

SECTION 02750

IRRIGATION

PART I - GENERAL

1.01 DESCRIPTION

A. Work Included

1. Piping and fittings.
2. Connection to existing water lines.
3. Valves, bubblers, and spray heads.
4. All miscellaneous fittings and accessories required to complete and operate system.
5. Excavation and backfill.
6. Testing and adjusting.
7. Clean up.

B. Related Work Specified Elsewhere

1.02 QUALITY ASSURANCE

A. Codes and Standards:

1. All applicable local and national Plumbing Ordinances, Electrical Codes, and Building Codes.
2. National Plumbing Code.

B. Licenses:

1. All work shall be performed by or under the direct supervision of an Irrigator or plumber licensed to practice under the authority of the State of Texas.

C. Reference Standards:

1. ASTM D-2241-78
2. CS 256-63

1.03 SUBMITTALS

A. Maintenance Materials: At completion of the job, furnish spare parts and all special tools and equipment required to operate and maintain system.

B. Maintenance Data: Furnish two copies of parts list and repair manuals and all special tools and equipment required to operate and maintain system.

C. Manufacturer's Literature: Submit catalogue data indicating performance, weight, size and function of each item of equipment and material. Also provide manufacturer's operating manual.

D. Project Record Documents: Record on a clean set of plans in colored pencil and also a reproducible mylar:

1. All piping and wiring, including control wires by dimensions.
2. Locate all valves by dimension from two directions.

PART II - PRODUCTS

2.01 GENERAL

A. Equipment and Material Requirements:

1. Standard product of acceptable manufacturer.
2. In-service performance records to verify published capabilities.
3. New and unused.

2.02 MATERIALS

A. PVC Pipe and Fittings:

1. Polyvinyl chloride pipe (PVC) in accordance with ASTM D-2241-78 made to SDR-PR dimensions and approved by National Sanitation Foundation.
2. 2 inch pipe and smaller Solvent weld PVC type "Bell-End" pipe may be used.
3. 2 inch pipe fittings and smaller Solvent weld type as recommended by pipe manufacturer.
4. All pipe downstream of backflow preventer to be Class 200 PVC; all swing joints and risers to be Schedule 80.

B. Joints and Fittings:

1. Nipples and risers: Schedule 80 threaded PVC pipe.
2. Fittings: Schedule 80 PVC.

C. Valves:

1. Double Check Double Gate Valve

- a. Factory assembled and tested valve train.
- b. Two spring loaded all brass check valves with soft rubber discs.
- c. Two all brass shutoff valves.
- d. Assembled with brass nipples.
- e. In accordance with AWWA and ASSE specifications.
- f. Approved Product: FEBCD.

2. Manual Control Valve

- a. Straight type globe valve.
- b. Size to match upstream pipe or as shown on drawings.
- c. Cross handle control wheel.
- d. Brass or bronze body and parts, Class 150.
- e. Full floating valve disc with replaceable seat and washers.
- f. Removable bonnet and stem assembly with packing gland and nut.

3. Electric Control Valve

- a. With flow control.
- b. Globe valve.
- c. Manual bleed.
- d. 24 VAC solenoid.
- e. Electric control, in-line.
- f. Size to match upstream pipe or as shown on drawings.

4. Quick Coupler

- a. 1" female inlet.
- b. Brass or bronze construction.
- c. 150 psi capacity.
- d. Self closing cover.
- e. One piece, single lug, single key construction.
- f. Provide owner with two quick coupler keys & hose bib attachments.
- g. Install in "Jumbo" plastic valve box, rectangular, heavy duty.

D. Valve Boxes:

1. Box for Double check double gate valve:
 - a. Concrete box with cast iron cover (or per code).
 - b. Sufficient size to house entire assembly and permit inspection, maintenance and repair.
2. Box for Electric Valves, Manual Valves, and Double Check Valves:
 - a. "Jumbo", rectangular.
 - b. Heavy duty plastic construction.
 - c. With locking lid.

