

PART 1 - GENERAL

1.1 RELATED WORK

- .1 Section 01 33 00 Submittal Procedures
- .2 Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
- .3 Section 03 30 00 Cast in Place Concrete.
- .4 Section 26 42 00-Cathodic Protection.

1.2 REFERENCES

- .1 CAN/CSA G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel.
- .2 CAN/CSA G164 Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 CAN/CSA S16.1 Limit States Design of Steel Structures.
- .4 CSA W48 Filler Metals and Allied Materials for Metal Arc Welding (Developed in cooperation with the Canadian Welding Bureau).
- .5 CSA W59 Welded Steel Construction (Metal Arc Welding).
- .6 All Standards used shall be of latest edition.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00 Submittal Procedures.
- .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.4 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.5 MEASUREMENT FOR PAYMENT .1 See Section 01 29 00-Payment Procedures for payment details.

1.6 WASTE MANAGEMENT AND DISPOSAL .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
.2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
.3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on site for recycling in accordance with Waste Management Plan.
.4 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS .1 Steel sections and plates: to CAN/CSA G40.20/G40.21, Grade 350W.
.2 Welding materials: to CSA W59.
.3 Welding electrodes: to CSA W48 Series.
.4 Bolts: to ISO 898-1, Grade 8.8.
.5 Threaded rod: to ASTM A193-Gr B7.
.6 All HSS round material shall conform to CAN/CSA G40.21 with a minimum yield stress of 350 MPa.
.7 All new steel must be coated as per specification Section 26 42 00.
.8 All bolted connections to be coated in Loctite 567 and Loctite SF 7649 activator.
.9 All hardware to be hot dip galvanized as per ASTM A153.

2.2 FABRICATION .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
.2 Where possible, fit and shop assemble work, ready for erection.
.3 Ensure exposed welds are continuous

- for length of each joint. File or grind exposed welds smooth and flush.
- .4 Machine bolts will have standard heads, nuts and when in position will be of sufficient length to permit a full nut and two washers. Thread shall be coarse threads series as specified in latest ANS/B1-1 having class 2A tolerances.

2.3 FINISHES

- .1 All new steel including the pipe piles, connection plates and struts to be coated as per Section 26 42 00.
- .2 All new steel coatings above elevation +1.0 m shall be touched up as required after installation using the coating system specified in Section 26 42 00.
- .3 All hardware and accessories shall be hot dipped galvanized to ASTM A153.

PART 3 - EXECUTION

3.1 ERECTION

- .1 Do welding work in accordance with CSA W59, latest edition, unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Make field connections with bolts to CAN/CSA S16.1, or weld.
- .6 Touch up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .7 Take necessary care in the handling of all galvanized/coated steel parts to prevent damage to the coatings. Evidence of damage shall be cause for rejection. Touch up surfaces with zinc

rich primer where burned by field welding or damaged. As per the approval from Departmental Representative.

3.2 MISCELLANEOUS METALS

- .1 Do steel work in accordance with CAN/CSA S16.1.
- .2 Underwater welding shall be done in accordance with AWS D3.6M:2010 for Class B welds. All other welding shall be done in accordance with CAN/CSA standard W59. Capacity of welds shall be to W59.
- .3 The contractor shall provide a weld sample for sectioning to demonstrate the quality of welding and weld procedures for all underwater welds prior to starting the installation of the repair plates.
- .4 Specimens shall be in accordance with Fillet Weld Break and Macrotech Test Specimens identified in Figure 5.8 (A) of AWS D3.6M:2010.
- .5 Two specimens shall be provided from each welder performing the work (i.e. each welder has to produce two (2) test specimens). The welding procedures should match those for the project.

3.3 CONNECTION TO
EXISTING WORK

- .1 Verify dimensions, alignment, elevations and condition of existing work before commencing fabrication and report any discrepancies and potential problem areas to the consultant and await instructions.