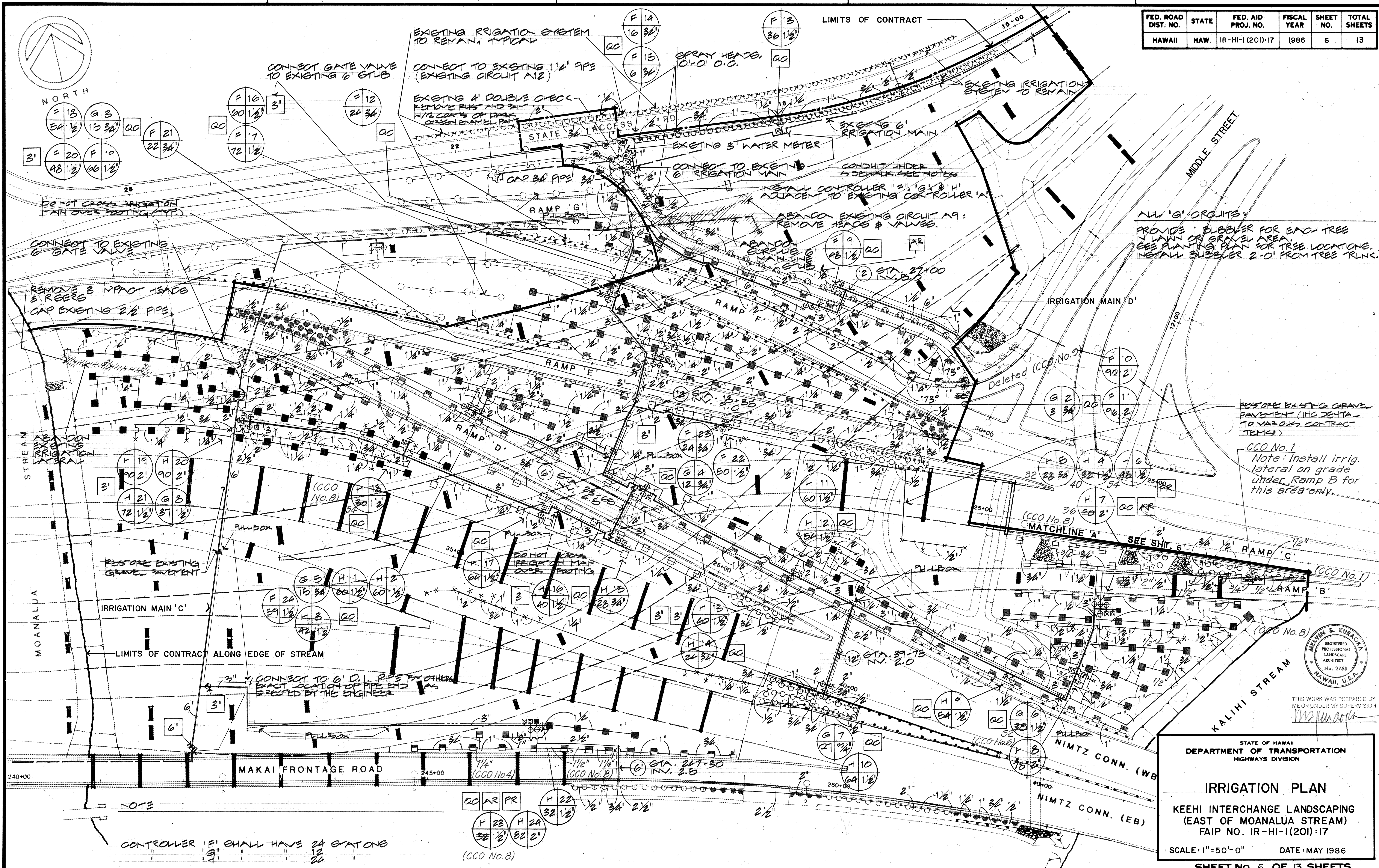


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(201)-17	1986	6	13



ALL "G" CIRCUITS:
 PROVIDE 1 BUBBLER FOR EACH TREE
 IN LAWN OR GRAVEL AREA.
 SEE PLANTING PLAN FOR TREE LOCATIONS.
 INSTALL BUBBLER 2'-0" FROM TREE TRUNK.

RESTORE EXISTING GRAVEL
 PAVEMENT (INCIDENTAL
 TO VARIOUS CONTRACT
 ITEMS)

CCO No. 1
 Note: Install irrig.
 lateral on grade
 under Ramp B for
 this area only.



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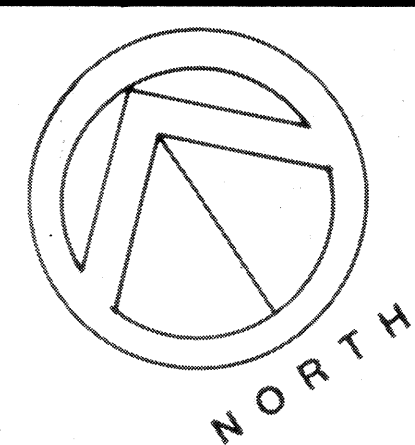
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

IRRIGATION PLAN
 KEEHI INTERCHANGE LANDSCAPING
 (EAST OF MOANALUA STREAM)
 FAIP NO. IR-HI-1(201)-17

SCALE: 1"=50'-0" DATE: MAY 1986

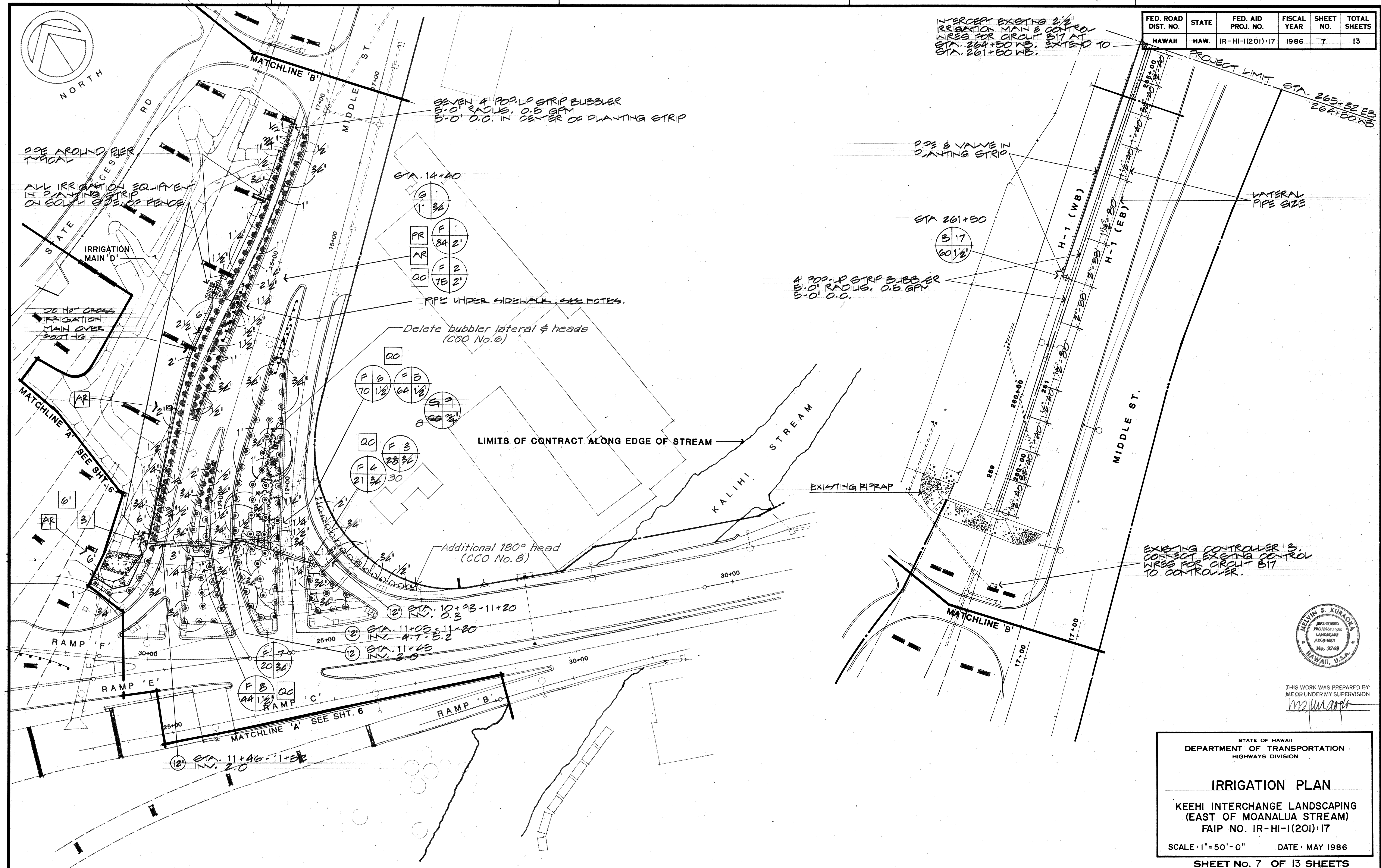
SHEET NO. 6 OF 13 SHEETS

DATE:	
DESIGNED BY:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
NOTED BY:	
NO.	



INTERCEPT EXISTING 2 1/2" IRRIGATION MAIN & CONTROL WIRES FOR CIRCUIT B17 AT STA. 264+50 WB. EXTEND TO STA. 261+50 WB.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1R-HI-1(201)-17	1986	7	13



DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
NO.	



