

## SECTION 10 90 13 – CATHODIC PROTECTION SYSTEM

### PART 1 - GENERAL

#### 1.1 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, and incidentals necessary to repair the cathodic protection system bond wire as shown on the drawings and as specified herein for the NOAA Marine Operation Center Pacific Pier Fire Damage Repair.

#### 1.2 SUBMITTALS

Submit the following for approval by the Engineer prior to commencing work:

- A. Manufacturer catalog data
  - 1. Bonding Cable Assembly
  - 2. Cable Clamp
  - 3. Coating

#### 1.3 REFERENCE STANDARDS

- A. The Association for Materials Protection and Performance (AMPP) (previously NACE International)
  - 1. SP0176 “Control of Submerged Areas of Permanently Installed Steel Offshore Structures Associated with Petroleum Production”
- B. National Fire Protection Association (NFPA)
  - 1. NFPA 70 National Electrical Code
- C. American Society for Testing and Materials (ASTM)
  - 1. B3 - Soft or Annealed Copper Wire
  - 2. B8 - Concentric Lay Stranded Copper Conductors, Hard, Medium Hard or Soft
  - 3. D1248 - Polyethylene Plastic Molding and Extrusion Material
- D. American National Standard Institute (ANSI)/American Welding Society
  - 1. AWS B2.1 – Welding Procedure and Performance Qualification

#### 1.4 QUALITY ASSURANCE

- A. The equipment shall be products of manufacturers who have a minimum of five years' experience in the manufacturing of the materials to be furnished. The system components shall be designed, constructed, delivered, and installed in accordance with best practices and methods.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. All products and materials specified herein shall be new and of the highest quality.
- B. Materials shall be a standard product of a manufacturer regularly engaged in such a production.
- C. The Contractor is responsible for shipping, handling, and storage of the materials.

### 2.2 MATERIALS

- A. Bonding Cable Assembly
  - 1. All cable shall be sized as indicated on the drawings and shall conform to ASTM B3 and B8.
  - 2. Insulation shall be high molecular weight polyethylene (HMW/PE) per ASTM D1248, type 1, Class C.
  - 3. The cables shall be supplied with the steel plates connected per the plans.
  - 4. The wire shall be of sufficient length to reach the adjacent pile without splicing.
- B. Cable Clamp
  - 1. The clamps shall be 304 or 316 stainless steel with EPDM rubber cushion and sized to fit the bond cable.
- C. Coating
  - 1. The bond wire weld plates shall be coated with a high-build coating system suitable for service in a marine environment. The coating shall be the same as that applied to the tops of the piles or Devoe Coatings Bar-Rust 235 or equal. The coating shall be applied per the manufacturer's product data. The edge of the weld plates should be kept free of coating to allow for welding to the pile.
  - 2. The coating for the bond wire weld plates after they are welded to the piles shall be a suitable underwater coating specifically designed for application underwater. The product shall be Carboline's Kop-Coat Splash Zone Mastic A-788 – Epoxy Underwater Coating or approved equal.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Work shall be completed as shown on the drawings and as described in this section. Work shall conform to NFPA 70.
- B. The plans are generally diagrammatic. The exact locations shall be governed by structural conditions and physical interference.
- C. All work required for the installation of the bond wire, including, but not limited to surface preparation, coating, testing, etc., shall be included.

### 3.2 BONDING CABLE ASSEMBLY INSTALLATION

- A. The bonding cable shall be attached by welding the wire's weld plates to the corresponding piles on adjacent bents where the wire was damaged from the fire per AWS B2.1. The wire shall be routed up the pile to the bottom of the deck and along the bottom of the deck to the corresponding pile on the adjacent bent, ensuring not to exceed the allowable bend radius of the cable.
- B. The wire shall be a continuous length with no splices.
- C. The wire shall be secured to the deck using the rubber cushioned stainless steel cable clamps every 2.5' minimum using stainless steel hardware.
- D. All the exposed steel at the weld plate connection shall be coated, including the entire weld plate and wire connection to the weld plate.

### 3.3 TESTS AND MEASUREMENTS

One month after completion of the installation, the Corrosion Engineer shall complete the testing of the cathodic protection system to confirm adequate continuity is being provided between the adjacent bents and the system is operating normally. Polarized potentials shall be measured on the structure at the two bents spanned by the bond wire and the two bents adjacent to the repair to confirm adequate protection is being obtained at all locations per AMPP/NACE International standard SP-0176. The Contractor shall correct, at their own expense, all deficiencies in the materials and installation that are observed from the tests and inspections. The Contractor shall pay for all re-tests made necessary by the corrections.

END OF SECTION 10 90 13