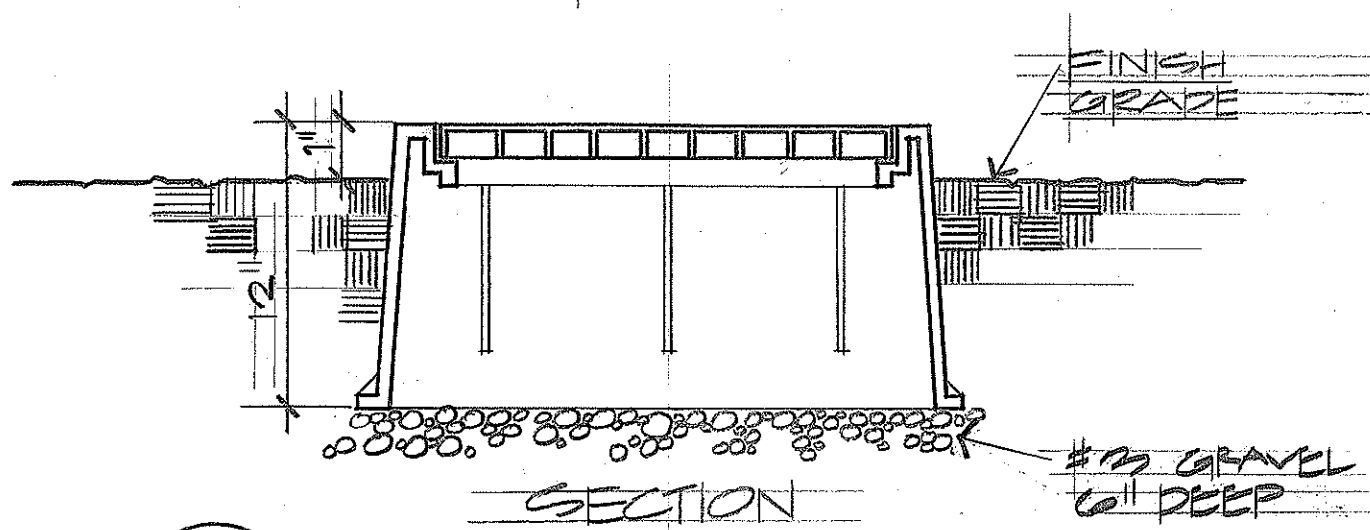
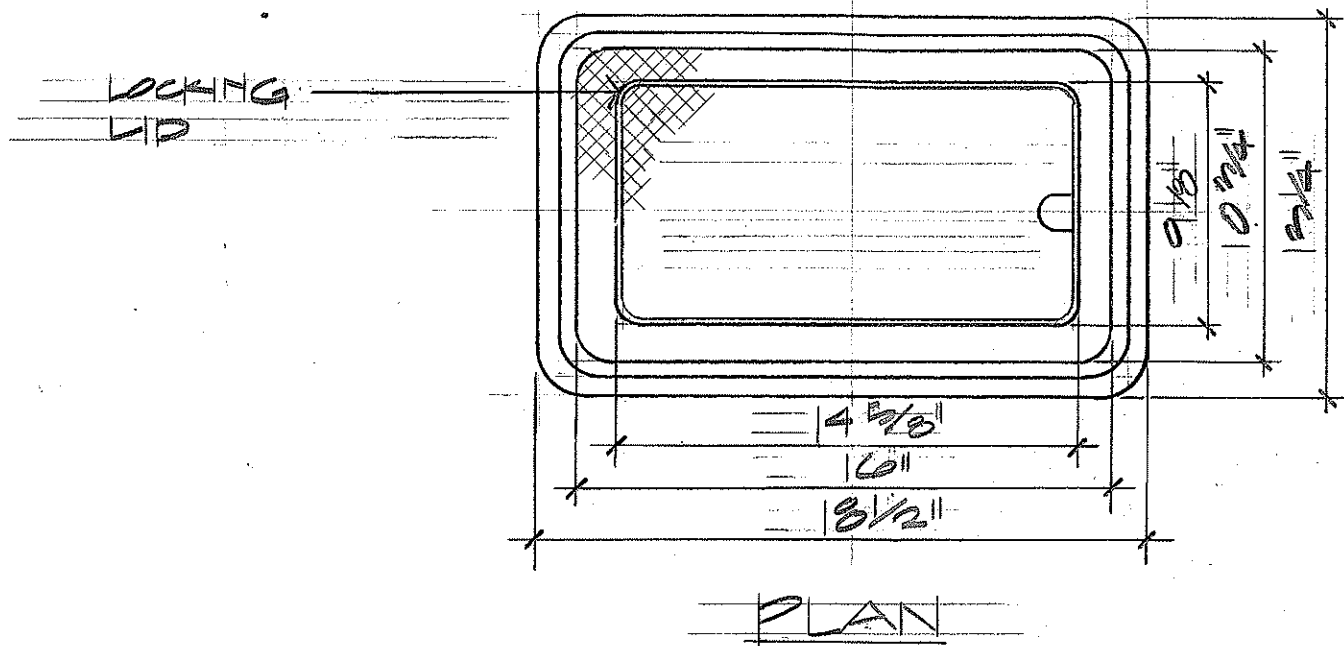
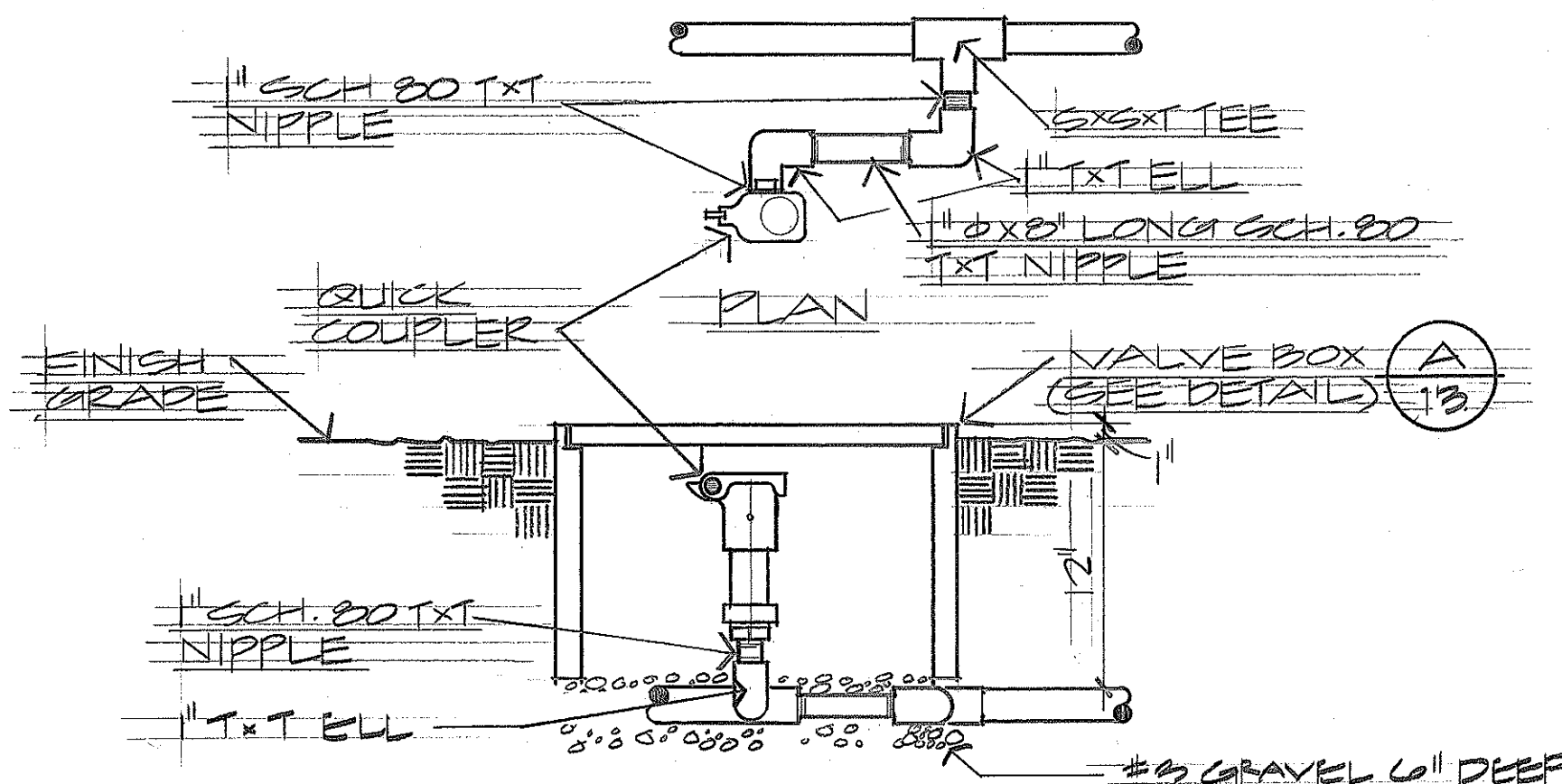