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Melvin S. Kuraoka

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION PLAN

KEEHI INTERCHANGE LANDSCAPING
(EAST OF MOANALUA STREAM)
FAIP NO. 1R-HI-1(201)-17

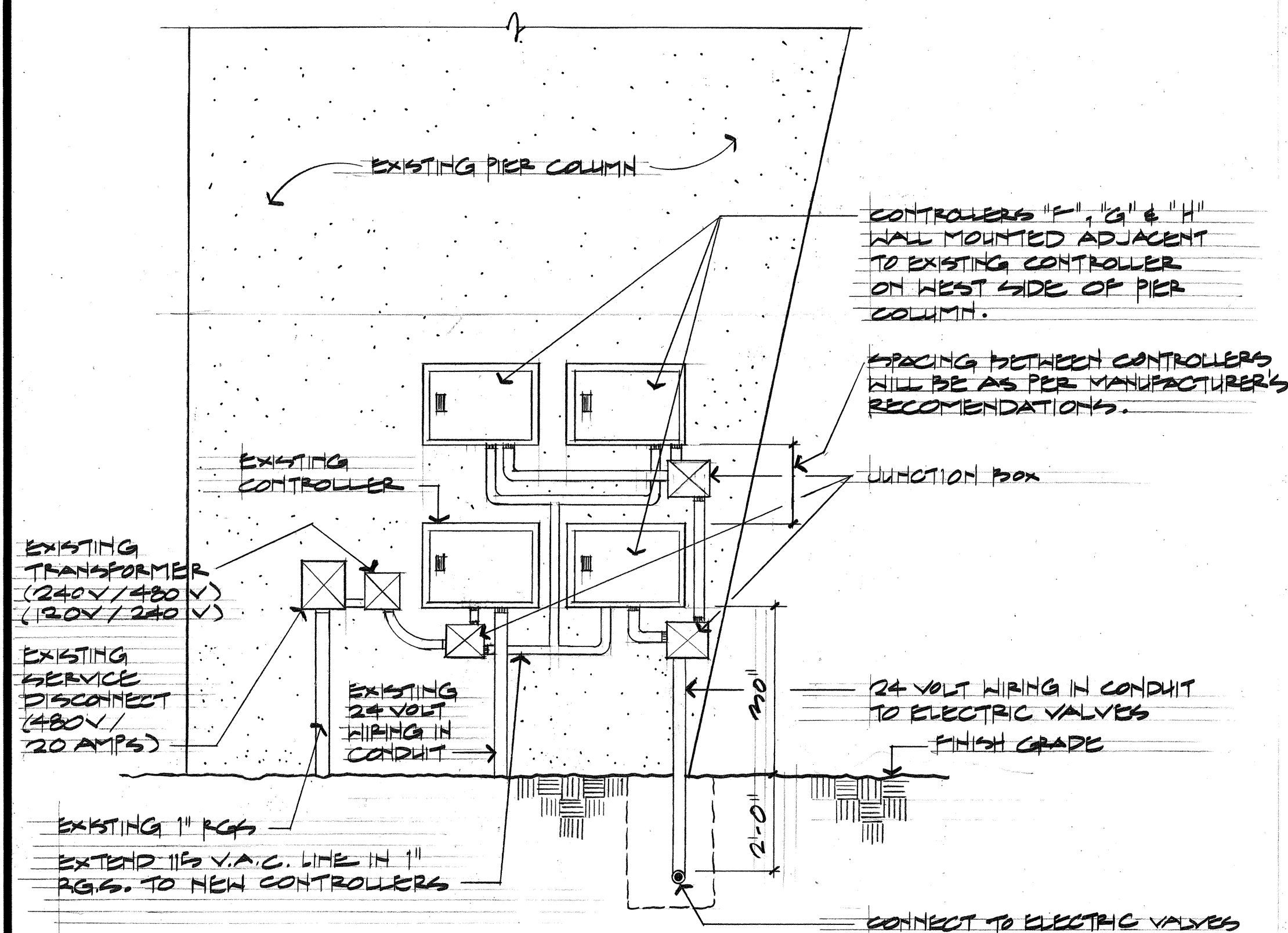
SCALE: 1"=50'-0" DATE: MAY 1986

SHEET NO. 7 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(201):17	1986	8	13

NOTE:

1. SUBMIT SHOP DRAWINGS OF CONTROLLER CONNECTION FOR APPROVAL.
2. DETAIL SHOWN IS ONLY DIAGRAMATIC. VERIFICATION OF WIRE & CONNECTION SHALL BE AS PER LOCAL CODE.

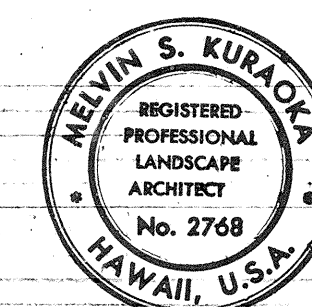


CONTROLLER DETAIL
NO SCALE

IRRIGATION LEGEND

[illegible]

FOR IRRIGATION NOTES, SEE SHEET 10



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Минута

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION LEGEND, NOTES & DETAILS

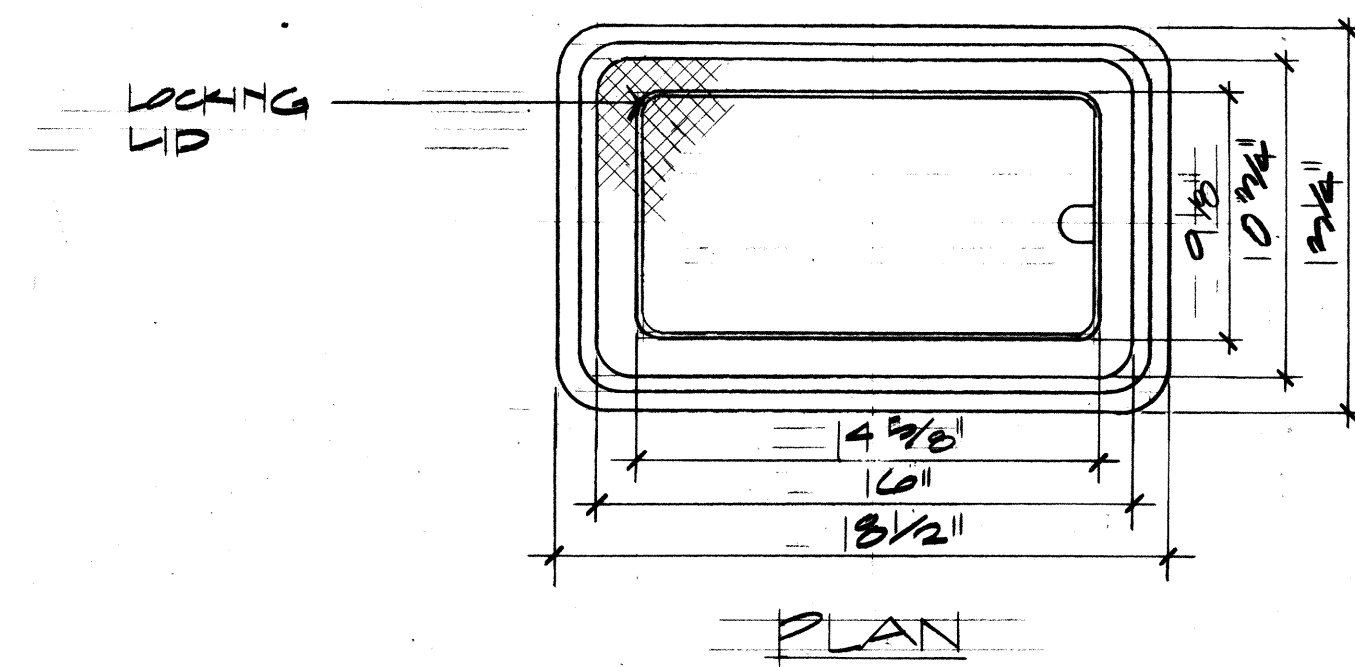
KEEHI INTERCHANGE LANDSCAPING
(EAST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(201):17

