Part 1 General

1.1 MEASUREMENT PROCEDURES

1.2 No measurement will be made under this Section for treatment of timber elements. Include costs for all required items in the applicable lump sum price.

1.3 REFERENCES

.1 American Wood-Preservers' Association (AWPA):

.1 AWPA M2, Standard Inspection of Treated Wood Products.

.2 AWPA M4, Standard for the Care of Preservative-Treated Wood Products.

.3 AWPA E12, Standard Method of Determining the Corrosion of Metal in Contact with Wood.

.4 AWPA P5, Standard for Waterborne Preservatives.

.5 AWPA P8, Standard for Oil Borne Preservatives.

.6 AWPA P9, Standard for Solvents and Formulations for Organic Preservative Systems.

.7 AWPA P23, Standard for Chromated Copper Arsenate Type C (CCA-C).

.8 AWPA P25, Standard for Inorganic Boron (SBX).

.9 AWPA P48, Standard for Copper Azole Type C (CA-C).

.10 AWPA T1, Use Category System: Processing and Treatment Standard.

.11 AWPA U1, Use Category System: User Specification for Treated Wood.

.2 Canadian Standards Association (CSA):

.1 CSA O80 Series, Wood Preservation.

.2 CSA O80.201, Standard for Hydrocarbon Solvents for Preservatives. This Standard covers hydrocarbon solvents for preparing solutions of preservatives. This is not stand alone specification.

.3 CSA O322, Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.

1.4 SUBMITTALS

.1 Purchase orders, invoices, and documents: retain purchase orders, invoices, and other documents to prove that material used meets specified requirements.

.2 Submit documentation to Departmental Representative in accordance with Section 01 33 00 - Submittal Procedures.

.3 Approvals: obtain approval of Departmental Representative, prior to wood treatment.

.4 Product Data: manufacturer’s instructions for use, including requirements for storage, cutting, and finishing.

.5 Certificates: submit to Departmental Representative following information certified by authorized signing officer of treatment plant.

.1 Information listed in AWPA M2 applicable to specified treatment.

.2 Treating plant's certification of compliance with specified standards, process employed, and preservative retention values.

.3 Moisture content after drying following treatment with water-borne preservative.

.6 Submit "Workplace Hazardous Materials Information System" (WHMIS) documentation on products to Departmental Representative.

1.5 QUALITY ASSURANCE

.1 Plant inspection of products treated with preservative by pressure impregnation will be carried out by designated testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.2 Preservative Treatment: Mark each piece of lumber to show compliance with specified standards.

.3 Kiln dry each piece of lumber for preserved wood to be identified by certified stamp. Dry after treatment to 19 percent maximum moisture content for lumber in accordance with AWPA T1.

1.6 REGULATORY REQUIREMENTS

.1 Adhere to Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.

.2 Adhere to the Canadian Environmental Assessment Act and Review Process as required.

.3 Adhere to the Parks Canada Management Directive 2.4.1 for application of pesticides.

.4 Adhere to the Parks Canada Management Directive 2.4.2 for application of wood preservatives.

1.7 STORAGE AND HANDLING

.1 Store and handle wood preservatives in accordance with provincial work and safety regulations.

1.8 CERTIFICATES

.1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.

.2 For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:

.1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.

.2 Moisture content after drying following treatment with water-borne preservative.

.3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.9 WASTE MANAGEMENT AND DISPOSAL

.1 Do not dispose of preservative treated wood through incineration.

.2 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.3 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by Departmental Representative.

.4 Dispose of unused wood preservative material at official hazardous material collections site approved by Departmental Representative.

.5 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 Products

2.1 MATERIALS

.1 Preservative: to CSA-O80 Series, water-borne:

.1 CCA shall be used to treat all round timbers and sawn timber for the stockade as indicated on the Contract Drawings.

.2 Cu-Bor (Copper-Boron) shall be applied onsite for below grade application of Timber support posts as indicated on the Contract Drawings.

.3 Copper Azole shall be used to treat all sawn timber used for construction of gates as indicated on the Contract Drawings.

.4 Copper Naphthenate shall be brushed on the cut ends or holes in all treated timber elements.

.2 CCA Preservative Pressure Treatment of Wood:

.1 Preservative Treatment for Posts that are in contact with the ground or freshwater (UC4.2) in accordance with the CSA 080:

.1 Pressure treat posts with CCA type CSI in accordance with AWPA U1, P5 and P23.

