

Sta. 275+50 to 276+90 Rt. &
Sta. 277+10 to 278+50 Rt.
Excavate Earth Ditch
(See Section 'A-A' below & Cross Sections)
ESTIMATED QUANTITIES
Ditch & Channel Exc. = 80 C.Y. 206.7

Sta. 278+35 Lt.
Construct: 1-Type 'A' C.D.I.
Install: 24" 14 Gage CGMP or 24" C.I. III RCCP
ESTIMATED QUANTITIES
Class B-1 Conc. = 2.3 C.Y. 2.3
Struct. Exc. = 55 C.Y. 49.7
24" Pipe Culvt. = 60 L.F. 66.3
Sprinkling = 1 M.Gal.

Sta. 276+90 to 277+10 Rt. &
Sta. 278+50 to 279+25 Rt.
Construct Conc. Ditch
(See Section 'B-B' below & Cross Sections)
ESTIMATED QUANTITIES
Class B-1 Conc. = 9.7 C.Y. 9.7
Reinf. Steel = 363 lbs.
Ditch & Channel Exc. = 35 C.Y. 37.8

Sta. 278+55
Construct: 1-Type 'B' C.D.I.
Install: 30" 14 Gage CGMP or 30" C.I. III RCCP
ESTIMATED QUANTITIES
Class B-1 Conc. = 3.4 C.Y. 3.4
Struct. Exc. = 83.6 C.Y. 83.6
30" Pipe Culvt. = 80.8 L.F. 88.8
30" Spillway = 14 L.F. 14
Sprinkling = 2 M.Gals.
Untreated Base for
Pipe Foundation = 89 C.Y.

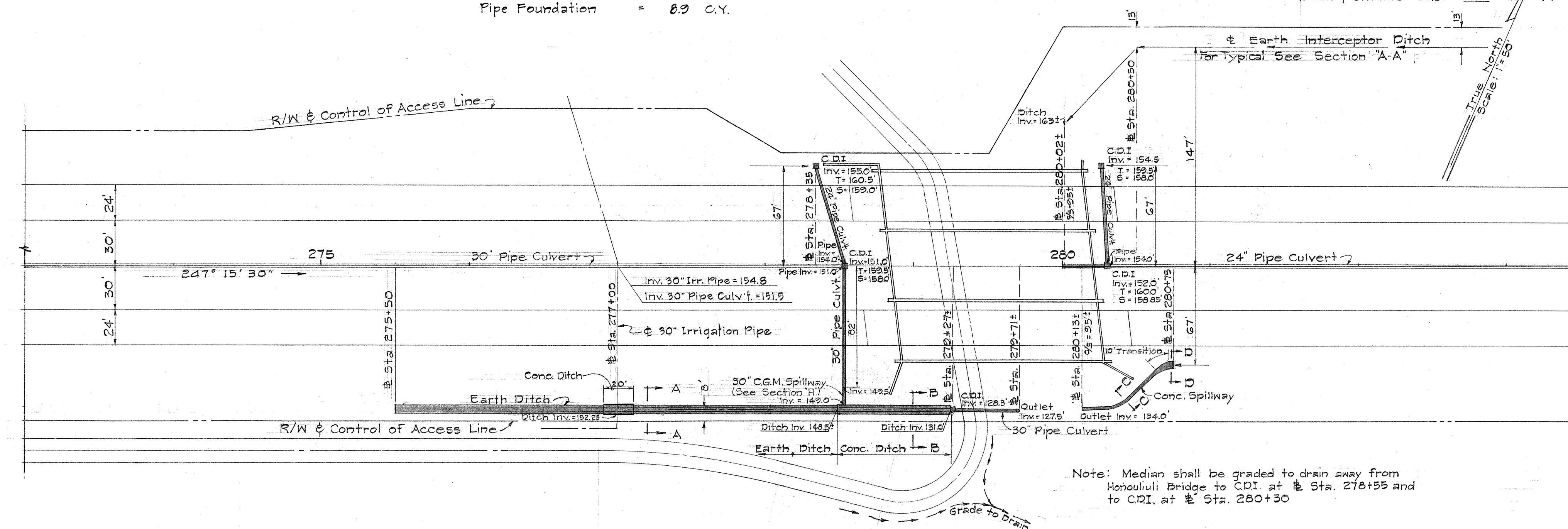
Sta. 279+27 Rt.
Construct: 1-Type 'Special' C.D.I.
Install: 30" 14 Gage CGMP or 30" C.I. III RCCP
ESTIMATED QUANTITIES
Class B-1 Conc. = 2.6 C.Y. 2.6
Struct. Exc. = 35 C.Y. 35
30" Pipe Culvt. = 44 L.F. 44
Sprinkling = 1 M.Gal.

Sta. 280+25 Lt.
Construct: 1-Type 'A' C.D.I.
Install: 24" 14 Gage CGMP or 24" C.I. III RCCP
ESTIMATED QUANTITIES
Class B-1 Conc. = 2.1 C.Y. 2.1
Struct. Exc. = 53.6 C.Y. 53.6
24" Pipe Culvt. = 64 L.F. 64
Sprinkling = 2 M.Gals.

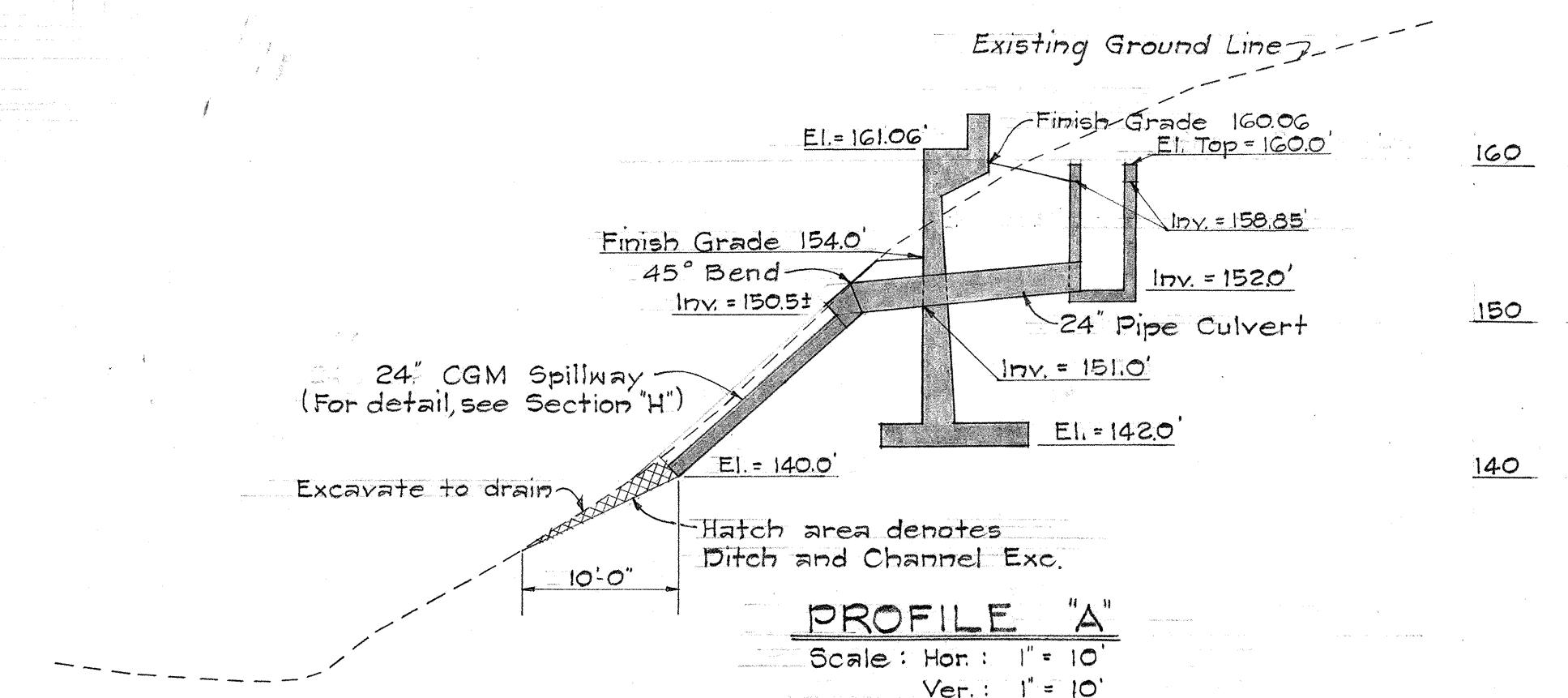
Sta. 280+30
Construct: 1-Type 'B' C.D.I.
Install: 24" 14 Gage CGMP or 24" C.I. III RCCP
ESTIMATED QUANTITIES
Class B-1 Conc. = 2.3 C.Y. 2.3
Struct. Exc. = 24.6 C.Y. 24.6
Ditch & Channel Exc. = 1 C.Y. 1
24" Pipe Culvt. = 25 L.F. 25
24" CGM Spillway = 14 L.F. 14
Sprinkling = 1 M.Gal.

Sta. 280+13 to 280+75 Rt.
Construct Conc. Spillway
(See details below)
ESTIMATED QUANTITIES
Class B-1 Conc. = 12 C.Y. 5.2
Reinf. Steel = 148 lbs. 176
Ditch & Channel Exc. = 13 C.Y. 14

Sta. 280+02 to 282+00 Lt.
Excavate Earth Interceptor Ditch
(See Section 'A-A')
ESTIMATED QUANTITIES
Ditch & Channel Exc. = 374 C.Y. 337.4



Note: Median shall be graded to drain away from
Honolulu Bridge to C.D.I. at Sta. 278+55 and
to C.D.I. at Sta. 280+30

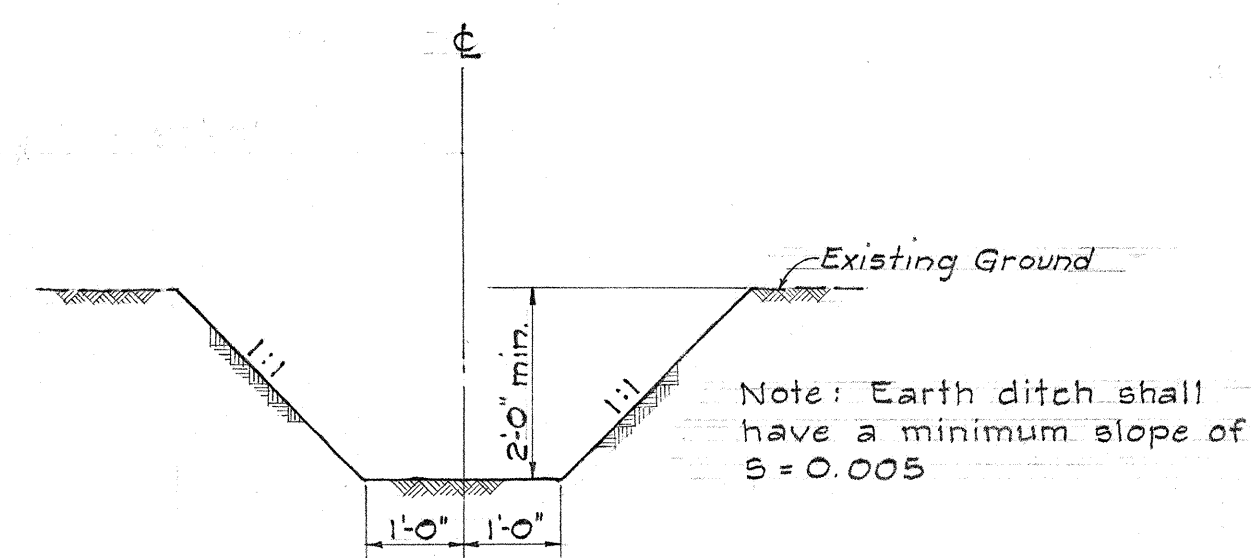


Note: Unless otherwise
noted, CGM Spillway shall
conform to the Standard
Details, sheet no. 52

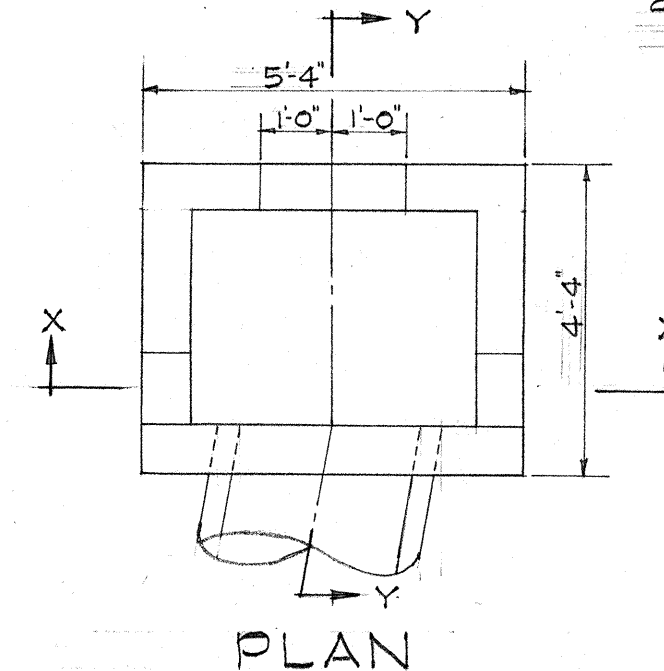
SECTION 'H'
Scale: 1" = 1'-0"

GENERAL NOTES FOR DRAINAGE SYSTEM

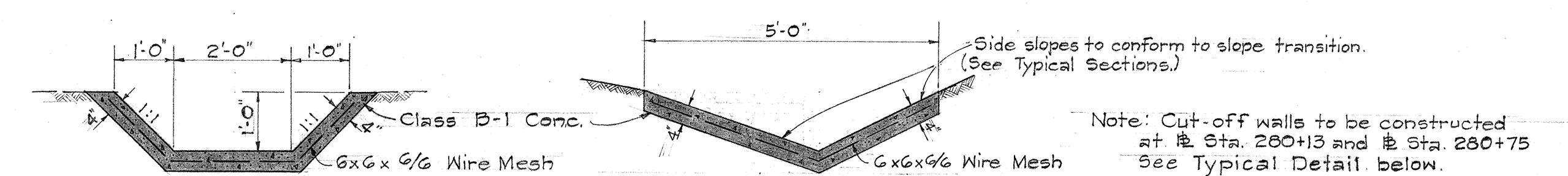
- The final location of manhole rungs shall be determined by the Engineer.
- Manhole rungs shall be incidental to Class A-1 or B-1 concrete unless otherwise noted.



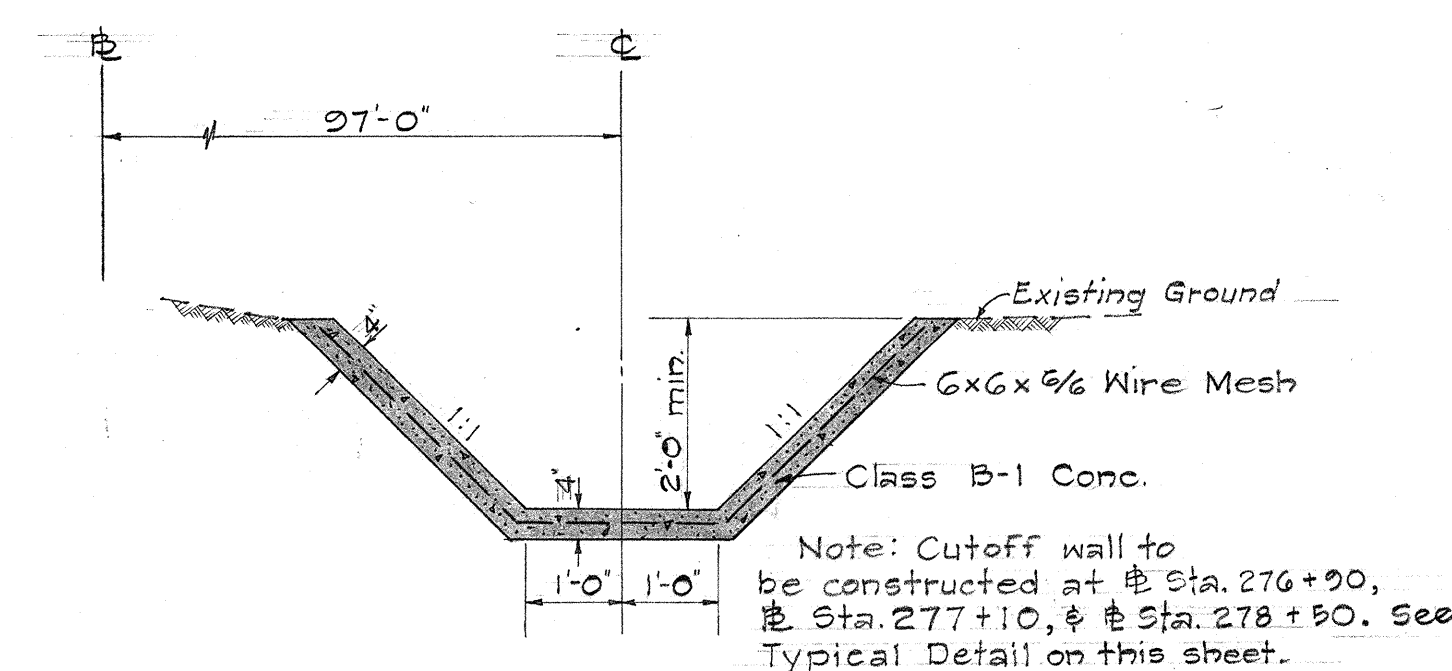
SECTION A-A
EARTH DITCH
Scale: 1/2" = 1'-0"



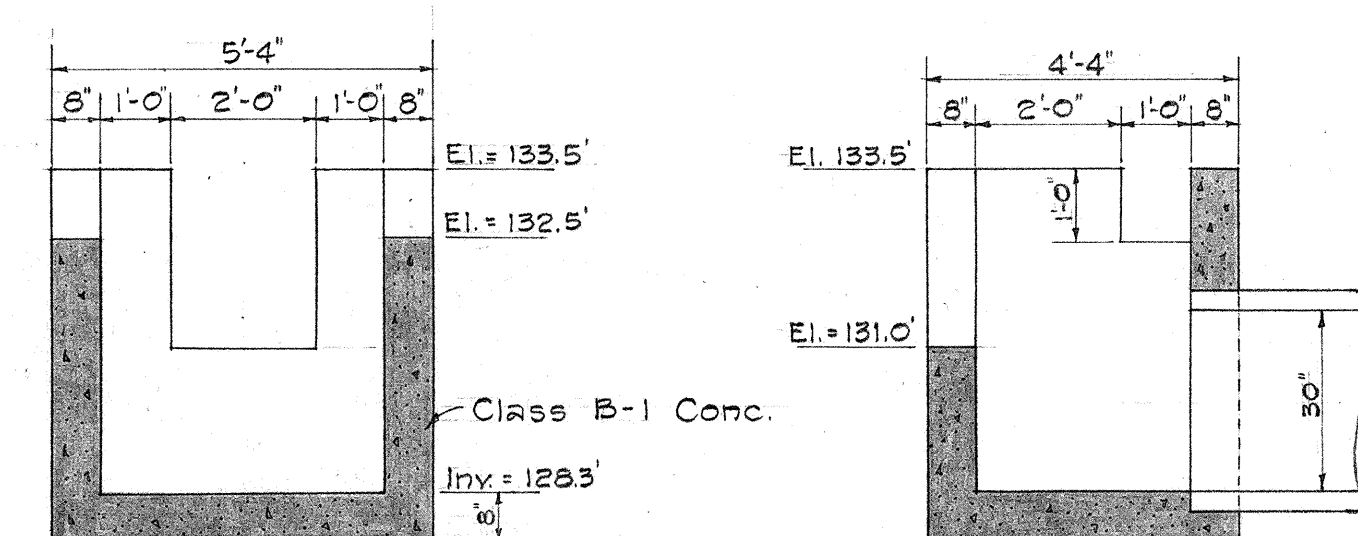
PLAN



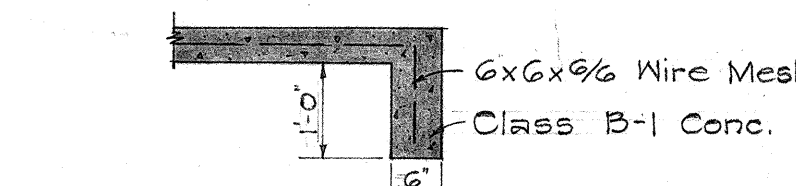
SECTION C-C SECTION D-D
DETAIL OF CONCRETE SPILLWAY
Scale: 1/2" = 1'-0"



SECTION B-B
CONCRETE DITCH
Scale: 1/2" = 1'-0"



SECTION X-X SECTION Y-Y
DETAIL OF 'SPECIAL' C.D.I.
AT Sta. 279+27±
Scale: 3/8" = 1'-0"



TYPICAL DETAIL
OF CUT-OFF WALL
Scale: 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL
Sta. 273+00 to 283+00

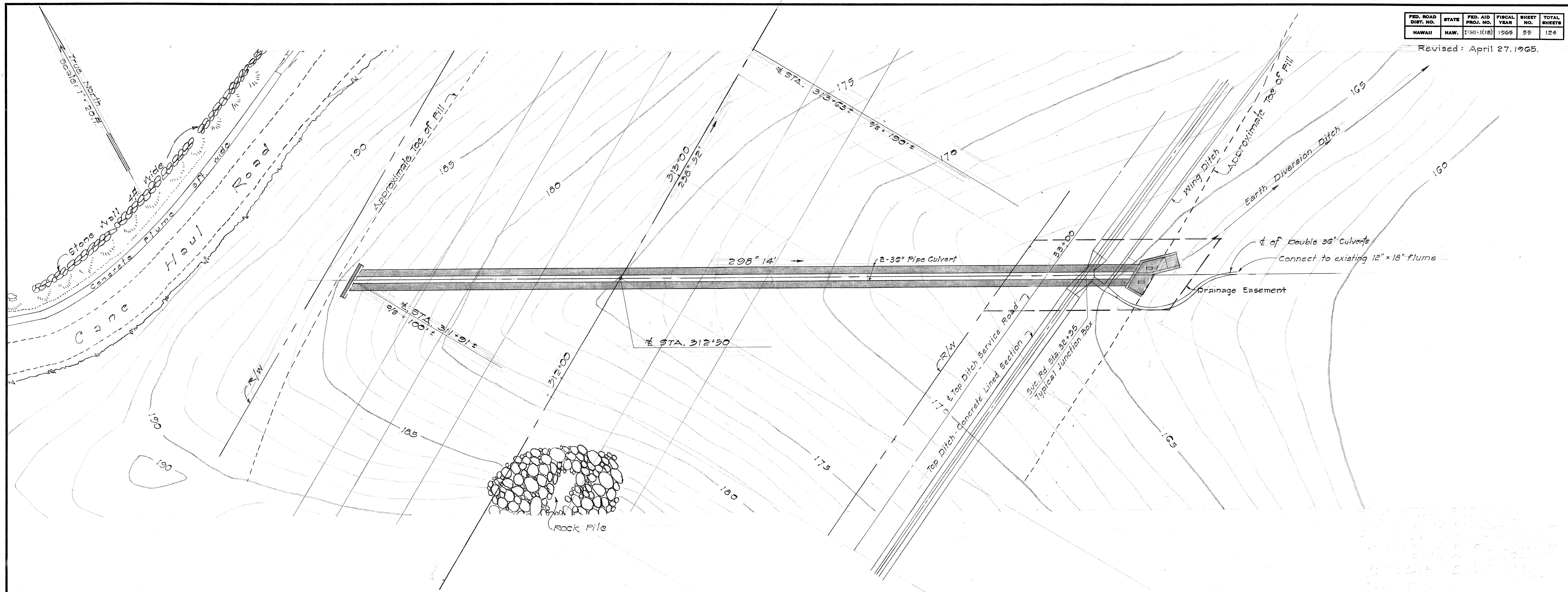
INTERSTATE ROUTE H-1
F.A.I. Project No. I-HI-1(18)

Scale: as Shown Date: _____

SHEET No. 2 OF 10 SHEETS

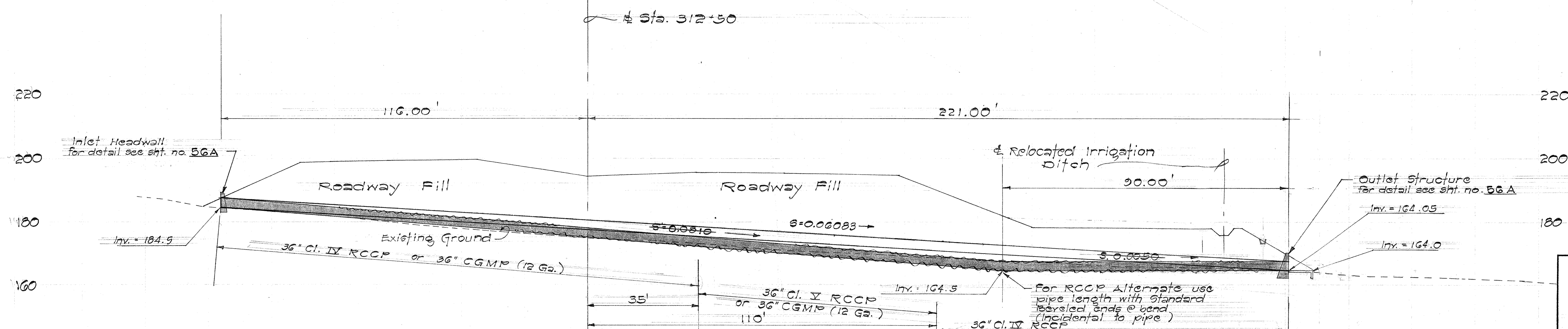
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	55	124

Revised: April 27, 1965.



PLAN

Scale: 1" = 20 ft.



PROFILE ~ DOUBLE 36" RCCP or CGMP CULVERT @ STA. 312+50

Scale: 1" = 20 ft.

THIS SHEET SUPERSEDES
SHEET No. 55

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL
DOUBLE 36" RCCP or CGMP
CULVERT AT STA. 312+50

INTERSTATE ROUTE H-1
F.A.I. Project No. I-HI-1(18)

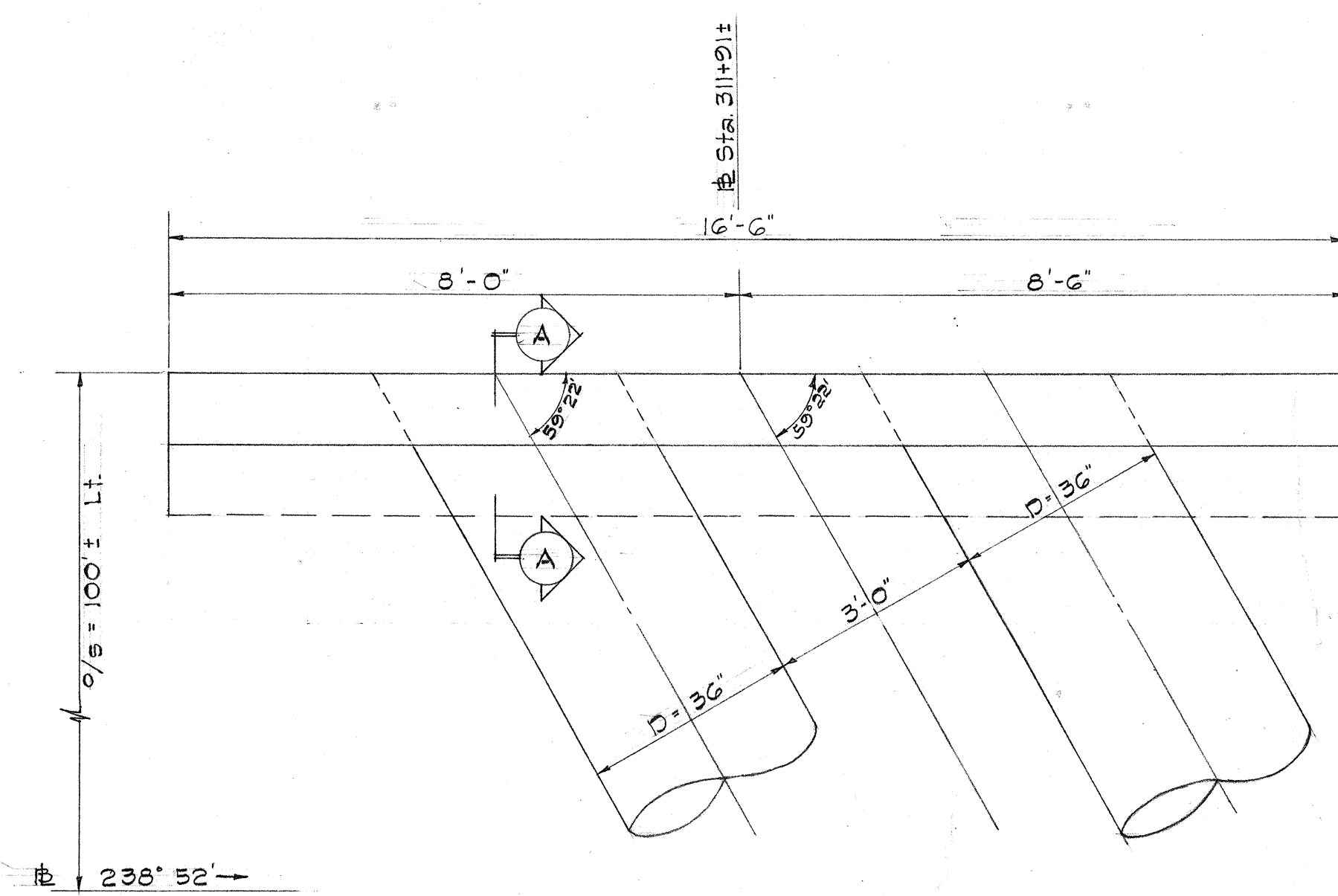
Scale: As Shown Date: Jan. 1965

SHEET No. 3 OF 10 SHEETS

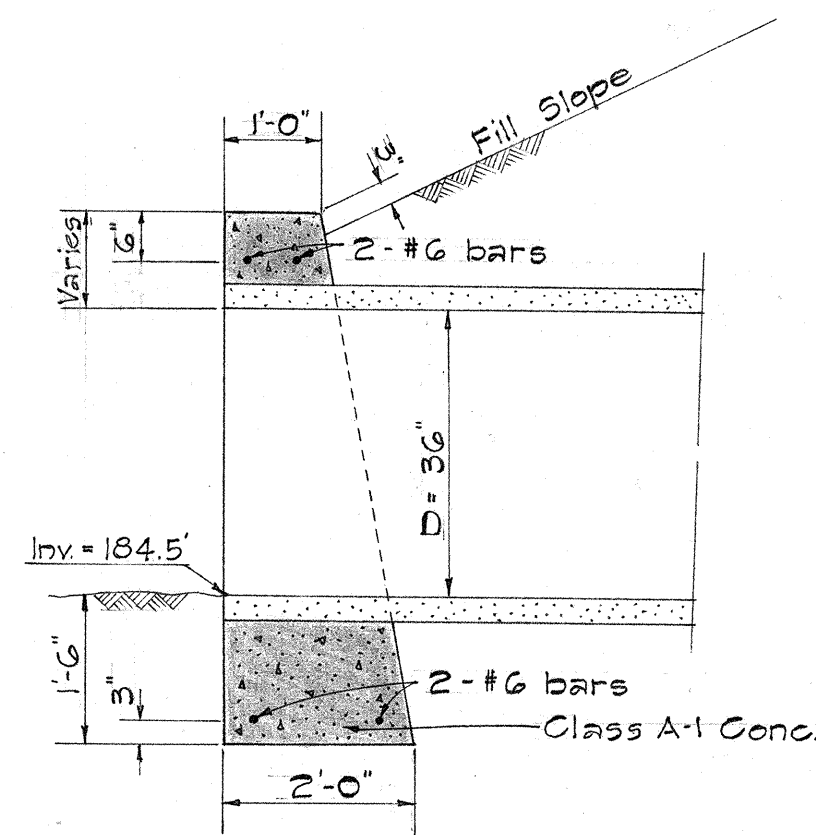
ORIGINAL PLAN	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	2-HI-1(18)	1965	56	124