SCALE : AS SHOWN DATE : MAY 1986

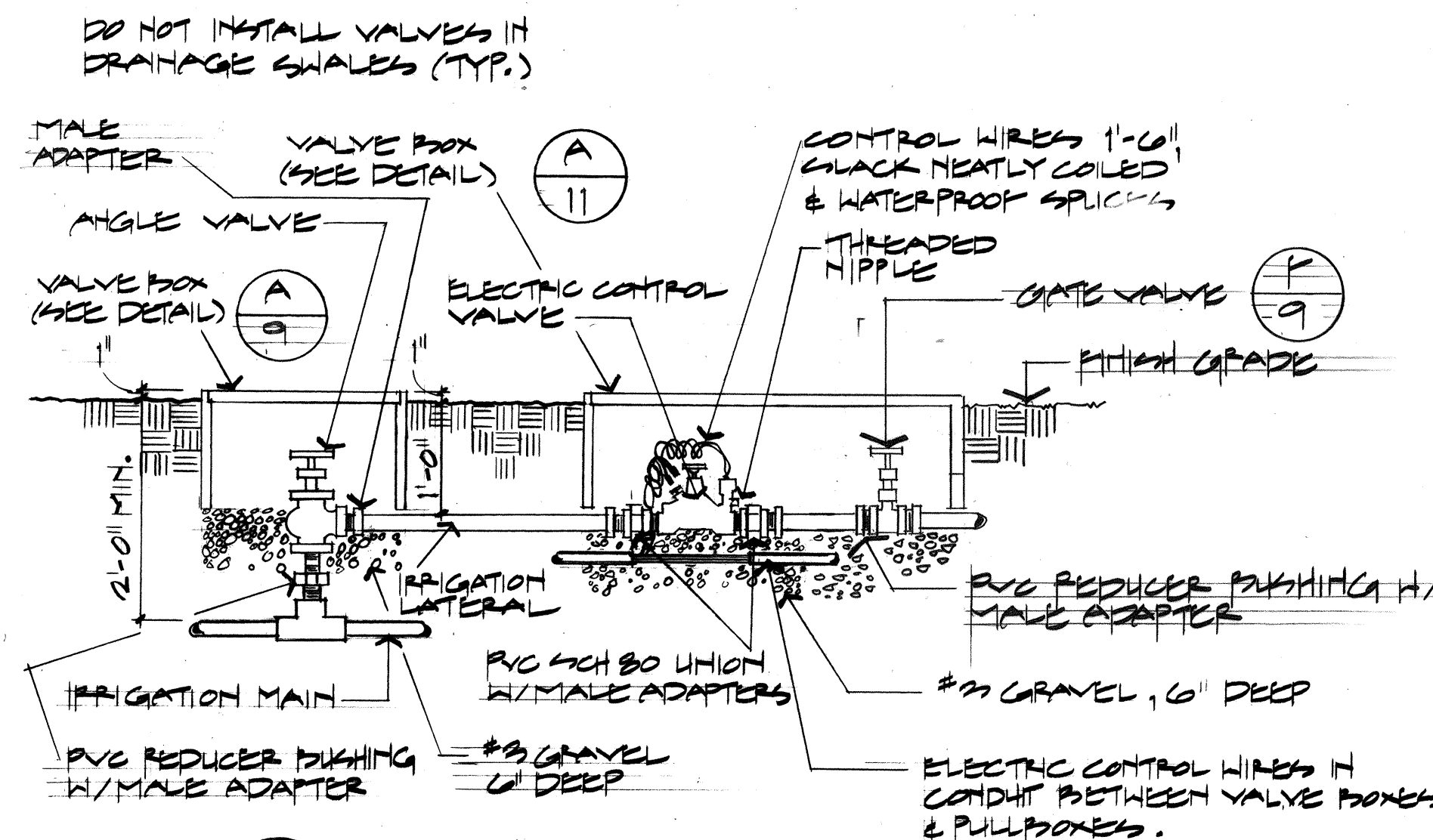
SHEET No. 8 OF 13 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
	DRAWN BY _____
	TRACED BY _____
NOTE BOOK	DESIGNED BY _____
	QUANTITIES BY _____
	CHECKED BY _____
No. _____	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(201):17	1986	9	13

