



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canada

## **Small Craft Harbours Branch**

# **PORT HARDY, BC PORT HARDY FLOAT RECONSTRUCTION**

**AUGUST 2018**

FISHERIES AND OCEANS CANADA  
SMALL CRAFT HARBOURS – PACIFIC REGION

200 – 401 Burrard Street  
Vancouver, British Columbia  
V6C 3S4

## Section 00 01 10 - Table of Contents

<b>Section Number</b>	<b>Title</b>
01 00 00	SUMMARY OF WORK
01 01 00	GENERAL REQUIREMENTS
00 20 60	STRUCTURE DEMOLITION
00 51 00	STEEL HARDWARE
00 99 00	TIMBER REPAIRS
01 33 00	SUBMITTAL PROCEDURES
01 35 29.06	HEALTH AND SAFETY REQUIREMENTS
01 35 43	ENVIRONMENTAL PROCEDURES
31 62 19	TIMBER PILES

<b>Drawing Number</b>	<b>Title</b>
000	DRAWING LIST
001	SITE PLAN
002	FLOAT 801-804, 806, 808, 810, 813 - PLAN, SECTION, AND DETAILS
003	FLOAT 805, 807, 811, 812, 815 - PLAN, SECTION, AND DETAILS
004	FLOAT REPAIR LOCATION PLAN
005	PILE WELL REPAIR DETAIL AND 4-PILE COMPACT DOLPHIN DETAIL

## **Section 01 00 00 – SUMMARY OF WORK**

### **Part 1 General**

#### **1.1 RELATED REQUIREMENTS**

- .1 General Conditions and related contract documents form an integral part of this section.

#### **1.2 DEFINITIONS**

- .1 Throughout contract documents, the words “Site,” “Owner,” “Contracting Authority,” “Harbour Authority,” “Contractor,” “Engineer,” or “Department,” shall be defined as follows:

- .1 Site  
“Site” referred to herein is Port Hardy Fishing Harbour, 180 6600 Hardy Bay Rd, Port Hardy, BC V0N 2P0
- .2 Contracting Authority  
“Contracting Authority” referred to herein is Public Works and Government Services Canada (PWGSC).
- .3 Owner  
“Owner” referred to herein is the Department of Fisheries and Oceans Canada – Small Craft Harbours, Suite 200-401 Burrard Street, Vancouver, BC V6C 3S4.
- .4 Engineer/Departmental Representative  
“Engineer/Departmental Representative” referred to herein is commonly an employee of the Owner assigned by the Owner as the Engineer and Technical Authority for the project. The Engineer may be a sub-contract Engineer for technical and inspection purposes and the Technical Authority must still be an employee of the Owner.
- .5 Contractor  
“Contractor” referred to herein is the party accepted by the Owner, with whom a formal contract is signed, to complete the work of this project.
- .6 Department  
The Department of Fisheries and Oceans, Canada.

#### **1.3 LOCATION**

- .1 Port Hardy Fishing Harbour is located north of Vancouver Island.
- .2 Project Site address is referenced in Section 1.2.1.1.

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- .1 The work under this contract shall include the supply of equipment, labour and materials for the performance of all work as required by the Contract Documents. 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.
- .2 The work generally consists of, but is not limited to the following items:
  - .1 Mobilization/Demobilization
  - .2 Installation of Owner Supplied Timber Bull Rails, Rubboards & Risers
  - .3 Installation of Owner Supplied Timber Decking
  - .4 Installation of Owner Supplied Timber Flanges
  - .5 Installation of Owner Supplied Flange Splices
  - .6 Installation of Owner Supplied Stringer Splices
  - .7 Installation of Owner Supplied Timber Piles
  - .8 Installation of Owner Supplied Timber Pile Blocking
  - .9 Installation of Owner Supplied Float Ladders
  - .10 Installation of Owner Supplied Fiberglass Pontoons
  - .11 Installation of Owner Supplied AquaCans
  - .12 Supply and Installation of UHMW Rub Strips
  - .13 Carpentry
- .3 Site work shall be completed by March 31, 2019.
- .4 Notwithstanding the scope of work stated within the drawings and all sections of this contract, the contractor is not exempt from and is fully responsible for details omitted or forgotten that contribute to the safe preparation, execution and completion of the Work to a fully functioning, safe, and permanently operational marina floats.
- .5 The following materials shall be supplied by the Owner to the Site.
  - .1 2.4m long 5.1cm x30.5cm S1S2E ACZA treated timber decking, QTY: 342

- .2 2.4m long 5.1cm x30.5cm S1S2E ACZA treated timber rubboards, QTY: 528
- .3 6.1m long 10.2cm x15.2cm S4S ACZA treated timber beams, QTY: 340
- .4 1m long 15.2cm x15.2cm creosote timber splices, QTY: 100
- .5 9.1m long 15.2cm x20.3cm creosote timber flanges, QTY: 6
- .5 18.3m long 35.6cm dia. creosote treated timber piles, QTY: 32
- .6 5-rung float ladders and installation kits, QTY: 27
- .7 Hardware:
  - .1 SS 316 Grade #14x 10.2cm Long Pan Head Screw and Washer
  - .2 19mm diameter galvanized hex bolt, washers and nuts
  - .3 100mm long Ardox nails
- .8 [Dock Float Model #2346 \(AquaCan\)](#), QTY: 9
- .9 1.2m x 2m fiberglass pontoon, QTY: 15
- .10 Copper caps for flange field treating, QTY: 7

## 1.5 SCHEDULE OF QUANTITIES AND PRICES

- .1 The work generally consists of, but is not limited to the following items as outlined in Section 00 10 00 SCHEDULE OF QUANTITIES AND PRICES:

### .1 Mobilization/Demobilization

The lump sum cost for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Moving all required crew, equipment and work materials to the Project Site with the exception of the following materials:
  - .1 Owner Supplied materials identified in Section 1.4.5.
- .2 Receive and assume responsibility for all Owner Supplied materials identified in 1.4.5.
- .3 Contractor is responsible for confirming that all Owner supplied materials have been received.
- .4 Site clean-up consisting of the following:
  - .1 Any upland areas used for storage/staging of materials have been reinstated to their original condition that existed prior to mobilization.
  - .2 All work areas clear of debris, false work and other work materials.
- .5 Any overhead costs not identified in other items.

