SPECIAL SPECIFICATION

6332

Camera Pole Structure (50’)

1. Scope. This Specification will supplement the camera pole details found on the plans. This Item governs the design, fabrication, delivery, and installation of camera pole structures as shown on the plans. Ensure that the design conforms to the AASHTO “Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals”, with Interim Specifications thereto and with additional interpretations as applied by the Department.

A. Submittal Components. As a minimum, the submittal for this Item completely addresses the following:

Camera pole shop drawings clearly detailing the following:

- Physical Pole Drawings
- Weatherhead
- Anchor Bolts
- Cabinet Mounting Attachments (when cabinet required)
- Material List


A. General. This Specification, instructions on the plans, and the drawings constitute the only acceptable design for the assemblies.

Fabricate and weld in accordance with Item 441, “Steel Structures”. Ensure all welded joints develop the full required strength of the member.

Ensure all materials furnished, assembled, fabricated or installed under this Item are new, corrosion resistant and in strict accordance with the details shown on the plans and in the Specifications.

B. Shop Prints. Submit seven prints of the shop drawings and one copy on CD(s), of readable electronic format in current MicroStation version, showing the fabrication and erection details for each support including the CCTV cabinet and mounting details to the Engineer for review and approval prior to fabrication. Prepare the drawings on sheets 11 in. x 17 in. in size.

Each sheet has a title in the lower right corner which includes the sheet index data shown in the lower right corner of the project plans, names of the Fabricator and Contractor, and sheet numbering.

Drawings for only 1 support need be submitted for 2 or more supports in the submittal which are of identical design and dimensions.
Ensure responsibility for the correctness and completeness of the drawings and for shop fit and field connections, even though the drawings have been approved by the Department.

Fabricate the camera pole to the design wind speed of 100 m.p.h and identify permanently on the pole base plate and visible after erection.

**C. Anchor Bolts.** Ensure anchor bolts conform to the requirements in the standard drawings and comply with the requirements of ASTM A36, if 1 in. or less in diameter, and if greater than 1 in. diameter, with the requirements of ASTM A193-B7 or A687, or if designated A36M55 with the requirements of Item 449, “Anchor Bolts”. Dimensions are based on the foundation size required for the arm lengths, number of arms, and design wind speed specified on the plans.

The anchor bolts have the standard nut anchorage. Supply nuts that comply with the requirements of ASTM A563 Grade A or better, heavy hex. Washers must comply with the requirements of Item 447, “Structural Bolting”.

Provide two circular steel templates for each assembly. The templates may be shipped without the anchor bolts attached. Tack weld the lower nut to the lower template. The upper template may be re-used providing it stays in place until the concrete has achieved its initial set.

Galvanize or paint the upper 14 in. of all anchor bolts with 2 coats of a zinc-rich coating containing a minimum of 95% zinc and meeting Federal Specification DOD-P-21035A. Ensure that exposed are galvanized or also coated with the same zinc-rich paint. Washers must be galvanized.

Supply anchor bolts with threads that are rolled or have cut threads of unified coarse thread series except for ASTM A193-B7 bolts which are be 8 pitch thread series. If rolled, the diameter of the unthreaded portion must not be less than the minimum pitch diameter nor more than the maximum major diameter of the threads. Ensure that all threads have Class 2 fit tolerances. Tap all galvanized nuts after galvanizing.

Coat the threads of anchor bolts with pipe joint compound prior to installation of upper nuts when erecting pole. After poles are plumbed and in permanent alignment, clean the exposed upper threads of painted bolts and apply an additional coating of the zinc-rich paint to seal the bolt thread-nut joint.

**D. Poles.** Provide a pole shaft that is octagonal and tapered at a length of 50 ft. Do not use circumferential welds, other than at the ends of the shafts. Grind or otherwise smooth the exterior of longitudinal seam welds to the same appearance as other shaft surfaces. Ensure that longitudinal seam welds for pole sections have 60% minimum penetration and 5.9 in. of circumferential base welds. A maximum of 2 longitudinal seam welds may be made in pole sections. Use for all welds low hydrogen electrodes, or the equivalent in wire and flux for automatic welding. Use preheating for welding the pole to the base plate in accordance with ANSI/AWS D1.1 Structural Welding Code.

Ensure that the material for pole shafts conforms to the requirements in the standard drawings and complies with the requirements of ASTM A570 Grade 50, or A572 Grade
Material supplied under the A570 Grade 50 or A595 Grade A specifications must meet their associated chemical and bend test requirements with the further stipulation that the materials must meet a minimum yield of 50 Kips/square inch and a minimum elongation of 18% in 8 in. or 23% in 2 in. prior to brake or tube forming operations. A570 Grade 50 material in thickness up to 5/16 in. is also acceptable providing it meets the above stated chemical, bend test, yield, and elongation requirements. A595 Grade A material which can be shown by tests to have a minimum of 345 MPa yield adjacent to base welds after fabrication will also be acceptable.

Provide mill test reports and/or laboratory test certifications to show that the materials conform to these requirements.

Secure a metal cap at the top of all poles using galvanized or stainless steel set screws.

E. Finish.

1. Galvanize the camera pole.

2. Round or chamfer all sheared or cut edges and all other exposed edges to be painted or galvanized to an approximate 1/16 in.

3. **Hot-Dip Galvanizing.** Design camera poles to be hot-dip galvanized as to provide proper filling, venting, and draining during the cleaning and galvanizing operations. Hot dip galvanize all parts, with the exception of the lower portion of the anchor bolts, nut anchorages, and the top and bottom templates, after fabrication in accordance with ASTM A123. Ensure that all screws, nuts, bolts, washers, shims, and the upper portion of the anchor bolts if galvanized are in conformance with the Specifications of ASTM A153, Class C or D, unless otherwise specified. Tap all nuts after galvanizing. Repair any part of the mast arm assembly, from which the galvanizing has been knocked or chipped to bare metal in fabrication or transit, by application of galvanizing-repair compounds in accordance with the manufacturer's recommendations. Apply the galvanizing repair so as to provide a final assembly which is neat in appearance.

K. Delivery.

1. The use of the detailed drawings does not relieve the supplier of the responsibility for providing proper fit of camera pole assembly components.

2. Furnish by the supplier 4 copies of mill certificates reflecting the physical and chemical properties of the base metal of the pole, base plate, and anchor bolts. Provide also, 4 certified copies of the galvanizing test report.

3. Identify all Items of a shipment with a weatherproof tag. This tag minimally must identify manufacturer, contract number, and date and destination of shipment.

3. **Measurement.** This Item will be measured as each unit complete in place, excluding foundations.
4. Payment. The work performed and materials furnished in accordance with this Item and measured as provided for under “Measurement”, will be paid for at the unit price bid for “Camera Pole Structure”. This price is full compensation for furnishing, fabricating, and erecting the camera pole structure (including CCTV cabinet); for furnishing and placing anchor bolts, nuts and washers; for furnishing and placing electrical conduit in the foundation; and for all other details and incidentals necessary to provide a camera pole structure in accordance with the Specifications, plans and approved working drawings, complete in place and ready for the attachment of the camera.

Foundations will be paid for under Item 416, “Drilled Shaft Foundations”.