

SECTION 00960 - COMMON PROVISIONS FOR ELECTRICAL SYSTEMS

(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 00960 of the Standard Specifications modified as follows:

00960.01 Regulations, Standards, and Codes - Replace the paragraph that begins "All electrical Materials ..." with the following paragraph:

Furnish all electrical Materials and perform all Work according to the following standards where applicable:

00960.02 Equipment List and Drawing Submittals - Replace the paragraph that begins "Within 30 Calendar Days ..." with the following paragraph:

Within 30 Calendar Days after execution of the Contract, submit the Blue Sheets (see 00160.00 and 00160.07) and the Green Sheets (see 00160.00 and 00160.07) according to 00150.37 for all Materials the Contractor proposes to install. Blue Sheets and Green Sheets contain submittal instructions and are made available to the Contractor by the Engineer.

00960.10 Materials - Replace the paragraph that begins "Anchor rods shall ..." with the following paragraph:

Use anchor rods meeting the requirements of 02560.30 and to the types and sizes shown.

(Use the following lead-in paragraph and subsection .11 when decorative coating of signal equipment is required.)

Add the following subsection:

00960.11 Coating - Prepare and powder coat equipment where shown according to the applicable portions of Section 00593 or prepare and coat equipment according to the applicable portions of Section 00594. Do not coat equipment fabricated of aluminum, stainless steel, or hot-dipped galvanized material, except as shown or specified.

Provide the following colors:

Item

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00960.30 Licensed Electricians — Replace this subsection, except for the subsection number and title, with the following:

Only individuals that are properly registered or licensed are allowed to perform electrical work, according to Oregon Administrative Rule 918-282-0120(1). Provide a copy of the electrical license or apprentice registration to the Engineer prior to performing any electrical Work. Every person who installs electrical systems on the Project must be licensed as an S or a J under Oregon Administrative Rule 918-282-0140 or 918-282-0170.

~~According to the Oregon Administrative Rule 918-282-0120(1), no person or Entity shall allow any individual to perform electrical work for which the individual is not properly registered or licensed. Every person who installs electrical systems on the Project shall submit a copy of their electrical license or apprentice registration to the Engineer prior to performing any Work. They must be licensed as an S or a J under Oregon Administrative Rule 918-282-0140 or 918-282-0170.~~

00960.41 Horizontal Directional Drilling - Replace the paragraph that begins "Drilling shall ..." with the following paragraph:

Do not "hump" or deform the Pavement during horizontal directional drilling. Use guided horizontal directional drilling. Keep drilling pits at least 2 feet from the edge of Pavement. Do not use water to the extent that the Pavement might be undermined or Subgrade softened. Sand bedding and marking tape are not required with this method.

(Use the following subsection .42(c) when rigid metallic conduit is required.)

Add the following subsection:

00960.42(c) Metallic Conduit — Paint the following with rust-preventative coating:

- Threads on all metal conduit.
- Areas where the coating has been damaged so underlying metal is exposed.
- Exposed, ungalvanized threads resulting from field cuts.

If corrosive Soil conditions exist, coat metallic conduit with a nonmetallic coating or wrap with corrosion protection tape at least 10 mils thick.

(Use the following subsection .42(d) when connecting new conduit to existing conduit is required.)

Add the following subsection:

00960.42(d) Connecting Non-Metallic Conduit to Metallic Conduit - Use a nonmetallic female threaded connector to connect nonmetallic conduit to metallic conduit.

(Use the following subsection .42(e) when installing conduit under railroad tracks is required.)

Add the following subsection:

00960.42(e) Conduit under Railroad Tracks — Install conduit inside a galvanized, rigid metal conduit at the depth required by the governing Railroad company. Construct so that conduit ends are at least 30 feet beyond the centerline of every track or other distance as required by the Railroad.

(Use the following subsection .42(f) when installing conduit on or in a structure is required.)

Add the following subsection:

00960.42(f) Conduit on Structures - Install conduit according to 00583.40.

(Use the following subsection .42(g) when permanent wood poles are required.)

