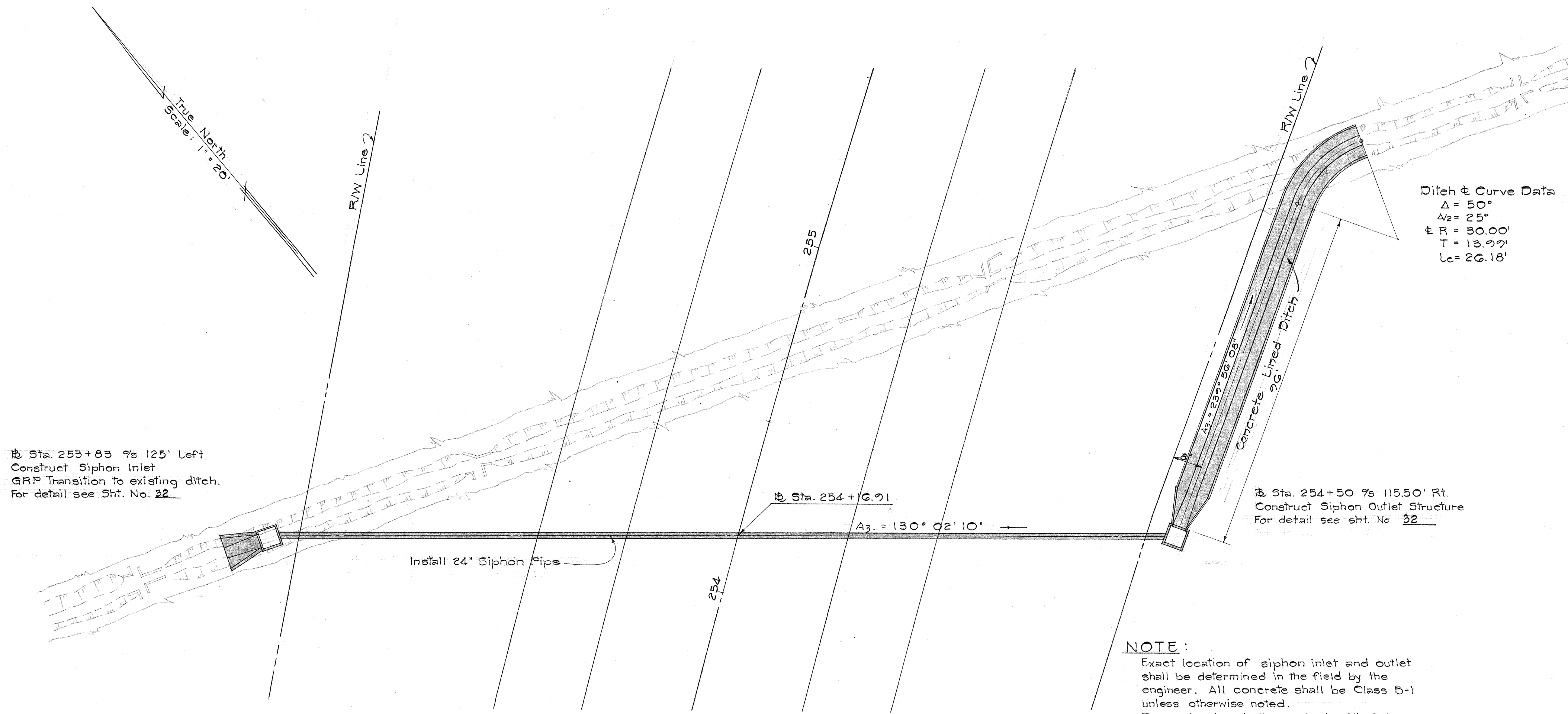


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1-1(18)	1965	31	124



At Sta. 253+83 9/16 Left
Construct Siphon Inlet
GRP Transition to existing ditch.
For detail see Sht. No. 22

At Sta. 254+16.91

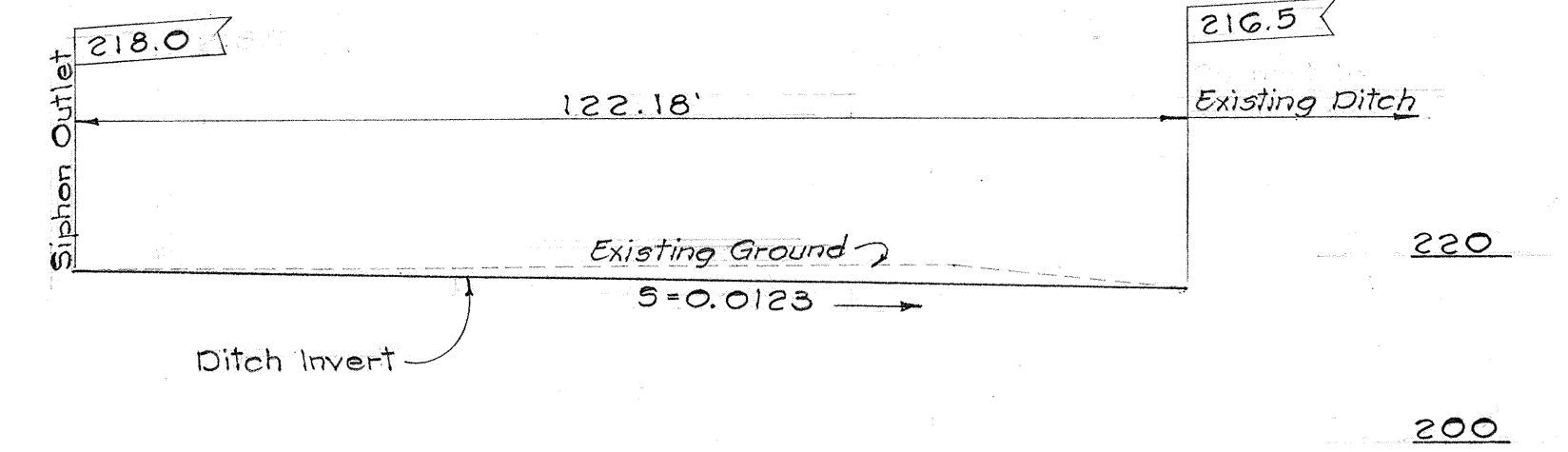
A₂ = 130° 02' 10"

At Sta. 254+50 9/16 Right
Construct Siphon Outlet Structure
For detail see Sht. No. 22

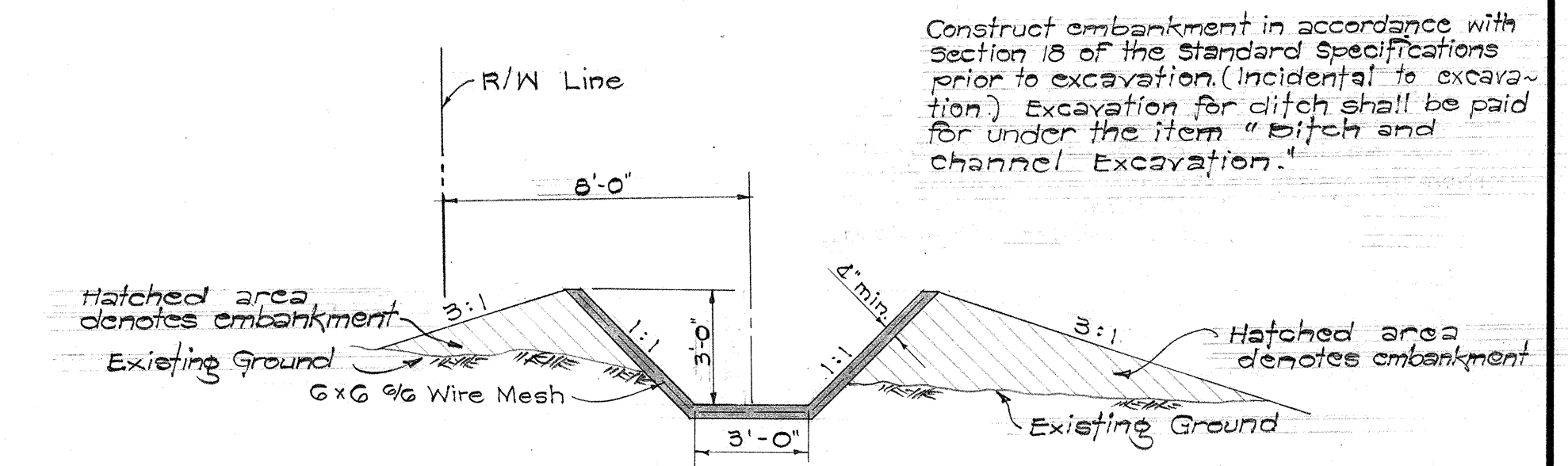
Ditch & Curve Data
Δ = 50°
Δ/2 = 25°
R = 30.00'
T = 13.29'
Lc = 26.18'

NOTE:
Exact location of siphon inlet and outlet shall be determined in the field by the engineer. All concrete shall be Class B-1 unless otherwise noted.
The contractor shall coordinate with Oahu Sugar Co. before work is started on the siphon. See Sec. 116 of the Special Provisions.

PLAN OF SIPHON AT STA. 254+16.91
Scale: 1" = 20'-0"



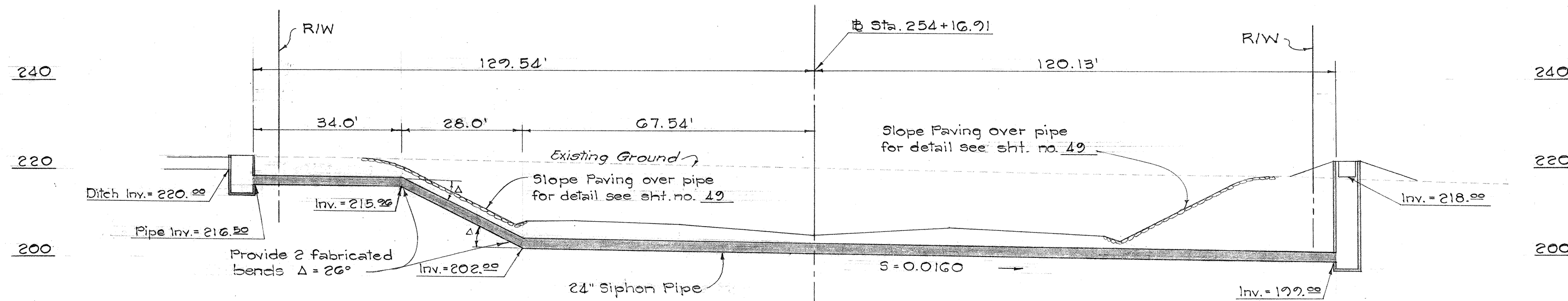
PROFILE OF CONC. LINED DITCH
Scale: 1" = 20'-0"



TYPICAL SECTION OF CONC. LINED DITCH
Scale: 1/4" = 1'-0"

GENERAL NOTES FOR IRRIGATION SYSTEM

- Provide wooden flume gate where ever wooden flume gate slots, U-gates or Gate Ends are called for unless otherwise noted. (Incidental to Class B-1 Concrete, U-gate, or Gate Ends respectively)
- The location and type of side opening in flumes shall be determined in the field by the Engineer (Ewa Plantation Co.).
- For demolishing of existing flumes see section 116 of the Special Provisions.
- Contractor shall reestablish cane furrow at each flume outlet where required (Ewa Plantation Co.).
- The Contractor shall coordinate with Oahu Sugar Co., Ltd. and Ewa Plantation Co. before beginning any irrigation work.
- The final location of the standard manhole runs shall be determined by the Engineer.
- Unless otherwise noted, adjustment of the Oahu Sugar Co. irrigation system shall be limited to the work shown on these plans.



PROFILE OF SIPHON AT STA. 254+16.91
Scale: 1" = 20'-0"

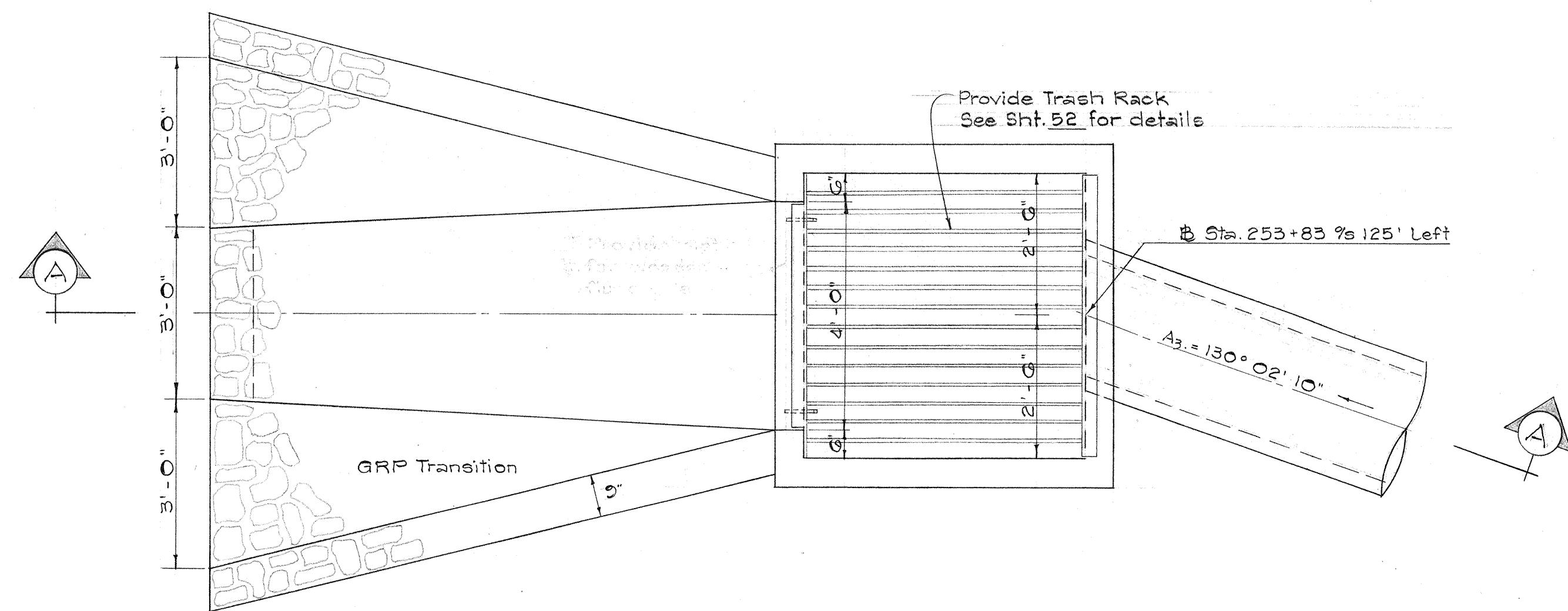
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL
SIPHON AT STA. 254+16.91

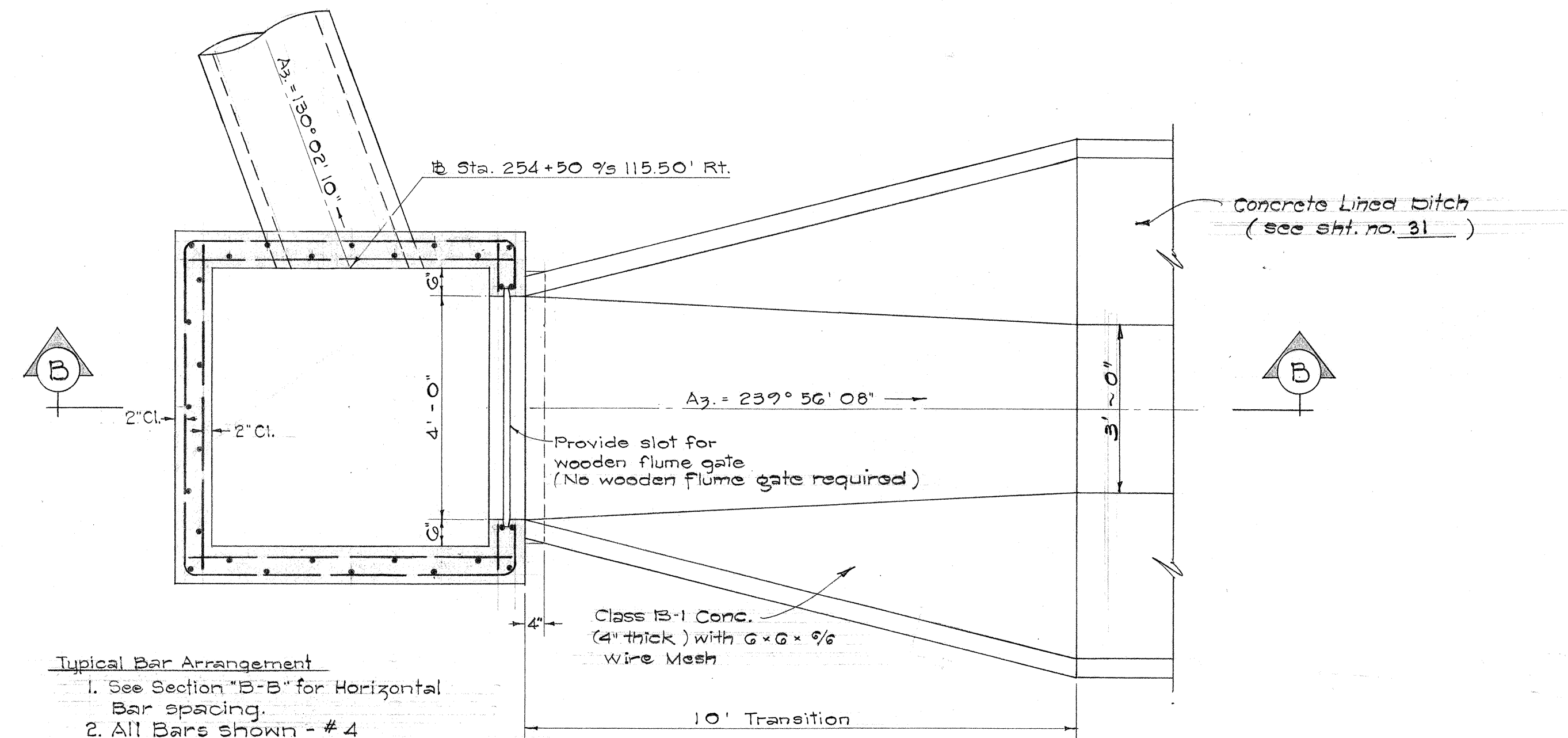
INTERSTATE ROUTE H-1
F.A.I. Project No. I-H-1-1(18)

Scale: As Shown Date:
SHEET No. 1 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1108	1968	82	124

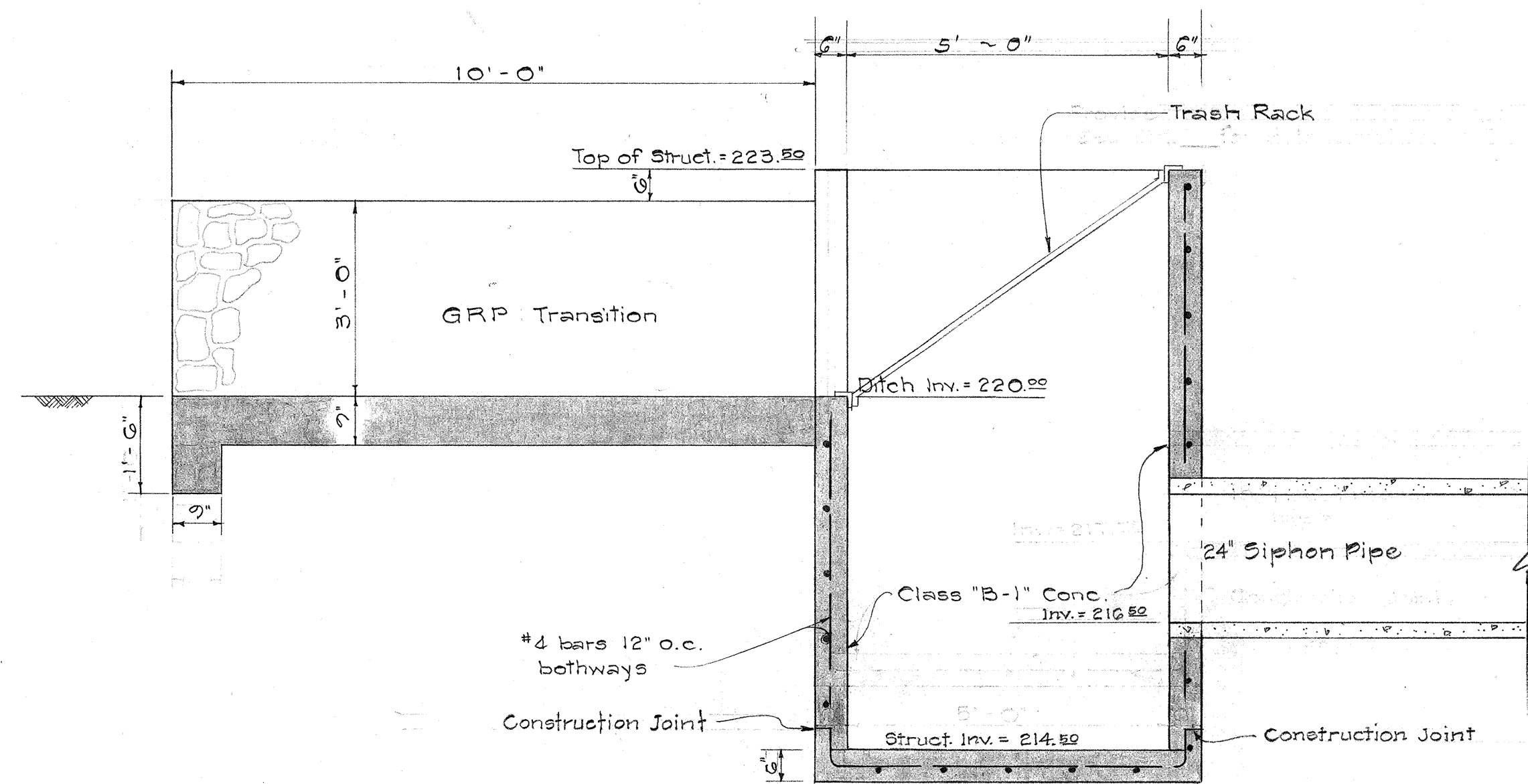


PLAN



PLAN

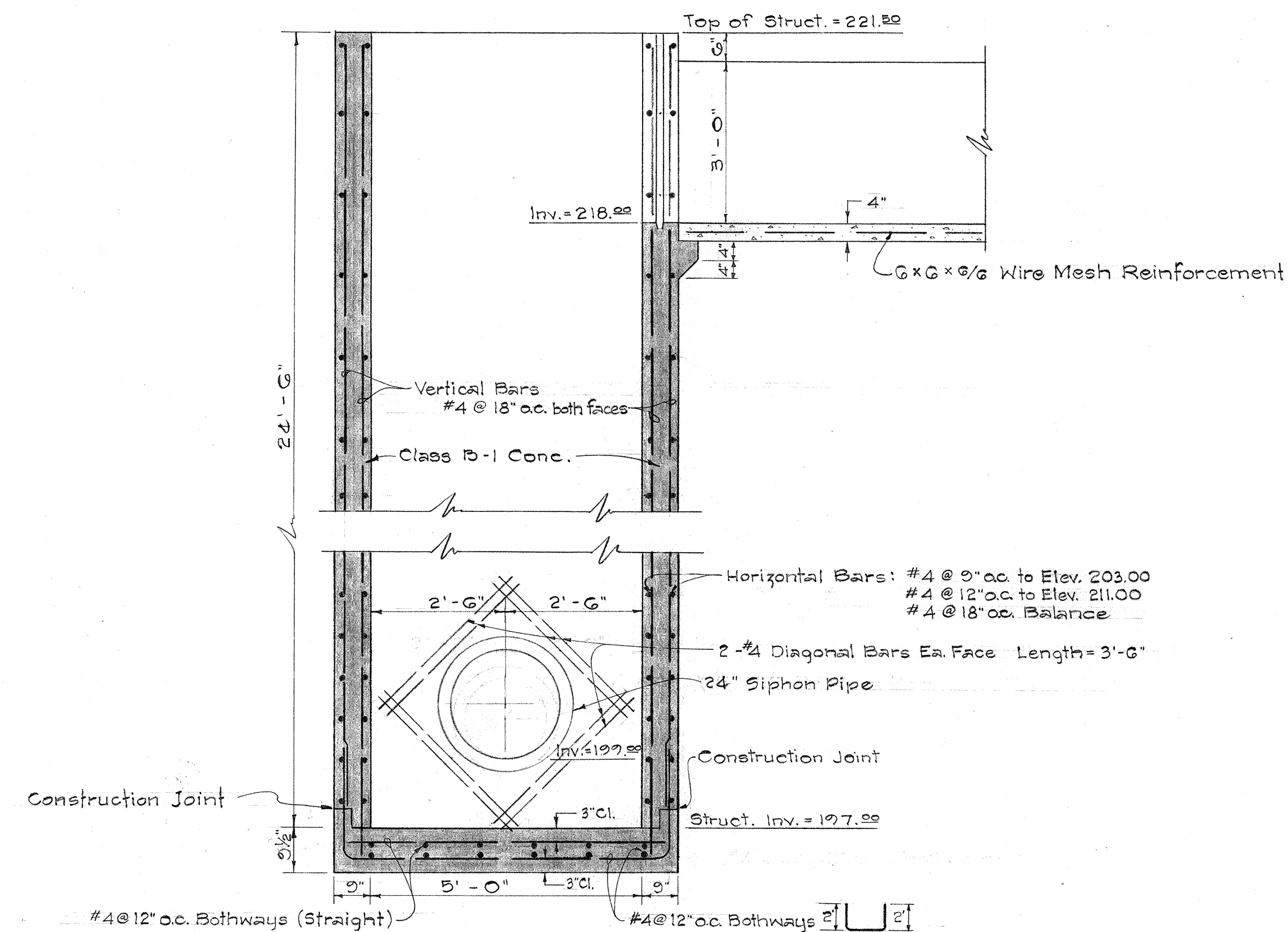
- Typical Bar Arrangement
1. See Section "B-B" for Horizontal Bar spacing.
 2. All Bars shown - #4



SECTION "A-A"

INLET STRUCTURE

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



SECTION "B-B"

OUTLET STRUCTURE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION DETAIL
SIPHON @ STA. 254+16.91
INTERSTATE ROUTE H-1
FAI Project No. I-HI-1110

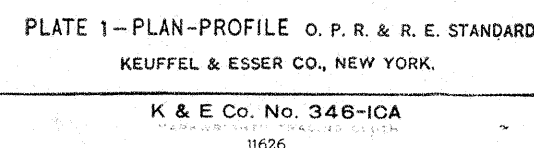
Scale: As Shown

SHEET No. 2 OF 22 SHEETS

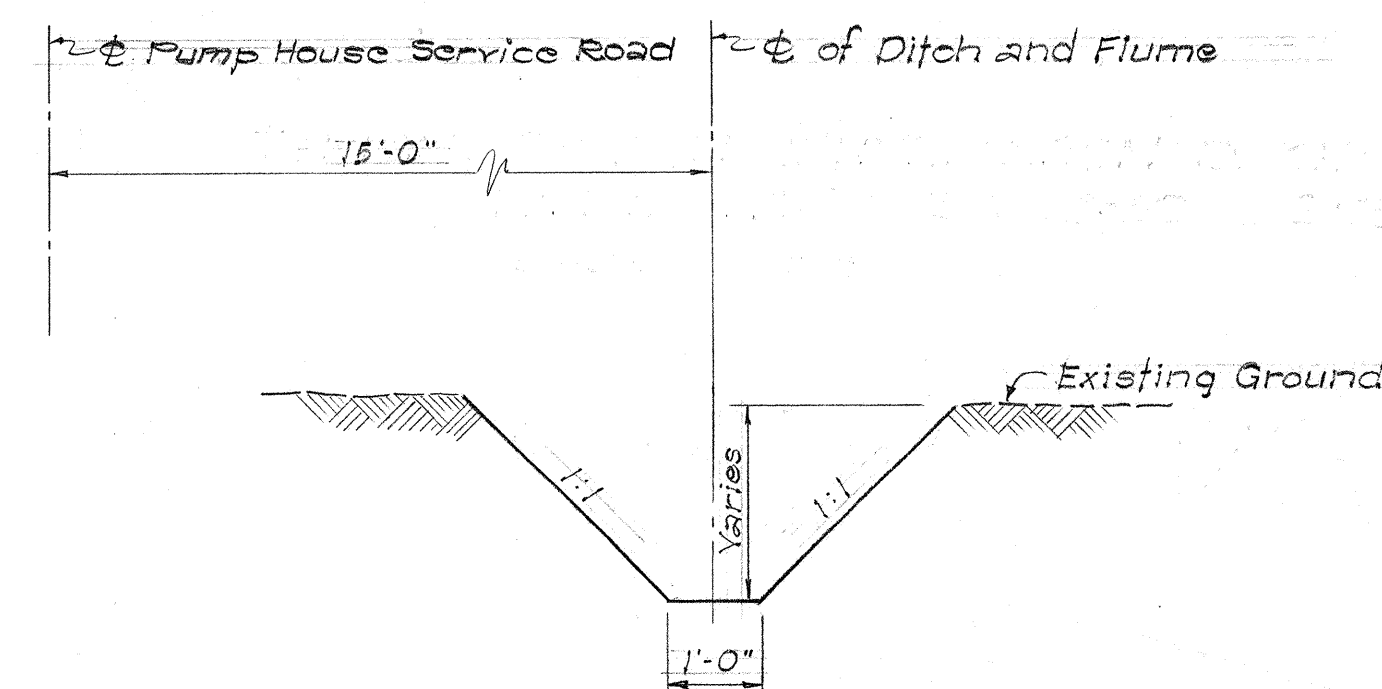
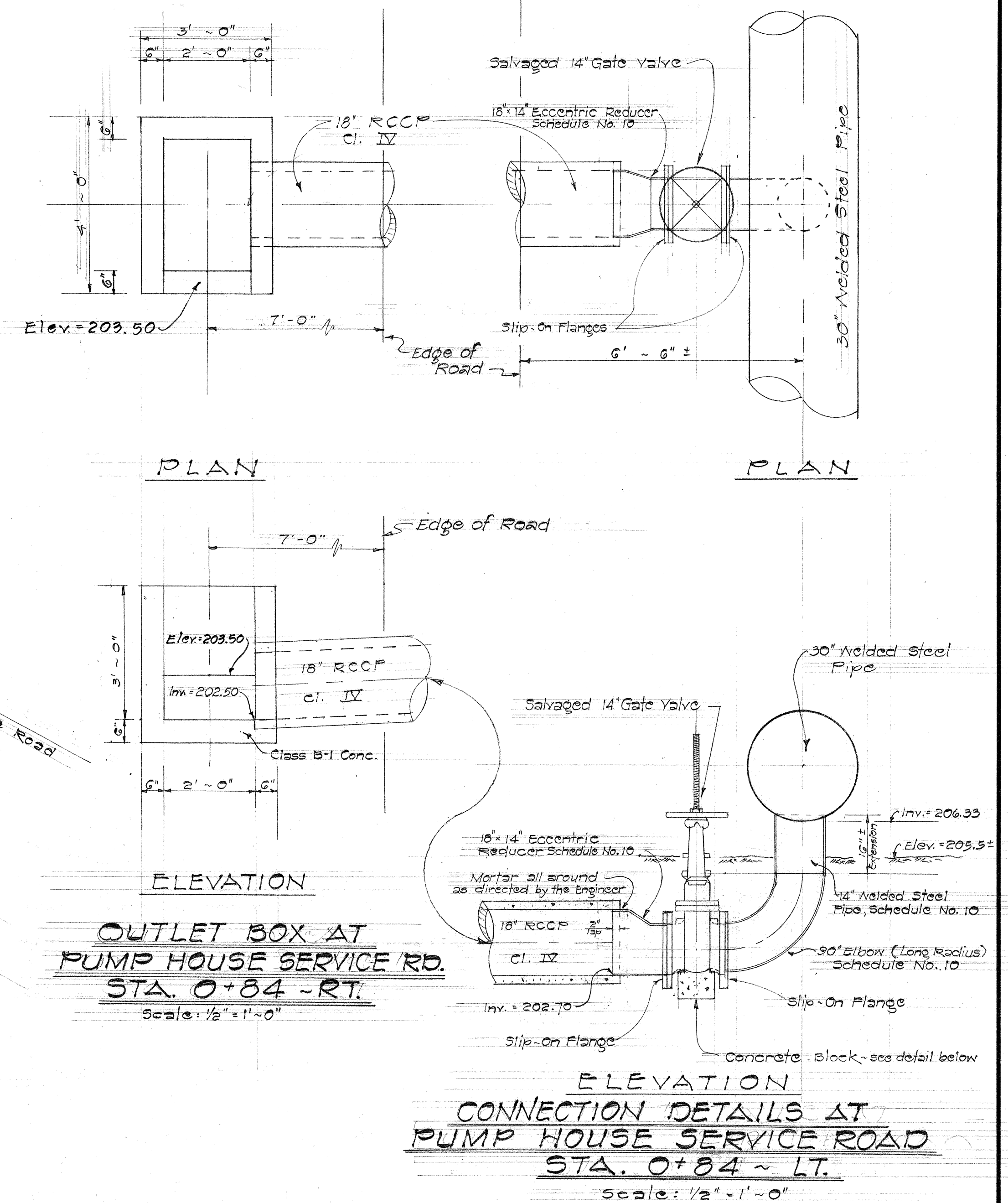
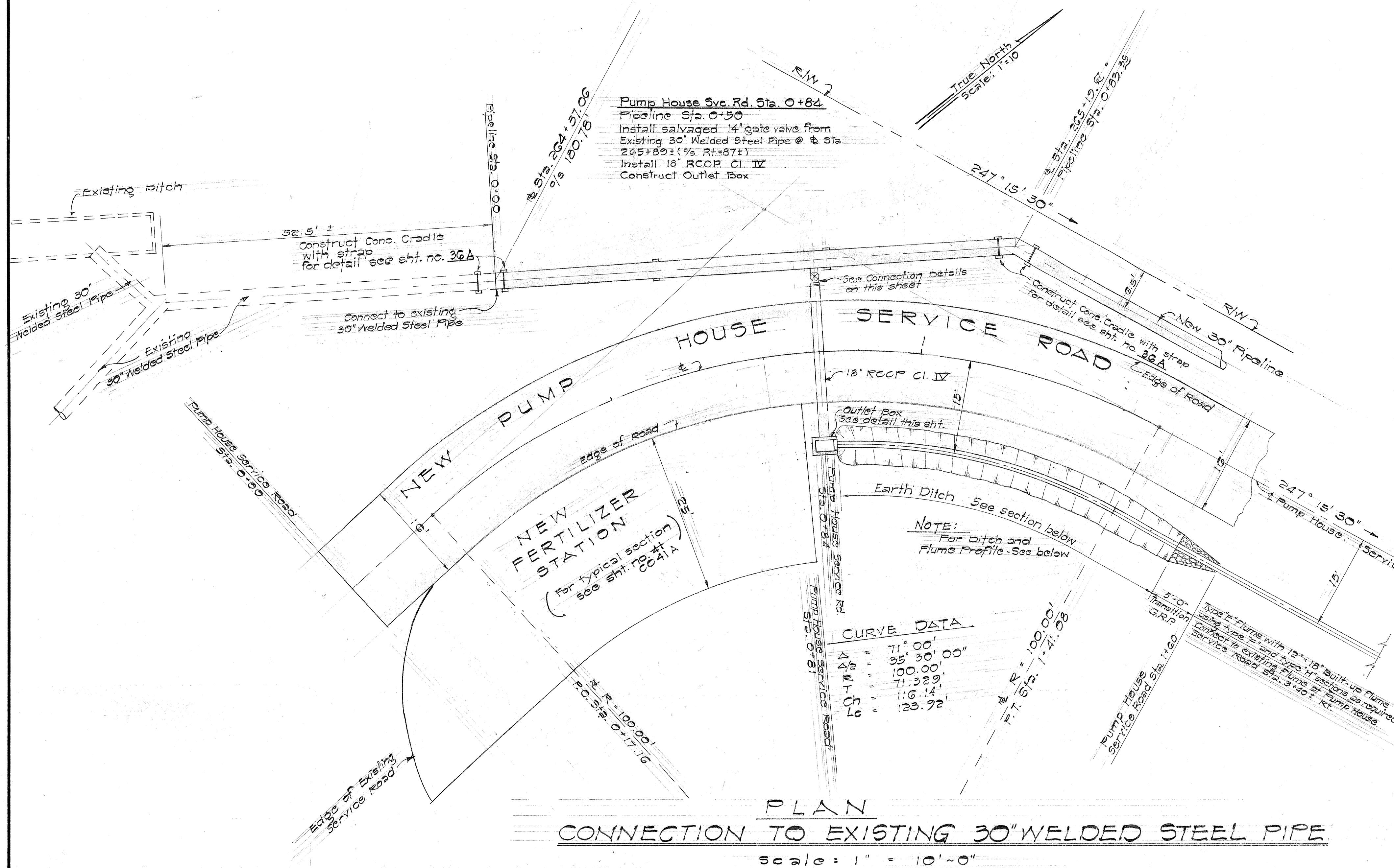
332

PLAN	SURVEYED _____	BY _____	DATE _____
NOTE BOOK NO. _____	PLOTTED _____ ALIGNMENT CHECKED _____ RT. OF WAY CHECKED _____	✓	

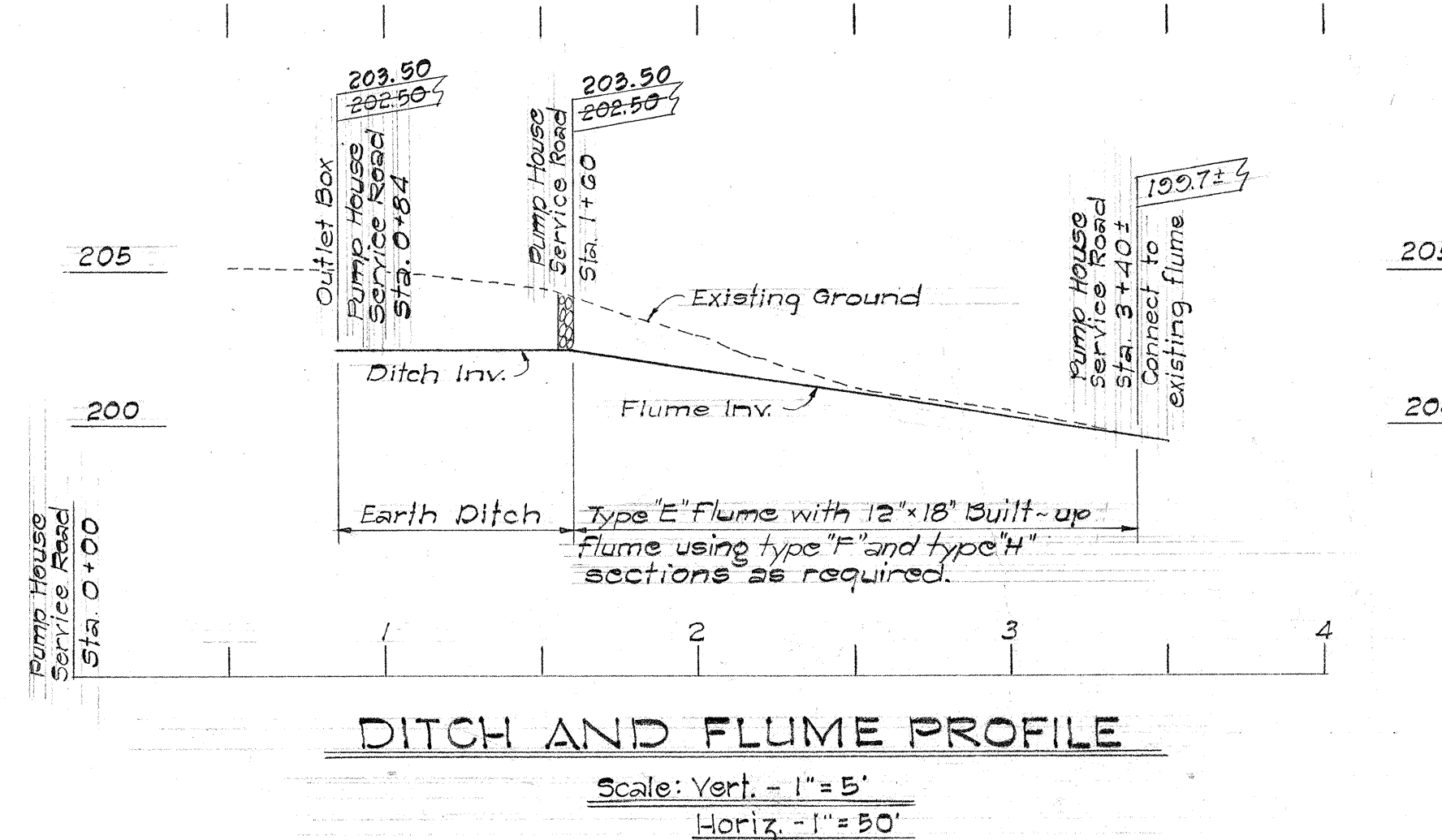
PROFILE	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	GRADES CHECKED		
NO.	B. M'S NOTED		
	STRUCTURE NOTAT'NS CH'VD.		



