

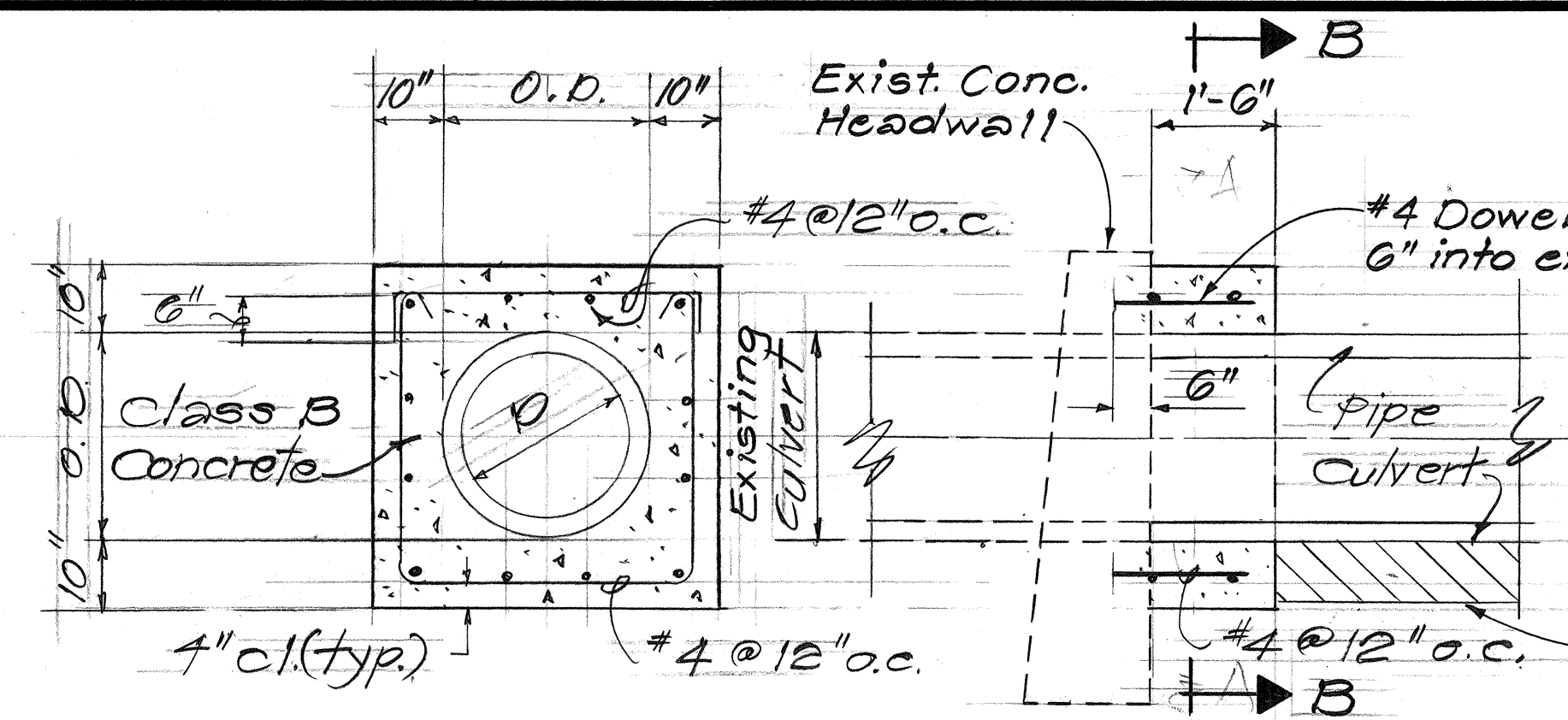
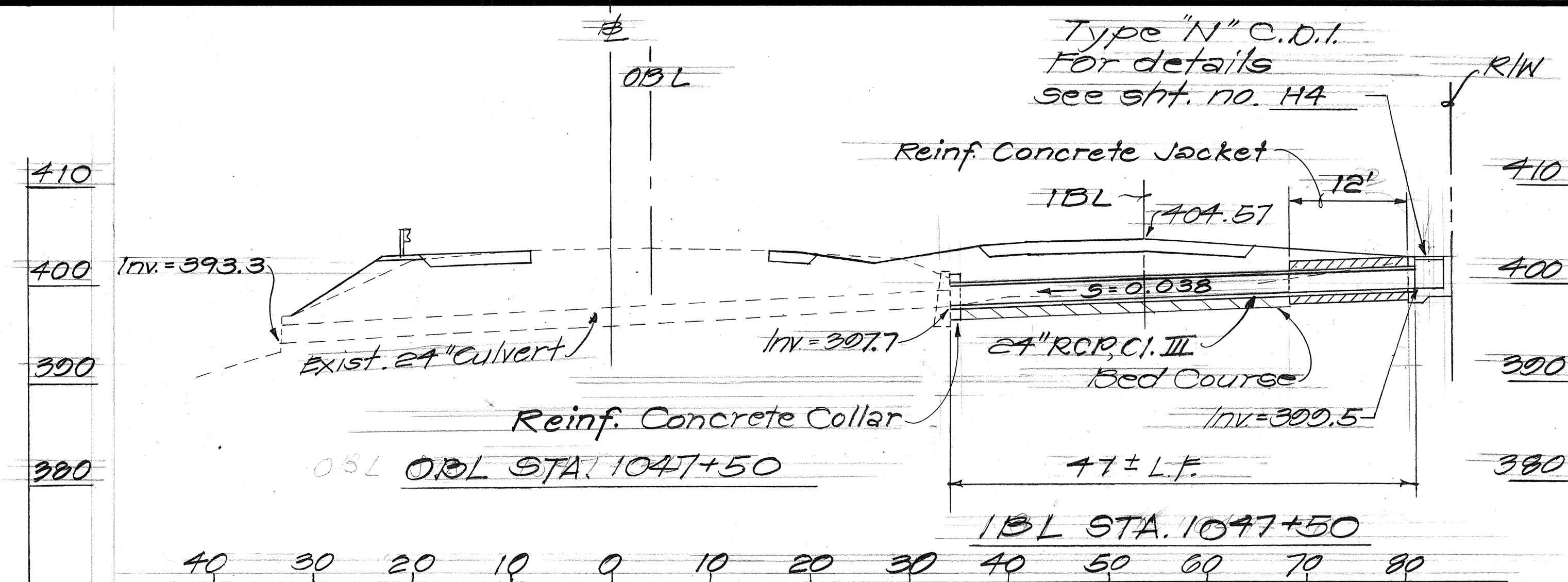
PROJECT: VOLCANO ROAD KEAAU AGRICULTURAL SUBDIVISION
TO SLAUGHTER HOUSE ROAD
PROJECT NO.: F-011-2(17)

July, 1985

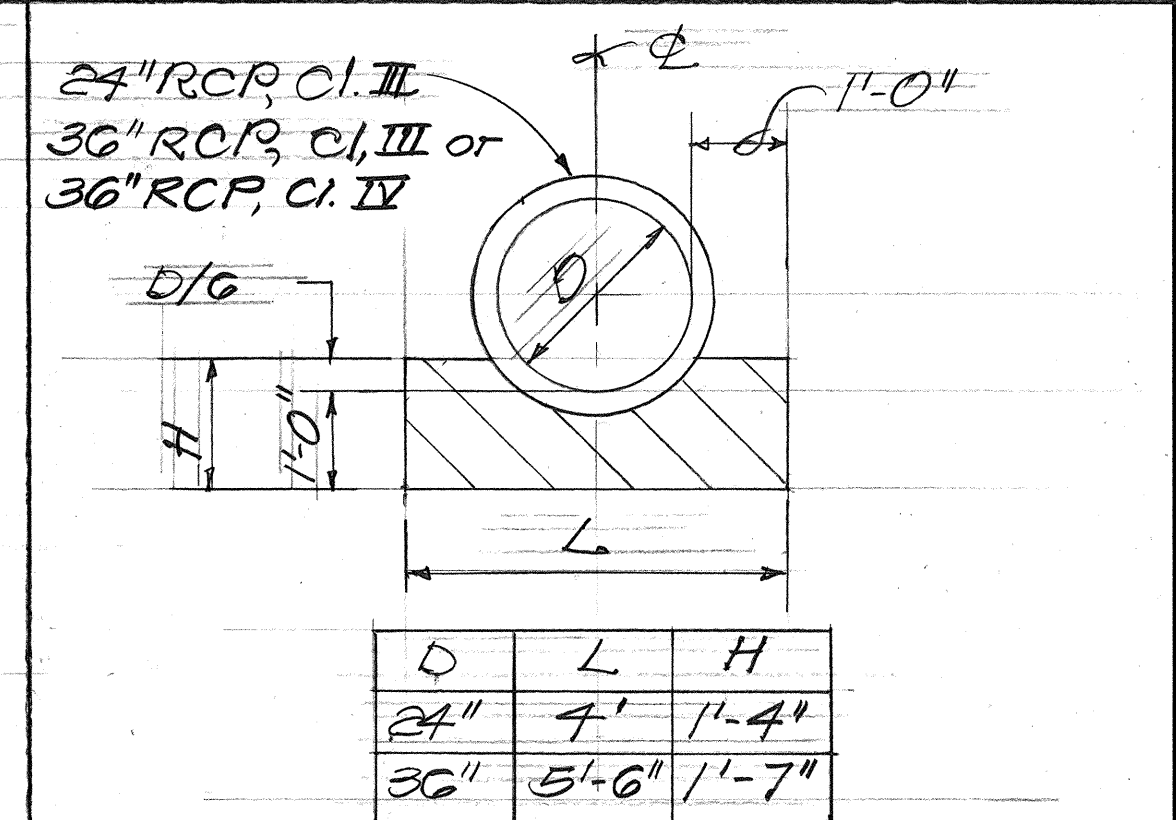
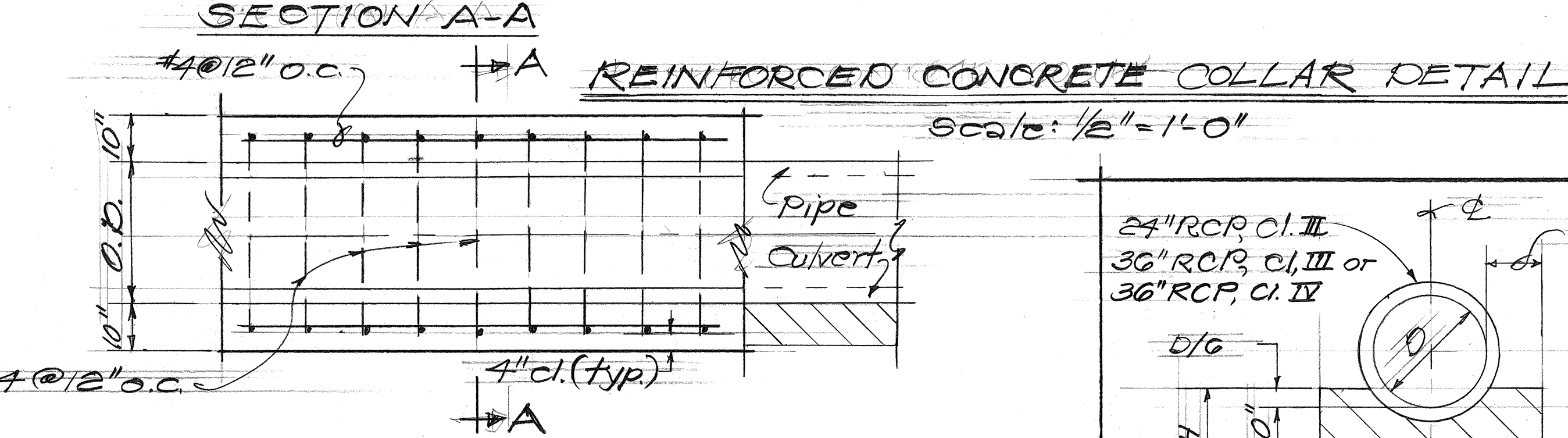
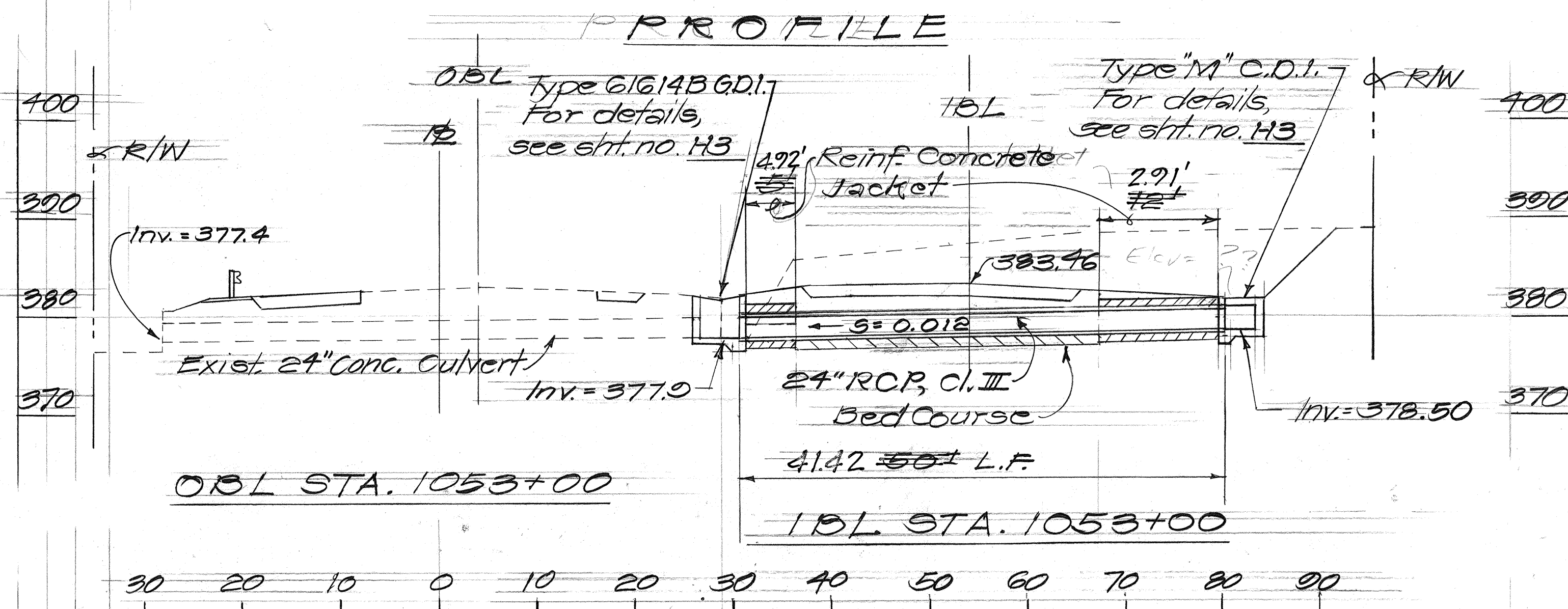
SHEET NO. H1 OF 7 SHEETS

ADD. 56

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(17)	1986	57	142

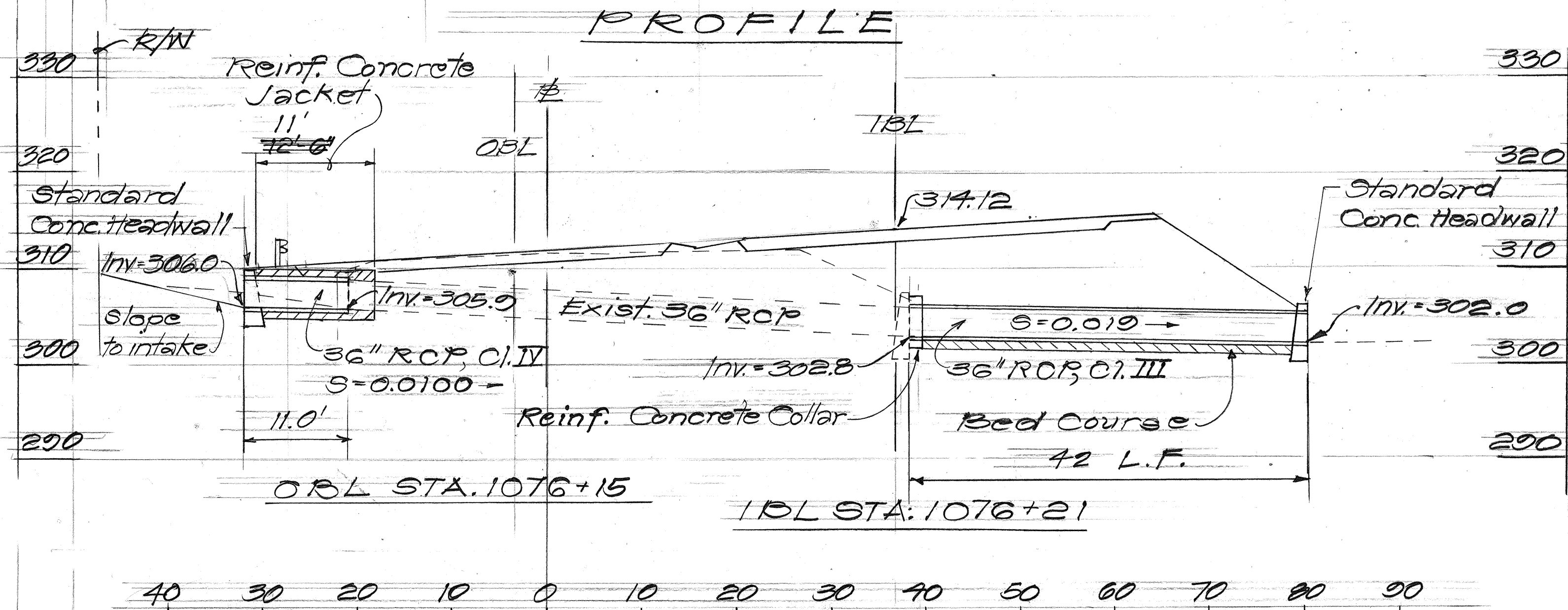


Note
Section B-B for Reinforced Concrete Collar shall be similar to Section A-A of Reinforced Concrete Jacket Detail.



DRAINAGE NOTES:

- Existing drainage system will be functional at all times during construction. Contractor is to furnish materials, equipment, labor, tools, and incidentals necessary to accomplish maintenance of flow, the cost of which shall be incidental to the various contract items.
- Contractor shall verify the locations of all culverts in the field. Any culvert damaged during construction shall be repaired or replaced by the contractor at his expense.
- Culverts within the grated and concrete drop inlets shall be cut flush with the inside face of the wall. Above work shall be considered incidental to the various contract items.
- Concrete shall be Class A unless otherwise noted.
- Class B concrete and reinforcing steel for reinforced concrete collar and reinforced concrete jacket will not be measured and paid for separately but shall be considered incidental to the 24" RCP, Cl. III, 36" RCP, Cl. III, and 36" RCP, Cl. IV.