E. Sprinkler Heads:

1. Bubbler, Flood Type
 - a. Plastic construction.
 - b. 1/2" IPS Female inlet.
 - c. Adjustable flow via screen.
2. Spray Heads
 - a. 4" pop/12" pop.
 - b. Plastic construction.
 - c. Stainless steel retraction spring.
 - d. Serviceable filter screen and nozzle.
 - e. Stationary or gear driven.
3. Rotary Heads
 - a. 12" pop/4" pop.
 - b. Full and part circle heads as drawings indicate.
 - c. Stainless steel retraction spring.
 - d. Serviceable filter screen and nozzle.

F. Controllers:

1. Solid state.
2. Digital readout.
3. Dust Barrier.
4. Pump/master valve circuit switch.
5. 0-60 minute timing per station or as specified.
6. Up to three start times/day with manual override.
7. UL listed.
8. Battery backup.

G. Accessories:

1. Jointing Material: Teflon tape for threads on PVC pipe.
2. Control Wire: Direct Burial, size for voltage drop, minimum size per National Electric Code.

H. Freeze Sensor:

1. CEI Freeze Sensor "FS-1"
2. Mini Click #401 by Glen-Hilton

PART III - EXECUTION

3.01 GENERAL

Install all equipment and products in accordance with manufacturer's recommendations.

3.02 INSTALLATION

A. PVC Pipe and Fittings:

1. Handle and install PVC pipe, couplings, and fittings in accordance with manufacturer's recommendations and industry standards.
2. All PVC fittings shall be molded of the same material as the pipe and shall be suitable for solvent weld, slip joint ring tight seal, or screwed connections.
3. No fittings made of other material shall be used except copper as specified in the plans and details.
4. Space pipe length in jointing and snake to allow for expansion and contraction.
5. Thoroughly clean interior of the pipe of all foreign matter before being lowered into trench. Keep clean during laying operation by means of plugs or other approved method.
6. Do not lay pipe in water or when trench or weather conditions are unsuitable for work. Keep water out of trench until the joints are completed.
7. When work is not in progress, securely close open ends of pipe and fittings so that no trench water, earth or other substances will enter pipes or fittings.
8. Take up and relay any pipe that has the grade or joints disturbed after laying.

9. Fittings at bends in the pipe line and at ends of lines shall be firmly wedged against the vertical face of the trench.
10. Make joints in all screwed fittings by applying Teflon tape on male threads.
11. Only schedule 80 pipe may be threaded.

B. Valves:

1. Install all new valves as indicated on the plans or as may be required for the proper control of the piping systems in which they are incorporated.
2. Bury valves deep enough so that valve box lid will not protrude above the ground.
3. Set valves vertically and locate 12 inches from sidewalks where possible.
4. Adjust flow control to give correct pressure at sprinkler head.

3.03 FIELD QUALITY CONTROL

A. Leak Test:

1. When the main line or sections of the main line, e.g. loops with swing joints and valves have been installed, the system (or section) will then be pressurized to the operating pressure indicated on the drawings. The pressure will then be maintained for a twenty four hour leak test period.
2. All leaks will be repaired and retested prior to backfilling lines.
3. Any leaks developed during the first under normal operating pressures due to improper installation shall be repaired by the contractor at no expense to the owner.

B. Cleaning and Flushing System:

1. After pipe, fittings, and valves have been installed and connections made to water source, flush pipe free of all rock, dirt, trash, pipe shavings, and other debris before installing heads.
2. After heads have been installed, use system several times before final inspection.
3. Immediately before final inspection, check all heads for stoppage. Clean if necessary.
4. Remove nozzles of all heads and flush pipes. Clean and replace heads before final inspection.

