

**PORTSMOUTH - KITTERY
16189B**

April 20, 2021

SPECIAL PROVISION**SECTION 614 – ELECTRICAL CONDUIT****Conduit and Pull Boxes on High Level Bridge**

This special provision provides for installation of conduits, pull boxes, and associated attachment hardware specific to installations along the I-95 bridge over the Piscataqua River, also known as the High Level Bridge (HLB). All provisions of Section 614, except as modified or changed below, shall apply.

Add to Description:

1.2. This work shall consist of designing, furnishing, and completing the conduit and pull box systems on the existing High Level Bridge. The proposed conduit shall tie into the existing fiberglass reinforced epoxy (FRE) conduit previously installed by others on the High Level Bridge under MaineDOT Project Number AC-IM-1927(000)E.

1.3. A conceptual layout for the proposed conduit and pull boxes has been provided as an attachment to this Special Provision as Appendix A. The conceptual layout was developed to illustrate a feasible layout that meets the Owners' requirements and preferences. The Contractor is responsible for the final layout, design, and detailing of the conduit connections and pull boxes as well as the attachment and support hardware as specified herein.

Add to Materials:

2.7 Some materials including pull boxes, FRE conduit fittings, and mounting materials have been previously procured under MaineDOT Project Number AC-IM-1927(000)E and will be available for use, at no cost, to the Contractor. These materials have been stockpiled at the NHDOT Bridge Maintenance Yard at 10 Ranger Way. A list of the stockpiled materials is provided in RFP Book 2 – Technical Provisions, Appendix F. Additional materials required to complete the work shall be furnished by the Contractor. Any materials supplied by the Owners but not incorporated into the work shall remain the property of the Owners.

2.8 HLB Conduits. Conduits, conduit extensions, couplings and fittings shall meet the requirements outlined in RFP Book 2 – Technical Provisions.

2.8.1 The selected conduit shall be compatible with and tie into the existing FRE conduit previously installed on the HLB.

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2.8.2 FRE conduit along the HLB shall be manufactured by Champion Fiberglass, Inc. or an approved equivalent.

2.9 HLB Pull Boxes. Pull boxes shall meet the requirements outlined in RFP Book 2 – Technical Provisions. Additional pull boxes supplied by the Contractor shall be of similar size, shape, material, and characteristics as the materials supplied by the Owners. All additional HLB Pull Boxes shall be subject to the approval of the Owners.

2.10 Mounting Hardware. Mounting hardware shall be stainless steel and meet the requirements outlined in RFP Book 2 – Technical Provisions and Special Provision 550 – Structural Steel, Item 550.3x – Bridge Mounted Brackets, Hangers, and Attachments.

Add to Construction Requirements:

3.7. Conduit and pull box installations shall meet NEC requirements.

3.8. HLB Conduit and Pull Boxes - General Requirements

3.8.1. The Contractor shall complete the existing conduit installations along the HLB by furnishing, installing and connecting pull boxes, support hanger assemblies, pull wire, fittings, sweeps, bends, couplings, bushings and all other materials necessary to provide a completed, enclosed conduit system along the HLB.

3.8.2. Conceptual sketches of the location of pull boxes along the conduit runs is provided in Appendix A. The Contractor may submit alternative layouts for approval by the Owners.

3.8.3. Each 4-inch FRE conduit shall include attachments to 4’x4’x4’ pull boxes for proposed and future fiber optic cable installation.

3.8.4. Each 2-inch FRE conduit shall include attachments to other appropriately sized pull boxes for proposed power cabling for ITS equipment.

3.8.5. At the completion of the work, the Contractor shall ensure that each existing conduit on the HLB has a continuous and enclosed conduit system, including access to pull boxes at the HLB anchor piers and near the center of the bridge.

3.8.6. Installation of conduits and pull boxes shall meet the requirements outlined in RFP Book 2 – Technical Provisions and Special Provision 550 – Structural Steel, Item 550.3x – Bridge Mounted Brackets, Hangers, and Attachments, as modified herein.

