

S U M M A R Y

PROJECT: INTERSTATE ROUTE H-2, LEILEHUA INTERCHANGE

PROJECT NO.: I-H2-1(8):6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-42-100	1973	94	100

[illegible]

DRAINAGE SUMMARY

PROJECT: INTERSTATE ROUTE H-2, LEILEHUA INTERCHANGE

PROJECT NO.: I-H2-1(8):6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(8):6	1973	25	160

ITEM NO.		206.	207.	503.	503.	602.	603.	603.	603.	603.	603.	603.	603.	603.	603.	603.	603.	603.	603.	603.	604.		604.	604.	609.	609.	609.	609.	612.	206.	603.	653.	653.	655.										
		01	01	001	201	101	1010	6060	6180	6335	6336	6376	6377	6455	7220	7240	7241	7280	7380	7565	801		836	838	704	706	708	709	02	84	8062	01	02	01										
UNIT USED		C.Y.	C.Y.	C.Y.	C.Y.	Lb.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	Ea.		Ea.	Ea.	L.F.	L.F.	L.F.	L.F.	C.Y.	C.Y.	L.F.	L.F.	Ea.	S.F.										
TYPE OF STRUCTURE	STATION (FROM - TO)	Structural Excavation Other Than at Bridges	Ditch and Channel Excavation	Concrete Other Than in Bridges	Class "B" Concrete Other Than in Bridges	Reinforcing Steel Other Than in Bridges	24" RCP, Cl. III	48" CMP, Sht. "I", 0.109" or 42" RCP, Cl. III	54" CMP, Sht. "I", 0.109" or 48" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	60" CMP (24"x12") Sht. "I", 0.109" or 60" RCP, Cl. III	Type "A" Cast Iron Frame and Cover		Type G1614 Steel Frame and Grates	Type G1214 Steel Frame and Grates	Gutter, Type 7(G1218)	Gutter, Type 7(G1614)	Gutter, Type 7(G1616)	Gutter, Type 7(G161-12)	Grouted Rubble Slope Protection	Filter Material for Sediment Basins	18" CMP, Sht. "I", 0.079"	24" Perforated Riser Sht. "I", 0.079"	6"x6" Anti-Sleep Collar	Planting, Honan Grass (Eremochloa Ophiuroides)										
G1G14-M CDI	Sta. 115+00 Lt.	403		4.0		440							244										1																					
G1G14 CDI	Sta. 117+50	63		2.5		39									73								1																					
G1G14-M CDI	Sta. 117+50 Lt.	500		4.0		440							248										1																					
G1G14 CDI	Sta. 120+00	73		2.5		39											73						1																					
G1G14-M CDI	Sta. 120+00 Lt.	500		4.0		440							248										1																					
G1G14-M CDI	Sta. 122+50 Lt.	500		4.0		440							248										1																					
G1214 CDI	Sta. 124+50 Rt.	135		2.5		39											140							1																				
G1G14 CDI	Sta. 126+50	80		2.5		39											78						1																					
G1214 CDI	Sta. 125+00 Lt.	403		4.0		430							198											1																				
G1214 CDI	Sta. 127+00 Lt.	19		4.0		430																		1																				
PINEAPPLE ROAD CONNECTOR																																												
24" Culvert	P.R.C. Sta. 1+47.5	13					54																																					
RAMP "LO"																																												
G1G14 CDI	Ramp "LO" Sta. 8+00	9		2.5		39											6						1																					
Standard CDI	Ramp "LO" Sta. 8+00 9's 31.5' from Sta. 8	58			2.0												68																											
G1214 CDI	Ramp "LO" Sta. 12+00	113		2.5		39											124							1																				
G1214 CDI	Ramp "LO" Sta. 14+335	94		2.5		39										104								1																				
G1214 CDI	Ramp "LO" Sta. 16+68	78		2.5		39										86								1																				
G1214 CDI	Ramp "LO" Sta. 19+20	53		2.5		39											58							1																				
G1214 CDI	Ramp "LO" Sta. 21+72	37		2.5		39											34							1																				
RAMP "LI"																																												
G1G14 CDI	Ramp "LI" Sta. 3+71	75		2.5		39										110							1																					
G1G14 CDI	Ramp "LI" Sta. 11+75	25		2.5		39											44						1																					
G1G14 CDI	Ramp "LI" Sta. 15+94	10		2.5		39										6							1																					
GOLF COURSE ROAD																																												
Type "A-2" C.B.	G.C. Road Sta. 14+50	25		6.0		440	4															1																						

SUMMARY

PROJECT: INTERSTATE ROUTE H-2, LEILEHUA INTERCHANGE

PROJECT NO.: I-H2-1(8):6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HR-1(8)-6	1973	26	100

[illegible]

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HR-1(8)-6	1975	38	100

Ramp "LO" Sta. 8+00
Construct: GIG 14 CDI
Install: 24" CMP, 5ht. 4" = 0.168" or
24" RCP, CI, III or
24" ACP, CI, III

Ramp "LO" Sta. 8+00 % = 31.5' LT
Construct: std. C/D
Install: 24" CMP, Sht. "t" = 0.1083'
24" RCP, Cl. III or /
24" ACP, Cl. III

TRUE NORTH
Scale: 1" = 50'

FROM STATION	TO STATION
Ramp "LO" Sta. 0+25 ± Lt.	Ramp "LO" Sta. 8+70 Lt.
Ramp "LI" Sta. 0+27 ± Rt.	Ramp "LI" Sta. 3+71 Rt.
Ramp "LI" Sta. 3+75 Lt.	Ramp "LI" Sta. 13+82 ± Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE PLAN

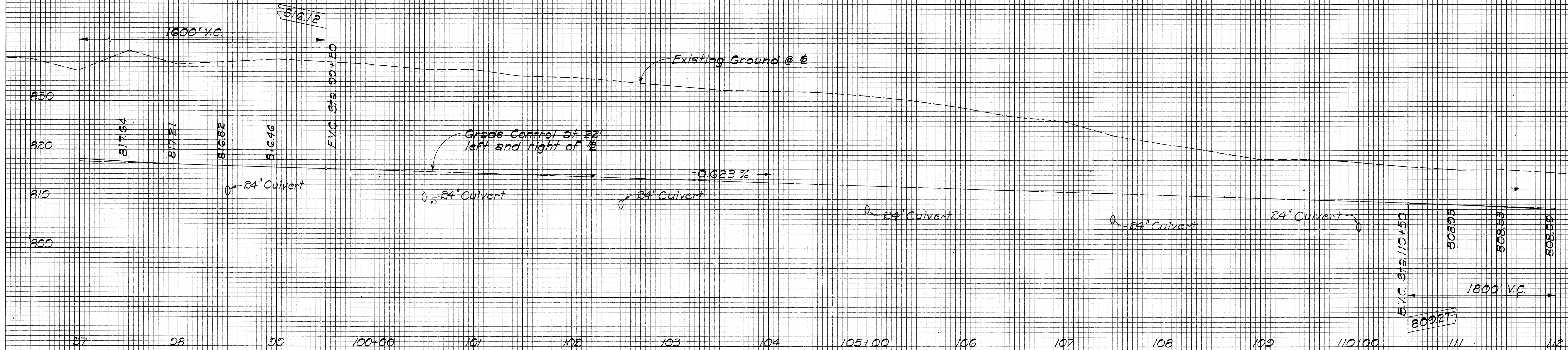
INTERSTATE ROUTE H-2
LEILEHUA INTERCHANGE
F.A.I. Proj. No. I-H2-1(8):6
Scale: 1" = 50' Date: May, 1973

SHEET No. 5 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-12-10-0	1973	39	100

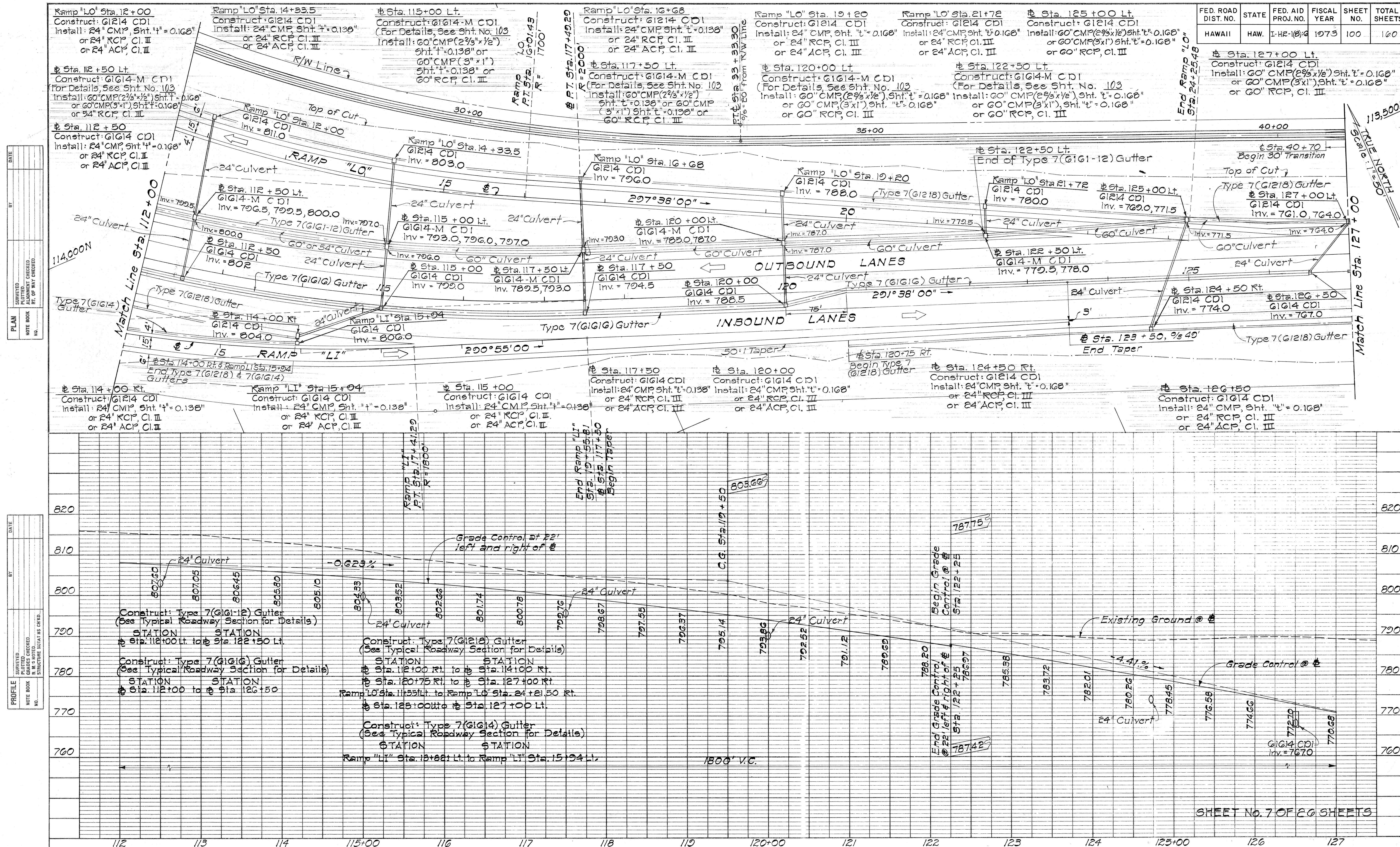
FINAL SURVEY	SURVEYED	BY	DATE
NO.	PLOTTED		
	NOTE BOOK		
	AREAS CHECKED		

ORIGINAL SURVEY	SURVEYED	BY	DATE
NO.	PLOTTED		
	NOTE BOOK		
	AREAS CHECKED		

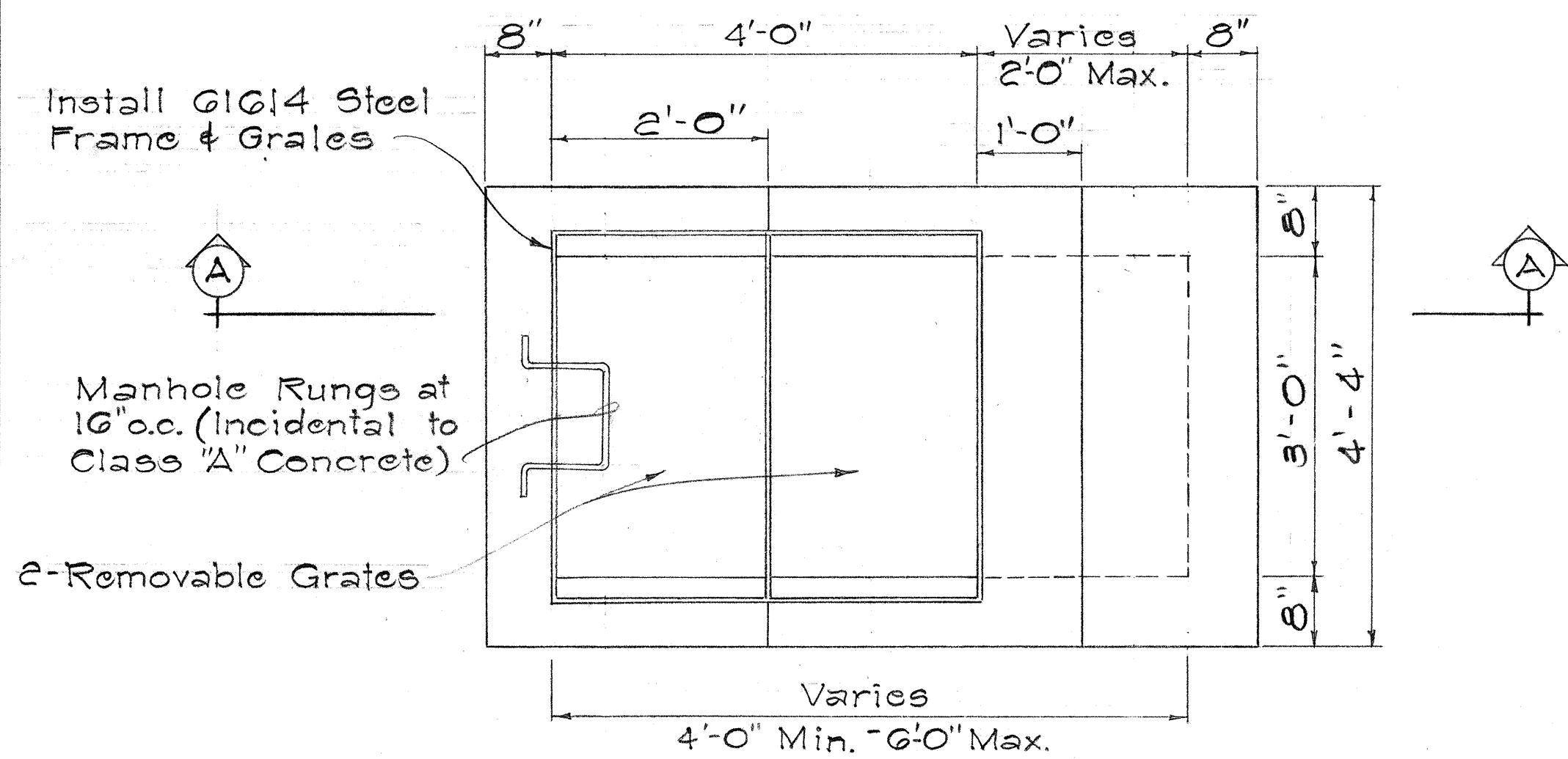


SHEET No. 9 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(8):4	1973	100	100



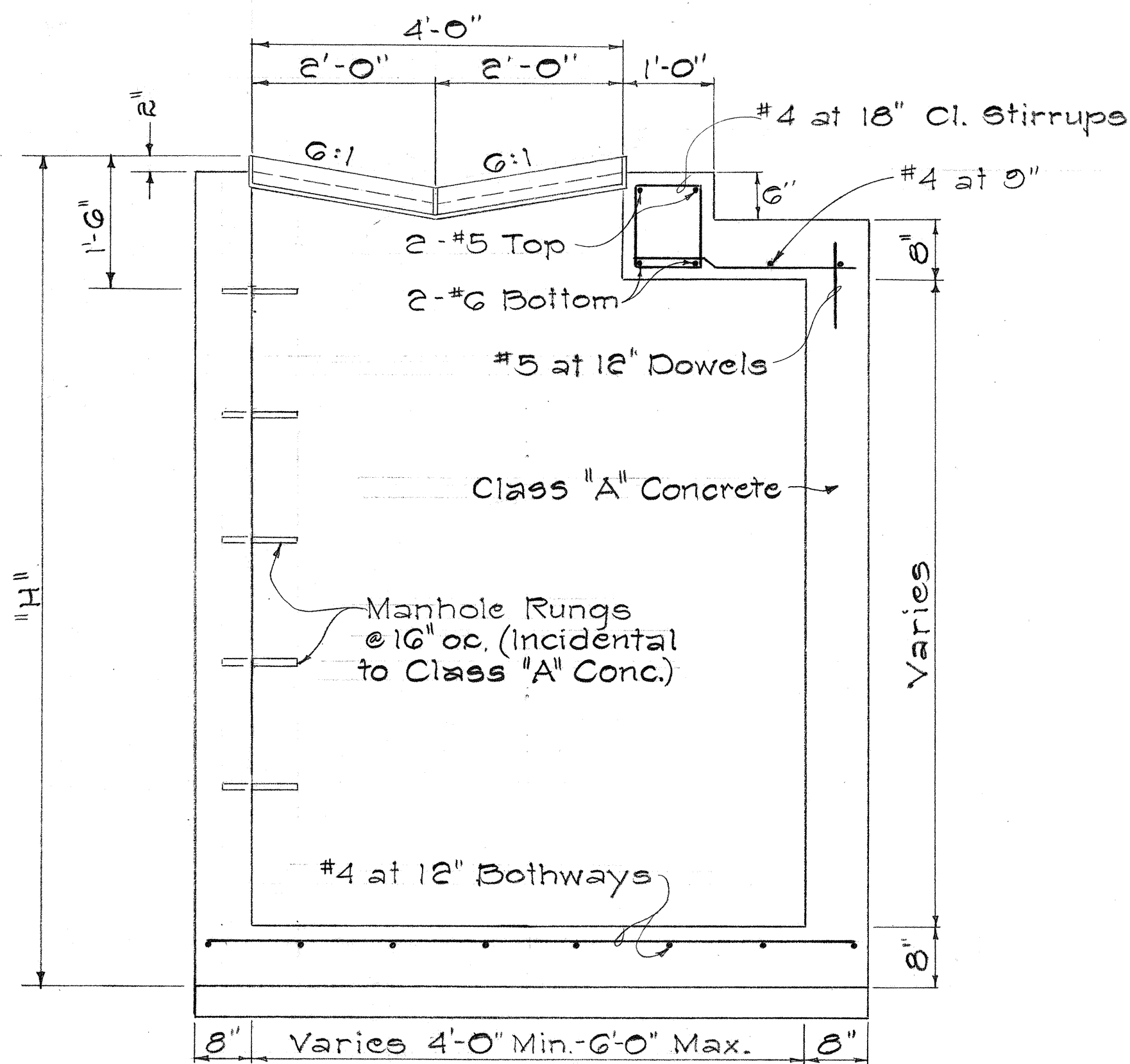
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-2-1(8)G	1973	103	160



PLAN

GENERAL NOTES

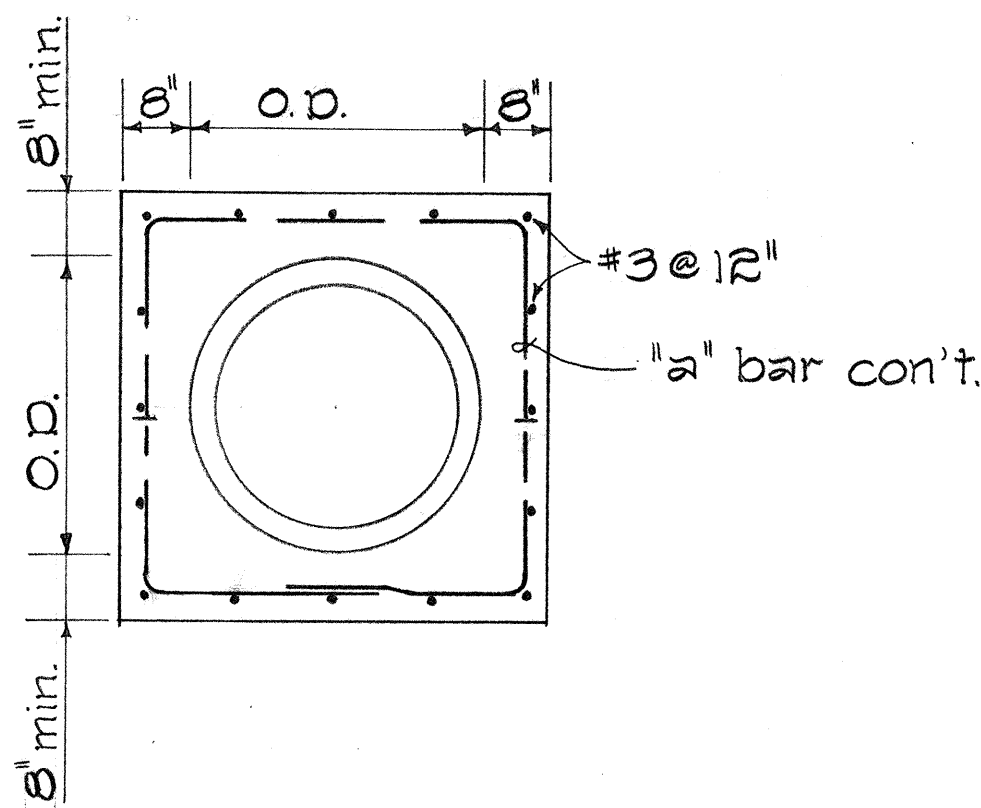
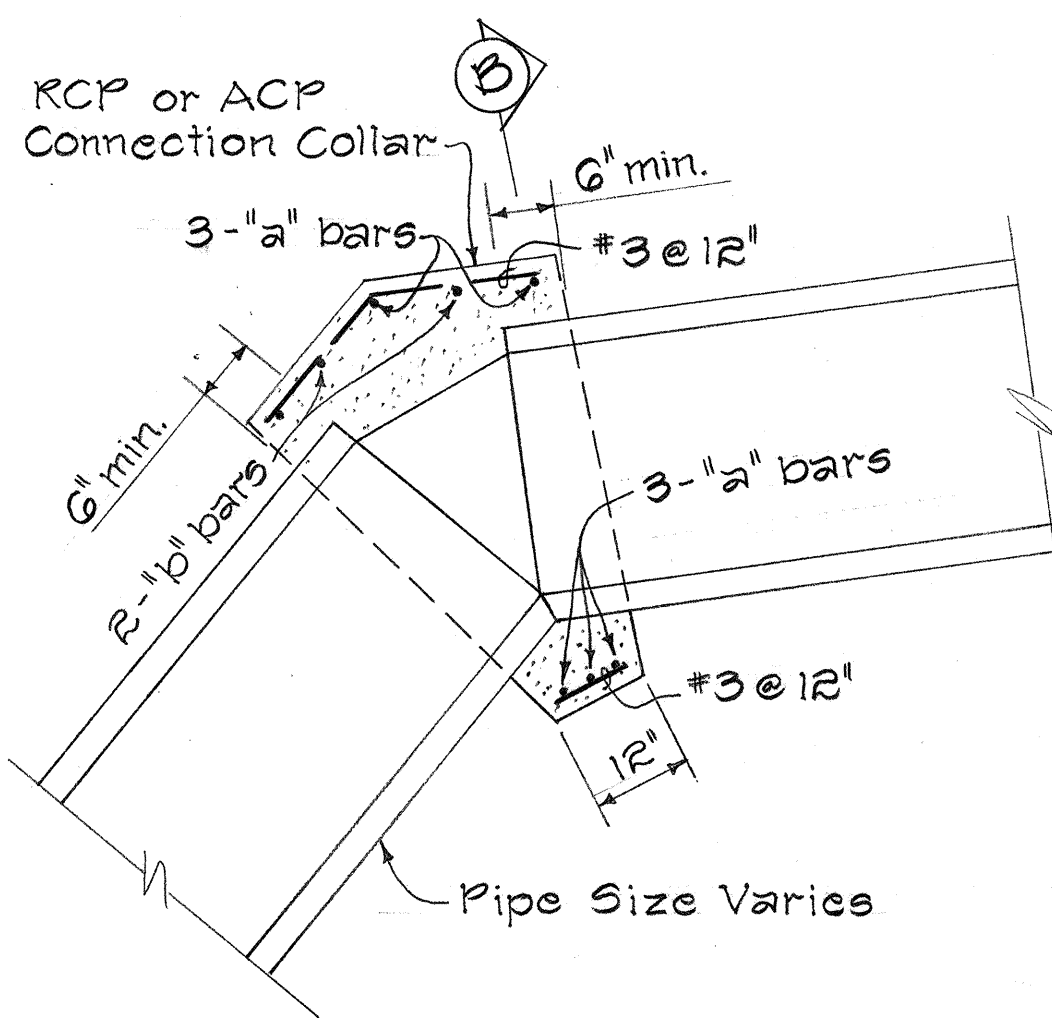
- General Notes for Type GIG14 & GIG16 Grated Drop Intakes of Standard Details shall apply.
- See this sheet for reinforcing detail of culverts 54" or larger.



SECTION "A-A"

TYPE GIG14-M DROP INTAKE

Scale: 3/4" = 1'-0"



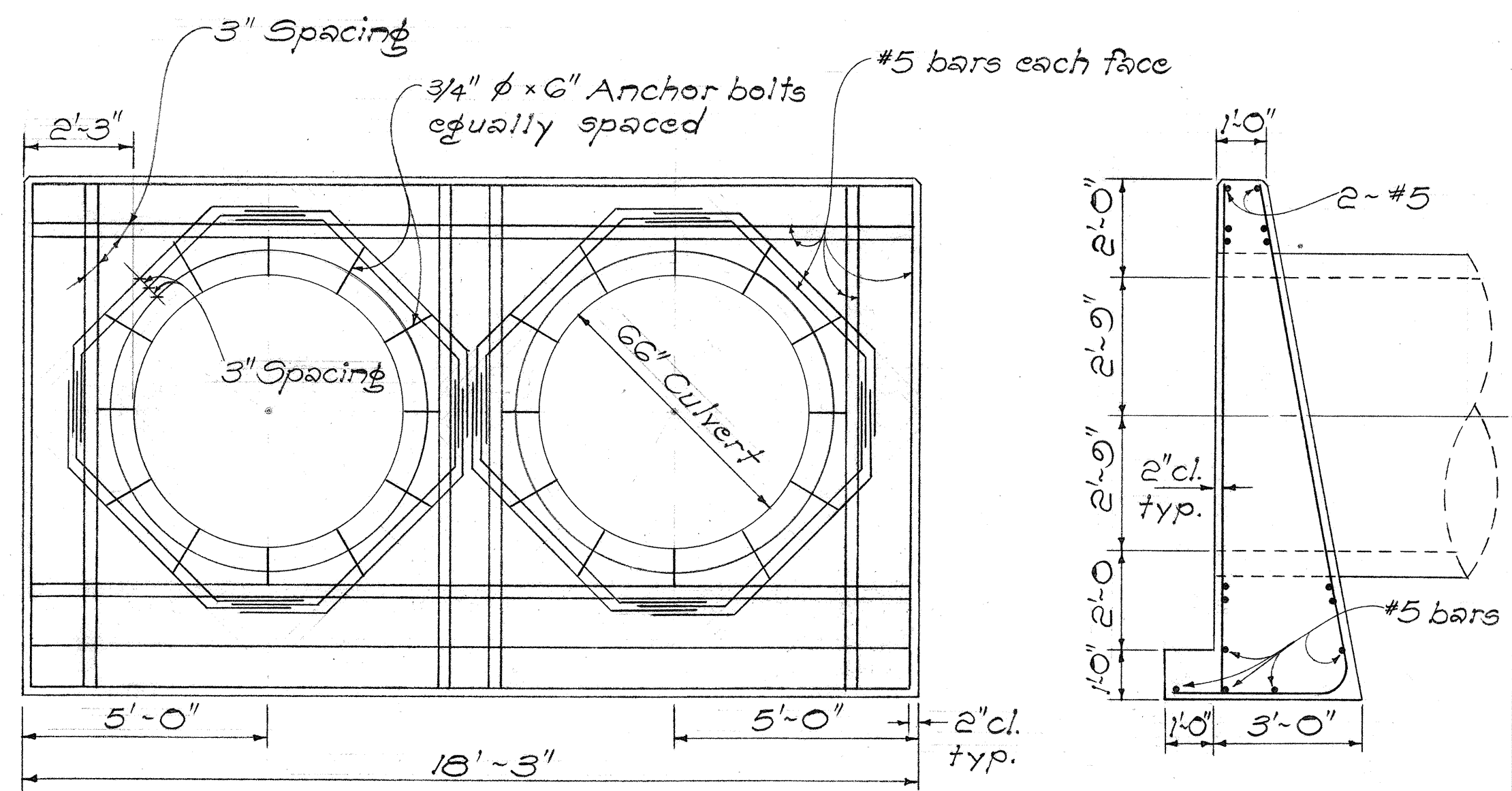
SECTION "B-B"

	SIZE OF BAR	DESCRIPTION
"a" bars	#4	OD + 11"
"b" bars	#4	OD + 11"

- NOTES:
- Connection Collars shall be Class "B" Concrete.
 - Connection Collars shall be incidental to RCP or ACP.

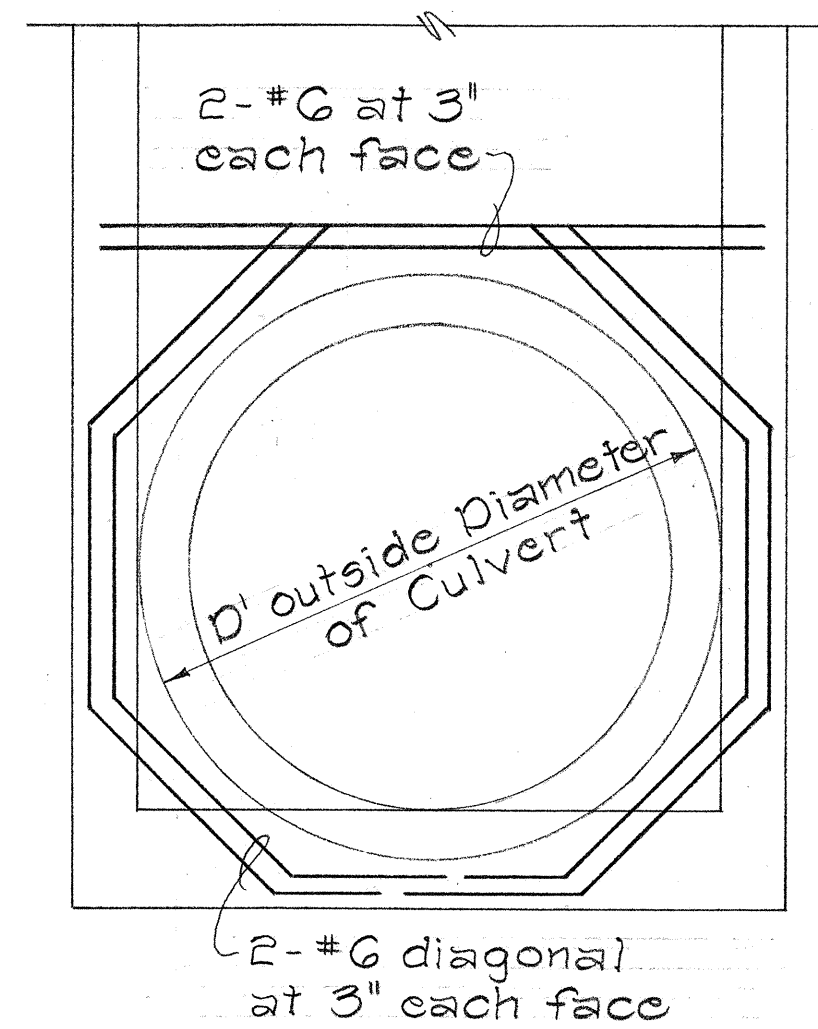
DETAILS OF CONCRETE COLLAR CONNECTION

Scale: 1/2" = 1'-0"



CONCRETE HEADWALL DETAILS AT CHANNEL STA'S 10+88.5 & 15+37.5

Scale: 3/8" = 1'-0"



TYPICAL REINFORCING FOR CULVERTS 54" & LARGER

Scale: 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

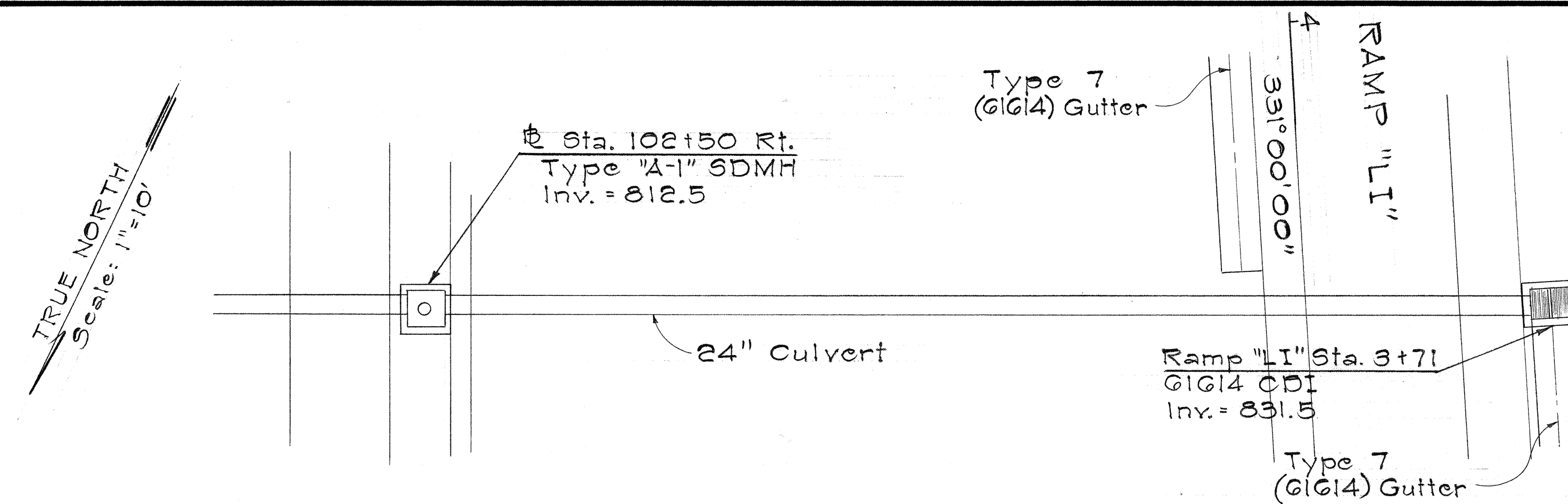
DRAINAGE DETAILS

INTERSTATE ROUTE H-2
LEILEHUA INTERCHANGE
F.A.I. Proj. No. I-H-2-1(8)G

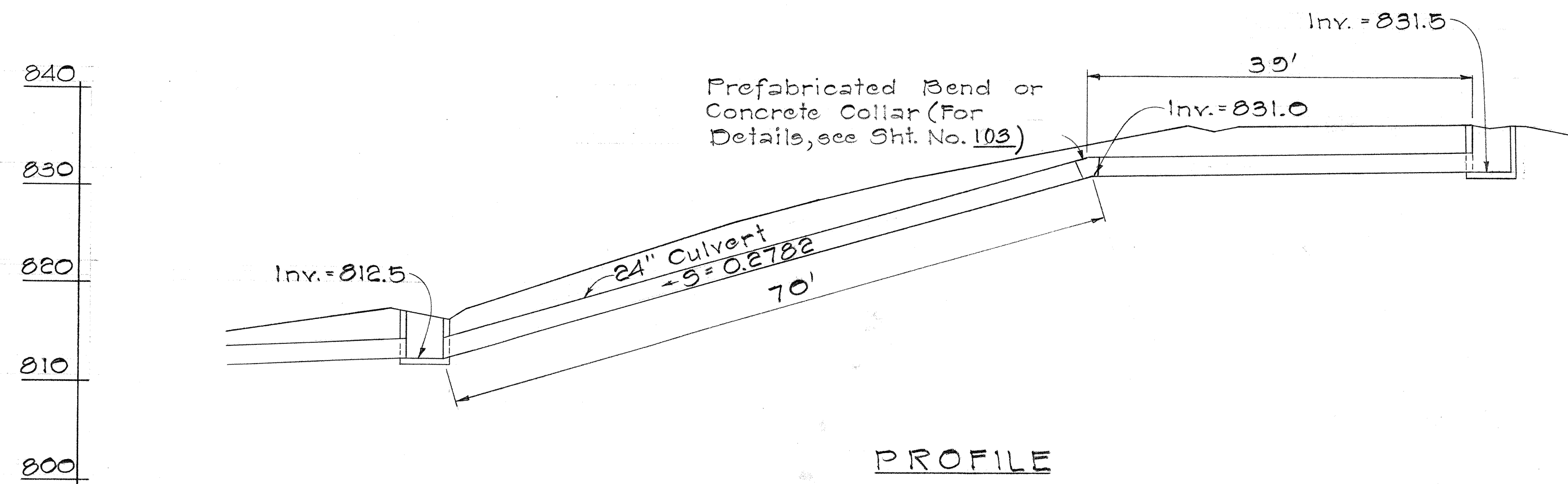
Scale As Noted Date: May, 1973

SHEET No. 10 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1H2(8):G	1973	104	160

