

Technical Specification 029

Electrical Services

1.0 General

- a) The intent of this specification is to provide technical guidance and requirements to the contractor for the installation of electrical services at county owned pump stations, buildings, and other installations. The contractor shall provide all labor, materials, tools, equipment, and related items required to furnish, install, and place into operation the required electrical service as shown on the approved plans provided by the Engineer.
- b) The contractor shall also obtain all electrical permits from the Authority Having Jurisdiction (AHJ) for the work shown on the approved plans prior to beginning work.

2.0 Reference Standards

- a) All electrical services shall comply with these reference standards and also with all local codes and ordinances:
 - 1) NEC – National Electrical Code
 - 2) OSHA – Occupational Safety and Health Administration
 - 3) ANSI – American National Standards Institute
 - 4) IEEE – Institute of Electrical and Electronics Engineers
 - 5) NEMA – National Electric Manufacturers Association
 - 6) Brunswick County Standard Details
 - 7) Brunswick County Technical Specification TS 028: General Electrical Information
 - 8) Brunswick County Technical Specification: TS 030: Grounding and Bonding
 - 9) Brunswick County Technical Specification: TS 031: Surge Protection

3.0 Coordination

- a) The electrical contractor shall be responsible for coordinating with the utility company and assisting the Owner with obtaining a permanent electrical service as shown on the approved plans.

- b) The electrical contractor shall represent the Owner and acquire all service agreements, etc., and coordinate with the Owner to obtain all required signatures and return the documents to the utility company after execution as required.

4.0 Installations

- a) All electrical work shall be performed in accordance with the National Electrical Code and the Authority Having Jurisdiction.
- b) All permits for the electrical work shall be obtained and paid for by either the general contractor or the electrical contractor. All inspections, tests, or additional fees required for the completion of the work shall also be paid for by either the general or electrical contractor. Determination of who pays the required fees shall be a coordination issue between the general and electrical contractor.
- c) All materials and equipment shall be new and include a third-party label such as UL, CSA, ETL, etc., listing approval for its installed application.
- d) The electrical contractor shall review and be familiar with the plans of other trades for coordination of the work and related and adjoining work.
- e) Any discrepancies in the approved drawings and specifications that will affect the work shall be brought to the attention of the architect and / or engineer for resolution prior to submitting bids for the project.
- f) The contractor shall provide all National Electrical Code clearances for all installed electrical equipment. Any conflicts with other trades or inadequate clearances shall be brought to the attention of the architect and / or engineer by the electrical contractor for clarification and resolution.
- g) Penetrations of structure walls, floors, and roofs shall be sealed watertight. Interiors of raceway penetrations shall be sealed with non-hardening electrical putty. All conduit connections at equipment, enclosures, and a pump station wetwell shall also be sealed with non-hardening electrical putty.
- h) All hardware exposed to the weather shall be stainless steel.
- i) All conduits shall enter the bottom only of electrical equipment. Myers watertight hubs, or approved equal, shall be used in outdoor applications.
- j) Conduit outlet bodies and / or condulets such as LBs, LLs, and LRs are not allowed unless specifically approved by Brunswick County.
- k) The electrical contractor and any of his subcontractors shall visit the project site to observe the existing conditions and become familiar with the scope of work required prior to submitting bids. Work required by existing job conditions not indicated on the drawings shall be included in the bid.
- l) Shared neutral conductors are not allowed.

- m) The general or electrical contractor shall install all required concrete pads for utility transformers, standby emergency power generators, vaults, etc., per County standard details and / or any requirement of the utility company. The electrical contractor shall coordinate all equipment pad requirements with the utility company.
- n) The electrical contractor shall coordinate the electrical services, metering, and metering equipment with the utility company for locations, arrangements, connections, etc.
- o) The electrical service entrance raceways shall be installed by the electrical contractor and sized as shown on the approved plans, contract drawings, or as required by the utility company. Service entrance conductors will be provided and installed by the utility company to the line side of the metering equipment. Service entrance conductors from the metering equipment to the service equipment shall be installed by the electrical contractor.
- p) Current transformer (CT) cabinets and self-contained meter cabinets shall be installed by the electrical contractor unless directed otherwise by the utility company. Load side connections shall be made by the electrical contractor. Coordinate metering requirements with the utility company before beginning rough-in of service raceways.
- q) Sewer pump station services shall be 277/480 VAC, 3 phase WYE, 4-wire, unless otherwise directed by Brunswick County.
- r) The electrical contractor shall provide all equipment, grounding, bonding, and additional empty conduit as shown on the approved plans, contract documents, and /or as required by the utility company.
- s) All ground wires shall be exothermically welded to ground rods as shown on the County Standard Details and per Brunswick County Technical Specification TS 030.01: Grounding and Bonding.
- t) All concrete shall be 3,000 psi, 28-day compressive strength concrete. Reinforcement shall be as shown on the approved plans, contract documents, county Standard Details, county Technical Specifications, or as directed by the Engineer and / or county staff.
- u) An operating test with the Engineer and county staff present is required once the final electrical inspection has passed, and the permanent meter has been obtained from the utility company, to demonstrate that the electrical installation is operating properly.
- v) All conduit installed in county sewer pump stations shall be Schedule 80 PVC unless otherwise approved by Brunswick County.

5.0 Submittals

- a) The electrical contractor shall submit shop drawings and other submittals to the Engineer for review and approval prior to beginning work.

6.0 Payment

- a) No separate payment will be made for electrical services. All costs incurred by the contractor for this work should be included in the unit price or lump sum price for the item of work to which it pertains.