

Town of Addison Irrigation Specifications

Revised 04/22/04
These revised specifications supersede any and all others. However, any discrepancies between the approved construction plans and those of the Town MUST be brought to the attention of the Town's designated representative for a final determination. The contractor will present the Town's representative an as-built plan at the final walk-through, along with three Buckner V075 quick coupling keys with hose-end swivels.

- 1. All work is to be accomplished by or directly supervised at all times by an on-site Irrigator licensed by the State of Texas.
- 2. The contractor shall verify the water pressure before the installation begins. If the static pressure is different than that of the design pressure, contact the designer and Town's representative immediately so changes can be made. Send a fax to the Parks dept. at 972-450-2834 with the current dated and timed static pressure reading. Design head to head with no single head coverage. Use appropriate size nozzle for a given landscape area so as not to spray onto or over paved surfaces or structures. Do not exceed manufacturer's recommendations.
- 3. The irrigation installer is responsible for resetting head and/or box height due to settling and after turf, groundcover, shrubs, trees, and mulch is added to the landscape areas. The irrigation contractor must supply a workmanship warranty for (1) year from date of acceptance.
- 4. Plans are diagrammatic and field adjustments are often necessary. For this reason, prior to trenching, valve locations and head layout with flags needs to be done and approved by the Town's Irrigation Inspector. Not doing so may result in the relocation of heads and/or valves at the irrigation contractor's expense.

- 5. **Water Taps:** Water taps will be 2" in size. All parts must conform to the Town of Addison Water Department specifications and are the responsibility of the Irrigation Inspector. Excavation and tap permits are required. Contact the Town of Addison Water Department at (972) 450-2871.
- 6. **Water Meters:** Only Hunter or Hensley meters with two (2) brass flanges are acceptable. Meter lay lengths must be in accordance with the Town of Addison Water Department's specifications noted in appropriate size (to be determined by the Town's Irrigation Inspector) and must be installed with the meter head and nuts level with the final grade using concrete pavers to support and prevent sinking. Backfill inside the box, 6" below meter base with at least 6" of fine (1/2") pea gravel. Connection to main must be approved and inspected by the Town's Water Department Inspector and all tap materials are to be purchased at the expense of the contractor and must comply with the Town of Addison's specifications.

- 7. **Backflow Devices:** Only Watts 007 M series inline check valve assemblies with the stainless steel ball valve handles and nuts are to be used. Irrigation contractor shall provide and install brass plugs for the test cocks. Connect to the Hange using Jetlon Taped copper nipple of sufficient length to center the DCA within its housing.
- 8. **Rotors - Only Hunter I-20 Series are permitted, unless noted otherwise.**
Install ¾" above finished grade.
- 9. **Rotors - Only Hunter I-20 Series are permitted, unless noted otherwise.**
Install ¾" above finished grade.

- 10. **Wiring:** All wires will be 14 gauge UF. Station wires will be red. Common wires will be white. Master valve wire will be blue. Anytime the wiring changes direction such as at an elbow or a tee, allow a loop of at least 12 inches alongside the fitting at that location. Only continuous wire runs are permissible. Wire should follow the main line where possible and lay along a single side not crossing over lateral lines. Wire is to be placed under mainline with 2" of dirt between wire and pipe.
- 11. **Wire Connectors:** Use only DBV connectors for all field wire splices other than at the valves themselves. Allow at least 36 inches of plaited wire at each splice. Use King One Step Tan colored (large) Ametek rectangular plastic valve boxes. All field splices are to be in 10 inch round Ametek plastic valve boxes or standard, large rectangular Ametek plastic valve boxes at the discretion of the Town's representative. Number of splices is determining factor for choice of box size.
- 12. **Backfilling:** Prior to any backfilling of trenches, an inspection by the Town's Irrigation representative must take place and any necessary changes implemented; otherwise manual excavation to enable proper inspection will be necessary. Use clean and approved topsoil to backfill all pipe to depth. All heads and boxes are to be backfilled to grade with clean topsoil. No rocks greater than 1 inch are allowed. Compact trenches to alleviate settling. Minimal depth of coverage is 12 inches.
- 13. **Valve sequencing must be performed by the contractor and in an order approved by the Town Irrigation Inspector. At least 12 inches of extra station wiring within the bottom of the pedestal is necessary for each zone and must be of neat and orderly appearance.**