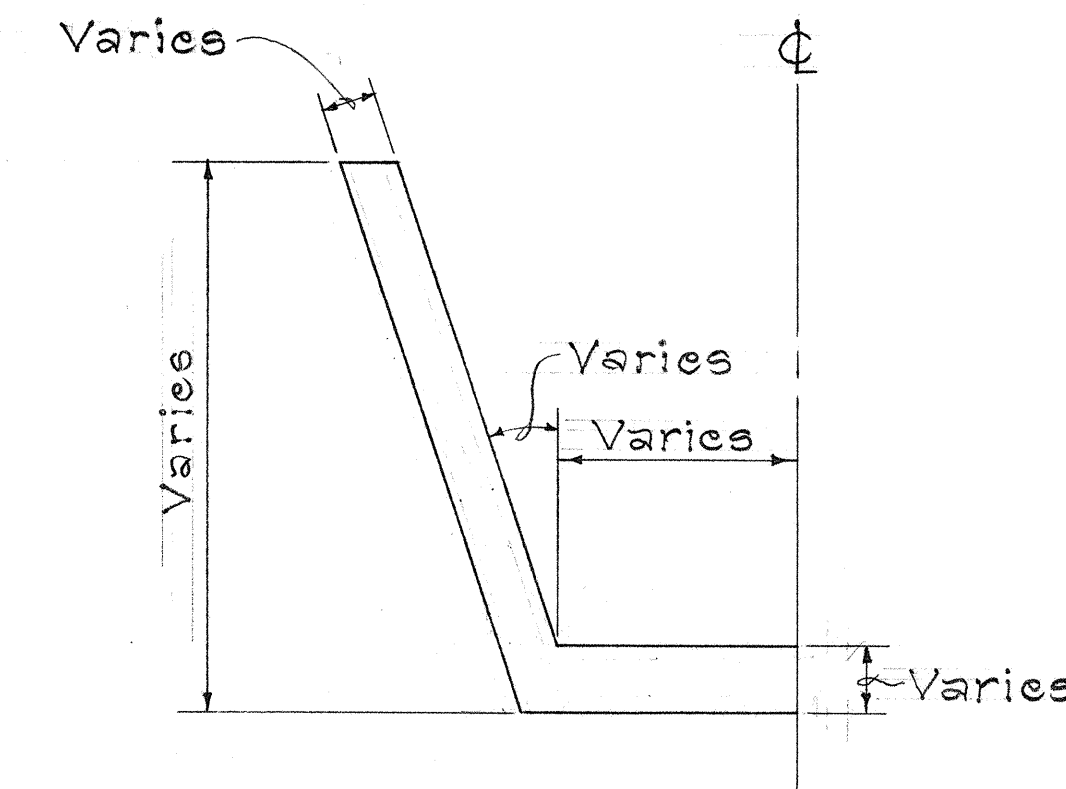


PLAN

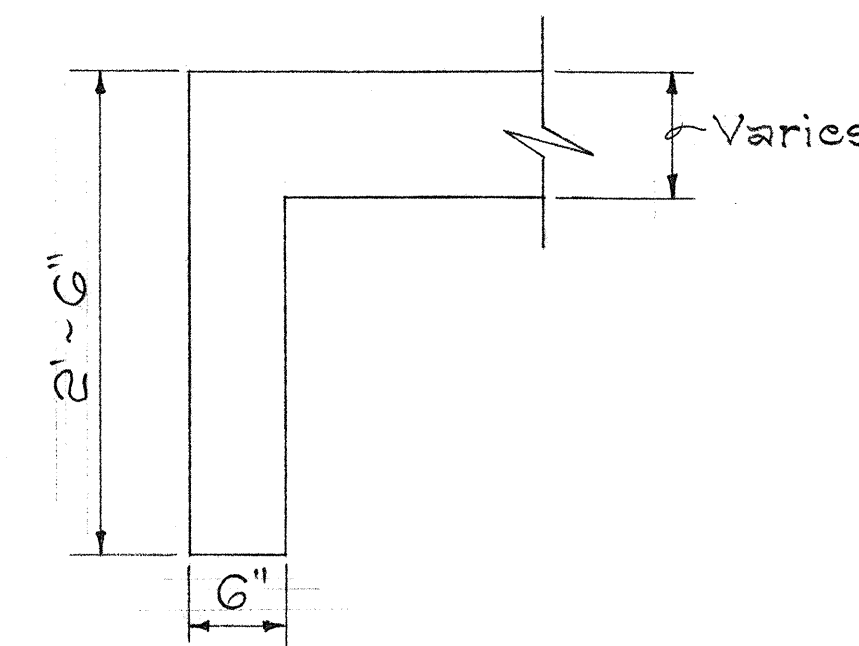


PROFILE
PIPE CULVERT CROSSING
AT RAMP "LI" STA. 3+71

Scale: 1"=10'



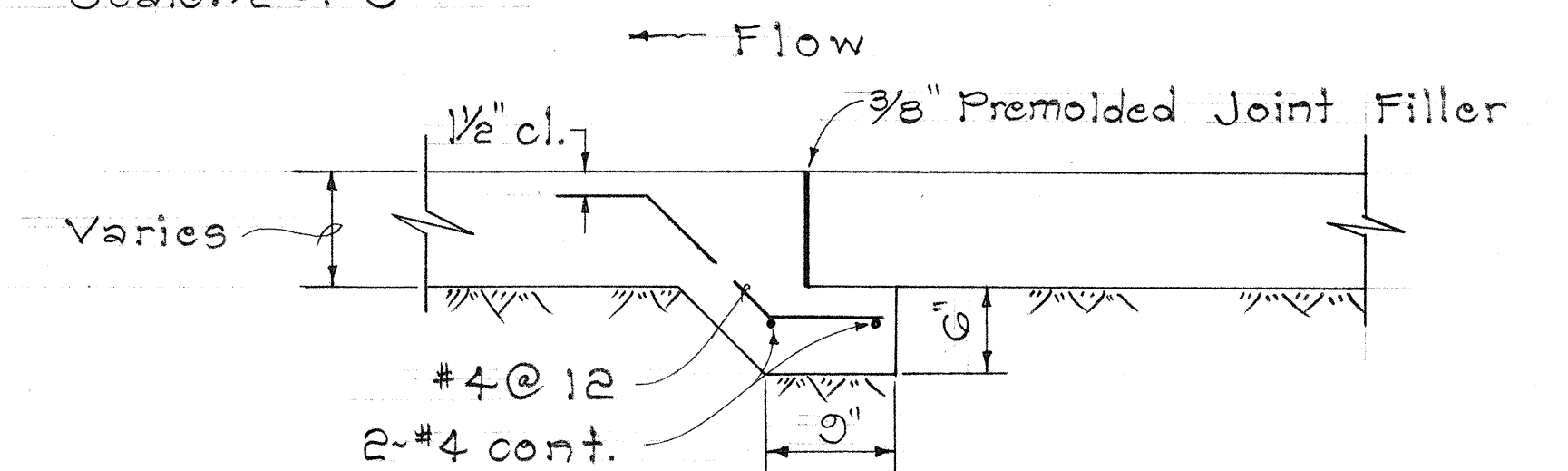
TYPICAL SECTION
TRANSITION BETWEEN TRAPEZOIDAL
AND RECTANGULAR LINED CHANNELS
Scale: 1/2"=1'-0'



TYPICAL
CUT-OFF WALL
Scale: 1"=1'-0'

NOTE:

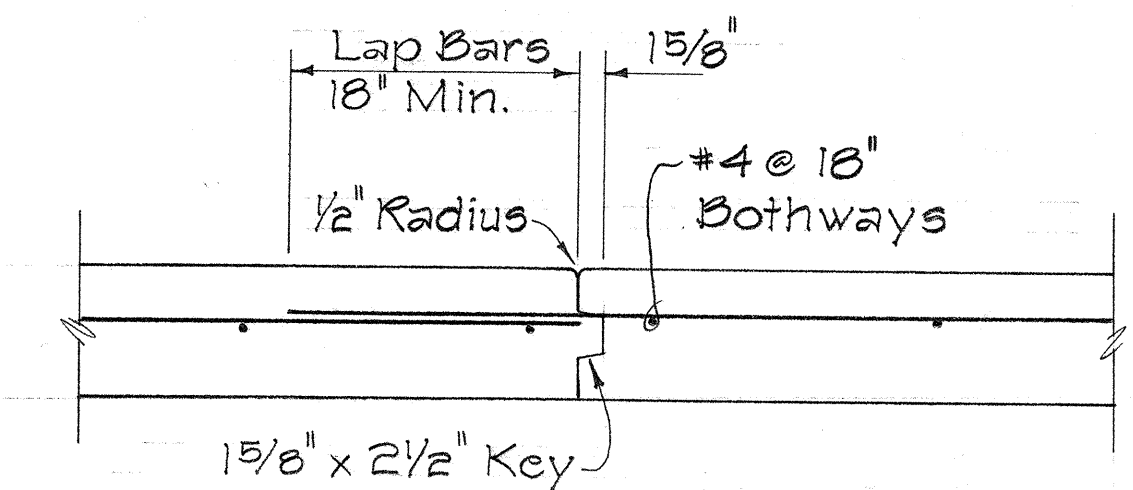
Cut-off walls, 2'-6" deep from channel invert shall be constructed before and after headwalls, box culvert and at locations ordered by the Engineer.



TYPICAL EXPANSION JOINT
FOR INTERCEPTOR CHANNEL
Scale: 1"=1'-0'

NOTE:

Expansion Joint shall be constructed @ 30' oc. or as ordered by the Engineer.



TYPICAL TRANSVERSE
CONSTRUCTION JOINT
Scale: 1"=1'-0'

NOTE:

Construction Joint shall be constructed @ 30' oc. or as ordered by the Engineer.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

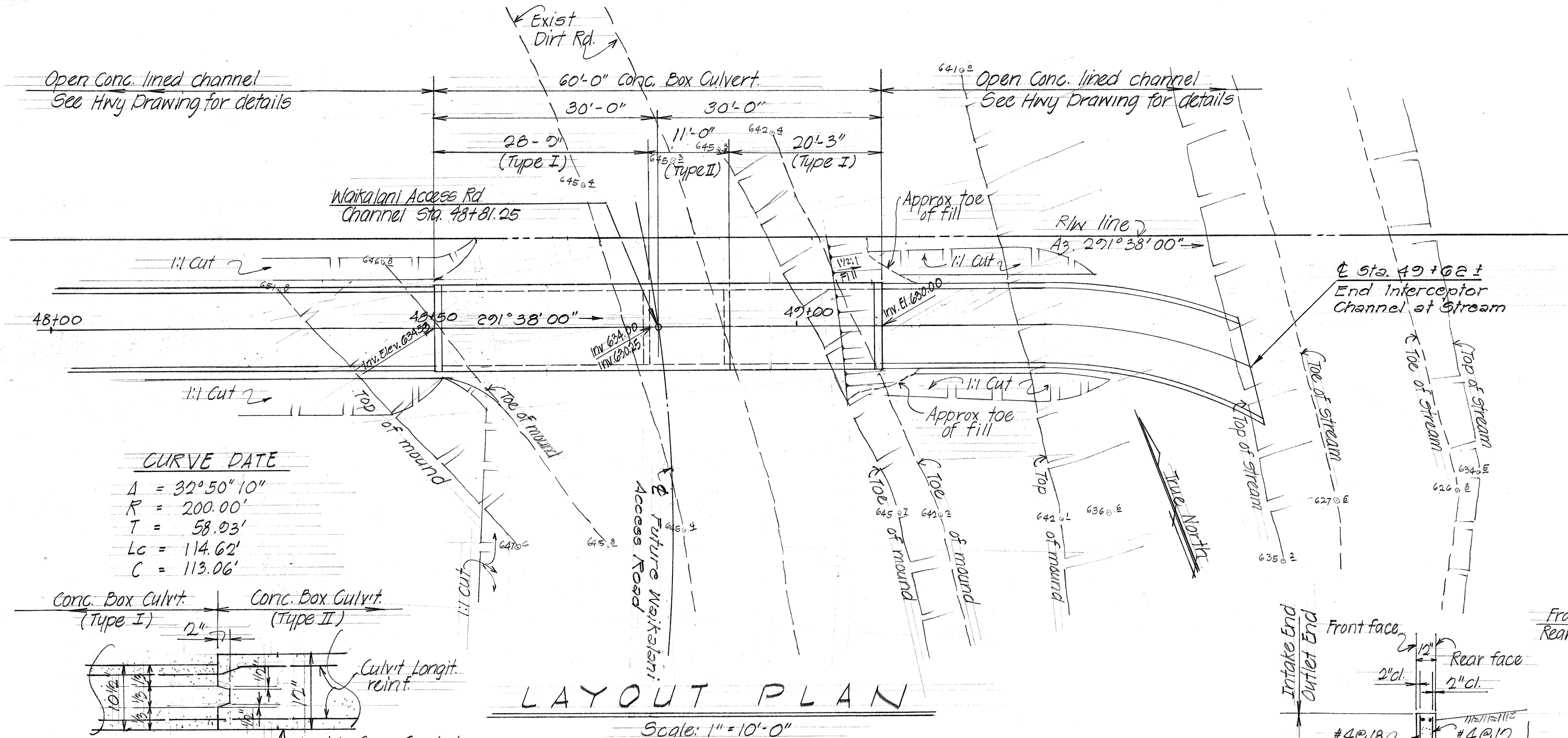
INTERSTATE ROUTE H-2
LEILEHUA INTERCHANGE
F.A.I. PROJ. NO. 1H2-1(8):G

Scale As Noted Date: May, 1973

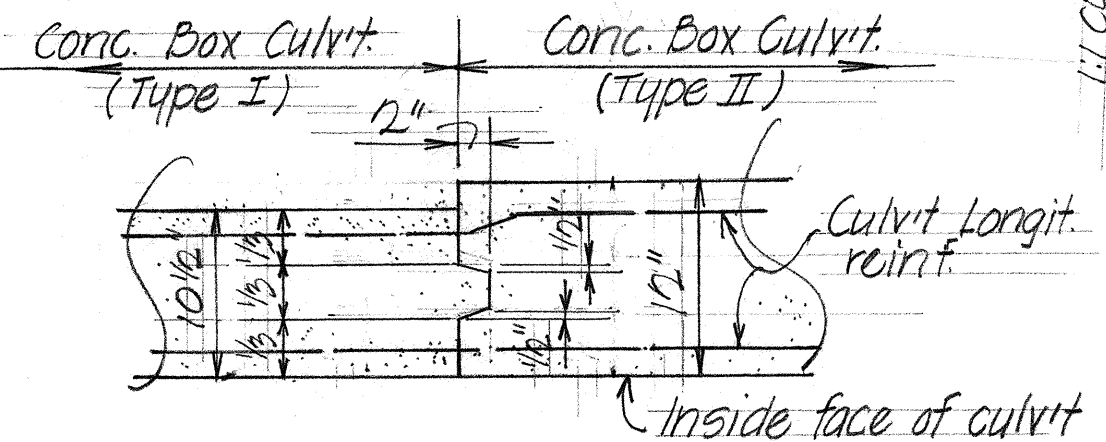
SHEET No. 11 OF 20 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLATTED BY	
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(8)-G	1973	105	160

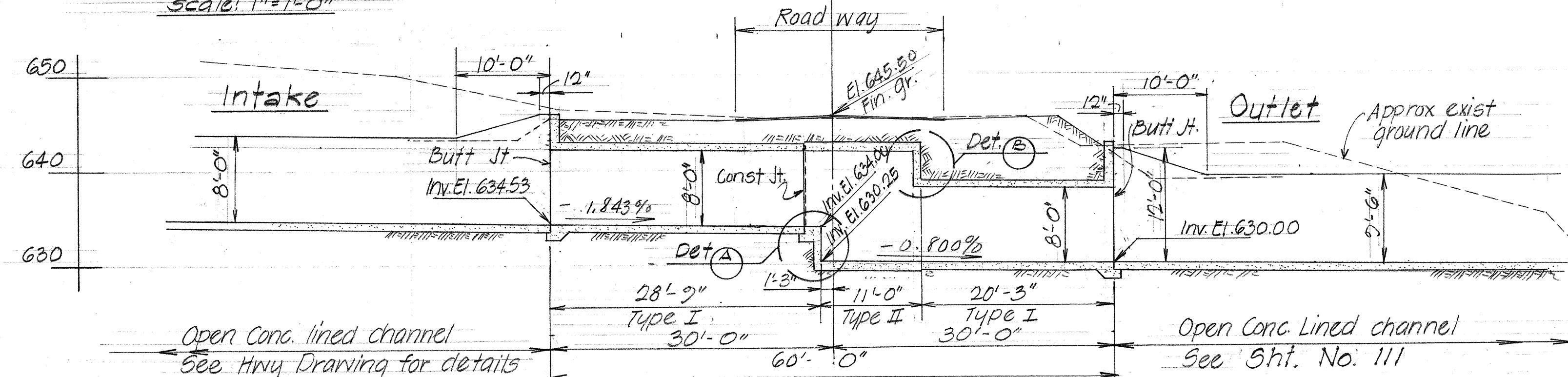


CURVE DATA
 $\Delta = 32^\circ 50' 10''$
 $R = 200.00'$
 $T = 58.03'$
 $LC = 114.62'$
 $C = 113.06'$

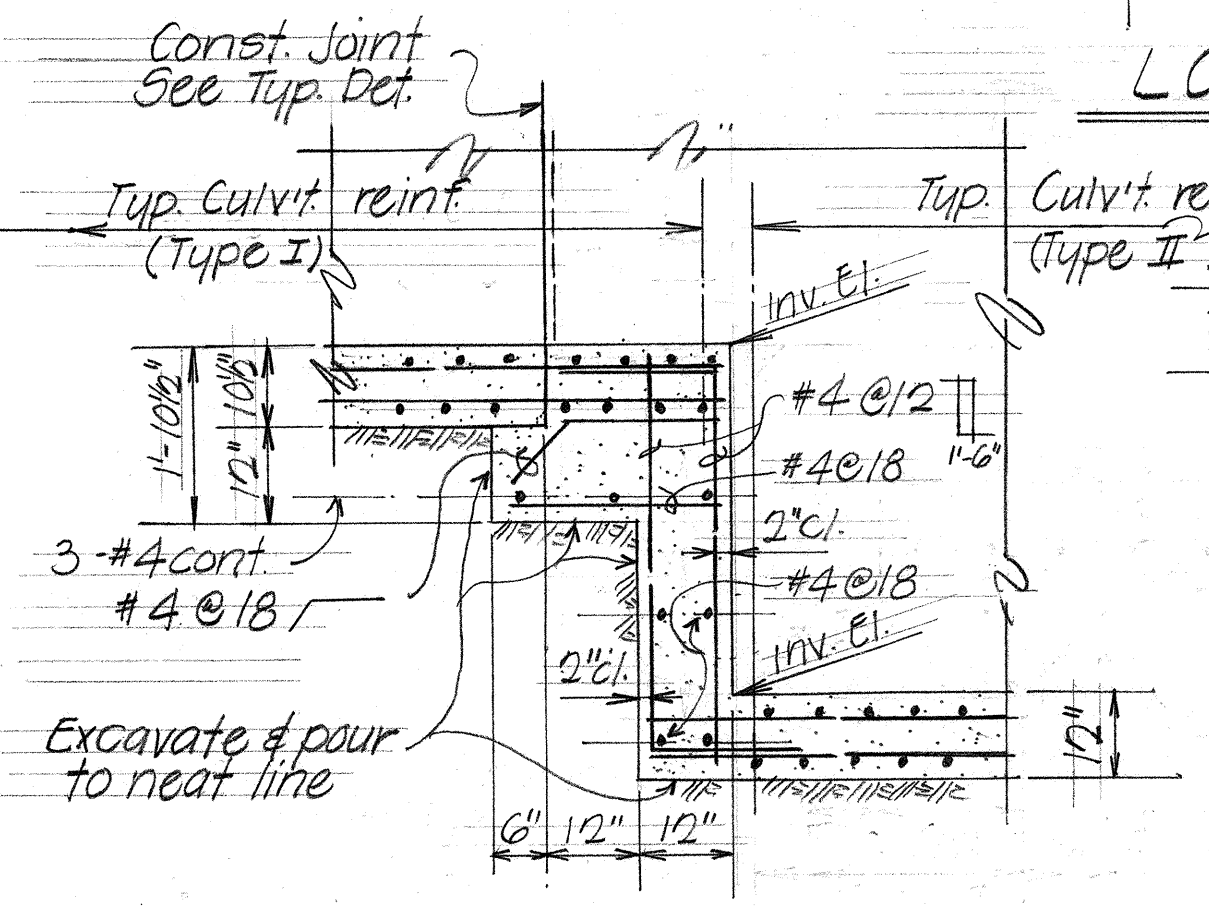


LAYOUT PLAN
 Scale: 1" = 10'-0"

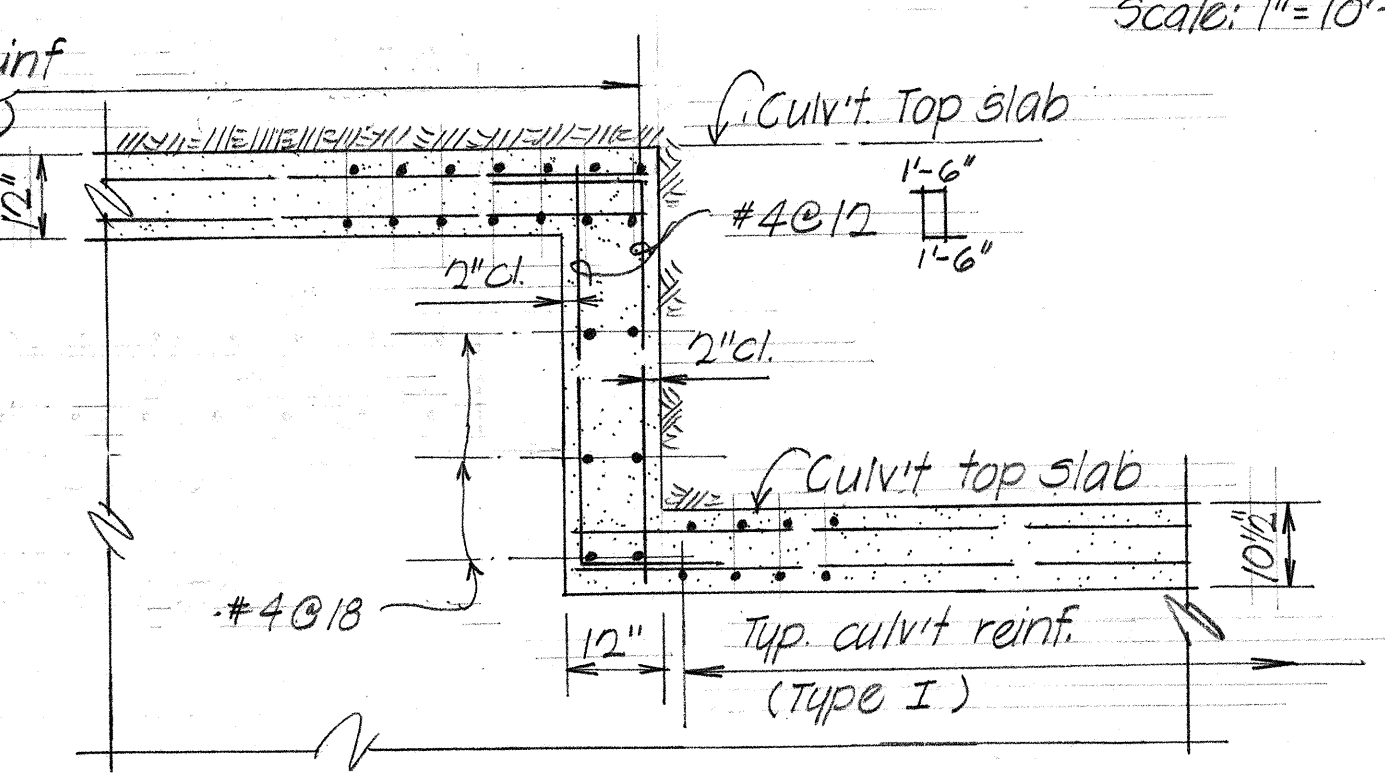
TYP. CONST JT. DETAIL
 AT SIDE WALLS & CULV'T TOP SLAB
 Scale: 1" = 1'-0"



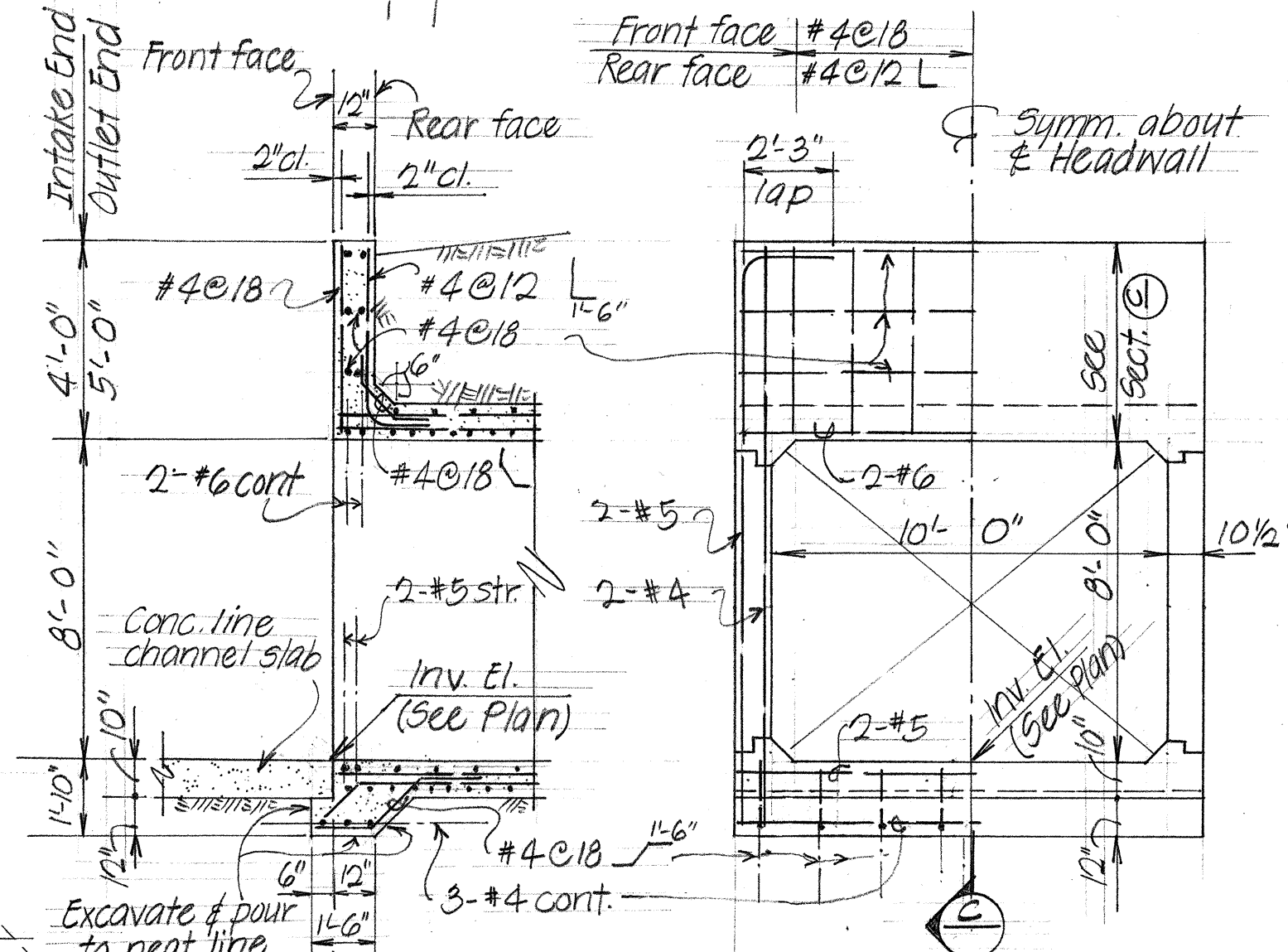
LONGITUDINAL SECTION ALONG & CONC. BOX CULV'T
 Scale: 1" = 10'-0"



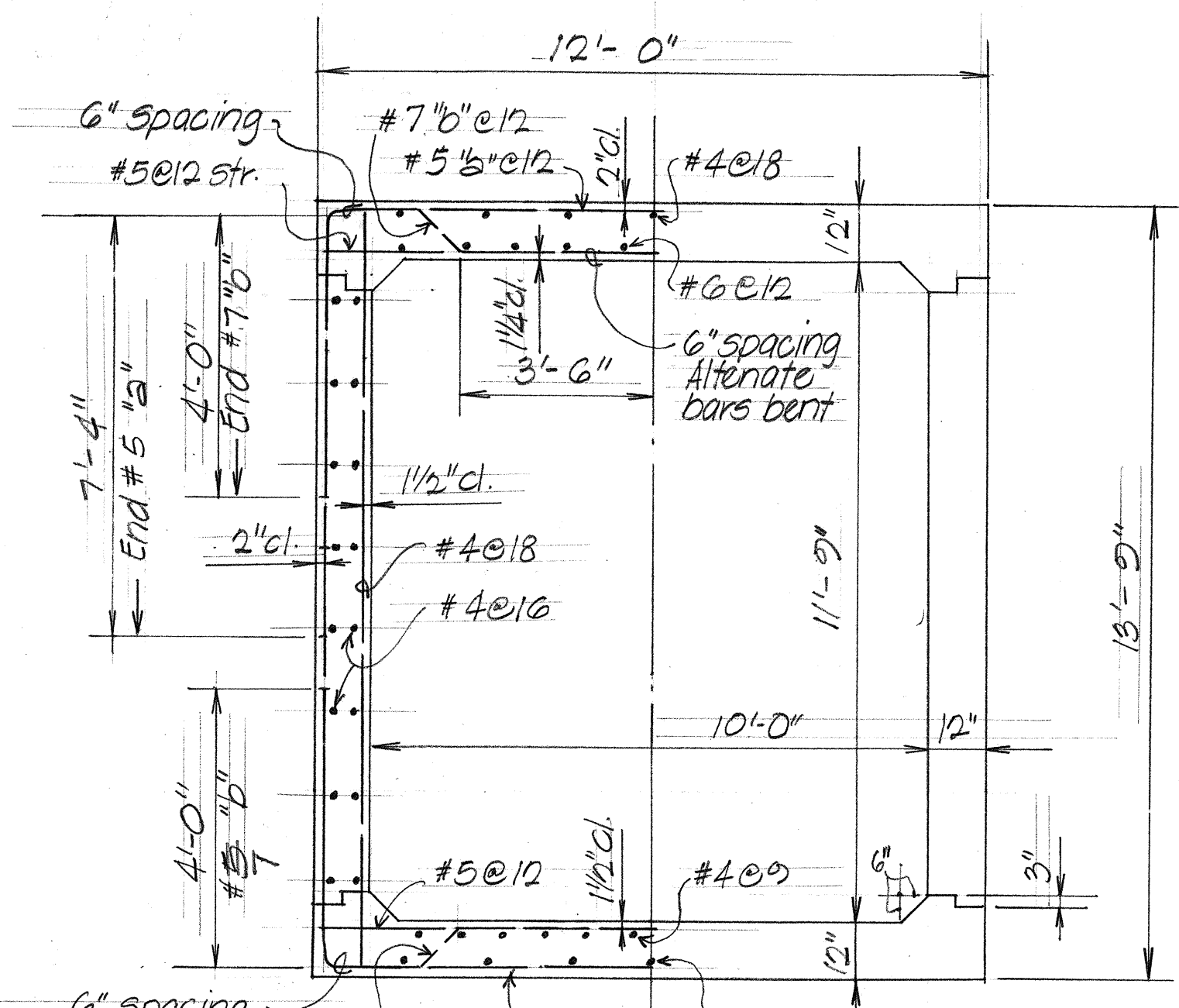
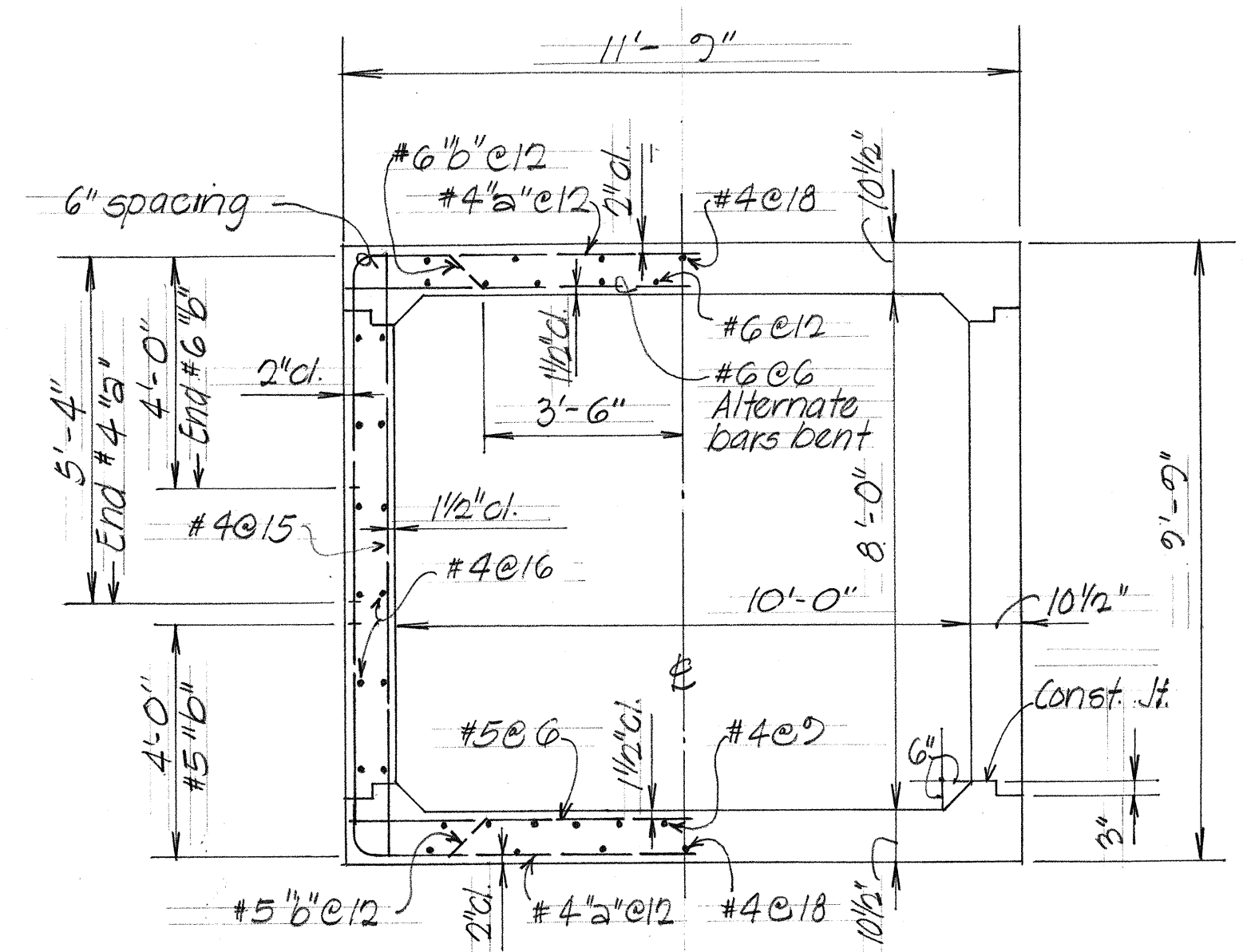
DETAIL (A)
 Scale: 1/2" = 1'-0"



