

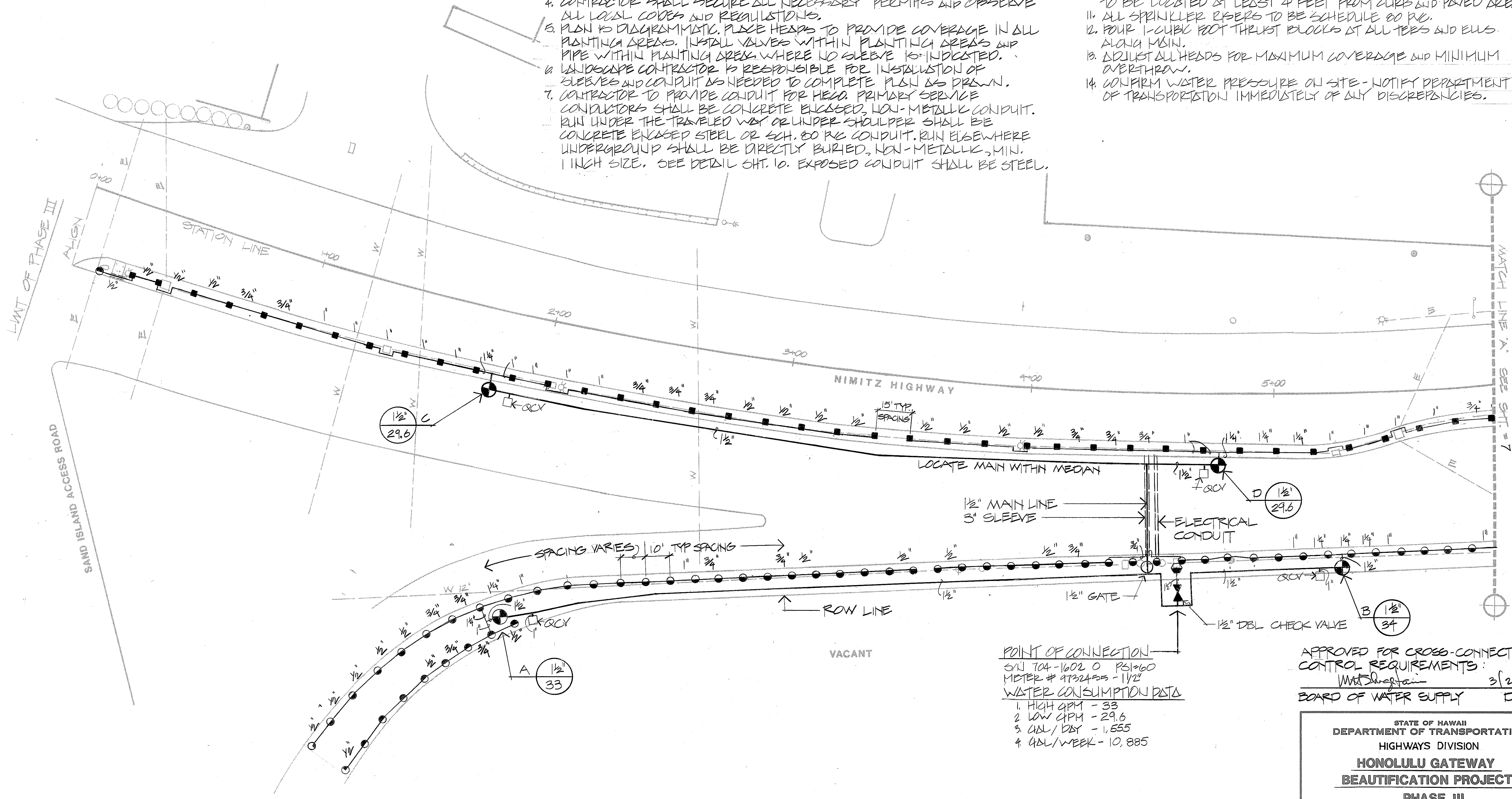
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	02A-02-86M	1985	6	12

NOTE: PLAN IS DIAGRAMMATIC FOR CLARITY
INSTALL ALL VALVES WITHIN PLANTING
AREAS AND ALL PIPES WITHIN PLANTING
AREAS WHERE NO SLEEVE IS SHOWN.

IRRIGATION NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES.
2. ALL EXPOSED PIPE TO BE GRAY RC OR PAINTED PLAST.
3. CONTRACTOR SHALL CONFIRM ALL SITE DIMENSIONS AND CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
4. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND OBSERVE ALL LOCAL CODES AND REGULATIONS.
5. PLAN IS DIAGRAMMATIC. PLACE HEADS TO PROVIDE COVERAGE IN ALL PLANTING AREAS. INSTALL VALVES WITHIN PLANTING AREAS AND PIPE WITHIN PLANTING AREAS WHERE NO SLEEVE IS INDICATED.
6. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF SLEEVES AND CONDUIT AS NEEDED TO COMPLETE PLAN AS DRAWN.
7. CONTRACTOR TO PROVIDE CONDUIT FOR HEAD. PRIMARY SERVICE CONDUITORS SHALL BE CONCRETE ENCASED, NON-METALLIC CONDUIT. RUN UNDER THE TRAVELED WAY OR UNDER SHOULDER SHALL BE CONCRETE ENCASED STEEL OR SCH. 80 RC CONDUIT. RUN ELSEWHERE UNDERGROUND SHALL BE DIRECTLY BURIED, NON-METALLIC, MIN. 1 INCH SIZE. SEE DETAIL SHT. 10. EXPOSED CONDUIT SHALL BE STEEL.

8. ONLY SCHEDULE 80 RC SHALL BE USED UNDER PAVING.
9. SPRINKLERS WITHIN 5 FEET OF SHOULDERS, CURBS, AND PAVED AREAS SHALL BE INSTALLED ON SWING JOINTS. ALL OTHER SPRINKLERS IN SHRUB AND GROUND COVER AREAS SHALL BE INSTALLED ON FLEX RISERS.
10. CONTROL VALVES, GATE VALVES, AND DOUBLE CHECK VALVES TO BE LOCATED AT LEAST 4 FEET FROM CURB AND PAVED AREAS.
11. ALL SPRINKLER RISERS TO BE SCHEDULE 80 RC.
12. FOUR 1-CUBIC FOOT THRUST BLOCKS AT ALL TEES AND ELLS ALONG MAIN.
13. ADJUST ALL HEADS FOR MAXIMUM COVERAGE AND MINIMUM OVERTHROW.
14. CONFIRM WATER PRESSURE ON SITE - NOTIFY DEPARTMENT OF TRANSPORTATION IMMEDIATELY OF ANY DISCREPANCIES.

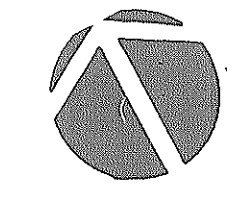
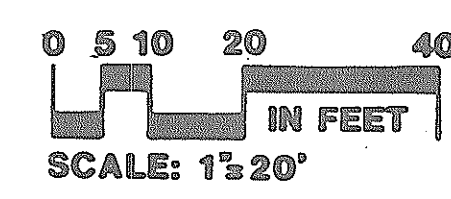


POINT OF CONNECTION:
 50' TO 1602 0 PSI 160
 METER # 1732455 - 1 1/2"
 WATER CONSUMPTION DATA
 1. HIGH GPM - 33
 2. LOW GPM - 29.6
 3. GAL / DAY - 1,555
 4. GAL / WEEK - 10,885

APPROVED FOR CROSS-CONNECTION
 CONTROL REQUIREMENTS:
 [Signature] 3/2/83
 BOARD OF WATER SUPPLY DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU GATEWAY
BEAUTIFICATION PROJECT
PHASE III
IRRIGATION PLAN
DATE: FEB 1985