Revised April 27, 1965

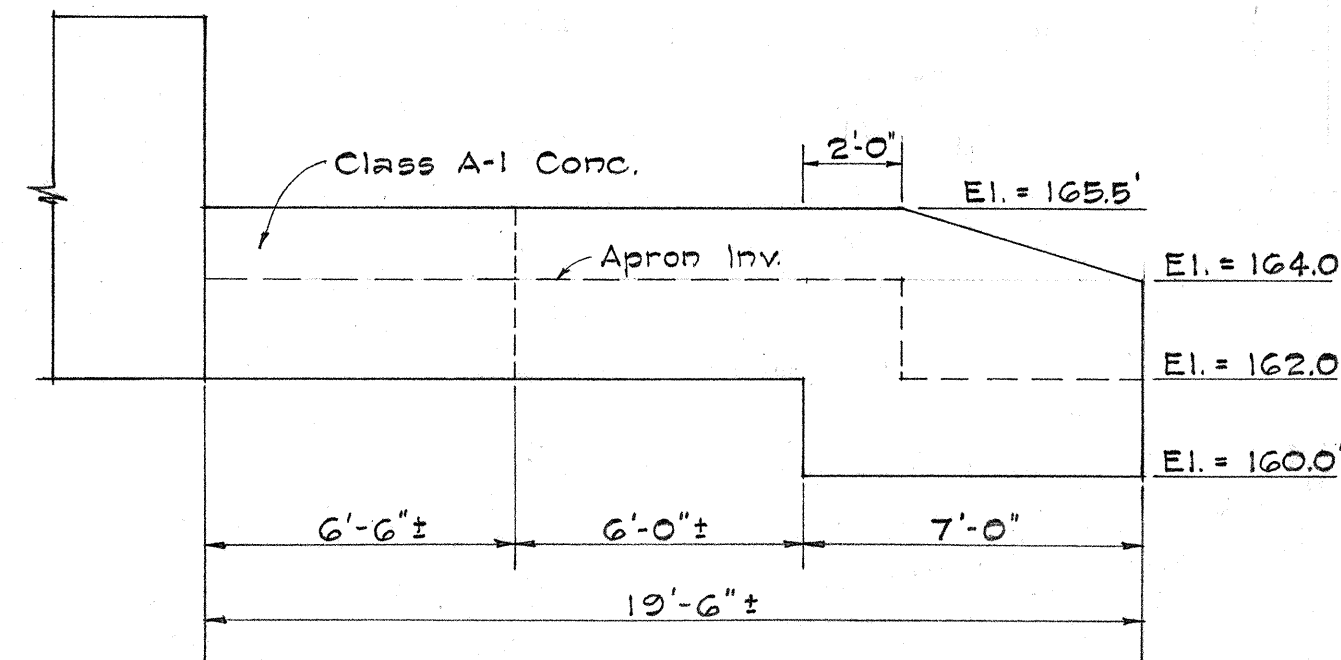


PLAN

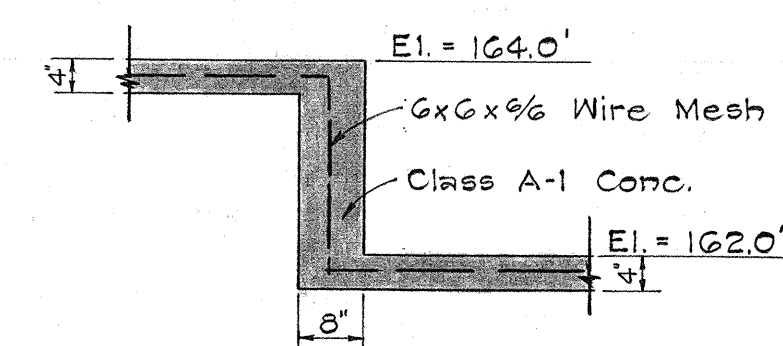


SECTION A-A

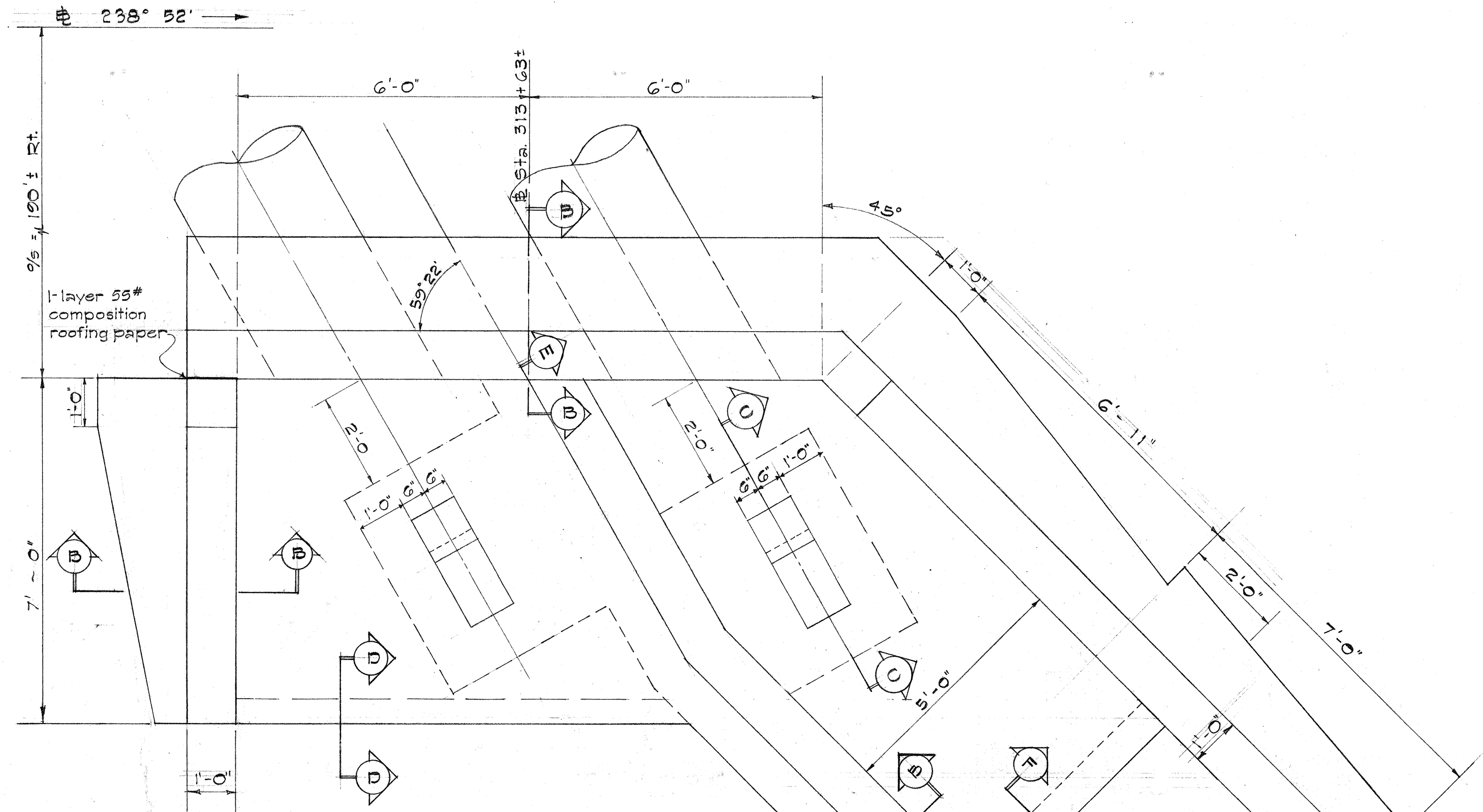
INLET HEADWALL
Scale: 1/8" = 1'-0"



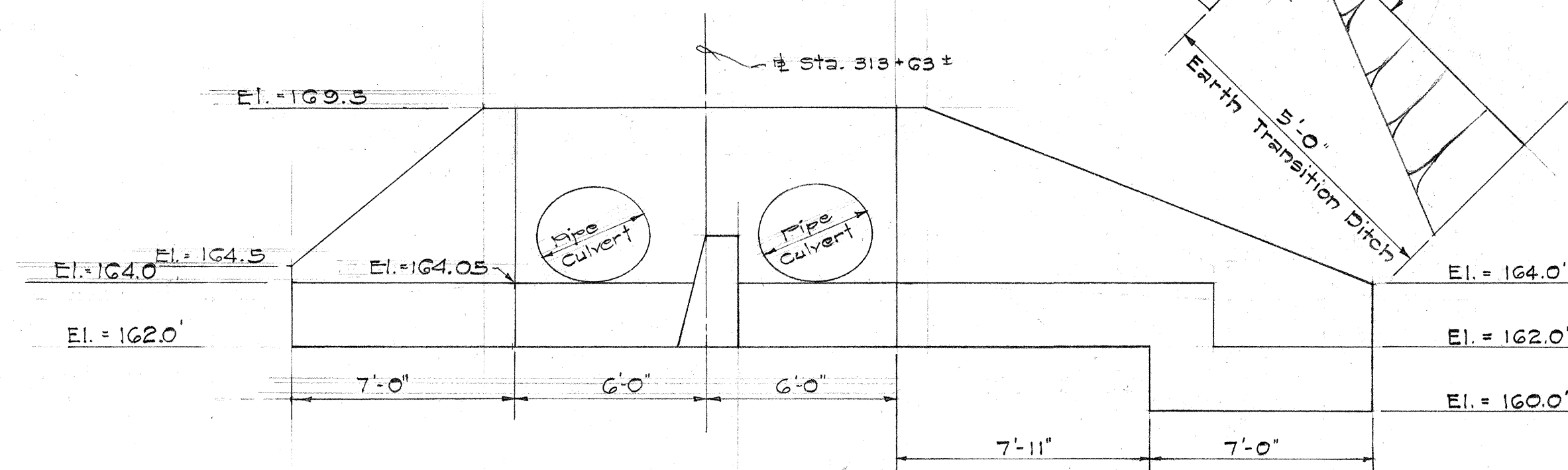
SECTION E-E
Scale: 1/4" = 1'-0"



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

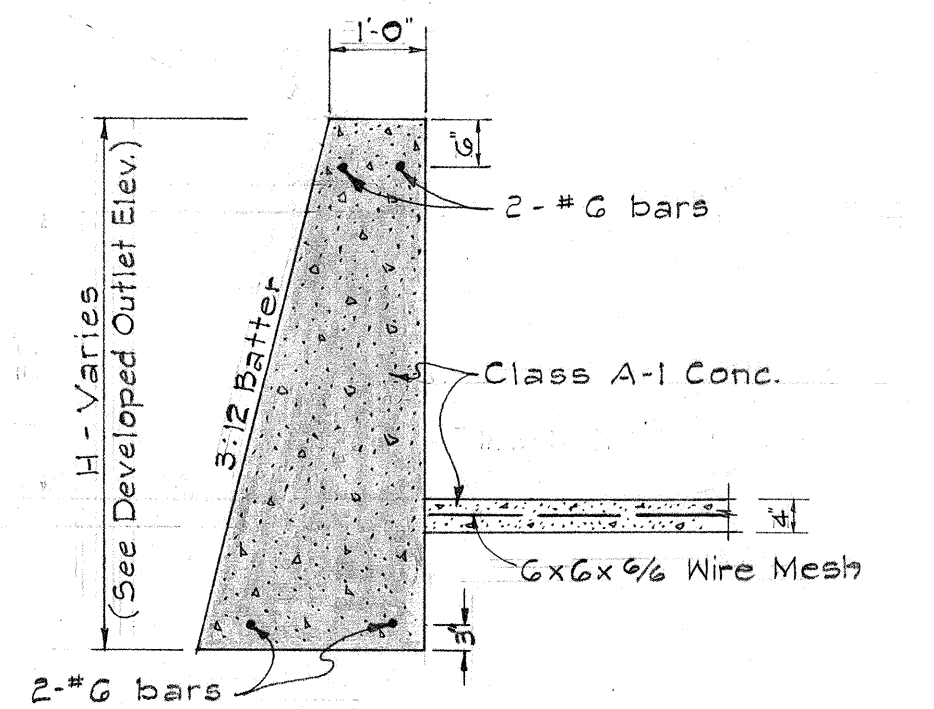


PLAN
Scale: 1/2" = 1'-0"

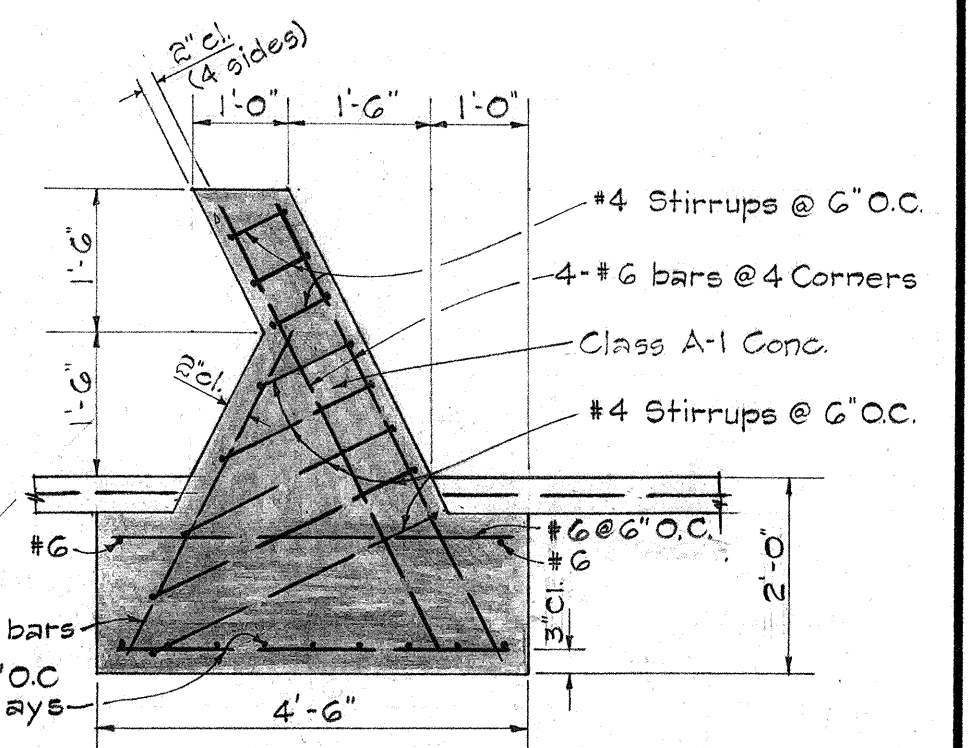


DEVELOPED OUTLET ELEVATION
Scale: 1/4" = 1'-0"

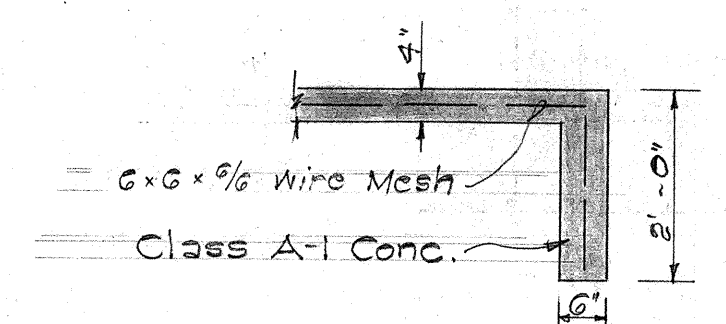
OUTLET STRUCTURE
Scale: As shown



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



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



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

DOUBLE 36" RCCP or CGMP CULVERT @ $\pm$ STA 312+50
Scale: As shown

THIS SHEET SUPERSEDES
SHEET No. 56

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

DOUBLE 36" RCCP or CGMP
CULVERT AT $\pm$ STA 312+50

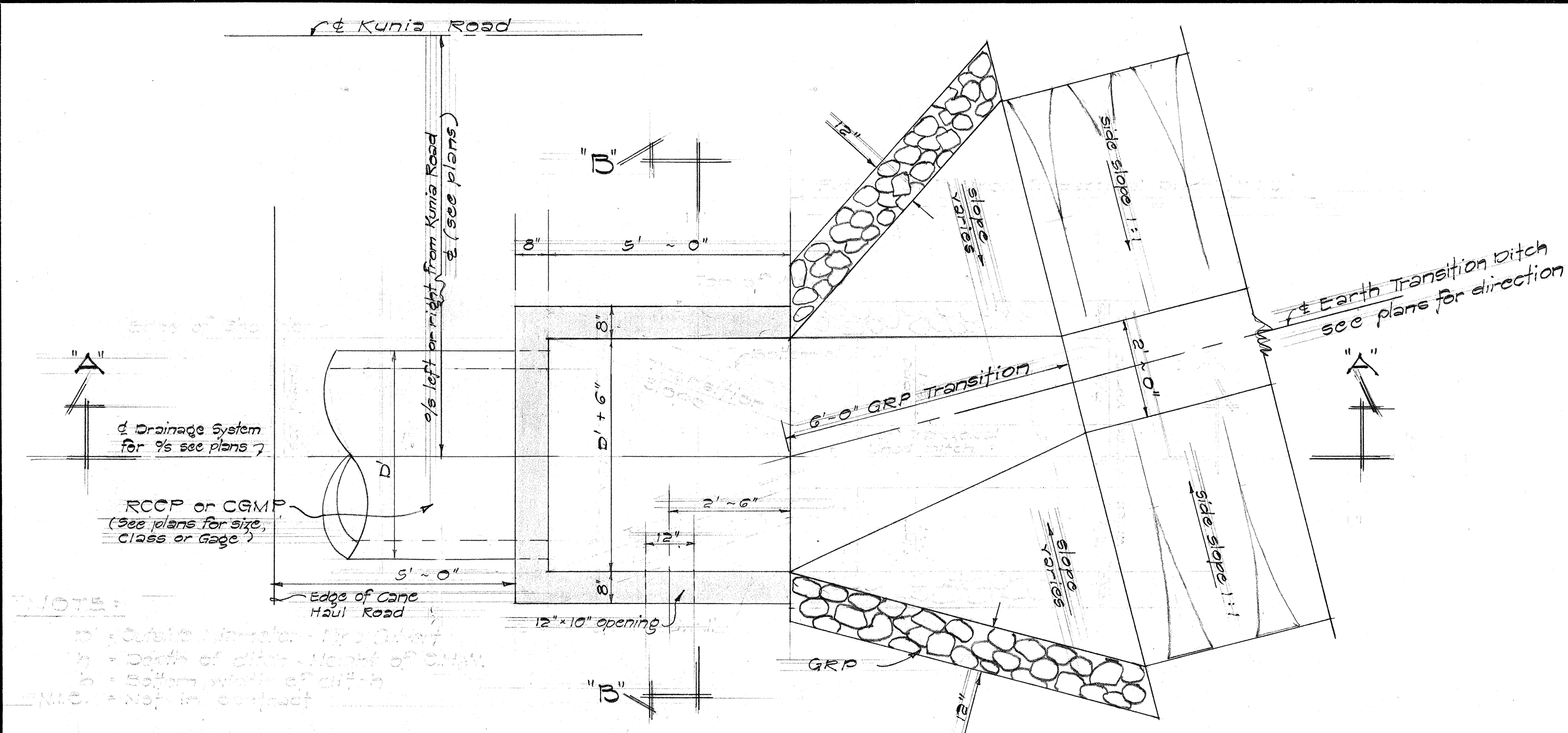
INTERSTATE ROUTE H-1
F.A.I. Project No. I-HI-1(18)

Scale: As shown Date: Jan. 1965

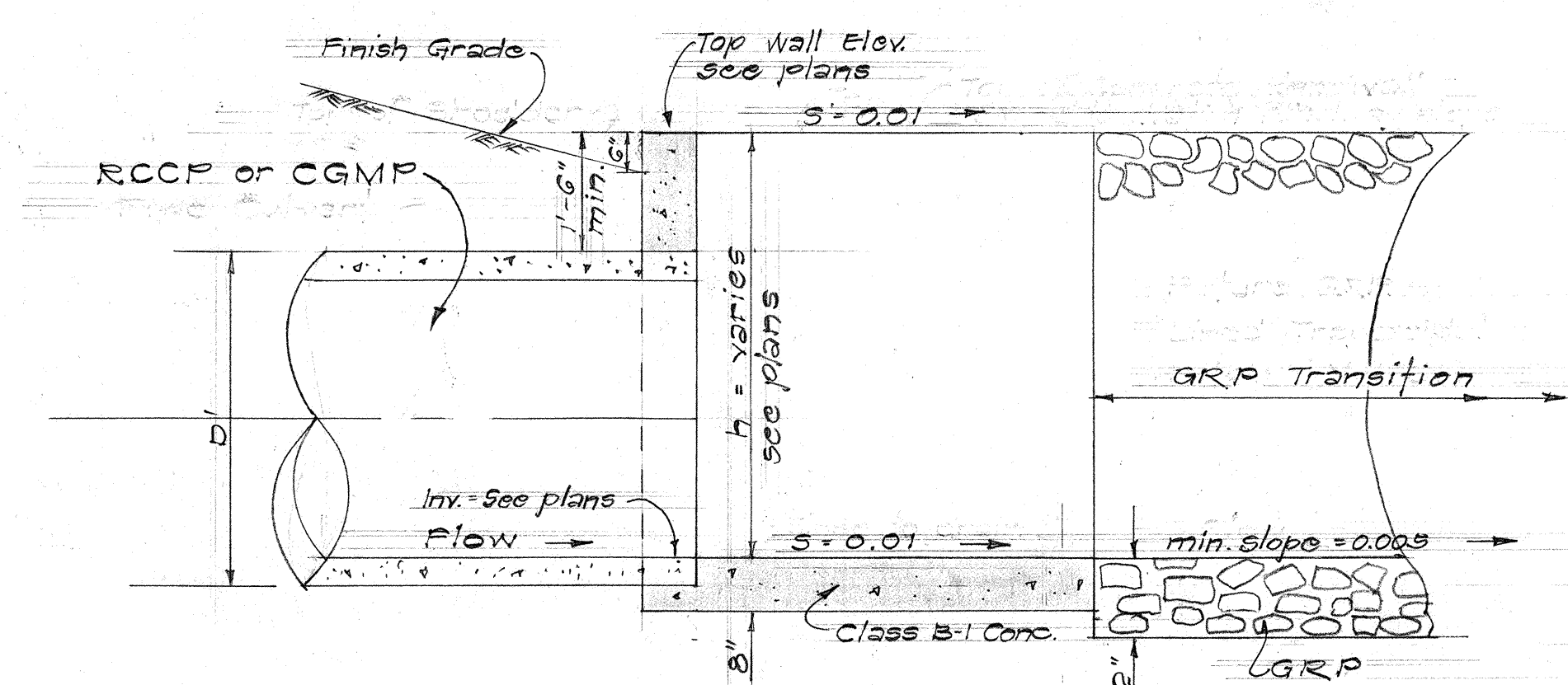
SHEET No. 4 OF 10 SHEETS

56A

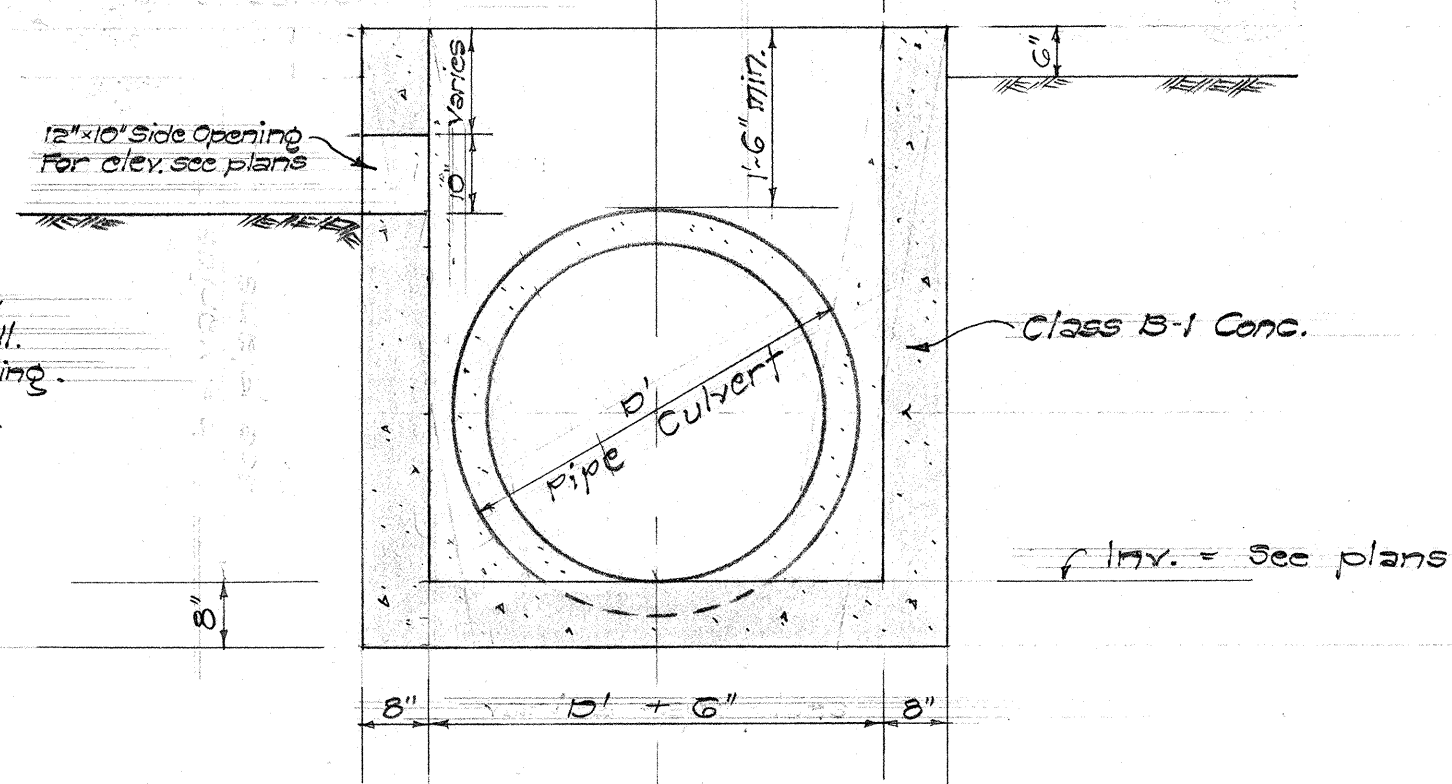
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	57	124



PLAN

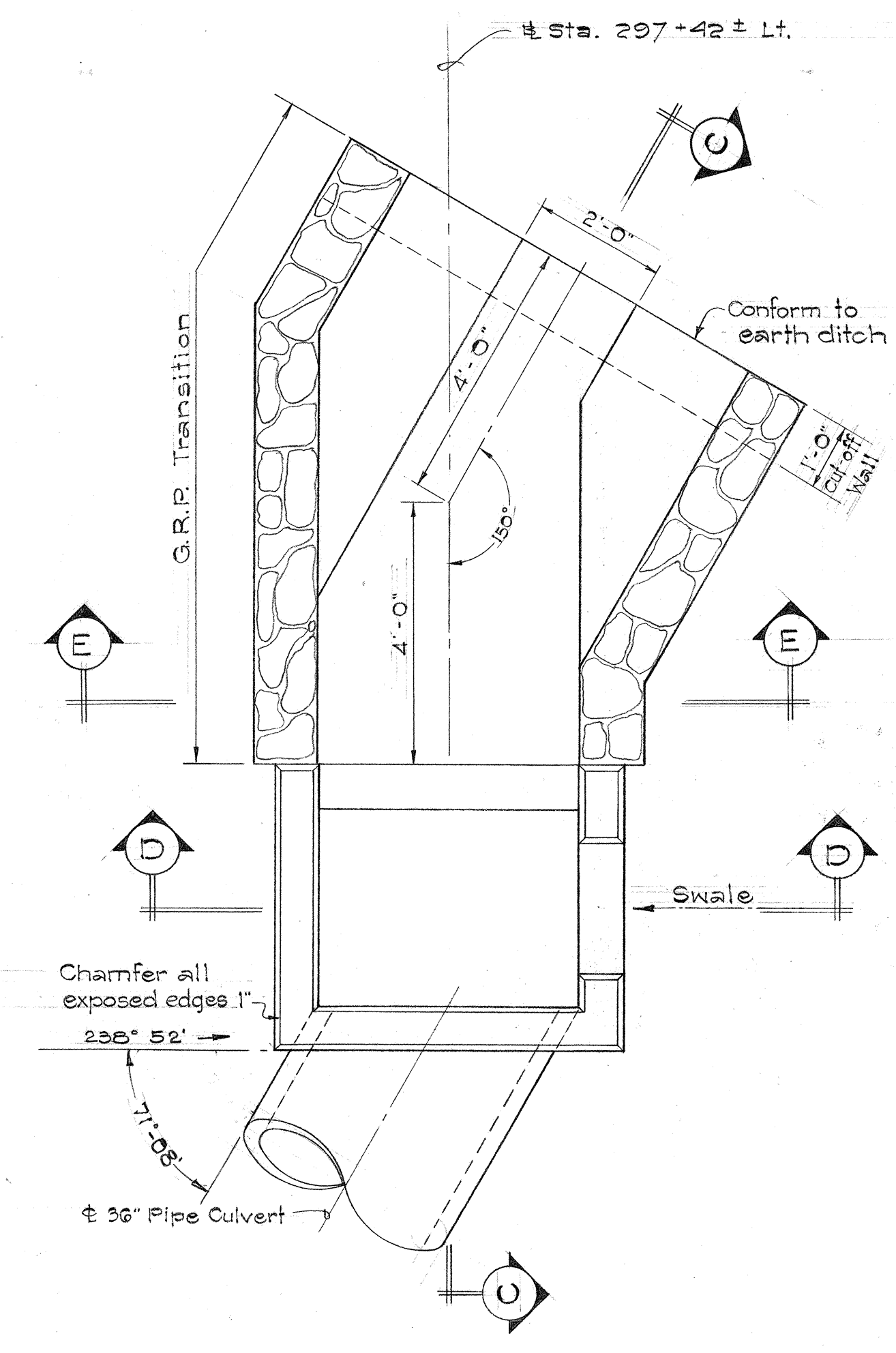


SECTION "A-A"