### .2 Installation of Owner Supplied Timber Bull Rails, Rubboards & Risers

The cost per linear foot for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Bull rails, risers: Remove, dispose and replace bull rails and risers with owner supplied timber as described in Section 1.4.5.
  - .1 Bull rails and risers to be removed, disposed and replaced on all of Floats 801-803 and 808-814, and as shown on the drawings.
  - .2 All bull rails and risers to be installed with nominal 19mm dia. galvanized hex bolts equipped with galvanized washer and nut.
  - .3 Bull rails and risers must be cut and drilled to match exiting length and bolt pattern of the removed bull rails/risers.
  - .4 Cut ends and bolt holes must be field treated as per Section 00 99 00 Timber Repairs.
- .2 Rubboards: Remove, dispose and replace rubboards with owner supplied rubboards as described in Section 1.4.5.
  - .1 Rubboards to be removed, disposed and replaced on all of Floats 801-803 and 808-814, and as shown on the drawings.
  - .2 All rubboards to be installed with 100mm long galvanized Ardox nails, two per contact. Rubboards must be pre-drilled in order to prevent splitting.
  - .3 Rubboard must be cut on-site to better suit site conditions and field treat ends in accordance to Section 00 99 00 Timber Repairs.

.3 Installation of Owner Supplied Timber Decking

The cost per linear foot for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Decking to be removed, disposed and replaced on floats as directed by the Engineer.
  - .1 All installed deck planks must have a maximum gap of 3mm.

- .2 All deck planks to be installed with 100mm long galvanized Ardox nails, two per contact. All planks must be pre-drilled in order to prevent splitting.
- .3 Decking to be installed in continuous lengths. Intermediate joints will not be permitted.
- .4 Planks must be cut on-site to better suit site conditions with field-treated ends in accordance to Section 00 99 00 Timber Repairs.
- .5 Removed decking and hardware to become property of the contractor.

.4 Installation of Owner Supplied Timber Flanges

The cost per unit for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Remove, dispose and replace indicated flanges, splice blocks and hardware with owner supplied flanges, splices blocks and hardware as described in Section 1.4.5.
  - .1 Flanges to be removed, disposed and replaced on the locations indicated by the drawings.
  - .2 Flanges must be cut, field-treated and drilled to match exiting length and bolt pattern of the removed flanges.
  - .2 Includes replacement of all splice blocks and hardware as indicated by the drawings.

.5 Installation of Owner Supplied Flange Splices

The cost per unit for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Remove, dispose and replace one flange splice on Float 803, with owner supplied flange splices, including replacement of upper and lower splice blocks and all hardware as indicated on the drawings.

.6 Installation of Owner Supplied Stringer Splices

The cost per unit for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Remove, dispose and replace one stringer splice on Float 803, with owner supplied stringer splices and including replacement of upper and lower splice block and all hardware as indicated in the drawings.

.7 Installation of Owner Supplied Timber Piles

The cost per unit for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Remove and dispose timber piles as indicated on the drawings.
  - .1 Disposal of timber piles must conform to Section 31 62 19 Timber Piles.
  - .2 Existing timber piles must be completely removed prior to installation of new piles.
- .2 Installation of 18m long creosote treated timber piles as indicated on the drawings.
  - .1 Installation of timber piles shall be performed while pile hardware, spreader caps and cable wrap are removed.
  - .2 Timber piles must be driven to refusal or a minimum of 6 meters of penetration with cut-off elevation to match existing elevation.
  - .3 Includes removal and reinstallation of wire wrap and timber blocking as required.
  - .4 Contractor must follow [Best Management Practices for Pile Driving and Related Operations BC Marine and Pile Driving Contractors Association, March 2003](#)

.8 Installation of Owner Supplied Timber Pile Blocking

The cost per unit for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Remove, dispose and replace timber pile blocking timber as shown on the drawings.

.9 Installation of Owner Supplied Float Ladders

The unit rate cost per ladder for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:



- .1 Install owner-supplied float ladders using owner-supplied installation kits as indicated on the drawings.

.10 Installation of Owner Supplied Fiberglass pontoons

The unit rate cost per pontoon for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Install 1.1mx 2.4m fiberglass pontoons in float sections with low freeboard as per Drawings and/or as directed by Engineer.
- .2 Supply and install 4" wide nylon webbing and 316 stainless hardware.
- .3 Remove and dispose all existing pontoons as indicated in the drawings.

.11 Installation of Owner Supplied AquaCans

The unit rate cost per AquaCan for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Install owner supplied AquaCan as indicated in the drawings.

.11 Supply and Installation of UHMW Rub Strips

The unit cost per linear foot for this item shall include the supply of materials, equipment, tools, services, labour and all things necessary to complete the following:

- .1 Supply and install UHMW mooring well liners complete with hardware as shown on drawings.
- .2 UHMW rub strips must be custom fit to suit the size of each mooring well.
- .3 Supplied hardware shall conform to Section 00 51 00 Hardware.