- 14. Any deficiencies in coverage noted by the Town's Irrigation Inspector will be rectified at the cost of the contractor.
- 15. **20 Controller:** A Town Irrigation representative will determine the type of controller to be used. All controllers shall have a concrete pad of 36"x36"x6". Pad will be set at 3" above final grade. Install the controller after the concrete pad is completely cured (two days). Use only appropriately sized stainless steel bolts, washers and nuts to secure the controller to the concrete pad. All wiring is to enter the pedestal via appropriately sized PVC sweep elbows extending at least 1" thru and 6" out from under the pad. Control/master valve wiring, flow meter wiring and 120-V service wiring are to be separated with each having its own access elbow. An additional spare ¾" sweep elbow for phone service is to be installed as well. All national and local codes must be followed during the installation.
- 16. **A/C controller - Only Introl MC Plus controllers will be acceptable.** Both Mini-click rain and freeze sensors will be installed and placed where they can operate properly. All non-Rain Master controllers must be permanently wired for quick attachment to a Rain Master remote control unit.

The device will be housed in an appropriate size, (to be determined by the Town's Irrigation Inspector) rectangular concrete box with lid using concrete pavers for proper stability and use extensions to adjust height. The irrigation contractor shall be responsible for the DCA testing in accordance with State of Texas law, using a Licensed Backflow Assembly Tester registered with the Town of Addison Water Department.

- 8. **Sleeves:** All paving must have Town approved sleeve sizes and quantities present. It is the responsibility of the irrigation contractor to notify the Town's Irrigation Inspector of any area where sleeves should be present but are not and provide the materials for the sleeves. All the irrigation contractor's expense, a hole and subsequent manhole at the irrigation contractor's expense. All sleeves, 2" and smaller will be Schedule 40 PVC with size and location noted on the plan. Larger sizes will be Schedule 40 PVC with size and location noted on sidewalk, must be sleeved. All sleeves are to be belted end PVC pipe. A minimum length of 12 inches of sleeve material must extend beyond the pavement.
- 9. **Glue and Primer:** Use Turbtle brand glue on laterals and IPS Grey Heavy Body on main lines and a good quality purple primer on all. Avoid excessive use and wipe excess glue off of all joints and fittings with a clean rag.
- 10. **Pipe:** All main line pipe 2 inches and smaller is to be Schedule 40 belted PVC. Larger sizes are to be Class 200 belted PVC with a minimum depth of 14" and a 12" depth of backfill. All pipe must be installed with 4" of backfill. All pipe to be separate the main line from the lateral with (2) pipes in (2) inches of cover. Class 200 belted PVC lateral piping is to be used with a minimum depth of 12" and a maximum depth of 14".
- 11. **Fittings:** No crosses are permitted. Separate tees, 45's, elbows and other fittings by at least 12 inches. Reduction tees are preferred over use of single reducer fittings. Multiple reducer bushings will not be accepted. Only Spears and/or Lasco fittings are permitted. Allow 18 inches outside of sleeve before the first fitting. No 45 degree elbows on 1 inch and larger pipe are allowed.
- 12. **Valves:**
A. **Master Valves:** Every point of connection to the water supply system shall have a Weathermatic 11000 FCR series valve as the Master Valve. The valve must be small (1/2") pea gravel placed underneath the valve in such a manner as to prevent soil infiltration into the box. Use concrete pavers or bricks placed under edges of valve box for stability. Note: Valve box must not rest on pipe. Blue wire shall be used as the stability wire for the Master Valve.
B. **Station Valves:** Only Weathermatic 11000 FCR series valves are permitted. A Ball Valve will be installed before every station or zone valve. They are to be located within a standard (large) Ametek rectangular plastic valve boxes with 4 to 6 inches of (1/2") pea gravel placed underneath the valve in such a manner as to prevent soil infiltration into the box. The pea gravel should be 2 inches from the bottom of the valve body. A minimum of 3 inches of valve box must extend below bottom of valve. If necessary use valve box extensions.
C. **Ball Valves:** Female threaded plastic Spears or Lasco ball valves with positive T-handle cut off must be installed on every 200 feet of mainline for

