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## **Small Craft Harbours Branch**

### **SPECIFICATIONS**

#### **WHARF & FLOAT RECONSTRUCTION**

#### **SOINTULA SMALL CRAFT HARBOUR**

#### **SOINTULA, BRITISH COLUMBIA**

**JUNE 2017**

**SUMMARY OF WORK**

| <b>SECTION</b> | <b>TITLE</b>             |
|----------------|--------------------------|
| 01 11 00       | Summary of Work          |
| 01 15 00       | Owner Supplied Materials |

**GENERAL REQUIREMENTS**

| <b>SECTION</b> | <b>TITLE</b>         |
|----------------|----------------------|
| 01 13 00       | General Requirements |

**TECHNICAL SPECIFICATIONS**

| <b>SECTION</b> | <b>TITLE</b>             |
|----------------|--------------------------|
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| 00 51 00       | Hardware                 |
| 00 99 00       | Timber                   |
| 01 35 43       | Environmental Procedures |
| 31 62 16 19    | Timber Piles             |
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**HEALTH AND SAFETY REQUIREMENTS**

| <b>SECTION</b> | <b>TITLE</b>                   |
|----------------|--------------------------------|
| 01 35 29 06    | Health and Safety Requirements |

**DRAWINGS**

| <b>FILE NAME</b> | <b>TITLE</b>            | <b>LOCATION</b>  |
|------------------|-------------------------|--|
| SOIN-WR-001      | General Arrangement     | North & South Harbour  |
| SOIN-WR-002      | Guard & Handrail Detail | North Harbour, Wharf 404   |
| SOIN-WR-003      | South Wharf Layout      | South Harbour, Wharf 401 & 402                                     |
| SOIN-WR-004      | North Wharf Layout      | North Harbour, Wharf 403 & 404                                     |
| 85-S3_1          | Site Plan               | North Harbour, Floats 810 (Float A), 811 (Float B) & 812 (Float C) |

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|             |  |   |
|-------------|--|---|
| 85-S3_2     | Piles, Caps and Decking<br>Details       | North Harbour, Wharf 403 & 404  |
| 85-S3_3     | Sections                                 | North Harbour, Wharf 403 & 404  |
| 85-S3_4     | Fender System                            | North Harbour, Wharf 403 & 404  |
| 85-S3_5     | Construction Details                     | North Harbour, Wharf 403 & 404  |
| 84-S3_6     | Floats 'A' & 'B'<br>Construction Details | North Harbour, Floats 810 (Float A) & 811<br>(Float B)  |
| 85-S3_7     | Float 'C' Construction<br>Details        | North Harbour, Float 812 (Float C)  |
| 70-s011_1   | Boat Harbour Repairs                     | South Harbour Wharf 401 & 402 (Note: The<br>wharf was removed past the first wharf head.<br>Refer to SOIN-WR-001 for the existing layout) |
| 74-s011_1   | Float Renewal                            | South Harbour, Floats 807, 806 & 804  |
| 76-s005_1   | Mooring Dolphin Locations                | South Harbour   |
| 83-S8_1     | Domestic Water Supply                    | South Harbour (section view of Float 802)   |
| 002_PONTOON | Full Size Fibreglass<br>Pontoon Frame    | Refer to SOIN-WR-001  |

**END OF SECTION**

## 1 SITE LOCATION

- .1 Sointula Small Craft Harbour is located at 710-1<sup>st</sup> Street, Sointula, BC V0N 3E0, Canada. The mailing address is PO Box 202, Sointula, BC V0N 3E0, Canada.

## 2 WORK SCHEDULE

- .1 All work including site clean-up and demobilization must be completed by **December 15, 2017**. Refer to Section 01 13 00 for General Requirements.

## 3 DEFINITIONS

- .1 Throughout contract documents, the words “Owner,” “Harbour Authority,” “Engineer,” or “Department,” shall be defined as follows:
  - .1 Owner  
Small Craft Harbours Program of the Department of Fisheries and Oceans Canada, 200-401 Burrard Street Vancouver BC V6C 3S4
  - .2 Harbour Authority (HA)  
For the most part, Harbour Authorities are incorporated, not-for-profit organizations. They have a board of directors and members, who are representative of local interest groups and harbour users. Each Harbour Authority is a unique and independent business responsible for managing, operating and maintaining one or more public fishing harbours, through a lease agreement with Small Craft Harbours.
  - .3 Engineer  
An employee of the Owner or Consultant assigned by the Owner as the Engineer for this project, or the Engineer’s representative assigned by the Engineer as his representative for the project.
  - .4 Contractor  
The party accepted by the Owner with whom a formal contract is entered to complete the work of this project.
  - .5 Department  
The Department of Fisheries and Oceans Canada.
  - .6 The Site  
Sointula Small Craft Harbour: 710-1<sup>st</sup> Street, PO Box 202, Sointula, BC V0N 3E0, Canada.

## 4 WORK INCLUDED

- .1 In general, the nature of work consists of light to heavy float and wharf repairs in both the North and South Harbours. Refer to drawing SOIN-WR-001 for the General Arrangement of work.
- .2 In general, work to be performed under this contract includes, but is not limited to:

- .1 Float repairs – replacement of bull rail, decking, rubboard, pile group blocking and flanges and installation of pontoons.
  - .2 Wharf repairs – replacement of cross-braces, cap and piles (fender and bearing) and pile straps and installation of handrail and wheel guard.
  - .3 Supply of miscellaneous materials.
  - .4 Site cleanup and disposal.
- .3 A list of Owner supplied materials is provided in Section 01 15 00. Owner supplied materials will be accessible at an Owner specified laydown area on site, to be determined after award.
- .4 All labour, equipment and materials shall conform to Technical Specifications herein.

**.5 Description of Items**

With reference to items listed in the Invitation to Tender, Appendix 1 – Combined Price Form, work consists of, but is not limited to, the following items:

**.1 Lump Sum Items**

**.1 Mobilization / Demobilization**

The lump sum cost of mobilization/demobilization includes all labour, equipment and materials to complete the following:

- .1 Move all crew, equipment and materials on and off site.
- .2 Move materials, including Owner supplied materials, around the site as required to complete the work.
- .3 Cover all crew expenses such as food and accommodations.
- .4 Site clean-up throughout construction.
- .5 Cover all overhead costs not included in other items.
- .6 Dispose cut-offs, general waste and old materials that were replaced.

**.2 Supply & Install Wharf Guard & Handrail**

The lump sum cost to supply and install wharf guard and handrail includes all labour, equipment and materials to complete the following:

- .1 Install Owner supplied timber guard to the concrete wharf deck in accordance to SOIN-WR-002. Cut, drill and field treat the guard timber on site in accordance to Section 00 99 00.
- .2 Fabricate and install handrail in accordance to drawing SOIN-WR-002 and Section 05 50 00.

