



Fisheries and Oceans
Canada

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Canada

Canada

Small Craft Harbours Branch

Technical Specifications

PORPOISE BAY, BC

WHARF AND FLOAT REPAIRS

Project Location

Porpoise Bay Small Craft Harbour
5770 Wharf Ave
Sechelt, BC V0N 3A6

September, 2019

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1 GENERAL

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

2 DEFINITIONS

- .1 Throughout contract documents, the words "Site," "Owner," "Departmental Representative", "Contracting Authority," "Harbour Authority," "Contractor," or "Department," shall be defined as follows:
 - .1 Site
"Site" referred to herein is Porpoise Bay Small Craft Harbour, 5770 Wharf Ave Sechelt, BC V0N 3A6, Canada.
 - .2 Contracting Authority
"Contracting Authority" referred to herein is Public Services and Procurement Canada (PSPC).
 - .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 Departmental Representative
"Departmental Representative" referred to herein is commonly an employee of the Owner assigned by the Owner as the Technical Authority for the project.
 - .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.

3 LOCATION

- .1 Porpoise Bay Small Craft Harbour (the Project Site) is located in Sechelt, British Columbia.
- .2 Project Site address is referenced in Section 1.2.1.1.

4 WORK INCLUDED

- .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 shall be completed no later than February 15, 2020.
- .3 The following materials shall be supplied by the Owner at the Project Site before construction start.
 - .1 **UMHW Rub Strips:** 100mm x 25mm x 1220mm QTY: 50

.2 **Aquacan Model 2346:** 584mm x 584mm x 1181mm QTY: 2

.4 The work to be carried out under this contract includes wharf and float repairs, including timber pile driving, in the Porpoise Bay harbour. The work generally consists of, but is not limited to the following items as outlined in Section 01 10 00 SCHEDULE OF QUANTITIES AND PRICES.

.1 Mobilization/Demobilization

The lump sum cost for this item includes all labour, equipment and materials complete the following:

- .1 Mobilization / demobilization of all crew and equipment to Porpoise Bay Small Craft Harbour.
- .2 Site clean-up and disposal of any temporary or miscellaneous materials used in completing the work.
- .3 Any overhead costs not covered in other items.

.2 Internal Bearing Pile Replacement

The unit rate cost per pile for this item includes all labour, equipment and materials to complete the following:

- .1 Remove and dispose of one (1) existing internal creosote bearing pile as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .2 Supply and install one (1) 350mm diameter x 18.3m long internal creosote bearing pile as per Section 03 03 00 – PILE DRIVING.
- .3 “Internal bearing pile” refers to bearing piles not located along perimeter of wharf structure.
- .4 Pile replacement locations as per Drawing PB-HR-002 and PB-HR-003.
- .5 Final pile cut off, treatment and installation of aluminium hat included as per Section 03 03 00 – PILE DRIVING.
- .6 Pile cut-off elevation to match existing adjacent piles.
- .7 Any existing adjacent structures requiring modification to be returned to original condition including reinstallation of signs.
- .8 Contractor is responsible for all costs associated with the disposal of pile cut-offs.
- .9 All pile driving to follow Best Management Practices as per Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.3 Edge Bearing Pile Replacement

The unit rate cost per pile for this item includes all labour, equipment and materials to complete the following:

- .1 Remove and dispose of one (1) existing edge creosote bearing pile as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .2 Supply and install one (1) 350mm diameter x 18.3m long edge creosote bearing pile as per Section 03 03 00 – PILE DRIVING.
- .3 “Edge bearing pile” refers to bearing piles located along perimeter of wharf structure.
- .4 Pile replacement locations as per Drawing PB-HR-002 and PB-HR-003.
- .5 Final pile cut off, treatment and installation of aluminium hat included as per Section 03 03 00 – PILE DRIVING.
- .6 Pile cut-off elevation to match existing adjacent piles.
- .7 Any existing adjacent structures requiring modification to be returned to original condition including reinstallation of signs.

- .8 Contractor is responsible for all costs associated with the disposal of pile cut-offs.
- .9 All pile driving to follow Best Management Practices as per Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.4 Fender Pile Replacement

The unit rate cost per pile for this item includes all labour, equipment and materials to complete the following:

- .1 Remove and dispose of one (1) existing creosote fender pile as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .2 Supply and install one (1) 350mm diameter x 18.3m long creosote fender pile as per Section 03 03 00 – PILE DRIVING.
- .3 Pile replacement locations as per Drawing PB-HR-002 and PB-HR-003.
- .4 Final pile cut off, treatment and installation of aluminium hat included as per Section 03 03 00 – PILE DRIVING.
- .5 Pile cut-off elevation to match existing adjacent piles.
- .6 Any existing adjacent structures requiring modification to be returned to original condition including reinstallation of signs.
- .7 Contractor is responsible for all costs associated with the disposal of pile cut-offs.
- .8 All pile driving to follow Best Management Practices as per Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.5 Mooring Pile Replacement

The unit rate cost per pile for this item includes all labour, equipment and materials to complete the following:

- .1 Disconnect dolphin blocking timber, remove and dispose of one (1) existing creosote mooring pile as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .2 Supply and install one (1) 350mm diameter x 18.3m long creosote mooring pile as per Section 03 03 00 – PILE DRIVING. Installation includes reconnection of pile to dolphin blocking with new hardware as per Drawing PB-HR-007.
- .3 Pile locations as per Drawing PB-HR-004.
- .4 Final pile cut off, treatment and installation of aluminium hat included as per Section 03 03 00 – PILE DRIVING.
- .5 Pile cut-off elevation to match existing adjacent piles.
- .6 Any existing adjacent structures requiring modification to be returned to original condition including reinstallation of signs.
- .7 Contractor is responsible for all costs associated with the disposal of pile cut-offs.
- .8 All pile driving to follow Best Management Practices as per Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.6 Pile and Cap Repairs

The lump sum cost for this item includes all labour, equipment and materials to complete the following:

- .1 Supply and install stainless steel banding to select piles.
 - .1 Each banding location to have a minimum of 2 bands installed.
 - .2 Banding to be Type 316, minimum 19mm width (3/4") , 0.8mm thick (0.315").
- .2 Supply and install treated creosote dowels to select piles.
- .3 Supply and install plastic pile wrap to select piles.
- .4 Install diffusible fungicide treatment to select piles.
- .5 Install diffusible fungicide to all wharf pile caps.
- .6 Fungicide treatment plugs to be copper/boracic type, minimum 19mm (3/4") diameter x 75mm (3") long, installed as per manufacturers specifications.
- .7 Contractor to notify Departmental Representative of poor timber conditions noted from drilling for plug installation and confirm before proceeding.
- .8 Locations for select pile repairs identified in Table 1.

Table 1 - Pile Repairs		
Wharf Piles (See Drawings PB-HR-002 and PB-HR-003)		
Bent	Row	Action
1	A & B	Treat with diffusible fungicide
4	C	Treat with diffusible fungicide
6	A	Install steel clamp and plug with treated dowels.
7	C	Treat with diffusible fungicide
9	B	Replace 2 stainless bands
10	A	Treat with diffusible fungicide
13 & 14	C	Install wrap
16	A	Treat with diffusible fungicide
19	A	Install steel clamp and plug with treated dowels.
21	B	Treat with diffusible fungicide
21	F.1	Treat with diffusible fungicide
22	C	Install treated dowel.
22	F.1	Treat with diffusible fungicide
23	E	Treat with diffusible fungicide
24	E	Install wrap
Float Piles (See Drawing PB-HR-003)		
Group	Pile	Action
A	2	Treat with diffusible fungicide, plug with treated dowels
C	2 & 4	Treat with diffusible fungicide
E	2	Treat with diffusible fungicide
F	1	Treat with diffusible fungicide
G	1, 3 & 4	Treat with diffusible fungicide
H	1 & 2	Treat with diffusible fungicide
J	1, 3 & 4	Treat with diffusible fungicide

.7 Cross-brace and Waler Repairs

The lump sum cost for this item includes all labour, equipment and materials to complete the following:

- .1 Supply and replace eight (8) 102mm x 203mm x 6.1m creosote timber cross-braces as per Section 02 50 00 TIMBER AND TIMBER FLOATS.
- .2 Supply and replace two (2) 140mm x 190mm x 4.9m creosote timber walers as per Section 02 50 00 TIMBER AND TIMBER FLOATS.
- .3 Cross-brace and walers for replacement identified in Table 2.

Table 2 - Crossbrace and Waler Repairs

Crossbraces			
Upper	Lower	Side	Action
1C	Into Rip Rap	East	Replace
9A	9B	North	Replace
10A	10B	North	Replace
11A	11B	South	Replace
11B	11A	North	Replace
18C	18A	South	Replace
3B	3A	South	Replace
19A	19C	North	Replace
Walers			
9	B-C	North	Replace
16	B-C	North	Replace
20C	20A West	North	Replace

- .3 Cross-braces and walers identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .4 All new cross-braces and walers to be installed with new connection hardware.
- .5 Contractor is responsible for all costs associated with the disposal of any timber cut-offs.
- .6 All timber work to follow Best Management Practices as per Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.8 Handrail Repairs

The lump sum cost for this item includes all labour, equipment and materials to complete the following:

- .1 Supply and replace handrail components with new ACZA treated timber.
- .2 Handrail component dimensions as follows:
 Top Rails: 38mm x 140mm
 Top Side Rails: 140mm x 38mm
 Midrails: 89mm x 38mm
 Posts: 89mm x 89mm

.3 Locations for handrail repairs identified in Table 3.

Table 3 - Handrail Repairs

Component	Location (m)	Side	Action
Top Rail	0 -2.5	East	Replace
Top Rail	2.5-7.4	East	Replace
Top Rail	3.7-8.6	West	Replace
Top Rail	28.1-32.9	West	Replace
Mid Rail	32.9-37.9	West	Replace
Mid Rail	73.4 - 78.4	East	Replace
Side Rail	14.7-19.5	East	Replace
Side Rail	25.6 - 30.5	West	Replace

.4 Includes supply of fastening hardware and disposal of old handrail components as per Section 01 20 60 DEMOLITION OF STRUCTURES.