3.8.7. Conduits and pull boxes shall not obstruct or reduce the clearance of any existing walkways, ladders, or access platforms. The clearance over any maintenance walkway or area accessible from a maintenance walkway shall be maintained at 7 feet minimum.

3.8.8. Conduits and pull boxes shall not obstruct or reduce the existing navigational clearance under the bridge.

3.8.9. Conduits and pull boxes shall not obstruct or reduce the vertical roadway clearance on the bridge.

3.9. HLB Conduits

3.9.1. Conduits shall meet the support spacing requirements outlined in RFP Book 2 – Technical Provisions. If the conduit is required to span a distance greater than the maximum spacing, it shall be supplementally supported to meet the manufacturer’s deflection requirements.

3.9.2. Each conduit run shall have its own series of pull boxes. Sharing of pull boxes for multiple conduit runs is not permitted.

3.9.3. Conduits intended for communications cables shall remain separate from conduits intended for power cables except when the cables installed in the conduits are providing power over Ethernet (POE).

3.10. HLB Pull Boxes

3.10.1. The preferred location for mounting of pull boxes is on the existing bridge walkways and access platforms.

3.10.1.1. Pull boxes mounted on existing walkway railings shall be mounted with access doors above the railings.

3.10.1.2. Pull boxes shall not be mounted to existing girder webs, unless approved by the Engineer. If mounted to existing girder webs, pull boxes, and conduit must have a minimum 24-inch offset to allow for future painting and structural element re-coating.

3.10.1.3. Pull boxes shall not be mounted to the outside face of the exterior girders.

3.10.2. Pull boxes shall open towards and be accessible from the existing walkways and access platforms. Pull boxes shall not require access via under bridge inspection equipment.

3.10.3. The pull boxes mounted at the center of the High Level Bridge main span may be installed to the back face of the existing concrete barrier, using the existing anchors supporting the FRE conduit previously installed on the bridge. The Contractor shall provide a detail for use of the existing anchors.

3.10.4. Pull boxes mounted on concrete surfaces shall be installed using standoffs to allow for the future sealing of concrete surfaces.

3.11. HLB Mounting Hardware.

3.11.1. Bolting, welding, or other destructive means of attachment are not permitted on existing structural steel, unless approved by the Engineer, except for existing walkway railings and platforms.

3.11.1.1. Existing walkway railings and platforms may be field drilled and the coating system shall be touched up in accordance with RFP Book 2 – Technical Provisions and Special Provision 556 – Painting Existing Structural Steel.

3.11.1.2. Mounting to bridge truss members shall be accomplished with slotted strut channels (Unistruts) and threaded rod. Use of straps or banding is not permitted.

3.11.2. Mounting hardware shall be oriented so as not to obstruct personnel along walkways, ladders, or access platforms. Bolts for attachments shall be pointed away from locations that could snag on maintenance personnel or maintenance personnel clothing. Bolt heads facing towards walkways, ladders, or access platforms shall have round (button) heads.

3.12. Technical Submittals. Working Drawings showing the size, type, material, quantity, layout and proposed mounting method, of all conduit, fittings, pull boxes, and mounting materials shall be submitted for approval. Submittals shall be in accordance with the RFP Documents, Section 105.8, and Special Provision 550 – Structural Steel, Item 550.3x – Bridge Mounted Brackets, Hangers, and Attachments.

3.12.1. Where the Contractor installs new cables into existing and proposed conduits, the Contractor shall provide conduit fill ratio calculations for the existing and proposed conduits.

3.12.2. The Contractor shall identify any hardware they intend to incorporate into the work that is supplied by the Owners as indicated in RFP Book 2: Technical Provisions, Appendix F.

Method of Measurement

4.1 The conduit, conduit extensions, pull boxes, and all associated material will not be measured separately.

Basis of Payment

5.1 The accepted conduit, conduit extensions, pull boxes, and all associated material will not be paid separately, but shall be incidental to other contract items.