

Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire, suitable for direct burial and continuous operation at rated voltages.

Number all wires, using an electrical book of numbers, according to the plans. Number wires in all valve boxes, junction boxes and at the controller.

- #14 white for common
- #14 spare black common
- #14 individual color coded hot wire
- #14 spare yellow hot wire

Controller pump/well station Control Panel grounding - Contractor to utilize 4"x8"x $\frac{3}{8}$ " copper grounding plates,  $\frac{3}{16}$ "x10" copper clad grounding rods, "One Strike" CAD wells at all connection points, #6 insulated copper wire, and extra control material. Install these and other required components as outlined in the detail. Contractor to verify that the earth to ground resistance does not exceed 10 ohms. Contractor shall provide a written certification, on a licensed electrical contractors letter head, showing the date of the test, controller/pump location, and test results. Each controller/pump shall be so grounded an tested. Each component must have its own separate ground grid, unless they are sitting side by side, in which case up to two controllers can share a common grounding grid.

Stake all sprinkler head locations. Adjust location and make the necessary modifications to nozzle types, etc. required to ensure 100% head to head coverage. Refer to the Edge of Pavement Detail on the Irrigation Detail sheet.

Shrub heads shall be installed on  $\frac{3}{4}$ " Sch 40 PVC risers. The risers shall be set at a minimum of 18" off sidewalks, roadway curbing, building foundations, and/or any other landscaped areas. Shrub heads shall be installed to a standard height of 2" above maintained height of plants and shall be installed a minimum of 6" within planted masses to be less visible and offer protection. Paint all shrub risers with flat black or forest green paint, unless irrigation system will utilize reuse water; in this case the risers shall be purple PVC and shall not be painted.

Sequence all valves so that the farthest valve from the POC operates first and the closest to the POC operates last. The closest valve to the POC should be the last valve in the programmed sequence.

Using an electric branding iron, brand the valve ID letter/number on the lid of each valve box. This brand must be 2"-3" tall and easily legible.

All sprinkler equipment, not otherwise detailed or specified on these plans, shall be installed as per manufacturer's recommendations and specifications, and according to local and state laws.

Protect existing landscaped areas. Remove and replant any damaged plant material upon job completion. The replacement material shall be of the same genus and species, and of the same size as the material it is replacing. The final determination as to what needs to be replaced and the acceptability of the replacement material shall be solely up to the owner or owner's representative.

**Solvent Weld Pipe:** Cut all pipe square and deburr. Clean pipe an fittings of foreign material; then apply a small amount of primer while ensuring that any excess is wiped off immediately. Primer should not puddle or drip from pipe or fittings. Next apply a thin coat of PVC cement, first apply a thin layer to the pipe, next a thin layer inside the fitting, and finally another very thin on the pipe. Insert the pipe into the fitting. Insure that the pipe is inserted to the bottom of the fitting, then turn the pipe a  $\frac{1}{4}$  turn and hold for 10 seconds. make sure that the pipe doesn't recede from the fitting. If the pipe isn't at the bottom of the fitting upon completion, the glue joint is unacceptable and must be discarded. Pipes must curve a minimum of 30 minutes prior to handling and placing into trenches. A longer curing time may be required; refer to the manufacturer's specifications. The pipe must cure a minimum of 24 hours prior to filling with water.

Main line pipe depth measure to the top of pipe shall be:  
 24" minimum for 3" - 2 1/2" PVC with a 30" minimum at vehicular crossings;  
 30" minimum for 3" & 4" PVC with a 36" minimum at vehicular crossings

18" minimum for  $\frac{3}{4}$ " - 3" PVC with a 30" minimum at vehicular crossings;  
24" minimum for 4" PVC and above with a 30" minimum at vehicular crossings.

Prior to the placement of valves, flush all mainlines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Prior to the placement of heads, flush all lateral lines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Use screens in heads and adjust heads for proper coverage avoiding excess water on walks, walls and paving.