- .3 Supply all required hardware in accordance to Section 00 51 00.

**.3 Supply Misc. Materials**

The lump sum cost to supply miscellaneous materials includes all labour, equipment and materials to complete the following:

- .1 Supply 8500 BF of 51mm x 203mm (2" x 8") Red Cedar in 2439mm (8') lengths.
- .2 Supply 2300 BF of 51mm x 203mm (2" x 8") Red Cedar in 3685mm (12') lengths.
- .3 Supply 2300 BF of 51mm x 203mm (2" x 8") Red Cedar in 4878mm (16') lengths.
- .4 Supply 3200 BF of 51mm x 305mm (2" x 12") Yellow Cedar in 4268mm (14') lengths.
- .5 Supply 6 boxes (approx. 2000 nails per box) of 102mm (4") galvanized spiral (Ardox) nails.
- .6 Supply 5 boxes (approx. 700 nails per box) of 152mm (6") galvanized spiral (Ardox) nails.
- .7 Timber shall conform to Section 00 99 00.
- .8 Hardware shall conform to Section 00 51 00.

**.2 Unit Price Items**

**.1 Supply, Remove & Replace Wharf Bearing Piles**

The unit cost per pile to supply, remove and replace an existing timber bearing pile includes all labour, equipment and materials to complete the following:

- .1 Supply and install new timber creosote piles in accordance to Section 01 35 29 06.
- .2 Supply and replace all existing hardware that is attached to the piles being replaced.
- .3 Replacement shall conform to Section 00 20 60.
- .4 Hardware shall conform to Section 00 51 00.

**.2 Supply, Remove & Replace Wharf Fender Piles**

The unit cost per pile to supply, remove and replace an existing timber fender pile includes all labour, equipment and materials to complete the following:

- .1 Supply and install a new timber creosote pile in accordance to Section 01 35 29 06.
- .2 Supply and replace all existing hardware that is attached to the pile being replaced.
- .3 Replacement shall conform to Section 00 20 60.
- .4 Hardware shall conform to Section 00 51 00.

**.3 Remove & Replace Bull Rail and Risers**

The unit cost per meter to remove and replace existing bull rails and risers includes all labour, equipment and materials to complete the following:

- .1 Remove and replace existing timber bull rails and risers using Owner supplied timber, where specified on SOIN-WR-001. Cut, drill and field treat new bull rails and risers on site to match original length and drill pattern of the replaced bull rails and risers in accordance to Section 00 99 00.
- .2 Supply all required hardware in accordance to Section 00 51 00.
- .3 Replacement shall conform to Section 00 20 60.

**.4 Remove & Replace Flanges**

The unit cost per meter to remove and replace existing flanges includes all labour, equipment and materials to complete the following:

- .1 Remove and replace existing timber flanges using Owner supplied timber, where specified on SOIN-WR-001. Cut, drill and field treat new flanges on site to match original length and drill pattern of the replaced flanges in accordance to Section 00 99 00. Note that existing flanges along the replace location on Float 810 are missing and therefore do not require removal.
- .2 Supply all required hardware in accordance to Section 00 51 00.
- .3 Replacement shall conform to Section 00 20 60.

**.5 Remove & Replace Decking**

The unit cost per square meter to remove and replace existing decking includes all labour, equipment and materials to complete the following:

- .1 Remove and replace existing timber decking with new Red Cedar and 102mm galvanized spiral nails from item 4.5.1.3 in accordance to Sections 00 99 00 and 00 51 00.
- .2 Replacement shall conform to Section 00 20 60.

**.6 Remove & Replace Rubboard**

The unit cost per meter to remove and replace existing rubboard includes all labour, equipment and materials to complete the following:

- .1 Remove and replace existing timber rubboard with new Yellow Cedar and 152mm galvanized spiral nails from item 4.5.1.3 in accordance to Sections 00 99 00 and 00 51 00.
- .2 Replacement shall conform to Section 00 20 60.

**.7 Install 1.1x1.1x0.6m Fibreglass pontoons**

The unit cost per pontoon to install a new 1.1x1.1x0.6m pontoon includes all labour, equipment and materials to complete the following:

- .1 Install Owner supplied 1.1x1.1x0.6m fibreglass pontoons where located on SOIN-WR-001. Note that final pontoon locations shall be provided after award.
- .2 Supply and install 102mm (4") wide nylon webbing and 316 grade SS hardware as specified in Section 00 51 00 to secure the pontoon.

**.8 Install 1.1x2.4x0.6m Fibreglass Pontoons**

The unit cost per pontoon to install a new 1.1x2.4x0.6m pontoon includes all labour, equipment and materials to complete the following:

- .1 Install Owner supplied 1.1x2.4x0.6m fibreglass pontoons where located on SOIN-WR-001. Note that final pontoon locations shall be provided after award.
- .2 Supply and install 102mm (4") wide nylon webbing and 316 grade SS hardware as specified in Section 00 51 00 to secure the pontoon.

**.9 Remove & Replace Wharf Cap**

The unit cost per meter to remove and replace the existing wharf cap includes all labour, equipment and materials to complete the following:

- .1 Remove and replace the existing timber cap using Owner supplied timber, where specified on drawing SOIN-WR-001. Cut and field treat the new cap on site to match original length of the replaced cap in accordance to Section 00 99 00. For bid purpose, assume the cap size is 305x305x6100mm.
- .2 Supply and install creosote treated blocking and shims where required to level the cap.
- .3 After the old cap is removed, allow the Owner or Engineer to inspect the condition of the pile heads and wait for approval before installing the new cap.
- .4 For each pile under the cap being replaced, dry the top of the pile, apply two coats of Roof Patch mastic and install a sheet of 0.8mm annealed aluminum sheeting. Cut the sheeting 150mm larger than pile top, with edges turned down and secure to the pile with eight roofing nails.
- .5 Supply and install 19mm x 610mm (3/4" x 24") galvanized drift pins at every pile and stringer contact, through the center of each timber.
- .6 Replacement shall conform to Section 00 20 60.
- .7 Hardware shall conform to Sections 00 51 00.