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(18)	1965	34	124

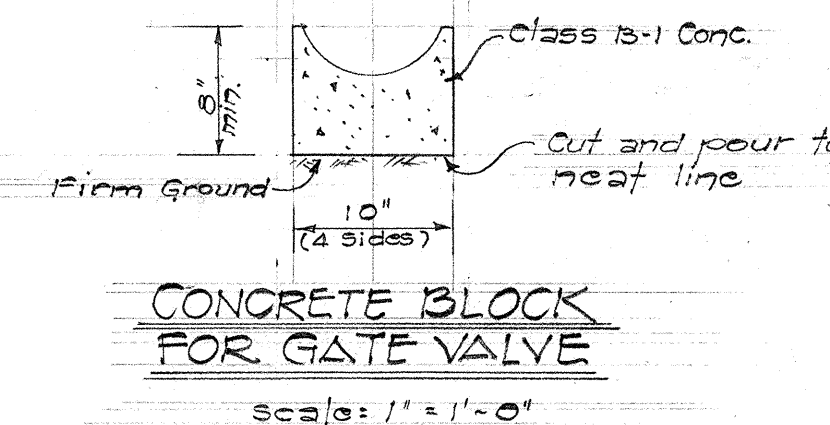


TYPICAL SECTION
EARTH DITCH
Scale: $\frac{1}{2}" = 1'-0"$



DITCH AND FLUME PROFILE

Scale: Vert. - 1" = 5'
Horiz. - 1" = 50'



CONCRETE BLOCK
FOR GATE VALVE

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

- ## NOTES:-
1. Concrete Block, mortar Structure Exg., 14" Welded Steel Pipe, 14" - 90° Elbow (Long Radius) and 18"x14" Eccentric Reducer shall be incidental to "Salvaging and Relocating 14" Gate Valve."
 2. Entire 14" Gate Valve Assembly shall be painted with two (2) coats of red lead primer and one (1) coat of aluminum paint.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL

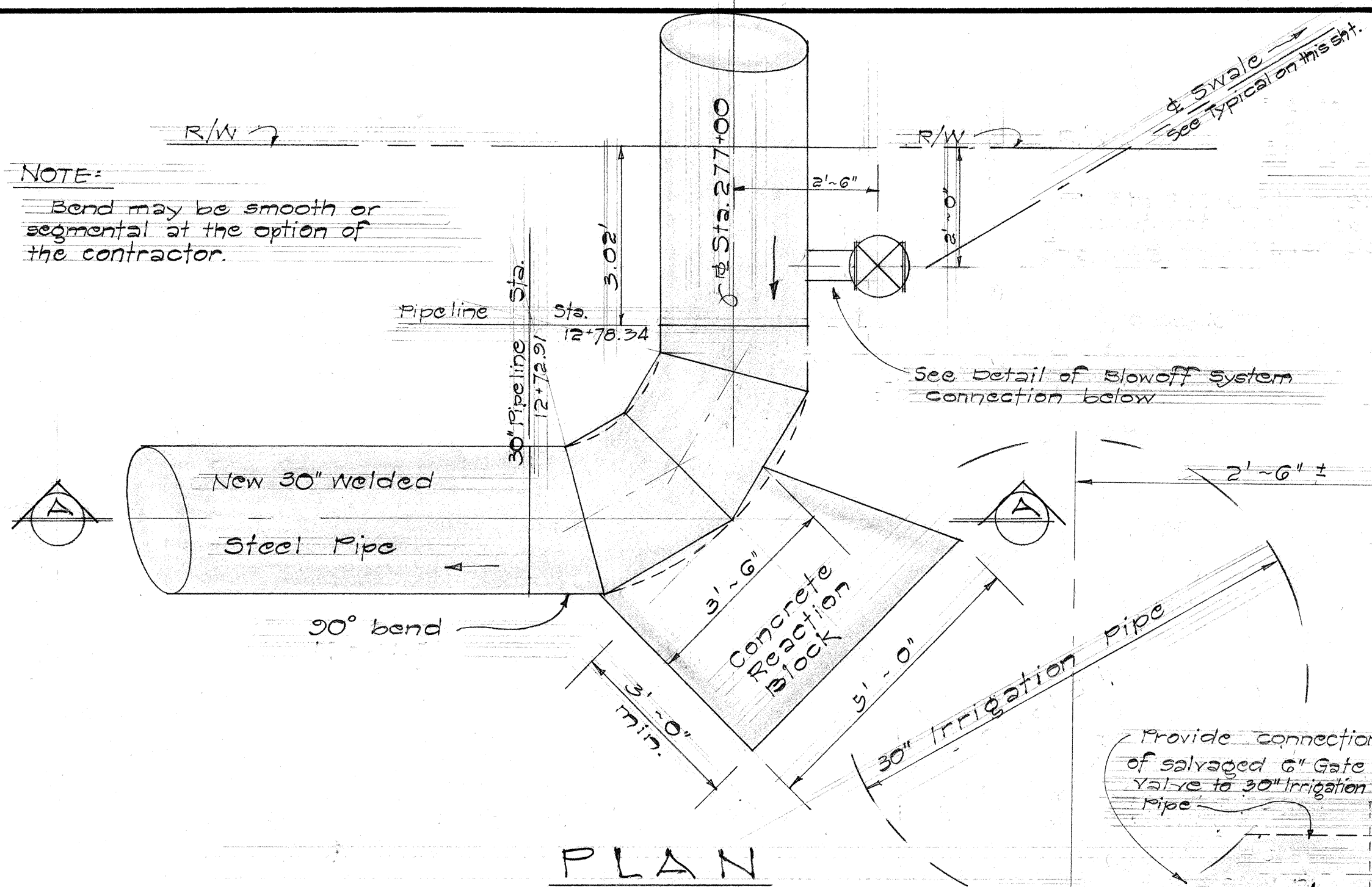
RELOCATION OF 30" IRRIGATION
PIPE FROM ± STA. 264+37.66 to 277+00

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

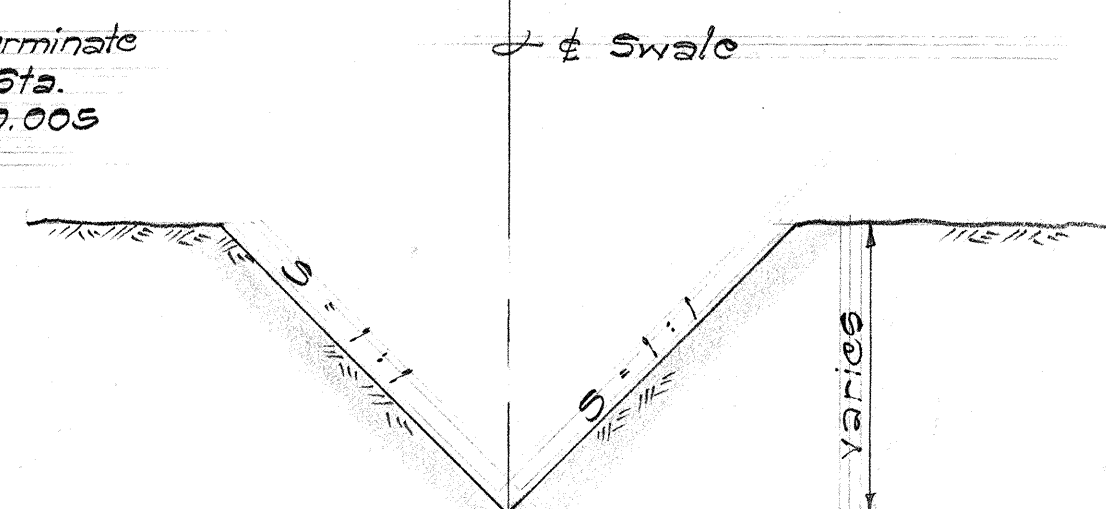
Scale: As Shown Date: Nov. 1964

SHEET No. 4 OF 22 SHEETS

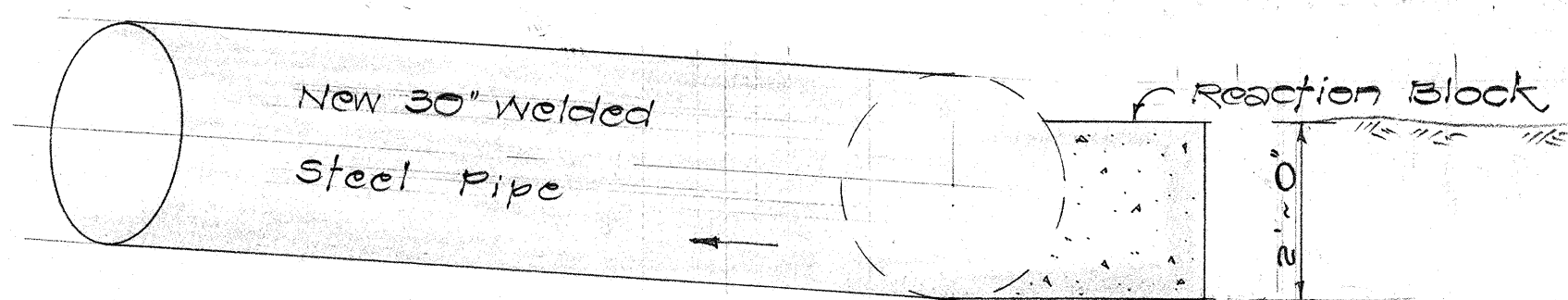
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-41-1(18)	1965	35	124



NOTE: Construct swale to terminate in Earth Ditch at Sta. 277+20. min. slope = 0.005

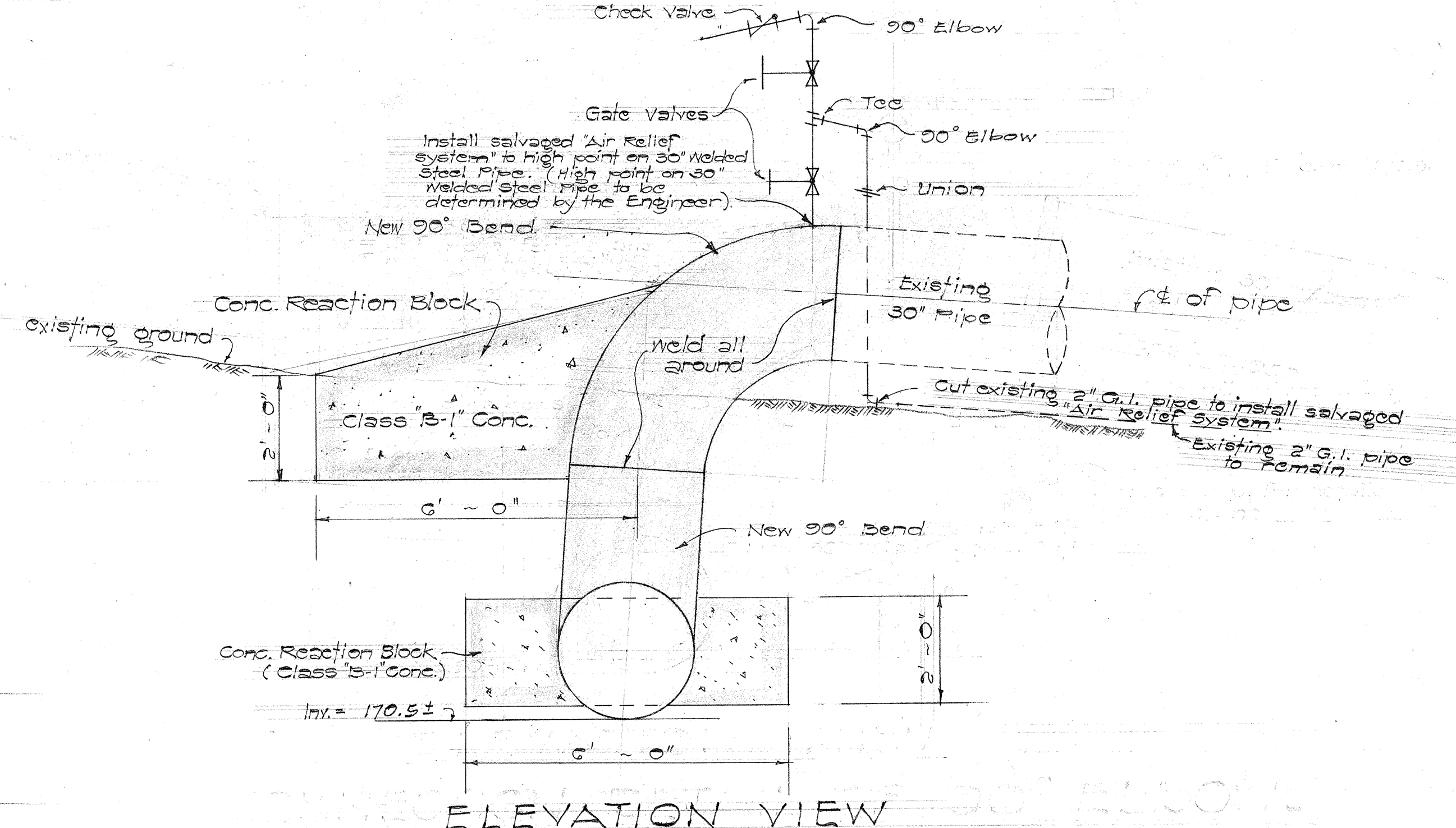
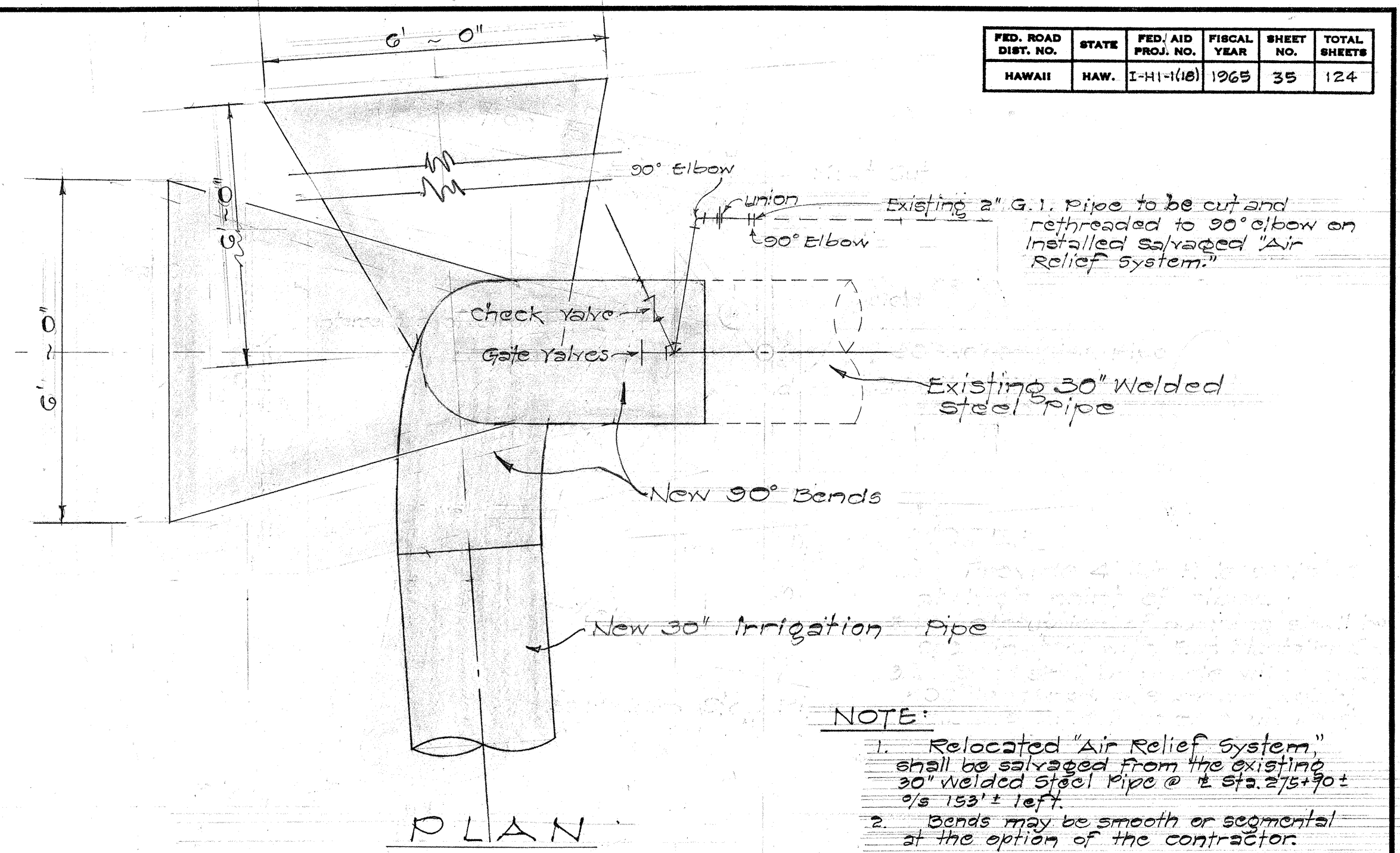
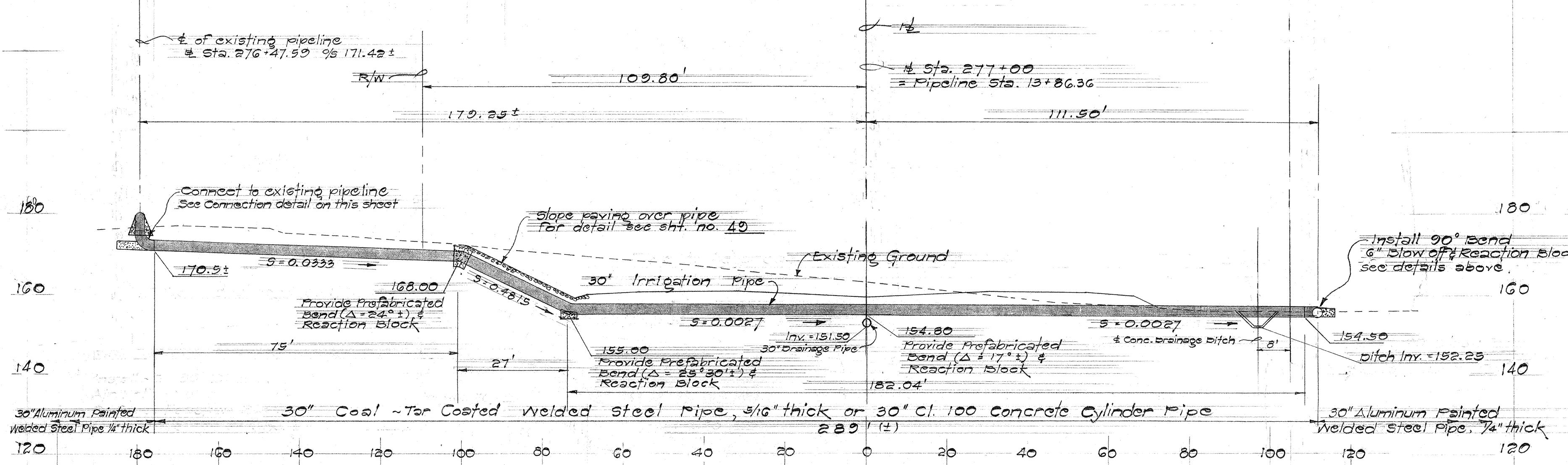


CONNECTION DETAIL OF BLOWOFF SYSTEM @ STA. 277+00
Not to scale



SECTION "A-A"

DETAIL OF BENDS AND REACTION BLOCK
Scale: 1/2" = 1'-0"



CONNECTION DETAILS @ STA. 276+47.50
96' 171.42 ft. LEFT
Scale: 1/2" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL
RELOCATION OF 30" IRRIGATION PIPE AT STA. 277+00

INTERSTATE ROUTE H-1
FAI Project No. I-41-1(18)

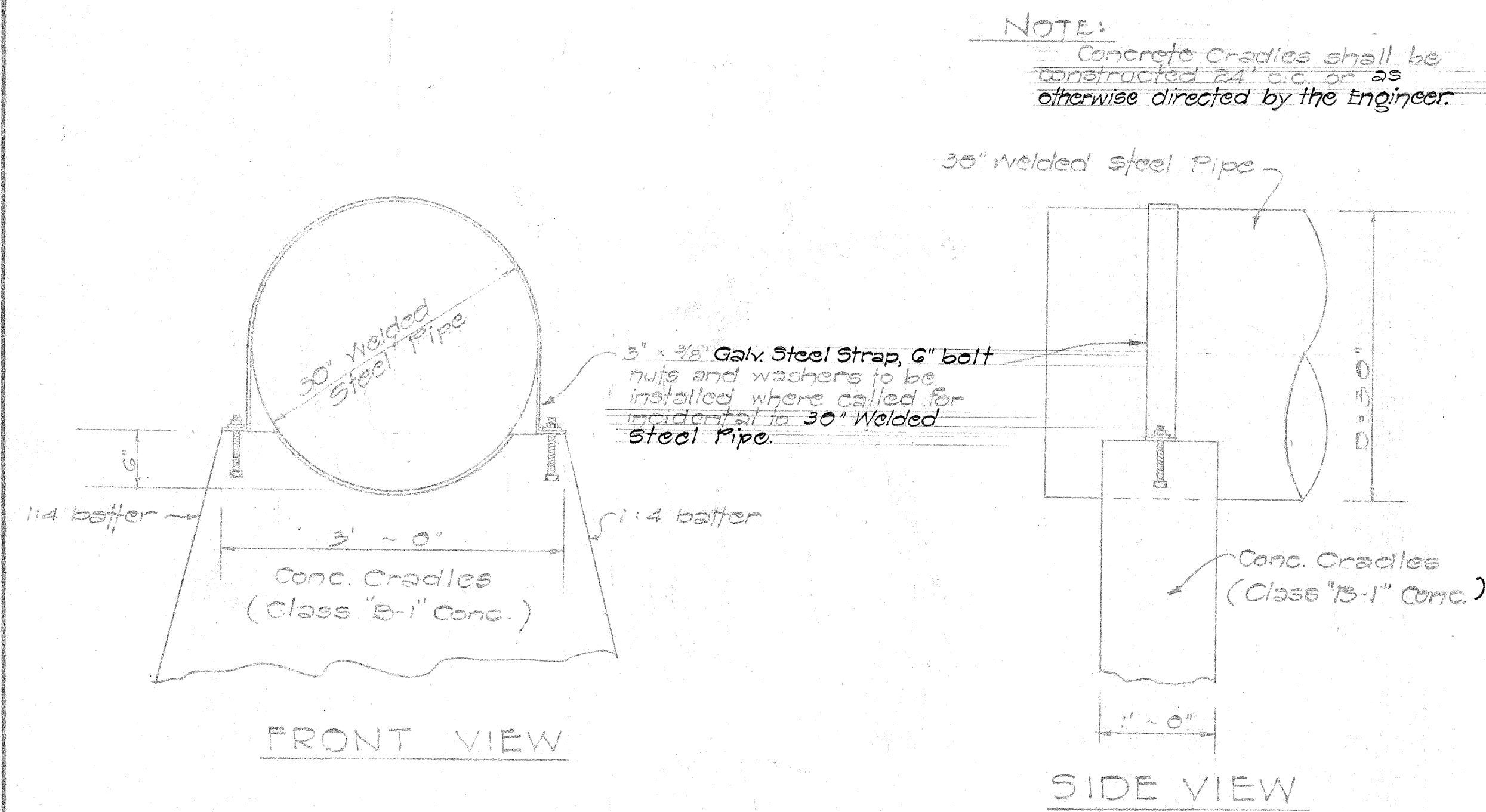
Scale: As Shown Date: Nov. 1964

SHEET No. 5 OF 22 SHEETS

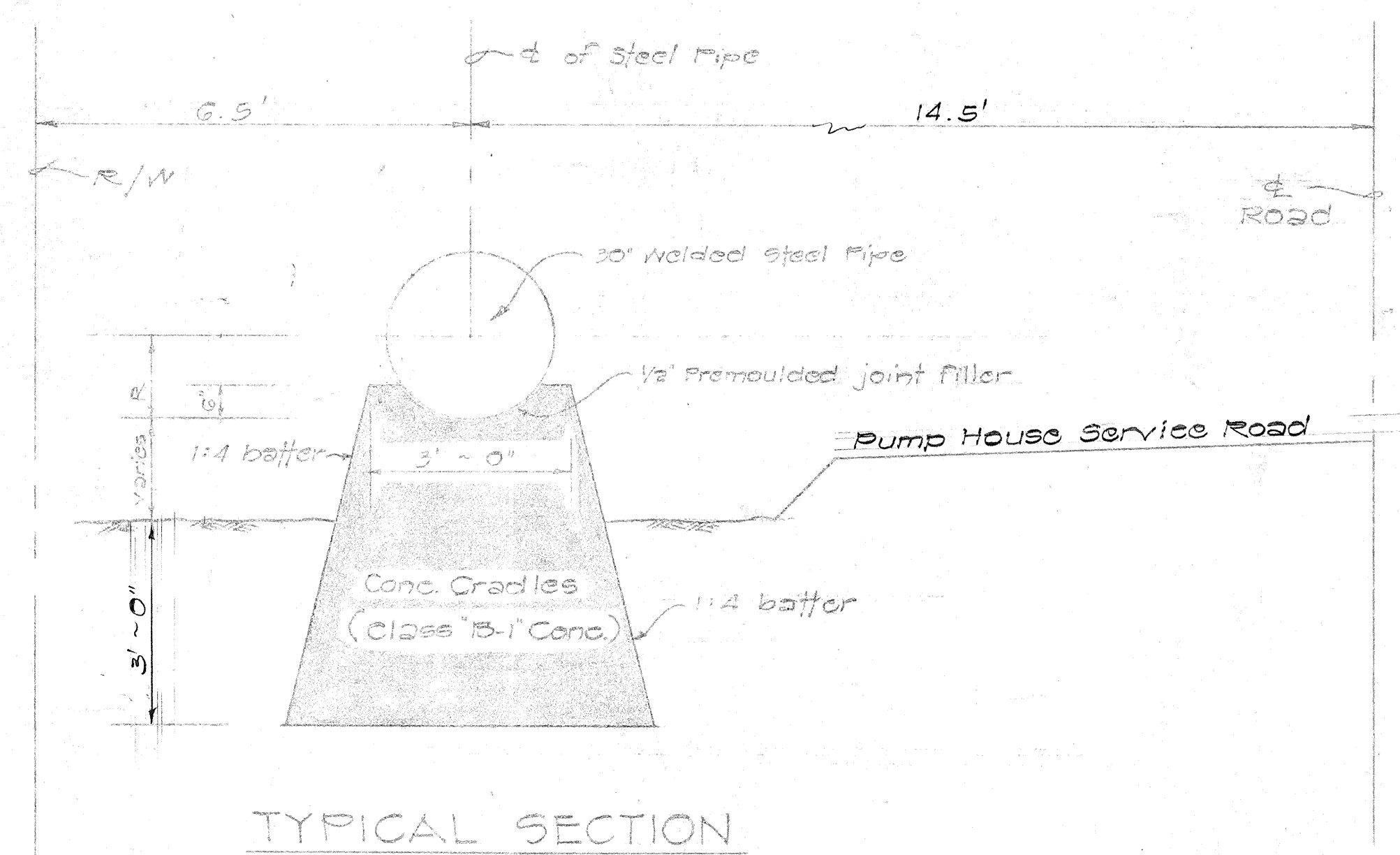
DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
NO.	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(16)	1965	36	124

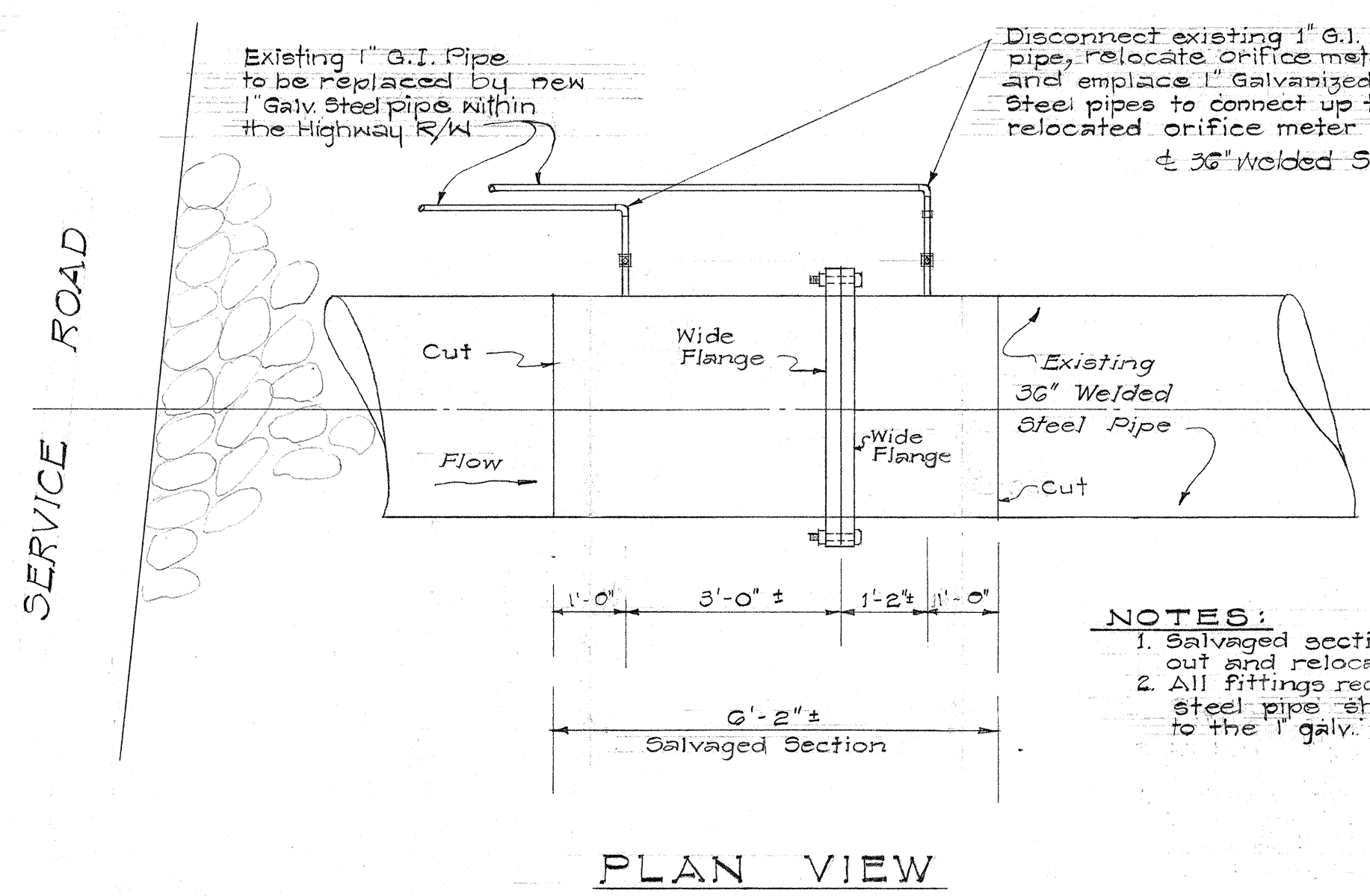
Revised: April 27, 1965.
 1.) Hangers shall be incidental to 36" welded steel pipes.
 2.) Hangers shall be installed 10' o.c. along the pipe, or as otherwise directed by the Engineer.



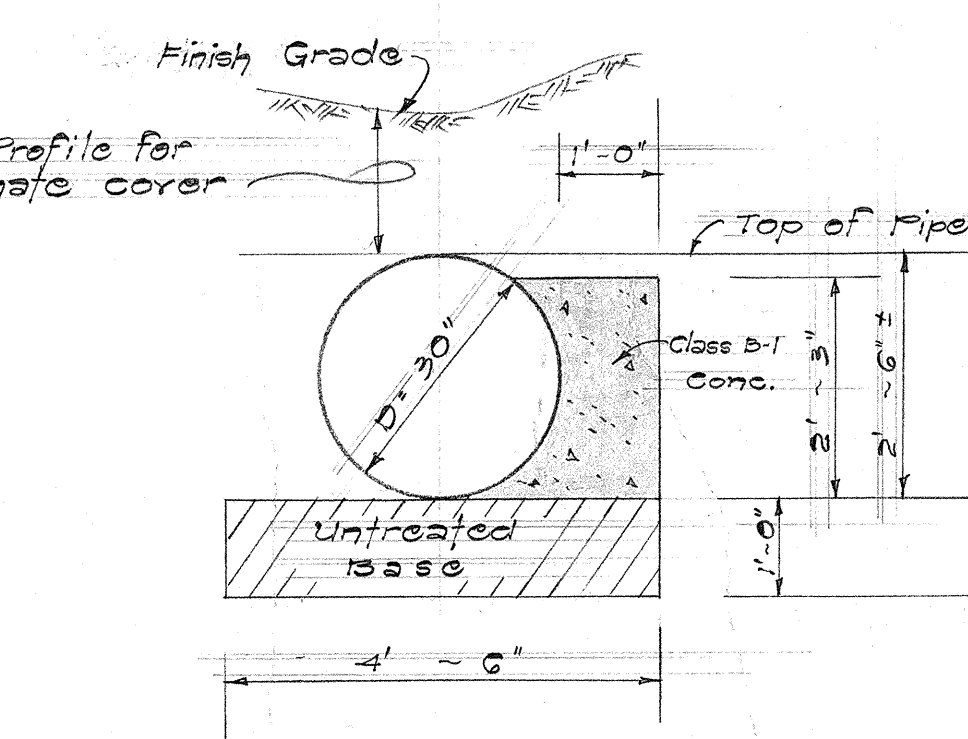
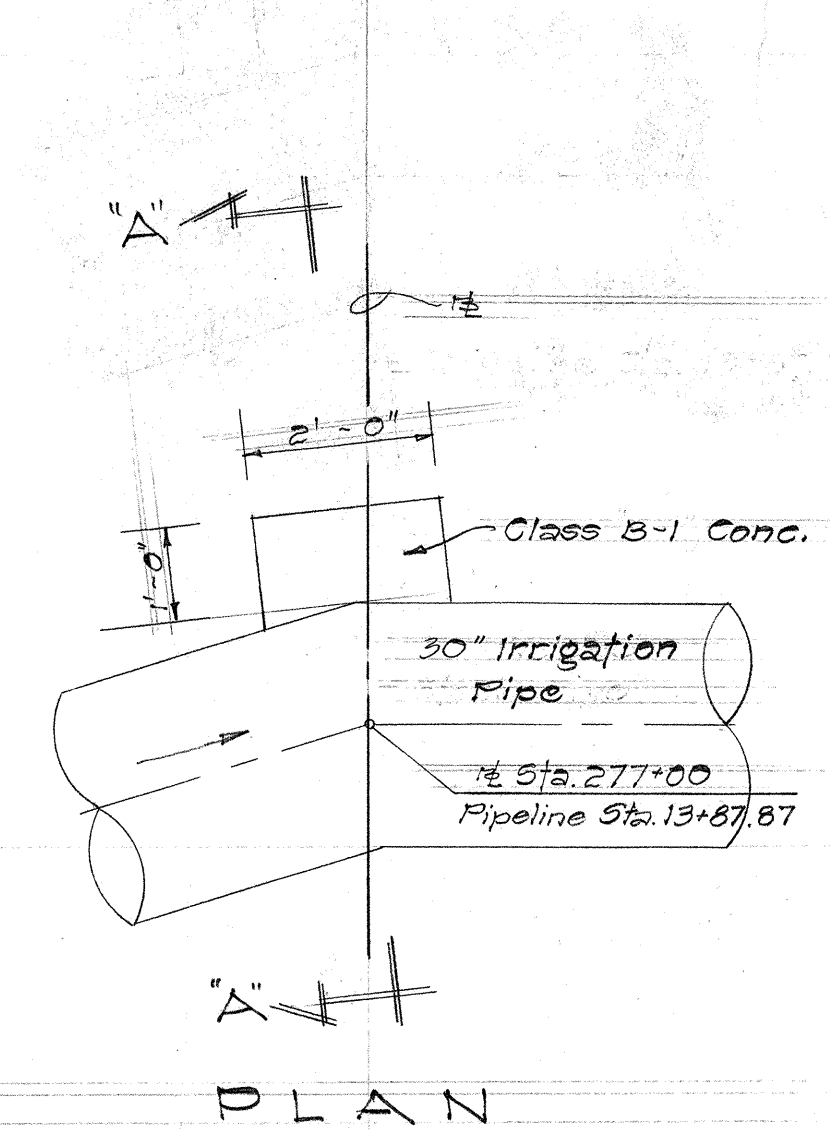
STRAP DETAILS
 Scale: 1" = 1'-0"



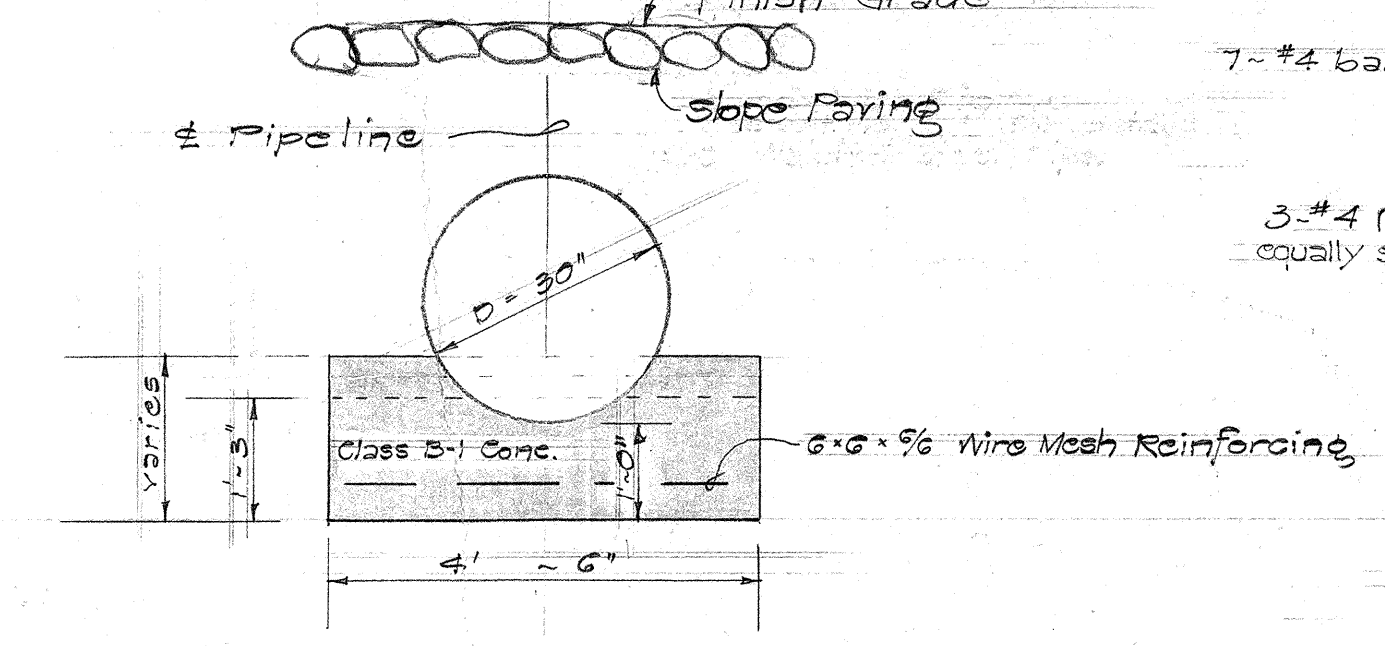
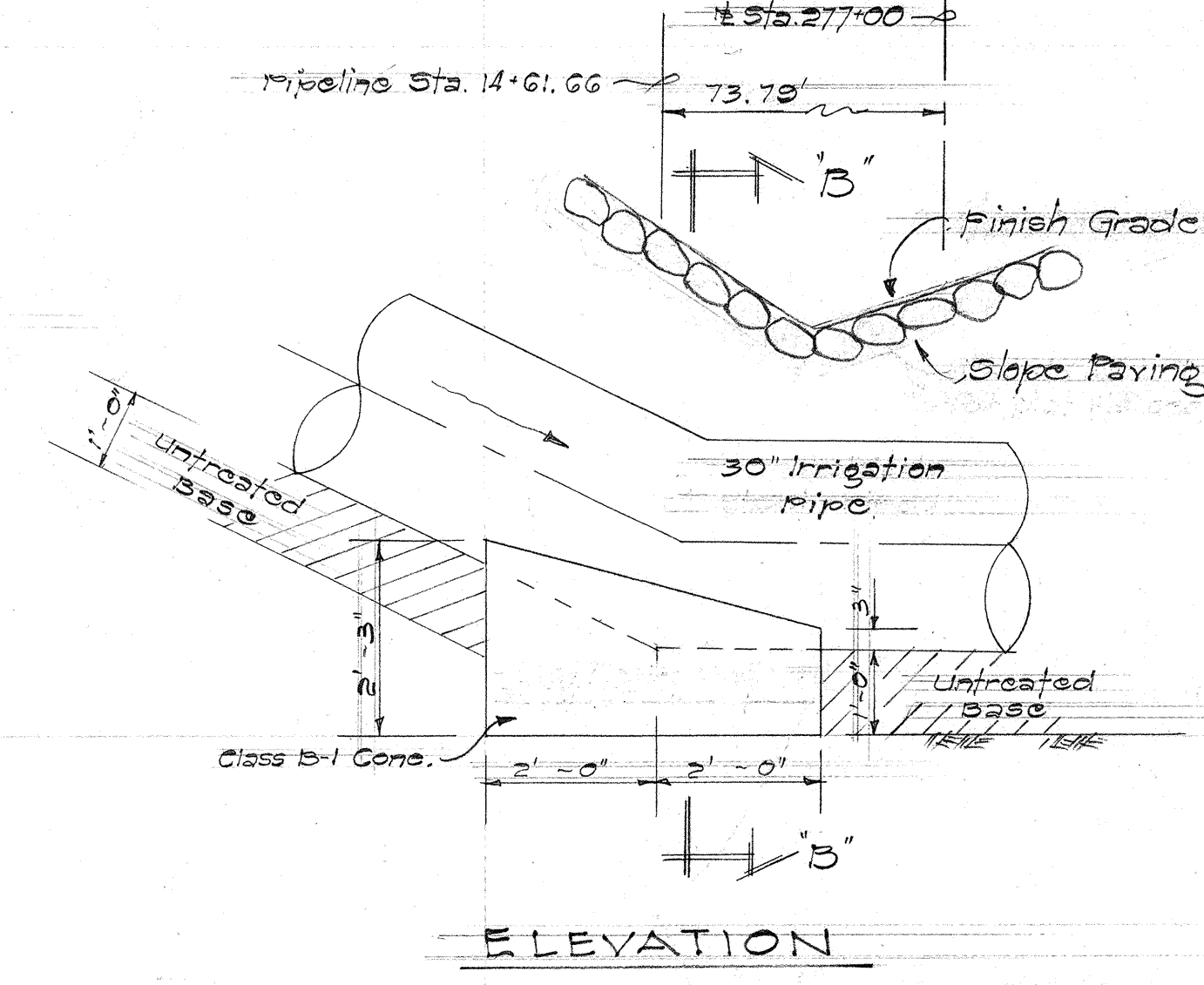
DETAIL OF CONCRETE CRADLE FOR 30" WELDED STEEL PIPE
 Scale: 1/2" = 1'-0"



