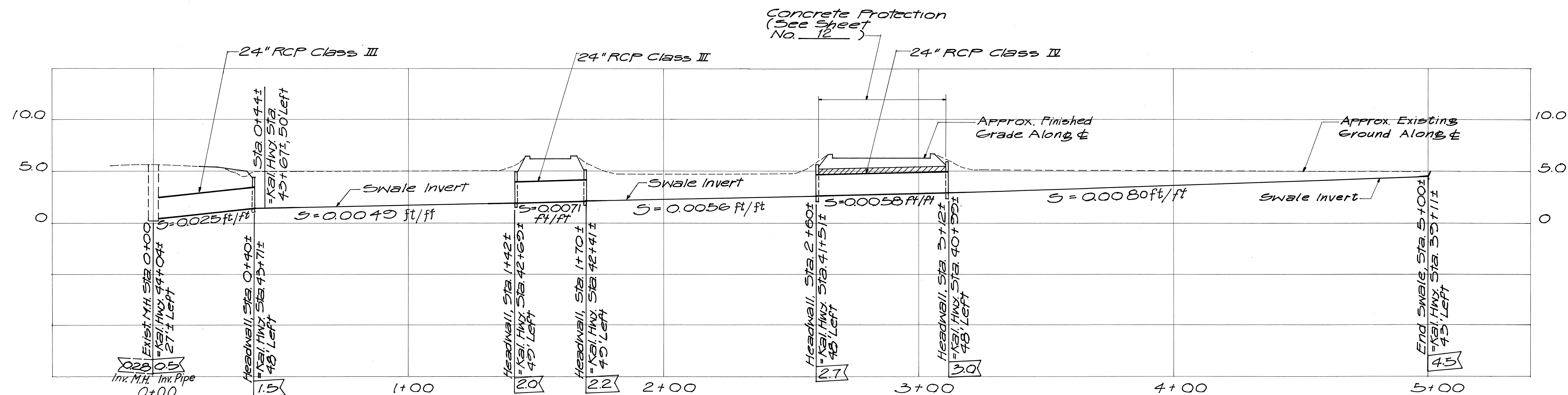
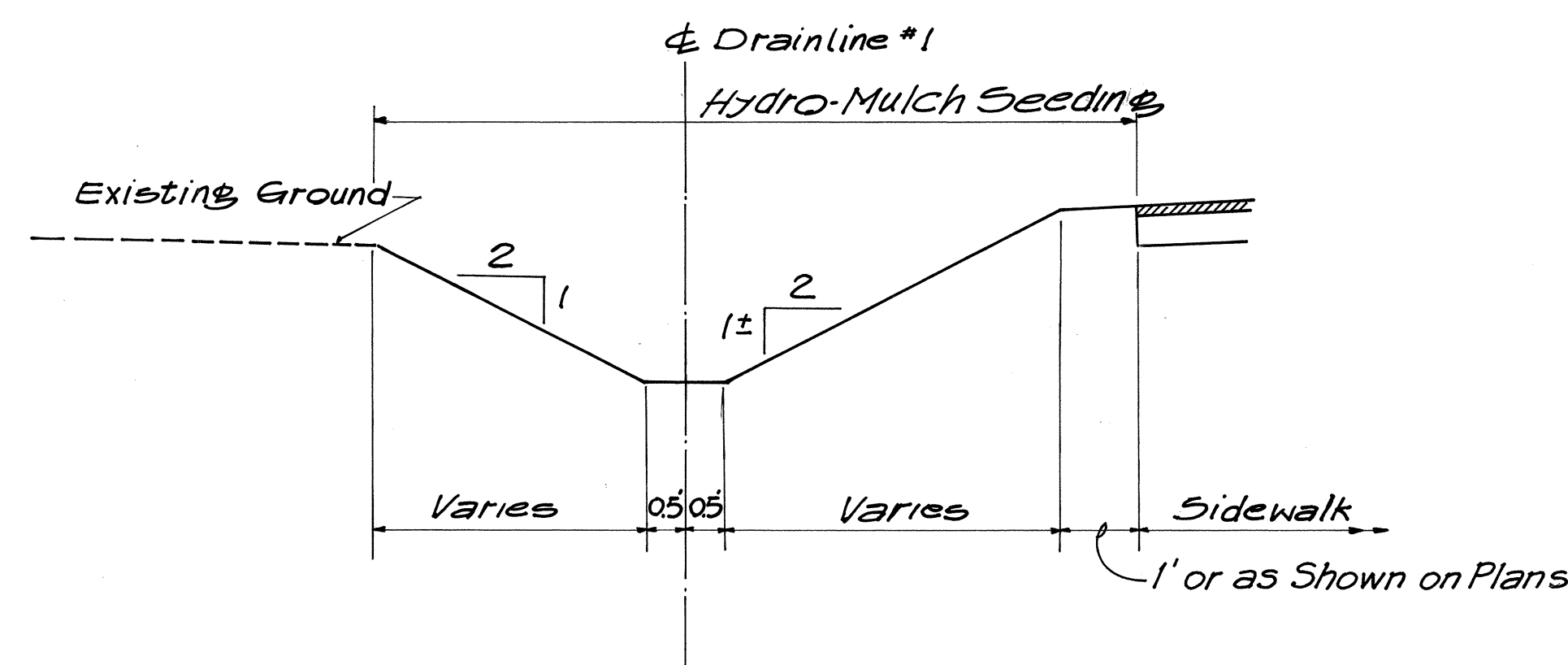


DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-01-74	1973	6	28



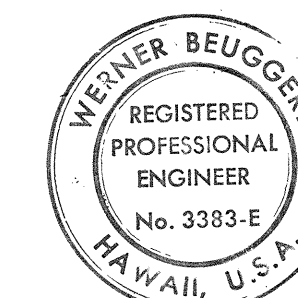
PROFILE- DRAINLINE #1

Scales: Horiz. 1" = 20'
Vert. 1" = 5'



DETAIL OF SWALE FOR DRAINLINE #1

Scale: 1" = 2'



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION.

Werner Beuggert

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

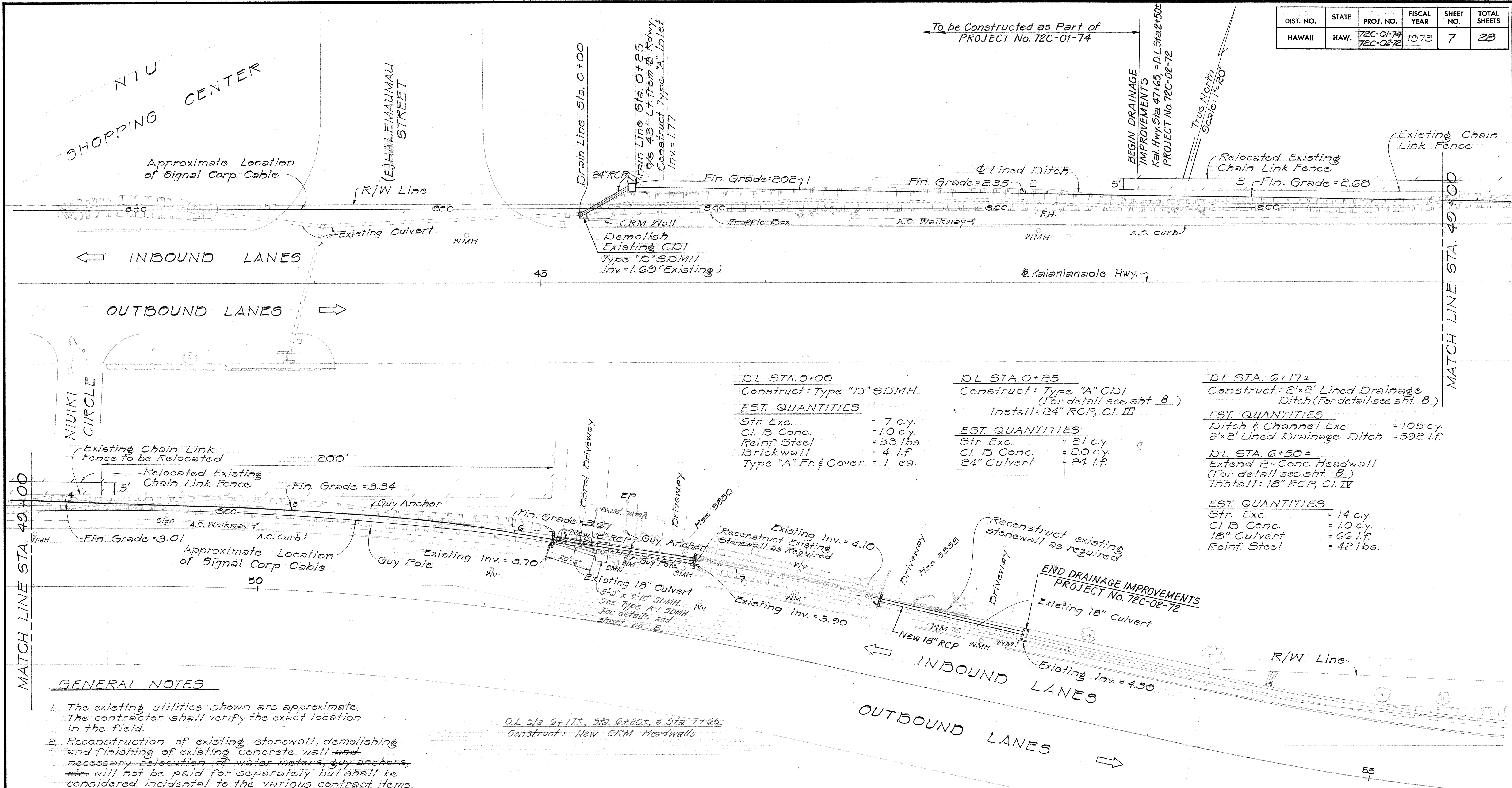
DRAINAGE PROFILE & MISC. DETAILS

KALANIANA'OLE HIGHWAY
Intersection Improvements At (E.) Halemaumau St.
Proj. No. 72C-01-74

Scale: As Shown Oct. 1973

SHEET No. 1 OF 7 SHEETS

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-01-74 72C-02-72	1973	7	28



DL STA. 0+00
Construct: Type "D" SDMH
EST. QUANTITIES
Str. Exc. = 7 c.y.
Cl. B Conc. = 1.0 c.y.
Reinf. Steel = 33 lbs.
Brickwall = 4 l.f.
Type "A" Fr & Cover = 1 ea.

DL STA. 0+25
Construct: Type "A" C/D
(For detail see sht. 8)
Install: 24" RCP, Cl. III
EST. QUANTITIES
Str. Exc. = 21 c.y.
Cl. B Conc. = 2.0 c.y.
24" Culvert = 24 l.f.

DL STA. 6+17±
Construct: 2'x2' Lined Drainage
Ditch (For detail see sht. 8)
EST. QUANTITIES
Ditch & Channel Exc. = 105 c.y.
2'x2' Lined Drainage Ditch = 592 l.f.

DL STA. 6+50±
Extend 2'-Conc. Headwall
(For detail see sht. 8)
Install: 18" RCP, Cl. IV

EST. QUANTITIES
Str. Exc. = 14 c.y.
Cl. B Conc. = 1.0 c.y.
18" Culvert = 66 l.f.
Reinf. Steel = 42 lbs.

D.L. Sta. 6+17±, Sta. 6+80±, & Sta. 7+65±
Construct: New CRM Headwalls

DL STA. 7+65±
Construct: Lined Drainage Ditch
(For details see sht. 8 & x-sections)

EST. QUANTITIES
Ditch & Channel Exc.
(Quantities combined with DL Sta. 6+17±)
2'x2' Lined Drainage Ditch = 84 l.f.

DL STA. 8+00±
Construct: Type "B" Inlet
(For detail see sht. 8)
Extend 1'-Conc. Headwall
Install: 18" RCP, Cl. IV

EST. QUANTITIES
Str. Exc. = 14 c.y.
Cl. B Conc. = 2.0 c.y.
18" Culvert = 66 l.f.
Reinf. Steel = 21 lbs.

GENERAL NOTES

- The existing utilities shown are approximate. The contractor shall verify the exact location in the field.
- Reconstruction of existing stonewall, demolishing and finishing of existing concrete wall and necessary relocation of water meters, guy anchors, etc. will not be paid for separately but shall be considered incidental to the various contract items.
- Relocation of existing fence shall be paid for under item 607.640 "RELOCATION OF EXISTING CHAINLINK FENCE" complete in place.
- All existing culverts that are to remain shall be cleaned by the Contractor and this work shall be considered incidental to the various contract items.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

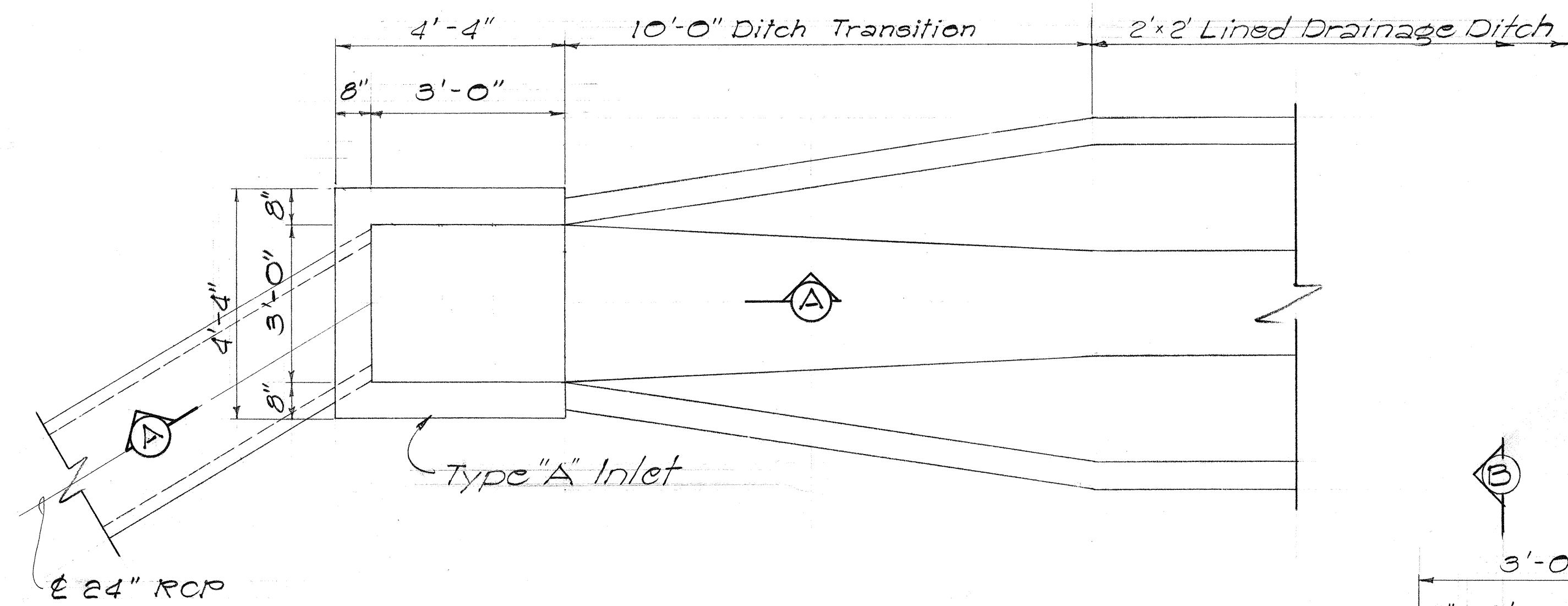
PLAN - DRAINLINE NO. 2
DRAINAGE IMPROV. ON KAL HWY.
(HALEMAUMAU ST TO PAIKO DR.)
PROJ. NO. 72C-01-74
PROJ. NO. 72C-02-72