**.10 Remove & Replace All Cross-Braces on Wharf 403**

The unit cost per cross-brace to remove and replace wharf cross-braces includes all labour, equipment and materials to complete the following:

- .1 Remove and replace existing timber cross-braces using Owner supplied timber, in accordance to drawings SOIN-WR-001, 85-S3\_2 and 85-S3\_3. Cut, drill and field treat the new cross-braces on site to match original length and drill pattern of the replaced cross-braces in accordance to Section 00 99 00.
- .2 If a cross-brace is missing, replace with a new cross-brace.
- .3 Supply all required hardware in accordance to Section 00 51 00.
- .4 Replacement shall conform to Section 00 20 60.

**.11 Supply, Remove & Replace All Fender Pile Straps on Wharf 404**

The unit cost per strap to supply, remove and replace all fender pile straps includes all labour, equipment and materials to complete the following:

- .1 Supply, remove and replace all fender pile straps and hardware in accordance to drawings SOIN-WR-001, 85-S3\_3, 85-S3\_4 & 85-S3\_5.
- .2 Hardware and straps shall conform to Section 00 51 00 and 05 50 00.

**.12 Supply, Remove & Replace All Batter Pile Straps on Wharf 404**

The unit cost per strap to supply, remove and replace all batter pile straps includes all labour, equipment and materials to complete the following:

- .1 Supply, remove and replace all batter pile straps and hardware in accordance to drawings SOIN-WR-001, 85-S3\_3, 85-S3\_4 & 85-S3\_5.
- .2 Hardware and straps shall conform to Section 00 51 00 and 05 50 00.

**.13 Remove & Replace Pile Group Blocking**

The unit cost per pile group to remove and replace pile group blocking includes all labour, equipment and materials to complete the following:

- .1 Remove and replace existing timber pile group blocking using Owner supplied timber, where specified on drawing SOIN-WR-001. Cut, drill and field treat the new pile blocking on site to match original length and drill pattern of the replaced pile blocking in accordance to Section 00 99 00.
- .2 Supply all required hardware in accordance to Section 00 51 00.
- .3 Replacement shall conform to Section 00 20 60.

**END OF SECTION**

## **1 OWNER SUPPLIED MATERIALS**

Owner supplied materials shall be provided at an Owner specified laydown area on site, to be determined after award. The Contractor will be responsible for handling and transporting the materials around site. This section provides a list of Owner supplied materials. All other materials required to complete the work shall be supplied by the Contractor.

### **.1 Pontoons**

- .1 The Owner shall supply six (6) 1.1x1.1x0.6m and seventeen (17) 1.1x2.4x0.6m fibreglass pontoons. For example, refer to drawing 002 – Full Size Fibreglass Pontoon Frame.

### **.2 Timber**

- .1 The Owner shall supply treated timber required for replacement of bull rail, flanges, the cap, cross-braces and pile group blocking.
- .2 The Contractor shall field cut, drill and treat timber as required to complete the work in accordance to the Contract drawings and specifications.

**END OF SECTION**

**1 COMMENCEMENT AND COMPLETION**

- .1 Work shall commence upon **Contract Award**.
- .2 All work including clean-up and demobilization must be completed by **December 15, 2017**.

**2 INSPECTION OF SITE**

- .1 It is the responsibility of each bidder to obtain all necessary information pertaining to local site conditions and existing works, beyond the information provided in this Specification and accompanying drawing(s).

**3 PERMITS, CERTIFICATES, LAWS AND ORDINANCES**

- .1 The Contractor must, at his own expense, procure all permits, certificates and licenses required of him by law for the execution of his work under this contract. He shall comply with all Federal, Provincial or Municipal laws, ordinances or rules and regulations relating to the performance of his work and in force during the duration of this contract.
- .2 The Contractor is required to give all required notices, comply with all local, municipal, provincial, and federal laws, ordinances, codes, by-laws, rules and regulations relating to the work.
- .3 All work to be done in accordance with Work Safe BC regulations.
- .4 The Contractor shall comply with Federal and Provincial laws, orders and regulations concerning the control and abatement of water and air pollution.
- .5 The Contractor shall comply with the requirements of any local or other Noise By-Laws.

**4 MINIMUM STANDARDS**

- .1 In the absence of other standards specified in the contract documents, all work is to conform to, or exceed, the minimum standards of the Canadian Government Specifications Boards, the Canadian Standards Association, the American Society for Testing of Materials, or the National Building Code of Canada, whichever is applicable.
- .2 All work to be done in accordance with Work Safe BC regulations.

**5 INTERFERENCE WITH OPERATION**

- .1 The Contractor shall obey all navigation regulations and conduct operations so as to interfere as little as possible with the use of berthing spaces, fairways and passages. Install and maintain any and all protection to navigation as may be required by any properly constituted authority or by the Owner. During the course of construction and clean-up, do not dispose of surplus, waste or demolished materials in navigable waters.
- .2 The Contractor shall upon instruction of the Owner or Engineer, promptly remove any of the Contractor's equipment located outside the specified work area and obstructing any harbour operation.

**6 COMPLIANCE WITH STANDARD SPECIFICATIONS CODES AND REGULATIONS**

- .1 Unless expressly stated to the contrary, all materials, equipment and articles furnished by the Contractor shall comply with the applicable provisions of the standards of the Canadian Standards Association (CSA) or the Canadian Government Specification Board (CGSB) with the applicable provisions of the American Society for Testing Materials (ASTM), National Dredging Association (NFPA), American Concrete Institute (ACI) and the American Water Works Association (AWWA).
- .2 The Contractor shall follow all regulations in accordance with the Fisheries Act. Care shall be taken not to release any deleterious materials to fish habitat, into the water.
- .3 All work to be done in accordance with Work Safe BC regulations.

**7 CONTRACTOR'S PERSONNEL**

- .1 The Contractor's representative on site shall be completely familiar with the method of work to be employed. Such personnel shall remain on site for the duration of the work.

**8 RESPONSIBILITY TO PERSONNEL**

- .1 The Contractor shall have full responsibility for the board, lodging and transportation of his personnel and subcontractors. The cost for this shall be incorporated into his unit prices. He shall comply with all labor requirements, and Worker's Compensation regulations.

**9 BARRIERS, LIGHTS AND WATCHING**

- .1 The Contractor shall provide all requisite barriers, fences, warning signs, lights and watching for the protection of persons and property on or adjacent to the site.

**10 SITE ACCESS**

- .1 The Contractor shall provide access to the work for the Owner's inspectors and surveyors as required.
- .2 General site access shall be coordinated with the Owner.
- .3 The Contractor shall maintain routes of travel, with the Owner being the sole judge as to what may be deemed reasonable.
- .4 The Contractor shall erect and maintain barriers, fences, lights, warning devices, and other protective devices as may be required for prevention of theft or damage of goods and protection of the public and workmen, or if so ordered by the Owner.