.2 Use 0.50 lb/cu ft (8.0 kg/m3) retention of CCA type C to comply with CSA O80 UC4.2 for solid sawn timber.

.3 Use 0.60 lb/cu ft (9.6 kg/m3) retention of CCA type C to comply with CSA O80 UC4.2 for posts.

.4 Treat wood in the following locations:

.5 All full length intermediate and anchor posts, sawn lumber whalers, splice pieces, and timber bottom plates as indicated on the Contract Drawings.

.2 Copper Azole Preservative Pressure Treatment of Wood.

.3 Preservative Treatment of rough cut sawn lumber that are in contact with the ground or freshwater (UC4.2) in accordance with the CSA 080:

.1 Treatment: CA type C in accordance with AWPA U1, P5 and P48.

.2 Use 0.062 lb/cu ft (10 kg/m3) of CA type C in accordance with CSA O80 UC4.2.

.3 When required, kiln dry after treatment to 19 percent maximum moisture content for lumber and 18 percent for plywood recommended in accordance with AWPA T1 Section 7 - Drying After Treatment (lumber) and AWPA T1 Section F Pressure treated composites (3c) kiln drying after treatment.

.4 Treat wood for use in the following locations:

.1 All sawn lumber for gates indicated on Contract Drawings.

.4 Copper-Boron (Cu-Bor) Wood Preservative:

.1 All anchor posts below grade and at ground line shall receive a Cu-Bor pouch as indicated on the Contract Drawings. Install as per manufacturer's instructions.

.2 Use Cu-Bor Ready-to-Use Pouches by Copper Care Wood Preservatives Inc. or approved Equal.

.5 Copper Naphthenate:

.1 All thermal or field cut edges shall be given two coats of copper naphthenate.

.2 The preservative solution of copper naphthenate for field treatment shall be prepared using a solvent that meets the requirements of CSA O80.4 and contains at least 2% copper as metal. Comply with AWPA M4, P8, and P9 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

Part 3 Execution

3.1 APPLICATION: PRESERVATIVE

.1 Incise all timber materials prior to treatment.

.2 Treat timber materials to CSA O80 Series UC3.2/UC4.2 using CCA and Copper Azole preservatives.

.3 Following water-borne preservative treatment, dry material to maximum moisture content as specified in CSA O80.

.4 Protect other wood surfaces from contact with preservative during application and for three day afterward.

3.2 APPLICATION: FIELD TREATMENT

.1 Only copper naphthenate shall be used for field treatment of permanent wood foundation material. The preservative solution of copper naphthenate for field treatment shall be prepared using a solvent that meets the requirements of CSA O80.4 and contains at least 2% copper as metal. Comply with AWPA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.2 Comply with AWPA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.

.3 Remove chemical deposits on treated wood to receive applied finish.

3.3 CLEAN-UP

.1 Dispose of waste legally off-site, in accordance with governing regulations.

.2 Dispose of end-cuts and left over chemicals in an approved disposal site or facility.

.3 Do not burn or allow other use of end-cuts.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 06 05 73 - Wood Treatment.

.2 Section 32 31 27 - Timber Fences and Gates.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM):

.1 ASTM A653/A653M-01a, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealled) by the Hot-Dip Process.

.2 ASTM D1761-00, Standard Test Methods for Mechanical Fasteners in Wood.

.3 ASTM D5456-01ae1, Specification for Evaluation of Structural Composite Lumber Products.

.2 Canadian Standards Association (CSA):

.1 CSA B111-1974, Wire Nails, Spikes and Staples.

.2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 CAN/CSA-O15, Wood Utility Poles and Reinforcing Stubs.

.4 CAN/CSA O141 - Softwood Lumber

.3 National Lumber Grades Authority (NLGA):

.1 Standard Grading Rules for Canadian Lumber.

1.3 QUALITY ASSURANCE

.1 Lumber by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

.2 Identify pieces of treated lumber used in preserved wood foundations by CSA O322 certification stamp.

.3 Work to be executed by skilled craftsmen trained in this field with a minimum of five (5) years experience. Execute work according to best practices as specified and as indicated.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Set aside damaged wood and dimensional lumber off-cuts for approved alternative uses (e.g. bracing, blocking, cripples, bridging). Store this separated reusable wood waste convenient to cutting station and area of work.

