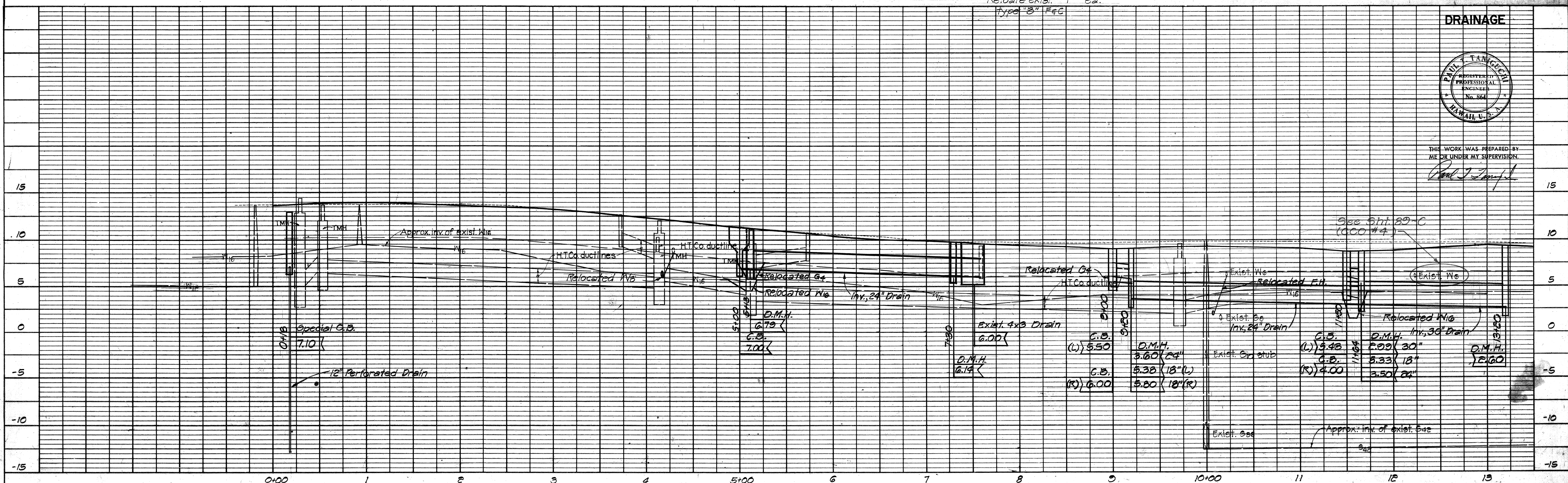


PROFILE		BY	DATE
SURVEYED			
PLOTTED			
GRADES CHECKED			
B. M.'S NOTED			
STRUCTURE NOTATIONS CHECKED			
NO. _____			

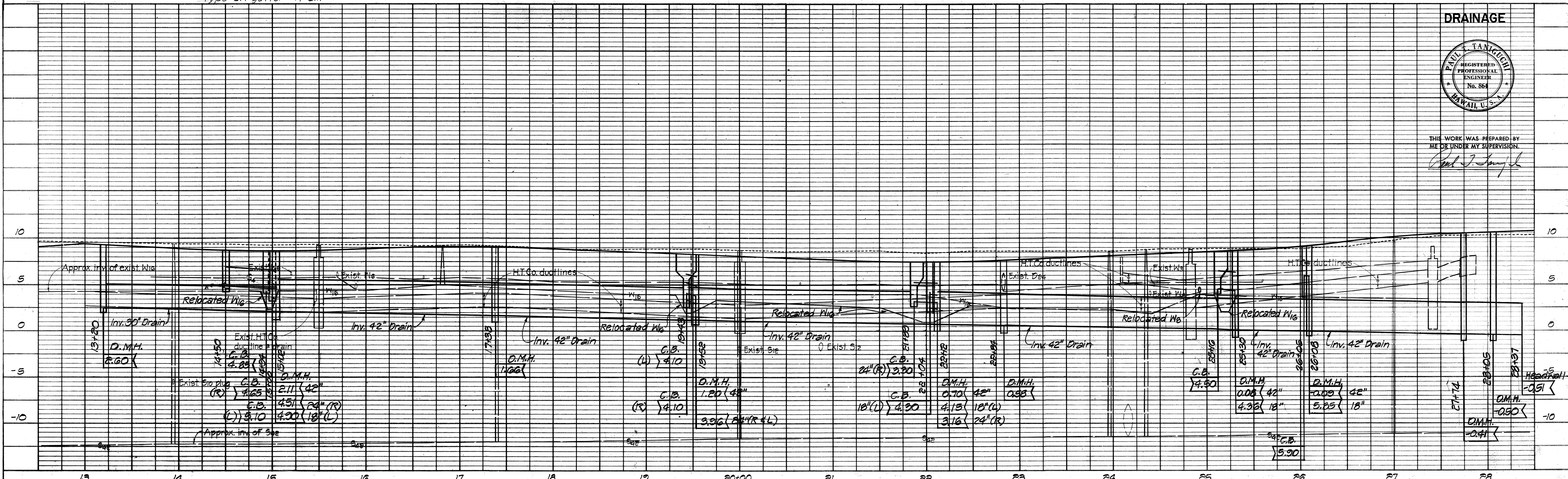
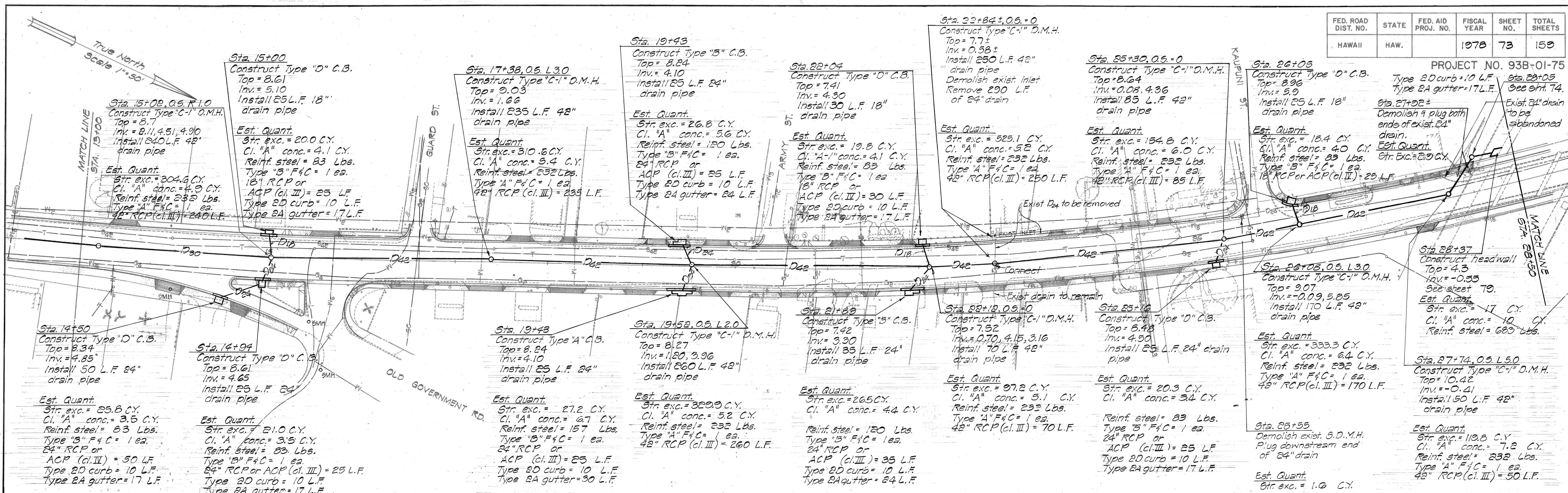


PLAN	DATE	BY
SURVEYED		
PLOTTED		
NOTE BOOK		
ALIGNMENT CHECKED		
ET. OF WAY CHECKED		
NO.		

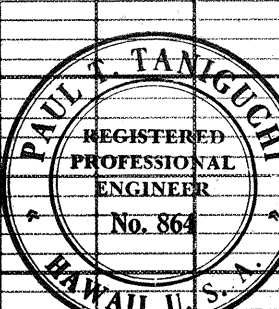
PROFILE	DATE	BY
SURVEYED		
PLOTTED		
NOTE BOOK		
GRADES CHECKED		
STRUCTURE NOTATION CHNG.		
NO.		