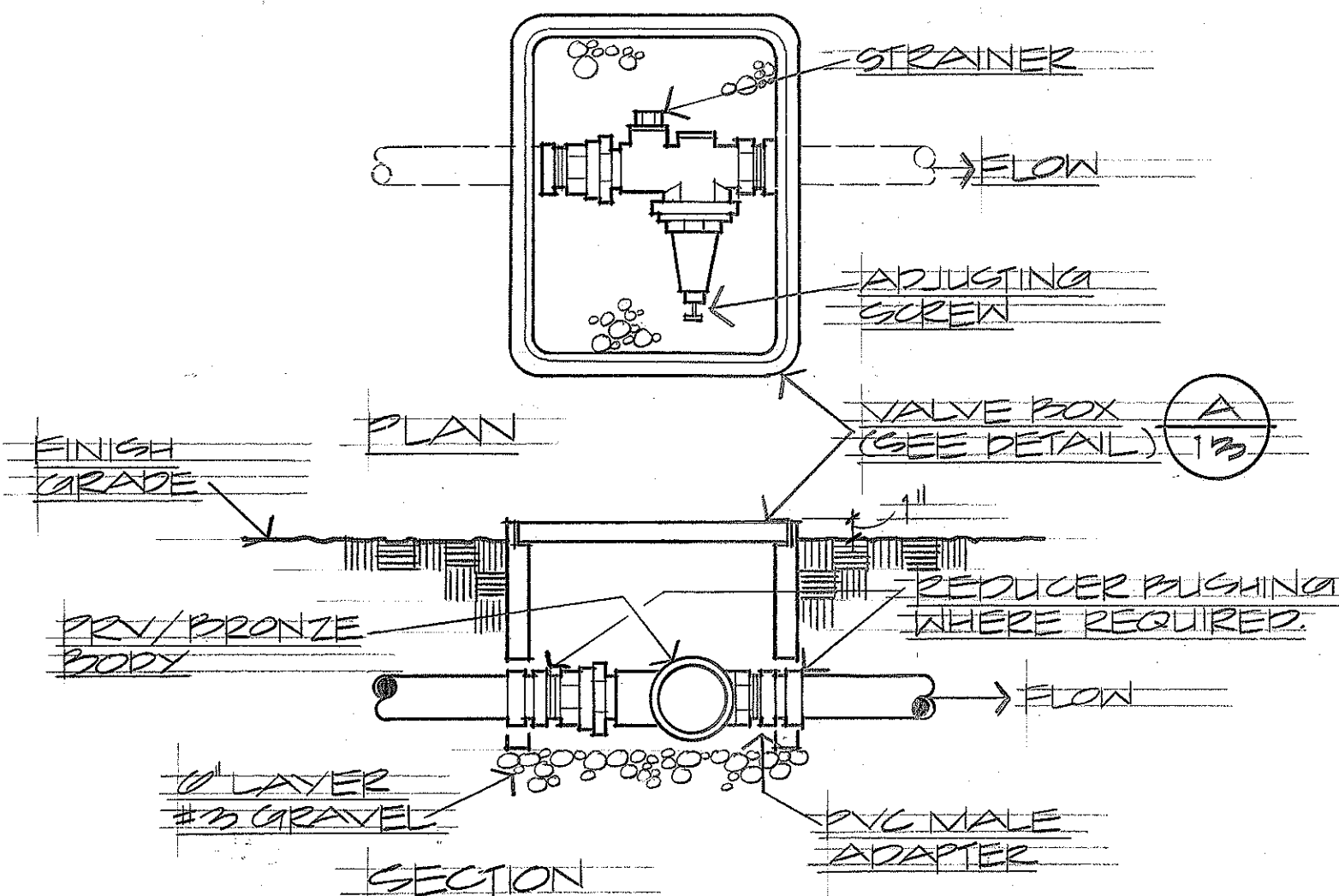
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(200)17	1986	13	22