DRAINAGE PROFILES
Scale: 1" = 10'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

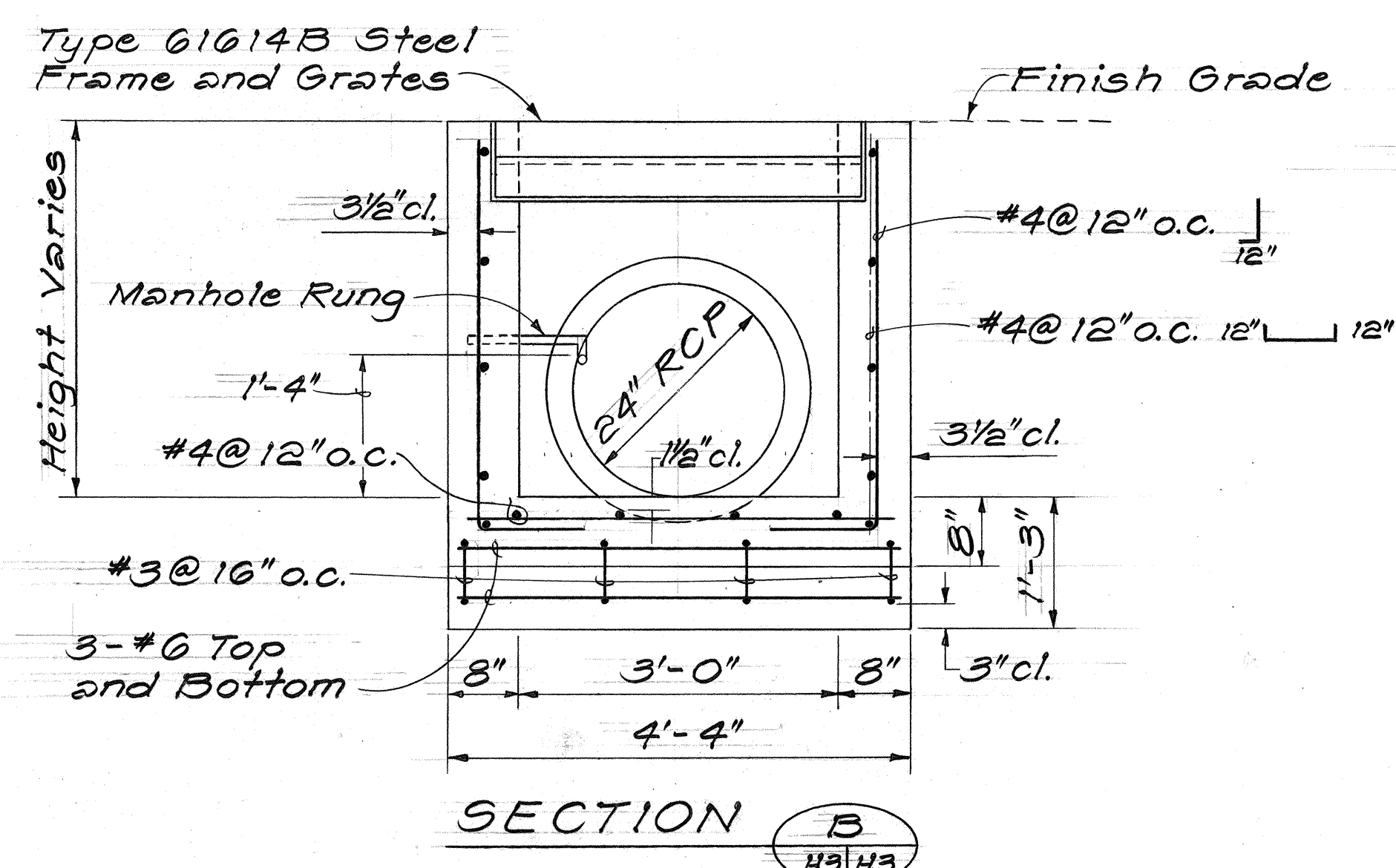
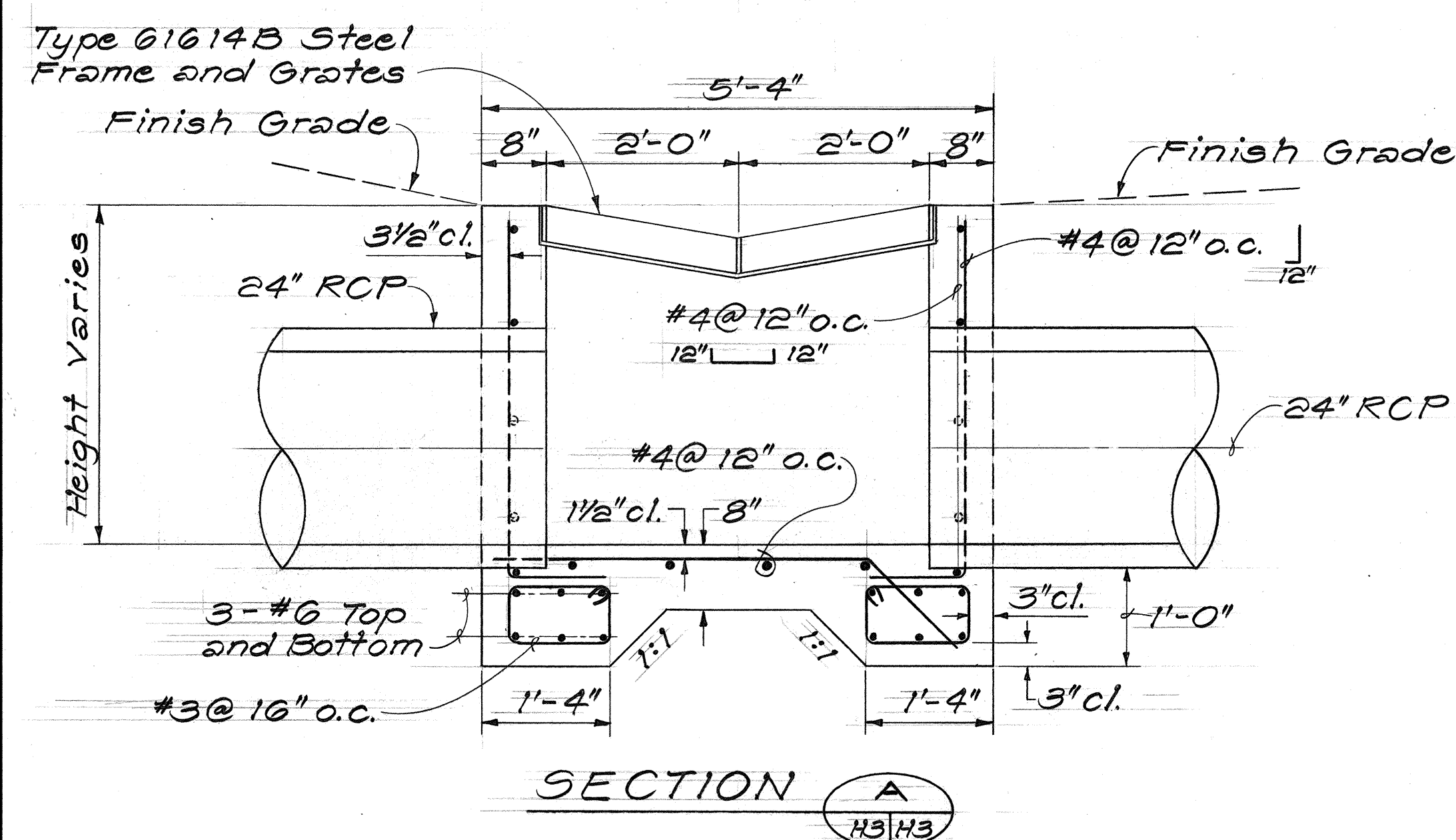
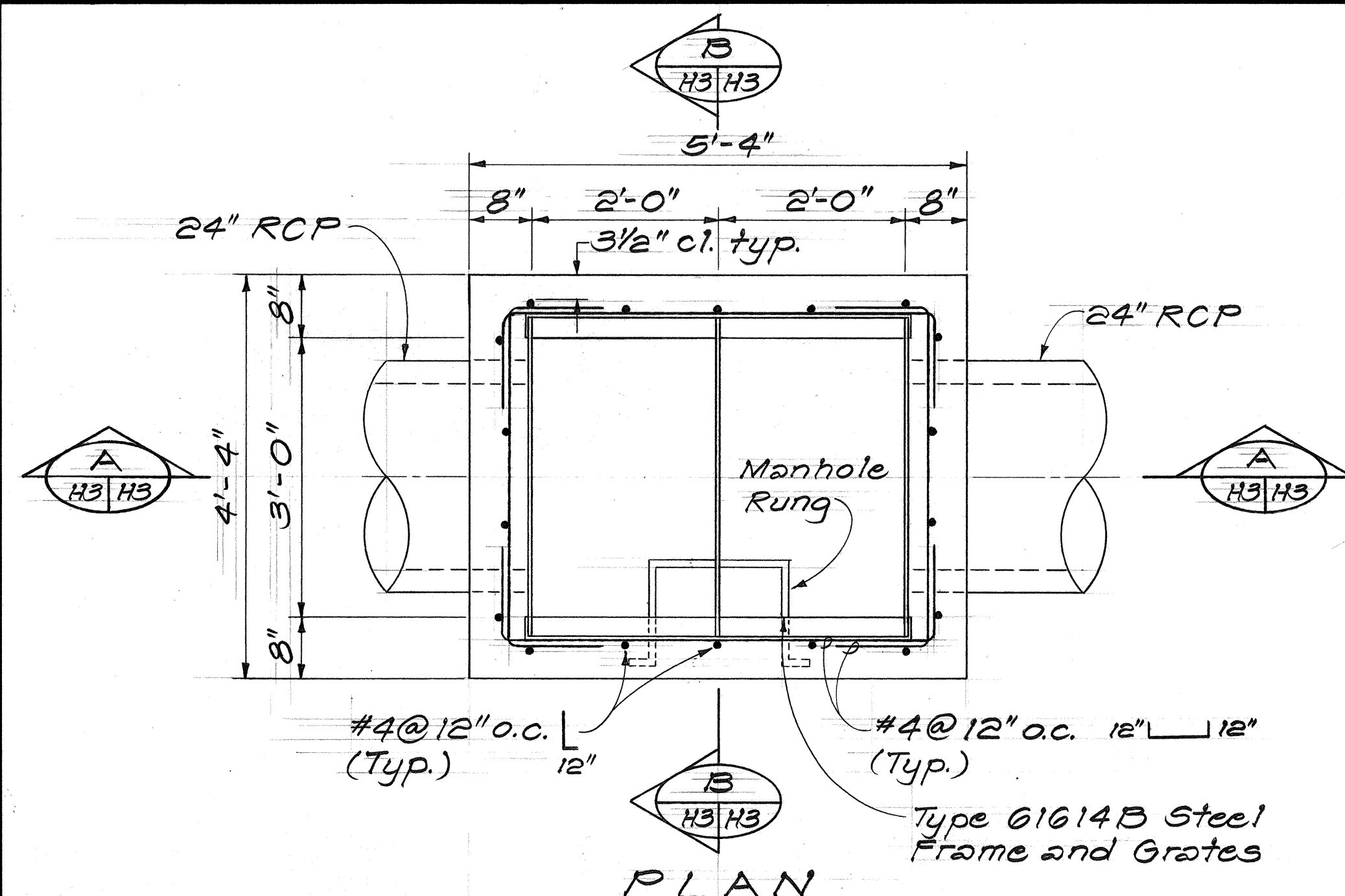
VOLCANO ROAD KEAAU
AGRICULTURAL SUBDIVISION TO
SLAUGHTER HOUSE ROAD
PROJ. NO. F-011-2(17)

SCALE: AS NOTED DATE: AUG. 1986

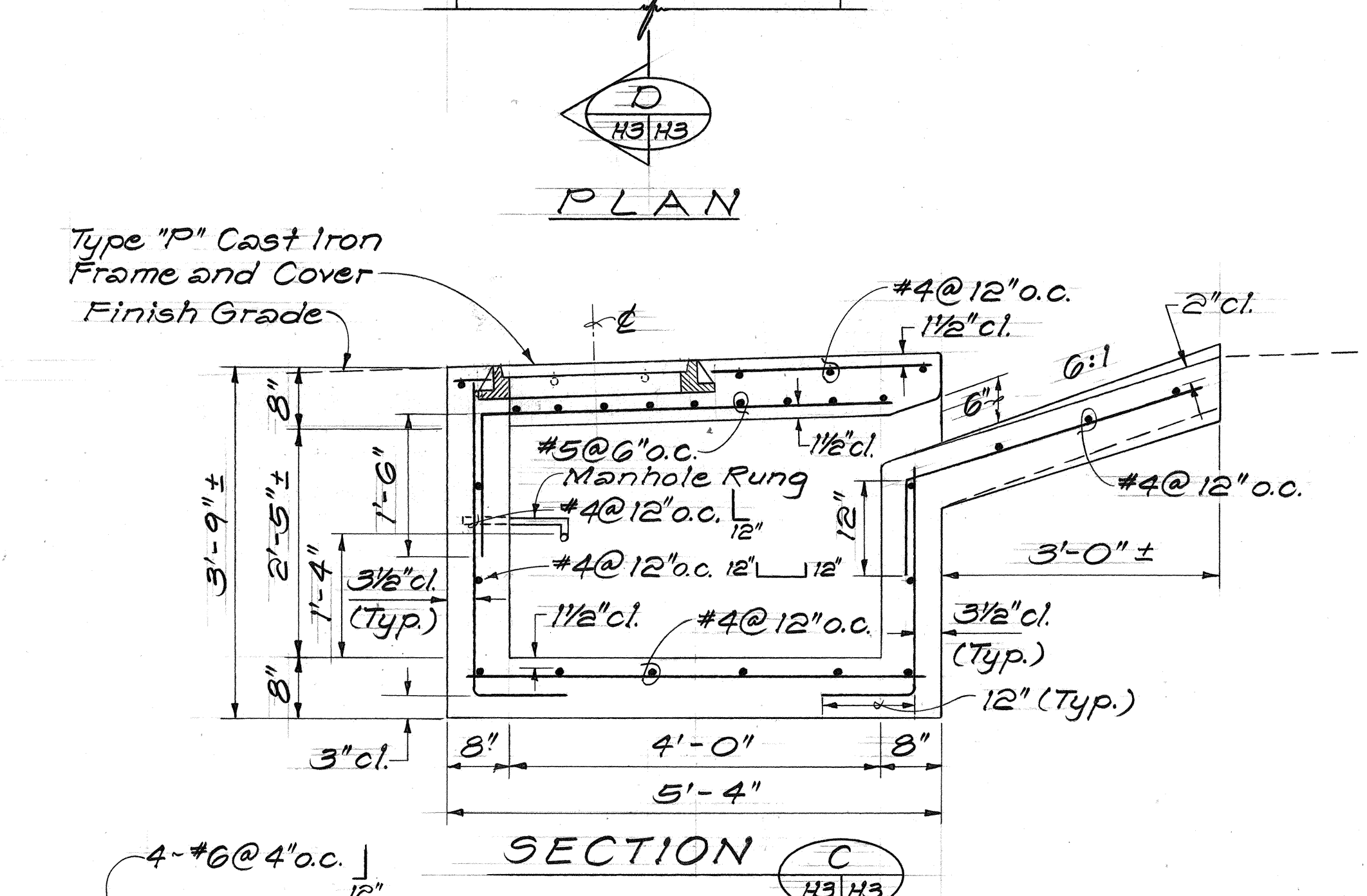
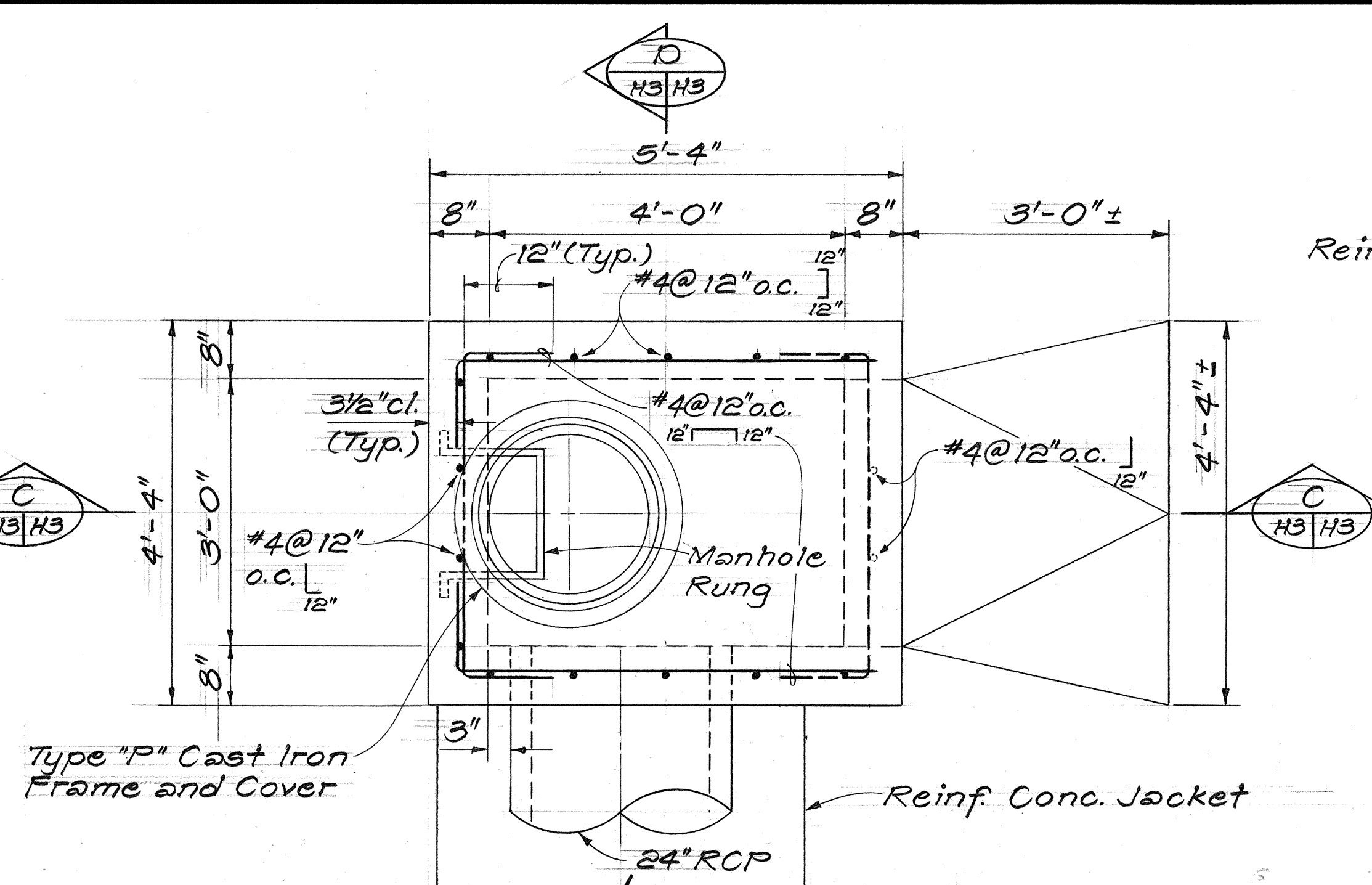
SHEET NO. 52 OF 7 SHEETS

