

LEGEND

1. Back Flow Preventer Enclosure made by V.I.T. Products Inc. Strongbox SBBC-4SS-40SS, labeled with "DOT Irrigation Backflow Preventor" manner acceptable to Engineer.
2. Backflow Preventer
3. Anchor Rod (Typ.)
4. Poured Concrete Base - 6" min. thickness - Extend 4" beyond outside dimensions of enclosure.
5. Water Service Inlet Piping.
6. 4" Layer, 3/4" Diameter Washed Rock.
7. Water Service Outlet Piping.
8. Finish Grade.

NOTES

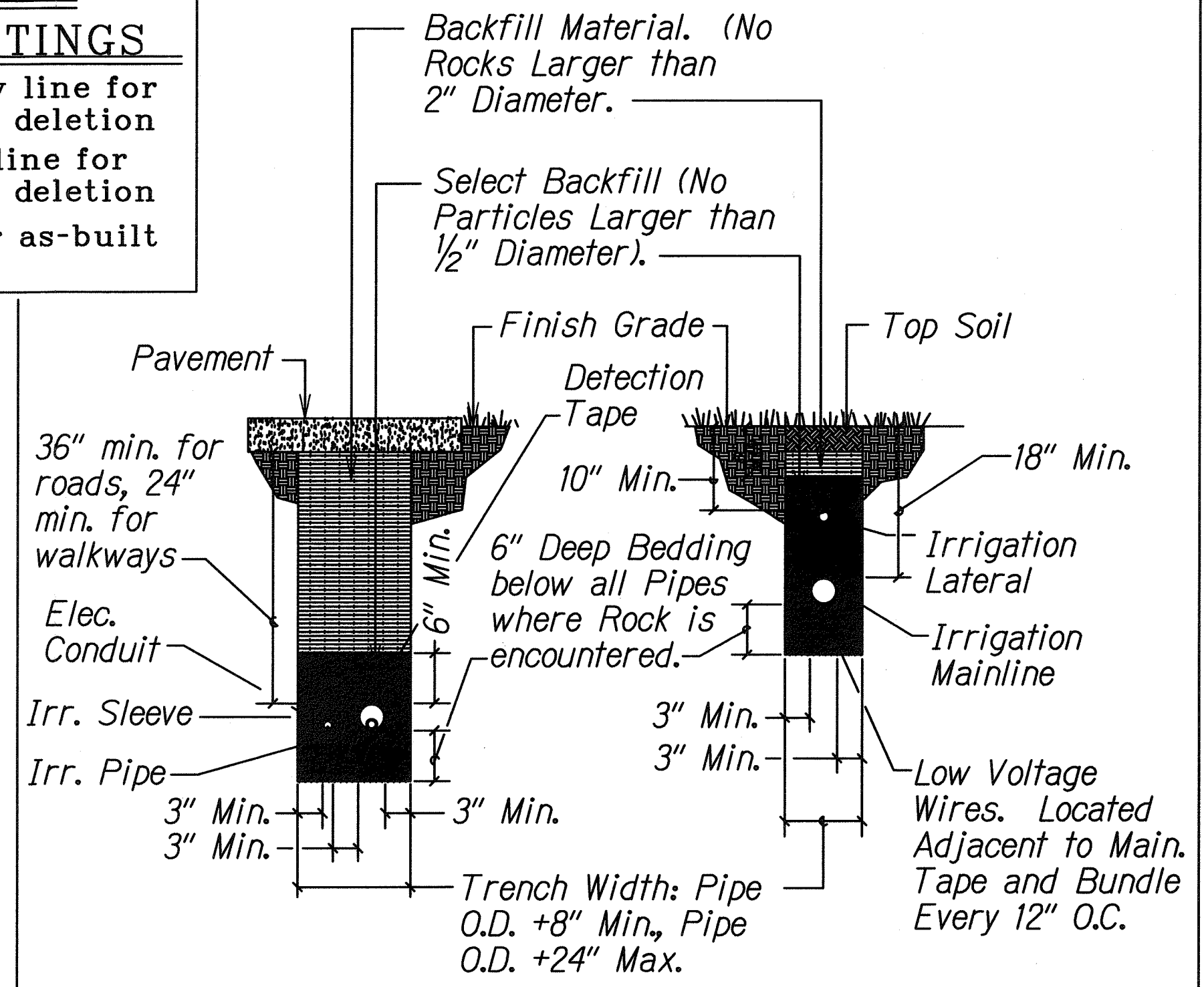
1. Contractor shall provide padlock for duration of the project.
2. Back Flow Preventer shall be located in an area well protected from vehicles (Clear Zone). If the Back Flow Preventer is located in an unprotected area, then four (4) 6" pipe bollards filled with concrete shall surround the Back Flow Preventer.