- B. **Battery and/or Solar Operated Controllers - Only L/EIT controllers will be acceptable.** Install rain or freeze sensors on these controllers with SKIT9821-4 installation kit. Install on galvanized thick wall poles and set controller panel to height above finished grade to be determined by Town's representative.
- C. **Rain Master:** Only an approved size Rain Master Evolution DX-2 controller with a stainless steel pedestal and heavy duty transient protection is permitted. The controller must include all necessary hardware to ensure reliable communication and operation with the Town's central control located at the City Manager's office. Installation must include the following Rain Master hardware: Weathermatic 11000 FCR series valve, Rain Master Evolution DX-2 controller, DX-2PH phone communication option, Data Inlet/Full flow, 1/2" (1/2" as the mainline), and shielded EY-CAB-SEN flow meter cable. It is the irrigation contractor's responsibility to entail the cost of and work in conjunction with South Western Bell Telephone to establish a dedicated phone service and install an interface within the pedestal at each controller location via direct burial cable within 1" PVC conduit. The entire installation must conform to Rain Master specifications and be approved by the Town's Irrigation Inspector prior to and be inspected during installation. Such specifications will include grounding and pad configurations and distances of separations from water meter to DCA to master valve to flow meter and the first fitting. A functional Mini-click freeze and rain sensor with a Hunter bypass switch must be installed in an approved location and by an approved method. For part numbers and pricing information, contact the manufacturer, contact Mark Stricker of 50m Deere Landscapes at 972-881-0205 for technical questions, call John Dulse of RainMaster at 214-632-2289.
- 21. Communication is the key. **If you are unsure, CALL Ron Lee, the Operations Manager of the Addison Parks Department at (972) 450-2863.**

- 13. **Heads:** All heads will be installed using polyethylene green nipples (¾" for rotors and ½"x6" for pop-ups) screwed into threaded fittings unless noted otherwise. No swing joints on 4" pop-ups or rotors will be allowed.
A. **Pop-ups - Only Rainbird 1800 series are permitted.** Install ¾ inch above finished grade.
a. **4 inch pop-ups:** turf tree bubblers within turf areas (use Hunter PCM 10 bubbler nozzles on spray heads).
b. **6 inch pop-ups** with no side inlet; very low ground cover (less than 6 inches at mature height).
c. **12 inch pop-ups** with side inlet; Ground cover and low growing shrubs. The ground cover and shrubs should not be more than 12" at maturity. The Town Inspector reserves the right to determine if and when side inlets installed using Turny pipe versus the bottom inlet will be allowed. When authorized, use Hardie Blue Line Pipe with Toro barb fittings.
d. Use ½" Sch 80 tees with elbow adapter and Hunter PCM 10 bubbler nozzles for all landscape tree grass areas. Tees shall be a minimum of 2" below bottom of tree grass with nozzle 2" above mulch.