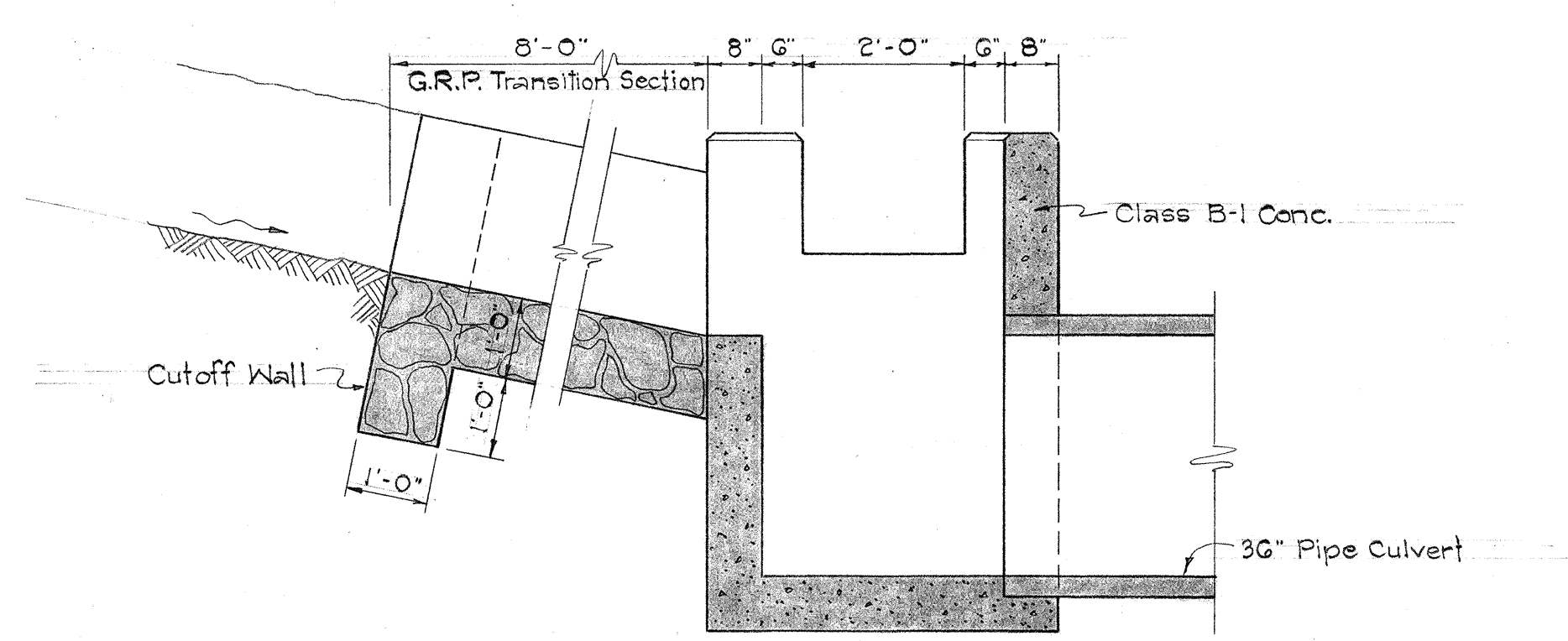


SECTION "B-B"

CONCRETE HEADWALL FOR OUTLETS
AT & KUNIA ROAD STA. 98+89 LEFT AND RIGHT



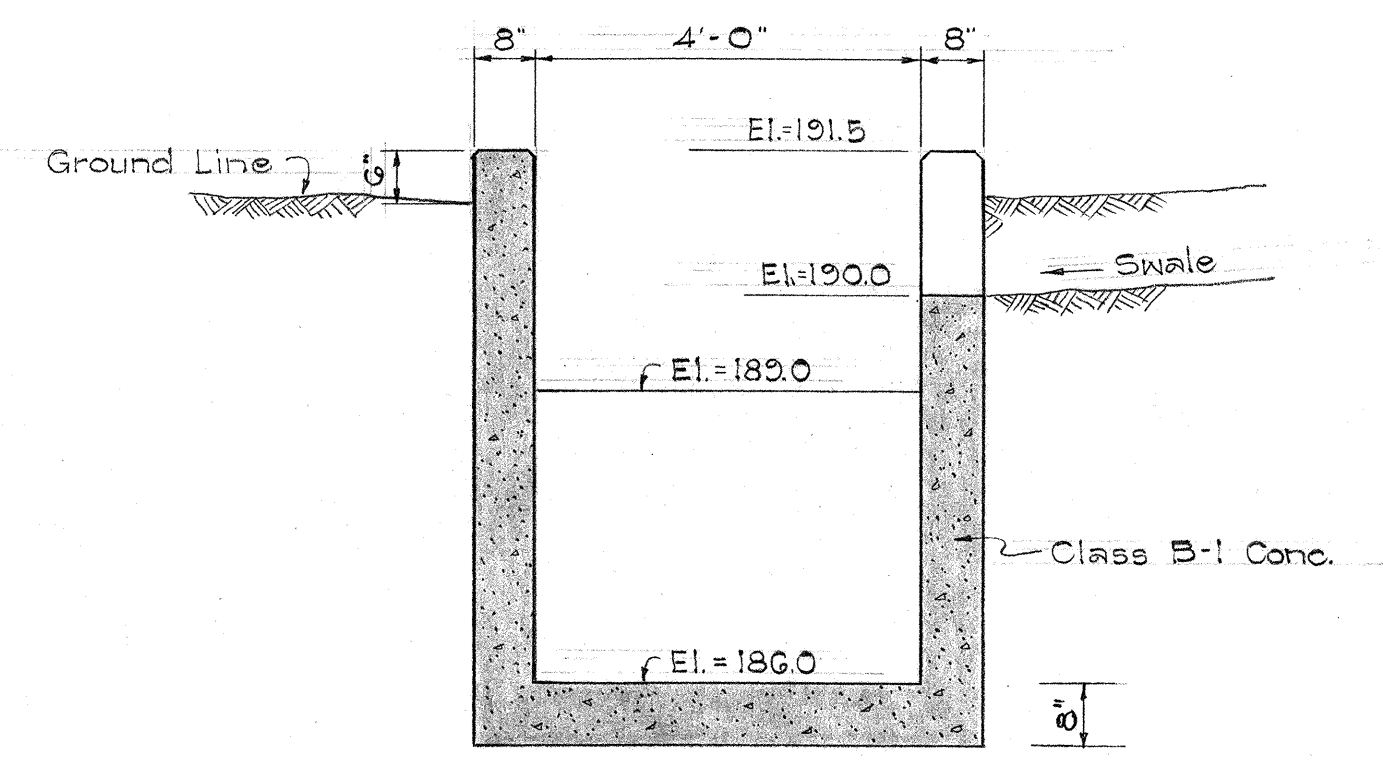
PLAN



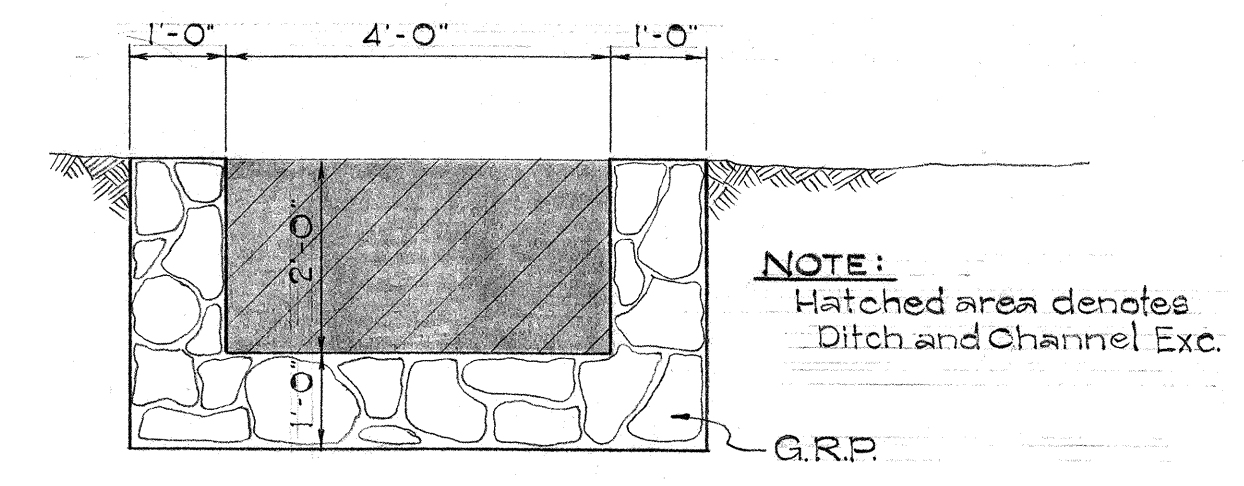
SECTION "C-C"

SPECIAL C.D.I. WITH G.R.P. TRANSITION
AT & STA. 297 + 42± LEFT

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



SECTION "D-D"



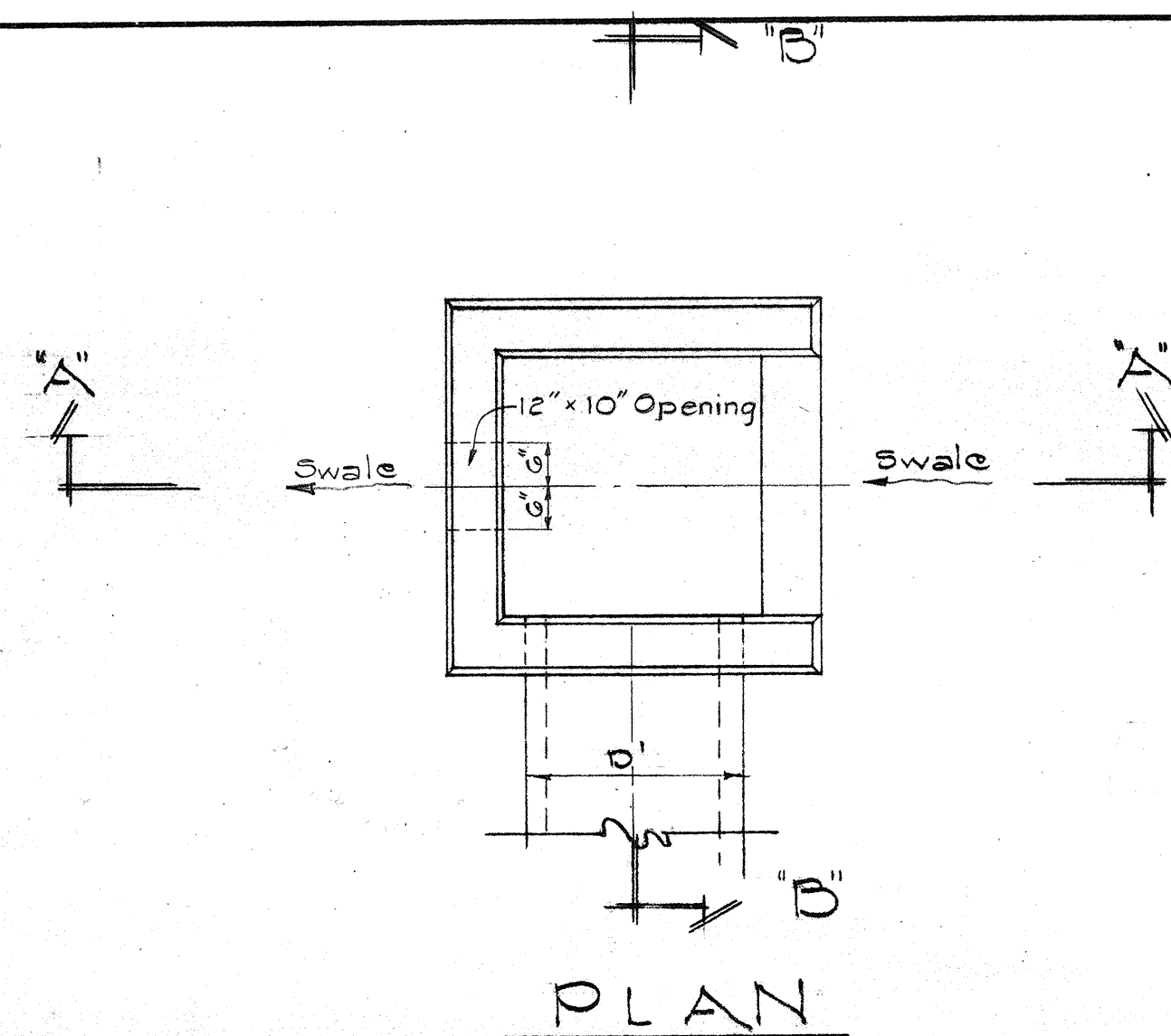
SECTION "E-E"

NOTE:
Hatched area denotes
Ditch and Channel Exc.

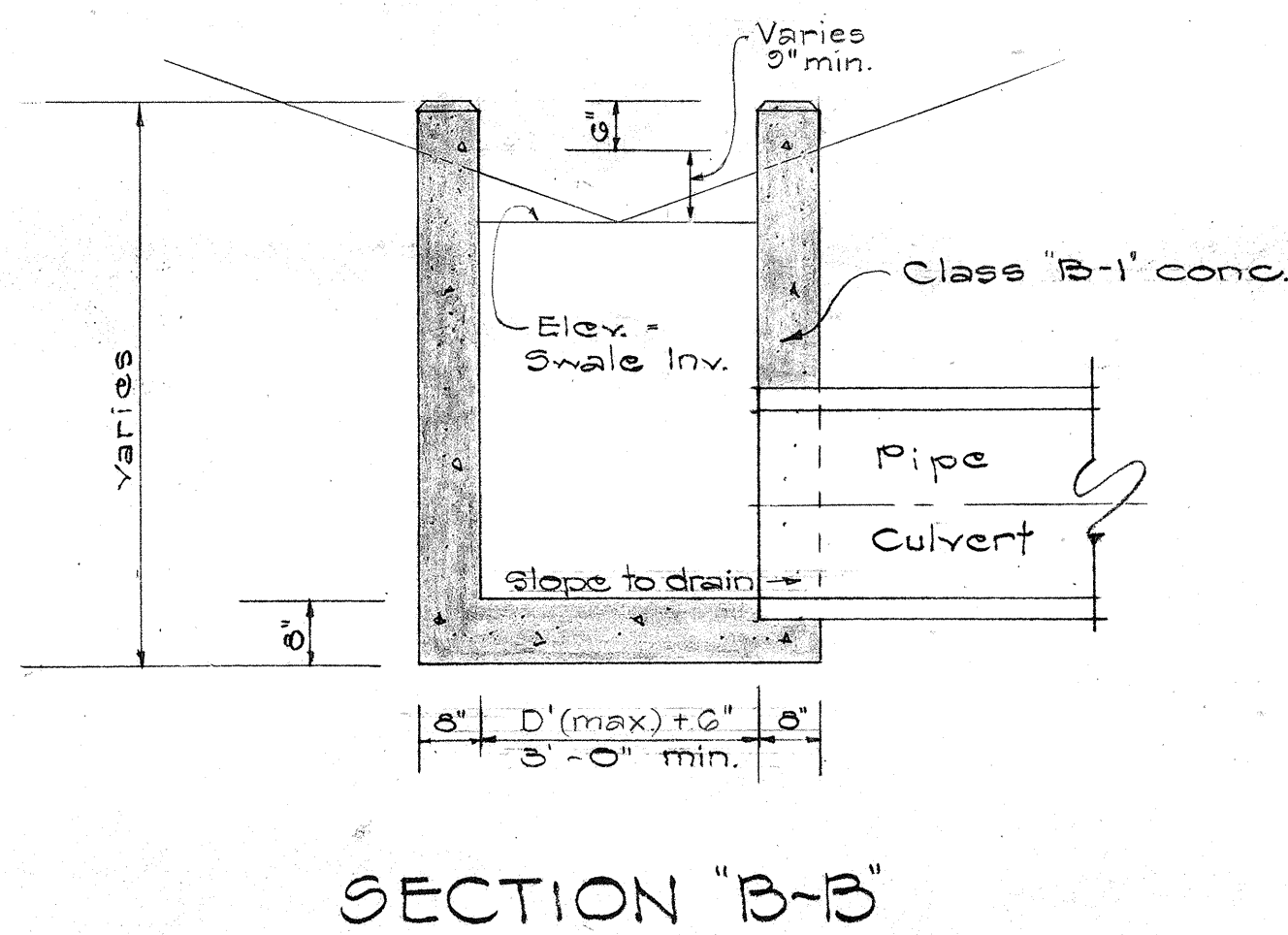
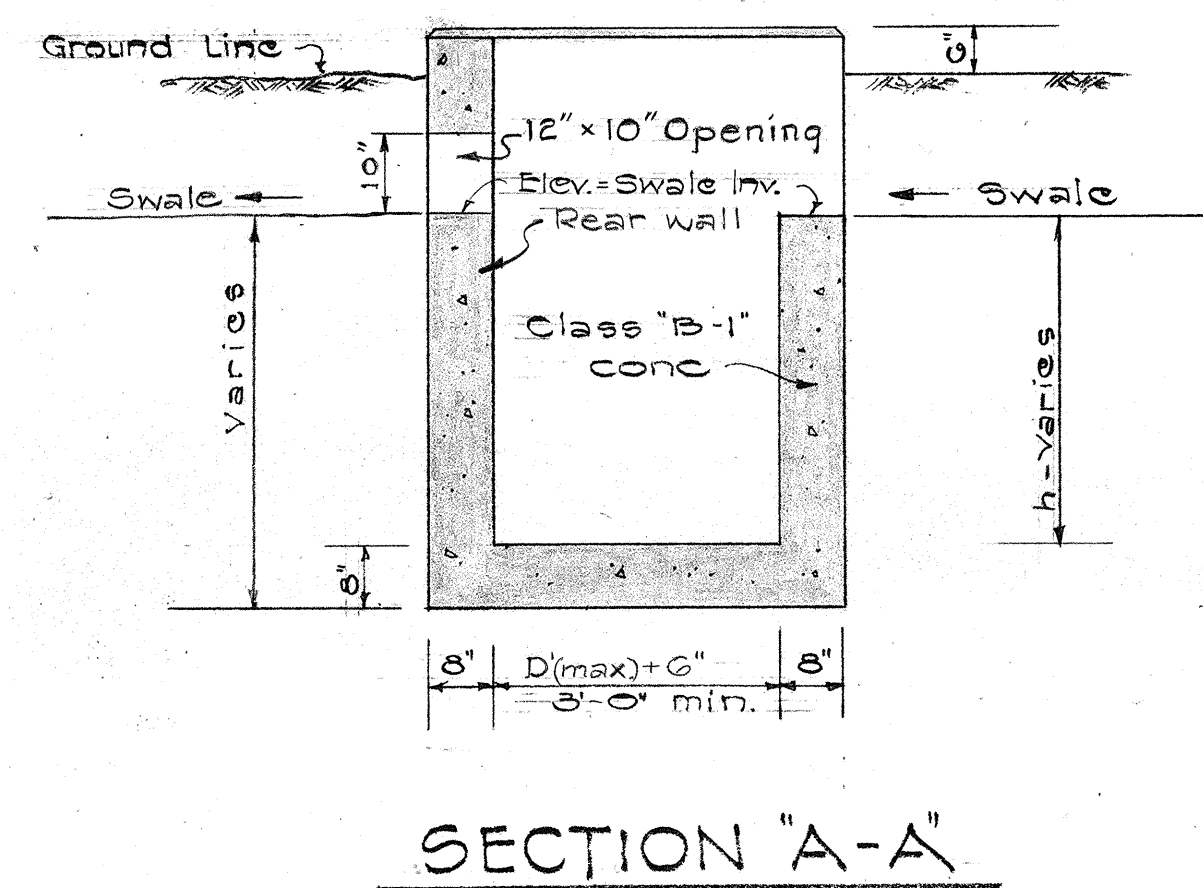
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL
STRUCTURE AT & STA. 297 + 42± LT.
STRUCTURE AT KUNIA ROAD STA.
98+89 LEFT AND RIGHT
INTERSTATE ROUTE H-1
F.A.I. PROJ. No. I-HI-1 (18)
Scale: As Shown Date: January 1965

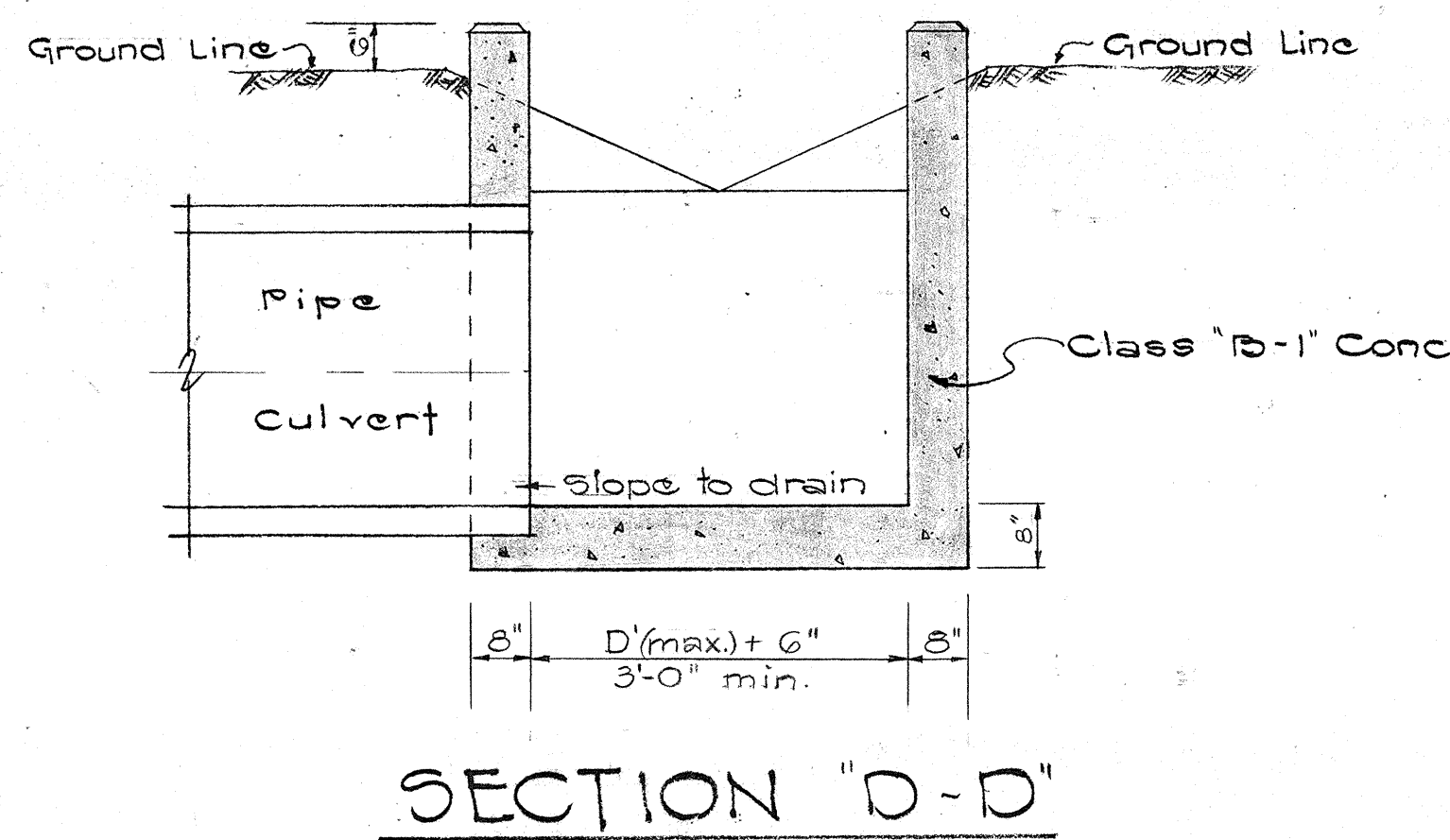
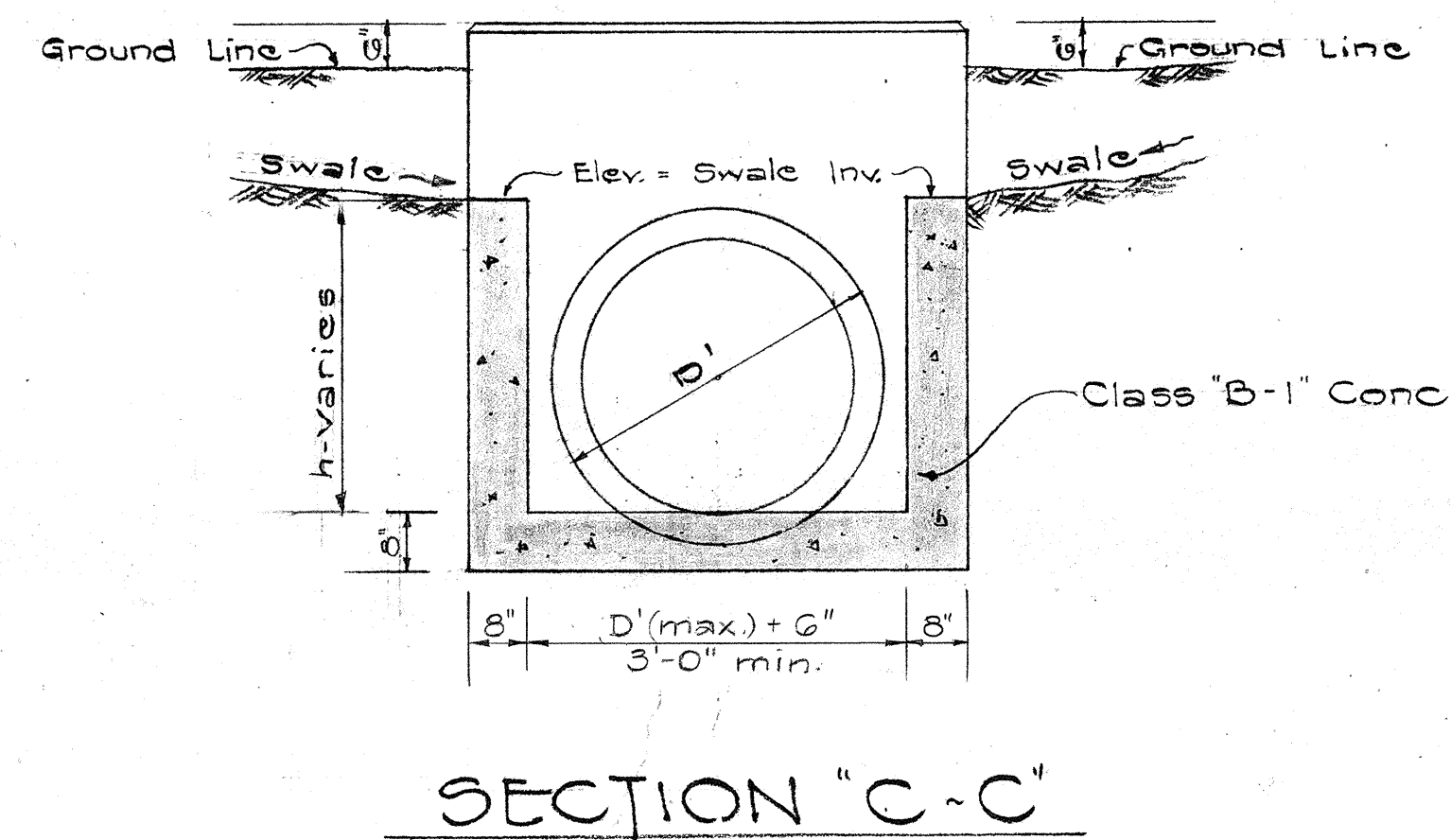
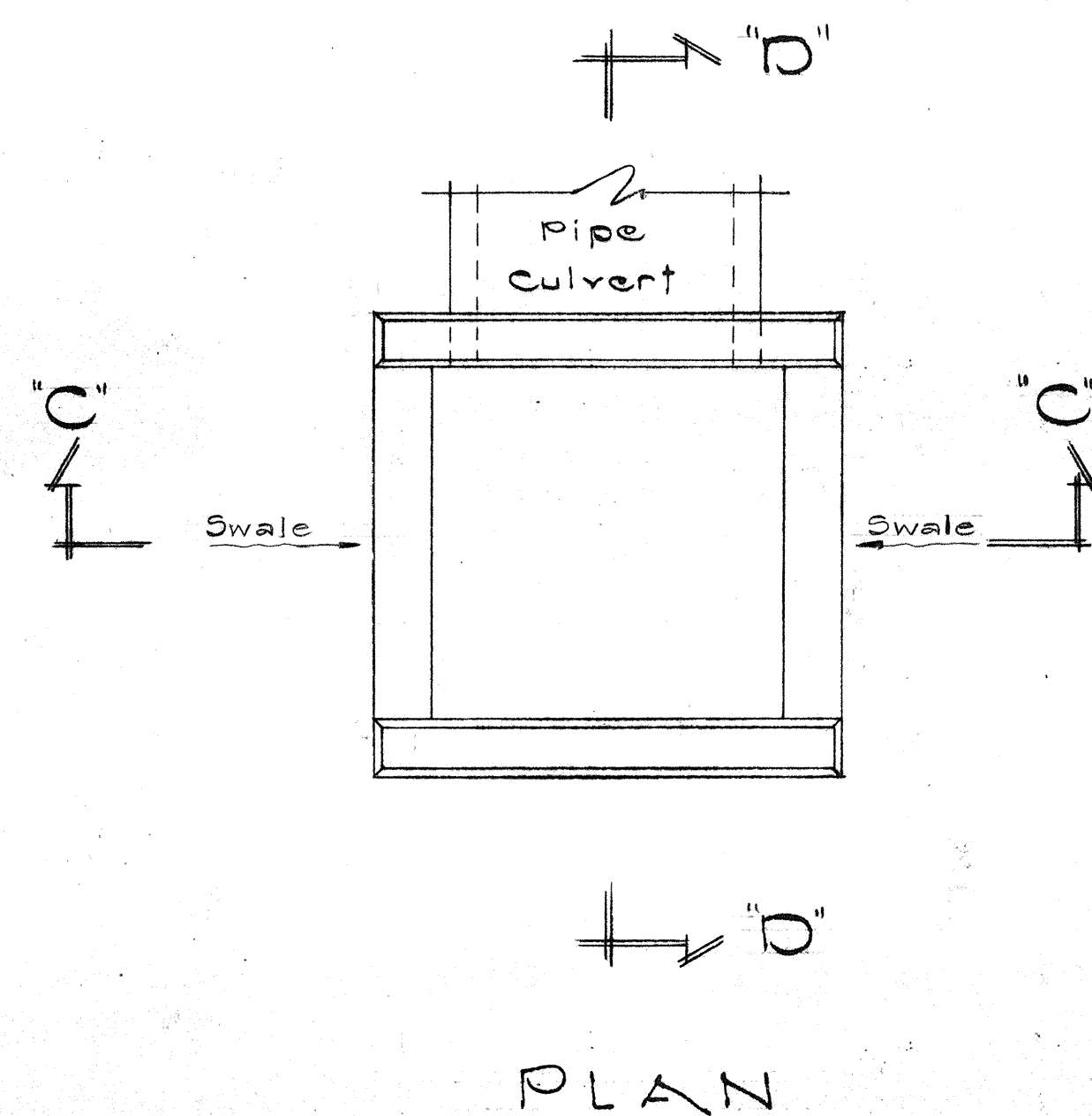
SHEET No. 5 OF 10 SHEETS