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

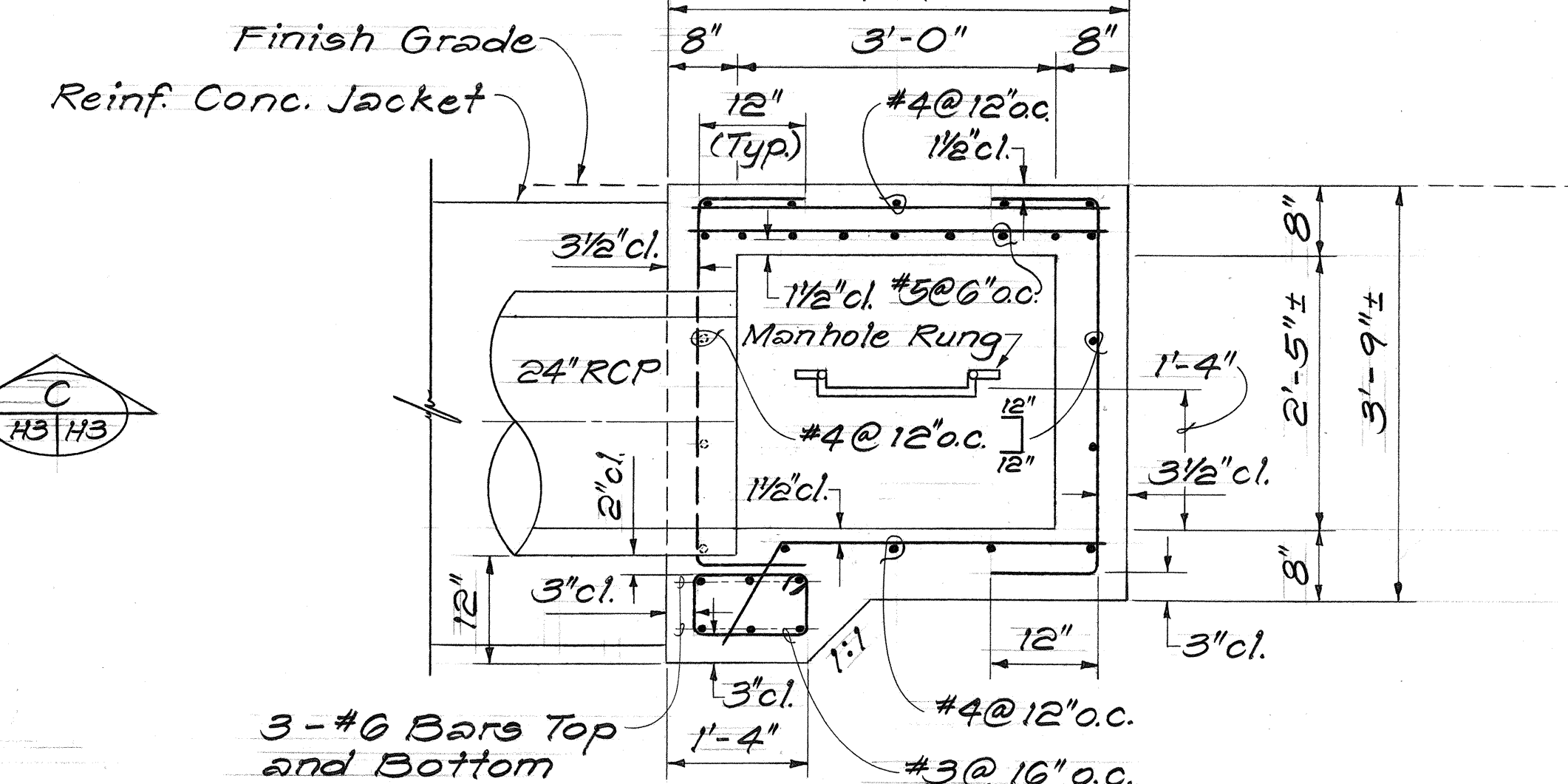
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(17)	1986	58	142



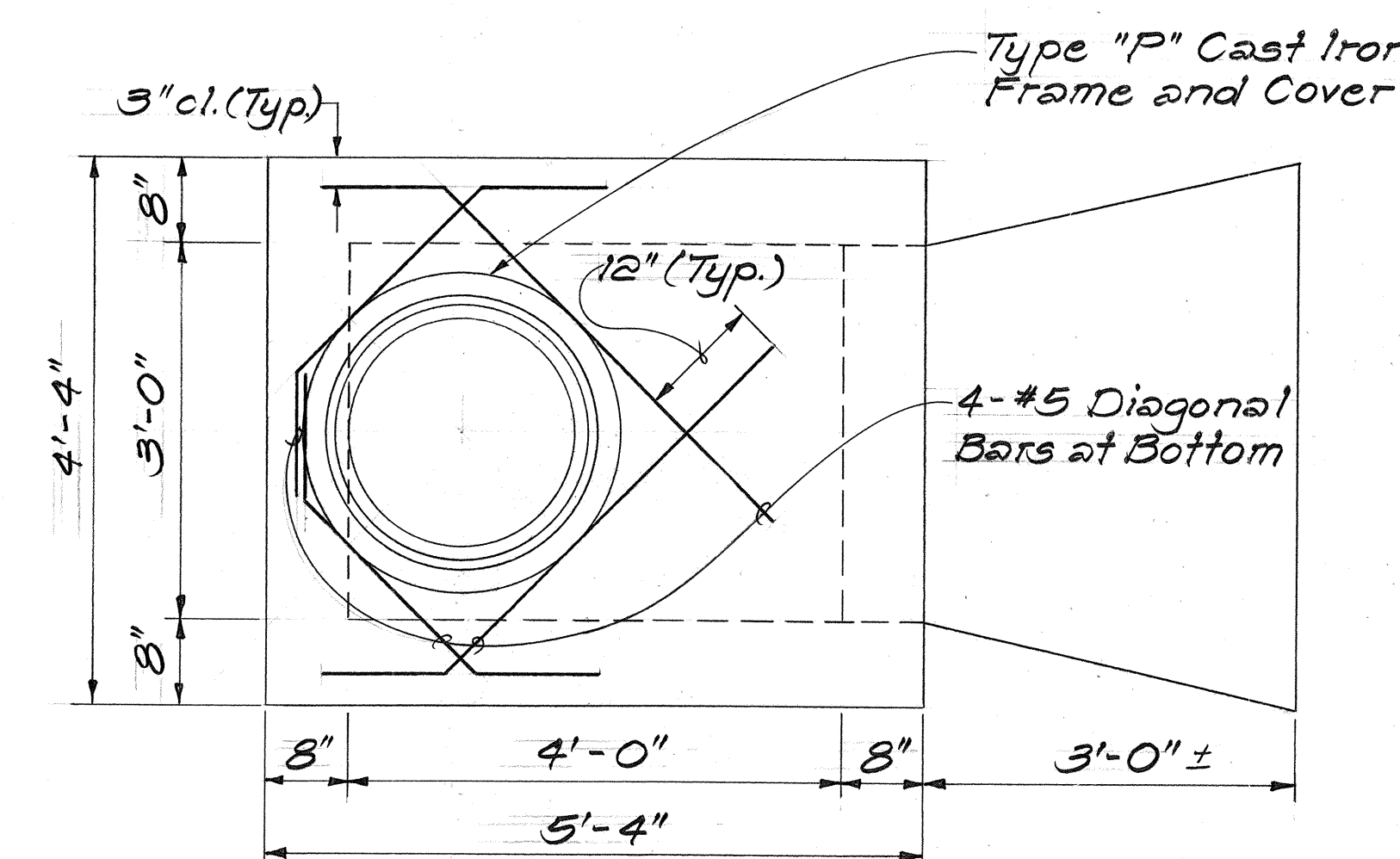
TYPE 61614B GRATED DROP INLET DETAILS
Scale: 3/4" = 1'-0"



ADDITIONAL REINFORCING AROUND 24" AND 36" RCP



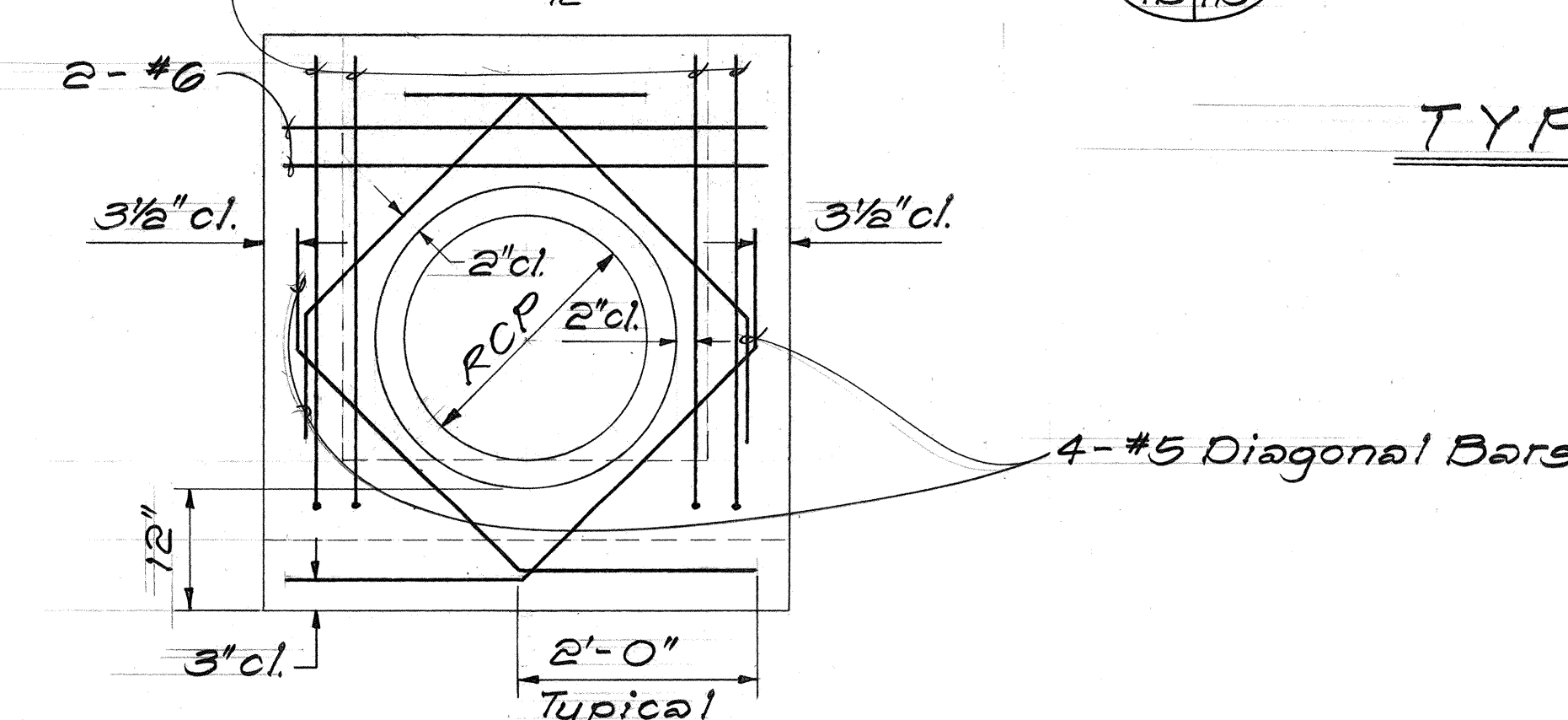
SECTION D



ADDITIONAL REINFORCING AROUND TYPE "P" MANHOLE COVER

TYPE "M" CONCRETE DROP INLET DETAILS

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



ADDITIONAL REINFORCING AROUND 24" AND 36" RCP

STATE OF HAWAII	DEPARTMENT OF TRANSPORTATION	HIGHWAYS DIVISION
DRAINAGE DETAILS		
VOLCANO ROAD KEAAU		
AGRICULTURAL SUBDIVISION TO		
SLAUGHTER HOUSE ROAD		
PROJ. NO. F-011-2(17)		
SCALE: AS NOTED DATE: AUG 1986		
SHEET NO. H3 OF 7 SHEETS		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

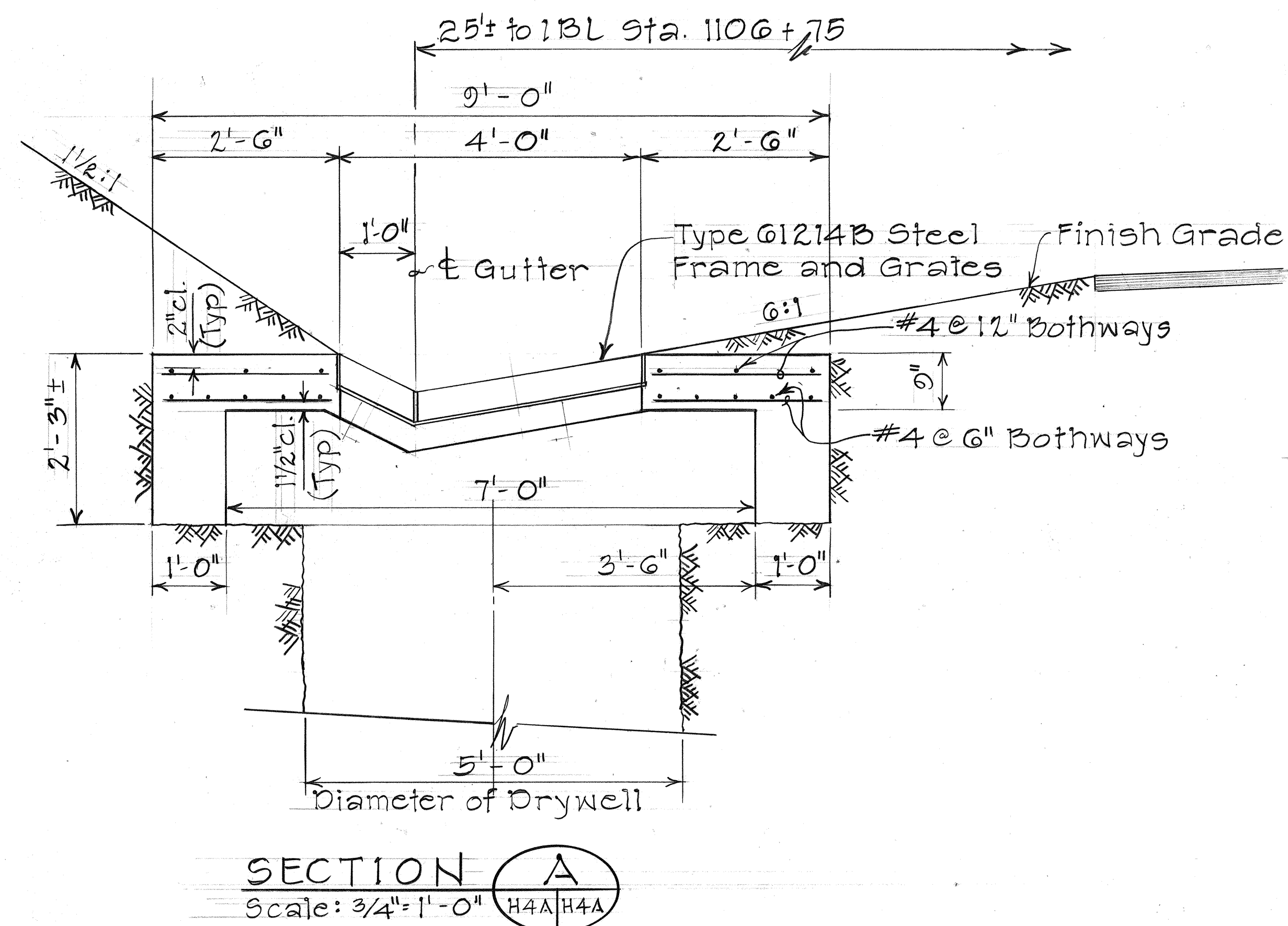
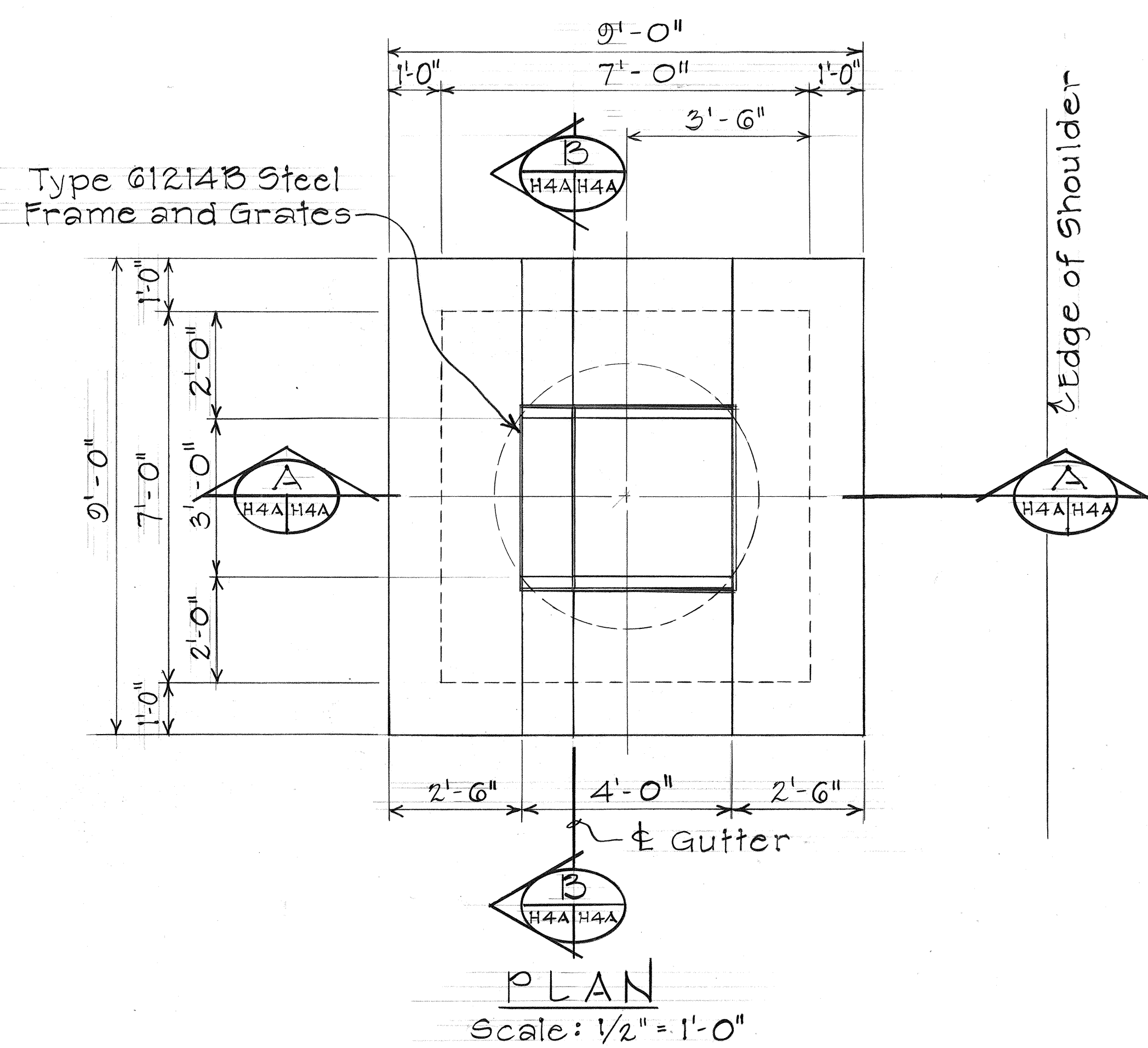
DRAINAGE DETAILS