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	73	150

PROJECT NO. 93B-01-75



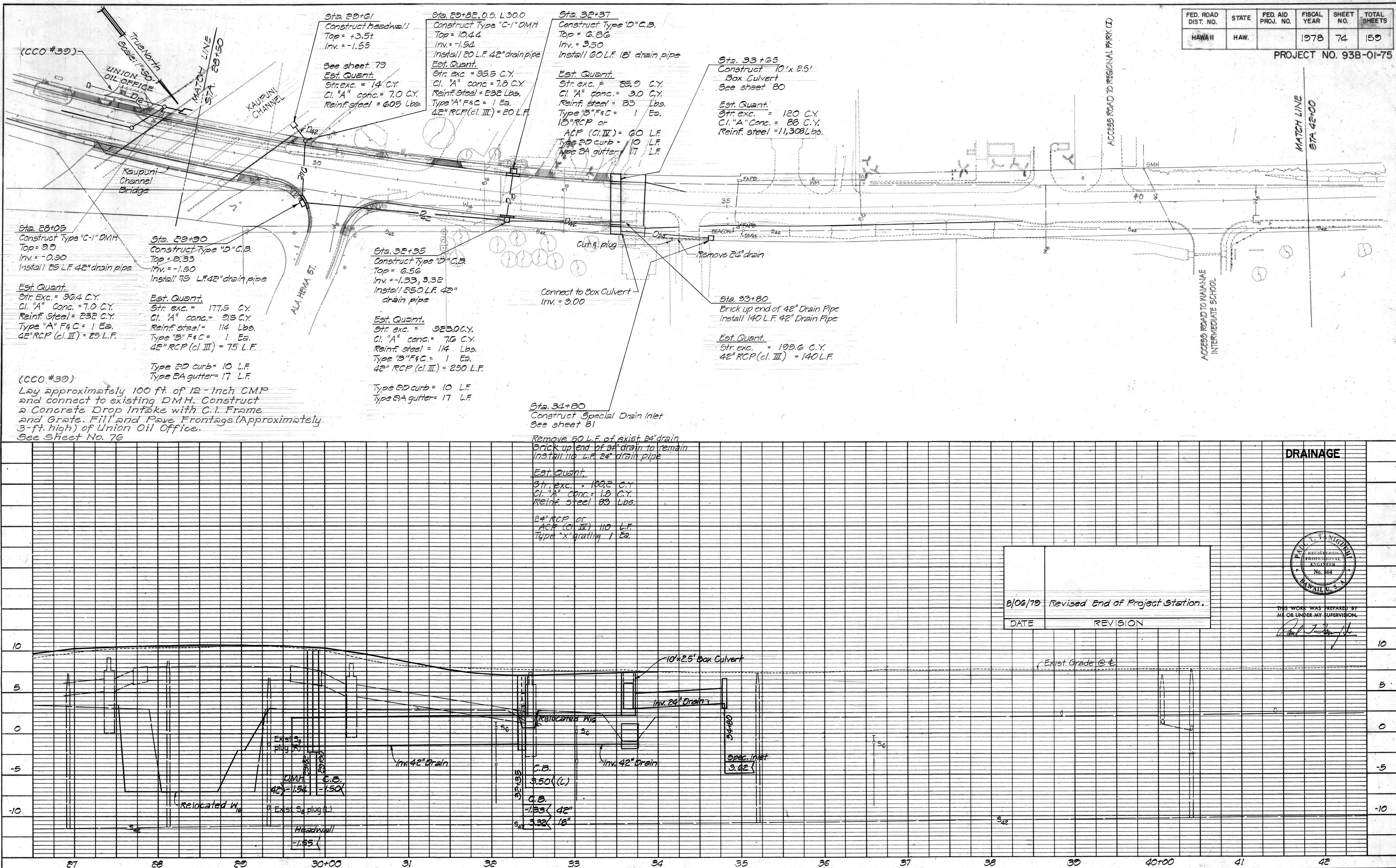
DRAINAGE



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Paul J. Taniguchi

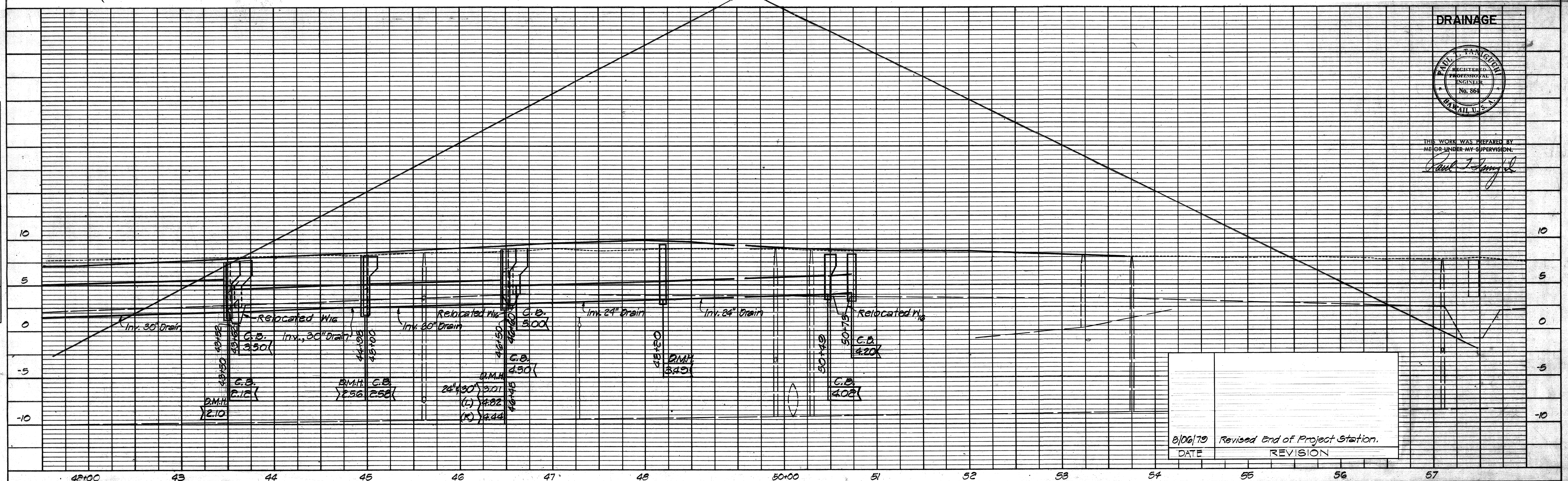
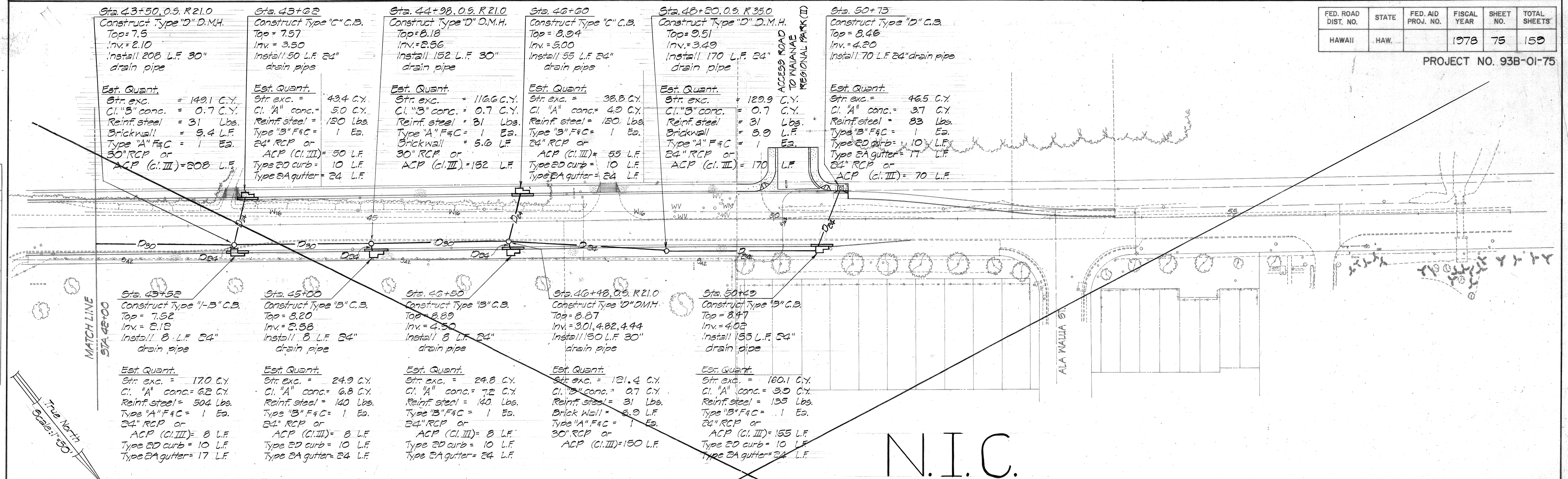
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	74	150

PROJECT NO. 93B-01-75

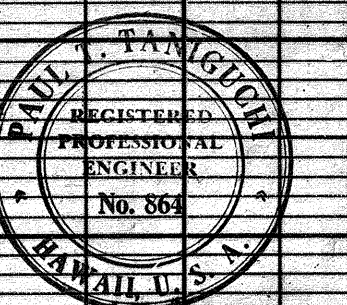


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	75	159

PROJECT NO. 93B-01-75



DRAINAGE



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Paul J. Sample

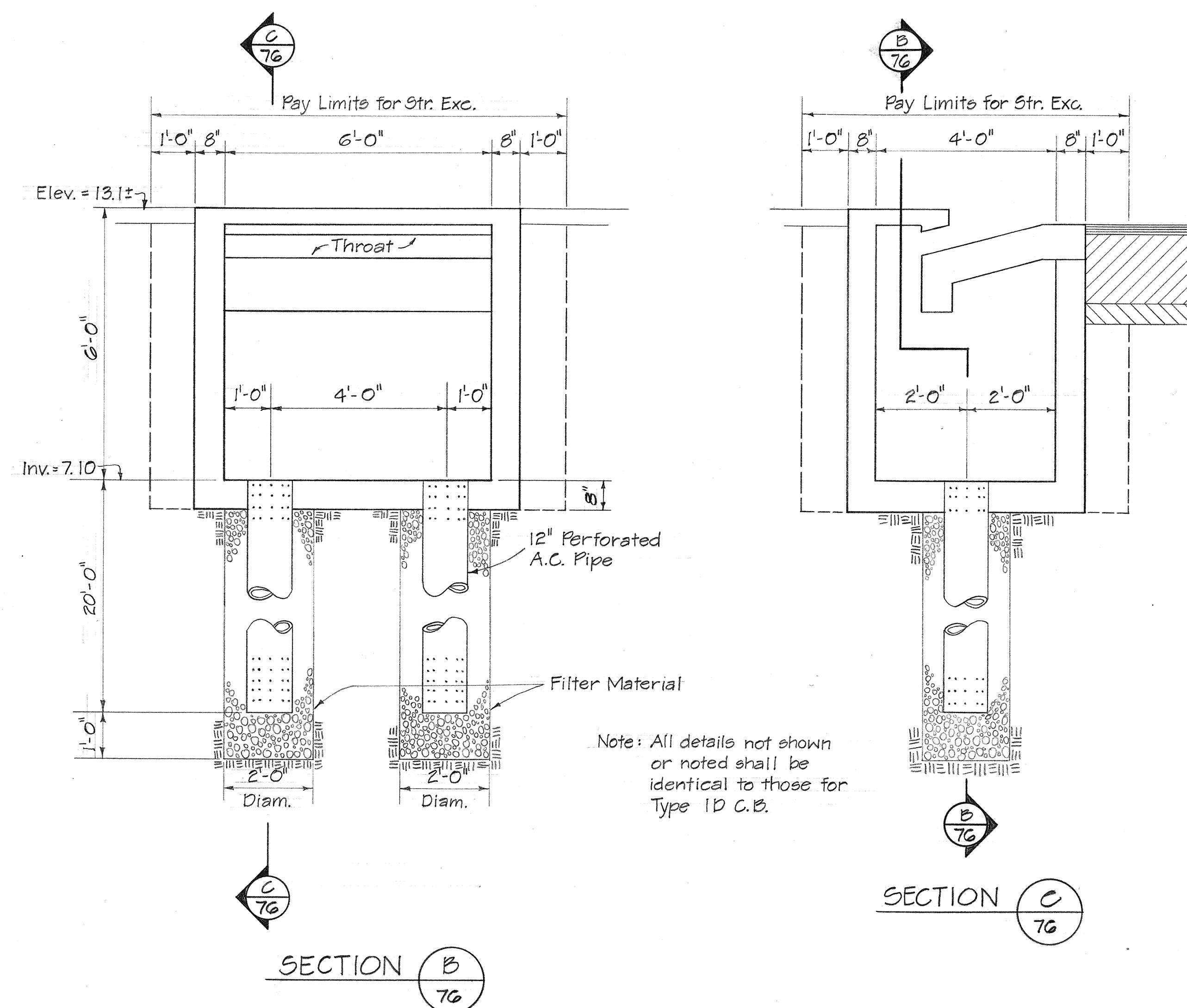
8/06/79	Revised End of Project Station.
DATE	REVISION

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

PROFILE	BY	DATE
SURVEYED		
PLOTTED		
GRADES CHECKED		
B. M.'S NOTED		
STRUCTURE NOTATIONS CHKD.		
NO.		

