

**Part 1            General**

**1.1                SCOPE OF WORK**

- .1        This list of work is not necessarily complete and does not relieve the Contractor of their responsibility for executing any other work, change or modification required in addition of those listed herein, at the satisfaction of the Departmental Representative.
  
- .2        Construction of CCA wooden floating docks and accessories for Grosse Iles fishing harbour, comprises, but is not limited to:
  - .1        Supply of material and labor for manufacture of floating docks and steel galvanized ad aluminum accessories in accordance to details and quantities indicated in drawings.
  - .2        Supply of materials and specialized labor for the installation of the HDPE dry boxes for lot 1 all according to drawings and specifications.
  - .3        Delivery of floating docks and accessories to the fishing harbour indicated for each lot.
  - .4        Complete installation of the floating docks, cables, strong arms as indicated on the drawings, as well as all adjustments onsite.

**1.2                REFERENCES**

- .1        Canadian Standards Association (CSA International)
  - .1        CAN/CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2        CAN/CSA O80, Wood preservation.
  - .3        CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.
  - .4        CSA W47.2 Fusion welding of aluminum company certification
  - .5        CSA W48, Filler Metals and Allied Materials for Metal Arc Welding.
  - .6        CSA W59, Welded Steel Construction (Metal Arc Welding).
  - .7        CSA W59.2, Welded Aluminum Construction
  
- .2        All items which are part of the fabrication of steel components shall be designed and built in compliance with current codes and standards, including Standard CAN/CSA-G40.20General Requirements for Rolled or Welded Structural Quality Steel and G40.21, Structural Quality Steel.
  
- .3        The Contractor shall be responsible for referring to all codes and standards applicable to the different construction elements and related materials. The Contractor shall comply with the latest edition and revision of all American Society for Testing and Materials International (ASTM) and Canadian Standards Association (CAN/CSA) documents and other applicable standards.

### **1.3 WORK EXTENT**

- .1 Work included in this project comprises the supply of all material, labour, tools, equipment, protection and transportation required for fabricating and completing work in compliance with the requirements stated herein.
- .2 Co-ordination and allocation of work among subcontractors is the sole responsibility of the General Contractor and no reference to subcontractors in these documents shall be construed as binding Department of Fisheries and Oceans with respect to any such allocation.

### **1.4 WORK SEQUENCE**

- .1 Construct Work in stages, and if possible, as directed by Departmental Representative.
- .2 Coordinate Progress Schedule with Departmental Representative.
- .3 Sequence activities to limit exposure of partially constructed work to waves, ice and snow storms. Damages to new structures, partially constructed or approved, prior to substantial completion, due to Contractor or subcontractor operations, shall be repaired by Contractor at no additional cost for Departmental Representative.
- .4 Contractor is authorized to install docks from March the 15<sup>th</sup> 2024.
- .5 All works must be done by April the 26<sup>th</sup> 2024

### **1.5 QUALITY ASSURANCE**

- .1 Trial reports: submit trial reports certifying that products, materials and equipment meet the specifications in terms of physical characteristics and performance criteria.
  - .1 Mill test reports to show chemical and physical properties of steel and aluminum.
  - .2 Provide with all shop drawings for fabricated metal for review.
  - .3 Provide with technical specification for all product / material used.

### **1.6 QUALITY CONTROL**

- .1 The Departmental Representative will be responsible for obtaining services from independent trial and inspection firms.
  - .1 Welding works shall be done in accordance with drawings and specifications and in conformity with the requirements of CSA W59 Welded Steel Construction (Metal Arc Welding) and CSA W59-2 Welded Aluminum Construction. The respect of welding procedures will be checked during fabrication. Weldings will be inspected according to article 12 of CAN/CSA W59. The fillet welds will be inspected visually and by magnetic particles. Complete penetration weldings will be inspected visually and by magnetic particles.
- .2 Work performed by trial and inspection firms does not relieve the Contractor from their responsibility to execute work in compliance with contract document requirements.
- .3 Build up safe access and working areas for testing on site.
- .4 Remove defective or deemed non-compliant with the contract documents and rejected by the inspection firm or Departmental Representative, either because they were not conducted according to the rules of the art, either because they were made of materials or

defective products or they not comply with Specs or drawings requirements. Replace or repair components as required by the contract documents.

