SP-231066
(New)

SPECIAL PROVISIONS
FOR
IRRIGATION WATER SYSTEM

Polk County
STP-U-6170(606)--70-77

Effective Date
October 21, 2025

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

231066.01 - GENERAL

1.1 SECTION INCLUDES

A. The following irrigation system when fully completed shall provide water to the planting areas as shown on the plans

B. The Contractor shall provide all design, labor, materials, equipment, and supervision required to construct the irrigation system.

C. Irrigation system shall be installed as a complete coordinated system. All system components shall be coordinated to provide a fully compatible functioning system.

D. Provide and install sleeves under walks and drives as required. Both piping and 24 VAC wiring sleeves shall be schedule 40 PVC. Size, depth, and location as required. Coordinate with the Engineer.

1.2 DELIVERY, HANDLING, AND STORAGE

A. Materials shall be delivered to the site in accordance with manufacturer's recommendations for shipment and protection of materials.

B. Handling of materials as recommended by manufacturer.

C. Storage of all materials in locations designated and approved by the Engineer.

1.3 CODES, INSPECTIONS, AND PERMITS

A. The entire installation shall fully comply with all local and state laws and ordinances, and with all the established codes applicable there to.

B. The Contractor shall take out all required permits, arrange for all necessary inspections and shall pay any fees and expenses in conjunction with the same as a part of the work under this section.

1.4 SITE DISTURBANCES

A. Take precautions to ensure that equipment and vehicles do not disturb or damage existing site grading, walks, curbs, pavements, utilities, plants, and other existing items and elements on public and private property.

B. Verify locations and depths of all underground utilities prior to commencing excavation.

C. Repair and/or return to original condition any damage caused by Contractor's negligence at no cost to the Contracting Authority.

1.5 JOB CONDITIONS

A. Existing Utilities:

1. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during this work.
2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with the Contracting Authority and utility companies in keeping respective services and facilities in full operation. Repair damaged utilities to satisfaction of utility owner.
3. Do not interrupt existing utilities serving facilities occupied and used by the Contracting Authority or others, except when permitted in writing by the Contracting Authority and then only after acceptable temporary utility services have been provided.
4. Provide minimum of 48 hour notice to the Contracting Authority and receive written notice to proceed before interrupting any utility.
5. Demolish and completely remove from site existing underground utilities indicated to be removed after complete deactivation. Coordinate with utility companies for shut-off of services if lines are active.

B. Protection of Persons and Property:

1. Barricade open excavations occurring as part of this work and post warning lights.
2. Operate warning lights as recommended by authorities having jurisdiction.
3. Protect structures, utilities, sidewalks, pavements, curbs, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by this work.

1.6 SUBMITTALS

A. Submit one electronic pdf copy of manufacturer's technical data and specifications for all component parts of the irrigation system. Include manufacturer's printed literature for operation and maintenance of operating system elements.

B. Describe in detail, in the bid for this work, any proposed deviation or variance from the equipment or installation described herein.

C. Submit results of a pressure test at the point of connection (POC) prior to system installation to verify adequate pressure and operation for the proposed irrigation system.

1.7 MEASUREMENT AND PAYMENT

A. Irrigation Water System

1. Measurement: Item is lump sum and no measurement will be made.

2. Payment: Payment will be made at the lump sum unit price. Partial payment will be made based on the percentage of the work completed. Payment is full compensation for furnishing and installing the service to the roundabout median off existing water main.

3. Includes: Unit price includes 3/4 inch copper service, tapping saddle, corporation stop, service pipe, curb stop and box, quick couplers, meter, meter pit, tracer wire, and backflow prevention device. Mega-Lugs and thrust blocks are required for all fittings. Item include all excavation, plumbing, backfill and compaction, fittings, connectors, and appurtenant devices and fixtures.

231066.02 - PRODUCTS

2.1 COPPER PIPING

A. Water service piping to median shall be 3/4 inch Type K copper.

2.2 PVC

A. Sizes 1 inch diameter and larger.

B. Virgin, high impact, PVC pipe, Schedule 1120-1220. Mainline piping: Class 200, having a minimum of 200 psi working pressure rating.