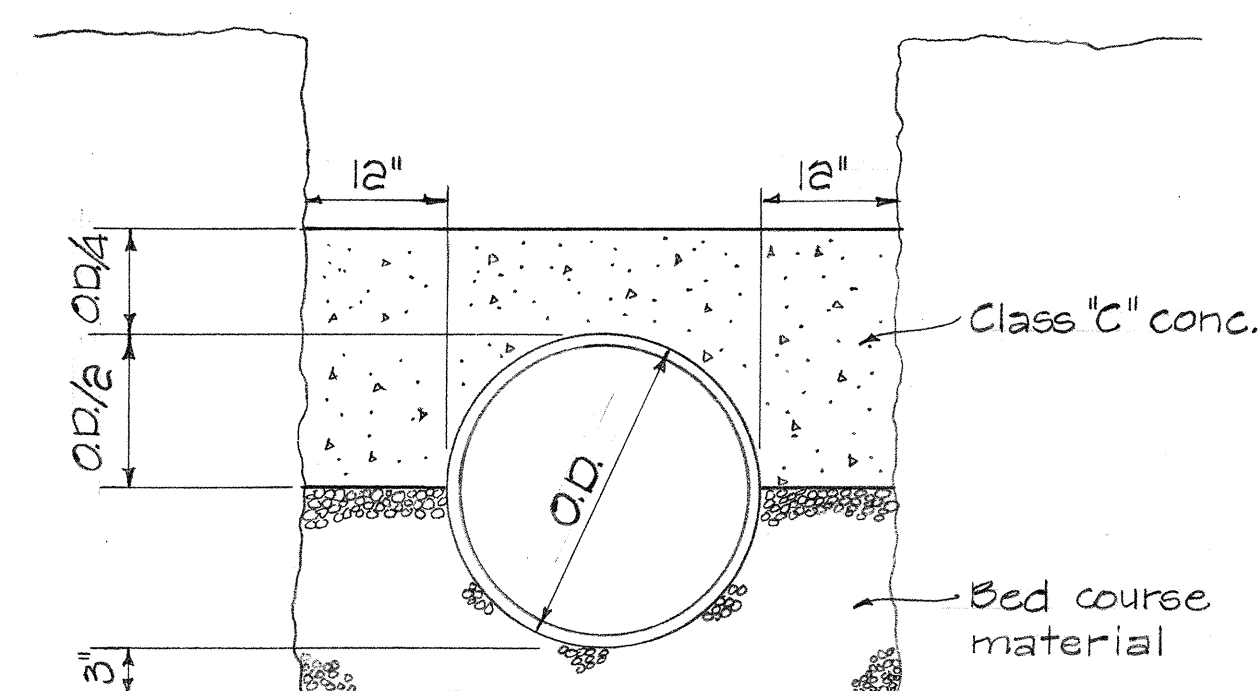
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HAWAII	HAW.		1978	76	150

PROJECT NO. 93B-01-75



SPECIAL C.B. AT STA: 0+18

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



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

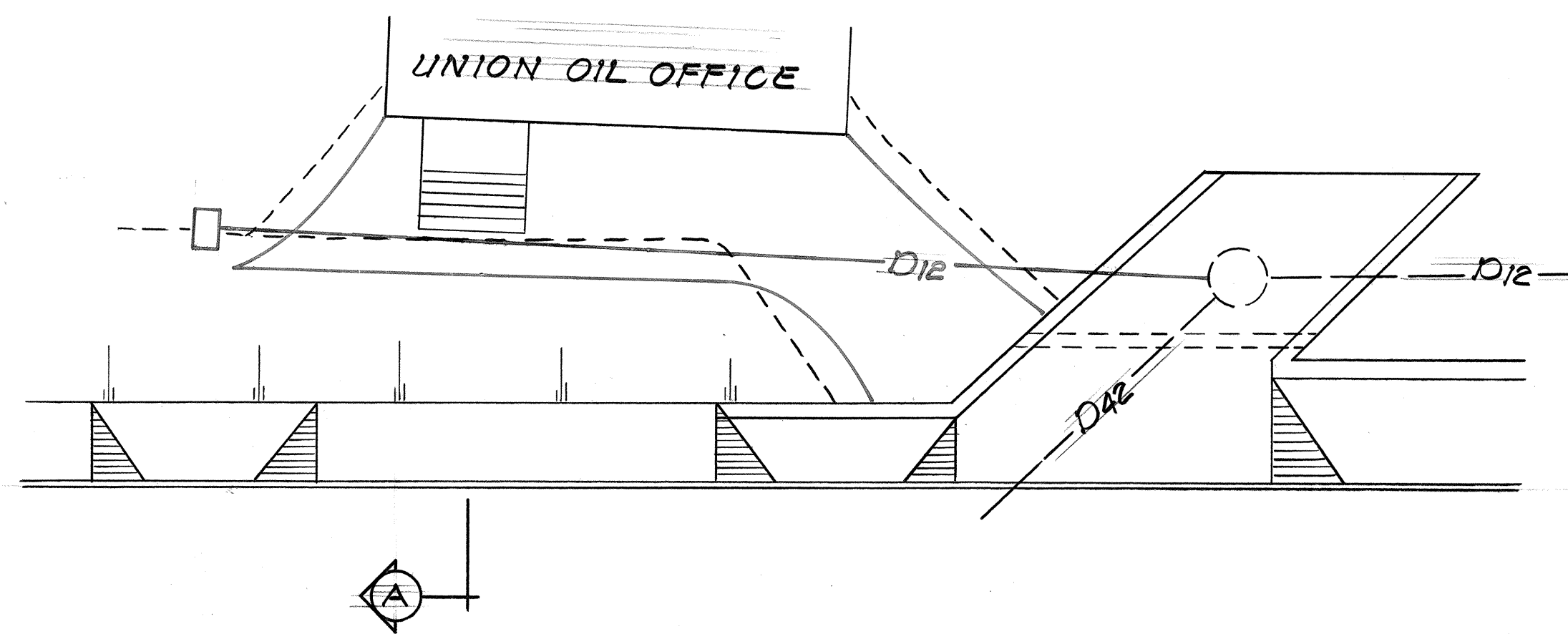
SPECIAL DRAINAGE DETAILS

FARRINGTON HIGHWAY WIDENING
LUALUALEI HOMESTEAD RD. TO JADE STREET
PROJECT NO. 93B-01-75, UNIT I

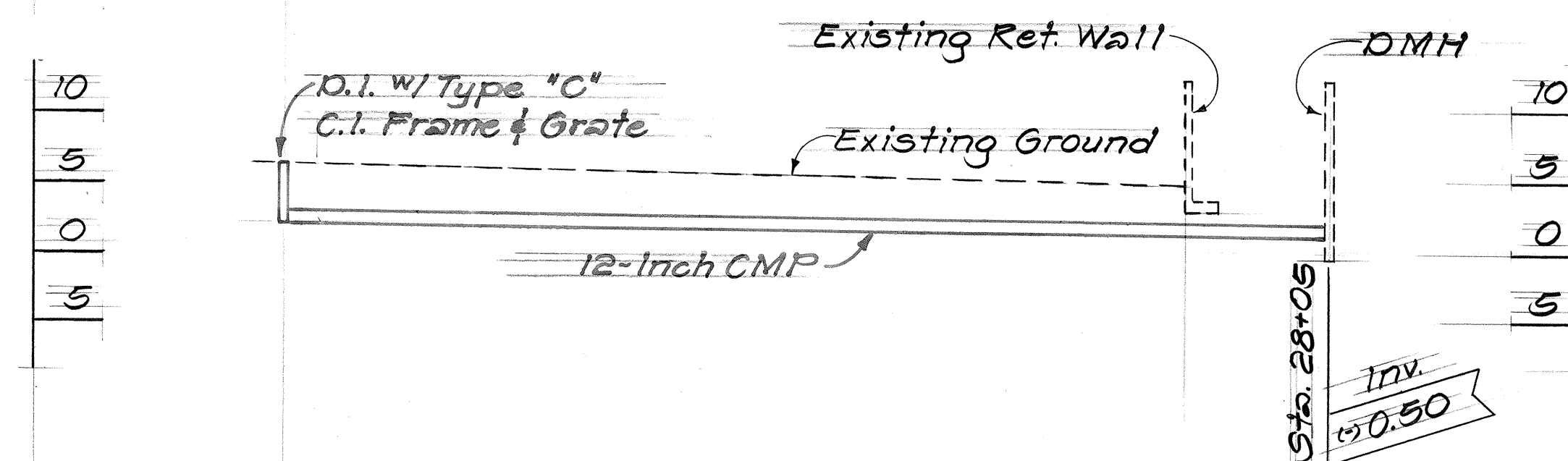
SCALE: AS SHOWN DATE:

SHEET NO. 5 OF 14 SHEETS

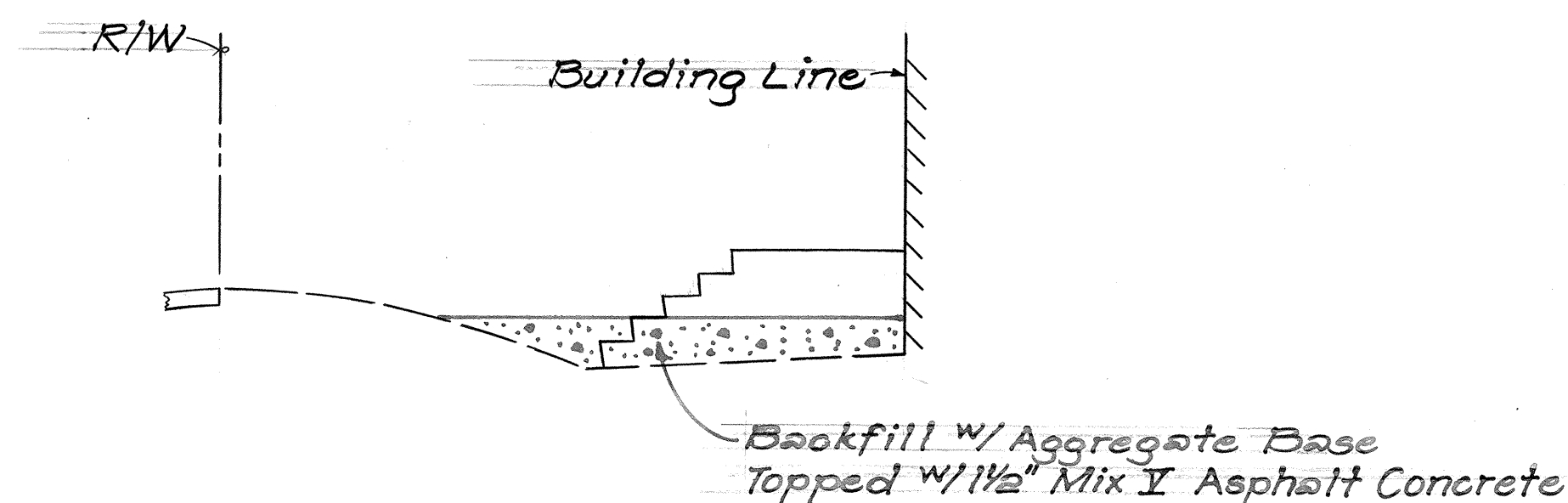
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	765-1	159