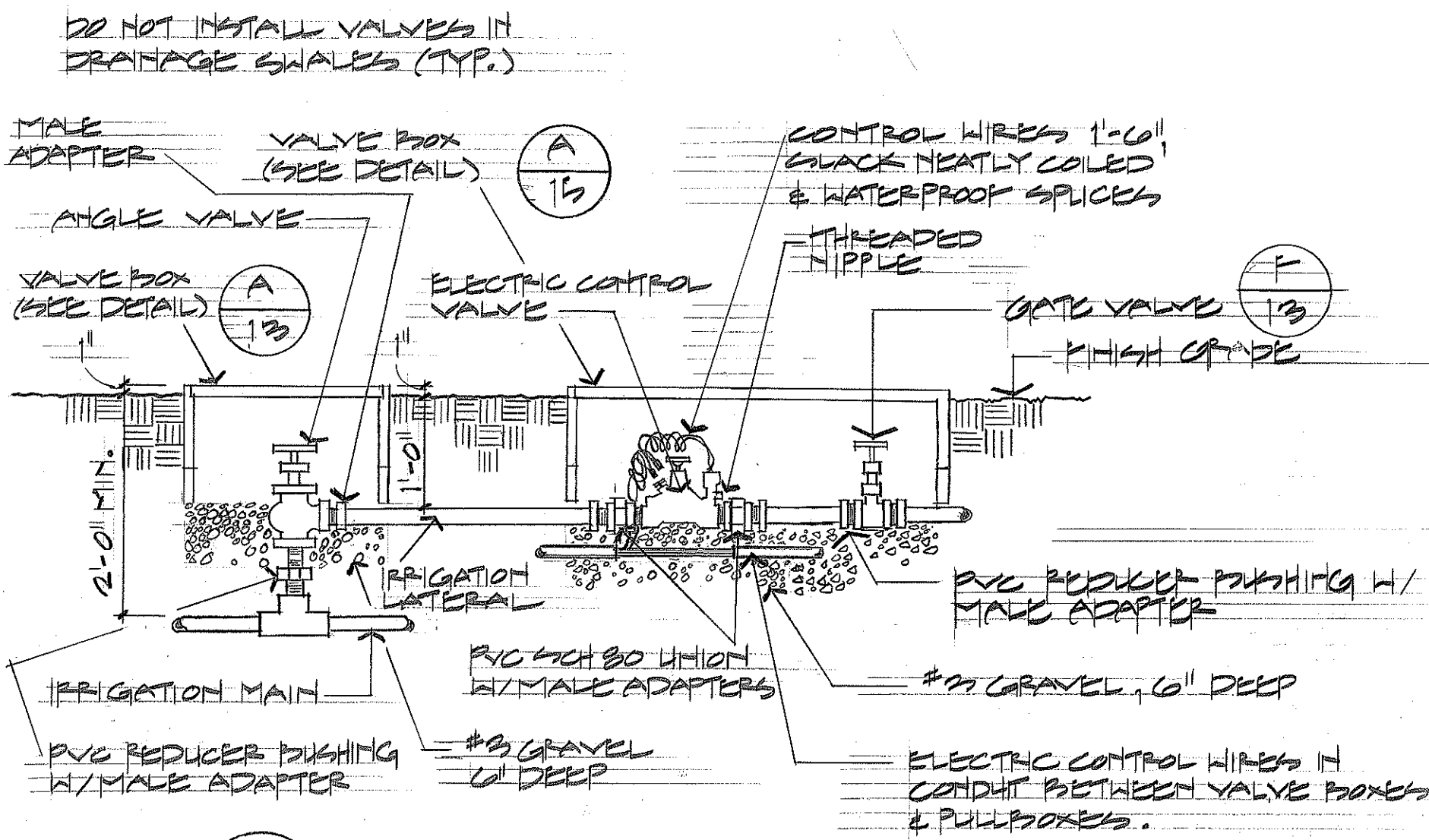
A
13
TYP. VALVE & PULLBOX DETAIL
FOR SINGLE VALVE APPLICATION
NO SCALE



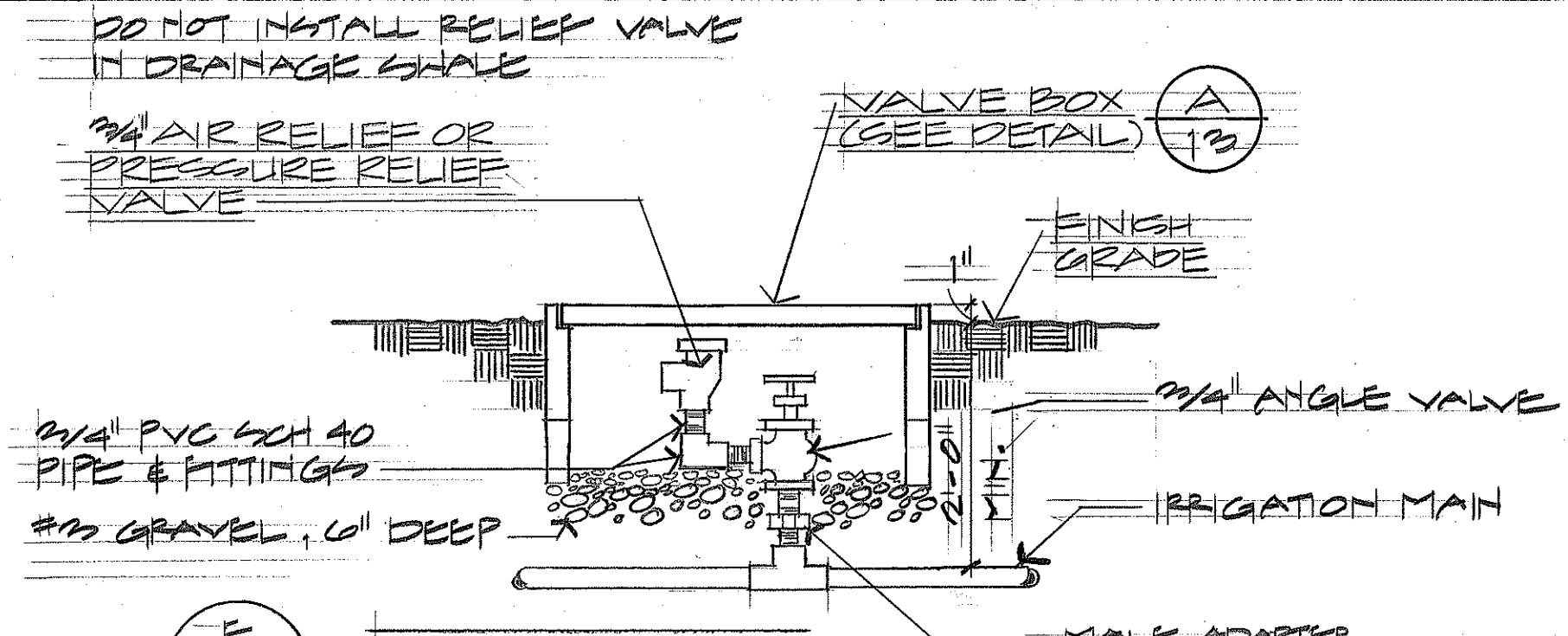
D
13
QUICK COUPLER
NO SCALE



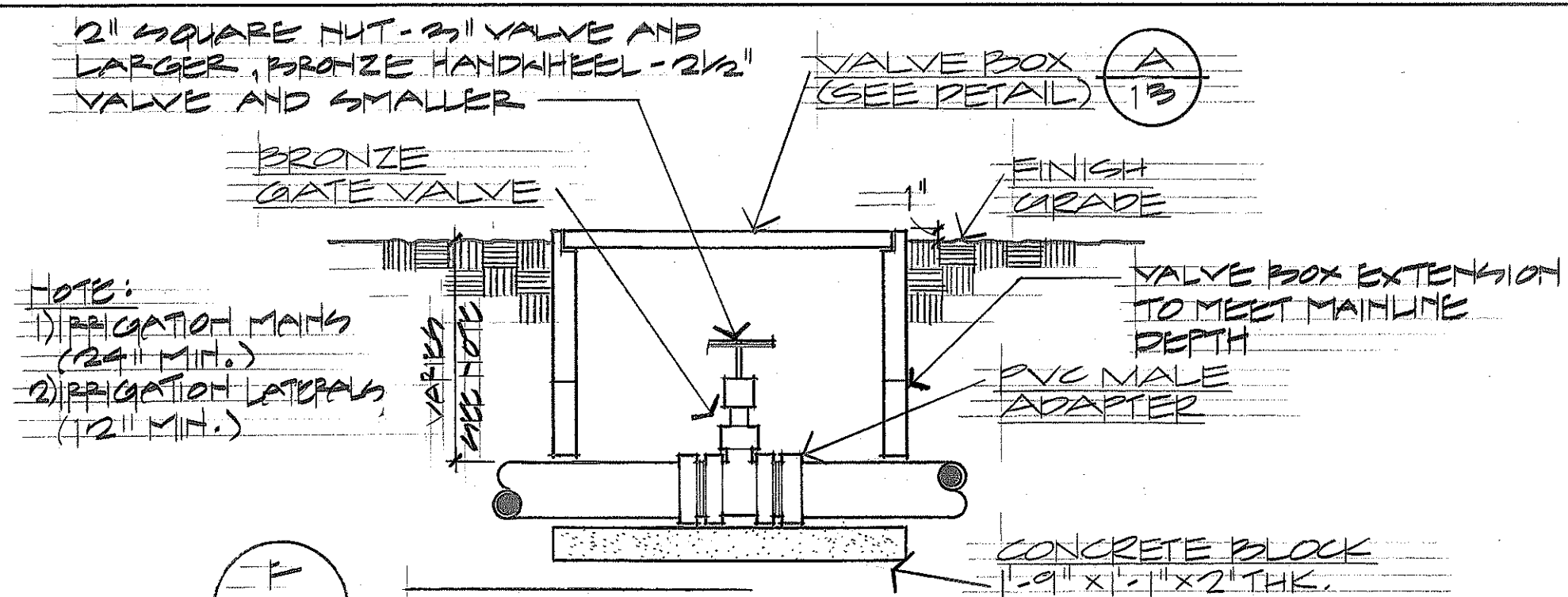
H
13
PRESSURE REGULATOR VALVE
NO SCALE