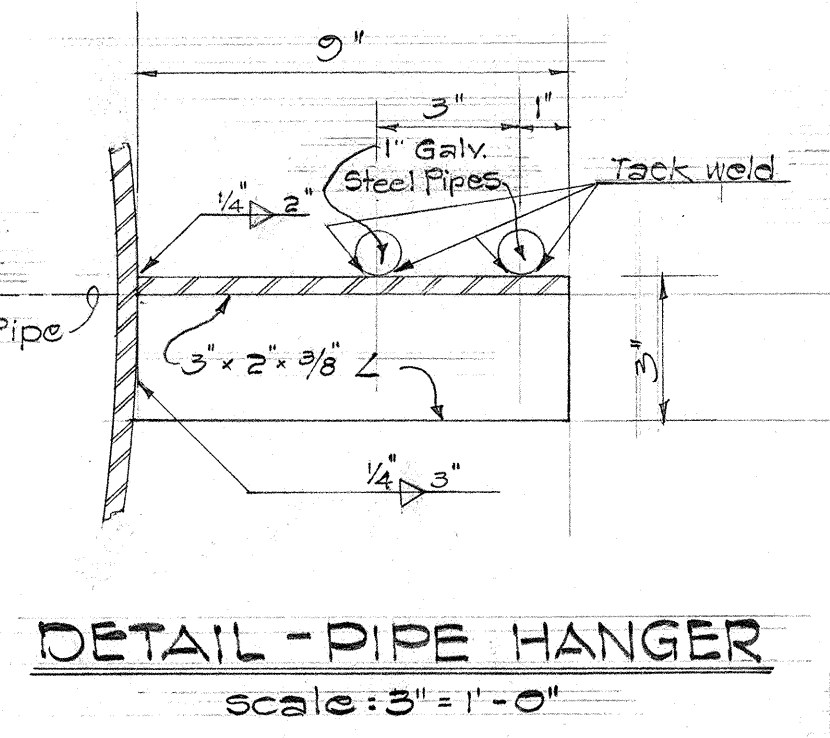
DETAIL OF EXISTING ORIFICE METER
 Sta. 278 + 65 ± (Left)
 Scale: 1/2" = 1'-0"



CONC. REACTION BLOCK

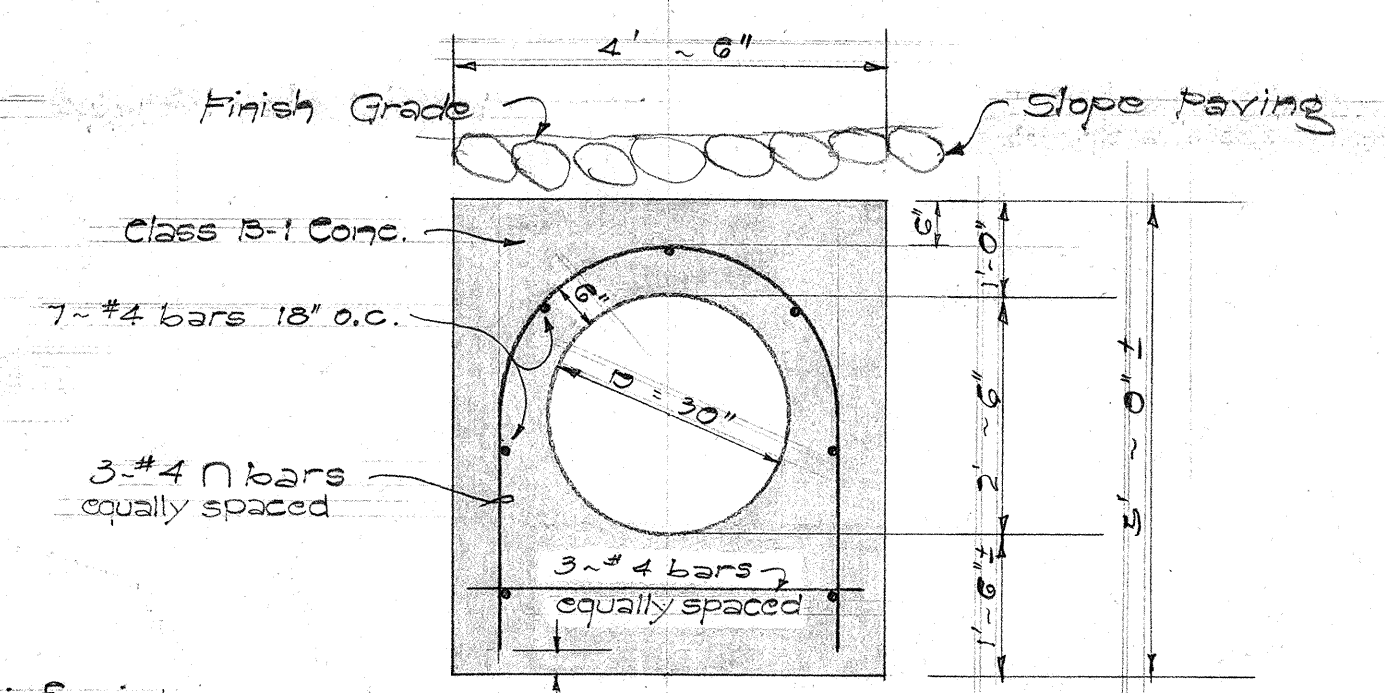
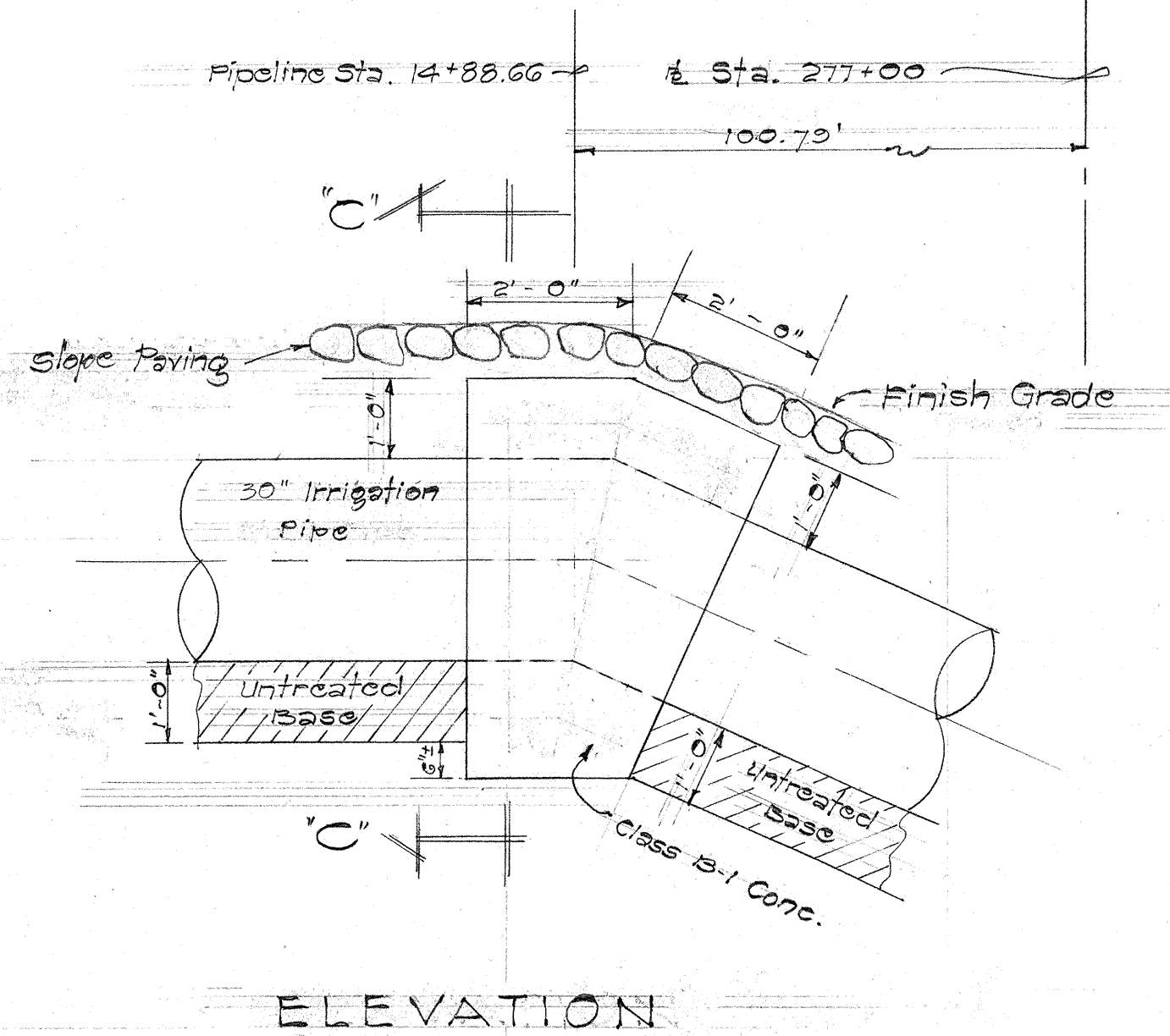


CONC. REACTION BLOCK



Scale: 3" = 1'-0"

TYPICAL SECTION OF 30" AND 36" IRRIGATION PIPE FOUNDATION
 Scale: 1/2" = 1'-0"



CONC. REACTION BLOCK

CONCRETE REACTION BLOCKS FOR 30" IRRIGATION PIPE UNDER ROADWAY @ Sta. 277+00 (±)

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

THIS SHEET SUPERSEDES SHEET No. 36

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

IRRIGATION DETAIL

SPECIAL DETAILS OF 30" AND 36" IRRIGATION PIPES

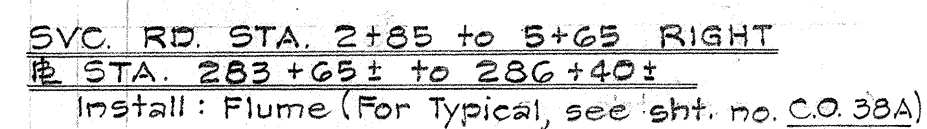
INTERSTATE ROUTE H-1
 F.A.I. Project No. I-HI-1(16)

Scale: As Shown Date: Jan. 1965

SHEET No. 6 OF 22 SHEETS

36 11

PLAN		BY	DATE
	SURVEYED		
	PLOTTED		
	NOTE BOOK		
	ALIGNMENT CHECKED		
	RT. OF WAY CHECKED		
NO.			



Type "E" Flume = 153 L.F.
 12 x 18" Built-up Flume using
 Type "F" and Type "H" Sections = ~~120~~ L.F. 119
 Type "A" Flume 5 L.F.
 12 x 12" Built-up flume using
 Type "B" and Type "D" Sections 5 L.F.

SVC. RD. STA. 5+65 RIGHT
12 STA. 286+40± (See sht. no. 44) CO44
Construct: Special Jet. Box

ESTIMATED QUANTITIES

Structure Exc.	= 4.34 C.Y.
CRM	= 1.42 C.Y.

Type "E" Flume	=	10 L.F.
24"x24" Built-up Flume using		
Type "I" Sections	=	13 + 15 L.F.
24"x24" "U" Gate	=	4 ea.

SVC. RD. STA. 5+65 to 6+92 RIGHT
to STA. 286+40± to 287+67±
Excavate Earth Ditch
(See Typical, sht. no. 38) CO 38A

ESTIMATED QUANTITIES	
Ditch & Channel Exc.	= 53.55 C.Y.
Sprinkling	= 1 M.Gal

SVC. RD. STA. 7+00± LEFT & RIGHT
 STA. 287+75 (See sht. no. 406 & 41) 40A & 40A1A
 Construct: Siphon Inlet, Siphon Outlet, and SPMH
 Install: 24" Siphon Pipe,

<u>ESTIMATED QUANTITIES</u>	
Class B-1 Conc.	= 46.0 CY. 15.7
Reinf. Steel	= 942 lbs 94.2
Struc. Exc.	= 407 CY 480.9
G.R.P	= 6 CY
Hand-Laid Rip Rap	= 12 CY 10.4
24" Recr. C.I. III or CMP (14 gal)	= 24 LF
24" Siphon Pipe	= 44 LF 401.5
Sprinkling	= 10 M.Gals.
Relocating Salvaged 8" Gate Valve	= 1 ea.
Type 'A' Std. C.I. Frame & Cover	= 1 ea.
Trash Rack	= 1 ea.
CRM	= 20 CY 18.2
Ditch & Channel Exc.	= 5 CY 4.2
34" x 36" U-Gate	= 3 ea.
Unreinf. Base For Pipe Foundation	= 22.0 CY.

Excavate Earth Ditch
(See Typical Sht. no. 38) CO 38A

Ditch & Channel Exc.	= 78 77 C.Y.
Sprinkling	= 1 M.Gal.

SVC. RD. STA. 8+90 RIGHT
AT STA. 289+60± (See sht. no. 44) C044
Construct: Special Jct. Box
Install: Flumes
Wing Ditch to Svc. Rd. Sta. 10+50±

<u>ESTIMATED QUANTITIES</u>	
Structure Exc	= 4.3 4 C.Y.
CRM	= 1.5 2 C.Y.
Type "A" Flume	= 8 L.F.
12x18" Built-up Flume using	
- Type "F" & Type "H" Sections	= 20 L.F.
Type "E" Flume	= 134 L.F.
24"x24" Built-up Flume using	
- Type I Sections	= 10.4 10 L.F.
24"x24" "U" Gates	= 2 ea.

SVC. RD. STA. 13+85 to 16+23 RIGHT
R STA. 294+40± to 296+78±
Install: Flume (For Typical see sht. no. CO 38A)

Type "E" Flume	=	207 L.F.
12"x18" Built-up Flume using Type "F" and Type "H" Sections	=	31 L.F.

SVC. RD. STA. 16+25 ± RIGHT
± STA. 206+80 (See sht. no. 43) CO 43
 Construct: Special C.D.I., Jct. Box and
 Outlet Structure

<u>ESTIMATED QUANTITIES</u>	
CRM	= 2.6 - 3 CY.
24" x 24" "U" Gate	= 2 ea.
Class D-1 Conc.	= 5.1 - 5.4 CY.
Reinf. Steel	3063 ± 10 Lb.
Structure Exc.	= 24.4 ± 1 CY.
Type "E" Flume	= 15 LF
Sprinkling	= 1 M.Gal.
24" x 24" Built-up Flume using	
Type "I" Section	= 16.5 ± 1 L.F.

SVC. RD. STA. 16+25± to 19+40± RIGHT
1/2 STA. 296+80 to 300+00
Install: Flume (For Typical, see sht. no. C.O. 38A)

<u>ESTIMATED QUANTITIES</u>	
Type 'E' Flume	= 51 L.F.
12"x18" Built-up Flume using	
Type 'F' and Type 'H' Sections	= 5 L.F.
Type 'A' Flume	137 L.F.
12"x12" Built-up Flume using	
Type 'B' and Type 'D' Sections	116 L.F.

SVC. RD. STA. 18+60±
± STA. 299+19.14 (See sht. no. 42.)
Construct: Siphon Inlet, Siphon Outlet, and
G.R.P. Ditches
Install: 30" Siphon Pipe

GENERAL PRICES			
Class B-1 Conc.		= 15.5	45.8 C.Y.
Reinf. Steel	122.9	= 14.1	1bs.
Struc. Exc.	404.3	= 3.8	C.Y.
Ditch & Channel Exc.		= 2.1	3 C.Y.
G.R.P.		= 2.8	3 C.Y.
Hand-Laid Rip Rap		= 0.5	C.Y.
30" Siphon Pipe		=	305 L.F.
Trash Rack		=	1 ea.
Sprinkling		=	10 M.Gals.

UNIFIED BASE FOR PIPE FOUNDATION
SYN. RD. STA. 19+48 TO 20+45 RIGHT
± STA. 300+08± TO 301+10±
Excavate Earth Ditch
(See Typical sht. no. ~~38~~) **CO 38A**

Ditch & Channel Exc.	= 45.43 C.Y.
Sprinkling	= 1 M.Gal

NOTES:
"SVC. RD. STA." refers to "Top Ditch Service
Road Station."

SVC. RD. STA. 20+65 RIGHT
to STA. 301+20±
Construct: Typical Jct. Box (See sht. no. C.O.43)

<u>ESTIMATED QUANTITIES</u>	
G.R.P.	= 5.3 5 C.Y.
Ditch & Channel Exc.	= 8 C.Y.

24"x24" Built-up Flume using Type 'I' Sections	=	11 L.F.
24"x24" "U" Gate	=	3 ea.
Gate End (h = 3'-0")	=	2 ea.
Sprinkling	=	1 M. Ga.

SVC. RD. STA. 20+75 to 23+85
to STA. 301+10+ to 304+45+
Excavate Earth Ditch (See Typical, sht. no. C.O. 38A)

<u>ESTIMATED QUANTITIES</u>	
Ditch & Channel Exc.	= 123 C.Y.
Sprinkling	= 3 M.Gals

SVC. RD. STA. 23+95 RIGHT
BE STA. 304+50 ±
Construct: Typical Jct. Box (See sht. no. C.O.43)

GRP	= 5.3	C.Y.
Ditch & Channel Exc.	= 8	C.Y.

24" x 24" Built-up Flume		
using Type "I" Section	=	15 L.F.
24" x 24" "U" Gate	=	3 ea

Sprinkling
SYC. RD. STA 24+05 to 28+40
B STA. 304+60+ to 309+00+
Excavate Earth Ditch (See Typical sht no. 28)
M.Ga
0038A

ESTIMATED QUANTITIES

Ditch & Channel Exc.	= 176 + 75 C.Y.
Sprinkling	= 4 M.Gals.

Revised: 2-11-66

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL

§ STA. 283+65 to 309+00

INTERSTATE ROUTE 4-1
FAI Project No. 1-41-1(18)

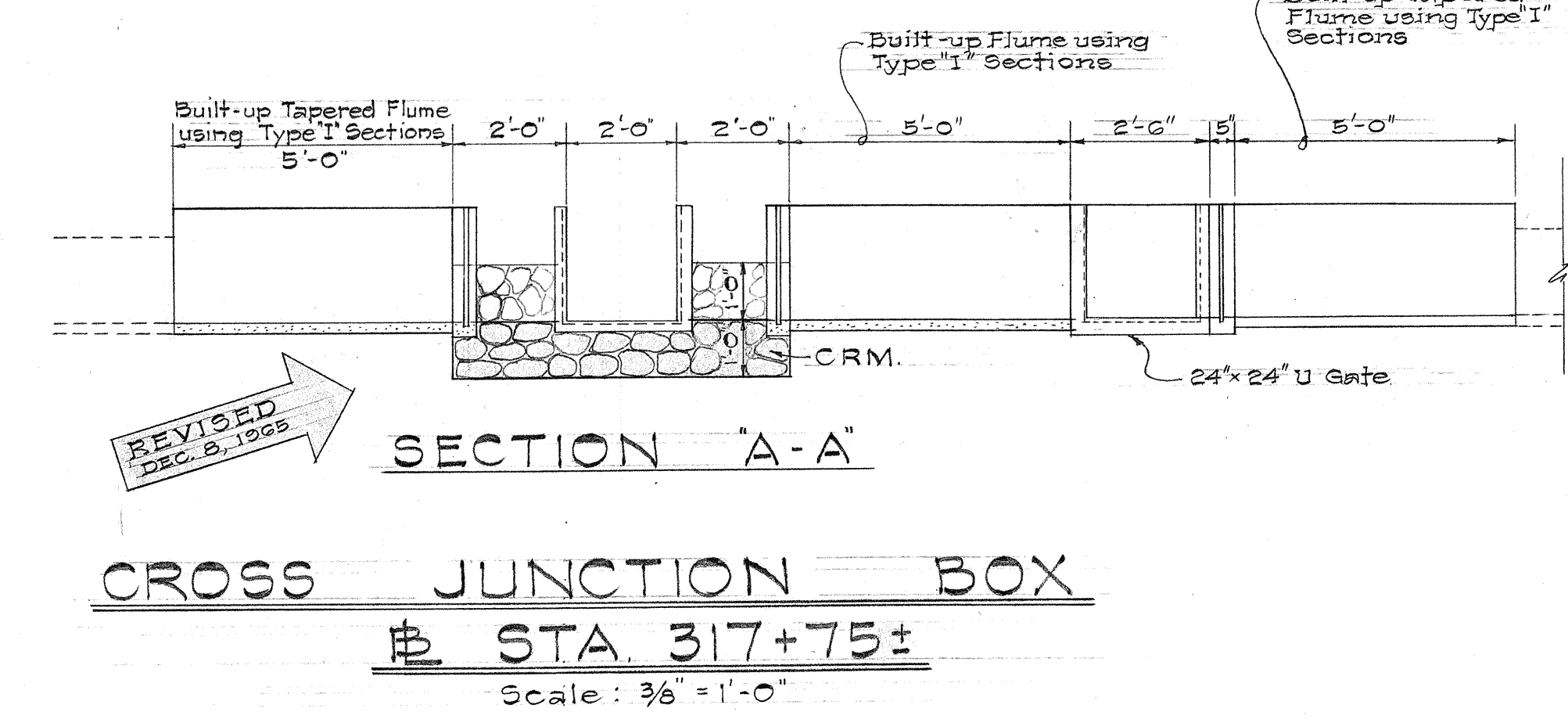
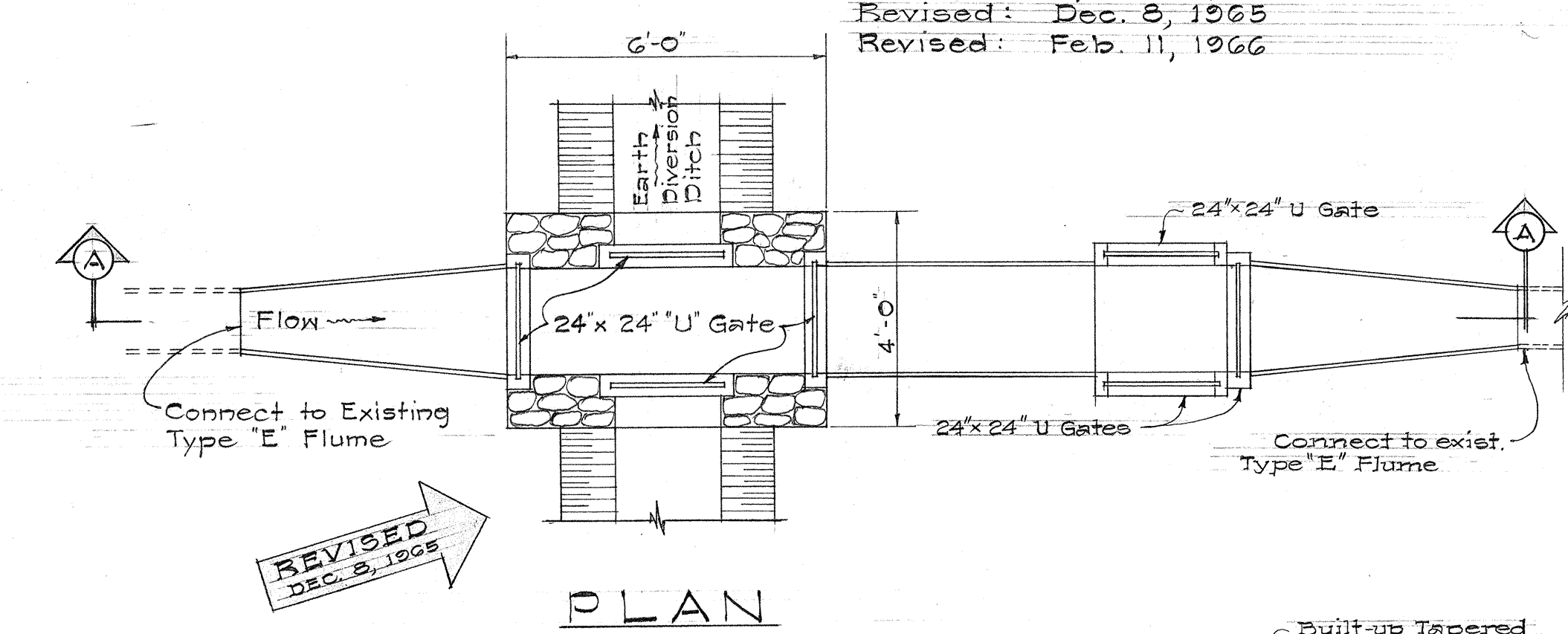
Scale: 1" = 100' Date: _____

SHEET No. 7 OF 22 SHEETS

CO 35

FED. AID DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	I-111-1118	1965	38	124

Revised: April 27, 1965
 Revised: Dec. 8, 1965
 Revised: Feb. 11, 1966



SVC. RD. STA. 30+50 RIGHT
 @ STA. 309+10±
 Construct: Type Jct. Box (See sht. no. CO.42)

ESTIMATED QUANTITIES

Ditch & Channel Exc.	5.3	CY.
GR.P.	5.3	CY.

24"x24" Built-up Flume using Type "I" Sections = 18.6 LF
 24"x24" U-Gate = 2 EA
 Gate End (h=3'-0") = 2 EA
 12"x18" Built-up Flume using Type "F" and "H" Sections = 8 LF

SVC. RD. STA. 30+50 to 30+55 RIGHT
 @ STA. 309+20± to 310+15±
 Excavate Earth Ditch (See Typical, this sht.)

ESTIMATED QUANTITIES

Ditch and Channel Exc.	38	CY.
Sprinkling	1	M.Gal.

SVC. RD. STA. 30+55 to 30+90 RIGHT
 @ STA. 310+15± to 310+50± (See sht. no. 45A)
 Construct: Special Inlet Struc. & Special Jct. Box
 Install: Flumes & 36"x22" CGM Pipe Arch (14 Gage)
 Wing Ditch to Svc. Rd. Sta. 32+90

ESTIMATED QUANTITIES

Structure Exc.	34.7	CY.
Class B-1 Conc.	1.4	CY.
CRM	9.9	CY.
36"x22" CGM Pipe Arch (14 Gage)	24.5	LF.
24"x24" Built-up Flume using Type "I" Sections	452.45	LF.
Sprinkling	1	M.Gal.
12"x18" Built-up Flume using Type "F" & Type "H" Sections	59	LF.
Type "E" Flume	256	LF.
24"x24" U-Gate	2	EA

SVC. RD. STA. 30+90 to 32+65 RIGHT
 @ STA. 310+50± to 312+50±
 Construct: Concrete Lined Ditch (See Typical this sheet)

ESTIMATED QUANTITIES

Ditch and Channel Exc.	194	CY.
Class B-1 Conc.	349	CY.
Reinf. Steel	1172	LB.
Sprinkling	1	M.Gal.

SVC. RD. STA. 32+05 RIGHT
 @ STA. 312+50±
 Construct: Type Jct. Box (See sht. no. CO.43)
 Install: Flumes
 Wing Ditch to Svc. Rd. Sta. 37+15±

ESTIMATED QUANTITIES

GR.P.	5.3	CY.
Ditch & Channel Exc.	8	CY.
Type A Flumes	119	LF.
24"x24" Built-up Flume using Type "I" Sections	5	LF.
Gate End (h=3'-0")	3	EA
24"x24" U-Gate	2	EA
12"x18" Built-up Flume using Type "F" & Type "H" Sections	137	LF.
Type "E" Flume	164	LF.
Sprinkling	1	M.Gal.

SVC. RD. STA. 32+05 to 37+25 RIGHT
 @ STA. 312+50± to 317+50±
 Construct: Concrete Lined Ditch (See Typical this sht.)

ESTIMATED QUANTITIES

Ditch & Channel Exc.	215	CY.
Class B-1 Conc.	448	CY.
Reinf. Steel	1641	LB.
Sprinkling	4	M.Gal.

SVC. RD. STA. 37+25 RIGHT
 @ STA. 317+50±
 Construct: Cross Jct. Box (For detail see this sht.)
 Special Jct. Box (For detail see sht. no. CO.44)
 Install: Flumes (Between Cross Jct. Box and special Junction Box)

ESTIMATED QUANTITIES

CRM	2.5	CY.
Struc. Exc.	8.9	CY.
Type "E" Flume	60.40	LF.
24"x24" U-Gate	11	EA
24"x24" Built-up Flume using Type "I" Sections	21.50	LF.

SVC. RD. STA. 37+25 to 39+50 & 39+50 to 43+20 RIGHT
 @ STA. 317+50± to 319+00± & 319+00± to 323+10±
 Install: Flumes (See Typical this sheet)

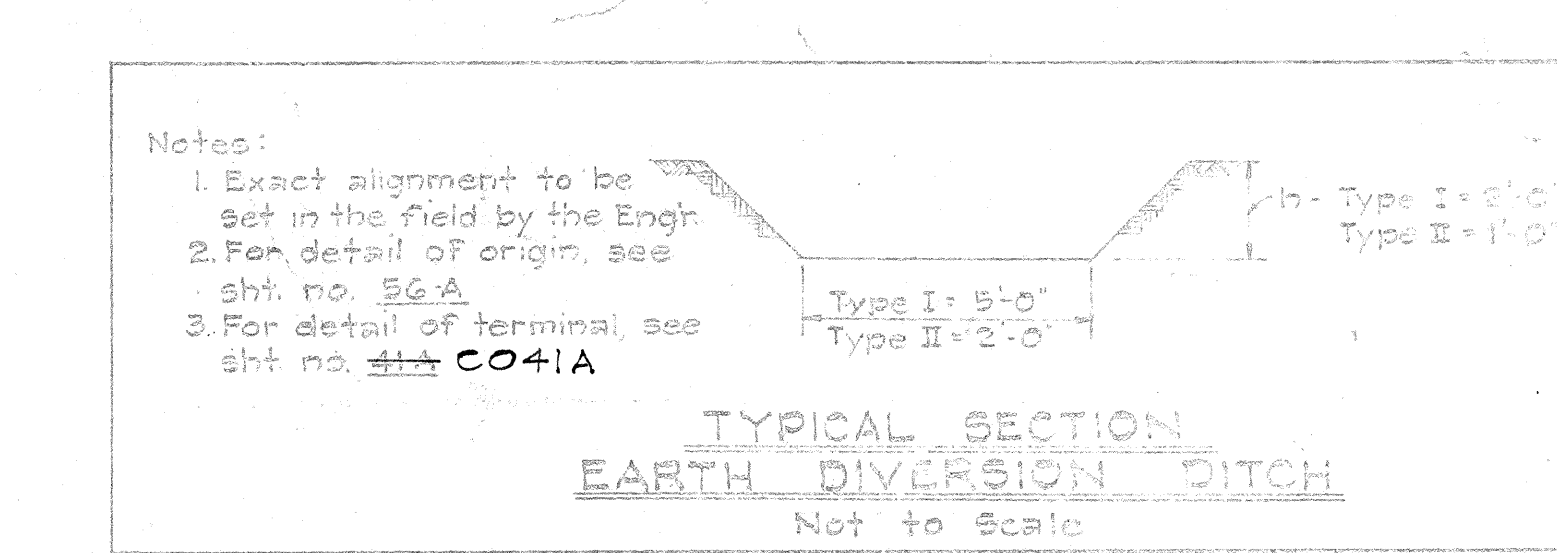
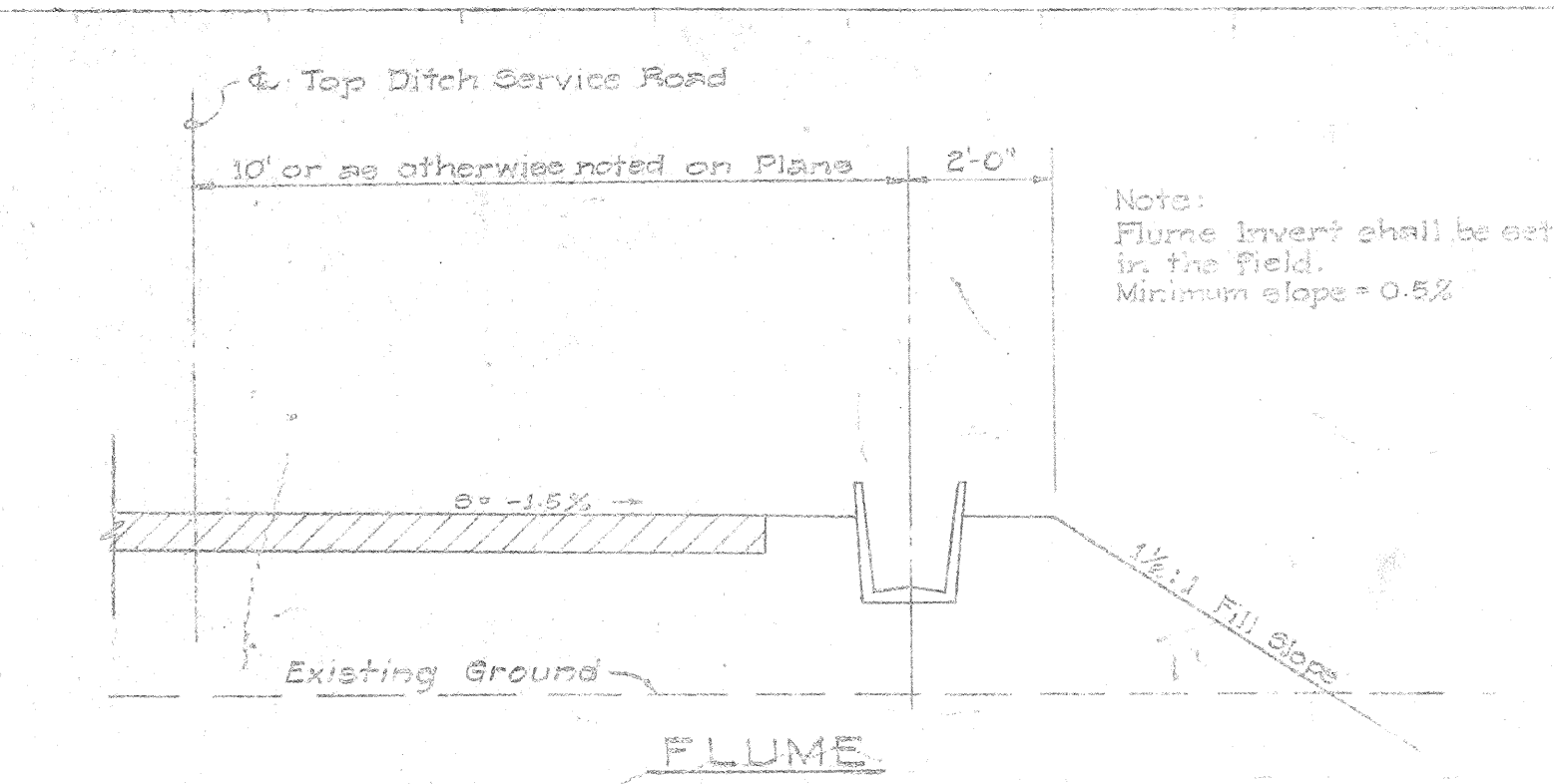
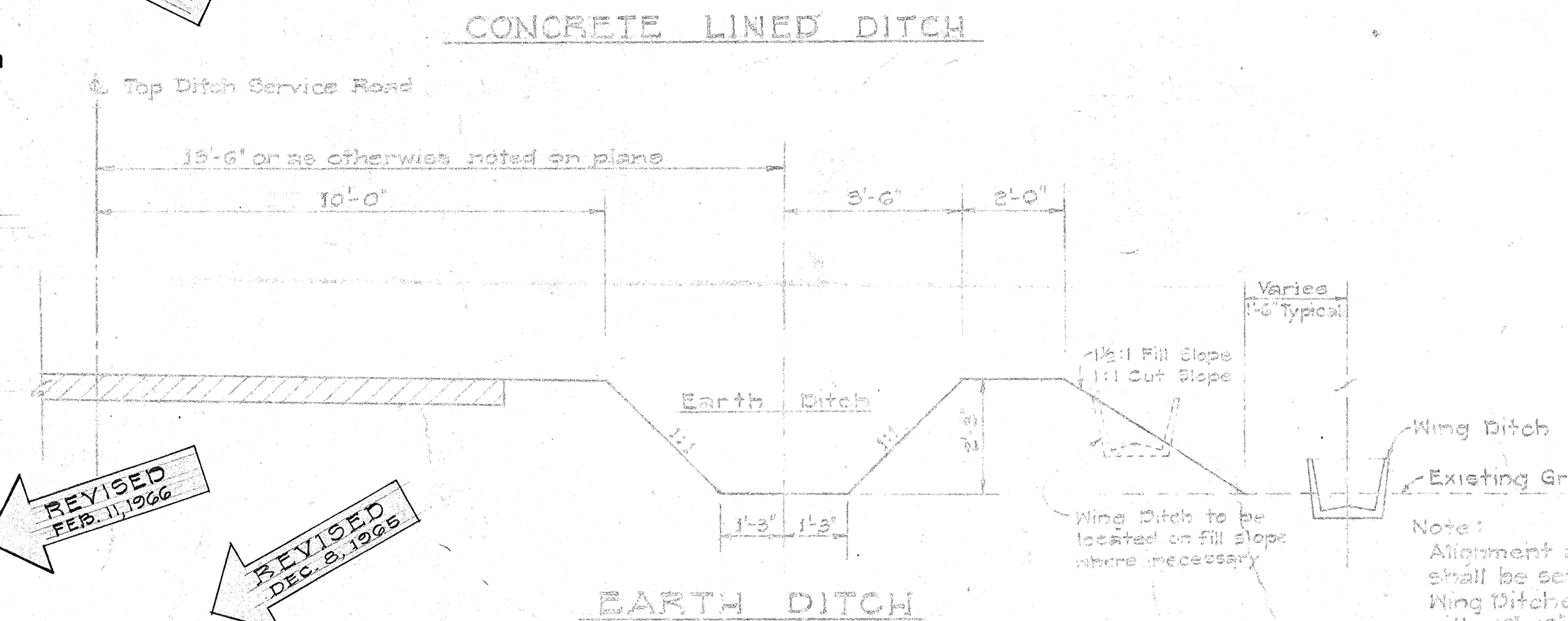
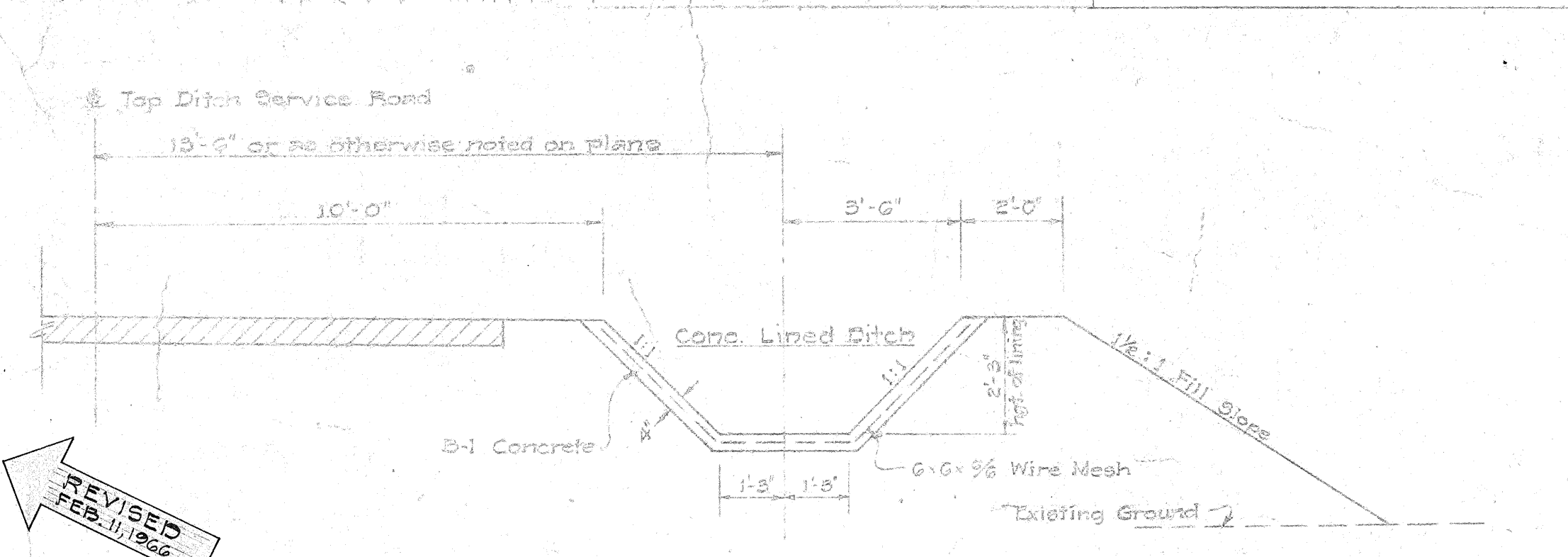
ESTIMATED QUANTITIES

Type "E" Flume	424.3	LF.
12"x18" Built-up Flume using Type "F" and Type "H" Sections	434	LF.
	94.3	LF.