Scale: As Shown Date: Sept. 1973

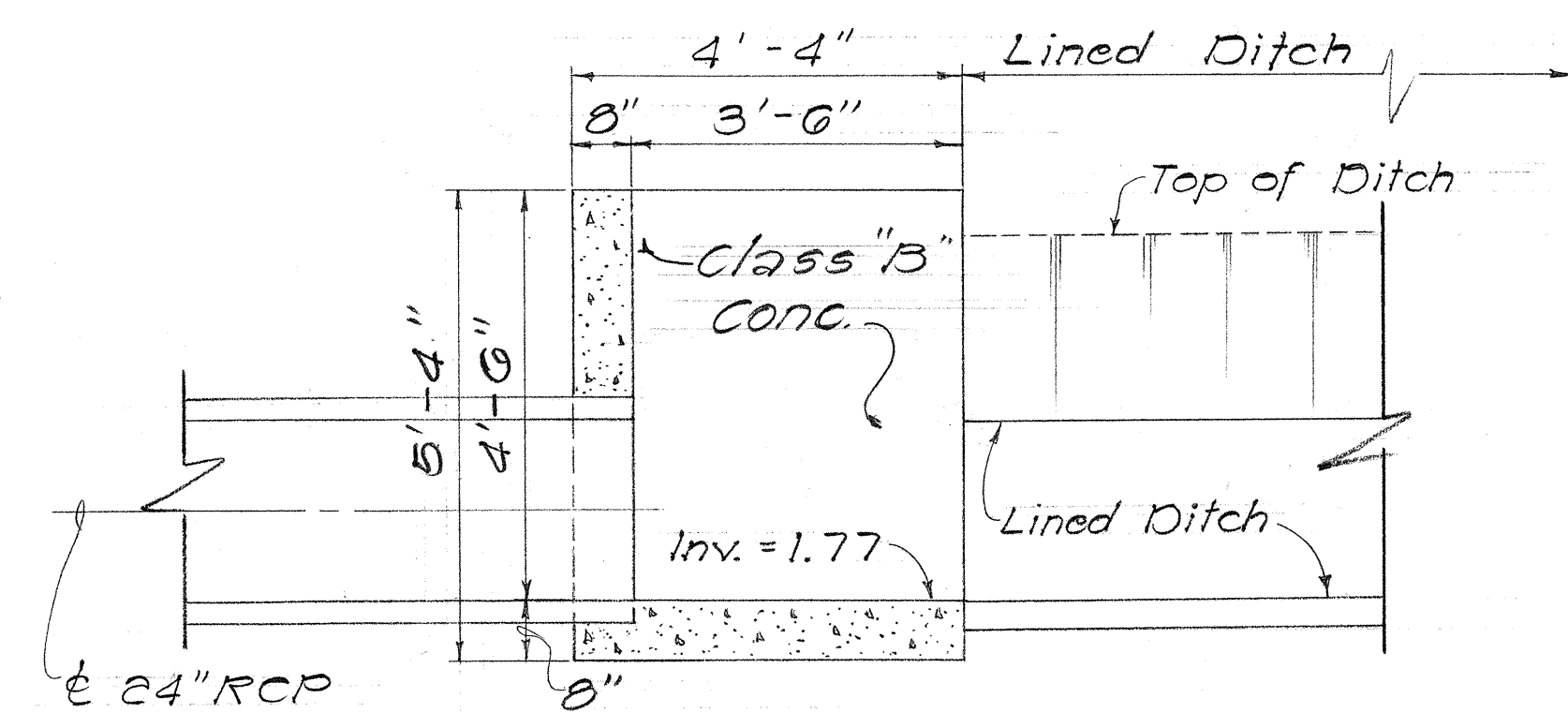
SHEET No. 2 OF 7 SHEETS

DATE	
SURVEY PLOTTED BY	
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-01-74 72C-02-72	1973	8	28



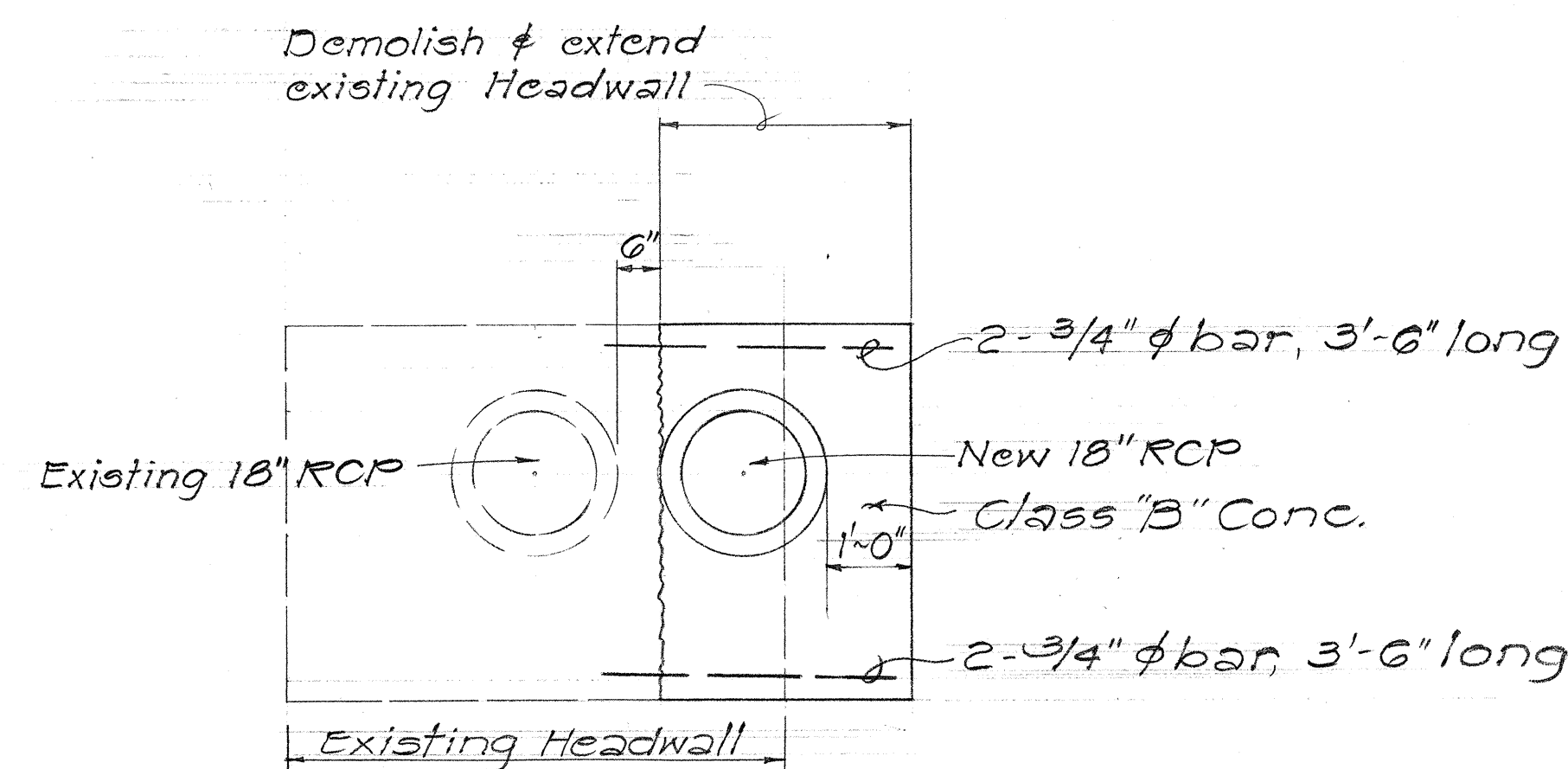
PLAN



SECTION "A-A"