DETAIL (B)
 Scale: 1/2" = 1'-0"



SECTION (C) ELEVATION
 TYPICAL HEADWALL DETAIL
 Scale: 1/4" = 1'-0"



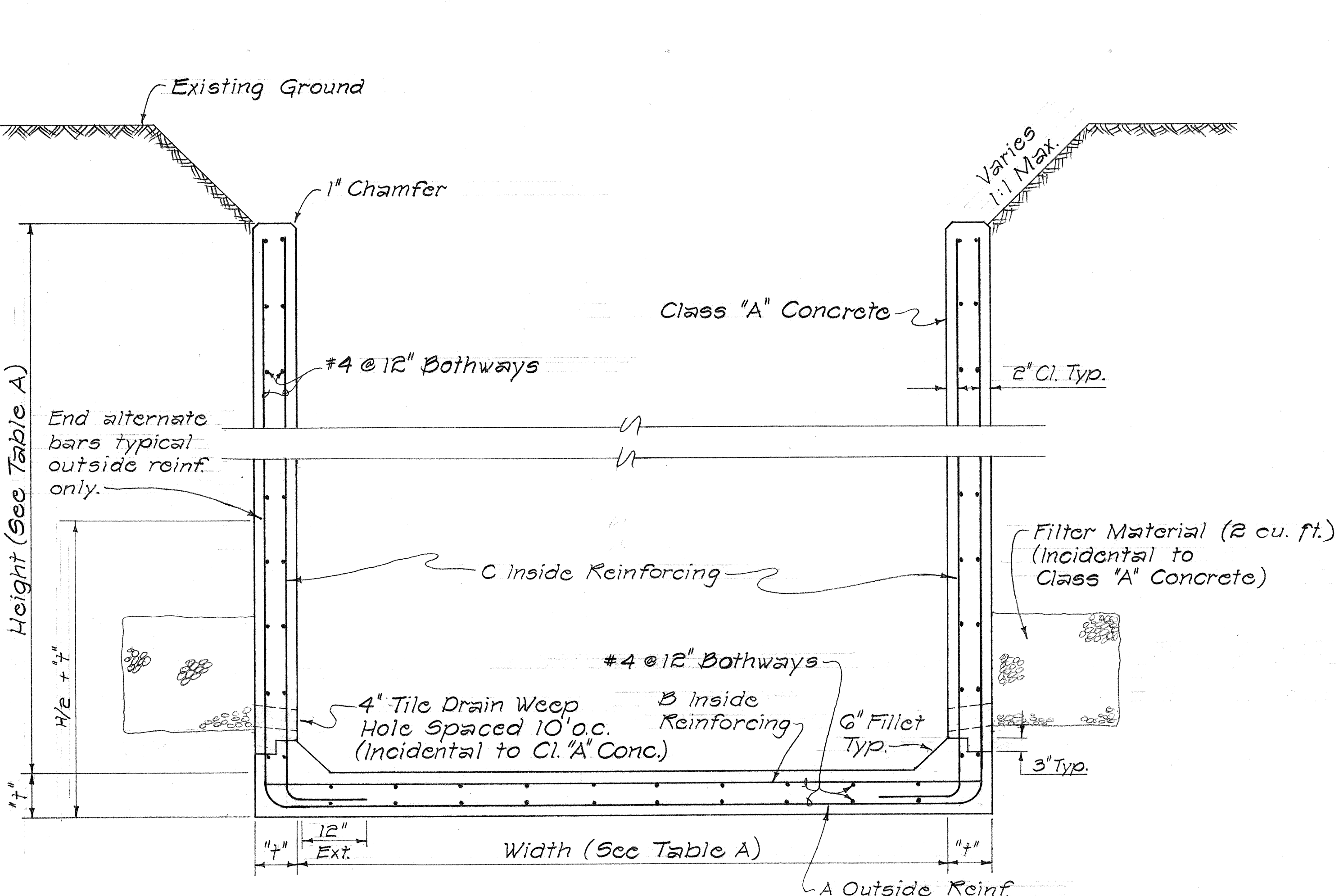
TYP. CONC. BOX CULV'T SECTION
 Scale: 3/8" = 1'-0"

ESTIMATED QUANTITIES		
Class A Concrete	93	cy
Reinforcing Steel	10,700	lbs
Structural Excavation	410	cy

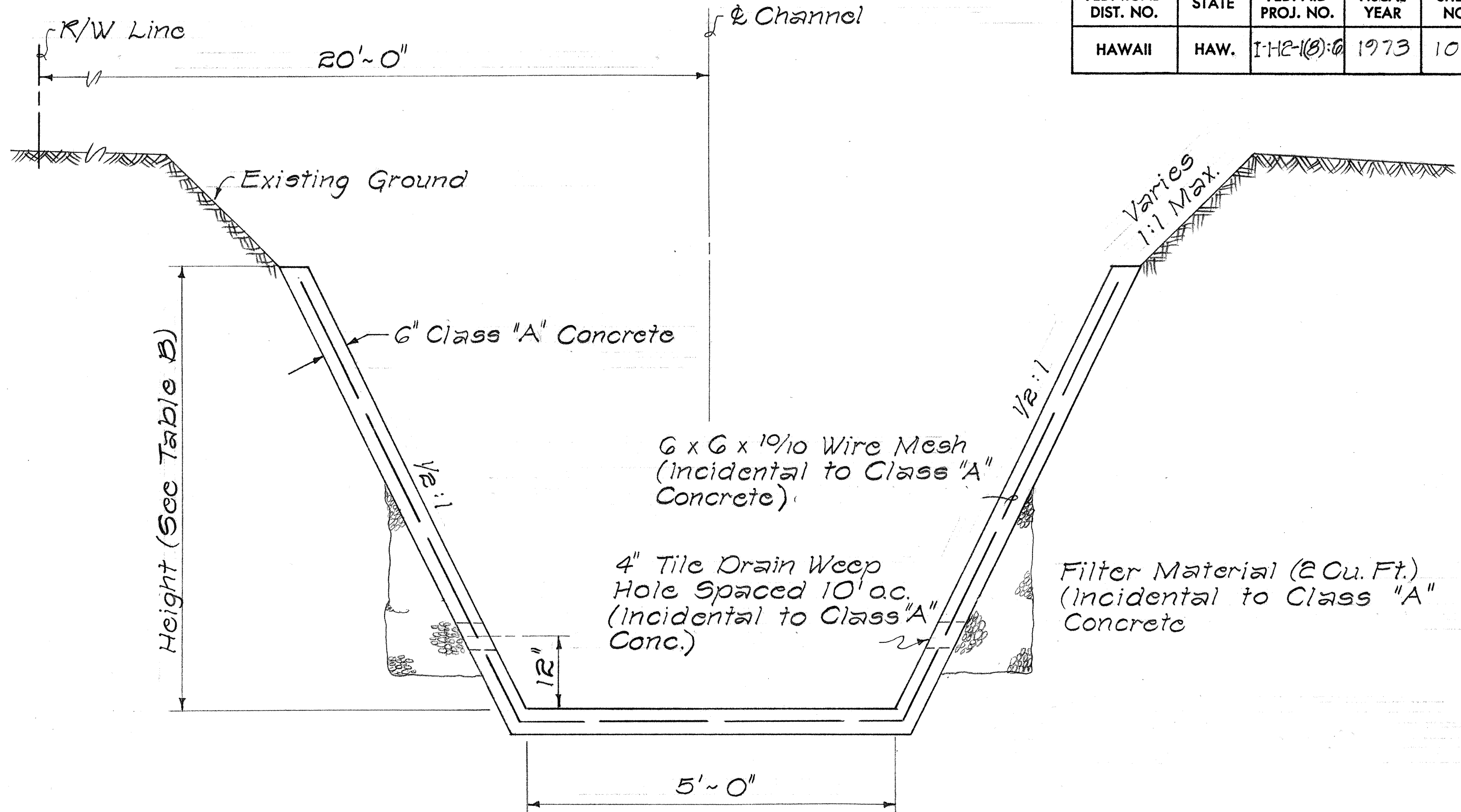
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
10'-0"x8'-0" CONC. BOX CULVERT
 Waikalani Access Rd. Sta 3+42.20
 INTERSTATE ROUTE H-2
 LEILEHUA INTERCHANGE
 F.A.I. PROJ. NO. I-H2-1(8)-G
 Scale As Noted Date: May, 1973
SHEET No. 12 OF 26 SHEETS

DATE	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NOTED BY	
ORIGINAL	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-12-1(8):6	1973	106	160



TYPICAL SECTION
LINED RECTANGULAR INTERCEPTOR CHANNEL



TYPICAL SECTION
LINED TRAPEZOIDAL INTERCEPTOR CHANNEL

TABLE A								
FROM STATION	TO STATION	WIDTH (Ft.)	HEIGHT (Ft.)	"t" (In.)	A Outside Reinforcing	B Inside Reinforcing	C Inside Reinforcing	
0 + 00	10 + 22	9.0	6.0	8	#5 @ 6"	#6 @ 12"	#4 @ 12"	
11 + 55	14 + 40	9.0	7.0	9	#6 @ 6"	#7 @ 12"	#5 @ 12"	
16 + 35	17 + 50	9.0	7.0	9	#6 @ 6"	#7 @ 12"	#5 @ 12"	
41 + 00	41 + 84.9	14.0	10.0	10	#7 @ 6"	#9 @ 12"	#7 @ 12"	
44 + 22.5	45 + 38.41	6.0	8.0	10	#7 @ 7"	#8 @ 14"	#7 @ 14"	
46 + 05.41	47 + 37.68	7.5	8.0	10	#7 @ 6"	#8 @ 12"	#7 @ 12"	
47 + 57.68	48 + 51.25	10.0	8.0	10	#7 @ 6"	#9 @ 12"	#7 @ 12"	
49 + 11.25	49 + 62	10.0	9.5	10	#7 @ 6"	#9 @ 12"	#7 @ 12"	

- NOTE:
1. Wall thickness and reinforcing of Lined Rectangular Interceptor Channel will govern where transition is between rectangular and trapezoidal sections.
 2. Typical Section of thicker wall and heavier reinforcing will govern if transition is between rectangular sections.
 3. Transition section after the baffle chute shall have wall thickness and reinforcing same as typical section for & Sta. 44 + 22.5 to & Sta. 45 + 38.41.
 4. See Sht. No. 104, for expansion & construction joints, cut-off wall, and transition details.
 5. Wall thickness and reinforcing of Lined Rectangular Interceptor Channel at & Sta. 16 + 35 to & Sta. 17 + 50 will apply @ transition section at & Sta. 40 + 70 to & Sta. 41 + 00

TRANSITIONS		
FROM STATION	TO STATION	REMARKS
10 + 22	10 + 42	Transition from 9.0' x 6.0' Rectangular Channel to 14.5' x 7.5' Rectangular Channel @ Headwall
11 + 35	11 + 55	Transition from 14.5' x 7.5' Rectangular Channel @ Headwall to 9.0' x 7.0' Rectangular Channel
14 + 40	14 + 60	Transition from 9.0' x 7.0' Rectangular Channel to 14.5' x 7.5' Rectangular Channel @ Headwall
16 + 15	16 + 35	Transition from 14.5' x 7.5' Rectangular Channel to 9.0' x 7.0' Rectangular Channel
17 + 50	17 + 70	Transition from 9.0' x 7.0' Rectangular Channel to 5.0' x 7.5' Trapezoidal Channel
40 + 70	41 + 00	Transition from 5.0' x 7.0' Trapezoidal Channel to 14.0' x 7.0' Rectangular Channel
41 + 84.9	43 + 80	14.0' x 10.0' Baffle Chute
43 + 80	44 + 22.5	Transition from 14.0' x 10.0' Baffle Chute to 6.0' x 9.0' Rectangular Channel
45 + 38.41	46 + 05.41	Channel Junction
47 + 37.68	47 + 57.68	Transition from 7.5' x 8.0' Rectangular Channel to 10.0' x 8.0' Rectangular Channel

TABLE B			
FROM STATION	TO STATION	WIDTH (Ft.)	HEIGHT (Ft.)
17 + 70	21 + 50	5.0	7.5
21 + 50	27 + 00	5.0	7.0
27 + 00	34 + 00	5.0	6.5
34 + 00	40 + 70	5.0	7.0

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE DETAILS

LINED INTERCEPTOR CHANNEL

INTERSTATE ROUTE H-2

LEILEHUA INTERCHANGE

F.A.I. Proj. No. I-H2-1(8):6

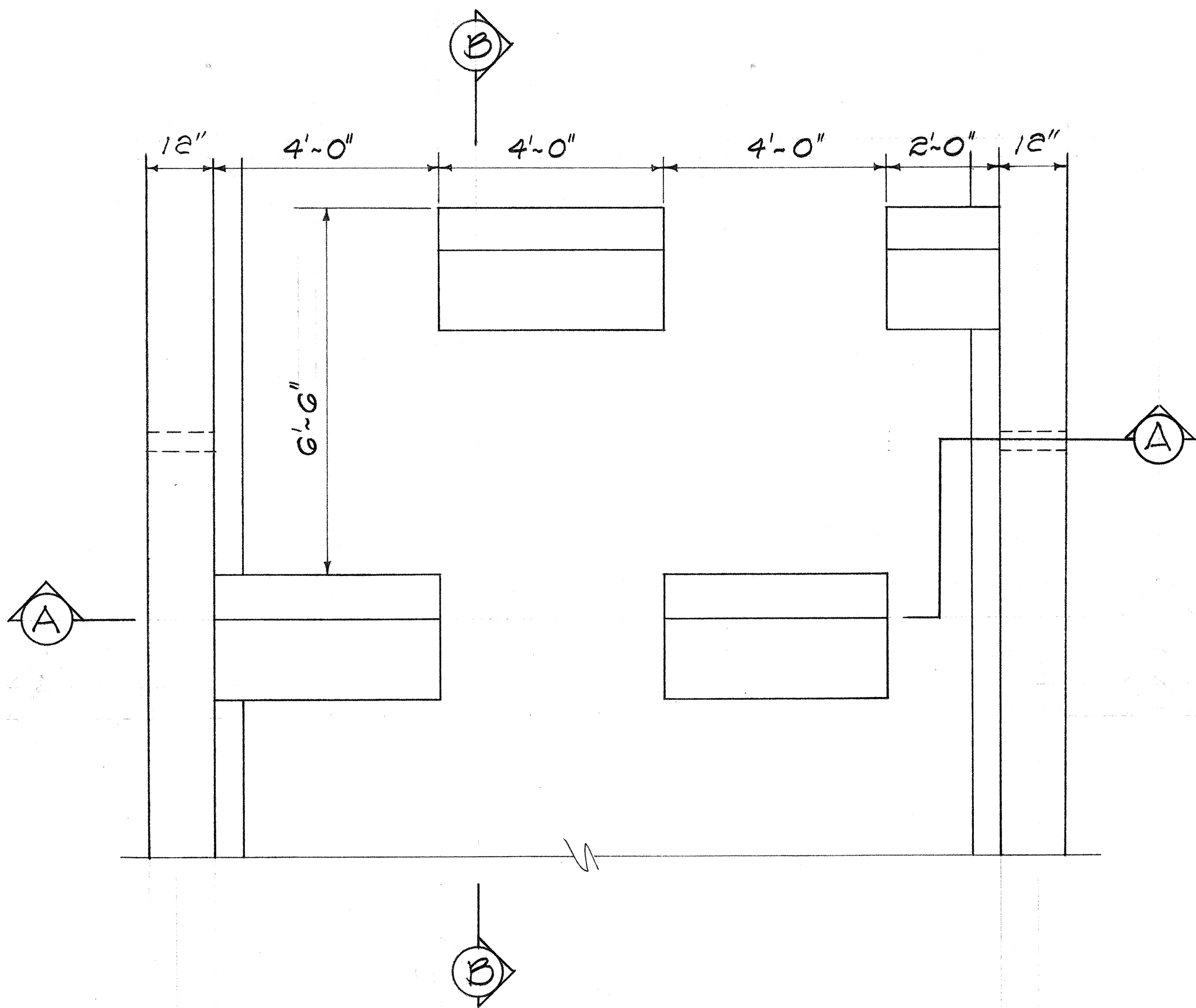
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Date: May, 1973

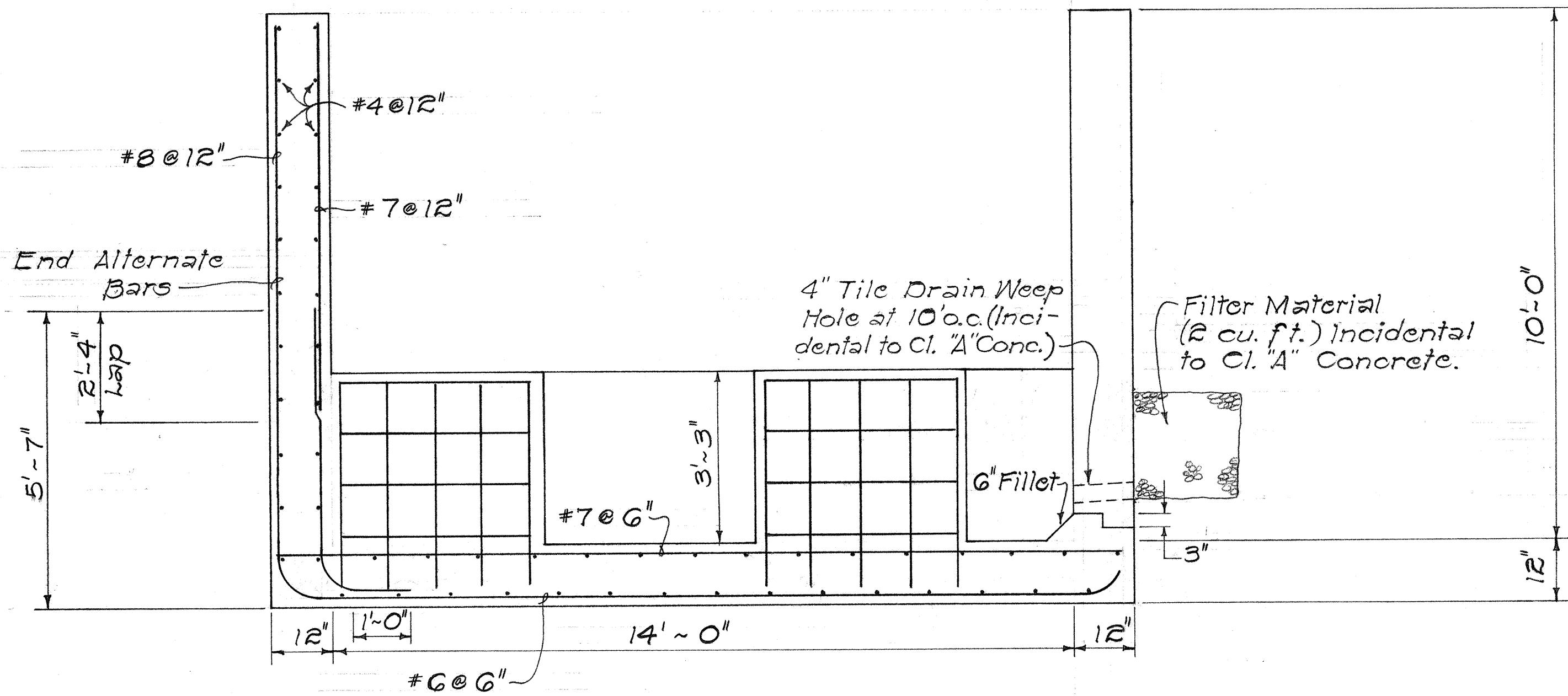
SHEET No. 13 OF 26 SHEETS

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

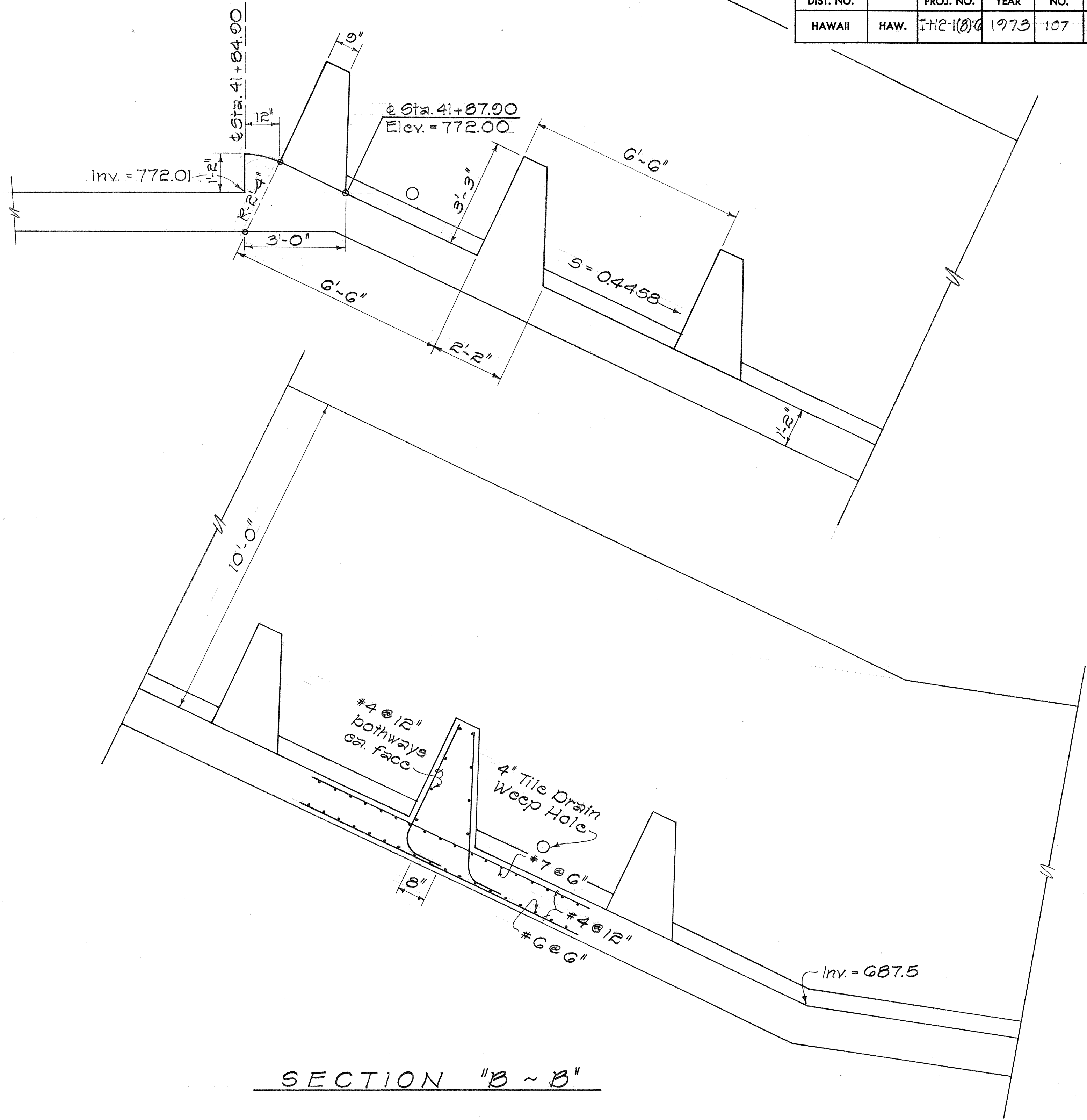
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(8)G	1973	107	100



PLAN



SECTION "A ~ A"



SECTION "B ~ B"

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE DETAILS

BAFFLE CHUTE DETAILS

INTERSTATE ROUTE H-2

LEILEHUA INTERCHANGE

F.A.I. Proj. No. I-H2-1(8)G

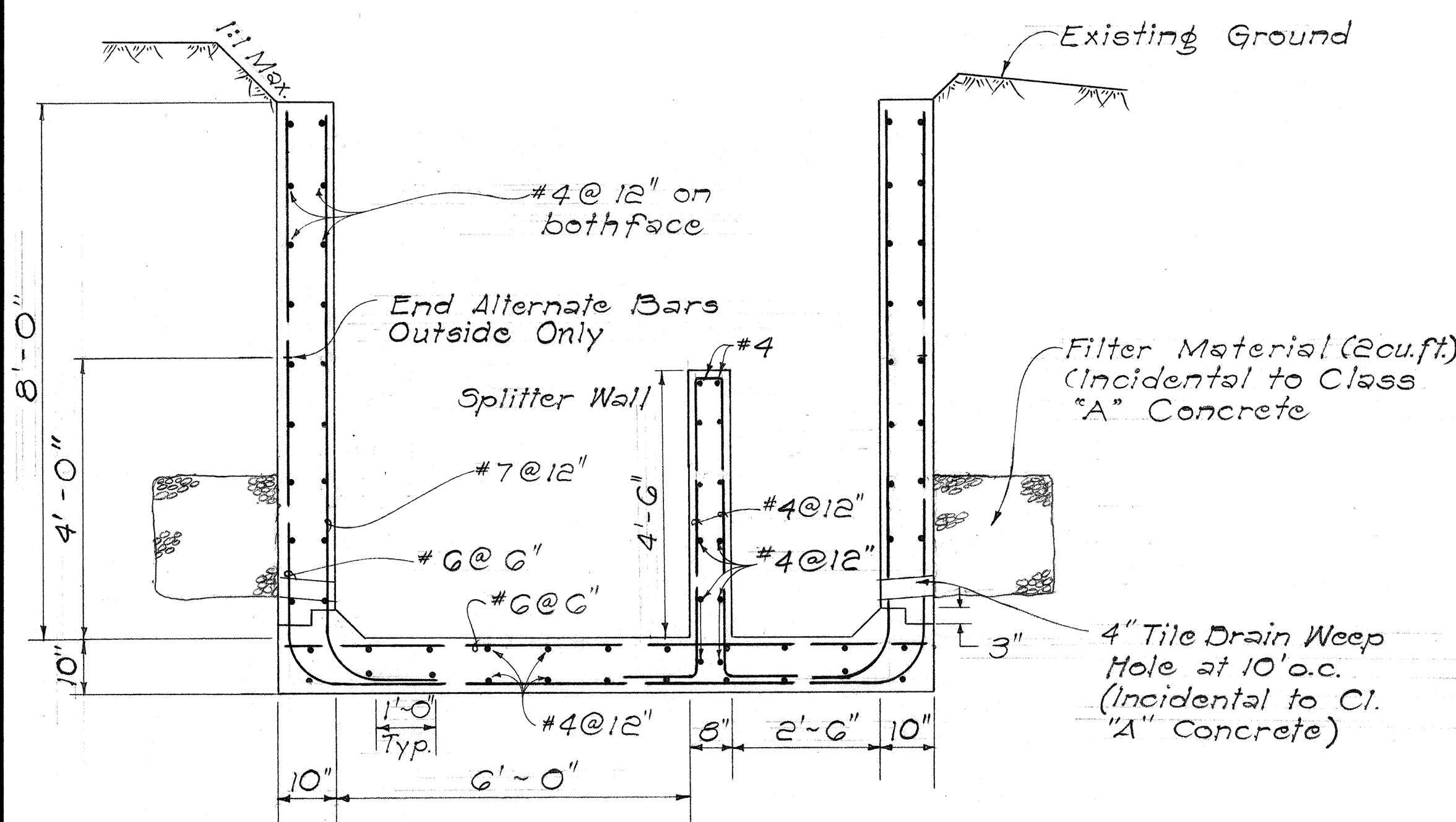
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Date: May, 1973

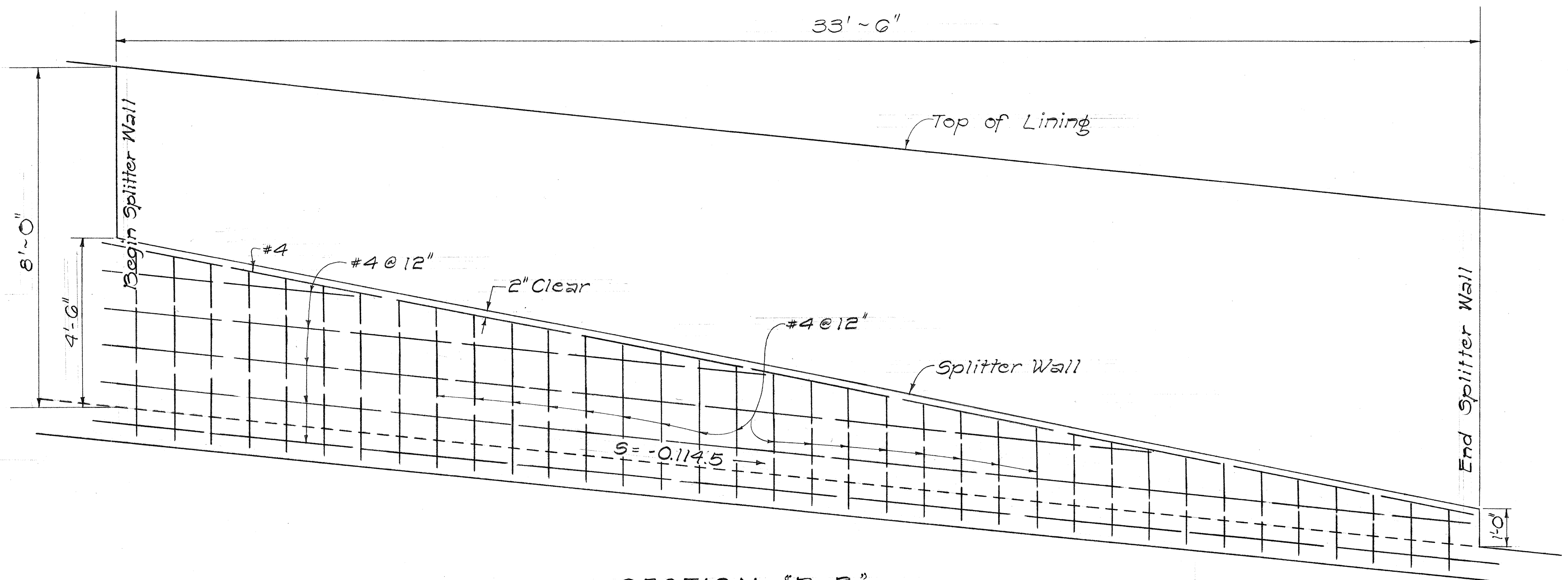
SHEET No. 14 OF 26 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	

