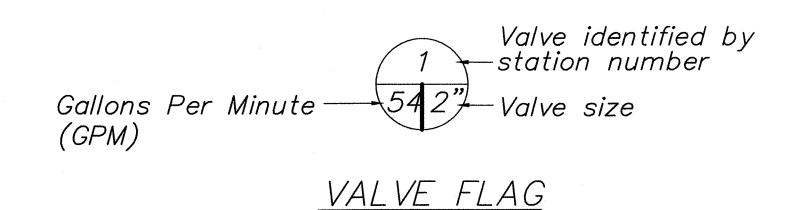


IRRIGATION NOTES:

- 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 INFORMATION 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 SPRINKLER 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 ____ PSI AT THE POINT OF CONNECTION. NOTIFY THE PROJECT ENGINEER, IF WATER PRESSURE IS LESS THAN ____ PSI OR GREATER THAN ____ 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 LATERALS 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 SIDEWALKS, 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 TESTS. 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 COVERAGES AND UNIFORMITY IN COMPANY OF THE ENGINEER. RUN SYSTEM 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 AS 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 IRRIGATION 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 OF PRESSURE IRRIGATION PIPE.

HAWAII HAW. STP-030-1(39) 2008 180 495	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	HAWAII	HAW.	STP-030-1(39)	2008	180	195

Irrigation Material Schedule					
Symbol	Description	Manufacturer/catalog number	Detail		
•	Remote Control Valve	Rainbird XCZ—100—B—COM or equal size as noted	•		
	Irrigation controller wall mount	Controller 44 Station Rainbird IM Series or approved equal	•		
	Stainless steel strong box with pedestal	Strongbox Modell SB-18SS with PED-18SS or approved equal			
×	Gate Valve	Nibco T-113, or equal 2" size	•		
	Irrigation Mainline	Schedule 40 PVC, 2" size	•		
	Irrigation Lateral	Class 200 PVC, 1" size	•		
E ===3	Irrigation Sleeve	Schedule 40 PVC, size as detailed	•		
	Irrigation Conduit	Schedule 80 PVC, size as noted	•		



Conduit size

CONDUIT CALL OUT

Sleeve size

SLEEVE CALL OUT



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOAPIILANI HIGHWAY
LEGEND AND NOTES

Honoapiilani Highway Widening Lahainaluna Road to Aholo Road Project No. STP-030-1(39)