GRADING PLAN

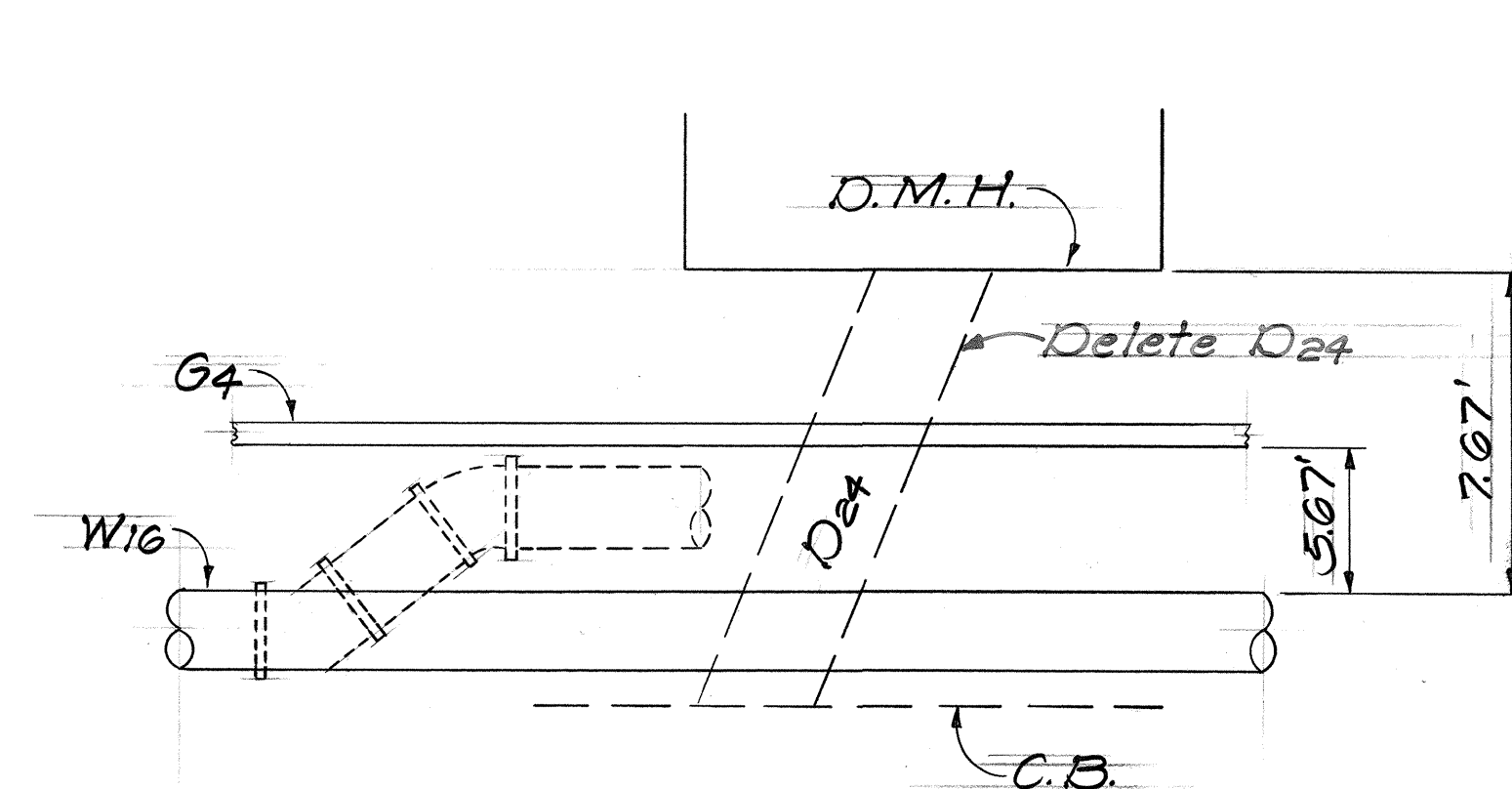


PROFILE



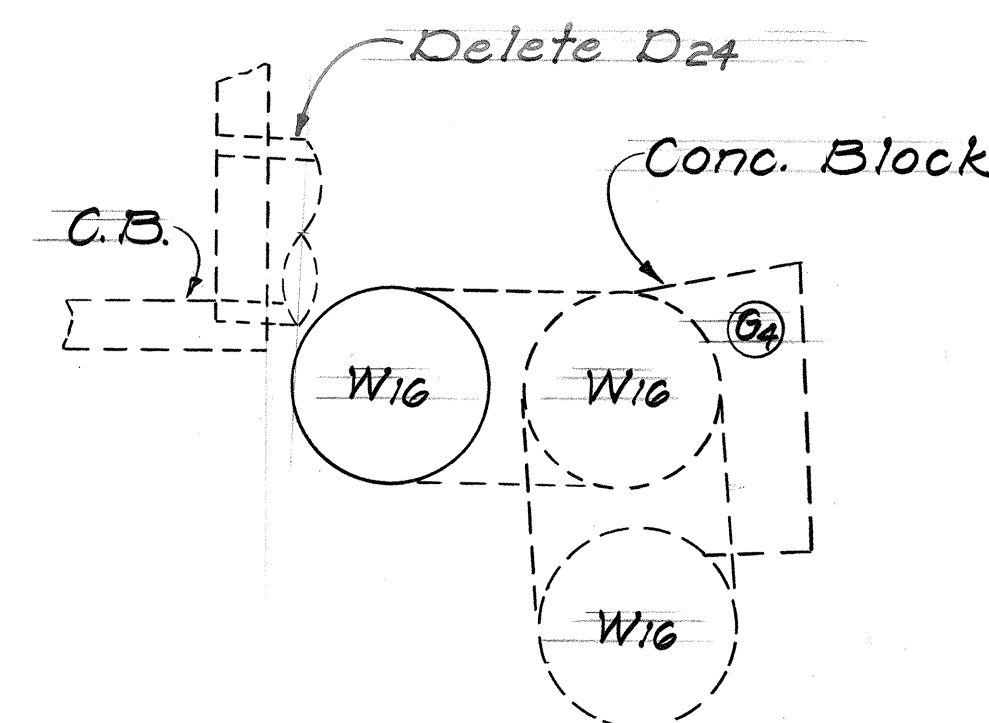
SECTION A

CCO #39

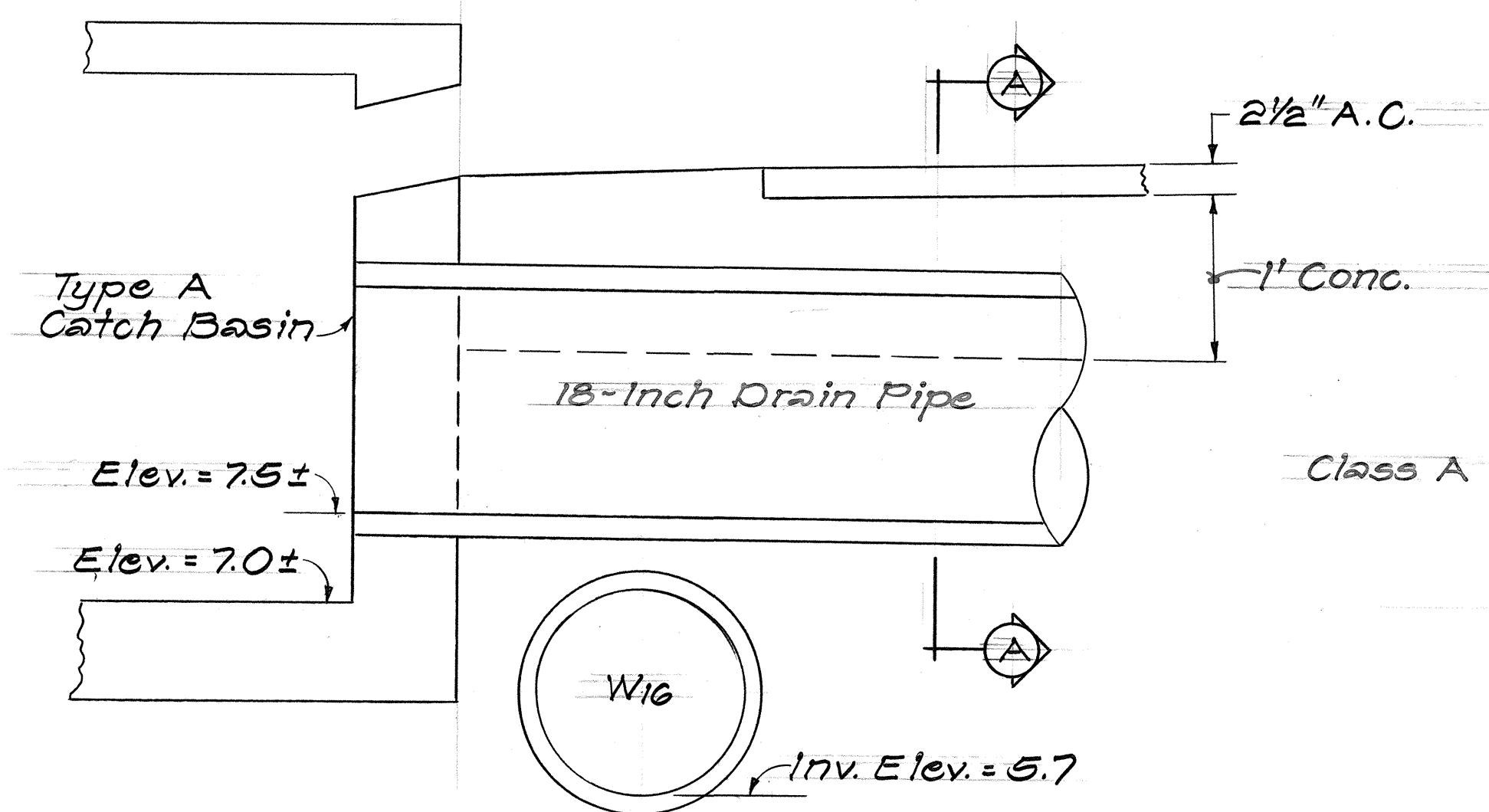


PLAN VIEW

STA. 4+80 TO STA. 5+32

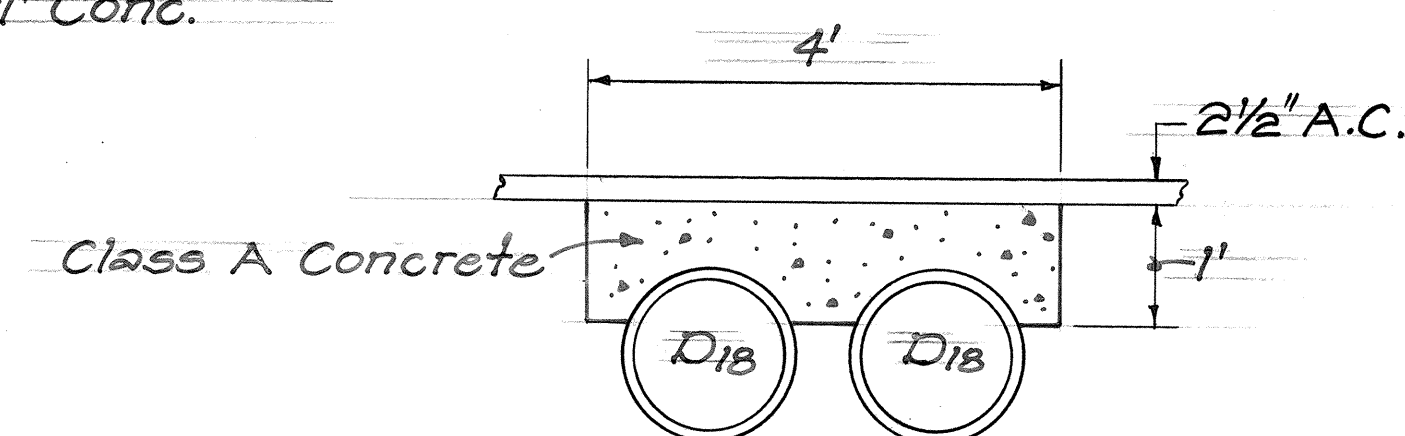


ELEVATION VIEW



ELEVATION VIEW

STA. 5+00