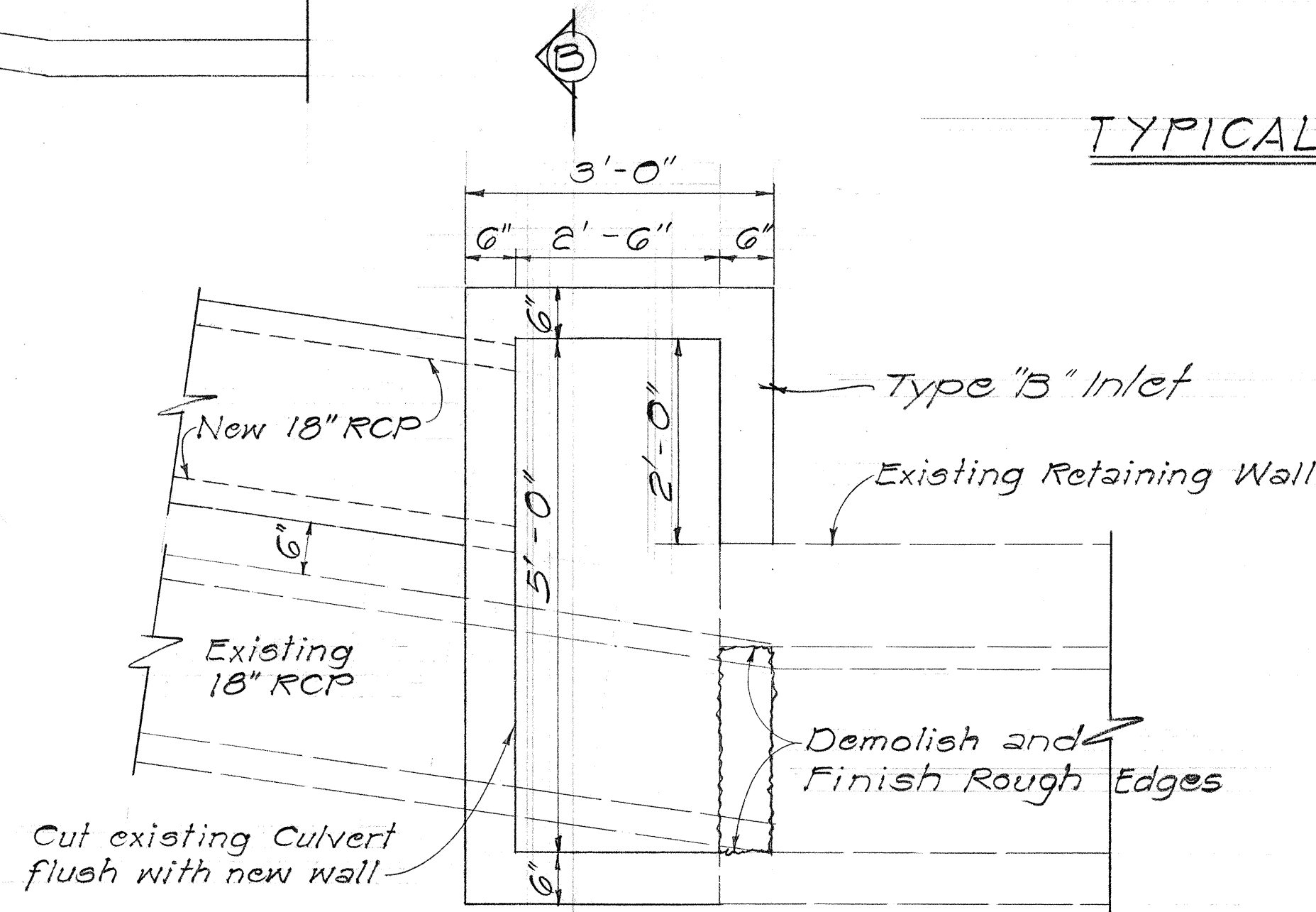
DETAIL OF TYPE "A" INLET

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

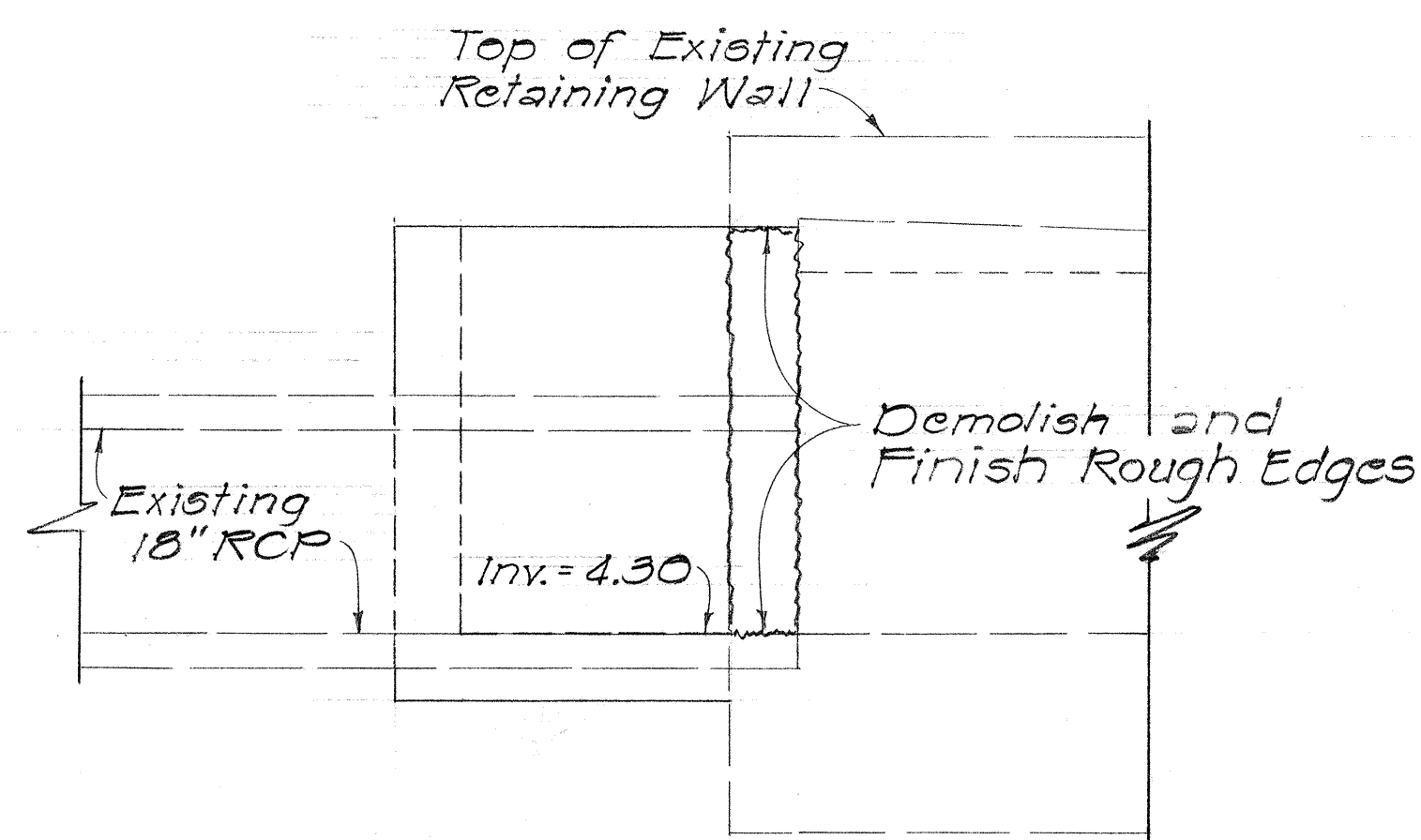


DETAIL OF EXISTING HEADWALL EXTENSION

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



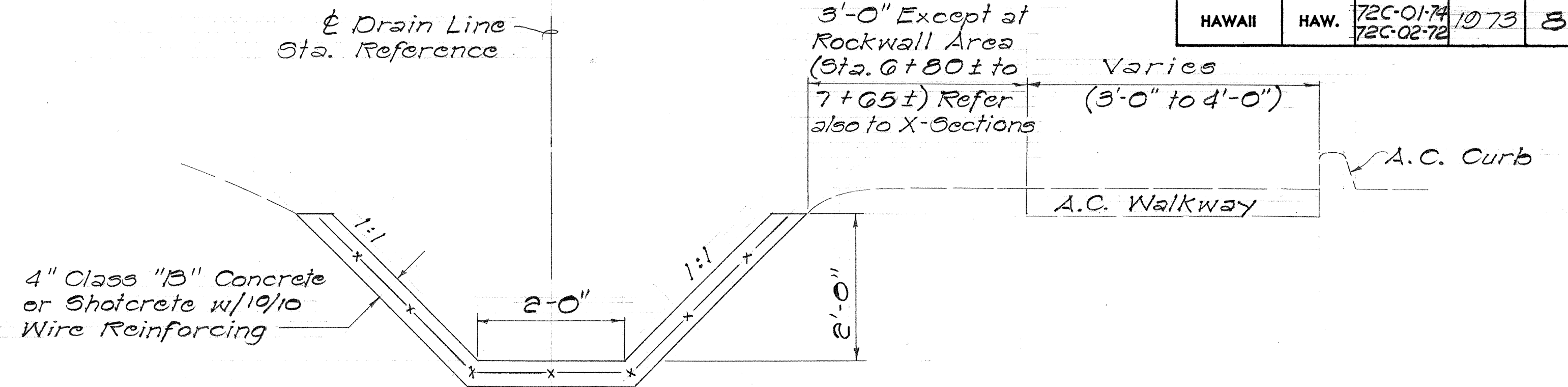
PLAN



ELEVATION

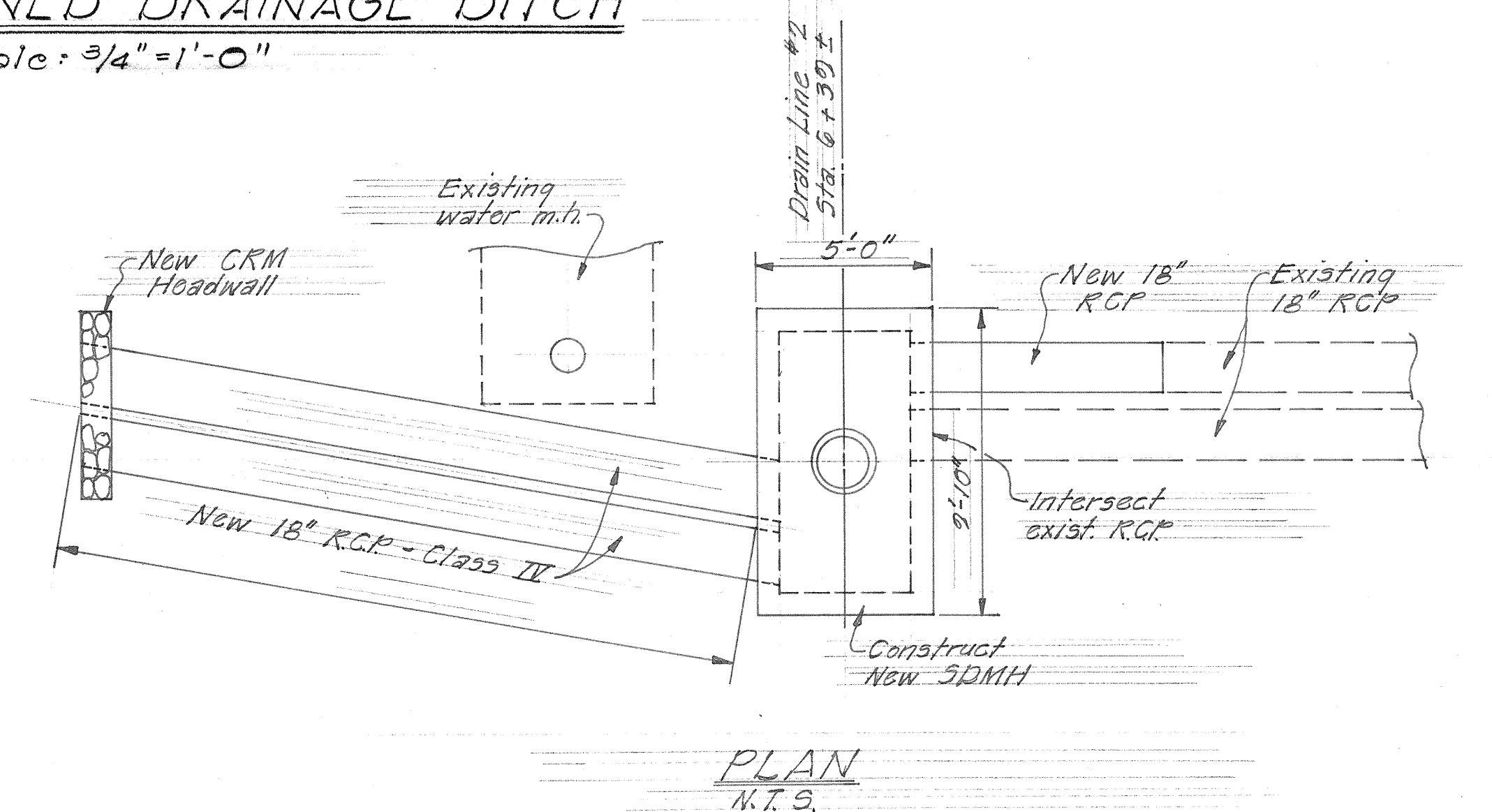
DETAIL OF TYPE "B" INLET

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



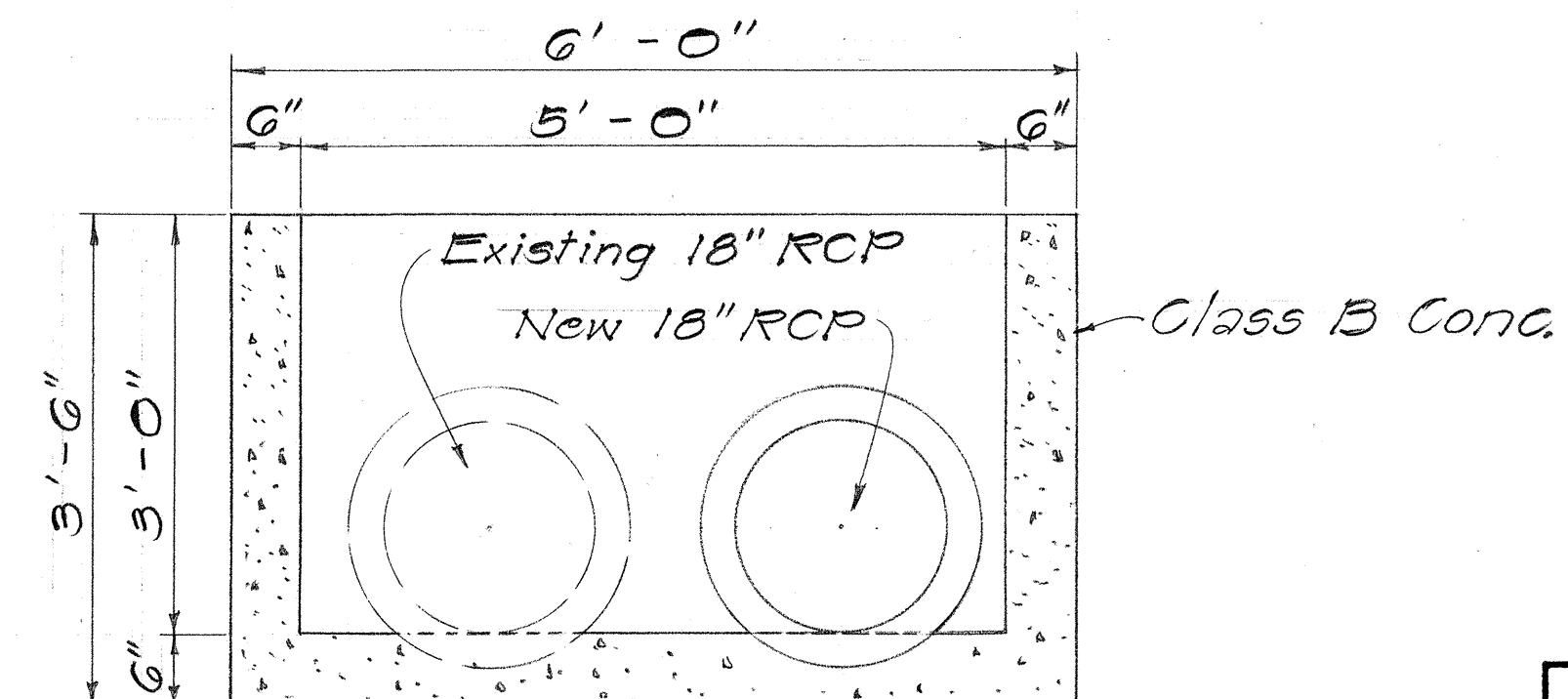
TYPICAL 2'x2' LINED DRAINAGE DITCH

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



PLAN

N.T.S.



SECTION "B-B"

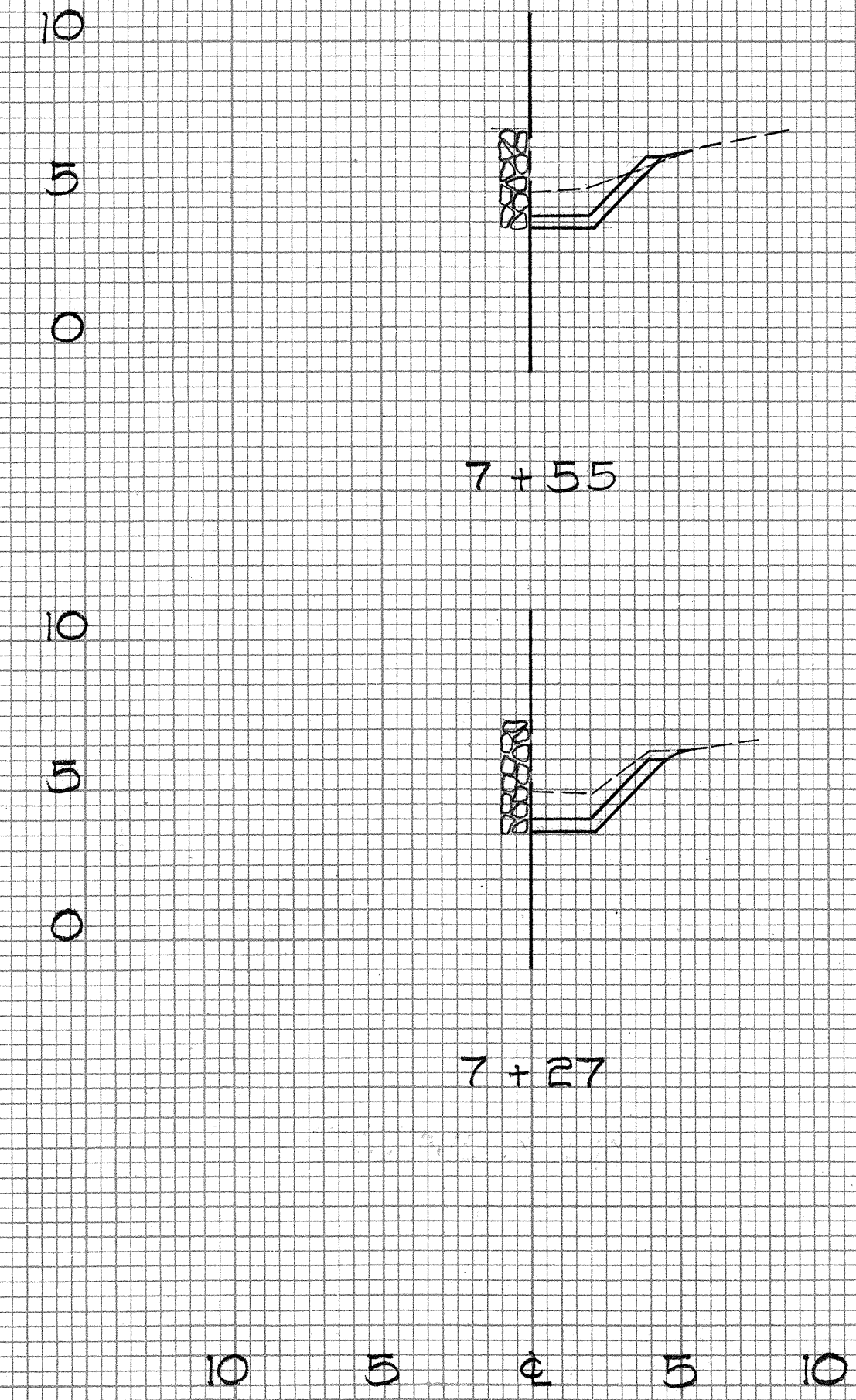
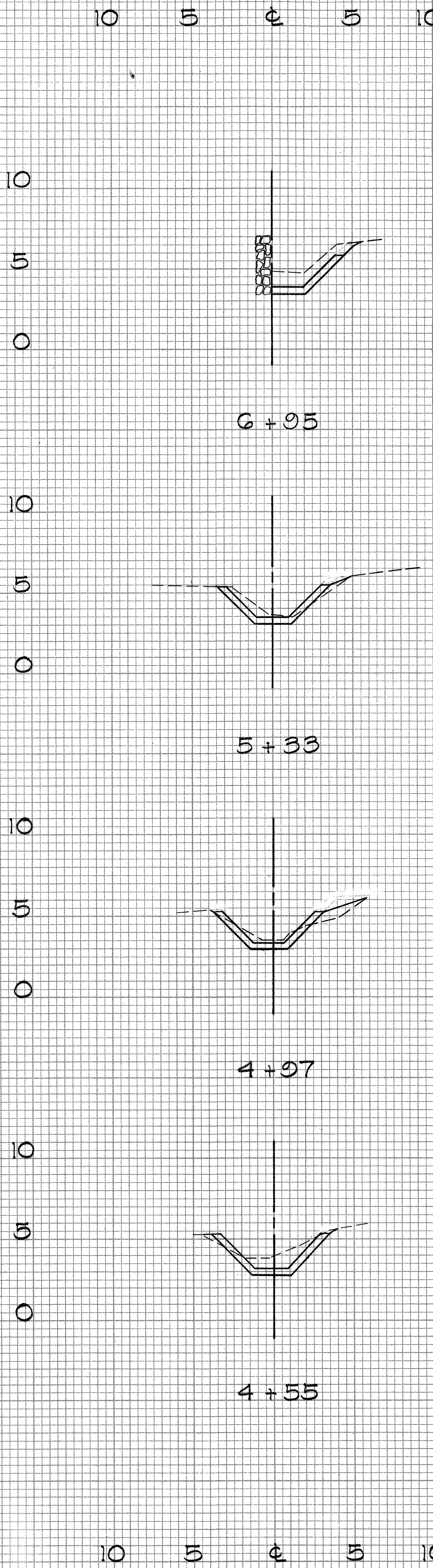
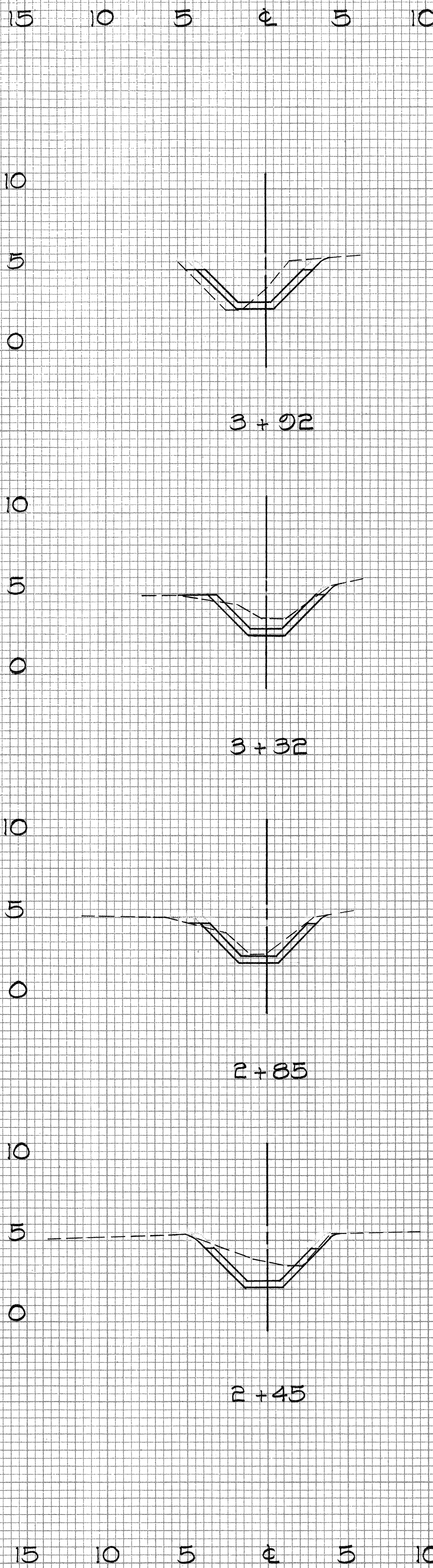
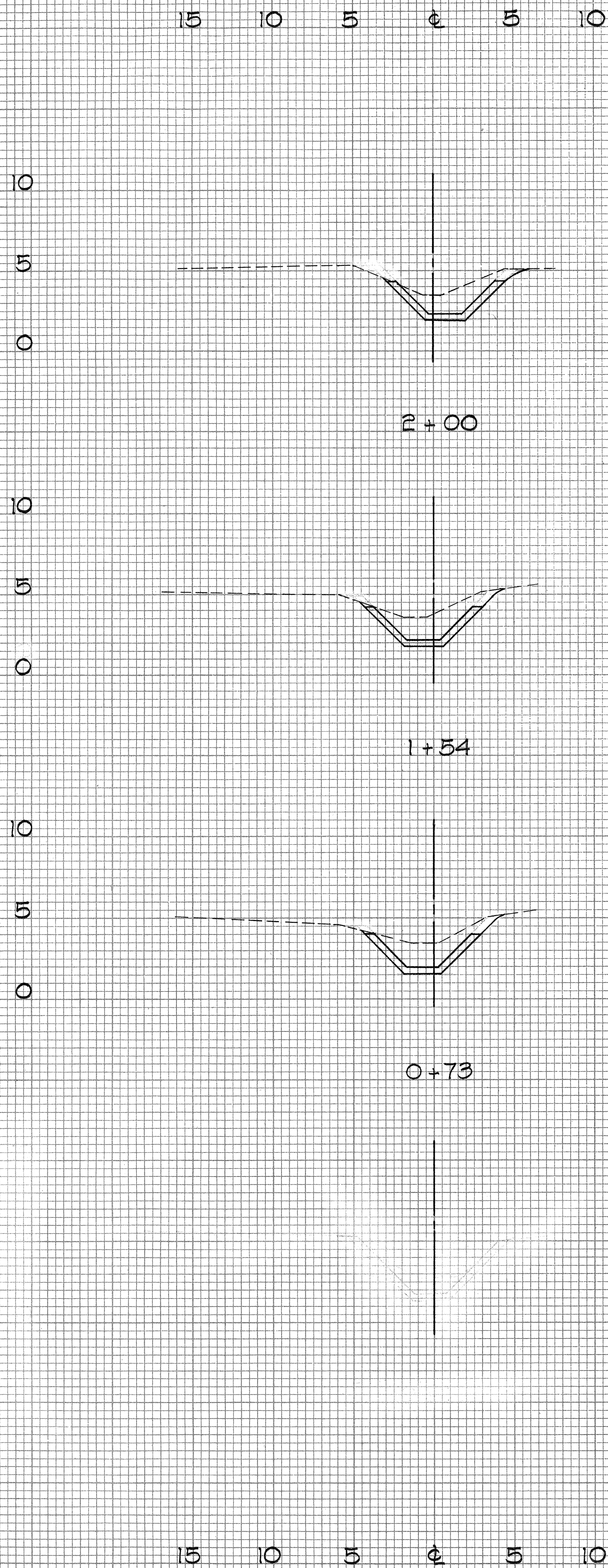
STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
DETAILS-DRAINLINE NO2	
DRAINAGE IMPROV. ON KAL. HWY.	
(HALEMAUMAU ST. TO PAIKO DR.)	
PROJ. NO. 72C-01-74	
PROJ. NO. 72C-02-72	
Scale: As Shown	Date: Sept. 1973
SHEET No. 3 OF 7 SHEETS	