C. Continuously and permanently marked with manufacturer’s name, material, size, and schedule or type.

D. Pipe: Conform to CS 207-60 or latest revision.

E. Material: Conform to CS 256-63 or latest revision.

2.3 PVC PIPE FITTINGS

A. Schedule 40 PVC solvent weld or belled fittings; saddles prohibited.

B. Conform to ASTM D1784, ASTM D2466.

2.4 SLEEVES

A. See plan for locations. Install schedule 40 PVC for sleeves to accommodate irrigation line and wiring.

B. Coordinate the timing of the installation of the sleeves to occur prior to pavement installation to ensure the sleeves are placed in the correct location and depth under or through proposed improvements.

2.5 REDUCED PRESSURE BACKFLOW DEVICE

A. To be furnished and installed by Contractor.

B. Connection to backflow device shall be installed according to local codes and manufacturer's specifications, requirements and recommendations.

C. Provide all piping, fittings and support equipment frame work and fasteners to provide required clearances. Provide steel supports and anchor to concrete slab to support device.

D. Submit product information to Engineer for review prior to installation.

E. Reduced pressure device as specified on the plans.

F. To be installed in an irrigation enclosure. Furnish and install a powder-coated steel enclosure, sized to fit the backflow preventer and meter. Enclosure shall have a vandal resistant hinged door with a lockable latch assembly. Enclosure shall have interior mounting flanges for attachment to a pad-mount base or minimum 4 inch depth PCC pad.

G. Location as shown on the drawings. Coordinate location with other mechanical work and equipment prior to construction.

2.6 IRRIGATION METER AND PIT

A. The irrigation meter shall be 3/4 inch Mach10 by Neptune. installed by the Contractor. The meter pit shall be Mueller/hunt Thermal-Coil Meter pit with insulation pad. The meter pit and meter installation shall be installed per detail in the contract plans and shall include pit, casting, tracer wire, valves as shown.

B. Provide all piping, fittings and support equipment frame-work and fasteners to provide required clearances. Provide steel supports and anchor to concrete slab to support device.

2.7 QUICK COUPLING VALVES

A. Verify final locations with the Engineer. See plan for locations.

B. Install quick coupling valve in 10 inch valve box.

C. Provide two matching quick coupler keys.

2.8 ISOLATION GATE VALVE

A. See plans for actual location and verify final locations with the Engineer.

B. Size valve to match line size.

C. NIBCO Brass Ball valve S-FP-600A two-piece valve, or equal, as per manufacturer's specifications.

D. Install isolation gate valves in 10 inch valve box in locations shown on plans.

2.9 SLEEVES

A. Coordinate with Engineer as necessary for locations. Install schedule 40 PVC for sleeves to accommodate irrigation line and wiring.

2.10 SWING JOINTS

A. LASCO 360 degree. Swing Joint Assembly as manufactured by Philips Industries or approved equal.

231066.03 – EXECUTION

3.1 SYSTEM DESIGN

A. Design Pressure: Verify water pressure prior to construction.

B. Location of irrigation main line: Locate lines as per manufacturer's recommendations. Make adjustments as necessary to avoid plantings and other obstructions. Exact locations of piping, valves, and other components shall be established by the Contractor in the field at time of installation and on the approved shop drawings.

C. Minor adjustments to system field layout will be permitted to clear existing fixed obstructions; final field layout shall be acceptable to the Engineer based on the approved shop drawings.