LEGEND FOR AS-BUILT POSTINGS

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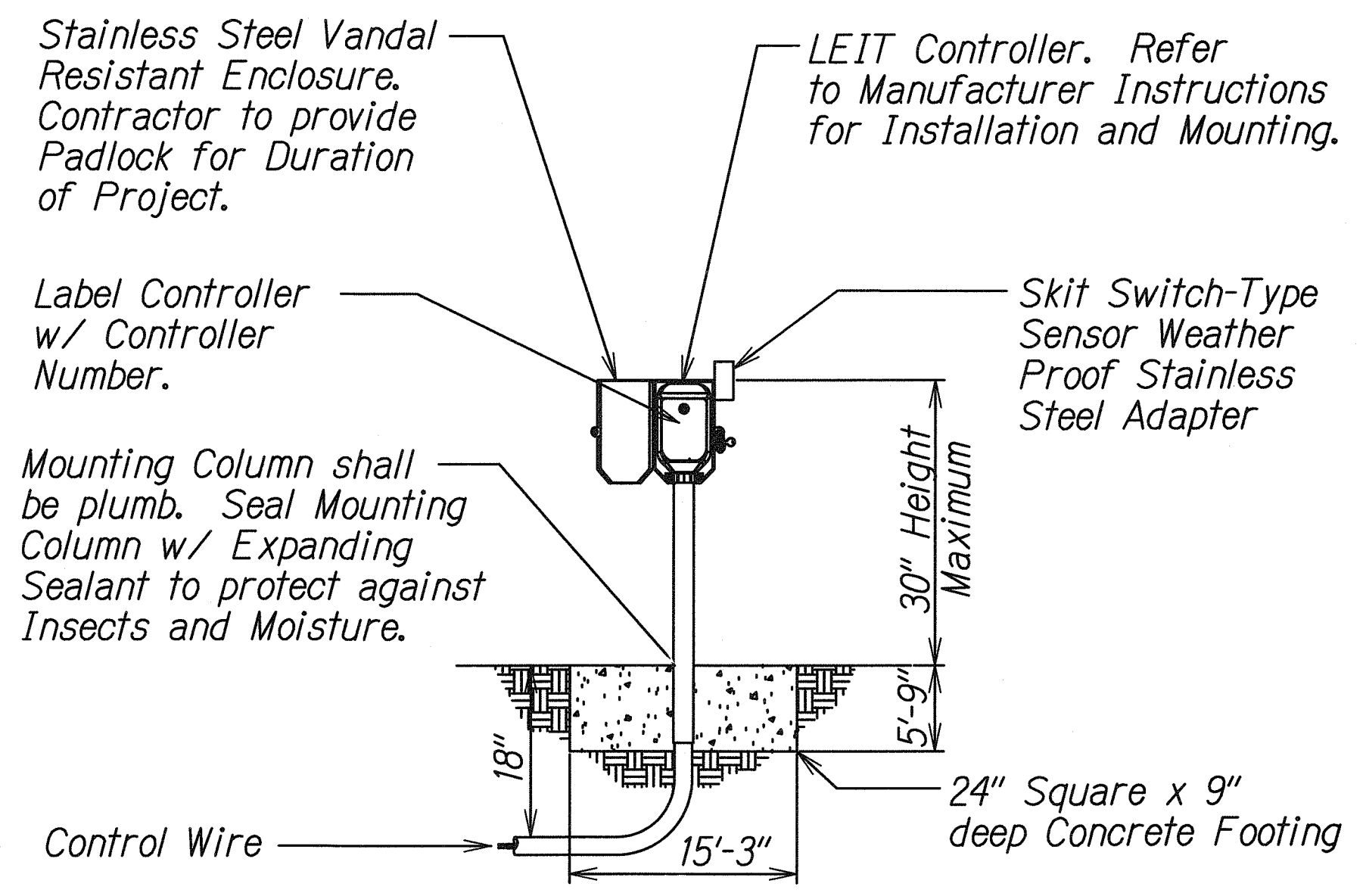
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Roadway Text for as-built posting



C B.F.P. ENCLOSURE DETAIL N.T.S.

