

SECTION 00962 - METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS

(Follow all instructions and make all edits with "Track Changes" turned on. If there are no instructions [purple text] above a subsection, paragraph, sentence, or bullet, then include it in the Project. Delete all purple text before preparing the final document. All other modifications to this Section will require ODOT Technical Resource and State Specifications Engineer approval.)

Comply with Section 00962 of the Standard Specifications modified as follows:

00962.01 Regulations, Standards, and Codes - Replace the paragraph that begins "All designs and workmanship ..." with the following paragraph:

Meet the following standards for all designs and workmanship, where applicable:

00962.02 Calculations and Drawings - Replace the paragraph that begins "All engineered details ..." with the following paragraph:

Submit all engineered details and drawings that are not prepared by the Agency, but are required in the Contract Documents, for review prior to fabrication. Stamp and submit designs, details, Plans, and calculations according to 00150.35. Include the Field Verification Forms for Signal and Illumination supports, available from the Engineer.

Replace the paragraph that begins "Upon completion of the installation ..." with the following paragraph:

Upon completion of the installation, submit six copies of all changes made from the original Plans. Include all modifications made and represent the Material installed and in operation. Sufficiently detail the changes to enable maintenance forces to replace or repair any part of the Project under routine or emergency maintenance by direct reference.

(Use the following subsection .05(a) when standard signal mast arm supports are required.)

00962.05(a) Traffic Signal Mast Arm Supports - Add the following to the end of this subsection:

The following standard signal mast arm pole shop drawings are prequalified for use on the Project:

Valmont Industries Inc.

Drg. DB00719 page 1, Rev. P, 6/8/18

Drg. DB00719 page 2, Rev. P, 6/8/18

Drg. DB00719 page 3, Rev. P, 6/8/18

Drg. DB00719 page 4, Rev. P, 6/8/18

Drg. DB00719 page 5, Rev. P, 6/8/18
Drg. DB01290 page 1, Rev. D, 9/22/20
Drg. DB01290 page 2, Rev. D, 9/22/20
Drg. DB01290 page 3, Rev. D, 9/22/20
Drg. DB01290 page 4, Rev. D, 9/22/20

Ameron Pole Products Division Drg. OR13TR10, Rev. E, 8/27/18
Drg. OR13TR11, Rev. F, 8/27/18
Drg. OR13TR12, Rev. G, 8/27/18
Drg. OR13TR13, Rev. C, 8/27/18

(Use the following subsection .05(c) when standard illumination supports are required.)

00962.05(c) Illumination Supports - Add the following to the end of this subsection:

The following standard luminaire support shop drawings are prequalified for use on the Project:

Valmont Industries Inc. Drg. DB01371 page 1, Rev. B, 1/24/22
Drg. DB01371 page 2, Rev. B, 1/24/22
Drg. DB01371 page 3, Rev. B, 1/24/22
Drg. DB01371 page 4, Rev. B, 1/24/22
Drg. DB01372 page 1, Rev. B, 4/11/22
Drg. DB01372 page 2, Rev. B, 4/11/22
Drg. DB01372 page 3, Rev. B, 4/11/22
Drg. DB01372 page 4, Rev. B, 4/11/22

~~(Use the following subsection .10 to list topcoat colors. Fill in the blanks as instructed and obtain information from the Designer. Copy and repeat the paragraph as needed. Use only basic color names and numbers from the SAE AMS-STD-595 color index.~~

~~Example:~~

~~For Luminaire Poles 1, 2, 3, 4, 5, provide a topcoat color of Black that matches to SAE AMS-STD-595 color # 17038.)~~

00962.10 Materials - Replace the bullet that begins "Provide steel sheet ..." with the following bullet:

- Furnish steel sheet for pole and arms meeting the requirements of ASTM A595, Grade A or B, ASTM A572, or approved equal.

Replace the bullet that begins "Provide all other..." with the following bullet:

- Furnish all other steel sheet and plate meeting the requirements of ASTM A36 or ASTM A572, or approved equal.

(Use the following subsection .10 paragraphs to list topcoat colors. Fill in the blanks as instructed and obtain information from the Designer. Copy and repeat

the paragraph as needed. Use only basic color names and numbers from the SAE AMS-STD-595 color index.

Example:

For Luminaire Poles 1, 2, 3, 4, 5, provide a topcoat color of Black that matches to SAE AMS-STD-595 color # 17038.)

Add the following to the end of this subsection:

For (Structure number or item description), provide a topcoat color of (Color Name) that matches SAE AMS-STD-595 color # (Color Number).