SHEET NO. 1 OF 6 SHEETS

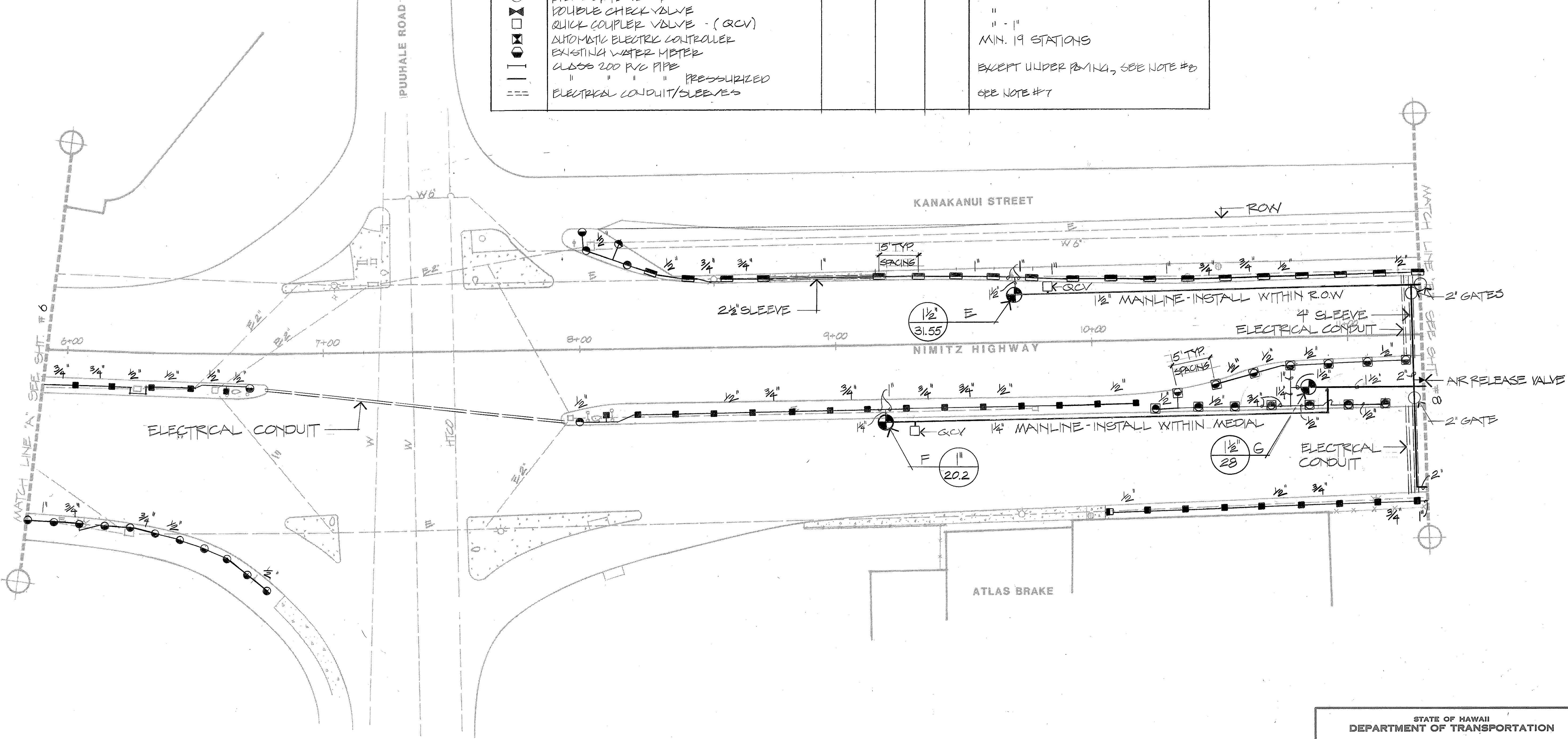


SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	92A-02-BGM	1985	7	12

NOTE: PLAN IS DISAGREEMENT FOR CLARITY.
INSTALL ALL VALVES WITHIN PLANTING
AREAS AND ALL PIPES WITHIN PLANTING
AREAS WHERE NO SLEEVE IS SHOWN.

IRRIGATION LEGEND					
SYMBOL	DESCRIPTION	RADIUS	GPM	PSI	REMARKS
●	SHRUB SPRAY HEAD - HALF	15'	2	30	
●	SHRUB SPRAY HEAD LOW ANGLE - FULL	12'	2	30	USE POP-UP MODEL IN TURF AREAS
●	" " " " " " HALF	12'	1	30	" " " " " " " "
●	" " " " " " QUARTER	12'	1	30	" " " " " " " "
■	SIDE STRIP HEAD	4x30	145	30	" " " " " " " "
■	CENTER STRIP HEAD	7x36	115	30	" " " " " " " "
■	END STRIP HEAD	7x18	7	30	" " " " " " " "
⊙	ELECTRIC VALVE				BRASS
⊙	BRASS GATE VALVE				"
⊙	VALVE CHECK VALVE				"
⊙	QUICK COUPLER VALVE - (QCV)				" - 1"
⊙	AUTOMATIC ELECTRIC CONTROLLER				MIN. 19 STATIONS
⊙	EXISTING WATER METER				EXCEPT UNDER PAVING, SEE NOTE #8
---	CLASS 200 PVC PIPE				SEE NOTE #7
---	" " PRESSURIZED				
---	ELECTRICAL CONDUIT/SLEEVES				



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU GATEWAY
BEAUTIFICATION PROJECT
PHASE III

IRRIGATION PLAN
DATE: FEB. 1983
SHEET NO. 2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	02A-02-BGM	1985	8	12

AUTOMATIC CONTROLLER PROGRAM				
STATION	VALVE CONNECTION	MINUTES	DAYS	
1	A	32	MWF	
2	B	32	MWF	
3	C	32	MWF	
4	D	32	MWF	
5	E	32	MWF	
6	F	32	MWF	
7	G	26	MWF	
8	H	26	MWF	
9	I	32	MWF	
10	J	32	MWF	
11	K	32	TThS	
12	L	32	TThS	
13	M	32	TThS	
14	N	32	TThS	
15	O	26	TThS	
16	P	32	TThS	
17	Q	26	TThS	
18	R	32	TThS	
19	S	32	TThS	

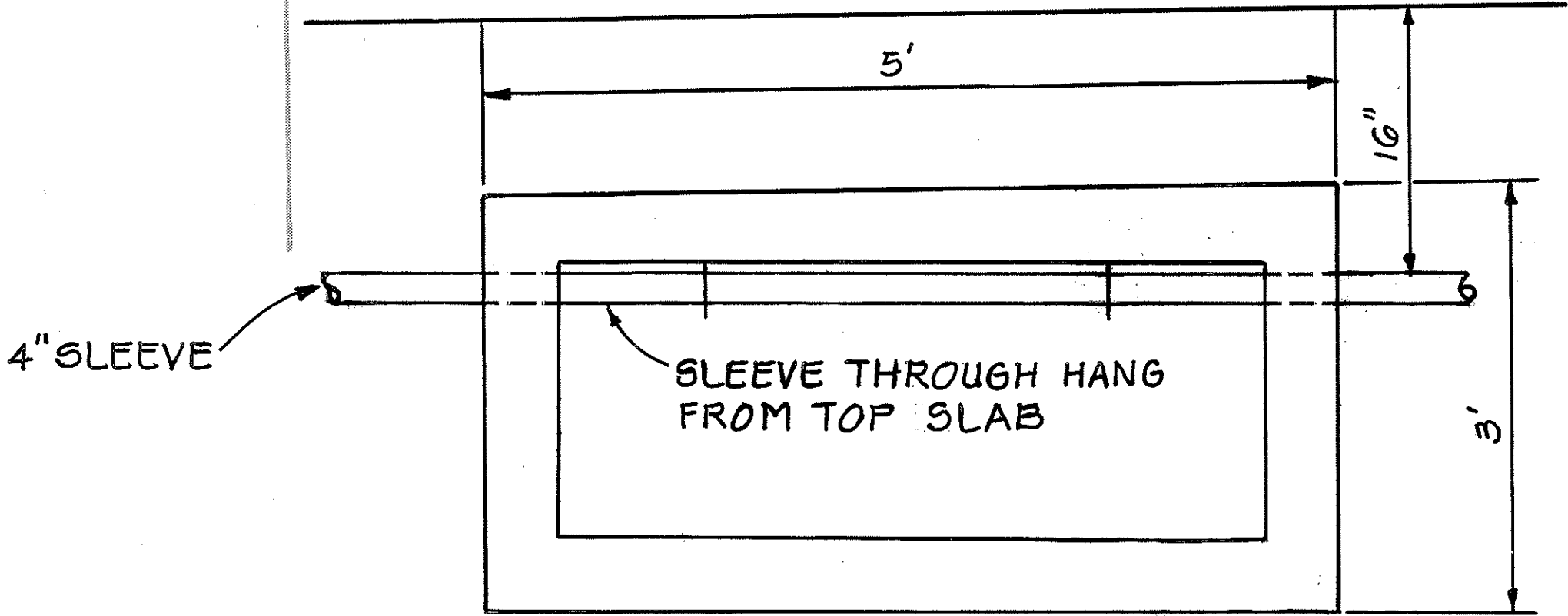
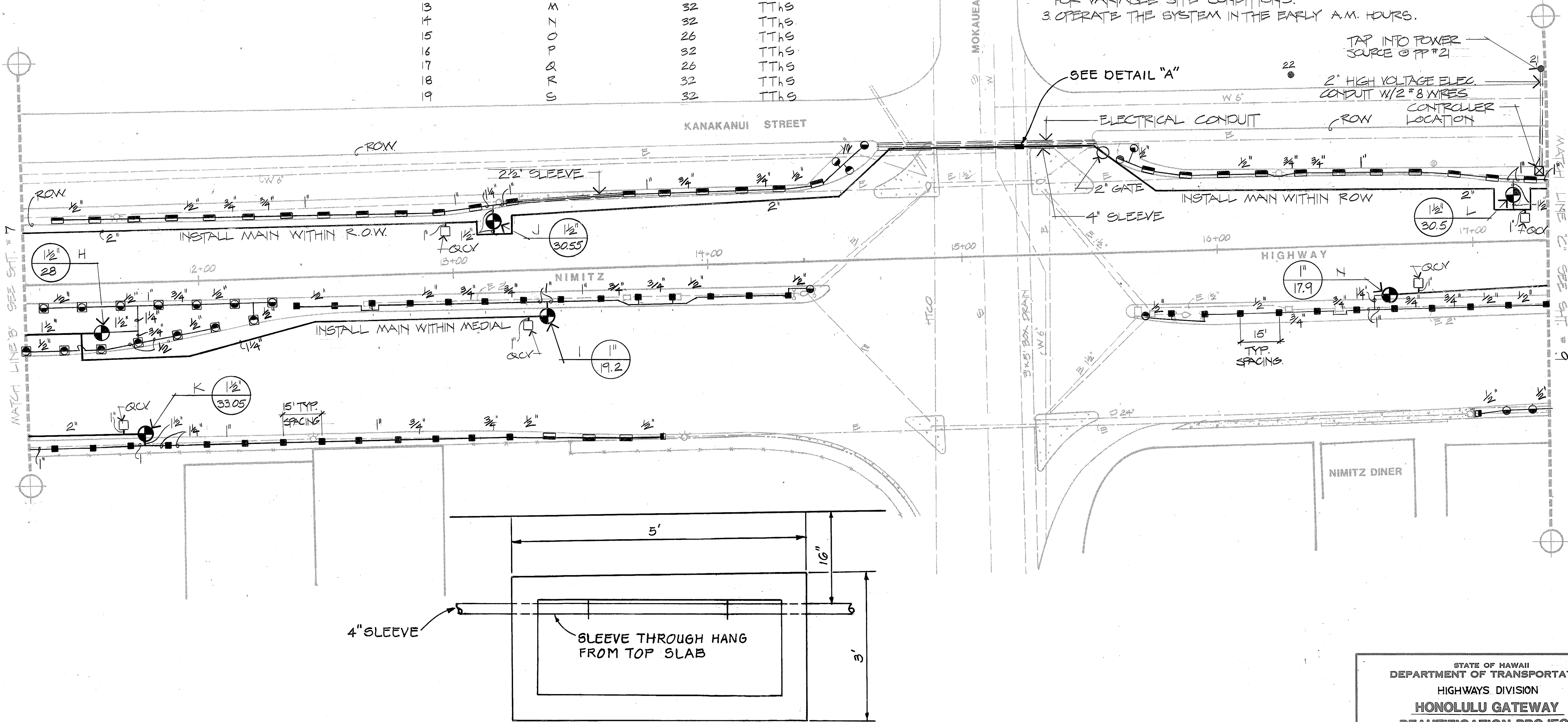
NOTE: PLAN IS DIAGRAMMATIC FOR CLARITY
INSTALL ALL VALVES WITHIN PLANTING
AREAS AND ALL PIPES WITHIN PLANTING
AREAS WHERE NO SLEEVE IS SHOWN.