Schedule testing with Owner's Representative a minimum of three (3) days in advance of testing.

Mainline: Remove all remote control valves and cap using a threaded cap on SCH 80 nipple. Hose bibs and gate valves shall not be tested against

As a condition of final acceptance, the irrigation contractor shall provide the owner with:

3. Grounding Certification - Provide ground certification results for each controller and pump panel grounding grid installed. This must be on a licensed electrician letter head indication location tested (using IR plan symbols), date, time, test method and testing results.

INSPECTIONS AND COORDINATION MEETINGS REQUIRED - Contractor is required to schedule, perform, and attend the following, and demonstrate to the owner and/or owners representative to their satisfaction, as follows:

1. Pre-construction meeting - Designer and contractor to review entire install process and schedule with owner/general contractor.
2. Mainline installation inspection(s) - All mainline must be inspected for proper pipe, fittings, depth of coverage, backfill and installation method.
3. Mainline pressure test - All mainline shall be pressure tested according to this design's requirements.
4. Flow meter calibration - All flow meters must be calibrated. Provide certified calibration report for all flow meters.
5. Coverage and operational test
6. Final inspection
7. Punch list inspection

Final acceptance of the irrigation system will be given after the following documents and conditions have been completed and approved. Final payment will not be released until these conditions are satisfied.

1. All above inspections are completed, documented, approved by owner.
2. Completion and acceptance of 'as-built' drawings.
3. Acceptance of required controller charts and placement inside controllers.
4. All other submittals have been made to the satisfaction of the owner.

**GUARANTEE:** The irrigation system shall be guaranteed for a minimum of one calendar year from the time of final acceptance.

## MINIMUM RECOMMENDED IRRIGATION MAINTENANCE PROCEDURES

1. Every irrigation zone should be checked monthly and written reports generated describing the date(s) each zone was inspected, problems identified, date problems repaired, and a list of materials used in the repair. At minimum, these inspections should include the following tasks:

- A. Turn on each zone from the controller to verify automatic operation.
- B. Check schedules to ensure they are appropriate for the season, plant and soil type, and irrigation method. Consult an I.A. certified auditor for methods used in determining proper irrigation scheduling requirements.

- D. Check setting on pressure regulator it verify proper setting, if present.

- F. Check for leaks - mainline, lateral lines, valves, heads, etc.

- G. Check all heads as follows:
1. Proper set height (top of sprinkler is 1" below mow height)
  2. Verify head pop-up height - 6" in turf, 12" in groundcover, and riser in shrub beds
  3. Check wiper seal for leaks - if leaking, clean head and re-inspect.
  4. If still leaking, replace head with the appropriate head with pressure regulator and built-in check valve.
  5. No nozzles checked for proper pattern, spacing, leaks, correct make & model, etc. - replace as needed.
  6. Check for proper alignment - perfectly vertical; coverage area is correct; p minimize over spray onto hardscapes
  7. Riser height raised/lowered to accommodate plant growth patterns and ensure proper coverage.
  8. Verify pop-ups retract after operation. If not, repair/replace as needed.

- I. check rain shut-off device monthly and clean/repair/replace as needed.

- K. Inspect backflow devices by utilizing a properly licensed backflow inspector. This should be done annually, at minimum.

- M. Check pump stations for proper operation, pressures, filtration, settings, etc. - refer to pump station operations manual.

- O. Winterize, if applicable, as weather in your area dictates. follow manufacturer recommendations and blow out all lines and equipment using compressed air.

- P. Conduct additional inspections, maintenance tasks, etc. that are particular for your site.

## SOIL MOISTURE SENSOR (When applicable)

1. Place all soil moisture sensor wiring in 1" SCH 40 PVC conduit
2. Soil moisture sensor should be placed in the middle of a spray or drip area as per manufacturer's recommendations.
3. Controller shall be set to the Florida Automated Weather Network's urban scheduler settings using the SMS as a moisture cut off device (like a rain switch) per manufacturer directions.