.12 10-Man-Day for Carpentry Ground Crew

The rate per man-day for a minimum 2-person carpentry ground crew includes the following:

- .1 All personal hand tools, equipment and gear required to execute general float construction repairs, including but not limited to stringer, flange, joist, bull rail and decking repairs.
- .2 All live out expenses for crew.
- .3 Crew must be self-supervising in daily activities.

## **1.6 WORK SEQUENCE AND OWNER OCCUPANCY**

- .1 Contractor to provide a detailed cost breakdown within 14 calendar days of award with reference to work items listed in Section 1.5.1.
- .2 Contractor to include allowance for an on-site pre-construction meeting
- .3 Contractor to provide a construction schedule within 7 calendar days of award, including a date for an on-site pre-construction meeting.
- .4 Deviations in work sequence identified in construction schedule must be notified to owner 3 work-days prior.
- .5 Shutdowns shall require the authorization of the Owner and shall be scheduled 5 working days in advance with the Owner. The Owner reserves the right to re-schedule shutdowns at any time due to their operations.

## **1.7 CONTRACTOR USE OF PREMISES**

- .1 Owner will occupy the site for the duration of the contract
- .2 Co-ordinate use of premises under direction of Owner.
- .3 Owner will ensure that 50 linear meters of floats will be clear of vessels for each phase of work.
- .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Engineer.
- .6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

## **1.8 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy of each document as follows:
  - .1 Contract Drawings, Specifications and any Addenda.
  - .2 Reviewed Shop Drawings
  - .3 Change Orders and other modifications to Contract.
  - .4 Copy of Approved Work Schedule.
  - .5 Field Test Reports.
  - .6 Health and Safety Plan and other safety related documents.
  - .7 All regulatory permits required for the work.
  - .8 Associated Best Management Practices documentation.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 CONSTRUCTION TIME, SEQUENCE AND PERFORMANCE**

- .1 During Work maintain fire extinguisher and fire hose bib connections access/control. Notify the Owner of all Work that impacts the access or operation of the existing fire system.

**3.2 WORK BY OTHERS**

- .1 Cooperate and coordinate Work with that of other Contractors on-site. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Owner and Engineer in writing, any defects which may interfere with proper execution of Work.
- .2 Work of Project executed prior to start of, or during the Work of this Contract, and which is specifically excluded from this Contract.

**.6 EXISTING SERVICES**

- .1 Notify Owner, Engineer and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, provide 5 working-days-notice to Owner and Engineer for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to Owner operations.
- .3 Where Work impacts existing entrance and egress routes, provide alternative routes for personnel, pedestrian and vehicular traffic.
- .4 Establish location and extent of service lines in area of work before starting Work. Notify Owner and Engineer of findings.
- .5 Submit schedule to and obtain approval from Owner and Engineer for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

- .6 Provide temporary services as directed by Owner and Engineer to maintain critical building and marina systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic. Provide safety barricades as necessary to prevent public from access to areas under construction.
- .8 Where unknown services are encountered, immediately advise client and engineer and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by the AHJ.

**END OF SECTION**

## **Section 01 01 00 – GENERAL REQUIREMENTS**

### **Part 1 General**

#### **1.1 RELATED REQUIREMENTS**

- .1 General Conditions and related contract documents form an integral part of this section.

#### **1.2 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).

#### **1.3 PERMITS, CERTIFICATED, 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.

#### **1.4 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.

#### **1.5 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 Engineer. 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.

## **1.6 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 Perform work in accordance with:
  - .1 Canada Labour Code, Canada Occupational Safety and Health Regulations.
  - .2 Fire Commissioner of Canada (FCC):
    - .1 FCC No. 301-1982, Standard for Construction Operations.
    - .2 FCC No. 302-1982, Standard for Welding and Cutting.
  - .3 National Research Council (NRC):
    - .1 National Building Code of Canada (NBC) 2015.
  - .4 Province of British Columbia:
    - .1 Workers Compensation Act (Occupational Health and Safety), Amendment Act, B.C. Reg. 185/99, herein referred to as the Workers Compensation Act (WCA).
  - .5 CSA C22.1-15 Canadian Electrical Code.
- .3 If there is a conflict between codes or standards the more stringent requirement shall apply.
- .4 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.

## **1.7 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.

## **1.8 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.

#### **1.9 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.

#### **1.10 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 workers, plant and equipment working and work performed.

#### **1.11 ENGINEER'S ACCESS**

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

#### **1.12 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.

#### **1.13 PROTECTION OF EXISTING STRUCTURES**

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

#### **1.14 EXISTING SERVICES**

- .1 Notify Owner, Engineer and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, provide 5 working days' notice to Owner and Engineer for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to Owner operations.
- .3 Where Work impacts existing entrance and egress routes, provide alternative routes for personnel, pedestrian and vehicular traffic.

- .4 Establish location and extent of service lines in area of work before starting Work. Notify Owner and Engineer of findings.
- .5 Submit schedule to and obtain approval from Owner and Engineer for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .6 Provide temporary services as directed by Owner and Engineer to maintain critical building and marina systems.
- .7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic. Provide safety barricades as necessary to prevent public from access to areas under construction.
- .8 Where unknown services are encountered, immediately advise client and engineer and confirm findings in writing.
- .9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by the AHJ.

#### **1.15 WEATHER**

- .1 No work shall be undertaken by the Contractor when, in the opinion of the Engineer, the weather is unsuitable or unfavourable for a particular class of work.
- .2 The Contractor is expected to be familiar with the site including current and historical weather conditions and is to make allowances as necessary in order to complete the work as specified during the indicated work dates.
- .3 No allowance will be made for delay of work over and above the date of completion specified in the contract agreement on account of weather conditions that could have been reasonably predicted from a historical knowledge of site conditions.

