

**ITEM 599.2210 10 M - MISCELLANEOUS ELECTRICAL REPAIRS – SB BRIDGE**

**DESCRIPTION**

This work shall consist of removing, furnishing, installing, and replacing existing traffic sirens on the existing traffic signal poles and miscellaneous repairs of the existing traffic gates, the span-mounted navigation lights, the sidewalk junction boxes and of other equipment in accordance with the details indicated in plans and as directed by the Engineer.

**MATERIALS**

**A. General.** The Contractor shall submit for approval the manufacturer’s shop drawings, catalog cuts, product specification and dimension sheets prior to ordering the materials.

**B. Navigation Light Lens.** The lens shall be of the standard marine fresnel type, 180-degree red or green, and rigid, heat-resistant glass. The size of the lens shall match the existing lens to be replaced as indicated in plans. Shock absorbing synthetic rubber shall be furnished with the lens.

**C. Hardware.** Hardware such as bolts, wing-bots, wing-nuts, hold-down screws, vent screen and fuse holders furnished for the replacement of broken, bent, defective, corroded or missing hardware on the existing navigation lights, traffic gates as indicated in plans shall be of the exact size and intent for use as of the existing hardware and shall be bronze or stainless steel.

**D. Electrical Flexible Cable.** The cable shall be type SOOW, U.L. listed, rated 600 volts, designed for hard usage with oil, weather and sun-light resistant, chlorinated polyethylene jacket suitable for outdoor use. Conductors shall be bare annealed copper per ASTM B-3, flexible, bunch-stranded per UL-62, and shall have a minimum of three AWG #12, color-coded black-white-green conductors with synthetic rubber (ethylene propylene diene monomer) insulation. Temperature range shall be 105 degrees Celsius to -50 degrees Celsius.

**E. Traffic Siren.** The siren shall be U.L. listed, Nema 3R, motor driven, maintenance-free with rugged and corrosion-resistant construction for outdoor use. The siren shall produce an approximately 1060 Hertz, continuous sound of 113 dB at 1 meter. The siren housing shall be coated with powder coating. The operating voltage shall be 120 volts AC. The siren shall be model A, similar to the existing siren to be replaced as indicated in plans, as manufactured by the following, or approved equal:

Federal Signal Corporation, Electrical Products	Edwards Signaling & Security Systems, Type 315A-AH	Tomar Electronics Type 1002WEP-120
2645 Federal Signal Drive University Park, IL 60466 708-534-3400	90 Fieldstone Court Cheshire, CT 06419 203-699-3300	2100 West Obispo Avenue Gilbert, AZ 85233 800-338-3133 480-497-4400

**CONSTRUCTION DETAILS**

This work shall be in accordance with the applicable requirements of the latest edition of the following codes and standards:

1. National Fire Protection Association, National Electrical Code (NEC)
2. New York State Department of Transportation Standard Specifications

3. National Electrical Contractors Association, NECA 1, Standard Practices for Good Workmanship in Electrical Contracting
4. Any other applicable local rules and regulations.

The work of miscellaneous electrical repairs shall include, but not be limited to, the following:

**A. General.** The Contractor shall remove existing equipment, components and appurtenances required for replacement and removal. All removed equipment shall become the properties of the Contractor and shall be properly disposed of away from the construction site.

**Basis of Acceptance**

All shop drawings submitted shall follow the general guidelines and procedures given in the New York State Steel Construction Manual. No installation or rehabilitation work may take place until the shop drawings and procedures have been approved by the Engineer.

The navigational lighting shall be operational at all times during construction. If the navigational lighting is needed to be out of service for construction, the Contractor shall provide and maintain a temporary navigational lighting system operational at all times until the permanent lighting system has been installed and is operational. The temporary navigational lighting, when needed, shall conform to the requirements of the U.S. Coast Guard, Code of Federal Regulations, CFR 33 Part 118. The provision and maintenance of the necessary temporary navigational lighting shall be incidentals of the work described herein.

**B. Sidewalk Junction Boxes.** The Contractor shall provide a drain hole for existing sidewalk junction boxes by drilling a 13 mm diameter through-hole in the bottom at the low end of each box. Where a drain hole is provided in sidewalk junction boxes, clean the drain hole to clear any clog. Replace all missing cover bolts on existing sidewalk junction boxes with appropriate stainless steel cover bolts and repair as necessary the existing threaded holes for the new bolts.

**C. Traffic Gates.**

The Contractor shall:

- a. Remove surface rust on the gate housing, clean and paint with corrosion-resistant paint coating. Cleaning and painting shall comply with requirements of the NYSDOT Standard Specifications, "Structural Steel Painting: Field Applied - Full Removal", except as modified herein. Blast clean according to the requirements of SSPC-SP6, Commercial Blast Cleaning. Do not blast clean gate arm shaft seals. The shaft seal areas of gate arm shaft shall be hand-tool cleaned in accordance with SSPC-SP11. Immediately following cleaning apply corrosion-resistant primer of one-mil minimum dry film thickness. Apply two intermediate field coats of grey machinery epoxy mastic, each of minimum five-mil dry film thickness. Apply final light grey field coat of two-mil minimum dry film thickness compatible with the previous field coats, of a high-gloss aliphatic urethane enamel resistant to weathering and abrasion. All paint coats shall be hand-brush applied.
- b. Replace rusted hardware with stainless steel hardware.
- c. Furnish cable clamp to properly support the cable in the off-going traffic gate such that the cable will not contact other movable parts of the gate.
- d. Furnish AWG #6 bare copper conductor to bond the incoming conduit to the on-coming traffic gate to the gate housing.
- e. Cap and insulate exposed end of all un-used wires in the on-coming traffic gate.

***D. Span-Mounted Navigation Lights.***

The Contractor shall:

- a. Furnish gaskets for the access covers on the northeast, southwest and northwest navigation lights.
- b. Repair the pivot and the pipe support fitting of the northeast navigation light.
- c. Replace the access cover and gasket of the green section of the southeast navigation light.

***E. Traffic Siren.***

The Contractor shall:

- a. Remove the existing traffic sirens on the existing traffic signal poles.
- b. Prepare the mounting surface and install the sirens at the same location as the existing sirens. Provide necessary silicon sealant and make all connections of the siren water-tight.
- c. Connect wiring such that the sirens are interlocked with the operation of the bridge as indicated in plans.
- d. Test to ensure proper operation and interlock of the sirens.

***F.*** The Contractor shall remove all dust accumulation on components, sand, grit and debris within all traffic gate housings.

***G.*** The Contractor shall replace all missing hand-hole covers on the existing roadway lighting poles and on the existing traffic signal poles. The cover shall be of the same material as the pole and shall properly fit the poles. Hardware for the attachment of the covers shall be stainless steel.

**METHOD OF MEASUREMENT**

This work will be measured for payment on a lump sum basis.

**BASIS OF PAYMENT**

The lump sum price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work, including the cost of the necessary temporary navigational lighting.