YOLCANO ROAD KEAAU
AGRICULTURAL SUBDIVISION TO
SLAUGHTER HOUSE ROAD
PROJ. NO. F-011-2(17)

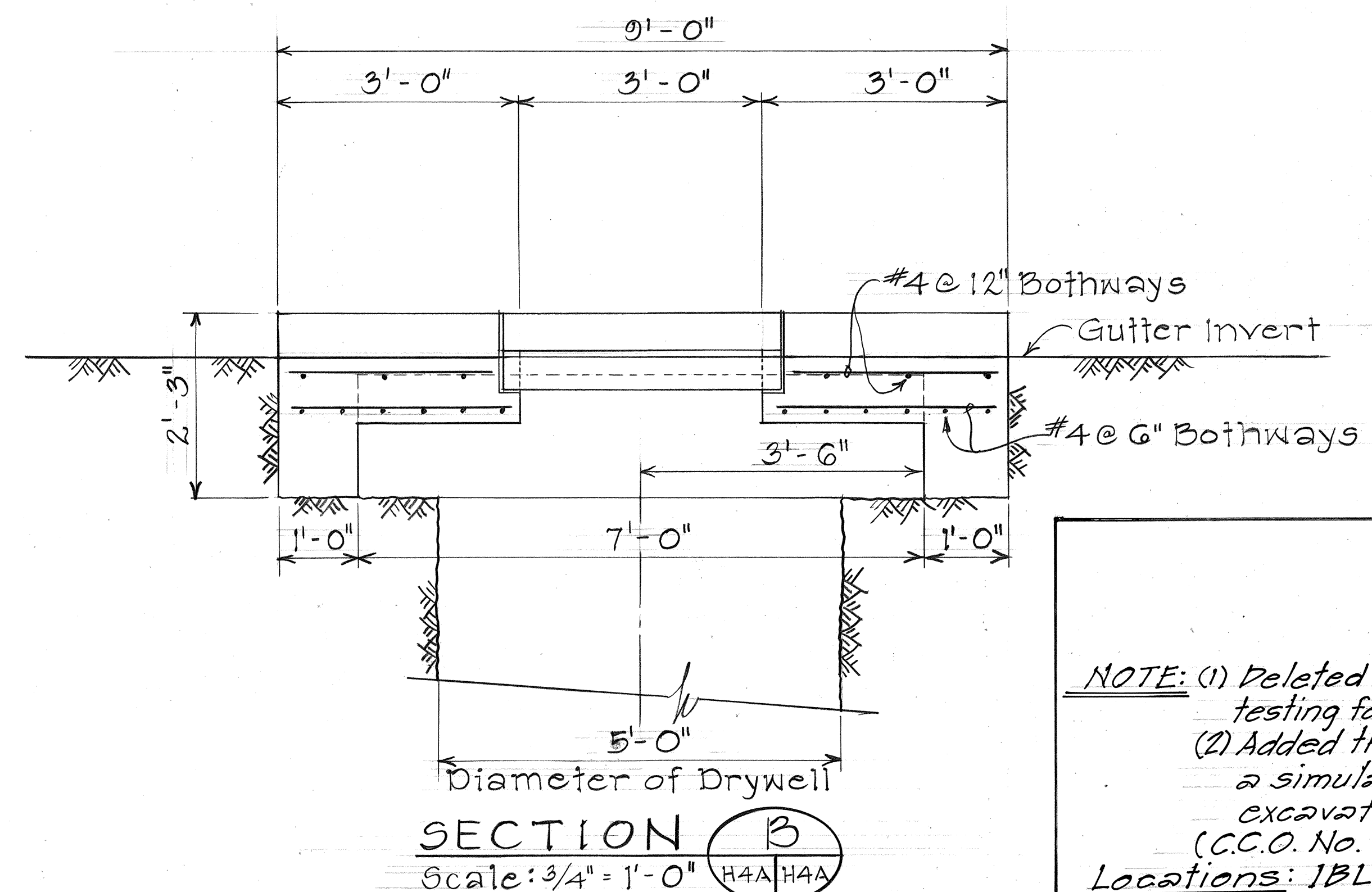
SCALE: AS NOTED DATE: AUG. 1986

SHEET No. 44 OF 7 SHEETS

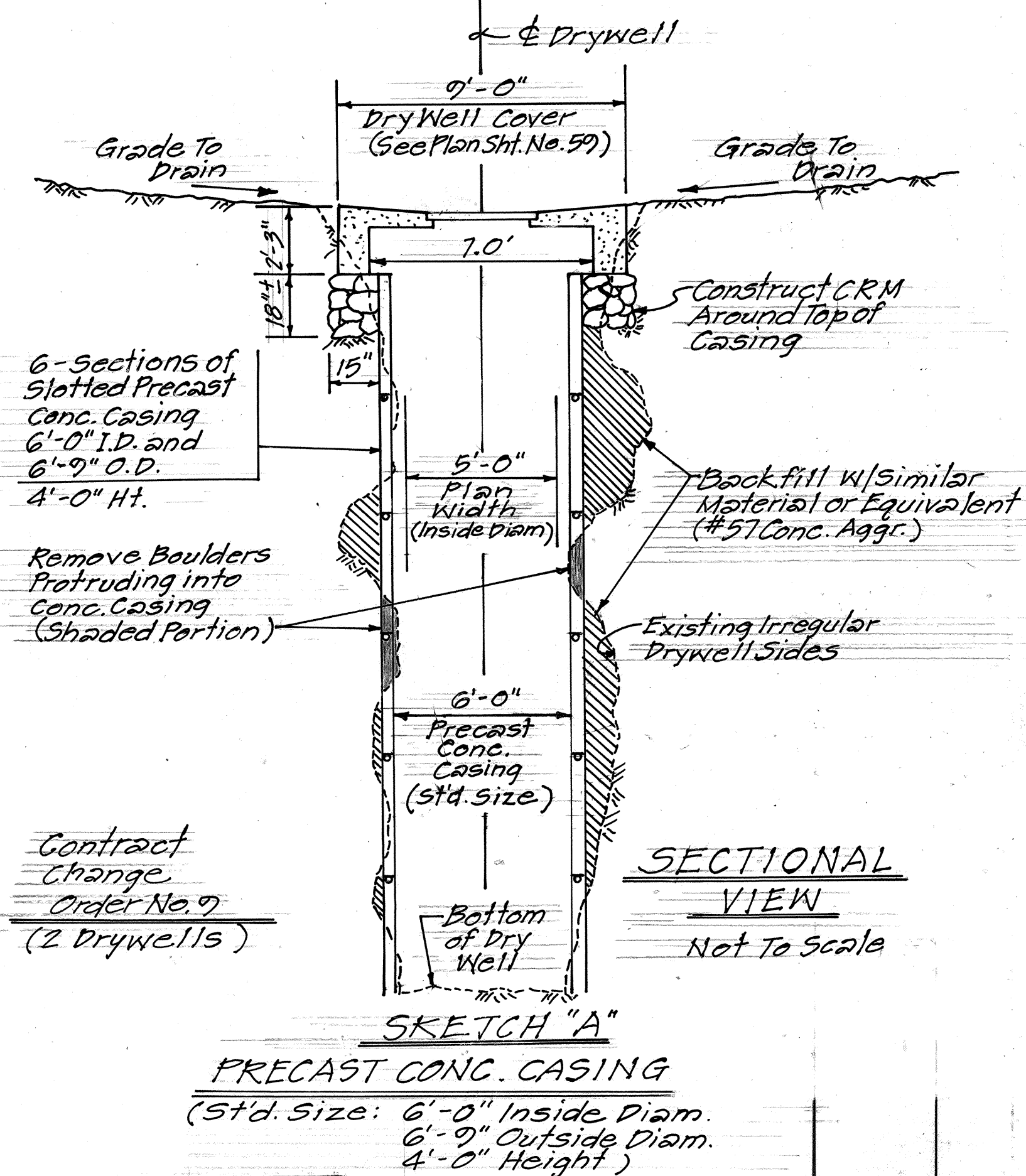
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(17)	1986	ADD. 59 S-1	142



MODIFIED DRYWELL AT IBL STA. 1106+75 LT.



NOTE: (1) Deleted the requirement of injection testing for drywell prior to excavation.
 (2) Added the requirement of conducting a simulated injection test after excavation.
 (C.C.O. No. 12)
 Locations: IBL Sta. 1041+29 Rt., 1106+75 Lt., 1063+00 Lt. & 1102+25 Lt.
 OBL Sta. 1091+50 Lt., 1099+25 Lt. & 1102+70 Lt. (7 each)



Installed slotted 6.0 ft (I.D.) Precast Concrete Casings for drywells at the following locations:

LOCATIONS	(C.C.O. No.):
OBL Sta. 1099+25 Lt.	7
OBL Sta. 1102+70 Lt.	7
LCR Sta. 1102+25 Lt.	18
IBL Sta. 1106+75 Lt.	28
IBL Sta. 1063+00 Lt.	38

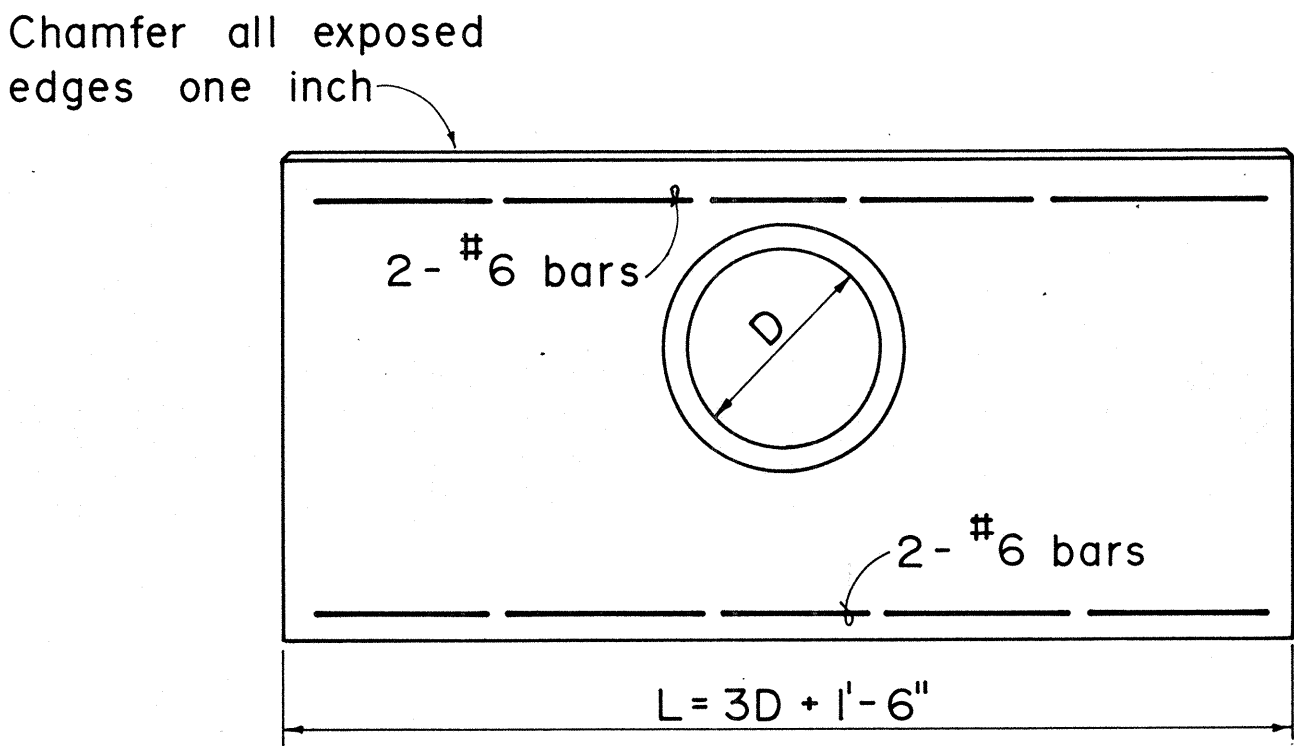
NOTE: This Tracing/Detail Prepared During "As-Built" Posting.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
DRAINAGE DETAILS
VOLCANO ROAD KEAAU AGRICULTURAL SUBDIVISION TO SLAUGHTER HOUSE ROAD PROJ. NO. F-011-2(17)
SCALE: AS NOTED DATE: NOV. 1986
SHEET NO. H4A OF 7 SHEETS

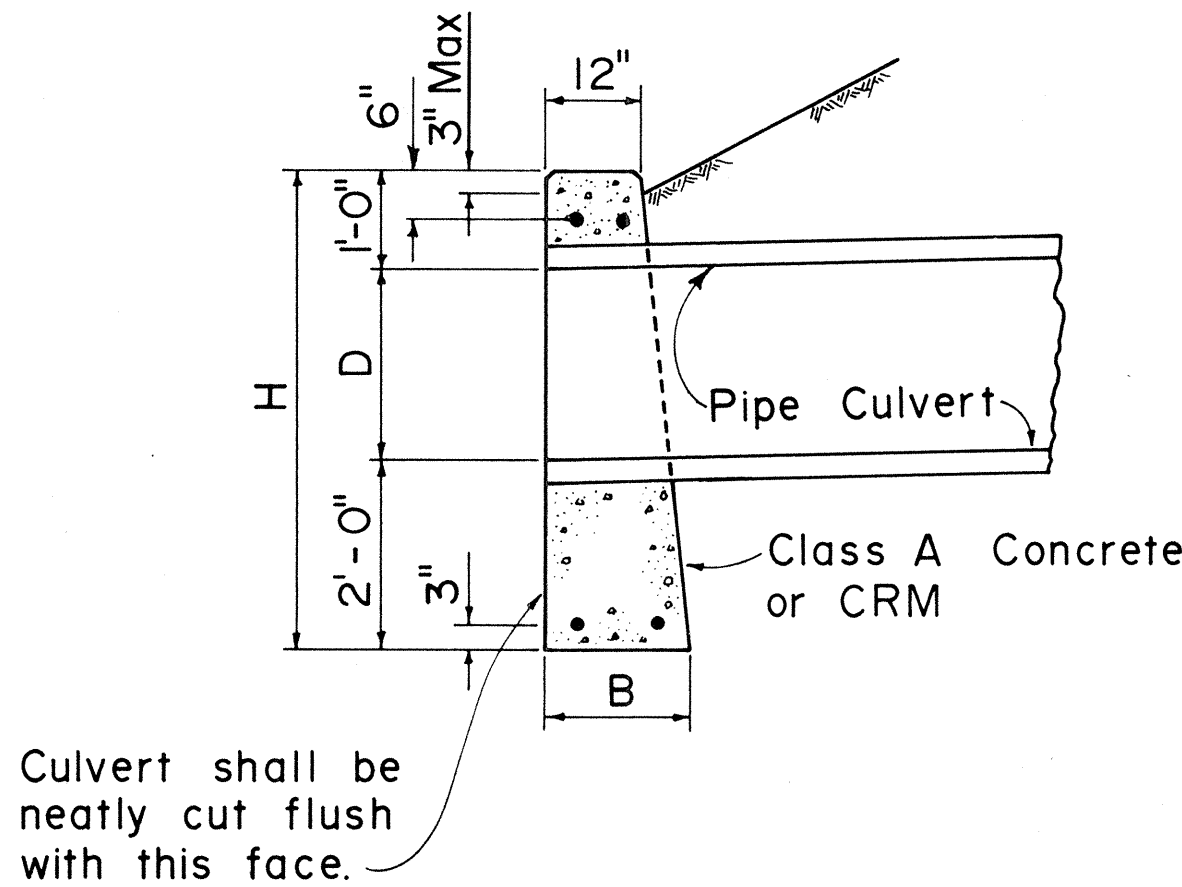
11/20/85	Sheet added to Contract Plan set for additional details required per Addendum No. 1.
DATE	REVISION

ADD. 59 S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(17)	1986	60	142



ELEVATION



SECTION

DATA FOR CONC. HDWL.			
D	B	L	H
18"	1'-6"	6'-0"	4'-6"
24"	1'-6"	7'-6"	5'-0"
30"	2'-0"	9'-0"	5'-6"
36"	2'-0"	10'-6"	6'-0"
42"	2'-6"	12'-0"	6'-6"
48"	2'-6"	13'-6"	7'-0"

DATA FOR CRM HDWL.			
D	B	L	H
18"	1'-9"	6'-0"	4'-6"
24"	2'-0"	7'-6"	5'-0"
30"	2'-3"	9'-0"	5'-6"
36"	2'-6"	10'-6"	6'-0"

CONCRETE OR CRM HEADWALL

APPROVAL RECOMMENDED:
T. Takano 6-19-79
 HYDRAULIC DESIGN ENGINEER DATE

APPROVED:
Harbert Zakeishi 6-22-79
 ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1.	Supersedes Sht. DH 10 approved 12-17-69	H.T.	6/22/69
2.	Change Class of concrete	H.P.	12/4/80