SVC. RD. STA. 39+50 to 39+50 RIGHT
 @ STA. 319+00± to 319+00±
 Excavate Earth Diversion Ditch (See Typical this sheet)

ESTIMATED QUANTITIES

Ditch & Channel Exc.	232.2	CY.
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

IRRIGATION DETAIL
 @ STA. 309+00 to 323+10

INTERSTATE ROUTE 111
 E.A.I. Project No. I-111-1118

Scale: as noted

THIS SHEET SUPERSEDES SHEET No. 38 & 38A

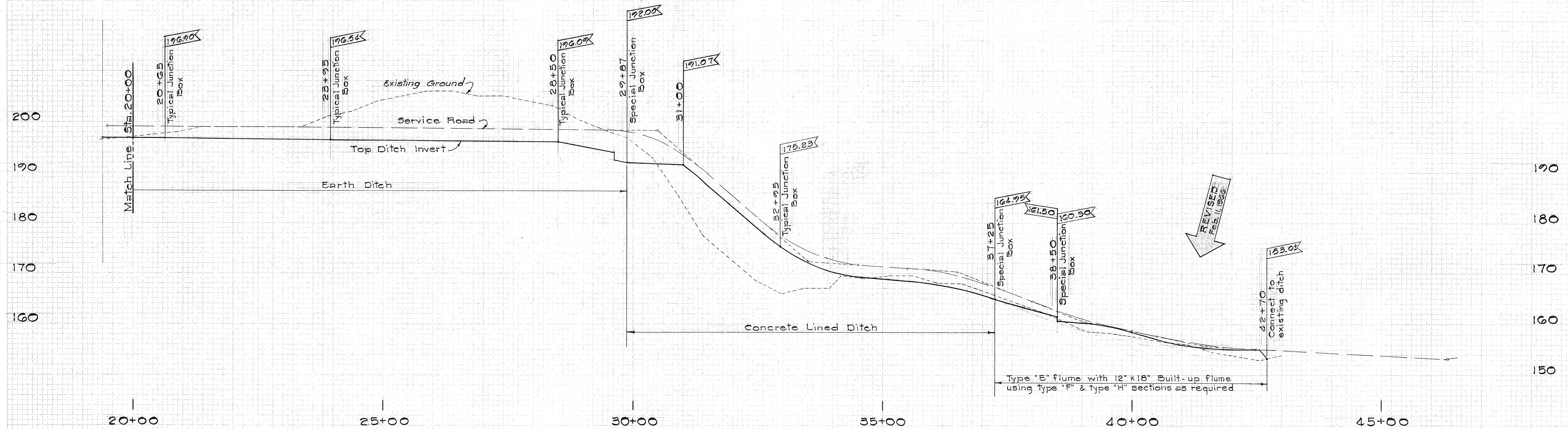
SHEET No. 8 OF 22 SHEETS.

CO 38A

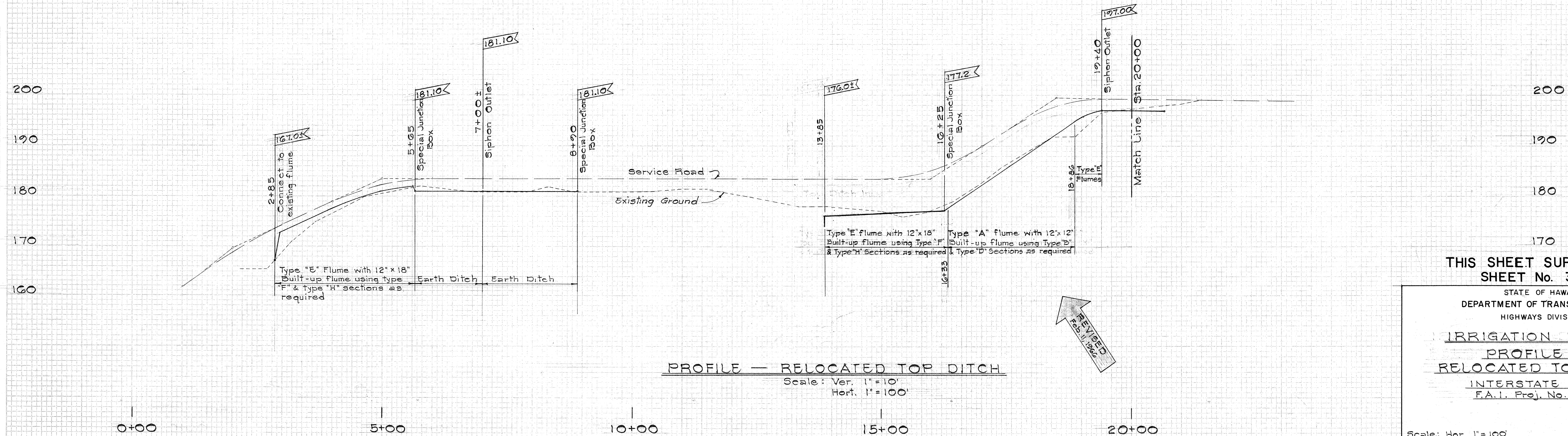
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(18)	1965	39	124

Revised: April 27, 1965.
Revised: Feb. 11, 1966

FINAL SURVEY	DATE
NO. 1	



ORIGINAL SURVEY	DATE
NO. 1	



PROFILE — RELOCATED TOP DITCH
Scale: Ver. 1"=10'
Hori. 1"=100'

THIS SHEET SUPERSEDES
SHEET No. 39 & 39A

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL
PROFILE OF
RELOCATED TOP DITCH
INTERSTATE ROUTE H-1
F.A.I. Proj. No. I-H-1(18)

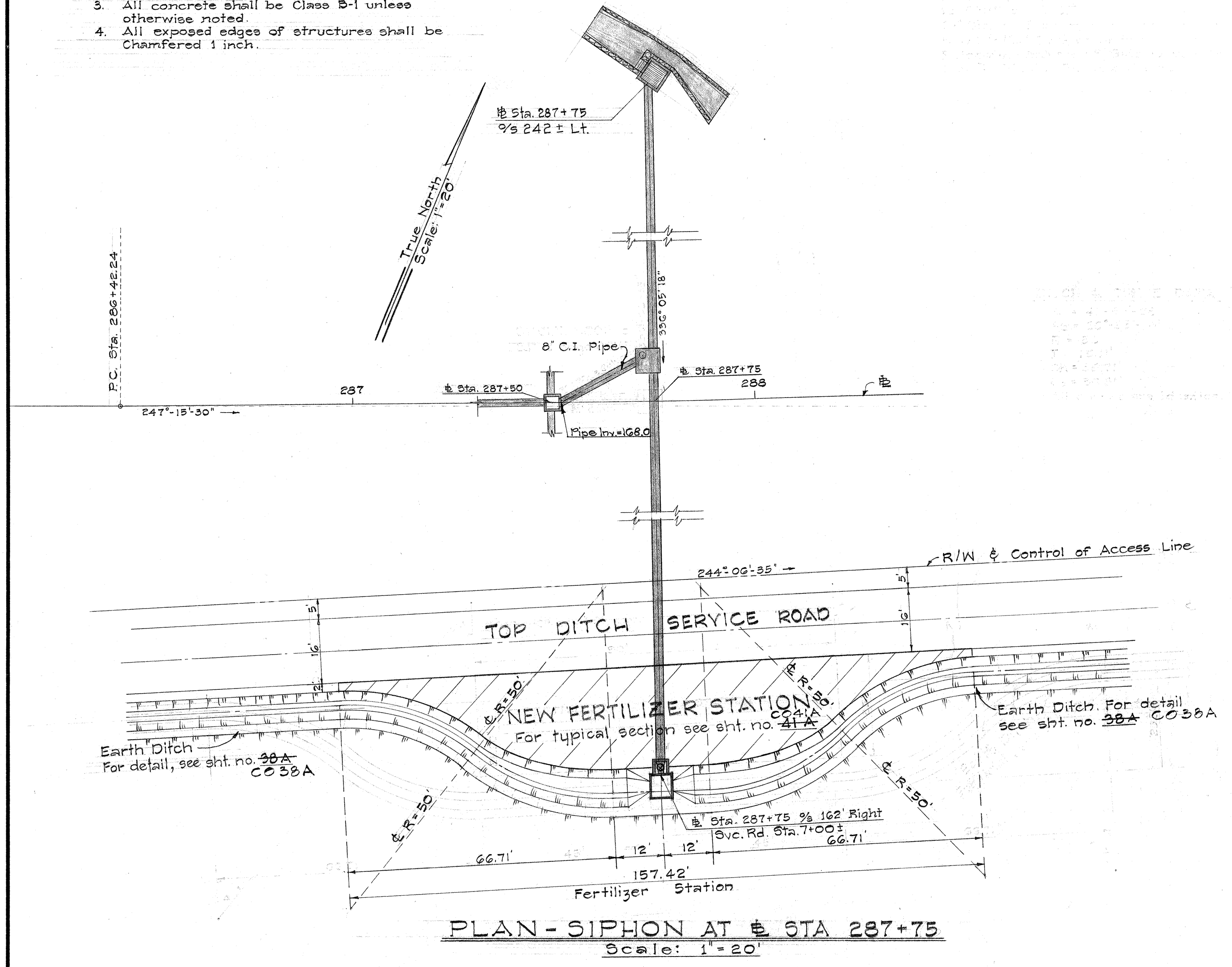
Scale: Hor. 1"=100'
Ver. 1"=10'
Date: February, 1965.

SHEET No. 9 OF 22 SHEETS

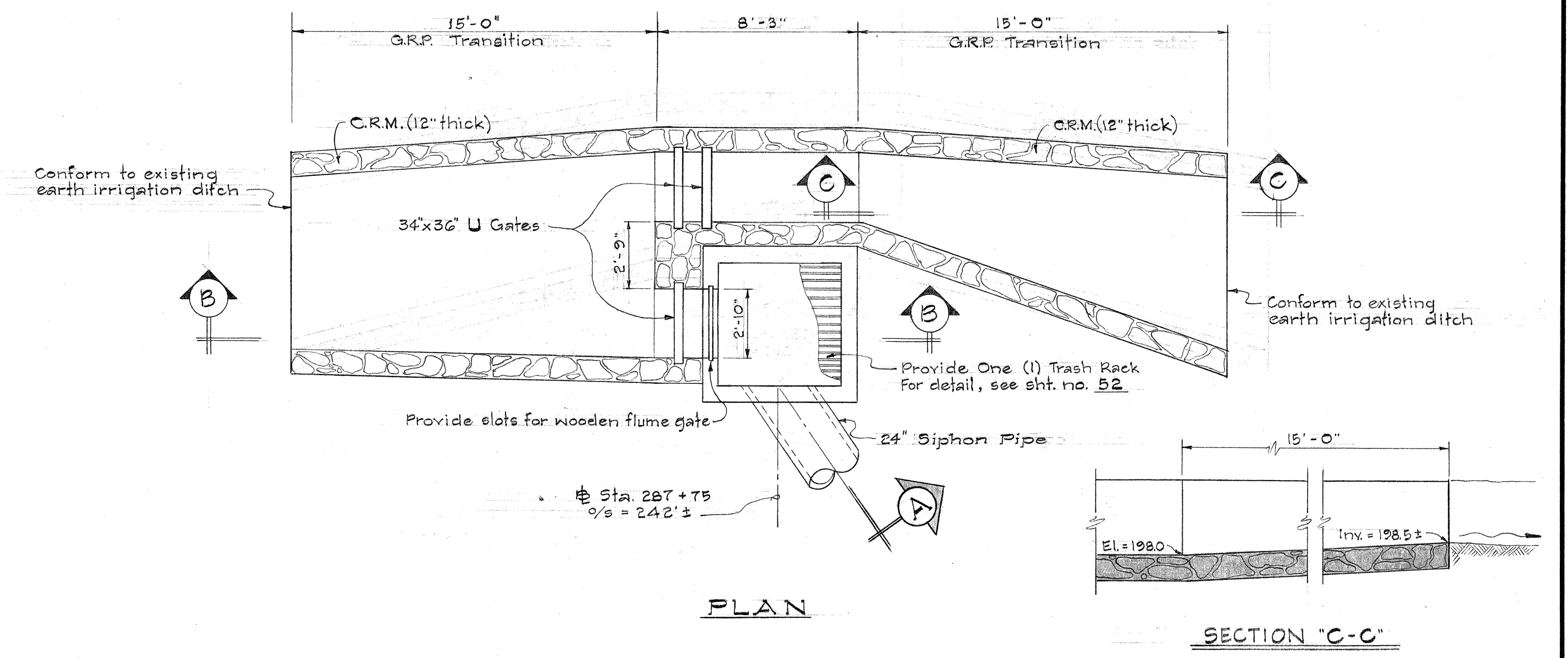
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	40	124

Revised April 27, 1965.

- NOTE:**
1. Exact location of Siphon Inlet and Outlet shall be determined in the field by the Engineer.
 2. The Contractor shall coordinate with Ewa Plantation Co. before work is started on the siphon. See Sec. 116 of the Special Provisions.
 3. All concrete shall be Class B-1 unless otherwise noted.
 4. All exposed edges of structures shall be chamfered 1 inch.

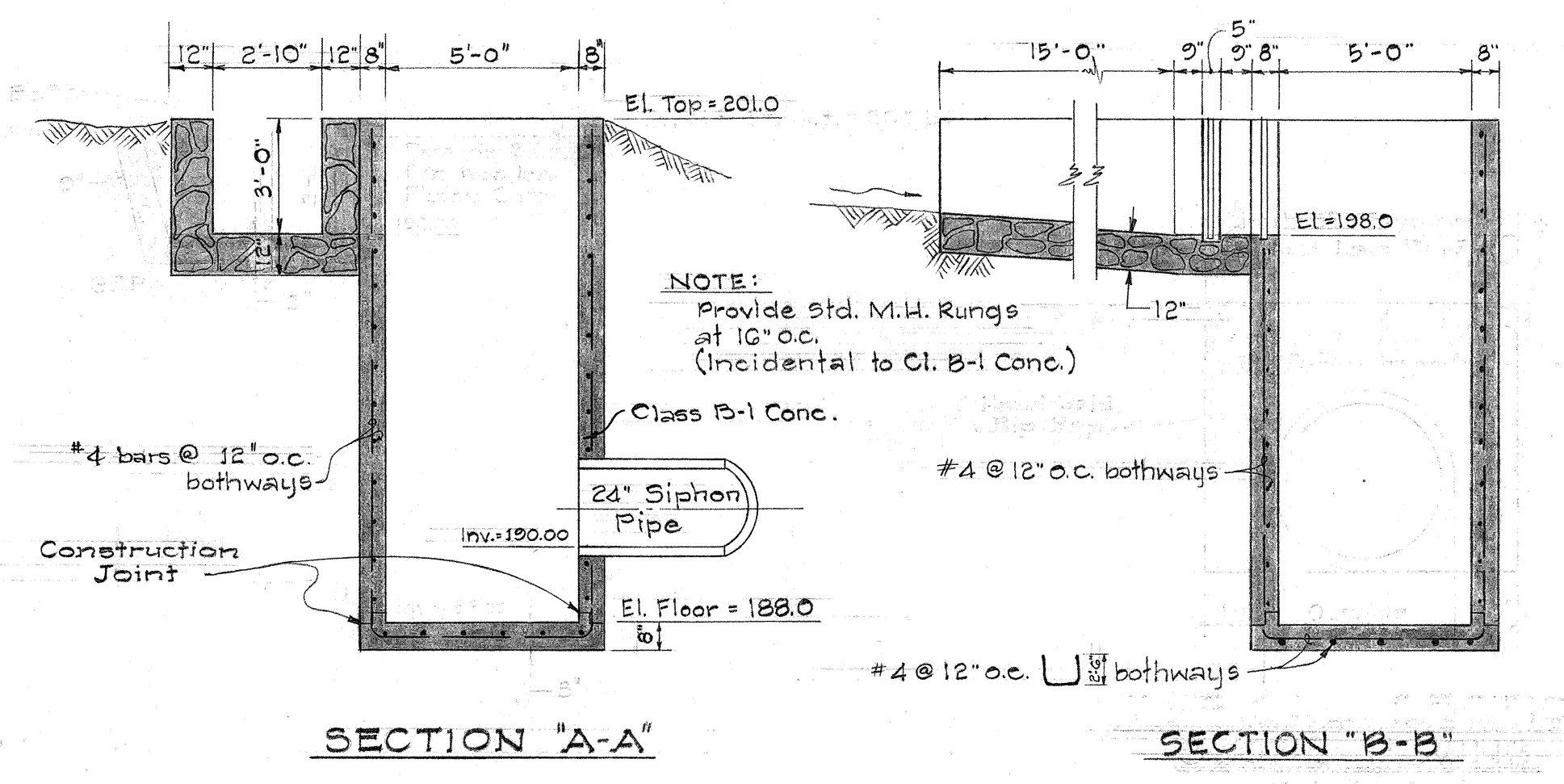


PLAN - SIPHON AT STA 287+75
Scale: 1"=20'



PLAN

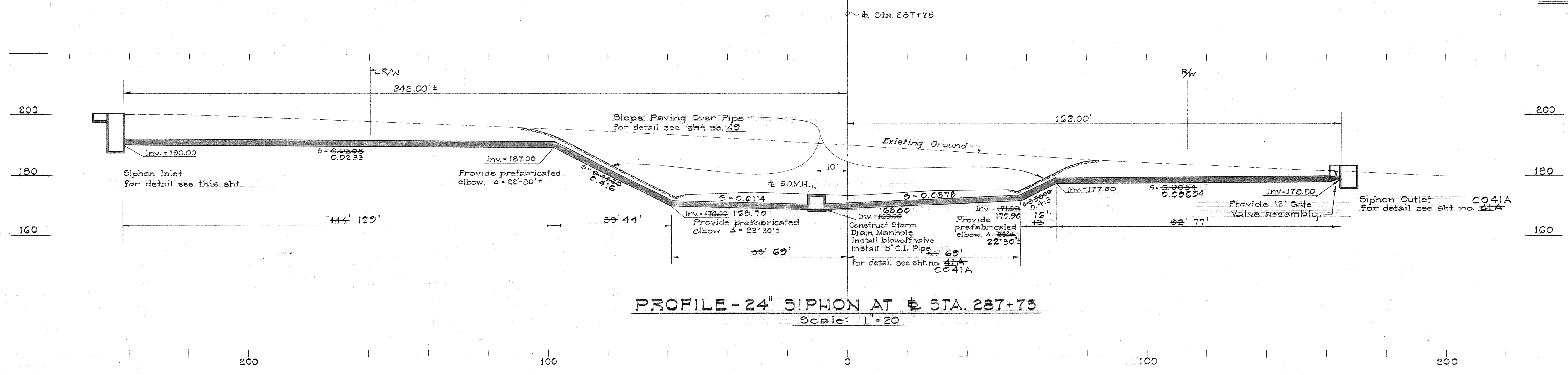
SECTION "C-C"



SECTION "A-A"

SECTION "B-B"

DETAIL - SIPHON INLET
Scale: 1/4"=1'-0"



PROFILE - 24" SIPHON AT STA 287+75
Scale: 1"=20'

THIS SHEET SUPERSEDES
SHEET No. 40

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL
SIPHON AT STA 287+75

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

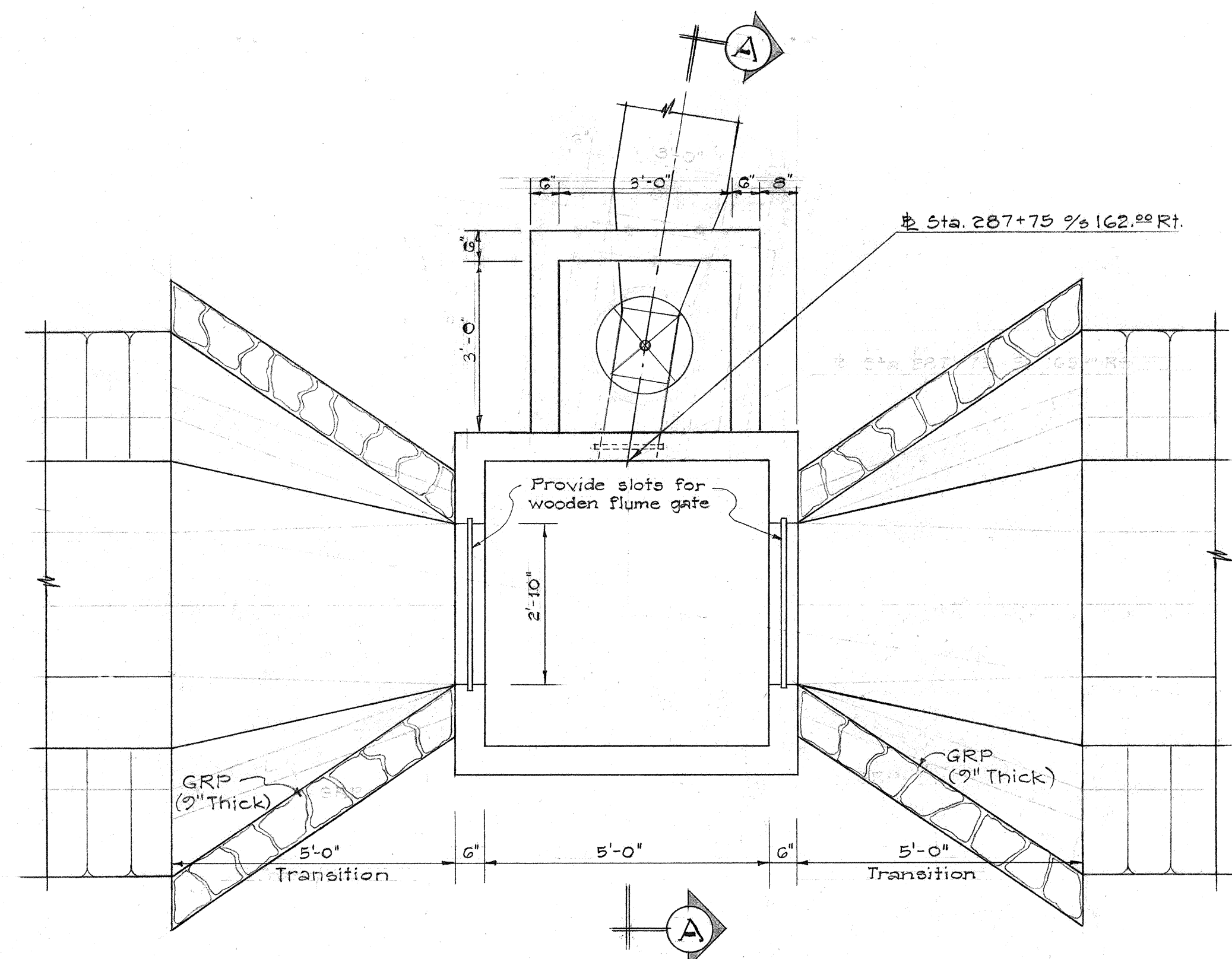
Scale: As Shown Date: February 1965
SHEET No. 10 OF 22 SHEETS

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
TRACED BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	

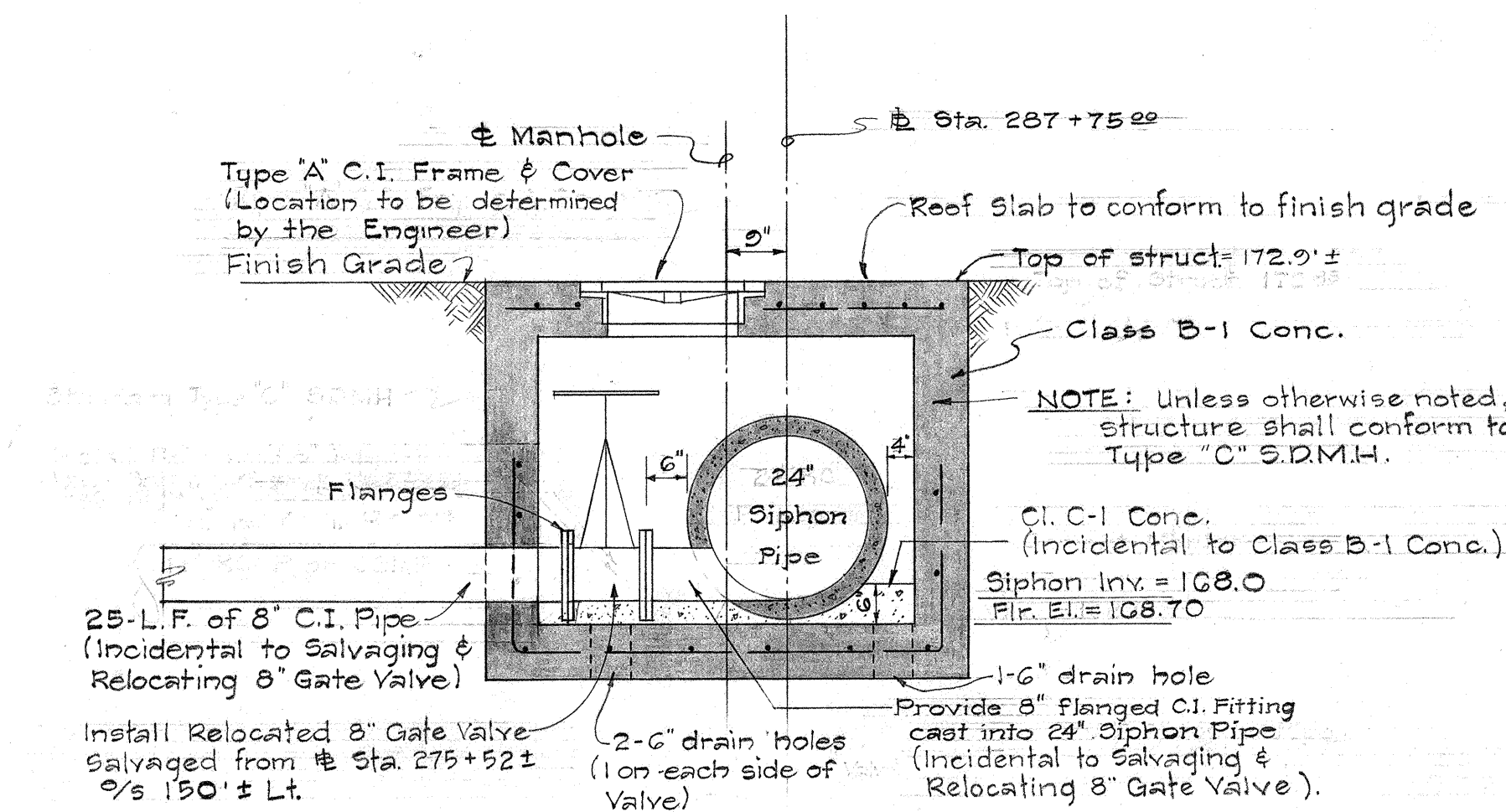
Revised: Dec. 8, 1965

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(10)	1965	41	124

Revised: April 27, 1965



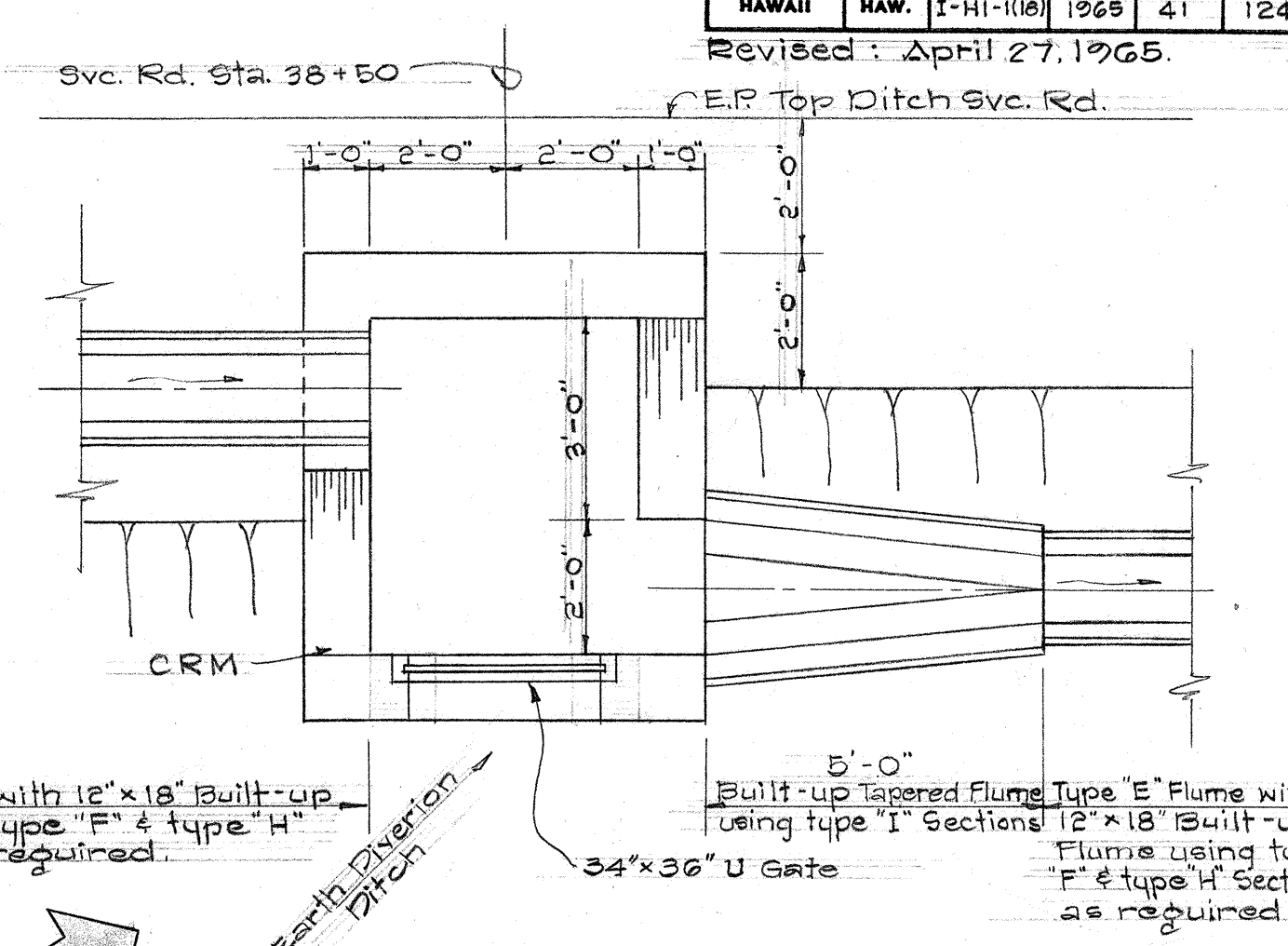
PLAN



DETAIL - BLOWOFF VALVE

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

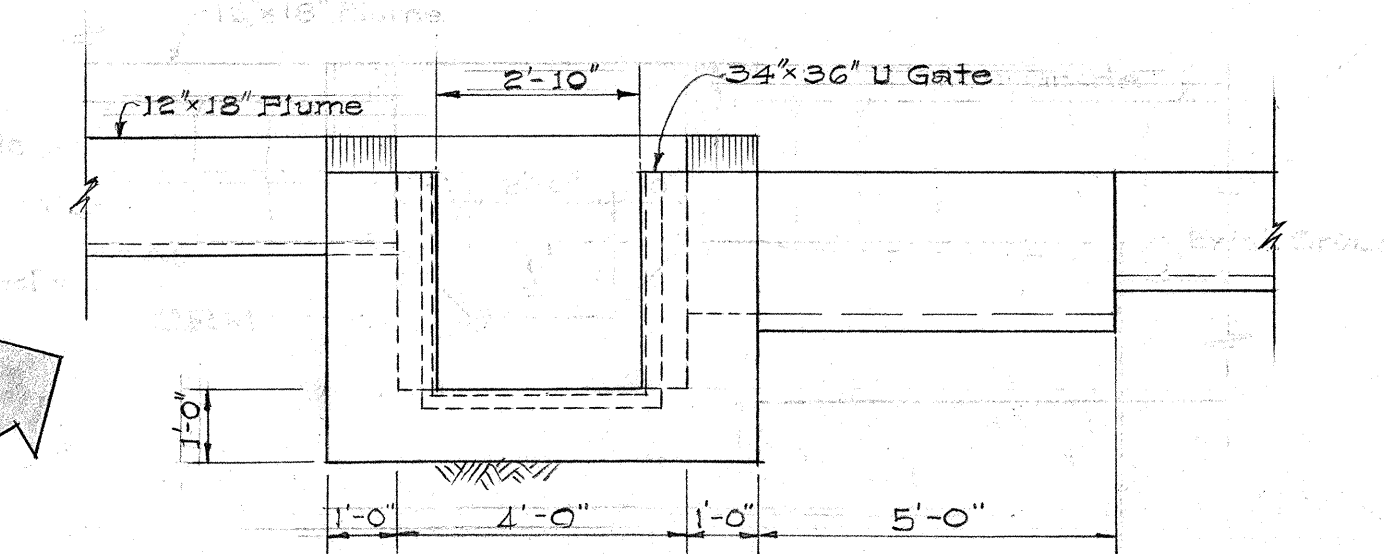
- NOTE:
1. Slope invert toward drain holes. Final location of drain holes to be determined by the Engineer.
 2. Flanges for C.I. pipes contiguous to gate valve shall be of the same thickness and have the same number and size bolt holes as the gate valve flange.
 3. Except for the connections to the gate valve, the ends of the C.I. Pipe may be either mechanical joint or bell & spigot, at the Contractor's option.



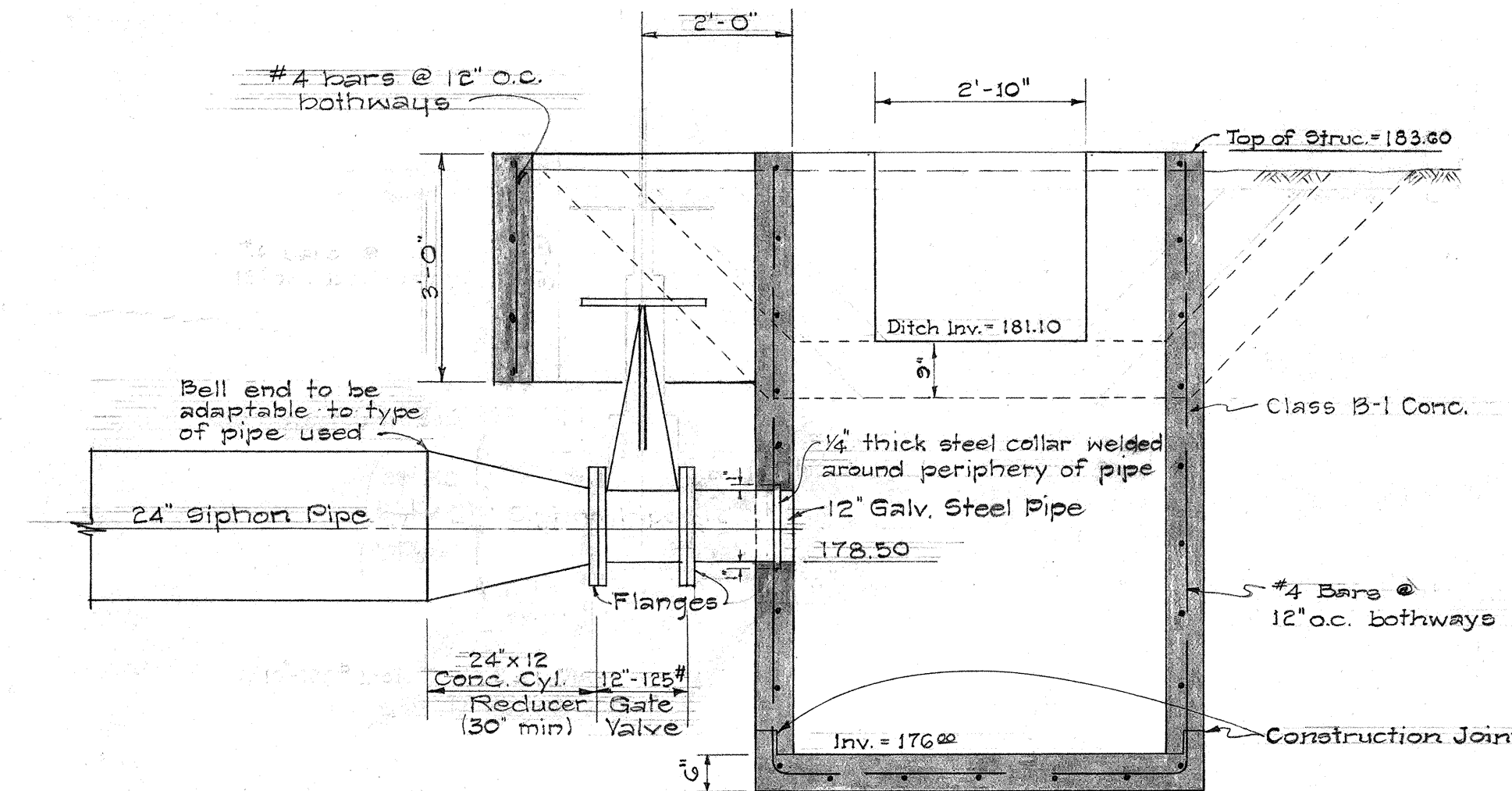
PLAN

REVISED DEC. 8, 1965

REVISED DEC. 8, 1965



FRONT ELEVATION

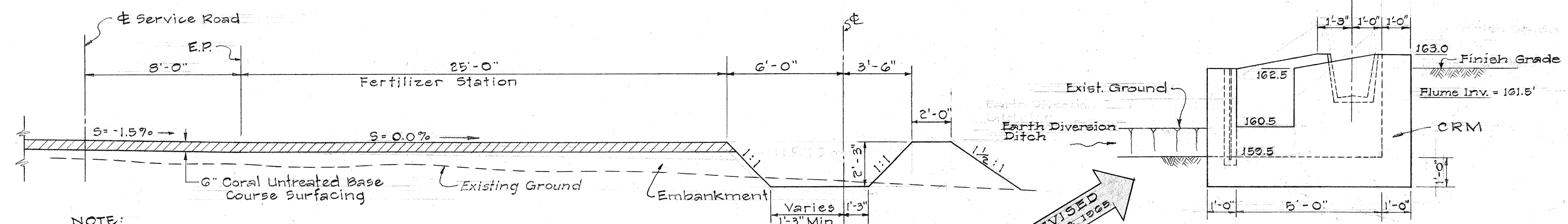


SECTION "A-A"

DETAIL - SIPHON OUTLET

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

- NOTE:
1. 24"x12" Reducer, 12" Gate Valve and 12" Galv. Steel Pipe shall be paid for as 12" Gate Valve assembly.
 2. Flanges for the galv. steel pipe and concrete cylinder reducer shall be welded to the end which is contiguous to the gate valve. The flanges shall be of the same thickness and shall have the same number and size bolt holes as the gate valve flange.
 3. The concrete cylinder pipe, gate valve and galv. steel pipe shall be bolt connected and connections shall be water tight.