#### **1.16 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.

#### **1.17 LOCATION OF EQUIPMENT AND FIXTURES**

- .1 Locations of equipment, fixtures, and outlet equipment as indicated or specified are to be as shown. If not detailed, locations are approximate.
- .2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with the manufacturer & owner's recommendations for safety, access and maintenance.
- .3 Inform Engineer and owner of impending installation and obtain approval for actual location.
- .4 Submit field drawings to indicate position of various services and equipment when required by Engineer.



### **1.18 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.

### **1.19 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 Delivery and storage:
  - .1 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact.
  - .2 Prevent damage, adulteration, and soiling of material and equipment during delivery, handling and storage. Immediately remove rejected material and equipment from site.
  - .3 Store material and equipment in accordance with suppliers' instructions.
  - .4 Touch-up damaged factory finished surfaces to Engineer's satisfaction. Use primer or enamel to match original. Do not paint over nameplates.

### **1.20 MATERIALS AND EQUIPMENT SUPPLIED BY THE CONTRACTOR**

- .1 The Contractor shall supply all labor, hand tools, power tools, generators, equipment and all other materials required to complete this Contract.
- .2 Use new material and equipment unless otherwise specified.
- .3 Within 7 days of Engineer's written request, submit the following information for any or all 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.

- .4 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.
- .5 Use products of one manufacturer for equipment or material of same type or classification unless otherwise specified.

#### **1.21 CONSTRUCTION WORK SCHEDULE**

- .1 The Contractor shall work whatever shifts required in order to ensure the work meets regulatory windows and is completed as outlined in the agreed work plan.
- .2 The Contractor shall normally perform all work within the hours of daylight 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 is to supply a week by week schedule of proposed activities related to the contract at the request of the Engineer.
- .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.

#### **1.22 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.

#### **1.23 AS-BUILT DRAWINGS**

- .1 As work progresses, maintain accurate records to show all deviations from the Contract Drawings. Note on as-built drawings as changes occur, and, at completion, supply one (1) set of all drawings and specifications with all deviations clearly marked.

#### **1.24 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.

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

- .1 The Contractor will give the Owner and Harbour Authority a minimum 72-hours-notice for work that may interrupt pedestrian access to the harbour.
- .2 The site shall be left in a safe condition at the completion of each work day.

### **1.26 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.

### **1.25 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.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not used.

## **Part 3 Execution**

### **3.1 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.

### **3.2 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.

### **3.4 NIGHT WORK**

- .1 The Contractor shall keep proper lights each night between the hours of sunset and sunrise upon all floating plant and false-work, upon all ranges and other stakes 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.

### **3.5 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.

### **3.6 CONCEALMENT**

- .1 Conceal pipes, ducts, cables, and wiring in construction of finished areas and floats except where indicated otherwise.

### **3.7 CUTTING, FITTING AND PATCHING**

- .1 Execute cutting (including excavation), fitting, and patching required to make work fit properly together.
- .2 Where new work connects with existing and where existing work is altered, cut, patch, and make good to match existing work.
- .3 Obtain Engineer's approval before cutting.
- .4 Make cuts with clean, true, smooth edges. Make patches inconspicuous in final assembly.
- .5 Where work requires the removal and replacement of timbers, including decking, do not cut timbers. Remove fasteners separately and remove and replace timbers as existing.

### **3.8 EXISTING CONNECTING SERVICES**

- .1 Where work involve breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to pedestrian and vehicular traffic.
- .2 Before starting work, establish location and extent of service lines in areas of work and notify Engineer of findings.

- .3 Submit schedule to and obtain approval from Engineer for any shutdown or closure of active service or facility. Adhere to the approved schedule and provide notice to affected parties.
- .4 Where unknown services are encountered, immediately advise Engineer and confirm findings in writing.
- .5 Remove abandoned service lines. Cap or otherwise seal lines at cut off points as directed by Engineer.
- .6 Record locations of maintained, re-routed and abandoned service lines.

### **3.9 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.

### **3.10 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.

### **3.11 DISPOSAL**

- .1 All demolition to be performed as per Section 00 20 60 – Demolition of Structures.
- .2 All materials 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.
- .3 All replaced items, cut-offs and waste materials 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.

### **3.12 SITEWORK**

- .1 All work shall be completed as per direction of Engineer or Owner.
- .2 All heavy construction equipment shall be free of leaks and cleaned prior to construction.
- .3 The Contractor shall have absorbent pads on site in case of any oil leaks or contaminants entering the water.
- .4 All operations to be conducted in accordance with Best Management Practices.

**END OF SECTION**

## **Section 00 20 60 – STRUCTURAL DEMOLITION**

### **PART 1 GENERAL**

#### **1.1 SCOPE OF WORK**

- .1 This section refers to all demolition and removal of existing structural timbers and hardware including timber piling, rubstrips and any other items identified for removal in the course of completing float reconstruction work.

### **PART 2 PRODUCTS**

#### **2.1 EQUIPMENT**

- .1 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.

### **PART 3 EXECUTION**

#### **3.1 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 site. Material shall not be left in the Port Hardy Community.
- .2 If not specifically identified, the Engineer shall decide as to which material shall be salvaged and which materials shall be disposed of.
- .3 Timber Piles must be fully extracted.

#### **3.2 SALVAGED MATERIAL**

- .1 Materials 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.