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
 CONCRETE OR CEMENT
 RUBBLE MASONRY HEADWALLS

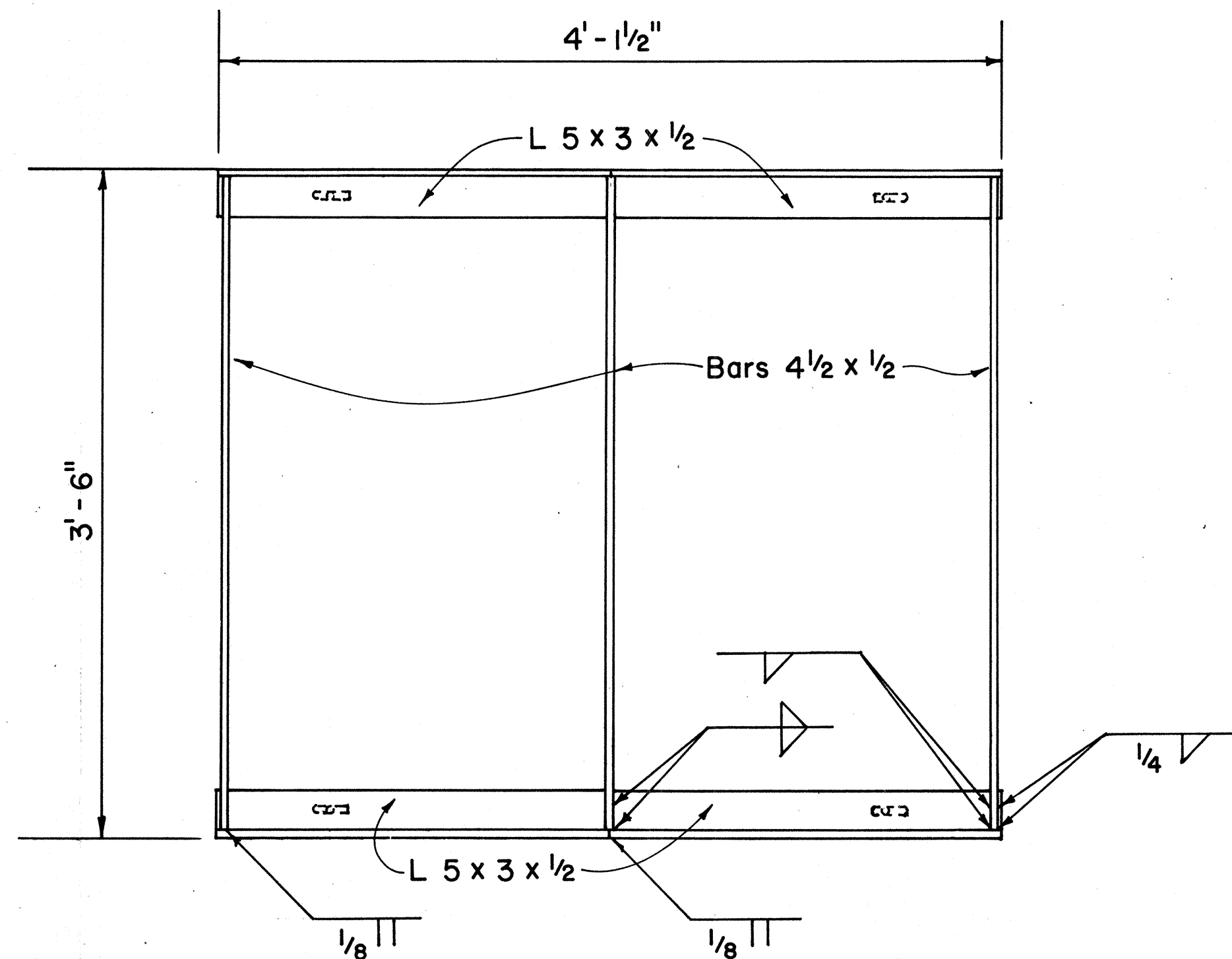
Not To Scale
 Date: June 1979

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

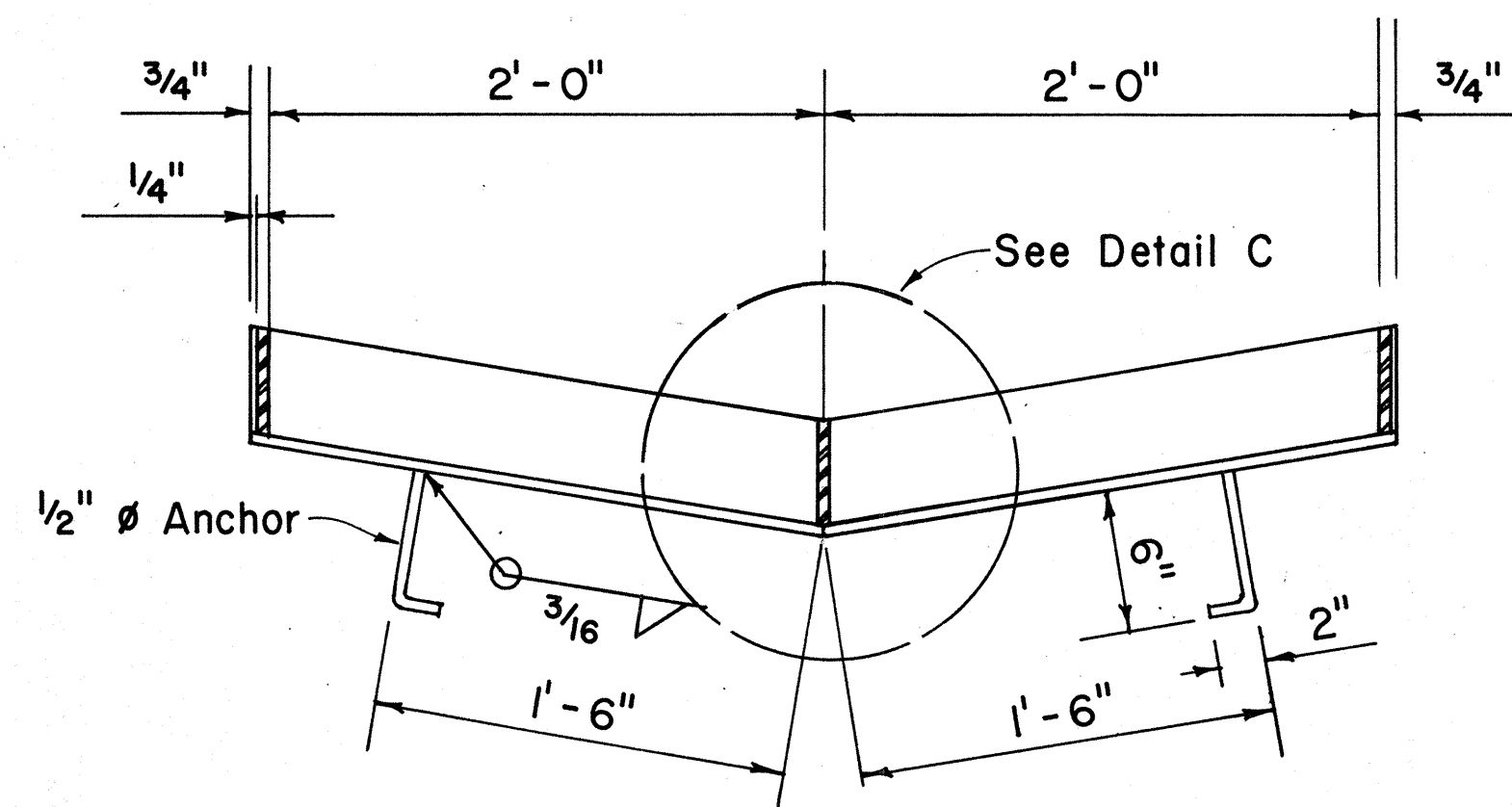
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(17)	1986	61	142

GENERAL NOTES

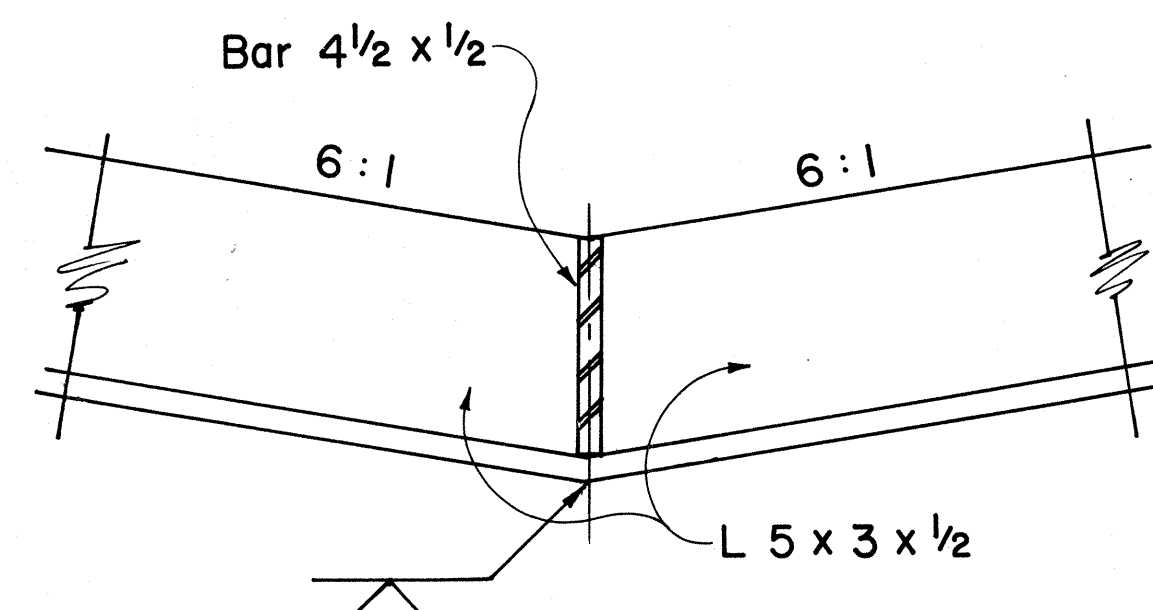
- All welds $\frac{5}{16}$ " unless otherwise noted.
- Grates and Frames shall be hot dip galvanized after fabrication.
- Use in locations off the road bed on all types of highway. (Bicycle Grates)



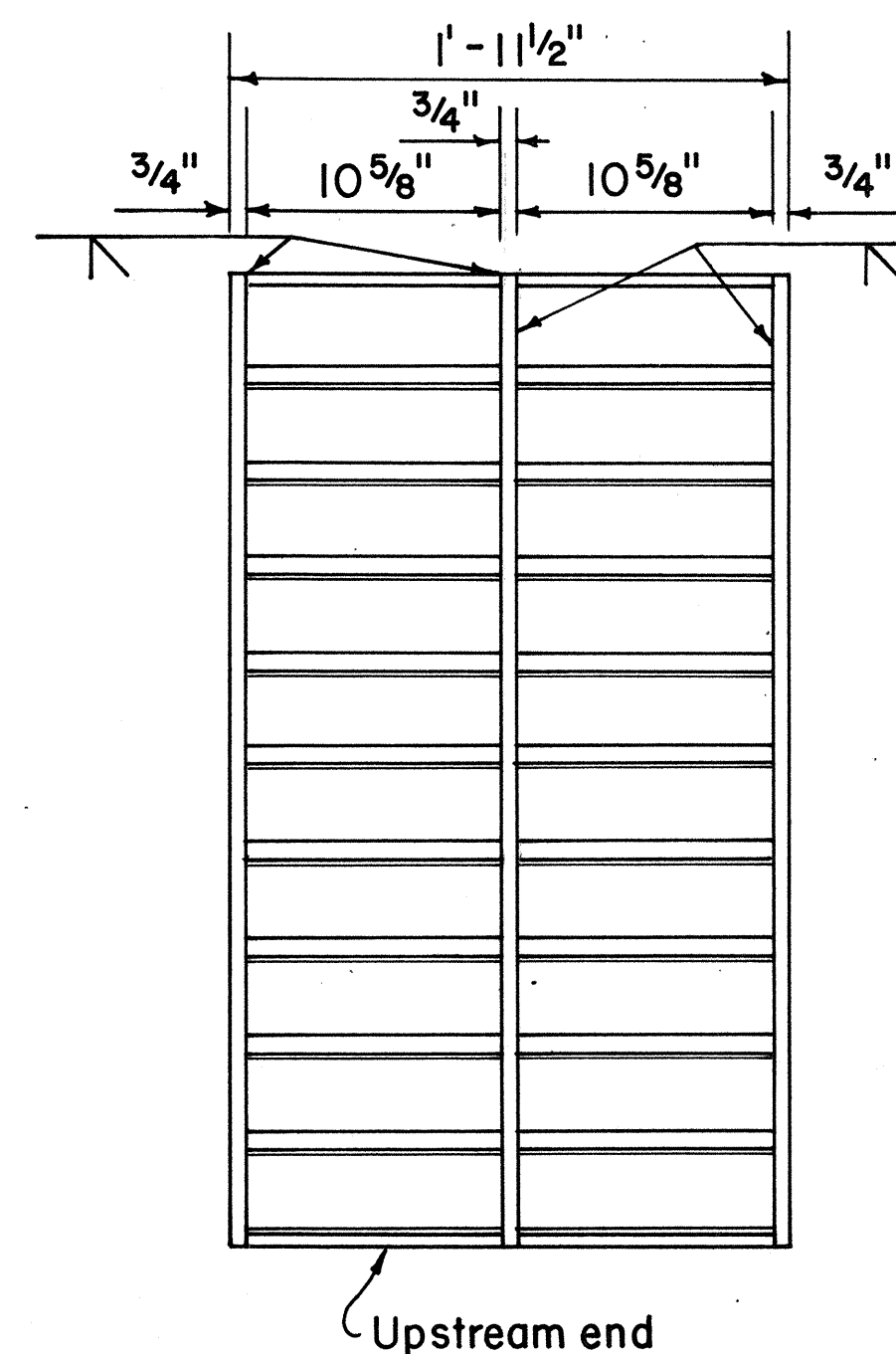
PLAN - FRAME



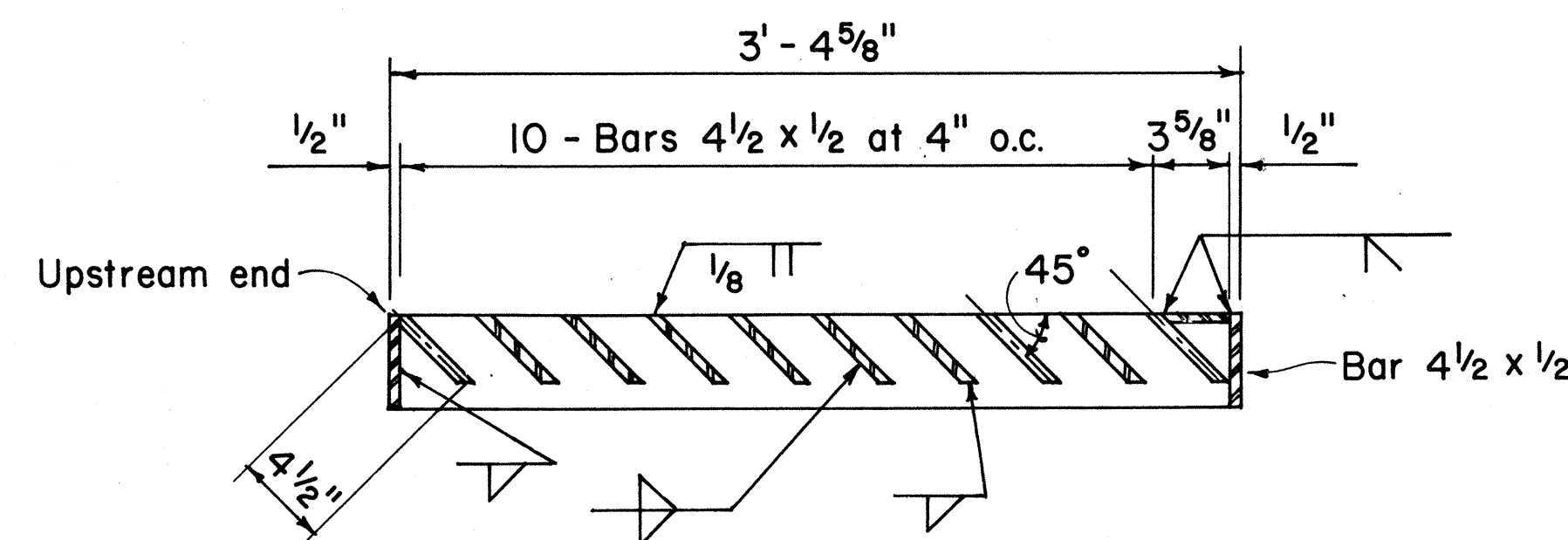
CROSS SECTION



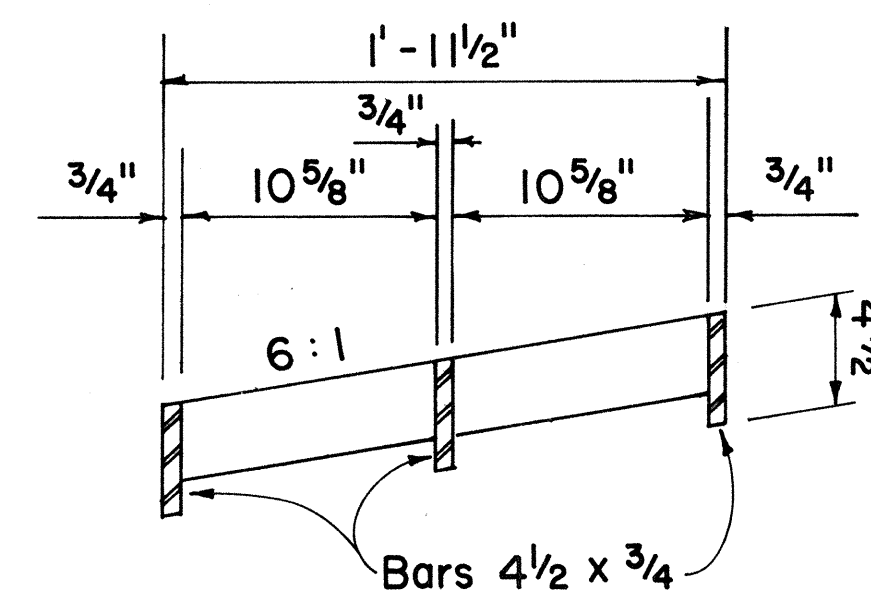
DETAIL C



PLAN - GRATE



LONGITUDINAL SECTION



CROSS SECTION

61614B FRAME AND GRATES

APPROVAL RECOMMENDED:
 HYDRAULIC DESIGN ENGINEER
 APPROVED:
 ASSISTANT CHIEF, ENGINEERING

2/4/83
 DATE

2-4-83
 DATE

NO.	REVISION	APPROVED BY	DATE
1.	Note added to denote alignment of grate.	[Signature]	7-25-84