TYPICAL SECTION - FERTILIZER STATION

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

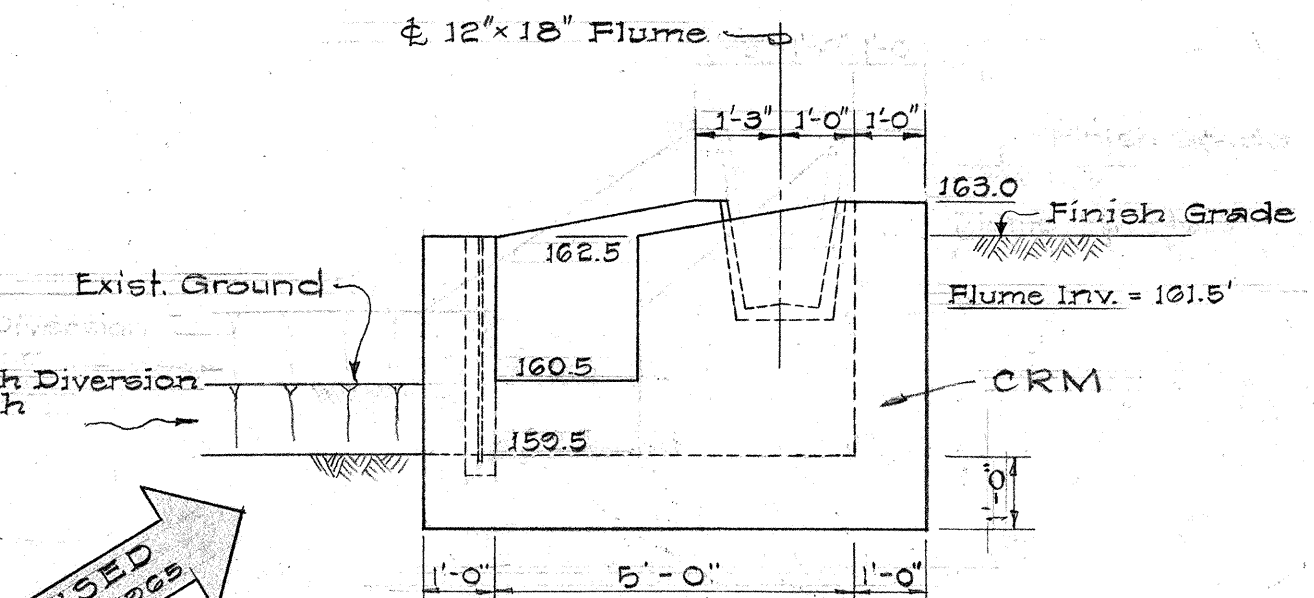
- NOTE:
1. For Estimated Quantities See Plan & Profile Sheet

REVISED DEC. 8, 1965

SPECIAL JUNCTION BOX

STA. 319+00 ± RT.

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



RIGHT ELEVATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL
SIPHON AT # STA. 287+75
TYPICAL SECTION - FERTILIZER STATION
SPECIAL JCT. BOX AT # STA. 319+00
INTERSTATE ROUTE H-1

F.A.I. Project No. I-HI-1(10)
Scale: As Shown Date: _____

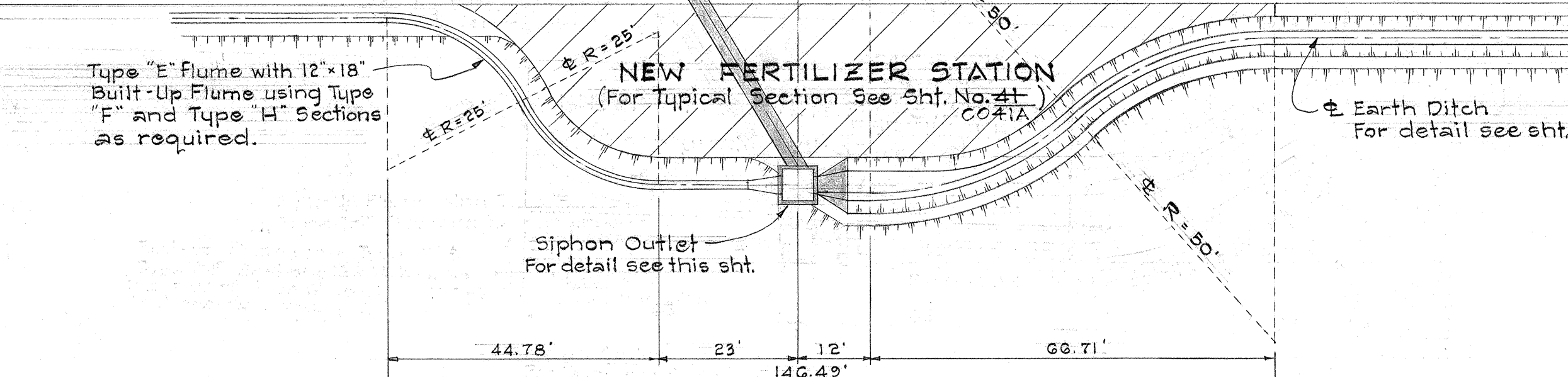
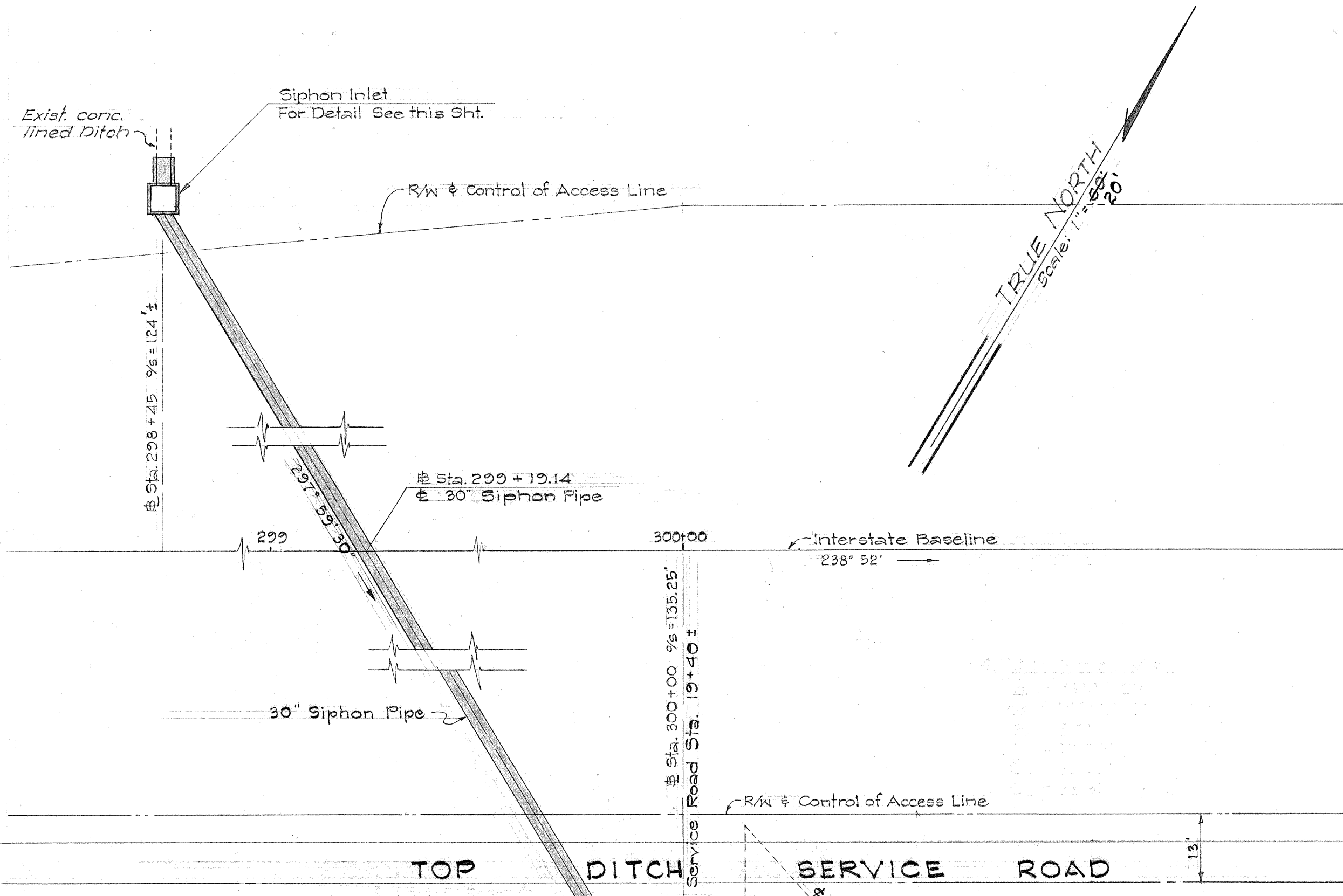
SHEET No. 11 OF 22 SHEETS

THIS SHEET SUPERSEDES
SHEET No. 41, 41A &
41AS

CO 411A

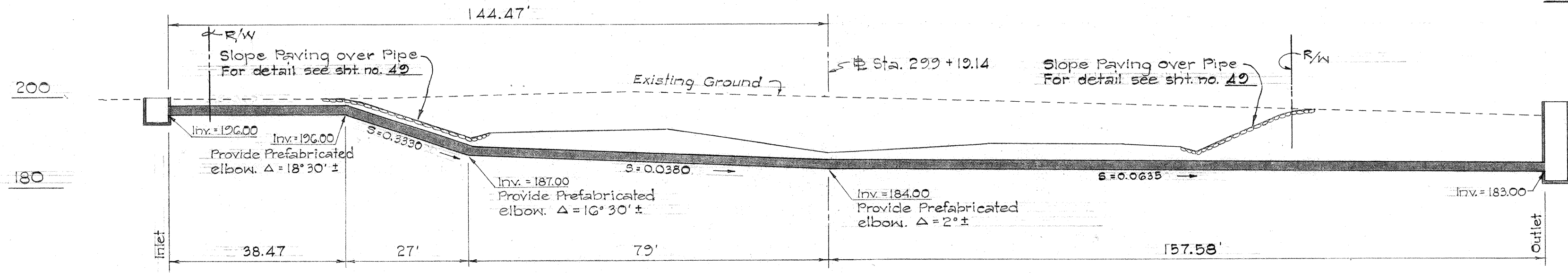
DESIGNED BY	DATE
DRAWN BY	DATE
CHECKED BY	DATE
NOTED BY	DATE
ORIGINAL	DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	42	124

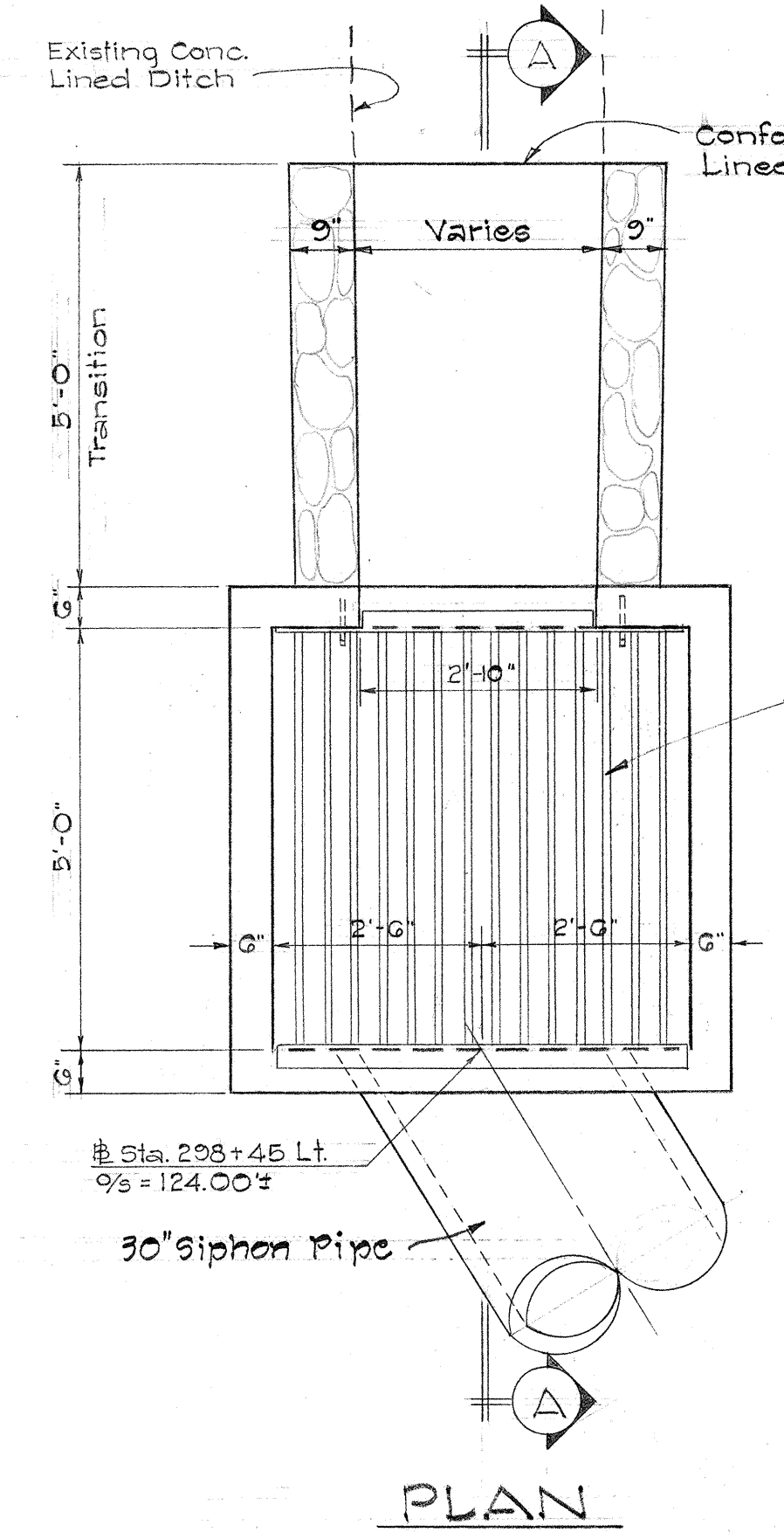


PLAN OF 30" SIPHON AT STA. 299+19.14
Scale: 1" = 60' 20'

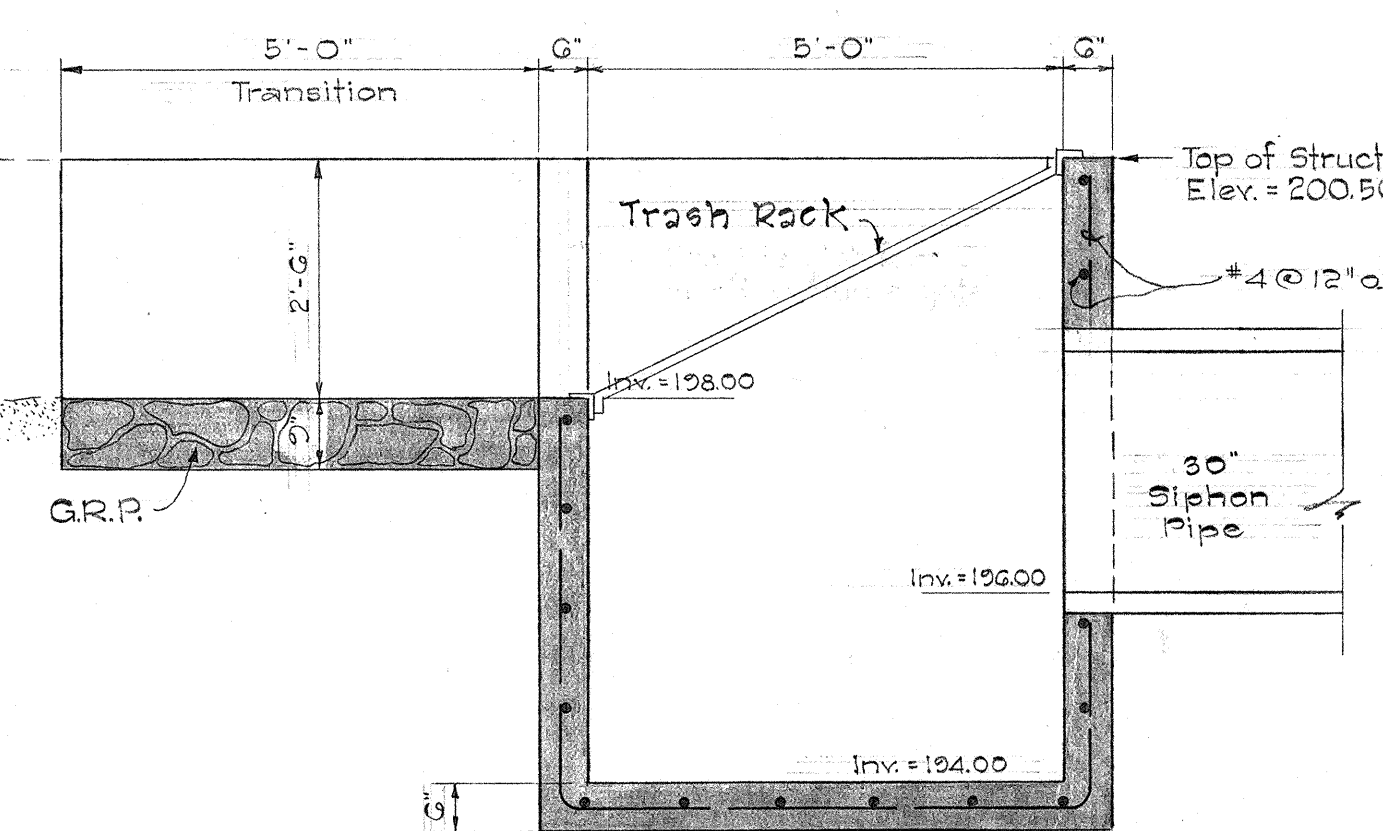
- NOTE:
- The Contractor shall coordinate with Ewa Plantation Co. before work is started on the siphon. See Sec. 116 of the Special Provisions.
 - All Concrete shall be Class B-1 unless otherwise noted.
 - All exposed edges of structures shall be chamfered one (1) inch.



PROFILE OF 30" SIPHON
Scale: 1" = 20'

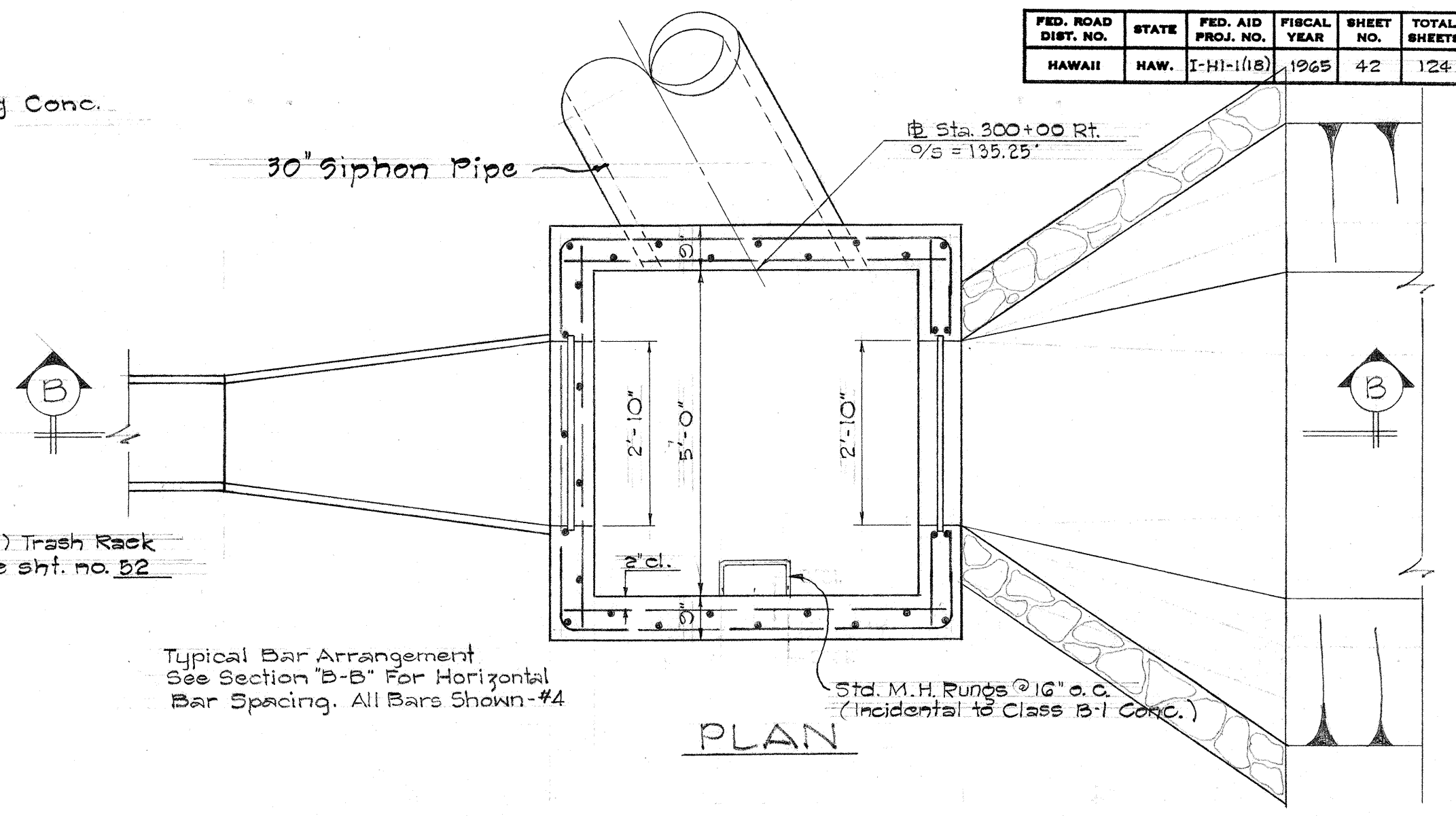


PLAN

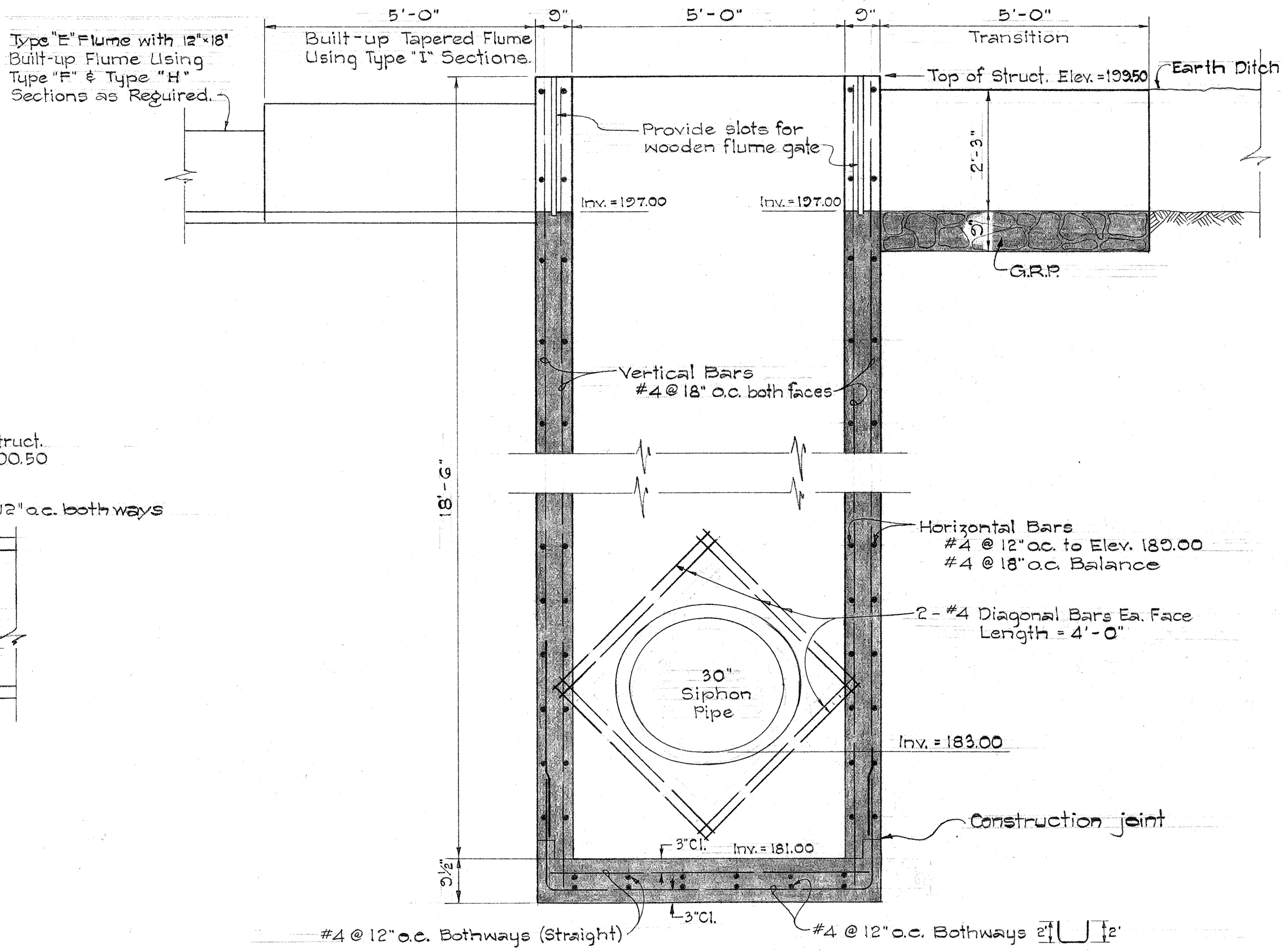


SECTION "A-A"

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



PLAN



SECTION "B-B"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL
SIPHON AT STA. 299+19.14

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

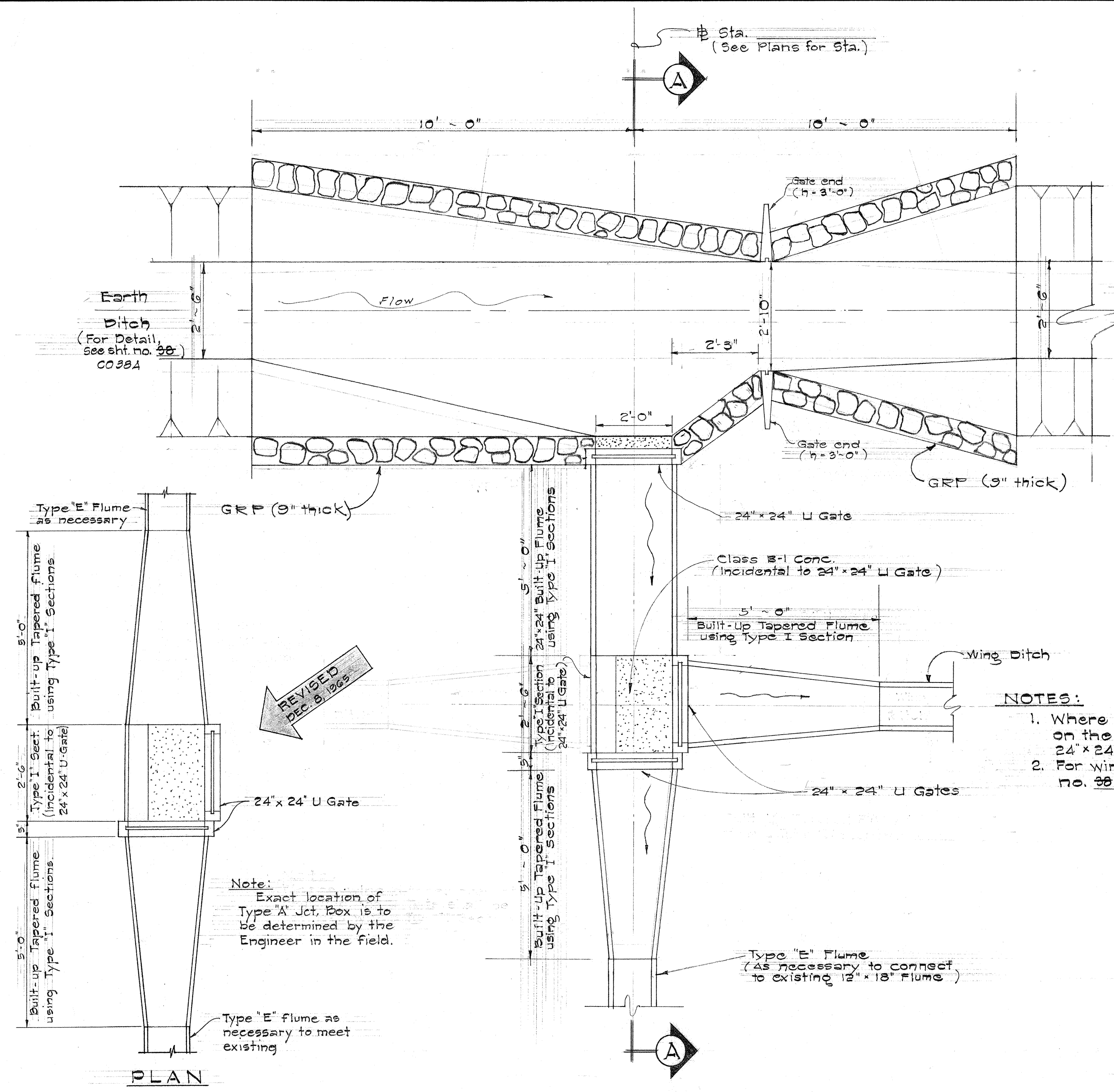
Scale: As Shown Date: Feb. 1965

SHEET No. 12 OF 22 SHEETS

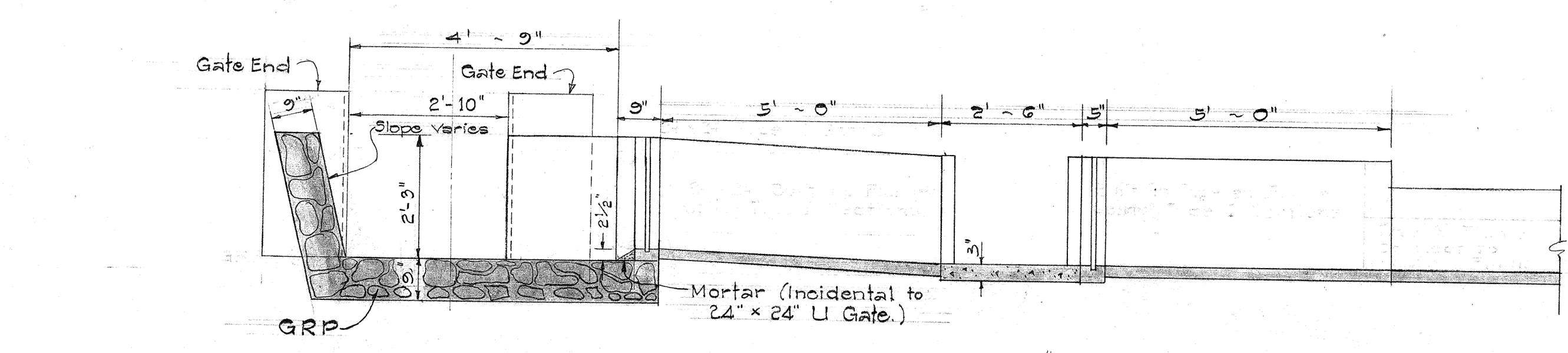
DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
ORIGINAL PLAN	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	43	124

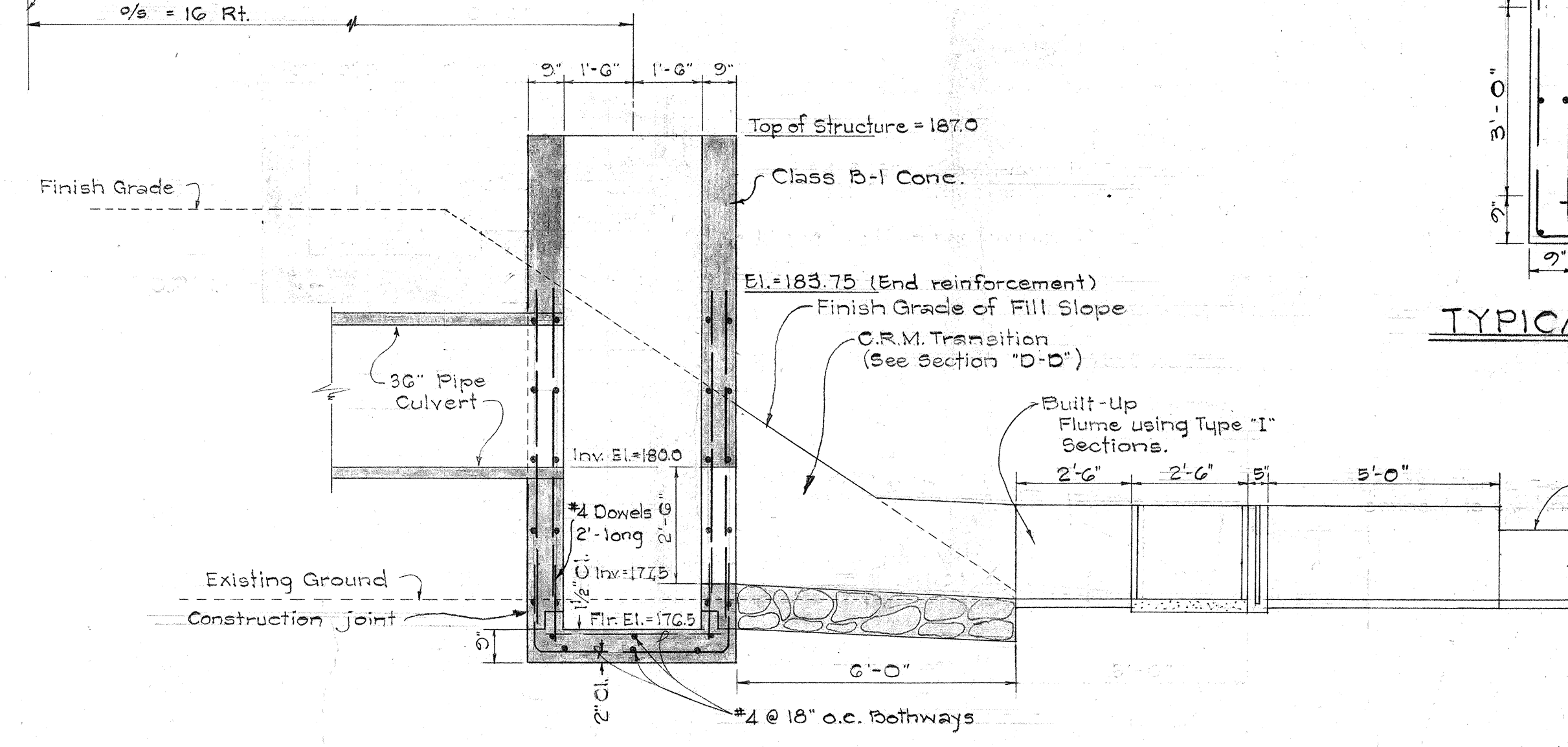
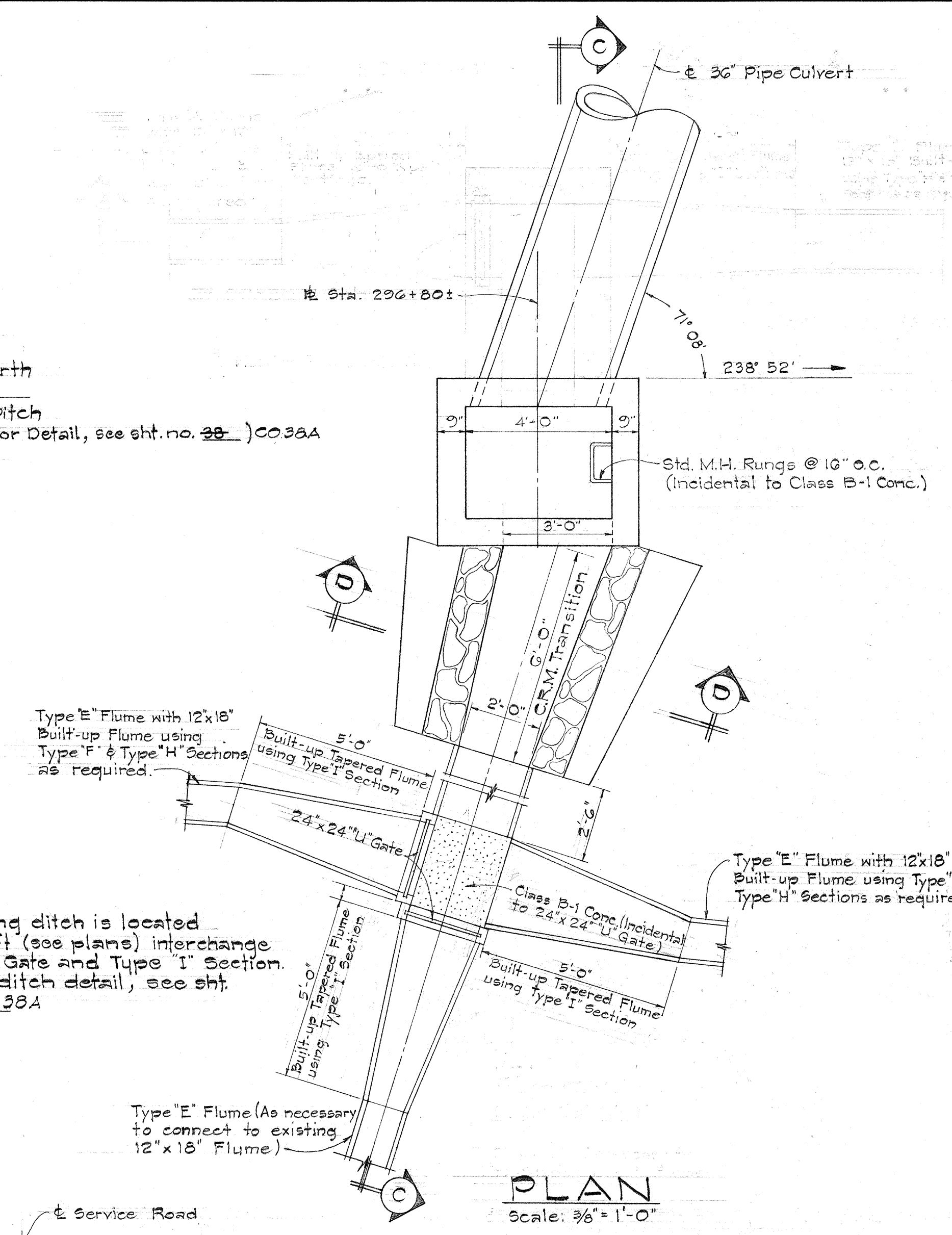
Revised: 12/8/65
Revised: 2/11/66



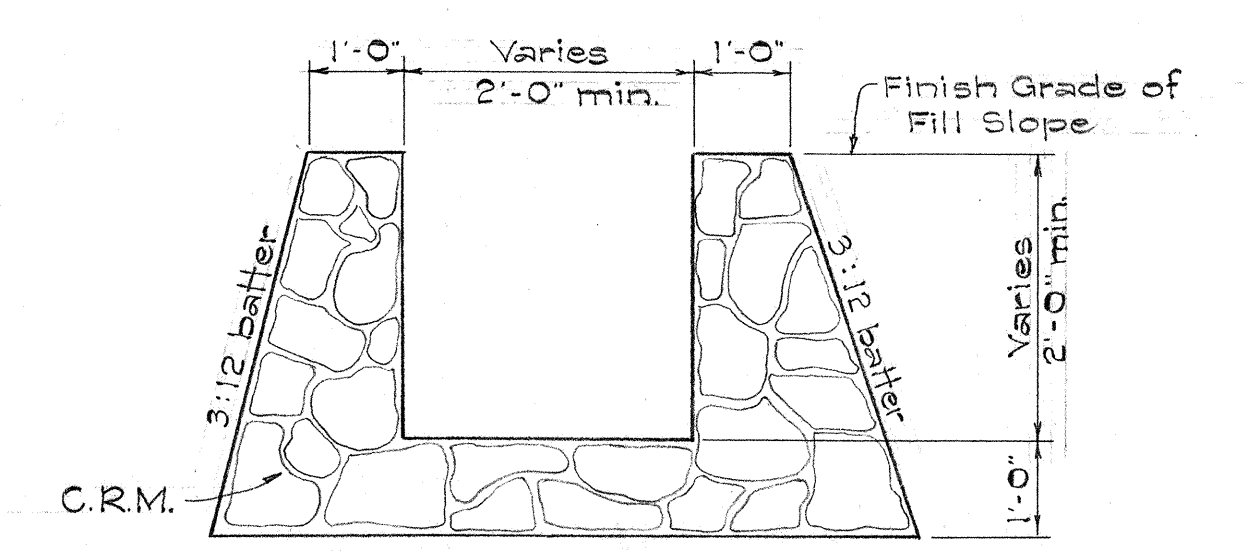
TYPE "A" JUNCTION BOX
Svc. Rd. Sta. 33+30± Right
Scale: 1/2" = 1'-0"



