



Irrigation

INTRODUCTION

As with layout plans and details, specifications shall be coordinated with house of the other design team members. Electric power and a phone line shall be supplied for controllers and water for the system.

GENERAL

Damage to existing systems or utilities shall be repaired and made good by the Contractor.

Existing irrigation systems serving plants that remain on site and beyond shall stay fully functional and be protected from damage during construction.

Any irrigation equipment removed shall be salvaged to the University.

Materials and installation shall be guaranteed for 2 years.

Landscaped areas used as Contractor's storage yard and areas impacted by construction shall be restored to pre-existing condition at completion of project.

PRODUCTS

The following are preferred by the University:

- Backflow Preventor – Watts, reduced pressure type
- Remote Control Valve (RCV) – Rainbird electric valves for potable systems.
- Ball Valves – Brass body ball valves
- Pressure Reducer – Watts
- Valve Box – Ametek with locking lid. Sizes for RCV; 10"x14"x15" deep. For sizes AVC's and gate valves; 9" dia. X 10" deep. On reclaim water systems all boxes shall be purple in color. On potable systems boxes shall be green in turf areas and brown/tan in planting areas.
- Polyethylene pipe – Distribution tubing size; 220". Drip system lateral size; .580" (nominal 1/2")
- Polyethylene fittings – AG Products compression type #710cc. Male barbed-typed fittings are not permitted.
- All heads, valves, and controllers shall be rainbird.
- End Caps – AG Products #710cctc
- Polyvinylchloride (PVC) pipe – Schedule 40 for pressurized lines, PVC Schedule 48 for non-pressurized lines, Class 315 for non-pressurized, 1/2" dia. Drip lines. Schedule 40 for all sleeves (I.D. of sleeves shall be a minimum of 1" larger than the O.D. of the pipe or wire bundle it will carry. Purple pipes shall be used on all main lines in reclaimed water systems.
- PVC fittings – Schedule 40 by Spears



Section 3: Standards by CSI Divisions

- Threaded PVC nipples – Schedule 40
- Control and common wire – type THWN Neoprene insulated, single conductor; minimum wire sizes shall be as follows: common wire – 12 gauge, control wire – 14 gauge (12 gauge for runs over 1000')
- Splicing materials: 3M DBY; line splices are allowed only on runs of more than 500'.
- Teflon tape – for threaded connections
- Unions – Two schedule 40 unions shall be installed on all valve assemblies including master valve.
- Master Valve – All systems shall have a master valve wired to the controller after the P.O.C.
- Flow meter shall be wired to the controller. Water meter and BFP installed by Tuscaloosa Water Department, contractor to pay for meter.

EXECUTION

Formal inspections with University present.

Layout (prior to trenching) of all piping, heads and other equipment

Mainline trenches, mainline, water source point-of-connection and control wire valves, quick couplers, controllers, other equipment and electrical power connection

Lateral piping and distribution tubing, spray heads, bubbler heads and drip emitters.

Final inspection upon completion of all work

Formal testing with University present

Main line: tested for not less than four continuous hours at a static line pressure of not less than 100 PSI, with all isolation valves open, and all pipe uncovered.

Flush after installation of laterals and risers and test for watertightness and proper operation of lateral piping, filters, control valves, pressure regulators, end or run flush outlets and other equipment with all pipe uncovered

Flush after installation and test for watertightness and proper operation of drip emitters and distribution tubing, spray heads, bubblers heads

Final operational testing to demonstrate full coverage and proper function of automatic controls.

Pipe and wiring shall be carried in separate Schedule 40 PVC sleeves under sidewalks and pavement with min. burial depths as follows:

- Pipe and wires under pavement – 18"
- Pressurized lines – 18"
- Non-pressurized lines – 12"
- Non-pressurized drip laterals – 12"
- Wire – 12"



Section 3: Standards by CSI Divisions

Sleeves shall extend 12" beyond edge of sidewalk and/or pavement

Minimum clearances between irrigation line adjacent to or crossing other irrigation lines or those of other trades shall be as follows:

- 1" diameter and smaller: 6" horizontally, 3" vertically
- Larger than 1" dia. : 12" horizontally, 6" vertically

Excavations shall allow for 2" (min) of sand bedding or earth fill when rock or unsuitable bearing material is encountered. Provide and compact backfill as follows:

- Sand bedding or approved earth fill to a point 6" above the top of pipe (for pipe under paving provide 4" minimum sand bedding on all sides)
- Approved fill free of lumps 1" dia. and larger to 6" from the top of the trench
- Approved topsoil, as specified elsewhere to the top of the trench

Snake pipe in trench to allow 1 additional foot per 100' of pipe

Holes bored beneath pavement shall maintain an alignment tolerance of no more than 1" in 10', both vertically and horizontally.

Pipe shall be cut only with an approved pipe cutter. Cuts with a hacksaw or knife are not permitted. Holes for emitters shall be made only with manufacturers approved punch tool

Polyethylene pipe shall be inserted into fittings 1/2" min. Minimum radius of Poly. Pipe bends shall be 18"

Provide thrust blocks for pipe 1-1/2" in dia. and larger

All main lines shall have a continuous trace wire laid with the pipe

Install end caps in "econo" type valve boxes

Tie control and common wires in bundles at 10' intervals

Wire splices shall be made in valve boxes

Group valve boxes, install no closer than 6" to adjacent walls and not further than 12" from walks, curbs, etc. Install all valve boxes flush with finish grade. Support valve boxes on bricks (min. four) below grade. Provide gravel sumps 6" in depth (min)

Equipment within valve boxes shall be 4" to 8" below lid and quick couplers no more than 3"



Section 3: Standards by CSI Divisions

Distribution tubing leading from the drip emitter to the surface shall not exceed 5 feet in length, shall extend 2" above adjacent finish grade and shall be secured in the soil with an anchor created by wrapping the tubing twice around a 3" length of 1/2" PVC pipe and buried 8" below grade.

Affix a non-fading, weather resistant copy of Irrigation Diagram and controller name label to inside of controller cabinet door. The Irrigation Diagram shall show all valves operated by the controller, valve sizes and type of planting irrigated.