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PART 1 - GENERAL

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| 1.1 | <u>Related Work</u>        | .1  | Refer to other Specification Sections for related information.   |
|     |                            | .2  | Refer to <b>Section 01 33 00</b> for Shop Drawing/Submissions requirements.  |
| 1.2 | <u>Reference Standards</u> | .1  | CAN/CSA 080 Series 15 (or latest edition)-Wood Preservation.   |
|     |                            | .2  | Copper naphthenate containing 2% copper for Brush or Spray Treatment for Field Cuts.   |
|     |                            | .3  | NLGA standard grading rules for Canadian Lumber 2017 edition or most recent edition at time of tendering.                                      |
|     |                            | .4  | CSA B111-1974(R2003) (or latest edition), Wire Nails, Spikes and Staples.  |
|     |                            | .5  | CSA G40.11-13/G40.21-13(R2018)(or Latest Edition) General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel. |
|     |                            | .6  | CSA 086-14 (or latest edition), Engineering Design in Wood.  |
|     |                            | .7  | CSA 0121-17 (or latest edition), Douglas Fir Plywood.  |
|     |                            | .8  | CSA W59-13 (or Latest Edition), Welded Steel Construction (Metal Arc Welding).   |
|     |                            | .9  | ASTM A123/A123M-17 (or latest edition), Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.              |
|     |                            | .10 | ASTM D4637/D4637M-15 (or latest edition), Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.                              |
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- .11 ASTM F3125/F3125M-15a (or latest edition), Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions.
- 1.3 Submissions
- .1 At least two weeks prior to finalizing timber order, submit drawings, clearly indicating installation details. Show splice locations, splice details, fastening arrangements.
- .2 Submit methodology for field treatment.
- .3 Provide submissions in accordance with **Section 01 33 00.**
- 1.4 Measurement for Payment
- .1 Timber will be measured in accordance with **Section 01 29 00.**
- .2 All hardware such as bolts, nuts, plates, etc. shall be considered incidental and the cost shall be included in the price of items which require the hardware items.

## PART 2 - PRODUCTS

- 2.1 Materials
- .1 Softwood Timber: Graded and stamped to National Lumber Grading Authority (NLGA) No. 1 Structural. Douglas Fir Species, only, will be used.
- .2 Plywood: to CSA 0121.
- .3 Timber Treatment:
- .1 Preservative treatment to CSA 080 - Series - 15 for Marine Construction Coastal Waters. Where assay retentions are not indicated, they are to be taken as 1.5 times the indicated gauge retention.
- .2 Make arrangements for testing of timber by:
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- .1 Plant Inspection: Provide treatment plant identification, date of treatment, list of various pieces in the charge, charge number, plant assay testing results, concentration and type of preservative used, duration of treatment, gauge retention, species of timber; and make arrangements with the treatment plant to locate bundles, move bundles, break open bundles and carry out other measures to facilitate the inspection.
  - .2 Filling in and submitting a preprinted form, agreed to by the *Departmental Representative*, containing the above information.
  - .4 Miscellaneous Hardware: Hardware shall meet requirements of **Section 05 50 00**.

### PART 3 - EXECUTION

#### 3.1 General

- .1 Supply and install dimension timbers for the construction of closed timber pile wall.
  - .2 Boreholes for drift bolts to be 1.5 mm smaller in diameter than bolt and for full length of bolt. Boreholes for bolts to be same diameter as bolts. Boreholes for lag bolts to be same diameter as shank for unthreaded portion and 0.70 times the shank diameter for the threaded portion. Threaded portion of lag bolts will be installed using a wrench, not by driving.
  - .3 All countersunk holes to be recessed 25 mm and shall receive two coats of Copper naphthenate, allowing sufficient time between applications to permit total absorption. The cost of supply and application of Copper naphthenate will not be measured for payment but will be considered incidental to the work.
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Dimension Timber

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| 3.2  | <u>Handling Timber</u>             | .1 | Timber will be protected during handling, shipping, offloading and field handling, by use of suitable equipment and procedures. Use rope or fabric strap slings on site for moving bundles or individual timbers, rather than metal grabs, chains or cables.   |
|      |                                    | .2 | Tops of vertical untreated timber to be field treated with minimum two liberal coats of Copper naphthenate.  |
| <br> |                                    |    |  |
| 3.3  | <u>Handling<br/>Treated Timber</u> | .1 | Handle treated material to avoid damage causing alteration in original treatment.  |
|      |                                    | .2 | Treat in field, spike holes, boreholes, drill holes, plugged holes, cuts and any damage to treated material, using Copper naphthenate, as specified herein, regardless of plant treatment type. Fill all unused bored holes and any other holes with tight fitting treated wooden plugs prior to any exposure to water containing marine borers. |
|      |                                    | .3 | Provide methodology pertaining to heating and application. Apply to dry surfaces, wherever possible.   |
|      |                                    | .4 | Treat boreholes, using a pressurized container with an extension rod, to produce a fine spray in the holes with one application. Alternately a cylindrical brush may be used.  |
|      |                                    | .5 | Treat field cuts and any abrasions with minimum of two liberal applications, using either spray or brush.  |
|      |                                    | .6 | In addition, field cuts and underwater damaged areas will receive a coating of plastic compound, capped with lead flashing secured with galvanized roofing nails. Plastic compound not to be water soluble and is subject to approval.   |
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|     | .7              | Environmental Concern: Ensure no spillage or excess application of field preservative. Provide workmen with sufficient training and protective gear to properly and safely handle the treated materials and to apply field treatment, so as to prevent undue hazard to themselves, others, or the environment. |
|     | .8              | <b>Contain all debris and leachates (films on water surface) within the area of the work by using containment facilities such as floating booms or screens.</b>  |
| 3.4 | <u>Walers</u>   |  |
|     | .1              | Install and position walers to correct location. Secure in place to details indicated.   |
|     | .2              | Connect walers to piles with bolts to details indicated.   |
|     | .3              | Install tie rods and connect to timber piles and walers.   |
| 3.5 | <u>Blocking</u> |  |
|     | .1              | Install timber blocking at locations indicated. Provide full length blocking. Blocking made from small length timber pieces would not be acceptable.   |
|     | .2              | Secure blocking with bolts as indicated.   |
| 3.6 | <u>Ladders</u>  |  |
|     | .1              | Assemble ladder to the details shown.  |
|     | .2              | Install blocking at location indicated and secure to the walers with bolts as indicated.   |
|     | .3              | Install ladder and secure to blocking with bolts.  |
| 3.7 | <u>Plywood</u>  |  |
|     | .1              | Install plywood at location indicated.   |
|     | .2              | Secure plywood to timber piles #9 x 75 mm lg galvanized common nails spaced at 300 mm in each direction.   |
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