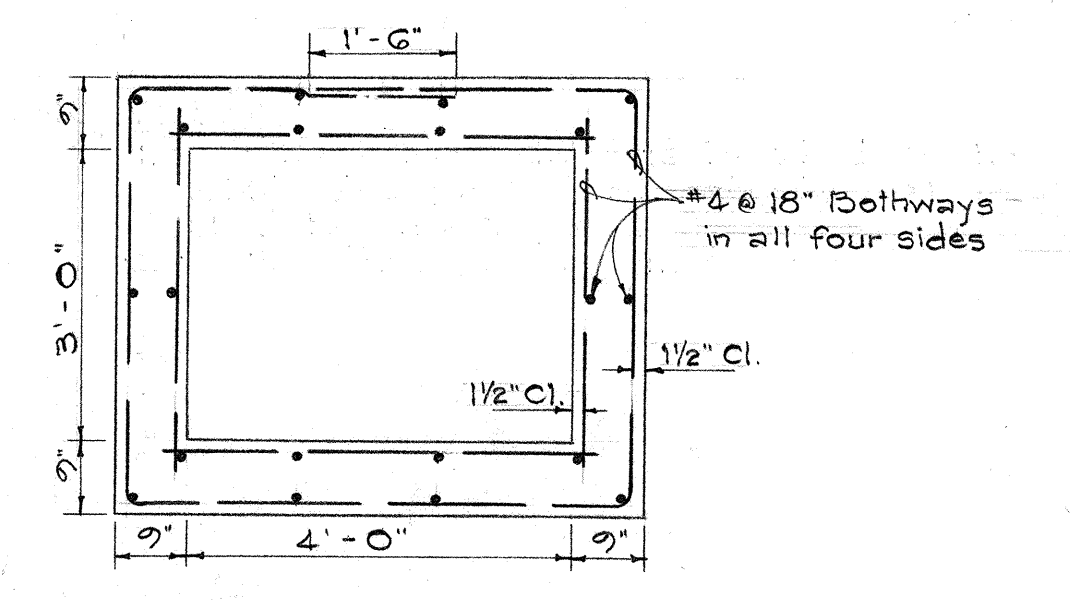
SECTION "A-A"
TYPICAL JUNCTION BOX
Scale: 1/2" = 1'-0"



SECTION "C-C"
SPECIAL C.D.I., JUNCTION BOX AND OUTLET STRUCTURE
AT STA. 296+80± RT.
Scale: As Shown



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

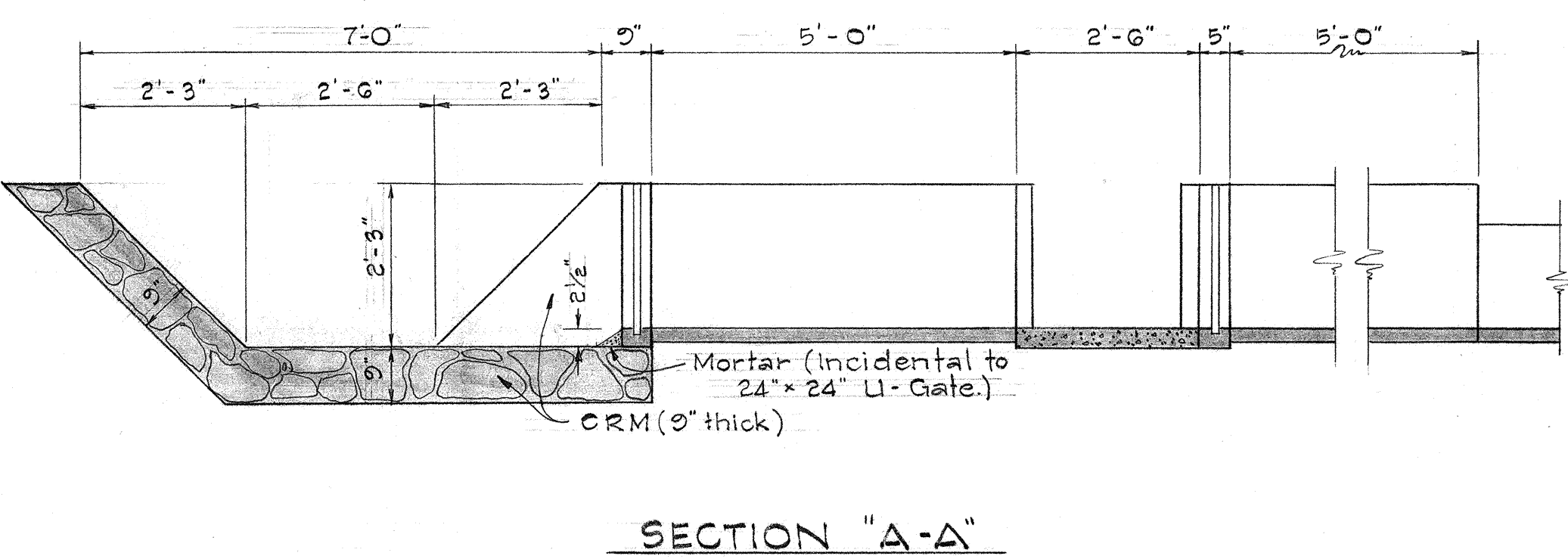
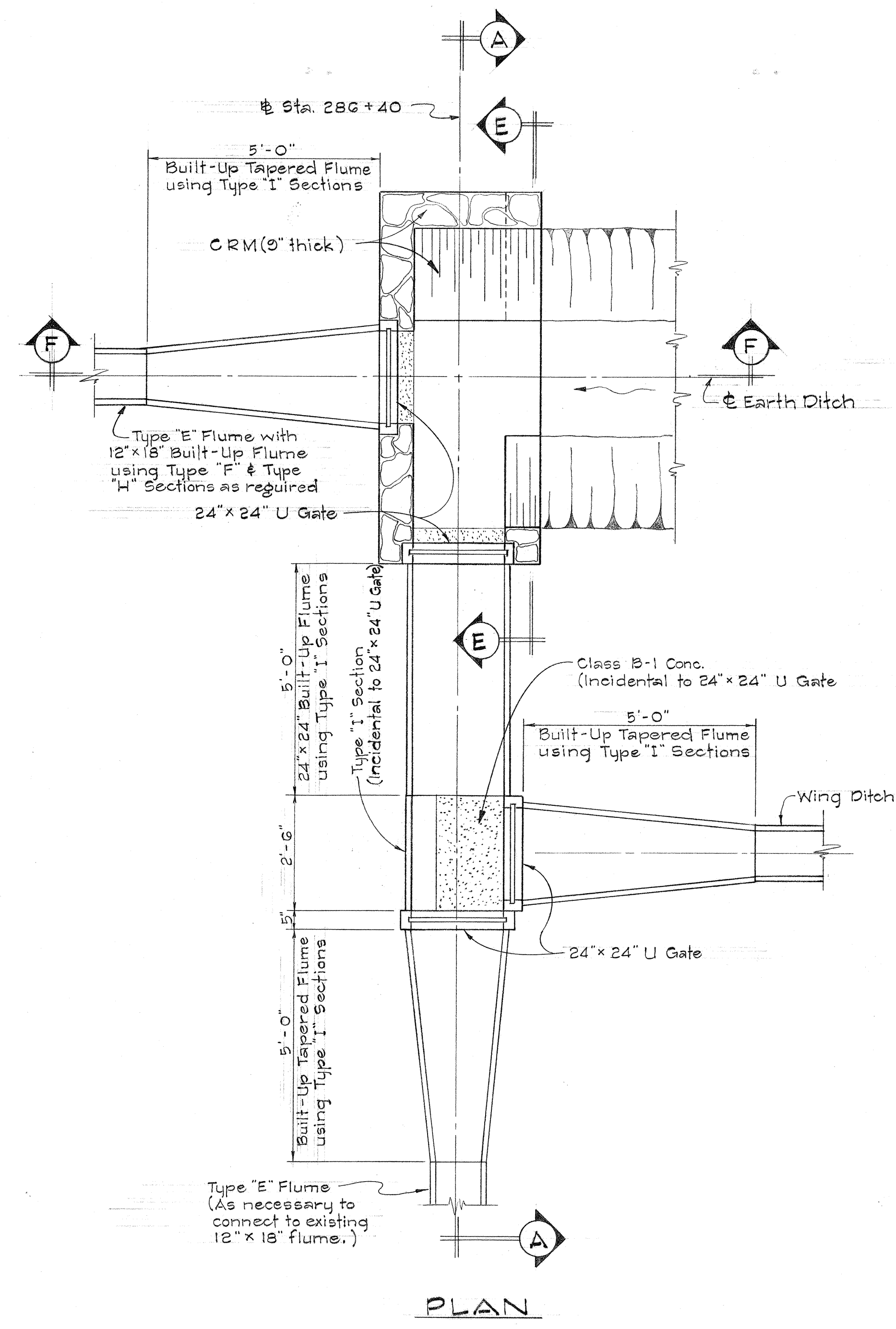


TYPICAL REINFORCEMENT
Scale: 1/2" = 1'-0"

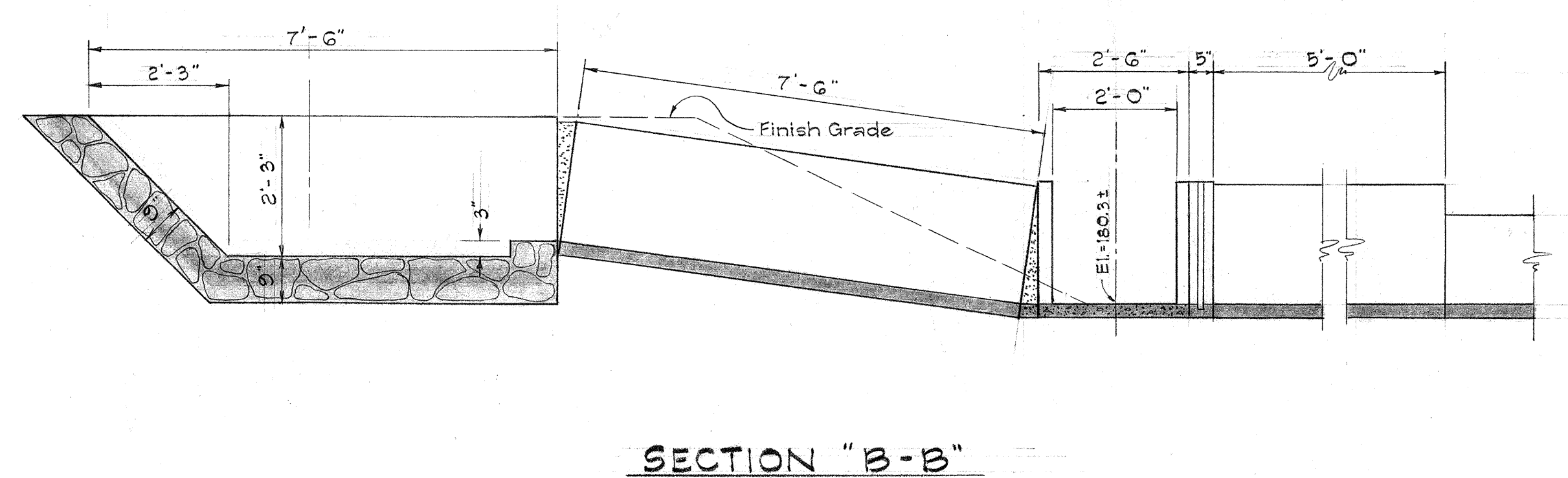
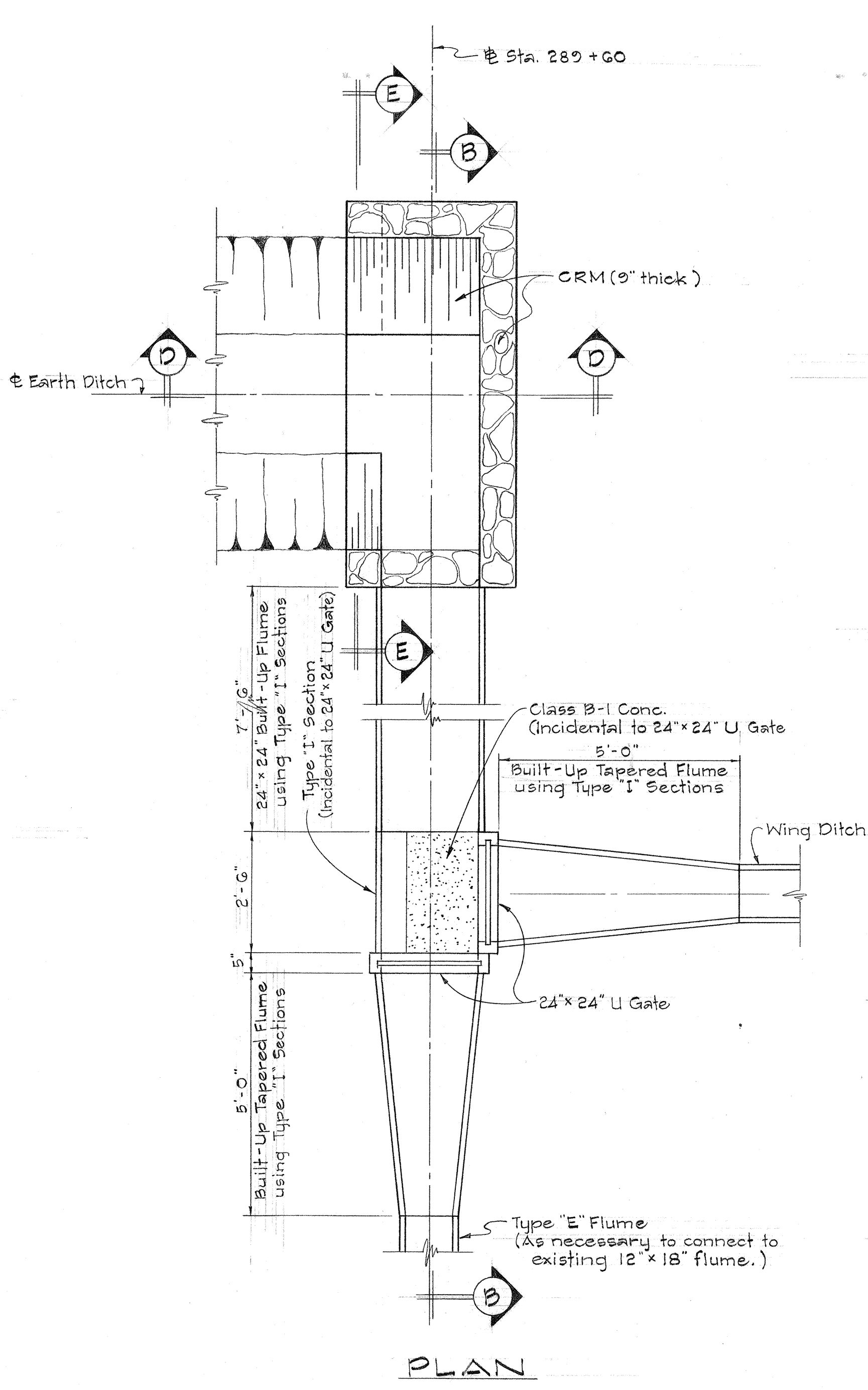
THIS SHEET SUPERSEDES
SHEET No. 43

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
IRRIGATION DETAILS
TYPICAL JUNCTION BOX
STRUCTURE AT STA. 296+80± RT.
INTERSTATE ROUTE H-1
F.A.I. PROJ. No. I-HI-1(18)
Scale: As Shown Date: January 1965
SHEET No. 13 OF 22 SHEETS

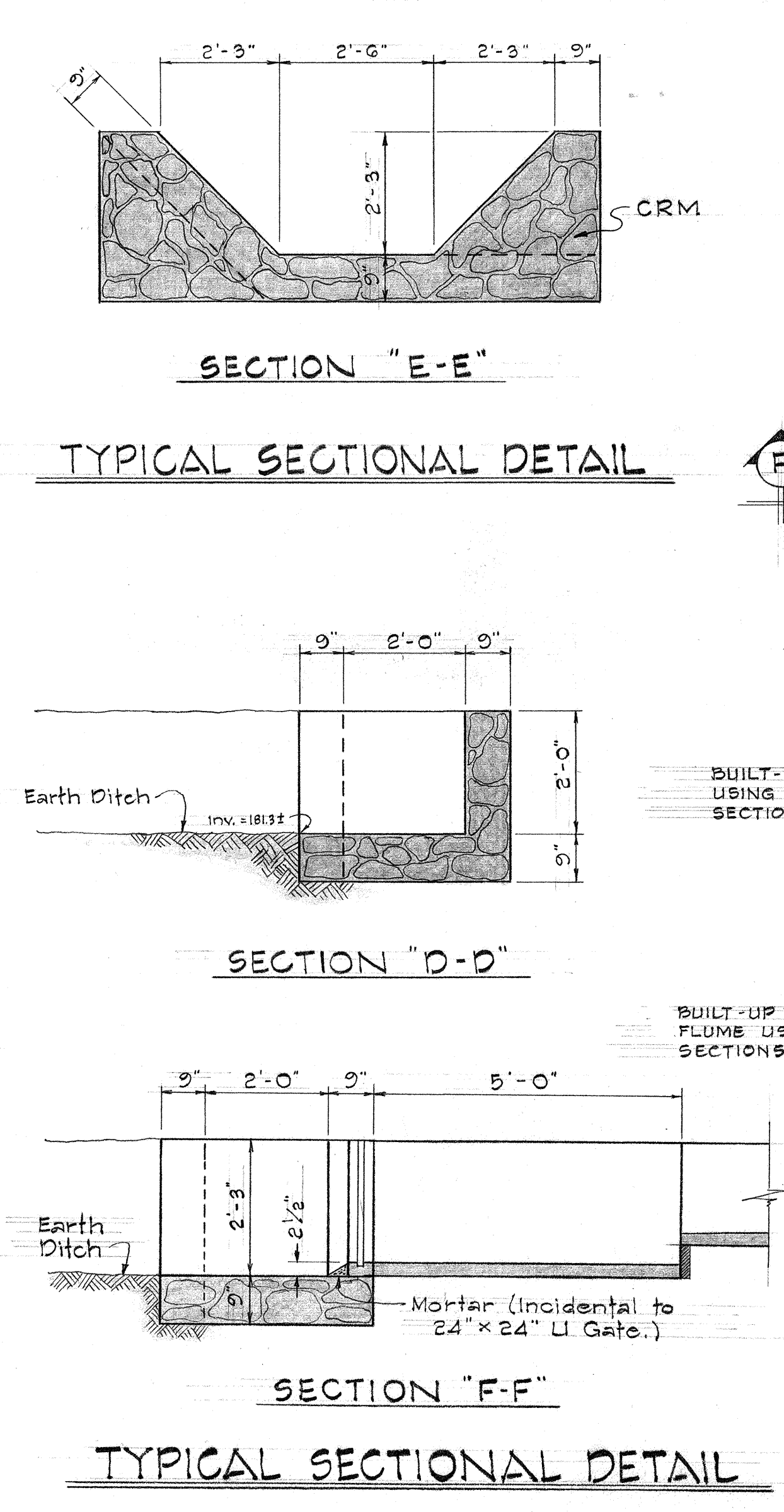
Revised Dec. 8, 1965



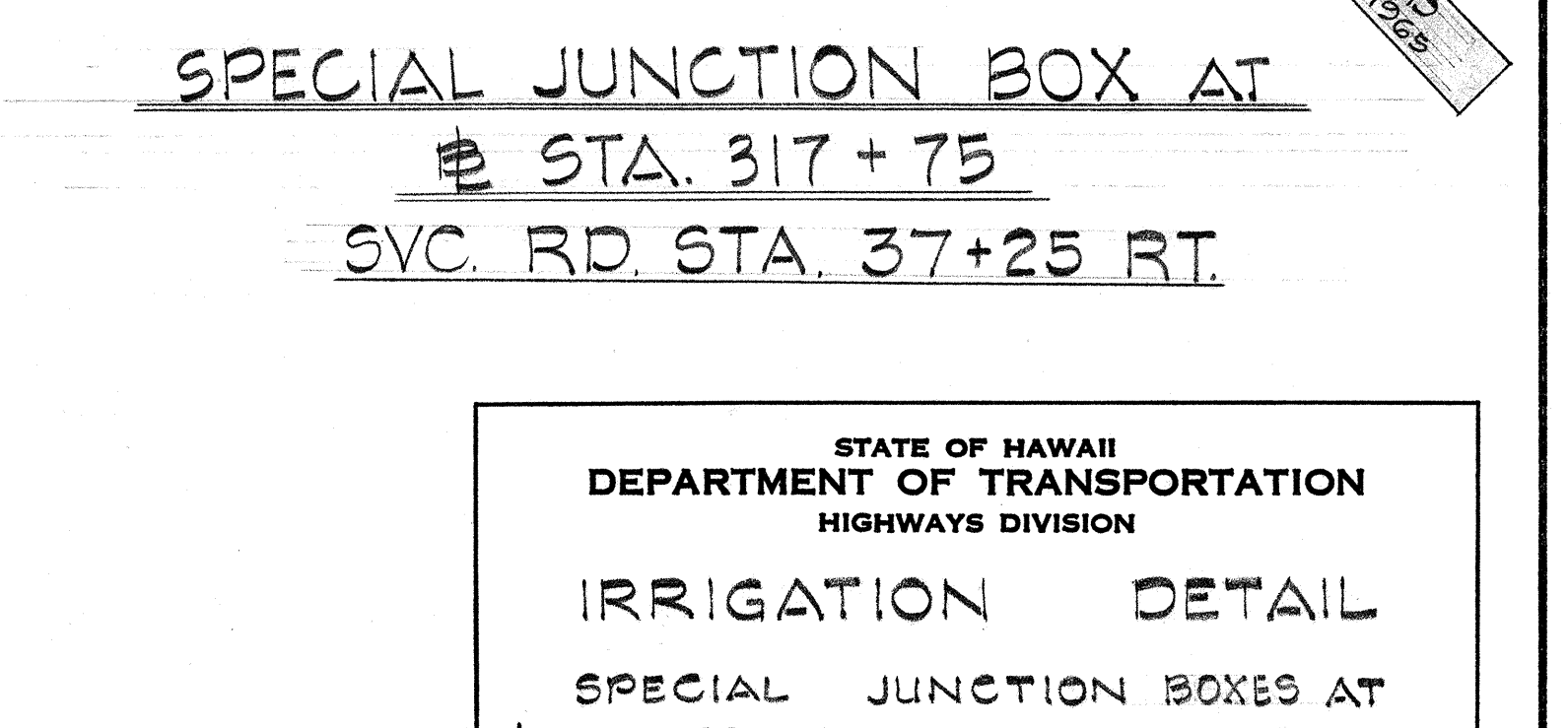
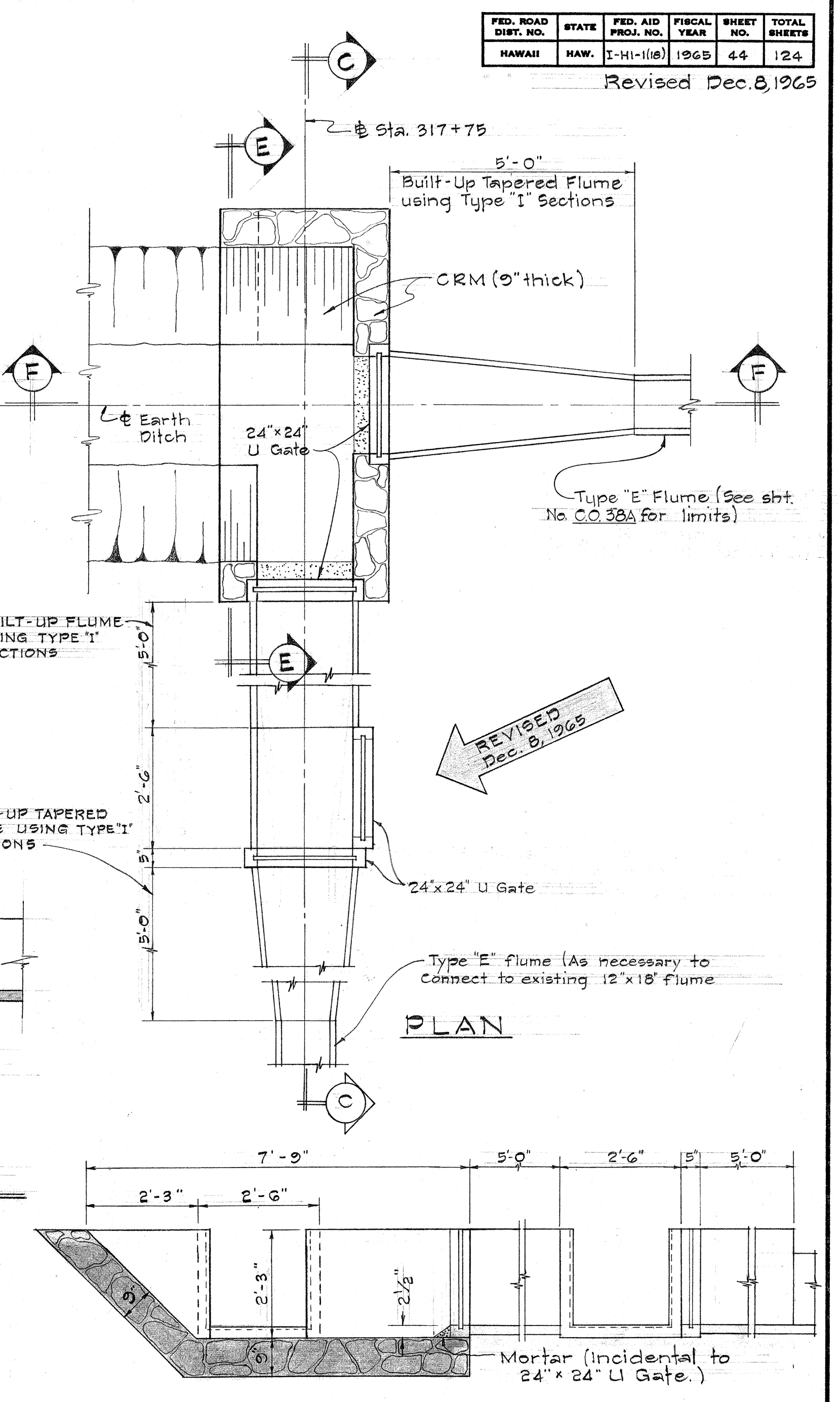
SPECIAL JUNCTION BOX AT STA. 286 + 40



SPECIAL JUNCTION BOX AT STA. 289 + 60



- NOTES:
1. For Wing Ditch location and detail, see shts. no. 37 & 38. CO 37 & CO 38A
 2. For Earth Ditch detail, see sht. no. 38. CO 38A



SPECIAL JUNCTION BOX AT STA. 317 + 75
SVC. RD. STA. 37+25 RT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

IRRIGATION DETAIL

SPECIAL JUNCTION BOXES AT
STA. 286+40, 289+60 AND 317+75

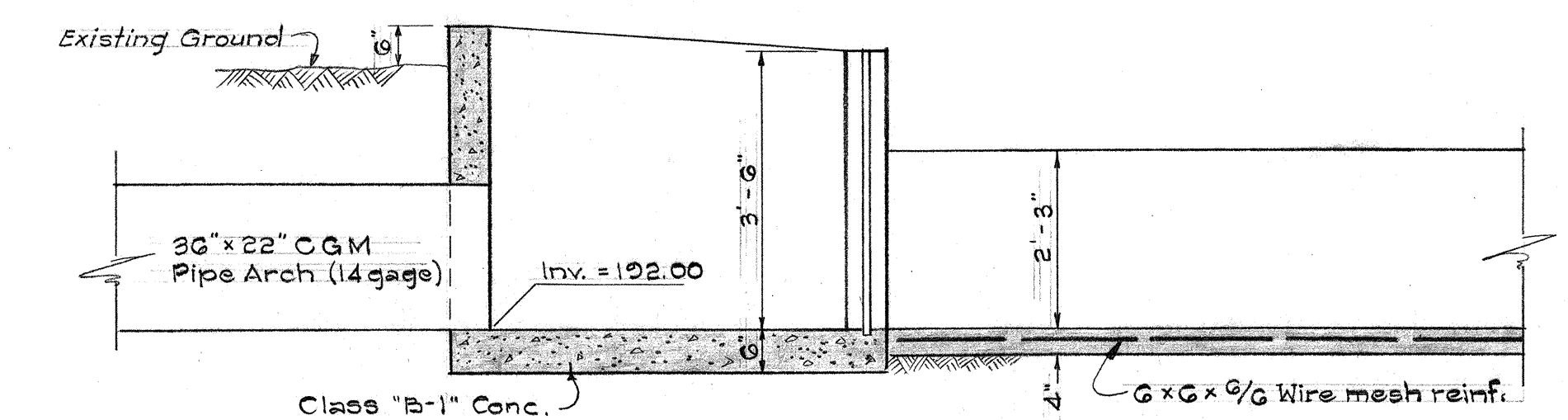
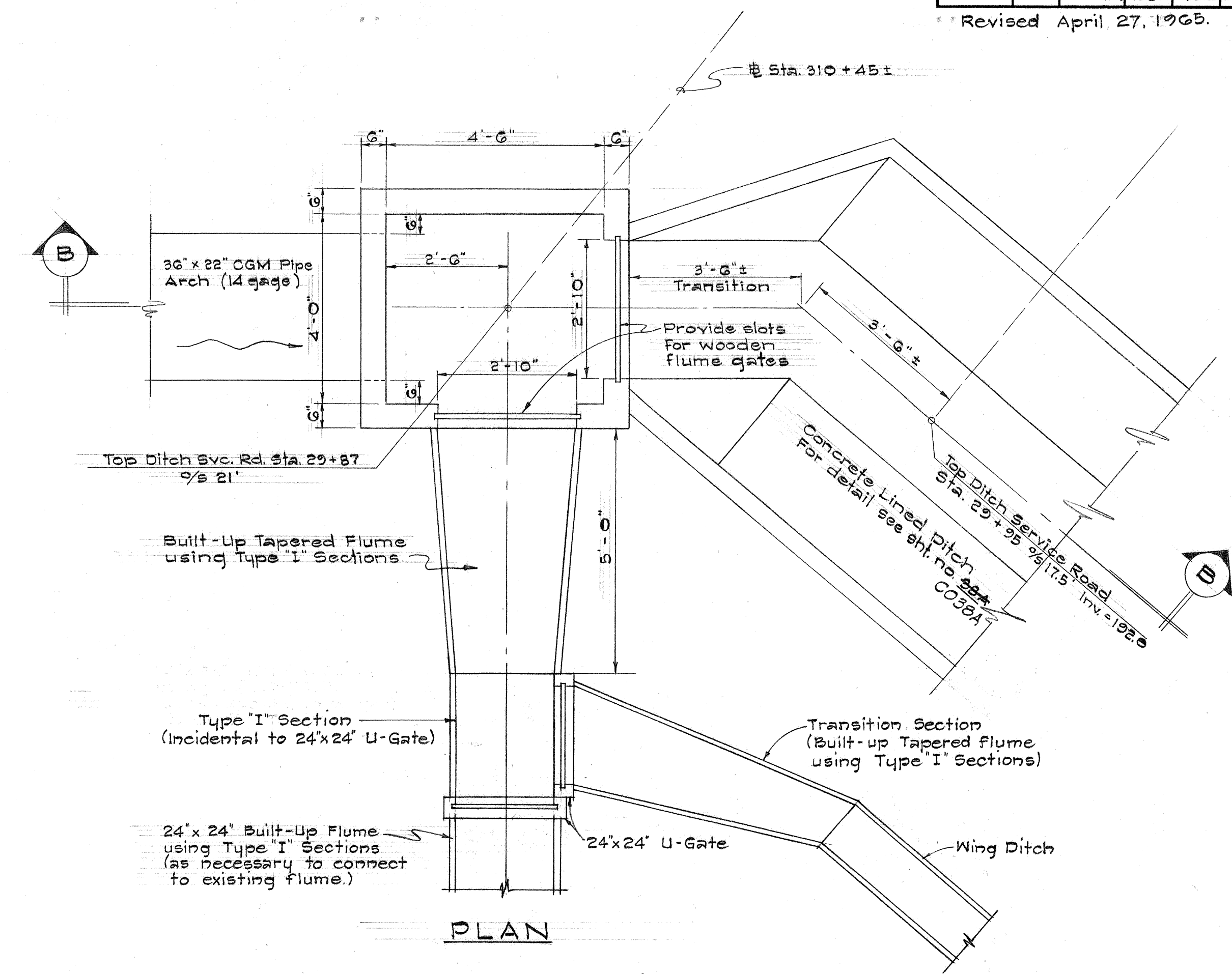
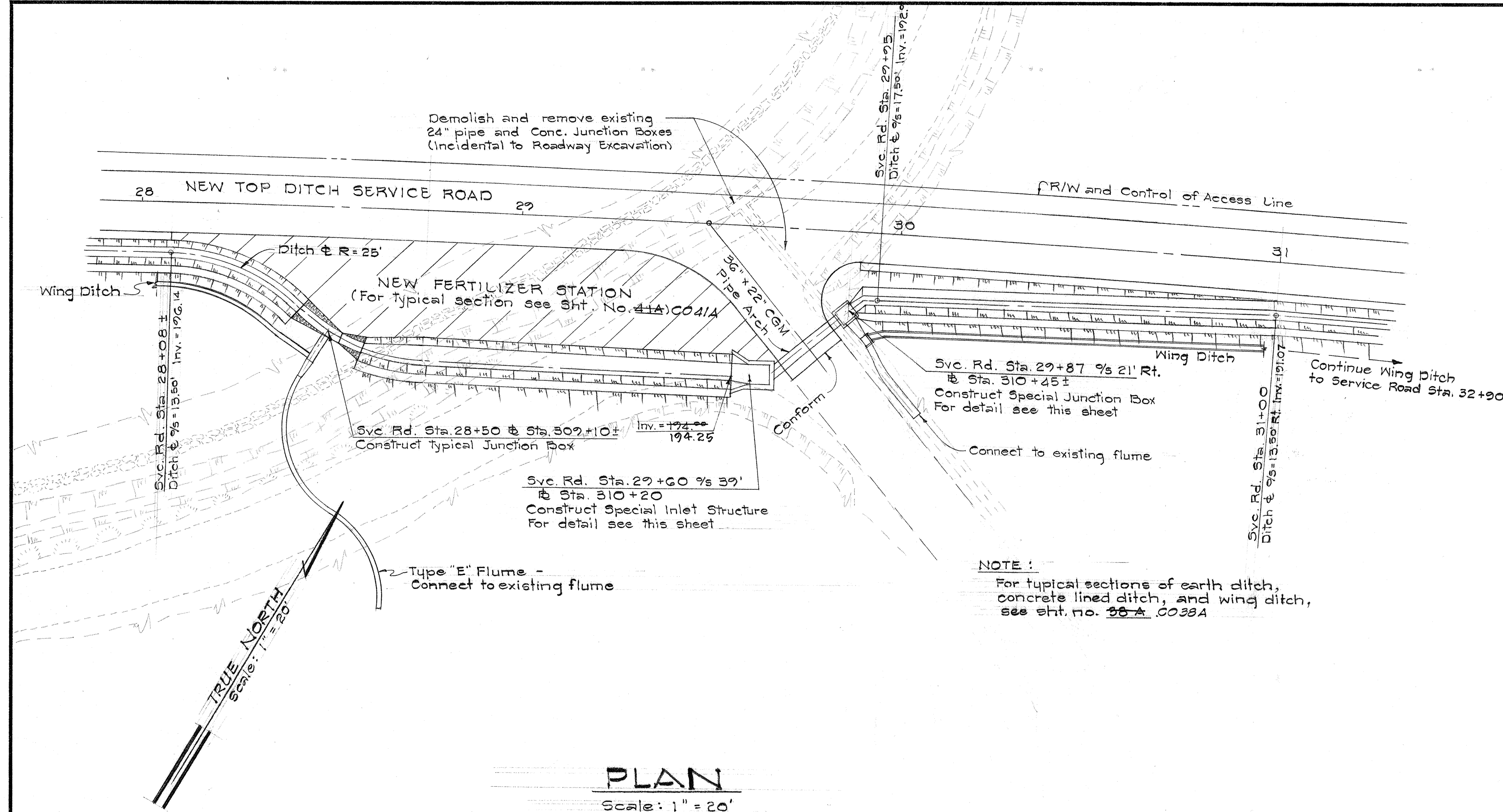
INTERSTATE ROUTE W-1
F.A.I. Project No. I-HI-1(18)
Scale: 1/2" = 1'-0" Date: February 1965

SHEET No. 14 OF 22 SHEETS

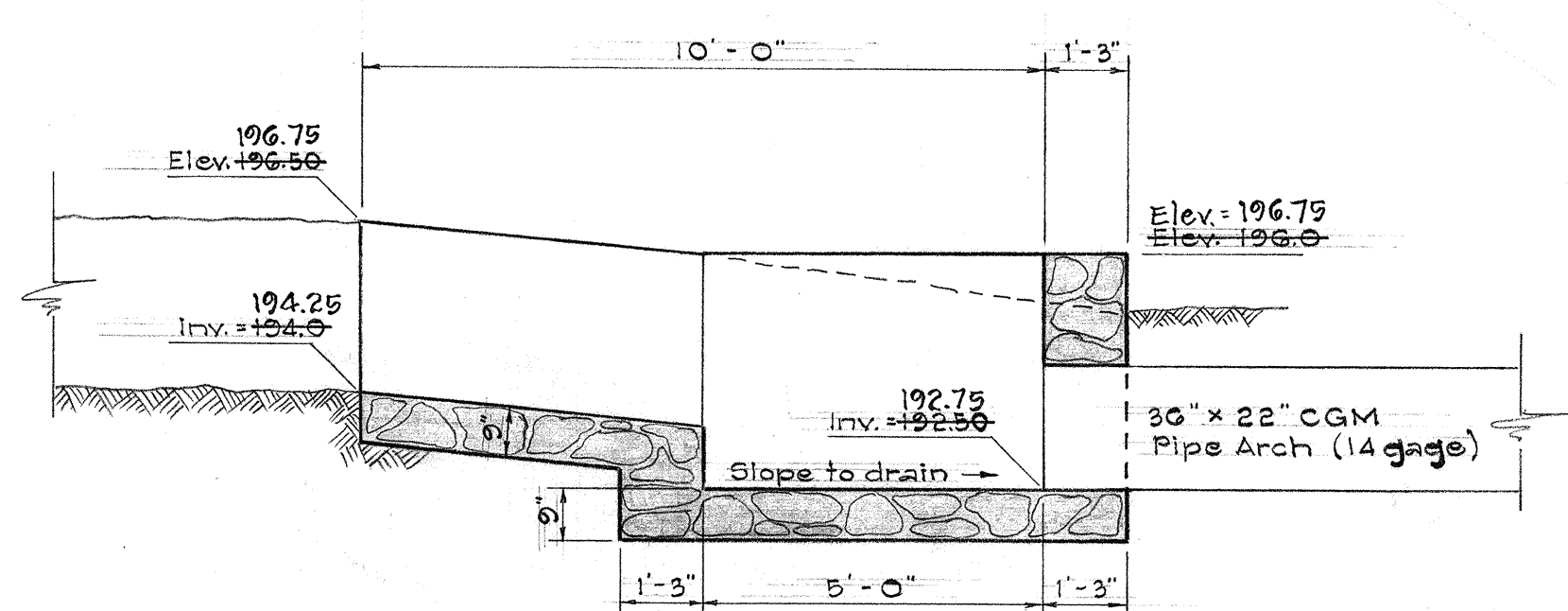
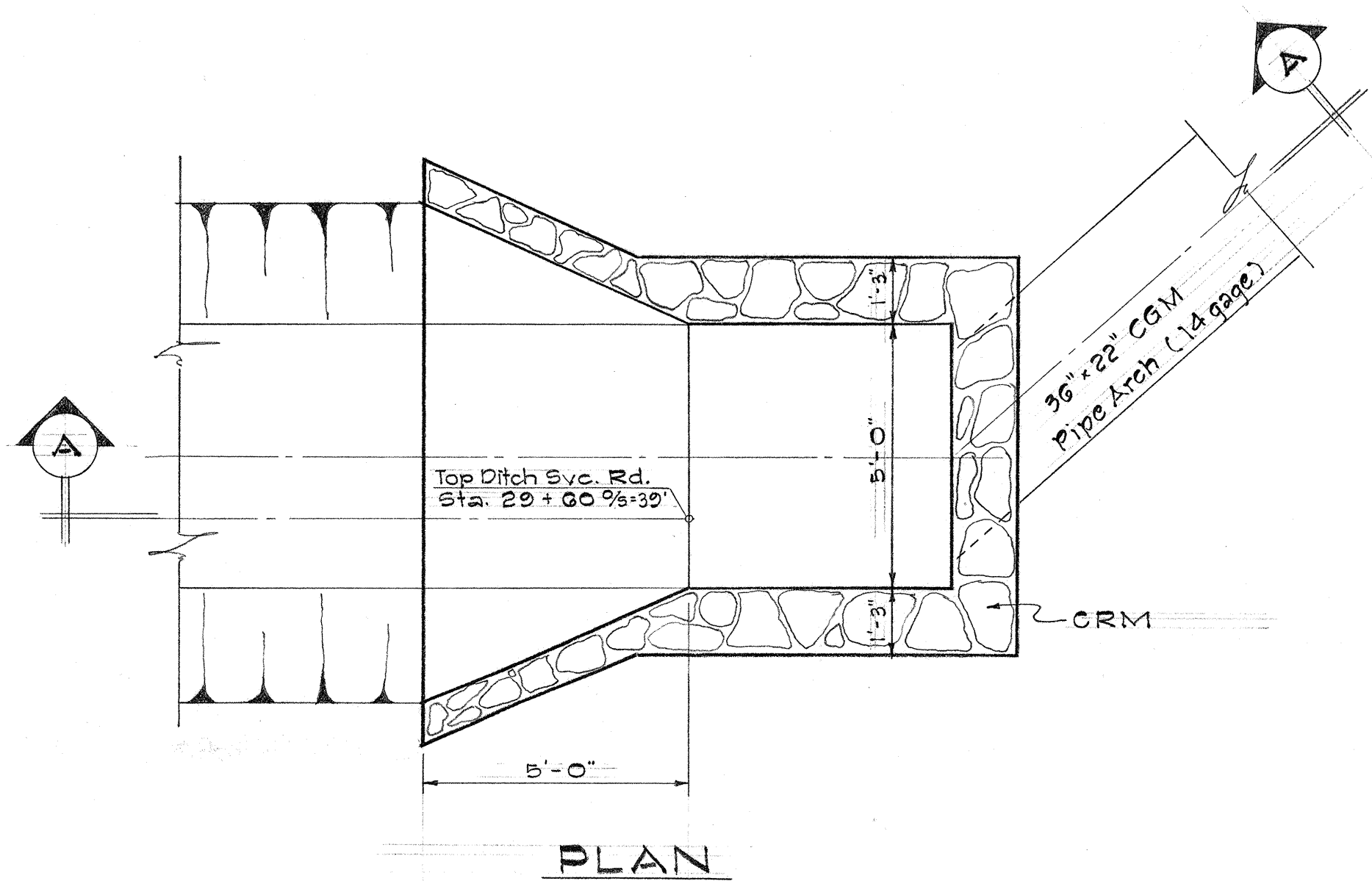
THIS SHEET SUPERSEDES
SHEET No. 44 & 44S

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	45	124

Revised April 27, 1965.