.5 All work to be completed as per Section 02 50 00 TIMBER AND TIMBER FLOATS and Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.9 Flange Replacement

The unit rate cost per lineal metre for this item includes all labour, equipment and materials to complete the following:

- .1 Supply and replace one (1) lineal metre of new 190mm x 140mm creosote timber flange including all hardware and disposal of existing timber.
- .2 Flange replacement locations identified in Table 4 and on Drawing PB-HR-005.
- .3 Flanges identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .4 Includes cutting/trimming of timbers as necessary to suit site conditions and field treatment of cut ends.
- .5 Contractor is responsible for all costs associated with the disposal of any timber cut-offs.
- .6 All work to be performed as per Section 02 50 00 TIMBER AND TIMBER FLOATS and Section 01 51 00 STEEL HARDWARE.

.10 Flange Block Replacement

The unit rate cost per block for this item includes all labour, equipment, and material to complete the following:

- .1 Supply and replace one (1) 140mm x 140mm x 1200mm creosote timber flange connection block including all hardware and disposal of existing timber.
- .2 Locations for flange block replacement identified in Table 4.
- .3 Flange blocks identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .4 Includes cutting/trimming of timbers as necessary to suit site conditions and field treatment of cut ends.

- .5 Contractor is responsible for all costs associated with the disposal of any timber cut-offs.
- .6 All work to be performed as per Section 02 50 00 TIMBER AND TIMBER FLOATS AND ASSEMBLY and Section 05 90 00 STEEL HARDWARE.

Table 4 - Float Flange Repairs

Float	Flange No. (1 left, 2 right)	Location (m)	Action
A	1 & 2	0 - 32.7	Replace Hardware
A	1	12.7	Replace Block and Hardware
A	1	18.3	Replace Hardware
A	1	12.7 - 26.0	Replace Flange
A	2	4.3	Replace Block
A	2	10.9	Replace Block and Hardware
A	2	10.9 - 18.7	Replace Flange
A	2	17.4	Replace Block
A	2	17.4 - 24.4	Replace Flange
A	2	24.4	Replace Block and Hardware
A	2	24.3 - End	Replace Hardware
B	1	18.5 - 25.25	Replace Block
B	2	0 - End	Replace Hardware
B	2	0 - 6.9	Replace Flange and Block
B	2	6.9 - 13.6	Replace Flange
B	2	13.6	Replace Block
B	2	20.35 - 26.95	Replace Flange and Block
B	2	26.95 - End	Replace Flange and Block
B	2	End	Replace Hardware
C	1	0 - End	Replace Hardware
C	1	18.5	Replace Block
C	2	0 - End	Replace Hardware
C	2	6.8	Replace Block
C	2	6.75 - 13.45	Replace Flange
D	Ext.1	0 - 10.2	Replace Hardware
D	Ext.2	0 - 10.2	Replace Hardware
D	1	9.7	Replace Hardware
D	1	10.2 - End	Replace Hardware
D	1	19.9	Replace Block
D	2	9.8 - End	Replace Hardware
D	2	18.3 - 26	Replace Flange
D	2	26	Replace Block
D	2	26 - End	Replace Block
E	2	All	Replace Hardware

.11 Bullrail Replacement

The unit rate cost per lineal metre for this item includes all labour, equipment and materials to complete the following:

- .1 Supply and replace one (1) lineal metre of bullrail with new 90mm x 140mm ACZA timber bullrail as per Table 5 including ACZA risers, hardware and disposal of existing timber.

Table 5 - Bullrail and Fascia Repairs

Float	Component	Location (m)	Side	Action
A	Bullrail	3.1-15.2	North	Replace
A	Bullrail	7.3-11.5	South	Replace
A	Bullrail	11.95-23.2	South	Replace
A	Bullrail	18.1-30.3	North	Replace
A	Bullrail	36.8	West	Replace Hardware
A	Fascia	15-22.3	South	Replace
B	Bullrail	All	East	Replace
C	Bullrail	3.9-10	East	Replace
C	Bullrail	10-12.8	East	Replace
C	Bullrail	12.6-22	West	Replace
C	Bullrail	22.1-25.8	East	Replace
C	Fascia	31.3	North	Replace
D	Bullrail	10.4-15.7	East	Replace
D	Bullrail	18.5-20.4	East	Replace Hardware
D	Bullrail	24.1-29.6	East	Replace
D	Bullrail	29.6-34.9	East	Replace
D	Bullrail	End Rail	North	Replace
E	Bullrail	End Rail	North	Replace Hardware
E	Fascia	15	North	Replace

- .2 Bullrail identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .3 Includes cutting/trimming of timbers as necessary to suit site conditions and field treatment of cut ends.
- .4 Contractor is responsible for all costs associated with the disposal of any timber cut-offs.
- .5 All work to be performed as per Section 02 50 00 TIMBER AND TIMBER FLOATS, Section 05 90 00 STEEL HARDWARE and Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.12 Decking Replacement

The unit rate cost per square metre for this item includes all labour, equipment and materials to complete the following:

- .1 Supply and replace one (1) square metre of decking with new 40mm x 190mm ACZA timber decking including hardware and disposal of existing timber.
- .2 All decking to be replaced on Floats B, C, D and E as identified on drawing PB-HR-001.
- .3 Includes cutting/trimming of deck planks as necessary to suit site conditions and field treatment of cut ends.
- .4 Contractor is responsible for all costs associated with the disposal of any timber cut-offs.
- .5 All work to be performed as per Section 02 50 00 TIMBER REPAIRS AND ASSEMBLY, Section 05 90 00 STEEL HARDWARE and Section 01 35 43 ENVIRONMENTAL PROCEDURES.