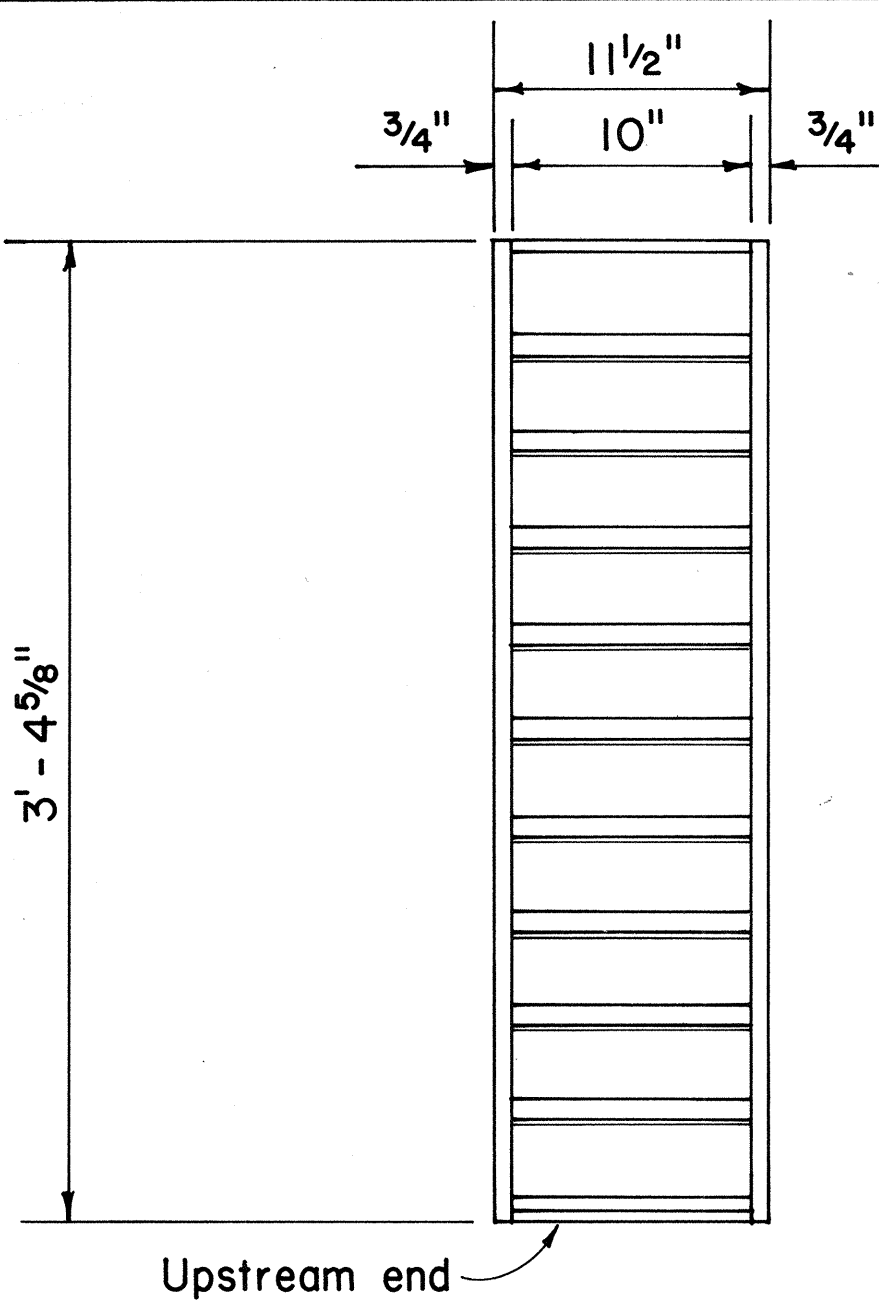
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
61614B STEEL FRAME AND GRATES
Not To Scale Date: Feb. 1983

SHEET NO. 60 OF 7 SHEETS DH 88

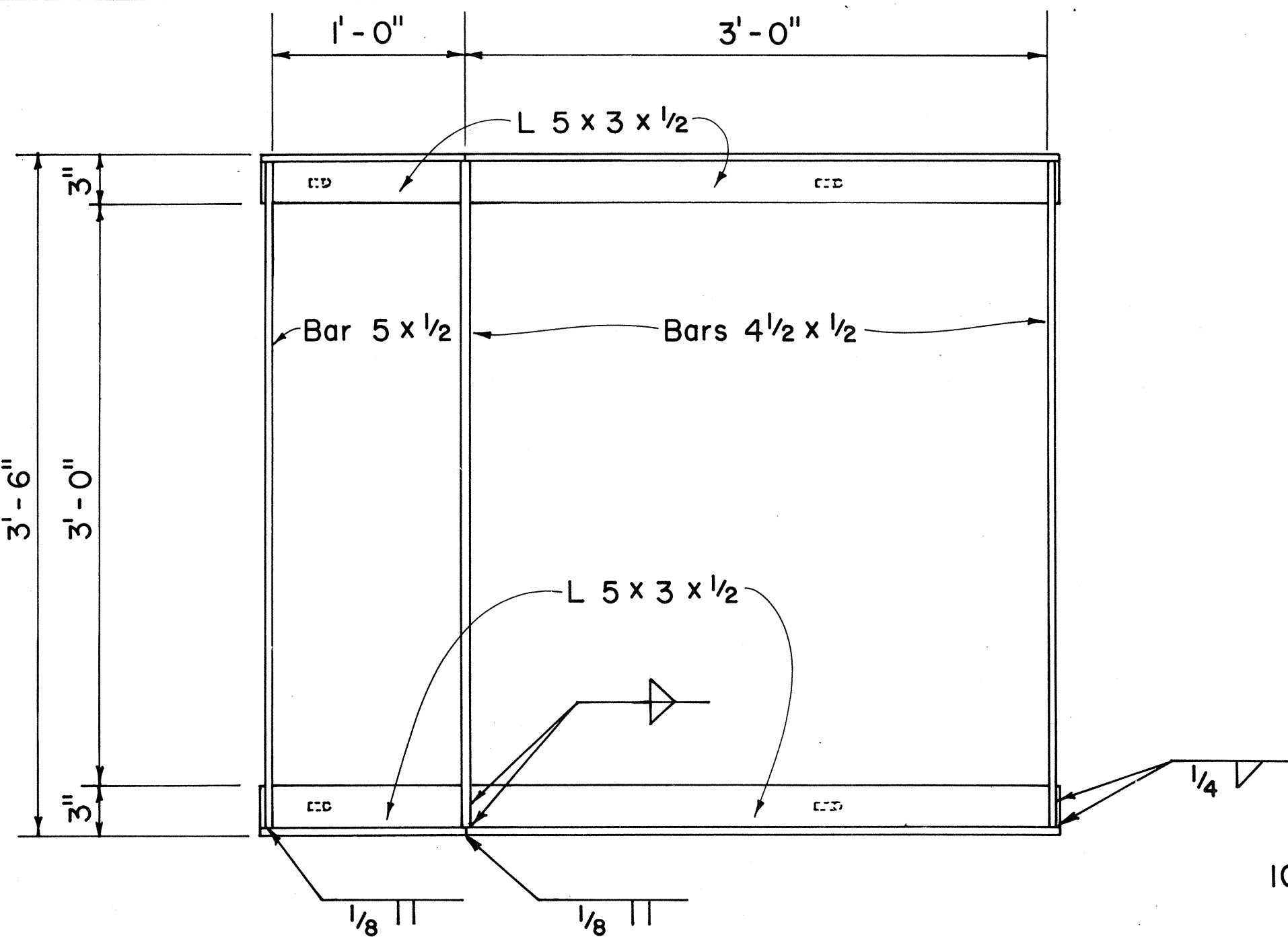
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2(17)	1986	ADD-61 S-1	142

GENERAL NOTES

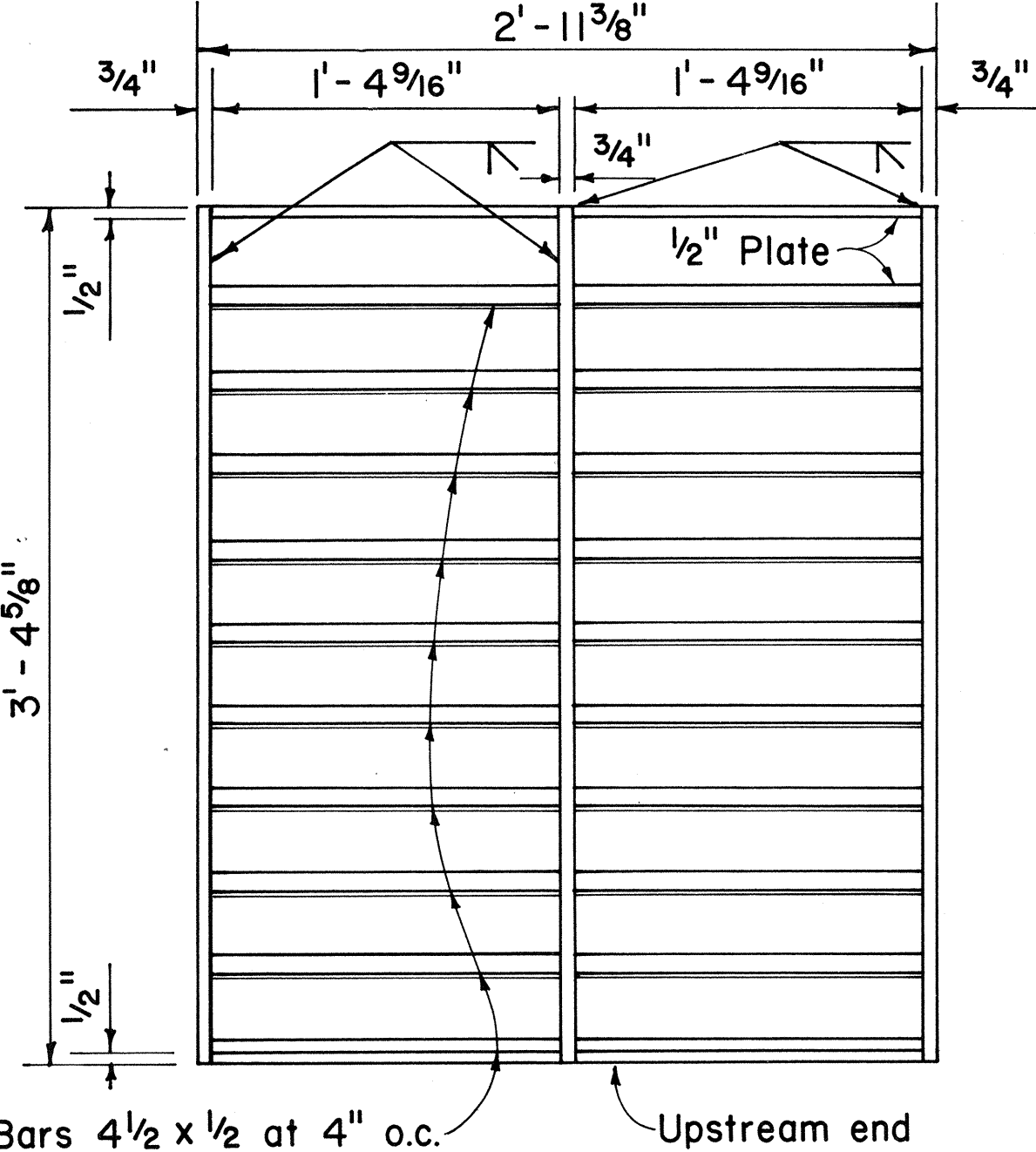
1. All welds 5/16" unless otherwise noted.
2. Grates and Frames shall be hot dip galvanized after fabrication.
3. Use in locations off the road bed on all types of highway. (Bicycle Grates)