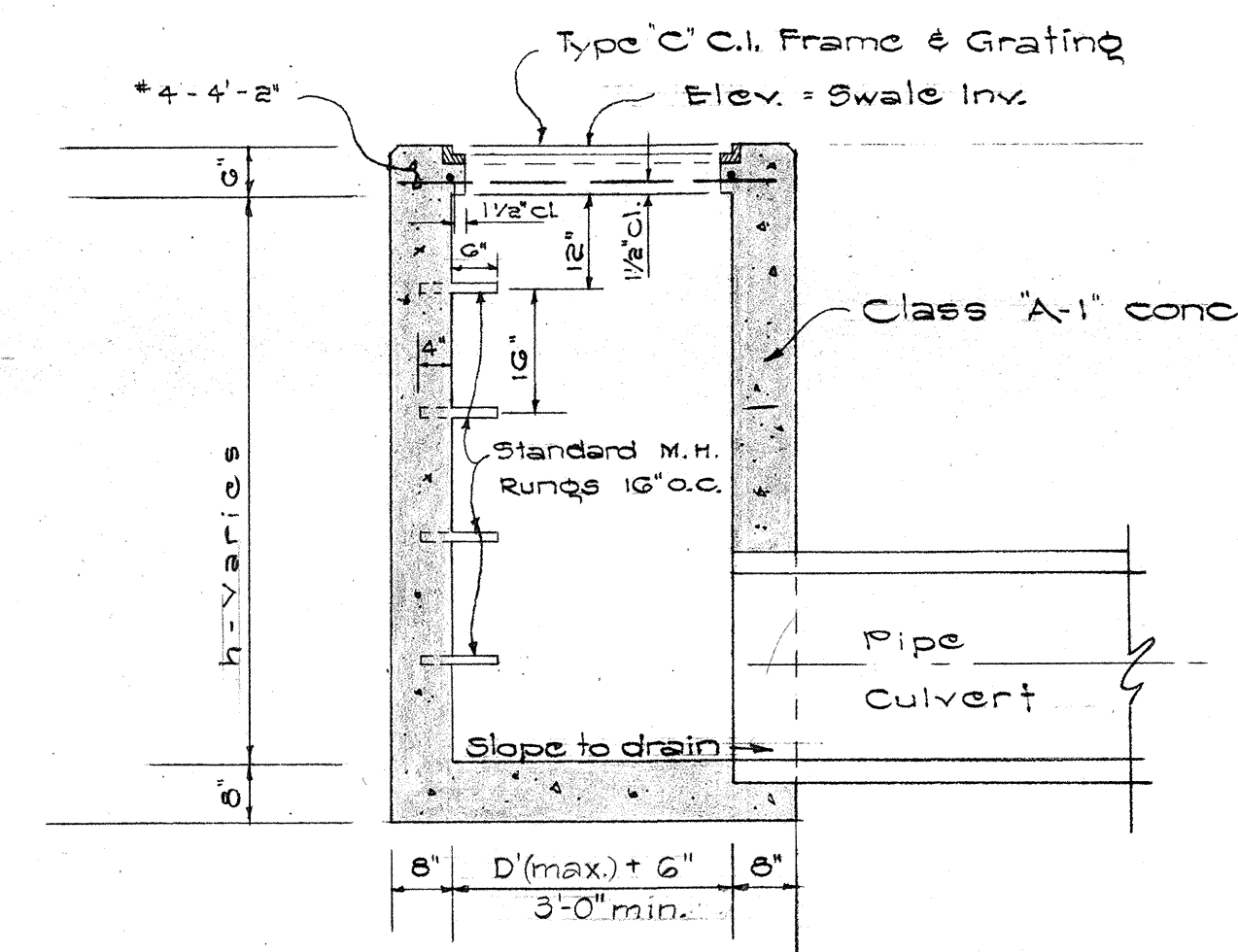
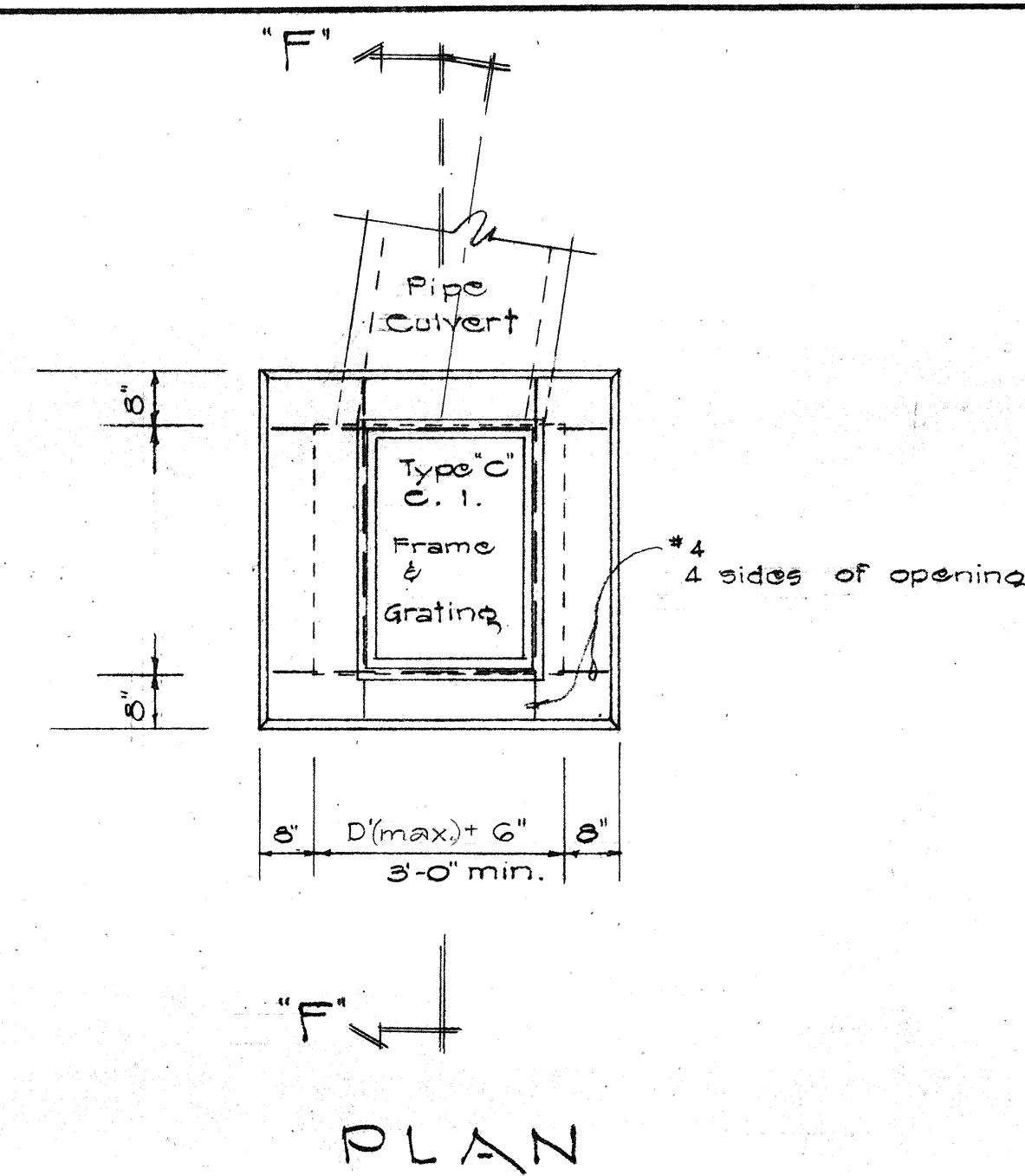
- NOTES:
1. 12'x10' opening in rear wall not required when C.D.I. is located at termination of swale.
 2. Where called for on the plans, provide 12'x10' side opening in center of side wall. See plans for invert of side opening.



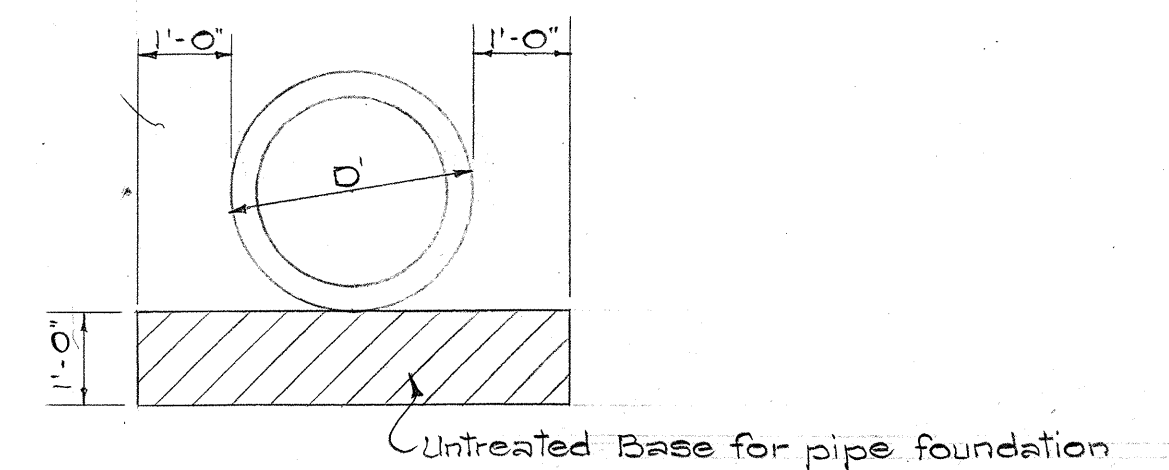
TYPE "A"
CONCRETE DROP INTAKE
SCALE: 1/2" = 1'-0"



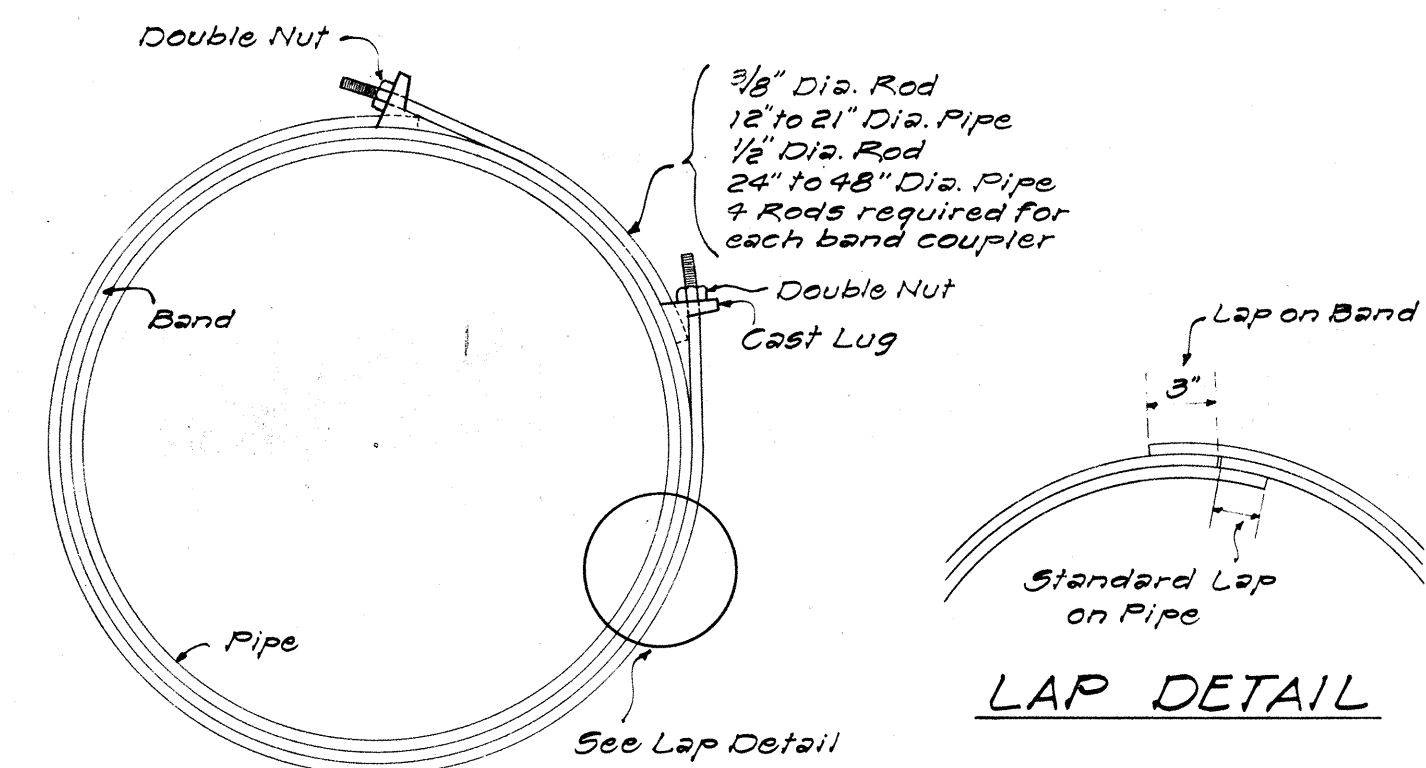
TYPE "B"
CONCRETE DROP INTAKE
SCALE: 1/2" = 1'-0"



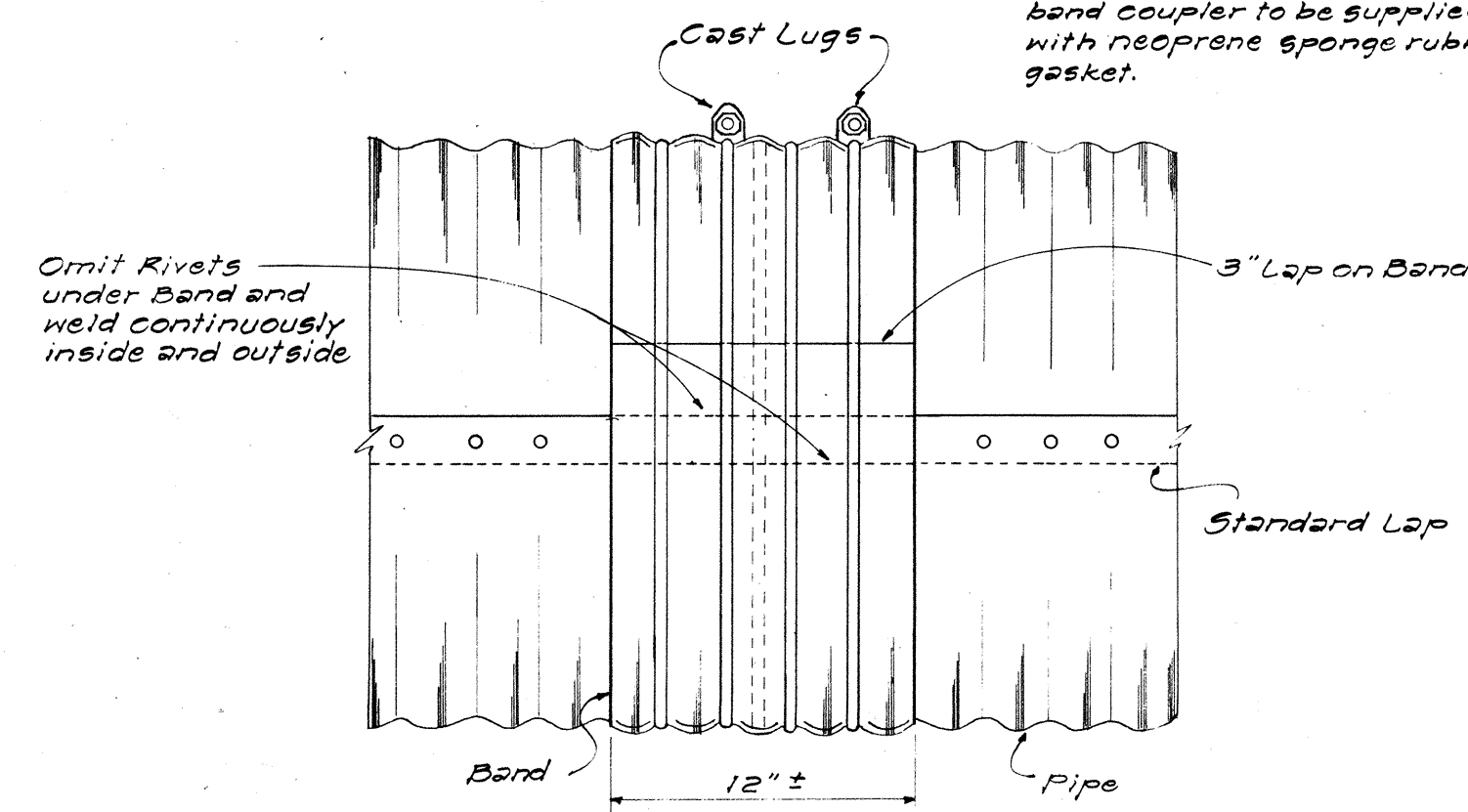
TYPE "C" GRATED
CONCRETE DROP INTAKE
SCALE: 1/2" = 1'-0"



- NOTES:
1. See Plans for alignment & inverts of all culverts, ditches, and swales entering C.D.I.
 2. Exposed edges above the ground line of Concrete Drop Intakes shall be chamfered one (1) inch.
 3. Swales and Ditches shall have a ten (10) feet transition into C.D.I.
 4. Standard Manhole Rungs @ 16" o.c. shall be provided for structures having "h" greater than 3'-0" and shall be incidental to Class A-1 or B-1 Concrete.
 5. Location of Standard Manhole Rungs to be determined by the Engineer.
 6. On Plans, T = _____, S = _____, and Inv. = _____ represent Elev. Top of Structure, Swale Invert, and Floor Elev. respectively.

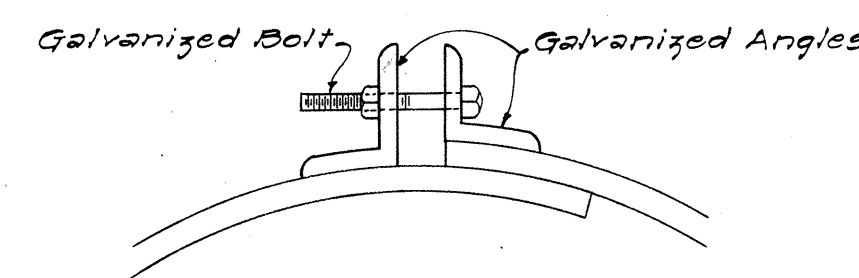


END VIEW

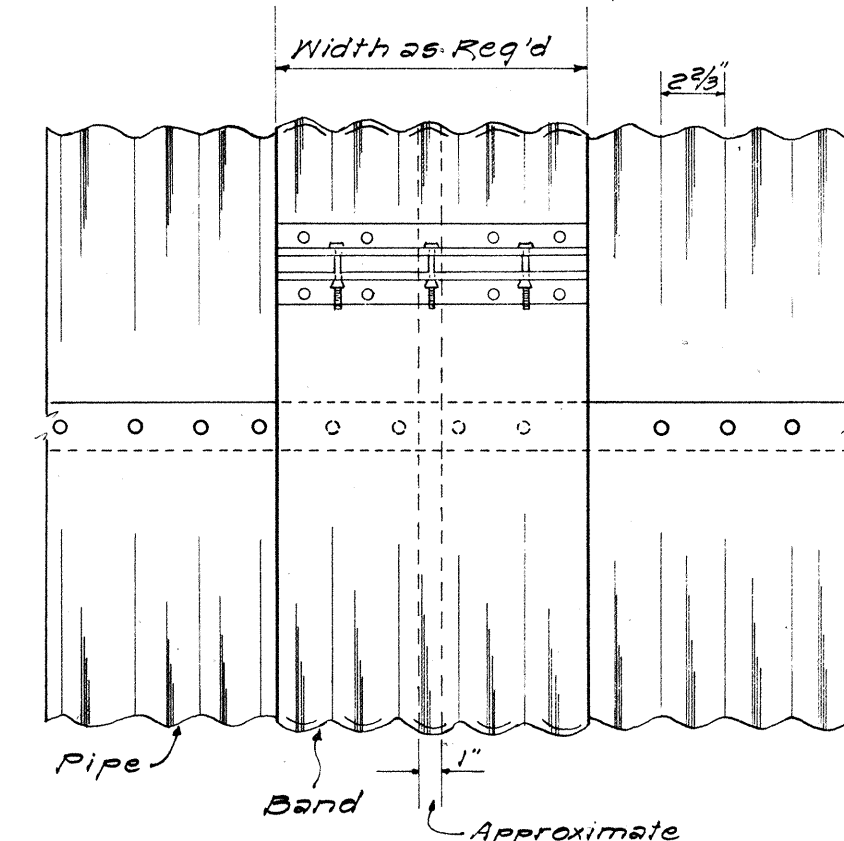


SIDE VIEW

DETAIL OF WATERTIGHT BAND COUPLER
NOT TO SCALE

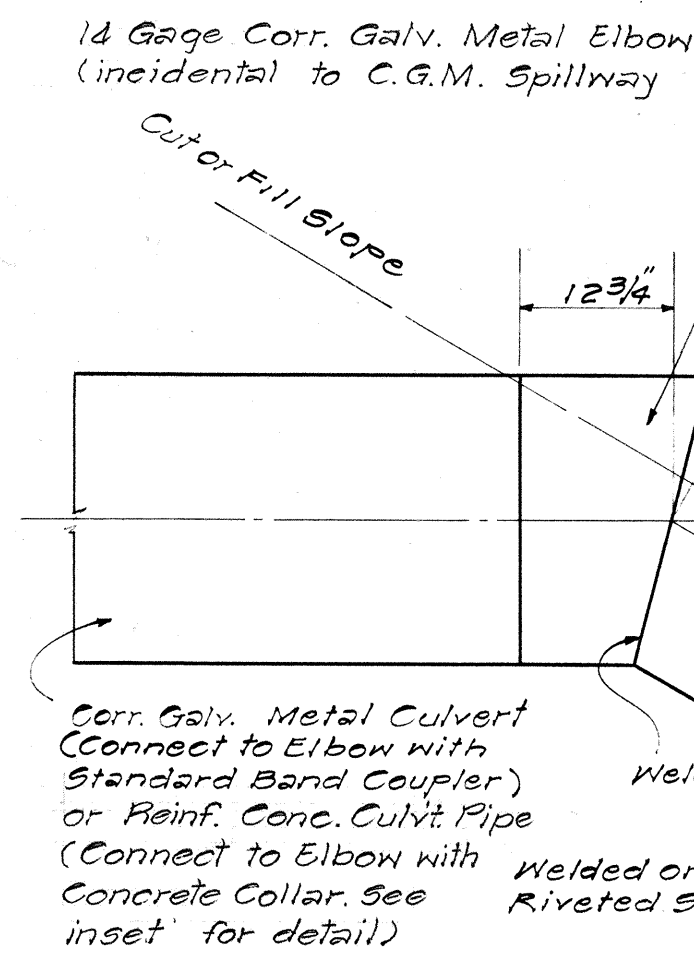


BAND DETAIL



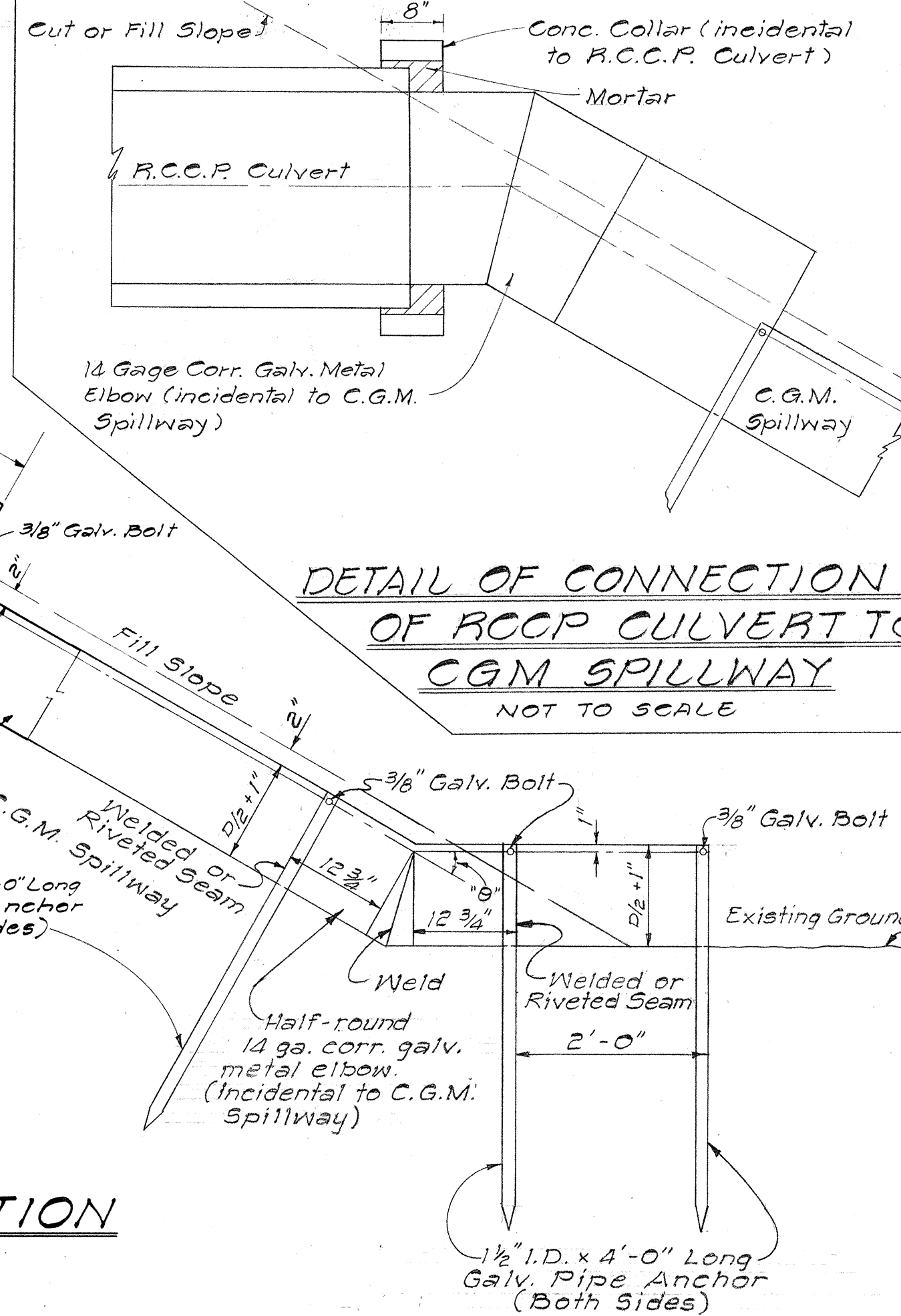
SIDE VIEW

DETAIL OF STANDARD BAND COUPLER
NOT TO SCALE

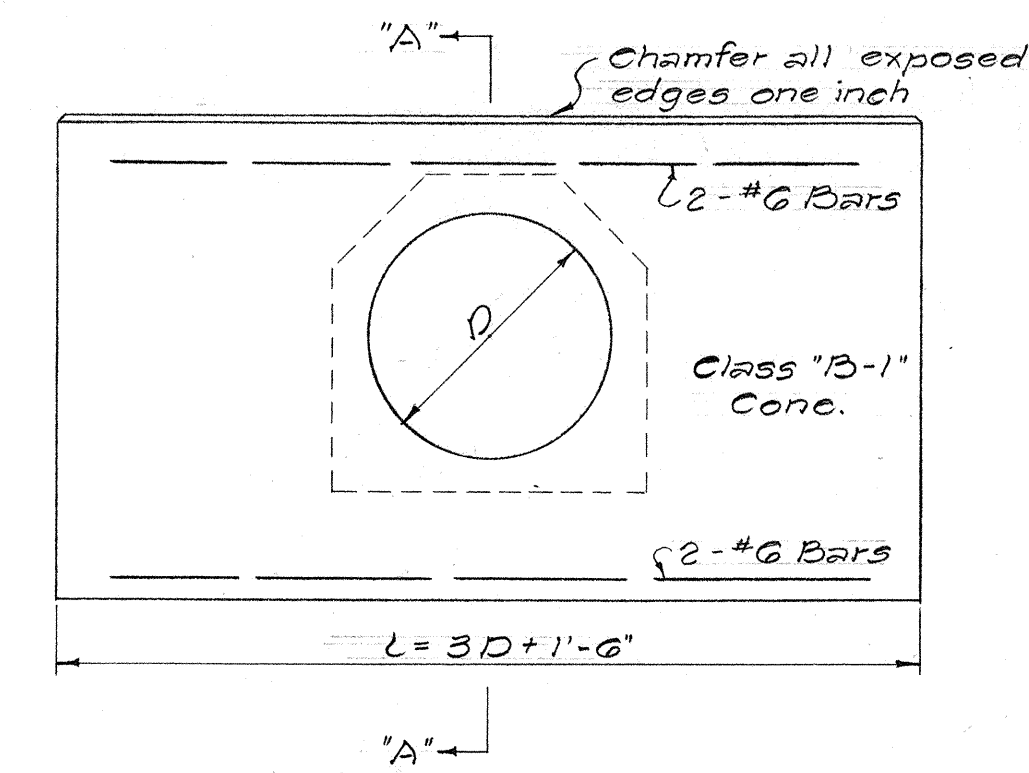


NOTE:
"6" to conform to cut or fill slope

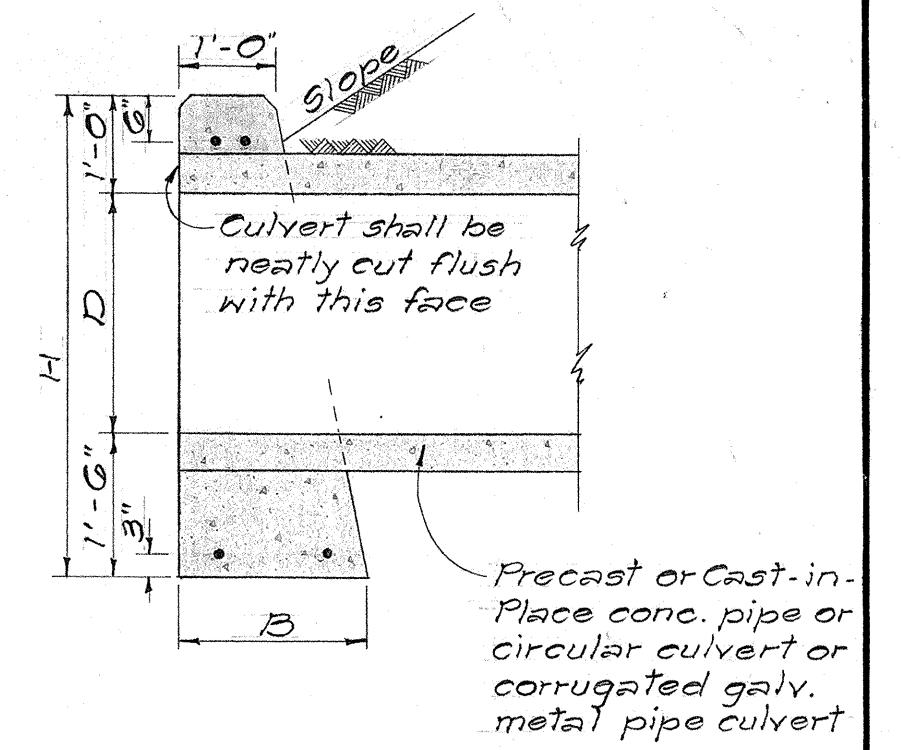
DETAIL OF CULVERT TO SPILLWAY CONNECTION
NOT TO SCALE



DETAIL OF CONNECTION OF R.C.C.P. CULVERT TO C.G.M. SPILLWAY
NOT TO SCALE



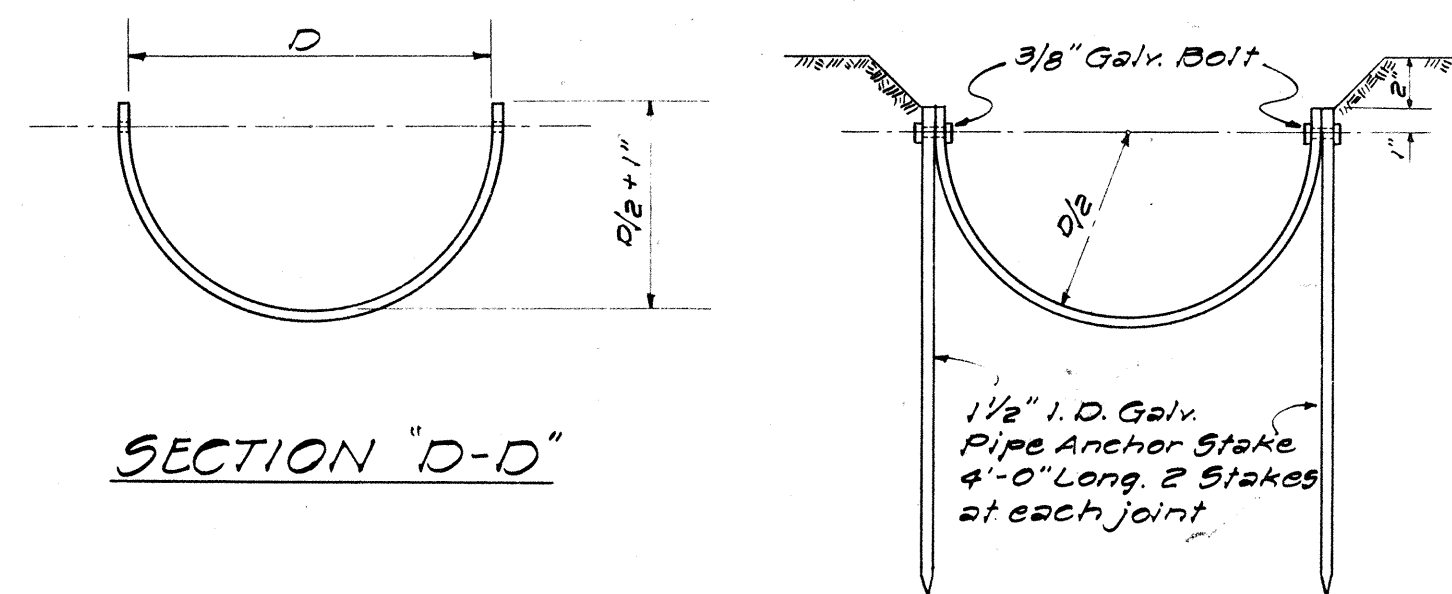
ELEVATION



SECTION "A-A"