.13 Miscellaneous Float Repairs

The lump sum cost for this item includes all labour, equipment and materials to complete the following:

- .1 Pile Wells and Rubstrips
 - .1 Supply and replace all pile well guard timbers with new 90mm x 140mm ACZA treated timber including connection hardware and disposal of existing timber as per 02 50 00 TIMBER AND TIMBER FLOATS.
 - .2 Replace all rubstrips with new Owner Supplied 100mm x 25mm x 1200mm UHMW rubstrips including connection hardware and disposal of existing rubstrips.
 - .3 Items identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.
- .2 Hardware Replacement
 - .1 Supply and replace float connection hardware as identified in Tables 4 (Flange Connection Hardware) and Table 5 (Bullrail Connection Hardware)
 - .2 All work as per 05 90 00 STEEL HARDWARE.
- .4 Fascia Timber
 - .1 Supply and replace existing fascia timber with new 38mm x 292mm ACZA fascia timber including connection hardware and disposal of existing timber as per 02 50 00 TIMBER AND TIMBER FLOATS.
 - .2 Fascia for replacement identified in Table 5.
 - .3 Items identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.

- .5 Floatation Installation
 - .1 Install two (2) Owner Supplied plastic floatation pontoons beneath Float A.
 - .2 Owner Supplied plastic floatation is AQUACAN Model 2346 with approximate dimensions of 584mm x 584mm x 1181mm.
 - .3 Installed pontoons to be fully filled with air or until even float level achieved.

- .6 Mooring Line Repairs
 - .1 Supply and replace two (2) 19mm x 30m long mooring chains to existing anchors, including supply and installation of two (2) new 19mm eyebolts complete with DPW washers and nuts and four (4) new screw-pin type shackles.
 - .2 Contractor responsible for disposal chains and hardware identified for replacement as per Section 01 20 60 DEMOLITION OF STRUCTURES.

- .7 Dolphin Blocking
 - .1 Supply and replace four (4) dolphin blocking timbers with new 300mm x 300mm x 1200mm creosote blocks including all connection hardware and disposal of existing timber as per 02 50 00 TIMBER AND TIMBER FLOATS and 05 90 00 STEEL HARDWARE.
 - .2 Locations for dolphin blocking replacement are mooring pile groups C and L as identified on Drawing PB-HR-003.
 - .3 Items identified for replacement to be disposed of as per Section 01 20 60 DEMOLITION OF STRUCTURES.

5 TIMING

- .1 Final completion will be no later than February 15, 2020.

END OF SECTION

1 GENERAL

1.1 RELATED SECTIONS

- 1.1.1 Section 01 11 00 – SUMMARY OF WORK
- 1.1.2 Section 01 35 43 – ENVIRONMENTAL PROCEDURES
- 1.1.3 Section 02 20 60 – DEMOLITION OF STRUCTURES
- 1.1.4 Section 02 50 00 – TIMBER AND TIMBER FLOATS
- 1.1.5 Section 03 03 00 – PILE DRIVING
- 1.1.6 Section 03 30 00 - CONCRETE
- 1.1.7 Section 05 90 00 – STEEL HARDWARE

1.2 REFERENCES

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

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- 1.3.1 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 of hazard analysis for site tasks and operations.
- 1.3.2 Submit 1 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative.
- 1.3.3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- 1.3.4 Submit copies of incident and accident reports.
- 1.3.5 Submit WHMIS MSDS - Material Safety Data Sheets.
- 1.3.6 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 five (5) days after receipt of comments from Departmental Representative.
- 1.3.7 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.
- 1.3.8 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.4 FILING OF NOTICE

- 1.4.1 File notice of Project with Provincial authorities prior to beginning of Work.
- 1.4.2 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 within three (3) weeks of contract award. Contractor to submit written acknowledgement to CSST along with Ouverture de Chantier Notice.
- 1.4.3 Work zone locations include:
 - .1 Porpoise Bay Small Craft Harbour.
- 1.4.4 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

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

1.6 MEETINGS

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

1.7 PROJECT/SITE CONDITIONS

- 1.7.1 Work at site will involve contact with:
 - .1 District of Sechelt Harbour Authority
 - .2 Small Craft Harbours

1.8 GENERAL REQUIREMENTS

- 1.8.1 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.
- 1.8.2 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

- 1.9.1 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.
- 1.9.2 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

- 1.10.1 Comply with Workers Compensation Act, B.C. Reg.
- 1.10.2 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.
- 1.10.3 Comply with Occupational Health and Safety Regulations, 1996.
- 1.10.4 Comply with Occupational Health and Safety Act, General Safety Regulations, O.I.C.
- 1.10.5 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.11 UNFORESEEN HAZARDS

- 1.11.1 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.
- 1.11.2 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

- 1.12.1 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

- 1.13.1 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

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

1.15 WORK STOPPAGE

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

2 PRODUCTS

- .1 Not used.