Scale: As Shown

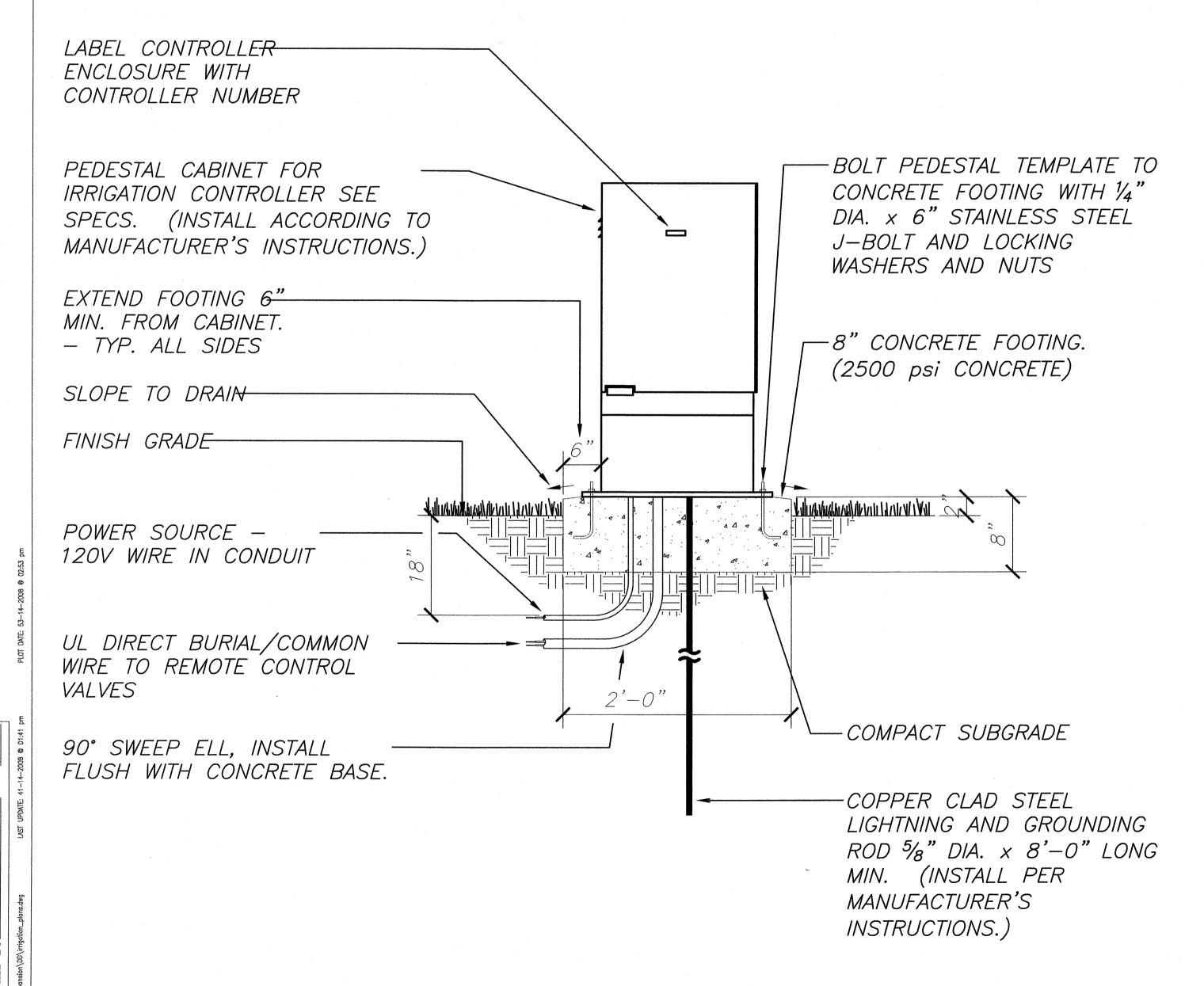
SHEET No. /-7 OF /-10 SHEETS

180

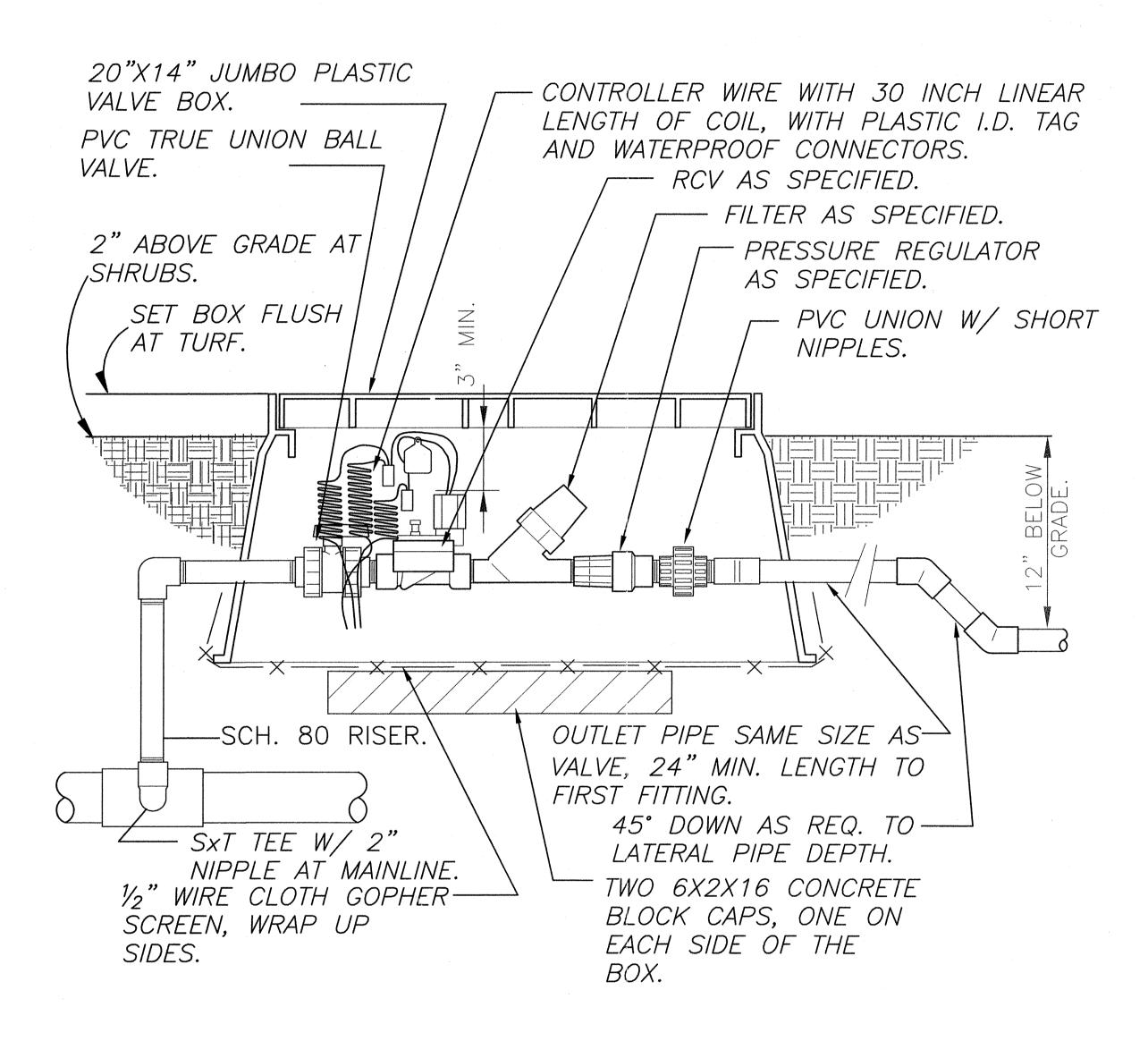
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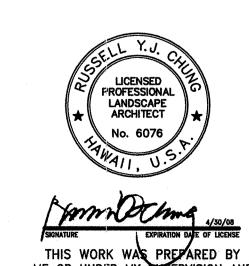
NOTE: ALL WIRING TO BE INSTALLED AS POWER LOCAL CODE. SEE MANUAL FOR MOUNTING INSTRUCTIONS. SEAL CONDUITS W/EXPANDING SEALANT TO PROTECT AGAINST INSECTS AND MOISTURE. CONTROLLER ENCLOSURE SHALL BE LOCATED IN AN AREA WELL PROTECTED FROM VEHICLES. IF THE CONTROLLER IS LOCATED IN AN UNPROTECTED AREA, THEN ONE 6" PIPE BOLLARD FILLED WITH CONCRETE SHALL BE INSTALLED ON EACH OF THE FOUR CORNERS.