SECTION A-A

CCO #22

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

DRAINAGE DETAILS

FARRINGTON HWY. WIDENING
LUALUALEI HMSTD. RD. TO JADE ST.
PROJECT NO. 23B-01-75, UNIT I

NOT TO SCALE DATE: _____

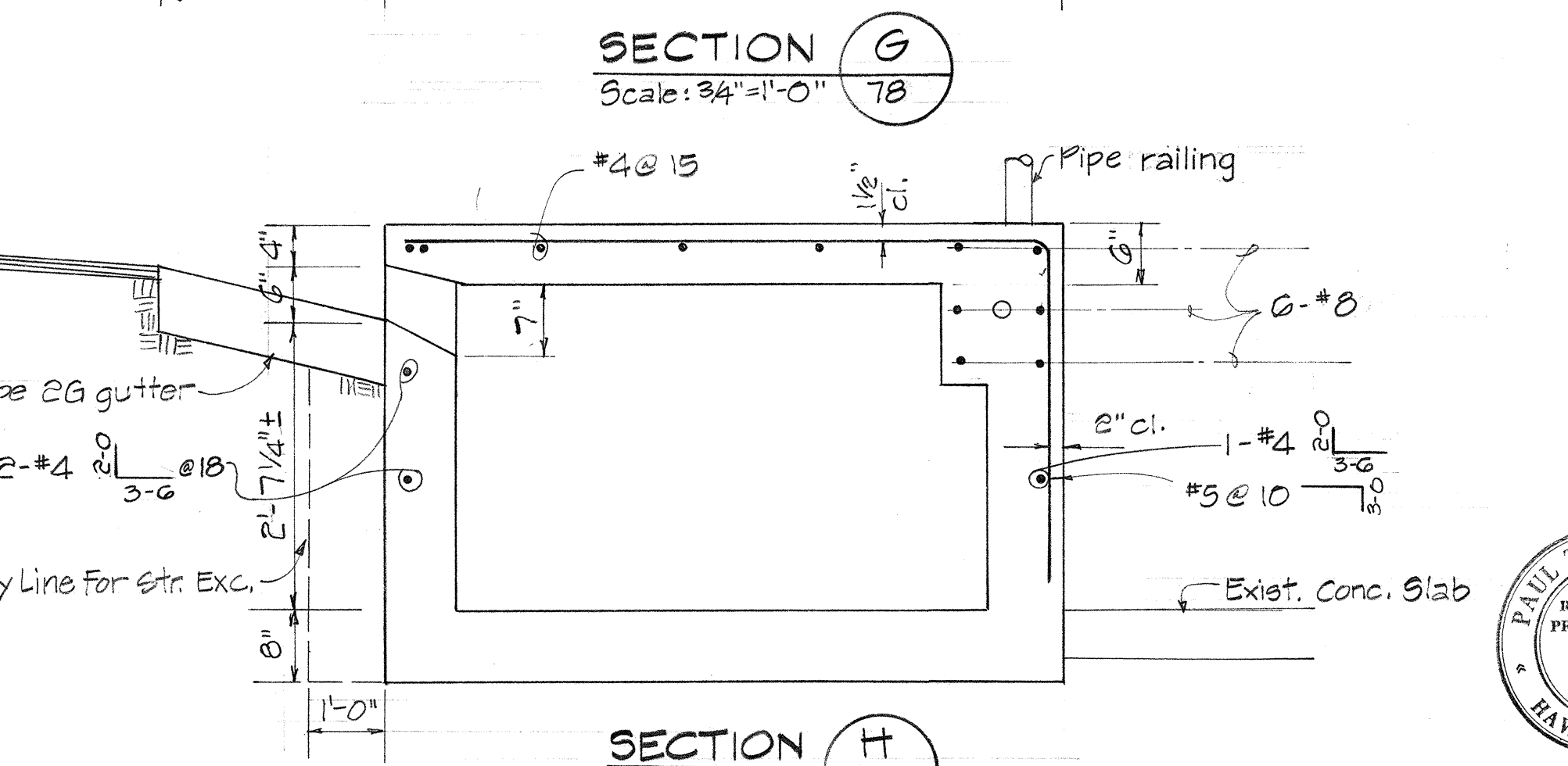
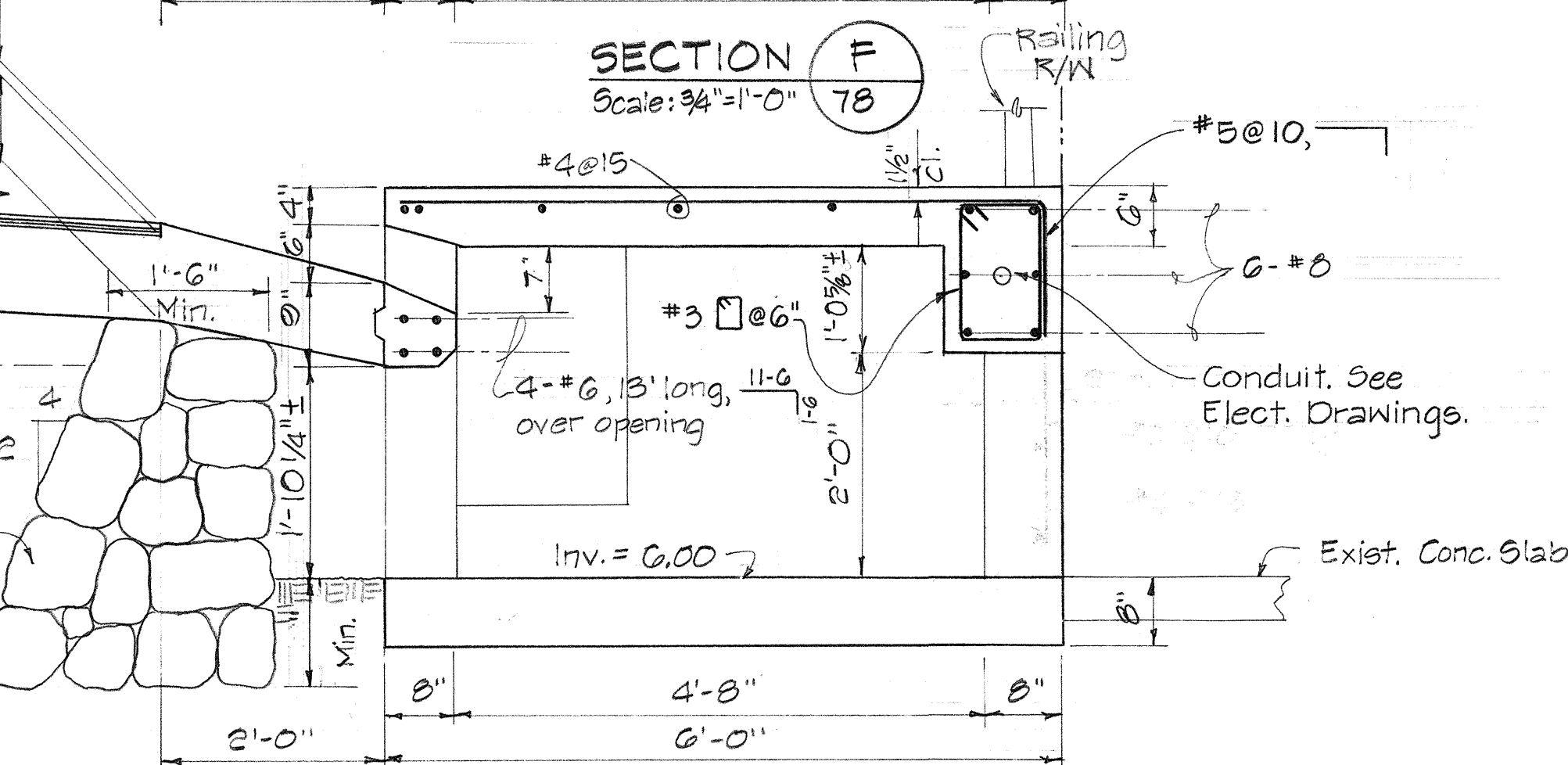