**11 CONSTRUCTION AREA**

- .1 The Contractor shall regulate construction traffic on public areas and comply with all local ordinances in connection therewith, including load limitation and removal of debris.
- .2 The Contractor shall confine his operations on the site to those areas actually required for the work including routes and regulations approved by the Owner for haulage of materials.

**12 NIGHT WORK**

- .1 The Contractor shall keep proper lights each night between the hours of sunset and sunrise upon all floating plants, false-work and other obstructions where necessary, and upon all buoys of such size and in such locations as required by a governing authority. When work is done at night, maintain from sunset to sunrise such lights on or about the work and plant as necessary for the proper observation of the work and the efficient prosecution thereof.

**13 CLEAN-UP**

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

**14 TEMPORARY SERVICES**

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

**15 PROGRESS REPORT**

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

**16 ENGINEER'S ACCESS**

- .1 The Contractor shall provide access to the work for the Engineer's inspectors and surveyors as required.

**17 PERMITS AND ROYALTIES**

- .1 Permits and licenses required for the Contractors work are the responsibility of the Contractor and shall be for the Contractor's account. The Contractor shall have the appropriate business license.

**18 PROTECTION OF EXISTING STRUCTURES**

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

**19 WEATHER**

- .1 Time lost by the Contractor due to stoppage on account of adverse weather conditions may be allowed, at the discretion of the Engineer, as an extension of time for the completion of the work over and above the date of completion specified in the contract agreement.

**20 SOIL DATA AND EXISTING TOPOGRAPHY**

- .1 The Contractor shall notify the Engineer of any subsurface conditions at the place of the work that may differ materially from those indicated in the contract documents.

**21 UTILITIES AND SERVICES**

- .1 The Contractor shall be responsible for any damage to overhead, underwater and/or underground utilities and/or services caused by the Contractor's operations and shall repair and make good the repairs at the Contractor's own expense.
- .2 The Contractor shall be responsible, unless otherwise agreed to by the Engineer, for all temporary or construction services and utilities, and first aid facilities.

**22 CARE OF FINISHED WORK**

- .1 The Contractor shall protect all finished work from injury, defacement, unauthorized entry, or trespass until such time as the work described in the contract documents is substantially complete.

**23 DISPOSAL**

- .1 All material designated to be replaced or removed will become the property of the Contractor and will be disposed of in an environmentally acceptable manner so that they neither become a menace to marine navigation nor a nuisance to the public on adjacent or any other property.
- .2 All replaced items, cut-offs and waste material shall be disposed by the Contractor in strict accordance with provincial, local, and municipal regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.
- .3 Conduct clean-up and disposal operations to comply with local ordinances and antipollution laws.

**24 MATERIAL HANDLING AND STORAGE**

- .1 Any materials damaged by the Contractor during handling, transportation and storage shall be replaced at the Contractor's expense.

- .2 While the Contractor is mobilized on site, the Contractor is responsible for protecting all materials (including Owner supplied materials) from damage and theft. As a minimum, the Contractor shall provide fencing around any stored materials that are accessible to the general public.

## **25 CONSTRUCTION WORK SCHEDULE**

- .1 The Contractor shall work whatever shifts required in order to ensure the work meets regulatory windows and is completed by the completion date of the contract.
- .2 The Contractor shall normally perform all work within daylight hours, except in instances where the Contractor has requested and received approval for shift changes from the Owner.
- .3 Within 7 days of award the Contractor shall supply a week by week schedule of proposed activities related to the contract.
- .4 The Contractor must notify the Owner immediately whenever a variation from the construction schedule is expected to occur or when the submission of the submittals will be delayed.

## **26 SETTING OUT OF WORK**

- .1 The Contractor is expected to familiarize themselves with the site, facilities and amenities within.
- .2 The Contractor shall not enter on nor occupy with men, tools, equipment or material, any ground outside the property of the Harbour Authority without the written consent of the party owning such ground. Other Contractors or employees or representatives of the Department may, for all necessary purposes, enter upon the work and premises used by the Contractor, and the Contractor shall conduct his work so as not to impede unnecessarily any work being done by others nor adjacent to the site.

## **27 AS-BUILT DRAWINGS**

- .1 The Contractor shall mark up one set of plans with any changes or amendments implemented during the Contract. These plans shall be submitted to the engineer before the Final Certificate of completion is issued.

## **28 SITE SECURITY**

- .1 The Contractor is responsible for all materials and equipment either supplied by the Contractor, the Client Department, or the Owner. The Contractor is responsible for the repair and replacement of stolen or damaged items.

## **29 SITEWORK**

- .1 All heavy construction equipment shall be free of leaks and cleaned prior to construction.
- .2 The Contractor shall have absorbent pads on site in case of any oil leaks or contaminants entering the water.

- .3 The Contractor shall develop a construction plan that minimizes disruption to harbour operations.
- .4 The site shall be left in a safe condition at the completion of each work day.

### **30 CO-OPERATION WITH HARBOUR AUTHORITY**

- .1 The Contractor shall give the Harbour Authority **minimum 1 week notice** for start of construction.
- .2 The Contractor shall give the Harbour Authority **minimum 48 hours notice** for work that requires vessels to be moved.
- .3 The Contractor shall give the Harbour Authority **minimum 48 hours notice** for work that may interrupt harbour operations including access to floats.

### **31 CONDITION OF STRUCTURE**

- .1 Existing structures, adjacent marine facilities, roads, and all other structures, services, piping or equipment within the work area shall be properly protected from any injury or damage, direct or indirect. Any damage that is caused as a result of the operations of the Contractor shall be repaired and made good at the Contractors expense to the satisfaction of the Owner.

### **32 INSPECTION OF STRUCTURE**

- .1 The Owner or inspector, shall inspect the completed works. The Contractor shall be responsible for the costs of any re-inspections that may be required due to errors or omissions of the Contractor.

**END OF SECTION**

## **1 GENERAL**

This section refers to demolition specifications required as part of this Contract.

- .1 Demolition and disposal shall be carried out in strict accordance with provincial, local, and municipal regulations and Part 8 of the National Building Code and with the Canadian Construction Safety Code.

## **2 EQUIPMENT**

- .1 The Contractor shall furnish all labour, materials, tools, plant and services required incidental to the completion to the full extent of the drawings and specifications for execution of all demolition salvage and protection work specified herein.
- .2 Demonstrate that tools and machinery are being used in manner which allows for salvage of materials in best condition possible or reinstatement of temporarily relocated structures.

## **3 REMOVAL OF DEMOLISHED MATERIAL**

- .1 All materials, which are not to be salvaged for the Owner, shall become the Contractor's property and the Contractor must remove it from the work site.
- .2 If not specifically identified, the Owner and/or Engineer shall decide as to which material shall be salvaged and which materials shall be disposed of.