00962.43 Foundations - Replace the paragraph that begins "Where breakaway bases ..." with the following paragraph:

Where breakaway bases are specified, do not exceed the limits shown for the post stub projection.

Replace the paragraph that begins "Where obstructions prevent ..." with the following paragraph:

Where obstructions prevent the construction of planned foundations, construct the foundations in the location directed. Any extra cost due to the site change is paid according to 00195.20.

Replace the paragraph that begins "If it is determined ..." with the following paragraph:

If it is determined that foundations will extend deeper than shown, the extra foundation depth is paid according to 00195.20.

00962.46(b) Pole Height - Replace this subsection, except for the subsection number and title, with the following:

Before poles are ordered, the Engineer will check the pole heights in the field and verify that the specified luminaire mounting heights above Pavement are provided. Furnish upsweep bracket arms of lengths as shown or specified. Furnish traffic signal poles of heights as shown or specified. Height of poles requiring slip plate bases is the length of shaft above the slip plate.

00962.46(c) Mast Arm - Replace this subsection, except for the subsection number and title, with the following:

Install mast arms for traffic signals and signs according to details provided by the manufacturer. Use proper type and size of mounting appurtenances that correctly fit the pole furnished, or as shown. Furnish self-supporting mast arms without tie rods or braces. Furnish tapered mast arms that are either round, 8 sided, 12 sided, or 16 sided.

Ensure all mast arms allow wiring entrances directly into the pole from inside the mast arm.

00962.46(d) Luminaire Arm - Replace this subsection, except for the subsection number and title, with the following:

Ensure the luminaire end of the arm is level when loaded to design weight. Use a bolted, flange type connection to join the upsweep arm to the pole. Furnish connections that are raintight and develop the strength of the arm. Furnish the mast arm rise according to the Metal Light Pole Table, or as shown or specified.

Provide self-supporting arms without tie rods, or braces. Measure upsweep rise from the point of attachment to the pole to the end tangent portion of the arm. Furnish tapered arms that are either round, 8 sided, 12 sided, or 16 sided.

Ensure all arms allow for wiring entrances directly into the pole from inside the arm.

Furnish pole bracket attachments for mounting upsweep arms with reamed, smooth ends.

The nominal mounting height (MH) shown in the Metal Light Pole Table or on the Plans is the distance between the Roadway at the edge of the Pavement and the luminaire. This height may vary plus or minus 1 foot.

00962.46(e) Deflection - Replace this subsection, except for the subsection number and title, with the following:

Ensure horizontal dead load deflection at the top of the poles does not exceed 1 percent of the pole length (2 percent for strain poles).

00962.46(f) Deviation from Straightness - Replace this subsection, except for the subsection number and title, with the following:

After the poles are delivered to the Project Site, and before they are erected on the foundations, the Contractor may be required to check any or all poles for deviation from straightness according to the following:

(1) Deviation in One Plane and One Direction Only - Ensure a straight line joining the surface of the pole at the base and the same surface of the pole at the top is not more than 1/2 inch from the surface of the pole for each 10 feet of length from the closest of these points. Provide an opposite surface that meets the same requirement.

(2) Deviation in Any Plane - Ensure a straight line connecting the midpoint of the pole at the base, with the midpoint at the top, does not pass through the surface of the pole at any intermediate point.

Any pole not meeting these requirements is rejected. If more than 25 percent of the poles fail to meet these requirements, sufficient cause exists to reject the entire shipment of poles for the Project.

00962.46(g) Welding - Replace this subsection, except for the subsection number and title, with the following:

Weld steel illumination and signal poles according to AWS D1.1. Complete the welding inspection by the fabricator according to details and requirements called out on the Contract

Documents. This requirement will override all appropriate weld inspection requirements called out in Section 5.15 WELDING CONNECTIONS in AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. Submit all testing procedures for Engineer's review prior to starting inspection. Submit certified copies of inspection reports to the Engineer for review.

If requested by the Engineer, additional weld inspection may be required upon arrival of the Material at the Project Site. If defects are found by this additional inspection, the Contractor is responsible for the additional testing and repair costs. If no defects are found, the Engineer is responsible for the additional inspection costs.