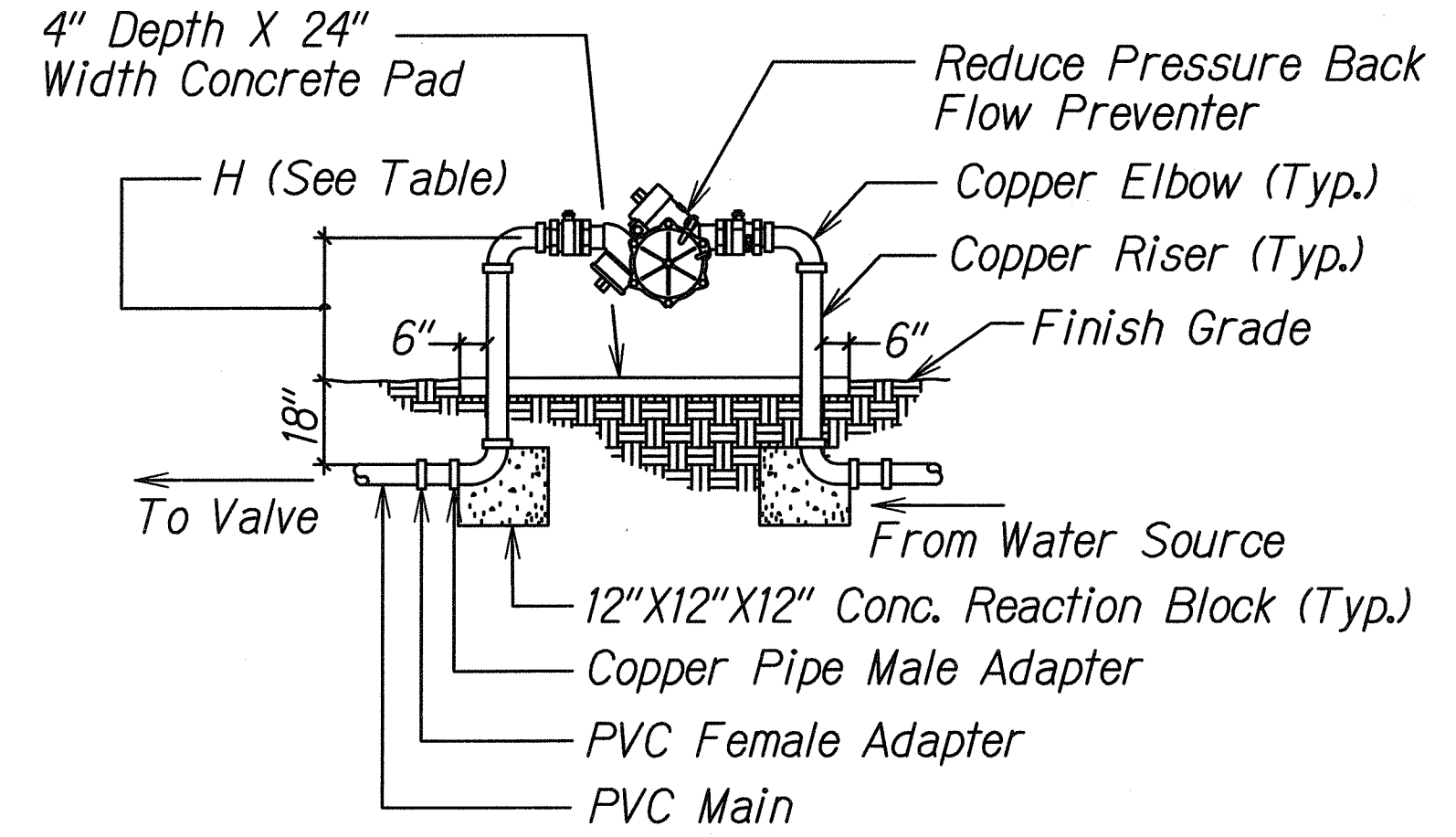
D IRRIGATION TRENCH DETAIL N.T.S.



NOTE:

Controller Location shall be located in an area well protected from vehicles. If the Controller is located in an unprotected area, then four 6" Pipe Bollards filled w/ Concrete shall surround Controller. Provide one (1) Leit Key per Controller.

E IRRIGATION CONTROLLER DETAIL N.T.S.



| Size (Inches) | H (Inches) |
|---------------|------------|
| 3/4 TO 1-1/2  | 18         |
| 2 TO 3        | 24         |

NOTES:

1. All Pipes and Fittings Installed above Grade shall be either Copper or Bronze only.
2. Back Flow Preventer shall be Plumb.
3. Back Flow Preventer shall be located in an area well protected from Vehicles (Clear Zone). If the Back Flow Preventer is located in an Unprotected Area, then four (4) 6" Pipe Bollards filled with Concrete shall surround the Back Flow Preventer.

F REDUCED PRESSURE B.F.P DETAIL N.T.S.