## **1.7 TRANSPORTING, STORING AND HANDLING**

- .1 Packing, Shipping, Handling and Unloading:
  - .1 Deliver, store, handle and protect materials.
  - .2 Handle steel pieces so as to avoid permanent deformations.
  - .3 Handle with care steel pieces that have received a special coating.
- .2 Storage and Protection:
  - .1 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.
  - .2 Handle carefully all materials to prevent scratching, cracking, flaking, twisting and other types of damage. While waiting for adhesives usage, the resins and their catalysts and curing agents, shall be stored in a dry warehouse with a temperature between 21 and 29 degrees C (70 and 85 degrees Fahrenheit).

## **1.8 MEASUREMENT METHOD**

- .1 **Item n° 1 – Site organization**
  - .1 Item will be measured as a lump sum price and includes all items listed in division 1, also items that cannot be assigned to another measurement item.
  - .2 This item shall include all the necessary work and the means to ensure continuity of services for fishermen.
  - .3 This item also includes all works indicated on Drawing and Specs and that that there are not included in other items.
  - .4 Site organization during work will be paid proportionately with monthly progress payments.
- .2 **Item n° 2 – Floating Docks Manufacture**
  - .1 This item will be measured as a unit and includes equipment, material and labour for the manufacture of floating docks.
    - .1 The item is divided as follows:
      - .1 Floating Docks construction
        - .1 Lot 1 – 5 rows docks
      - .2 The Contractor shall consider in the preparation of his bid that floating docks of lot – Grosse Ile have to be painted with anti-fouling as described in drawings and specification section 2.1.5.
- .3 **Item n° 3 – Steel Galvanized and Aluminum Components Manufacture**

- .1 This item will be measured as a lump sum price and includes equipment, material and labour for the fabrication of steel and aluminum components, as well as galvanizing of steel components
- .2 Supply of hardware to attach floating docks to each other, including bolts, HDPE washers and safety pins, as indicated on drawings and quantities indicated below
- .3 Item also includes partial or total installation of steel or aluminum components, as indicated on drawing and next:

- .1 The item is divided as follows:

- .1 Lot 1 – 5 rows docks steel components

- .2 This item includes the supply of hardware required to attach docks together, including washers, nuts and bolts, bracing cables and their hardware. All according to the instructions on the drawings and the quantities indicated below.

- .1 **Lot 1 – Steel components for 5 rows docks** includes the manufacturing, galvanizing and installation of the systems and all their galvanized hardware (bolts, washers, nuts) for pontoons equipped with 3 rows of wood. This lot includes without being limited to:

- .1 Strong arms T16
    - .2 Strong arm bracket T5 (dock side)
    - .3 Strong arm bracket kit (concrete bloc side)
    - .4 Special fastening kit (T11, T12 et T13)
    - .5 Landing plates T23
    - .6 Fastening kit (T1,T2,T3,T4)
    - .7 Anti-skid overlap plates
    - .8 Hinge for anti-skid overlap plates (T14)
    - .9 Galvanized bracing cables 16mm and hardware (lengths in the drawings). Plan ahead for an extra length to allow for onsite adjustments.
    - .10 Bolts nuts, washers and other hardware

- .4 Item n° 4 – Installation

- .1 This item will be measured as an lump sum unit and includes, shipping and unloading onsite and installation of the complete dock system on strong arms inside the basin, the installation of bracing cables, transition plates, aluminum walkways ( supplied by department). Adjustments of components according to department representative directions are also included.