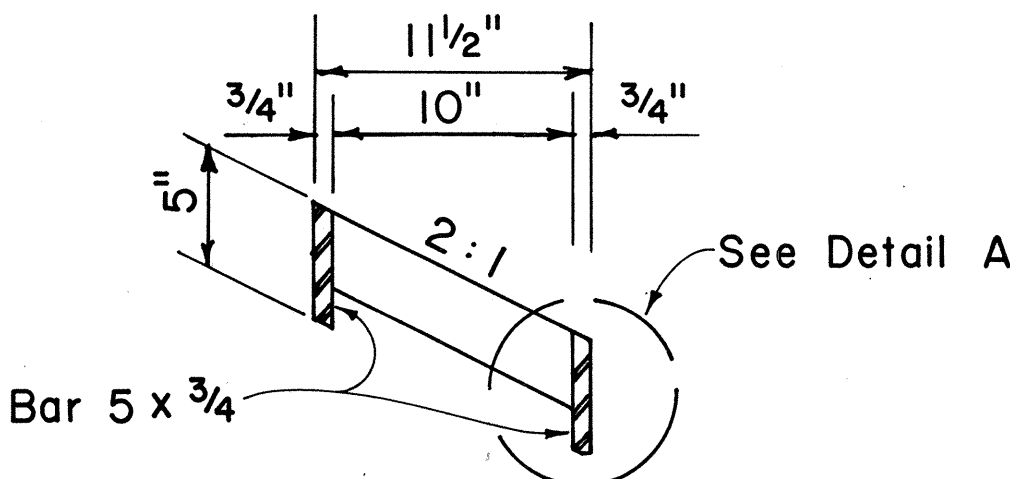
PLAN - GRATE



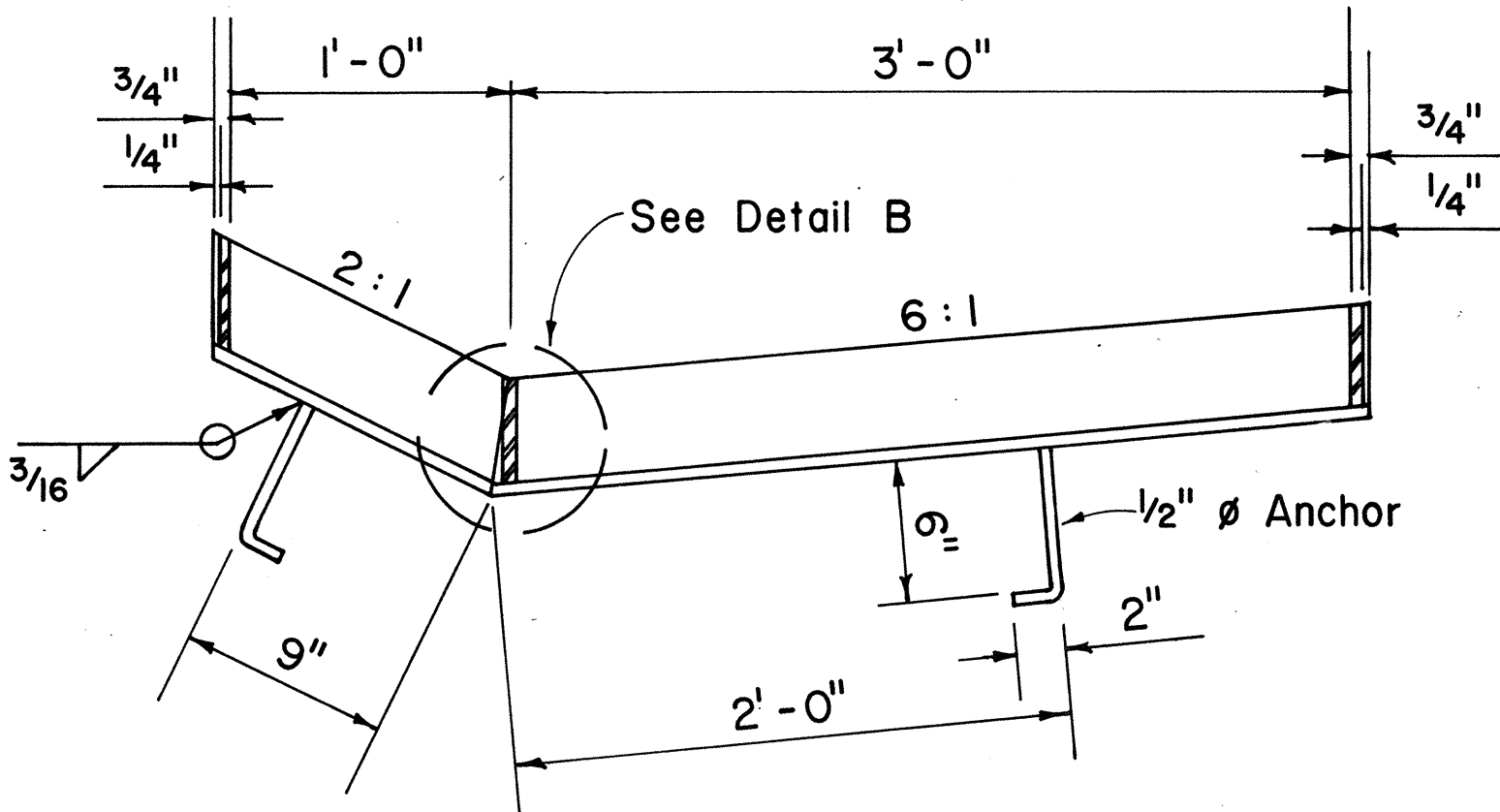
PLAN - FRAME



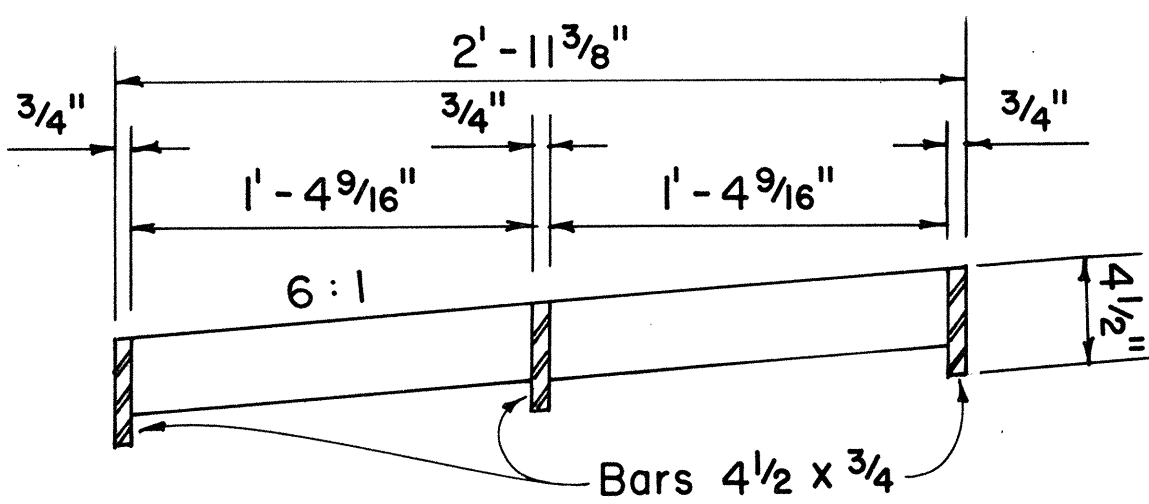
PLAN - GRATE



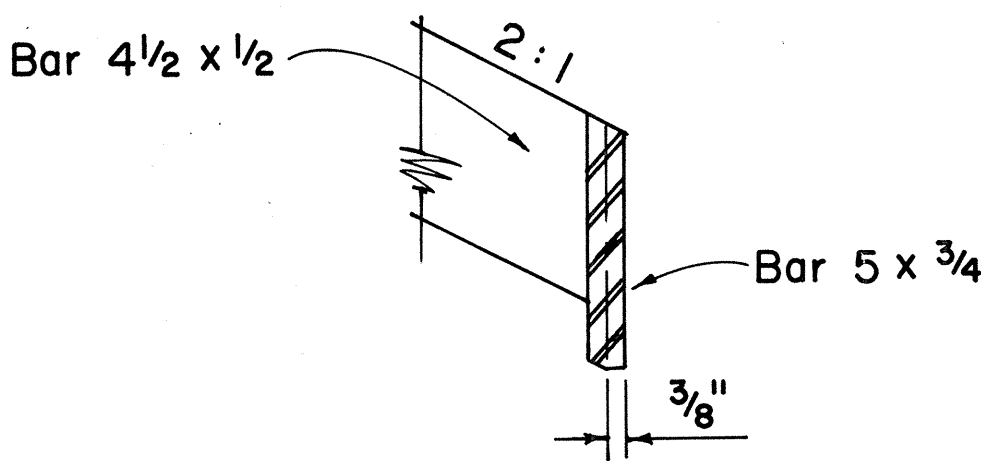
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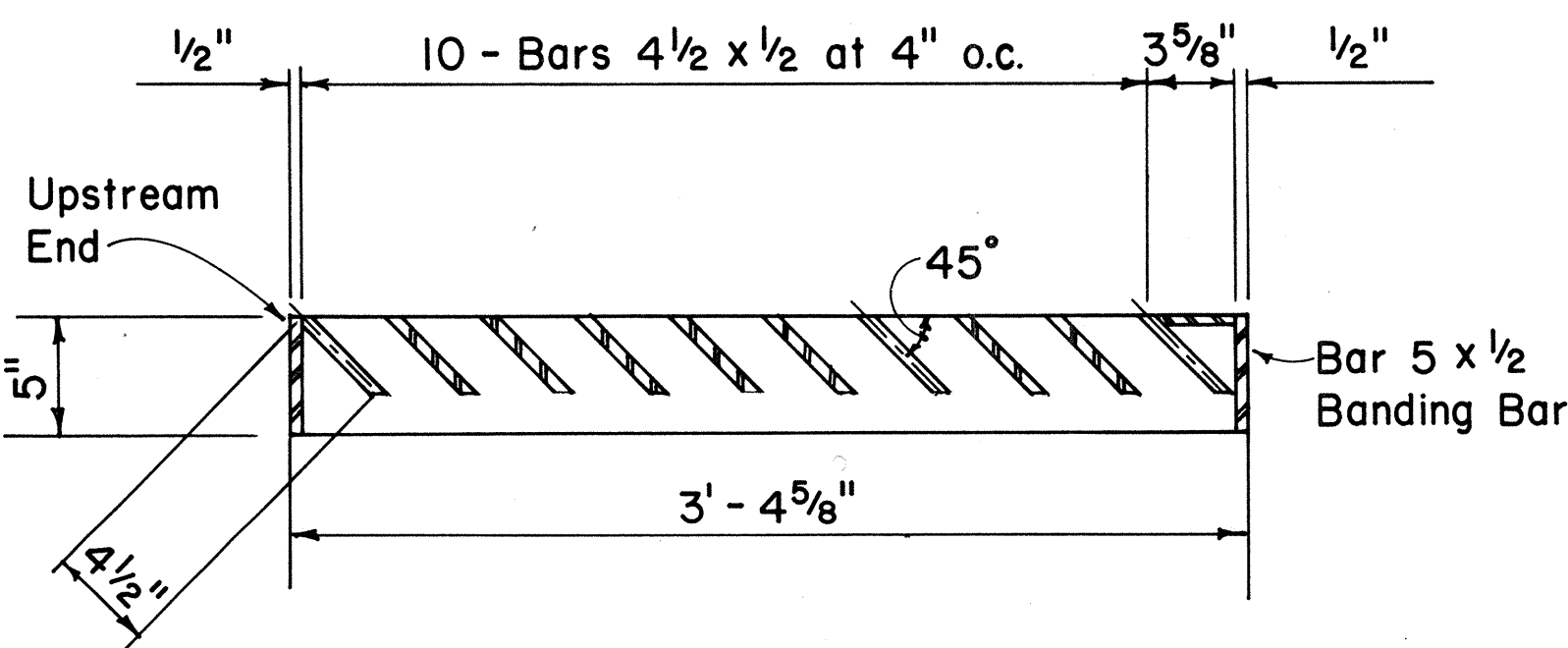
LONGITUDINAL SECTION



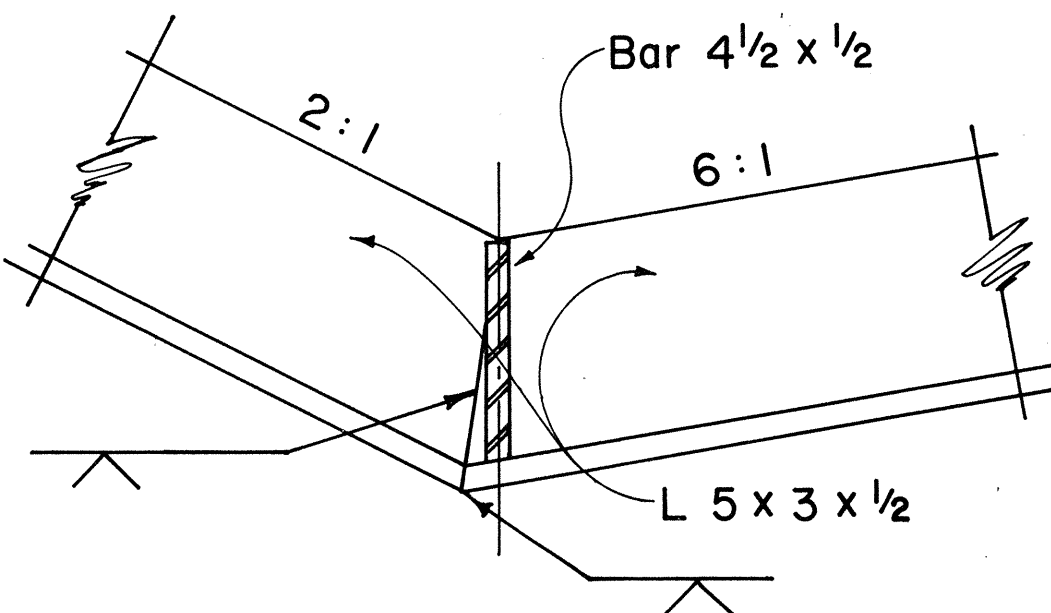
CROSS SECTION



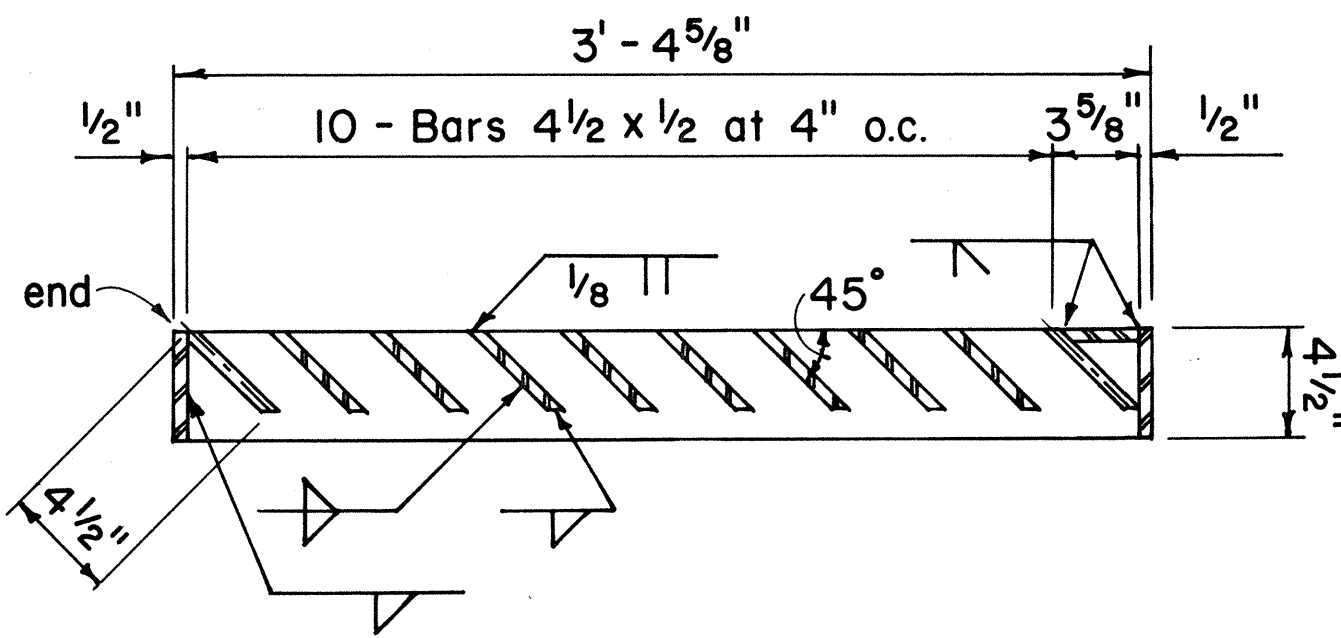
DETAIL A



LONGITUDINAL SECTION



DETAIL B



LONGITUDINAL SECTION

APPROVAL RECOMMENDED: *[Signature]* 2/4/83
HYDRAULIC DESIGN ENGINEER DATE

APPROVED: *[Signature]* 2-4-83
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS
61214B
STEEL FRAME AND GRATES
Not To Scale Date: Feb. 1983

SHEET No. H6A OF 7 SHEETS DH 14

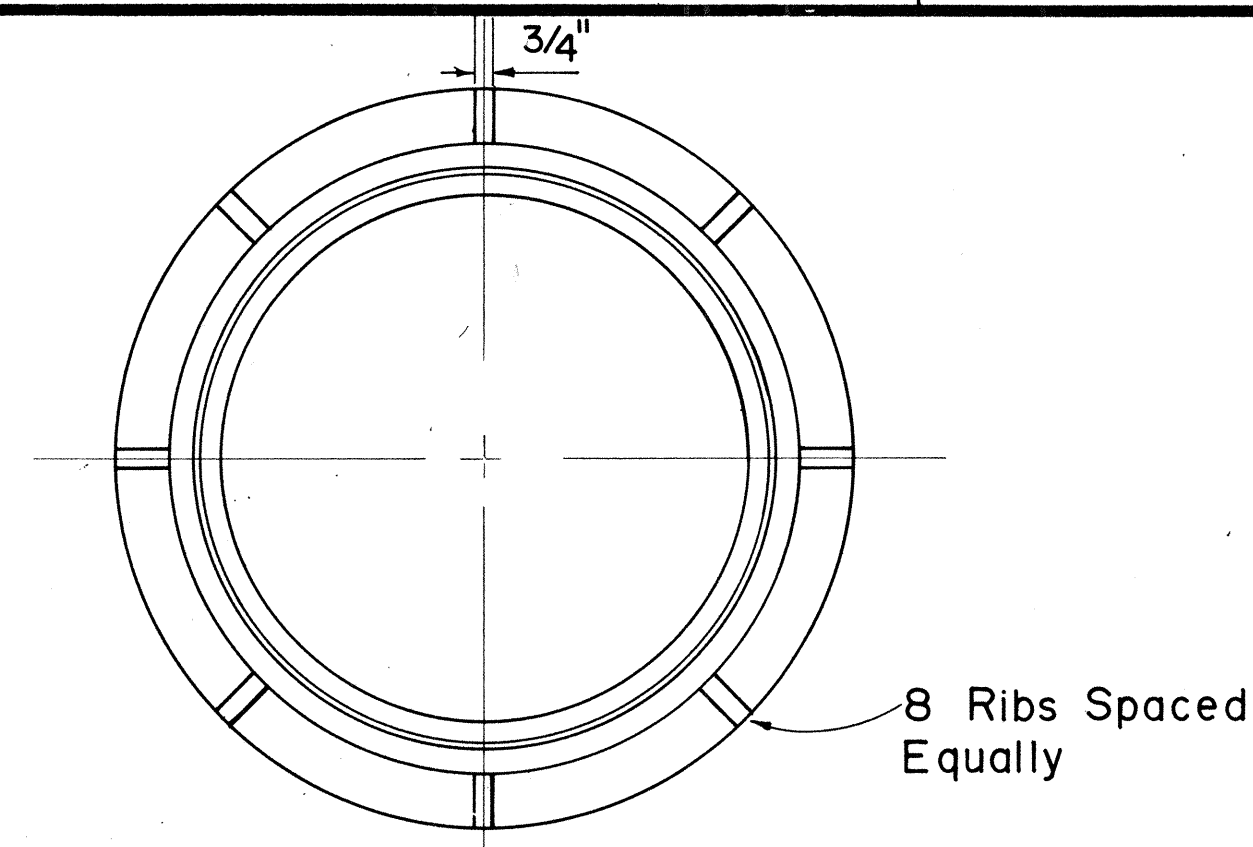
11/20/85 Sheet added to Contract Plan set for additional details required per Addendum No.1.

DATE	REVISION

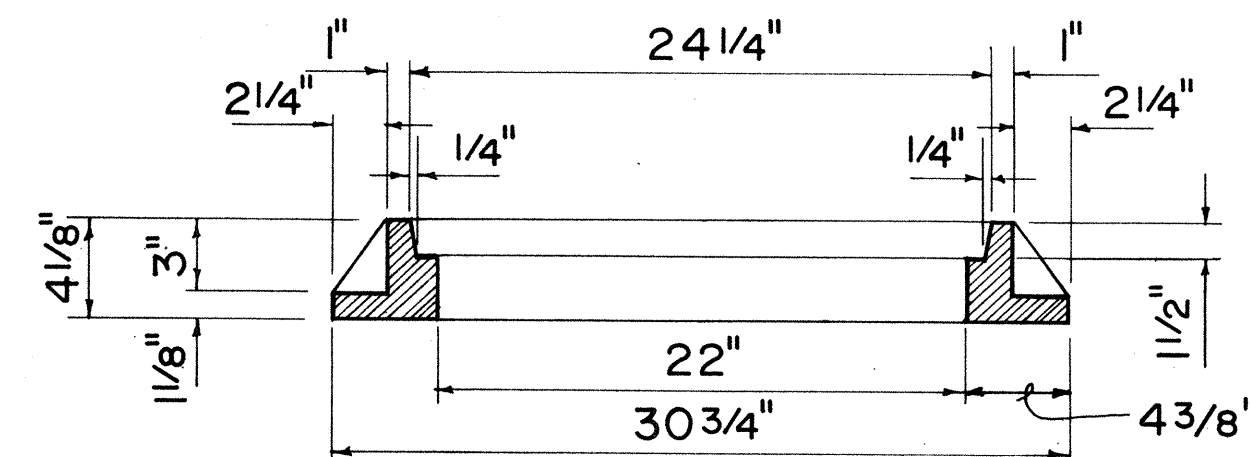
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	

61214B FRAME AND GRATES

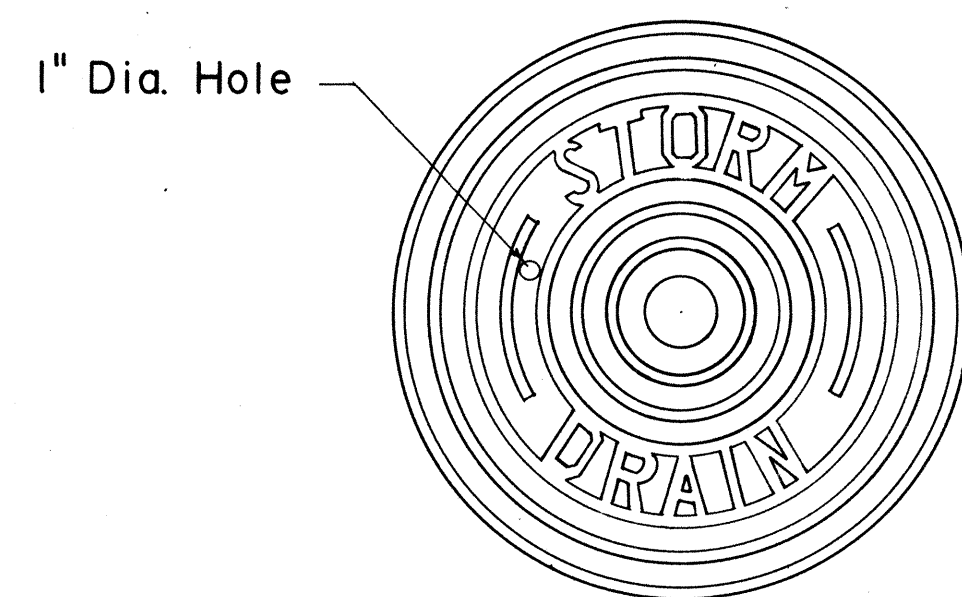
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-011-2017	1986	62	142