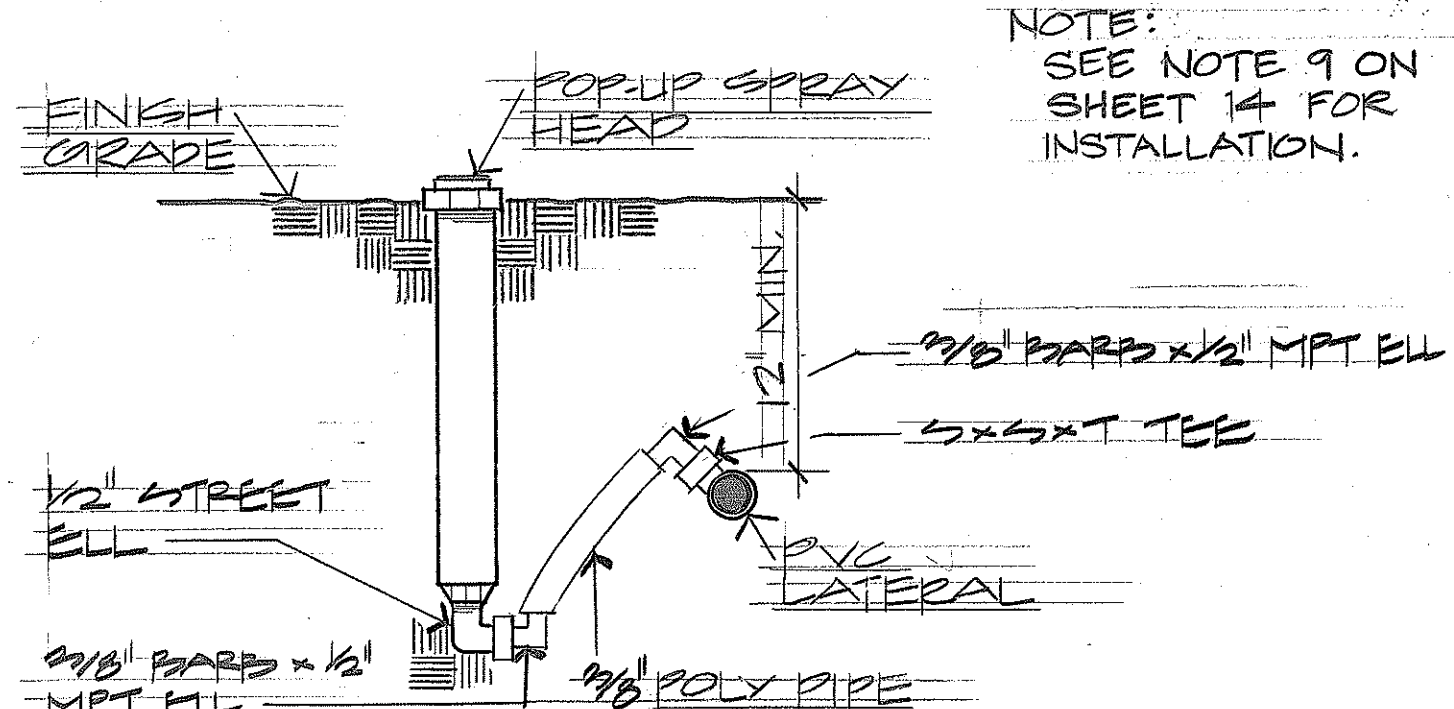
B
13
VALVE MANIFOLD
NO SCALE



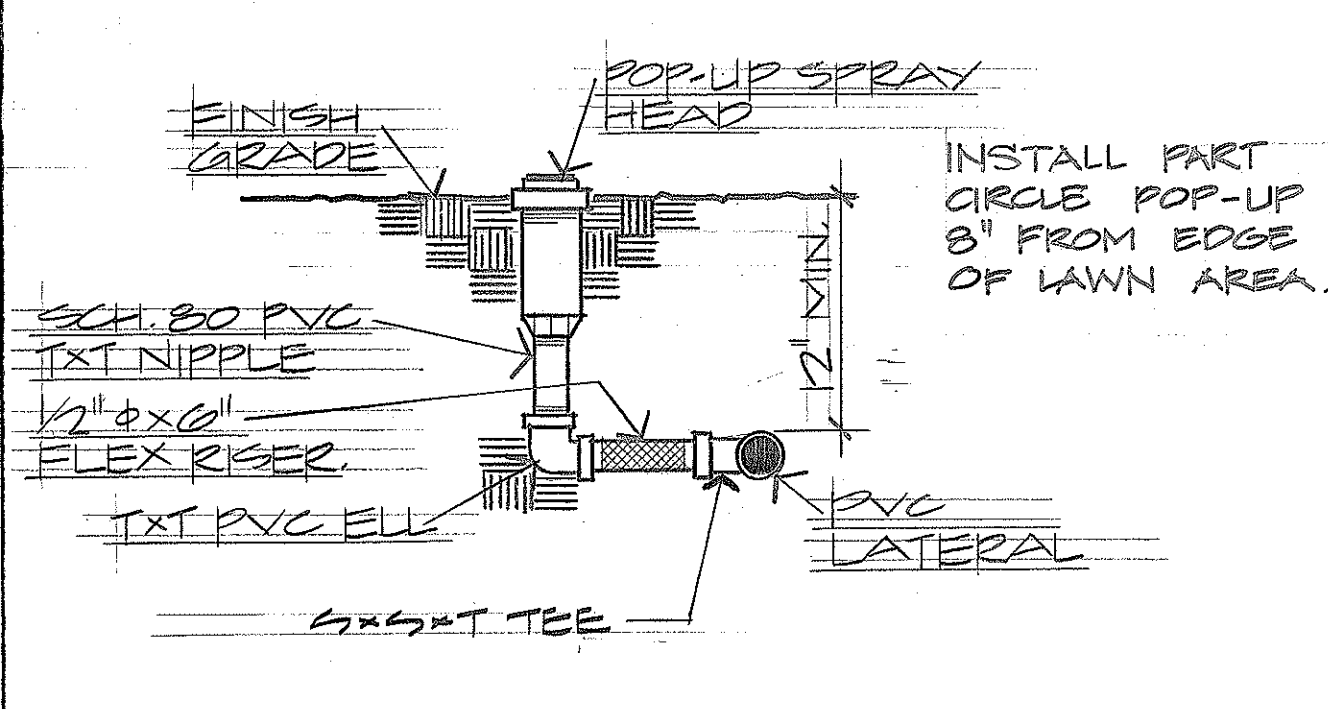
E
13
RELIEF VALVE
NO SCALE



F
13
GATE VALVE
NO SCALE



I
13
12" POP-UP SPRAY HEAD
NO SCALE



J
13
4" POP-UP SPRAY OR BUBBLER HEAD
NO SCALE

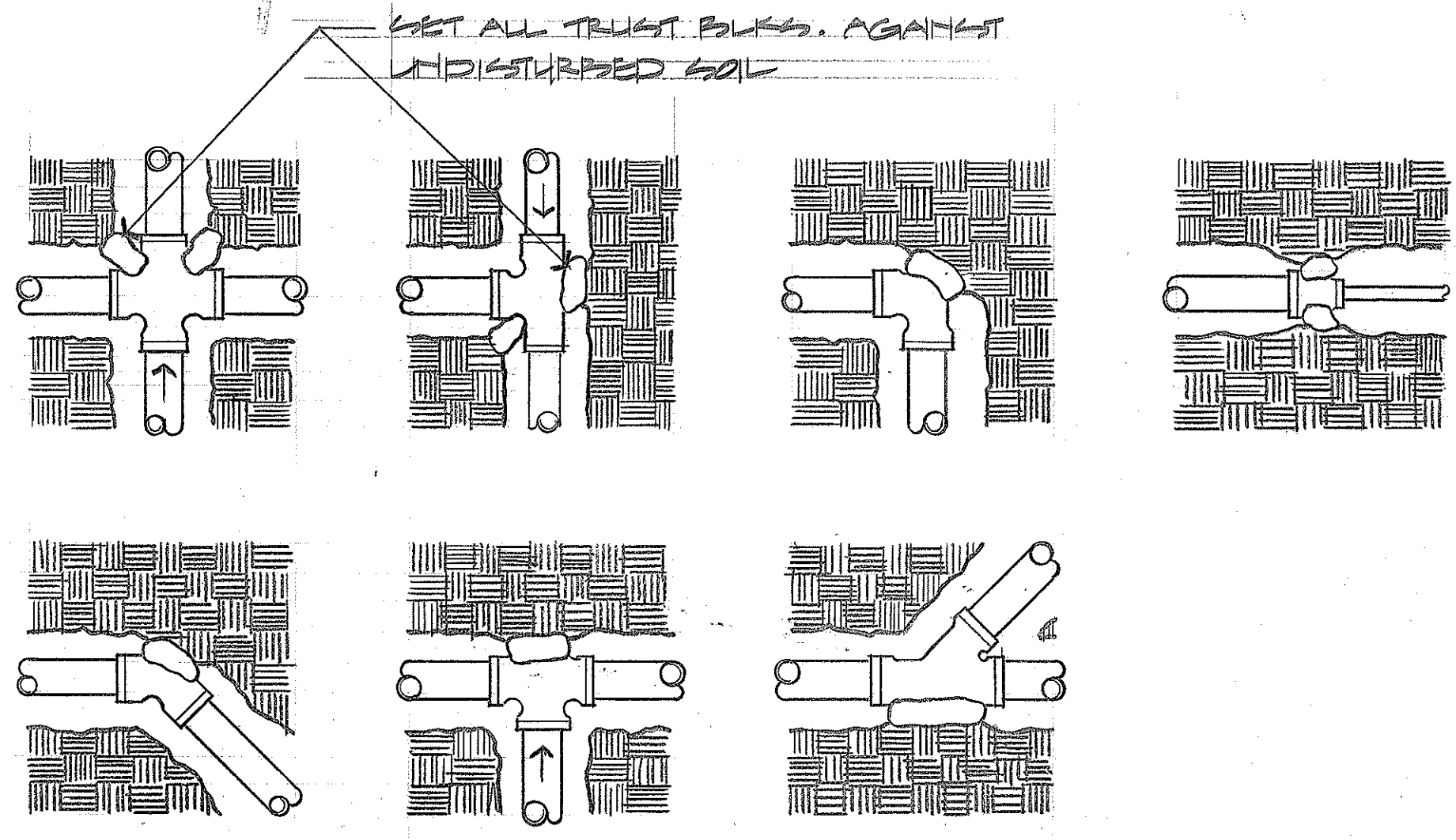