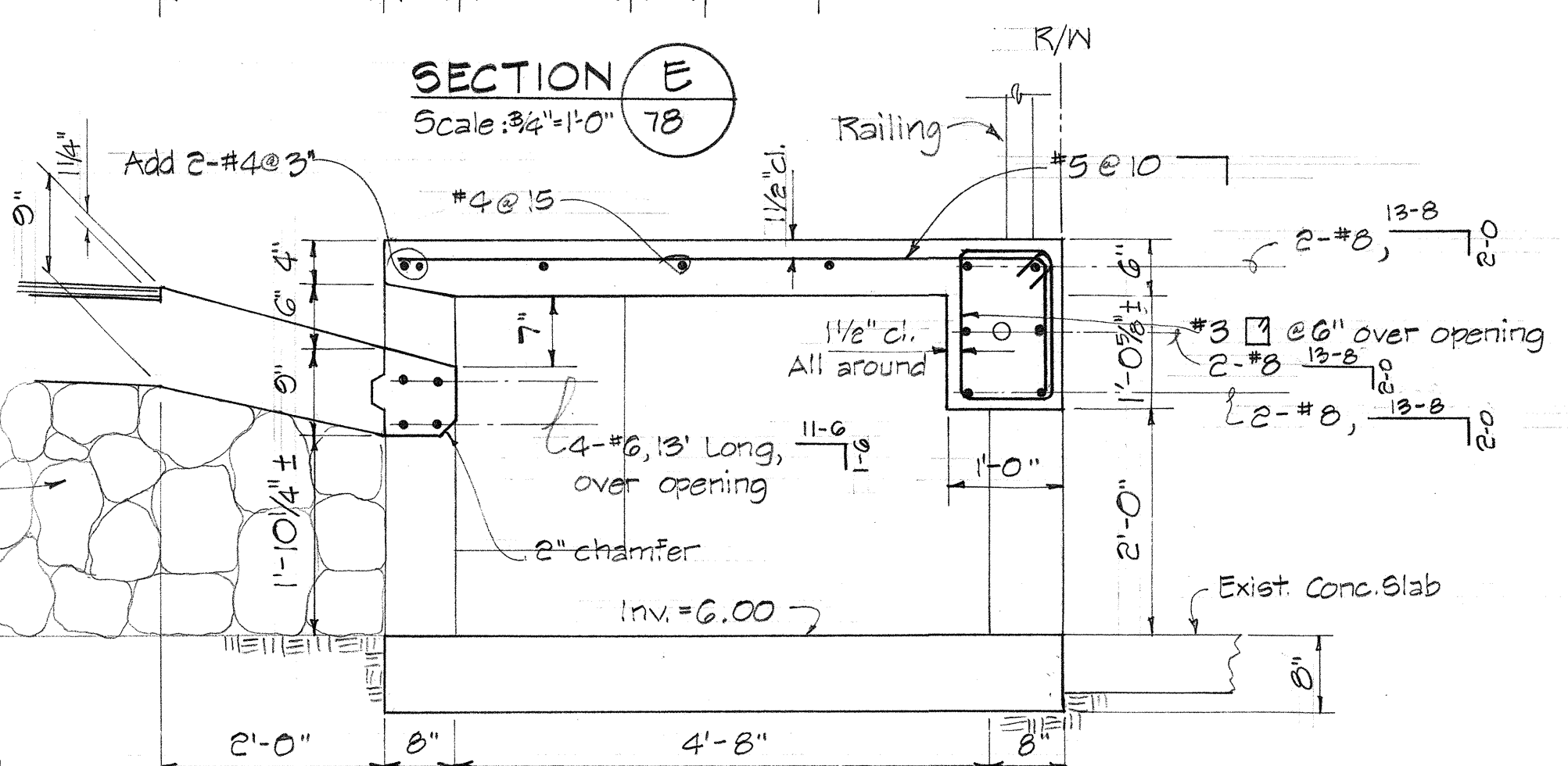
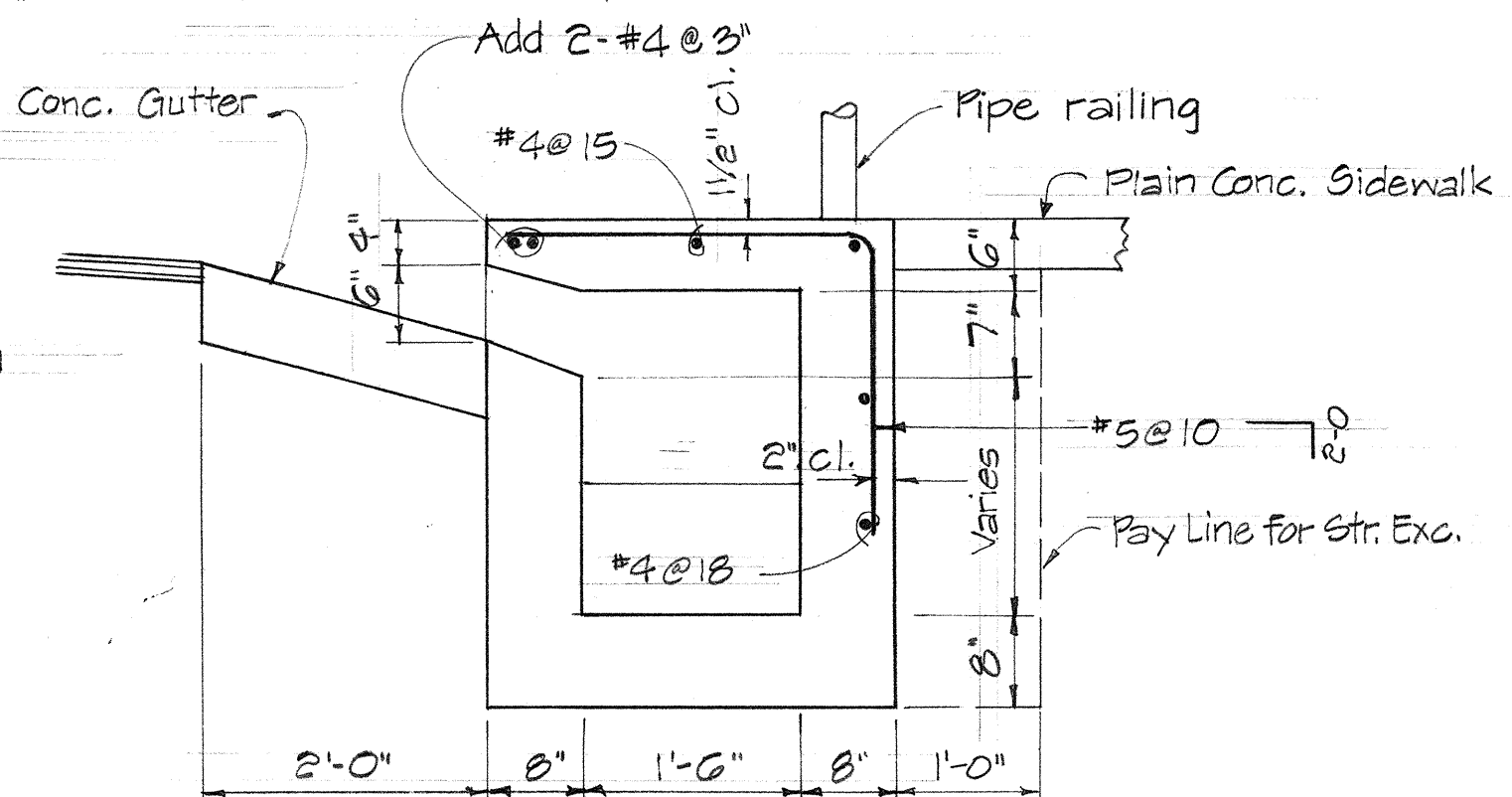
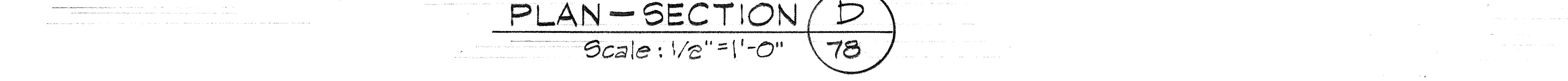
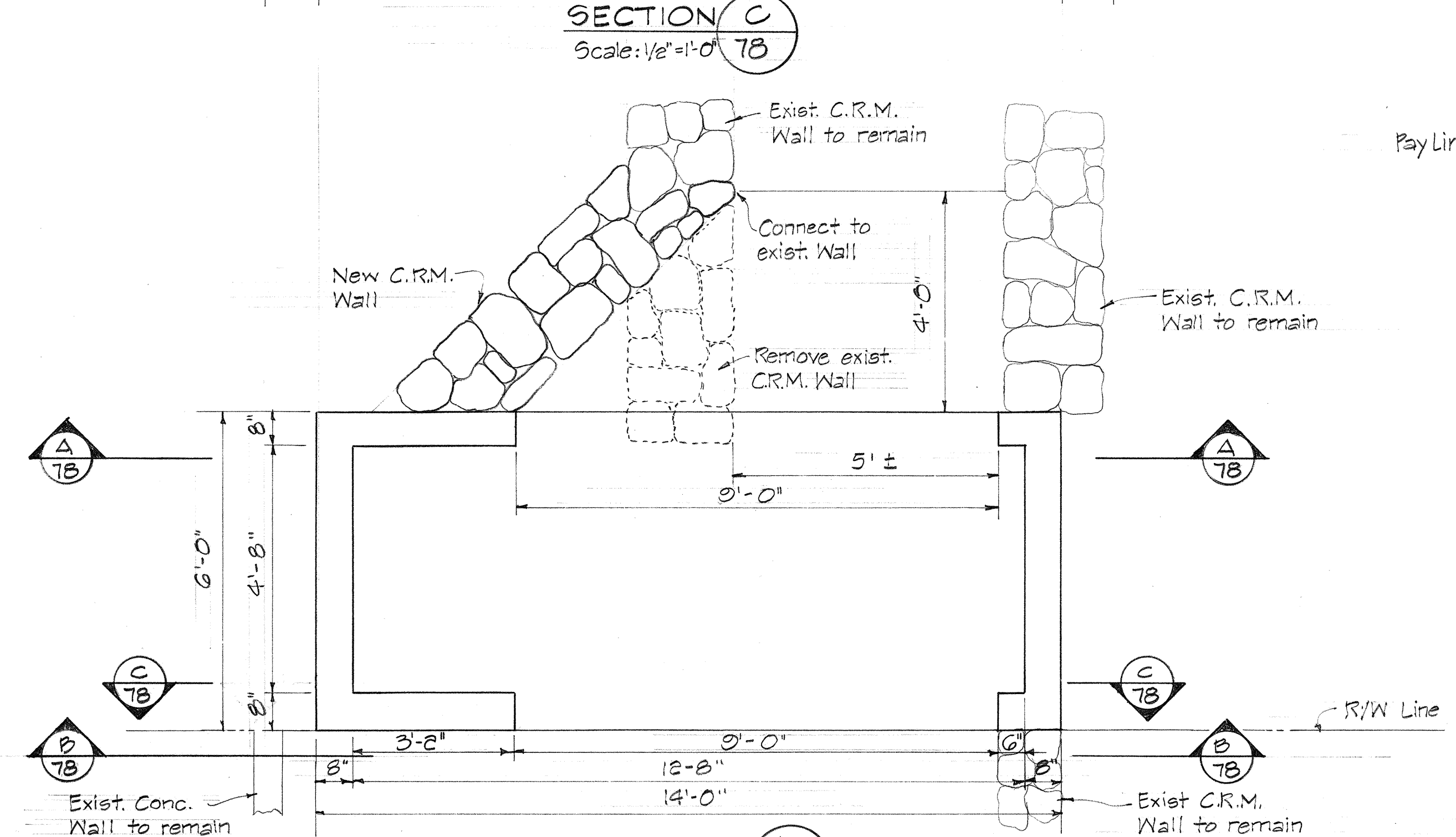
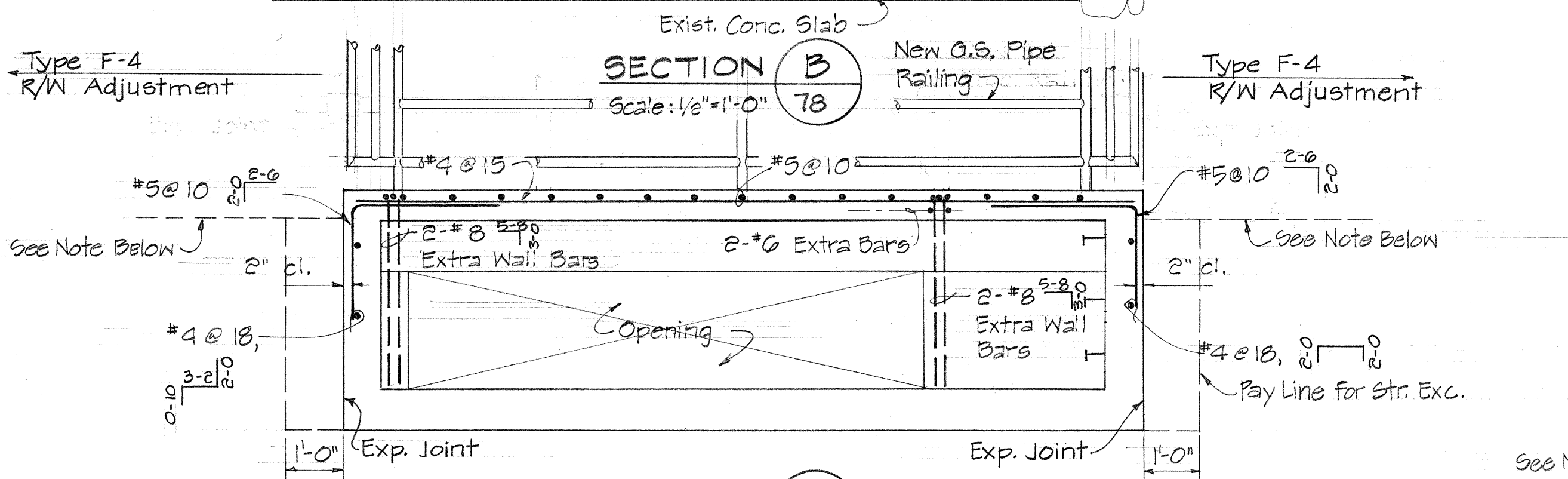
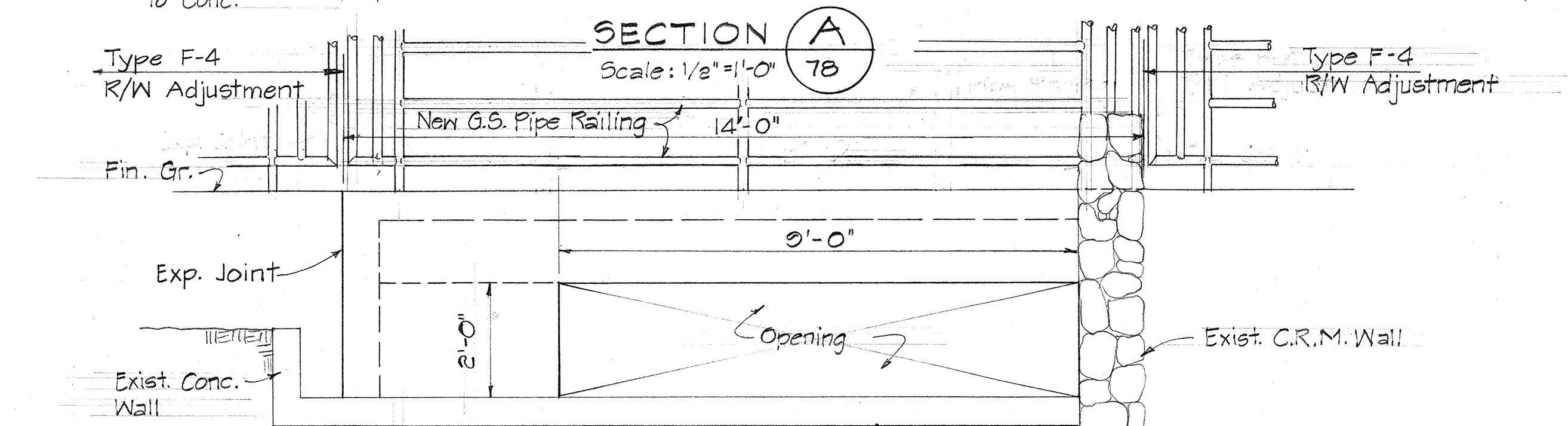
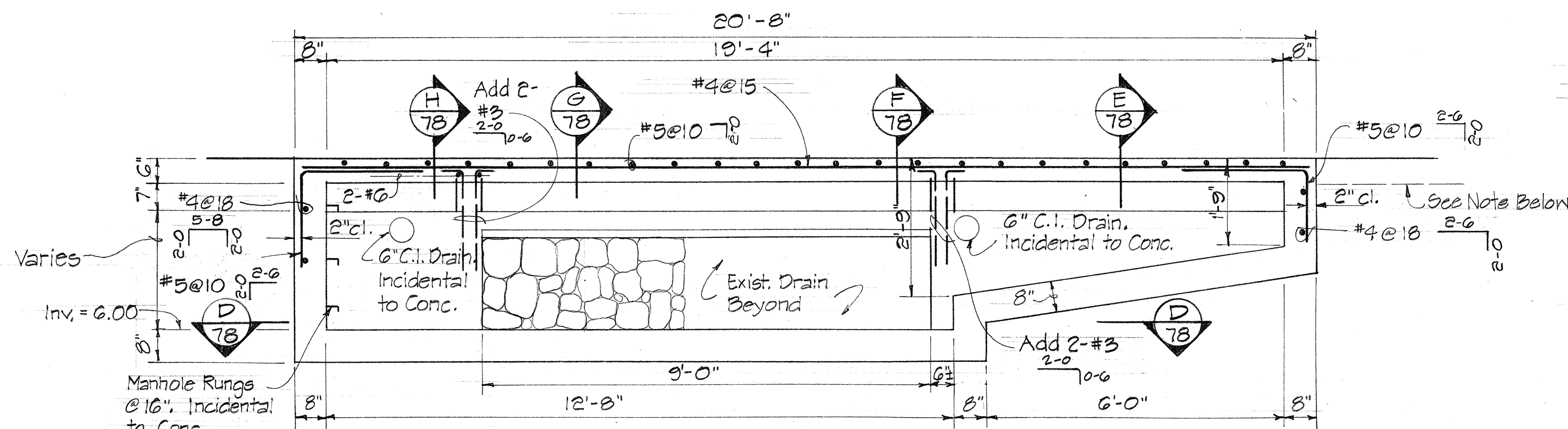
SHEET NO. OF SHEETS

