
PART 1 - GENERAL

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A 53/A53M-latest edition, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A 269-latest edition, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - .3 ASTM A307-latest edition, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.40-latest edition, Anti-corrosive Structural Steel Alkyd Primer.
 - .2 CAN/CGSB-1.181-latest edition, Ready-Mixed, Organic Zinc-Rich Coating.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-G40.20/G40.21-latest edition, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA-G164-latest edition, Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CAN/CSA-S16.1-latest edition, Limit States Design of Steel Structures.

.4 CSA W48-latest edition, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau).

.5 CSA W59-latest edition, Welded Steel Construction (Metal Arc Welding).

1.3 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.
- .2 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.

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- 1.5 DELIVERY, STORAGE, AND HANDLING .1 Packing, Shipping, Handling and Unloading:
.1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
.2 Storage and Protection:
.1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
.2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.
- 1.6 MEASUREMENT FOR PAYMENT .1 Protection Bollards: No separate payment will be made for the protection bollards complete with high density polyethylene cover as indicated. Include cost of all plant, labour, equipment and materials required to complete the work as part of electrical lump sum price.
.2 Aluminum Electrical Pedestals: No separate payment will be made for aluminum pedestals. Contractor to include cost of all plant, labour, equipment and materials required to complete the work as part of electrical lump sum price.
.3 Steel Edge Angle: No measurement for payment will be made for steel edge angle. Including cost of all plant, labour, equipment and materials required to complete the work as incidental to reinforced concrete deck.

- .4 Chain Link Fence: Supply and installation of chain link fence will be measured by the linear meter (LM) secured in place. Contractor to include all plant, equipment, material and labour including but not limited to concrete for foundations, installation of posts sleeves in top of retaining wall and any other materials required to complete the work.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W or better, galvanized finish.
- .2 Welding materials: to CSA W59.
- .3 Welding electrodes: to CSA W48 Series.
- .4 Bolts and anchor bolts: to ASTM A 307.
- .5 Grout: non-shrink, non-metallic, flowable, 15 MPa at 24 hours.

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600g/m² to CAN/CSA-G164. All steel used shall be hot dipped galvanized.
- .2 Shop coat primer: to CAN/CGSB-1.40.
- .3 Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.

2.4 SHOP PAINTING

- .1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.
- .3 Clean surfaces to be field welded; do not paint.

2.5 PROTECTION
BOLLARDS

- .1 Protection Bollards:
 - .1 Size and shapes as indicated.

2.6 ALUMINUM
ELECTRICAL PEDESTALS

- .1 Aluminum Electrical Pedestals:
 - .1 Size and shapes as indicated.

2.6 STEEL EDGE ANGLE

- .1 Steel Edge Angle: sizes and shapes as indicated.
- .2 Galvanize steel edge angle after fabrication.

2.7 CHAIN LINK FENCE

- .1 Chain link fence: sizes and shapes to match existing.
- .2 Chain link fencing shall be galvanized.

PART 3 - EXECUTION

3.1 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .4 Make field connections with bolts to CAN/CSA-S16.1, or weld.
- .5 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .6 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .7 Touch-up galvanized surfaces with zinc rich primer where burned by field welding.

3.2 PROTECTION
BOLLARDS

- .1 Install protection bollards as detailed and in locations indicated on the drawings.
- .2 Install high density polyethylene cover, yellow complete with two (2) red reflective stripes.

3.3 ALUMINUM PEDESTALS

- .1 Install electrical pedestals as indicated on electrical drawings.

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| <u>3.4 STEEL EDGE ANGLE</u> | .1 | Install new galvanized steel edge angle in slab-on-grade as indicated. |
| <u>3.5 CHAIN LINK FENCE</u> | .1 | Install new galvanized chain link fence on retaining wall as indicated. |
| <u>3.6 CLEANING</u> | .1 | Perform cleaning after installation to remove construction and accumulated environmental dirt. |
| | .2 | Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers. |