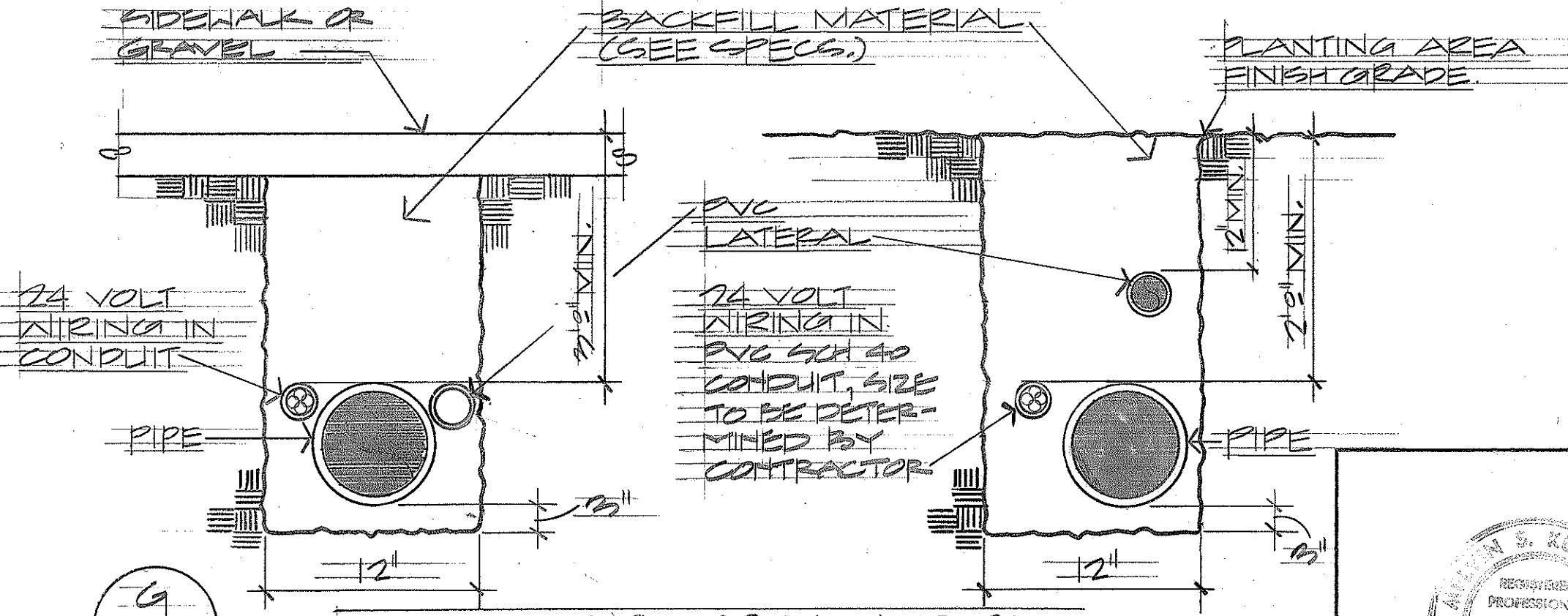


TABLE FOR BEARING AREA OF
THRUST BLOCKS (SQ. FT.)

PIPE SIZE	1/4"	1/2"	3/4"	1"	1 1/2"	2"	3"
TEES & CROSSES	0.50	0.50	0.50	0.50	1.00	1.25	2.25
90° BEND	0.50	0.50	0.50	0.50	1.25	2.00	4.50
45° BEND	0.50	0.50	0.50	0.50	0.75	1.00	2.25