TOTAL OPERATING TIME PER DAY

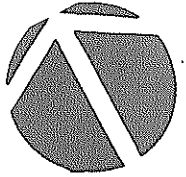
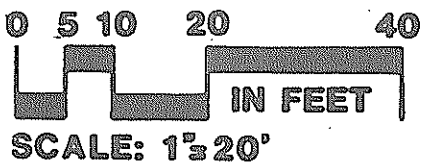
MWF = 5 HOURS 8 MINUTES
TThS = 4 HOURS 36 MINUTES

PROGRAMMING NOTES:

1. THIS PROGRAM IS DESIGNED TO PROVIDE APPX. 1.75" OF WATER PER WEEK FOR ALL PLANTING AREAS
2. CONTRACTOR SHALL ADJUST WATERING TIME AFTER PLANT ESTABLISHMENT PERIOD, AND TO COMPENSATE FOR VARIABLE SITE CONDITIONS.
3. OPERATE THE SYSTEM IN THE EARLY A.M. HOURS.



DETAIL "A"
NOT TO SCALE

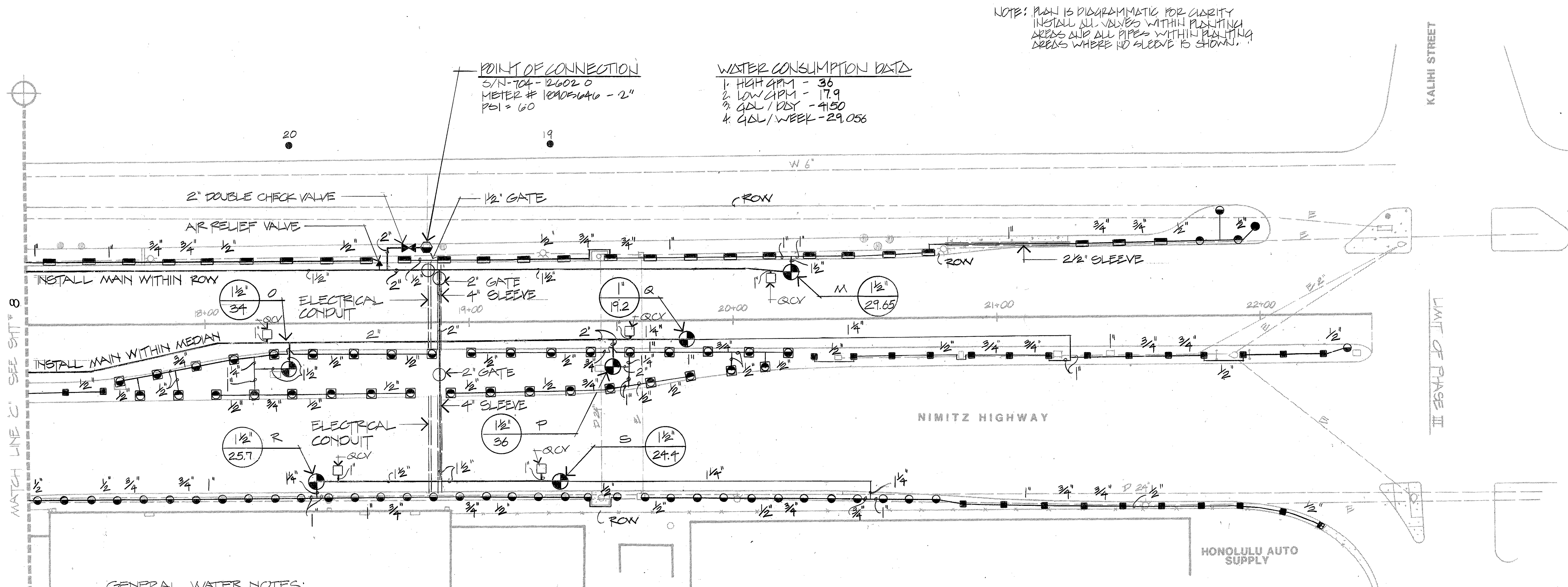


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU GATEWAY
BEAUTIFICATION PROJECT
PHASE III
IRRIGATION PLAN
DATE: FEB. 1983
SHEET NO. 3 OF 6 SHEETS

8

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
PLANNED BY	
ENGINEER	
NO.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	02A-02-86M	1985	9	12



NOTE: PLAN IS DIAGRAMMATIC FOR CLARITY
INSTALL ALL VALVES WITHIN PLANTING
AREAS AND ALL PIPES WITHIN PLANTING
AREAS WHERE NO SLEEVE IS SHOWN.

POINT OF CONNECTION
S/N-704-2602 0
METER # 12405646 - 2"
PSI = 60

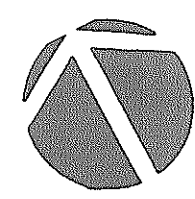
WATER CONSUMPTION DATA
1. HIGH GPM - 36
2. LOW GPM - 17.9
3. GAL / DAY - 4150
4. GAL / WEEK - 29,056

- GENERAL WATER NOTES:
- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DATED 1985, AS AMENDED, OF THE HAWAII HIGHWAYS DIVISION, DEPARTMENT OF TRANSPORTATION.
 - THE BWS STANDARD DETAILS, FIGURES 1 TO 62 INCLUSIVE, BOUND IN THE "WATER SYSTEM STANDARDS" OF THE BWS, DATED MARCH 1977, AS AMENDED, ARE APPLICABLE TO THIS PROJECT.
 - PRIOR TO EXCAVATING FOR IRRIGATION AND ELECTRICAL LINES, THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION OF EXISTING WATER MAINS AND APPURTENANCES. WHERE ANY NEW UTILITY LINES CROSS OVER OR UNDER EXISTING WATER MAINS, THE CONTRACTOR SHALL EXPOSE THE EXISTING WATER MAINS PRIOR TO TRENCHING. EXCAVATION AROUND WATER MAINS SHALL BE DONE BY HAND.
 - CONTRACTOR SHALL NOTIFY THE BOARD OF WATER SUPPLY IN WRITING ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
 - APPROVAL BY BWS IS BASED SOLELY ON THE ADEQUACY OF THE WATER SUPPLY. DISCREPANCIES, IF ANY, OF ALIGNMENTS, GRADES FITTINGS, ETC. SHALL NOT BE THE RESPONSIBILITY OF THE BWS.
 - THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT IS NOT GUARANTEED AS TO ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGES TO EXISTING UTILITIES.
 - ADJUSTMENTS TO THE EXISTING WATER SYSTEM INCLUDING MANHOLES, METER BOXES, AND METERS REQUIRED DURING CONSTRUCTION TO MEET REQUIREMENTS OF BWS STANDARDS, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE DONE BY THE CONTRACTOR AT NO COST TO THE BWS.
 - WATER DEVELOPMENT CHARGES NOT APPLICABLE TO THIS PROJECT

APPROVED: DATE: 5-27-83

K. Kaulamote
for CHIEF, PLANNING & ENGINEERING BWS

0 5 10 20 40
IN FEET
SCALE: 1"=20'



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU GATEWAY
BEAUTIFICATION PROJECT
PHASE III

IRRIGATION PLAN

DATE: FEB. 1983

SHEET No. 4 OF 6 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	

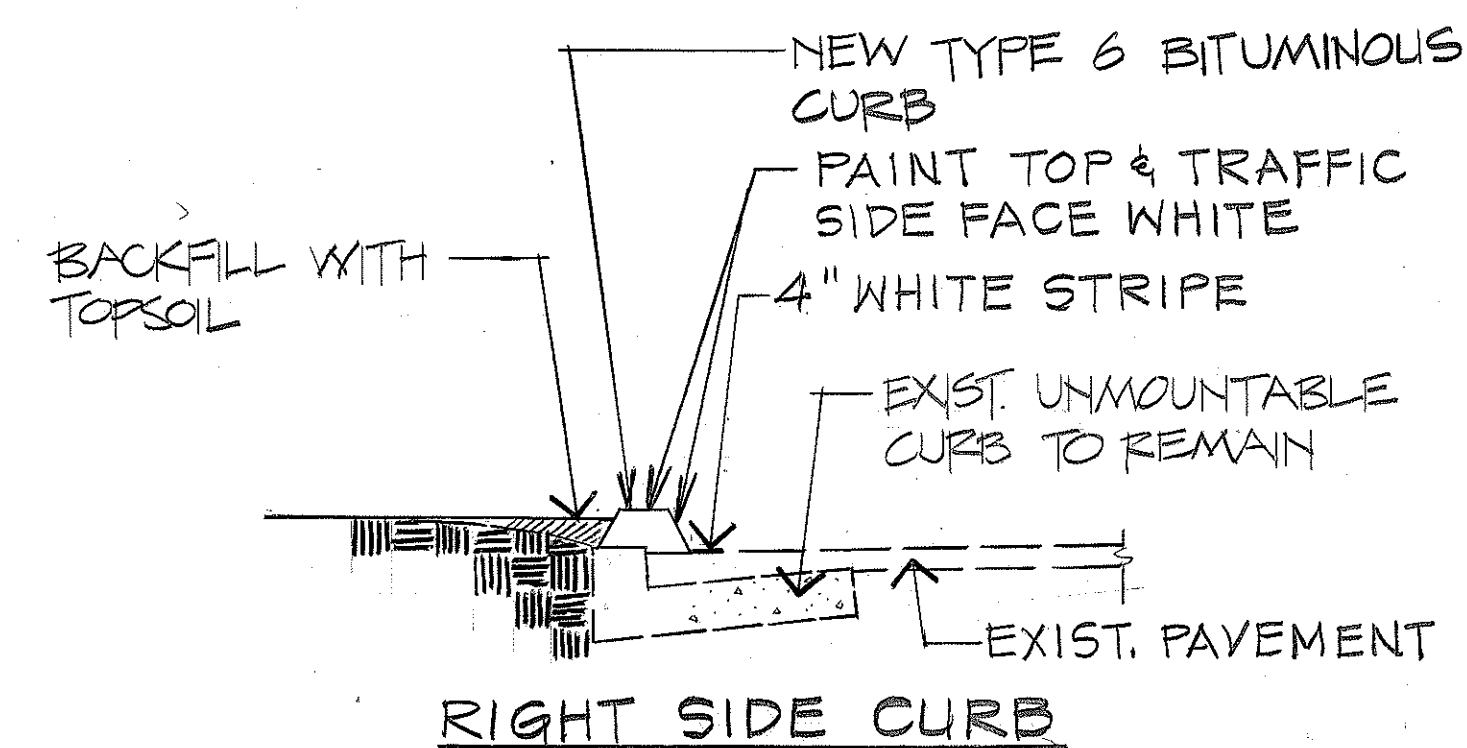
The drawing consists of two views: a Plan view at the top and a Section-Elevation view at the bottom.