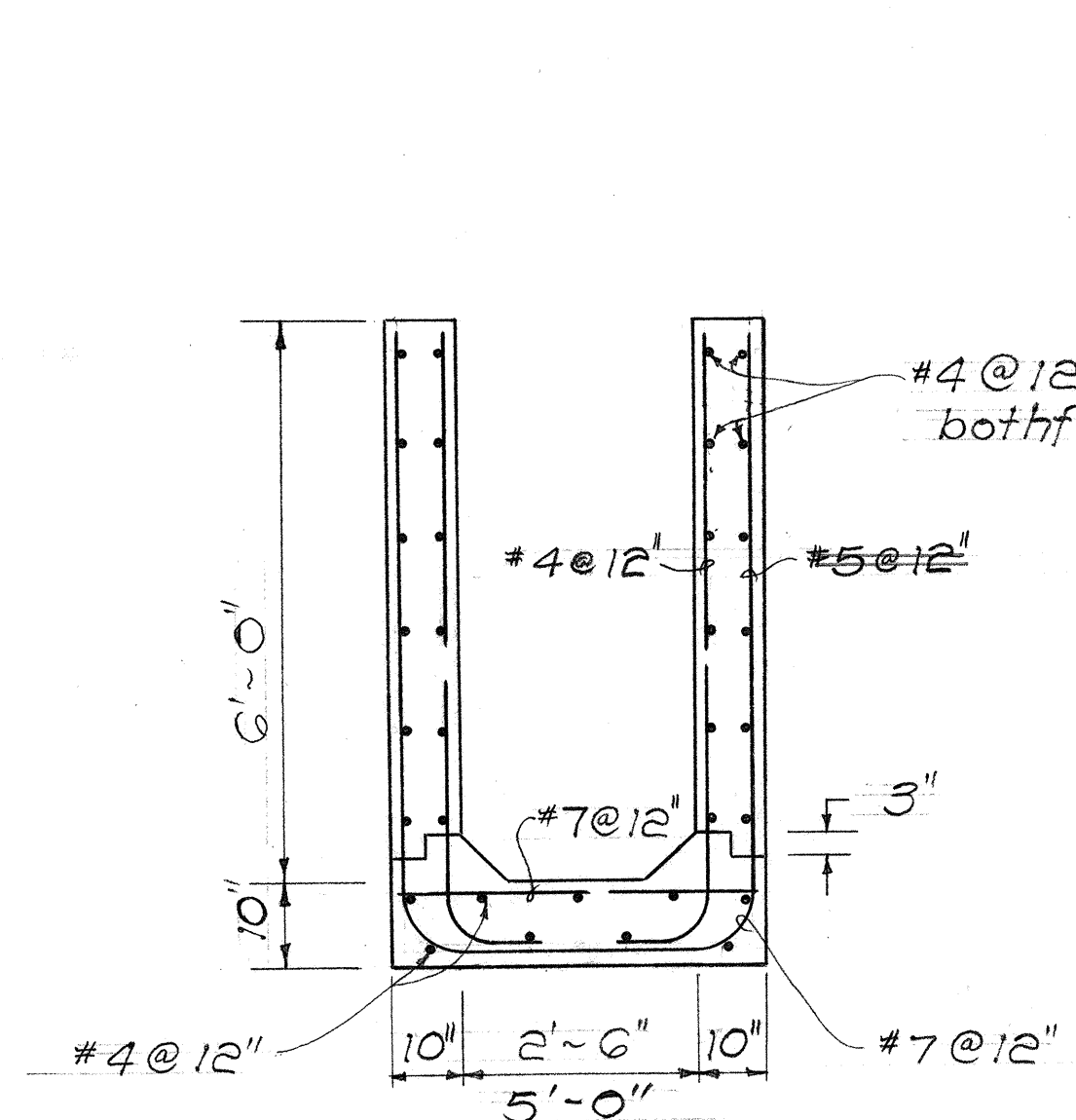
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(8)-G	1973	108	100



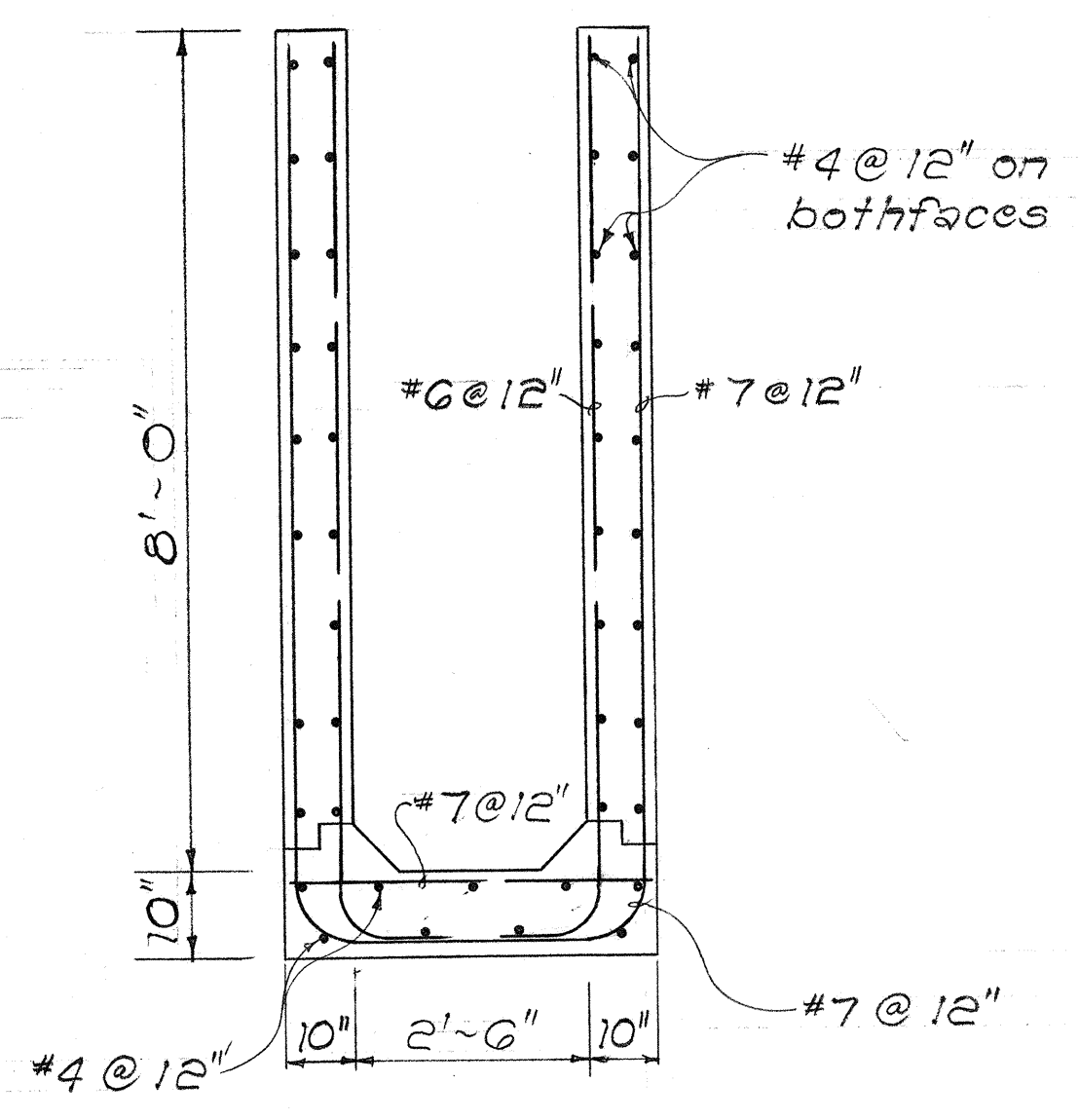
SECTION "A-A"



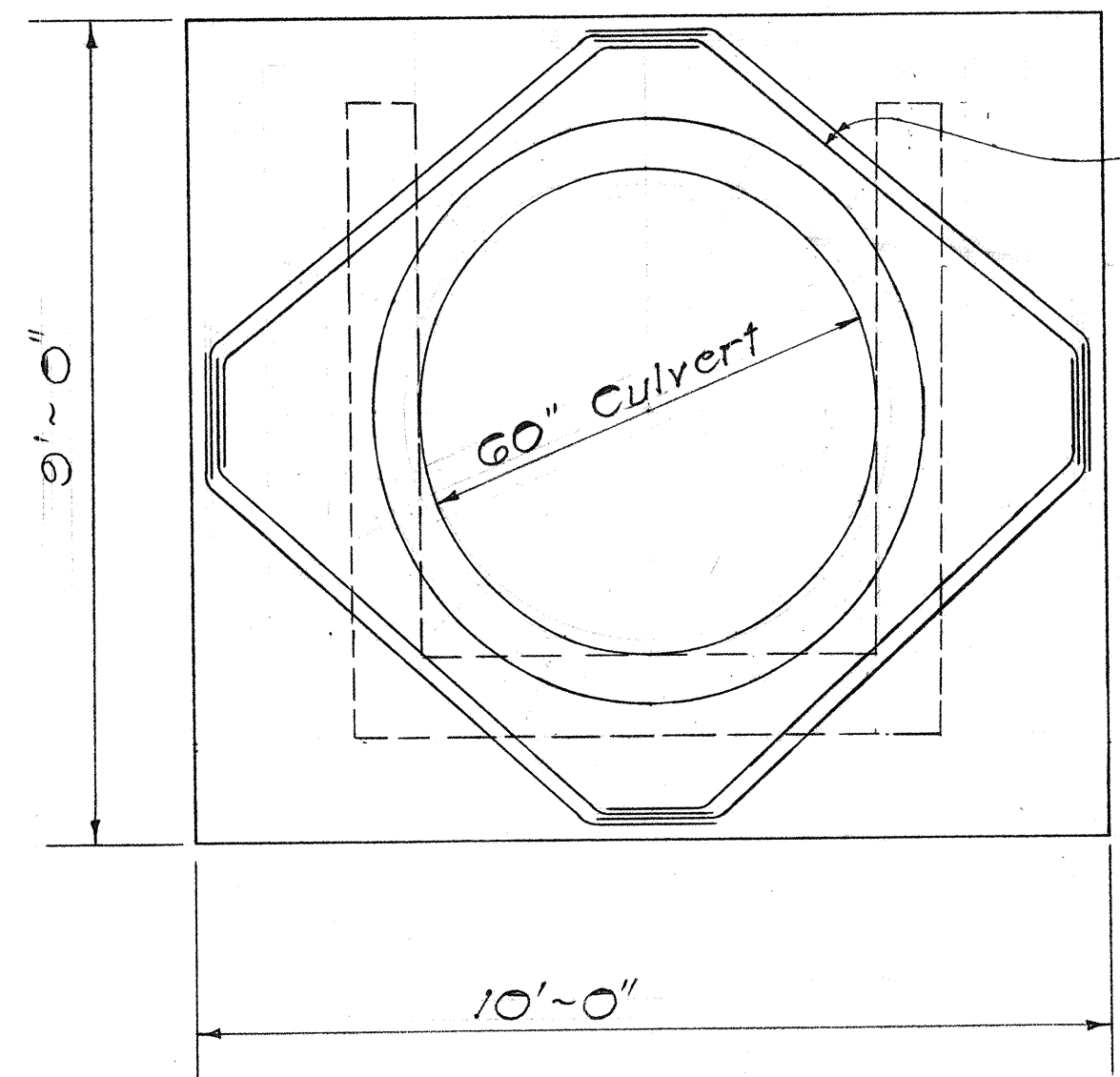
SECTION "B-B"



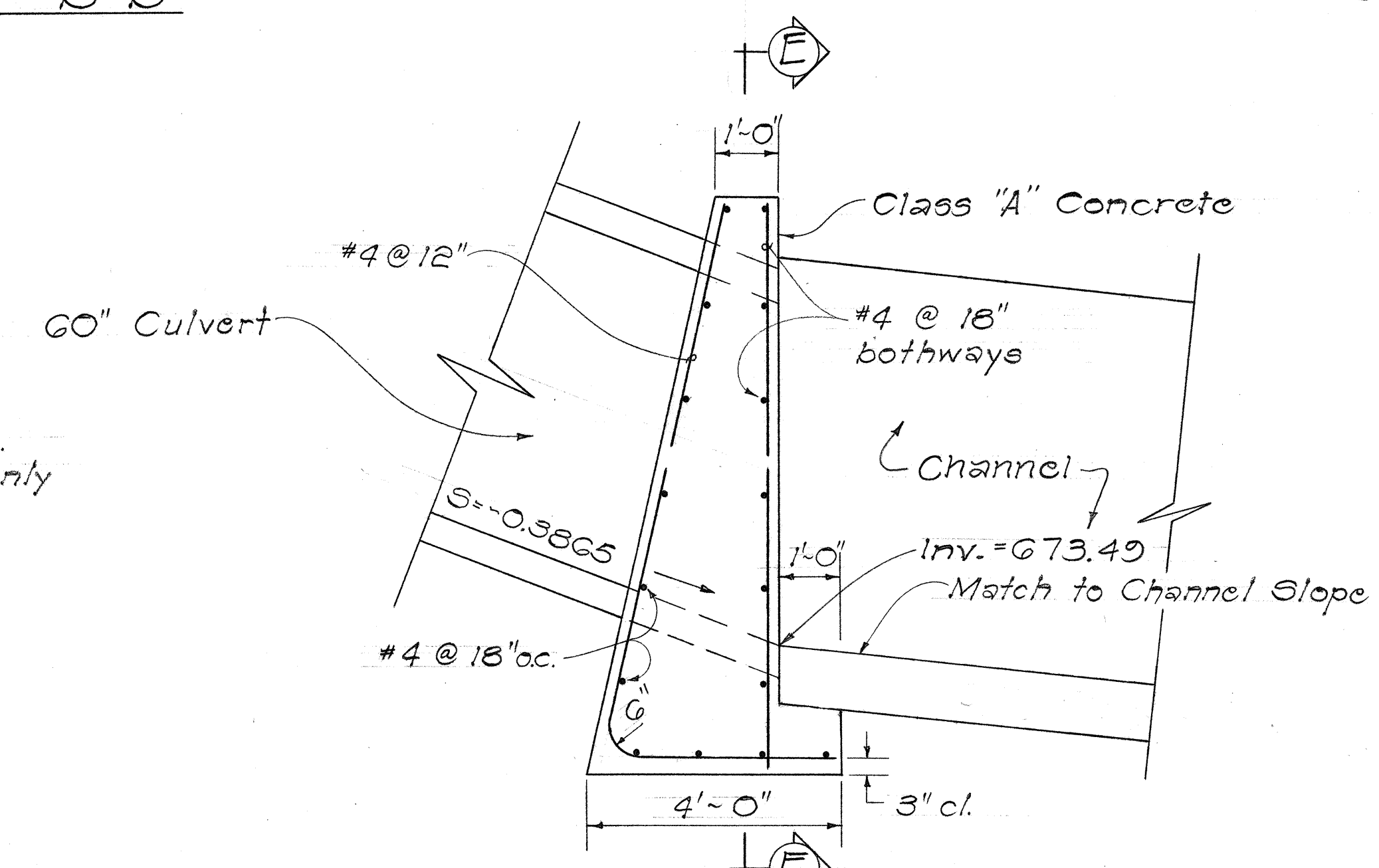
SECTION "C-C"



SECTION "D-D"



SECTION "E-E" (N.I.C.)



CONCRETE HEADWALL (N.I.C.)

DETAILS OF INTERCEPTOR CHANNEL JUNCTION

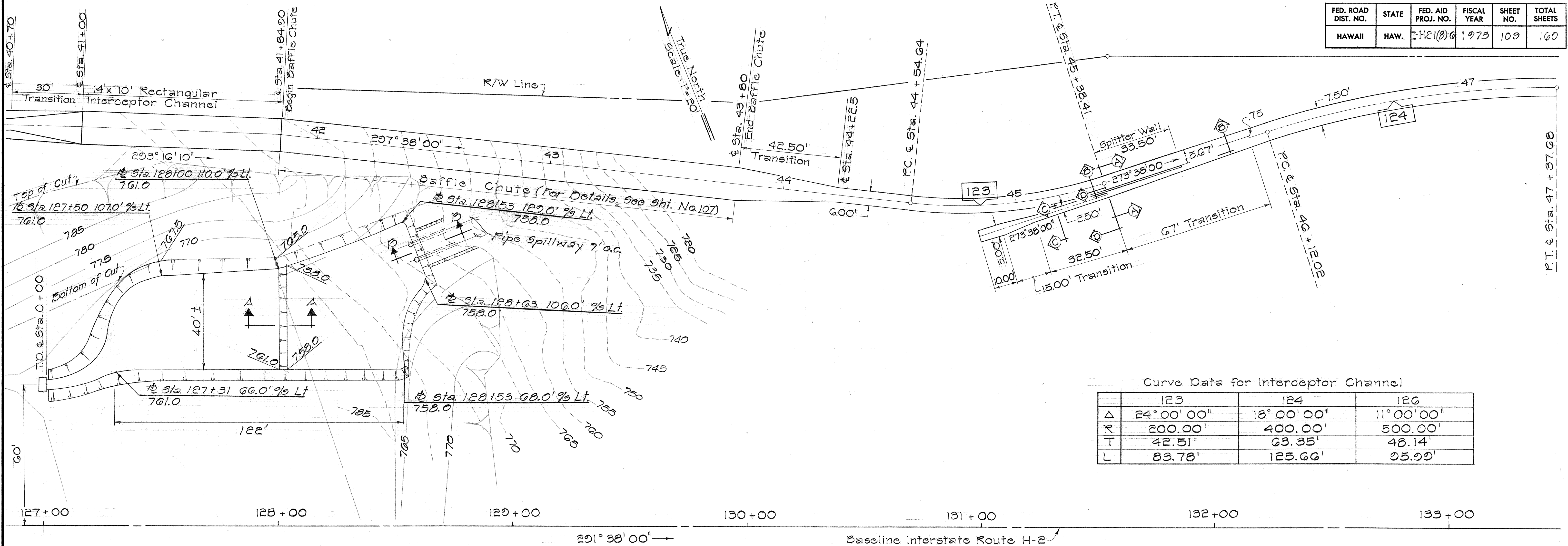
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
INTERCEPTOR CHANNEL
JUNCTION
INTERSTATE ROUTE H-2
LEILEHUA INTERCHANGE
F.A.I. Proj. No. I-H2-1(8)-G
Scale: 1/2" = 1'-0" Date: May, 1973

SHEET No. 108 OF 200 SHEETS

ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

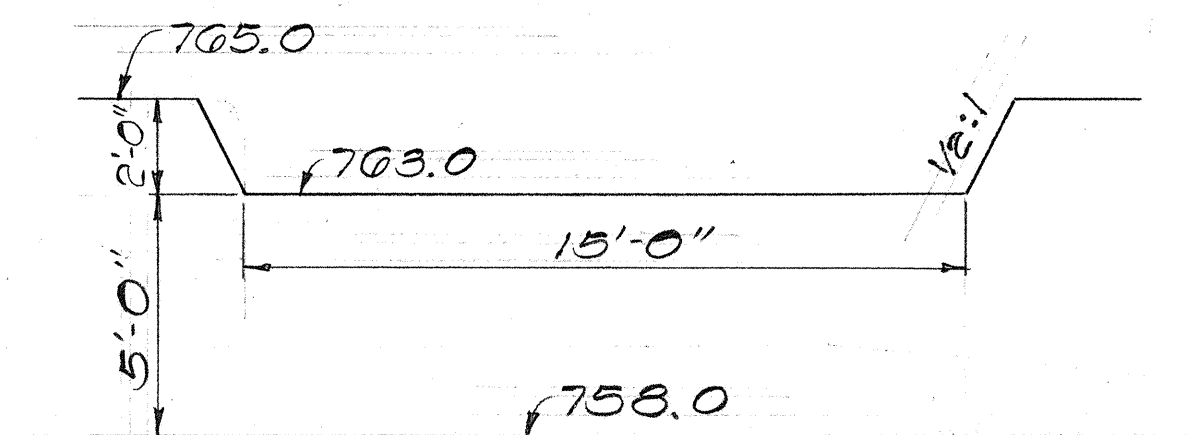
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(8)-G	1973	109	160



Curve Data for Interceptor Channel

	123	124	126
Δ	24° 00' 00"	18° 00' 00"	11° 00' 00"
R	200.00'	400.00'	500.00'
T	42.51'	63.35'	48.14'
L	83.78'	125.66'	95.99'

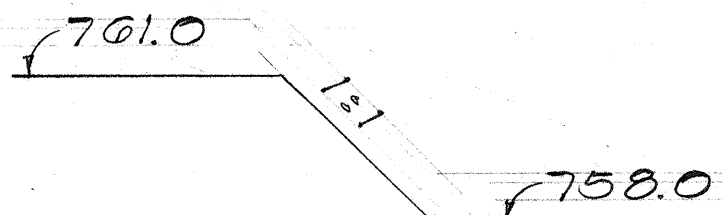
PLAN



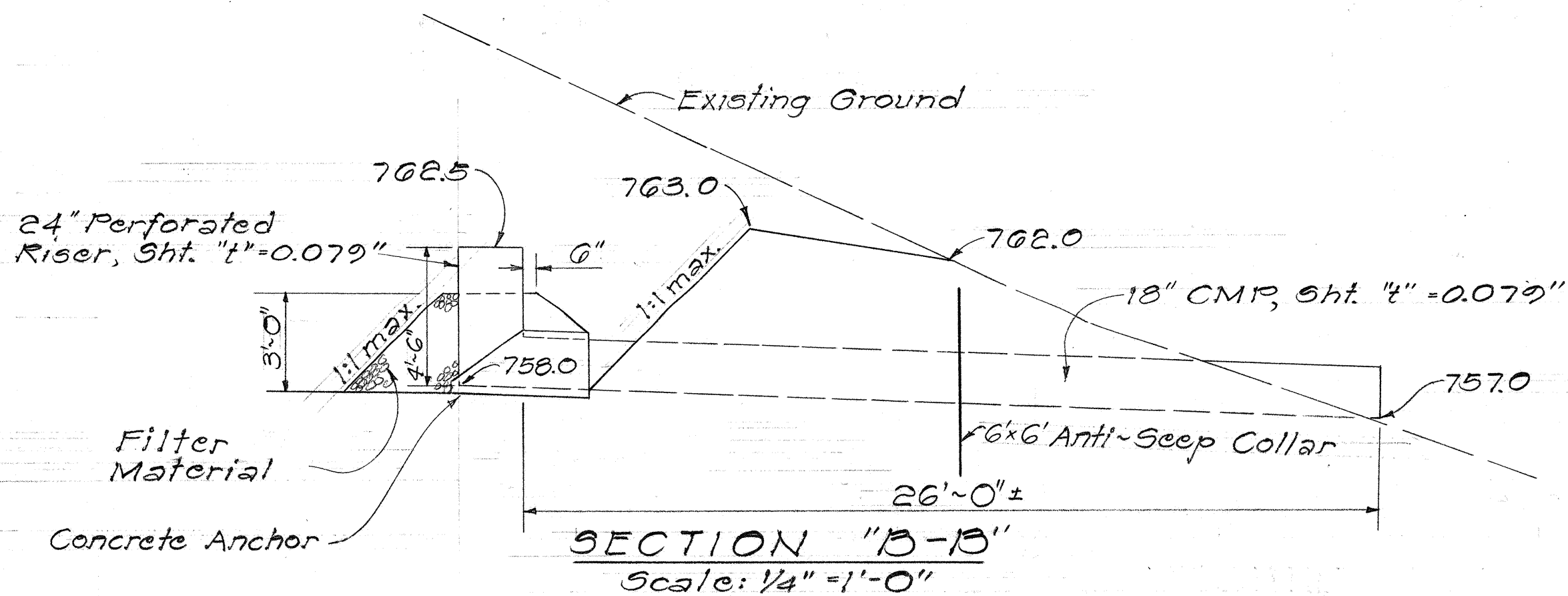
FRONT ELEVATION - BROAD-CRESTED WEIRS
Scale: 1/4" = 1'-0"

NOTE

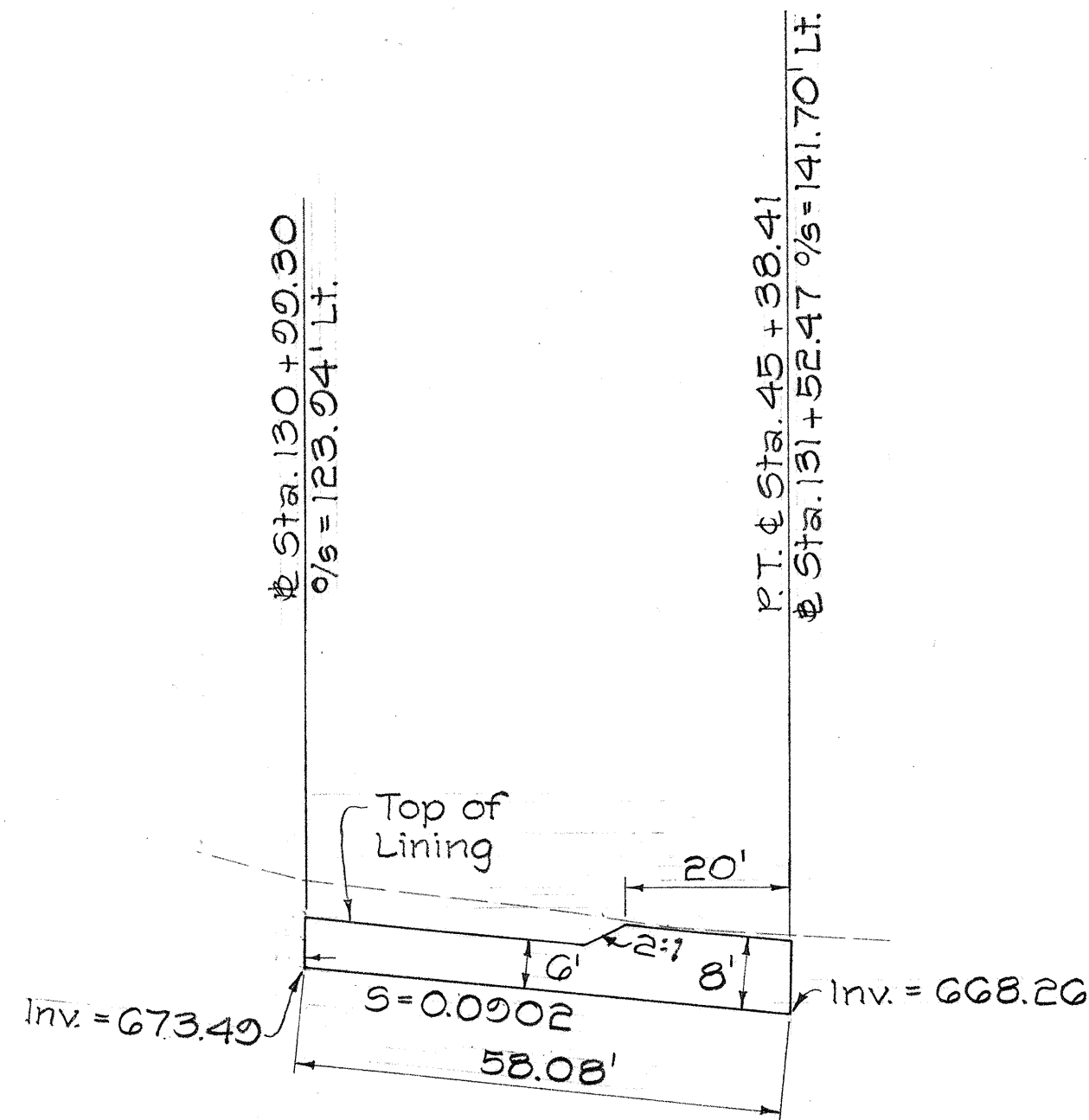
Notes for sediment basin at
Interceptor Channel Sta. 49+25 Rt.
will apply. (See Sht. No. 110)



SECTION "A-A"
Scale: 1/4" = 1'-0"



SECTION "B-B"
Scale: 1/4" = 1'-0"



PROFILE OF CHANNEL JUNCTION
Scale: 1" = 20'

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE DETAILS

CHANNEL JUNCTION AND

SEDIMENT BASIN NO. 1

INTERSTATE ROUTE H-2

LEILEHUA INTERCHANGE

F.A.I. Proj. No. I-H2-1(8)-G

Scale: As Noted Date: May, 1973

SHEET No. 10 OF 20 SHEETS

SURVEY PLANNED BY	DATE
DRAWN BY	
CHECKED 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.	IHE-1(8)-0	1973	110	100

NOTES:

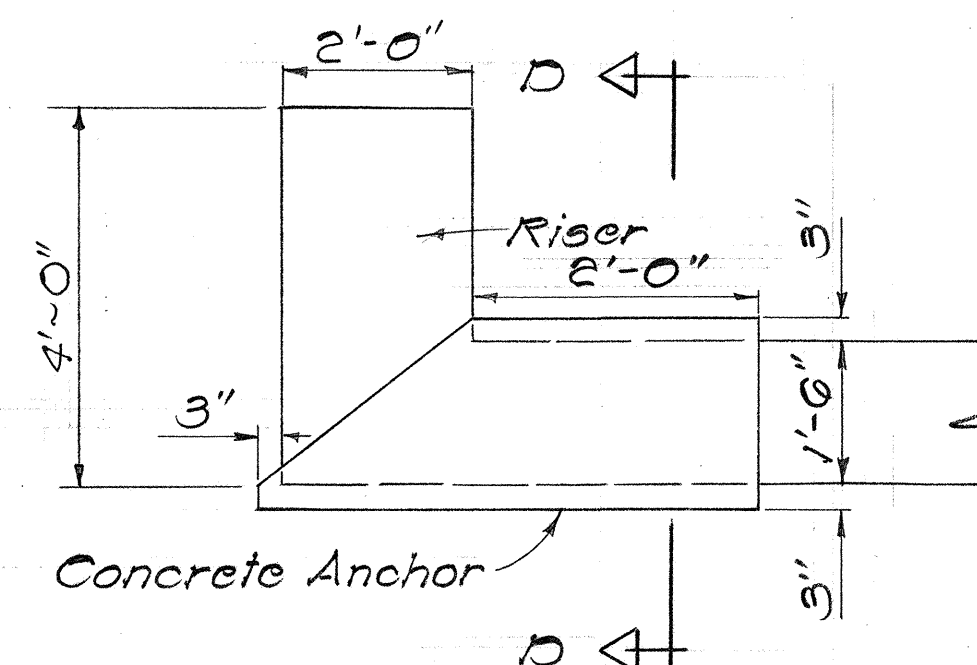
1. The metal pipe riser shall be perforated with 1/2 inches diameter holes spaced 6 inches vertically and 10 inches horizontally around the pipe.
2. The riser shall be solidly attached to the barrel and all connections shall be water tight. The barrel and riser shall be placed on a firm foundation. The fill material around the pipe spillway will be placed in 4-inch layers and compacted to at least the same density as the adjacent ground and to the satisfaction of the Engineer.
3. The broad-crested weir shall be immediately protected against erosion by hydro-mulching.
4. The connection between the anti-seep collar and pipe shall be water tight. The collar shall be placed as near the middle of the pipe length as possible, and at least 4-feet from a pipe joint. The backfill shall be placed in 6-inch layers and be compacted to at least the same density as the adjacent ground and to the satisfaction of the Engineer.
5. The completion of the Interceptor Channel, from & Sta. 49+11.25 to the outlet, shall be the last order of work. For details see sheet nos. 98, 102 & 108

FRONT ELEVATION - BROAD-CRESTED WEIR

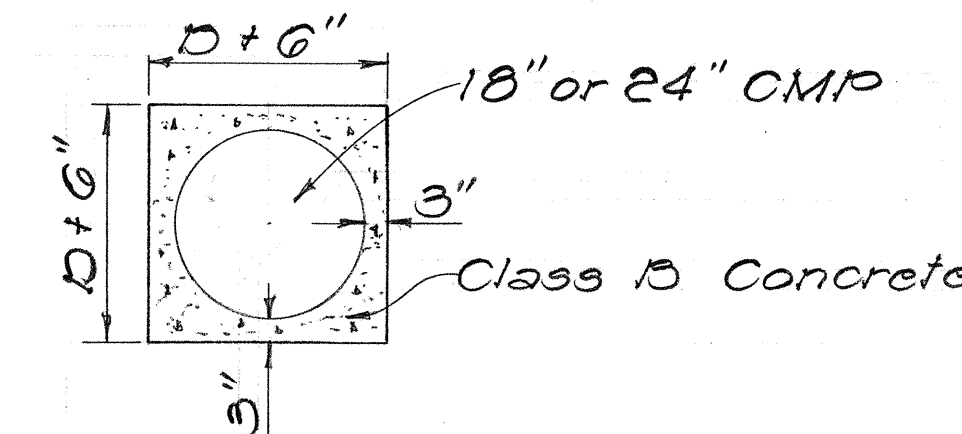
Scale: 1/4" = 1'-0"

SECTION "A-A"

Scale: 1/4" = 1'-0"



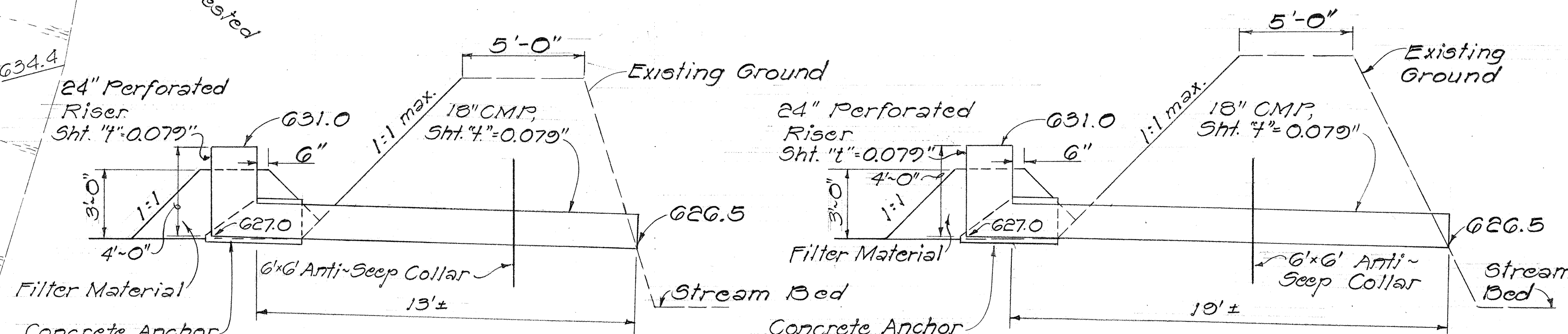
ELEVATION



SECTION "D-D"

CONCRETE ANCHOR DETAIL

Scale: 1/2" = 1'-0"

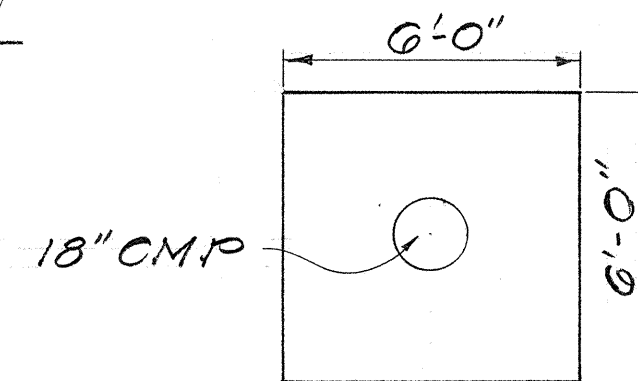


SECTION "B-B"

Scale: 1/4" = 1'-0"

SECTION "C-C"

Scale: 1/4" = 1'-0"



CORRUGATED METAL ANTI-SEEP COLLAR

Scale: 1/4" = 1'-0"