SPECIAL JUNCTION BOX
TOP DITCH SVC. RD. STA. 29+87
Sta. 310+45±
 Scale: 1/2" = 1'-0"



INLET STRUCTURE TOP DITCH SVC. RD. STA. 29+60 - Sta. 310+22±
 Scale: 3/8" = 1'-0"

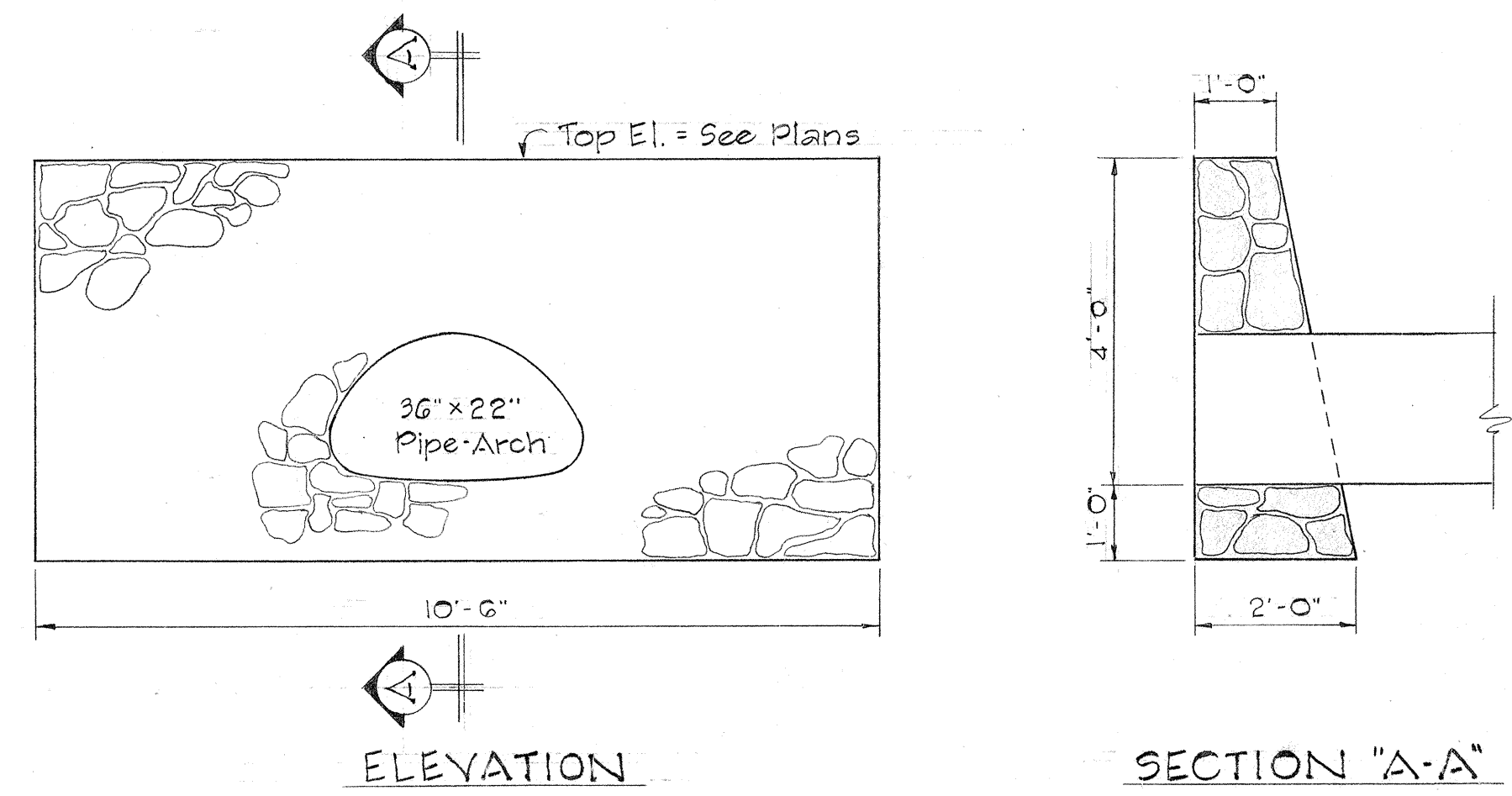
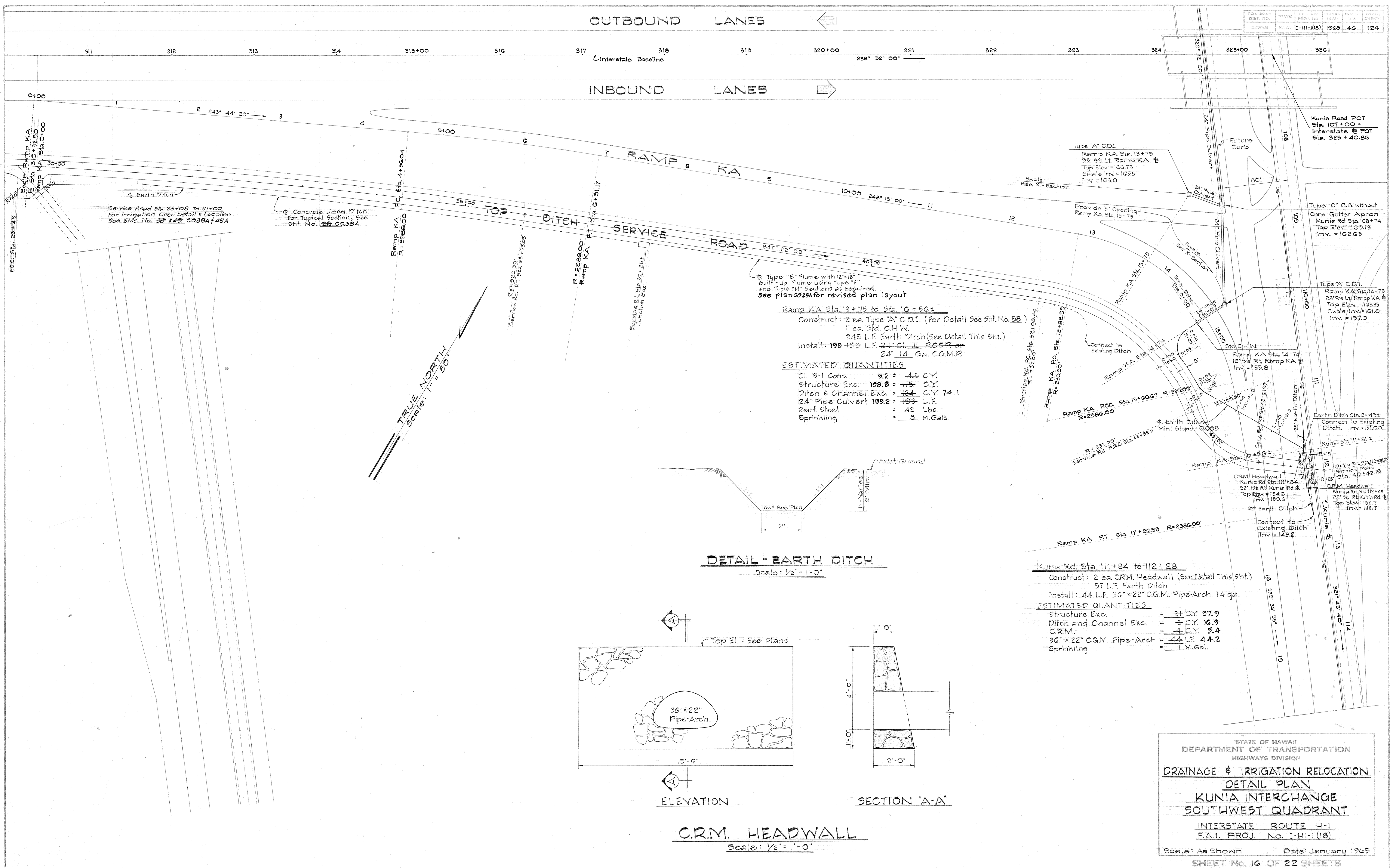
THIS SHEET SUPERSEDES
 SHEET No. 45

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

IRRIGATION DETAIL
Sta. 310+15 to 310+50

INTERSTATE ROUTE H-1
 F.A.I. Project No. I-HI-1(18)
 Scale: As Shown Date:
SHEET No. 15 OF 22 SHEETS

41 5 11



C.R.M. HEADWALL
Scale: 1/2" = 1'-0"

Kunia Rd. Sta. 111+84 to 112+28
Construct: 2 ea. C.R.M. Headwall (See Detail This Sht.)
57 L.F. Earth Ditch
Install: 44 L.F. 36" x 22" C.G.M. Pipe-Arch 14 ga.
ESTIMATED QUANTITIES:
Structure Exc. = 21 C.Y. 37.9
Ditch and Channel Exc. = 5 C.Y. 16.9
C.R.M. = 4 C.Y. 5.4
36" x 22" C.G.M. Pipe-Arch = 44 L.F. 44.2
Sprinkling = 1 M. Gal.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & IRRIGATION RELOCATION
DETAIL PLAN
KUNIA INTERCHANGE
SOUTHWEST QUADRANT
INTERSTATE ROUTE H-1
F.A.I. PROJ. No. I-H-1(18)
Scale: As Shown Date: January 1965
SHEET No. 16 OF 22 SHEETS

Cane Haul Rd. Sta. 9+82
 Construct: 1 ea. Siphon Inlet Structure (For Detail See Sht. No. 42)
 1 ea. Siphon Outlet Structure (Sht. No. 42)

Install: 55 LF 18" C.I. H50 Reinf. Conc. Press. Pipe
 or 18" C.I. 100 conc. cylinder Pipe,
 at the option of the Contractor.

ESTIMATED QUANTITIES

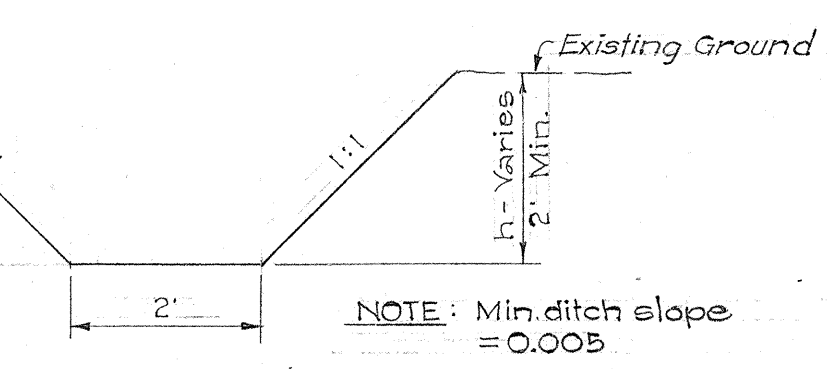
Class B1 conc.	= 5 cy.	4.9
Reinf. Steel	= 44 lbs.	9.62
Structure Exc.	= 18 cy.	4.5
18" Siphon Pipe	= 55 LF.	
Sprinkling	= 1 M.Gal.	

Kunia Rd. Sta. 98+16 to 99+70 Rt.
 Construct: 1 ea. Type 'A' C.D.I. (For detail see Sht. No. 58)
 1 ea. Conc. Headwall (For detail see Sht. No. 58)
 28 LF. Transition Ditch (See Detail this Sht.)
 Install: 44 LF. 42" C.I. III RCP or 42" 12 ga. CGMP.

ESTIMATED QUANTITIES

Class B1 conc.	= 45 cy.	6.9
Structure Exc.	= 44 cy.	81.9
Ditch and Channel Exc.	= 33 cy.	63.1
42" Culvert Pipe	= 44 LF.	43.9
GRF	= 4.5 cy.	4.7
Sprinkling	= 2 M.Gals.	
Backfill Exist. Ditch (Incidental to Roadway Exc.)		

DETAIL - TRANSITION DITCH
 Scale: 1/2" = 1'-0"



TRUE NORTH
 Scale: 1" = 50'

Sta. 312+25 to 315+00 Lt.
 Construct 280' Swale
ESTIMATED QUANTITIES
 Ditch and Channel Exc. = 16 C.Y.

Ramp KC Sta. 10+50
 Construct: 1 ea. Std. C.H.W.
 1 ea. Type "B" C.D.I. (For Detail See Sht. No. 58)
 Install: 44 LF. 24" C.I. III RCP or 24" 14 ga. CGMP

ESTIMATED QUANTITIES

Class B1 conc.	9.5 = 36 C.Y.
Reinf. Steel	= 42 lbs.
Structure Exc.	22.4 = 35 C.Y.
24" pipe culvert	46.5 = 46 LF.

Kunia Road Sta. 106+00 to 108+74
 Construct: 1 ea. Type "E" 50" S.D.M.H. "E"
 1 ea. Type C C.B.
 42 LF. 18" C.I. III RCP or 18" 14 ga. CGMP
 258 LF. 24" C.I. III RCP or 24" 14 ga. CGMP

ESTIMATED QUANTITIES

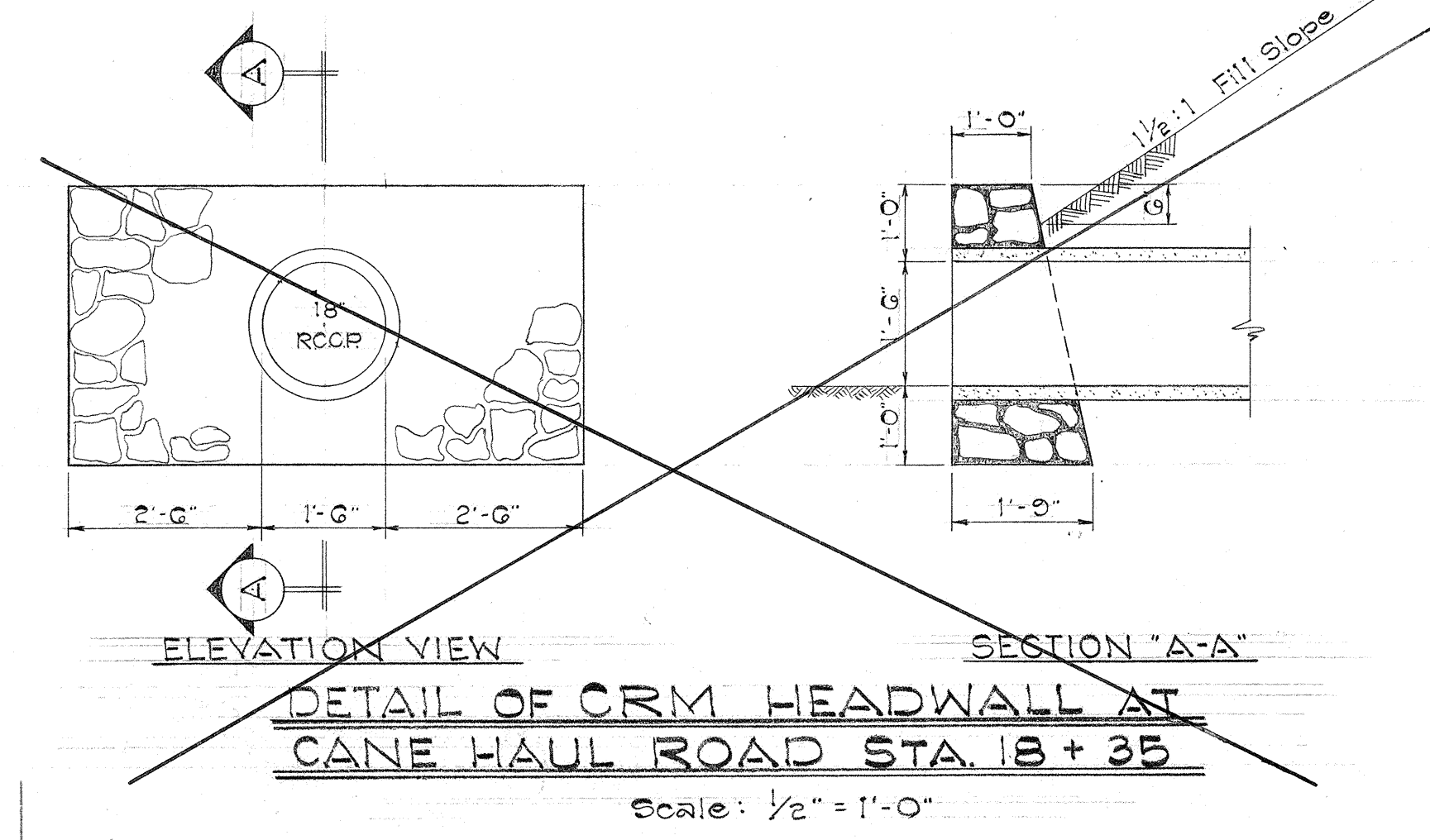
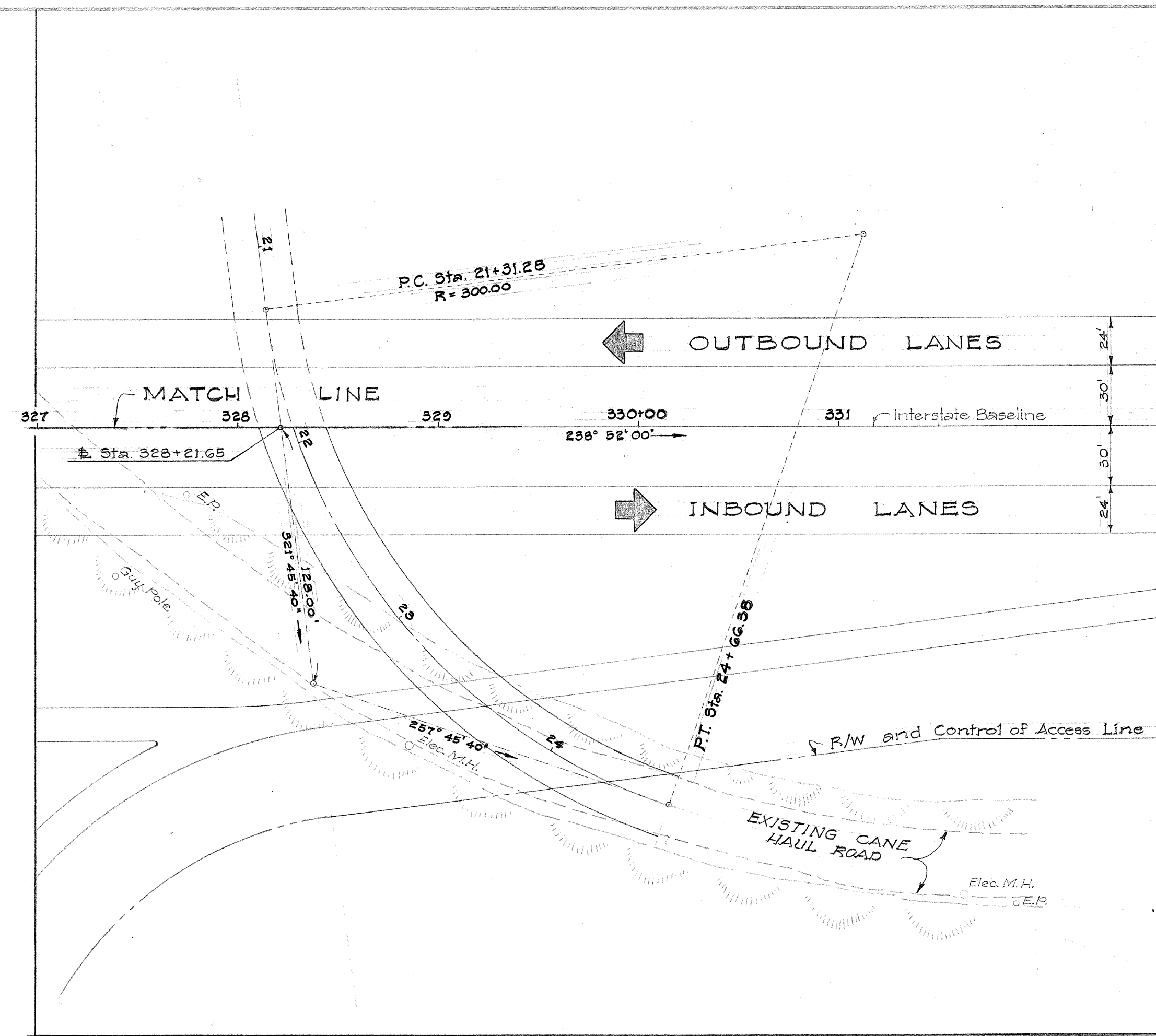
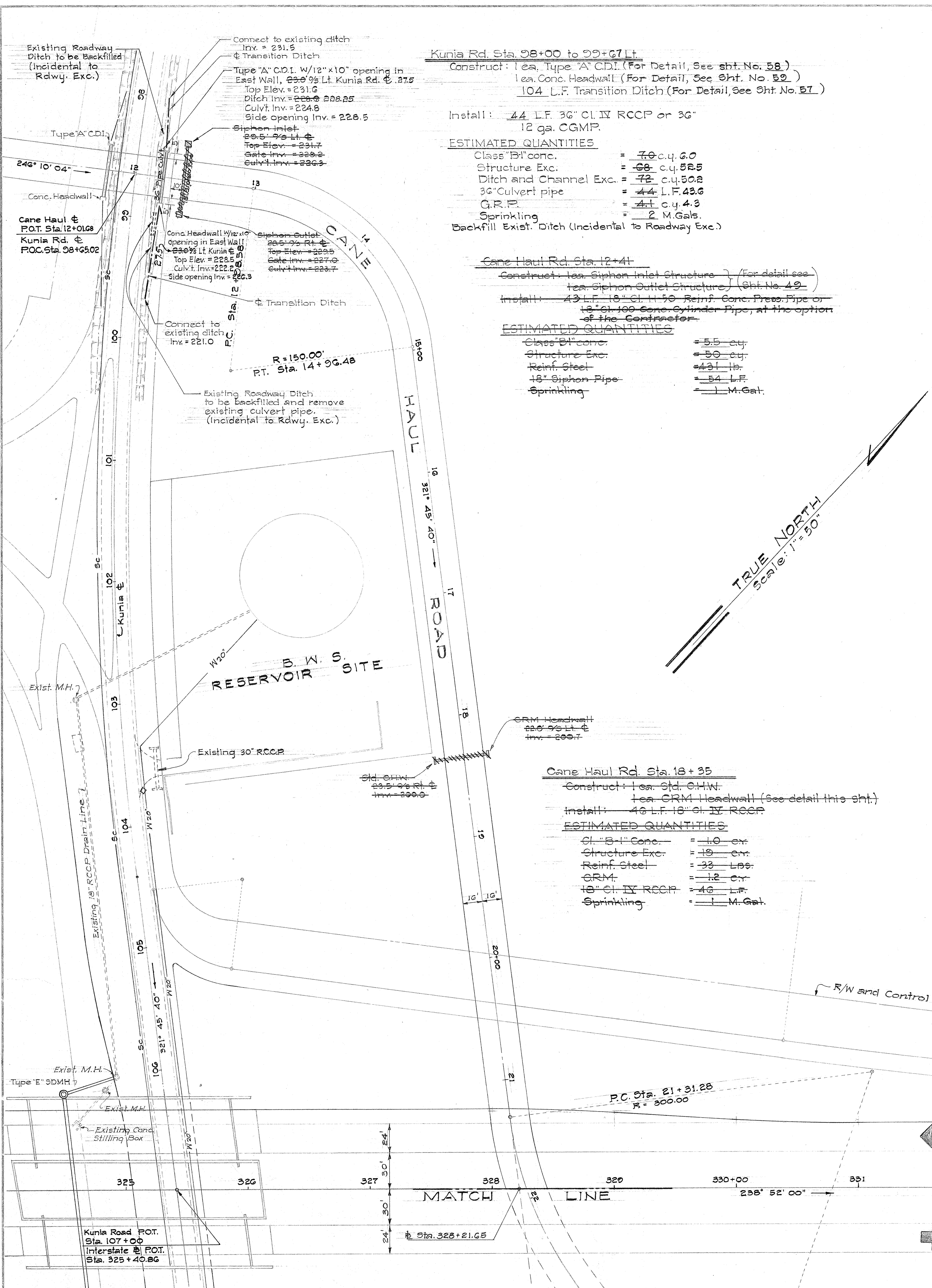
Class A1 Conc.	6.4 = 65 C.Y.
Class B1 conc.	1.7 = 22 C.Y.
Structure Exc.	163 = 222 C.Y.
Reinf. Steel	230 = 210 lbs.
18" pipe culvert	42.5 = 42 LF.
24" pipe culvert	259.8 = 258 LF.
Type "B" C.I. Frame & Cover	= 1 ea.
Salvaged C.I. Frame & Cover	= 1 ea.
Brick Wall for Type "E" S.D.M.H.	= 4 LF.
Sprinkling	= 6 M.Gals.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

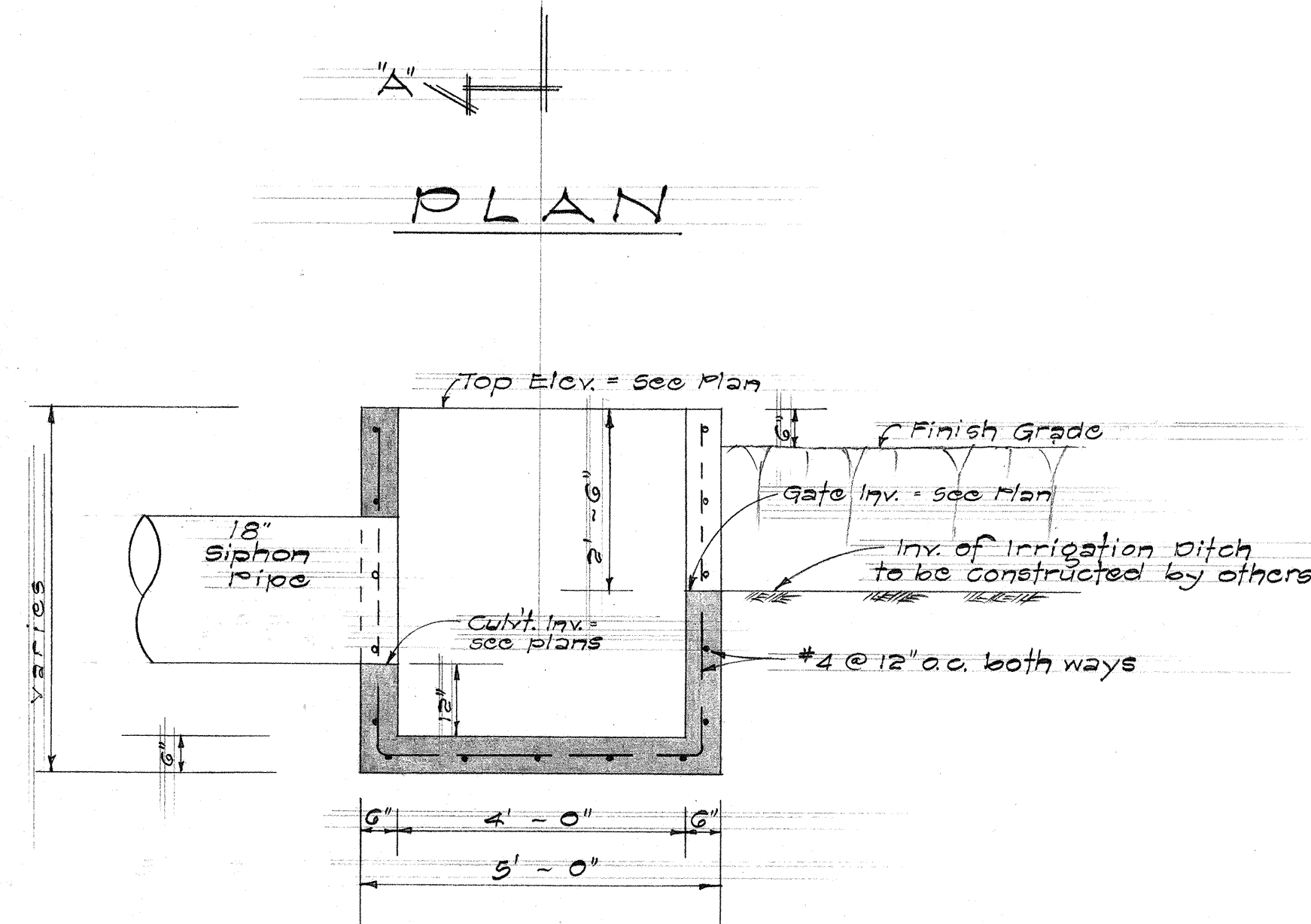
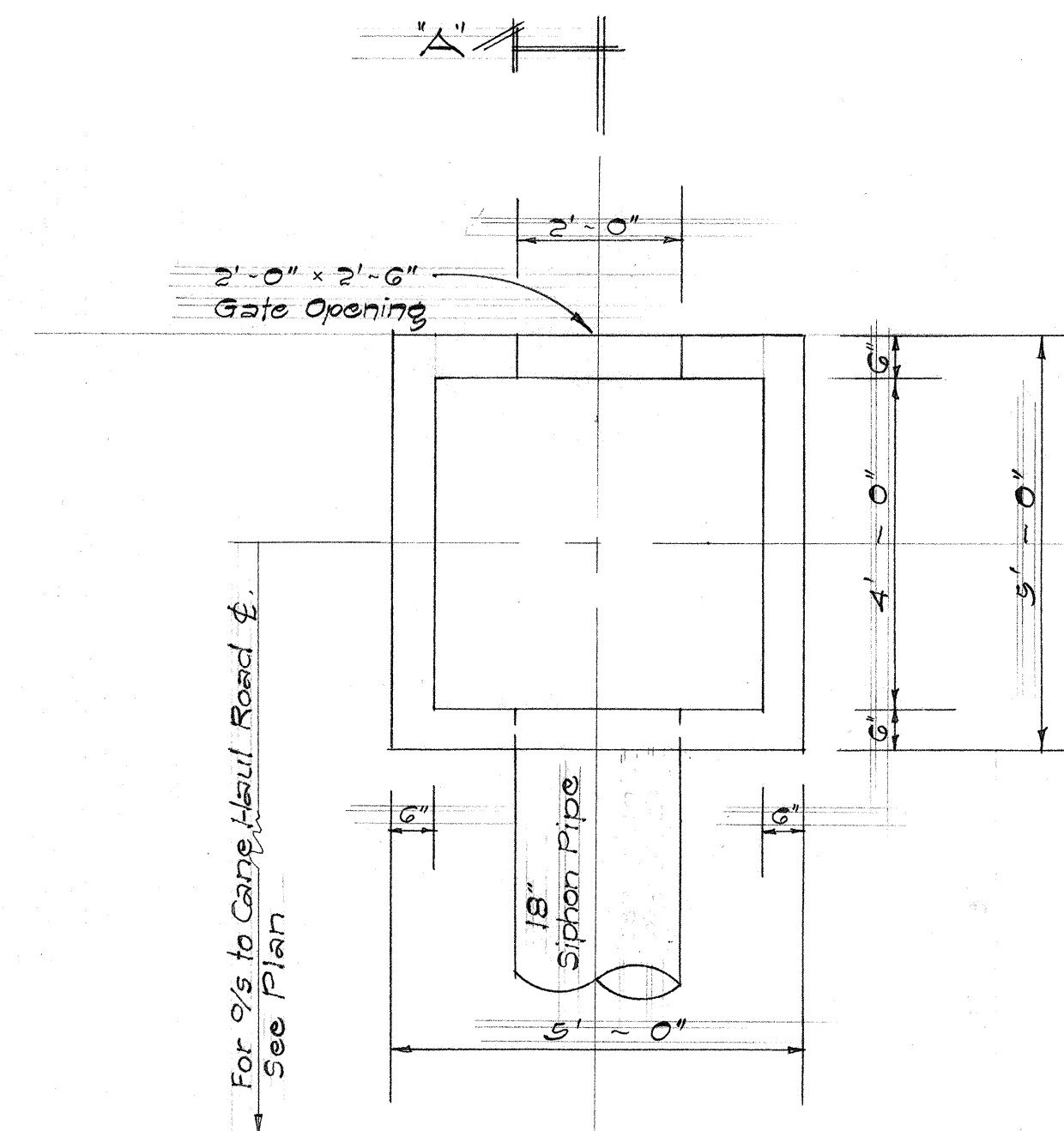
DRAINAGE & IRRIGATION RELOCATION
DETAIL PLAN
KUNIA INTERCHANGE
NORTHWEST QUADRANT
 INTERSTATE ROUTE H-1
 F.A.I. PROJ. No. I-HI-1(18)

Scale: As Shown Date: January 1965
 SHEET No. 17 OF 22 SHEETS

DATE: _____
 SURVEYED BY: _____
 DRAWN BY: _____
 CHECKED BY: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 No. _____



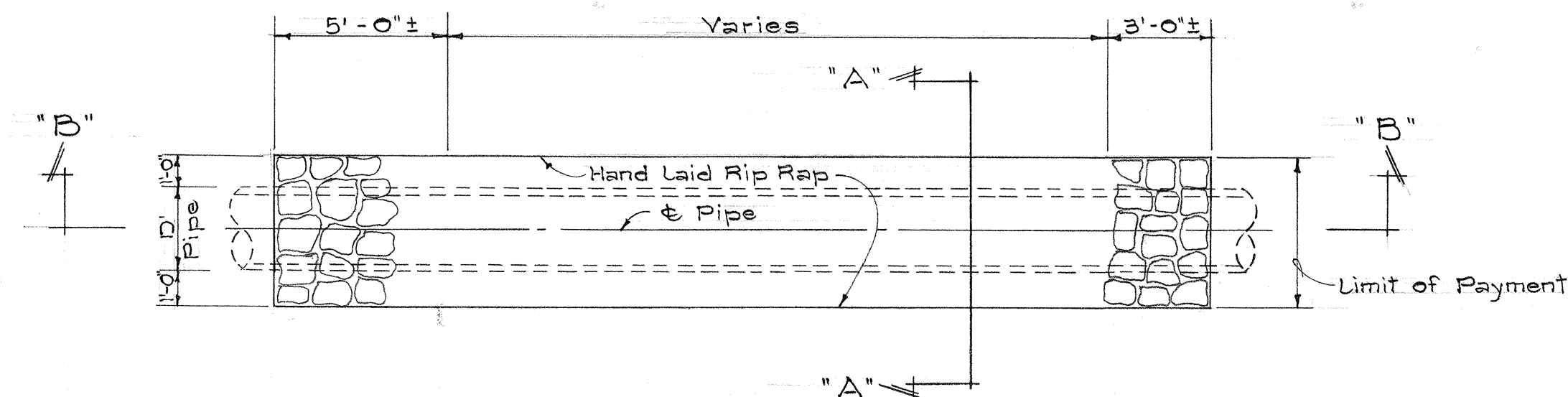
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(18)	1965	42	124



SECTION "A-A"

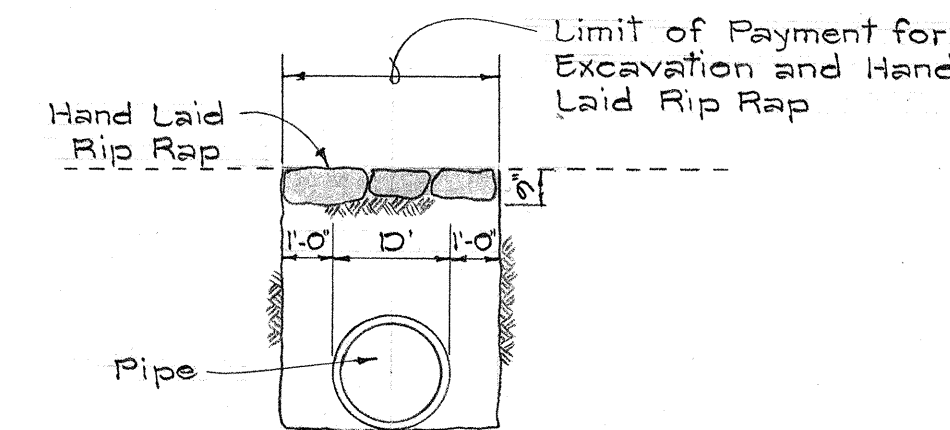
DETAIL OF SIPHON INLET AND OUTLET STRUCTURES AT CANE HAUL ROAD STA. 9+82 AND STA. 12+41

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

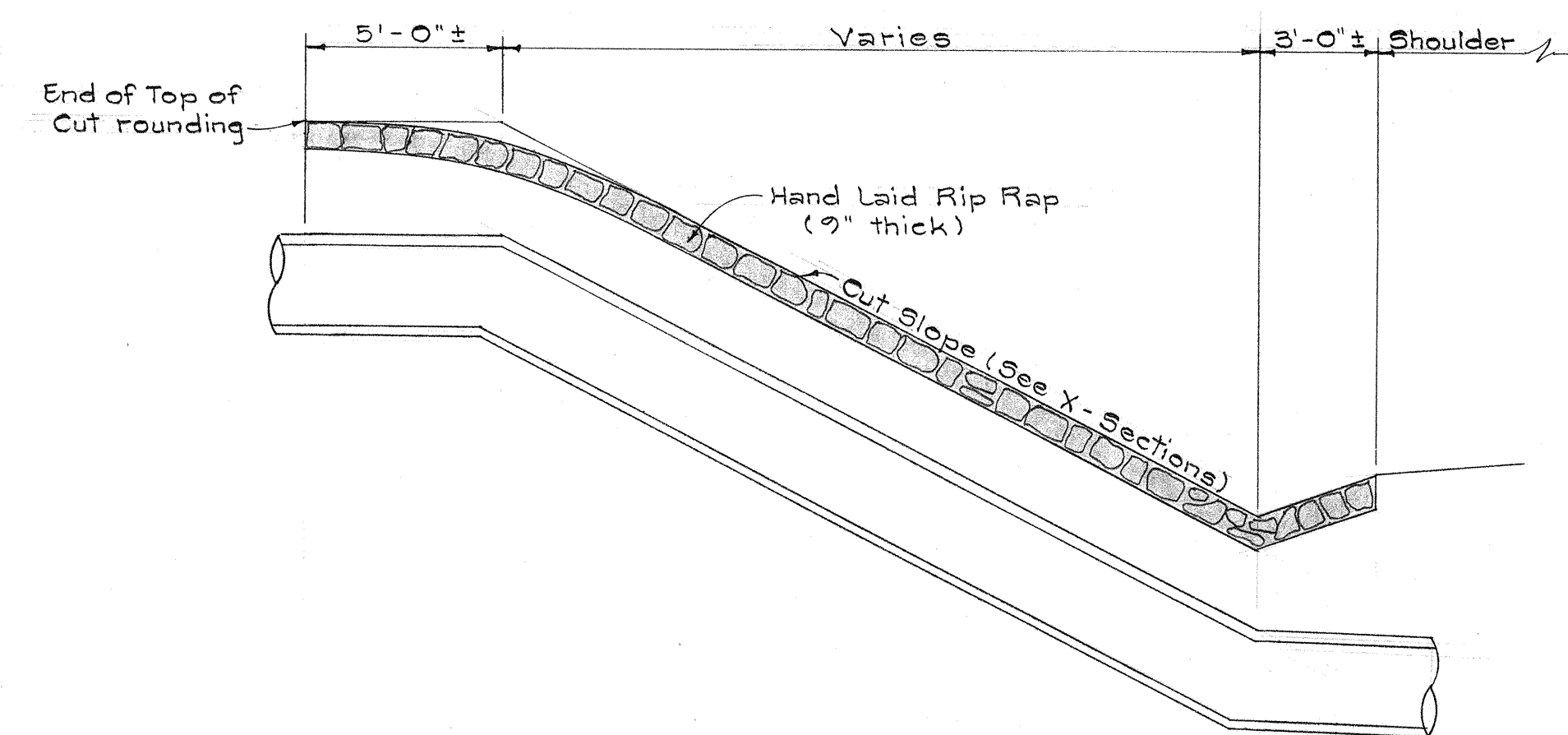


PLAN

NOTE:
Slope Paving shall extend over the width of the trench. Hand Laid Rip Rap required beyond the Limit of Payment shall be done at the Contractor's expense.



