ROAD COMMISSION FOR OAKLAND COUNTY

SPECIAL PROVISION
FOR
PUSHBUTTON SUPPORT HELIX FOUNDATION, SQUARE TUBE ADAPTOR AND POST

ORG:05-07-21
REV: 03-01-25

a. Description

This specification describes a helical screw in foundation and square tube post adapter to mount pedestrian pushbuttons and signs. This is an alternative to the concrete foundation for the pushbutton support post.

This work performed according to the plans and sections 820 and 921 of the Standard Specification for Construction except as herein provided.

b. Materials

The steel base plate and square tube post adapter shall conform to ASTM A-36. The 4-inch Schedule 80 pipe shall be ASTM-A53 ERW Grade B or approved equal. The sign post shall be formed of square tubing conforming to specifications for steel sheets, ASTM A653-94, structural quality, grade 50. The cold forming shall provide a tube rating of 60,000 psi minimum yield strength. The shape of the top post shall be formed of 12 gage (0.105 inches) steel, 2.25 inches square. The top post shall be 6'6" long. The shape of the bottom section shall be formed of 12 gage (0.105 inches) 2.50 inches square. The bottom section shall be 24" long. There shall be a 12 gage (0.105 inches) by 4 Inches long by 2" square insert provided that will fit into the top of the post to accept a rain cap. The rain cap shall be aluminum and be in the shape of a pyramid to fit over the 2-inch square insert. The length of each post shall be as specified with a permissible length tolerance of + ¼ inch. There shall be a permissible variation of wall thickness of + 0.011 inches and – 0.008 inches. The length of each tube shall not vary in straightness by more than 1/16 inch in 3 feet.

1. Helix Foundation

The foundation anchor assembly shall be a 4 inch outside diameter x 4 feet long single helical blade and a round fixed base plate. The base plate shall be provided with bolt retainers and dirt scrapers on the underside of the plate. The base plate shall have (4) slotted mounting holes to fit bolt circles from 5 ½ to 6 ½ inches. Each slotted mounting hole shall have a 9/16" keyhole slot to permit bolt installation and replacement from the top surface without digging under the base plate. The 4-inch OD shaft shall have a quantity of two (2) 2 inch x 4 inch cable openings 18 inches below the plate. The foundation anchor assembly shall be provided with four (4) ½"-13 x 2-1/2", A-307 steel hot dip galvanized square head tap bolts, four (4) ½"-13 Grade 2H/DH galvanized nuts and four (4) ½" galvanized flat washers. The ID of the shaft shall be 3 ½ inches. The base plate shall have two notches at 180 degrees apart that indicates the location of the cable openings. The pedestal foundation anchor assembly shall be hot dip galvanized after fabrication to comply with ASTM A-123 specifications.

2. Post Adapter

The square tube post adapter shall consist of 2 ½ inch square tube, a steel plate with 10 inches of square tube welded to the top of the plate and 6 inches square tube welded to the bottom of the plate. The square tube post adapter shall be provided with (8) round holes on the same bolt circle as the foundation anchor to allow alignment of the push button pole with the sidewalk. The holes shall accommodate ½ inch connection bolts and hardware. The square tube post adapter shall allow electrical wiring to project through the adapter to allow electrical connections to the pedestrian push button assembly on the square tube post. The square tube post adapter shall be capable of protruding at least 6 inches into the foundation anchor and at least 10 inches above the foundation anchor for attaching the square pedestrian pole. There shall be a thru bolt connection on the upper end of the square tube post adapter to permit easy installation of a 2-inch square steel pedestrian pole. The post adapter shall be zinc plated after fabrication.

3. Post Assembly

The 6' 6" square tube assembly shall be provided with two holes, 7/16 inch in diameter. One hole shall be drilled 2 inches from the top of one end, the other hole drilled 10 inches from the opposite end, both on the same side of the tube. The 2-foot tube shall have one hole drilled 2 inches down from one end. The 4-inch insert shall have a hole drilled ¾ inch from one end. This will allow the insert to fit into the top of the 2.25 inch square tube and allow 1 ¼ inch to protrude from the top of the 6' 6" tube that will allow the rain cap to be press fit over an insert. There shall be no other holes in the tubes.

4. Post Finish

The square tubing material shall be hot-dip galvanized, conforming to ASTM A653 coating designation G-140, with added chemical treatments for enhanced corrosion protection. In addition, a clear corrosion inhibitor coating shall be applied after fabrication.

5. Acceptance

Provide General Certification per the MDOT's *Materials Quality Assurance Procedures Manual* to the Engineer that the materials meet the requirements specified herein.

c. Construction

Complete this work in accordance with section 820 of the Standard Specifications for Construction, the typical signal construction detail(s) and this special provision.

1. Submittals / Working Drawings

Submit a detailed dimensional drawing of all equipment, material specification list which shows the materials to be used, equipment to be furnished, and assembly/installation method.

d. Measurement and Payment

The completed work, as described, will be measured and paid for at the contract unit price using the following pay item(s).

Pay Item	Pay Unit
Pushbutton Support Helix Fdn and Post, RCOC	Each
Pushbutton Support Helix Fdn and Post, Salv, RCOC	Each
Pushbutton Support Helix Fdn and Post, Rem, RCOC	Each

Pushbutton Support Helix Fdn and Post, RCOC (Ea); Pushbutton Support Helix Fdn and Post, Salv, RCOC (Ea); Pushbutton Support Helix Fdn and Post, Rem, RCOC (Ea)will be measured as a unit. The contract unit price each shall be payment in full for furnishing and installing pushbutton support helix foundation, post, fittings, conduit sweeps, ground rod (s), ground wire and such other material as may be required to provide a complete and operating job as specified herein and as shown on the plans.