IRRIGATION NOTES:

1. Contractor shall install irrigation lines, wires, valves and heads per specifications. Existing gate valves, point of connection, etc. are derived from the best available informations and on-site inspection. The Contractor shall verify those points of connection noted and report any discrepancies to the Engineer
2. This plan is diagrammatic. Irrigation system is subject to field adjustments due to unanticipated site conditions. Locate all mainlines, laterals, valves and sprinklers heads within planting areas, unless otherwise noted. Place mainline in planting areas where no sleeves are shown. Avoid any conflict between underground utilities, structures and plantings. The Contractor shall be responsible for locating and protecting all existing utilities. Bury pressure mainlines 18" and lateral lines 10" deep minimum.
3. This irrigation system was designed with a minimum static water pressure of 75 psi at the point of connection. Notify the Project Engineer, if water pressure is less than psi or greater than 50 psi.
4. Contractor shall secure all necessary permits and observe all local codes and regulations. The Contractor shall confirm all sites dimensions and conditions, and report any discrepancies to the Engineer.
5. Contractor shall coordinate the installation of all sleeves, conduits, mainlines and lateral under pavement and through walls. Contractor shall assure that these items are laid prior to placement of pavement or wall structures.
6. Locate and install all sprinkler heads 6" from sidewalk, curbs, driveways, building and wall unless otherwise noted. Flex tubing shall be installed on all sprinkler head along sidewalks, driveways, and parking spaces. Adjust all sprinkler heads and flow control for maximum coverage and minimum overthrow and misting. Operate only one valve at a time per controller.
7. Within 30 days after award of the contract, submit for the Engineer's acceptance six (6) copies of detailed scaled drawings and wiring diagrams for permanent and temporary irrigation systems. Not proposed deviations from the contract. Include samples of materials, if required by contract.
8. Perform hydrostatic test by applying continuous static pressure of 60 psi for one (1) hour. Notify the Engineer at least three (3) days in advance of test. Repair leaks that develop and repeat test. Do not backfill until there is no further sign of leakage.
9. Perform operability test by opening remote control valve and test circuits for leaks around barbed and threaded pvc fittings. Repair leaks and repeat test. Notify the Engineer at least three (3) days in advance of test. Do not backfill until there is no further sign of leakage.
10. Perform coverage test. Before planting period, run automatic controller through all it's cycles. Check watering for coverage and uniformity in company of the Engineer. Run suspter until there are puddles or there is sheet flow to determine initial irrigation time and number of cycles per week needed to water requirements of plants.
11. Locate valve boxes so that the outer edges are no closer than five feet to roadway pavement. Group valve boxes and feasible.
12. If plans do not specify depth of excavation, provide minimum cover to finish grade as follows.
  - (a) 4 inches for drip irrigation main.
  - (b) 18 inches for irrigation main.
  - (c) 10 inches for irrigatin lateral.
  - (d) 24 inches for sleeve or conduit under landscape pavement.
  - (e) 36 inches for sleeve or conduit under roadway pavement.
  - (f) For controller wires and conduits in unpaved areas, depth equal to that pressure irrigation pipe.
13. No additional irrigation water demand will be required. Existing meters, 30049820, 30052088 are adequate to serve the irrigation system.
14. Remove & dispose of ex. irrigation system. Removal & disposal shall be considered an incidental expense to Section 616-Irrigation.

|             |       |
|-------------|-------|
| DATE        | _____ |
| DESIGNED BY | _____ |
| TRACED BY   | _____ |
| NOTED BY    | _____ |
| CHECKED BY  | _____ |
| ORIGINAL    | _____ |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**IRRIGATION DETAILS**