C
13
TYPICAL THRUST BLOCK DETAIL FOR IRRIGATION MAINS
NO SCALE



G
13
TYPICAL PIPE TRENCH DETAIL
NO SCALE



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

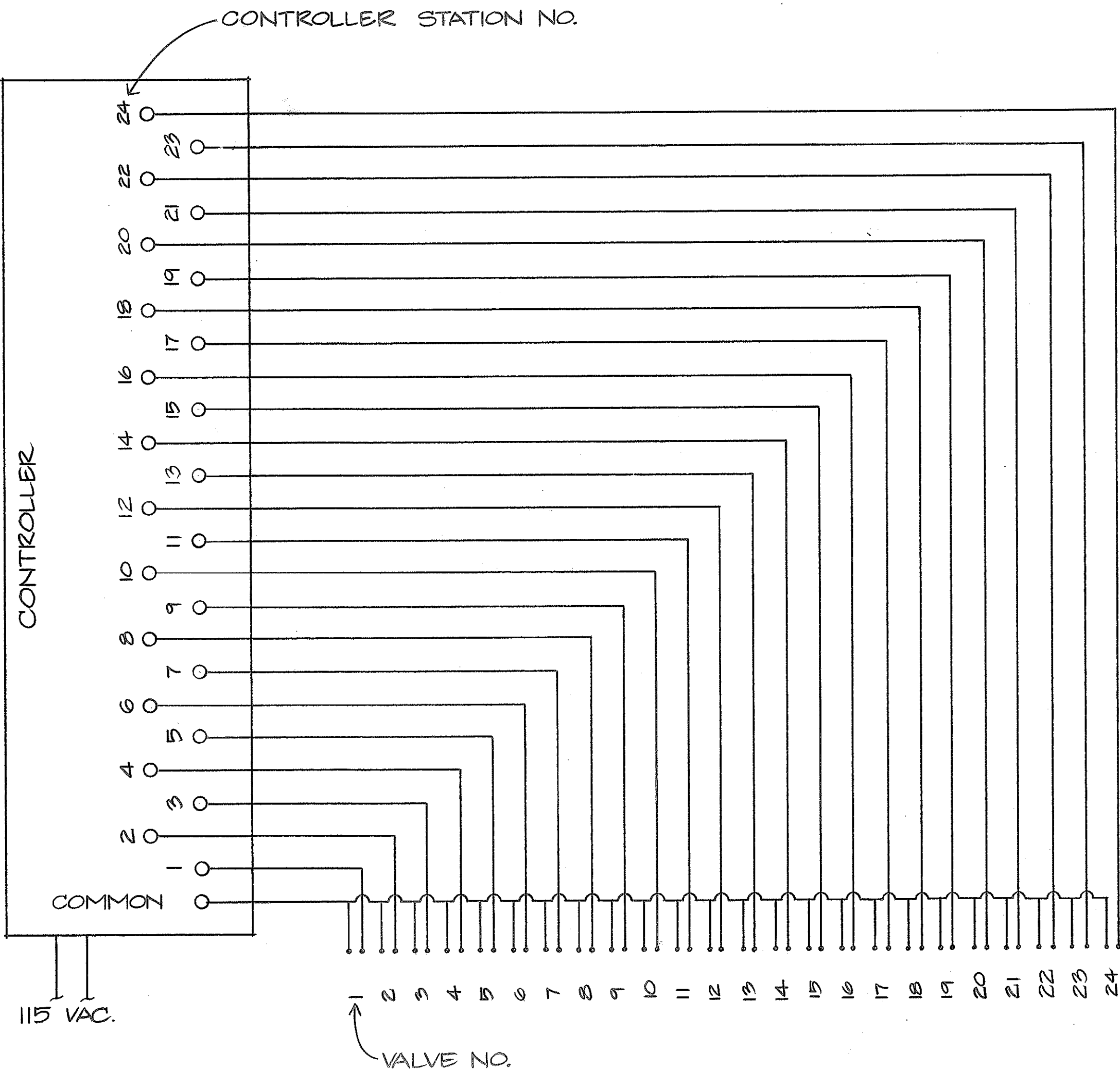
IRRIGATION DETAILS

KEEHI INTERCHANGE LANDSCAPING
(WEST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(200)17

SCALE: AS SHOWN DATE: MAY 1986

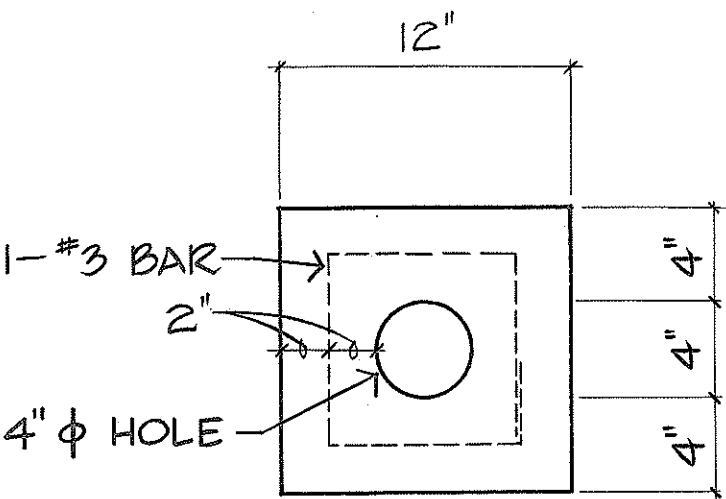
SHEET NO. 13 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(200):17	1986	14	22

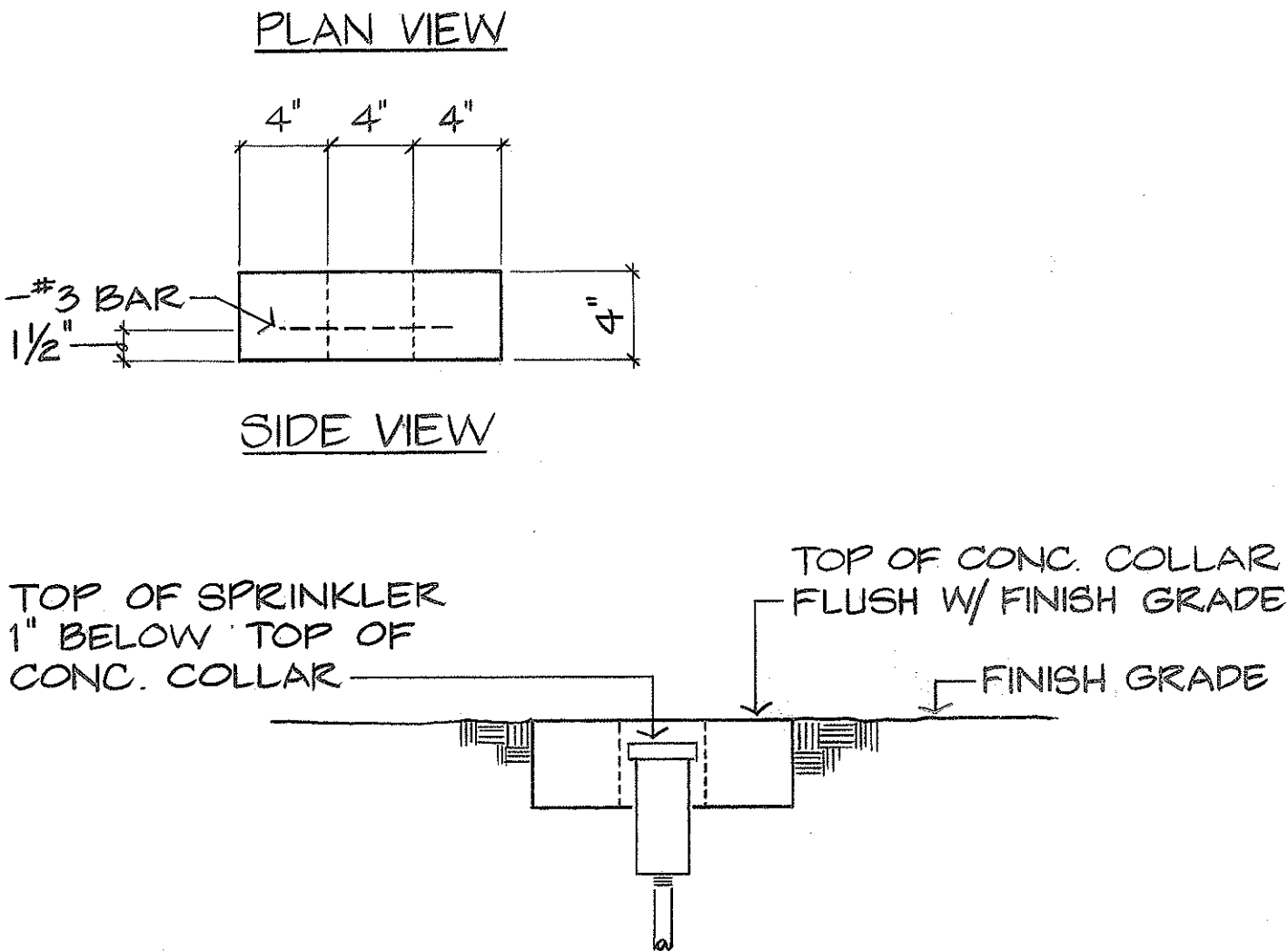


NOTE:
ALL REMOTE CONTROL VALVE
WIRING SHALL BE 14 GAUGE
UNLESS SHOWN OTHERWISE.

