SPECIAL PROVISIONS FOR INSTALLATION OF TRAFFIC SIGNALS

INDEX OF SPECIAL PROVISIONS FOR INSTALLATION OF TRAFFIC SIGNALS

1.0 GENERAL NOTES FOR INSTALLING TRAFFIC SIGNALS

1.1 These Special Provisions and the 1983 North Central Texas Standard Specifications for Public Works Construction with Amendments where applicable, shall govern the materials and installation of traffic control signals, including illumination, at the intersections and, when required, interconnection conduit between signalized intersections. In the event of a conflict, the Special Provisions shall control.

1.2 This project shall consist of installing materials and equipment necessary for the complete signal system at the proposed location.
The Contractor shall install and shall activate completed signals and signal systems in the sequence specified by the Engineer. The Engineer will issue the anticipated sequence of intersection work at the time the work order is issued.

1.3 The total installation shall be in accordance with the applicable sections of the National Electrical Code, all governing local ordinance and regulations, the plans, these special provisions and those sections of the Standard Specifications which apply. All workmanship shall be first class and finished work shall present a neat, uncluttered appearance. The Contractor shall schedule his work so as to cause the minimum interference to moving traffic and the operation of the existing signal system. Existing signals may be shut down for modification and/or equipment installation only with 72 hour advanced the approval of the Director of Streets. These traffic signal installations consist of the following items:

1. Furnishing and placing all concrete and steel for signal pole foundations.
2. Installation of steel traffic signal poles.
3. Installing necessary conduit and pullboxes.
4. Installing all signal control equipment including controller assemblies signal head assemblies, detector units, AC service, conductors, and all other miscellaneous equipment that is required. The Contractor shall furnish concrete, reinforcing steel, and forms for structure foundations, grouting materials, painting materials, detector loop sawcut and sealing materials, No. 12 T.W. stranded wire for connecting the signal heads to the signal cable system, and miscellaneous nuts, bolts, and washers under three-quarters inch (3/4") in diameter. The Contractor shall be required to assemble all signal head units.
5. The Contractor shall connect existing and proposed communication cable for interconnect as required by any system where applicalbe. Communication cable runs shall be continuous from controller to controller. Splicing may be permitted in pullboxes, subject to approval by the Traffic Engineer.
6. The Contractor will be responsible to maintain existing traffic signal operation at all intersections during the installation of new signals.
7. The Contractor will be responsible for removing the existing traffic signal equipment and hardware (controllers, poles, heads, cable, signs, etc.) at a specified location.
8. Project acceptance will be by individual intersection. The Contractor shall guarantee all work performed and materials he has furnished under this project for a period of twelve (12) months following the date of project acceptance.
9. The contractor shall provide a portable upload-download unit as per TEXAS D.O.T. requirements.

NO EXTRA COMPENSATION WILL BE ALLOWED FOR FULFILLING THE REQUIREMENTS STATED ABOVE.

1.4 All materials furnished by the Contractor shall be new undepreciated stock.

1.5 If the Contractor desires to deviate from any of the following procedures or to make substitutions for any materials or equipment, a written approval must be obtained from the Traffic Engineer after a request from the Contractor is made and sample(s) of the substitute materials or equipment is/are furnished to the Traffic Engineer.

2.0 MATERIALS TO BE FURNISHED BY THE CONTRACTOR

2.1 The Contractor shall furnish all materials necessary to complete the project, including materials for the power connection that are not furnished by the Power Company, and shall install the materials in accordance with the plans and specifications.

2.2 The Contractor shall also furnish all labor, tools, equipment, and incidentals necessary to complete the project in an efficient and workmanlike manner.

2.3 Electrical materials and fittings shall conform to the requirements of the National Electrical Code. Electrical fittings shall be approved by the National Electrical Association.

2.4 The Contractor shall furnish painting materials and labor as well as "touch-up" all painted items that are damaged during the installation process (whether previously painted by the contractor or by others). See Section 9.9 Field Painting. The finishing paint appearance will meet the Traffic Engineer's approval before acceptance of the signal installation is made.

3.0 INSTALLATION OF ELECTRICAL SERVICE

3.1 The Contractor shall furnish and install conduit and wire from pullboxes or signal foundations for AC Service as shown on plans and as required by the Power Company for traffic signal controllers and street lighting. The Contractor shall coordinate and verify exact requirements for conduit and wire with the Power Company before any work is started. Installation of conduit and wire to the Power Company vaults shall be per the Power Company specifications.

3.2 Unless otherwise called for in the plans, the power connection shall be made to a 115-125 volt, single-phase, 60 cycle A.C. supply. The wire used for the power connection shall be a minimum size as indicated on plans and shall be insulated for six hundred (600) volts. The common wire shall be white-coded and the power positive shall be black-coded. The Contractor shall also provide an electrical meter for the signal installation.