**WAIALAE AVENUE LANDSCAPING**  
Kilauea Avenue to Ainakoa Avenue  
Project No. 7801A-01-07M

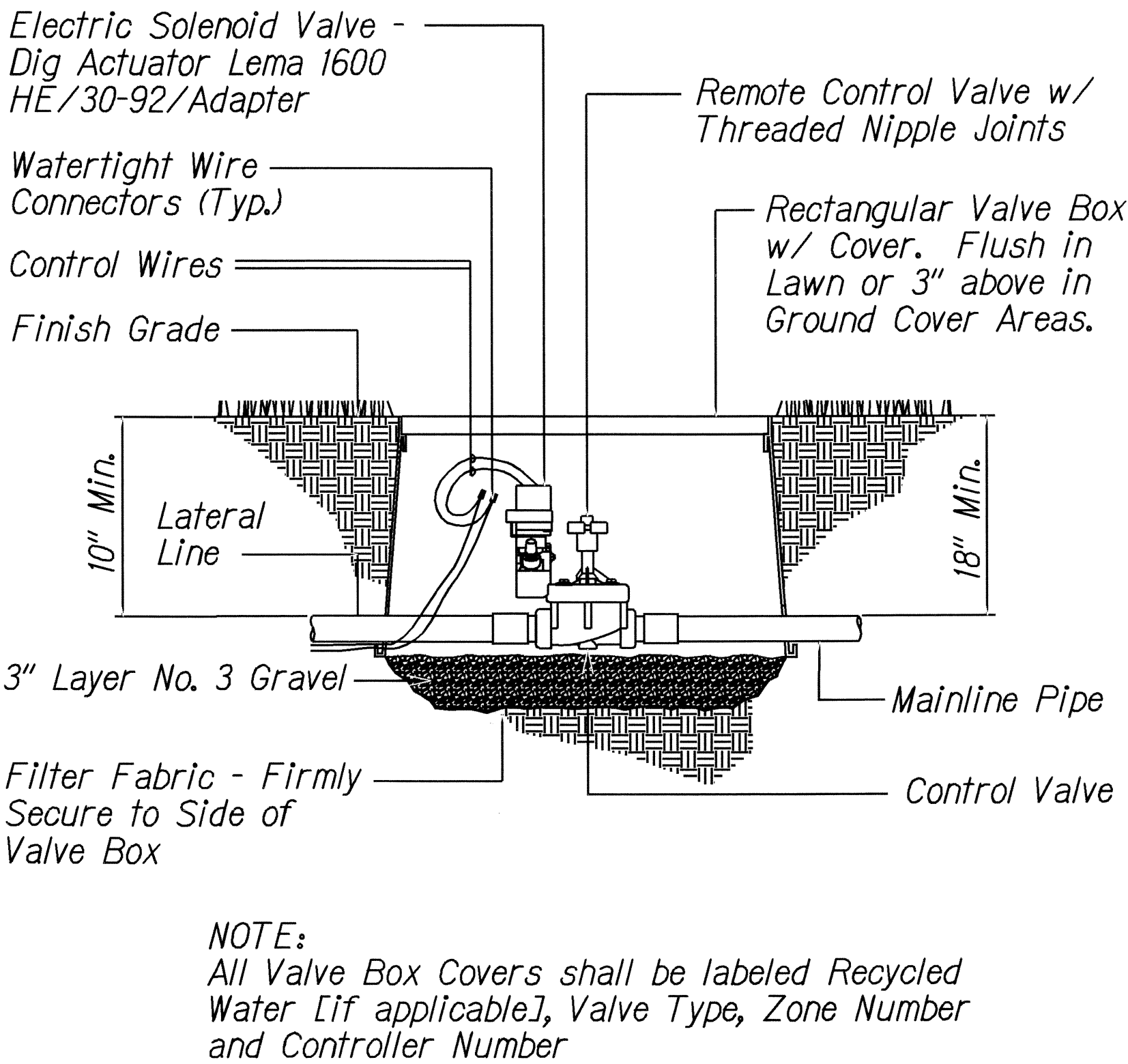
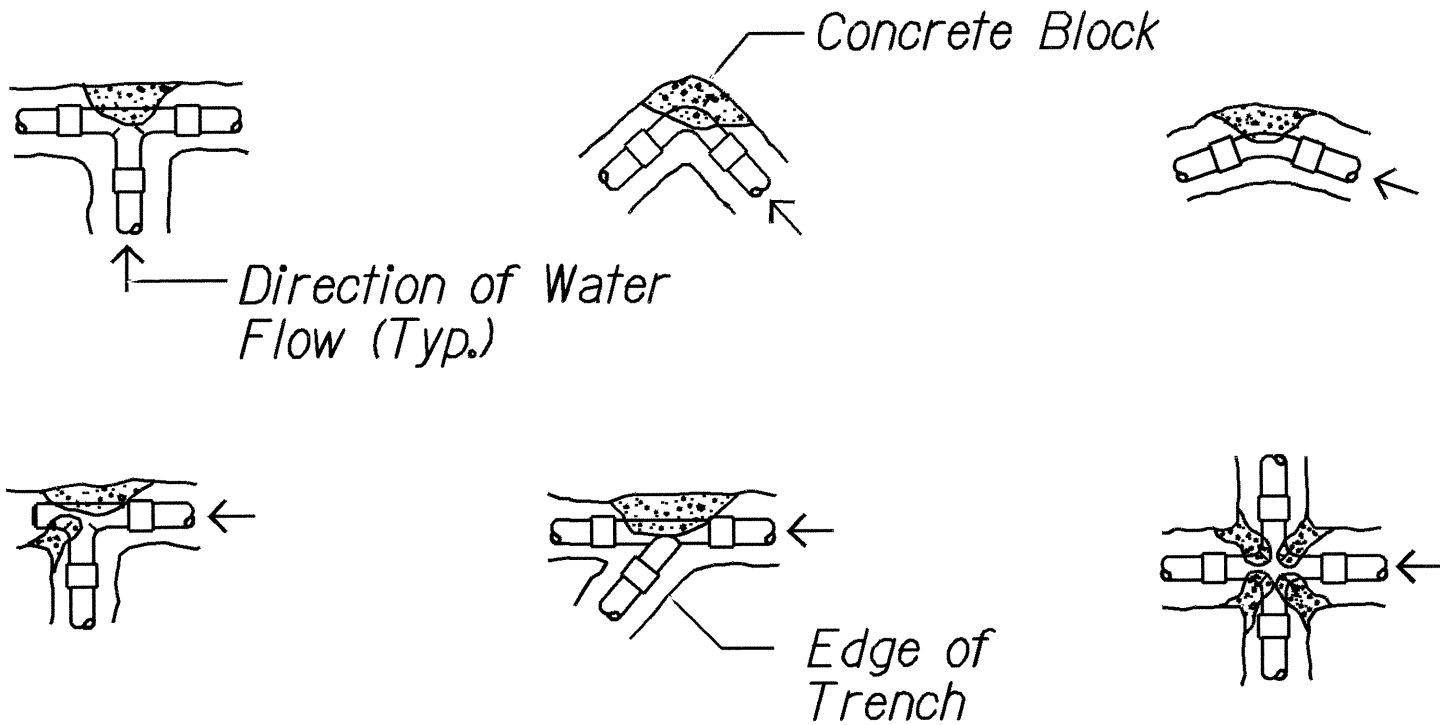
Scale: NTS Date: May, 2007