.2 Do not burn scrap at the project site.

.3 Fold up metal banding, flatten, and place in designated area for recycling.

.4 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.5 Do not dispose of preservative treated wood through incineration.

.6 Do not dispose of preservative treated wood with other materials destined for recycling or reuse.

.7 Dispose of treated wood, end pieces, wood scraps and sawdust at sanitary landfill approved by Departmental Representative.

.8 Dispose of unused wood preservative material at official hazardous material collections site approved by Departmental Representative.

.9 Do not dispose of unused preservative material into sewer system, into streams, lakes, onto ground or in other locations where they will pose health or environmental hazard.

Part 2 Products

2.1 FRAMING AND STRUCTURAL MATERIALS

.1 Lumber: unless specified otherwise, softwood, Douglas Fir, moisture content 19% (S-dry) or less in accordance with following standards:

.1 CAN/CSA-O141.

.2 NLGA Standard Grading Rules for Canadian Lumber.

2.2 PALISADE MATERIALS

.1 Wood poles: to CAN/CSA-O15, wood species Douglas Fir, Class 1, preservative treated:

.1 Poles for anchor posts and intermediate posts, length and diameter as indicated on the Contract Drawings.

.2 The average pole diameter supplied shall match what is indicated on the Contract Drawings.

.3 The base of all main support posts shall not be less than 80% the average diameter indicated on the Contract Drawings.

.4 Off-cut sections from the supplier are acceptable in order to achieve the requirements indicated above.

.5 Wood preservative: in accordance with Section 06 05 73 - Wood Treatment.

.2 Lumber: Rough cut (R/C) sawn timber, #1 Douglas Fir or better to CAN/CSA O141:

.1 Sawn lumber for timber elements as indicated on Contract Drawings.

.2 Wood preservative: in accordance with Section 06 05 73 - Wood Treatment.

2.3 FASTENERS

.1 Nails and spikes: to CSA B111. Sizes and lengths as indicated on the Contract drawings.

.2 Lag screws: To CSA B34. Size and lengths as indicated on the Contract Drawings.

2.4 FASTENER FINISHES

.1 Galvanizing: to CAN/CSA-G164, use galvanized fasteners for pressure-preservative treated lumber.

2.5 WOOD PRESERVATIVE

.1 Refer to Section 06 05 73 - Wood Treatment.

Part 3 Execution

3.1 PREPARATION OF POLES

.1 Where poles require shortening, cut piece from top only.

.2 Treat top, grains, and bored holes with preservative before assembly.

3.2 INSTALLATION

.1 Comply with requirements of NBC 2010 Part 4 supplemented by following paragraphs.

.2 Install members true to line, levels and elevations, square and plumb.

.3 Construct continuous members from pieces of longest practical length.

.4 Install spanning members with "crown-edge" up.

.5 Select exposed framing for appearance. Install lumber materials so that grade-marks and other defacing marks are concealed or are removed by sanding where materials are left exposed.

.6 Install whalers tight to timber posts to minimize the occurrence of gaps.

3.3 ERECTION

.1 Frame, anchor, fasten, tie and brace members to provide necessary strength and rigidity.

.2 Countersink lag screws where necessary to provide clearance for other work.

3.4 FASTENERS

.1 Install lag screws as per CSA O86.

.2 Bore lead holes for the threaded portion of the lag screw and clearance hole for the shank portion of the lag screw in timber members as required.

.3 Lead holes shall be drilled to 60%-75%of the shank diameter as indicated in CSA O86. The clearance hole shall be drilled to the same diameter as the shank. The depth of penetration of the clearance hole shall match the length of the unthreaded shank.

.4 The threaded portion of the lag screw shall be inserted in the lead hole by turning of a wrench, not by driving.

.5 Lubricant can be used on the lag screw or in the lead hole to facilitate insertion and prevent damage to the screw.

3.5 TOLERANCES

.1 All posts shall be installed with a variation of not more than 2 mm/m (1:500) from the vertical.

.2 Final position of all posts shall be installed within 12 mm parallel to the gridline.

3.6 EXAMINATION

.1 Stop work and report immediately to the Departmental Representative, evidence of structural deficiencies, fungal activity, or insect infestation not described on the drawings which may affect the scope of work and durability of the finished product.

END OF SECTION