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE DETAILS

SEDIMENT BASIN NO. 2

INTERSTATE ROUTE H-2

LEILEHUA INTERCHANGE

F.A.I. PROJ. NO. I-H2-1(8)-G

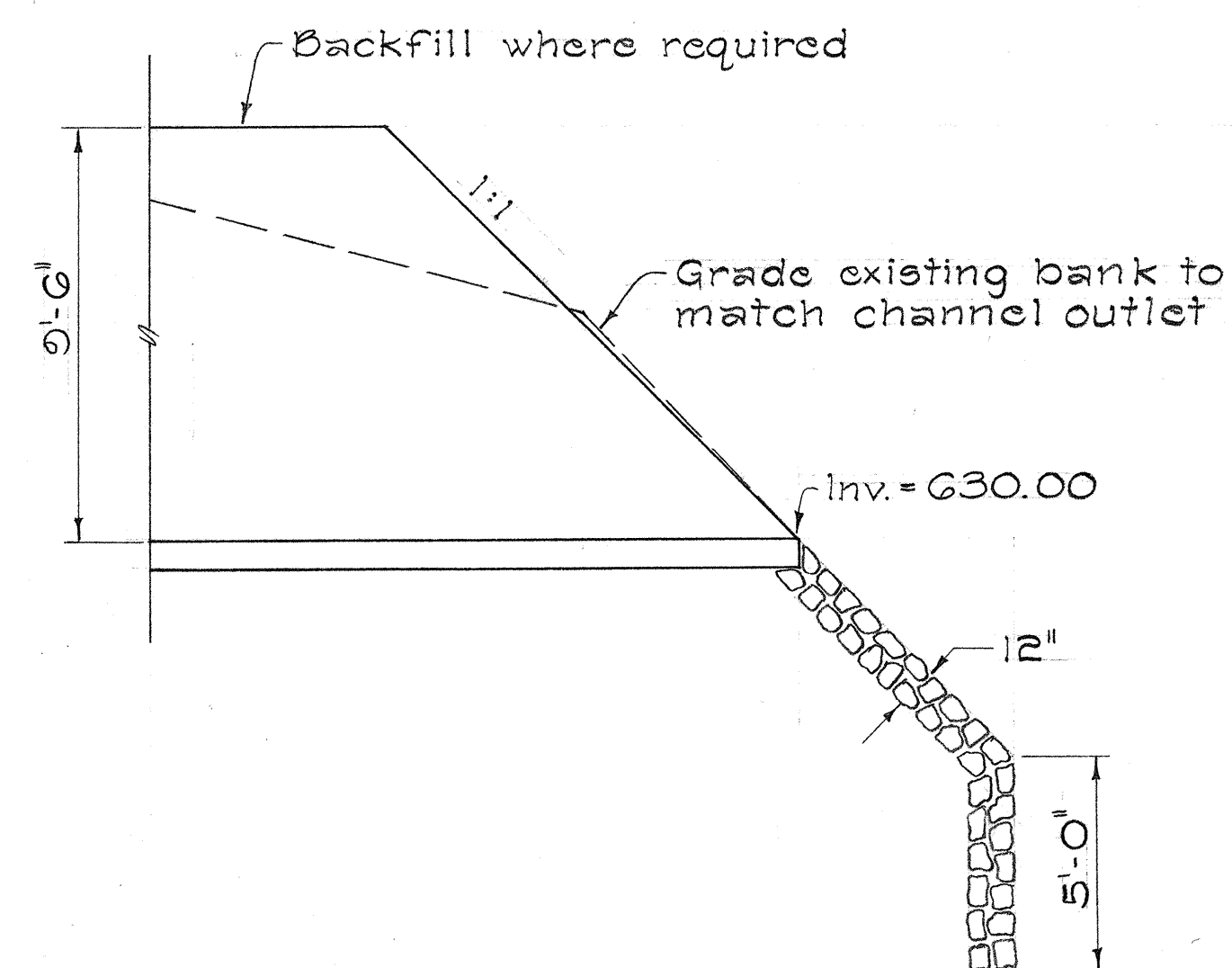
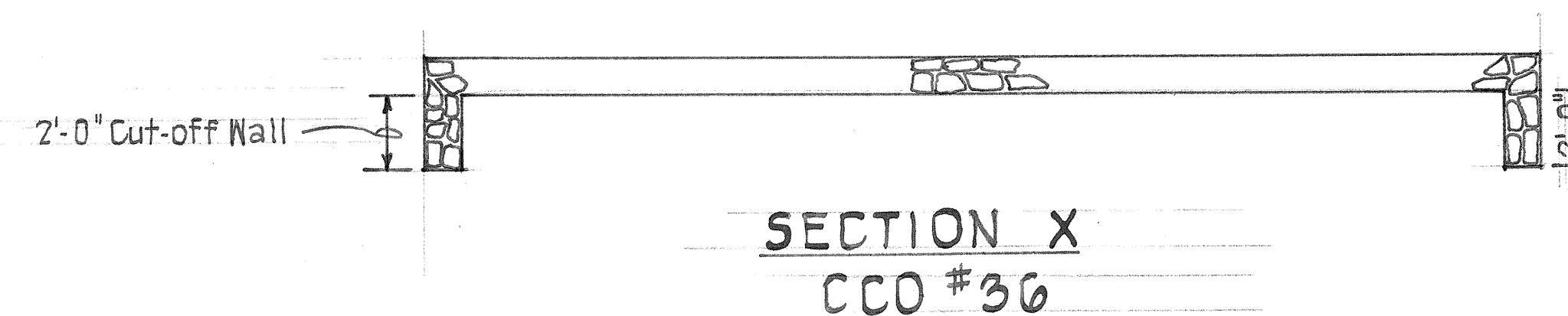
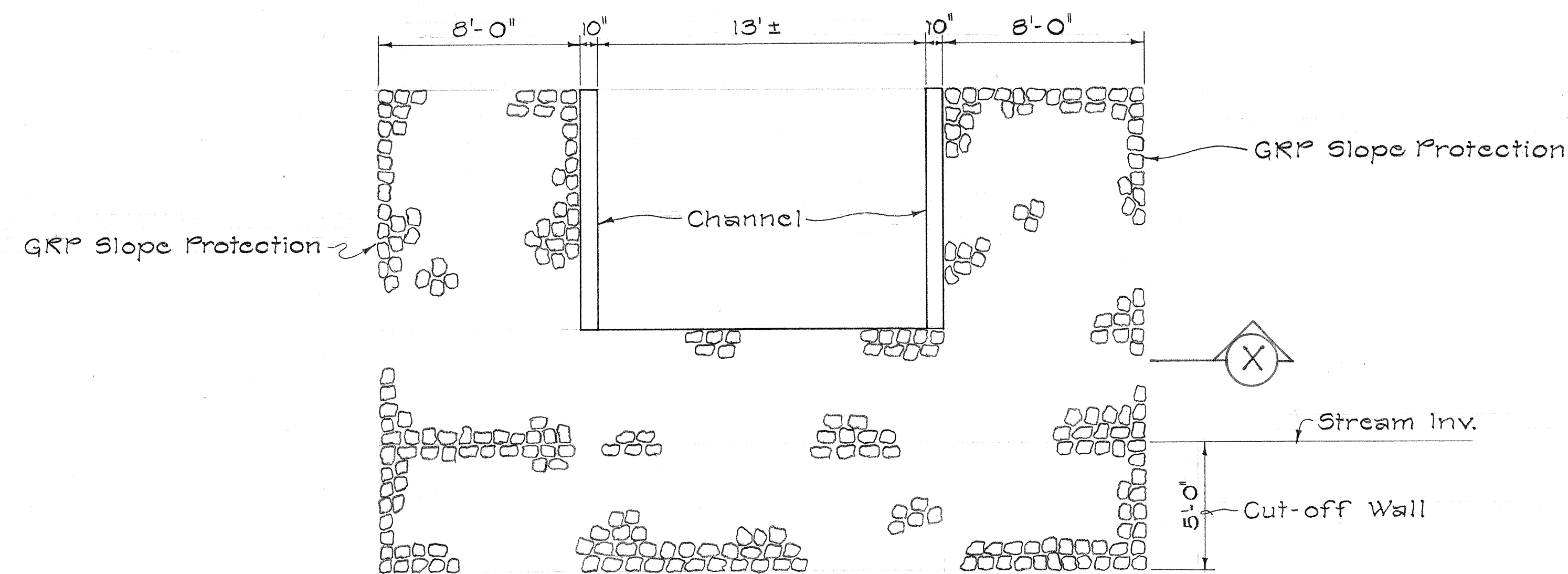
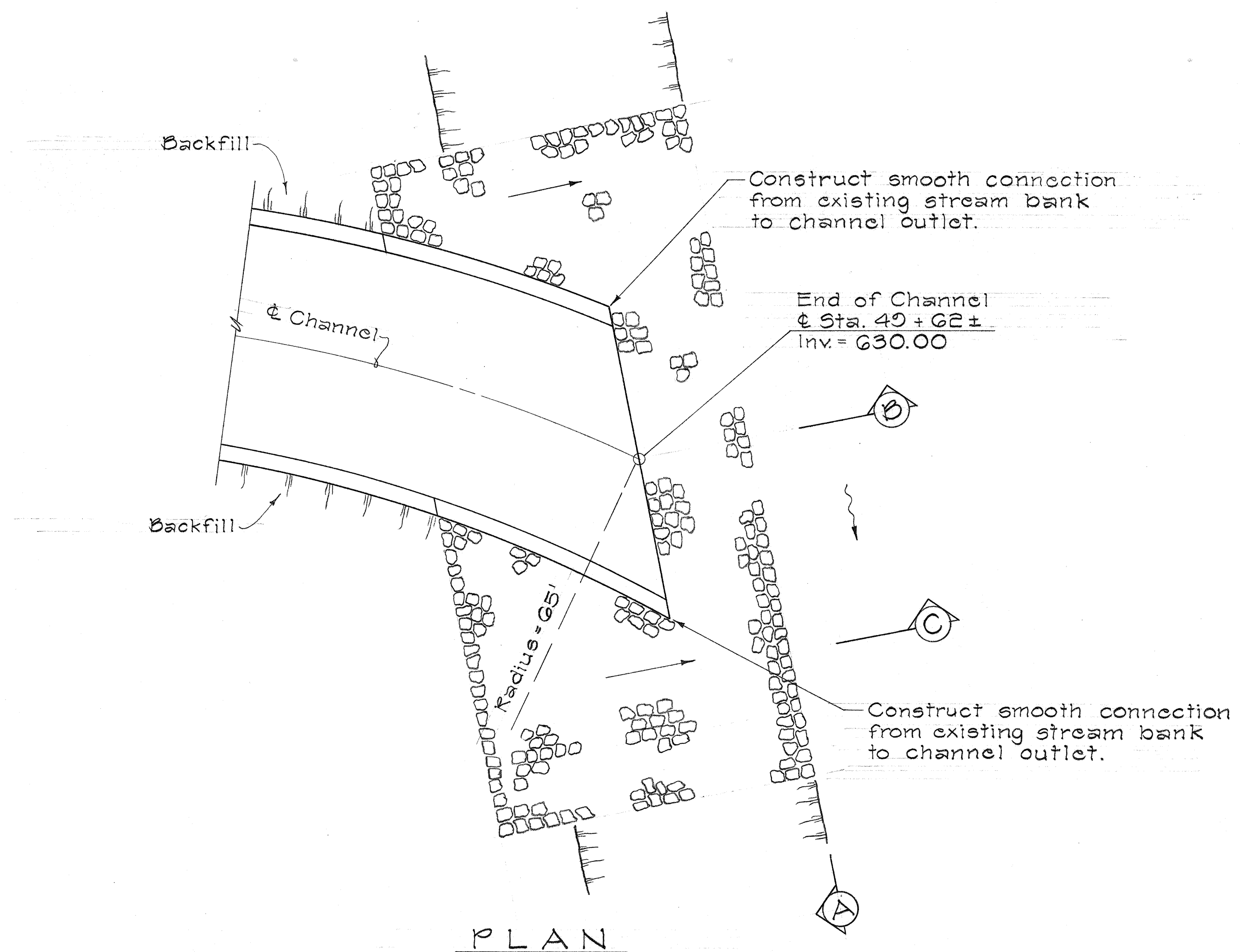
Scale: As Noted

Date: May, 1973

SHEET No. 17 OF 26 SHEETS

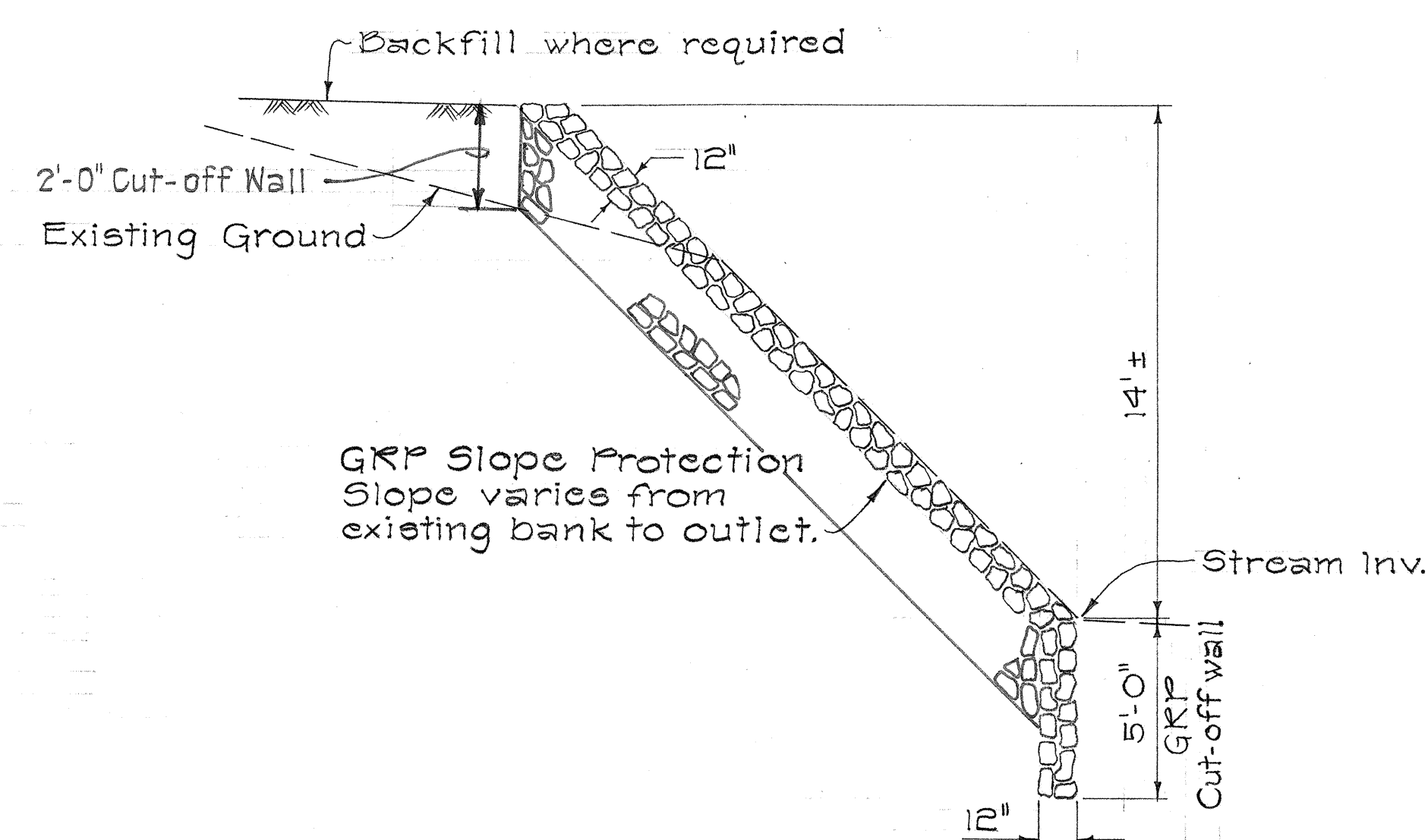
DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HE-1(8)-6	1973	111	100



NOTES

1. Backfill exposed sides of channel to top of lining.
2. Grade side slope of stream to make smooth connection to interceptor channel outlet.
3. GRP Slope Protection to be installed 8 feet upstream and 8 feet downstream of outlet. Cut-off walls, 5 feet deep, shall be built at invert and beginning and ending of GRP Slope Protection.



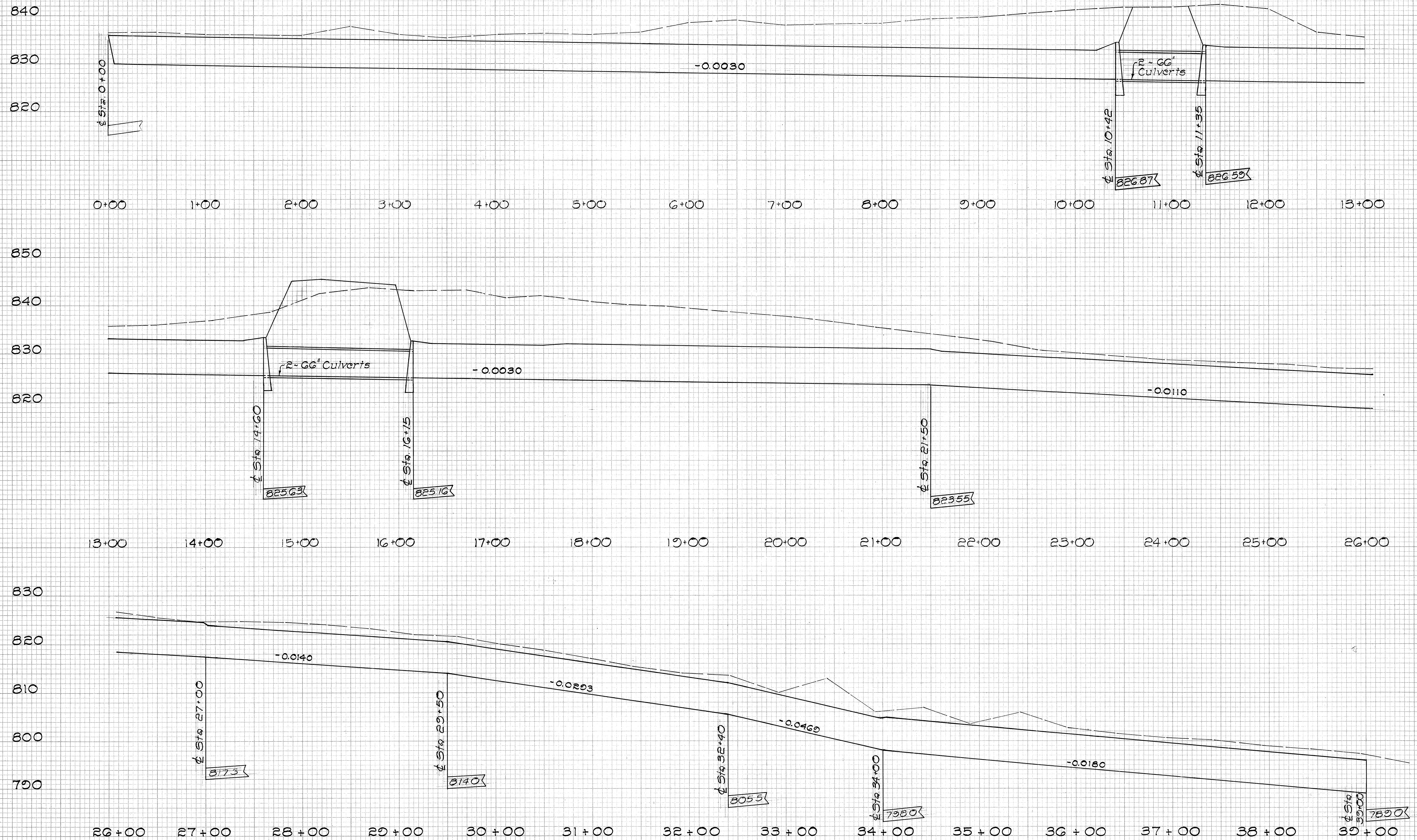
CHANNEL OUTLET DETAIL

STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
DRAINAGE DETAILS	
CHANNEL OUTLET DETAIL	
INTERSTATE ROUTE H-2	
LEILEHUA INTERCHANGE	
F.A.I. Proj. No. I-HE-1(8)-6	
Scale: 1/4" = 1'-0" Date: May, 1973	
SHEET No. 18 OF 20 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H2-1(8)-C	1973	112	160

FINAL SURVEY	DATE	BY
SURVEYED		
PLOTTED		
TEMPLATE		
NOTE BOOK		
NO.		

ORIGINAL SURVEY	DATE	BY
SURVEYED		
PLOTTED		
TEMPLATE		
NOTE BOOK		
NO.		



PROFILE - INTERCEPTOR CHANNEL INVERT

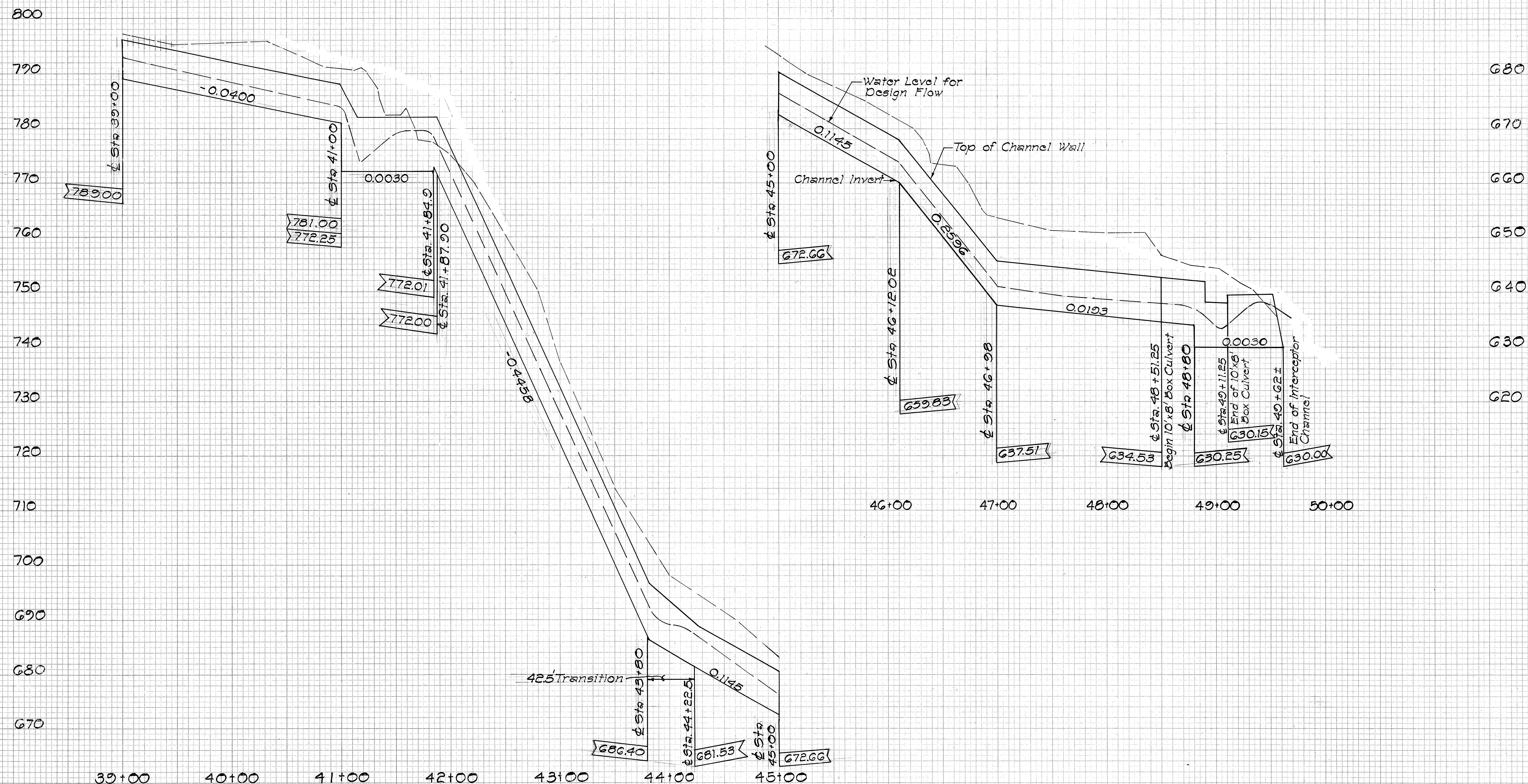
Scale: Hor. 1" = 50'
Ver. 1" = 10'

PLATE 3-CROSS SECTION D. P. R. & R. E. STANDARD
J. H. WELCH CO., PHILADELPHIA

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-42-1(8)-6	1975	113	100

FINAL SURVEY	DATE	BY
SURVEYED		
NOTED		
AREAS CHECKED		

ORIGINAL SURVEY	DATE	BY
SURVEYED		
NOTED		
AREAS CHECKED		



PROFILE - INTERCEPTOR CHANNEL INVERT

Scale: Hor. 1" = 50'
Ver. 1" = 10'

Technical drawing of a manhole structure, showing various components and dimensions:

- Overall Dimensions:**
 - Top width: 28'-8"
 - Bottom width: 1'-8"
 - Left side depth: 4'-0"
 - Right side depth: 4'-0"
 - Bottom depth: 2'-0"
- Structural Components:**
 - Type "A" C.B. (Concrete Box)
 - Type "B" C.B. (Concrete Box)
 - Type "C" C.B. (Concrete Box)
 - Type "D" C.B. (Concrete Box)
 - Top of Concrete Lining
 - Manhole Rung
 - #3 @ 3" oc. (Reinforcement)
 - 4" Concrete Lining
 - Type "A" C.I. Frame and Cover
- Other Features:**
 - Edge of Shoulder
 - Ditch
 - Culvert
 - Varies 0" to 8"

Technical drawing of a manhole and catch basin structure, showing plan and elevation views with dimensions and labels.

Plan View Dimensions (Top):

- 4'-0"
- 6'-8"
- 7'-4"
- 6'-8"
- 4'-0"

Elevation View Dimensions (Left):

- 12"
- 3"
- 8"
- 8"

Elevation View Dimensions (Right):

- 4"
- 6"
- 8"
- 8"

Labels and Notes:

- Ditch Inv.
- 4" Concrete Lining w/ 6x6x10/10 Wire Mesh Reinforcing
- Throat
- Top of Concrete Lining
- Type "A" C.I. Frame & Cover
- Manhole Rungs @ 16" a.c. (incidental to Cl. "A" Conc.)
- Class "A" Concrete
- #4 @ 12" Bothways
- 1 1/2" c.i.
- Varies
- Culvert

[illegible]

Normal Ditch Inlet

Edge of Shoulder

Cut Slope as per plan

Varies 0" to 8"

2'-0"

Varies 0" to 2'-8"

4" Concrete Lining w/ 6x6x19/10 Wire Mesh Reinforcing

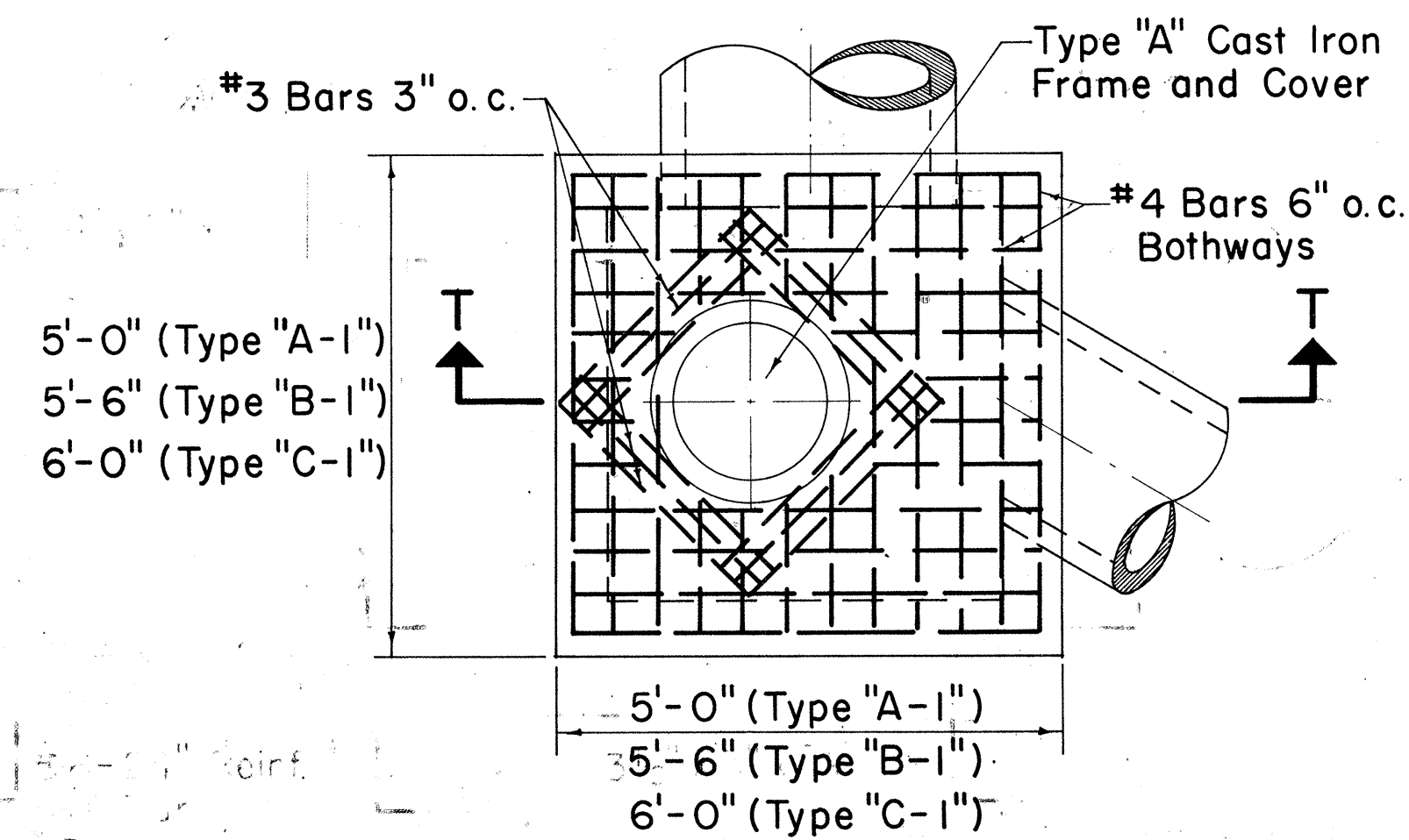
12"

6"

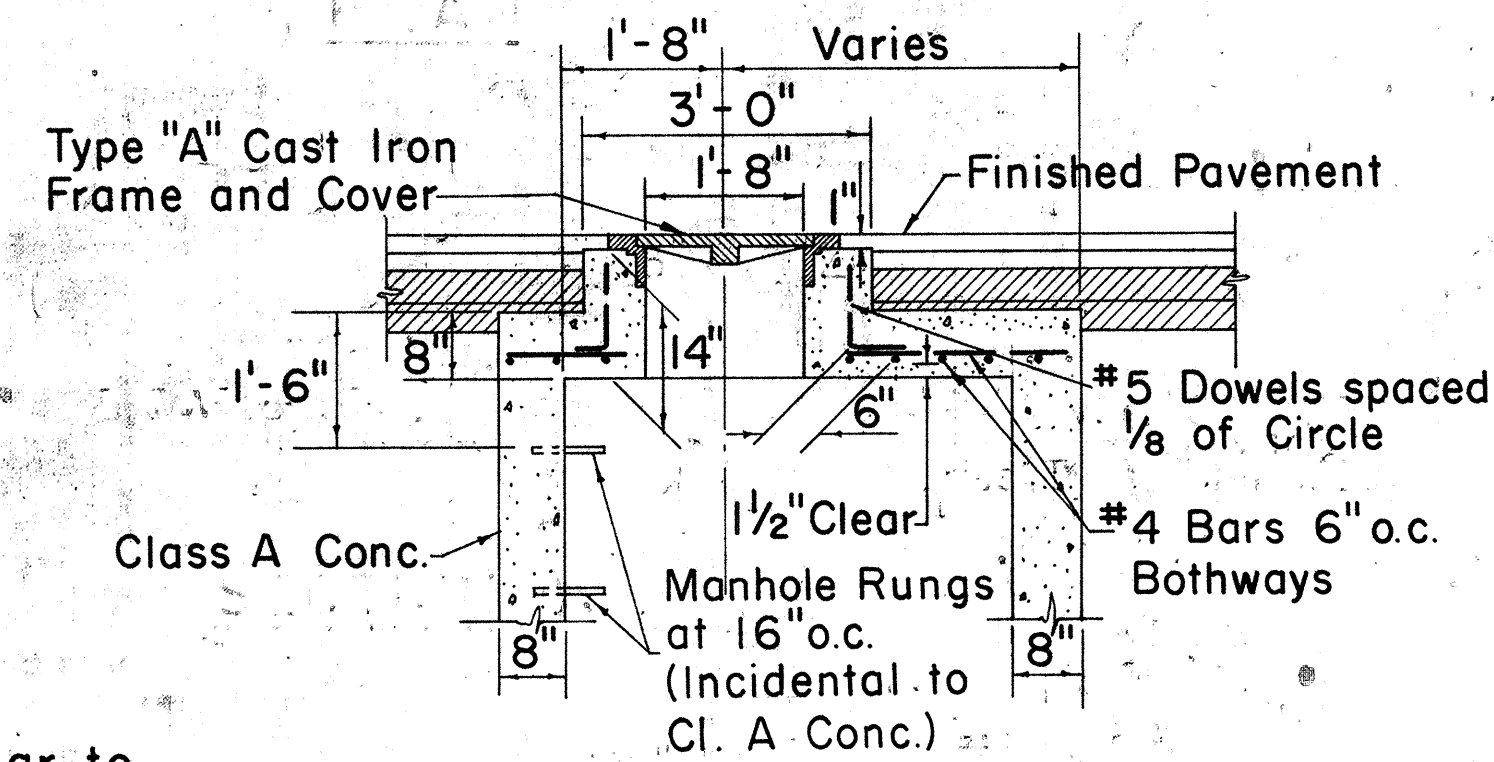
DETAILS OF TYPE "A2", "B2", "C2" AND "D2" CATCH BASIN

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-182-10-6	1973	115	100



PLAN



SECTION T-T

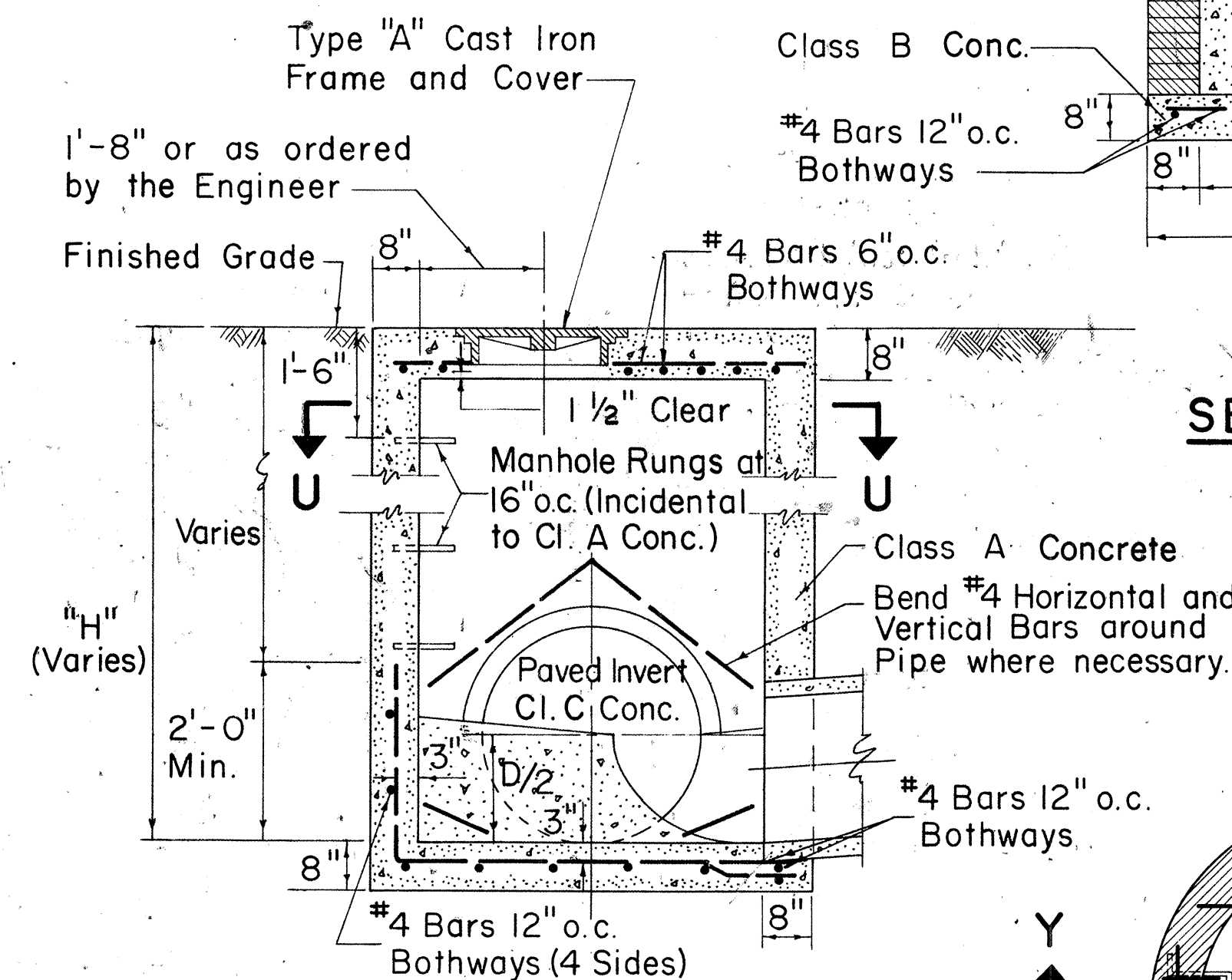
TYPE "A-I", "B-I", & "C-I" STORM DRAIN MANHOLE TOP DETAIL UNDER PAVEMENT

Scale: 1/2" = 1'-0"