Plan View: Shows a top-down view of the manhole opening. The overall width is 14". The opening is circular, with a diameter of 3 1/2". The distance from the center of the opening to the left and right edges of the concrete base is 5 1/4". The distance from the center of the opening to the top and bottom edges of the concrete base is 4 1/2". A central block is shown with a riser pipe extending from it.

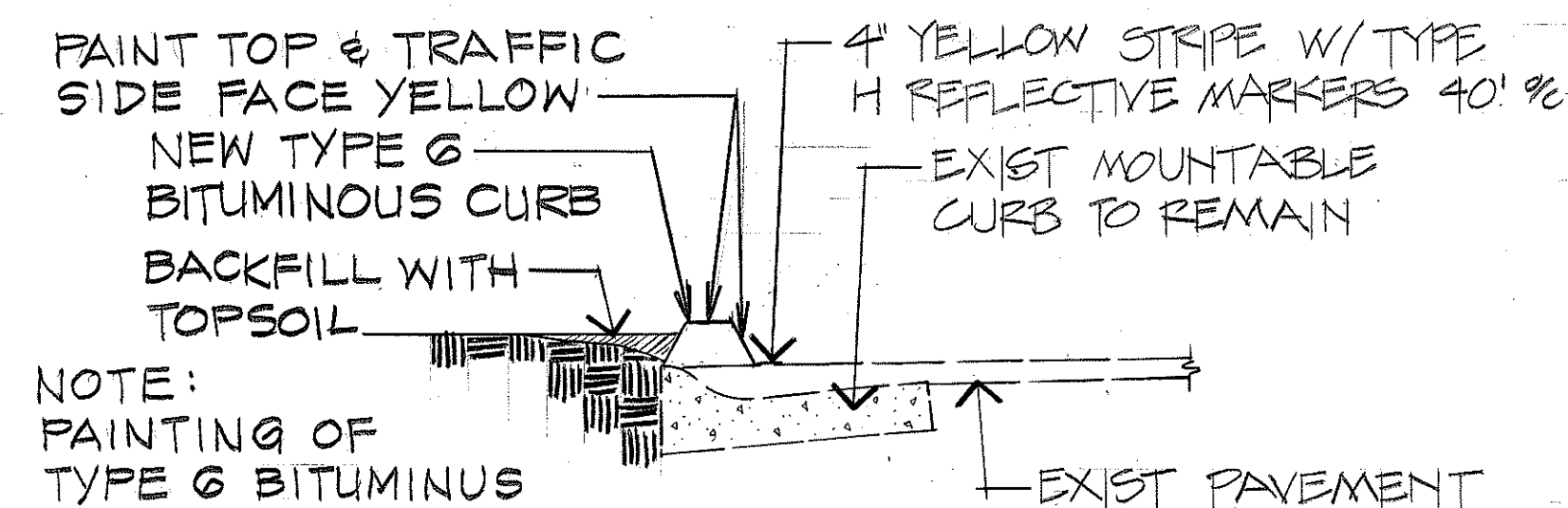
Section-Elevation View: Shows a side view of the manhole assembly. The ground line is indicated. The concrete base is labeled "PORTLAND CEMENT CONCRETE". The riser pipe is labeled "GALV. STL. RISER". The pipe connections are labeled: "PVC SCH 40 90° EL." (elbow), "6\" PVC SCH 80 NIPPLE", "PVC SCH 40 90° EL.", "PVC SCH 40 90° STR EL." (straight elbow), and "4\" PVC SCH 80 NIPPLE". A "SWING JOINT" is also indicated.

Diagram illustrating the cross-section of a road structure. The total width is 12'. The top layer is 6" thick and is labeled "ASPHALT CONCRETE". The base is a trapezoid with a top width of 6' and a bottom width of 12'. The base is divided into three sections: 3' on the left, 6' in the middle, and 3' on the right. The entire structure is labeled "SECTION".

③ TYPE 6 BITUMINOUS CURB
10 SCALE 1" = 1'-0"



RIGHT SIDE CURB

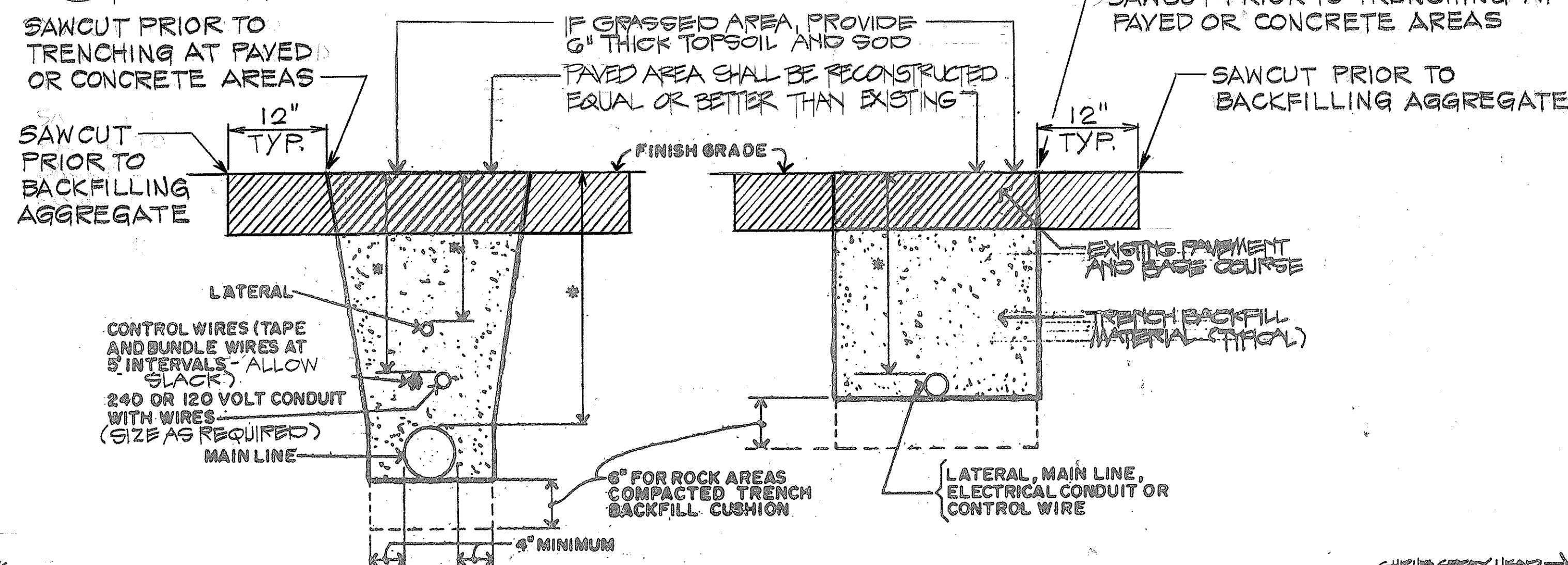


MEDIAN CURB

(C) TYPICAL ROADWAY CURB DETAIL
10 SCALE 1/2" = 1'-0"