## **4 SALVAGED MATERIAL**

- .1 Material to be salvaged for the Owner shall be stored as directed by the Engineer.
- .2 Remove items to be reused, stockpile and re-install as directed by Engineer.
- .3 Designate appropriate security resources/measures to prevent vandalism, damage and theft of salvaged items.
- .4 Contractor is responsible for lost, stolen or damaged materials.

## **5 PROTECTION OF STRUCTURES TO REMAIN**

- .1 Protect remaining structural elements, services and equipment against damage from demolition works.
- .2 Contractor is liable for any damage caused to structures not specified for removal as a result of completing work.

## **6 SERVICES**

- .1 All services that must be removed from existing structures in order to perform work must be removed so as not to damage them.
- .2 All service materials including miscellaneous hangers, fasteners and supplies required to reinstall the services shall be supplied by the Contractor and will be of equivalent quality to the new conditions of such materials being replaced.

- .3 All materials that are not reusable shall be disposed of by the Contractor.
- .4 The Contractor shall be responsible for the handling and storage of services lines, lamps standards and other equipment during construction. All materials damaged by the Contractor shall be replaced at the Contractor's expense.

## **7 CLEANING AND RESTORATION**

- .1 Keep site clean and organized throughout demolition procedure.
- .2 Upon completion of project or as appropriate, reinstate gangway, floats, walkways, light standards, electrical and water services and other items affected by Work to condition which existed prior to beginning of Work.

**END OF SECTION**

## 1 GENERAL

This section refers to steel specifications required as part of this Contract.

### .1 Reference Standards

Unless specified otherwise, all steel shall be new and conform to the current edition of the following standards:

- .1 CSA B-111-M: Wire nails, spikes and staples
- .2 CSA-G164-M: Hot dip galvanizing of irregularly shaped articles
- .3 CSA-G40.21-M81: Drift bolts, machine bolts, washers, and miscellaneous iron
- .4 ASTM A307: Specification of carbon steel bolts and studs
- .5 ASTM A153: Hot dipped galvanizing
- .6 CSA B34: Lag screws

## 2 PRODUCTS

### .1 Steel Hardware

- .1 Bolts, nuts, and washers through timber shall conform to ASTM A307.
- .2 Drift pins shall conform to CSA G40.21-M81 Grade 260W.
- .3 All spikes, nails, and staples to conform to CSA B-111-M.
- .4 All lag screws to conform to CSA B34.
- .5 Hot-dip galvanize all miscellaneous metal and fasteners in accordance with CSA G164-M, unless noted otherwise.
- .6 Unless noted otherwise, use plate washers under heads and nuts of all bolts bearing on timber; plate washers against piles shall be curved to match the rounded surface.
- .7 All bolts shall be National Course Thread, unless shown otherwise.
- .8 Unless noted otherwise, all bolts shall have minimum 152mm (6") of thread.
- .9 All hardware including, but not limited to, bolts, drift bolts, spikes, carriage bolts, lag bolts, nuts and washers shall be hot dipped galvanized in accordance with the ASTM A153. Galvanize to 610gm/m<sup>3</sup> (2oz/ft<sup>2</sup>).

### .2 Fabrication Steel

- .1 Fabrication steel shall comply with Section 05 50 00.

### 3 EXECUTION

#### .1 Assembly

- .1 All bolts shall be tightened to 100 newton meters (80 lbs feet).
- .2 Care shall be taken not to damage the treated wood finish. All treatment damaged by the Contractor shall be repaired at his own expense.
- .3 Predrill all timbers that require bolting (hex or lag) and end timbers that require nails prior to installation to prevent splitting.
- .4 Holes for machine bolts shall be bored to provide a driving fit.
- .5 All field drilled holes shall be treated with preservative as specified prior to bolting.

#### .2 Decking

- .1 Lay boards heart side down, spaced 6mm to 10mm apart.
- .2 Secure each contact point with 2 – 102mm (4") galvanized RDOX nails.
- .3 Pre-drill deck boards for nails nearest board ends.

#### .3 Rub Board (Fascia)

- .1 Secure each contact point with 3 – 152mm (6") galvanized RDOX nails.
- .2 Contact points every 500mm maximum.
- .3 Pre-drill rub boards for nails nearest board ends. Do not pre-drill into the float timbers (stringer and flanges).

#### .4 UHMW Liners

- .1 Hardware heads shall be fully countersunk and an additional 6mm (1/4") below flush.
- .2 Pre-drill through UHMW and mooring well timber to avoid splitting.
- .3 Fasteners shall not interfere with piling wear surfaces.

#### .5 pontoons

- .1 Secure pontoon webbing to top of each crosstie with two #6 Stainless 316 Grade Pan Head Wood Screws, 25.4mm (1") long, complete with #6 Stainless 316 Grade Flat Washers.

**END OF SECTION**

## 1 GENERAL

This section refers to timber specifications required as part of this Contract.

### .1 Reference Standards

Unless specified otherwise, timber shall conform to the following standards:

- .1 American Wood Preservers' Association (AWPA)
  - .1 AWPA M2, Standard for Inspection of Wood Products Treated with Preservatives.
  - .2 AWPA M4, Standard for the Care of Preservative Treated Wood Products.
- .2 ASTM International
  - .1 ASTM A153M-09, Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
  - .2 ASTM A307-14, Standard Specification for Carbon Steel Bolts, Studs and Threaded Rod, 60,000 PSI Tensile Strength.
  - .3 ASTM D256-10, Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
  - .4 ASTM D638-10, Standard Test Method for Tensile Properties of Plastics
  - .5 ASTM D790-10, Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
- .3 CSA International
  - .1 CSA B111-03, Wire Nails, Spikes and Staples. (Note: This standard is actually discontinued but there is no equivalent replacement – consequently have chosen to make reference to the old version.)
  - .2 CSA O80 Series-12, Wood Preservation.
  - .3 CSA O86-09 Consolidated – Engineering Design in Wood
  - .4 CAN/CSA Z809-13, Sustainable Forest Management.
  - .5 CAN/CSA G164-03, Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .5 National Lumber Grades Authority (NLGA)
  - .1 Standard Grading Rules for Canadian Lumber 2014.

**.2 Protection**

- .1 Deliver, store and handle materials in a manner that protects products from damage. Replace damaged or defective materials with new products conforming to the requirements of this section.