3 EXECUTION

- .1 Not used.

1 GENERAL

1.1 RELATED REQUIREMENTS

- 1.1.1 Section 01 11 00 – SUMMARY OF WORK
- 1.1.2 Section 01 35 29.06 – HEALTH AND SAFETY REQUIREMENTS
- 1.1.3 Section 02 20 60 – DEMOLITION OF STRUCTURES
- 1.1.4 Section 02 50 00 – TIMBER AND TIMBER FLOATS
- 1.1.5 Section 03 03 00 – PILE DRIVING
- 1.1.6 Section 03 30 00 - CONCRETE
- 1.1.7 Section 05 90 00 – STEEL HARDWARE

1.2 REFERENCES

1.2.1 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.

1.3 IN WATER WORKS

- 1.3.1 Construction equipment to be operated on land or from floating barge equipment.
- 1.3.2 Waterways to be kept free of excavated fill, waste material and debris.
- 1.3.3 Do not skid logs or construction materials across waterways.
- 1.3.4 The contractor is to ensure that critical habitats are not impacted within the immediate vicinity of the work area. At the Owner's discretion, works that have the potential to result in impacts to the marine environment will be monitored on-site by a Qualified Environmental Professional (QEP).
- 1.3.5 Floating barge equipment and other floating equipment is not to come in contact with the seabed at anytime during construction.
- 1.3.6 Construction must never include the use of native beach materials (boulders, cobble, gravel, sand, logs).
- 1.3.7 The use of un-encapsulated Styrofoam to keep docks afloat is prohibited for new construction and repairs. Styrofoam based floatation products provided by the Contractor is subject to review and approval by the Owner before use.
- 1.3.8 Works along the upland/water interface must be conducted when the site is not wetted by the tide. All work is to be conducted in a manner that does not result in the deposit of toxic or deleterious substances (sediment, un-cured concrete, fuel, lubricants, paints, stains) into waters frequented by fish. This includes refueling of machinery and washing of buckets and hand tools.
- 1.3.9 Construction activities are to take place during the least risk fisheries window of December 1, 2019 to February 15, 2020.

1.4 NOTIFICATIONS

- 1.4.1 Departmental Representative 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.
- 1.4.2 Contractor: after receipt of such notice, Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Take action only after receipt of written approval by Departmental Representative.
- 1.4.3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- 1.4.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

2 PRODUCTS

See Sections 02 50 00 TIMBER AND TIMBER FLOATS, 03 03 00 PILE DRIVING, 03 30 00 CONCRETE and 05 90 00 STEEL HARDWARE for specific material requirements and Best Management Practices for different types of construction.

3 EXECUTION

3.1 CLEANING

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

END OF SECTION

1 GENERAL

- .1 DFO's General Conditions and related contract documents form an integral part of this section.
- .2 Where existing works are to be removed, they shall be removed and salvaged or disposed of to the satisfaction of the Departmental Representative.
- .3 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 the execution of all demolition salvage and protection work specified herein.
- .4 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.
- .5 Demolition shall be carried out in accordance with the construction schedule as approved by the Owner.

2 REMOVAL OF DEMOLISHED MATERIAL

- .1 All material, which are not to be salvaged for the Owner, shall become the Contractor's property and the Contractor must remove it from the site.
- .2 It shall be the Departmental Representative 's decision as to which material shall be salvaged and which materials shall be disposed of.

3 SALVAGE

- .1 Material to be salvaged for the Owner shall be stored as directed by the Departmental Representative.

4 PROTECTION

- .1 The Contractor shall protect the remaining structural elements and adjacent structures against damage from falling debris or other causes.
- .2 The Contractor shall take precautions to guard against movement or settlement of adjacent structures and remaining structural elements, provide and place shoring or bracing as required, and be responsible for the safety and support of such structures, be liable for any damage or injury caused thereby or resulting therefore. If at any time safety of any adjacent structure appears to be endangered; the Contractor shall cease operations and notify the Departmental Representative.

END OF SECTION

1 GENERAL

1.1 RELATED REQUIREMENTS

- 1.1.1 Section 01 11 00 – SUMMARY OF WORK
- 1.1.2 Section 01 35 29.06 – HEALTH AND SAFETY REQUIREMENTS
- 1.1.3 Section 01 35 43 – ENVIRONMENTAL PROCEDURES
- 1.1.4 Section 02 20 60 – DEMOLITION OF STRUCTURES
- 1.1.5 Section 03 03 00 – PILE DRIVING
- 1.1.6 Section 03 30 00 - CONCRETE
- 1.1.7 Section 05 90 00 – STEEL HARDWARE

1.2 REFERENCE DRAWINGS

- 1.2.1 Not Used.

