**Reviewers: “Structural Steel Requirements” BSP not required unless widening bridge. Replace number symbols with correct number of connections.**

 EXISTING DIAPHRAGM CONNECTION TO FLANGE 3/30/20

**1.0 Description.** This item of work consists of furnishing, fabricating and installing the tension flange to diaphragm connections as shown on the bridge plans.

**2.0 Material.** All material shall be in accordance with Division 1000, Material Details, and specifically as shown below. The State estimates that there are approximately ## existing diaphragm connection plate to tension flange connections. Top and bottom flange connections are each counted as a separate connection. The gray epoxy-mastic primer (non-aluminum) shall be compatible with concrete and produce a dry film thickness of no less than 3 mils (75 μm).

| **Item** | **Section** |
| --- | --- |
| Structural Steel Construction | 712 |
| Gray Epoxy-Mastic Primer (non-aluminum) | 1045 |
| Structural Steel Fabrication | 1080 |
| Coating of Structural Steel | 1081 |

**3.0 Construction Requirements.**

**3.1** Before fabrication of new metalwork, the contractor shall make the necessary measurements in the field to verify dimensions of the existing structure where new members are affected. Any deviation of the dimensions shown on the plans shall be called to the engineer's attention. The contractor shall be responsible for developing all required dimensional adjustments and coordinating the implementation of the dimensional adjustments with all involved fabricators and subcontractors. Prior to erection of the new structural steel, the steel that is to remain shall be carefully inspected for irregularities. If such irregularities are found, the irregularities shall be brought to the attention of the engineer.

**3.2** The new flange connection bent plates used to connect existing flange to diaphragm shall be coated with the prime coat and intermediate coat for System G in accordance with Sec 1081.

**3.3** Connection of the new flange connection bent plates to the existing flange and diaphragm connection plates shall be made by using high strength bolts as shown on the plans. The high strength bolts shall be the diameter as shown on the plans. If field coating is not required on existing structural steel, then all bolts, nuts and washers used for connections to existing steel shall be galvanized. High strength bolt installation shall be in accordance with Sec 712.

**3.4** Holes in the new flange connection bent plates for connecting existing diaphragm to the flange may be used as a template for drilling the holes in the existing material. A minimum edge distance shall be maintained for all field drilled holes. The minimum edge distance for bolts shall be as shown in table below measured from the centerline of holes.

| **Bolt Diameter** | **Minimum Edge Distance** |
| --- | --- |
| **inch (mm)** | **inch (mm)** |
| 3/4 (19.0) | 1 1/4 (32) |
| 7/8 (22.2) | 1 1/2 (38) |
| 1 (25.4) | 1 3/4 (45) |

**3.5** The surfaces of existing steel that will become faying surfaces for new connections shall be cleaned in accordance with the manufacturer's recommendation and with a minimum of SSPC-SP3 surface preparation and coated with one prime coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081.

**3.6** Exposed girder areas that are not faying surfaces or not covered by concrete and are scratched or damaged by the contractor or by field welding operations shall be touched up with gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081.

**3.7** Any damage sustained to the existing structure as a result of the contractor’s operations shall be repaired or replaced at the contractor’s expense and to the satisfaction of the engineer.

**4.0 Method of Measurement.** No measurement will be made.

**5.0 Basis of Payment.** Payment for the above described work, including all material, equipment, labor and any other incidental work necessary to complete this item, will be considered completely covered by the contract lump sum price for Existing Diaphragm Connection to Flange.