**2 PRODUCTS****.1 General**

- .1 All timber shall be suitable for the purpose intended and shall conform to the Standard Grading Rules for Canadian Lumber, (NLGA), of the Canadian Lumber Standards Administration Board.
- .2 Except as otherwise noted, only new materials will be used in, and remain an integral part of the structures.
- .3 The Engineer may inspect materials and products at his discretion at all stages of their manufacture, and transportation to the site. Satisfactory inspection at any stage does not preclude future rejection if the materials or products are subsequently found to lack uniformity or fail to conform to the requirements specified. Acceptance will not be made until the materials or products are satisfactorily installed in the completed structures as specified.

**.2 Cedar**

- .1 All cedar shall be No. 2 Grade or Better, tight knot one side, pencil wane back face and no shake.
- .2 The Contractor shall supply to the Engineer documentation indicating the grade class and species of all timber delivered to the site.
- .3 Cedar shall have a length tolerance of +0-12". Any boards that measure less than the specified length shall be rejected.
- .4 Cedar shall be provided surfaced one face and two edges (S1S2E).
- .5 The Engineer shall be the sole judge as to the acceptability of timber incorporated into the work. Timber not accepted by the Engineer shall be removed from the site.

**.3 Douglas Fir**

- .1 All Douglas Fir shall be No. 1 Structural Grade Coast Douglas Fir.
- .2 The Contractor shall supply to the Engineer documentation indicating the grade class and species of all timber delivered to the site.
- .3 Stringers, crossties, joists, flanges, bull rails, risers, rub boards (fascia) shall be provided surfaced four sides (S4S). Decking shall be provided surfaced one face and two edges (S1S2E).
- .4 The Engineer shall be the sole judge as to the acceptability of timber incorporated into the work. Timber not accepted by the Engineer shall be removed from the site.

### **.3 Treatment of Material**

#### **.1 General**

- .1 All timber specified for treatment shall be pressure preservative treated in accordance with CSA-O80-M 'Wood Preservation', its applicable subsections and amendments. The use category to which timber elements will be exposed is UC5A (Marine (salt water) applications).
- .2 The contractor shall provide certification that the specified treatment retention has been achieved.
- .3 Preservative treatment of timber shall be undertaken in compliance with the latest revision of the 'Best Management Practices (BMP's) for the Use of Treated Wood in Aquatic Environments', as published by The Canadian Institute of Treated Wood and the Western Wood Preservers Institute. The Contractor shall provide assurance to the Engineer that preservative treatment has been undertaken in accordance with these BMP's.

#### **.2 Creosote-treated Materials:**

- .1 All joists, stringers, lower stringer splice blocks, crossties, well blocking, flanges, flange splice blocks (upper and lower) shall be creosote treated, unless specified otherwise.
- .2 All creosote treated materials will have a minimum retention of 225kg per cubic meter (14lb. per cubic foot).

#### **.3 Salt-treated Materials:**

- .1 All decking, rub board, guards, bull rails, risers and upper stringer splice blocks shall be ACZA treated, unless specified otherwise.
- .2 All timber specified to be treated with water-home salts will be treated in accordance with CSA-080-M, "Wood Preservation", and its applicable subsections and amendments, for materials in contact with ground or water. Only non-leachable ACA salts will be accepted.
- .3 All salt-treated timber will have a minimum retention of 6.4 kg/m<sup>3</sup> (0.40 lb. per cubic foot) and a depth of penetration of 10mm as specified in CSA 080.14.

### **3 EXECUTION**

#### **.1 Field Treating**

- .1 All field cut creosote members shall also be protected by covering the ends with caps consisting of 12mm (1/2") of Roof Patch mastic and two thicknesses of tar-saturated fabric and a cap consisting of .050 inch thick copper sheeting. The cap shall extend 100mm from the end of the timber. Attach with minimum ten copper nails (copper deters marine borers). All field drilled holes in creosote timbers shall be protected by installing a bolt fully covered in Roof Patch mastic.

- .2 All salt treated members that are modified (cut or drilled) shall be field treated with two coats of Copper Naphthenate or pentachlorophenol. When field treating by brushing, spraying, dipping or soaking, do so in such a manner that the preservative does not drip into the water or onto the ground.
- .3 Ensure field preservatives are properly stored and protected in case of spillage. (ie: place in tray).

## **.2 Handling of Materials**

- .1 Treated material will not be accepted if damaged in any manner in handling. This includes damage from strapping and slings.
- .2 The Contractor shall be responsible to repair or replace all materials damaged by his handling, storage and installation of materials.

## **.3 Pile Cap and Shim Replacement**

- .1 Contractor shall submit a proposed construction method to the Engineer prior to construction.
- .2 After the old cap is removed, allow the Owner or Engineer to inspect the condition of the pile heads and wait for approval before installing the new cap.
- .3 For each pile under the cap being replaced, dry the top of the pile, apply two coats of Roof Patch mastic and install a sheet of 0.8mm annealed aluminum sheeting. Cut the sheeting 150mm larger than pile top, with edges turned down and secure to the pile with eight roofing nails.
- .4 Creosote treated blocking and shims shall be supplied by the Contractor.
- .5 Install 19mm x 610mm (3/4" x 24") galvanized drift pins at every pile and stringer contact, through the center of each timber.

## **.4 Decking**

- .1 Decking shall be supplied and installed in continuous lengths. Intermediate joints will not be permitted.

## **.5 Existing Structures**

- .1 Any structures damaged by the Contractor during the works shall be repaired and made good at the Contractor's expense to the satisfaction of the Engineer.

## **.6 Services**

- .1 All services that must be removed from existing structures in order to perform work must be removed so as not to damage them.
- .2 All service materials, misc. hangers, fasteners and supplies required to reinstall services shall be supplied by the Contractor.
- .3 All materials that are not reusable shall be disposed of by the Contractor.

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- .4 The Contractor shall be responsible for the handling and storage of the service lines, lamp standards and other equipment during construction. All materials damaged by the Contractor shall be replaced at the Contractor's expense.

**.7 Painting**

- .1 Timber specified to be painted will receive one brushed undercoat. After 48 hours, two brushed finish coats of 2-part urethane paint will be applied with a minimum of 48 hours between finish coats. Paint will be applied to clean, dry surfaces only.
- .2 Provide paint specifications to Owner to be approved before construction.
- .3 Paint colours will match the following:
- .1 "Signal Red"
  - .2 "Safety Yellow"

**END OF SECTION**

## 1 GENERAL

This section refers to Environmental Procedures required as part of this Contract.

### .1 References

#### .1 Definitions:

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

### .2 In Water Works

- .1 Construction equipment to be operated on land or from floating barge equipment.
- .2 Waterways to be kept free of excavated fill, waste material and debris.