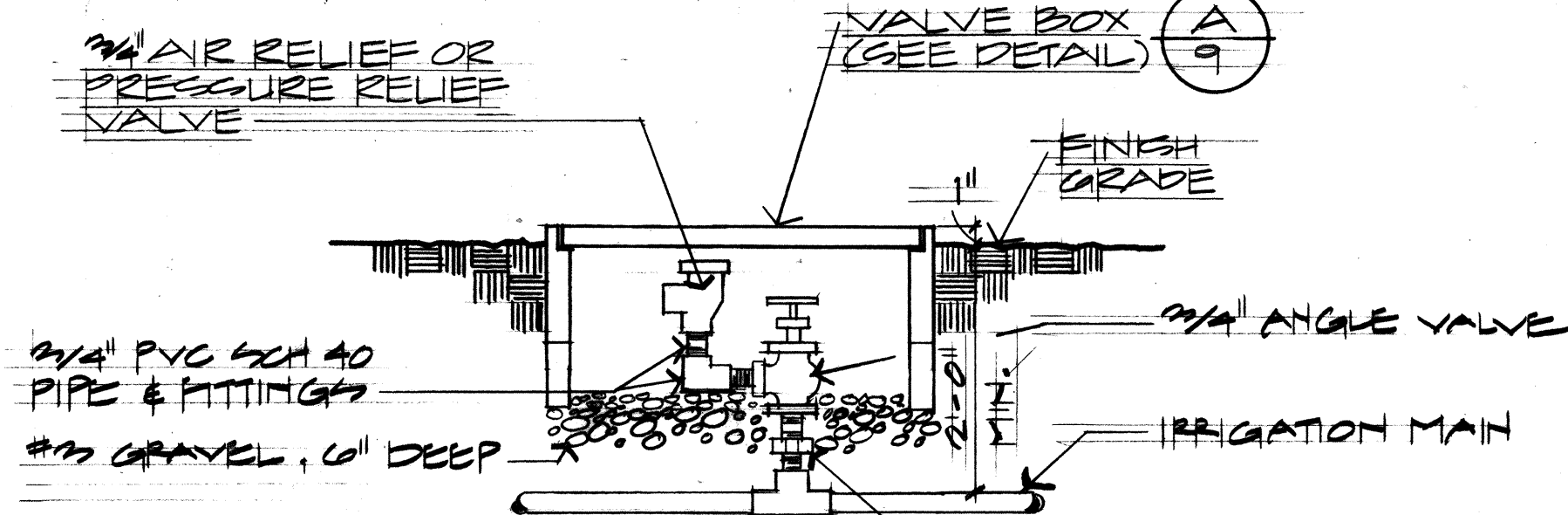


A
9
TYP. VALVE & PULLBOX DETAIL FOR GATE VALVE APPLICATION
NO SCALE



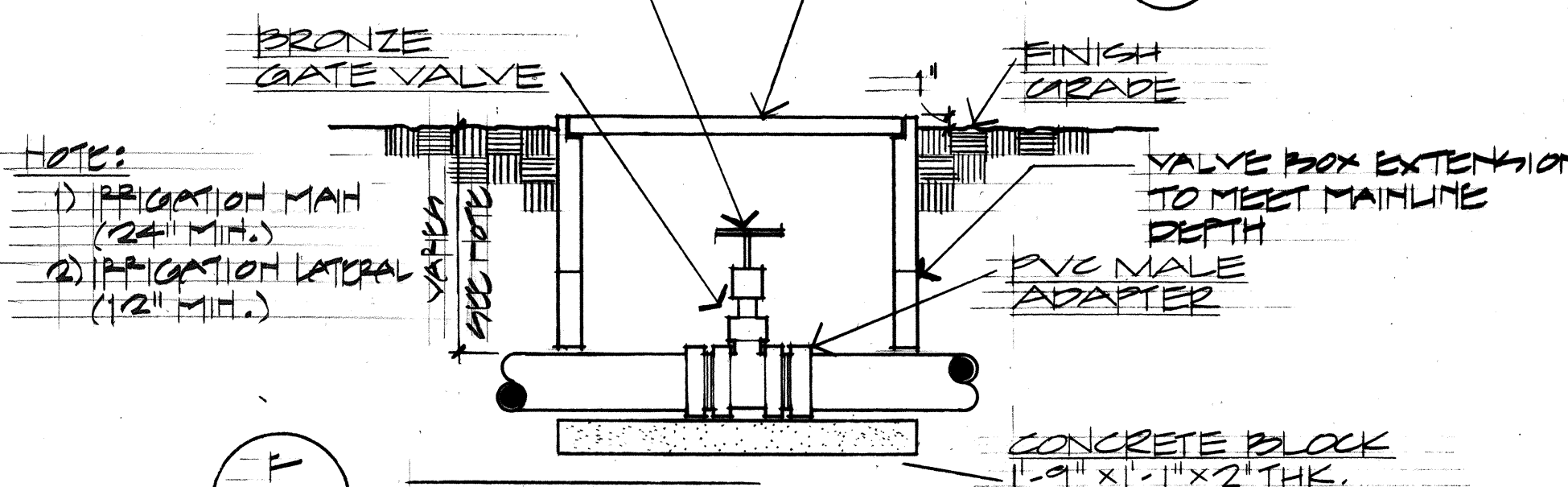
B
9
VALVE MANIFOLD
NO SCALE

DO NOT INSTALL RELIEF VALVE IN DRAINAGE SHALE



E
9
RELIEF VALVE
NO SCALE

2" SQUARE NUT - 2" VALVE AND LARGER, BRONZE HANDWHEEL - 2 1/2" VALVE AND SMALLER



F
9
GATE VALVE
NO SCALE

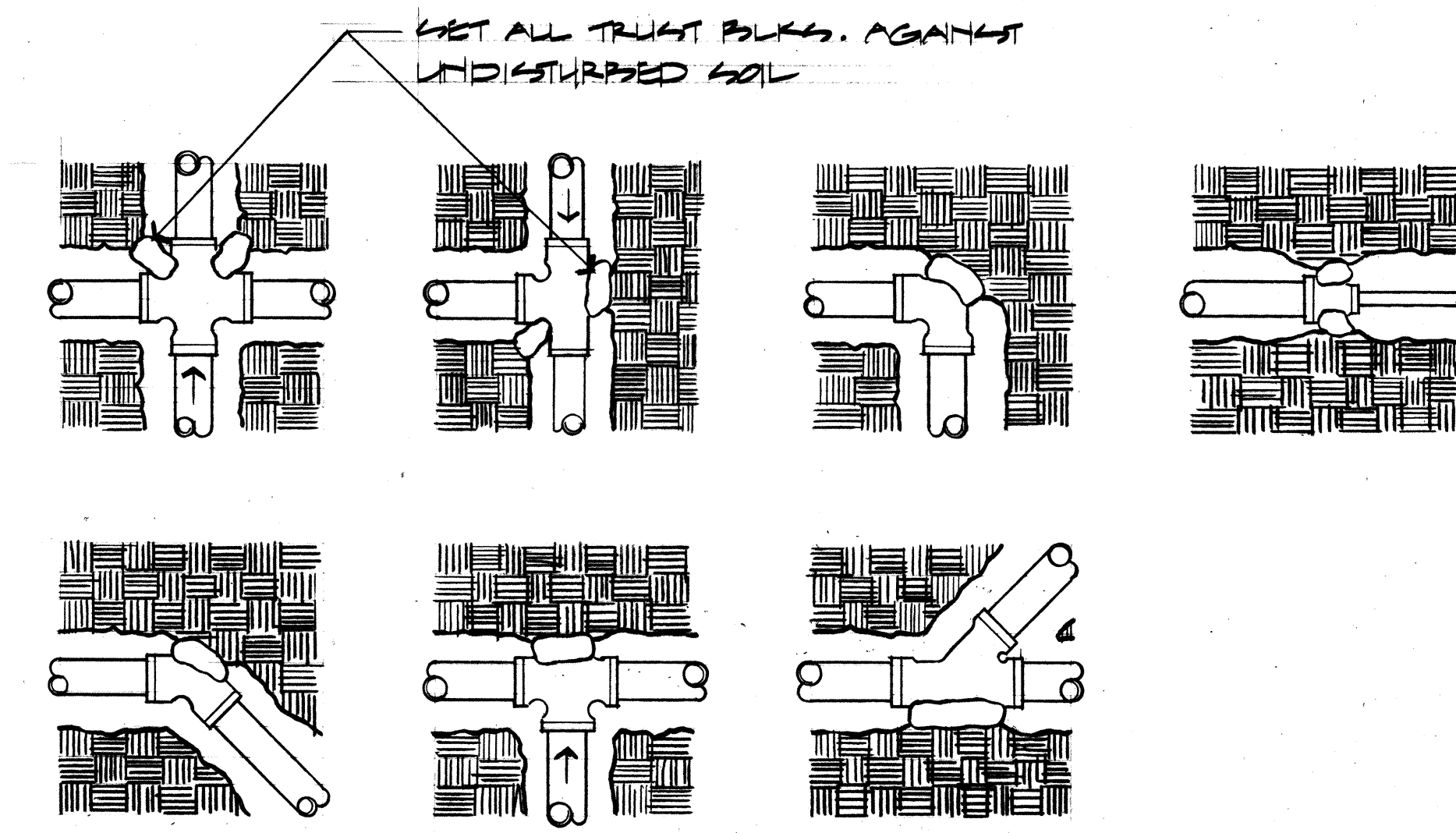
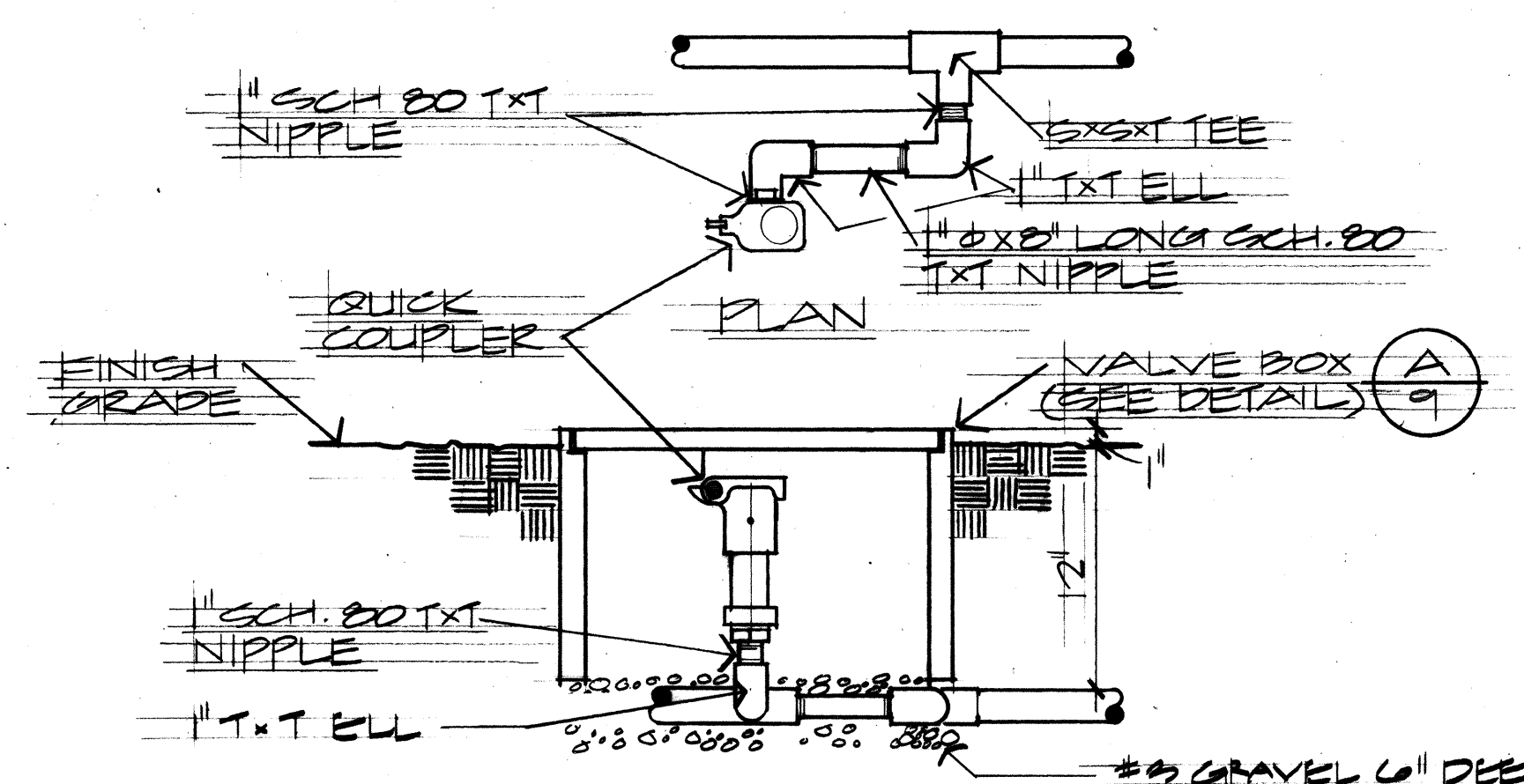


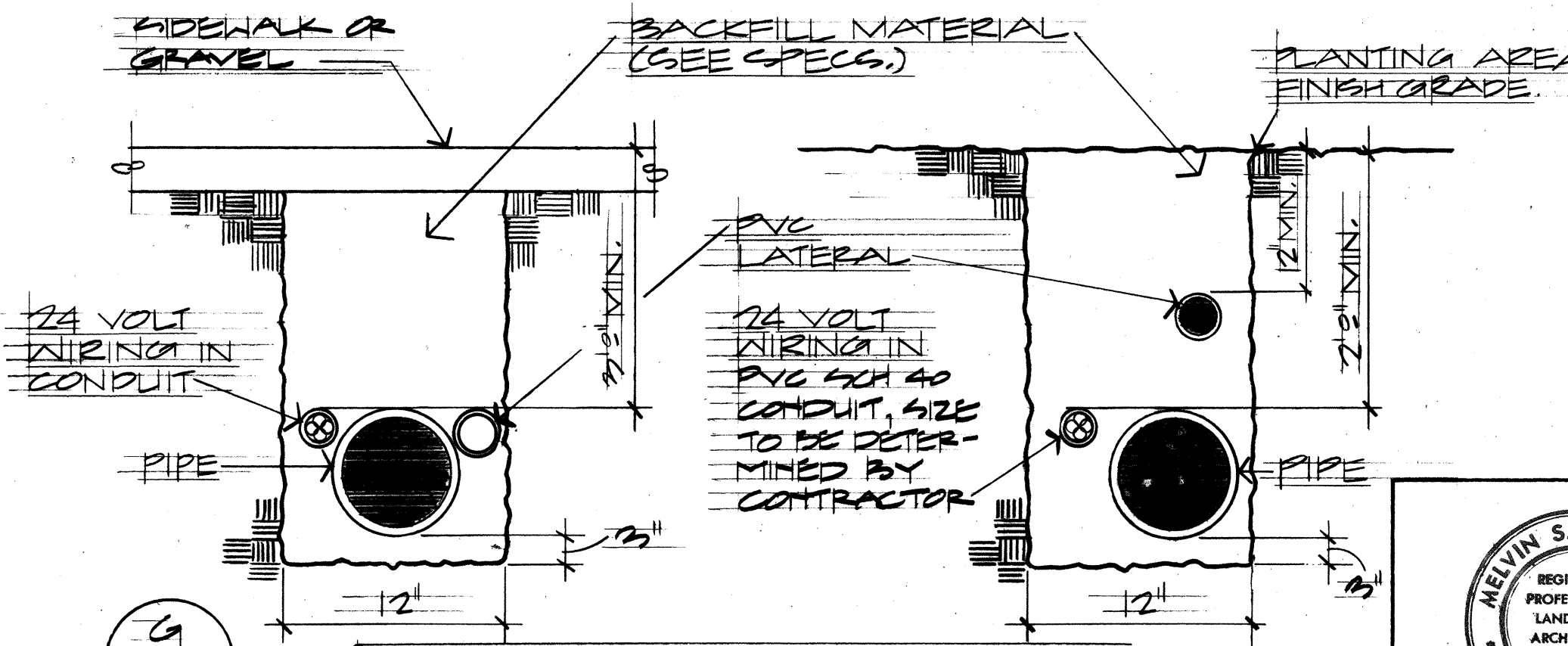
TABLE FOR BEARING AREA OF THRUST BLOCKS (SQ. FT.)