3.2 INSTALLATION

A. Excavating and backfilling:

1. Excavation shall include all materials encountered, except materials that cannot be excavated by normal mechanical means.
    a. Rock excavation: Submit a unit cost per foot of trench for rock excavation. Include in price additional backfill materials required to replace excavated rock.
2. Excavate trenches of sufficient depth and width to permit proper handling and installation of pipe and fittings.
3. If the pulling method is used, the pipe "plow" shall be a vibratory type. Starting and finishing holes for pipe pulling shall not exceed a 1 foot by 3 foot opening.
4. Excavate to depths required to provide 2 inch depth of earth fill or sand bedding for piping when rock or other unsuitable bearing material is encountered.
5. Fill to match adjacent grade elevations with approved earth fill material. Place and compact fill in layers not greater than 8 inch depth.
    a. Provide approved earth fill or sand to a point 4 inches above the top of pipe.
    b. Overfill with approved excavated or borrow fill materials free of lumps or rocks larger than 3 inches in any dimension. Level, compact and water settle. Should settlement occur, refill and re-sod as required.

6. Except as indicated, install irrigation mains with a minimum cover of 18 inches based on finished grades. Install irrigation laterals with a minimum cover of 12 inches based on finished grades.
7. Excavate trenches and install piping and fill during the same working day. Do not leave open trenches or partially filled trenches open overnight.

B. Fittings, valves, and accessories:

1. Install fittings, valves, risers, and accessories in accordance with manufacturer's instructions.
   a. Provide concrete thrust blocks where required at fittings valves and all change of directions.
2. Install quick-coupling valves in 10 inch valve box on 360 degree swing joint assembly as per manufacturer's recommendation with stabilizer.
3. Install fittings and accessories as shown or required to complete the system.
4. Install in-ground control valves in a valve access box as indicated.
5. Install valve access boxes on a suitable base of gravel to provide a level foundation at proper grade to provide drainage of the access box.

C. Flushing, testing, and adjustment:

1. After piping and risers/swing joints are installed, open valves and flush out the system with full head of water.
2. Perform system testing upon completion of each section. Make necessary repairs and re-test repaired sections as required.

D. PVC Pipe and Fittings:

1. Use only strap-type friction wrenches for threaded plastic pipe.
2. PVC Solvent Weld Pipe and Fittings:
   a. Use appropriate primer and solvent cement. Join pipe in manner recommended by pipe and fitting manufacturers and in accordance with accepted industry practices.
   b. Cure for 30 minutes before handling and 24 hours before pressurizing or installing with vibratory plow.
   c. Snake pipe from side to side within trench.
3. PVC Threaded Connections:
   a. Use only factory-formed threads. Field-cut threads are not permitted.
   b. Apply thread sealant in manner recommended by component, pipe and sealant manufacturers and in accordance with accepted industry practices.

3.3 BORING (IF NECESSARY):

A. Place irrigation pipe and wiring under existing concrete or asphalt surfaces by jacking, boring or hydraulic driving.

B. Avoid joints through boring sleeves within boring areas.

C. Open cutting of existing concrete and asphalt surfaces to install sleeving is not permitted unless approved by the Engineer in writing.

D. Where piping is shown under paved areas which are adjacent to turf areas, install the piping in the turf areas.

3.4 AS-BUILT DRAWING

A. Furnish accurate “As-Built” drawings of all components. State the size, manufacturer, model number, part number, size, and exact location of each and every item furnished and installed by this Contractor. Final payment can be withheld until “as-built” has been provided to and approved the Engineer.

B. Contractor will furnish Contracting Authority with two bound copies of instruction sheets and parts lists covering all operating equipment.

3.5 DISPOSAL OF WASTE MATERIAL

A. Stockpile, haul from site, and legally dispose of waste materials, including unsuitable excavated materials, rock, trash, and debris.

B. Maintain disposal route clear, clean and free of debris.

C. Repair any damage resulting from irrigation system installation.

3.6 ACCEPTANCE

A. Test and demonstrate to the Engineer the satisfactory operation of the system free of leaks.

B. Instruct the Contracting Authority’s staff in the operation of the system.

C. Upon acceptance, the Contracting Authority will assume operation of the system.

3.7 SPECIAL INSTRUCTIONS

A. The Contractor shall coordinate and cooperate with all contractors, during the installation of this system.

B. The Irrigation System must be in full operation within 1 week of planting operations. It is the intent and mandatory requirement that the system be installed to provide the water for the newly installed plant material.