VALVE PROTECTOR and CONNECTION
FOR QUICK COUPLING VALVE

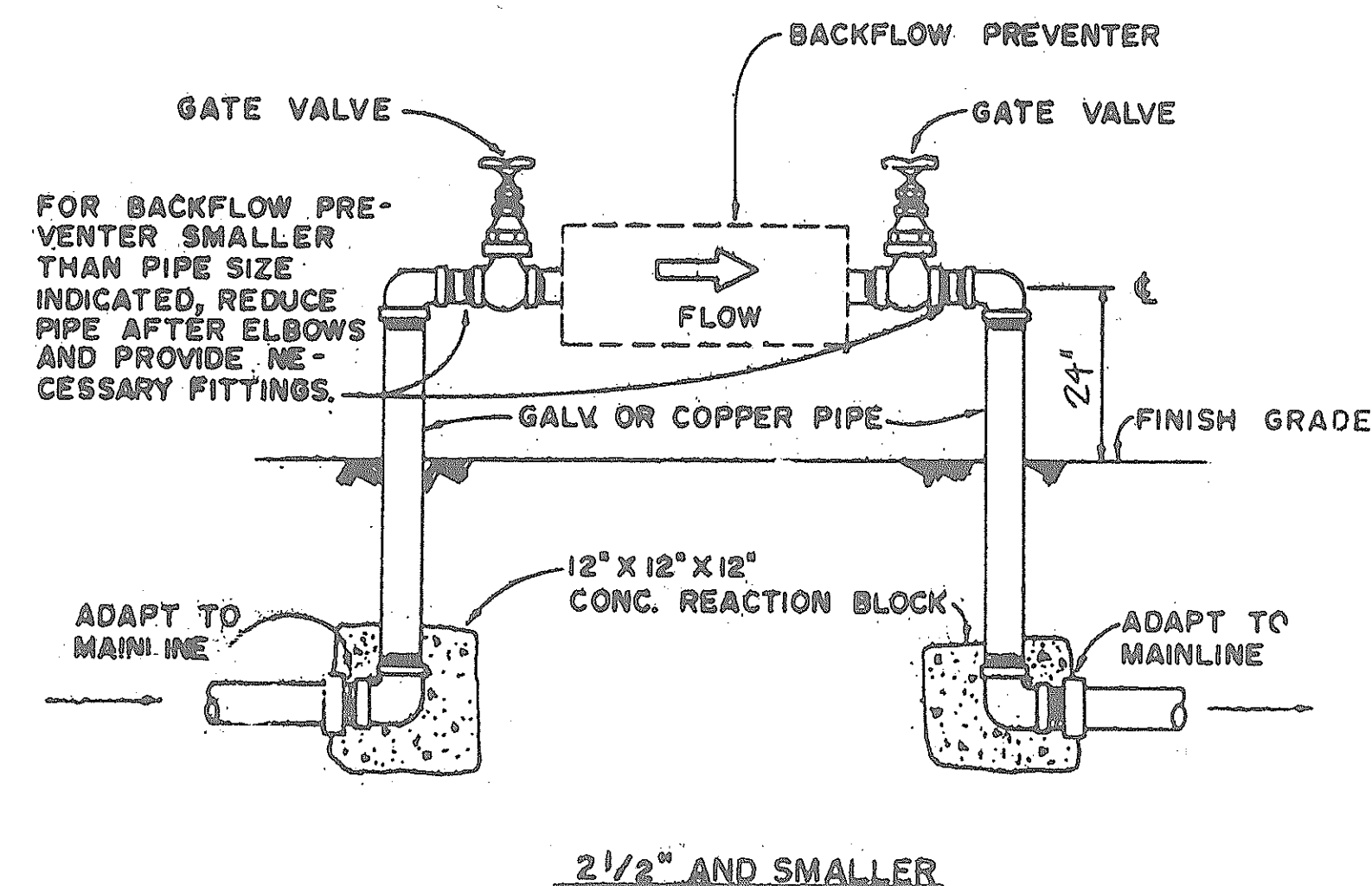
NO SCALE



	MINIMUM * COVER
SPRINKLER LATERALS	18"
SPRINKLER MAINS	
1/2" TO 2 1/2"	18"
3" OR 4"	24"
OVER 4"	30"
ELECTRICAL CONDUIT	24"
CONTROL WIRES	24"

- NOTES:
1. PIPES UNDER ROADWAY SHALL HAVE MINIMUM COVER OF 36 INCHES AND SHALL BE SCHEDULE 80 P.V.C.
 2. THERE SHALL BE A 3" MINIMUM CLEARANCE BETWEEN CONTROL WIRE BUNDLE, CONDUIT, MAIN AND LATERAL LINES.
 3. THE WIDTH OF THE TRENCH SHALL BE AS NARROW AS PRACTICAL TO FACILITATE INSTALLATION. APPROXIMATELY TWICE THE OUTSIDE DIAMETER OF THE PIPE WITH A MINIMUM OF 6".

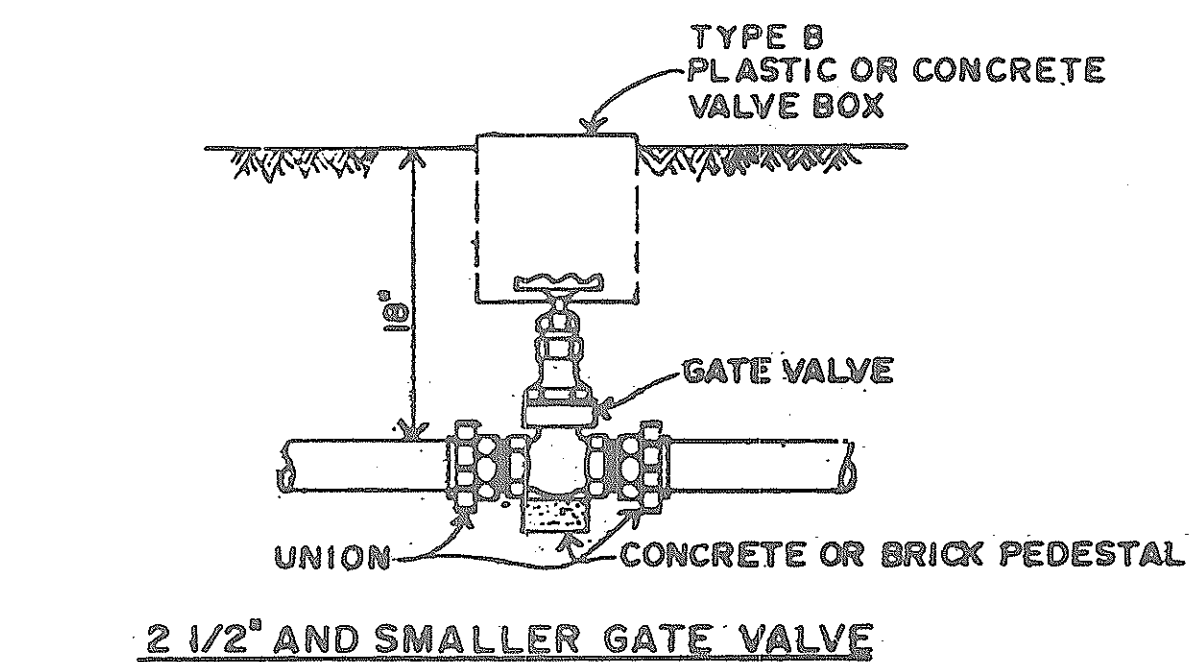
⑦ TRENCH DETAIL
10 NO SCALE



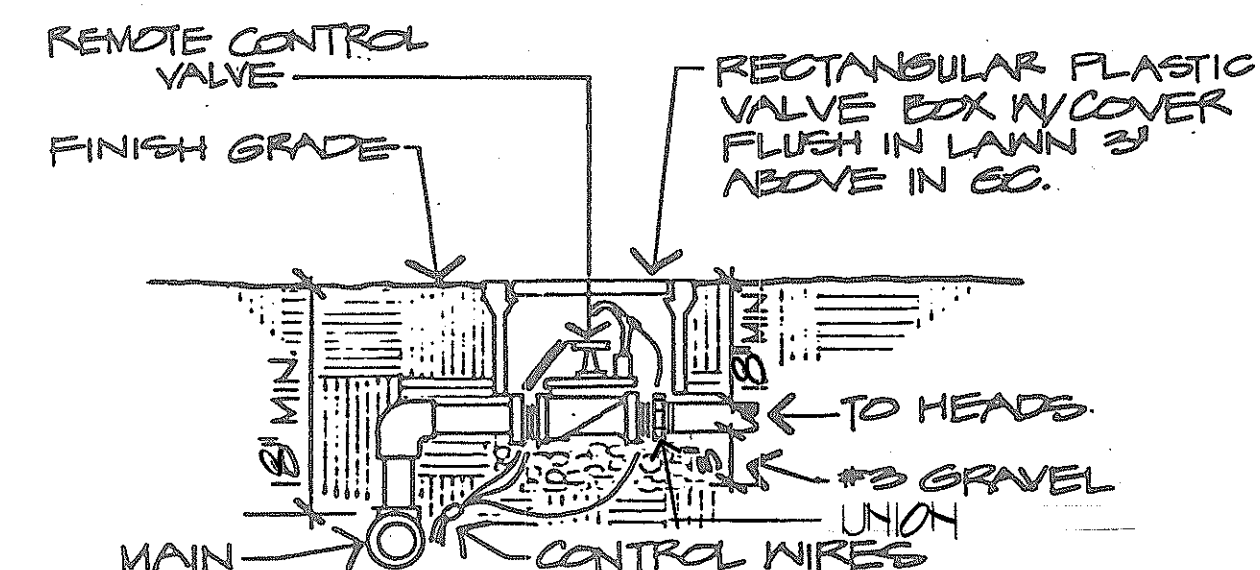
- NOTES:**
1. ONLY ONE TYPE OF PIPE AND FITTINGS SHALL BE USED.
 2. BACKFLOW PREVENTION UNIT SHALL BE PRIME COATED AND PAINTED WITH TWO COATS OF DARK GREEN ENAMEL PAINT TO THE FINISH GRADE.
 3. DUCTILE IRON, CAST IRON OR GALVANIZED PIPE BELOW FINISH GRADE SHALL BE PAINTED WITH TWO COATS OF ASPHALT PAINT.
 4. THERE SHALL BE NO OBSTRUCTION WITHIN A DISTANCE OF TWO (2) FEET SURROUNDING THE BACKFLOW PREVENTION UNIT.
 5. BACKFLOW PREVENTION DEVICE SHALL BE B.W.S. APPROVED MODEL.