SHEET No. 1 OF 2 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 7801A-01-07M       | 2007        | 8         | 8            |

| THRUST BLOCK BEARING AREA (SQ. FT.)                                                                                                                                                                                                     |                 |      |      |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------|------|-----|
| PIPE SIZE                                                                                                                                                                                                                               | 1 1/4" - 2 1/2" | 3"   | 4"   | 6"  |
| Tees/Ells                                                                                                                                                                                                                               | 1.00            | 1.00 | 1.25 | 3.2 |
| 90 Bends                                                                                                                                                                                                                                | 1.00            | 1.25 | 2.00 | 4.5 |
| 45 Bends                                                                                                                                                                                                                                | 1.00            | 1.00 | 1.00 | 2.4 |
| NOTES:<br>1. Install Thrust Block at all Machine Bends, Tees or Ells as shown below. Thrust Blocks shall be minimum of (1) cu. ft. Redi-Mix Concrete or 2500 PSI 28 Day Concrete.<br>2. Set all Thrust Blocks against Undisturbed Soil. |                 |      |      |     |



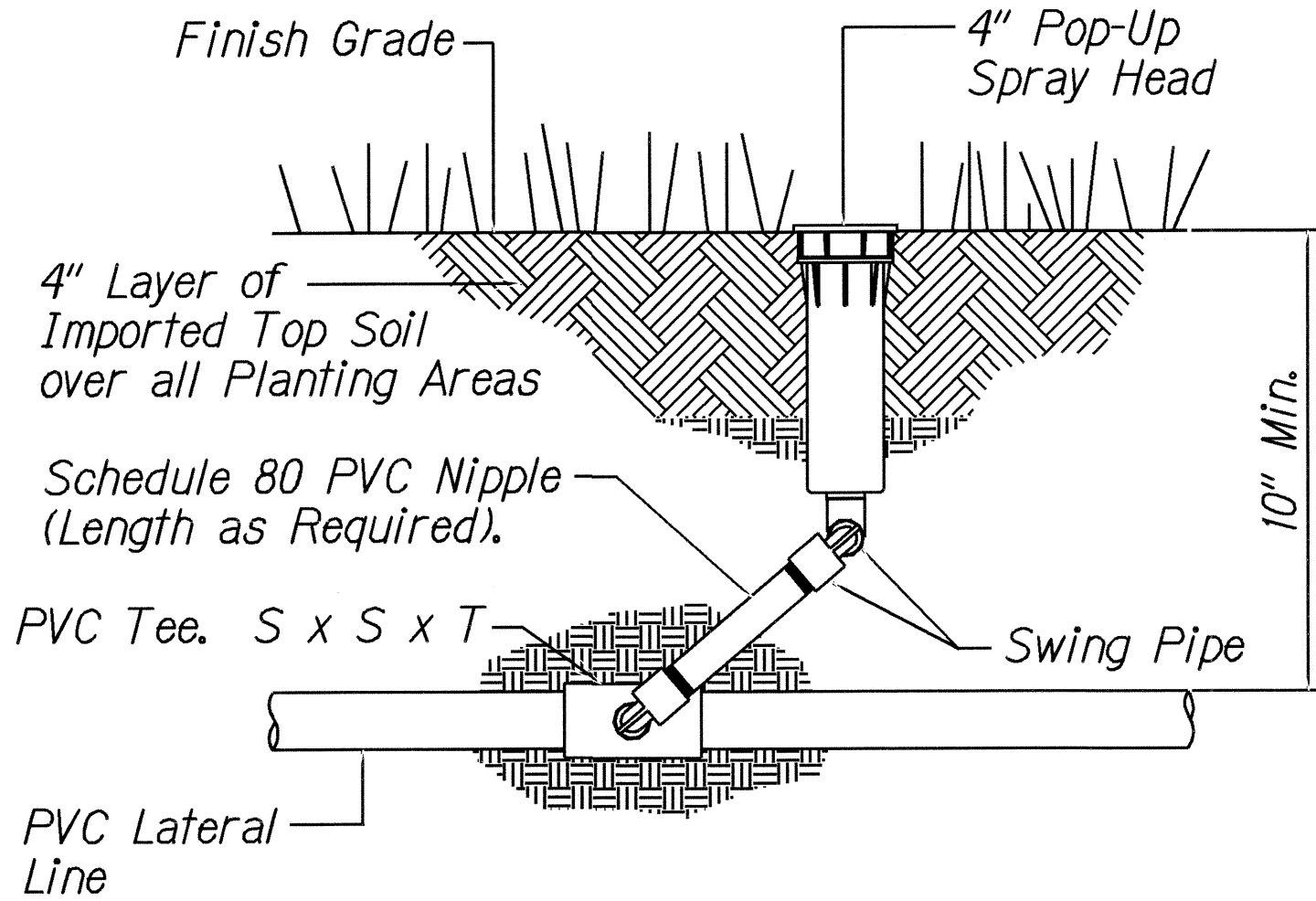
NOTE:  
All Valve Box Covers shall be labeled Recycled Water [if applicable], Valve Type, Zone Number and Controller Number

IRRIGATION EQUIPMENT LIST

| Symbol | Quantity | Manufacturer Catalog Number                         | Description                             | G.P.M. | Radius | P.S.I. |
|--------|----------|-----------------------------------------------------|-----------------------------------------|--------|--------|--------|
|        | 4        | Rainbird 150-PEB-PRS-D w/ Dig Actuator Lema 1600HE  | 1 1/2" Remote Control Valve w/ Actuator |        |        |        |
|        | 194      | Rainbird 1804-SAM-PRS-8H                            | 4" Pop-Up Spray Head w/ 7' Radius/Half  | 0.50   | 7'     | 25     |
|        | 2        | DIG LEIT 4004/MCOL4000/ENCL4000                     | 4 Station Irr. Cntrl. w/ Rain Sensor    |        |        |        |
|        | 2        | 2" FEBCO 805Y or B.W.S. Approved Equal w/ Enclosure | Backflow Preventer                      |        |        |        |
|        |          | PVC Schedule 40                                     | Irrigation Main                         |        |        |        |
|        |          | PVC Schedule 40                                     | Irrigation Lateral                      |        |        |        |
|        |          | PVC Schedule 40                                     | Existing Irrigation Sleeve              |        |        |        |