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a. **4 inch pop-ups:** turf tree bubblers within turf areas (use Hunter PCM 10 bubbler nozzles on spray heads).
b. **6 inch pop-ups** with no side inlet; very low ground cover (less than 6 inches at mature height).
c. **12 inch pop-ups** with side inlet; Ground cover and low growing shrubs. The ground cover and shrubs should not be more than 12" at maturity. The Town Inspector reserves the right to determine if and when side inlets installed using Turny pipe versus the bottom inlet will be allowed. When authorized, use Hardie Blue Line Pipe with Toro barb fittings.
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Isolation purposes. A ball valve is also required to be installed before every station valve. Use 10" Ametek valve box with a minimum of 3" extending below bottom valve and 12" to bottom of valve with ½" pea gravel. Use bricks or concrete pavers under box for stability.
D. **Quick Coupler Valves:** Use only Buckner V075 single lug ¾" quick coupling valves with a metal top. They are to be connected to a threaded fitting. Nylon tees and appropriate length of gray Schedule 80 nipples and Schedule 40 fittings are to be used for the swing joint. Secure to 16 inch by ½ inch or larger J-boxes placed every 200 feet or where 360 degrees of fittings are installed; only sweep fittings are permitted. Only a continuous run of cable is allowed. 100 splices will be allowed except at the point of connection to the mainline. All DBV flow meters must first be soldered and then water proofed with a minimum of 12 inches of PVC. All flow meter requirements must also be met regarding installation order and distances of separation between DCA, flow meter, master valve and the first fitting. It is the responsibility of the irrigation contractor to adhere to these requirements. At final walk through, proper operation of the flow meter at the Rain Master controller must be demonstrated by the irrigation contractor.

E. Flowmeters: Purchase from a Rain Master supplier and install appropriately sized Data Industrial flowmeter. Follow all installation instructions as approved by Rain Master. The irrigation contractor must also purchase from Rain Master and install shielded Rain Master EY-CAB-SEN flow meter cable and install within continuous ¾" or larger gray PVC conduit with 5 inch or larger J-boxes placed every 200 feet or where 360 degrees of fittings are installed; only sweep fittings are permitted. Only a continuous run of cable is allowed. 100 splices will be allowed except at the point of connection to the mainline. All DBV flow meters must first be soldered and then water proofed with a minimum of 12 inches of PVC. All flow meter requirements must also be met regarding installation order and distances of separation between DCA, flow meter, master valve and the first fitting. It is the responsibility of the irrigation contractor to adhere to these requirements. At final walk through, proper operation of the flow meter at the Rain Master controller must be demonstrated by the irrigation contractor.

NOTE: -The irrigation system has been designed to operate with minimum static water pressure of 50 p.s.i. and total demand of 26 gpm. Notify Town's representative if any discrepancy arises.

-Contractor shall verify nozzle sizes in field for MPR and head to head coverage. Contractor to minimize overspray. No overspray onto pavement shall be accepted.

This record drawing is a compilation of the sealed engineering drawing for this project, modified by additions, change orders and information furnished by the contractor. The information shown on the record drawings that was provided by the contractor or others not associated with the design engineer cannot be verified for accuracy or completeness. This original sealed drawings are on file at the offices of Birkhoff, Hendricks & Carter, L.L.P.
BY J.W.B. DATE 05/04/2010

THESE DOCUMENTS ARE FOR BIDDING, CONSTRUCTION, AND PERMIT PURPOSES.
[Signature]

DATE: 10/3/10



TOWN OF ADDISON, TEXAS

ADDISON ROAD IMPROVEMENTS
BELT LINE ROAD TO ARAPAHO ROAD PHASE I
ADDISON ROAD IRRIGATION NOTES & DETAILS

DESIGNED BY: G.C.
DRAWN BY: B.H. & C.
DATE: APRIL 2007
CONSULTING ENGINEERS
BIRKHOFF, HENDRICKS & CONWAY, L.L.P.

PROJECT: 2002 102
DATE: APRIL 2007
SHEET NO. 62
OF 88 SHEETS

These plans and related specifications are prepared by the engineer whose name and seal appear on these documents. The use of these documents is not permitted without the written authorization of Birkhoff, Hendricks, & Conway, L.L.P.