BACKFLOW PREVENTION

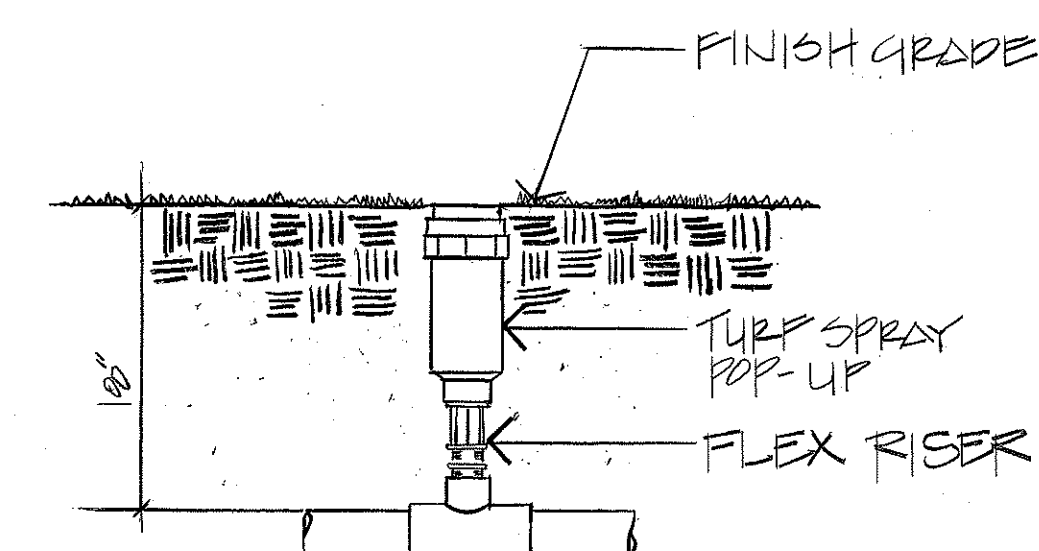
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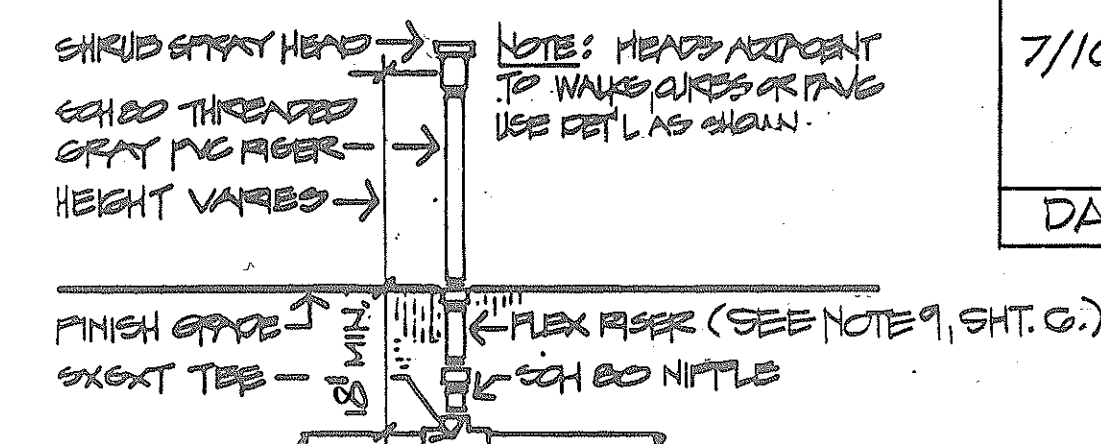

 GATE VALVE
 NO SCALE



REMOTE CONTROL VALVE
NO SCALE




 TURF SPRAY POP-UP.
 NO SCALE



GROUNDCOVERS PLANTING PLAN	HEIGHT
CAPE HONEYSUCKLE	24"
LANTANA	12"

⑨ SHRUB HEAD ON RISE
⑩ NO SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU GATEWAY
BEAUTIFICATION PROJECT
PHASE III

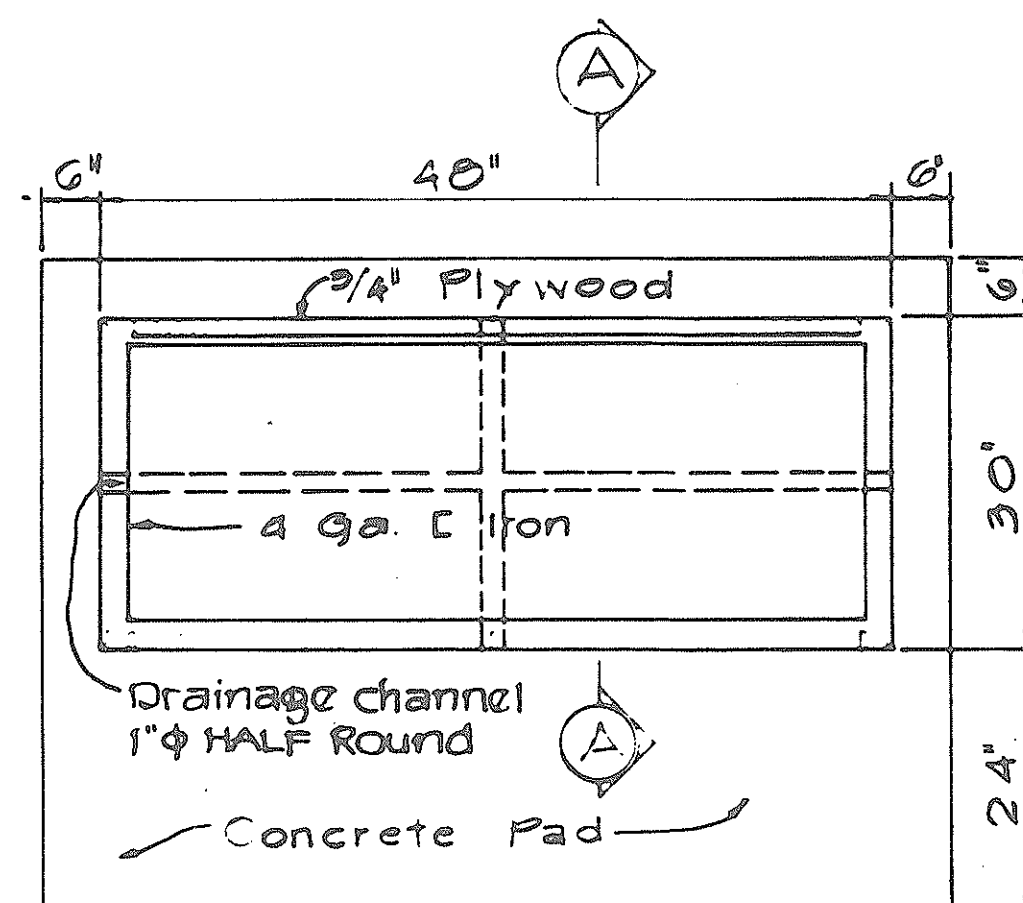
DETAILS

DATE: FEB. 1983

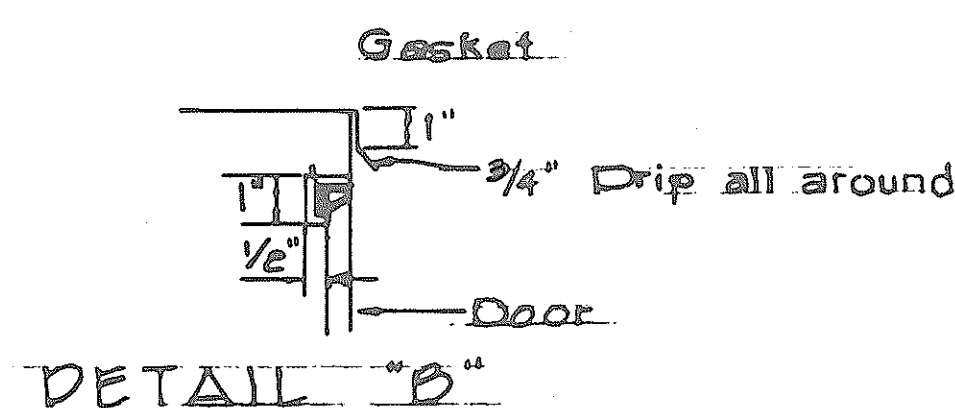
SHEET No. 5 OF 6 SHEETS

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

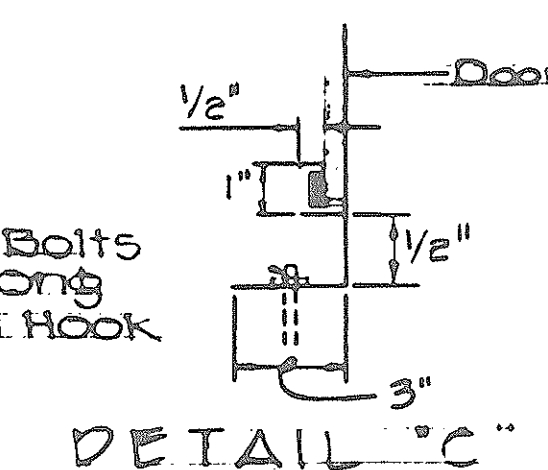
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	92A-02-86M	1985	11	12