PIPE SIZE	1/4"	1/2"	3/4"	1"	2"	4"	6"
TEES & CROSSES	0.50	0.50	0.50	0.50	1.00	1.25	2.2
90° BEND	0.50	0.50	0.50	0.75	1.25	2.00	4.5
45° BEND	0.50	0.50	0.50	0.75	1.00	1.00	2.4

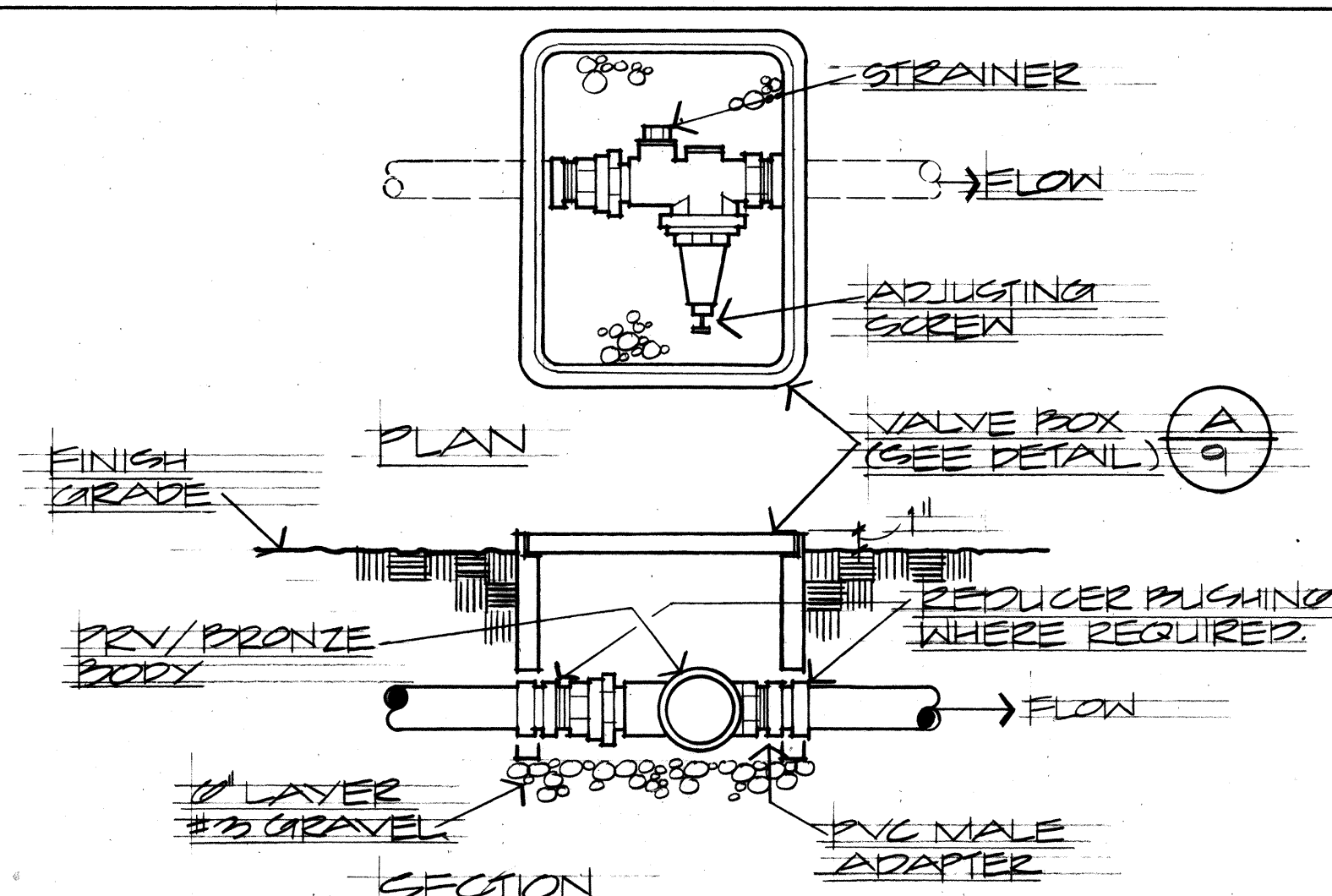
C
9
TYPICAL THRUST BLOCK DETAIL FOR IRRIGATION MAINS
NO SCALE



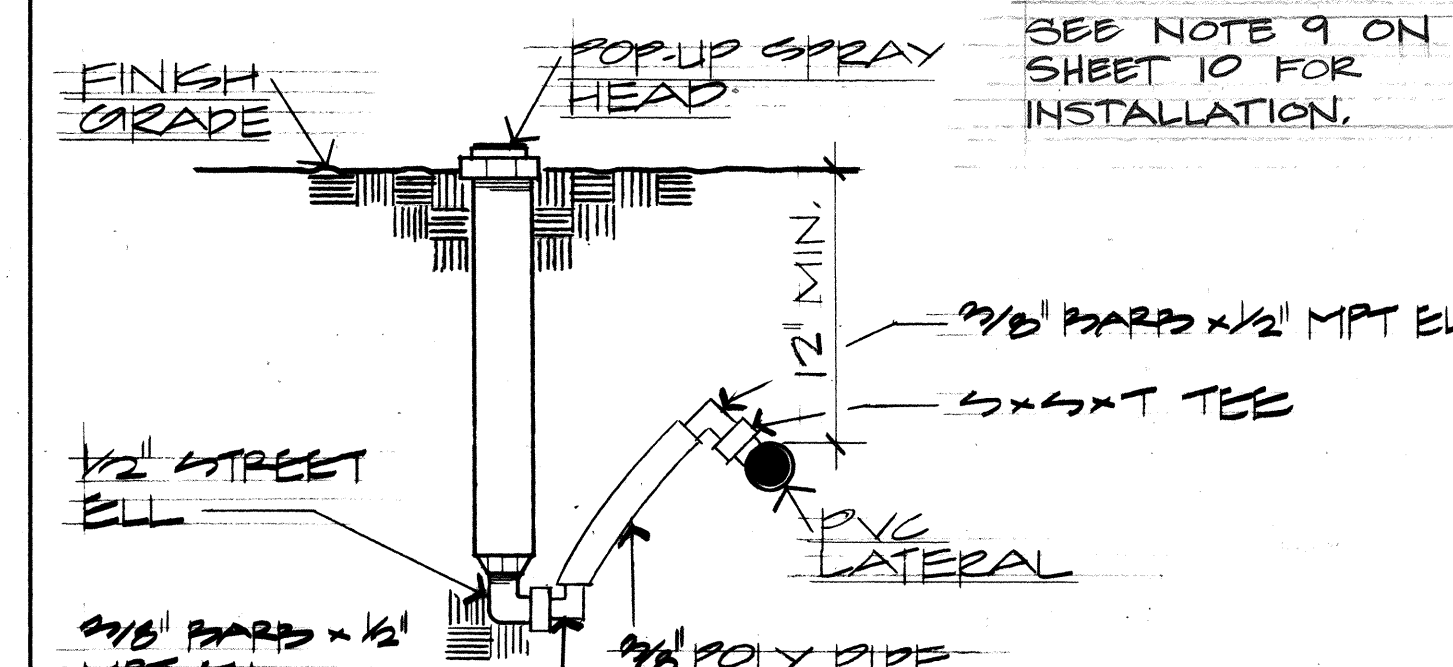
D
9
QUICK COUPLER
NO SCALE



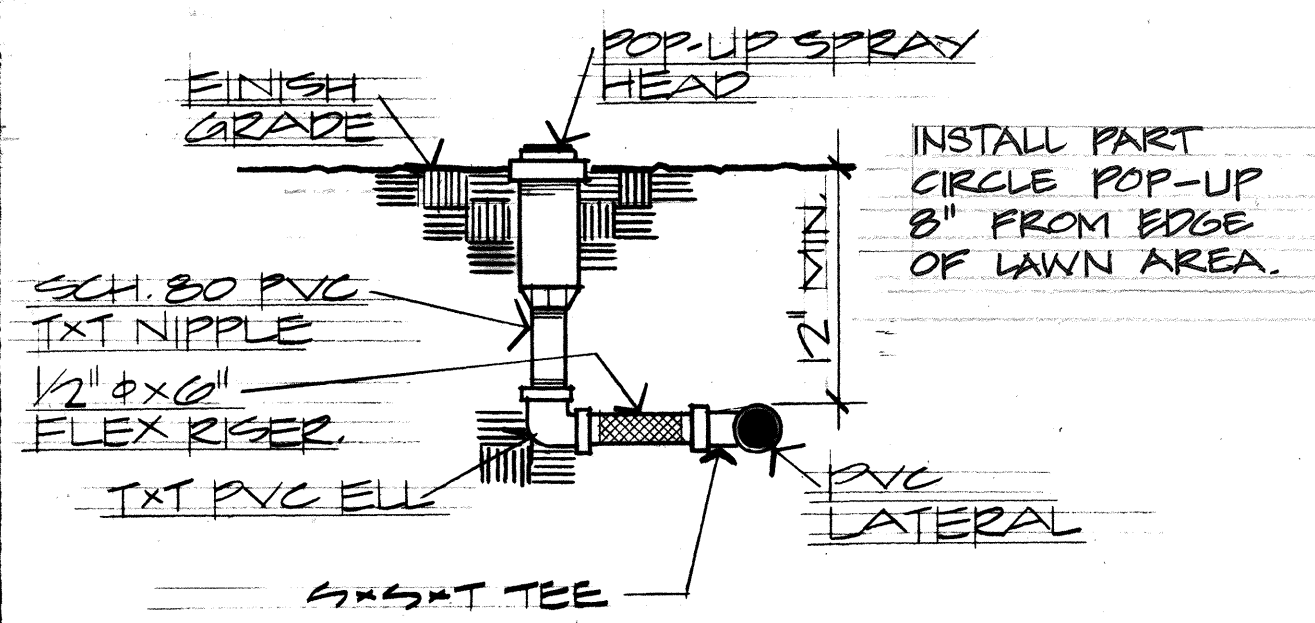
G
9
TYPICAL PIPE TRENCH DETAIL
NO SCALE



H
9
PRESSURE REGULATOR VALVE
NO SCALE



I
9
12" POP-UP SPRAY HEAD
NO SCALE



J
9
4" POP-UP SPRAY OR BUBBLER HEAD
NO SCALE



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Melvin S. Kurakawa

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAILS

KEEHI INTERCHANGE LANDSCAPING
(EAST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(201):17