#### **3.3 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.

### **3.4 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.

### **3.5 CLEANING AND RESTORATION**

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

**END OF SECTION**

## Section 00 51 00 – STEEL HARDWARE

### PART 1 GENERAL

#### 1.1 RELATED REQUIREMENTS

- .1 Section 00 99 00 – TIMBER REPAIRS
- .2 Section 31 62 19 - TIMBER PILES

### PART 2 PRODUCTS

#### 2.1 STEEL

- .1 Small fastenings will conform to the standard for Wire Nails, Spikes, and Staples, Canadian Standards Association (CSA) B-111-1974.
- .2 Drift bolts, machine bolts, washers, and miscellaneous iron will conform to the standard for General Purpose Structural Steel of the CAN3-G40.21-M81.
- .3 Items manufactured or fabricated from scrap steel of unknown chemical or physical properties are not acceptable.
- .4 All bolts will be of the full dimension specified or shown on the plan. Unless otherwise specified, all machine bolts will be provided with steel DPW washers under head and nut. The steel DPW washers shall be round unless specified square.
- .5 All bolts shall be 19mm (3/4") National course thread, unless shown otherwise.(NIC)
- .6 Holes for machine bolts will be bored to provide a driving fit.

#### 2.2 HARDWARE

- .1 All hardware supplied by the owner meets the standards below, any **additional hardware required** to complete the work shall be supplied by the contractor and conform to what is outlined in this section.
- .2 All hardware including bolts, drift bolts, carriage bolts, lag bolts, pipe sleeves, nuts and washers etc. will be hot dipped galvanized in accordance with the ASTM A153. Galvanize to 610g/m<sup>2</sup> (2oz/ft<sup>2</sup>).
- .3 All bolts will be of the full dimension specified or shown on the plan.
- .4 Unless otherwise specified, all machine bolts will be provided with round steel plate washers under head and nut.
- .5 All bolts shall be 19mm (3/4") National course thread, unless shown otherwise.
- .6 All 19mm washers shall be 6mm thick and 75mm diameter galvanized steel.
- .7 All 25mm washers shall be a minimum of 8mm thick and 100mm diameter galvanized steel.
- .8 All bolts to have 150mm (6") of thread unless shown otherwise.
- .9 Drift pins shall conform to CSA G40.21-M81 Grade 260W.
- .10 All spikes, nails, and staples to conform to CSA B-111-M.
- .11 All lag screws to conform to CSA B34.



- .12 Cable wrap shall be 4 wraps of 19mm diameter galvanized wire rope.

### **Part 3 EXECUTION**

#### **3.1 ASSEMBLY**

- .1 All bolts shall be tightened to 100 Newton Meters (80 ft/lbs).
- .2 Care shall be taken not to damage the treated wood finish. All treatment damaged by the Contractor shall be repaired at the Contractor's expense as per Section 00 99 00 Timber Repairs.
- .3 Pre-drilling:
  - .1 All ends of timbers not fastened by bolts shall be predrilled prior to installation to prevent splitting.
- .4 Holes for machine bolts will be bored to provide a driving fit.

#### **3.2 SHIPPING AND PACKAGING**

- .1 Bundle includes all hardware material for the bolt replacement as listed in the Summary of Work.
- .2 Any additional hardware required shall be supplied by the contractor.

#### **3.3 DECKING**

- .1 Lay boards heart side down, spaced 6mm to 10mm apart.
- .2 Secure each contact point with 2-100mm galvanized Ardox nails
- .3 Pre-drill deck boards for nails nearest for both board ends.

#### **3.4 RUB BOARD**

- .1 Secure contact point with 3-100mm galvanized Ardox nails.
- .2 Contact points every 500mm maximum.
- .3 Pre-drill rub boards for nails nearest for both board ends. Do not pre-drill into the float timbers (stringer and flanges).

#### **3.5 UHMW LINERS**

- .1 Refer to drawings for hardware arrangement and size. Lag bolts and washers for UHMW liners shall be galvanized.
- .2 Lag bolt heads shall be fully countersunk. Add approx. ¼" of additional depth past flush.
- .3 Pre-drill through UHMW and mooring well timber to avoid splitting.
- .4 Fasteners shall not interfere with piling wear surfaces.

#### **3.6 PONTOONS**

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

**END OF SECTION**

## Section 00 99 00 – TIMBER REPAIRS

### Part 1 GENERAL

#### 1.1 RELATED SECTIONS

- .1 Section 31 62 19 – TIMBER PILES
- .2 Section 00 51 00 – STEEL HARDWARE

#### 1.2 SCOPE OF WORK

- .1 This section refers modification and field treatment of all timbers indicated in the Contract drawings and related specifications.

### Part 2 PRODUCTS

#### 2.1 GENERAL

- .1 Except as otherwise noted, only new materials will be used in, and remain an integral part of the structures.
- .2 The Engineer may inspect materials and products at all stages of manufacture and transportation to the Project 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.
- .3 Acceptance will not be made until the materials or products are satisfactorily installed in the completed structures specified.
- .4 The Contractor shall be responsible to repair all materials damaged through their handling, storage and/or installation.
- .5 Except as otherwise noted, salvaged materials deemed to be reusable by the Owner shall remain property of the Owner.

#### 2.2 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).

**Part 3 EXECUTION**

**3.1 HANDLING OF MATERIALS**

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

**3.2 EXISTING STRUCTURES**

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

**3.3 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.

**3.4 PATCHING AND REPAIRS**

- .1 All unused bolt holes or damaged areas of creosote treatment shall be patched with creosote treated dowels, mastic, ships felt and copper patches as specified.