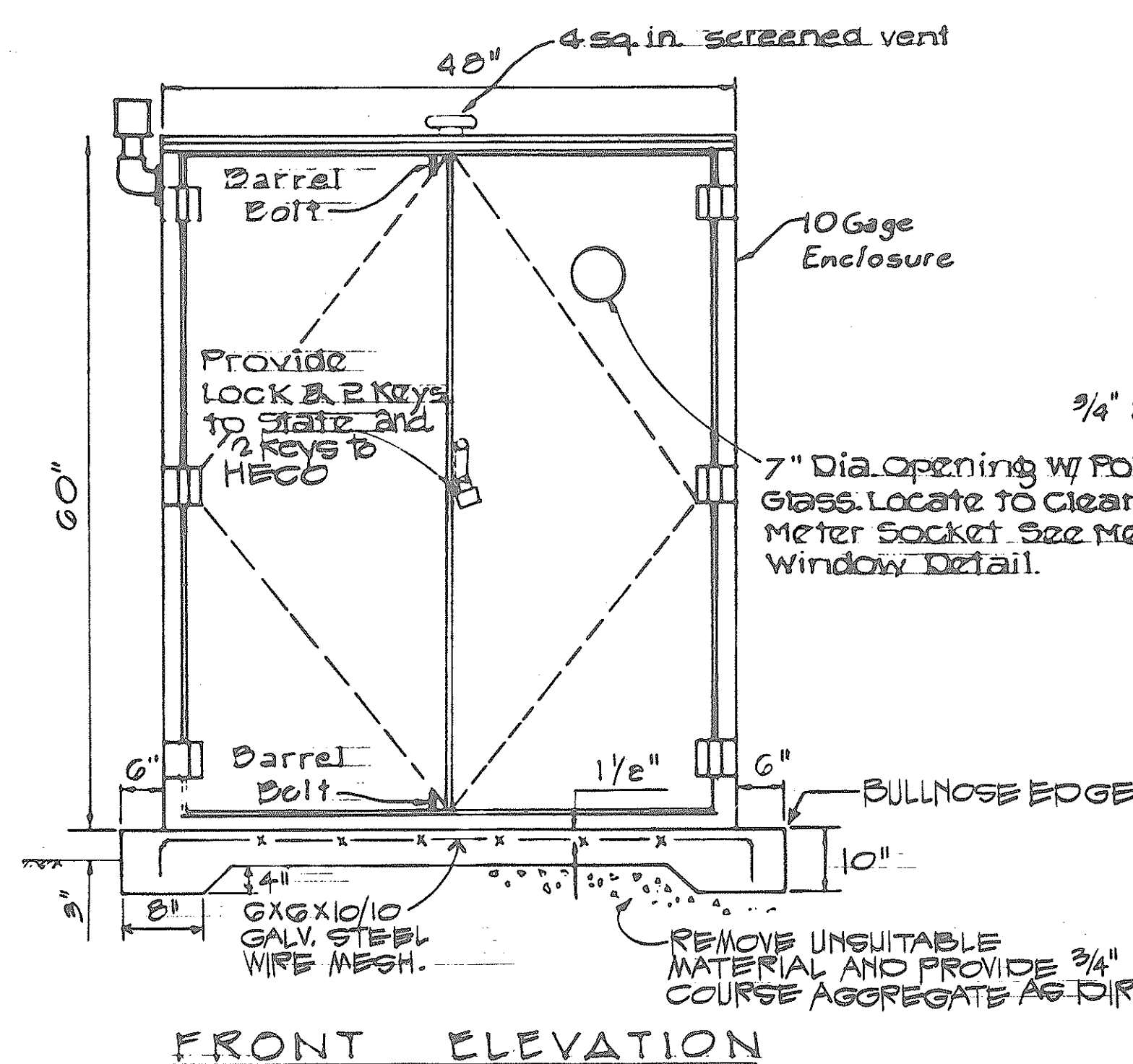
PLAN



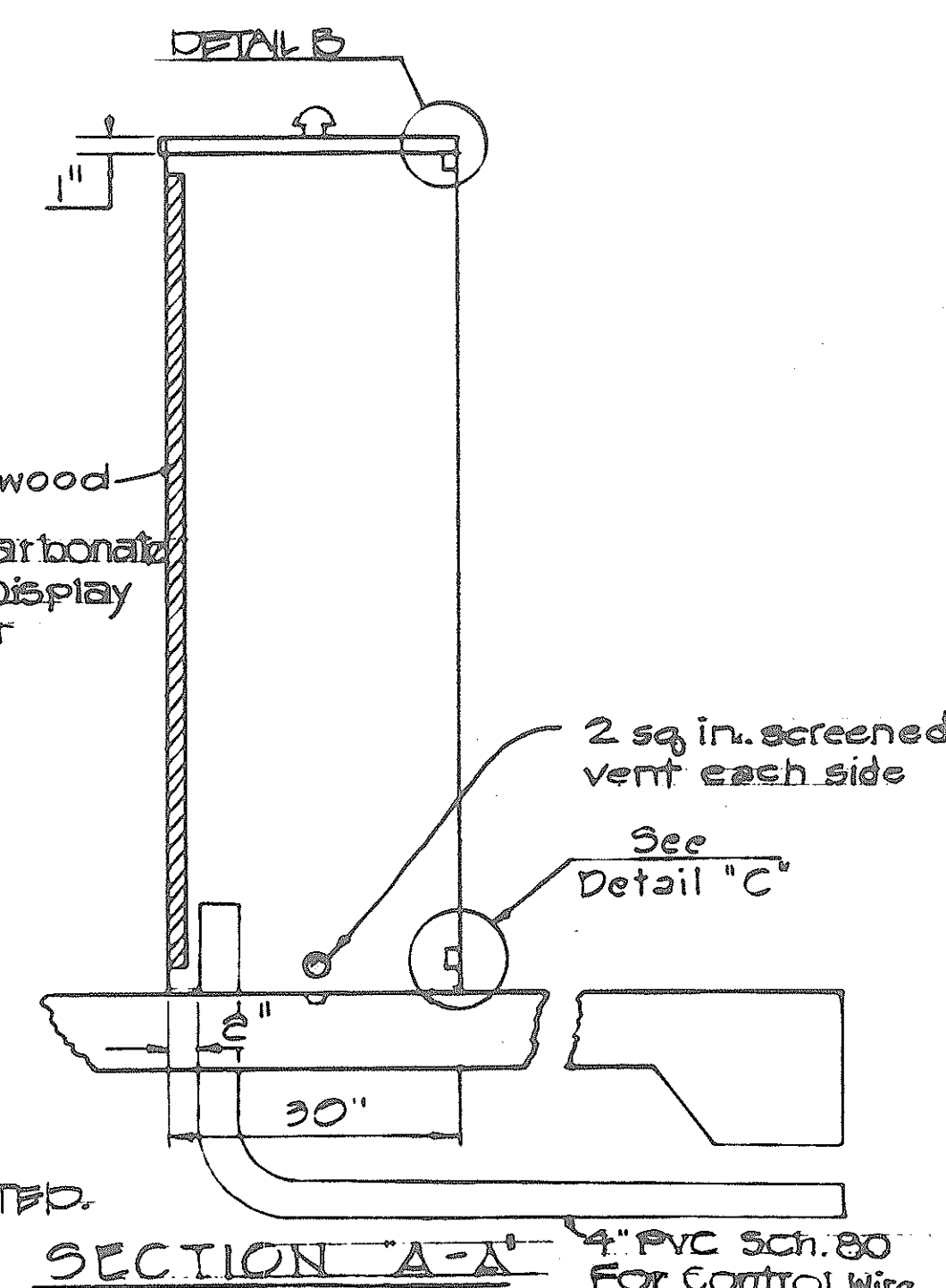
(4) Anchor Bolts
5/8" x 4" Long
Gal. Plated Hook
Length 1"



DETAIL 'C'