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

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-01-74 72C-02-72	1973	9	28

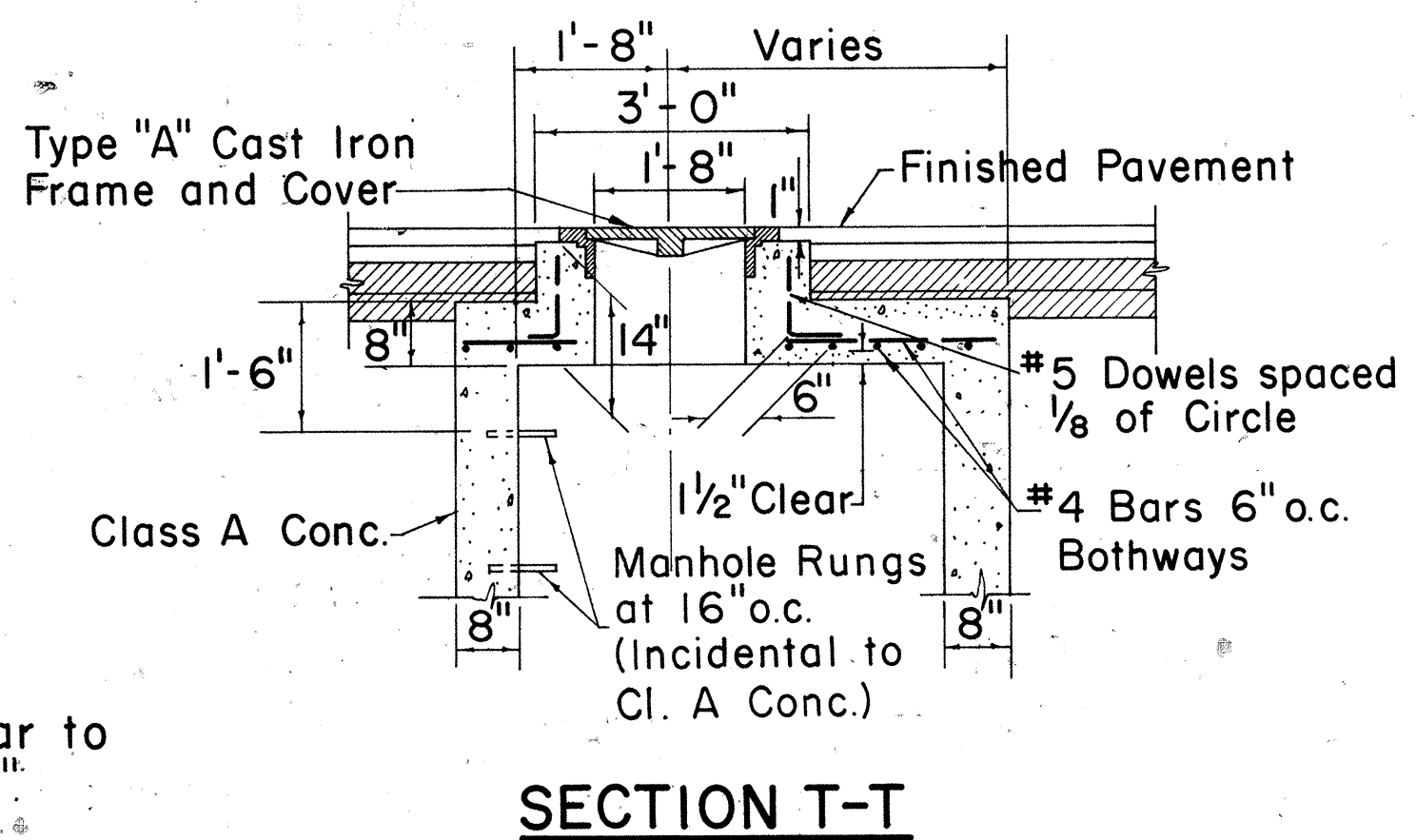
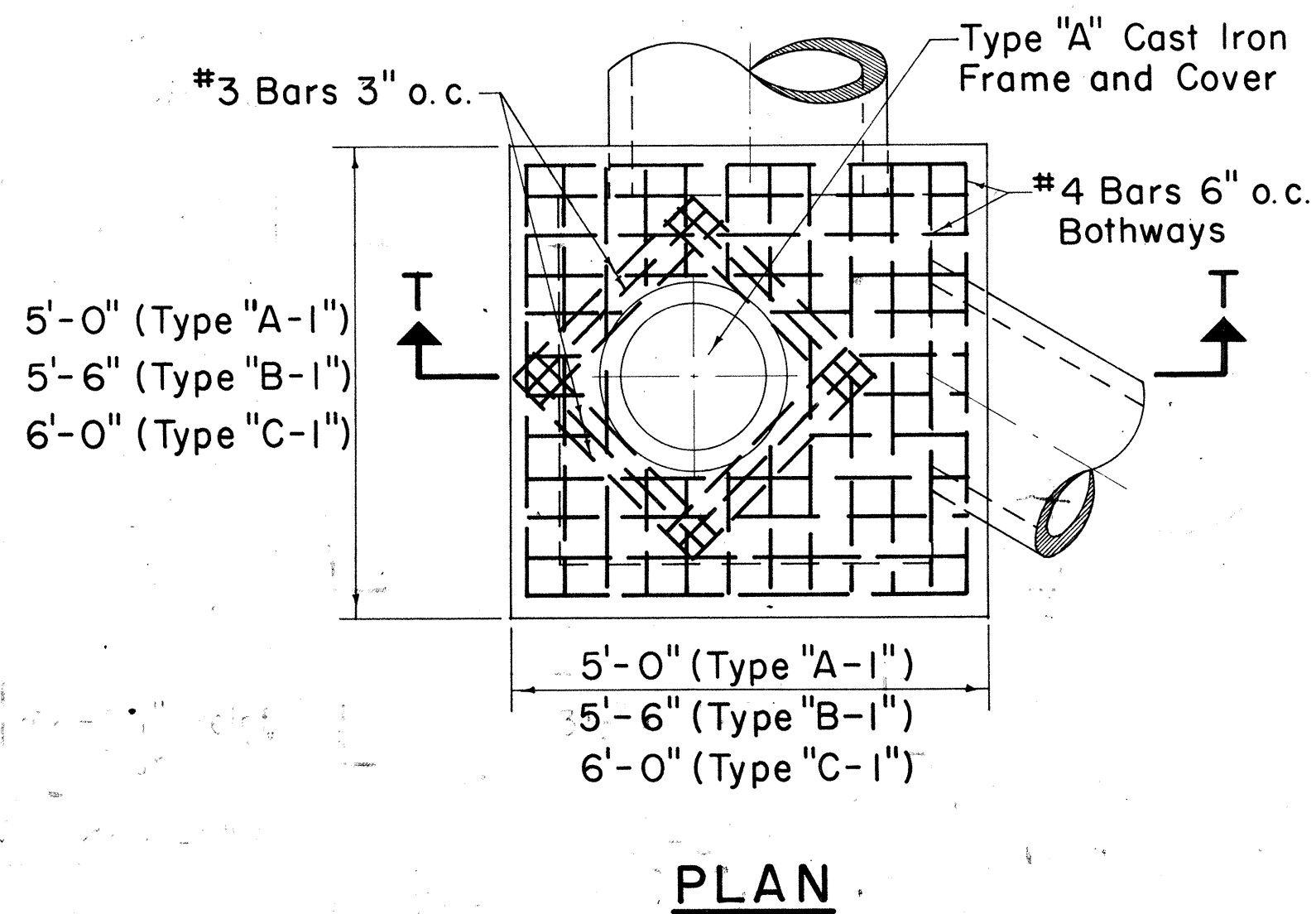
FINAL SURVEY NOTE BOOK NO.	SURVEYED PLOTTED TEMPLATE AREAS CHECKED	BY	DATE

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



DRAINLINE NO. 2

DIST. NO.	STATE	PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	72C-Q-74	1973	10	28