TYPICAL 24 VOLT WIRING DIAGRAM
NOT TO SCALE

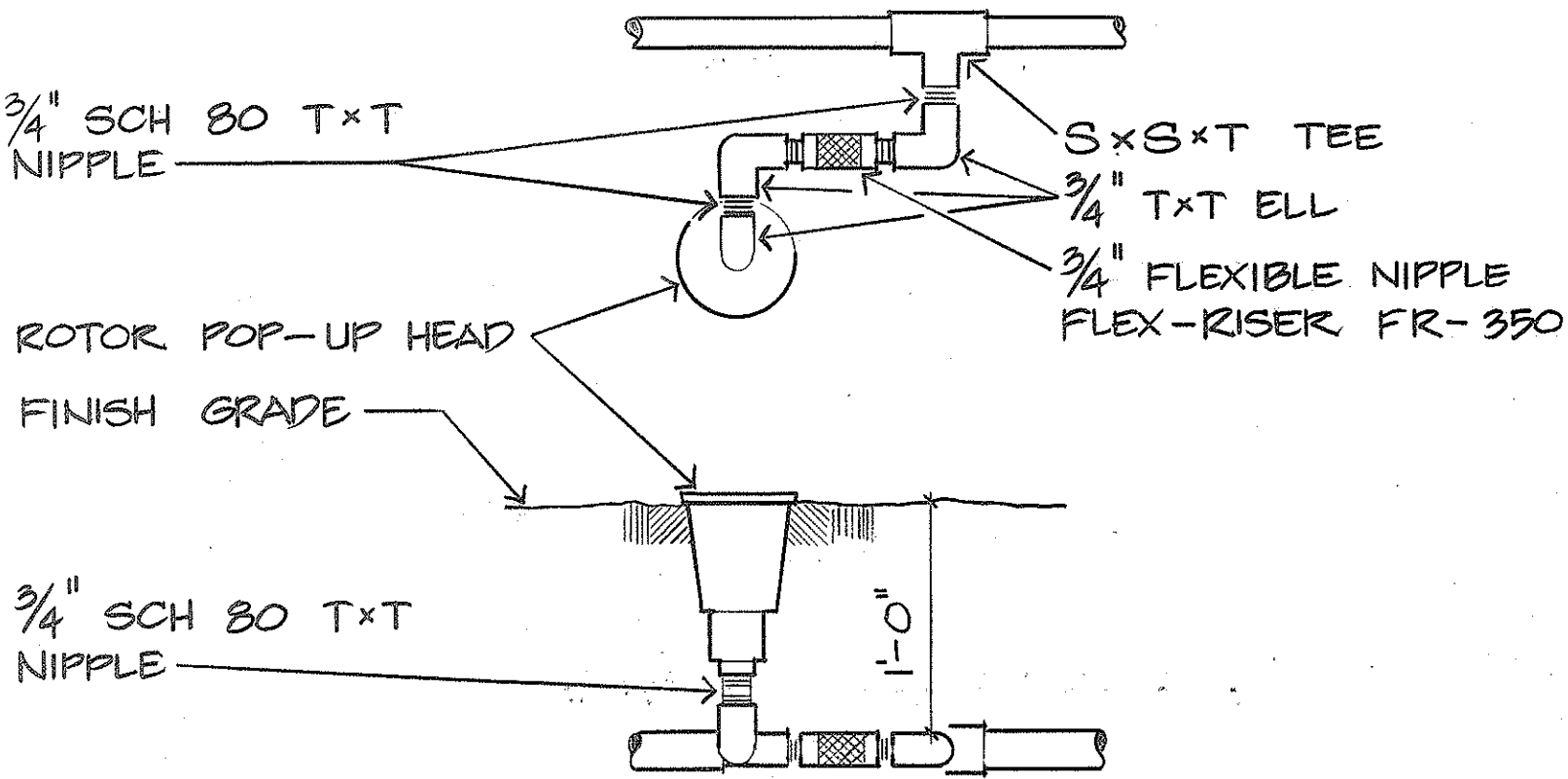


- NOTES:
1. INSTALL PROTECTIVE CONCRETE COLLARS ON ALL POP-UP HEADS WITHIN 3'-0" OF ROADWAYS.
 2. CONCRETE SHALL BE 3000 P.S.I.



PROTECTIVE CONCRETE COLLAR
NO SCALE

- NOTE:
1. INSTALL 2" x 3" PART CIRCLE POP-UP STREAM ROTOR HEADS 1'-0" FROM EDGE OF LAWN AREA. (FOR 12" STREAM ROTOR POP-UP HEADS, SEE NOTE 9 BELOW.)
 2. ALL NIPPLES & FITTINGS ON 2" POP-UPS ARE TO BE 1".



STREAM ROTOR POP-UP HEAD
NO SCALE

- NOTES:
1. IRRIGATION MAINS ON EAST SIDE OF AHUA STREET INTERSECTION SHALL NOT BE INSTALLED OVER VIADUCT FOOTINGS. LIMITS OF VIADUCT FOOTINGS MAY BE OBTAINED FROM THE ENGINEER.
 2. IRRIGATION LATERALS INSTALLED OVER VIADUCT FOOTINGS SHALL BE PVC CLASS 200 RING-TITE PIPE AND SHALL EXTEND 10 FEET BEYOND LIMITS OF FOOTING.
 3. ENDS OF ALL SLEEVES SHALL BE PLUGGED WITH CONCRETE CLASS 'C'.
 4. INSTALL AIR RELIEF VALVES AT HIGH POINTS OF THE IRRIGATION MAIN, VERIFY EXACT LOCATIONS ON SITE AND OBTAIN ENGINEER'S APPROVAL.
 5. THE TYPICAL IRRIGATION HEAD SPACING INDICATED IN THE IRRIGATION LEGEND SHALL BE CONSIDERED THE PREDOMINATE SPACING. THE CONTRACTOR SHALL FOLLOW THE IRRIGATION PLANS AND ADJUST IRRIGATION HEAD SPACING ACCORDINGLY TO OBTAIN COMPLETE COVERAGE.
 6. INSTALL ALL 24 VOLT WIRING BETWEEN CONTROLLER AND ELECTRIC VALVES IN PVC SCH 40 CONDUIT. SIZE OF CONDUIT TO BE DETERMINED BY CONTRACTOR AND APPROVED BY ENGINEER. INSTALL PULLBOXES WHERE RUN BETWEEN VALVE BOXES EXCEEDS 250 FEET AND AT ALL CHANGES IN DIRECTION OF CONDUIT RUN. SUBMIT AS-BUILT ELECTRICAL DRAWINGS.
 7. ELECTRIC VALVE: BRASS BODY AND BONNET
GATE VALVE: CLASS 125 BRONZE BODY, 4" & 6" VALVES W/ CLASS 125 IRON BODY, BOARD OF WATER SUPPLY APPROVED.
 8. ALL PIPES & CONDUITS CROSSING SIDEWALKS WHERE SLEEVES DO NOT EXIST SHALL BE INSTALLED BY JACKING. DO NOT CUT OR DAMAGE EXISTING PAVEMENT.
 9. INSTALL PART CIRCLE 12" POP-UP STREAM ROTOR/SPRAY HEADS 1'-0" FROM SIDEWALK OR 1'-0" FROM HEADER BOARD WITHIN GRAVEL STRIP ALONG ROADWAY AND 1'-0" MIN. BEHIND GUARDRAIL WITHIN PLANTING AREA. (SEE PLANTING PLAN FOR GRAVEL STRIP LOCATION.)
 10. PRIOR TO ANY EXCAVATION WORK, REQUEST FROM R.M. TOWILL PH. # 524-8200, AS-BUILT PLANS OF AT&T COMMUNICATIONS HAWAII LIGHTGUIDE PROJECT (AUTHORITY NO. J7152) SHEETS 24, 25, & 26 (FROM DILLINGHAM BLVD. TO PULLOA RD.)
 11. CONTRACTOR SHALL FURNISH AND INSTALL 'METALIC SOUNDING TAPE' IN TRENCH OF ALL FEEDER & MAIN LINES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PAYMENT SHALL BE CONSIDERED INCIDENTAL TO "SPRINKLER SYSTEM".
 12. IRRIGATION LINES WITHIN PIPE SLEEVES SHALL BE COPPER PIPE OR PVC SCHEDULE 80 PIPE WITH THREADED JOINTS.