PEDESTAL MOUNT IRRIGATION CONTROLLER SCALE: NOT TO SCALE



REMOTE CONTROL VALVE DETAIL SCALE: NOT TO SCALE

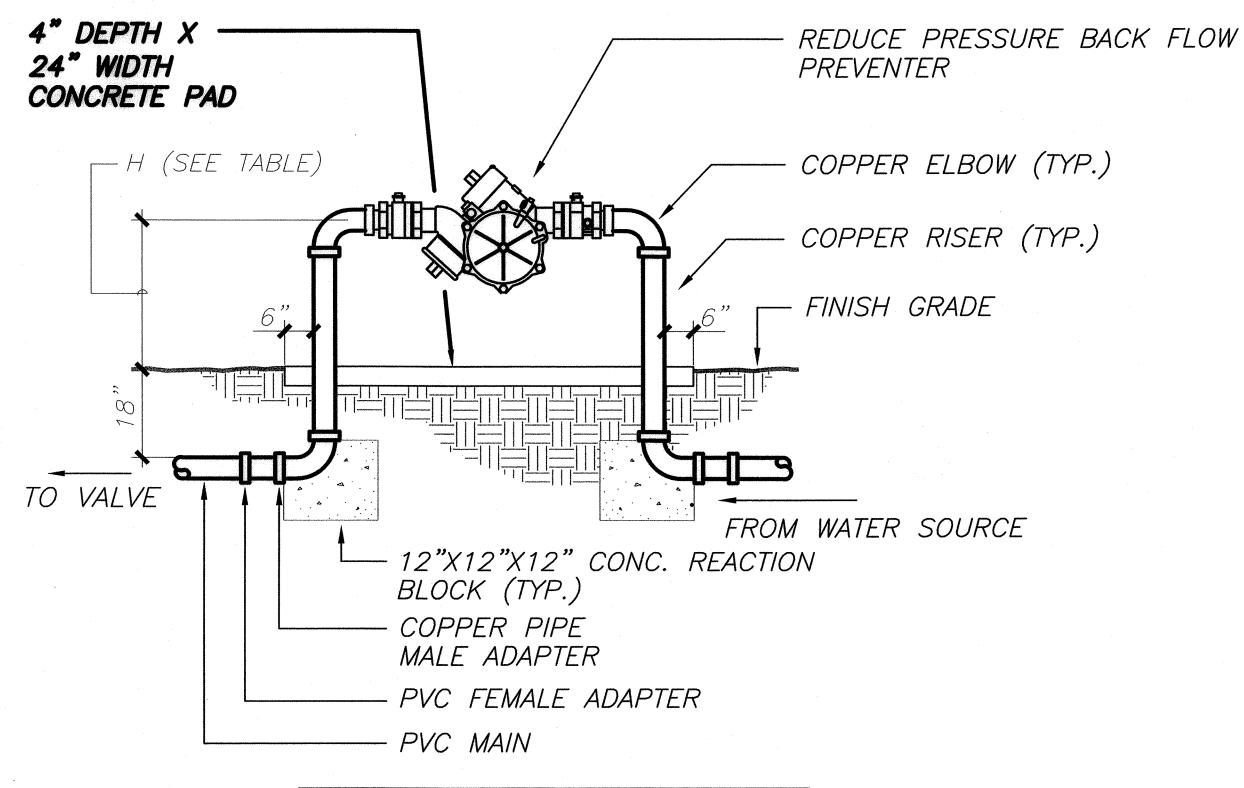




Lahainaluna Road to Aholo Road Project No. STP-030-1(39)

Scale: As Shown

Date: SHEET No. I-8 OF I-10 SHEETS



SIZE (INCHES)	H (INCHES)		
3/4 TO 1-1/2	18		
2 TO 3	24		

NOTES:

- ALL PIPES AND FITTINGS INSTALLED ABOVE GRADE SHALL BE EITHER COPPER OR BRONZE ONLY.
- 2. BACK FLOW PREVENTER SHALL BE PLUMB.
- BACK FLOW PREVENTER SHALL BE LOCATED IN AN AREA WELL PROTECTED FROM VEHICLES (CLEAR ZONE). IF THE BACK FLOW PREVENTOR IS LOCATED IN AN UNPROTECTED AREA, THEN FOUR (4) 6" PIPE BOLLARDS FILLED WITH CONCRETE SHALL SURROUND THE BACK FLOW PREVENTER.

