PART 1 - GENERAL

1.1 Related Work

.1 Refer to other Specification Sections for related information.

.2 Refer to **Section 01 33 00** for Shop Drawing/Submissions requirements.

1.2 Reference Standards

.1 CAN/CSA-080 Series M89 (or latest edition)- Wood Preservation (including CSA preliminary standard 080.31-M1989).

.2 AWPA P7-85 (or latest edition)- Creosote for Brush or Spray Treatment for Field Cuts (American Wood Preservers Association).

.3 NLGA standard grading rules for Canadian Lumber 1980 edition or most recent edition at time of tendering.

.4 CAN/CSA-G164-M92 (or latest edition) - Hot Dip Galvanizing of Irregularly Shaped Articles.

.5 ASTM A307-94 (or latest edition), Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.

.6 ASTM B111-1974 (or latest edition), Wire Nails, Spikes and Staples

.7 CSA 086.1-94 (or latest edition), Engineering Design in Wood (Limit States Design)

.8 ASTM D4637-96 (or latest edition), EPDM Sheet Used In Single-Ply Roof Membrane.

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.**

PART 2 - PRODUCTS

2.1 Materials

.1 Softwood Timber: Graded and stamped to National Lumber Grading Authority (NLGA) No. 1 Structural. Eastern Hemlock, Western Hemlock or Douglas Fir Species, only, will be used.

.2 Timber Treatment:

.1 Preservative treatment to CAN/CSA-080 Series - M89 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:

.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 wood; 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 *Engineer*, containing the above information.

.3 Miscellaneous Hardware Hardware must meet the following specifications:

.1 Machine bolts, lag bolts, drift bolts, anchor bolts, nuts, round plate washers: to ASTM A307.

.2 Spikes: to CSA B111.

.3 Hot dip galvanized hardware, bolts, nuts, washers and spikes to CSA G164, with minimum zinc coating of 600 g/m^2,.

.4 All hardware will be galvanized unless otherwise shown on plans.

PART 3 - EXECUTION

3.1 General

.1 Supply and install dimension timber fenders to details shown on drawings or as specified. Treated timber to be supplied in pre-cut lengths to suit.

.2 Boreholes for drift bolts to be 1.5mm smaller in diameter than bolt and for full length of bolt. Boreholes for machine 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 An approved waterbourne preservative, allowing sufficient time between applications to permit total absorption. The cost of supply and application of An approved waterbourne preservative will not be measured for payment but will be considered incidental to the work.

3.2 Handling Timber

.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 An approved waterbourne preservative.

.3 Treat in field, spike holes, boreholes, plugged holes, cuts and any damage to treated material, using An approved waterbourne preservative, 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.

.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.

.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 **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.**

3.3 Timber Fenders

.1 Supply and install treated timber fenders as detailed on the drawings.

.2 Fasten treated fenders to timber cribwork with lag bolts and to concrete with cast in place or chemical anchor bolts.

.3 Bevel top of each fender to 4 horizontal to 1 vertical, and bottom of each is to extend 300 mm below chart datum. Treat tops per **Section 06 05 73.**

.4 Countersink bolts on exterior face of fenders.