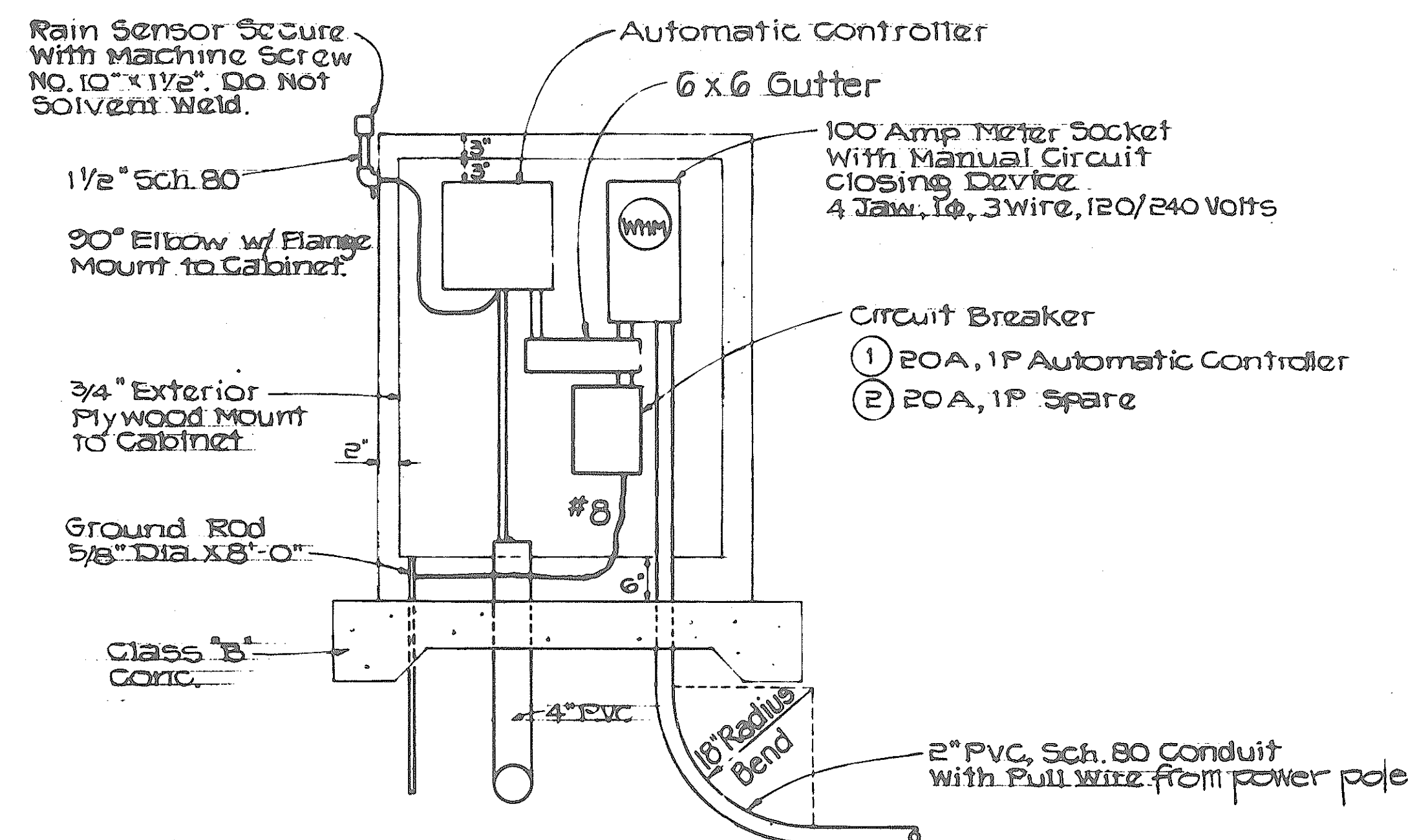


FRONT ELEVATION

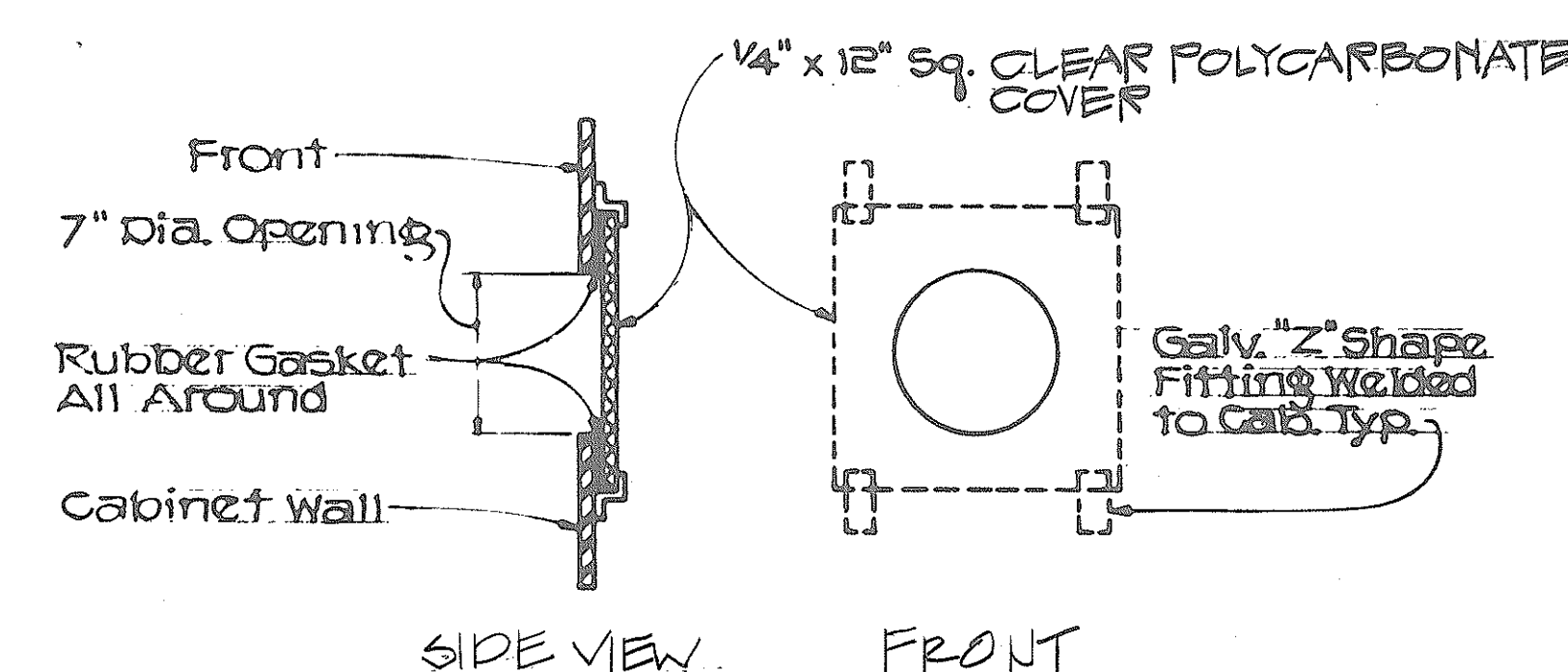


SECTION A-A

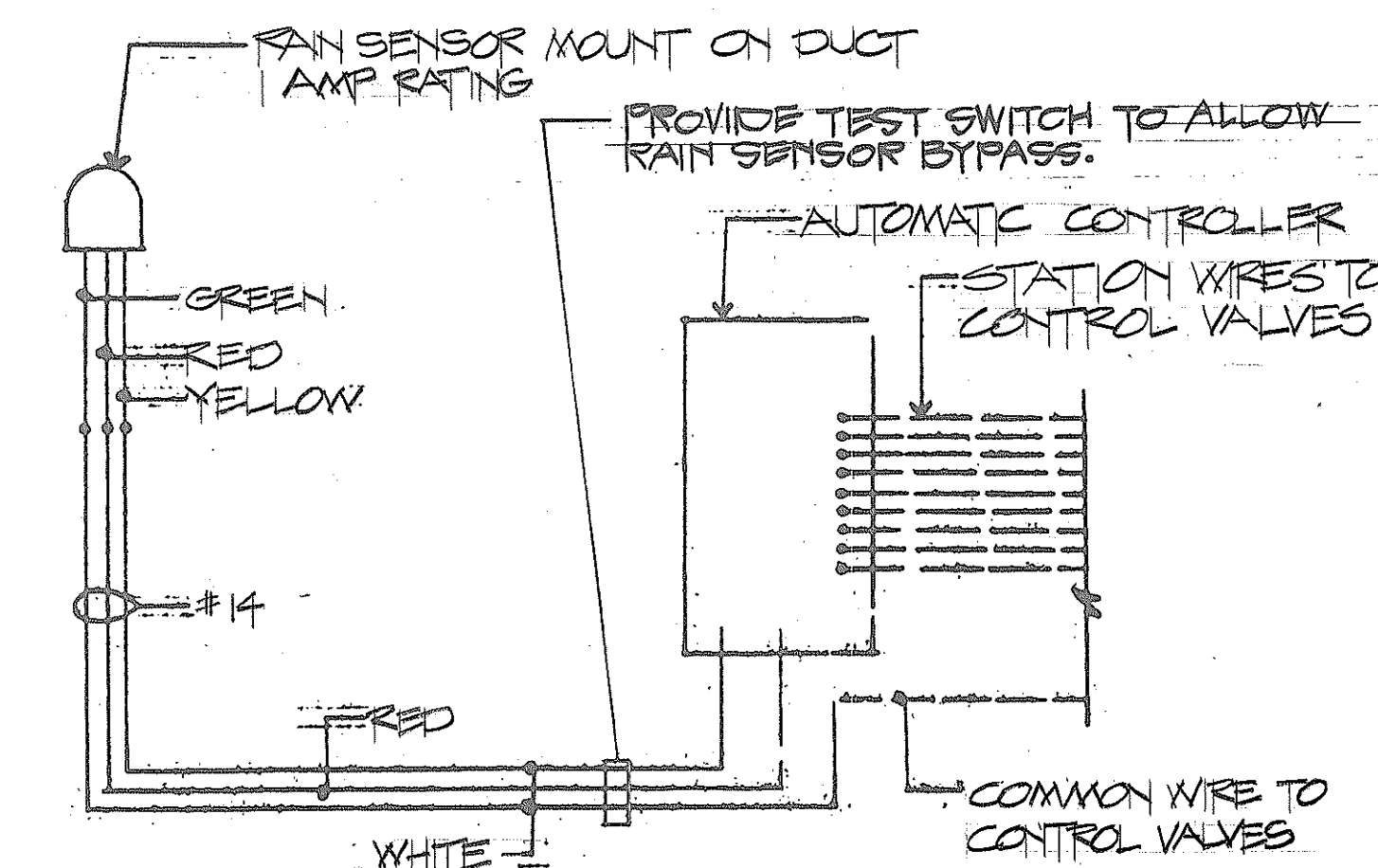
(K) METER and AUTOMATIC CONTROLLER CABINET DETAIL
NO SCALE



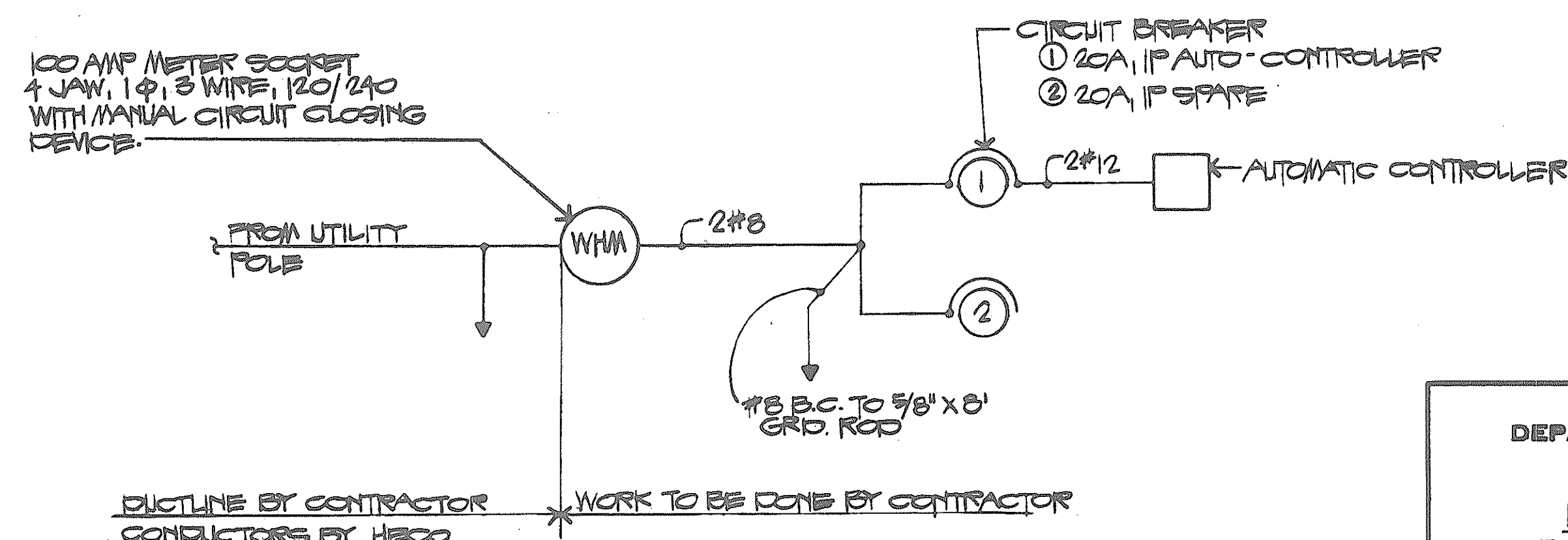
(L) INTERIOR ELEVATION
SCALE: 3/4" = 1'-0"



(M) METER WINDOW DETAIL
NO SCALE



(N) RAIN SENSOR WIRE DIAGRAM
AT AUTOMATIC CONTROLLER



(O) SERVICE CONNECTION ONE-LINE DIAGRAM
NO SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU GATEWAY
BEAUTIFICATION PROJECT
PHASE III

DETAILS

DATE: FEB. 1983
SHEET NO. 6 OF 6 SHEETS

ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	