### .3 Notification

- .1 Engineer will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, Engineer of proposed corrective action and take such action for approval by Engineer.
  - .1 Take action only after receipt of written approval by Engineer.
- .3 Engineer will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

## 2 PRODUCTS

- .1 Not Used

## 3 EXECUTION

### .1 Cleaning

- .1 Leave work area clean at end of each day.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials.
- .3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment to the approval of the Owner.

**END OF SECTION**

## 1 GENERAL

.1 This section provides specifications for timber piles and pile driving required as part of this Contract.

.2 Reference Standards

Unless specified otherwise use most current edition of the following standards:

CSA B111 Wire Nails, Spikes and Staples

CAN/CSA-G164-M Hot Dip Galvanizing of Irregularly shaped articles

CAN/CSA-056-M Round Wood Piles

CAN/CSA-080 Wood Preservation

ASTM A 123-89a Specification for Zinc (Hot dipped galvanized) Coatings on Iron and Steel products.

ASTM A307 Specification of Carbon Steel Bolts and Studs

## 2 PRODUCTS

.1 Materials

.1 Round wood piles to CAN3-056, with minimum butt size of 305mm, and tip diameter related to length as indicated in table A-1.

.2 The contractor shall supply sufficient pile lengths to achieve the penetration and cut-off elevation requirements provided on drawing 85-S3\_2. South Harbour bearing piles under wharf 401 shall be driven to 6m of penetration (or refusal).

.3 Butt diameter for 305mm piles shall be to within: +/- 20 mm

.4 Type of peeling: clean peeled.

.5 Pile species: Coast Douglas Fir.

.6 Preservative Treatment: to CAN/CSA -080 full cell creosote treatment to a minimum net retention of 225 kg/cu meter (14 lb/ft3).

.7 The engineer will be the sole judge as to quality and dimension of piles. Rejected piles shall be removed from the work site.

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### 3 EXECUTION

- .1 Operation
  - .1 Conform to the “Best Management Practices for Pile Driving and Related Activities,” dated: March 2003. Including, but not limited to, the following practices:
  - .2 All equipment will be maintained in good proper running order to prevent leaking or spilling of potentially hazardous or toxic products.
  - .3 Pile cut-offs, waste or any miscellaneous unused materials will be recovered for disposal.
  - .4 Contractors will have emergency spill equipment available whenever working near or on the water.
  - .5 Contractors, where possible, will position their water borne equipment in a manner that will minimize damage to identified fish habitat (i.e. eelgrass).
- .2 Equipment
  - .1 Prior to commencement of pile installation operation, submit to owner for review details of equipment for installation of piles.
  - .2 Impact hammers: give manufacturer’s name, type, rated energy per blow at normal working rate. Mass of striking parts of hammer mass of driving cap and type and elastic properties of hammer and pile cushions.
  - .3 Hammer- Hammer size and energy is to be determined by the contractor. Hammer is to be capable of being adjusted to deliver reduced impact, or appropriate to obtain required resistance without damaging pile during installation.
  - .4 Leads- Construct pile driver leads to provide free movement of hammer. Hold leads in position at top and bottom, with guys stiff braces, or other means as reviewed by owner to ensure support to pile while being driven.
  - .5 Followers- Provide followers of such size, shape, length and mass to permit driving in desired location to required depth and resistance. Provide followers with socket or hood carefully fitted to top of pile to minimize loss of energy and prevent damage to pile.
- .3 Field Measurements
  - .1 Maintain accurate records of driving for each pile, including:
  - .2 Type of make of hammer, stroke or related energy.
  - .3 Other driving equipment including cap and cushion.
  - .4 Pile size and length, location of pile in pile group, designation of pile group.

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- .5 Number of blows per 300mm for the entire length of pile and number of blows per 25mm for last 100mm, or appropriate blow counts at the end of driving when refusal is reached at a rock surface.
  - .6 Final tip and cut off elevation.
  - .7 Record elevation taken on adjacent piles before and after driving of each pile.
  - .8 Other pertinent information such as interruption of continuous driving, pile damage, etc.
- .4 Installation of Piles
- .1 Piles shall be installed in accordance with **Best Management Practice for Pile Driving and Related Operations – BC Marine and Pile Driving Contractors Association – November; 2003**.
  - .2 All piles shall be driven and secured in accordance to drawing 85-S3\_2, 85-S3\_3, 85-S3\_4 and 85-S3\_5. As shown, Wharf Head bearing piles shall be driven 7.5m below seabed, Wharf Head fender piles driven 3m below seabed and Wharf Approach bearing piles shall be driven 6m below seabed. Note that Wharf Approach bearing piles within the first 3 bents can be driven to 5m below seabed. All piles may be installed to final tip elevation with a **standard air, diesel, hydraulic, drop or vibratory hammer**. Ground conditions may not allow the contractor to install the piles to final pile tip elevation with a vibratory hammer and the contractor shall be prepared to drive the piles with a standard air, diesel, hydraulic or drop hammer.
  - .3 All pile driving equipment shall be in good mechanical condition and shall be capable of delivering the manufacturer's rated energy output and shall be operated in accordance with the manufacturer's instructions.
  - .4 Pile driver leads shall be constructed in a manner which affords freedom of movement of the hammer and they shall be held in position by guys, stiff braces or by attaching to cranes or derricks so as to ensure proper support for the pile during driving. Hammer blows at all times shall be in direct line with the axis of the pile.
  - .5 Piles shall be driven without excessive deformation of the head of the pile. The head of the pile shall be cut square and a driving cap shall be provided to hold the axis of the pile in line with the axis of the hammer.
  - .6 The driving cap shall fit continuously over the top of the pile and shall project about 150 mm down over/into the pile and shall be such that the pile is held properly in line with the leads. A cushion of hardwood, fibre, plywood or other suitable material shall be placed between the driving cap and the hammer. The cushion shall be replaced if so directed by the Engineer.
- .5 Preparation and Handling
- .1 Select piles in each bent of a pile trestle for uniformity of size and straightness to facilitate placing of timber cross braces.