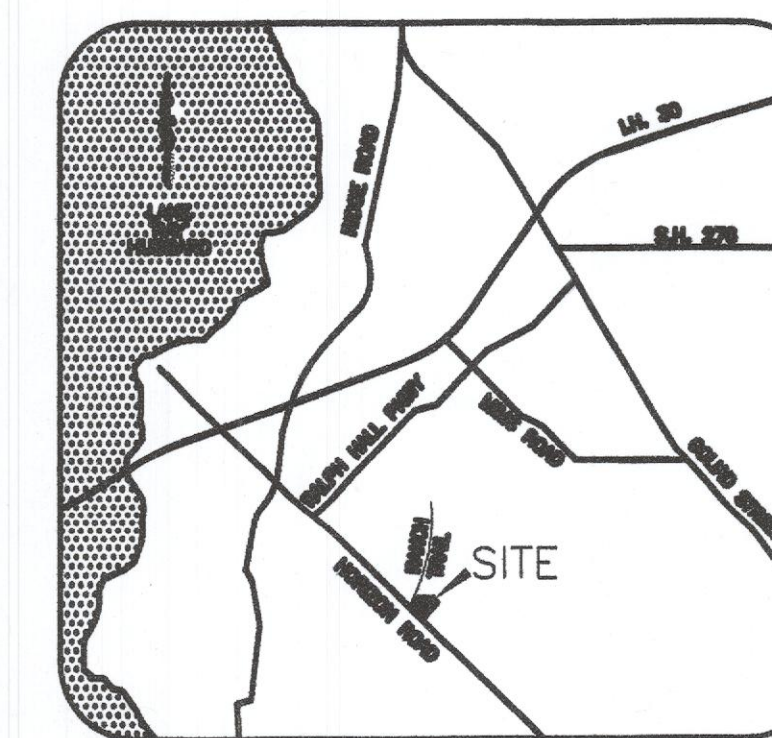
C. Maintenance Instructions:

1. School at least two of the Owner's employees that will be maintaining the irrigation system in operating and maintenance procedures.
2. Include operation of controllers and valves, balancing of the system, and maintenance of all equipment including removal and replacement of valve and controller components.

3.04 CLEANUP

- A. Make final cleanup of all parts of work before final acceptance.
- B. Remove all construction materials and equipment.
- C. Prepare site in an orderly and finished appearance.
- D. Remove from site any rock or extra soil that resulted from this work and restore site to its original condition.

END OF SECTION



VICINITY MAP
N.T.S.



PARKS + OPEN SPACE PLANNING • LANDSCAPE ARCHITECTURE
82238 MD CITIES BLVD, NORTH RICHLAND HILLS TX 76180 817-479-0790



09/28/09

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LANE'S SOUTHWEST SURVEYING INC.
2717 MOTLEY DRIVE MESQUITE, TEXAS 75150-3812
PHONE: (972)681-4442 FAX: (972)681-4829
CONTACT: JIM LANE, RPLS

ARCHITECT / DEVELOPER
ARCHITECTURE+
16415 ADDISON RD STE 120 DALLAS, TEXAS 75248
PHONE: 972-248-7660 FAX: 214-550-2725
CONTACT: PHILIP MORSE

Walls & Associates
Consulting Civil Engineers • Designers • Planners
530 S. Carrier Pkwy, Ste. 200 Grand Prairie, Texas 75051
Phone: 214-724-0693 Fax: (972) 237-9067
Contact: David W. Walls, P.E. Phone: 214-724-0693 Email: davidwalls@wellsandassociates.com

IRRIGATION SPECS
RANCH TRAIL CORNERS
LOT 5R - RAINBOW ACRES ADDITION
N.E.C. HORIZON ROAD (F.M. 3097) AND RANCH TRAIL DR.
CITY OF ROCKWALL, TEXAS

DESIGN	DRAWN	CHECKED	SCALE	DATE	FILE	SHEET
Walls	Lovecchio	Barrogan	1" = 40'	05/28/09	9005	I-4