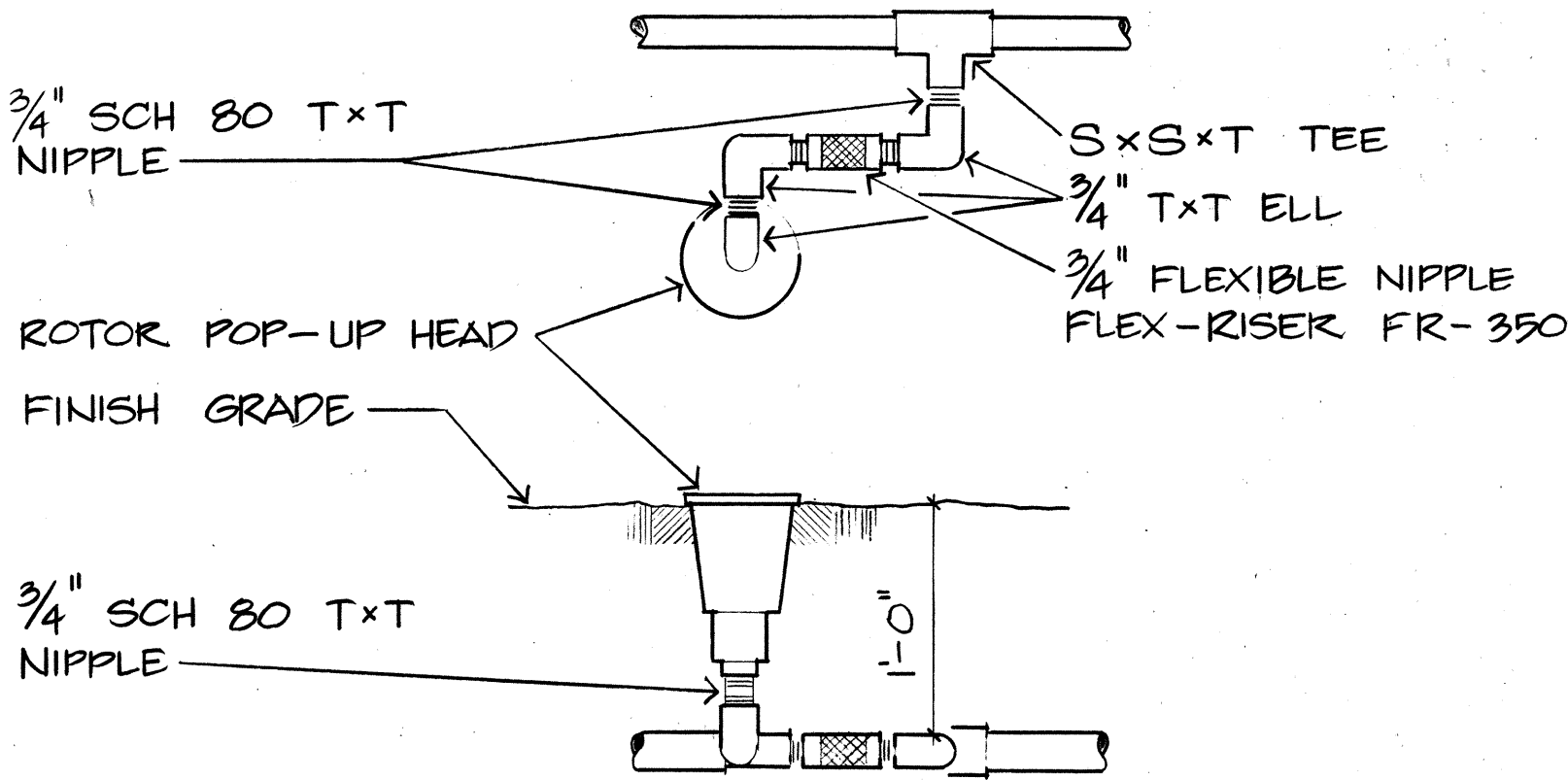
SCALE: AS SHOWN DATE: MAY 1986

SHEET No. 9 OF 13 SHEETS

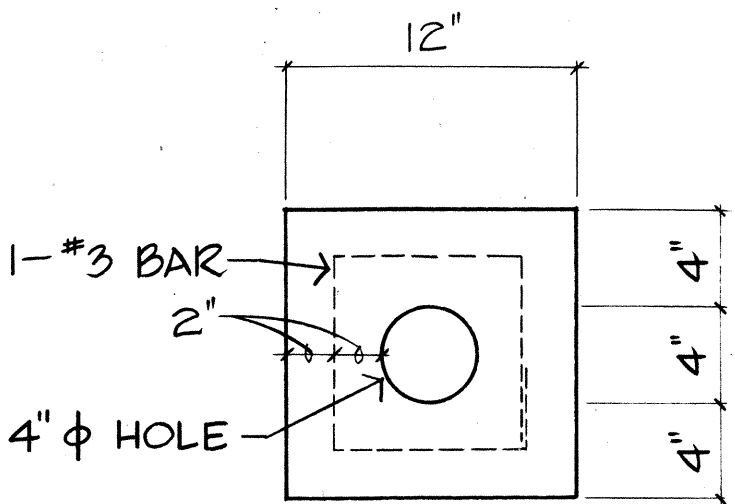
DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-1(201):17	1986	10	13

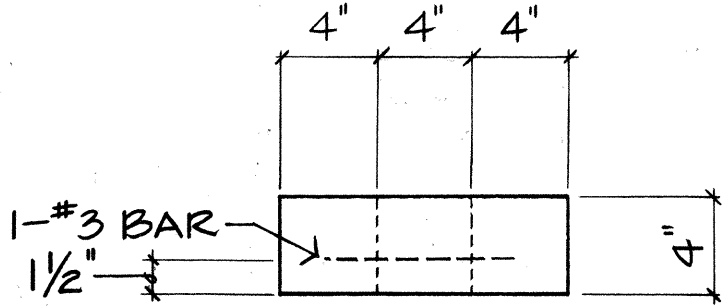
- NOTE:
1. INSTALL 2" & 3" PART CIRCLE STREAM ROTOR HEADS 1'-0" FROM EDGE OF LAWN AREA. (FOR 12" STREAM ROTOR POP-UP HEADS, SEE NOTE 1 BELOW)
 2. ALL NIPPLES & FITTINGS ON 2" POP-UPS ARE TO BE 1".



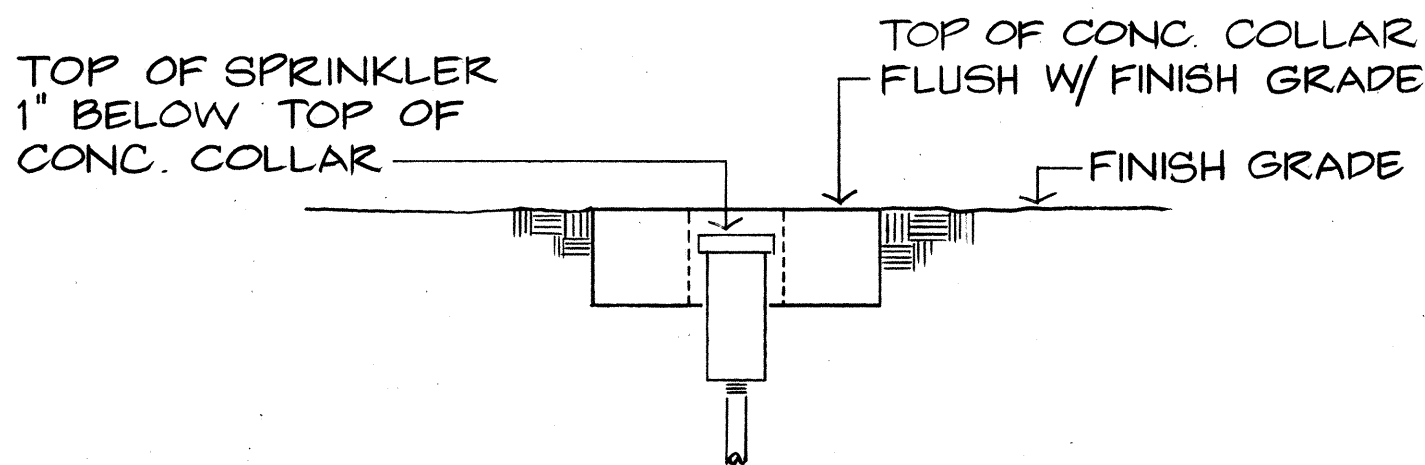
STREAM ROTOR POP-UP HEAD
NO SCALE



PLAN VIEW



SIDE VIEW



TYPICAL INSTALLATION

PROTECTIVE CONCRETE COLLAR
NO SCALE

NOTES:

1. IRRIGATION MAINS SHALL NOT BE INSTALLED OVER VIADUCT FOOTINGS. LIMITS OF VIADUCT FOOTINGS MAYBE 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
ANGLE VALVE: BRASS CONSTRUCTION
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 P.M. TONILL PH. # 524-8200, AS-BUILT PLANS OF AT & T COMMUNICATIONS HAWAII LIGHTGUIDE PROJECT (AUTHORITY NO. JT152) SHEETS 24, 25, & 26 (FROM DILLINGHAM BLVD. TO PUULOA 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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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