**3.5 DECKING**

- .1 Install decking smooth face down and attached to stringers with nominal 100 mm galvanized common nails, two per contact. Pre-drill deck plank to prevent splitting. Nail pattern as indicated on contract drawings. Maximum gap between adjacent deck boards at time of installation not to exceed 3 mm.

**3.6 BULL RAILS AND RISERS**

- .1 Attach tie rails and raisers with nominal 19 mm diameter hex bolt equipped with washer and nut. Bolt pattern to match existing.

**3.7 RUB BOARD**

- .1 Secure each contact point with 3-100mm galvanized Ardox nails.
- .2 Pre-drill rub boards for nails to nearest rub board. Do not pre-drill into the float timbers (stringer and flanges).

**END OF SECTION**

## **Section 01 33 00 – SUBMITTAL PROCEEDURES**

### **1.1 GENERAL**

- .1 This Section specifies general requirements and procedures for Contractor's submissions of shop drawings, product data, samples and other requested submittals to Departmental Representative for review. Additional specific requirements for submissions are specified in individual technical sections.
- .2 Present shop drawings, product data and samples in SI Metric units.
- .3 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .4 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submissions.
- .5 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract documents and stating reasons for deviations.
- .6 Contractor's responsibility for deviations in submission from requirements of Contract documents is not relieved by Departmental Representative's review of submission unless Departmental Representative gives written acceptance of specific deviations.
- .7 Make any changes in submissions which Departmental Representative may require consistent with Contract documents and resubmit as directed by Departmental Representative.
- .8 Notify Departmental Representative in writing, when resubmitting, of any revisions other than those requested by Departmental Representative.
- .9 Do not proceed with work until relevant submissions are reviewed and approved by Departmental Representative.

### **1.2 SUBMISSION REQUIREMENTS**

- .1 Co-ordinate each submission with requirements of work and Contract documents. Individual submissions will not be reviewed until all related information is available.
- .2 Allow 10 working days for Departmental Representative's review of each submission, unless noted otherwise.
- .3 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.

- .4 Submissions to include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
    - .4 Contractor's stamp, signed by Contractor's authorized representative, certifying approval of submissions, verification of field measurements and compliance with Contract documents.
- .5 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.
- .6 After Departmental Representative's review, distribute copies.

### **1.3 SHOP DRAWINGS**

- .1 Shop drawings: original drawings or modified standard drawings provided by Contractor to illustrate details of portion of work which are specific to project requirements.
- .2 Maximum sheet size: 850 x 1050 mm.
- .3 Submit 6 prints of shop drawings for each requirement requested in specification sections and/or as requested by Departmental Representative.
- .4 Cross-reference shop drawing information to applicable portions of Contract documents.

### **1.4 SHOP DRAWINGS REVIEW**

- .1 Review of shop drawings by Department Representative is for the sole purpose of ascertaining conformance with the general concept.
- .2 This review will not mean the Department Representative approves detail design inherent in shop drawings, responsibility for which remains with Contractor submitting same.
- .3 This review will not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract documents.

- .4 Without restricting the generality of the foregoing, Contractor is responsible for:
  - .1 Dimensions to be confirmed and correlated at job site.
  - .2 Information that pertains solely to fabrication processes or to techniques of construction and installation.
  - .3 Co-ordination of work of all sub-trades.

**1.5 PRODUCT DATA**

- .1 Product data: manufacturers' catalogue sheets, MSDS sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products or any other specified information.
- .2 Delete information not applicable to project.
- .3 Supplement standard information to provide details applicable to project.
- .4 Cross-reference product data information to applicable portions of Contract documents.
- .5 Submit 6 copies of product data.

**1.6 SAMPLES**

- .1 Samples: examples of materials, equipment, quality, finishes and workmanship.
- .2 Where colour, pattern or texture is a criterion, submit a full range of samples.
- .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

**1.7 PROGRESS SCHEDULE**

- .1 Submit work schedule and cost breakdown as required in Section 00 10 00 - General Requirements.

**END OF SECTION**

## **Section 01 35 29.06 – Health and Safety Requirements**

### **Part 1 General**

#### **1.1 RELATED REQUIREMENTS**

- .1 General Conditions and related contract documents form an integral part of this section.

#### **1.2 REFERENCES**

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
- .1 Material Safety Data Sheets (MSDS).
- .3 Province of British Columbia
- .1 Workers Compensation Act, RSBC 1996 - Updated 2012.

#### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 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 operations.
  - .3 Risk Management and Safety Procedure for possible events including but not limited to storm, fire, and fall.
- .3 Submit 3 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.
- .4 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
- .6 Submit WHMIS MSDS - Material Safety Data Sheets.
- .7 Departmental Representative will 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 5 days after receipt of comments from Departmental Representative.

- .8 Departmental Representative's 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.
- .9 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

#### **1.4 FILING OF NOTICE**

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Contractor shall be responsible and assume the Principal Contractor role for each work zone location and not the entire complex. Contractor shall provide a written acknowledgement of this responsibility with 3 weeks of contract award. Contractor to submit written acknowledgement to CSST along with Ouverture de Chantier Notice.
- .3 Work zone locations include:
  - .1 Deep Bay Small Craft Harbour.
- .4 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

#### **1.5 SAFETY ASSESSMENT**

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

#### **1.6 MEETINGS**

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

#### **1.7 PROJECT/SITE CONDITIONS**

- .1 Work at site will involve contact with:
  - .1 Port Hardy Harbour Authority

#### **1.8 GENERAL REQUIREMENTS**

- .1 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.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

#### **1.9 RESPONSIBILITY**



- .1 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.
- .2 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.