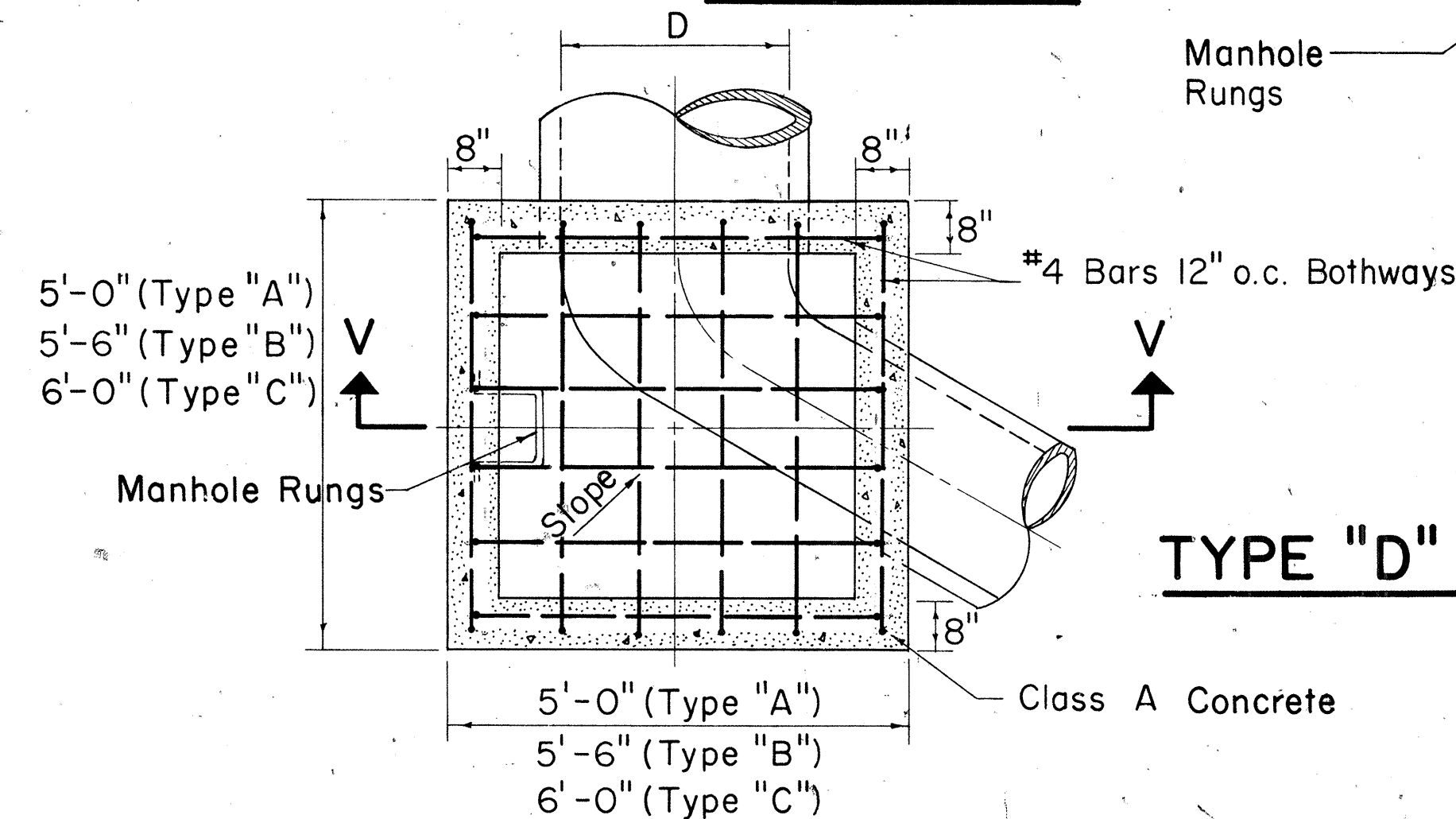
Note:
Bottom detail similar to
Type "A", "B", & "C"

GENERAL NOTES

1. Culvert shall enter and leave S.D.M.H. from any position and in the direction indicated by the plans or ordered by the Engineer.
2. Manhole Rungs (16" o.c.) are required when "H" is greater than 4'-6". Only one rung (12" from the bottom) is required if "H" is 4'-6" or less. Type "A" C.I. Frame and Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.



SECTION V-V

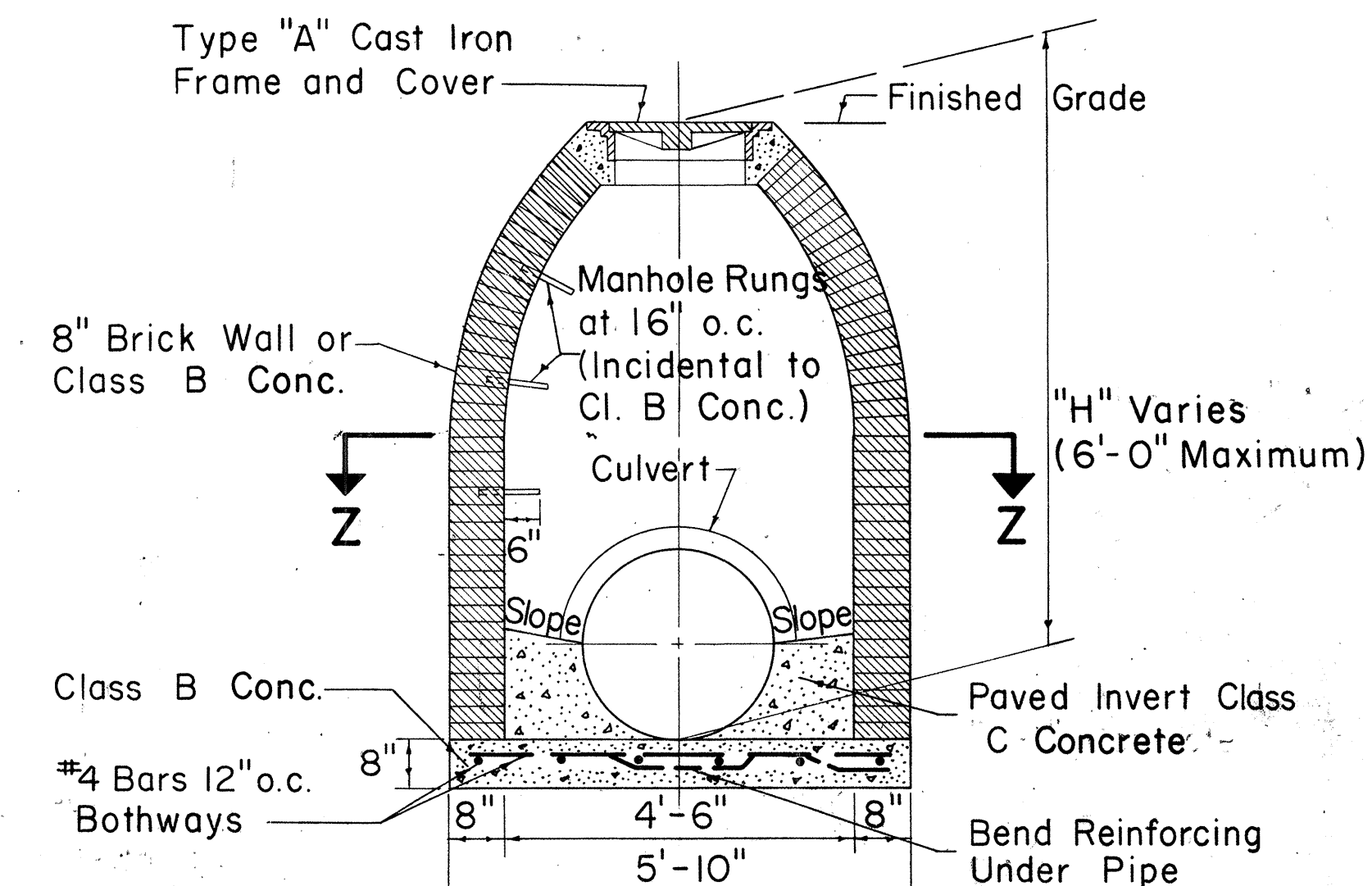


SECTION U-U

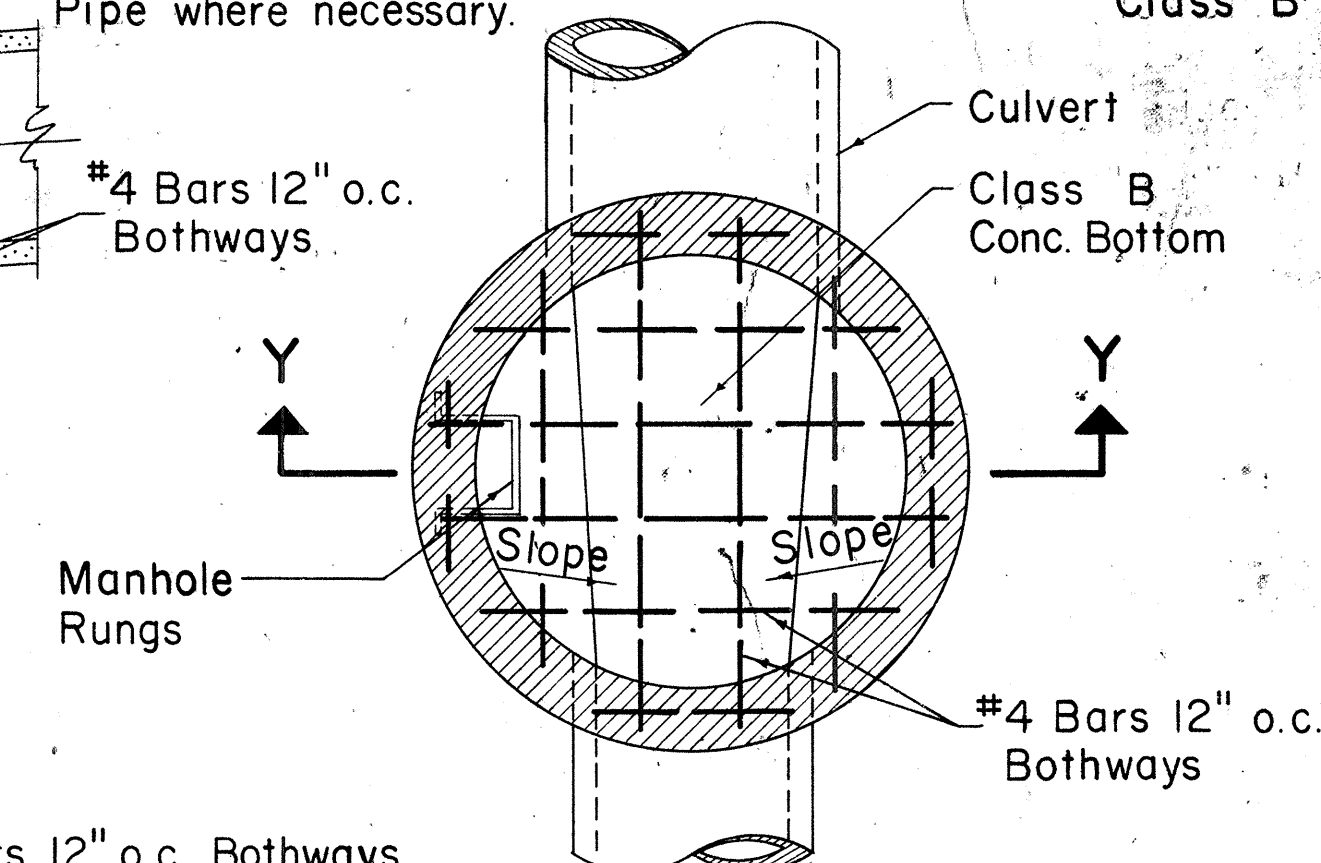
TYPE "A", "B", & "C"

S.D.M.H.

Scale: 1/2" = 1'-0"



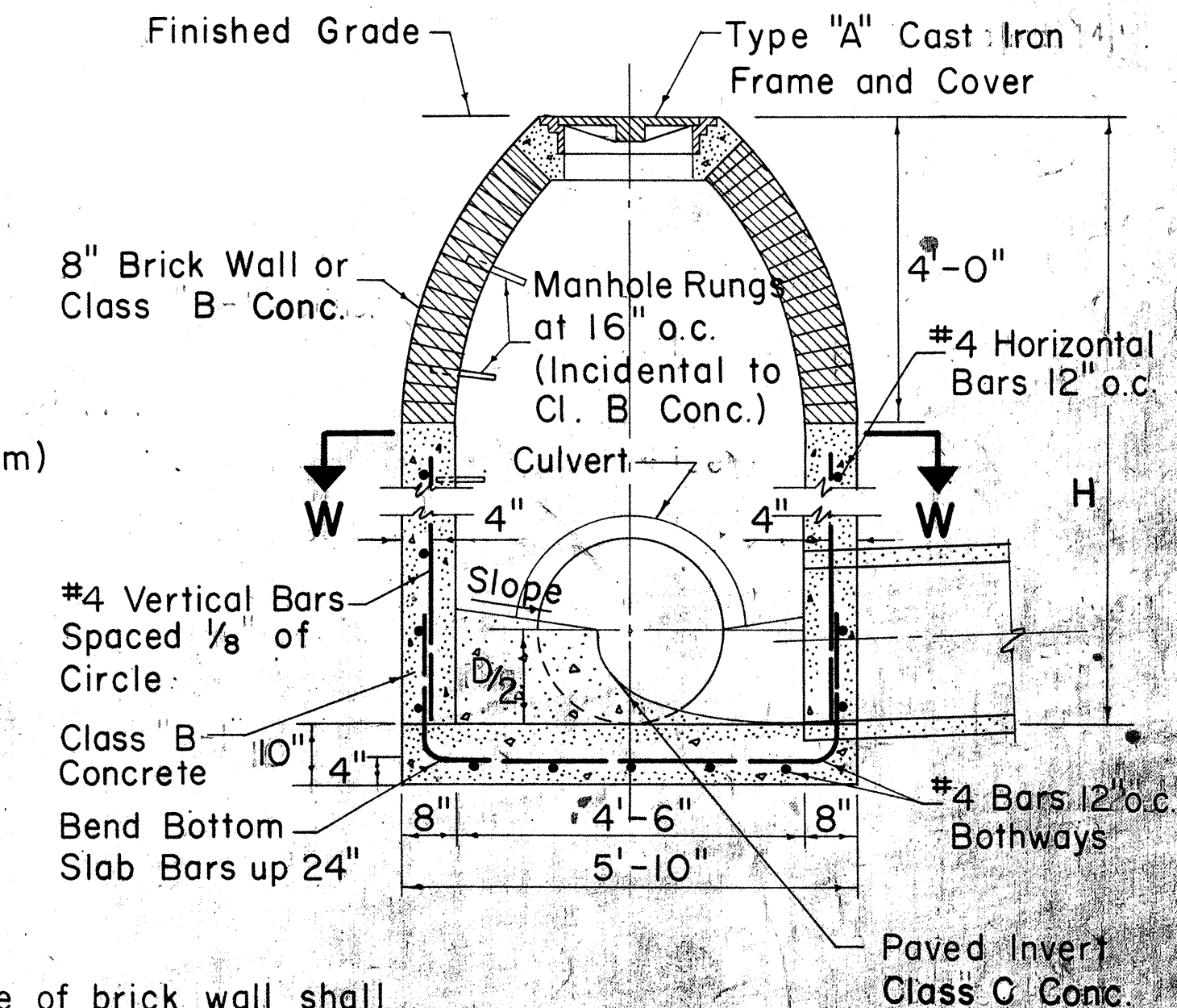
SECTION Y-Y



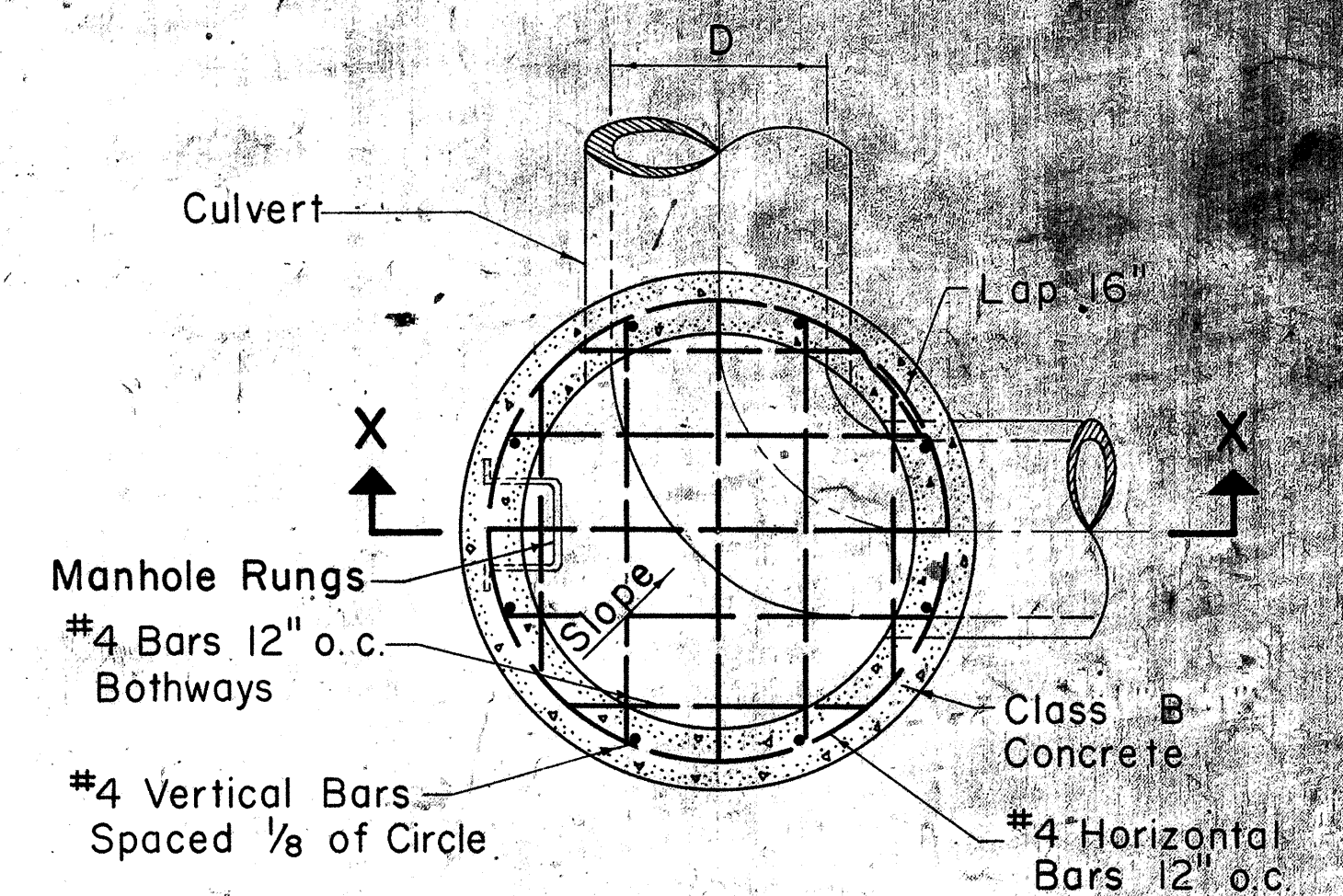
SECTION Z-Z

TYPE "D" STORM DRAIN MANHOLE

Scale: 1/2" = 1'-0"



SECTION X-X



SECTION W-W

TYPE "E" STORM DRAIN MANHOLE

Scale: 1/2" = 1'-0"

NO.	REVISION	APPROVED BY	DATE
1			
2			
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30			

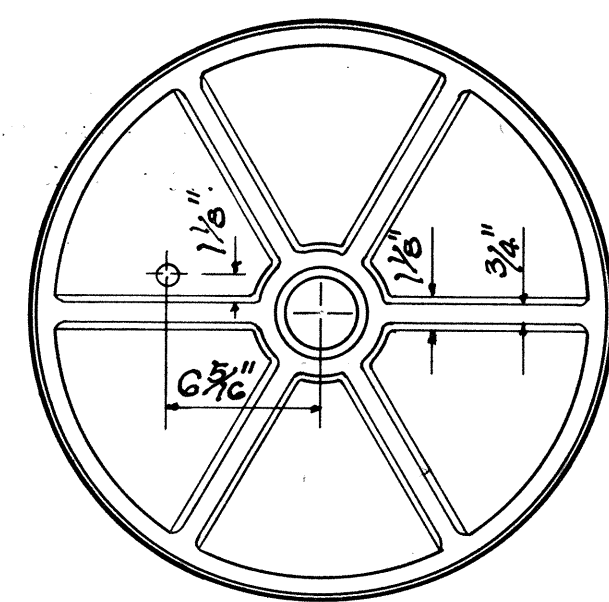
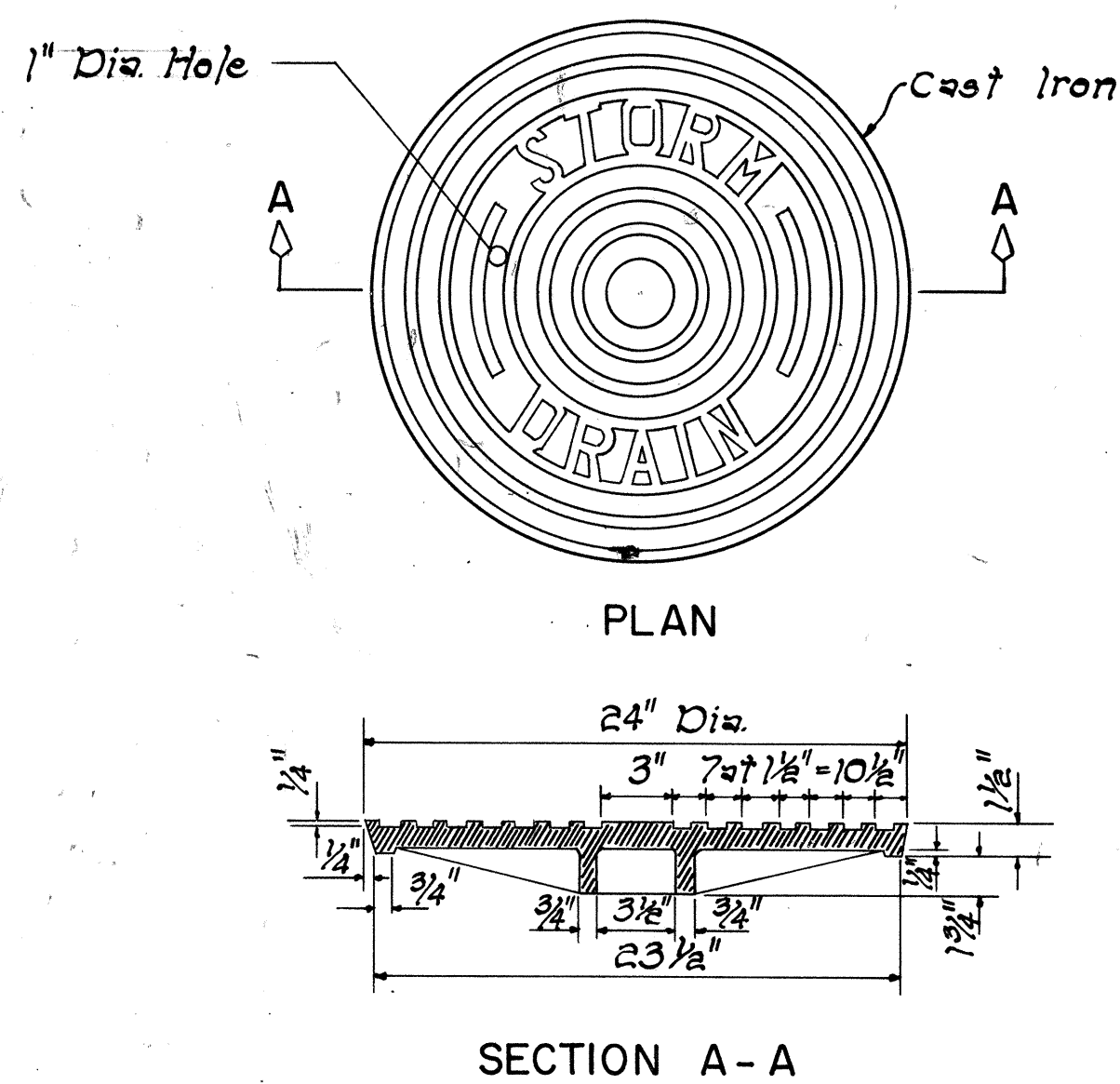
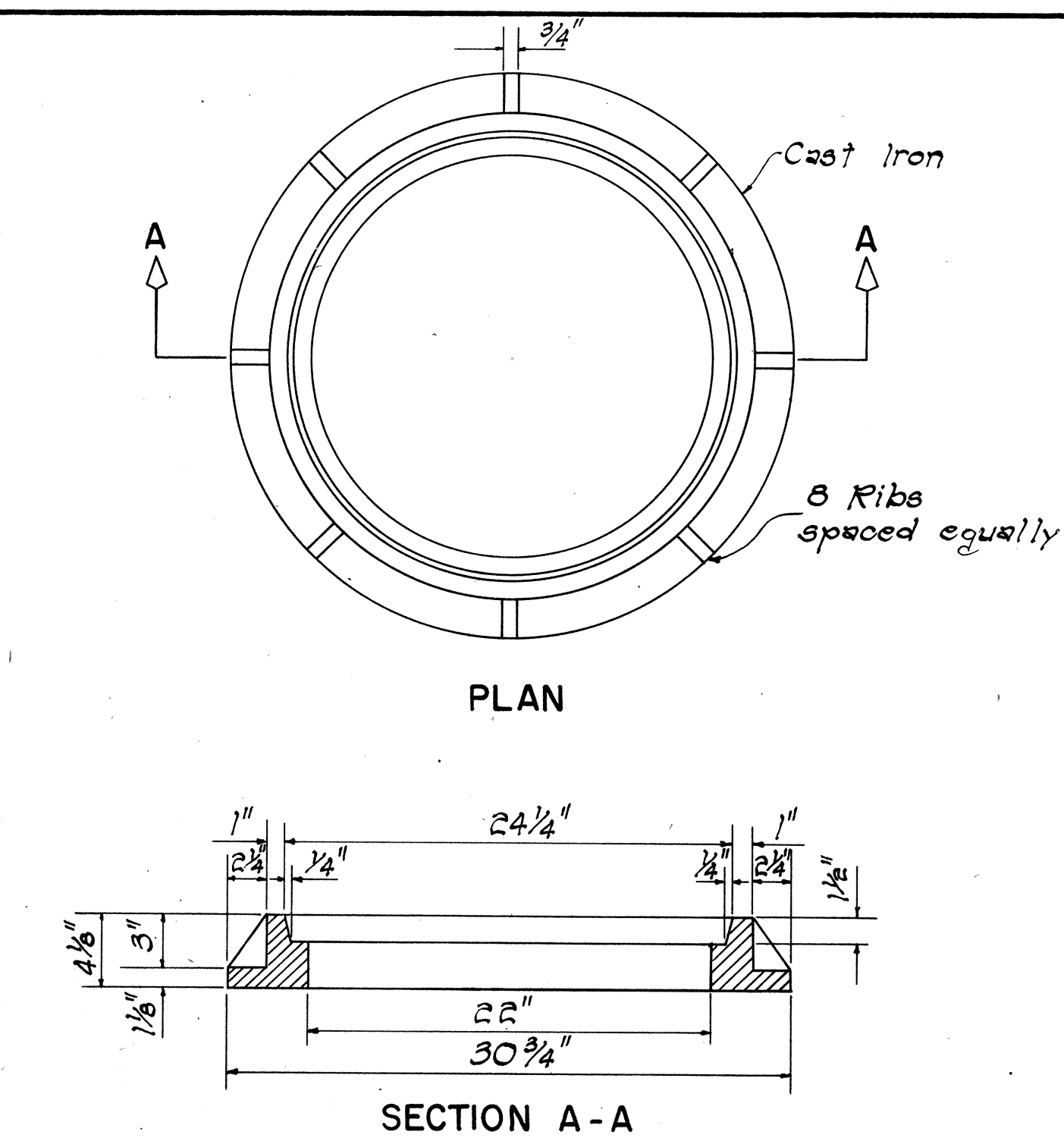
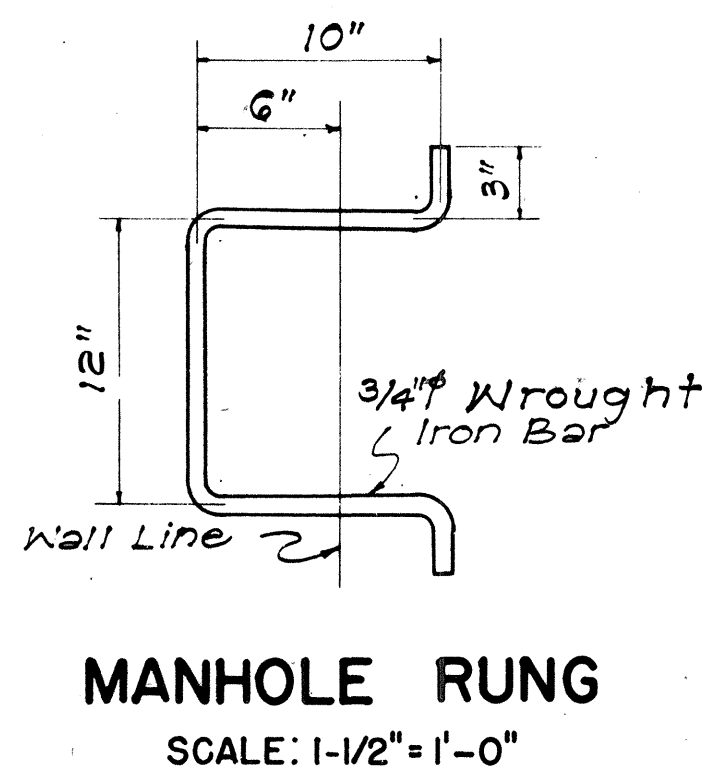
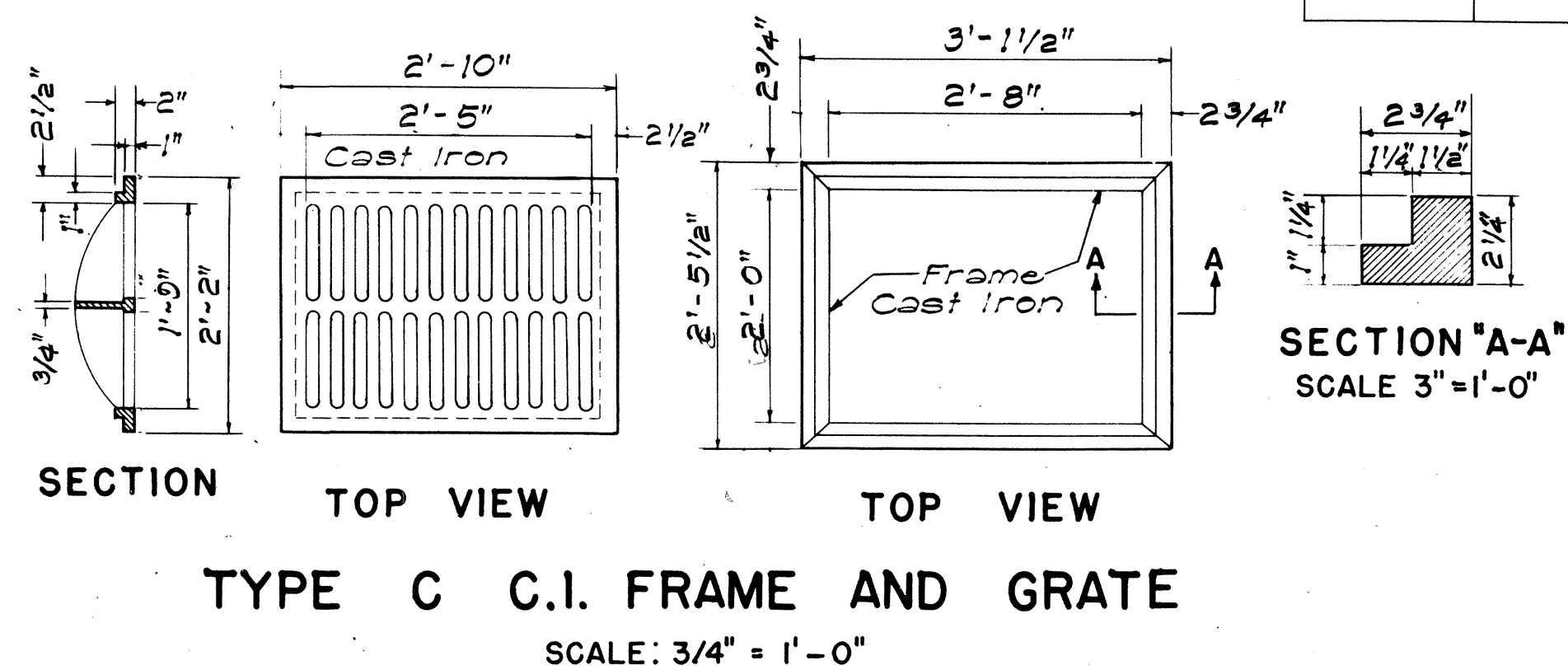
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS STORM DRAIN MANHOLES