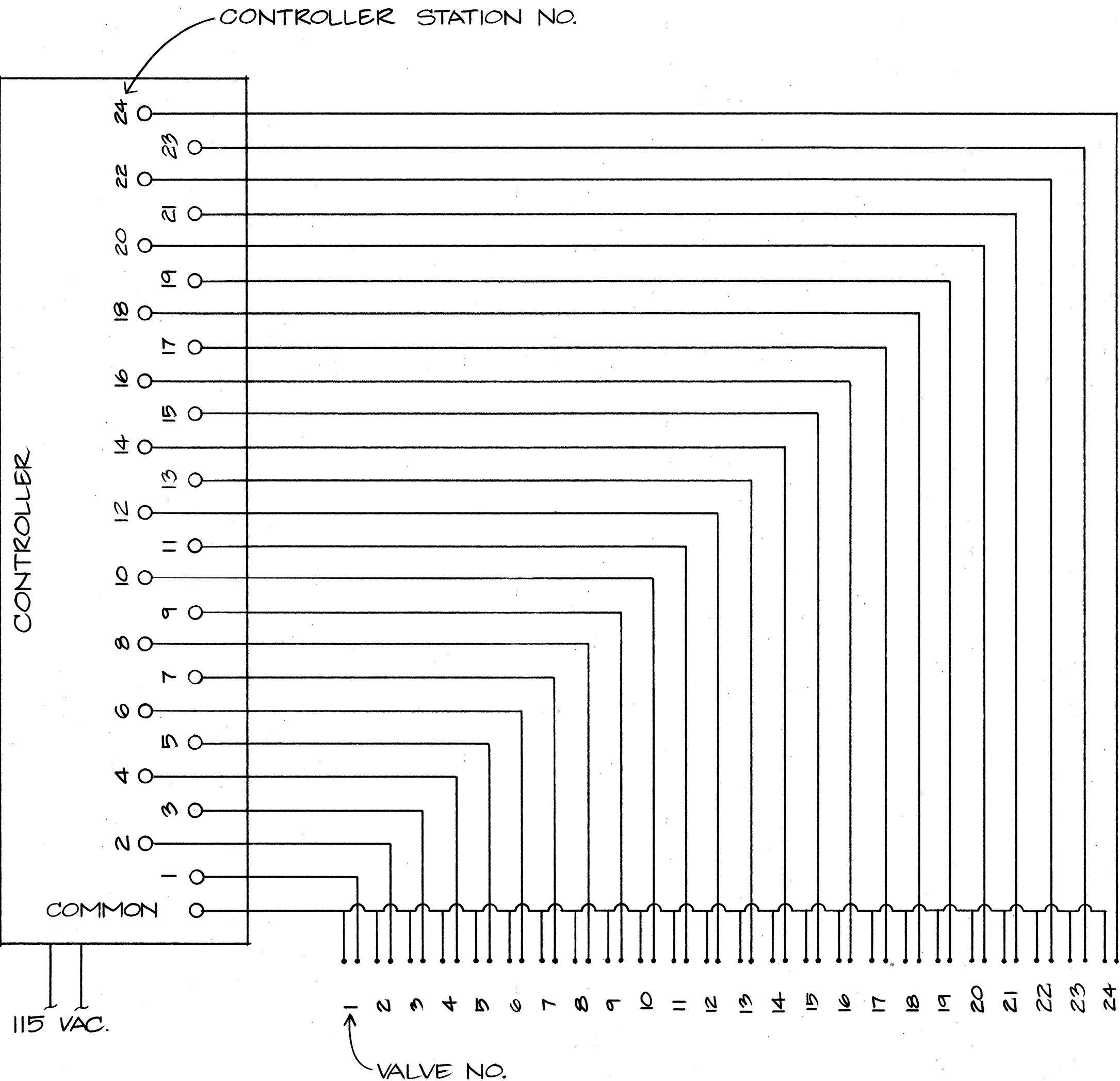
IRRIGATION DETAILS

KEEHI INTERCHANGE LANDSCAPING
(EAST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(201):17

SCALE: AS SHOWN DATE: MAY 1986

SHEET No. 10 OF 13 SHEETS

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



NOTE:

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

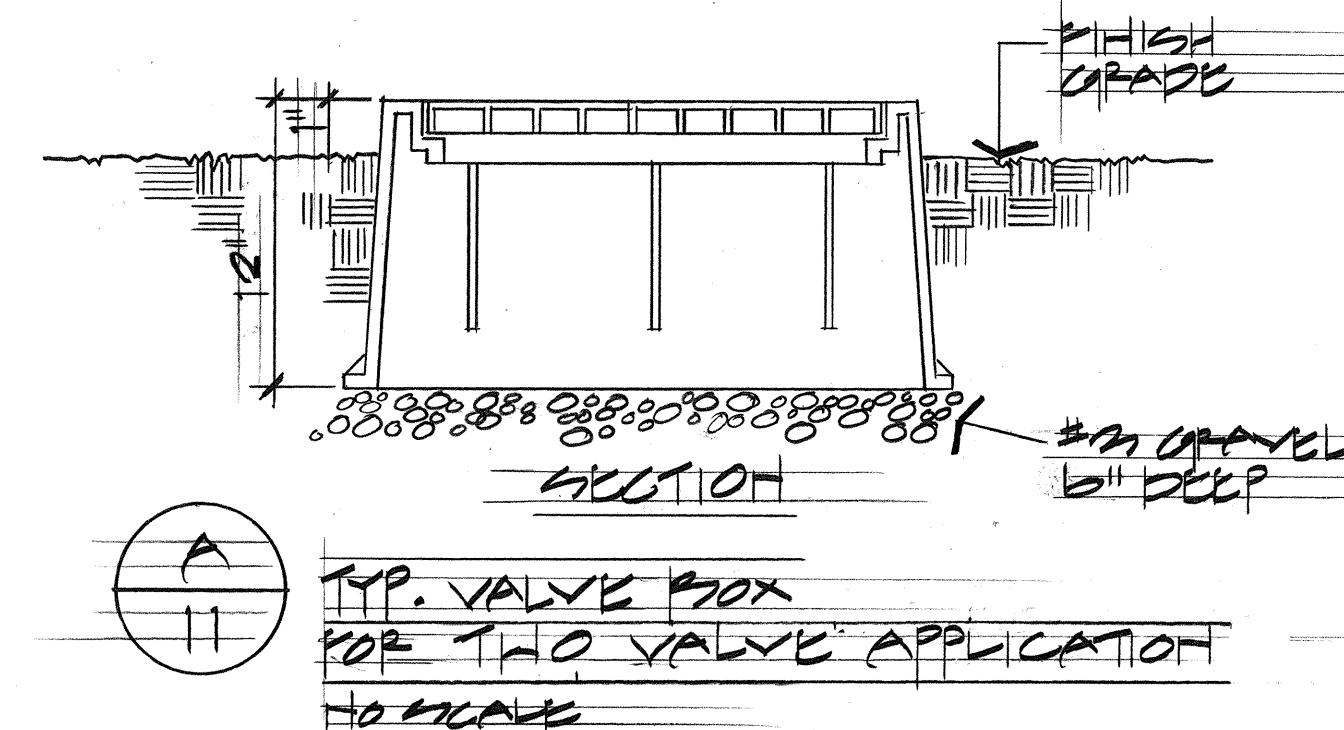
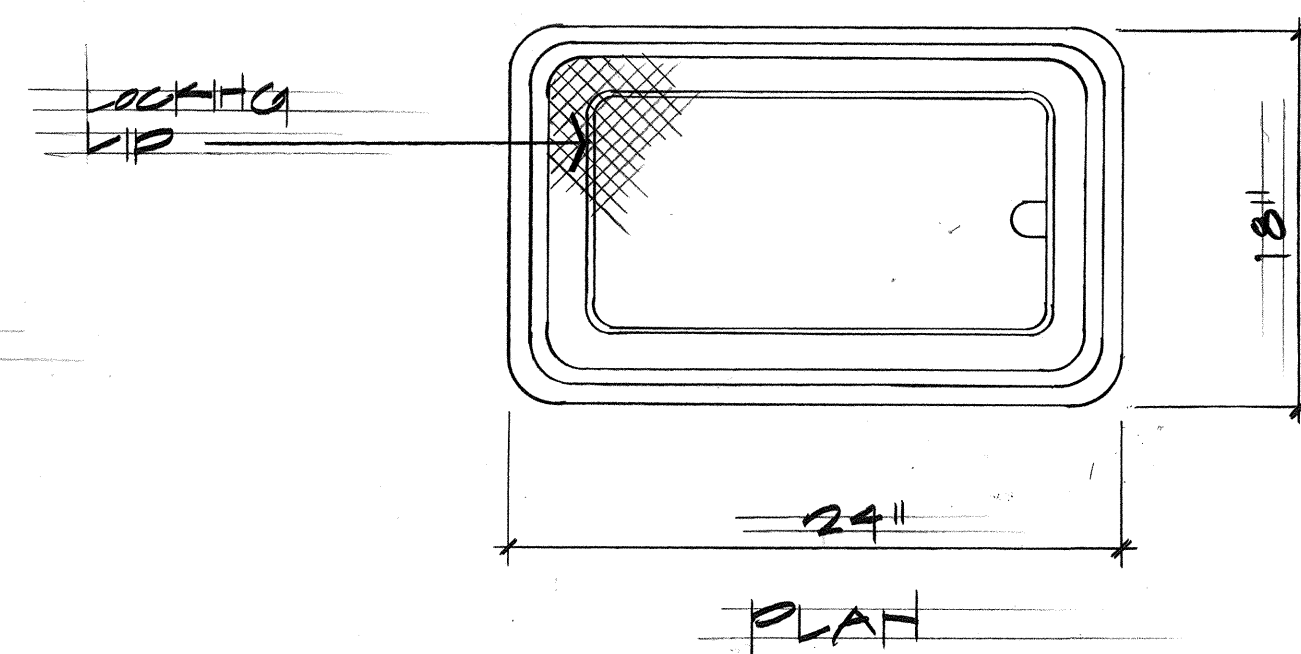
TYPICAL 24 VOLT WIRING DIAGRAM.
NOT TO SCALE