765-1

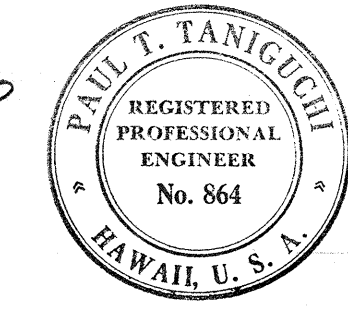
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
QUANTITIES BY	TRACED BY	
CHECKED BY	DESIGNED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	78	150

PROJECT NO. 93B-01-75



Note: Exist. Grade or Top of Subgrade, Whichever is Lower.



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**SPECIAL DRAINAGE DETAILS
DRAIN AT STA. 7+50
FARRINGTON HIGHWAY WIDENING
LUALLUE! HOMESTEAD ROAD TO JADE STREET**

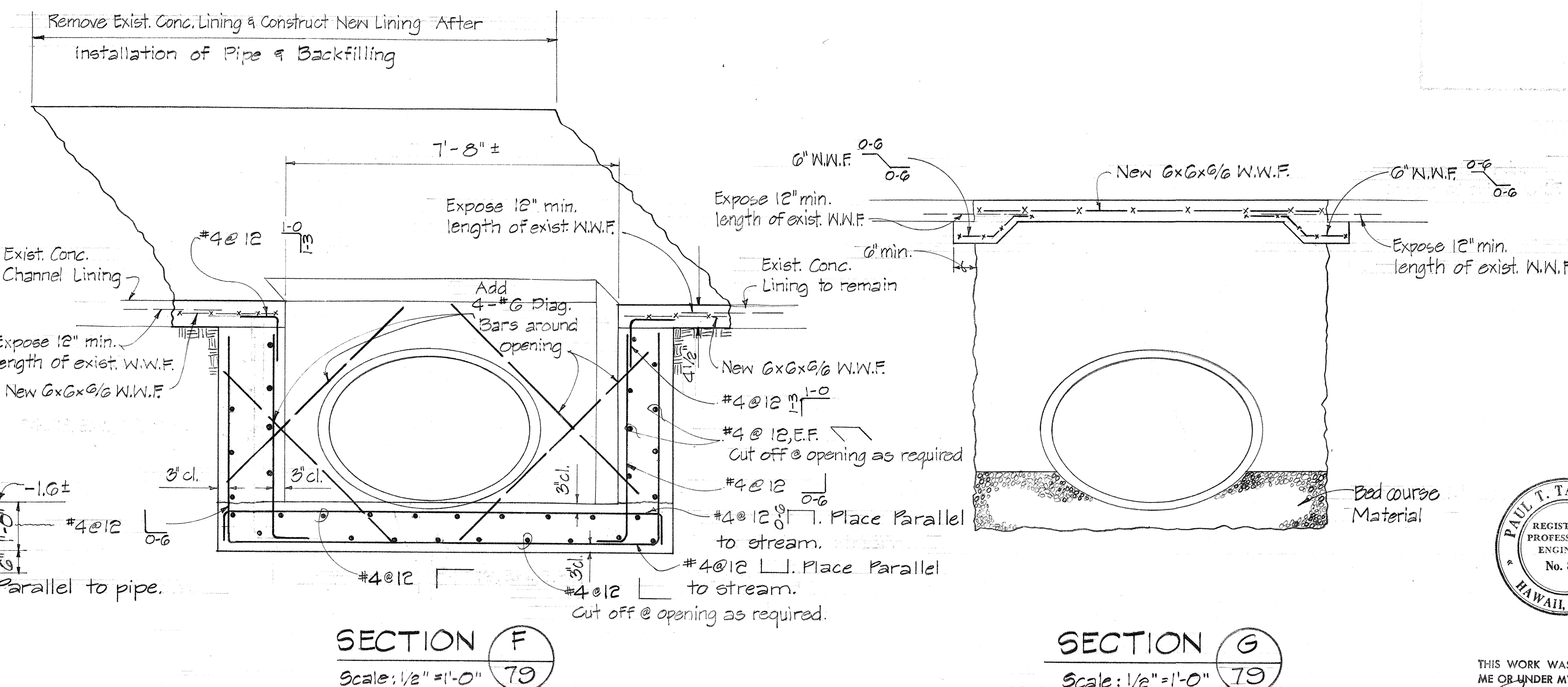
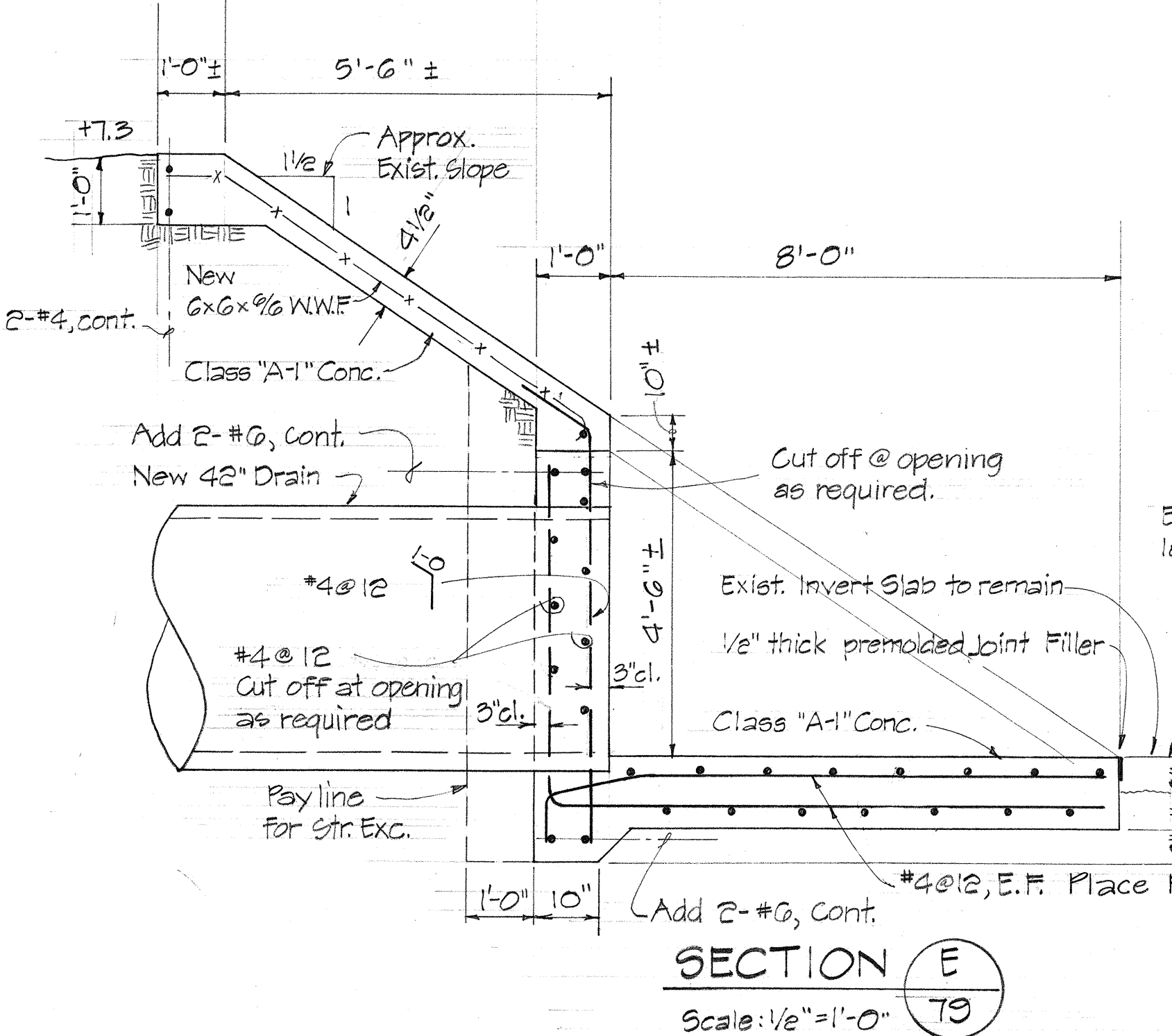