2 PRODUCTS

2.1 GENERAL

- 2.1.1 Except as otherwise noted, only new materials will be used in, and remain an integral part of the structures.
- 2.1.2 The Departmental Representative 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.
- 2.1.3 Acceptance will not be made until the materials or products are satisfactorily installed in the completed structures specified.
- 2.1.4 The Contractor shall be responsible to repair all materials damaged through their handling, storage and/or installation.
- 2.1.5 Except as otherwise noted, salvaged materials deemed to be reusable by the Owner shall remain property of the Owner.

2.2 TIMBER

- 2.2.1 All timber supplied by the owner meets the standards below, any **additional timber required** to complete the work shall be supplied by the contractor and conform to what is outlined in this section.
- 2.2.2 All timber for the purpose intended shall conform to the requirements of the N.L.G.A. Standard Grading Rules for Canadian Lumber.

- 2.2.3 Refer to drawings and specifications for timber dimensions and treatment.
- 2.2.4 All timber shall be Coast Douglas Fir. No 1 Structural Grade or better, unless specified otherwise.
- 2.2.5 All decking shall be S1S2E (rough cut), heart side down.
- 2.2.6 All joists, cross-ties, stringers, blocking, bullrail, risers and fascia boards shall be S2E (rough cut).
- 2.2.7 Timber will be graded in the following classes:
- .1 Joists and Planks
 - .2 Beams and Stringers
 - .3 Posts and Timbers
- 2.2.8 All timber shall be free of heart centre with no sap.
- 2.2.9 All treated timber shall be S4S precut and bored, to specified dimensions, before treating.
- 2.2.10 Rubboards and all timber at or above deck level shall be salt-treated. All timber below deck level, except rub boards, shall be creosote treated.
- 2.2.11 All decking lumber shall be surfaced lumber meeting grading S1S2E, Surfaced on the heart side and two edges, heart side down.

2.3 TREATMENT OF MATERIAL

2.3.1 Creosote-treated Materials:

- .1 All creosote treated timber will be treated in accordance with CSA 080 and will follow the Best Management Practices for Creosote as outlined in "Best Management Practices for the use of Treated Wood in Aquatic Environments".
- .2 All creosote treated materials will have a minimum retention of 225kg per cubic metre (14lb. Per cubic foot).

2.3.2 Salt-treated Materials:

- .1 All salt-treated timber to be treated in accordance with CSA 080-1989, "Wood Preservation", and its current amendments CSA 080.14, for materials in contact with ground or water. (Only non-leachable ACA salts will be accepted).
- .2 All salt treatment will follow the Best Management Practices for ACA and ACZA as outlines in "Best Management Practices for the use of Treated Wood in Aquatic Environments".
- .3 All salt-treated timber will have a minimum retention of 6.4 kg/m³ (0.40 lb. Per cubic foot) and a depth of penetration of 10mm as specified in CSA 080.14.

2.3.3 Testing:

- .1 The Departmental Representative will carry out testing of materials including core sampling at the treatment plant. Data will be made available to the Contractor for information only.
- .2 Notwithstanding the Departmental Representative 's testing program, the Contractor will ensure the materials meet the specified requirements in all respects. The Departmental Representative reserves the right to reject materials on site.

2.4 FIELD TREATING

2.4.1 Creosote-treated timber members that have fresh cut surfaces exposed in the structure shall be treated as specified:

- .1 All cuts or breaks in the surfaces shall be treated with two (2) separate coats of creosote oil.
- .2 Where bolt holes must be bored through creosote treated piles, the holes shall be filled with creosote oil and the bolts shall be dipped in hot creosote oil before bolts are placed.
- .3 Alternative field wood treatment to be approved by the Departmental Representative before application.
- .4 Ensure preservatives are properly stored and protected in case of spillage.

2.4.2 Salt-treated timber members that have fresh cut surfaces exposed in the structure shall be treated as specified:

- .1 All field cut surfaces to be treated with two (2) coats of Copper Naphthenate.
- .2 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.

2.4.3 Ensure preservatives are properly stored and protected in case of spillage.

3 EXECUTION

3.1 HANDLING OF MATERIALS

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

3.2 EXISTING STRUCTURES

- 3.2.1 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 Departmental Representative.

3.3 SHIPPING AND PACKAGING

- 3.3.1 Not Used.

3.4 SERVICES

3.4.1 Removal

- .1 All services shall be removed from the wharf as not to damage them. All service materials, misc. hangers, fasteners and supplies required to reinstall the services shall be supplied by the Contractor. All materials that are not reusable shall be disposed of by the Contractor.

3.4.2 Handling and Storage

- .1 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 his expense.

3.5 PATCHING AND REPAIRS

- 3.5.1 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.

1 GENERAL

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

.1 Reference Standards

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

.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.
- .4 Best Management Practices for the use of Treated Wood in Aquatic Environments (Western Wood Preservers Institute & Canadian Institute of Treated Wood)

.2 Submittals

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

.3 Waste Management and Disposal

- .1 Place waste treated wood, end pieces, wood scraps and sawdust at the Owner-supplied disposal bins on Site. Disposal shall be the responsibility of the Owner.
- .2 Dispose of unused wood preservative material at official hazardous material collections site.