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- .2 Protect pile heads during driving and closely fit driving heads to top of pile. Where necessary protect pile heads by means of heavy steel straps or wrought iron rings.
  - .3 Equip piles with metal shoes or other tip protection of approved design. Submit details of proposed method of tip protection to Engineer for approval.
  - .4 Protect treated piles to avoid breaking through the treated surface. Cant hooks and rafting dogs may be used only in the end of piles. No spikes shall be driven into the piles below high-water level. All cuts or breaks in the surfaces of creosote treated piles shall be treated with two separate coats of Roof Patch mastic. All field drilled holes in creosote timbers shall be protected by installing a bolt fully covered in Roof Patch mastic
  - .5 Where timber piles have to be cut for plate washers, the cut surface shall be treated with mastic before washers are placed.
  - .6 Driving Tolerances
    - .1 Piles shall be driven in the positions directed by the Engineer.
    - .2 Piles not to be more than 2% of length out of alignment, unless specified by the Engineer.
    - .3 The Engineer may reject piles driven out of alignment or damaged in any way after inspection. The cost of remedial measures decided by the Engineer shall be borne by the Contractor.
  - .7 Pile Completion
    - .1 Apply two coats of Roof Patch mastic to top of dry pile.
    - .2 Install a sheet of 0.8mm annealed aluminum sheeting, on all new piles, cut 150mm larger than pile top, with edges turned down and secure to the pile with eight roofing nails.
    - .3 Treat all end cut offs and field drilled holes with Roof Patch mastic.
    - .4 Do not damage surfaces of treated piles below cut off elevation by boring holes of driving nails or spikes into them to support temporary material or staging.
    - .5 Support staging in rope slings carried over tops of piles or by pile clamps of approved design.
    - .6 Treat cuts, breaks or abrasions on surface of treated piles, bolt holes and field cuts in accordance with CAN/CSA-080.
  - .8 Pile Fasteners
    - .1 Hardware shall comply with Section 00 51 00.

**END OF SECTION**

## **1 GENERAL**

This section provides metal fabrication specifications required as part of this Contract.

## **2 WORKMANSHIP**

- .1 All fabrication and erection of structural steel shall comply with CSA Standard CAN3-S16.1, latest revision.

## **3 MATERIALS**

- .1 Hollow structural steel sections shall conform to CSA Standard G40.20/G40.21-M, Class "C", Grade 350W.
- .2 All other rolled sections and miscellaneous plate shall be grade 300W, unless noted otherwise on the drawings, in conformance with CSA Standard G40.20/G40.21-M.
- .3 All structural steel members shall be made of the size and weight shown on the drawings unless written approval for any change is first obtained from the Engineer.
- .4 Items manufactured or fabricated from scrap steel of unknown chemical or physical properties are not acceptable.
- .5 All fabrication steel such as straps and brackets shall be galvanized in accordance to CSA G164-M.
- .6 Hardware shall comply with Section 00 51 00.

## **4 WELDING**

- .1 Welding practice and qualifications of welders and erectors of welded construction shall conform to the requirements of CSA Standards W47, W48, and W59 latest editions. The metallurgy of weld metal shall be similar to the parent material.
- .2 Unless noted otherwise, all welds shall develop the full strength of the connected members, and shall be continuous seal welds with a minimum 6mm leg length.
- .3 Where on the drawings it is called for double sided welding; the welding details called for on the near side shall be duplicated on the far side if not called up otherwise.

## **5 INSPECTION**

- .1 The Contractor shall furnish all facilities for inspecting and testing the weight, dimensions and quality of workmanship at the shop where the material is fabricated.
- .2 The Engineer shall be notified well in advance of the start of work, in order to allow sufficient time for inspection of material and workmanship.

## **6 CORROSION PROTECTION**

- .1 Steel piles shall be protected by sacrificial anodes. Steel pipe piles shall not be painted.

**END OF SECTION**

## 1 GENERAL

This section provides Health and Safety Requirements, required as part of this Contract.

## 2 REFERENCES

Unless specified otherwise, Health and Safety Requirements shall conform to the current edition of the following standards:

- .1 Government of Canada  
Canada Labour Code, Part II  
Canada Occupational Health and Safety Regulations.
- .2 National Building Code of Canada (NBC):  
Part 8, Safety Measures at Construction and Demolition Sites.
- .3 Canadian Standards Association (CSA):  
CSA S269, Falsework for Construction Purposes.  
CSA S269.2, Access Scaffolding for Construction Purposes.  
CSA-S350, Code of Practice for Safety in Demolition of Structures.
- .4 Fire Protection Engineering Services, HRSDC:  
FCC No. 301, Standard for Construction Operations.  
FCC No. 302, Standard for Welding and Cutting.  
HRSDC website:  
[http://www.hrsdc.gc.ca/eng/labour/fire\\_protection/policies\\_standards/commissioner/index.shtml](http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/index.shtml)
- .5 American National Standards Institute (ANSI):  
ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
- .6 Province of British Columbia:  
Workers Compensation Act. Part 3 Occupational Health and Safety.  
Occupational Health and Safety Regulation
- .7 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

## 3 GENERAL CONDITIONS

- .1 Provide safety barricades around work site as required to provide a safe working environment for workers and protection for pedestrian traffic.
- .2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.
- .3 Provide appropriate means by use of barricades, fences, and warning signs as required.
- .4 Secure site at night time as deemed necessary to protect site against entry.
- .5 Mark floating equipment with lights in accordance with International Rules of Road and maintain radio watch on board.
- .6 Place and maintain buoys, markers and lights required to define work and disposal areas.

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**4 RESPONSIBILITY**

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

**5 GENERAL REQUIREMENTS**

- .1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.
- .2 In event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.
- .3 Mark floating equipment with lights in accordance with requirements and directives of Queen's Harbour Master.
- .4 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .5 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns

**6 COMPLIANCE REQUIREMENTS**

- .1 Comply with Workers Compensation Act, B.C.
- .2 Comply with Occupational Health and Safety Regulations.
- .3 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .4 Small Craft Harbours may terminate the Contract without liability to Small Craft Harbours where the Contractor, in the opinion of Small Craft Harbours, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
- .5 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

**7 WORKER'S COMPENSATION BOARD COVERAGE**

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

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**8 SUBMITTALS**

- .1 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1 Results of site specific safety hazard assessment.
  - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
  - .3 Risk Management and Safety Procedure for possible events including but not limited to storm, fire, and fall.
- .2 Submit one copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS - Material Safety Data Sheets if requested.
- .6 Departmental Representative may review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 5 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
- .7 Departmental Representative review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

**9 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

**10 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

**11 MEETINGS**

- .1 Schedule and administer Health and Safety meeting prior to commencement of Work.

**12 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:

- .2 Harbour Manager.
- .3 Departmental Representative.

### **13 UNFORSEEN HAZARDS**

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

### **14 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have site-related working experience specific to activities associated with the repairs.
  - .2 Have working knowledge of occupational safety and health regulations.
  - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
  - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
  - .5 Be on site during execution of Work.

### **15 POSTING OF DOCUMENTS**

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

### **16 CORRECTION OF NON-COMPLIANCE**

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

### **17 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

**END OF SECTION**