REVISION OF SECTION 613

ELECTRICAL CONDUIT

**Section 613 of the Standard Specifications is hereby revised for this project as follows:**

**Subsection 613.01 shall include the following:**

This work includes furnishing and installing either HDPE or PVC electrical conduit. All materials furnished, assembled, fabricate and installed under this item shall be new, corrosion resistant and in strict accordance with the plan sheets and these Special Provisions.

**Subsection 613.07 shall include the following:**

All conduit shall be Schedule 80 in the diameters, quantities and colors as shown on the project detail sheet and shall be compliant with all ASTM and Bellcore TW-NWT-000356 requirements.

All HDPE conduit shall be factory lubricated, low friction, high-density conduit constructed of virgin high-density polyethylene resin. Conduit shall be capable of being coiled on reels in continuous lengths, transported, stored outdoors, and subsequently uncoiled for installation, without affecting its properties or performance.

All conduit shall be certified by the manufacturer as meeting ANSI/UL 6, 651, or 651A. The manufacturer shall be ISO 9000 compliant.

Electrical Conduit (Bored) shall be HDPE and installed using a trenchless technology of directional boring.

Electrical Conduit (Plastic) shall be PVC or HDPE and installed by direct burial methods such as plowing, open trenching, or other excavation methods.

Each individual conduit shall be equipped with a pull tape as described below. Each bore/trench shall have a copper tracer wire of at least 12 gauge in one of the conduits. In trenches containing multiple conduits, the tracer wire shall not be installed in the same conduit as the fiber.

Each individual conduit shall be equipped with pull tape. The pull tape shall have a minimum tensile strength of 1800 lbs. and be of a design and manufacture that prevents cutting or burning into the conduit during cable installation.

The installation of conduit shall be performed in such a manner as to avoid unnecessary damage to streets, sidewalks, utilities, landscaping, and sprinkler systems. Excavations and conduit installation shall be performed in a continuous operation. All trenches shall be backfilled by the end of a shift. The material from trenching operations shall be placed in a location that will not cause damage or obstruction to vehicular or pedestrian traffic or interfere with surface drainage.

The Contractor shall take all necessary precautions to avoid heaving any existing asphalt/concrete mat or over-excavating a trench, whether caused by equipment directly or by dislodging rocks and boulders. Any such heaving or over-excavation shall be repaired or replaced at the Contractor’s expense. The Contractor shall bear the cost of backfilling all over-excavated areas with the appropriate backfill material as approved by the project engineer.

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**REVISION OF SECTION 613**

**ELECTRICAL CONDUIT**

Conduit plugs shall be supplied and installed in all conduit ends as soon as the conduit is installed. Conduit shall be plugged at all termination points such as pull boxes, manholes, controller cabinets, and node buildings. All plugs shall be correctly sized to fit the conduit being plugged. Empty conduits shall be sealed with removable mechanical type duct plugs that provide a watertight barrier and are equipped with a rope tie on the inside end for connection of the pull tape. No foam sealant will be allowed. All plugs and sealant shall be approved prior to construction.

The Contractor shall restore all surface materials to their preconstruction condition or better, including but not limited to pavement, sidewalks, sprinkler systems, landscaping, shrubs, sod, or native vegetation that is disturbed by the conduit installation operation. All repairs shall be included in the cost of the conduit.

If the Contractor is unable to bore the conduit at the lengths shown on the plans from access point to access point, all splice couplings and associated work to splice conduit shall be included in the cost of this item. The coupling technology shall allow the conduit to be connected without the need for special tools, and shall form a watertight, airtight seal. Breaking force between segments shall exceed 250 pounds of force. No metal fittings shall be allowed. No elevation difference between the conduit run and the splice location will be allowed. Conduit splices shall be kept to a minimum and all locations shall be approved by the project engineer. Additional pull boxes shall not be substituted for splices.

All conduits shall use sweeps to elevate the buried conduits to the final grade within a pull box or manhole, as shown in the plans. The sweeps shall be terminated within the pull boxes and manholes to allow for easy installation and removal of the conduit plugs. The sweeps shall be set above the ground surface within the pull box at a height that does not interfere with the coiling of the fiber optic cable.

All conduit runs are intended for the future installation of fiber optic cable and shall have a limited number of bends. The sum of the individual conduit bends on a single conduit run between two pull boxes shall not exceed 270º. No individual bend shall be greater than 45º. All conduit bends shall have a minimum acceptable radius of 30 inches.

If new conduits are installed in existing pull boxes, manholes or cabinet bases the Contractor shall carefully excavate around the pull box or manhole and install the new conduit as shown in the plans. The Contractor shall not damage the existing pull box, manhole or their contents. If the existing pull box, lid, or the concrete collars are cracked or damaged during conduit installation, the Contractor shall restore the damaged section to preconstruction condition at no additional cost.

**Subsection 613.11 shall include the following:**

Electrical Conduit will be measured by the actual number of linear feet that are installed and accepted. Conduit shall also include anchors, bands, skids, sweeps, pull tape, copper tracer wire, adapters, fittings, conduit plugs, installation equipment, splice couplings, mounting brackets and hardware, structure anchors, adhesives, labor, and all other items necessary to complete the work.

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**REVISION OF SECTION 613**

**ELECTRICAL CONDUIT**

**Subsection 613.12 shall include the following:**

Pay Item Pay Unit

2 Inch Electrical Conduit (Bored) Linear Foot

2 Inch Electrical Conduit (Plastic) Linear Foot

3 Inch Electrical Conduit (Bored) Linear Foot

3 Inch Electrical Conduit (Plastic) Linear Foot

Electrical Conduit contract unit price shall be full compensation for work described above, specified in the plans, and complete and in place.