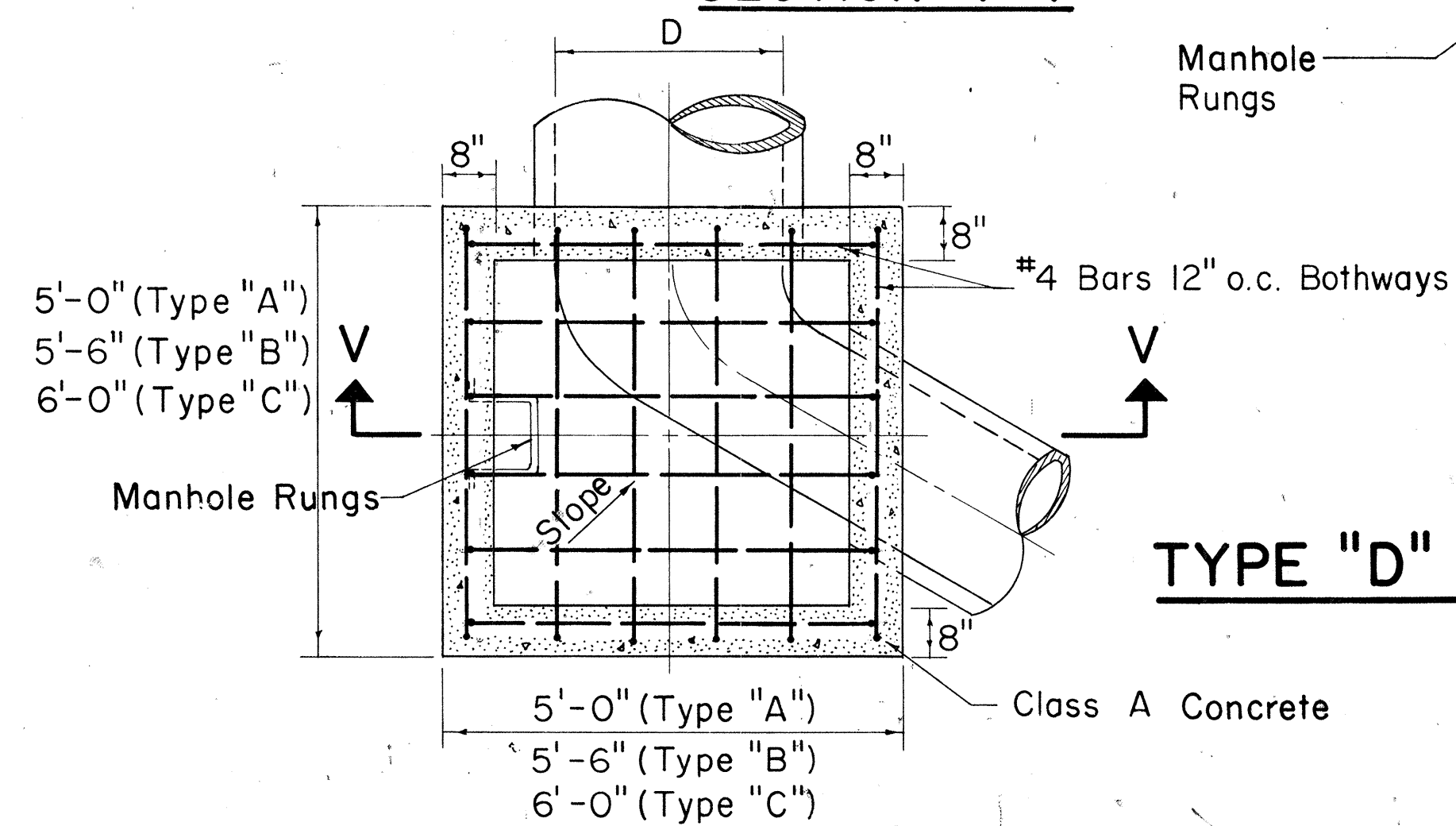
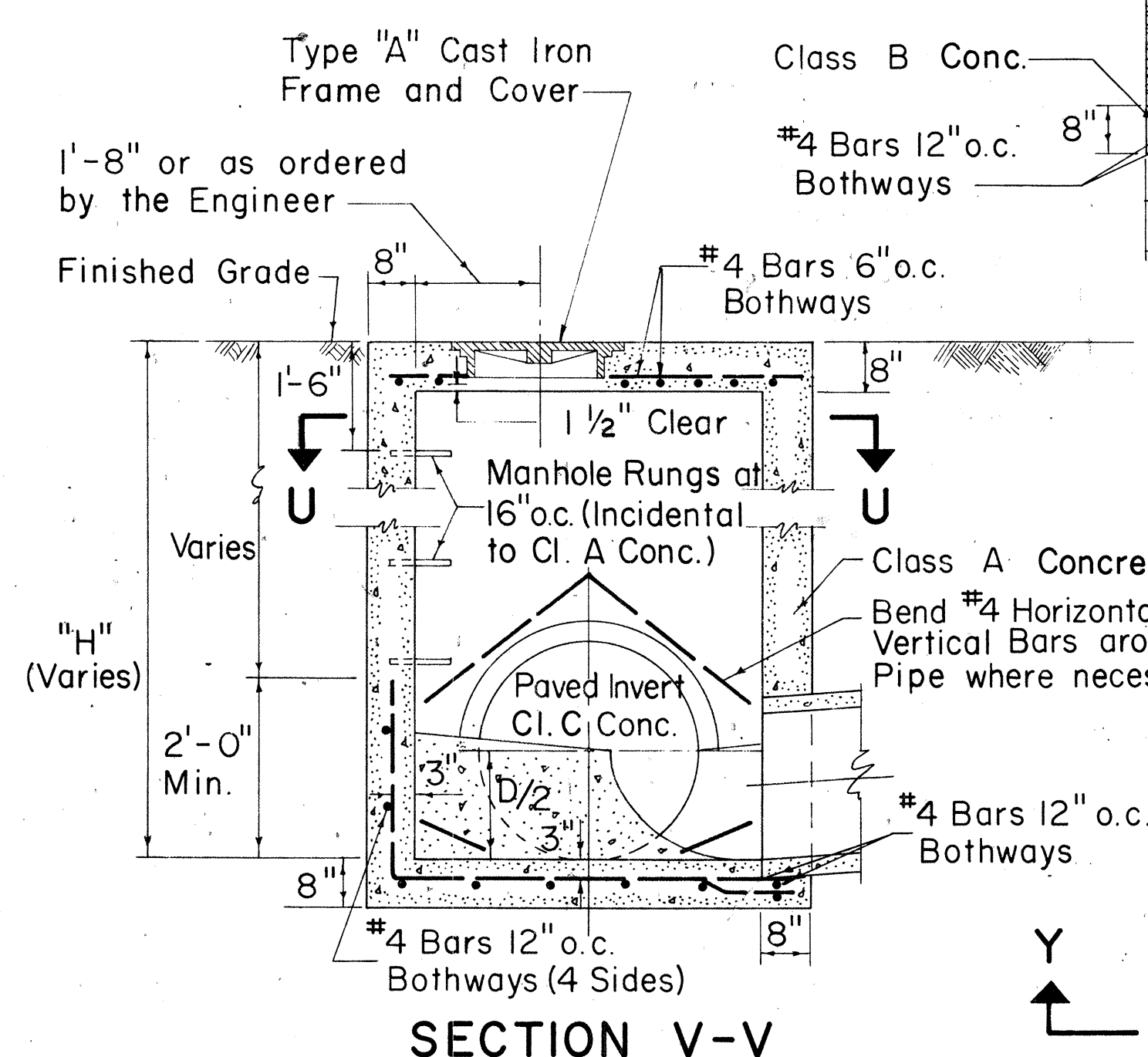


Note:
Bottom detail similar to Type "A", "B", & "C"

TYPE "A-1", "B-1", & "C-1"
STORM DRAIN MANHOLE
TOP DETAIL UNDER PAVEMENT
Scale: 1/2" = 1'-0"

GENERAL NOTES

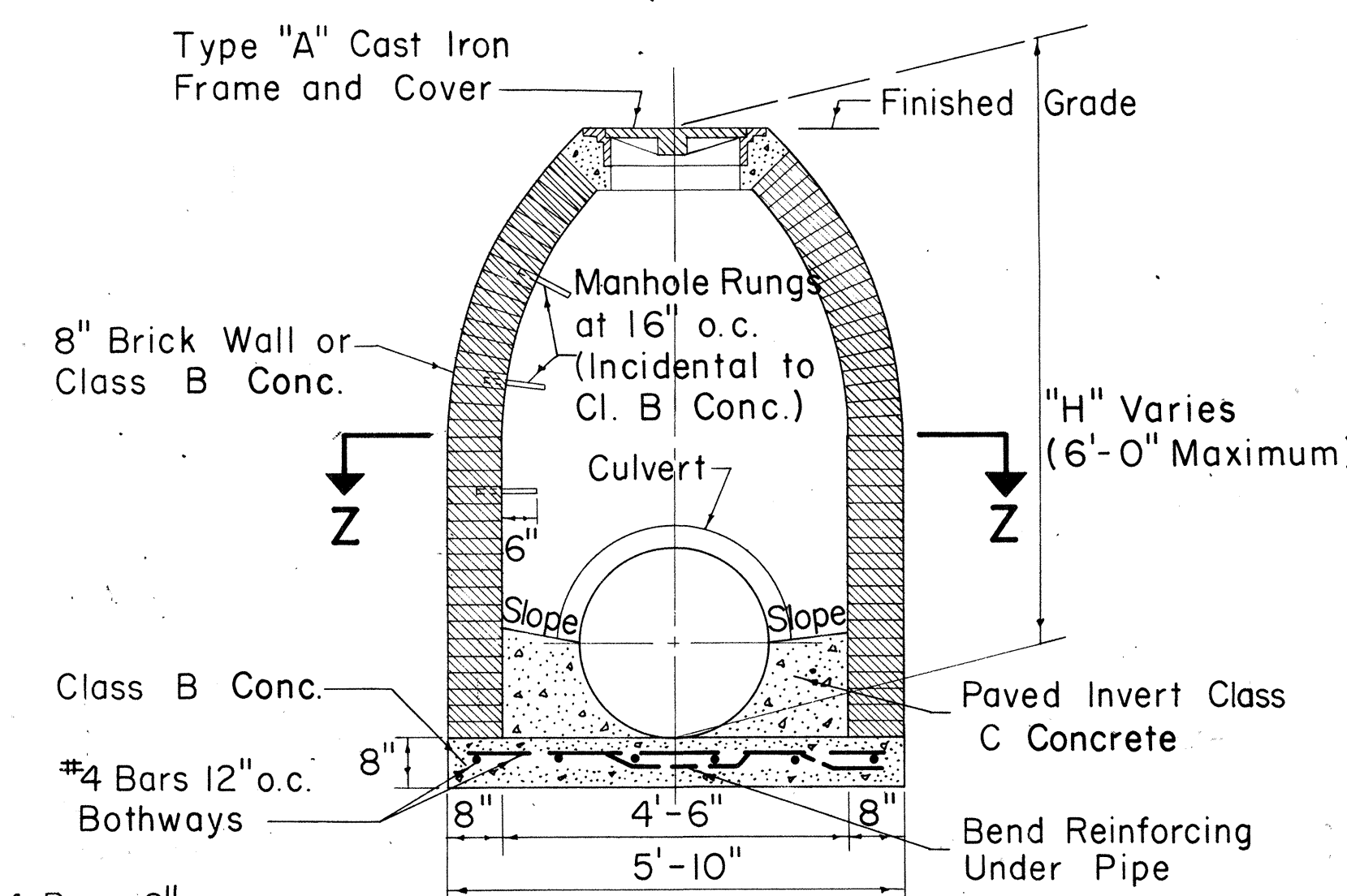
- Culvert shall enter and leave S.D.M.H. from any position and in the direction indicated by the plans or ordered by the Engineer.
- Manhole Rungs (16" o.c.) are required when "H" is greater than 4'-6". Only one rung (12" from the bottom) is required if "H" is 4'-6" or less. Type "A" C.I. Frame and Cover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



TYPE "A", "B", & "C"
S.D.M.H.
Scale: 1/2" = 1'-0"

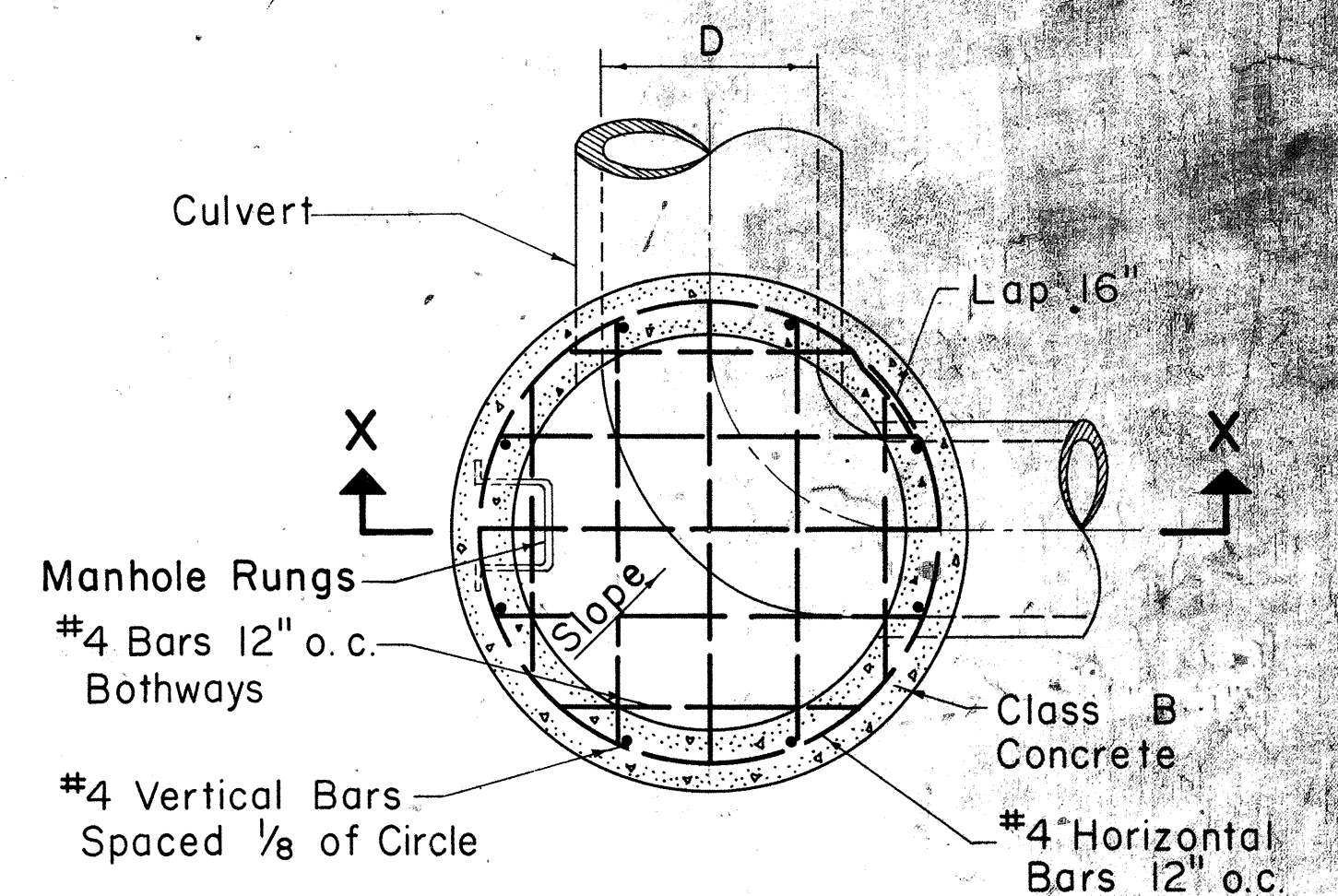
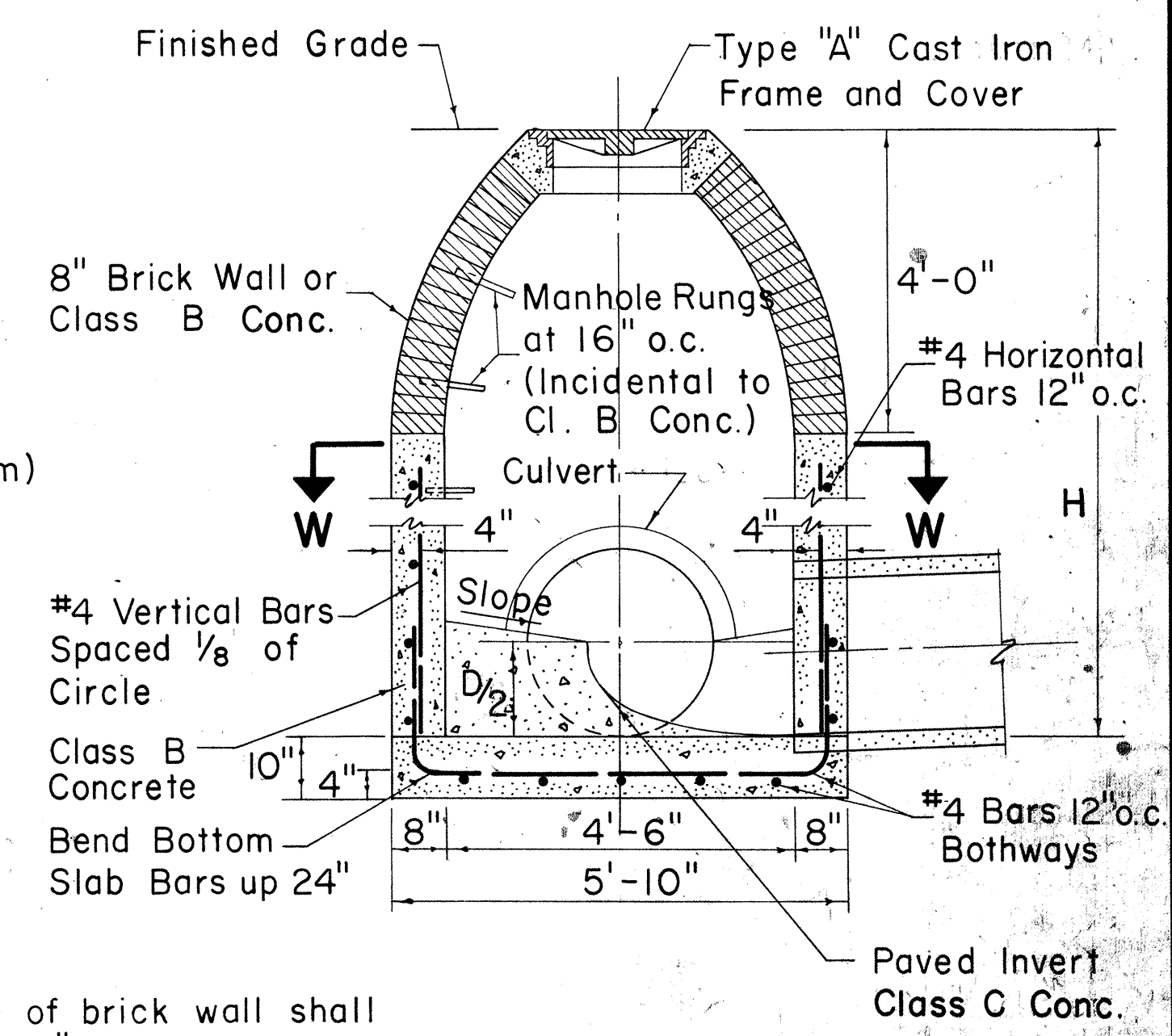
APPROVAL RECOMMENDED:
HYDRAULIC DESIGN ENGINEER 12-17-69 DATE

APPROVED:
ASS'T. CHIEF, ENGINEERING 12-17-69 DATE



- NOTE:
- Exterior surface of brick wall shall be plastered with 1" thickness of 1:2 Cement Mortar.
 - Number, size and direction of culvert at manhole to be as shown on plans.
 - Paved invert not required at drop manholes.
 - All Class C Concrete to be incidental to Class B Concrete.