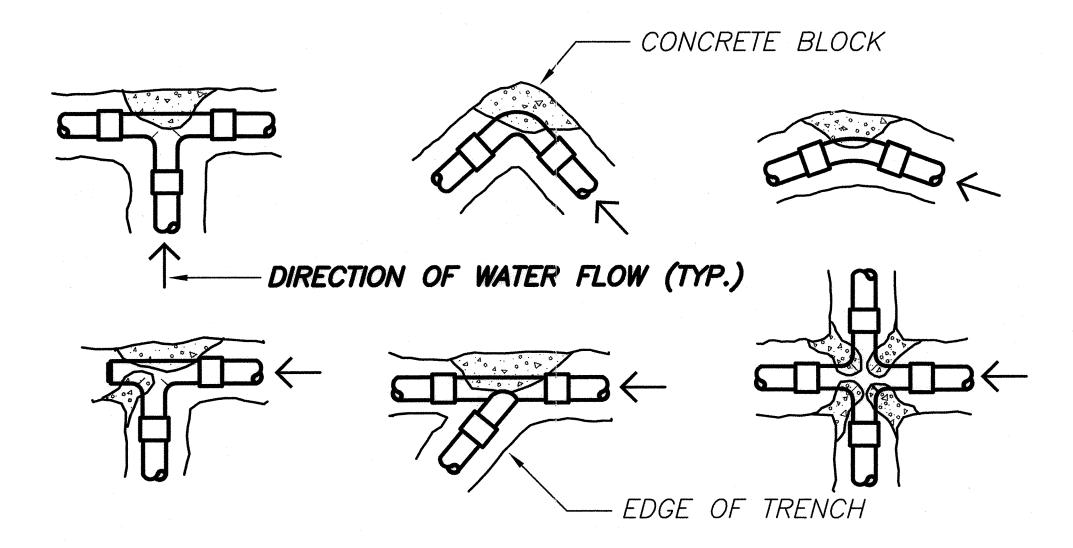
REDUCED PRESSURE BACKFLOW PREVENTION DEVICE DETAIL

SCALE: NOT TO SCALE

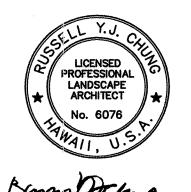
THRUST BLOCK BEARING AREA (SQ. FT.)							
PIPE SIZE	1 1/4" - 2 1/2"	3"	4"	6"			
TEES/ELLS 90 BENDS 45 BENDS	1.00 1.00 1.00	1.00 1.25 1.00	1.25 2.00 1.00	3.2 4.5 2.4			

NOTES:

- 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.
- SET ALL THRUST BLOCKS AGAINST UNDISTURBED SOIL.