**Part 2        Products**

**2.1            MATERIALS**

- .1 Steel:
  - .1 Structural steel: in accordance with Standard CAN/CSA-G40.20/G40.21, Shade 350W or as per specifications.
  - .2 Welding materials: in accordance with Standard CSA W59 and approved by the Canadian Welding Bureau.
  - .3 Welding electrodes: in accordance with Series CSA W48 standards.
  - .4 Hot dip galvanizing: as per indications, galvanized steel elements in accordance with CAN/CSA-G164, with minimum zinc coating of 600 g/m<sup>2</sup> or with ASTM A123/123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Production.
    - .1 Galvanize the various parts in accordance with the following rates:
      - .1 Bolts and nuts: 460 g/m<sup>2</sup>;
      - .2 Section, plates and rods: 705 g/m<sup>2</sup>
  - .5 All mechanical bolts, lag screw, drift bolt and nails shall be galvanized, medium grade steel in accordance with ASTM A-307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
  - .6 Mechanical bolts, lag screw and drift bolt will have forged heads.
  - .7 Lag-screw to be threaded
  - .8 The lag-screw holes must conform to the following:
    - .1 The pilot hole for the bolt core must be the same diameter as the bolt core and the same height as the bolt core length without the thread.
    - .2 The diameter of the pilot hole for the threaded portion must be 60 to 75 percent of the diameter of the bolt core for the length equal to the threaded portion of the bolt.
    - .3 The threaded portion of the screw must be inserted into the pilot hole by turning the screw with a wrench and not by using a hammer.
    - .4 Soap or any other lubricant that is not petroleum based may be used on the screw or in the pilot hole in order to facilitate insertion and prevent damage to the screw.
- .2 Aluminum:
  - .1 Corrosion resistant aluminum type (minimum service life of thirty years) 6061-T6 or 6005-T5-type or approved equivalent, extruded.
  - .2 Welding work in accordance with CAN/CSA-W59.2 and CAN/CSA-W47.2
- .3 Wood:
  - .1 The spruce, jack pine and eastern hemlock will meet the requirements of the latest standard grading rules of the "Eastern Spruce Grading Committee" approved and published by the Canadian Lumbermen's Association, the Quebec Lumber Manufacturers Association and the "Maritime Lumber Bureau," with the

- exception of the balsam fir which will not be accepted although it is mentioned in rule No. 1 due to its poor resistance.
- .2 All wood varieties will be in compliance with the requirements of the NLGA (National Lumber Grades Association) entitled "Standard Grading Rules for Canadian Lumber."
  - .3 Wood grade to be No1 in compliance with the requirements of the NLGA (National Lumber Grades Association)
  - .4 All wood used in the construction of the embankment will be treated with pressurized ACC in accordance with CAN/CSA-O80-M, except for ballast floor. Retention to be 24 kg/m<sup>3</sup> as required for marine application in accordance with requirements.
  - .5 Timber over 64 mm thick must be incised, all according to Article 9.8 of the CSA O80.
  - .6 The wood will be double end trimmed at a right angle before treatment following standard NLGA 748-B.
  - .7 All material treated under pressure requiring cutting, in order to be adjusted, will be coated, while dry, with three (3) layers of preservative as is required in standard CAN/CSA-080-M. All holes in timber pieces will be treated in this fashion.
  - .8 Each piece of lumber to be identified by CSA O322 certified stamp.
- .4 PEHD floats
- .1 The PEHD buoyancy floats to be installed under the docks are high density polyethylene (HDPE) floats as indicated on the plans. Floats to be filled with polyurethane foam.
- .5 Anti-fouling paint
1. 1. Surface preparation can be done manually and using orbital sanders with coarse-grained discs. All faces must be sandblasted except the one that will be bolted to the pontoon structure.
  2. Surface cleaning and preparation: Use air nozzle and solvent to clean the surface before applying primer. Allow time for drying.
  3. Primer application: Use Aquaguard brand primer. Apply a single coat. The application can be done with a paint spray-gun or manually. Follow the manufacturer's recommendations.
  4. Apply the Aquaguard black paint in two coats with a minimum interval of 2 hours between each coat. The application can be done manually or with a paint spray-gun

## **2.2 SHAPING**

- .1 The construction steel elements shall be shaped in compliance with Standards CAN/CSA-S16, CAN/CSA-S136 and as indicated on verified engineering drawings.
- .2 Continuously seal members by continuous welds where indicated. Grind smooth.
- .3 Where possible, works to be adjusted and built in shop, and delivered ready to fix.