2 PRODUCTS

.1 Materials

- .1 Pile branding: brand treated piles to indicate producer, in accordance with AWPA M6.
- .2 Round wood piles: to CAN3 O56, with minimum butt size of 36 cm and tip diameter related to length as specified by CAN3-O56.
- .3 Pile lengths: 60ft.

- .4 Type of peeling: Clean Peeled.
- .5 Pile species: Coast Douglas Fir.
- .6 Piles one piece, splices not permitted.
- .7 Departmental Representative will be sole judge of quality and dimension of piles.

.2 Preservative Treatment

- .1 Preservative Treatment: to CSA O80 Series Use Category 5A.
- .2 Conduct preservative treatment in compliance with latest revision of '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. Provide assurance that timber piling has been produced in accordance with BMP's.

.3 Accessories

- .1 Wire nails, spikes, staples: to CSA B111.
- .2 Bolts, nuts and washers: to ASTM A307.
- .3 Hot dip galvanize bolts, nuts and washers and unless otherwise specified, staples, cable clamps, pipe sleeves, spikes and nails: to ASTM A153/A153M.
- .4 Other hardware to be galvanized to ASTM A123/A123M.

3 EXECUTION

.1 Equipment

- .1 Prior to commencement of pile installation operation, submit to Departmental Representative 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 21,000 to 44,000 joules 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 Departmental Representative.
- .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 Departmental Representative 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 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.

.3 Field Measurement

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.

.4 Preparation

- .1 Select piles in each bent or group for uniformity of size and straightness to facilitate placing of brace timbers.
- .2 Submit details of proposed method of pile head and tip protection during driving to Departmental Representative for review.

.5 Driving

- .1 Use driving helmet to protect pile head. Ensure no loose inserts in helmet. Departmental Representative is sole judge of acceptability of helmet.
- .2 Reinforce pile heads if and as necessary.
- .3 Hold piles securely and accurately in position while driving.
- .4 Delivery hammer impacts concentrically and in direct alignment with the pile taking care to avoid forcing the pile laterally or bending the pile.
- .5 Drive piles at the angles and to the tip elevations specified unless solid bearing is reached at a lesser depth and approved by the Departmental Representative in writing.
- .6 Do not drive piles within 8m of masonry or concrete which has been in place less than 3 days.
- .7 Ensure no contact between pile and structure takes place when driving inclined piles adjacent to existing structures.
- .8 Do not drive inclined piles until vertical piles within a radius of 10 m have been fully driven.
- .9 Re-drive piles which have settled or heaved during driving of adjacent piles.

- .10 Restrike piles as directed by Departmental Representative.
- .11 Provide sufficient length above cut-off elevation so that the part damaged during driving is cut off. Cut off piles neatly and squarely at elevations indicated.
- .12 Remove cut-off lengths from site on completion of work.
- .13 Immediately treat exposed ends of cut off piles with heavy applications of copper naphthenate allowing sufficient interval between applications to permit total absorption. Continue until evidence of further penetration has ceased. When copper naphthenate is fully absorbed, seal surface with heavy application of approved bitumastic sealer.
- .14 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.
- .15 Piles will be driven to a minimum of 5 metre penetration.
- .16 Cut off will be min. 3m above high tide and no lower than current cut off elevation.

.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 Departmental Representative, work associated with encountering obstructions could not have been reasonably anticipated by the Contractor, additional compensation for work done will be considered for payment.

.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.

.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 bolts against timber piles.

.9 Cleaning

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

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SECTION 03 03 00
PILE DRIVING

END OF SECTION

1 GENERAL

- .1 All work shall be carried out in conformance with CSA Standard CAN3.A23.1-M.

2 MATERIALS

- .1 Cement to CAN/CSA-A3001, Type MS.
- .2 Approved supplementary cementing materials such as Type F Fly Ash replacement and Type SF Silica Fume may be added. Total supplementary cementing materials not to exceed 15% by mass of total cementitious materials to CAN/CSAA3001.
- .3 Water: to CSA-A23.1/A23.2.
- .4 Reinforcing steel: to CAN/CSA-G30.18, bare or galvanized bars with silica fume.
- .5 Hardware and miscellaneous materials: to CSA-A23.1/A23.2.
- .6 Forms: to CSA-A23.4.
- .7 Air entrainment admixtures: to ASTM C260.
- .8 Fine aggregate shall conform to Clause 5.3 CSA Standard CAN3.A23.1-M.
- .9 Coarse aggregate shall conform to Clause 5.4 CSA Standard CAN3.A23.1-M group 1. Max aggregate size to be 20 mm (3/4").
- .10 Water shall be clean and free from injurious amounts of oil, alkali, organic matter and deleterious materials.

3 CONCRETE MIXES

- .1 Concrete to meet performance criteria in accordance with CAN/CSA-A23.1/A23.2.
- .2 Durability and class of exposure: C-1.
- .3 Minimum compressive strength at 28 days: 35 MPa.
- .4 Intended application: continuous water submersion and splash zone (frequent wetting and drying cycles).
- .5 Maximum water cement ratio shall be 0.40.
- .6 Air content shall be between 5% and 8%.
- .7 Set retarding admixtures shall not be used unless approved by the Departmental Representative.
- .8 The concrete mix design shall be submitted to the Departmental Representative for approval prior to placing concrete. The mix design including admixtures shall not be changed without prior approval of the Departmental Representative.