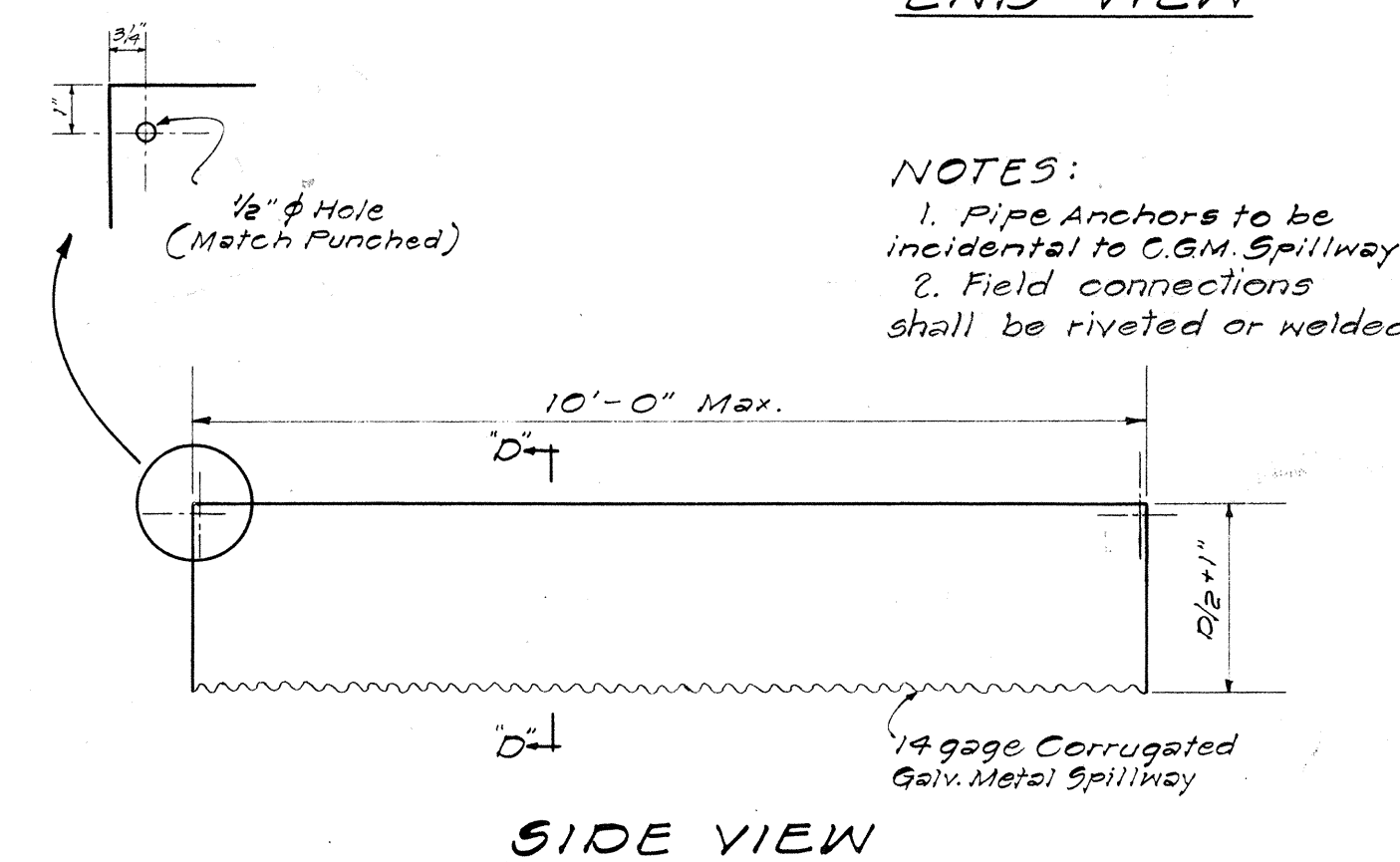
DATA FOR CONC. HEADWALL				Cast-in-Place Conc. Culvert	Conc. Pipe Culvert	Steel For One Headwall	
D	B	L	H	Cu. Yd.	Cu. Yd.	No. of Bars	Length
18"	1'-6"	6'-0"	4'-0"	0.92	1.00	4	5'-6"
24"	1'-6"	7'-6"	4'-6"	1.25	1.33	4	7'-0"
30"	2'-0"	9'-0"	5'-0"	1.95	2.17	4	8'-6"
36"	2'-0"	10'-6"	5'-6"	2.45	2.73	4	10'-0"
42"	2'-6"	12'-0"	6'-0"		3.87	4	11'-6"
48"	2'-6"	13'-6"	6'-6"		4.66	4	13'-0"

DETAIL OF STD. CONC. HEADWALL
Scale: 1/2" = 1'-0"



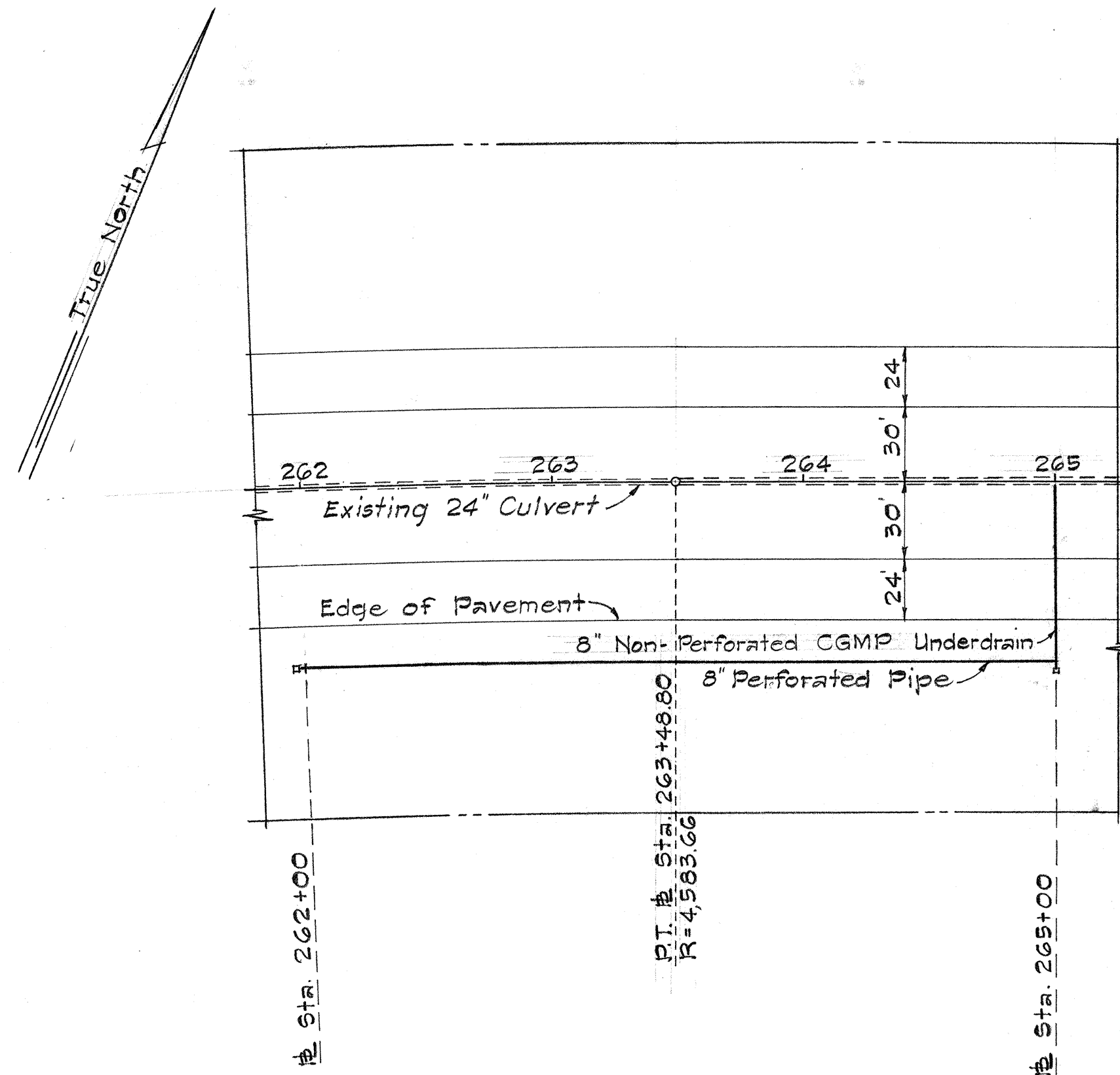
SECTION "D-D"

END VIEW

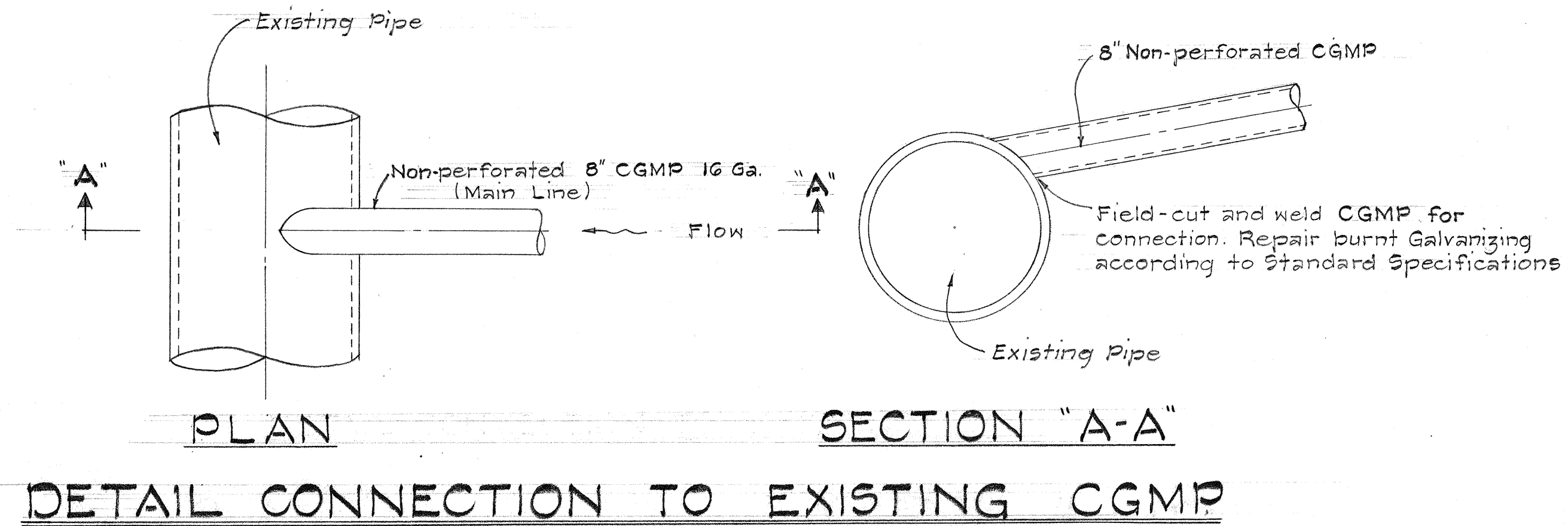


SIDE VIEW

STD. C.G.M. SPILLWAY
NOT TO SCALE

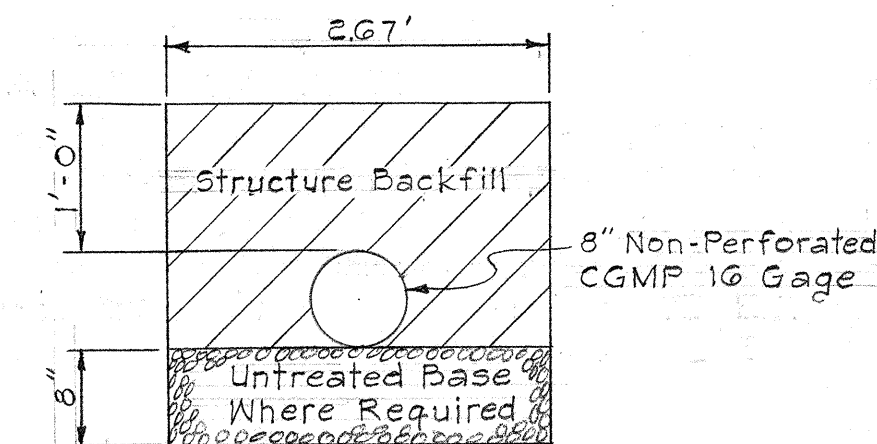


PLAN
Scale: 1" = 50'

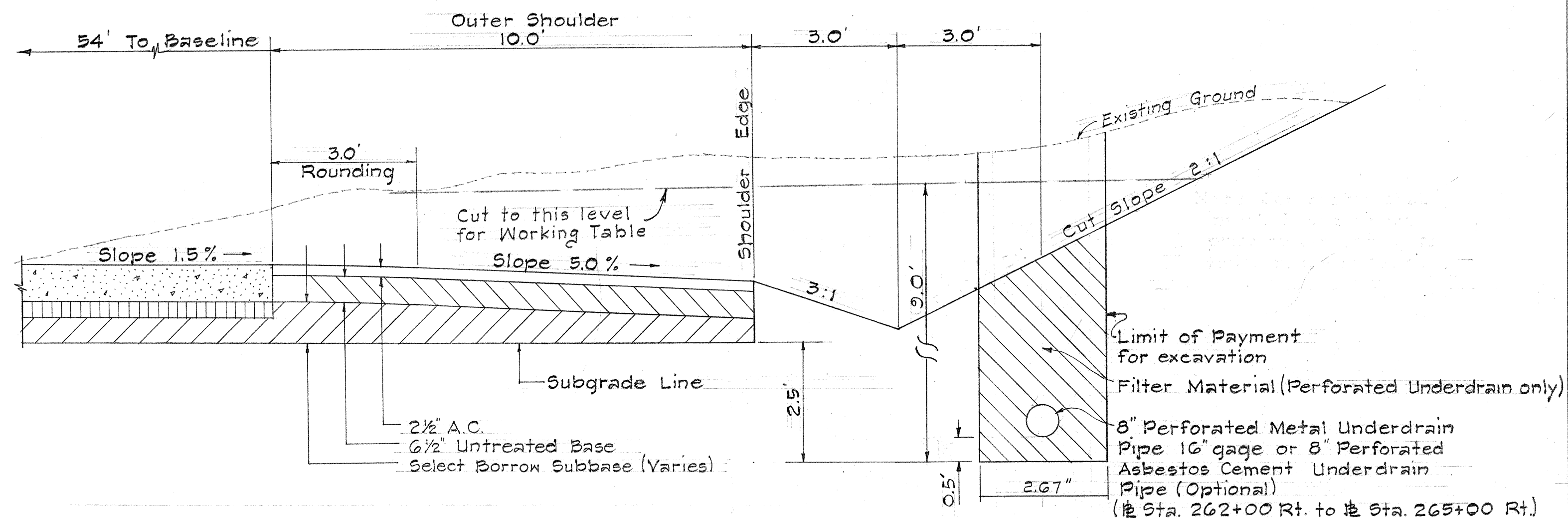


ESTIMATED QUANTITIES

Structure Exc.	= 325 C.Y.
Filter Material	= 135 C.Y.
8" Perforated Underdrain	= 300 L.F.
8" Non-Perforated Corrugated Galvanized Metal Pipe Underdrain	= 70 L.F.
Cleanouts	= 2 E.A.
Untreated Base For Pipe Foundation	= 5 C.Y.

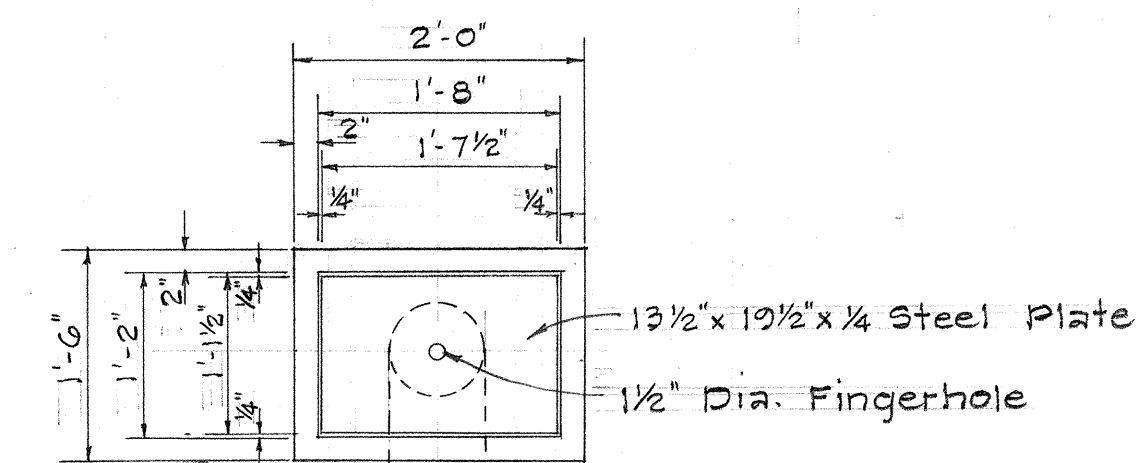


**TYPICAL TRENCH SECTION
AT BASELINE STA. 265+00
CROSSING ROADWAY**
Scale: 3/4" = 1'-0"

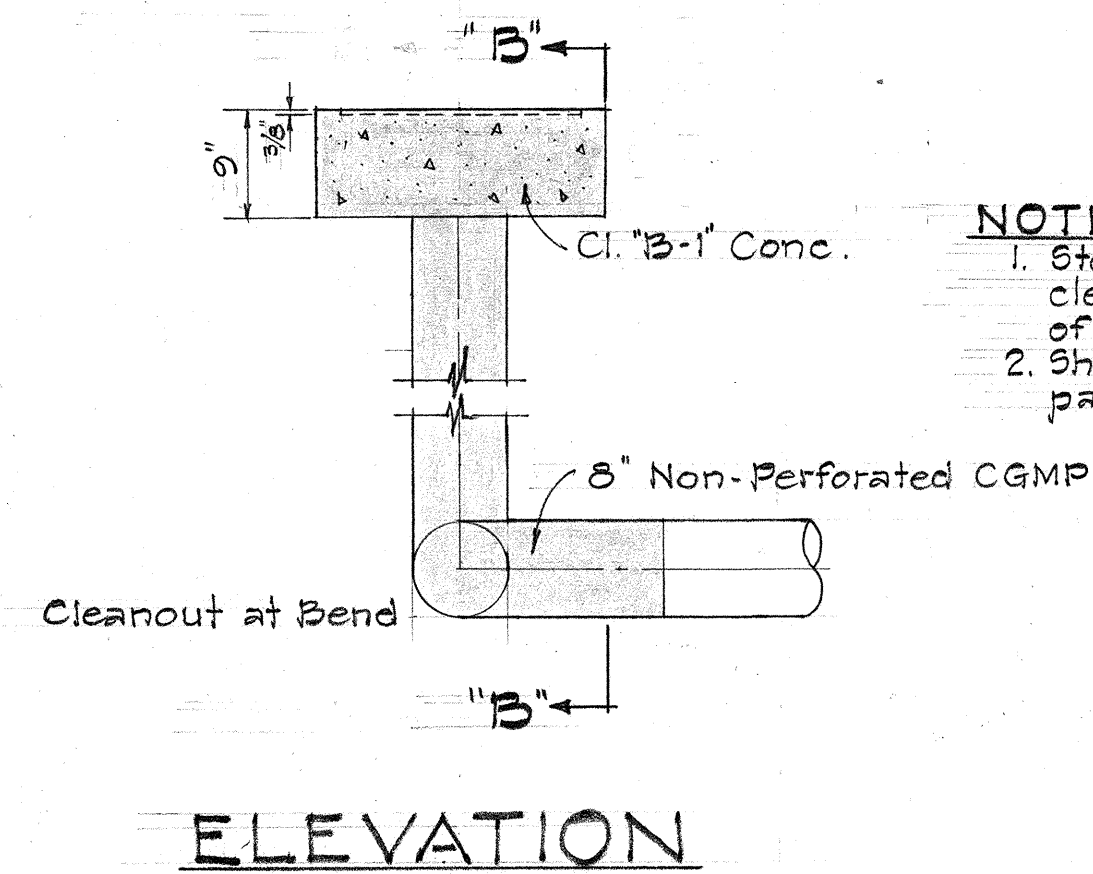


**TYPICAL SECTION
8" PERFORATED UNDERDRAIN**
STA. 262+00 Rt. - # STA. 265+00 Rt.
Scale: 1/2" = 1'-0"

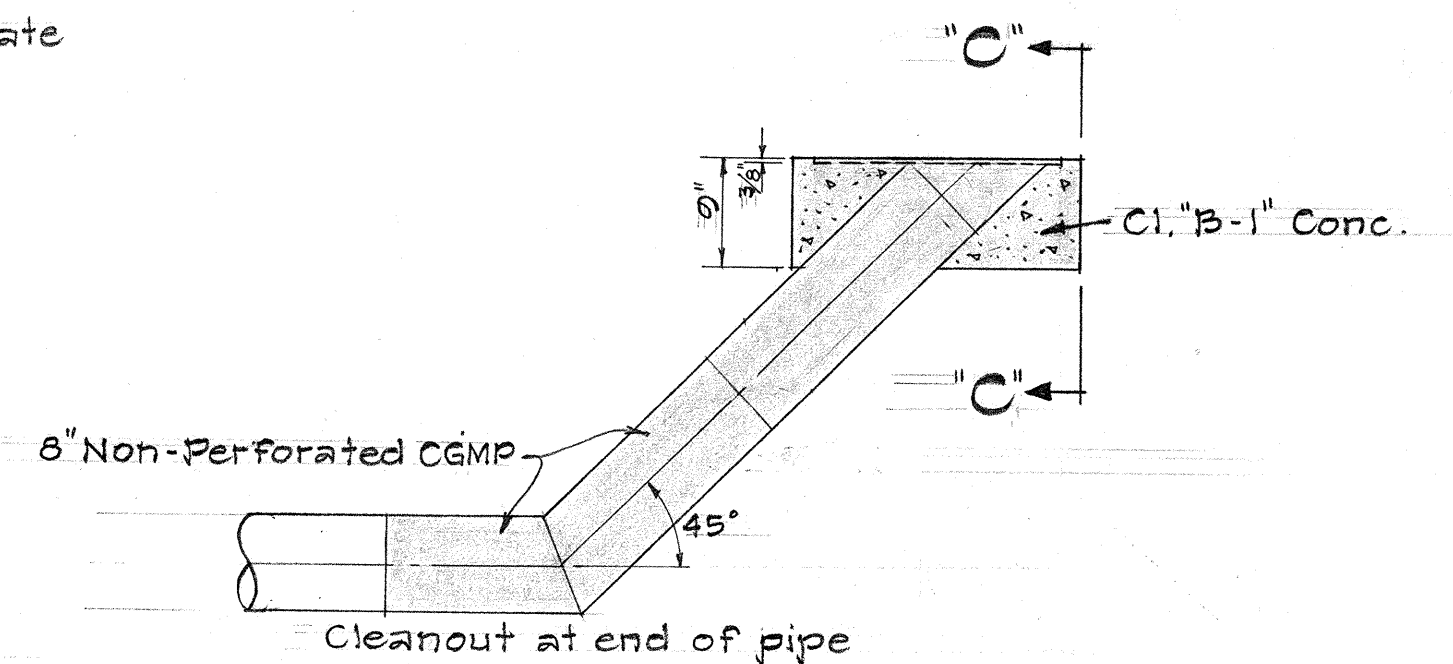
- NOTE:**
- Contractor shall install 8" underdrain before excavating to finished roadway section.
 - Contractor shall install underdrains beginning from the downstream end.



PLAN
STA. 265+00

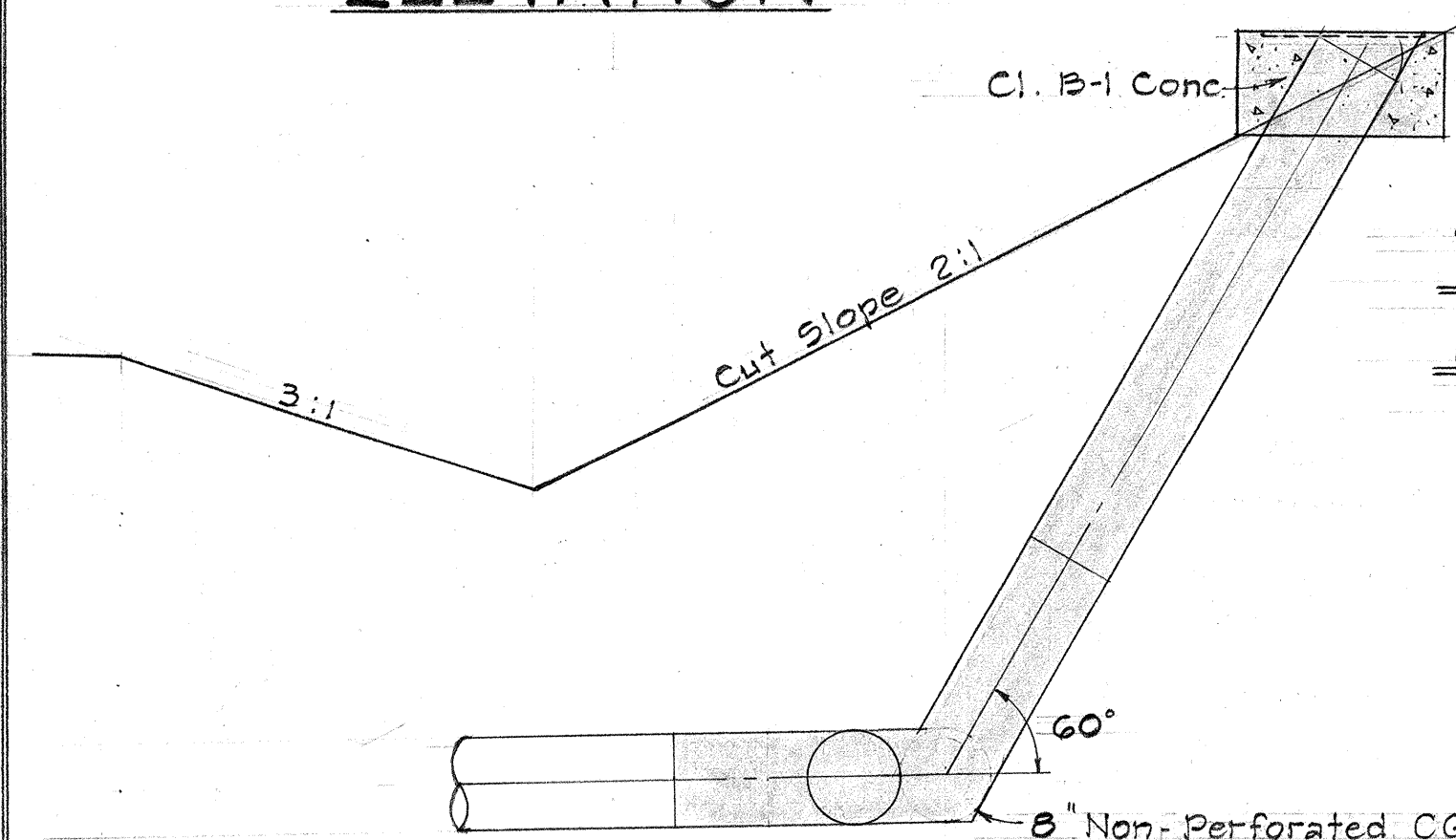


ELEVATION



ELEVATION

- NOTES:**
- Steel plate shall be thoroughly cleaned and painted with one coat of high grade asphaltum.
 - Shaded area denotes limit of payment for cleanouts.



