

SECTION 16000

BASIC ELECTRICAL REQUIREMENTS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Basic Electrical Requirements Specifically Applicable to Division IX Sections, in Addition to Division I - General Requirements.

1.2 WORK BY OWNER

- A. PLC and MMI programming shall be completed by Owner.

1.3 WORK SEQUENCE

- A. Install Work to accommodate Owner's occupancy requirements during the construction period. Coordinate electrical schedule and operations with Owner. Coordinate with construction and all other Site Contractors.
- B. Contractor shall, at his own expense, replace (or with Engineer's written permission repair) any damage caused to Work Site or structure as a result of Work under this Division (IX).
- C. The sequence of construction shall be:
 - 1. As each structure is completed, the contractor shall connect it to the Drain Office Computer. The contractor shall maintain the connection between Drain Office Computer and completed structures until Drain Office Computer is installed at the Drain Office and demonstrated for and approved by Engineer.
 - 2. Conduits and all in-ground Work shall be coordinated with site/earthwork Contractors at each Station. This shall include conduits, cameras, level sensors, station-to-station conduits, generator conduits and pads, and all associated structures. Also conduits to I-496 monitoring structure shall be installed per the plans. Utility entrance shall be coordinated with utility and site/earthwork Contractors to minimize disturbance after Site is at final grade.
 - 3. Structural conduit penetrations shall be coordinated with Divisions V, VI, and VII Contractors to ensure concrete penetrations are made. Core drilling will only be permitted with prior written permission of Engineer.
 - 4. Balance of structural internal and external electrical work shall be completed. This shall include all Work associated with the cameras, level sensors, generators, communications, lighting, and all other electrical work. Communications to Drain Office Computer shall be confirmed.
 - 5. Flow monitoring station equipment at I496 shall be installed. Contractor to coordinate with Engineer on flow monitoring sensors and location. Contractor shall also complete Site Work at this locations including cabinet placement, conduit placement. Communications to Drain Office Computer shall be confirmed.
 - 6. Drain Office Computer shall be moved to Drain Office and communications shall be confirmed.

1.4 ALTERNATES

- A. No Alternates shall be quoted on the bid form. Contractor shall provide sufficient information regarding any alternate to allow Owner to make acceptance/rejection decision. Accepted alternates will be identified in Owner-Contractor Agreement.

- B. Coordinate related Work and modify surrounding Work as required.

1.5 REFERENCES

- A. ANSI/NFPA 70 - National Electrical Code.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300 - Submittals.
- B. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.
- C. Mark dimensions and values in units to match those specified.
- D. Submit shop drawings indicating layout of completed assemblies, interconnecting cabling, dimensions, weights, and external power requirements.
- E. Submit product data under provisions of Section 01300 - Submittals.
- F. Submit product data for each component specified.
- G. Submit manufacturer's installation instructions under provisions of Section 01300 - Submittals.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable local building codes.
- B. Electrical: Conform to NFPA 70.
- C. Furnish products listed and classified by Underwriters Laboratories, Inc. or testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.
- D. Fire Protection: Conform to NFPA 820.
- E. Obtain permits, and request inspections from authority having jurisdiction.
- F. Contractor is responsible for all costs associated with permits and inspections with the authority having jurisdiction.

1.8 PROJECT/SITE CONDITIONS

- A. Install Work in locations shown on the plans, unless prevented by Project conditions, in which case, inform Engineer before proceeding.
- B. Prepare the plans showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Owner before proceeding.

1.9 SEQUENCING AND SCHEDULING

- A. Construct Work in sequence under provisions of Section 01010 – Summary of Work.

1.10 UNIT PRICE MEASUREMENT AND PAYMENT

- A. Payment up to 75 percent of lump sum bids will be paid. Final 25 percent will not be issued until all communications are operational, verified, and accepted by Engineer.

- B. Detention Area A - Electrical, Controls, Security, Flow Monitoring, Etc.:
 - 1. Control and Communication Systems:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in plans and/or specifications, and all items required for a correct and complete construction and installation of the controls and communications system, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 - 2. Power Distribution and General Electrical System:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the power distribution and the general electrical systems, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 - 3. Surveillance System:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in plans and/or specifications, and all items required for a correct and complete construction and installation of the cameras, controllers, network interfaces, component interconnections, camera poles, and any necessary services or components necessary to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.

- C. Detention Area B - Electrical, Controls, Security, Flow Monitoring, Etc.:
 - 1. Control and Communication Systems:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in plans and/or specifications, and all items required for a correct and complete construction and installation of the controls and communications system, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 - 2. Power Distribution and General Electrical System:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the power distribution and the general electrical systems, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.

3. Generator and Automatic Transfer Switch:
 - a. Basis of Measurement: At the unit price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in plans and/or specifications, and all items required for a correct and complete construction and installation of the generator, automatic transfer switch, sub base tank, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 4. Surveillance system:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in plans and/or specifications, and all items required for a correct and complete construction and installation of the cameras, controllers, network interfaces, component interconnections, camera poles, and any necessary services or components necessary to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
- D. Detention Area E - Inlet Structure - Electrical, Controls, Security, Flow Monitoring, Etc.:
1. Control and Communication Systems:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the controls and communications system, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 2. Power Distribution and General Electrical System:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the power distribution and the general electrical systems, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 3. Surveillance System:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the cameras, controllers, network interfaces, component interconnections, camera poles, and any necessary services or components necessary to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
- E. Detention Area E Outlet Structure - Electrical, Controls, Security, Flow Monitoring, Etc.:
1. Control and Communication Systems:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.

3. Generator and Automatic Transfer Switch:
 - a. Basis of Measurement: At the unit price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the generator, automatic transfer switch, sub base tank, and any necessary items or services to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
 4. Surveillance System:
 - a. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 - b. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the cameras, controllers, network interfaces, component interconnections, camera poles, and any necessary services or components necessary to allow this system to function as designed. This system shall meet the operating parameters presented in the specifications.
- G. I-496 – Flow Monitoring Equip., Power, & Communication:
1. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 2. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the electrical, controls and surveillance systems, flow monitoring, or any necessary services to allow this system to function. This system shall operate to meet the parameters to pass the warranty time period.
- H. ECDC's Office – Improve Technology, Communication, Etc.:
1. Basis of Measurement: At the lump sum price bid as stated in the proposal.
 2. Basis of Payment: Includes equipment, material, labor, items in the plans and/or specifications, and all items required for a correct and complete construction and installation of the electrical, controls and surveillance systems, flow monitoring, or any necessary services to allow this system to function. This system shall operate to meet the parameters to pass the warranty time period.

END OF SECTION