4 PLACING, FINISHING AND CURING CONCRETE

- .1 All concrete shall be placed in accordance with the requirements of Clause 19 CSA Standard CAN3.A23.1-M and as indicated on the drawings.
- .2 All concrete shall be placed continuously between start of placement and a control joint.

Control joint locations shall be proposed by the contractor and are subject to prior approval by the Departmental Representative. Joint surfaces of cured concrete shall be roughened and thoroughly cleaned.

- .3 Accurate records shall be maintained for all cast-in-place concrete including date of placement, location, quantity, temperature and test samples taken.
- .4 The Departmental Representative shall be notified prior to commencement of concrete placement as specified in Clause 6.0.
- .5 All defective concrete shall be removed and replaced as directed by the Departmental Representative.
- .6 Concrete shall be vibrated adequately by means of mechanical vibrators. Rock pockets and honeycombing shall not be accepted.
- .7 Surface texture: non-skid finish on top, steel trowel or form finish on sides.
- .8 Cold and hot weather concrete work shall be carried out in conformance with Clause 21 of CSA Standard CAN3.A23.1-M. Procedures for this work shall be submitted to the Departmental Representative for approval.
- .9 All concrete shall be protected and cured in accordance with CSA Standard CAN3.A23.1-M.

5 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with CSA-A23.4.

6 INSPECTION AND TESTING

- .1 Provide the Departmental Representative with certified copies of quality control tests related to this project as specified in CSA-A23.4 and CSA-G279.
- .2 Provide records from in-house quality control programme based upon plant certification requirements for inspection and review.
- .3 Upon request, provide Consultant with certified copy of mill test report of reinforcing steel supplied, showing physical and chemical analysis.
- .4 The Departmental Representative shall be notified 24 hours prior to placement of concrete.
- .5 Unless noted otherwise an inspection and testing firm appointed and paid for by the Contractor will collect and test a minimum of 3 concrete cylinders per concrete batch. One concrete cylinder shall be tested after 7 days. The remaining 2 cylinders shall be tested after 28 days. The test results shall be made available to the Departmental Representative.
- .6 The Contractor shall permit the testing firm free access to all portions of the work and shall co-operate with the testing firm in carrying out the work.

1 GENERAL

1.1 RELATED REQUIREMENTS

- 1.1.1 Section 01 11 00 – SUMMARY OF WORK
- 1.1.2 Section 01 35 29.06 – HEALTH AND SAFETY REQUIREMENTS
- 1.1.3 Section 01 35 43 – ENVIRONMENTAL PROCEDURES
- 1.1.4 Section 02 20 60 – DEMOLITION OF STRUCTURES
- 1.1.5 Section 02 50 00 – TIMBER AND TIMBER FLOATS
- 1.1.6 Section 03 03 00 – PILE DRIVING
- 1.1.7 Section 03 30 00 - CONCRETE

1.2 REFERENCE DRAWINGS

- 1.2.1 Not Used.

2 PRODUCTS

2.1 RELATED REQUIREMENTS

- 2.1.1 Small fastenings will conform to the standard for Wire Nails, Spikes, and Staples, Canadian Standards Association (CSA) B-111-1974.
- 2.1.2 Drift bolts, machine bolts, washers, and miscellaneous iron will conform to the standard for General Purpose Structural Steel of the CAN3-G40.21-M81.
- 2.1.3 Items manufactured or fabricated from scrap steel of unknown chemical or physical properties are not acceptable.
- 2.1.4 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.
- 2.1.5 All bolts shall be 19mm (3/4") National course thread, unless shown otherwise.
- 2.1.6 Holes for machine bolts will be bored to provide a driving fit.

2.2 HARDWARE

- 2.2.1 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.
- 2.2.2 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/m² (2oz/ft²).
- 2.2.3 All bolts will be of the full dimension specified or shown on the plan.
- 2.2.4 Unless otherwise specified, all machine bolts will be provided with round steel plate washers under head and nut.

- 2.2.5 All bolts shall be 19mm (3/4") National course thread, unless shown otherwise.
- 2.2.6 All 19mm washers shall be 6mm thick and 75mm diameter galvanized steel.
- 2.2.7 All 25mm washers shall be a minimum of 8mm thick and 100mm diameter galvanized steel.
- 2.2.8 All bolts to have 150mm (6") of thread unless shown otherwise.

3 EXECUTION

3.1 ASSEMBLY

- 3.1.1 All bolts shall be tightened to 100 Newton Meters (80 ft lbs.)
- 3.1.2 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 02 50 00 TIMBER AND TIMBER FLOATS.
- 3.1.3 Pre-drilling:
 - .1 All ends of timbers not fastened by bolts shall be predrilled prior to installation to prevent splitting.
- 3.1.4 Holes for machine bolts will be bored to provide a driving fit.

3.2 DECKING

- 3.2.1 Decking will be delivered to site in a bundle.

3.3 FASCIA

- 3.3.1 Secure each contact point with 3 – 100mm galvanized RDOX nails.
- 3.3.2 Contact points every 500mm maximum.

END OF SECTION