Part 1 General

1.1 RELATED SECTIONS

.1 Section 03 01 30 – Existing Concrete Pier and Steel Support Bracket Repairs (For information only)

.2 Section 03 41 00 – Precast Structural Concrete Beams.

1.2 MEASUREMENT PROCEDURES

.1 Measure reinforcing steel in kilograms of steel incorporated into Work, computed from theoretical unit mass specified in CSA G30.18 for lengths and sizes of bars as indicated or authorized in writing by Contract Administrator.

1.3 REFERENCES

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

.1 ASTM A143/A143M-07, Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

.2 ASTM A416/A416M-06, Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete.

.3 ASTM A421/A421M-05, Standard Specification for Uncoated Stress-Relieved Steel Wire for Prestressed Concrete.

.4 ASTM A722/A722M-07, Standard Specification for Uncoated High-Strength Steel Bars for Prestressing Concrete.

.2 Canadian Standards Association (CSA International)

.1 CSA A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA A23.3-04, Design of Concrete Structures.

.3 CSA A23.4-05, Precast Concrete – Materials and Construction.

.4 CSA G30.18-M92(R2002), Billet-Steel Bars for Concrete Reinforcement.

.5 CSA G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.

.3 Reinforcing Steel Institute of Canada (RSIC)

.1 RSIC-2004, Reinforcing Steel Manual of Standard Practice.

1.4 SUBMITTALS

.1 Submittals in accordance with Section 01 00 10 – General Instructions.

.2 Prepare reinforcement drawings in accordance with RSIC Manual of Standard Practice.

.3 Submit shop drawings including placing of reinforcement and indicate:

.1 Bar bending details.

.2 Lists.

.3 Quantities of reinforcement.

.4 Sizes, spacing, and locations of reinforcement with identifying code marks to permit correct placement without reference to structural drawings.

.5 Indicate sizes, spacing and locations of chairs, spacers and hangers as necessary.

.6 Indicate galvanized steel where applicable.

.4 Detail lap lengths and bar development lengths to CSA A23.3.

.1 Provide class B tension lap splices, unless otherwise indicated.

.5 Quality Assurance: in accordance with Section 01 00 10 – General Instructions and as described in Part 2 - SOURCE QUALITY CONTROL.

.1 Mill Test Report: provide Contract Administrator with certified copy of mill test report of reinforcing steel, minimum 4 weeks prior to beginning reinforcing work.

.2 Upon request, submit in writing to Contract Administrator proposed source of reinforcement material to be supplied.

1.5 WASTE MANAGEMENT

.1 Waste Management and Disposal to be in accordance with Section 01 00 10 – General Instructions.

Part 2 Products

2.1 MATERIALS

.1 Reinforcing steel:

.1 Non-prestressing reinforcing steel:

.1 Billet steel, grade 400, deformed bars: to CSA-G30.18 and CSA A23.1, unless indicated otherwise.

.2 Hot dipped galvanized: to CSA G164, minimum zinc coating 610 g/m^2.

.1 Protect galvanized reinforcing steel with chromate treatment to prevent reaction with Portland cement paste.

.2 If chromate treatment is carried out immediately after galvanizing, soak steel in aqueous solution containing minimum 0.2% by weight sodium dichromate or 0.2% chromic acid.

.3 Temperature of solution equal to or greater than 32 degrees and galvanized steels immersed for minimum 20 seconds.

.4 If galvanized steels are at ambient temperature, add sulphuric acid as bonding agent at concentration of 0.5% to 1%.

.5 In this case, no restriction applies to temperature of solution.

.6 Chromate solution sold for this purpose may replace solution described above, provided it is of equivalent effectiveness.

.7 Provide product description as described in PART 1 – Submittals.

.3 Coating for field touch-ups: two-coat, zinc-rich protective coating for ferrous metals.

.2 Prestressing tendon and bar steel:

.1 Prestressing reinforcing steel tendons: to CSA A23.3, CSA A23.4, ASTM A416, ASTM A421, and ASTM A722.

.3 Chairs, bolsters, bar supports, spacers: to CSA A23.1/A23.2, and must be non-corrosive for the galvanized reinforcement steel.

2.2 FABRICATION

.1 Fabricate reinforcing steel in accordance with CSA A23.1/A23.2, CSA A23.4, and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.

.2 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

2.3 SOURCE QUALITY CONTROL

.1 Provide Contract Administrator with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 4 weeks prior to beginning reinforcing work.

.2 Upon request, inform Contract Administrator of proposed source of material to be supplied.

Part 3 Execution

3.1 PREPARATION

.1 Galvanizing to include chromate treatment.

.1 Duration of treatment to be 1 hour per 25 mm of bar diameter.

.2 Conduct bending tests to verify galvanized bar fragility in accordance with ASTM A143/A143M.

3.2 FIELD BENDING

.1 Do not field bend or field weld reinforcement except where indicated or authorized by Contract Administrator.

.2 When field bending is authorized, bend without heat, applying slow and steady pressure.

.3 Replace bars, which develop cracks or splits.

3.3 PLACING REINFORCEMENT

.1 Place reinforcing steel in accordance with CSA A23.1/A23.2 and CSA A23.4.

.2 Prior to placing concrete, obtain approval of reinforcing material and placement by the licensed engineer who has signed and sealed the design calculation and shop drawings.

.3 Ensure cover to reinforcement is maintained during concrete pour.

3.4 FIELD TOUCH-UP

.1 Touch up damaged and cut ends of galvanized reinforcing steel to provide continuous coating.

END OF SECTION