#### **1.10 COMPLIANCE REQUIREMENTS**

- .1 Comply with Workers Compensation Act, B.C. Reg.
- .2 Comply with R.S.Q., c. S-2.1, an Act respecting Health and Safety, and c. S-2.1, r.4 Safety Code for the Construction Industry.
- .3 Comply with Occupational Health and Safety Regulations, 1996.
- .4 Comply with Occupational Health and Safety Act, General Safety Regulations, O.I.C.
- .5 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

#### **1.11 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 the Province having jurisdiction and advise Departmental Representative verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise the Health and Safety co-ordinator and follow procedures in accordance with Acts and Regulations of the Province having jurisdiction and advise Departmental Representative verbally and in writing.

#### **1.12 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.
  - .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.

#### **1.13 POSTING OF DOCUMENTS**

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

#### **1.14 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.

#### **1.15 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.

#### **Part 2 Products**

##### **2.1 NOT USED**

- .1 Not used.

#### **Part 3 Execution**

##### **3.1 NOT USED**

- .1 Not used

## Section 01 35 43 – ENVIRONMENTAL PROCEEDURES

### Part 1 General

#### 1.1 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 humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

#### 1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .4 Environmental protection plan to include:
  - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
  - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
  - .3 Names and qualifications of persons responsible for training site personnel.
  - .4 Descriptions of environmental protection personnel training program.
- .5 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .6 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .7 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.
- .8 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .9 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from

construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

**1.3 FIRES**

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

**1.4 DISPOSAL OF WASTES**

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways.

**1.5 DRAINAGE**

- .1 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

**1.6 WORK ADJACENT TO WATERWAY**

- .1 Do not dump excavated fill, waste material or debris in waterways.

**1.7 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 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

**1.8 HISTORICAL/ARCHAEOLOGICAL CONTROL**

- .1 Give immediate notice to the Departmental Representative if evidence of archaeological finds are encountered during construction and await written instructions before proceeding with work in the vicinity of any such finds.
- .2 Relics, antiquities and items of historical or scientific interest shall remain the property of the Crown. Protect such articles and request directives from the Departmental Representative.

**1.9 NOTIFICATION**

- .1 Departmental Representative will notify Contractor in writing of observed non-compliance 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, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
- .3 Departmental Representative 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.

**1.10 SPILLS OR RELEASE OF DELETERIOUS SUBSTANCES**

- .1 Measures to be implemented to prevent, control or mitigate spills or release of deleterious substances:
  - .1 Contractor shall take due care to ensure no deleterious materials enter any surface drainage pathways located in the project area.
  - .2 Emergency response procedure for spills of deleterious substances must be in place. In the event of a spill, the contractor will immediately implement their Spill Response Protocol.
  - .3 The Contractor is responsible for all costs associated with a spill or release as a result of their actions. This will include but not limited costs of spill response equipment and materials, associated sampling, analysis and any required restoration of the impacted area.
  - .4 Response equipment to be on site at all times (i.e. spill kits) and workers trained in their location and use. The resources on hand must be sufficient to respond effectively and expediently to any spill that could occur on site.
  - .5 All construction equipment brought onto the site will be clean and properly maintained.
  - .6 Any equipment maintenance must occur in a designated area and must be conducted away from any surface water drains or collection points.
  - .7 Any equipment remaining on site overnight shall have appropriately placed drip pans.
  - .8 Waste generated will be prevented from entering the environment.
  - .9 Prevent discharges containing asphalt, grout, concrete or other waste materials from reaching storm drains or the marine environment. This includes, but is not limited to:
    - .1 Cleaning equipment off site; and
    - .2 Protection of any other drainage structures not identified here with filter fences and/or silt socks, if required.
  - .10 Protection of the roadways from tracking of mud, soil and debris needs to be maintained throughout the work.
  - .11 Contractor must adhere to noise bylaws issued by authorities having jurisdiction.
  - .12 Contractor is responsible for securing any necessary permits.
  - .13 All utilities must be located prior to excavation.

**END OF SECTION**

## Section 31 62 19 – TIMBER PILES

### **PART 1 GENERAL**

#### **1.1 RELATED SECTIONS**

- .1 Section 01 35 43 – Environmental Procedures.

#### **1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A123/A123M - 13, Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM A153/A153M - 09, Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
  - .3 ASTM A307 - 14, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
- .2 American Wood-Preservers' Association (AWPA)
  - .1 AWPA M4-15, Standard for the Care of Preservative-Treated Wood Products.
  - .2 AWPA M6-13, Brands Used on Preservative Treated Materials.
- .3 Canadian Standards Association (CSA International)
  - .1 CSA B111-R2003, Wire Nails, Spikes and Staples.
  - .2 CAN3 O56-10, Round Wood Piles (Metric version).
  - .3 CSA O80 Series-R2012, Wood Preservation.

#### **1.3 SUBMITTALS**

- .1 Equipment: submit prior to pile installation for review by Engineer, list and details of equipment for use in installation of piles.

#### **1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill as approved by Engineer.
- .2 Dispose of unused wood preservative material at official hazardous material collections site.
- .3 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 EXECUTION**

#### **2.1 EQUIPMENT**

- .1 Prior to commencement of pile installation operation, submit to Engineer for review, details of equipment for installation of piles. For impact hammers provide manufacturer, type rated energy per blow at normal working rate, mass of striking parts of hammer and mass of driving cap. For vibratory hammers provide all characteristics necessary to evaluate performance.