SECTION "B-B"

SECTION "C-C"
**DETAIL OF CLEANOUT
AND CONC. BLOCKS**
Scale: 3/4" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

8" PERFORATED UNDERDRAIN
STA. 262+00 TO # STA. 265+00

INTERSTATE ROUTE 1
FAI Proj. No. I-H1-1(18), UNIT 1

Scale: As Shown Date April 29, 1966

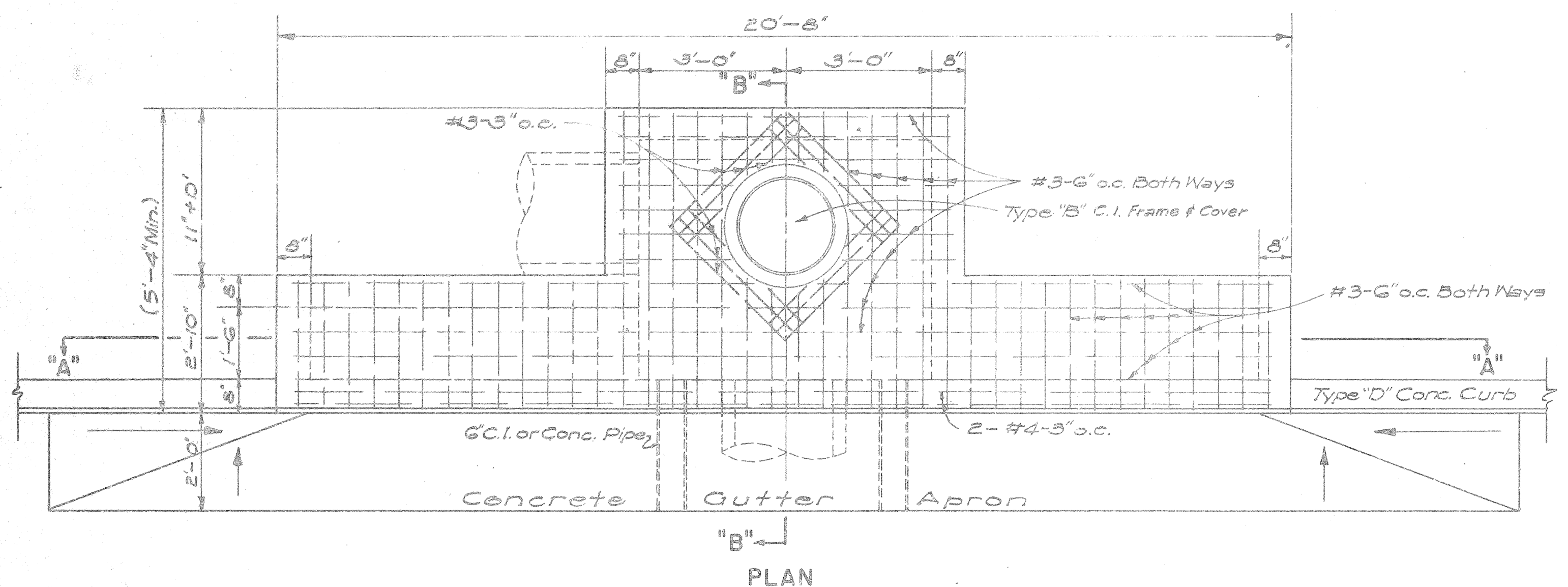
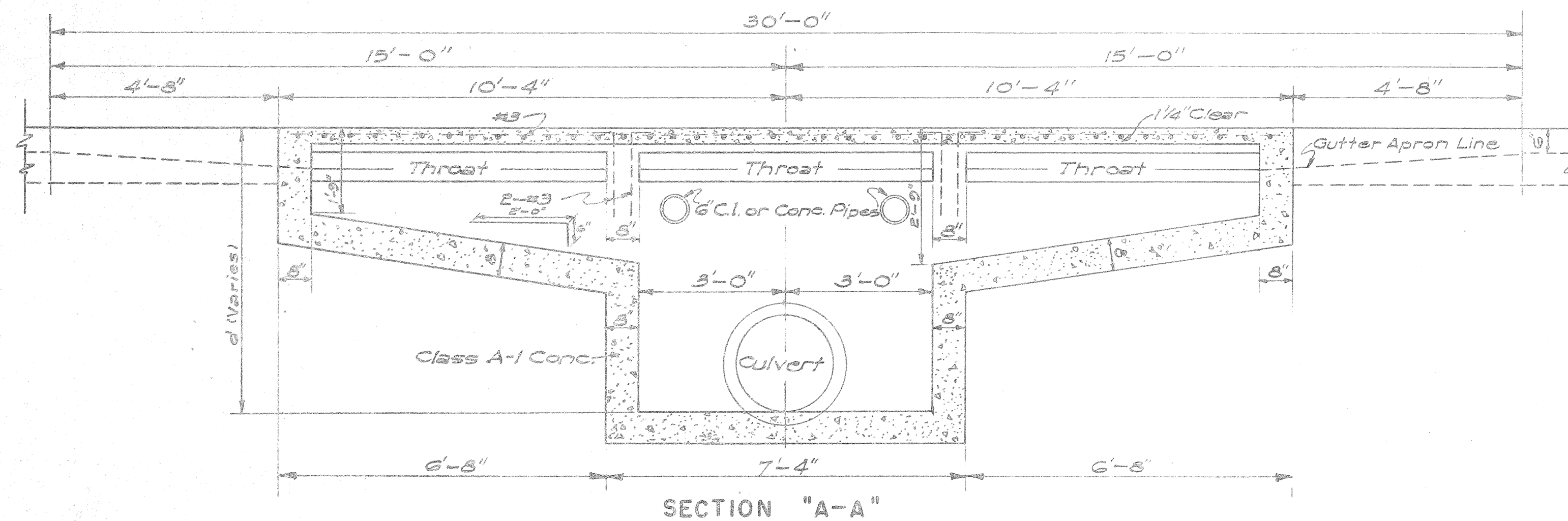
SHEET NO. OF SHEETS

THIS SHEET IS A
SUPPLEMENT TO THE
CONTRACT PLANS.

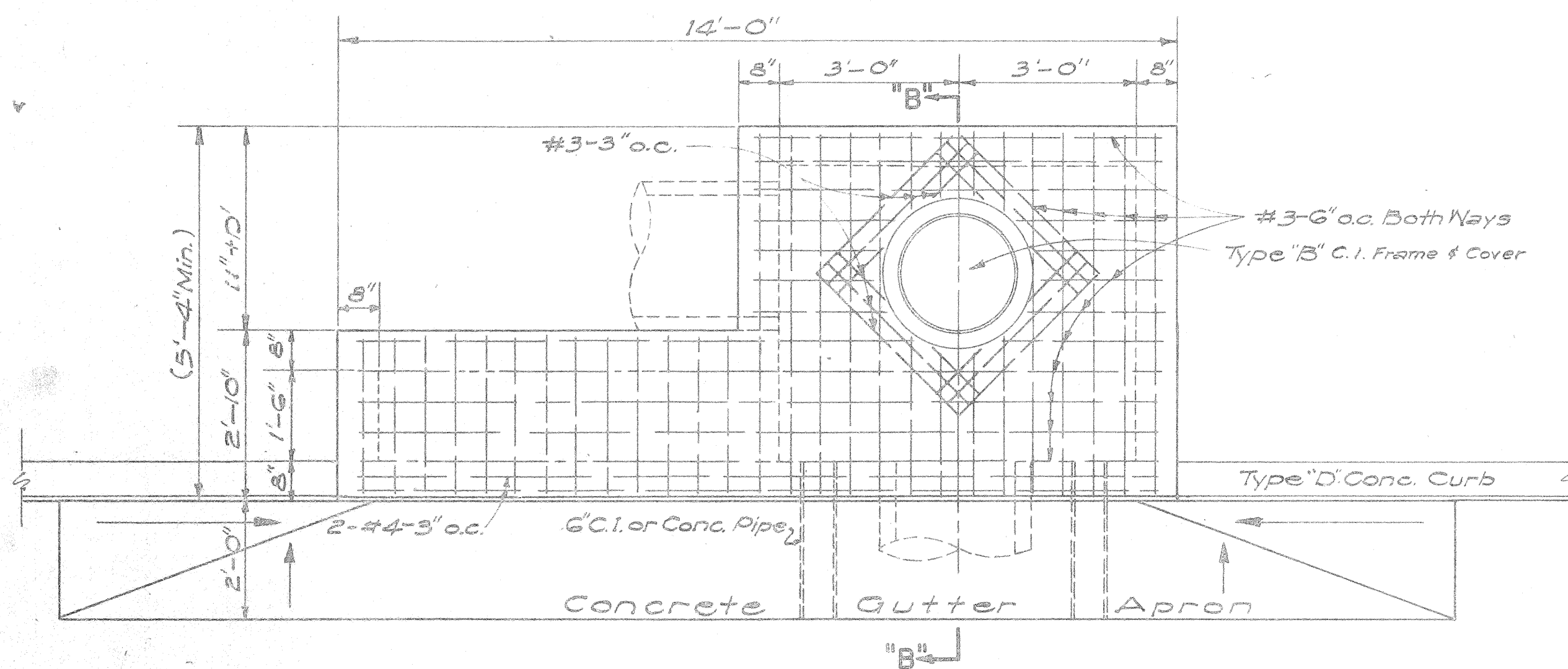
C0.59(1)

2/17/57

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1-H-1108	1956	60	124

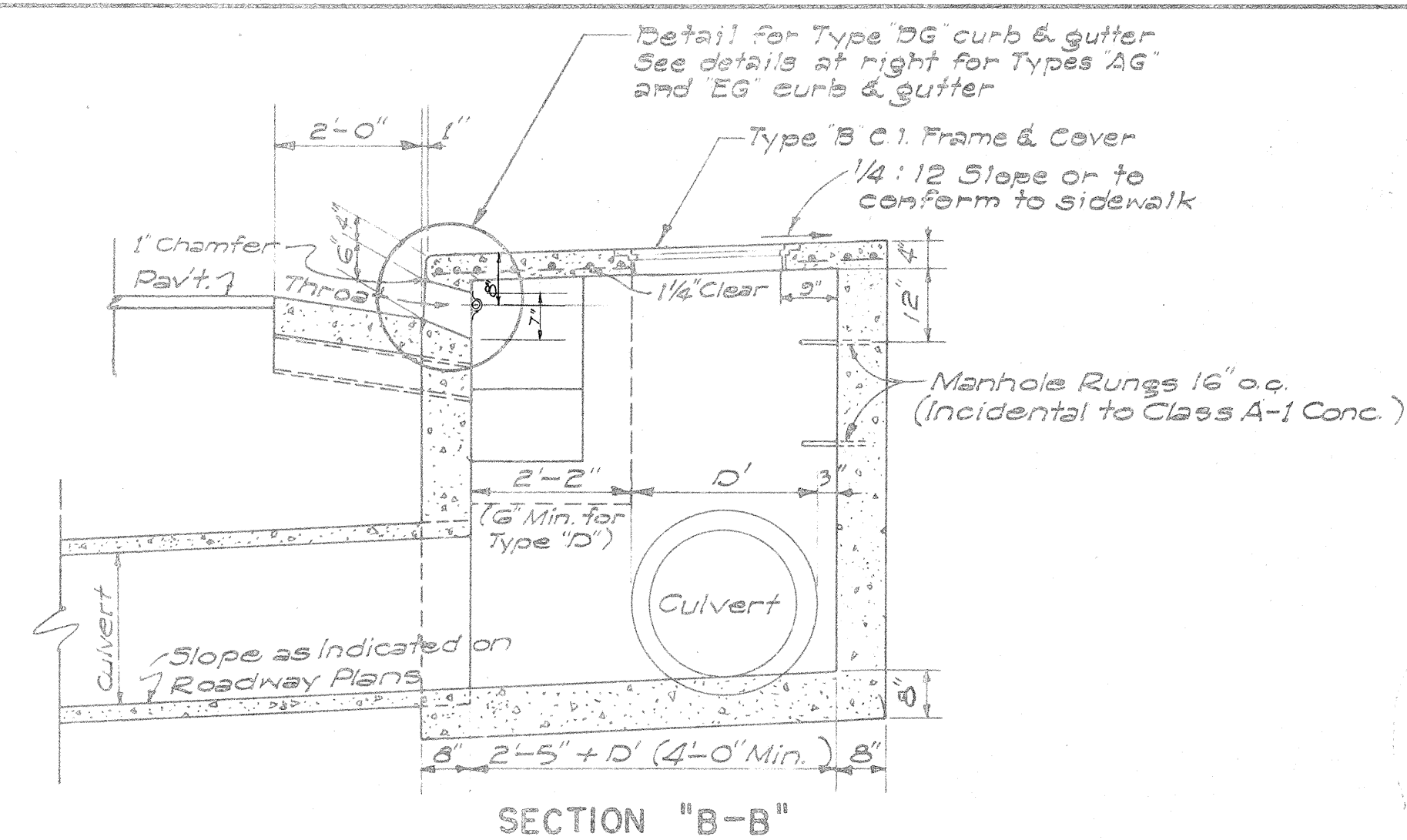


DETAIL OF TYPE "A" CATCH BASIN
SCALE: 1/2" = 1'-0"

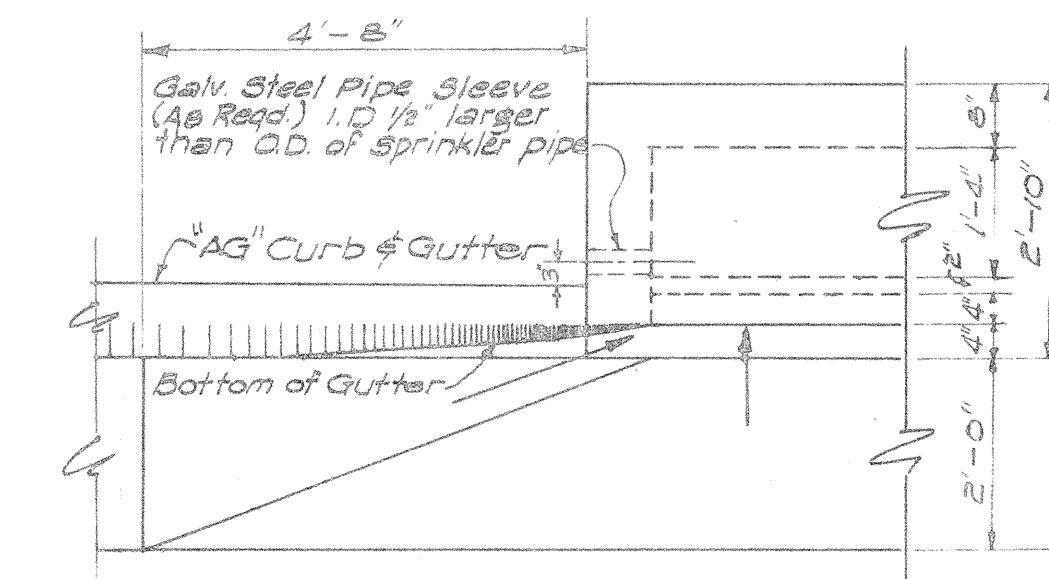


DETAIL OF TYPE "B" CATCH BASIN
SCALE: 1/2" = 1'-0"

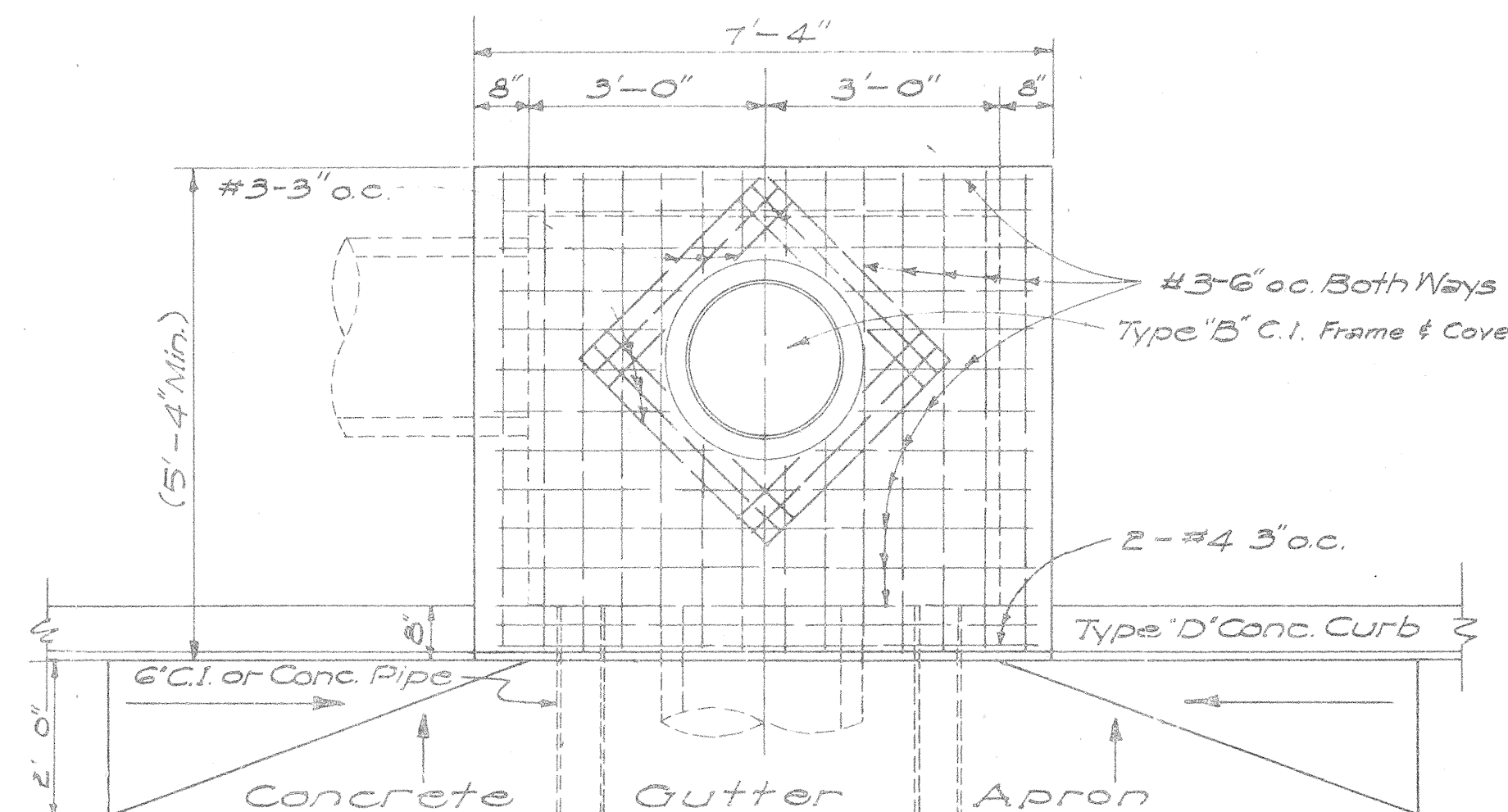
NOTE: TYPE "C" C.B. SIMILAR BUT OPPOSITE HAND



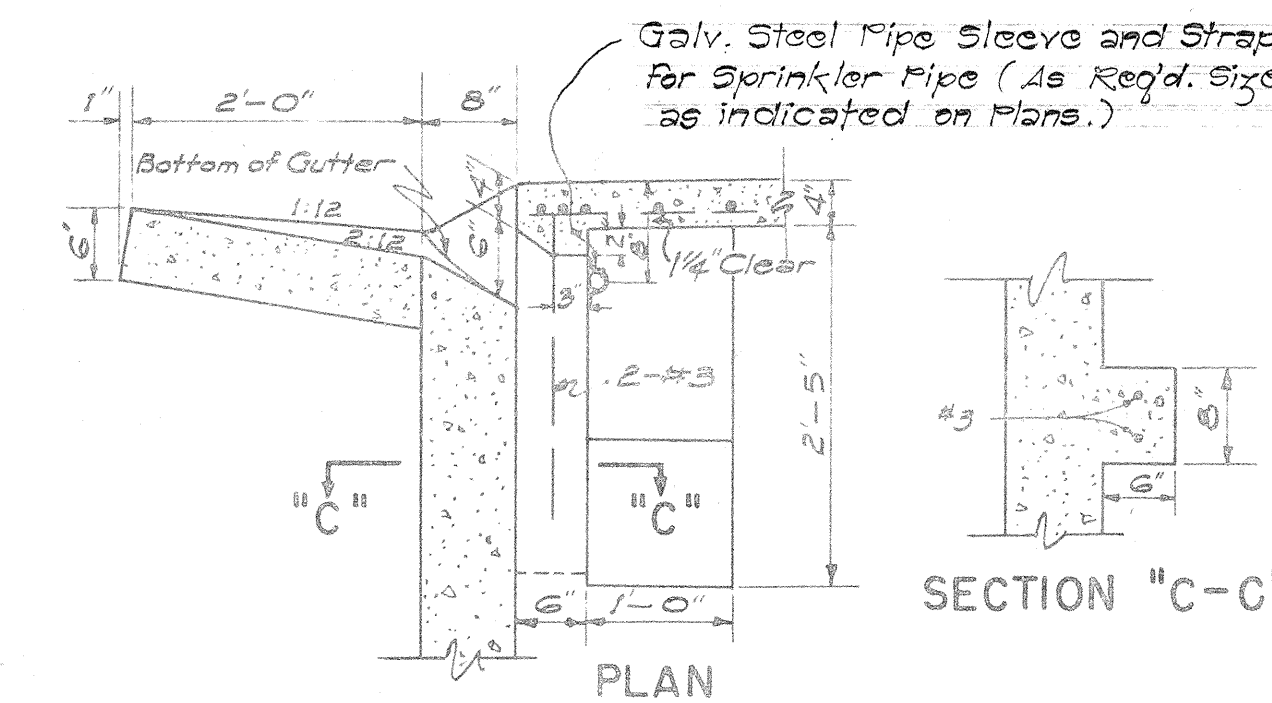
DETAIL OF CATCH BASIN WITH TYPE "EG" CURB & GUTTER



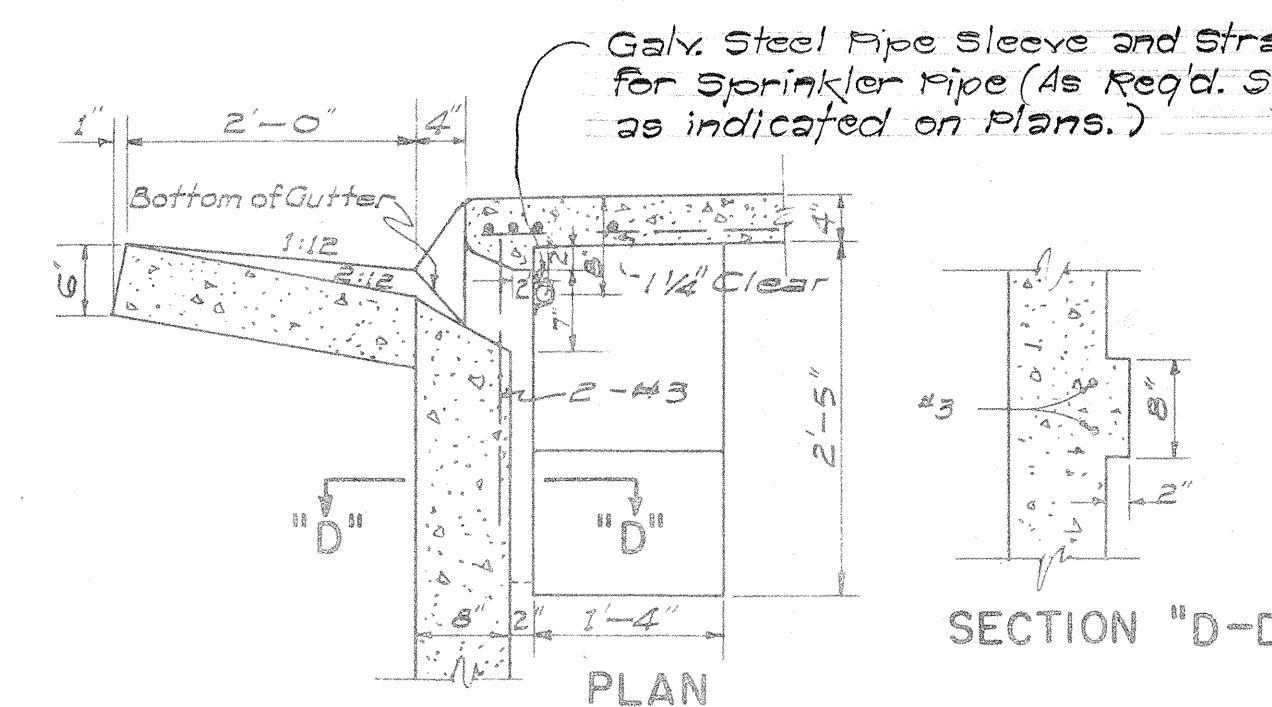
DETAIL OF CATCH BASIN WITH TYPE "AG" CURB & GUTTER
SCALE: 1/2" = 1'-0"



DETAIL OF TYPE "D" CATCH BASIN
SCALE: 1/2" = 1'-0"



THROAT DETAIL FOR TYPE "EG" CURB & GUTTER
SCALE: 3/4" = 1'-0"



THROAT DETAIL FOR TYPE "AG" CURB & GUTTER
SCALE: 3/4" = 1'-0"

ESTIMATED QUANTITIES

Type	Class A-1 Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 cy	24.7 cy	145 lb.	30'-0"
"B"	6.0 cy	21.5 cy	108 lb.	23'-4"
"C"	6.0 cy	21.5 cy	108 lb.	23'-4"
"D"	4.9 cy	16.5 cy	77 lb.	16'-8"

NOTES:

- Quantities based on d=5.75' and D=30"
- Quantities do not include concrete for Gutter Apron.
- The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A-1 Concrete for Construction Drainage.
- Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
- The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.

APPROVED: _____ DATE: Aug. 25, 1957
STATE HIGHWAY ENGINEER

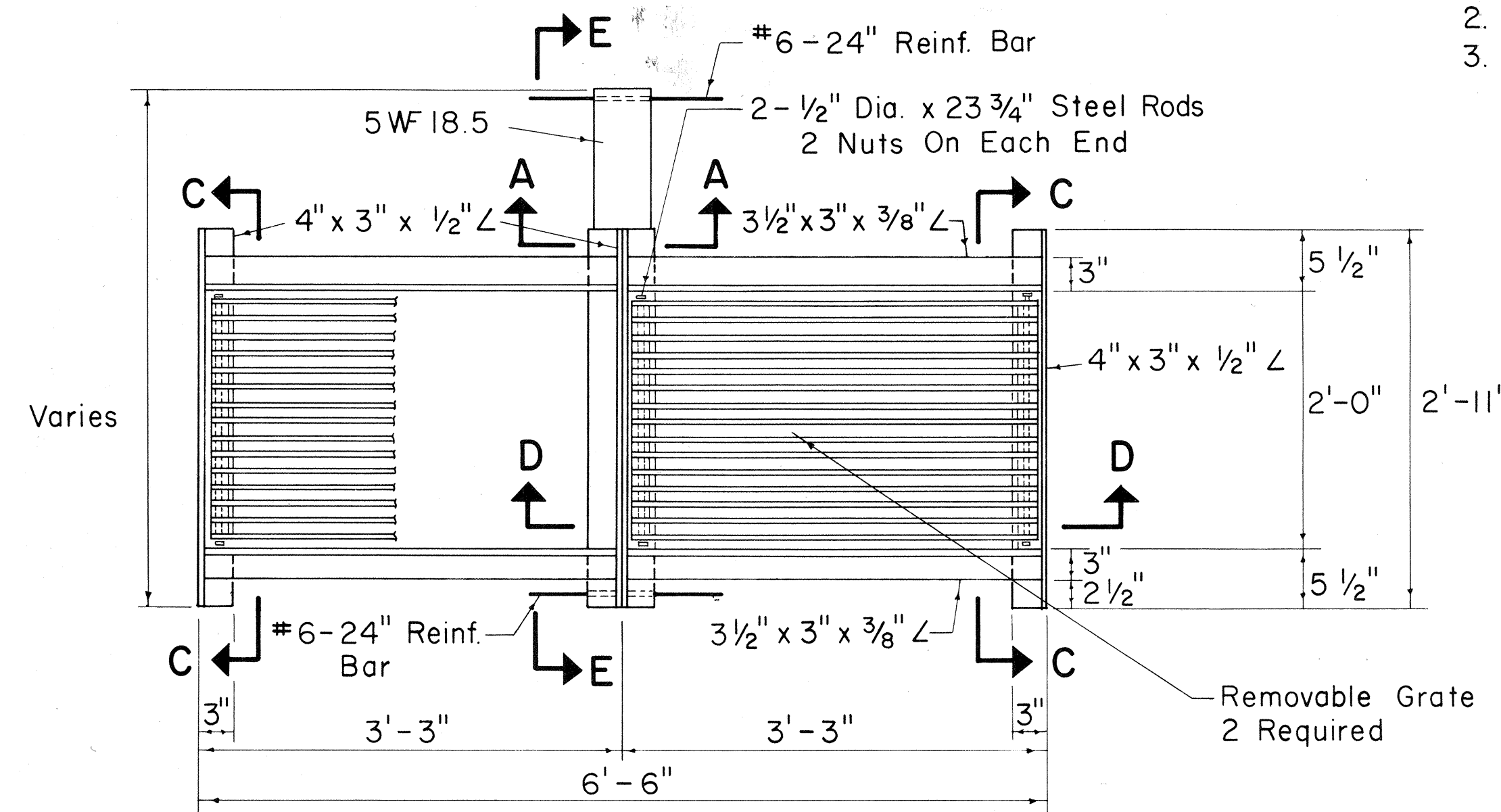
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CATCH BASINS

SCALES AS NOTED
SHEET NO. 8 OF 10 SHEETS

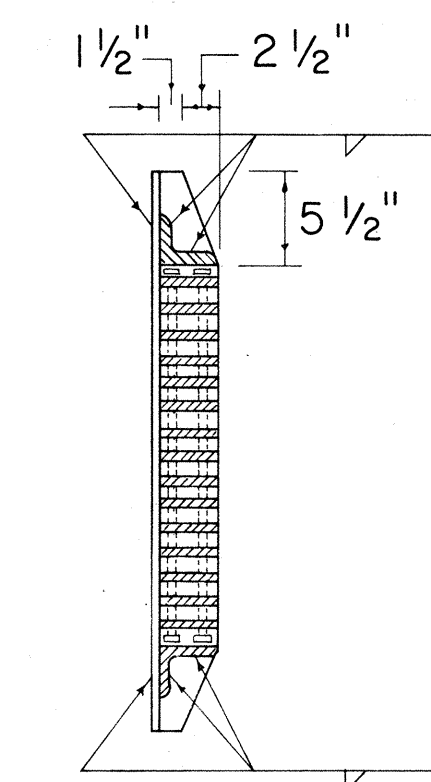
(60)

FED. AID DIST. NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-HI-1(18)	1965	61	124

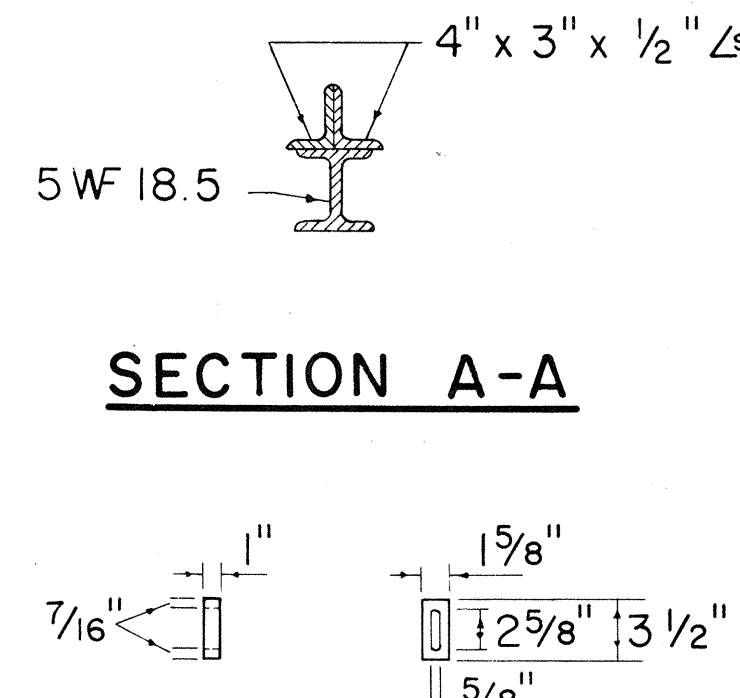
- NOTE:
1. All welds $\frac{3}{8}$ " unless otherwise noted.
 2. All steel shall be structural grade.
 3. Grates and Frame shall be hot dip galvanized after fabrication in accordance with Section 44(H) of the Standard Specifications.