00962.46(h) Welding Steel After Galvanizing - Replace the paragraph that begins "No field welding ..." with the following paragraph:

No field welding of galvanized steel is allowed. Remove the existing galvanizing from the heat effected area before welding the effected piece. Perform the weld, remove the galvanizing totally from the entire piece, and hot-dip galvanize it. Submit the following data, stamped according to 00150.35, for review:

Replace the bullet that begins "Description of the..." with the following bullet:

- Description of the Work that is performed

00962.46(i) Identifying Tags - Replace the paragraph that begins "Attach a stainless steel ..." with the following paragraph:

Attach a stainless steel identifying tag to all poles. Furnish tags that are at least 1/16 inch thick with lettering at least 1/4 inch in height, stamped into the tag. Attach tags with stainless steel pop rivets of at least 3/16-inch nominal body diameter. Do not locate pop rivet holes within 6 inches of welds. Locate the pole tag approximately 24 inches below the top of the mast arm or messenger cable attachment point. Locate the tag on the side of the pole furthest from the intersection. Drill holes for pop rivets prior to hot-dip galvanizing. Remove excess hot-dip galvanizing from holes and repair according to ASTM A780.

00962(j) Erecting Metal Poles - Replace the paragraph that begins "Bolt protrusion on slip ..." with the following paragraph:

Do not allow bolt protrusion on slip base poles to interfere with the breakaway action of pole. File sharp edges smooth and repair according to ASTM A780.

00962(j)(2)a.2. Inspection - Replace the paragraph that begins "The installation will ..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present for at least 7 Days after installation showing the rotation past snug tight.

00962(j)(2)b.1. Installation - Replace the paragraph that begins "Furnish, at no ..." with the following paragraph:

Provide, at no additional cost to the Agency, a calibrated torque wrench of a capacity appropriate to the size and type of the bolts being tightened. Confirm the accuracy of the calibrated torque wrench through calibration by an approved independent testing agency at least once a year.

00962(j)(2)b.2. Inspection - Replace the paragraph that begins "The installation will ..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present for at least 7 Days after installation showing the rotation past snug tight.

00962(j)(2)c.1. Installation - Replace the paragraph that begins "Provide all high ..." with the following paragraph:

Furnish all high strength bolts according to the details shown. Use bolt, nut, and washer combinations from the same rotational capacity lot with new and unused direct tension indicators with protrusions in contact with the hardened washer.

00962(j)(2)c.2. Inspection - Replace the paragraph that begins "Notify the Engineer ..." with the following paragraph:

Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening of bolts to determine that the tightening procedures are properly used. Inspect all bolts in each joint. The joint is accepted as properly tightened when one open space allows entry of a 0.005 inch feeler gauge. If there is more than one space between the direct tension indicator protrusions that allow entry of a 0.005 inch feeler gauge, re-inspect all bolts, retighten bolts in the joint as required, and resubmit the joint for inspection. If no spaces exist between the direct tension indicator protrusions that allow entry of a 0.005-inch feeler gauge, replace bolt assembly, tighten bolts in the joint as required, and resubmit the joint for inspection. Connections that have all bolts fully tightened can replace one bolt at a time without providing crane support of the mast arm.

Replace the paragraph that begins "The installation will..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05.

00962(j)(2)d.1. Installation - Replace the paragraph that begins "Protect fasteners from ..." with the following paragraph:

Protect fasteners from dirt and moisture. Lubricate bolt threads and bearing surfaces that turn during installation according to 02560.70. Furnish all high-strength bolts with hardened flat washers under the element turned during tightening.

00962(j)(2)d.2. Inspection - Replace the paragraph that begins "The installation will ..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present showing the rotation past snug tight.

00962.46(j)(3) Bolt Inspection - Delete this subsection.

00962.46(k) Plate Flatness - Replace the paragraph that begins "Faying surfaces of plates ..." with the following paragraph:

Ensure faying surfaces of plates are flat to within a tolerance of 1/32 inch in 12 inches and a tolerance of 1/16 inch overall. Ensure base plates with leveling nuts are flat to within a tolerance of 1/8 inch in 12 inches and a tolerance of 3/16 inch overall.

00962.48 Coating - Replace the paragraph that begins "Prepare and powder coat ..." with the following paragraph:

Prepare and powder coat supports according to the applicable portions of Section 00593 or prepare and coat supports according to the applicable portions of Section 00594. Furnish coating materials for field application, repairing damaged coatings, and coating hardware after installation, according to Section 00593 or 00594. Do not coat:

00962.50 Grounding and Bonding - Replace the paragraph that begins "For fixed base ..." with the following paragraph:

For fixed base poles, furnish a 1/2-inch, Type 308, 309, or 310 stainless steel stud on the inside of the shaft. Locate the stud directly opposite and level with the handhole in the pole. Attach grounding electrode conductors and bonding conductors to the stud with a grounding wire clamp, "acorn style".