TYPE "D" STORM DRAIN MANHOLE
Scale: 1/2" = 1'-0"



TYPE "E" STORM DRAIN MANHOLE
Scale: 1/2" = 1'-0"

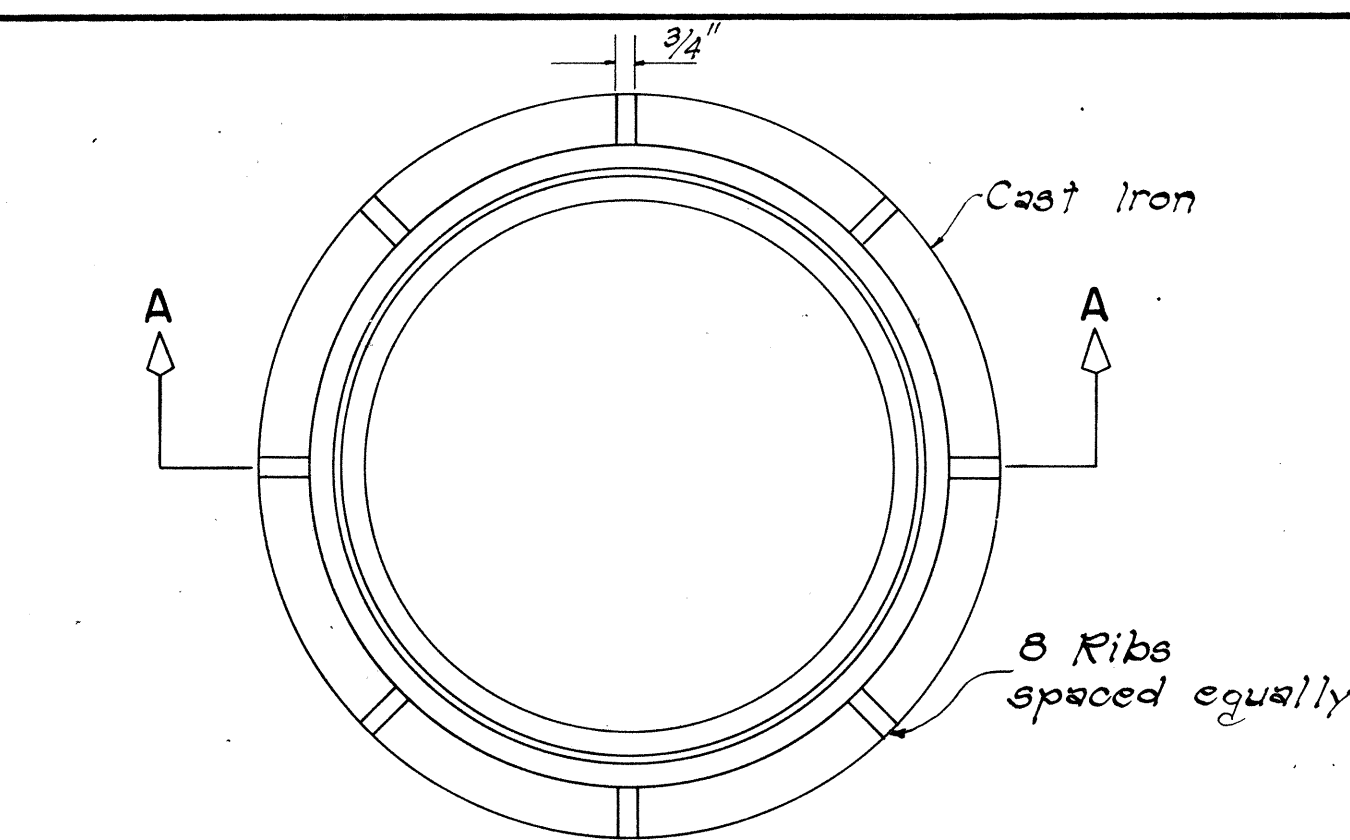
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

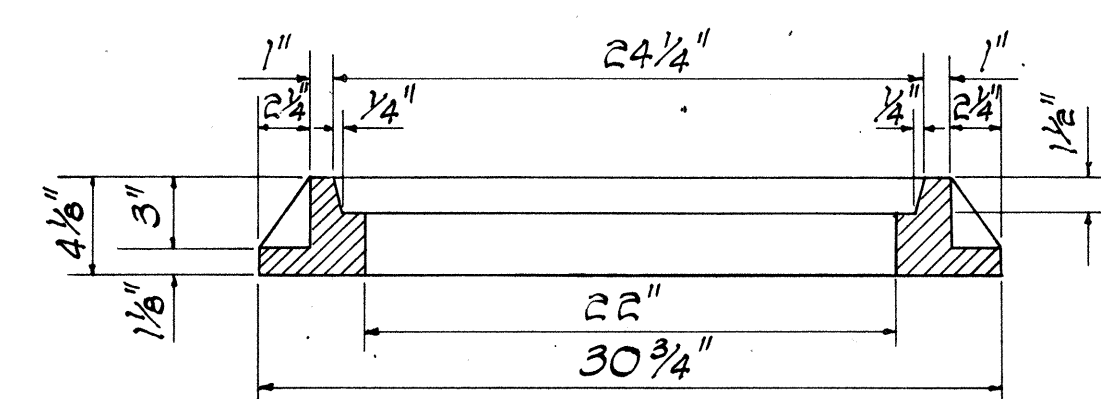
STANDARD DETAILS
STORM DRAIN MANHOLES

Scales: As Noted Date: July 1, 1969

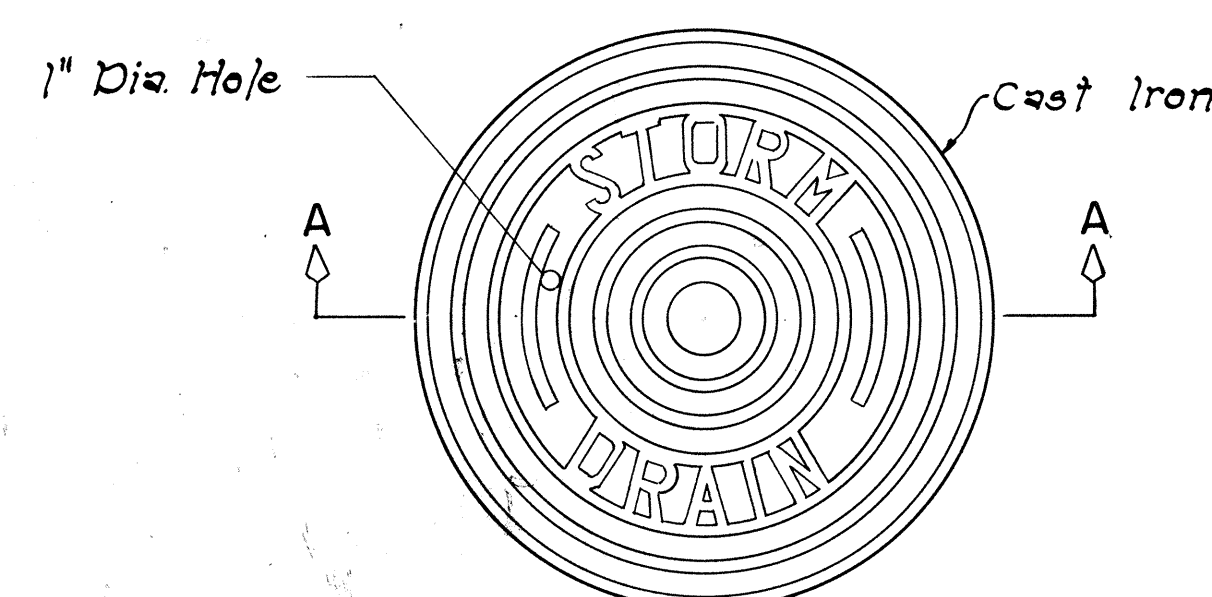
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-0174	1973	11	28



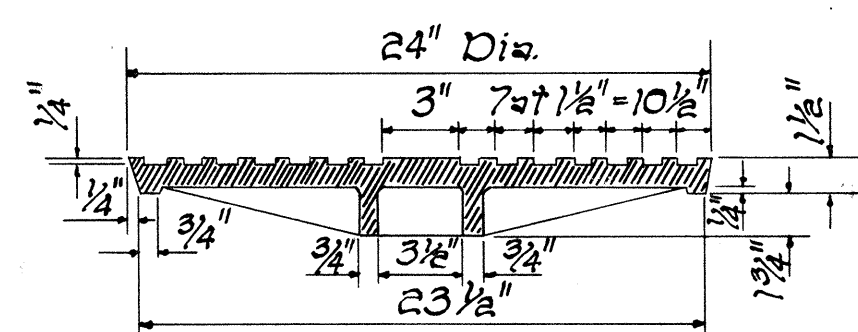
PLAN



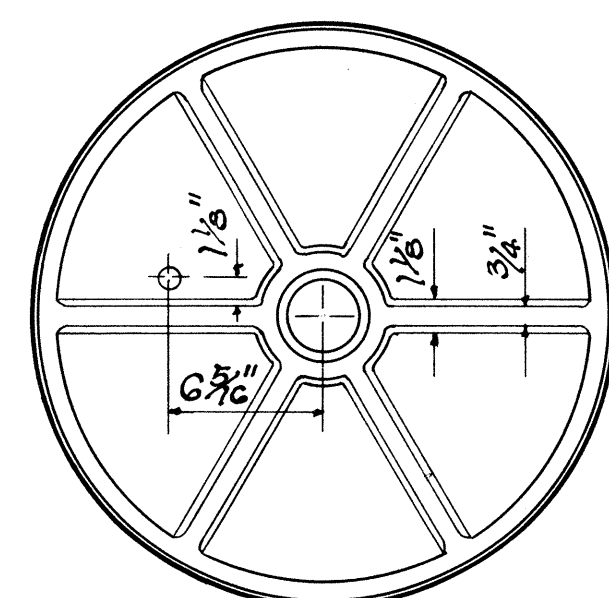
SECTION A-A



PLAN



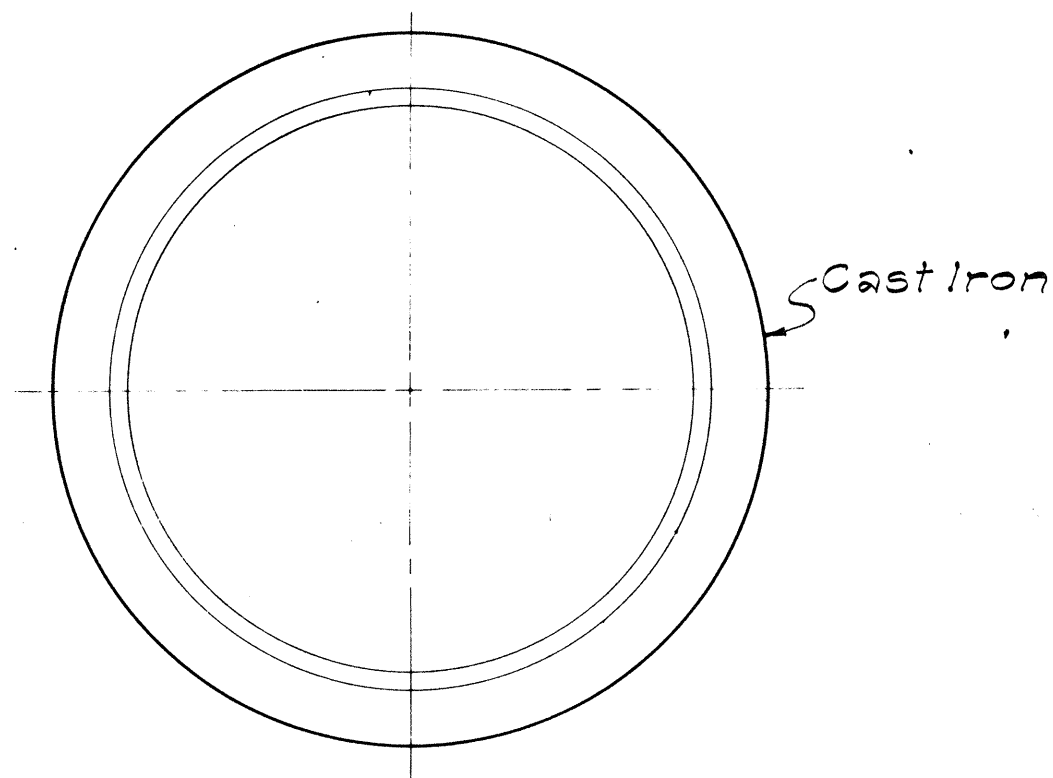
SECTION A-A



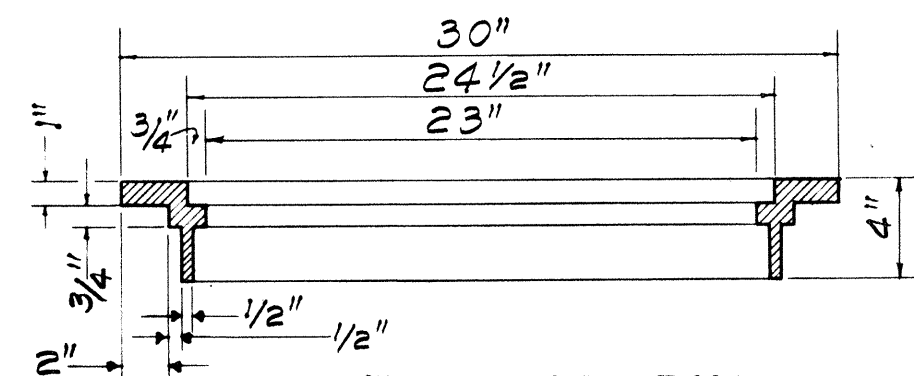
BOTTOM VIEW OF COVER

DETAILS OF TYPE "P"
CAST IRON FRAME AND COVER

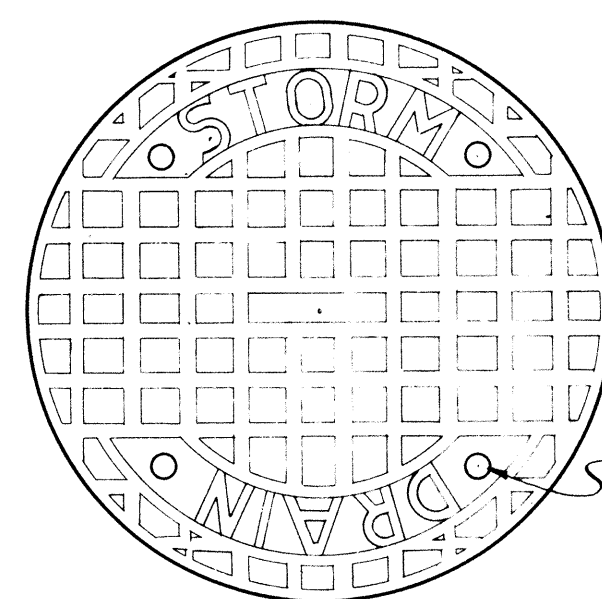
SCALE: 1-1/2" = 1'-0"