PLAN

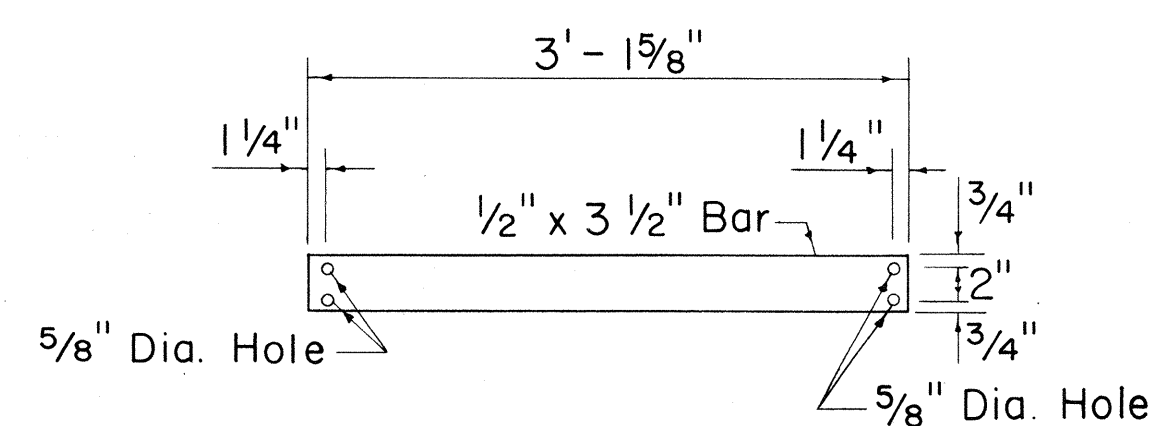


SECTION C-C



SECTION A-A

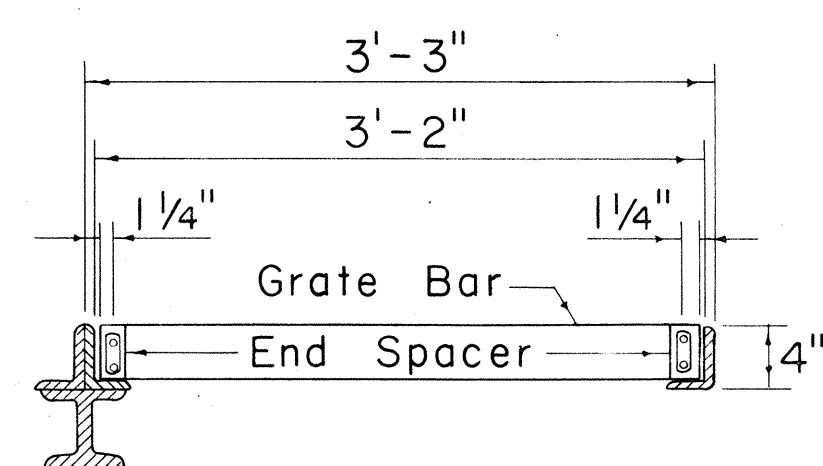
END SPACER



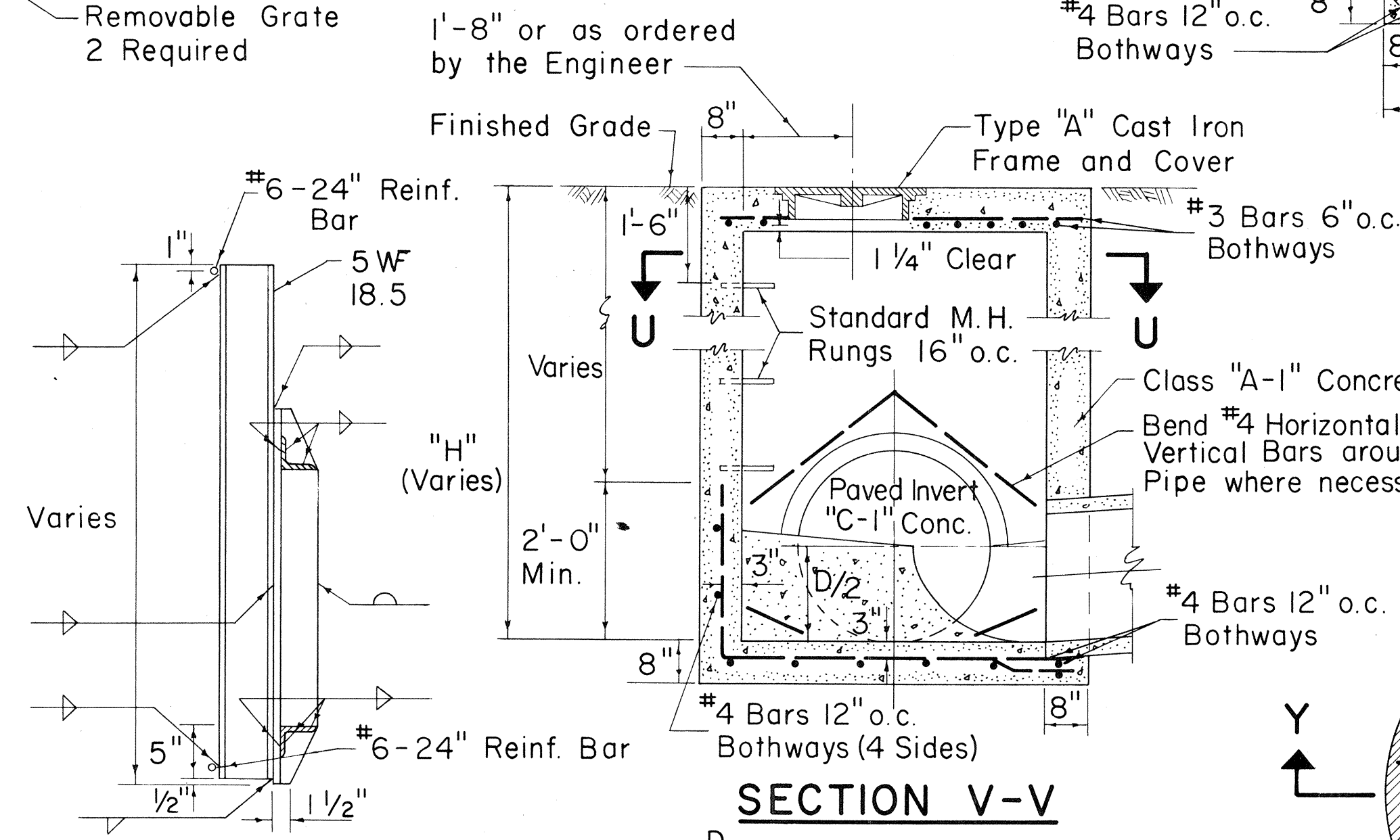
GRATE BARS

DETAIL OF TYPE "A" STEEL FRAME AND GRATES

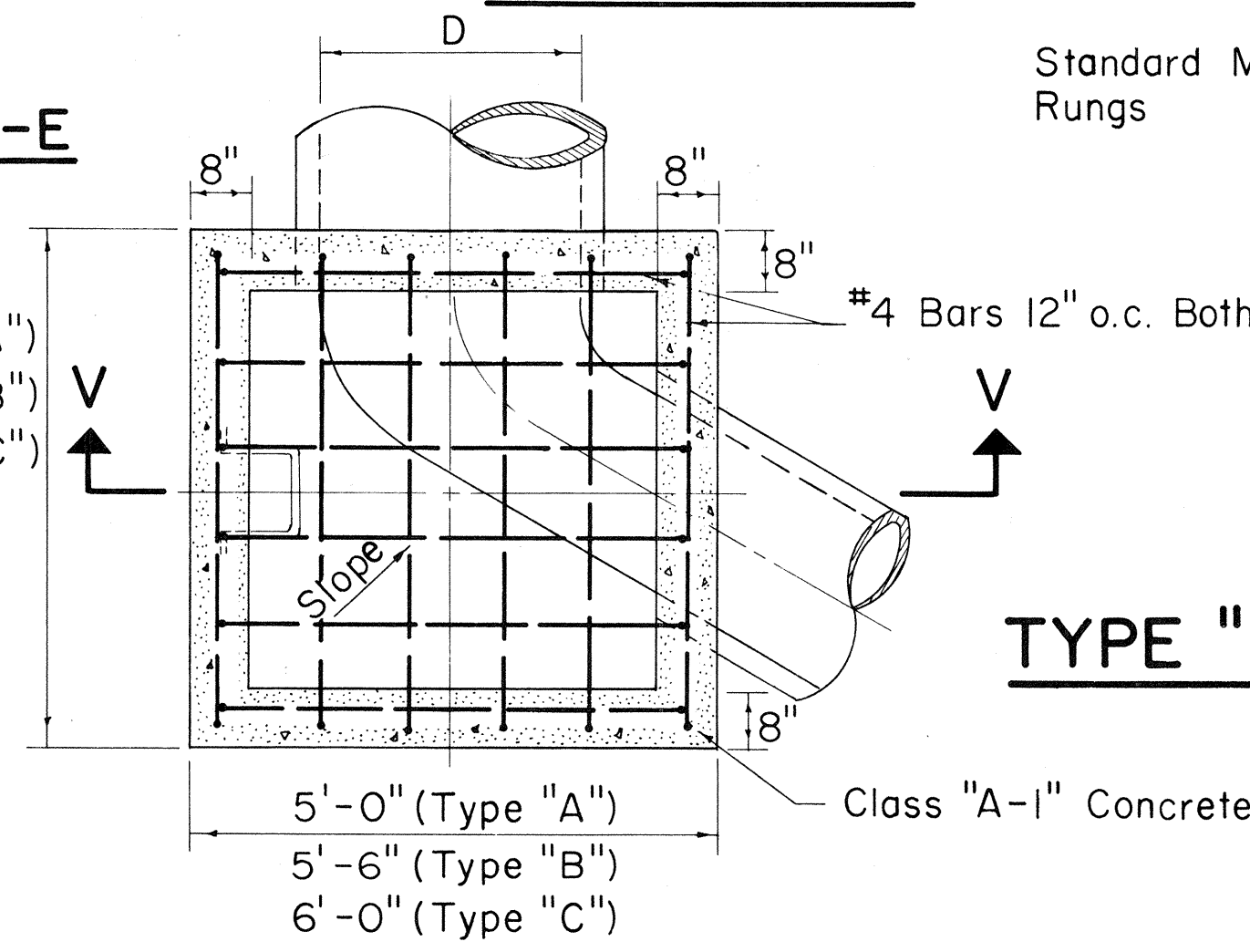
Scale: 1" = 1'-0"



SECTION D-D



SECTION E-E

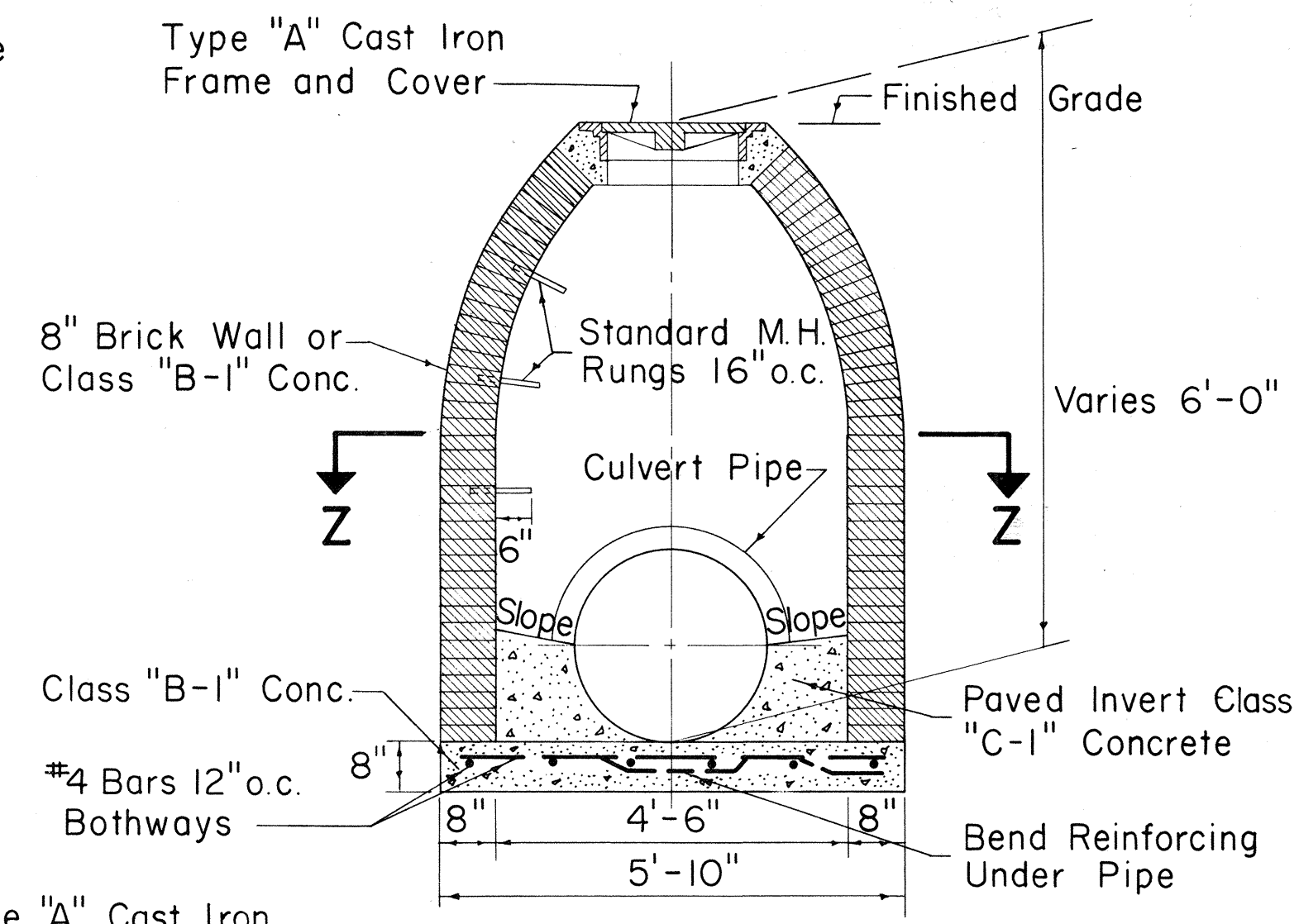


SECTION U-U

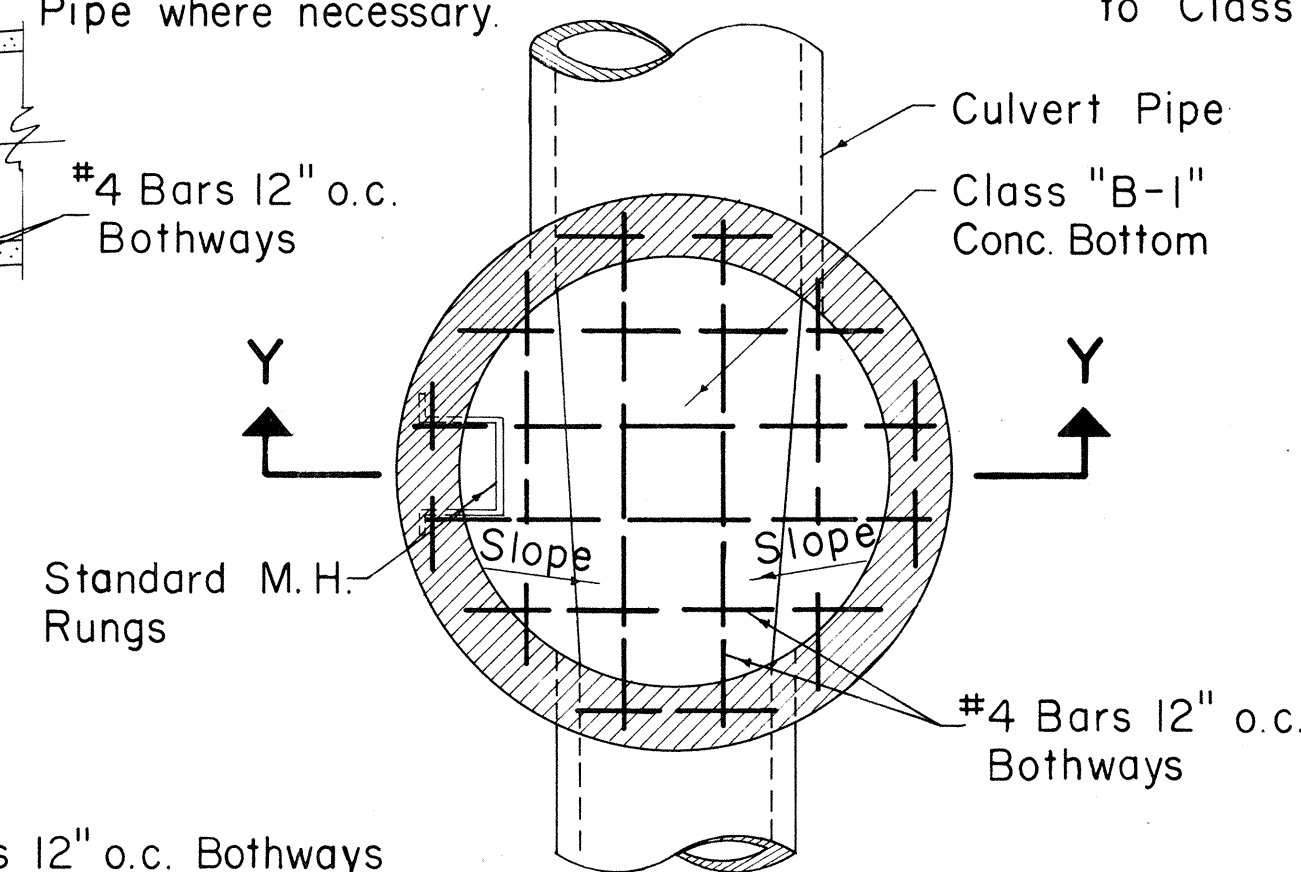
TYPE "A", "B", & "C"

S.D.M.H.

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



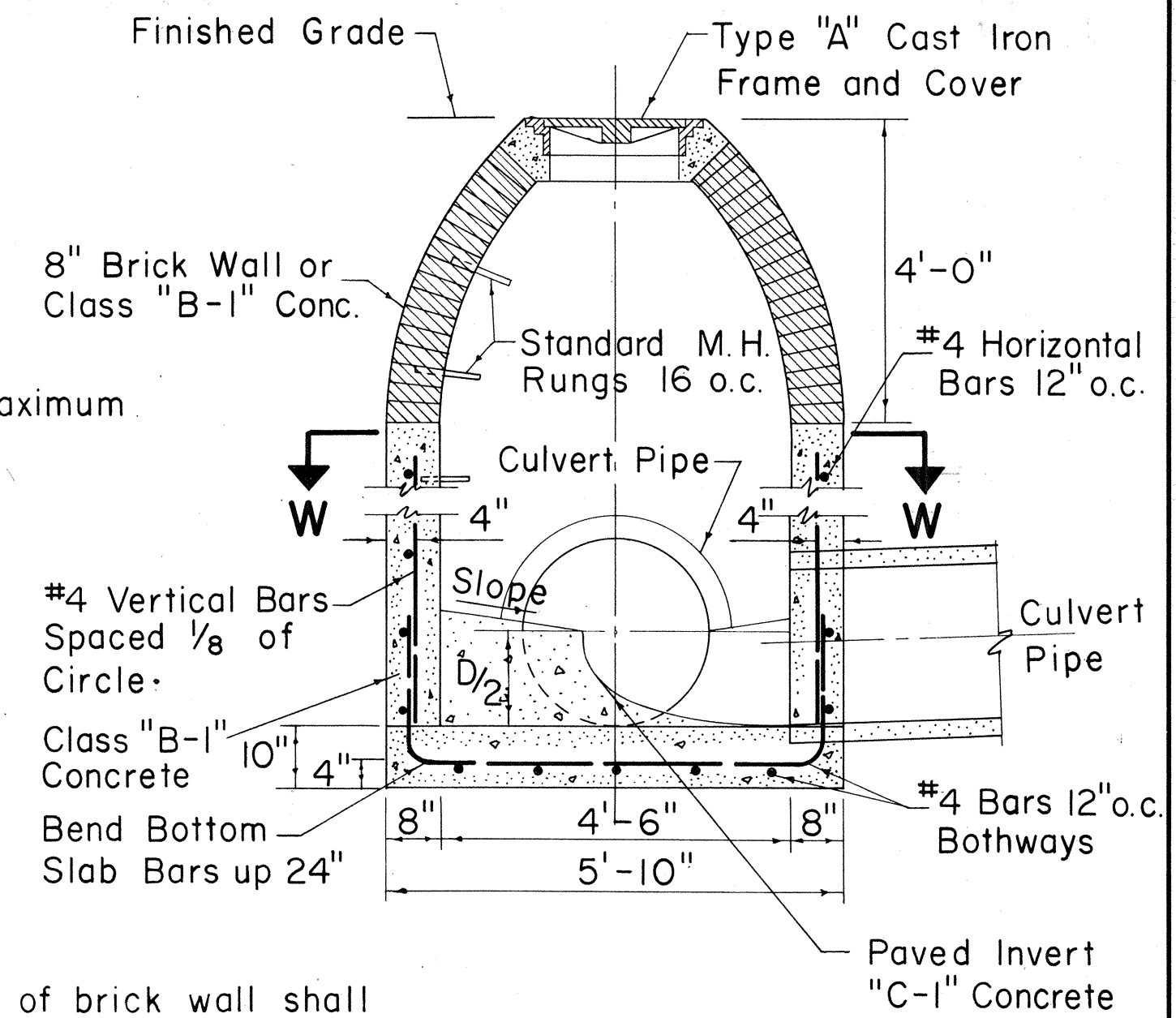
SECTION Y-Y



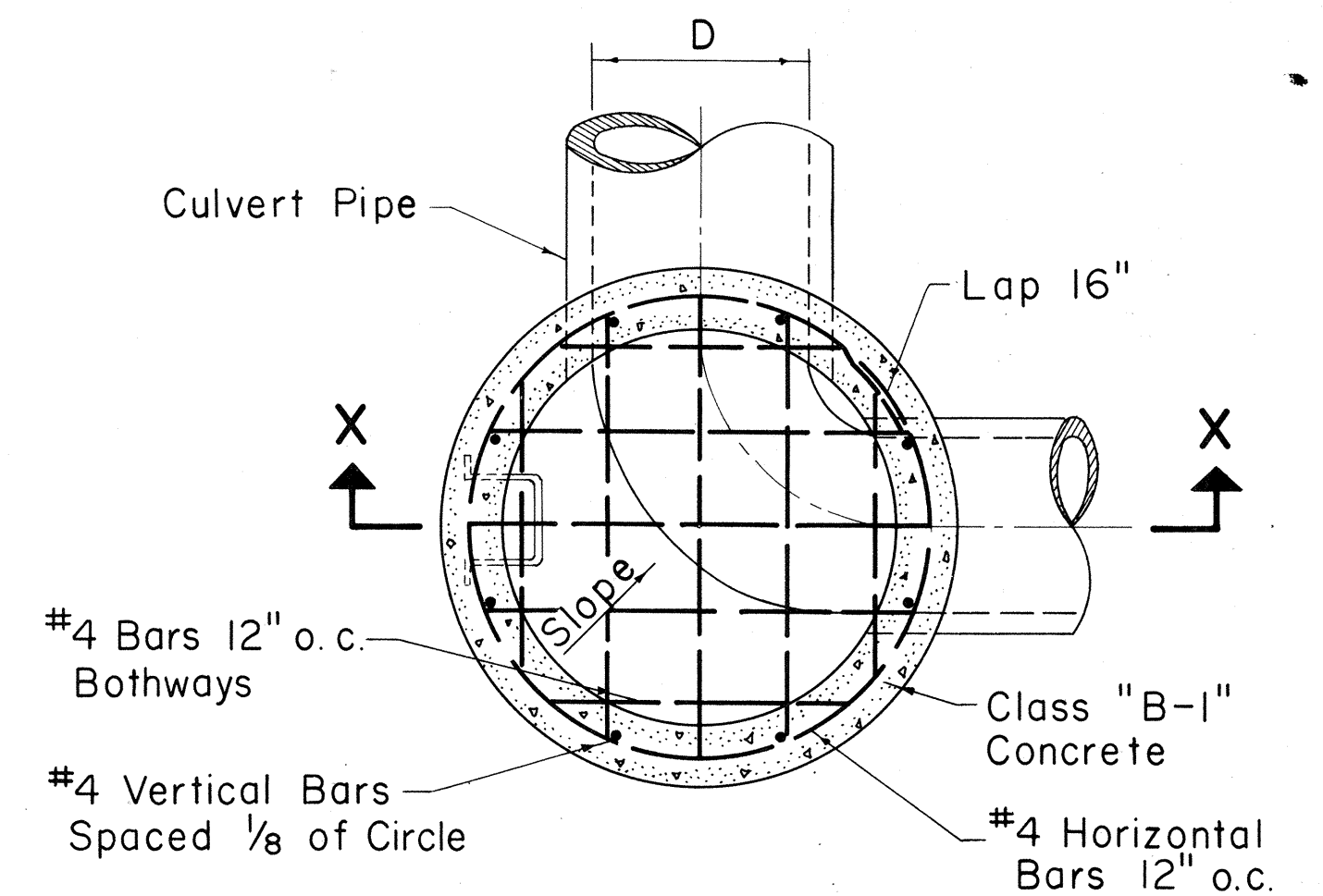
SECTION Z-Z

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"

APPROVED:

DIRECTOR OF TRANSPORTATION DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

STEEL FRAME AND GRATES
AND STORM DRAIN MANHOLES

Scales: As Noted Date

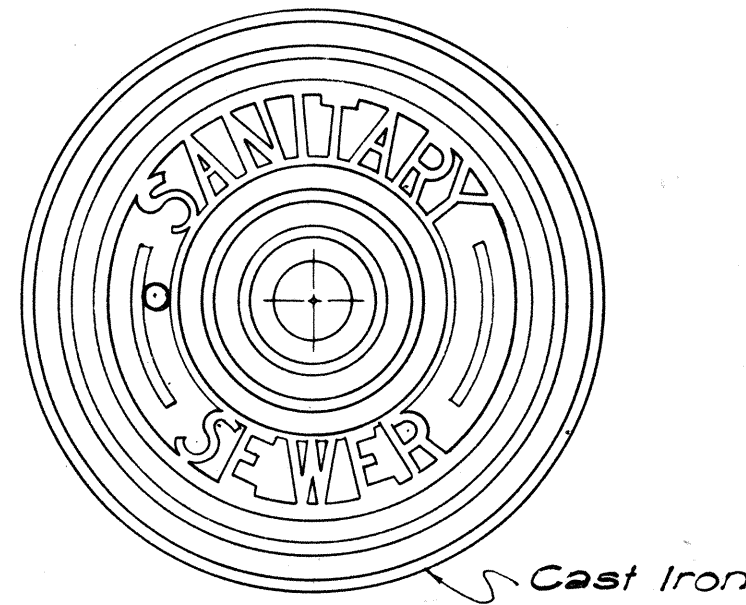
SHEET NO. 9 OF 10 SHEETS

61

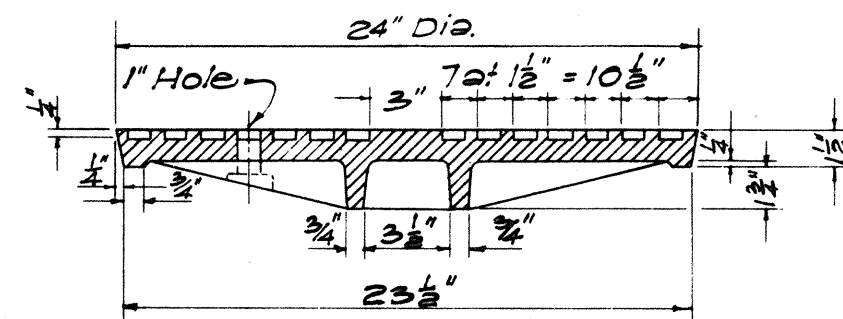
2/17/50
8/12/50

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	1-HI-108	1949	62	124
August 1957					