- .2 Hammer: capable of developing a blow, at normal speed, with an energy of 21 to 44 kNm per blow. When required penetration is not obtained by use of hammers complying with minimum requirements, provide larger hammer or take other measures, approved by Engineer.
- .3 Leads: Designed to deliver impacts concentrically and in alignment with pile longitudinal axis without inducing bending moments in pile. Hold leads at top and bottom, with guys, stiff braces, or other approved means, to support pile during driving.
- .4 Followers: Use only with Engineers permission. When permitted provide of such size, shape, length and mass to permit driving pile in desired location to required depth and resistance. Provide followers with socket or hood fitted to pile head to minimize energy loss and prevent pile damage.

## **2.2 PROTECTION**

- .1 Avoid dropping, bruising or breaking of wood fibres.
- .2 Avoid breaking surfaces of treated piles.
- .3 Do not damage surfaces of treated piles below cut-off elevation.
- .4 Treat cuts, breaks or abrasions on surfaces of treated piles, bolt holes and field cuts in accordance with CSA O80 Series.

## **2.3 FIELD MEASUREMENT**

- .1 Maintain accurate records of driving for each pile, including:
  - .1 Type and make of hammer, stroke or related energy;
  - .2 Other driving equipment including driving cap, cushion;
  - .3 Pile size and length, location of pile in pile group, location or pile designation;
  - .4 Date and time for start and finish for each pile driven and sequence of pile driving for piles in group;
  - .5 Penetration for own weight and weight of hammer, number of blows per 300 mm of penetration from start of driving;
  - .6 Observed stroke and blow rate of hammer;
  - .7 Toe elevation upon termination of driving pile and final cut-off elevation;
  - .8 Other pertinent information, such as interruption of continuous driving, observed pile damage;

## **2.4 PREPARATION**

- .1 Select piles in each bent or group for uniformity of size and straightness to facilitate installation
- .2 Timber Piles shall be handled and treated as follows to avoid damage:
  - .1 Moved with fiber slings whenever possible
  - .2 Piles not to be dumped or dropped during transport
  - .3 Cant hooks and rafting dogs used only within 1m from butt
  - .4 Cuts, breaks and bored holes treated promptly with two separate coats of creosote or alternative methods approved by Owner's Representative. Allow adequate time between coats for complete absorption. Cover with mastic/tar.

- .5 Holes below HHW and not fitted with bolts must be plugged with a treated dowel, layer of mastic and covered with copper patch held in place with copper nails.
- .6 Immediately after cut-off pile tops to be treated with three separate coats of creosote (or alternative). Allow adequate time between coats for complete absorption, followed by a heavy coat (minimum 5mm) of mastic
- .7 Pile tops to be capped with a sheet of 0.8mm annealed corrosion-resistant aluminum, which is 150mm larger than the pile top.

## 2.5 INSTALLATION

- .1 Install metal pile coverings, where indicated, on tops of piles immediately after treatment; bend edges down over sides of pile, neatly trim and fasten with 8 large headed roofing nails.
- .2 Restrain lateral movement of piling, during driving at intervals not exceeding 6m over length between ground surface and driving head.
- .3 Piles to be installed not more than 2% of length out of alignment
- .4 Treat exposed ends of cut off piles with two applications hot creosote followed by application of coal tar pitch, allowing sufficient interval between applications to permit total absorption.
- .5 Piles to be driven so that splitting, brooming or other damage does not occur
- .6 Piles to be fresh-headed and chamfered prior to driving, with butts and tips reinforced as necessary to prevent damage
- .7 Piles to be protected from abrasion while being driven either from existing structure or from the leads.
- .8 Piles are to be held securely and accurately in position with hammer blows delivered along axis of pile
- .9 Batter piles are not to contact existing structure during driving
- .10 Timber piles shall be driven to a minimum penetration shall be to a depth of 6.1m or refusal, as per the direction of the Departmental Representative
- .11 Piles shall be driven at their intended locations as shown on the tender drawings.
- .12 Piles shall not be cut off at final elevation until the Owner's Representative has reviewed the driving record and approved the pile
- .13 Piles to be cut neatly and to match existing elevation, sufficient lengths above cut off elevation so that part damaged during driving is cut off
- .14 Pile driving record to be supplied by the contractor including at minimum: size of pile, tip diameter, butt diameter, length, type of hammer, stroke, total number of blow counts, final blow counts / 25mm and the final depth of penetration
- .15 Piles will be considered at a state of refusal when advancement of less than 25mm over 10 blows is achieved, while delivering a minimum energy of 32 kNm per blow.



## **2.6 OBSTRUCTION**

- .1 Where obstruction is encountered that results in sudden, unexpected change in penetration resistance and deviation from specified tolerances, the Contractor may be required to perform one or all of the following:
  - .1 Removal of obstruction.
  - .2 Extraction, repositioning, and re-driving;
  - .3 Addition of extra piles
- .2 If in the opinion of the Engineer, work associated with encountering obstructions could not have been reasonably anticipated by the Contractor, additional compensation for work done will be considered for payment.

## **2.7 TOLERANCES IN DRIVING**

- .1 Center of butts: within 100 mm of location indicated.
- .2 Manipulation of piles: not be permitted.
- .3 Remove and replace damaged or improperly located piles.

## **2.8 HARDWARE**

- .1 Bolt holes in timber piles shall be bored to provide driving fit. Holes for drift pins shall be 2 mm undersize and of sufficient depth to prevent bottoming of pin in hole. Holes bored for lag screws/bolts as per CAN/CSA 086.1-M.
- .2 Unless otherwise specified, connection bolts, lag screws or drift bolts shall be placed through center of pile and shall provide minimum seven bolt diameter end or edge distance.
- .3 Plate washers shall be used under the heads and nuts of all bolts against timber piles.

## **2.9 CLEANING**

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**