THRUST BLOCK DETAIL SCALE: NOT TO SCALE

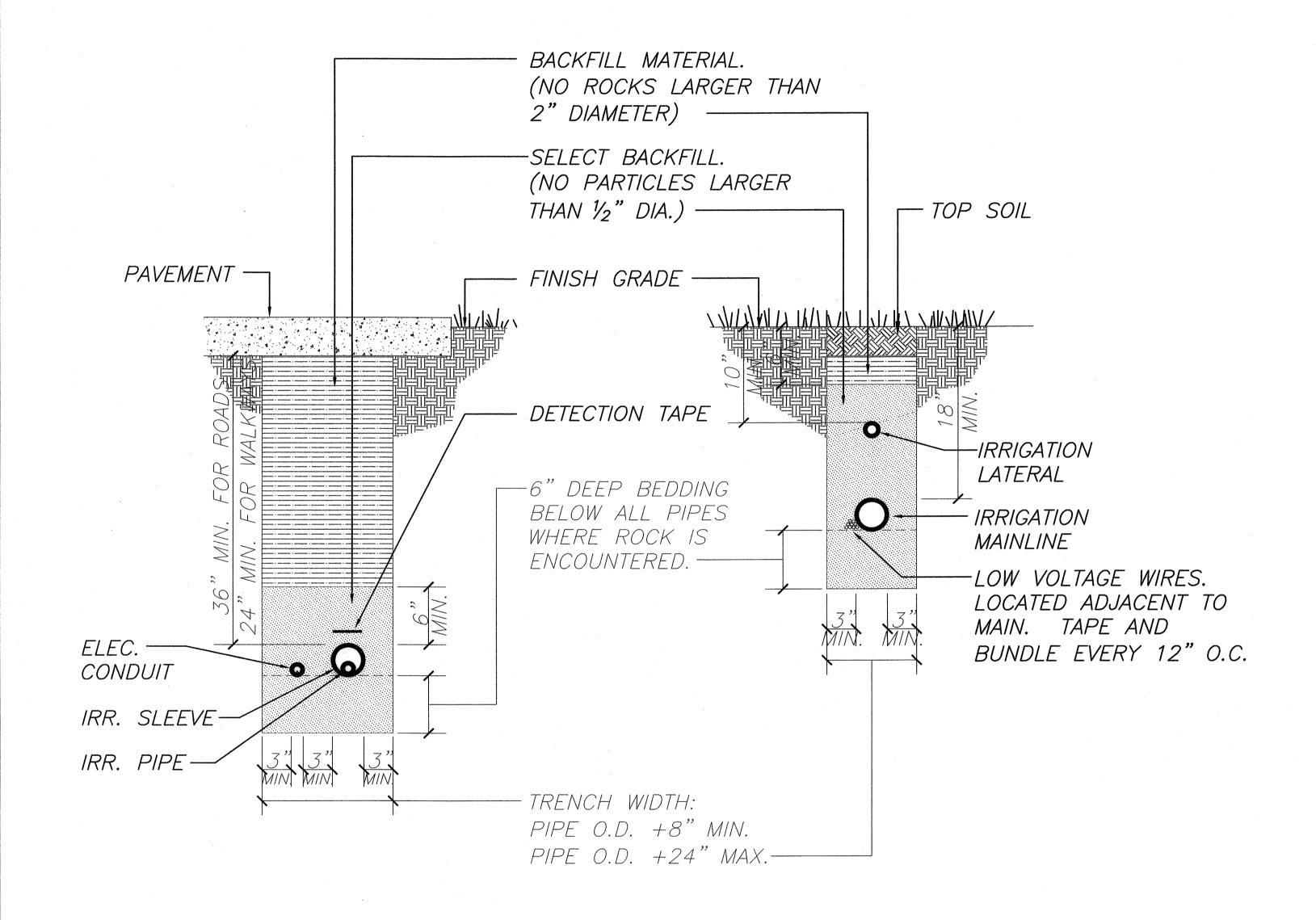


STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

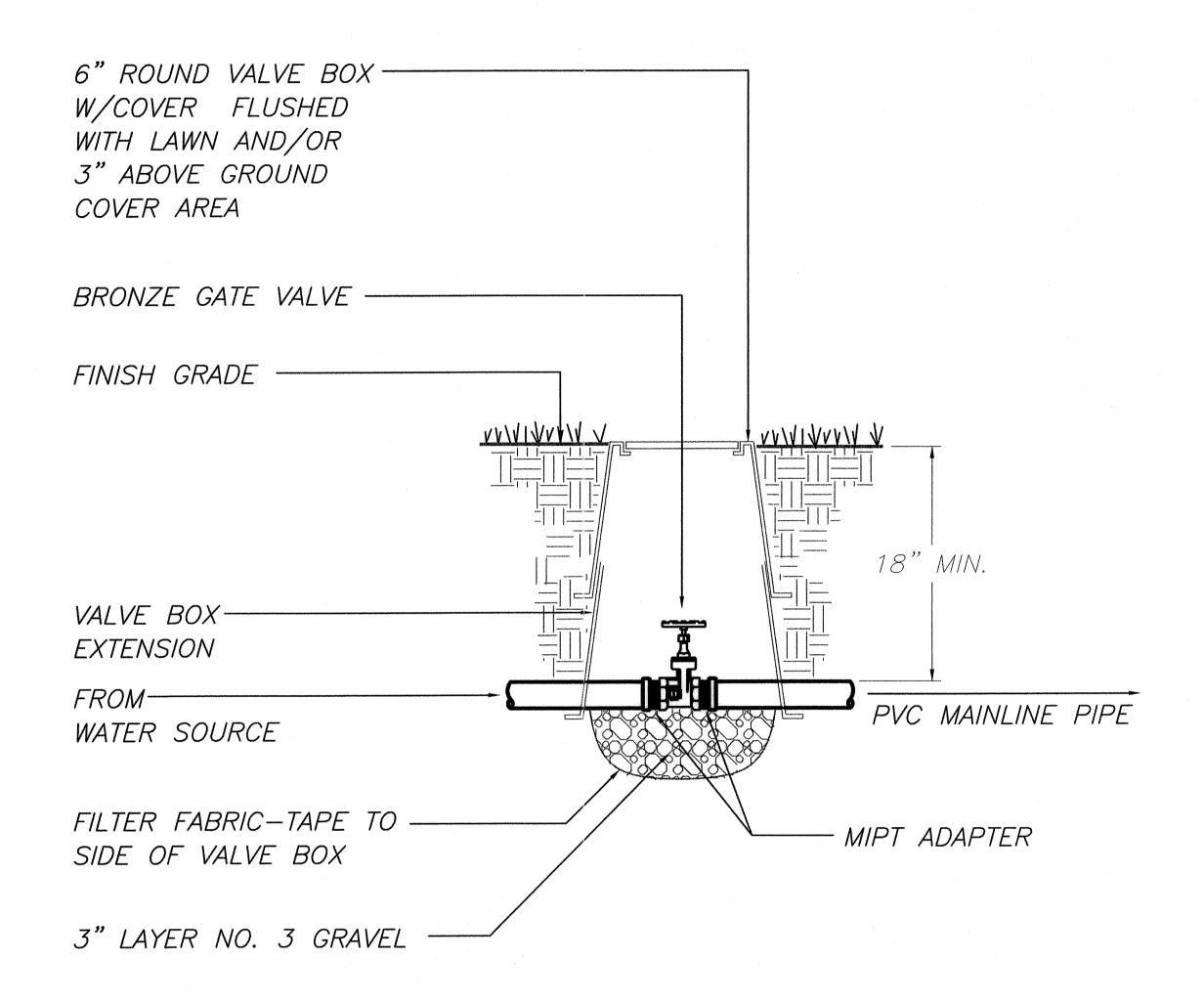
HONOAPIILANI HIGHWAY IRRIGATION DETAILS

Honoapiilani Highway Widening Lahainaluna Road to Aholo Road Project No. STP-030-1(39)
October 2008

SHEET No. I-9 OF I-10 SHEETS

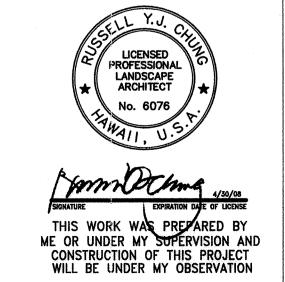


IRRIGATION TRENCH AND WIRING DETAIL SCALE: NOT TO SCALE



NOTE: ALL VALVE BOX COVERS SHALL BE LABELED VALVE TYPE, ZONE NUMBER AND, CONTROLLER NUMBER.

GATE VALVE DETAIL SCALE: NOT TO SCALE



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HONOAPIILANI HIGHWAY IRRIGATION DETAILS

Honoapiilani Highway Widening Lahainaluna Road to Aholo Road Project No. STP-030-1(39)
October 2008

SHEET No. /-10 OF /-10 SHEETS