SECTION "A-A"



SECTION "B-B"

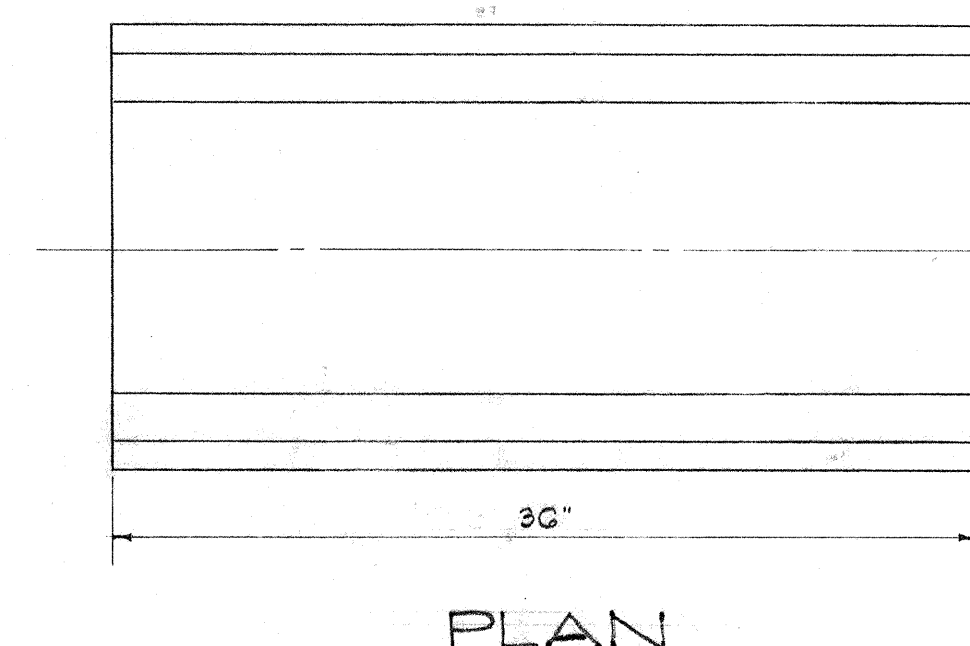
TYPICAL DETAIL OF SLOPE PAVING

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

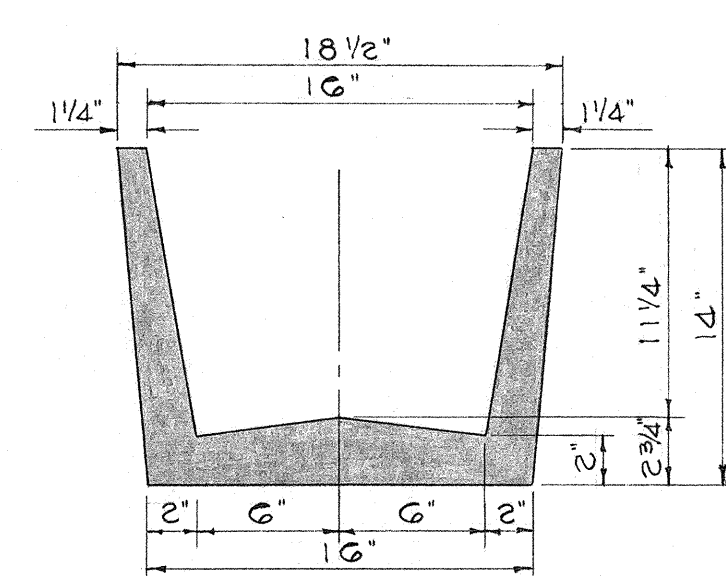
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
NO.	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
IRRIGATION DETAIL
SIPHON STRUCTURES AT CANE HAUL RD. STA. 9+82 & 12+41
TYPICAL DETAIL OF SLOPE PAVING
INTERSTATE ROUTE W-1 F.A.I. PROJ. No. I-HI-1 (18)
Scale: As Shown Date: January 1965
SHEET No. 19 OF 22 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-17-118	1965	50	124

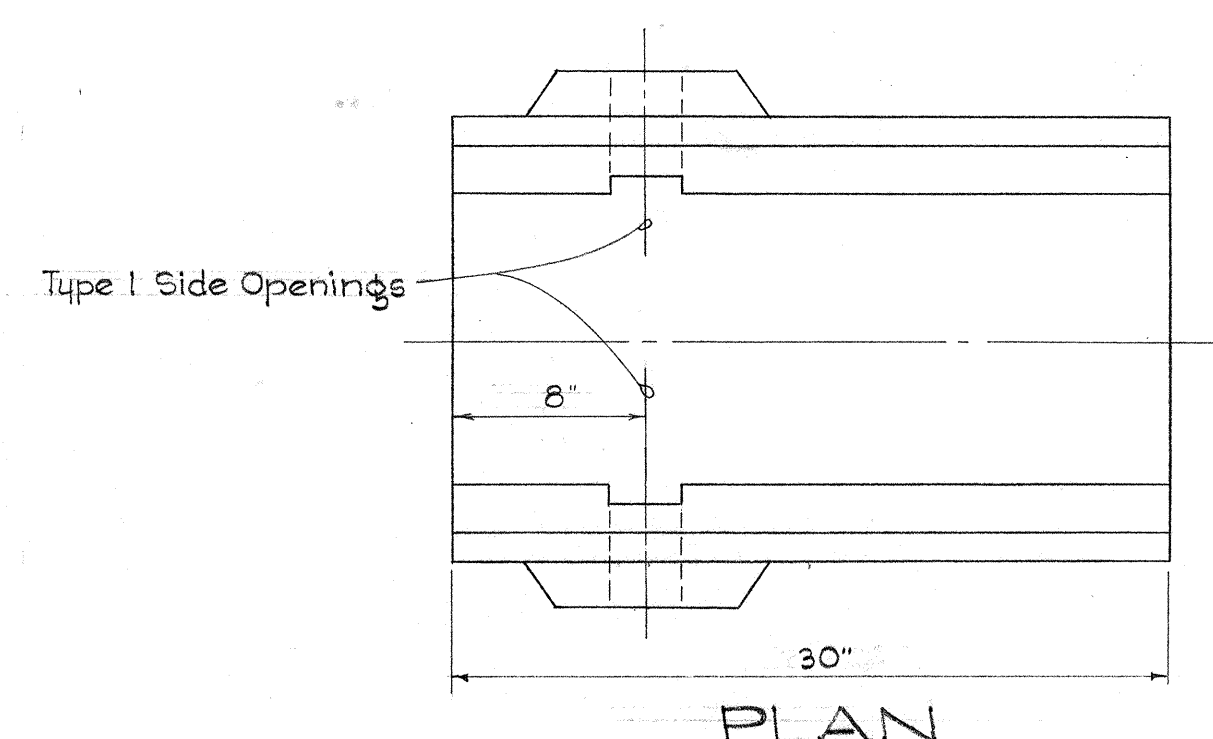


PLAN

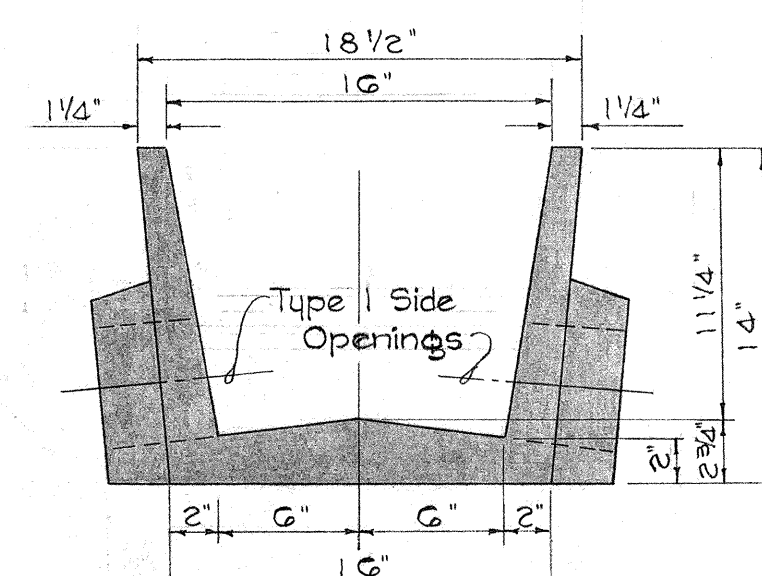


ELEVATION

TYPE "A" FLUME

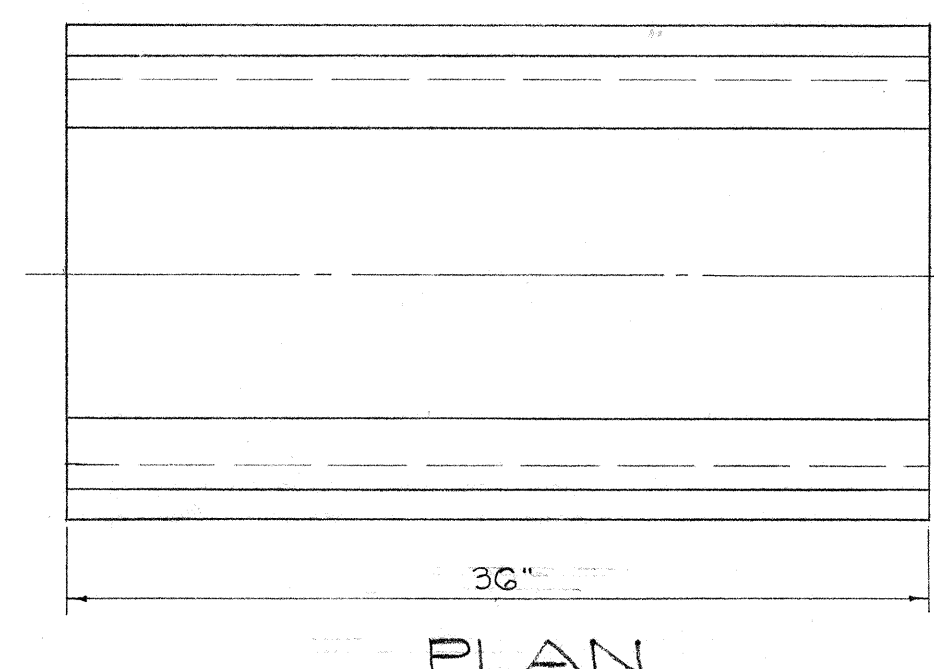


PLAN

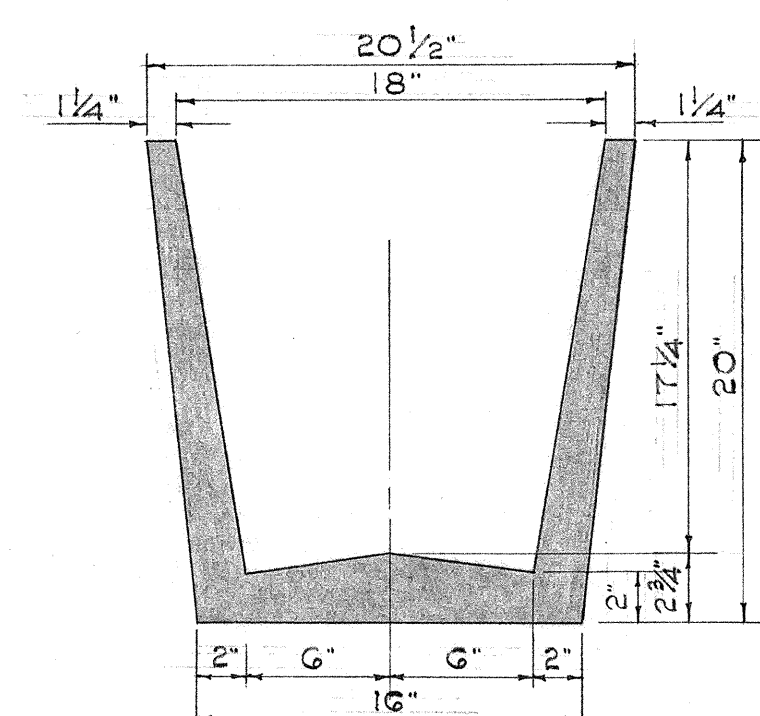


ELEVATION

TYPE "C" FLUME

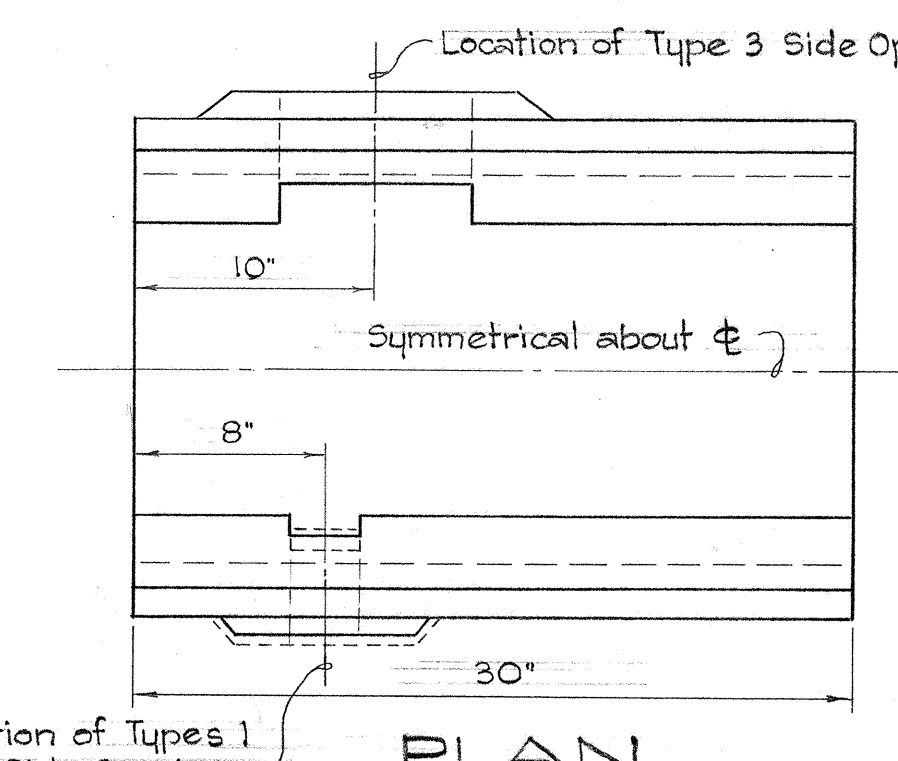


PLAN

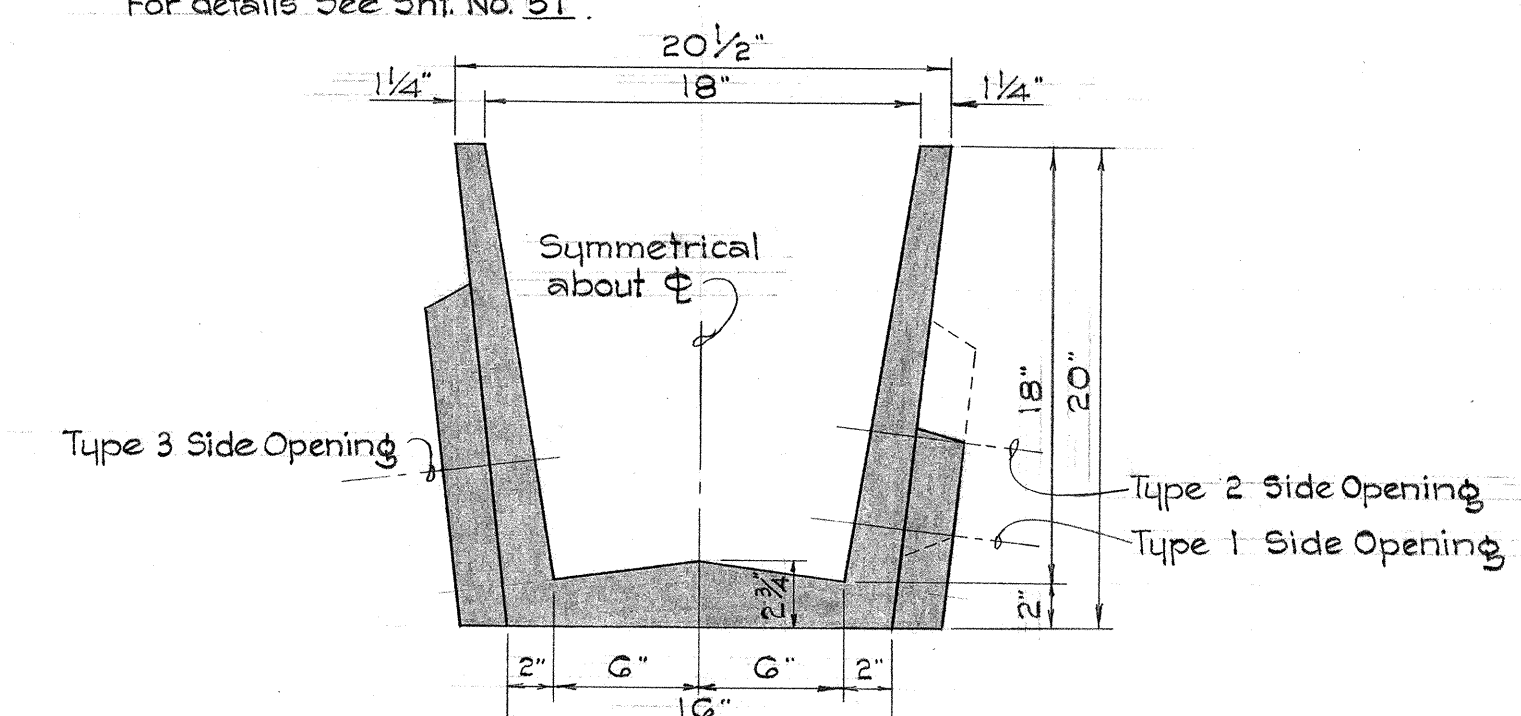


ELEVATION

TYPE "E" FLUME

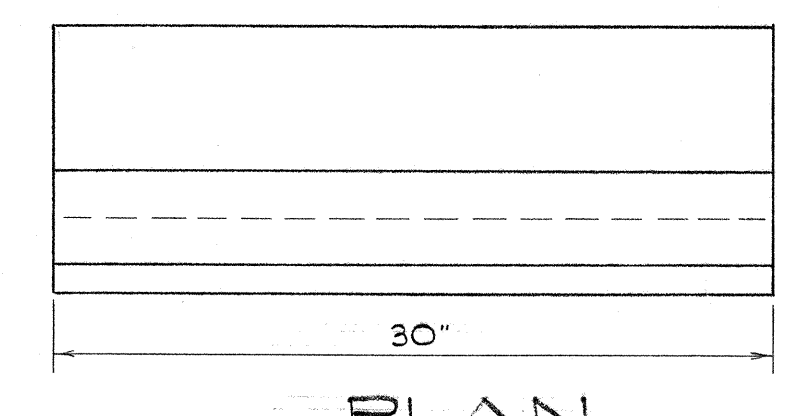


PLAN

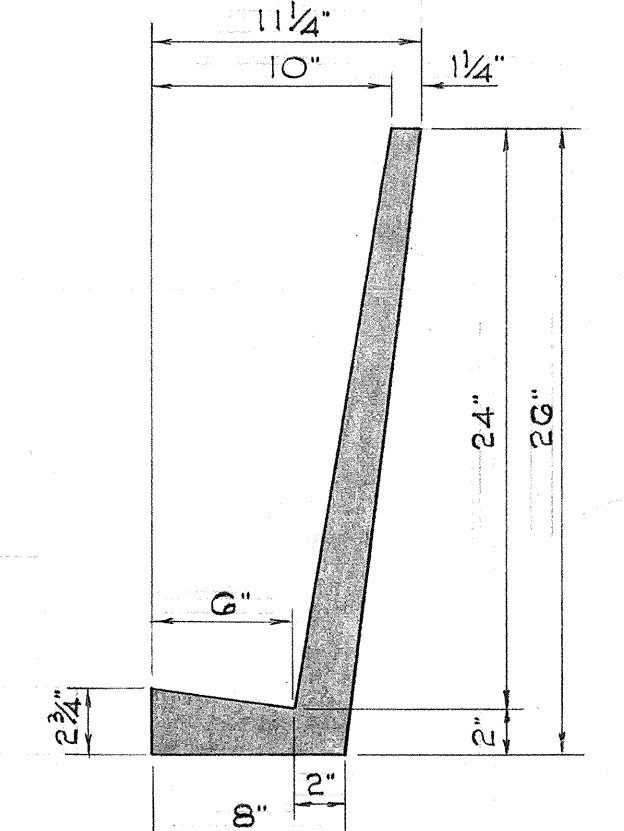


ELEVATION

TYPE "G" FLUME



PLAN

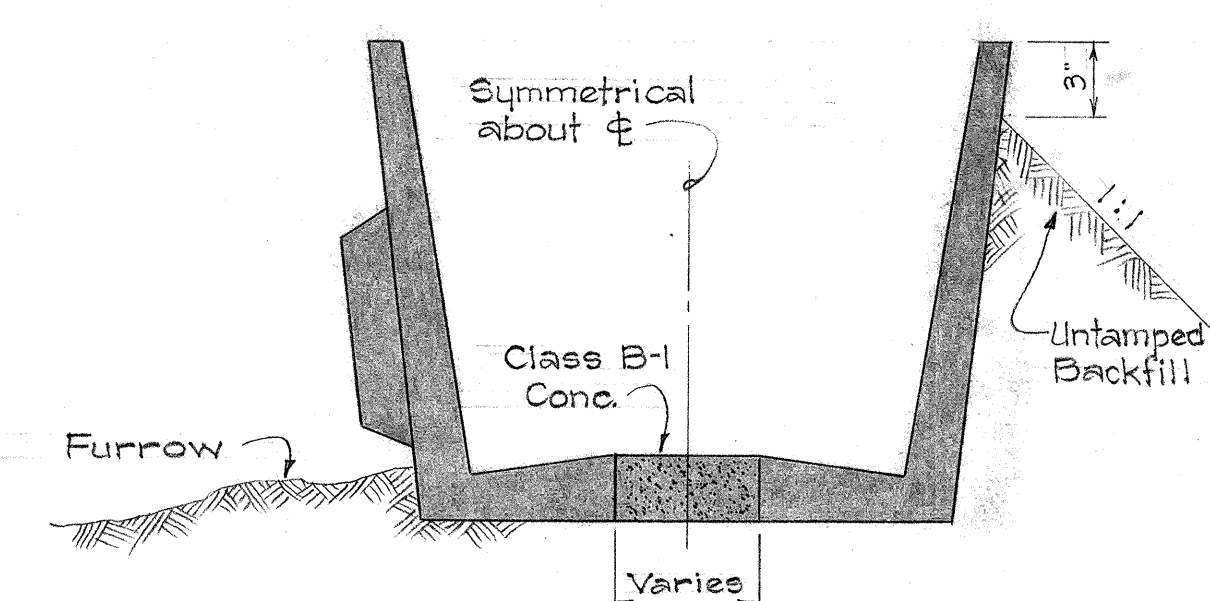


ELEVATION

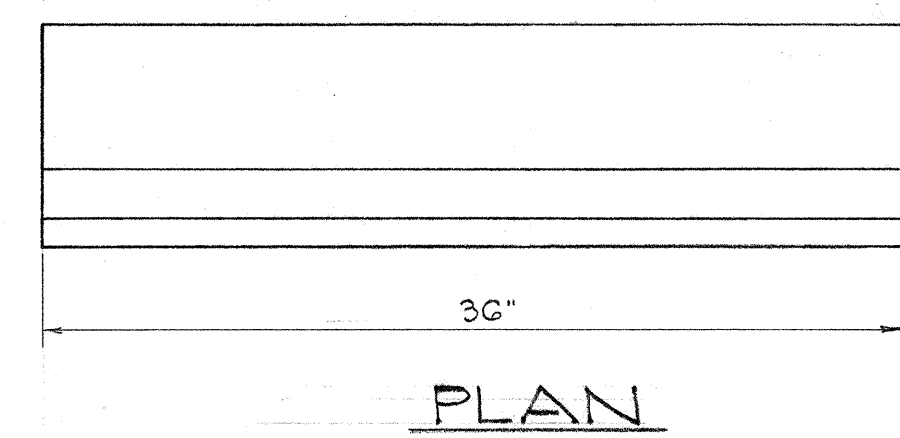
TYPE "I" SECTION

NOTE:

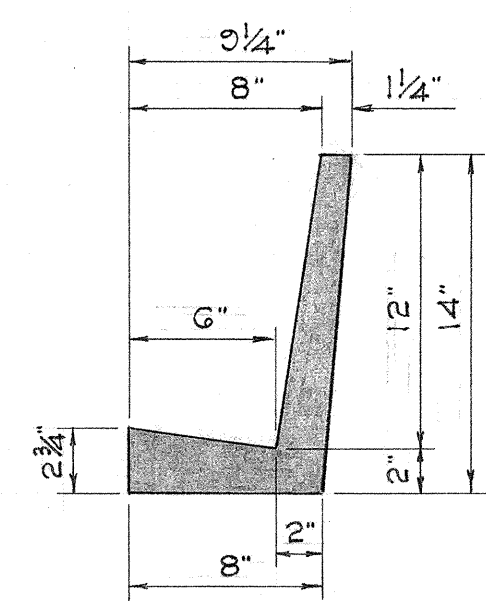
1. For Details of Side Openings See Sht. No. 51.
2. All Flumes shall be backfilled 3" from the top except where there are side openings. Backfill to be incidental to the flume.



TYPICAL BUILT-UP FLUME SECTION

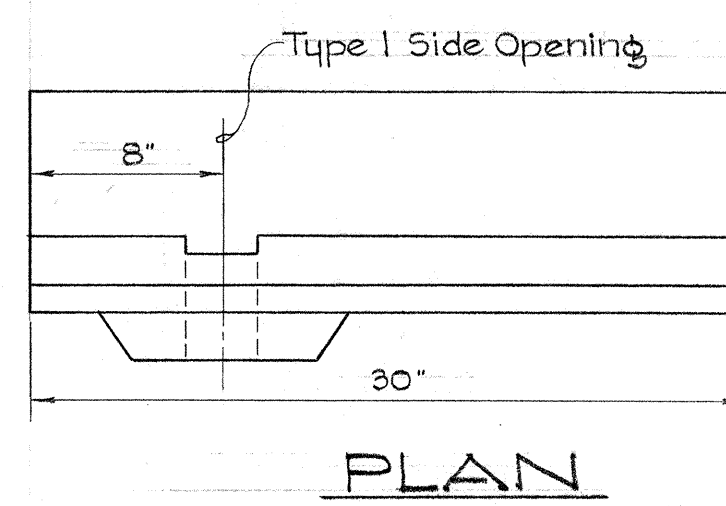


PLAN

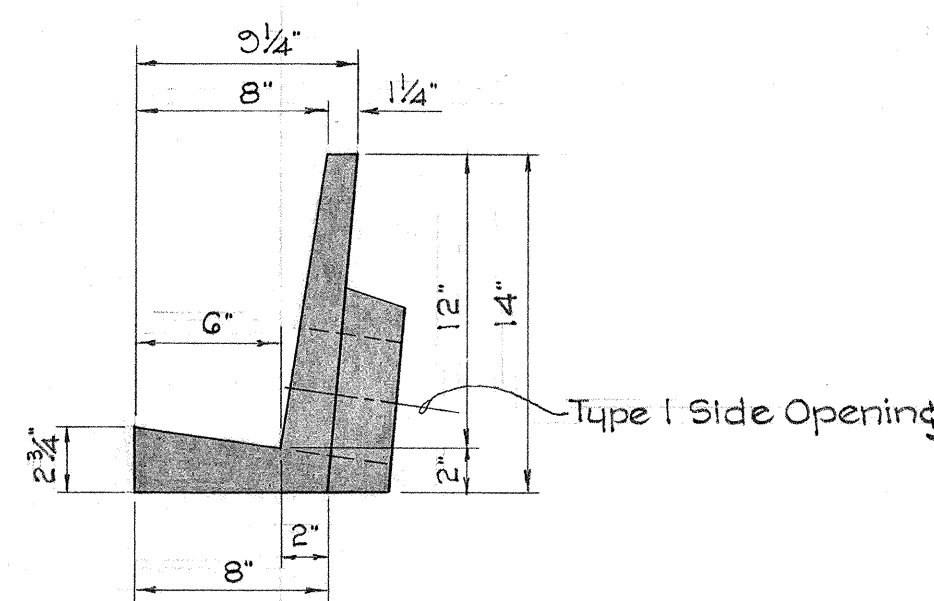


ELEVATION

TYPE "B" SECTION

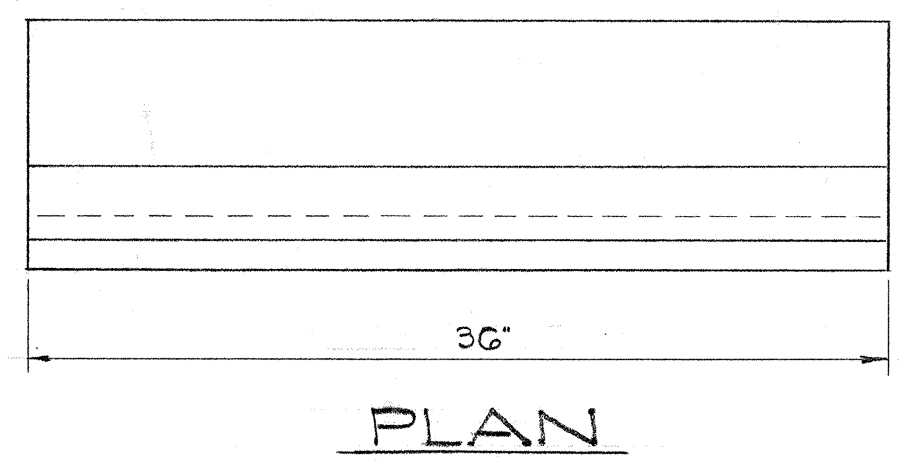


PLAN

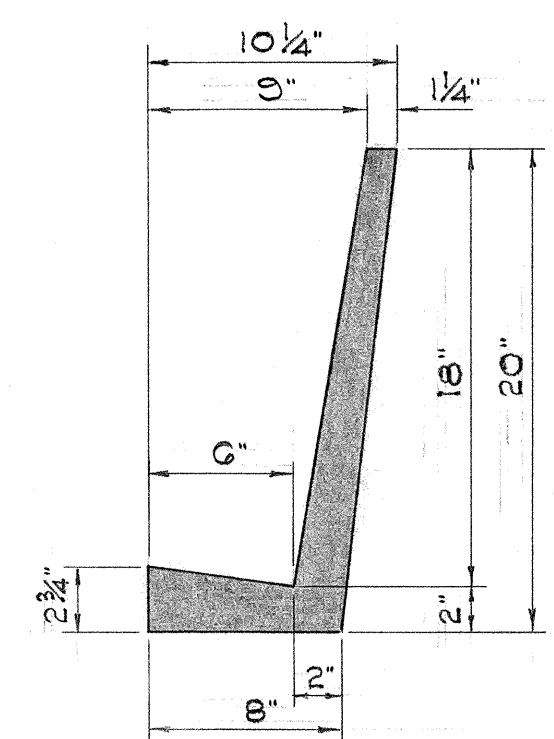


ELEVATION

TYPE "D" SECTION

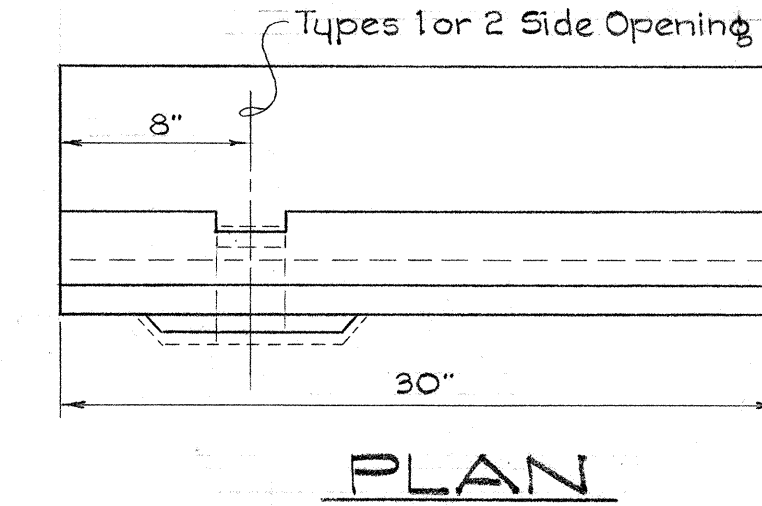


PLAN

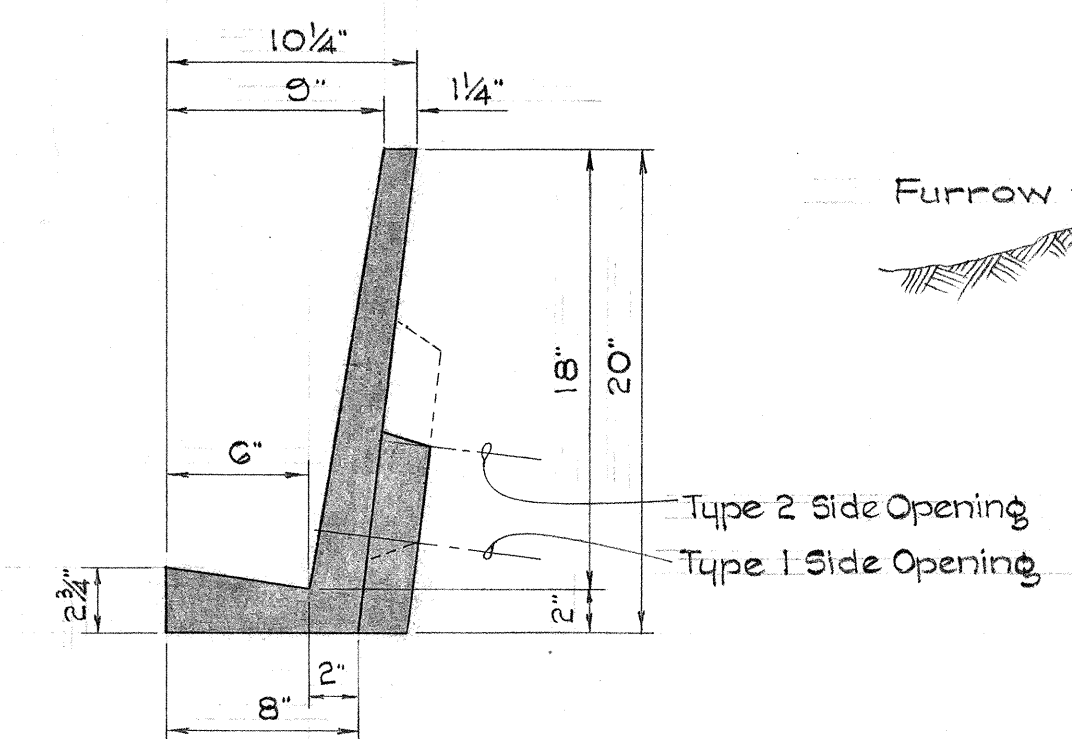


ELEVATION

TYPE "F" SECTION



PLAN



ELEVATION

TYPE "H" SECTION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS OF PRECAST
IRRIGATION
FLUME AND SECTIONS

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

Scale: 1 1/2" = 1'-0" Date: Jan. 1965

SHEET No. 20 OF 22 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

2" max. spacing

Cement Mortar

2"

Provide 3/4" x 2" x L wood spacer with joint sealer at all connections

Joint Sealer

One flume section

2"

A diagram of a U-shaped cross-section. The top horizontal width is labeled 7". The bottom curved part is a semi-circle with a radius labeled $R = 3.5"$. The diagram is divided into four quadrants by a vertical centerline and a horizontal line passing through the center of the semi-circle.

Technical drawing of a gate mechanism. The drawing shows a cross-section of a gate with a slot to accommodate a sheet metal gate. The overall width is dimensioned as 3' - 0". The height of the gate is dimensioned as 8 7/8". The drawing includes a section line A-A and a note: "Slot to accommodate sheet metal gate". The drawing also shows a vertical dimension of 2' 0" and a horizontal dimension of 2' 0".

7"

2 1/2" Depth of slot

Technical drawing of a rectangular form, likely a foundation or wall section, showing reinforcement details. The drawing includes the following dimensions and labels:

- Width:** 5' - 0"
- Height:** 4' - 11 1/2"
- Central Opening:** 2' - 10" x 4' - 0"
- Reinforcement:** #8 Reinf. Bars @ 4" o.c. (On Center)
- Labels:**
 - inf.
 - x bar
 - ing
 - t-out
 - at right
 - Reinf. Hook bar

Hand-drawn detail of a column reinforcement. It shows a cross-section of a column with a 3' x 3' x 1/2" plate. A bracket indicates 8 reinforcement bars at 4" o.c. A dimension line shows 1/2" and 2".

This diagram shows a cross-section of a wall and roof assembly. The wall consists of a structural member (likely wood or steel) with insulation (hatched area) and sheathing (dotted area) applied to its exterior. The roof assembly is shown above the wall, with insulation (hatched area) and sheathing (dotted area) applied to its underside. A horizontal dimension line indicates a distance of 5'-0" from the exterior face of the wall to the centerline of the roof structure. Two circular callouts are present: one labeled "See Detail A" pointing to the roof-to-wall joint, and another labeled "See Detail B" pointing to the wall-to-foundation joint.

Technical drawing showing a cross-section of a wall with an opening. The wall is 24" thick. The opening is 7 1/2' wide and 2 1/2' high. Reinforcement details include:

- 1/2" x 2" L-shaped reinforcement at the top left corner.
- 3" x 3" x 1/2" L-shaped reinforcement at the top right corner.
- 8 #8 Reinforcing Bars @ 12" O.C. (On Center) for the top slab.
- 2 - #6 Reinforcing Hook Bars @ 2'-2" 9/16 from the edge of the opening for the bottom slab.

2' - 5 3/4"

3 3/4" or 1' - 0 3/4"

Area to be cut out

3" x 3" x 1/2"

Opening

Isometric view of a mechanical part with dimensions: 5", 5 1/2", 9", 4", 3/8", 1 1/2", 13 1/2", 6", 2 1/8", and A = 3". A note indicates "Tack weld @ 2" o.c."

5 2