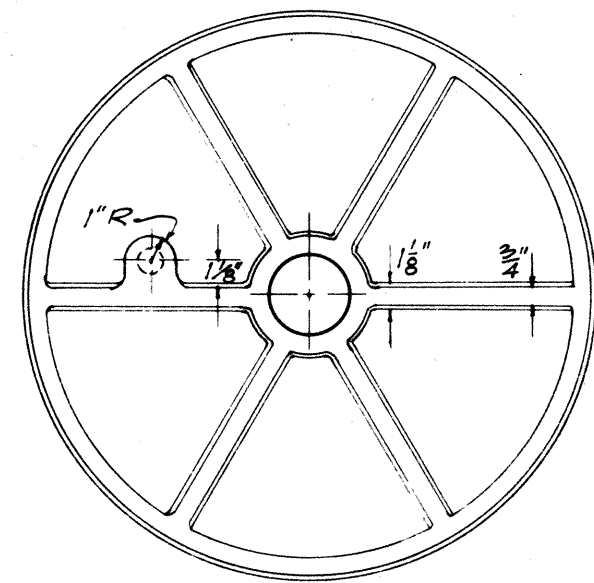
NOTE: Stock Pattern From Novelty Foundry ~ Honolulu



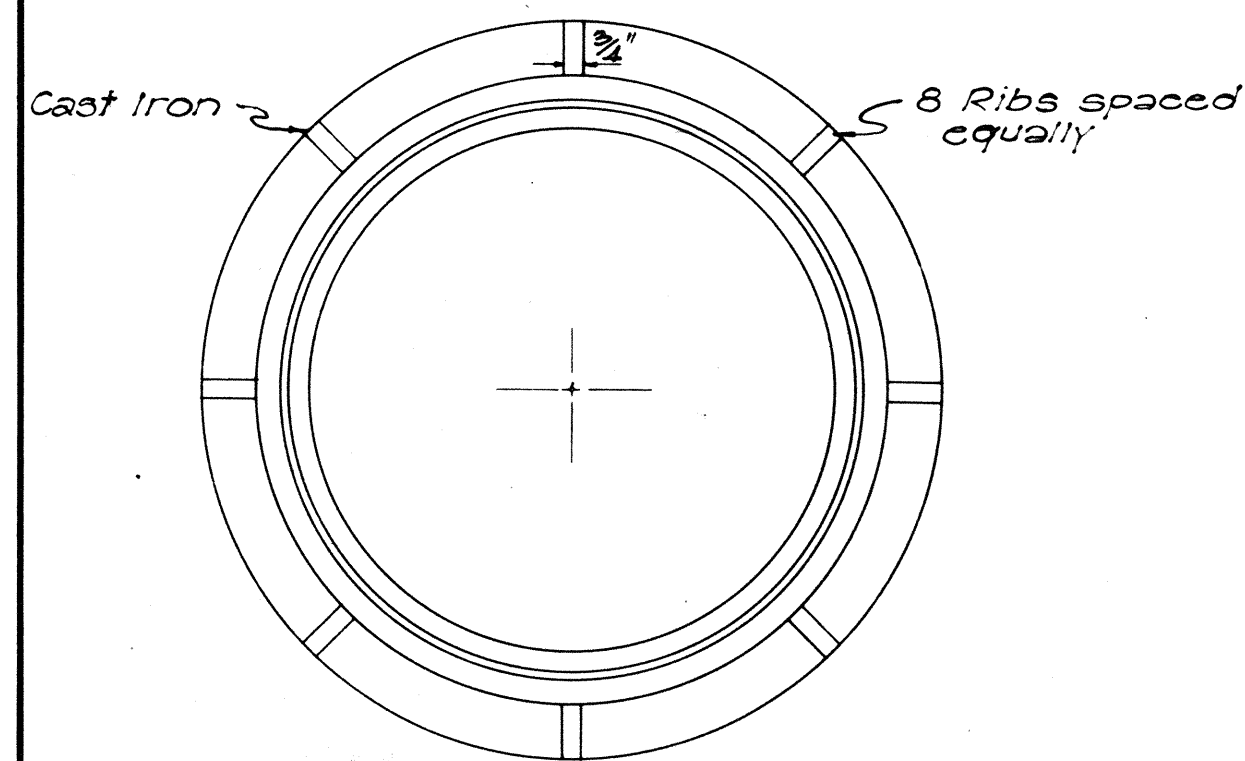
TOP VIEW OF COVER



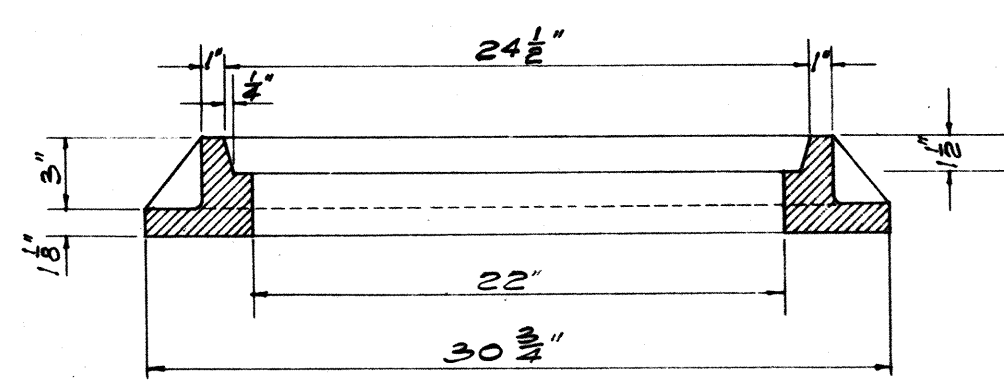
SECTION



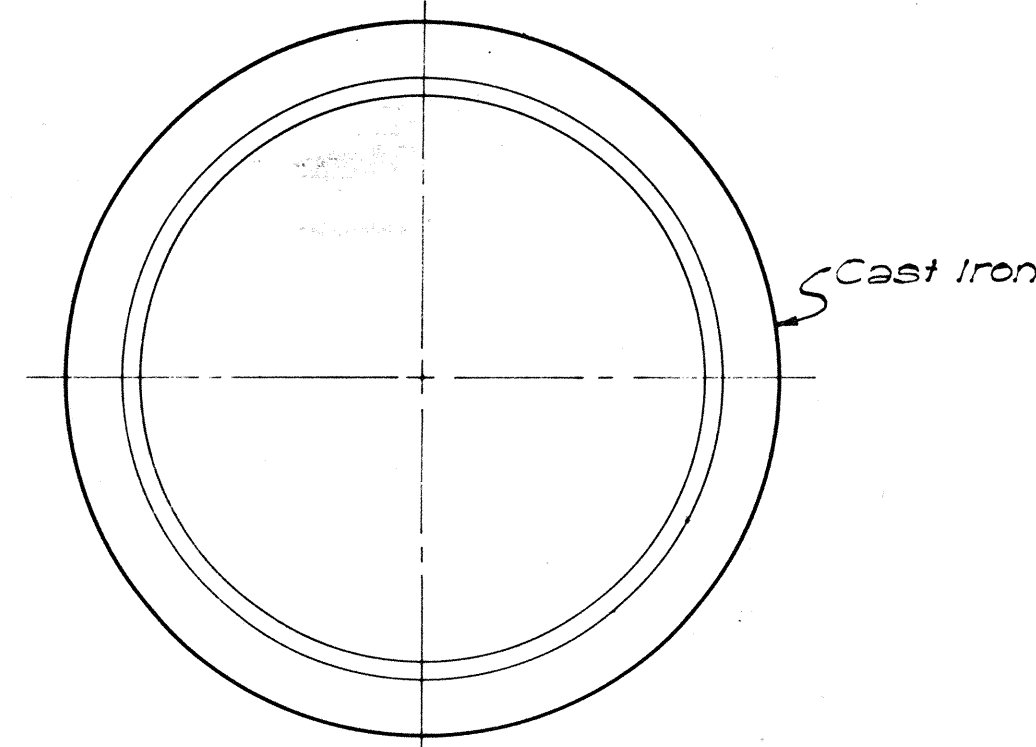
BOTTOM VIEW OF COVER



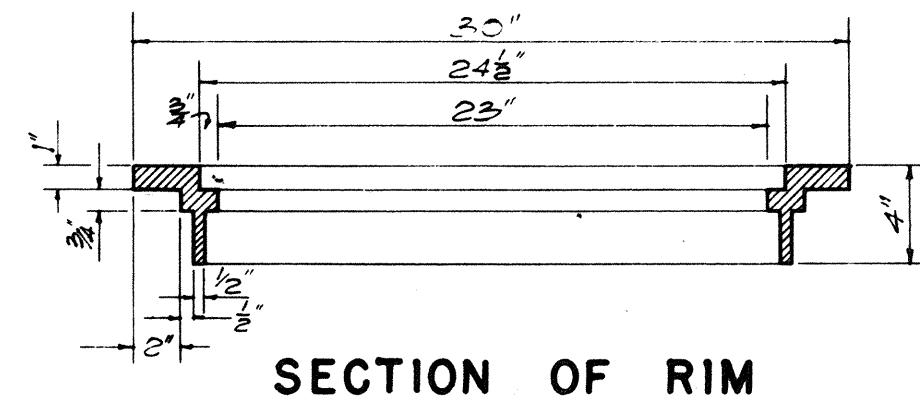
PLAN OF RIM



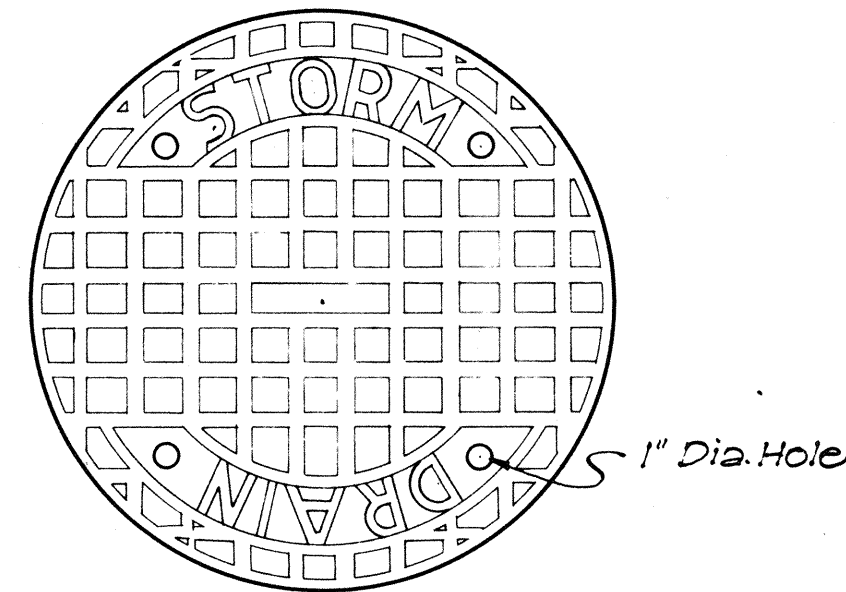
SECTION OF RIM
DETAILS OF TYPE "S"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



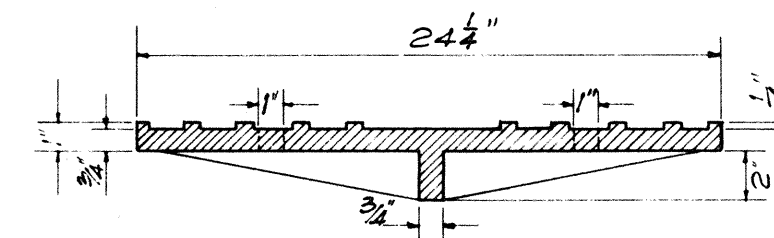
PLAN OF RIM



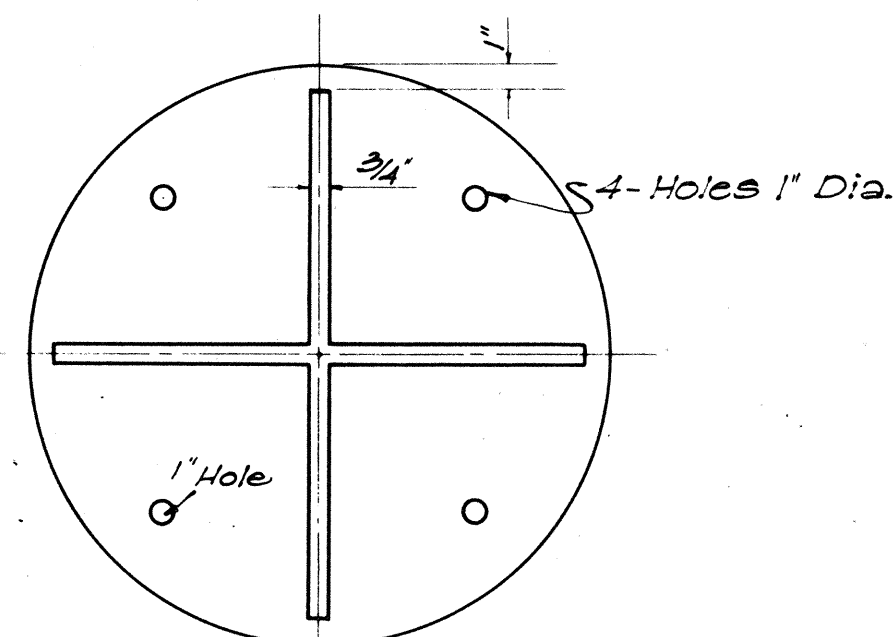
SECTION OF RIM



TOP VIEW OF COVER

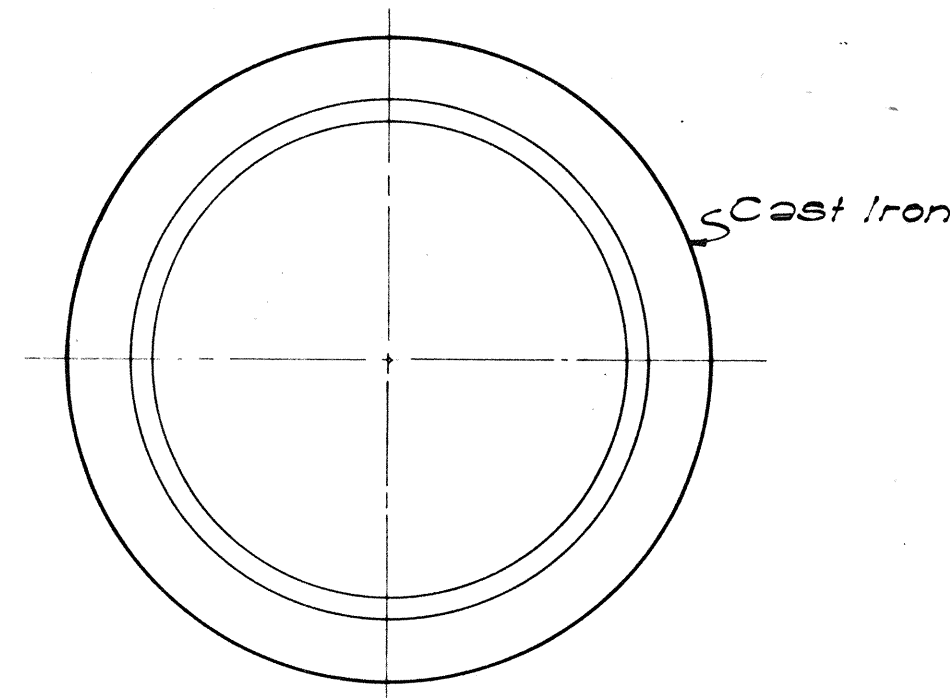


SECTION

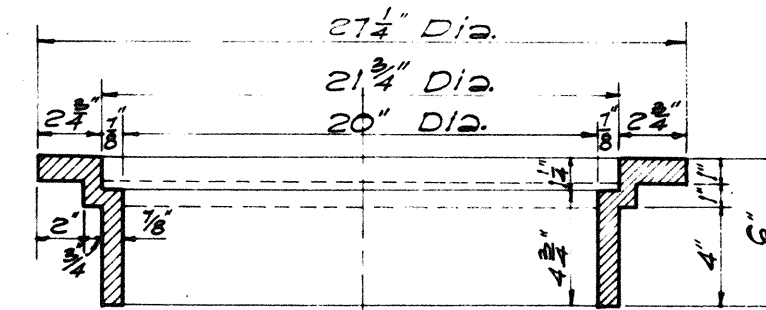


BOTTOM VIEW OF COVER

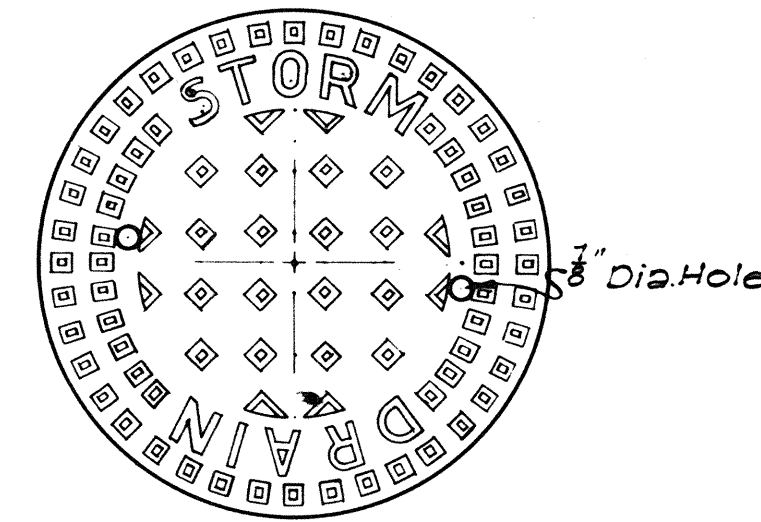
DETAILS OF TYPE "B"
CAST IRON FRAME AND COVER
SCALE: 1-1/2" = 1'-0"



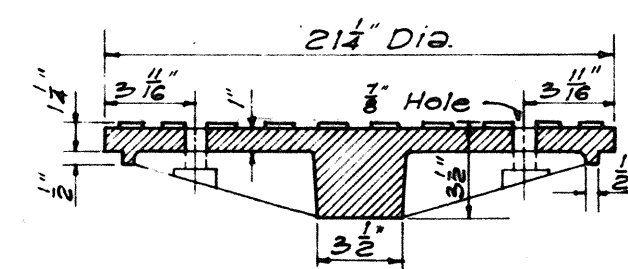
PLAN OF RIM



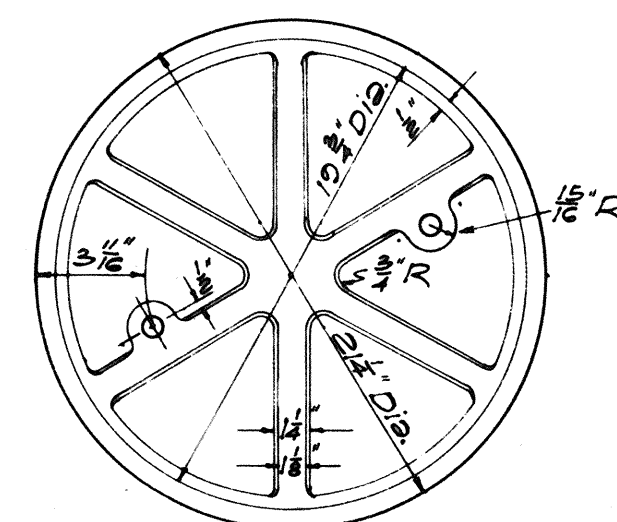
SECTION OF RIM



TOP VIEW OF COVER

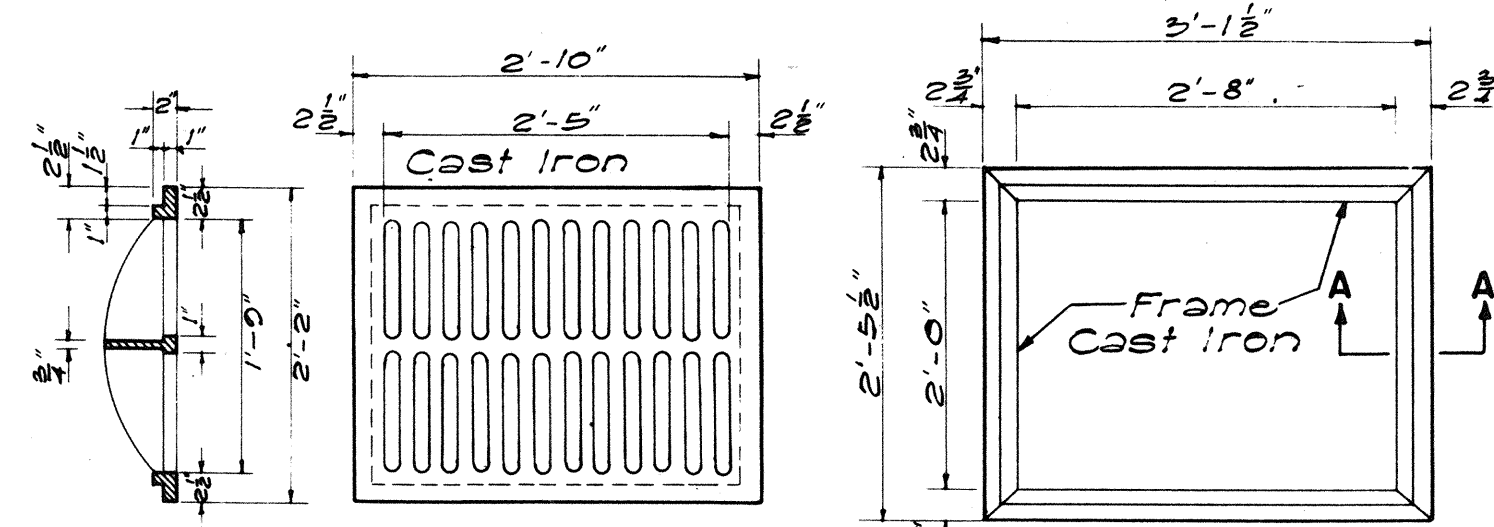


SECTION



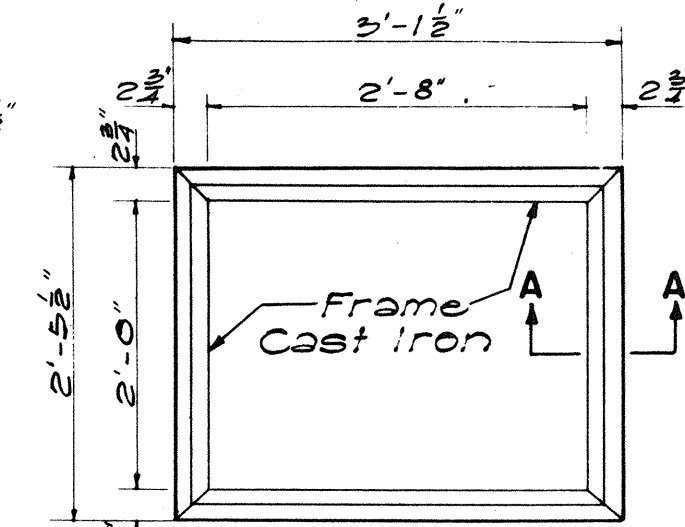
BOTTOM VIEW OF COVER

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



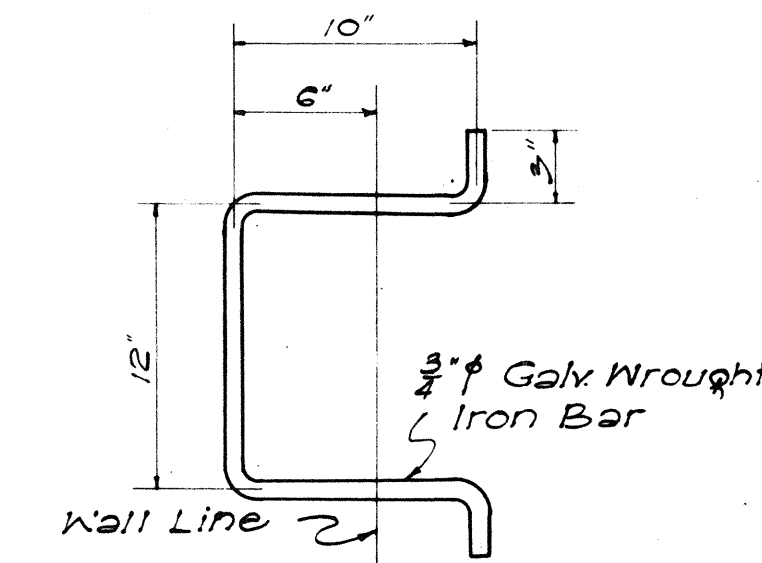
SECTION

TOP VIEW

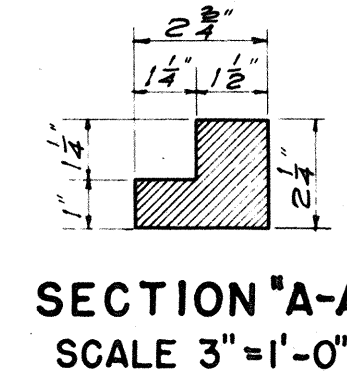


TOP VIEW

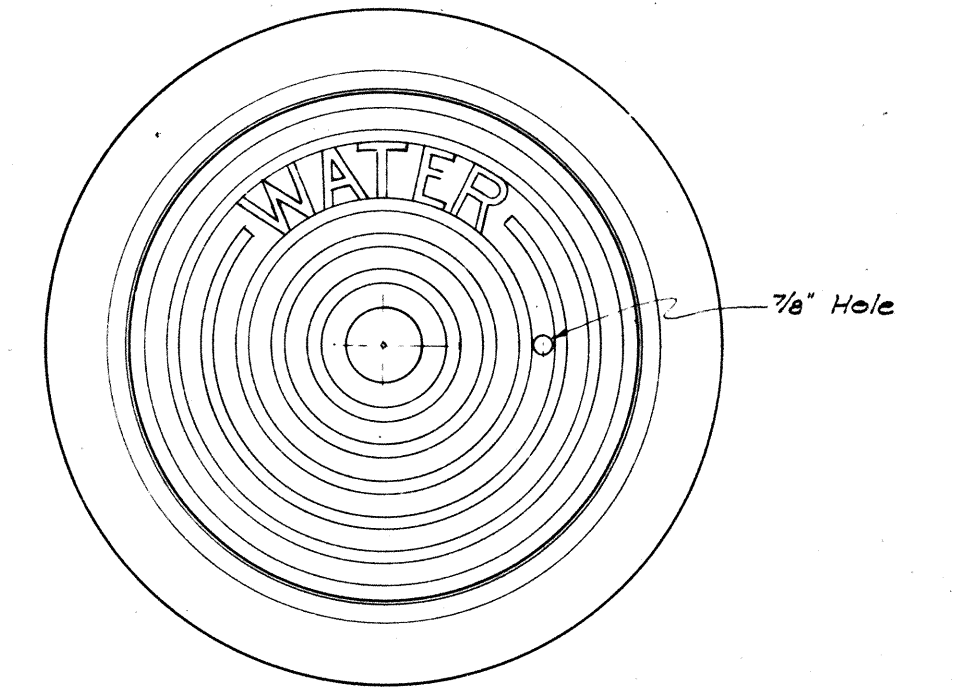
TYPE C C.I. FRAME AND GRATING
SCALE: 3/4" = 1'-0"



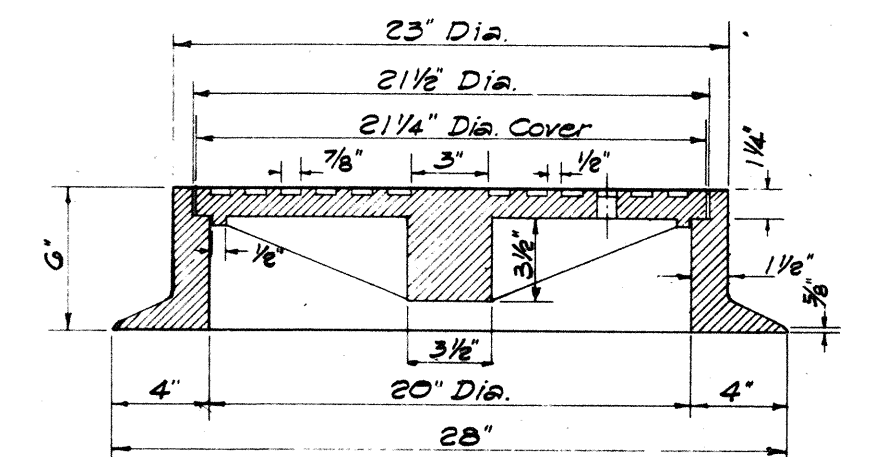
MANHOLE RUNG
SCALE: 1-1/2" = 1'-0"



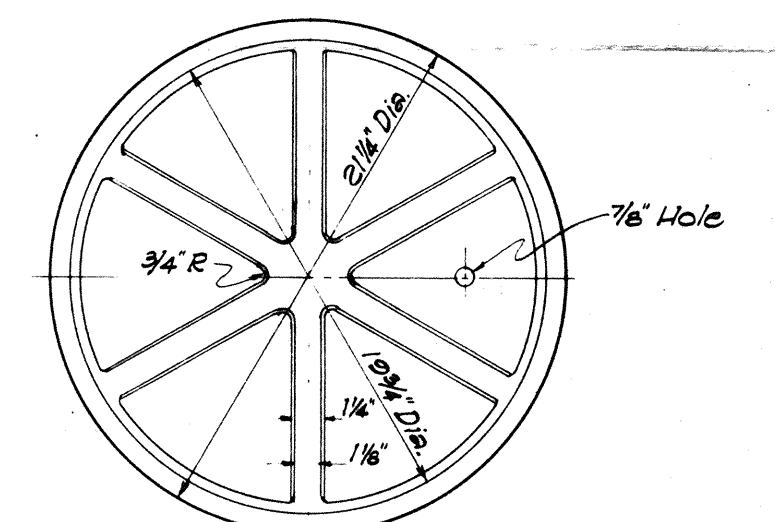
SECTION "A-A"
SCALE 3" = 1'-0"



PLAN OF FRAME AND COVER



SECTION OF FRAME AND COVER



BOTTOM VIEW OF COVER

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

NOTE:

THE TYPE "S" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, DIVISION OF SEWERS' TYPE "A" CAST IRON MANHOLE FRAME AND COVER.

THE TYPE "W" CAST IRON FRAME AND COVER SHOWN ON THIS SHEET IS EQUIVALENT TO THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S CAST IRON MANHOLE FRAME AND COVER, 20" SIZE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CATCH BASIN AND
MANHOLE CASTINGS
SCALES AS NOTED

SHEET NO 10 OF 10 SHEETS