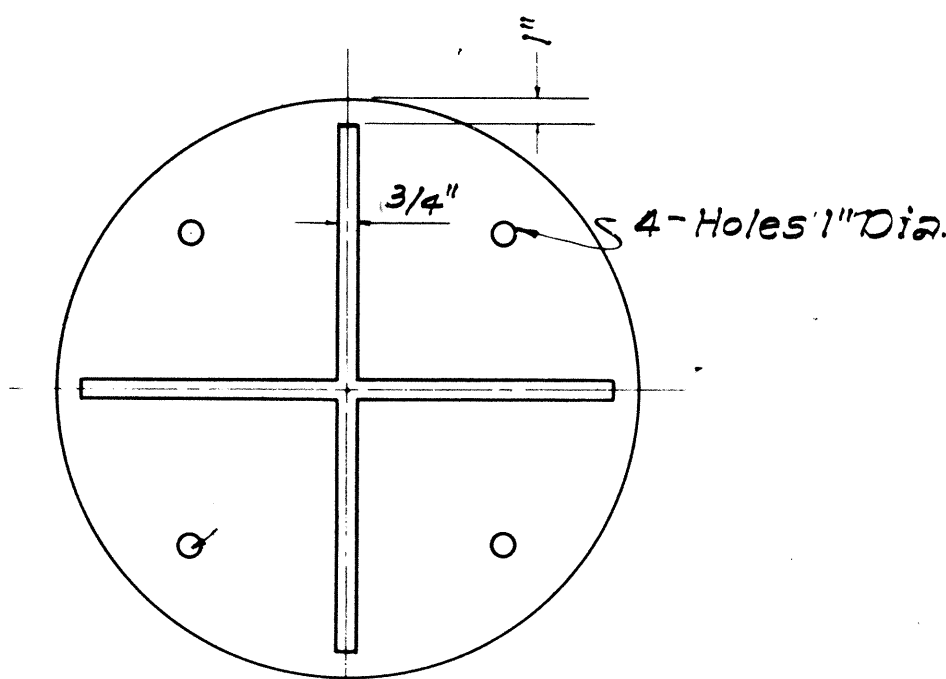
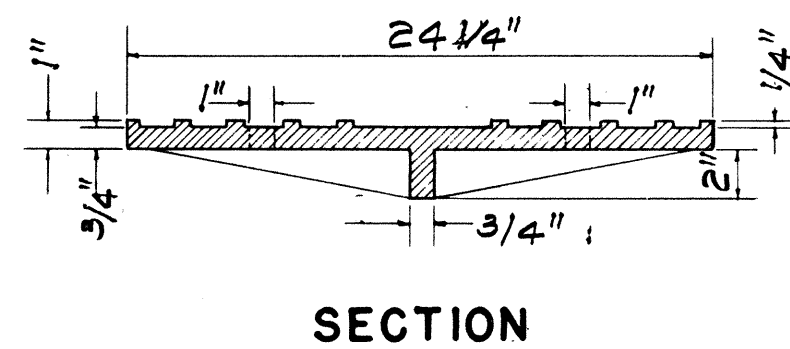
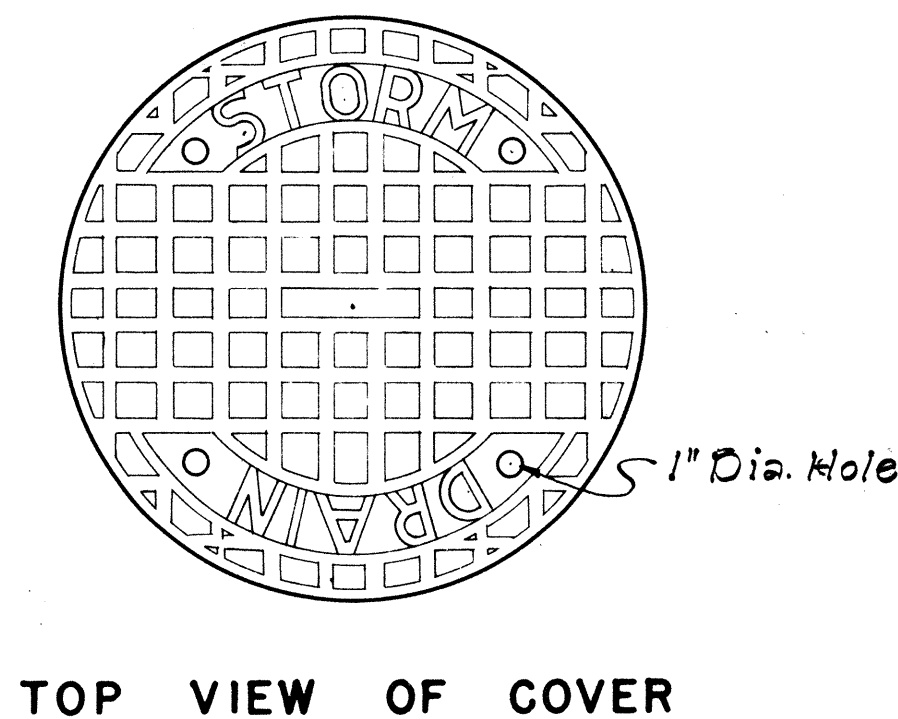
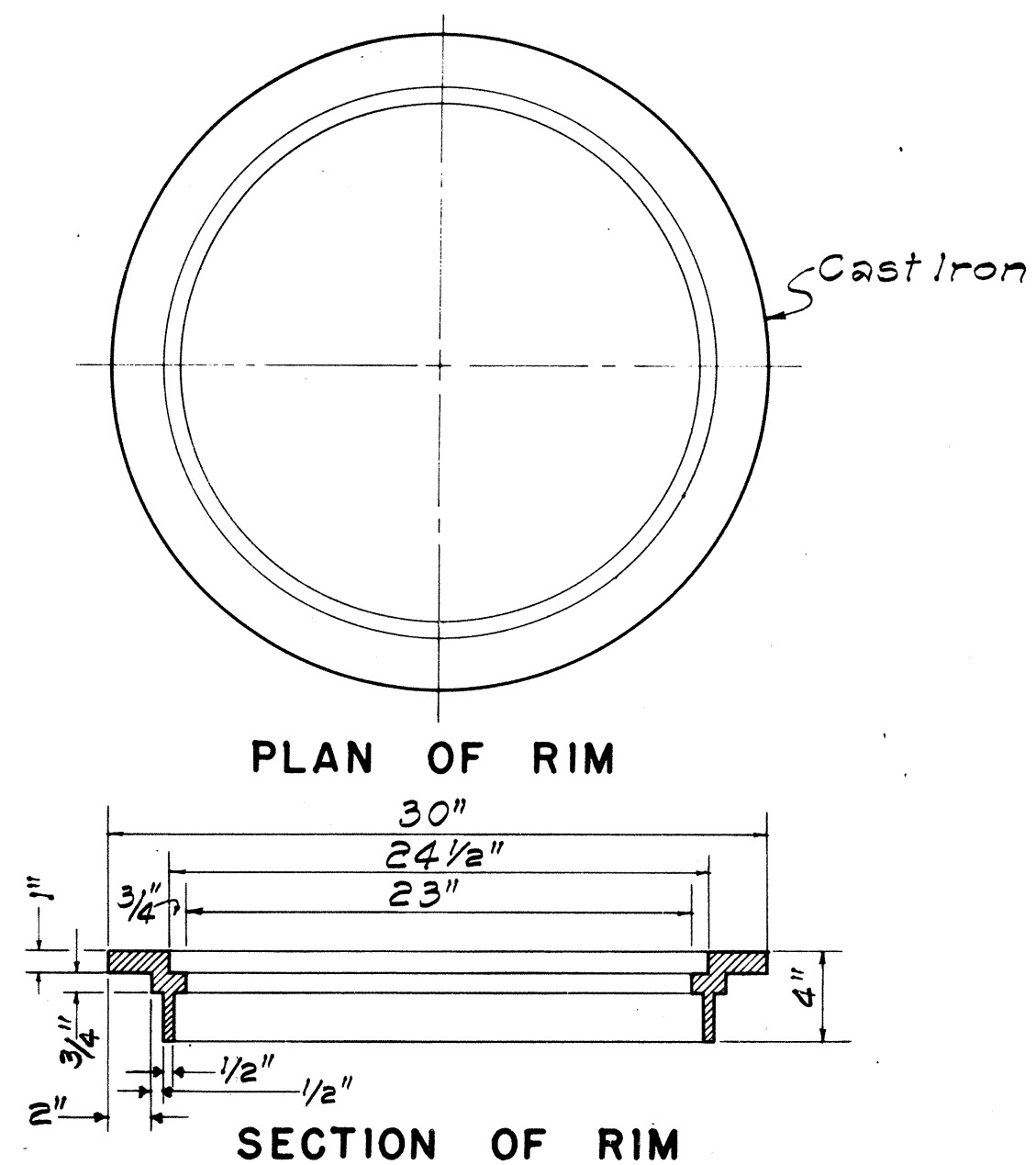
Scale: As Noted Date: July, 1969

SHEET NO. 22 OF 26 SHEETS

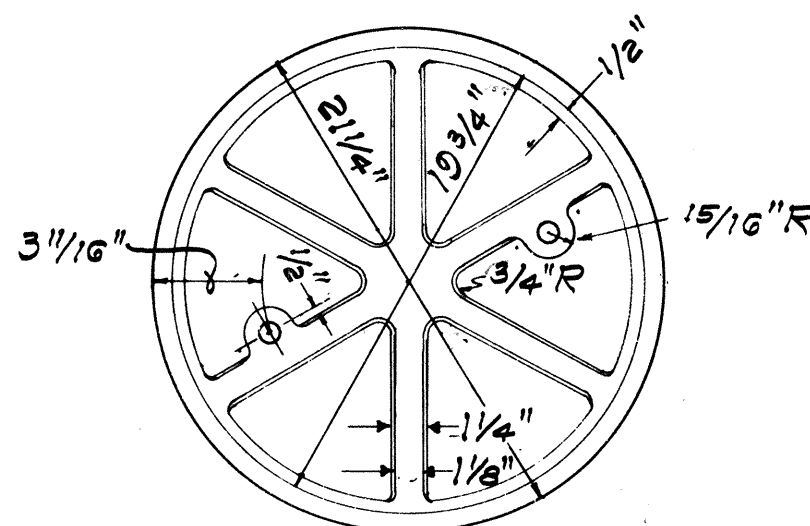
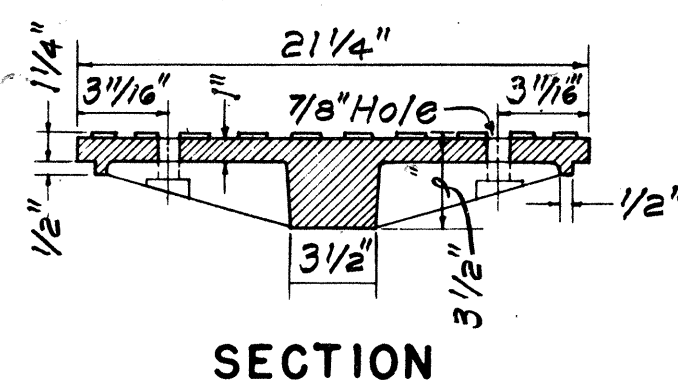
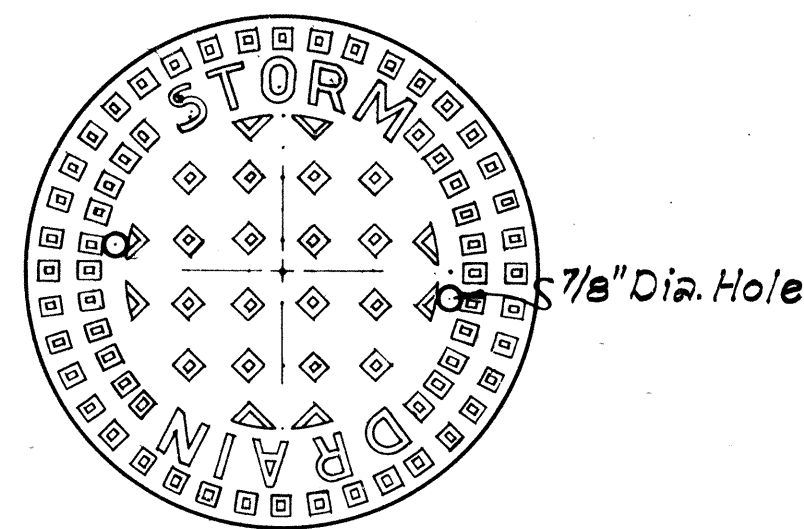
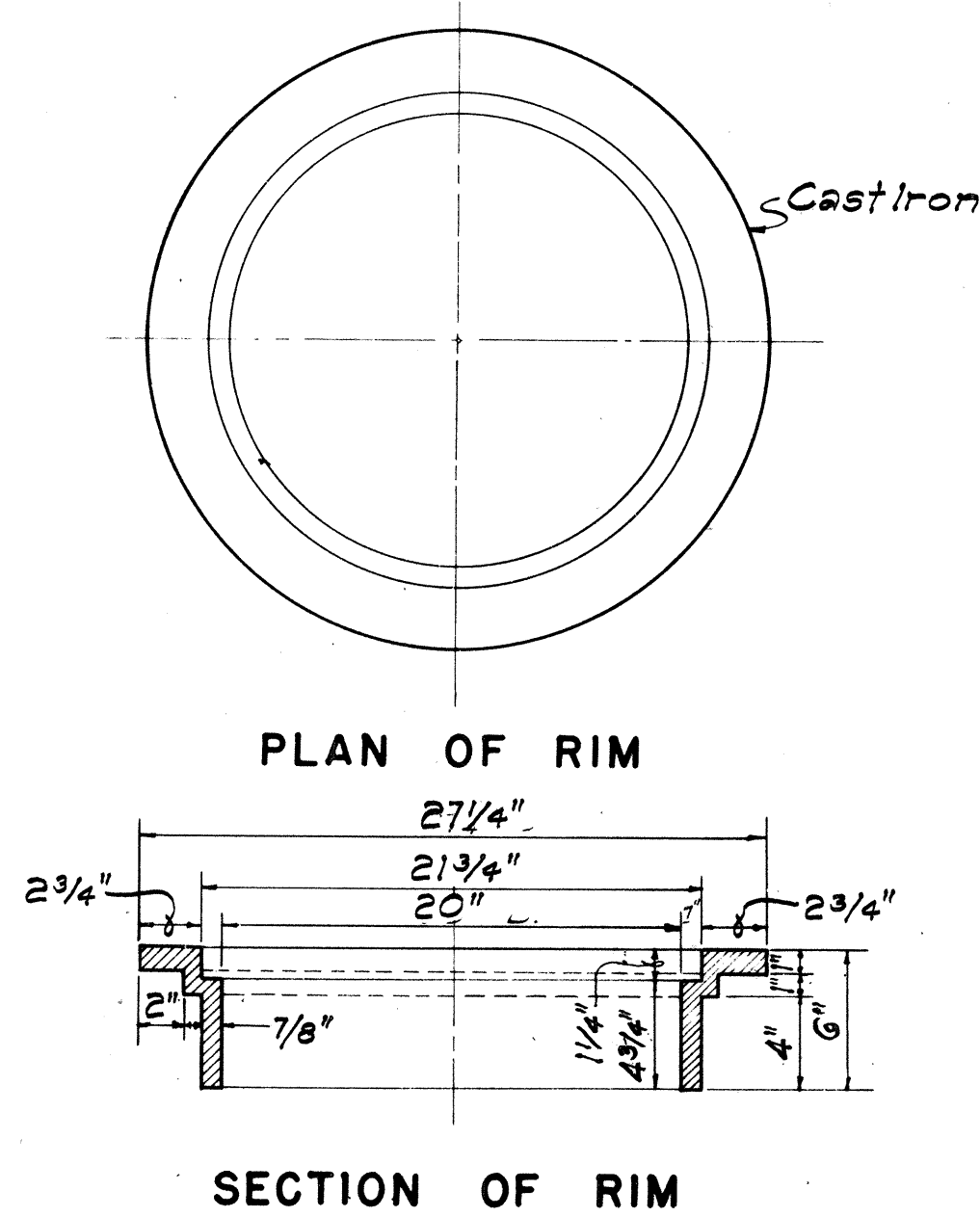
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H2-1(8)-6	1973	116	180



DETAILS OF TYPE "P"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



DETAILS OF TYPE "B"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



DETAILS OF TYPE "A"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"

APPROVAL RECOMMENDED:
R. Takano 12-17-69
HYDRAULIC DESIGN ENGINEER DATE

APPROVED:
John J. Zedler 12-17-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1.	Detail of Type "P" Cast Iron Frame and Cover	H.T.	1-6-71

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS

Scale: As Noted Date: July, 1969
SHEET No 23 OF 26 SHEETS DH 6

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-42-1(8)-6	1973	117	100

GENERAL NOTES

1. Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
2. All welds $\frac{3}{8}$ " unless otherwise noted.
3. Refer to "Spacing Table" for Types 61614 & 61616 Drop Intake and Frame & Grates dimensions.
4. The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
5. Culvert shall leave Drop Intake from any position and any direction indicated by plans or ordered by the Engineer. Culverts may both enter and leave Drop Intake so that Drop Intake will act as manhole.
6. Manhole Rungs (16" o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (12 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Manhole Rungs may be placed at any location as ordered by the Engineer.

TYPE	NO. BARS	A	B	C	D
61614	11	2' - 0"	1' - 11½"	1¼"	1' - 6"
61616	17	3' - 0"	2' - 11¾"	1⅝"	2' - 0"

NO.	REVISION	APPROVED BY	DATE
1	Curb for Top of Fill Gutters	H.P.	6-5-11

APPROVAL RECOMMENDED:

J. J. J. J. J.
HYDRAULIC DESIGN ENGINEER

2-17-69
DATE

APPROVED:

2nd 22nd
ASSISTANT CHIEF, ENGINEERING

2-17-59
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

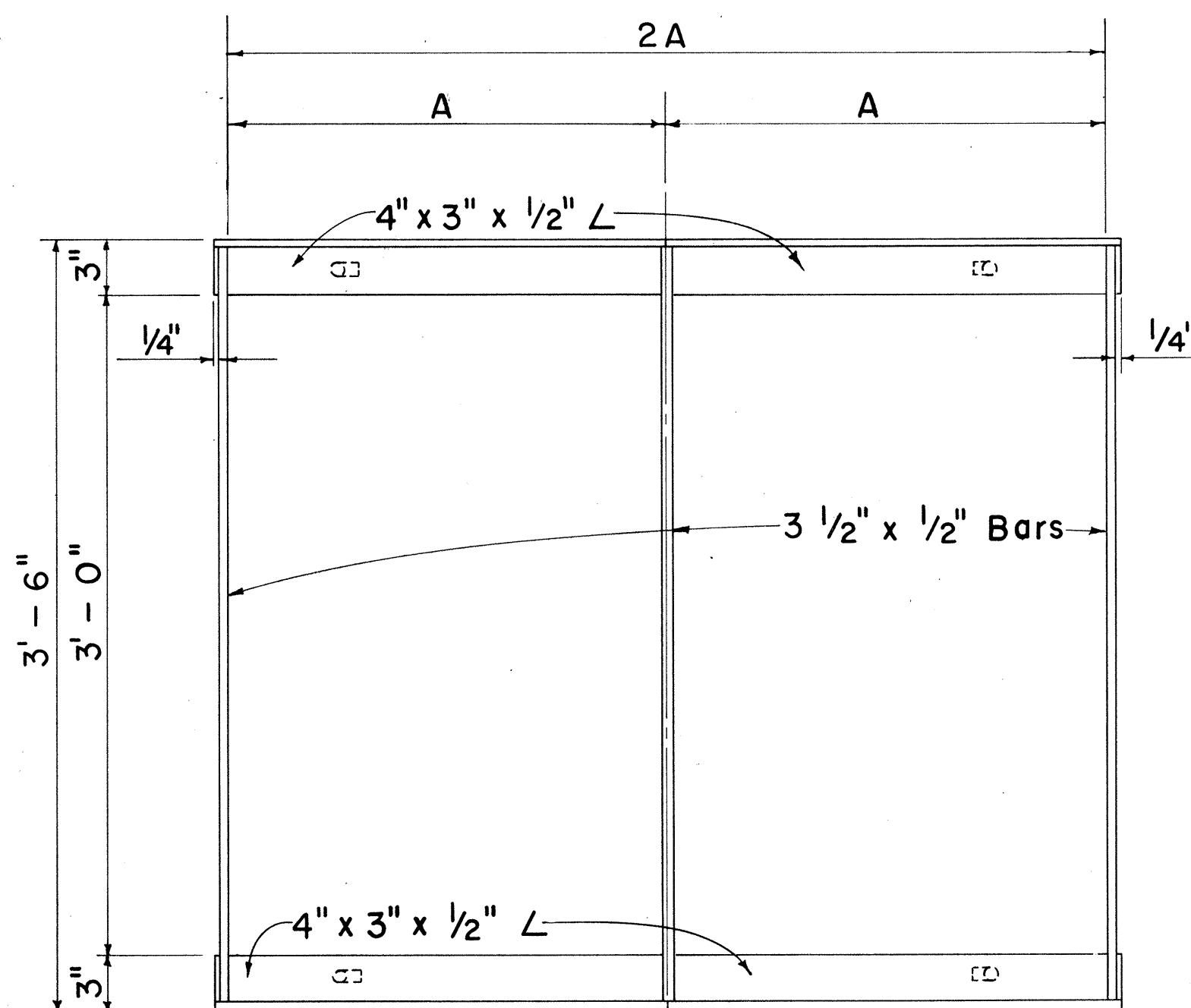
TYPE 61614 8 61616

TYPE 61614 & 61616
GRATED DROP INTAKES

Scales: As Noted

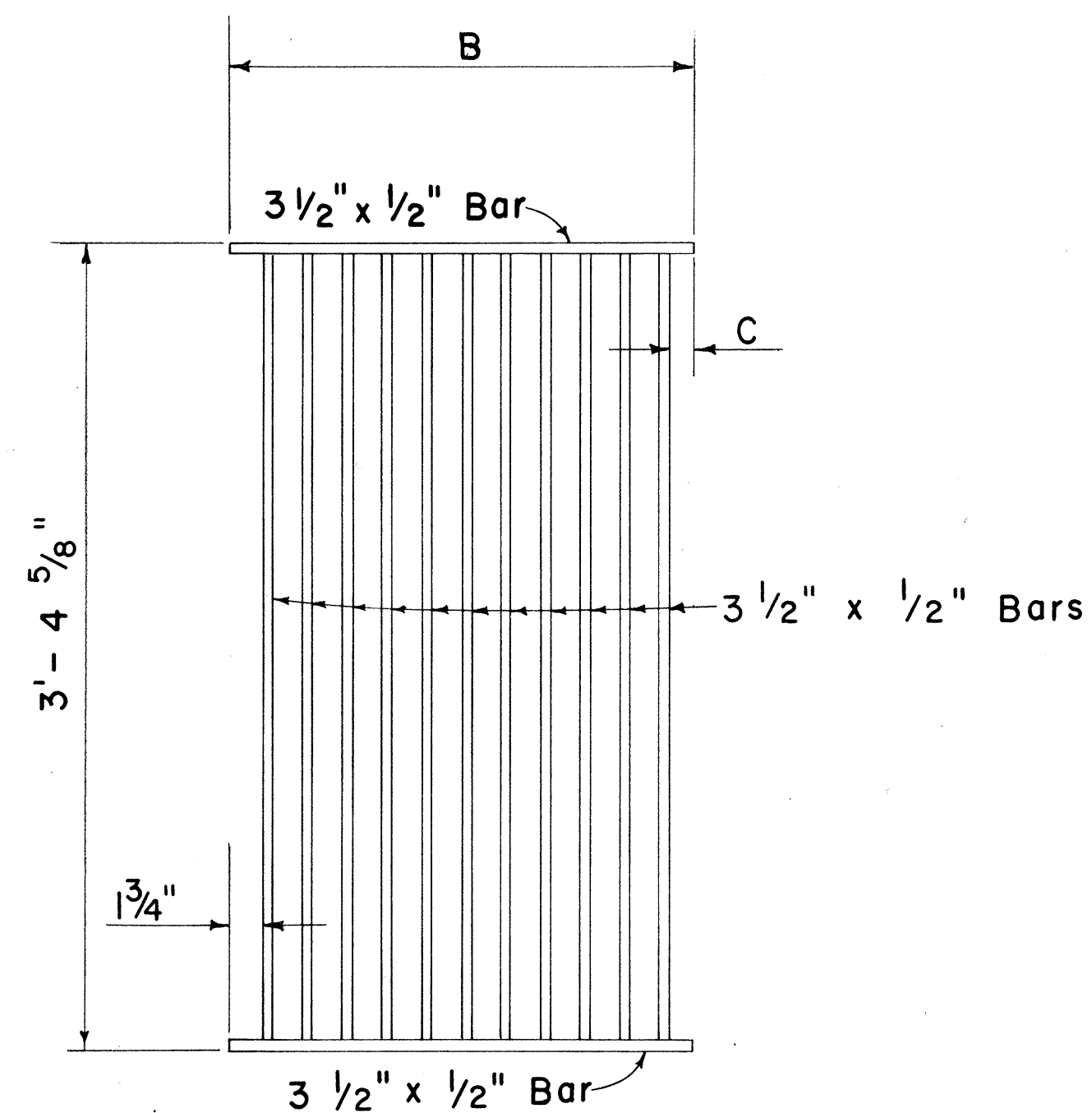
Date: Feb. 1969

SHEET No. 24 OF 26 SHEETS **DH 8**



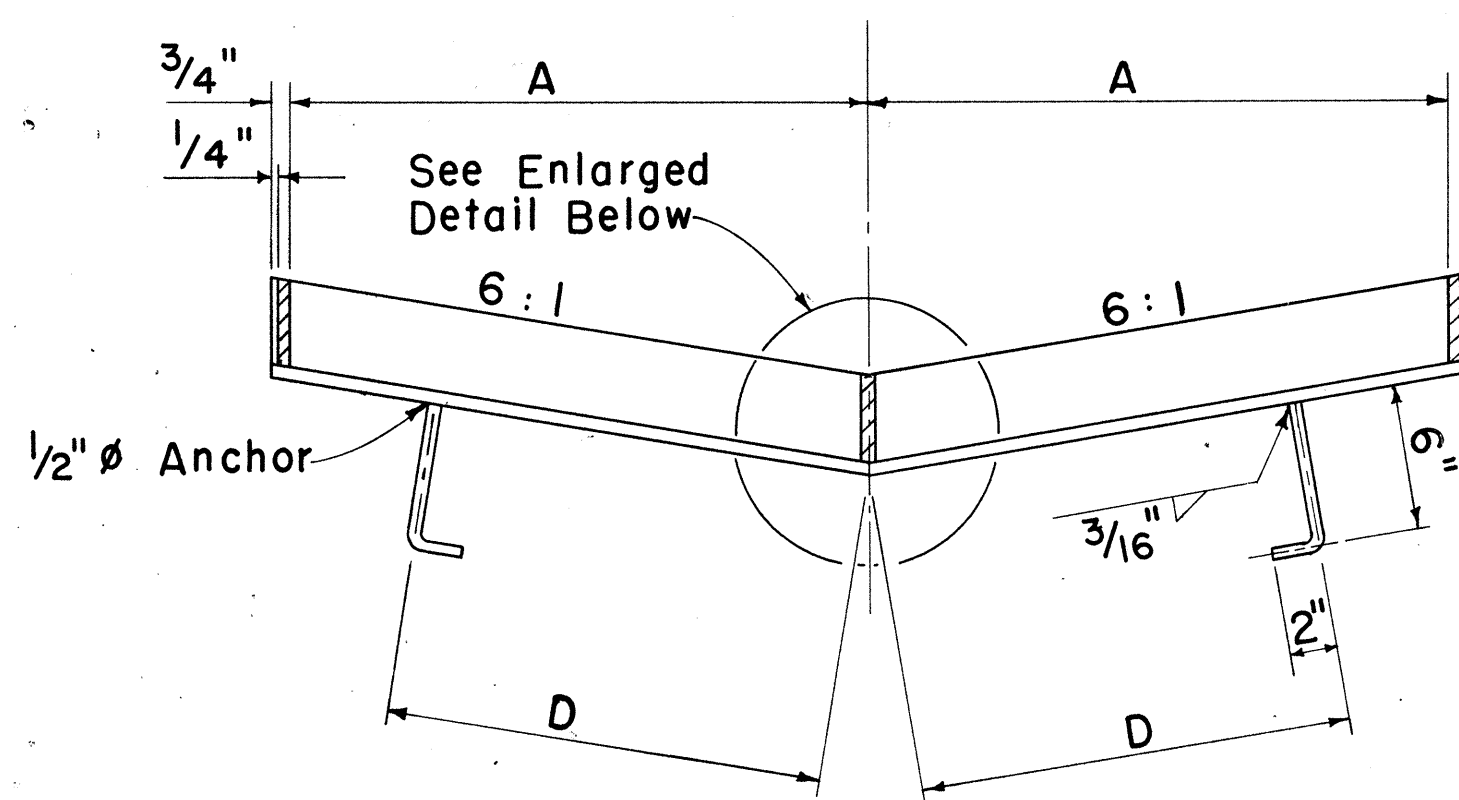
PLAN

Scale: $1\frac{1}{2}'' = 1' - 0''$



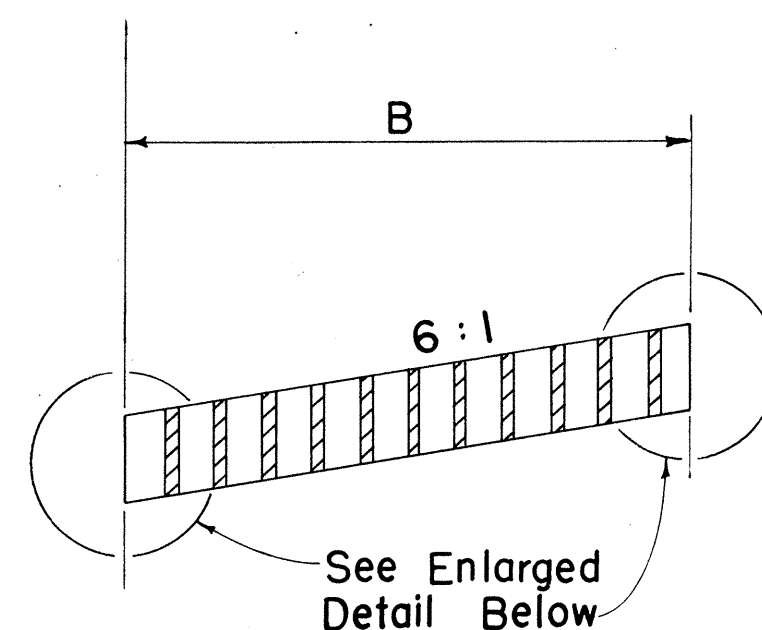
PLAN

Scale: $1\frac{1}{2}'' = 1' - 0''$



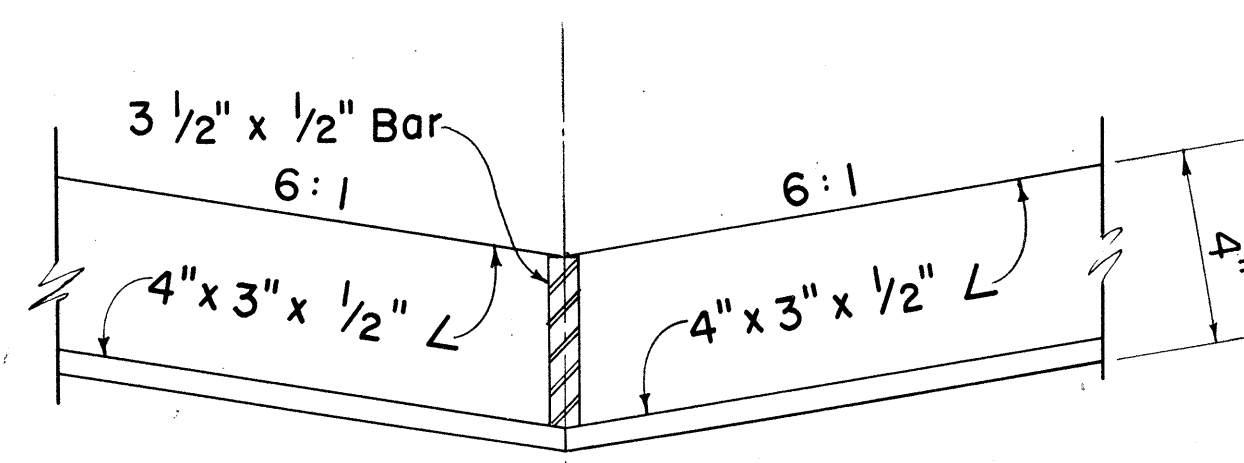
SECTION

Scale: $1\frac{1}{2}'' = 1'-0''$



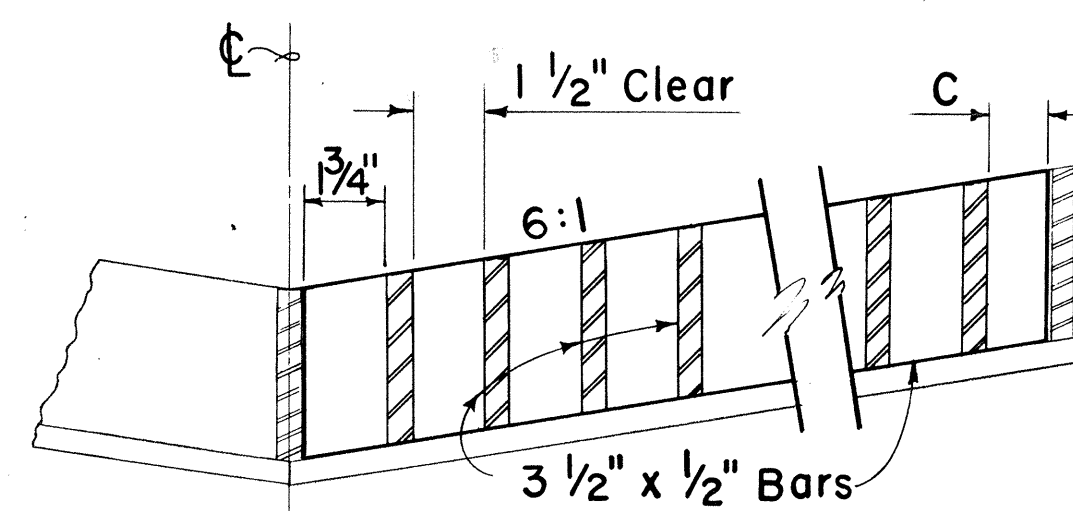
SECTION

Scale: $1\frac{1}{2}" = 1'-0"$



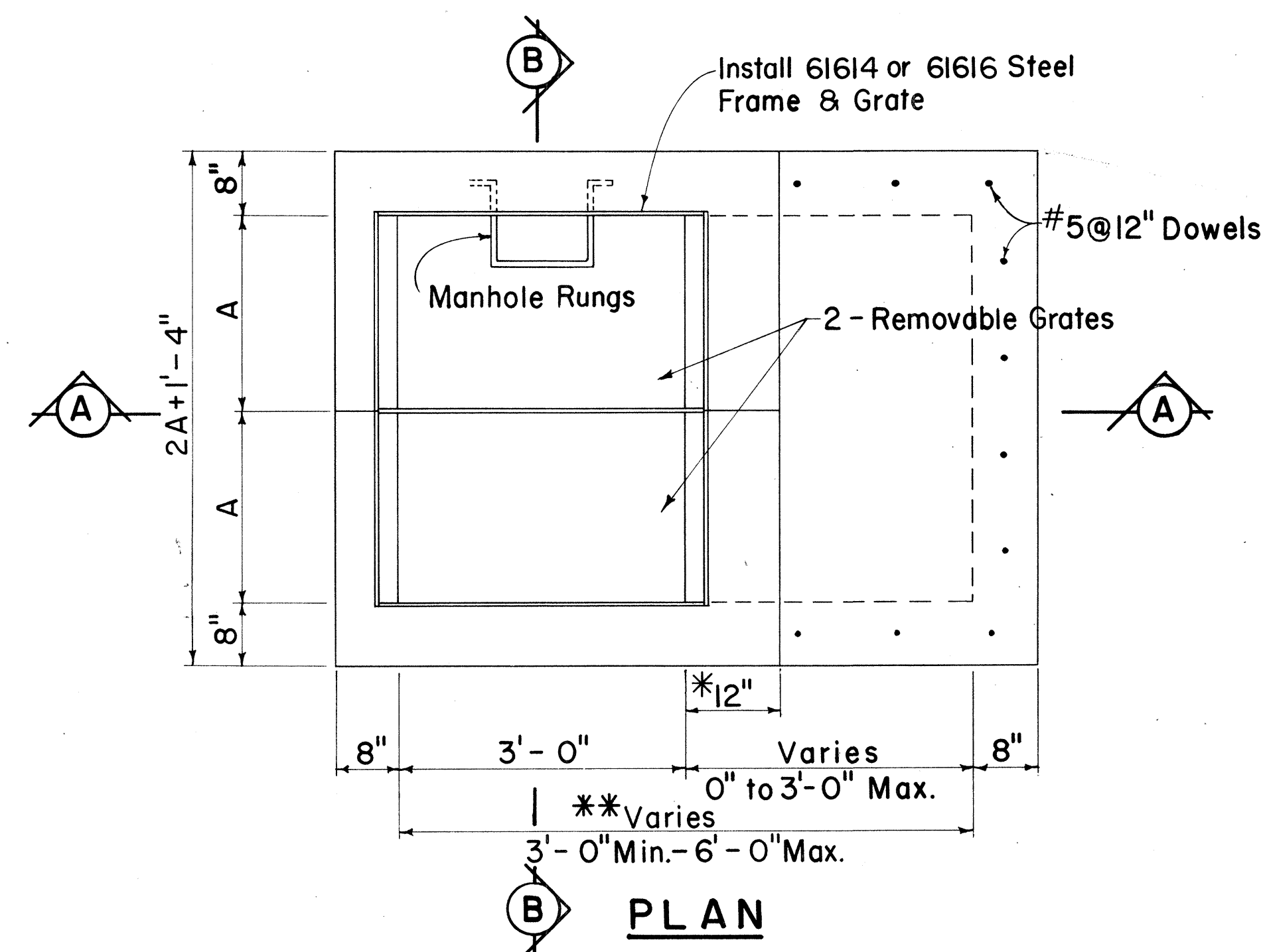
FRAME

Scale: 3" = 1' - 0"