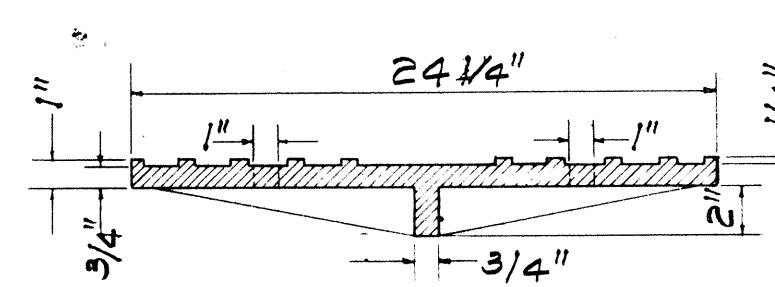
PLAN OF RIM



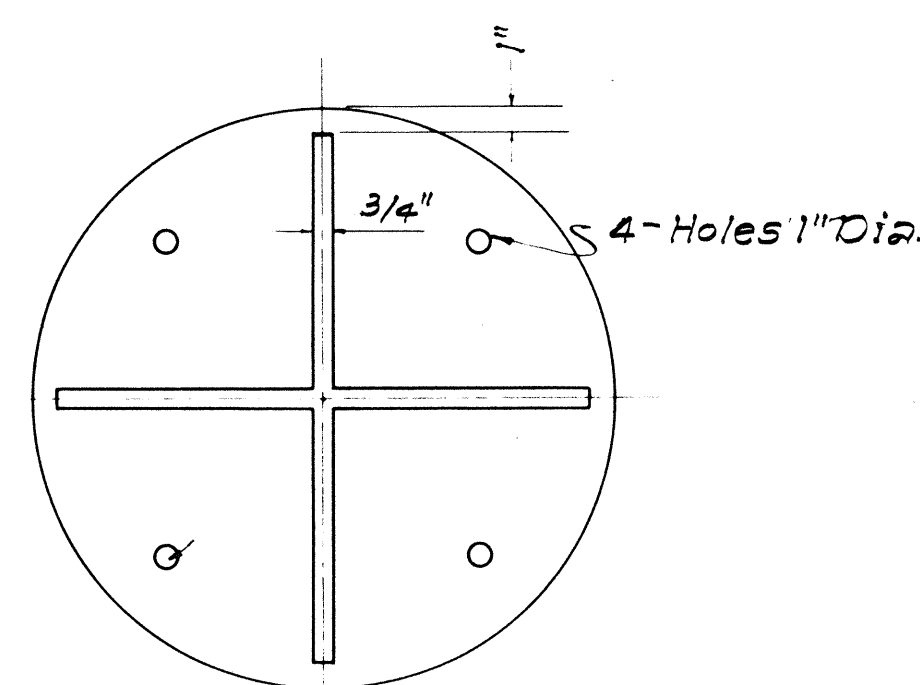
SECTION OF RIM



TOP VIEW OF COVER



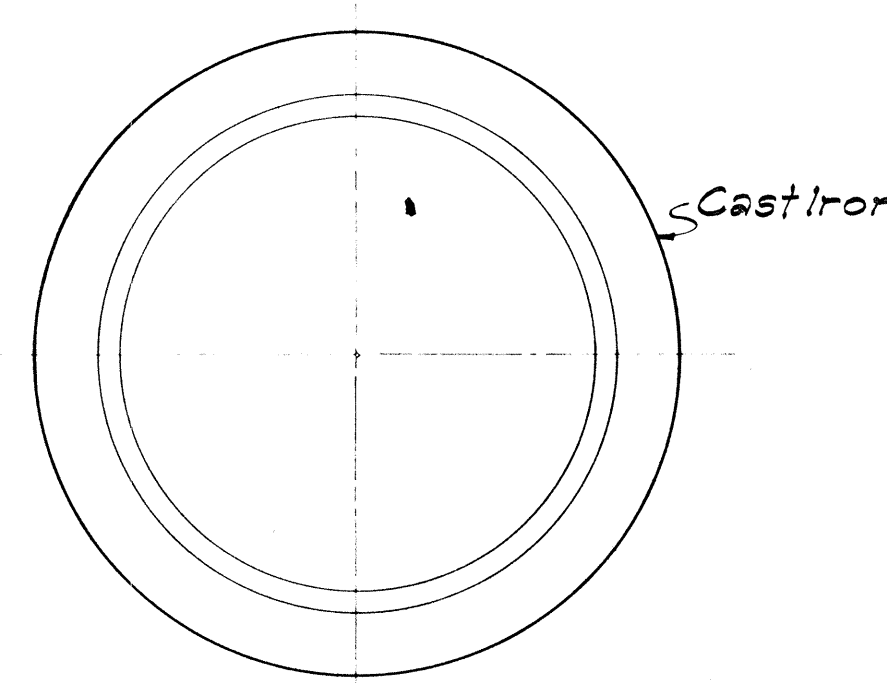
SECTION



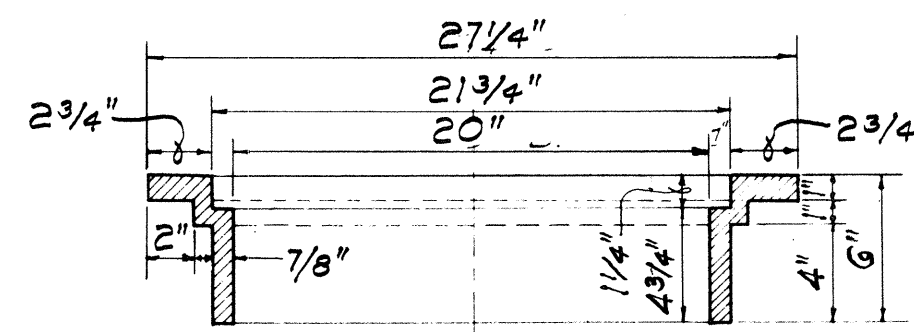
BOTTOM VIEW OF COVER

DETAILS OF TYPE "B"
CAST IRON FRAME AND COVER

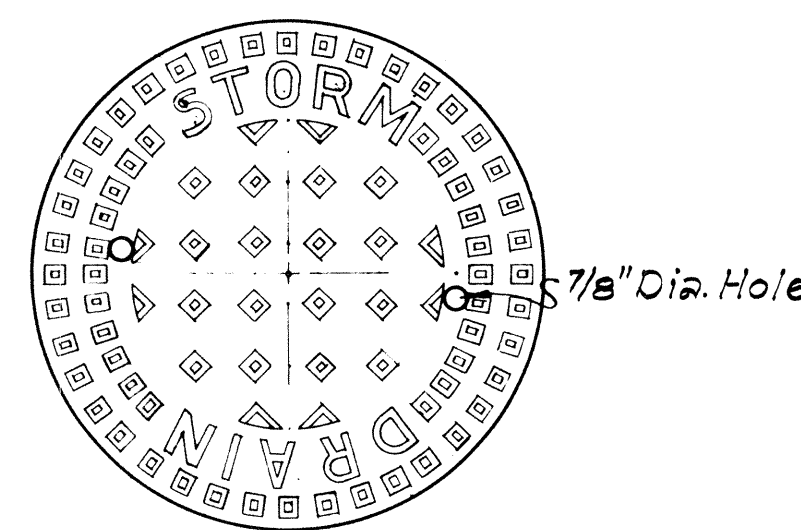
SCALE: 1-1/2" = 1'-0"



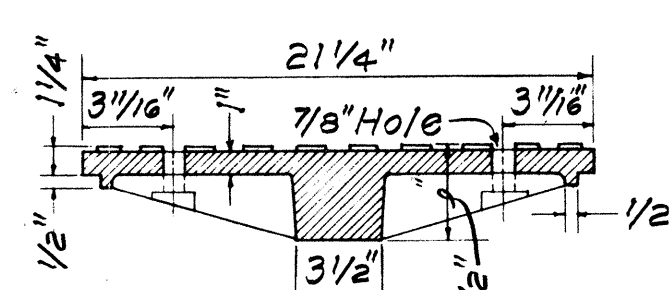
PLAN OF RIM



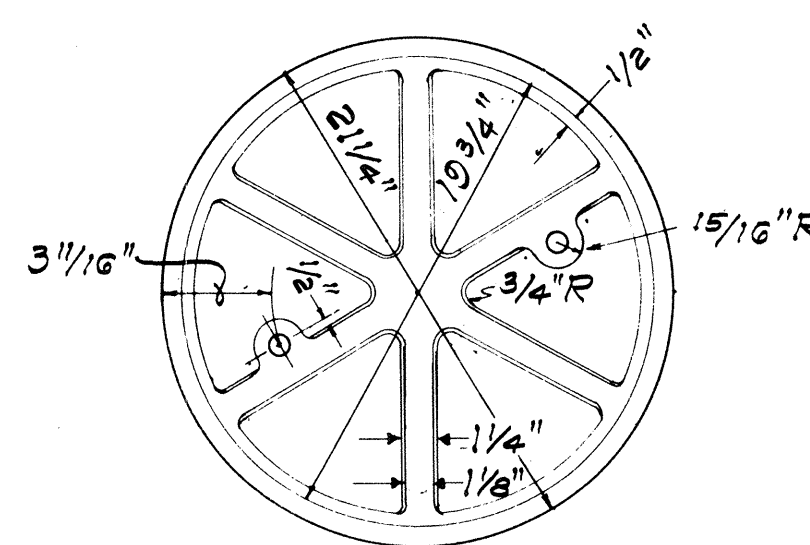
SECTION OF RIM



TOP VIEW OF COVER



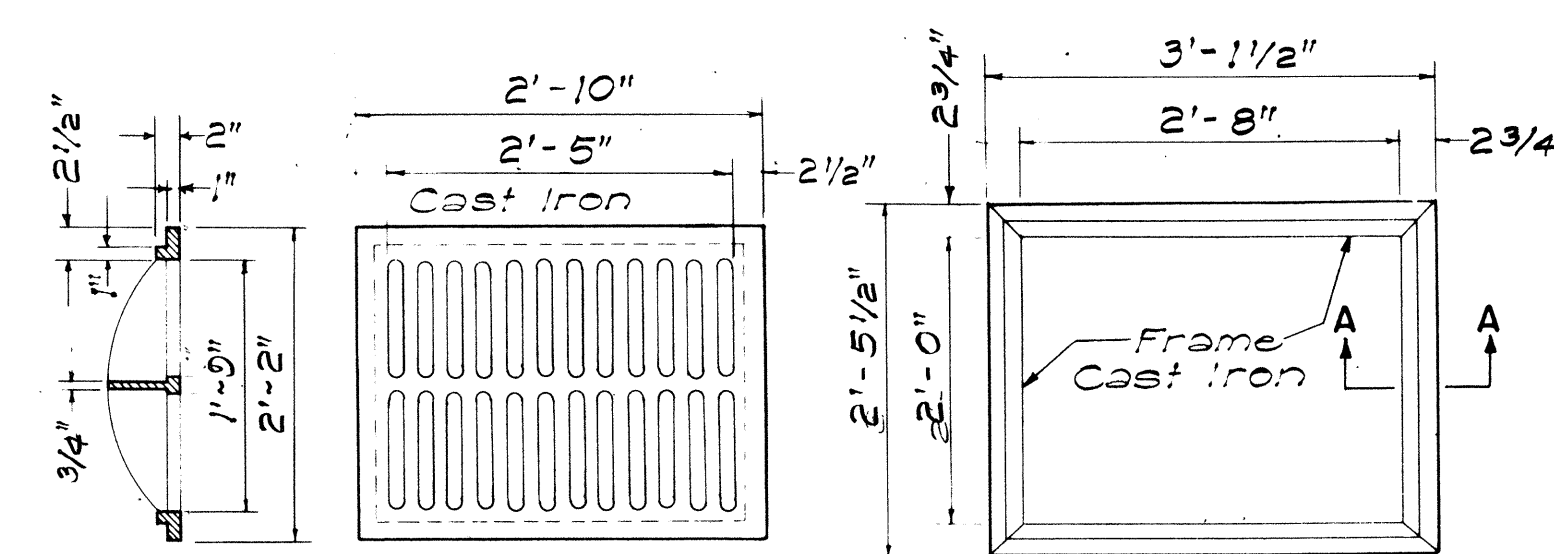
SECTION



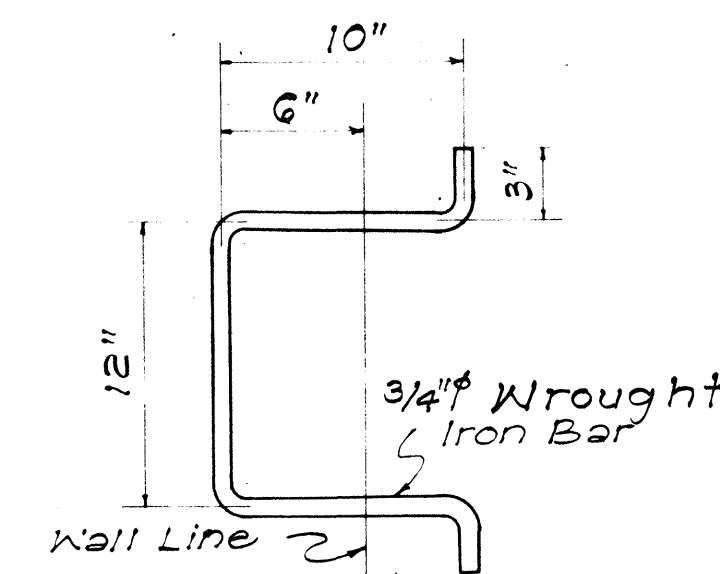
BOTTOM VIEW OF COVER

DETAILS OF TYPE "A"
CAST IRON FRAME AND COVER

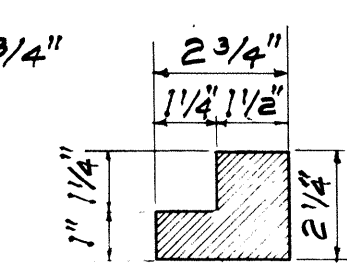
SCALE: 1-1/2" = 1'-0"