Add the following subsection:

00960.42(g) Conduit on Wood Poles - Mount conduit on wood poles with two-hole, galvanized, steel conduit straps spaced no more than 3 feet apart. Mount conduit on Utility-owned wood poles according to local Utility regulations. Use stand-off brackets if required.

(Use the following subsection .44 when permanent wood poles are required and the wood pole design is not detailed in the plans.)

Add the following subsection:

00960.44 Wood Poles - Submit stamped Working Drawings, details, and calculations for the wood pole designs to the Engineer for review according to 00150.35. Satisfy the requirements of 02120.10 and include designs for the wood poles, guy anchors, guy wires, span wires, pole setting depths, and pole bearing.

00960.45(b) Grounding/Bonding Wire - Replace this subsection, except for the subsection number and title, with the following:

Use a THWN No. 6 AWG stranded copper grounding/bonding wire in conduit or as shown. Use an un-insulated No. 4 AWG stranded copper grounding/bonding wire outside of conduit or as shown. When splicing grounding/bonding wire, use a reversible electrical splice.

(Use the following subsection .45(f) when poles or cabinets are mounted to a structure.)

Add the following subsection:

00960.45(f) Structure Mounted Poles and Cabinets — Bond all poles and cabinets mounted on Structures or walls to a common ground rod at the end of the Structure. Ground the system at the first convenient acceptable location off the Structure.

(Use the following subsection .45(g) when permanent wood poles are required.)

Add the following subsection:

00960.45(g) Wood Poles - Bond all metallic conduit, messenger cable, terminal cabinet, and other metallic parts within 10 feet of the ground line.

(Use the following subsection .45(h) when metallic junction boxes and lids are required.)

Add the following subsection:

00960.45(h) Metallic Junction Boxes and Lids - Bond metal junction boxes and lids to form a continuous effectively grounded and bonded system with metallic conduit, grounding wire, metal standards and controller cabinets. Leave enough slack in the bond wire connected to the lid to allow complete removal of the lid. Junction boxes only containing circuits that operate at less than 25 V do not need to be bonded.

~~*(Use the following subsection .46 when any of the options are required by the designer.)*~~

00960.46 Service Cabinet and Electrical Energy - Replace the paragraph that begins "Install service cabinet ..." with the following paragraph:

Install service cabinet and associated Equipment, then arrange for the Utility providing power to have the service cabinet inspected and make the electrical hook-up prior to field testing. Field test according to 00990.71 for traffic signals, or according to 00970.70 for illumination.

(Use the following two paragraphs if Intelligent Transportation Systems (ITS) is included in the project)

Add the following to the end of the paragraph that begins "Install service cabinet and associated equipment..."

Field testing for Intelligent Transportation Systems (ITS) does not require prior electrical hook-up.

(Use the following lead in sentence and fill in the table and add or delete rows as necessary. Obtain information from the Signal, Illumination, or ITS designer. Delete language in purple parentheses that does not apply and delete all purple parentheses. Use one of the following options below the table.)

Add the following to the end of the subsection:

Table 00960-1 contains Utility contact information to arrange for (the Utility) (Utilities) to make electrical hookups:

Table 00960-1

Location	Utility	Utility Contact Person's Name, Email and Phone Number	Utility Job Number

(Option 1 - Use the following paragraph when the electrical power is metered, Standard Practice.)

Furnish and install a meter base approved by the serving Utility (with cover by the Utility), where shown.

(Option 2 - Use the following paragraph when the electrical power is billed using a flat rate with no meter. Verify with the Utility provider, IGA, and Region electricians.)

Electrical energy is flat-rated. Meter base is not required.

00960.71 As-Built Plans - Replace this subsection, except for the subsection number and title, with the following:

Upon completion of the installation, submit a red-lined copy of the original Plans noting all changes made. In the red-lined Plans, include all modifications made to accurately show the operation and materials installed. Sufficiently detail the red-lined Plans to enable maintenance forces to replace or repair any part of the Project under routine or emergency maintenance by direct reference.