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

CONTROLLER PROGRAM SCHEDULE

CONTROLLER	F		G		H	
DAY OF OPERATION and START TIMES	STATION NO.	1ST WEEK SUN., TUES., THURS., SAT. 2ND WEEK MON., WED., FRI. 11:00 AM and 2:30 A.M	STATION NO.	1ST WEEK SUN., TUES., THURS., SAT. 2ND WEEK MON., WED., FRI. 10:00 AM and 1:30 AM	STATION NO.	1ST WEEK MON., WED., FRI. 2ND WEEK SUN., TUES., THURS., SAT. 11:00 AM and 2:00 AM
NOTES: THIS SCHEDULE SHALL BE SET TO BEGIN AT THE END OF THE FORMAL 9 MONTH MAINTENANCE PERIOD.	1	5 MINUTES	1	5 MINUTES	1	5 MINUTES
	2	5 "	2	5 "	2	5 "
	3	5 "	3	5 "	3	5 "
	4	5 "	4	5 "	4	5 "
	5	7 1/2 "	5	5 "	5	7 1/2 "
	6	7 1/2 "	6	7 1/2 "	6	10 "
	7	5 "	7	7 1/2 "	7	10 "
	8	7 1/2 "	8	7 1/2 "	8	10 "
	9	7 1/2 "	9	10 "	9	10 "
	10	5 "			10	7 1/2 "
	11	7 1/2 "			11	10 "
	12	7 1/2 "			12	10 "
	13	5 "			13	5 "
	14	5 "			14	5 "
	15	5 "			15	7 1/2 "
	16	7 1/2 "			16	5 "
	17	7 1/2 "			17	5 "
	18	7 1/2 "			18	7 1/2 "
	19	7 1/2 "			19	7 1/2 "
	20	7 1/2 "			20	7 1/2 "
	21	7 1/2 "			21	7 1/2 "
	22	5 "			22	10 "
	23	5 "			23	10 "
	24	5 "			24	5 "
STATIONS EA. CYCLE	1590		1245		975	
TIME EA. CYCLE	2 HOURS 30 MIN.		50 MINUTES		2 HOURS 51 MIN.	

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



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IR-HI-(201)-17	1986	11	13

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



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[Signature]

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

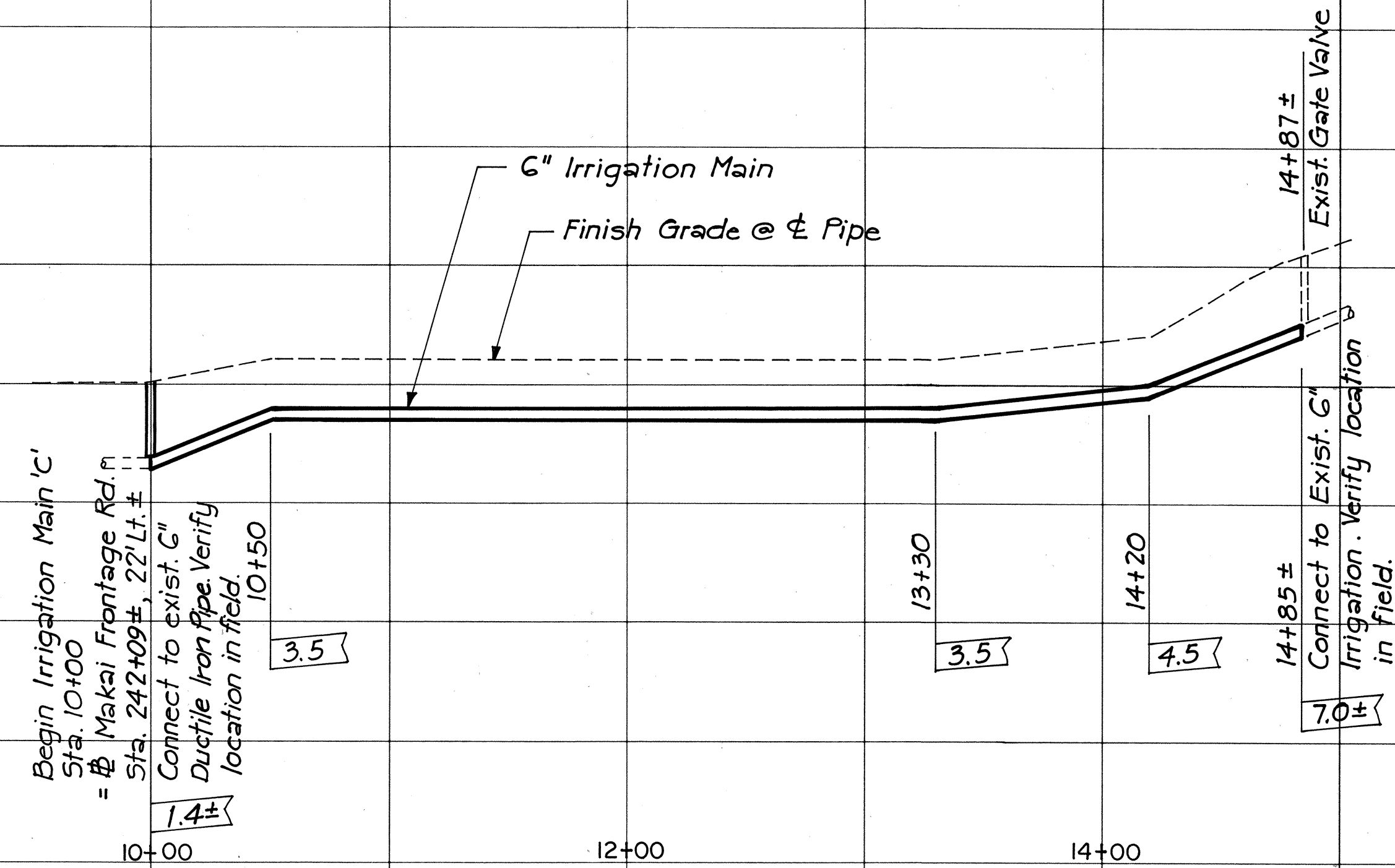
IRRIGATION DETAILS

KEEHI INTERCHANGE LANDSCAPING
(EAST OF MOANALUA STREAM)
FAIP NO. IR-HI-(201)-17

SCALE: AS SHOWN DATE: MAY 1986

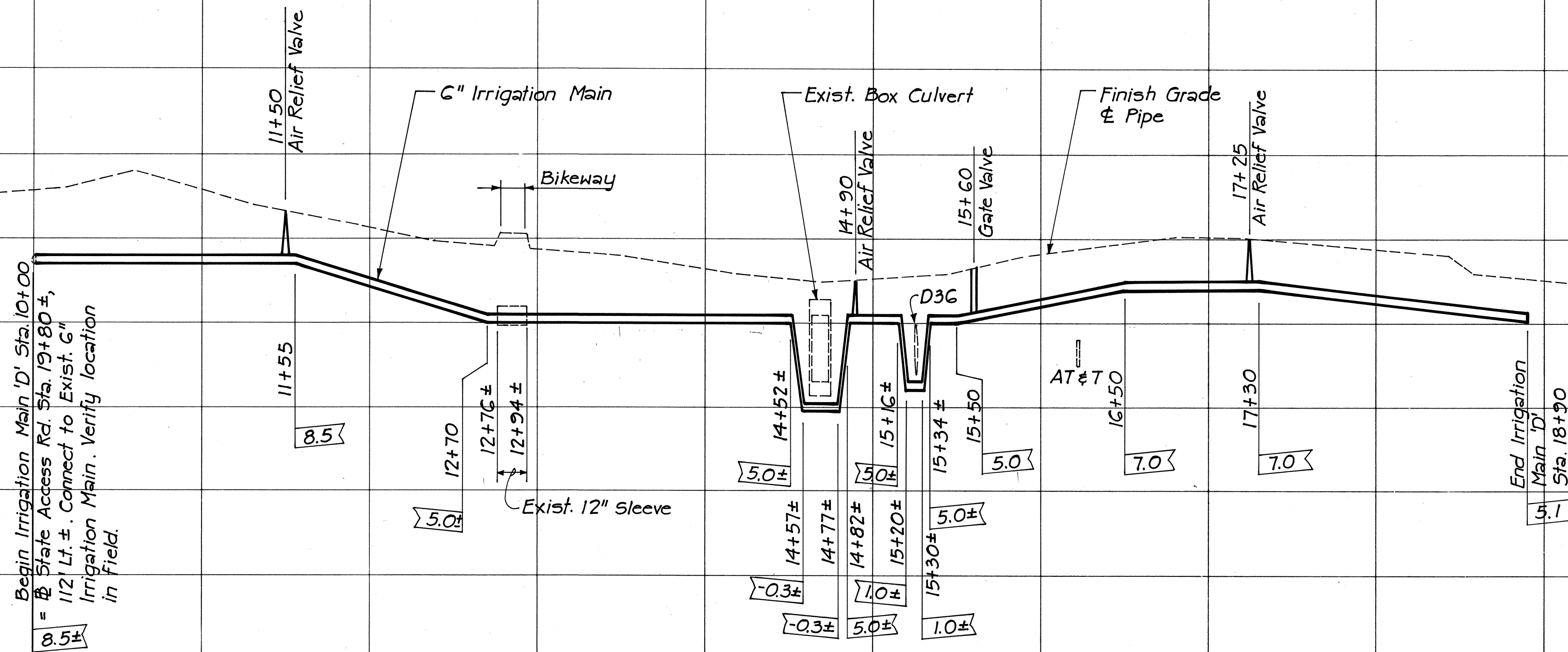
SHEET NO. 11 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FAH2011:17	1986	12	13



IRRIGATION MAIN 'C'

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'



IRRIGATION MAIN 'D'

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

NOTE:
Profile shall be adjusted as necessary to maintain minimum 2 feet pipe cover.

ESTIMATED QUANTITY:
6" Irrigation Main - 1420 Lin. Ft.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION MAIN PROFILES

KEEHI INTERCHANGE LANDSCAPING
(EAST OF MOANALUA STREAM)
FAIP NO. IR-HI-1(201):17

SCALE: AS SHOWN DATE: 12/15/1986
SHEET NO. 12 OF 13 SHEETS