SECTION TOP VIEW TOP VIEW
TYPE C C.I. FRAME AND GRATE
SCALE: 3/4" = 1'-0"



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



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

APPROVAL RECOMMENDED:
P. Nakano 12-17-69
HYDRAULIC DESIGN ENGINEER DATE

APPROVED:
Julius E. Zolner 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

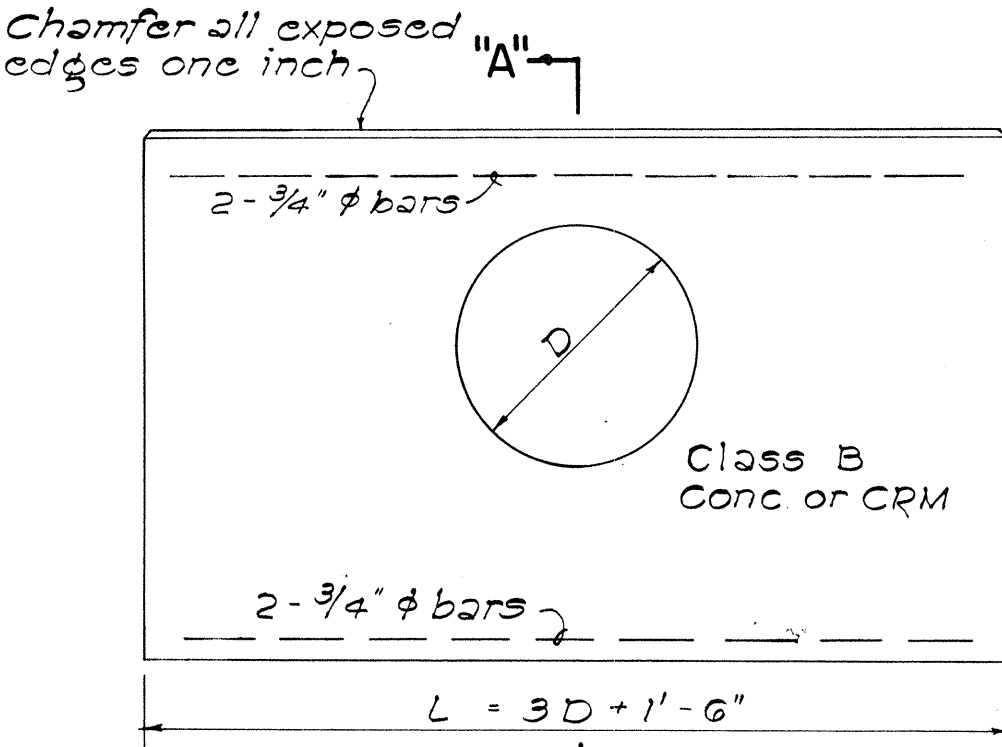
Scale: As Noted Date: July, 1969
SHEET NO 6 OF 7 SHEETS DH 6.

SURVEY PLOTTED BY: DATE:
DRAWN BY: A. Calistro
CHECKED BY:
ORIGINAL PLAN
NOTE BOOK
QUANTITIES BY
No.

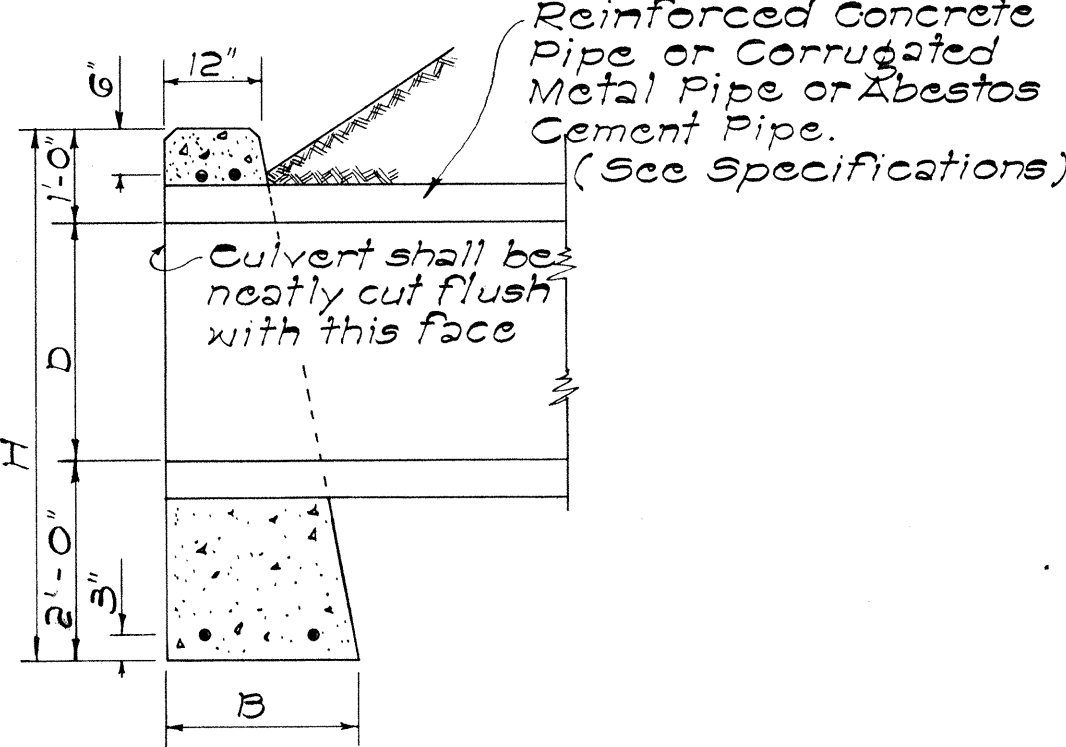
DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72C-0174	1973	12	28

DATA - CONC. DROP INTAKE Where Variable Equals					
D'	D	L-D'-6"	S	Cu. Yds.	
23"	18"	2'-5"	8"	1.41	4'-6"
30"	24"	3'-0"	8"	1.72	5'-0"
37"	30"	3'-7"	9"	2.32	5'-6"
44"	36"	4'-2"	9"	2.73	6'-0"
51"	42"	4'-9"	10"	3.54	6'-6"
58"	48"	5'-4"	10"	4.01	7'-0"

Note: Dimension "X" is assumed as 2'-4" in figuring the above quantities.



ELEVATION

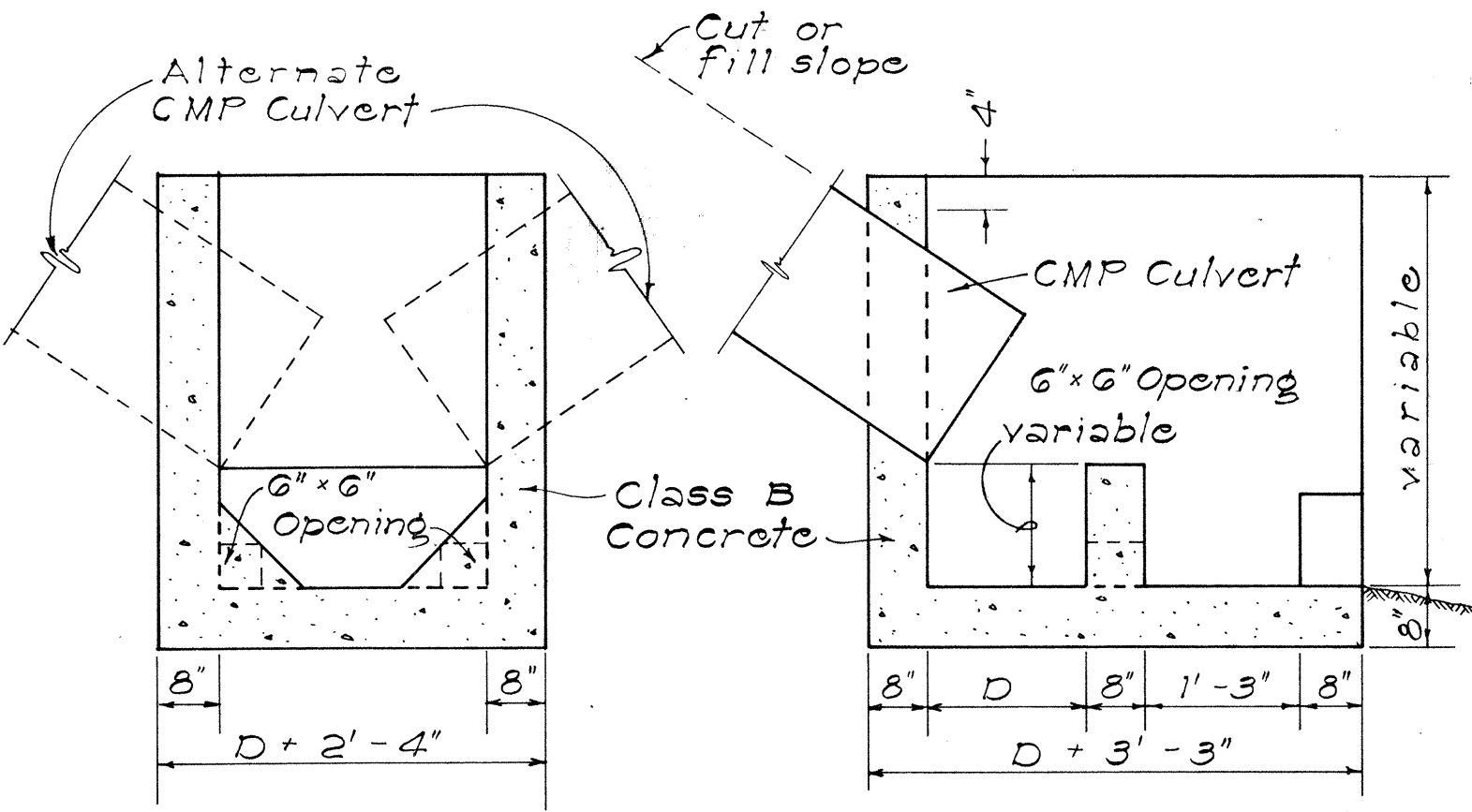


SECTION "A-A"

DATA FOR CONC. HEADWALL				Cl. B CONC. FOR R.C.P.	Cl. B CONC. FOR C.M.P.	Steel For One Headwall		
D	B	L	H	Cu. Yd.	Cu. Yd.	No. of Bars	Size	Length Lbs.
18"	1'-6"	6'-0"	4'-6"	1.12	1.17	4	3/4"	5'-6" 33
24"	1'-6"	7'-6"	5'-0"	1.52	1.60	4	3/4"	7'-0" 42
30"	2'-0"	9'-0"	5'-6"	2.36	2.40	4	3/4"	8'-6" 51
36"	2'-0"	10'-6"	6'-0"	2.94	3.13	4	3/4"	10'-0" 60
42"	2'-6"	12'-0"	6'-6"	4.19	4.47	4	3/4"	11'-6" 69
48"	2'-6"	13'-6"	7'-0"	5.01	5.36	4	3/4"	13'-0" 78

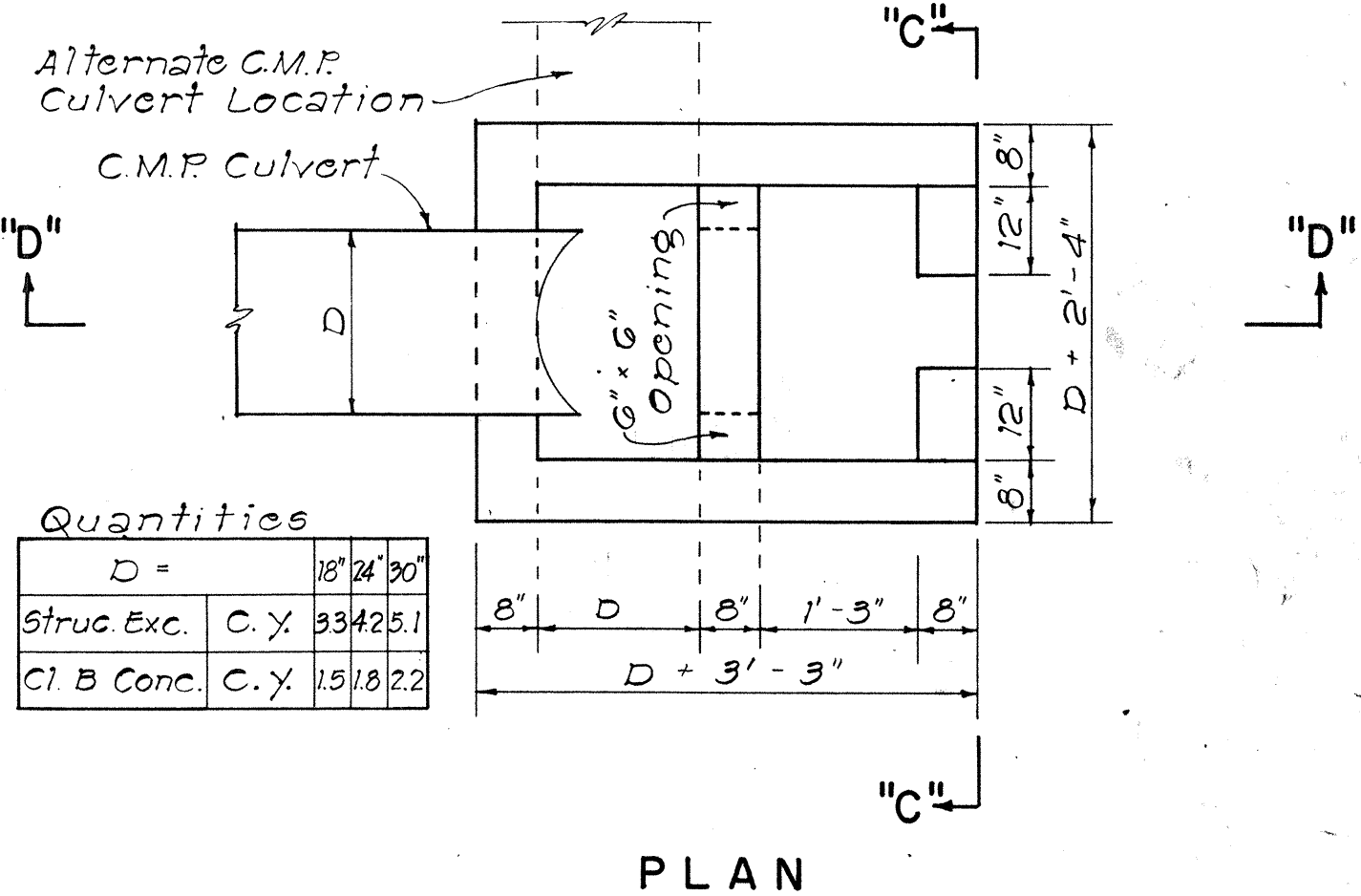
DATA - MASONRY HEADWALL				CRM FOR R.C.P.	CRM FOR C.M.P.
D	B	L	H	Cu. Yd.	Cu. Yd.
18"	1'-0"	6'-0"	4'-6"	1.24	1.29
24"	2'-0"	7'-6"	5'-0"	1.83	1.92
30"	2'-3"	9'-0"	5'-6"	2.56	2.70
36"	2'-6"	10'-6"	6'-0"	3.45	3.66

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



SECTION "C-C"

SECTION "D-D"



PLAN

DETAILS OF CONC. DROP BOX AT
OUTLET OF CULVERT PIPE

NOT TO SCALE

APPROVAL RECOMMENDED:

HYDRAULIC DESIGN ENGINEER

12-17-69
DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING

12-17-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
DROP INTAKE, HEADWALL &
CONCRETE PROTECTION

Scale: As Noted Date: Aug. 1967

SHEET NO. 7 OF 7 SHEETS DH-10