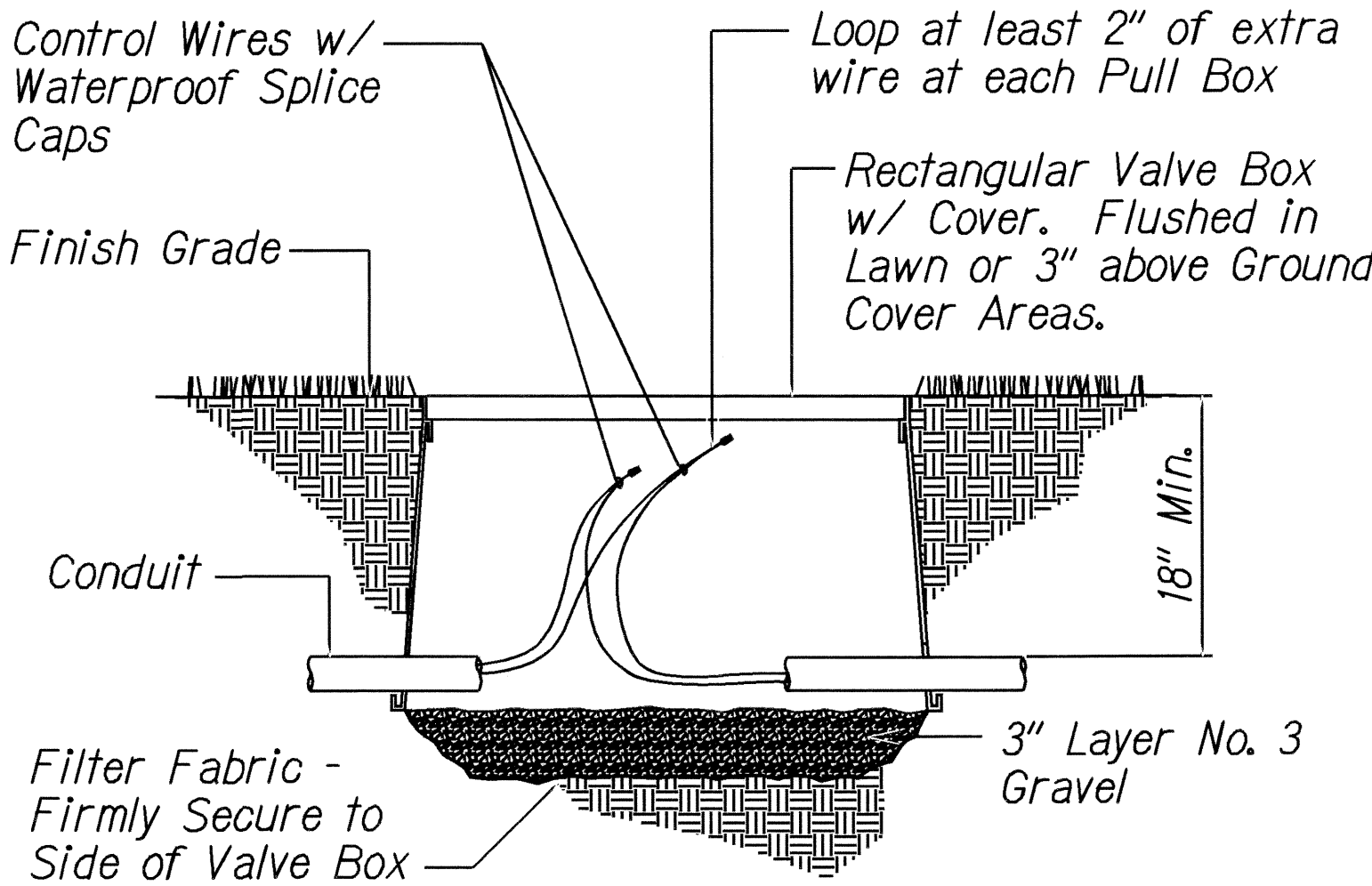
G THRUST BLOCK DETAIL N.T.S.

H REMOTE CONTROL VALVE DETAIL N.T.S.



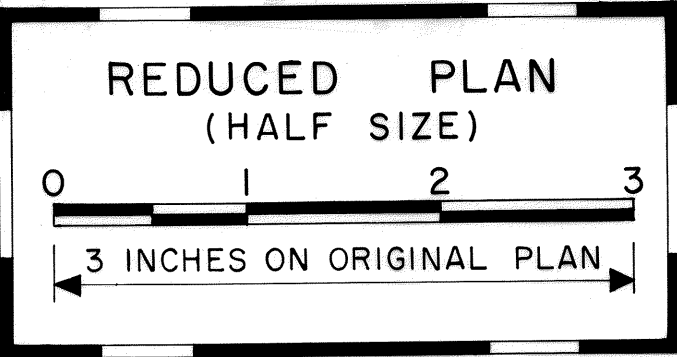
- NOTES:
- KBI or Lasco Swing Joints may be used upon arrival by Engineer.
  - Install Part Circle Pop-Up Heads 6" from Edge of Paved Areas.

I LAWN POP-UP SPRINKLER DETAIL N.T.S.



- NOTES:
- All Valve Box Covers shall be labeled Valve Type, Zone Number and Controller Number.
  - Provide Minimum of One Pull Box for every 250 linear feet of Controller Wire and at each grouping of valves and prior to all Road Pavement Crossings.
  - Do Not Splice Wires except in Valve and Pull Boxes.

J PULL BOX DETAIL N.T.S.



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**Project No. 7801A-01-07M**

Scale: NTS Date: May, 2007

SHEET No. 2 OF 2 SHEETS