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[Signature]

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAILS

KEEHI INTERCHANGE LANDSCAPING
(WEST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(200):17

SCALE: AS SHOWN DATE: MAY 1986

SHEET NO. 14 OF 20 SHEETS

3/1/87	ADDED NOTES NO. 11 & 12
DATE	REVISION

ADD. 14

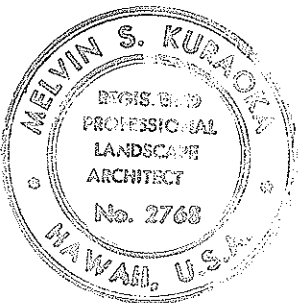
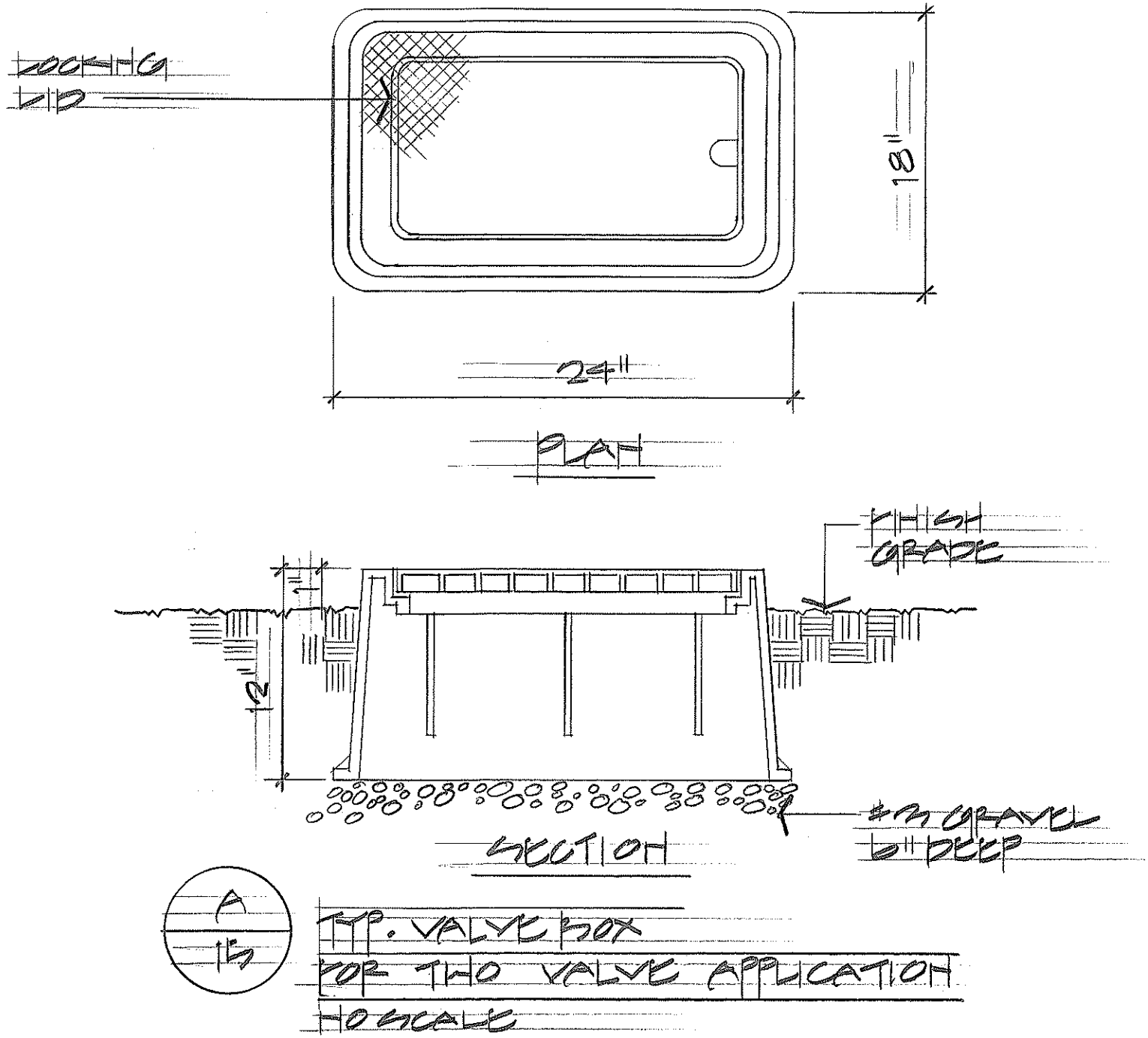
DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

CONTROLLER PROGRAM SCHEDULE										
CONTROLLER	A		B		C		D		E	
DAY OF OPERATION and START TIMES	STATION NO.	1ST WEEK SUN., TUES., THURS., SAT. 2ND WEEK MON., WED., FRI. 11:00 PM and 2:30 AM	STATION NO.	1ST WEEK SUN., TUES., THURS., SAT. 2ND WEEK MON., WED., FRI. 10:00 PM and 1:30 AM	STATION NO.	1ST WEEK MON., WED., FRI. 2ND WEEK SUN., TUES., THURS., SAT. 10:00 PM and 1:00 AM	STATION NO.	1ST WEEK MON., WED., FRI. 2ND WEEK SUN., TUES., THURS., SAT. 11:00 PM and 2:00 AM	STATION NO.	1ST WEEK MON., WED., FRI. 2ND WEEK SUN., TUES., THURS., SAT. 12:00 AM and 3:00 AM
NOTE: THIS SCHEDULE SHALL BE SET TO BEGIN AT THE END OF THE FORMAL 9 MONTH MAINTENANCE PERIOD.	1	FUTURE (POT OTHER)	1	FUTURE (POT OTHER)	1	FUTURE (POT OTHER)	1	5 MINUTES	1	7 1/2 MINUTES
	2	" "	2	" "	2	" "	2	" "		
	3	" "	3	" "	3	5 MINUTES	3	" "		
	4	" "	4	5 MINUTES	4	" "	4	" "		
	5	" "	5	10 "	5	" "	5	" "		
	6	" "	6	5 "	6	" "	6	" "		
	7	7 1/2 MINUTES	7	10 "	7	" "	7	" "		
	8	7 1/2 "			8	" "	8	" "		
	9	10 "			9	" "	9	" "		
	10	10 "			10	" "	10	" "		
	11	10 "			11	" "	11	" "		
	12	10 "			12	" "				
	13	10 "			13	" "				
	14	5 "								
	15	5 "								
	16	5 "								
	17	5 "								
	18	5 "								
	19	5 "								
	20	5 "								
	21	5 "								
STATIONS EA. CYCLE	4410		775		755		2580		75	
TIME EA. CYCLE	1 HOUR 45 MIN.		30 MINUTES		55 MINUTES		55 MINUTES		7 1/2 MINUTES	

NOTE: THE ABOVE SCHEDULE IS A RECOMMENDATION ONLY and SHOULD BE ADJUSTED
AS NECESSARY TO ASSURE OPTIMUM PLANT GROWTH.

1-6-87	DELETED STA. 1-6 FROM CONTROLLER A, STA. 1-3 FROM CONTROLLER B, & STA. 1 & 2 FROM CONTROLLER C.
3/6/87	DELETED CONTROLLER 'E', STATION NO. 2
DATE	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(200):17	1986	15	22



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W. M. M. M.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAILS

KEEHI INTERCHANGE LANDSCAPING
(WEST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(200):17

SCALE: AS SHOWN DATE: MAY 1986

SHEET NO. 15 OF 20 SHEETS

C.O. ADD. 15