3.5 PAINTING

- .1 Paint four (4) sides and exposed ends of wheelguard, exposed sides of wheelguard blocking, tops of fenders, and complete ladder uprights as directed by the Departmental Representative.
- .2 Use one (1) coat of exterior oil wood primer and two (2) coats of alkyd/oil resin paint as specified. Paint materials for each coat to be product of a single manufacturer as specified. Ensure previous coat of primer or paint is dry before second coat is applied.

3.6 BOLT SIZING

- .1 Drift Bolts: Drift bolts used in the work will have a length equal to thickness of timbers being fastened less 50 mm unless otherwise specified. Holes for drift bolts will be bored 2 mm smaller diameter than size of steel used and for full length of bolts.
- .2 Machine Bolts: Machine bolts used in work will have a length equal to thickness of timbers being fastened plus thickness of washers plus 40 mm. Where bolts are countersunk, the length will be as above less depth of countersinking. Machine bolts will be threaded for 64 mm. Holes will be drilled same diameter as bolt.
- .3 Lag Screws: All lag screws used in the work will have a length equal to thickness of timbers being fastened less 50 mm and depth of countersinking. Holes for lag screws to be drilled same diameter as shank portion of screw and to inside thread diameter for threaded portion of screw and for full length. All lag screws will be countersunk, screwed, not driven in place, and will have one (1) standard washer under the head.
- .4 Countersink drift bolts and/or lag screws in hardwood fenders, chocks, ladders, and slipway runners to the extent that the minimum distance from face of timber to head of bolt is 12 mm.
- .5 Bolting of timbers without properly drilled bolt holes will not be accepted.

3.7 INFILLING

- .1 Install treated structural timber full length sections in areas as indicated on drawings or as indicated by Departmental Representative.

3.7 INFILLING
(Cont'd)

- .2 Cut and remove damaged, split, rotten, loose timber as indicated on drawings or as indicated by Departmental Representative.
- .3 Secure treated structural timber infill with drift bolts, lag screws, and spikes as required, shown on drawings or as indicated by Departmental Representative.
- .4 All splicing, leveling, and infilling to be approved by Departmental Representative prior to installation of new fendering.

PART 1 - GENERAL

- 1.1 DESCRIPTION .1 This section specifies the requirements for supply and installation of mooring devices as follows:
- .1 Supply and installation of mooring rings.
 - .2 Refurbish, scrape, prime, paint and seal anchor bolt holes for all existing Type "A" mooring cleats.
 - .3 Refurbish, scrape, prime, paint and seal anchor bolt holes for all existing Type "B1" mooring cleats and cleat bases as indicated on drawings.

- 1.2 RELATED WORK .1 Section 02 41 16 - Sitework, Demolition, and Removal.
- .2 Section 03 10 00 - Concrete, Forming and Accessories.
 - .3 Section 03 01 37 - Concrete Restoration.
 - .4 Section 07 92 10 - Joint Sealer.

- 1.3 MEASUREMENT FOR PAYMENT .1 Mooring Rings: The supply and placement will be measured by unit secured in place. Contractor to provide all fastenings, equipment and labour.
- .2 Existing Type "A" cleat refurbishing, scraping, priming, painting including sealing of the anchor bolt holes. No measurement for payment to be made under this section included all costs for this section in Section 03 01 37 - Concrete Restoration.
 - .3 Mooring Cleats - Type "B1": Refurbishing of existing Type B1 cleats to be measured by the each. Contractor to provide all equipment, material and labor.

PART 2 - PRODUCTS

- 2.1 MATERIALS .1 Mooring Devices:
- .1 Mooring rings galvanized cast iron dimensioned on drawings.

- 2.1 MATERIALS .1 (Cont'd)
(Cont'd)
- .2 Non-Shrink Grout: pre-mixed compound of non-metallic aggregate and plasticizing agents, capable of developing minimum compressive strength of 50 MPa at 28 days.
 - .3 Welding: to CSA W59.
 - .4 Sealer: to Section 07 92 10 Joint Sealer.
 - .5 Concrete: to Section 03 30 00 Cast-in-Place Concrete.
 - .6 Primer: Alkyd undercoat, exterior oil ferrous metal primer, similar to Pittsburgh 6-208.
 - .7 Paint: Alkyd/Oil Resin paint similar to Pittsburgh Paints "Brilliant Red (Safety Red)" Product ID 7-801. Paint to conform to CAN/CGSB-1.61-2004.

- 2.2 SHOP DRAWINGS .1 Submit fabricator's shop drawings on concrete repair mortar, waterproof compound, primer and paint in accordance with Section 01 33 00 - Submittal Procedures.

PART 3 - EXECUTION

- 3.1 INSTALLATION .1 Mooring Rings:
- .1 Install mooring rings as per attached drawings.
- .2 Mooring Cleat Repair - Type "A":
- .1 Repair Type "A" mooring cleat anchor block. See Section 03 01 37 concrete restoration.
 - .2 After cleat repair is complete, bolt holes in cleats to be filled with approved waterproofing compound.
 - .3 Paint 2 coats as spec in 2.1.11, 2.1.12.
- .3 Mooring Cleat Refurbish - Type "B1":
- .1 Scrape, prime, paint and seal anchor bolt holes for all existing Type B1 mooring cleats.
- 3.2 GROUT .1 Grout under base of cleat using a non-shrink, non-metallic type of grout. Grout must be approved by Departmental Representative. Fill anchor bolt holes with approved sealer. Ensure that temperatures of foundation, air, base and grout are within range specified by grout manufacturers.

3.2 GROUT
(Cont'd)

- .2 Do not grout until approval given by Departmental Representative.
- .3 Mooring cleat (refurbish) Type "B1":
 - .1 Scrape away all loose paint from existing cleat block base and cleat.
 - .2 Clean out existing compound from cleat anchor bolt holes. Clean, dry and refill holes with new self levelling waterproof compound as specified.
 - .3 Prime and paint cleat block and metal cleat.

3.3 PAINTING

- .1 Paint ferrous metal portion of Type "A" and Type "B1" mooring cleats.
- .2 Use one (1) coat of exterior oil ferrous metal primer and two (2) coats of alkyd/oil resin paint as specified. Paint materials for each coat to be product of a single manufacturer as specified. Ensure previous coat of primer or paint is dry before second coat is applied.
- .3 Scrape, prime, paint all existing Type "A" and Type "B1" mooring cleats as per specifications and to Departmental approval.