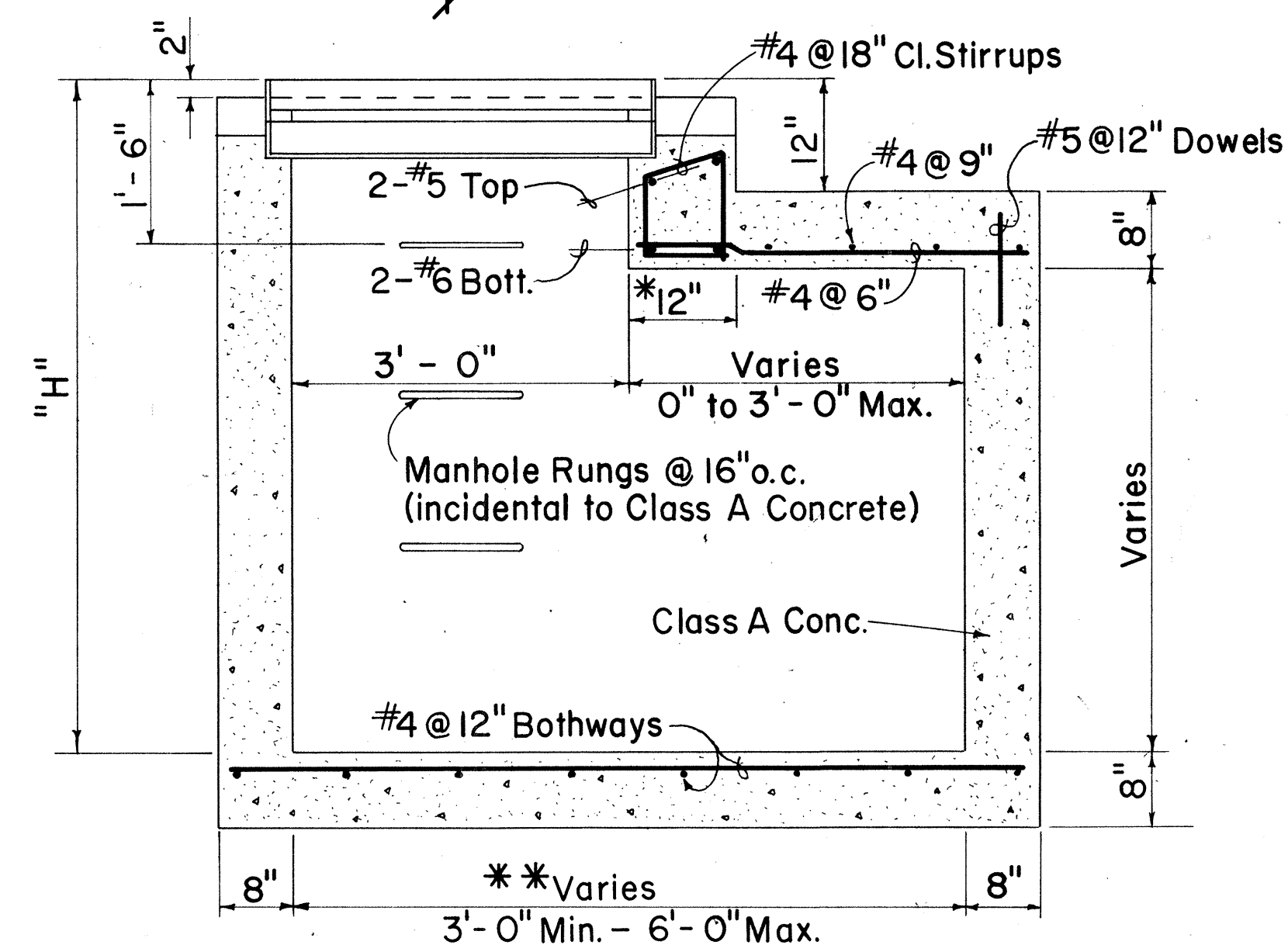


GRATE

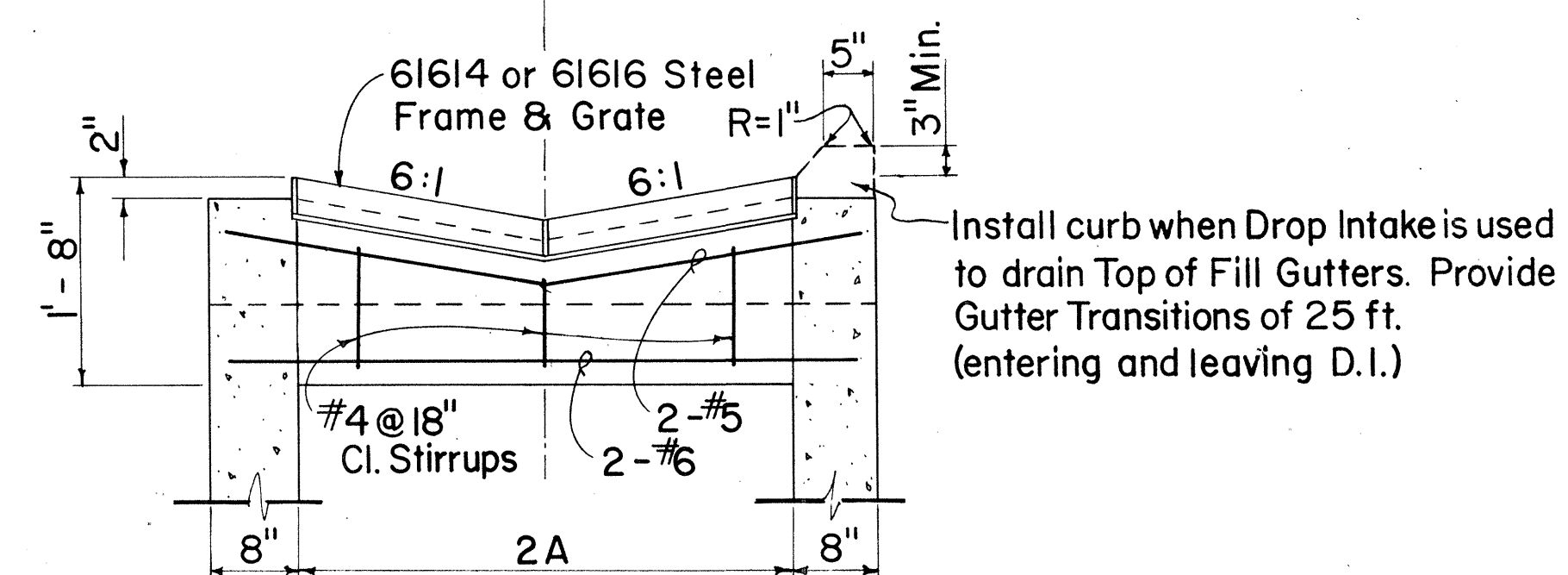
Scale: $3'' = 1' - 0''$



PLAN



SECTION A - A



SECTION B - B

DETAILS OF 61614 OR 61616 DROP INTAKE

Scale: $\frac{3}{4}'' = 1' - 0''$

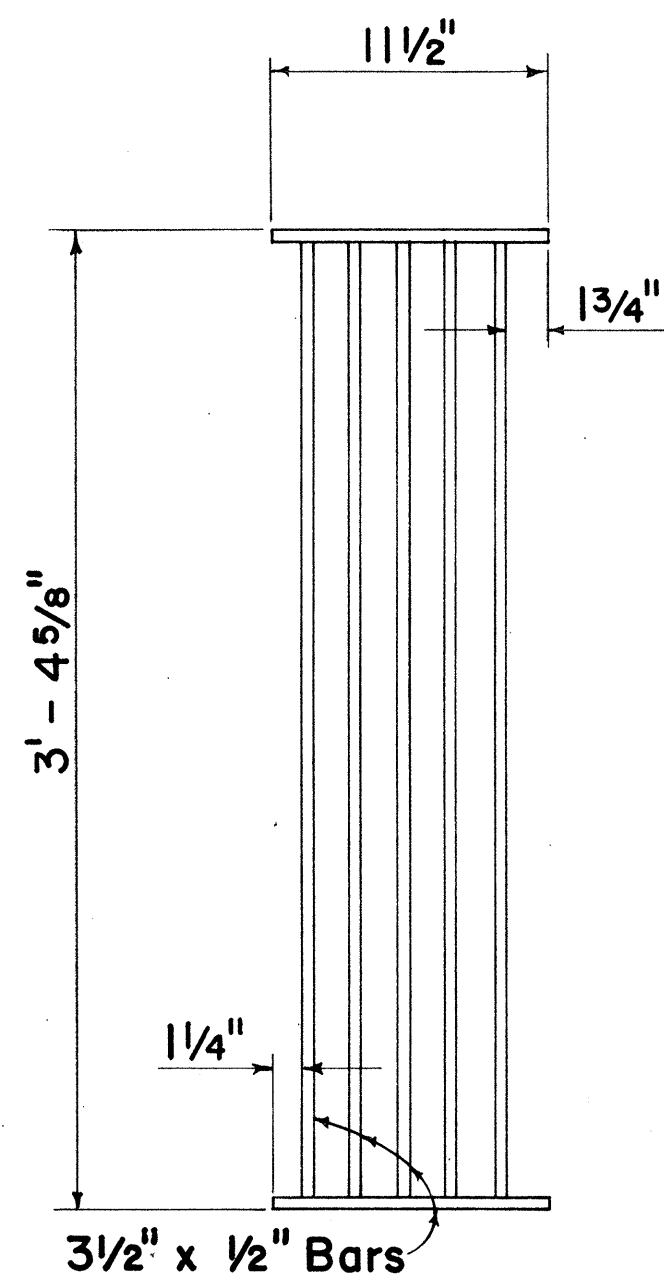
- *For Minimum size box of 3'-0", use 8" and eliminate reinforcing steel shown in the top portion.
 **For Culverts larger than 30", the minimum dimension shall be D'.

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.	I-H2-10:G	1973	118	100

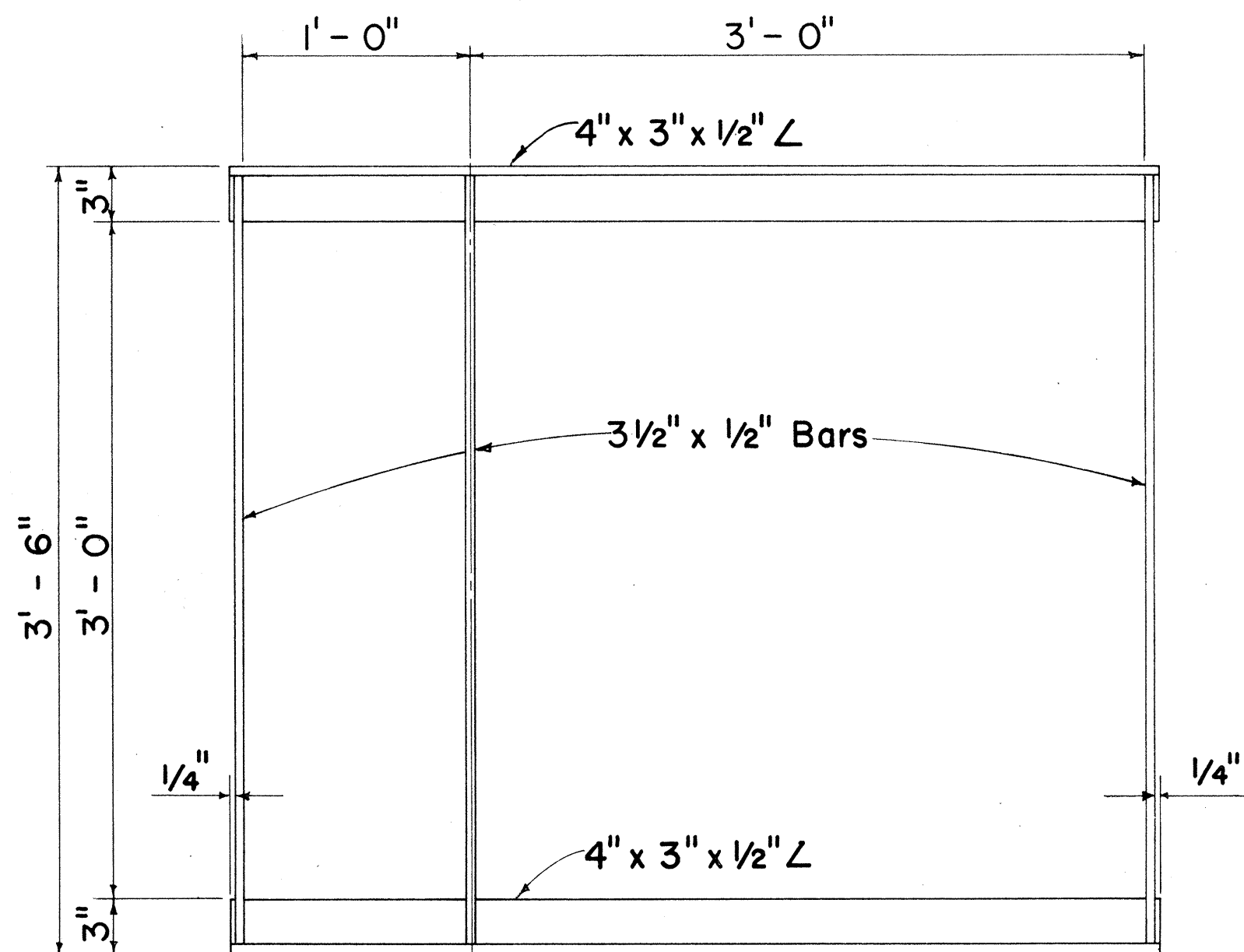
GENERAL NOTES

- Grates and Frames shall be hot dip galvanized after fabrication, see specifications.
- All welds $\frac{3}{8}$ " unless otherwise noted.
- The Frame & Grate materials shall conform to the specifications of ASTM Designation Structural Steel A283, Grade D and the Standard Specifications.
- Culvert shall leave Drop Intake from any position and any direction indicated by plans or ordered by the Engineer. Culverts may both enter and leave Drop Intake so that Drop Intake will act as manhole.
- Manhole Rungs (16" o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (12 inches from the bottom) is required if "H" is 4 feet 6 inches or less. The Manhole Rungs may be placed at any location as ordered by the Engineer.



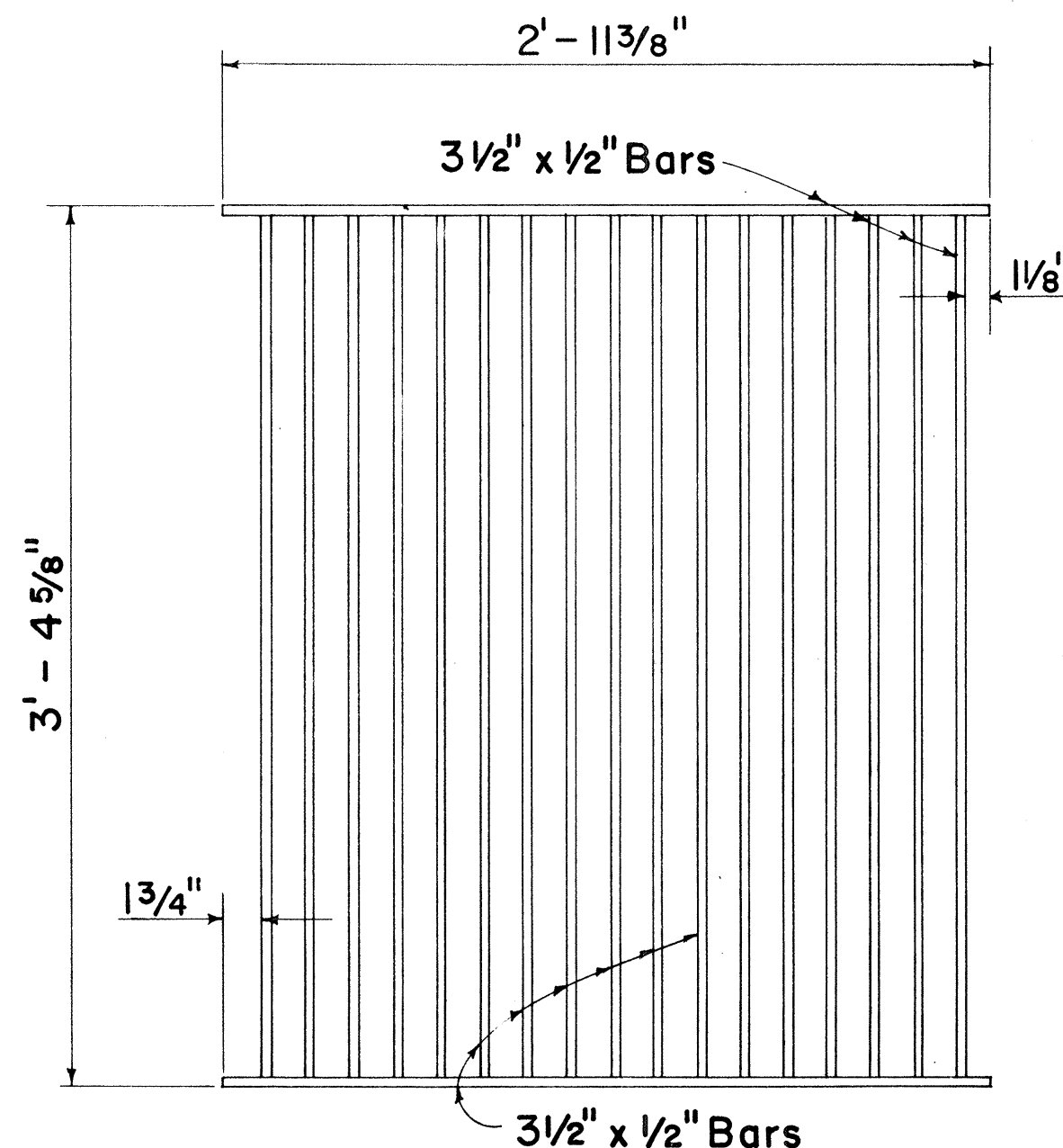
PLAN

Scale: 1 1/2" = 1' - 0"



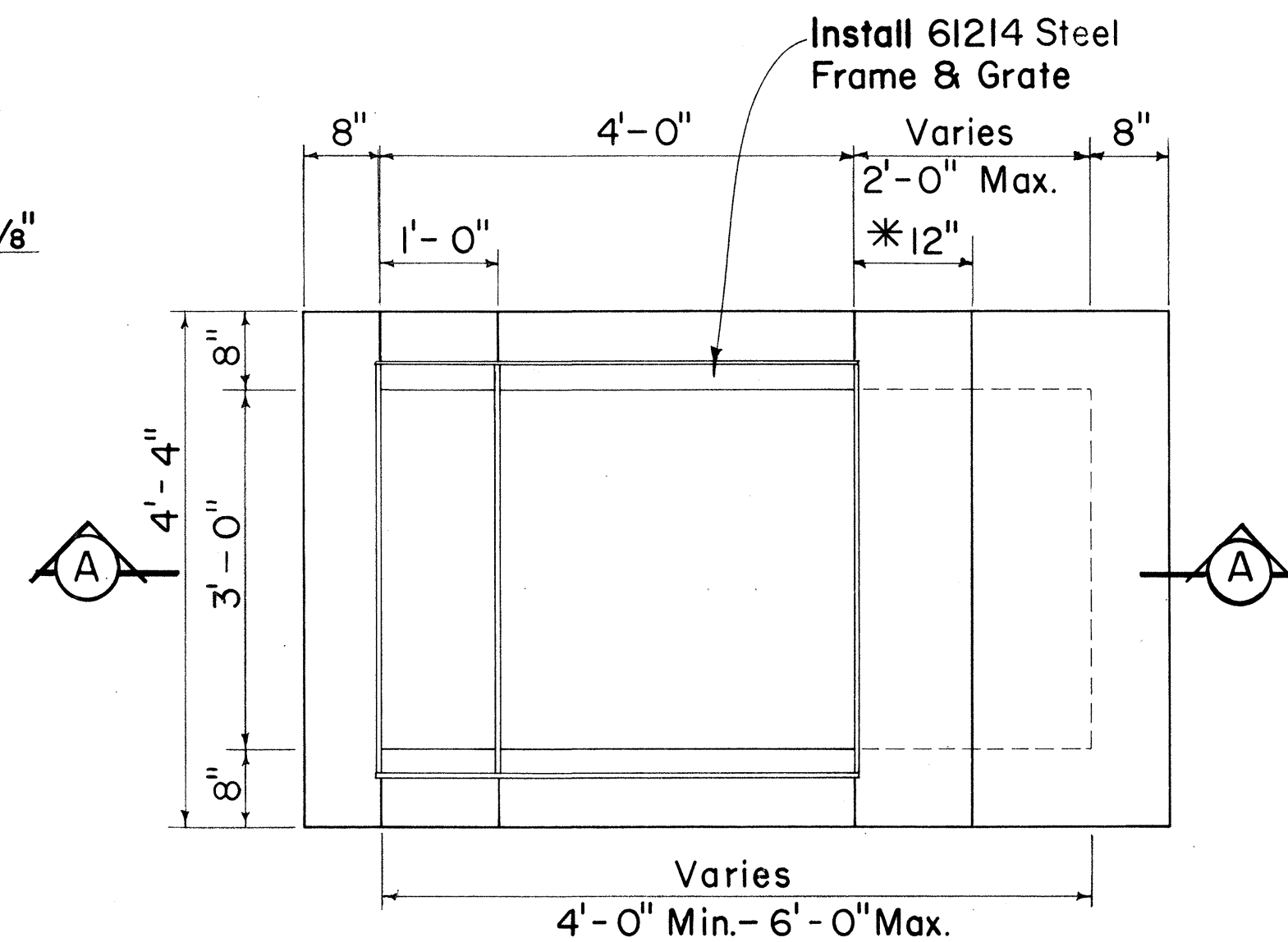
PLAN

Scale: 1 1/2" = 1' - 0"

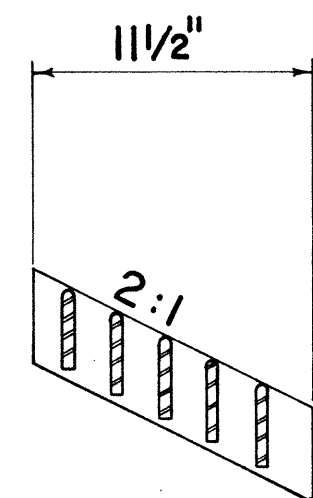


PLAN

Scale: 1 1/2" = 1' - 0"

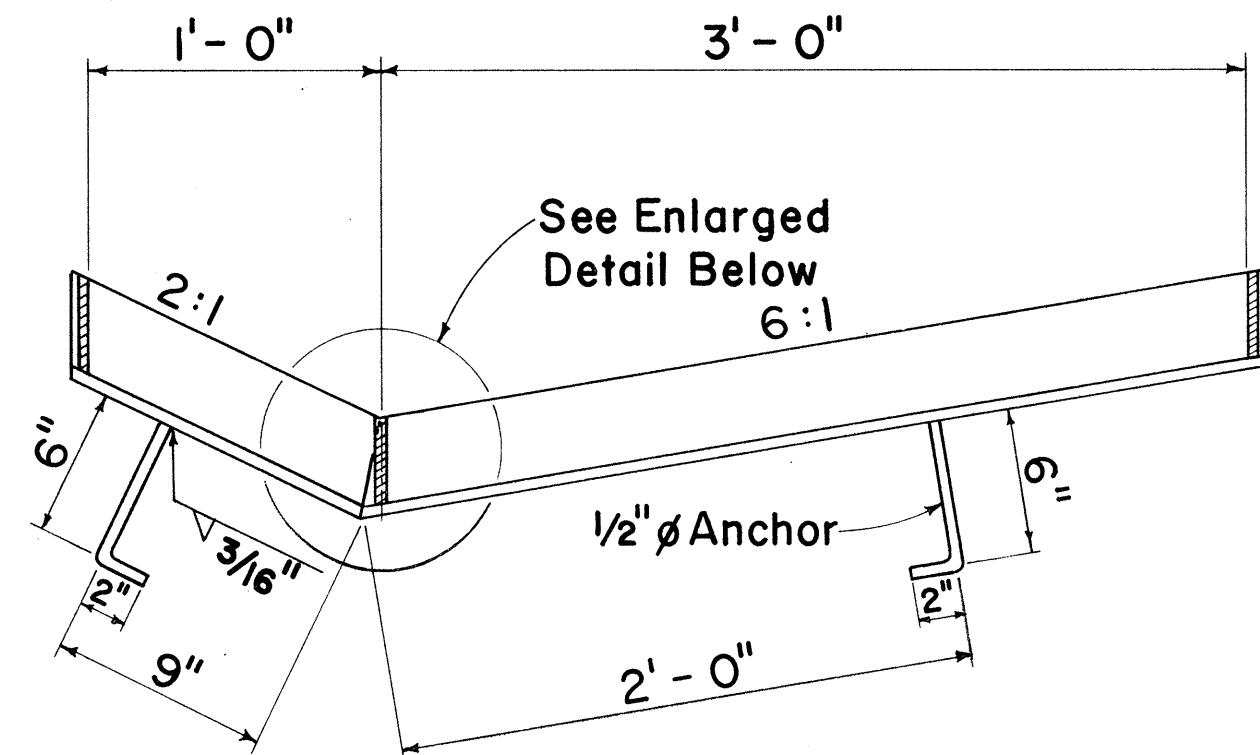


PLAN



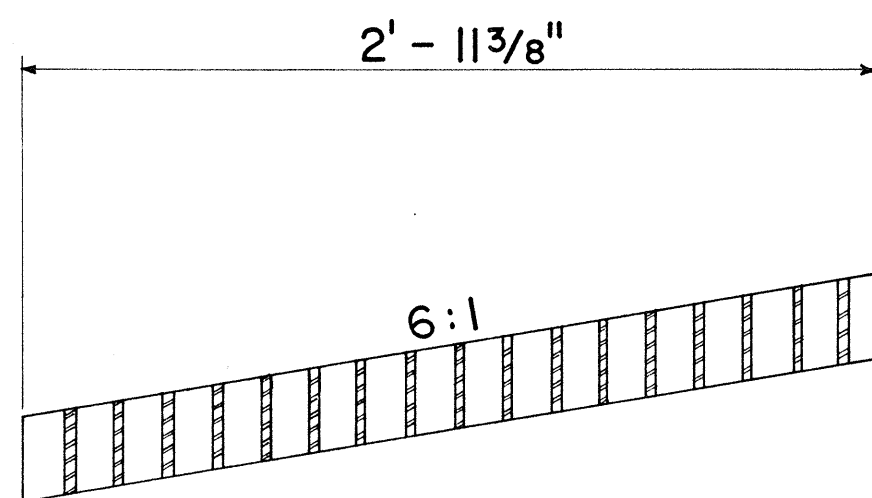
SECTION

Scale: 1 1/2" = 1' - 0"



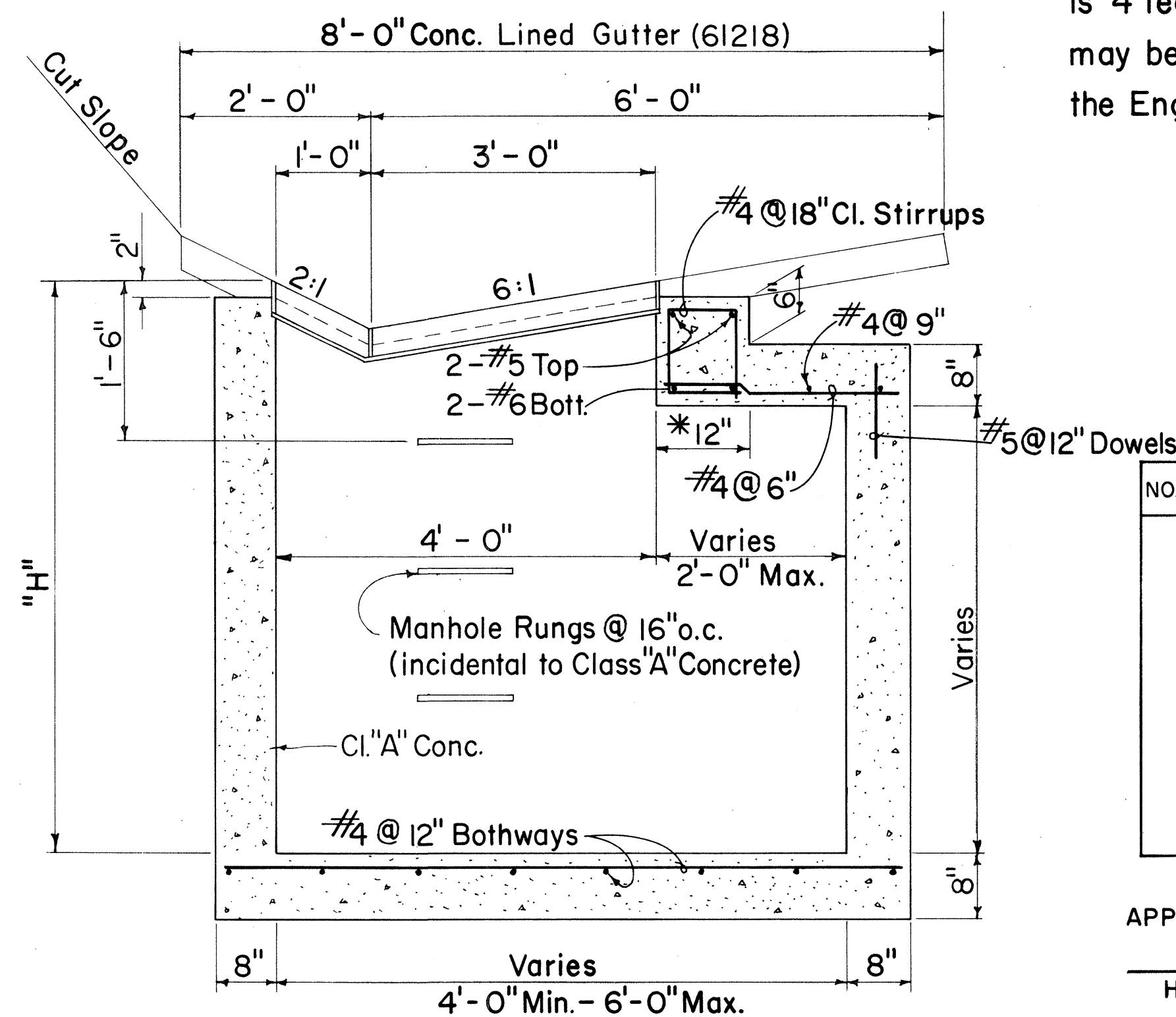
SECTION

Scale: 1 1/2" = 1' - 0"



SECTION

Scale: 1 1/2" = 1' - 0"



SECTION A - A

DETAIL OF 61214 DROP INTAKE

Scale: 3/4" = 1' - 0"

*For Minimum size box of 4'-0" only, use 8" and eliminate reinforcing steel shown in top portion.

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:

HYDRAULIC DESIGN ENGINEER 12-17-69 DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING 12-17-69 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
TYPE 61214
GRADED DROP INTAKE

Scales: As Noted Date: July 1969

SHEET No. 23 OF 26 SHEETS DH 9

DETAILS OF TYPE 61214 STEEL FRAME AND GRATES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H2-1(6)-6	1973	119	100