4.0 INSTALLATION OF CONDUIT

4.1 (DELETED)

4.2 The Contractor shall provide and install underground cable facilities required to satisfy the requirements of the signal system proposed. Cable routing can be accomplished through existing conduits and conduits to be installed by the Contractor as shown in the plans.
The Contractor shall be responsible for detailed coordination of proposed cable routing and actual installation, with utility company before any work is started. Installation of conduit and cable to other utility manholes shall be per utility company Specifications, which includes adequate ventilation to prevent injury to personnel caused by toxic or harmful gases.

4.3 New Conduit

4.3.1 Unless otherwise shown on plans, all conductors shall be in conduit except when in metal poles. All conduit and fittings shall be of the sizes and types shown on the plans. Each section of conduit shall bear evidence of approval by Underwriter's Laboratories.

4.3.2 Conduit terminating in posts or pedestal bases shall not extend vertically more than 3 inches above the concrete foundation. Field bends in rigid metal conduit shall have a minimum radius of 12 diameters of the nominal size of the conduit. Copperclad ground rods in signal bases shall not extend vertically more than 3 inches above the concrete foundation.

4.3.3 Each length of galvanized rigid metal conduit, where used, shall be reamed and threaded on each end and couplings shall be made up tight. White-lead paint or equal shall be used on threads of all joints. PVC conduit shall be joined by solvent-weld method in accordance with the conduit manufacturer's recommendations. No reducer couplings shall be used unless specifically indicated on the plans.

4.3.4 All conduit and fittings shall have the burrs and rough places smoothed and shall be clean and free of obstructions before the cable is installed. Field cuts shall be made with a hacksaw only, and shall be square and true so that the ends will butt or come together for the full diameter thereof. In no case shall a cutting torch be used to cut or join conduit. Slip joints or running threads will not be permitted for coupling conduit unless approved by the Traffic Engineer. When a standard coupling cannot be used, an approved union coupling shall be used and shall provide a water-tight coupling between the conduit. All couplings shall be properly installed to bring the ends of connected conduit together to produce a good rigid connection throughout the entire length of the conduit run. Where the coating on a conduit run has been damaged in handling or installation, such damaged parts shall be thoroughly painted with rust preventive paint. Ends of conduits shall be capped or plugged until installation of wire. Upon request by the Traffic Engineer, the Contracator shall draw a full-size metal wirebrush, attached by swivel joint to a pull tape, through the metal conduit to insure that the conduit is clean and free from obstructions. The conduits shall be placed in an open trench at a minimum 24 inches depth below the curb grade in the sidewalk areas, or 24 inches below the finished street grade in the street areas.

4.3.5 Conduit placed for concrete encasement shall be secured and supported in such manner that the alignment will not be disturbed during placement of the concrete. No concrete shall be placed until all of the conduit ends have been capped and all box openings closed

4.3.6 PVC conduit, which is to be placed under existing pavement, sidewalks, and driveways, shall be placed by first providing a void through which the PVC conduit shall be inserted. The void may be made by either boring or jacking a mandrel. Metal conduit, which is to be placed under existing pavement, sidewalks, and driveways, shall be placed by jacking or boring.

4.3.7 Pits for jacking or boring shall not be closer than 2 feet to the back of the curb or the outside edge of the shoulder unless otherwise directed by the Traffic Engineer. The jacking and boring method used shall not interfere with the operation of street, highway, or other facility, and shall not weaken or damage any embankment structure, or pavement. Heavy jacks are to be used for jacking. Boring is to be done by mechanical means providing a maximum one inch overcut for the conduit to be placed, and use of water or other fluids in connection with the boring operating will be permitted only to the extent to lubricate cuttings. Water jetting will not be permitted.

4.3.8 Where conduit is to be placed under existing asphaltic pavement, the jacking method is to be used unless written approval is given by the Traffic Engineer for placement of conduit by boring.

4.3.9 Backfill for all excavations shall be tamped with mechanical tamps in six inch (6") layers to the density of the surrounding ground.

4.4 Existing Conduit

4.4.1 Prior to pulling cable in existing underground conduit to be reused in the system, the conduit shall be cleaned with a mandrel or cylindrical wire brush and blown out with compressed air. The Traffic Engineer shall be notified prior to disconnection or removal of the existing interconnect cable.

4.4.2 Where existing conduit is found to be unuseable (conduit has collapased or the cable is unable to be pulled from the existing conduit), the Contractor shall, upon approval by the Traffic Engineer, install new rigid metal P.V.C. or conduit.

NO.	REVISION	BY	DATE

DESIGNED BY: _____
DRAWN BY: _____
CHECKED BY: _____
SCALE: _____
DATE: _____

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GENERAL NOTES

Scale: NONE
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OF SHEETS
JOB NO.