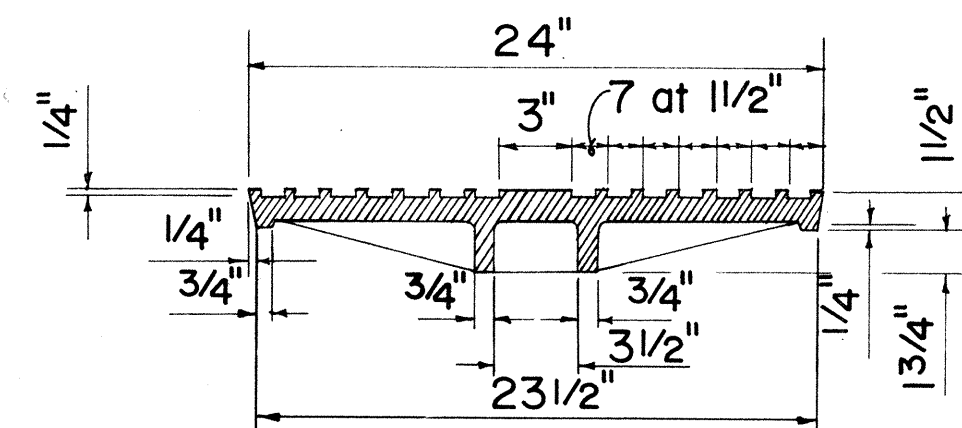
PLAN OF FRAME



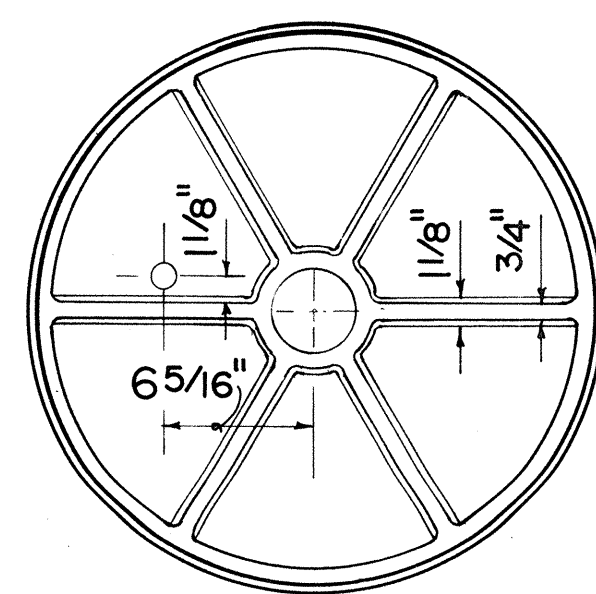
SECTION OF FRAME



TOP VIEW OF COVER

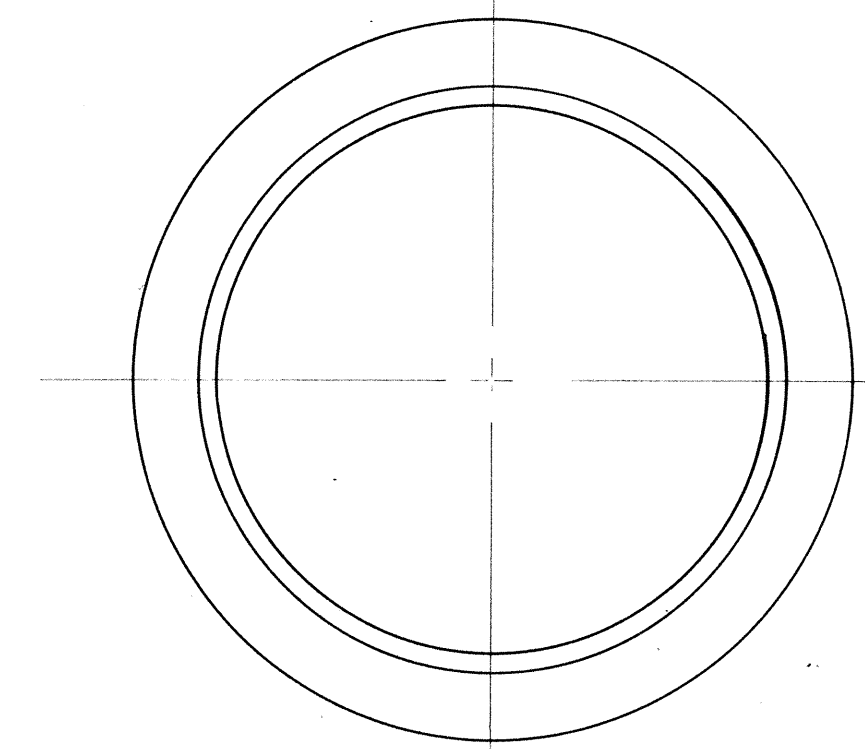


SECTION

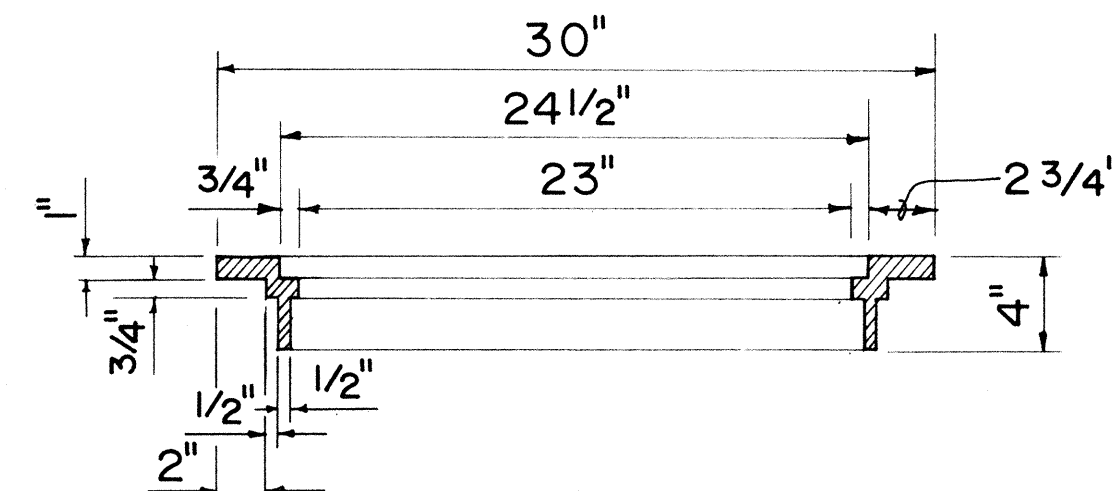


BOTTOM VIEW OF COVER

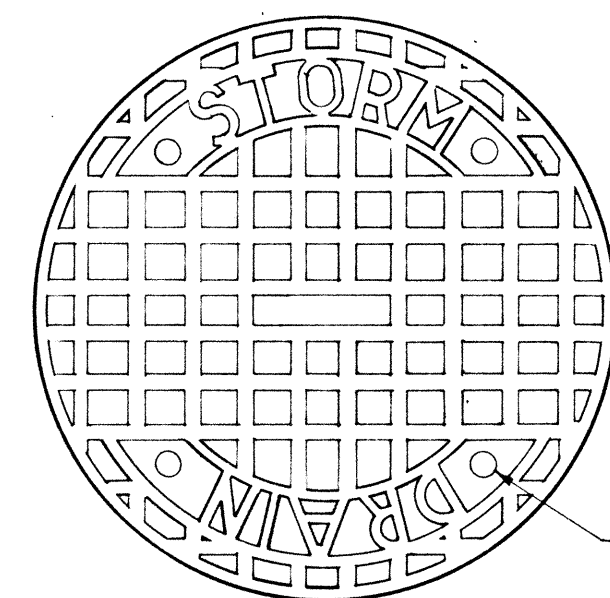
TYPE "P" CAST IRON
FRAME AND COVER



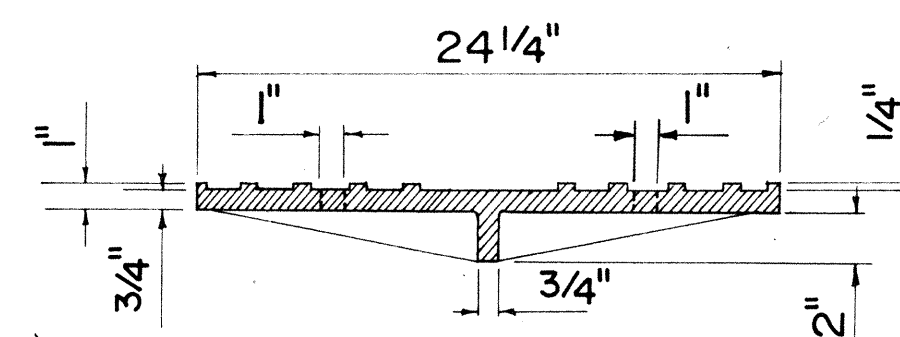
PLAN OF FRAME



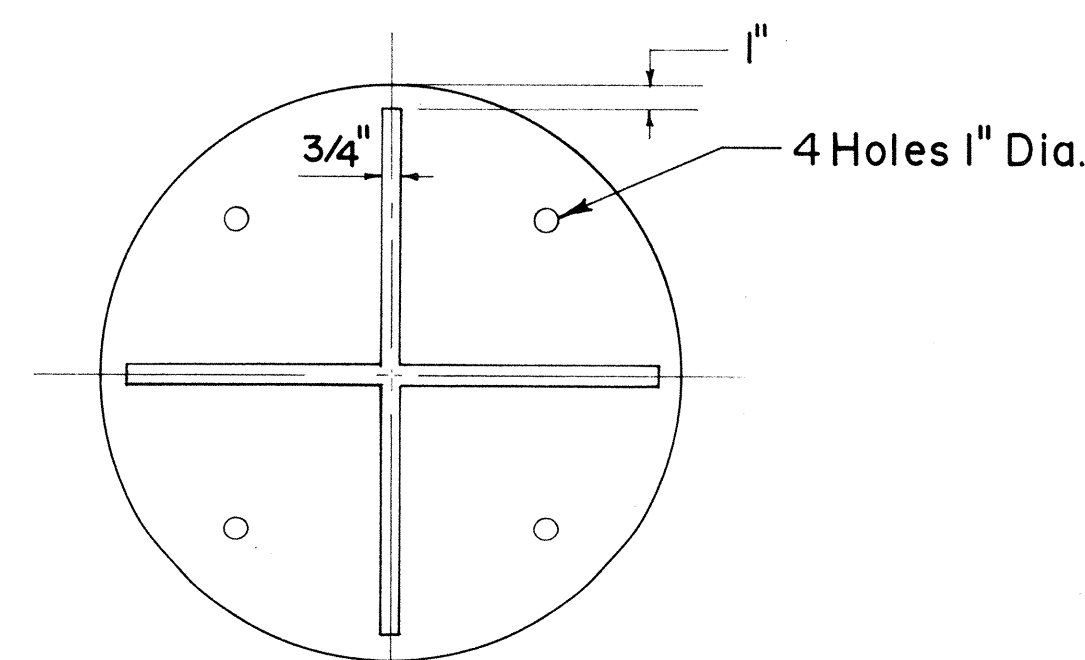
SECTION OF FRAME



TOP VIEW OF COVER

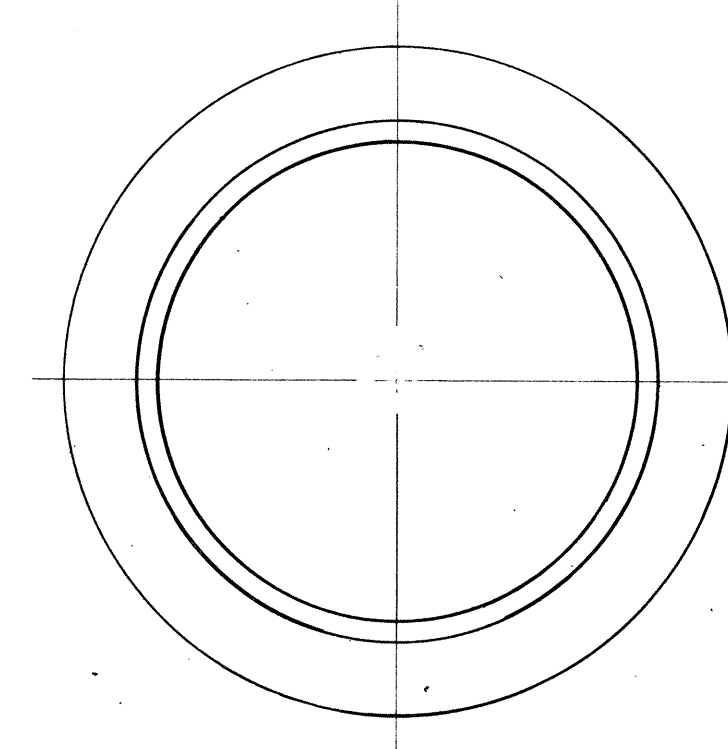


SECTION

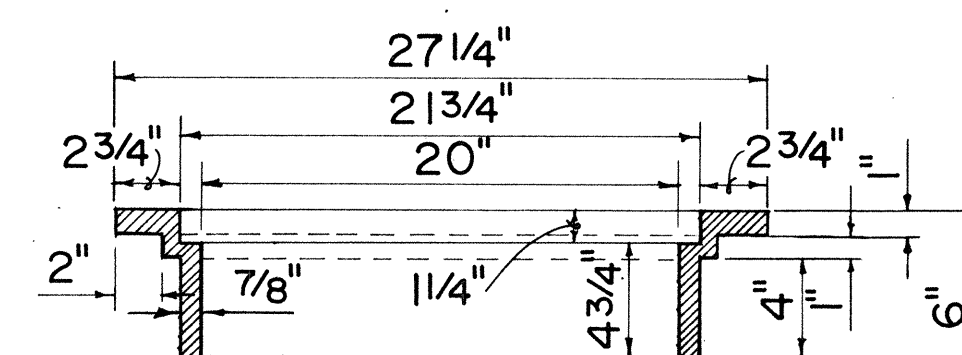


BOTTOM VIEW OF COVER

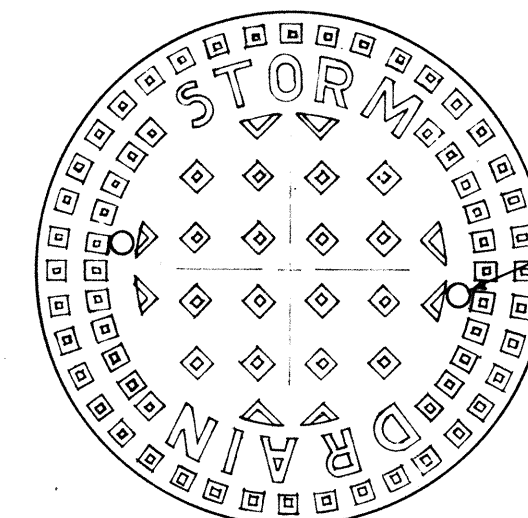
TYPE "B" CAST IRON
FRAME AND COVER



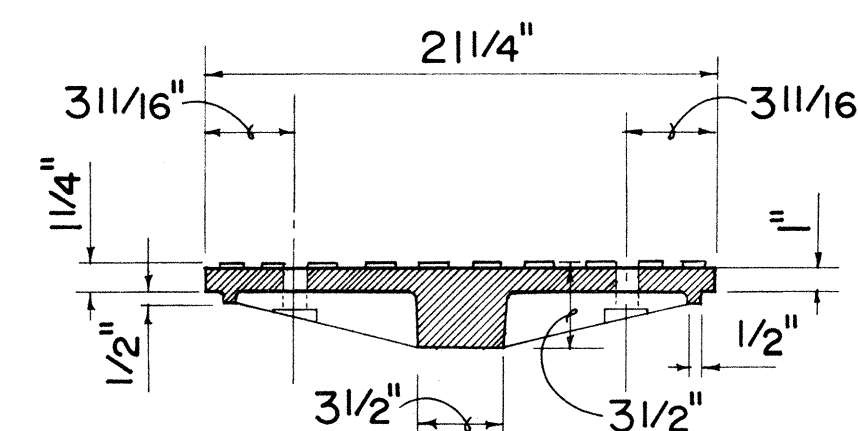
PLAN OF FRAME



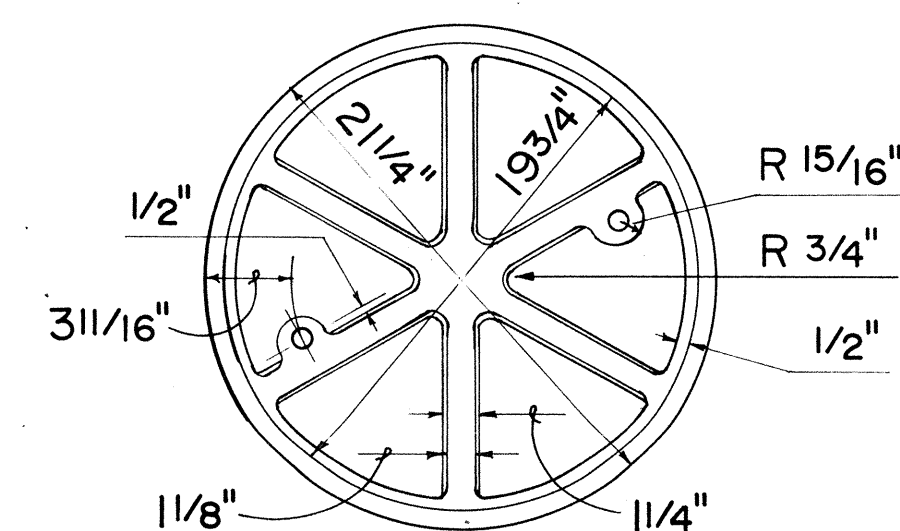
SECTION OF FRAME



TOP VIEW OF COVER

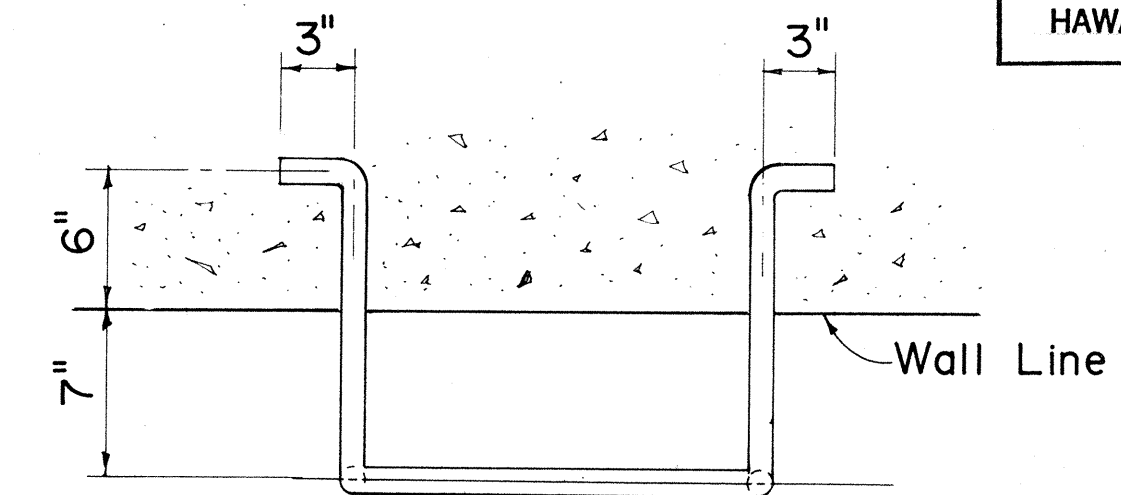


SECTION

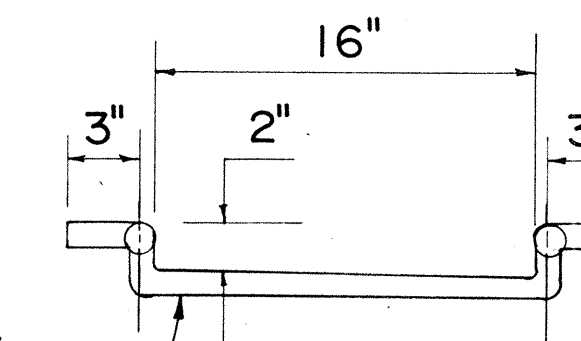


BOTTOM VIEW OF COVER

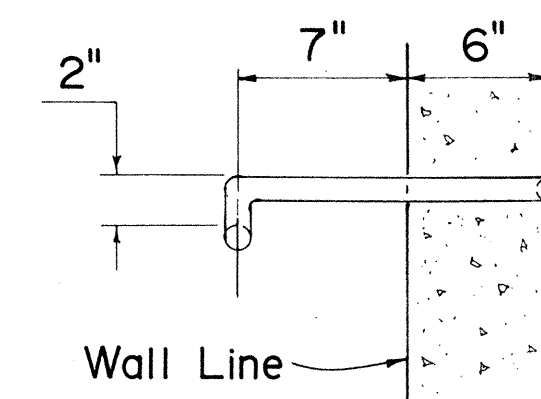
TYPE "A" CAST IRON
FRAME AND COVER



PLAN



FRONT VIEW



SIDE VIEW

MANHOLE RUNG

APPROVAL RECOMMENDED:
T. Takano
HYDRAULIC DESIGN ENGINEER 6-19-79 DATE

APPROVED:
Robert Zafish
ASSISTANT CHIEF, ENGINEERING 6-22-79 DATE

NO.	REVISION	APPROVED BY	DATE
1.	Supersedes Sht. DH 6 approved 12-17-69	H.F.	6/22/79

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS CATCH BASIN AND MANHOLE CASTINGS
Not To Scale Date: Dec. 1977

SHEET NO. 47 OF 7 SHEETS DH 6

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	