## **2.3 FINISHING**

- .1 All steel elements shall be hot dip galvanized and not painted.

## **Part 3 Execution**

### **3.1 GENERAL**

- .1 Fabricate structural steel in accordance with CAN/CSA-S16 and CAN/CSA-S136.
- .2 Execute welding works in compliance with Standard CSA W59 and CSA W59.2.
- .3 Welding companies shall be certified as per Division 1 of CAN/CSA W47.1 on fusion welding of steel, W47.2 on fusion welding of aluminum and CAN/CSA W55.3 on resistance welding of steel and aluminum.

### **3.2 GALVANIZATION**

- .1 Surface preparation of items to be hot dip galvanized with:
  - .1 Sand blasting to SSPC-10.
  - .2 Acid cleaning
- .2 Clean and prepare surfaces so the zinc coating adheres perfectly.
- .3 Parts shall be completely fabricated before being galvanized. The galvanizing bath must be large enough to allow galvanizing parts in a single immersion.
- .4 Galvanizing shall be by hot immersion to obtain an even and unbroken zinc coating for full protection of steel after assembly.
- .5 Welding after galvanization shall not be accepted.
- .6 Galvanize parts as follows:
  - .1 Nuts and bolts: 460 g/m<sup>2</sup>;
  - .2 Steel sections, plates and bars: 705 g/m<sup>2</sup>.
- .7 The manufacturer shall take all the necessary steps to prevent fragilization, warpage or deformation during galvanization. It is recommended to follow the method prescribed in Standards ASTM-A143, ASTM-A384 and ASTM A123/123M
- .8 Deformed or warped parts shall be rejected unless they can be straightened by the manufacturer so neither the part or galvanizing is left damaged.

- .9 The manufacturer shall carry out trials in order to determine the quality of adherence and repair of the zinc coating, as stated in Standard A123/123M.

### **3.3 ERECTION**

- .1 Allowable bolt hole tolerances:
  - .1 Bolt holes shall be drilled in a manner that will allow free passing at right angle of a fitting template of 2-millimetre diameter smaller than the hole.
  - .2 Unless otherwise indicated by the departmental representative, finished hole diameters shall not be more than 2 millimetres larger than the bolts planned to be used.
  - .3 Centres between two (2) holes of a same group shall not vary by more than one (1) millimetre of the distance between these two (2) holes.

### **3.4 FLOATING DOCKS CONSTRUCTION**

- .1 Build floating docks made of treated wood to required dimensions and in accordance with drawings.
- .2 All wood pieces will be of one length.
- .3 Notches, holes and chamfers to be treated using an equivalent preservative product prior to wood pieces installation.
- .4 To prevent damage, protect buoyancy billets during construction and handling.
- .5 Floating docks will not be deposited directly on the ground. They will have to be supported by wood pieces and to be levelled.
- .6 Erect Work accurately, level, plumb straight, line up and adjusted with precision, joints and crossing well fixed.
- .7 Where possible, works to be adjusted and built in shop, and delivered ready to fix.

### **3.5 FIELD QUALITY CONTROL**

- .1 Site Tests/Inspections:
  - .1 Provide Departmental Representative with minimum of 10 days notice of date of beginning Work on floating docks and provide access to Work for inspection.
  - .2 Floating docks constructed in whole or in part without inspection will not be accepted.
  - .3 Final inspection of floating docks will be made in place and will consist of, but not limited to, the following:
    - .1 Condition of structural components
    - .2 Presence and conformity of fasteners
    - .3 Fastening compliance of galvanized steel components

**END OF SECTION**