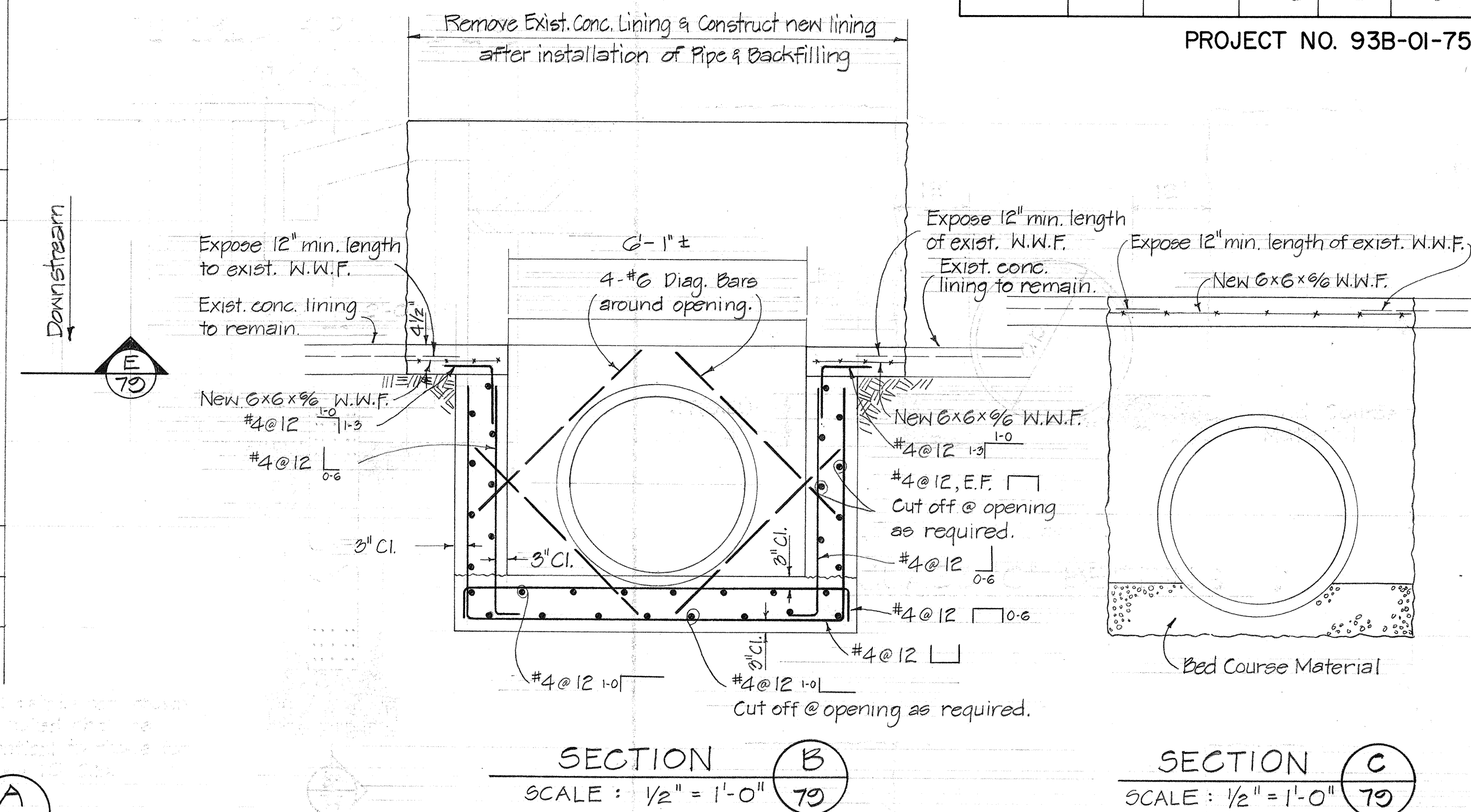
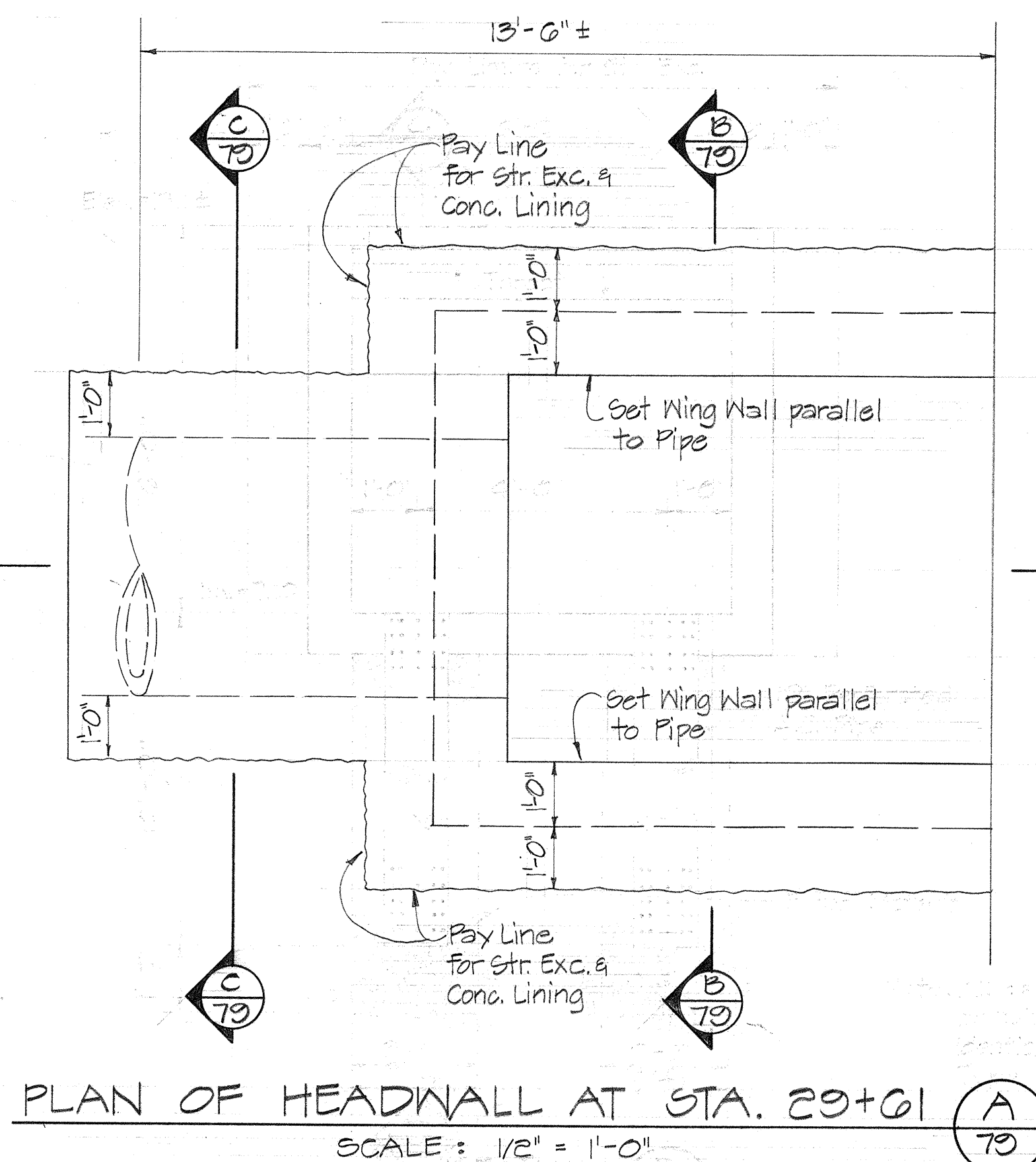
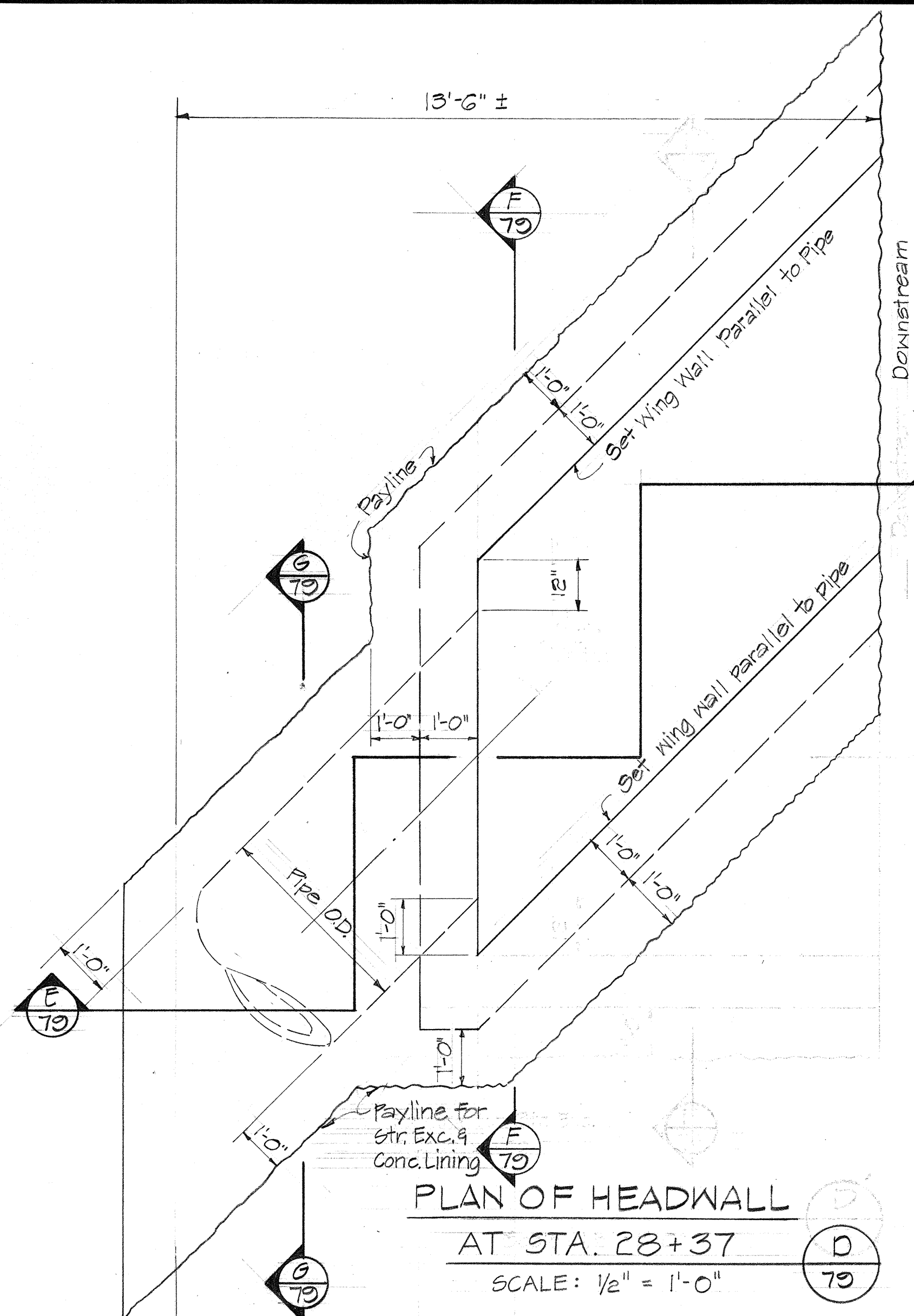
PROJECT NO. 93B-01-75, UNIT I
SCALE: AS SHOWN
DATE: _____

SHEET NO. 7 OF 14 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	79	159

PROJECT NO. 93B-01-75



NOTES

- Concrete shall be Class "A"
- Reinf. steel shall be A.S.T.M. A615, Grade 40
- The following shall be incidental to the various contract items:
 - Removal of portions of existing structures
 - Welded wire fabric
 - Expansion Joints



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

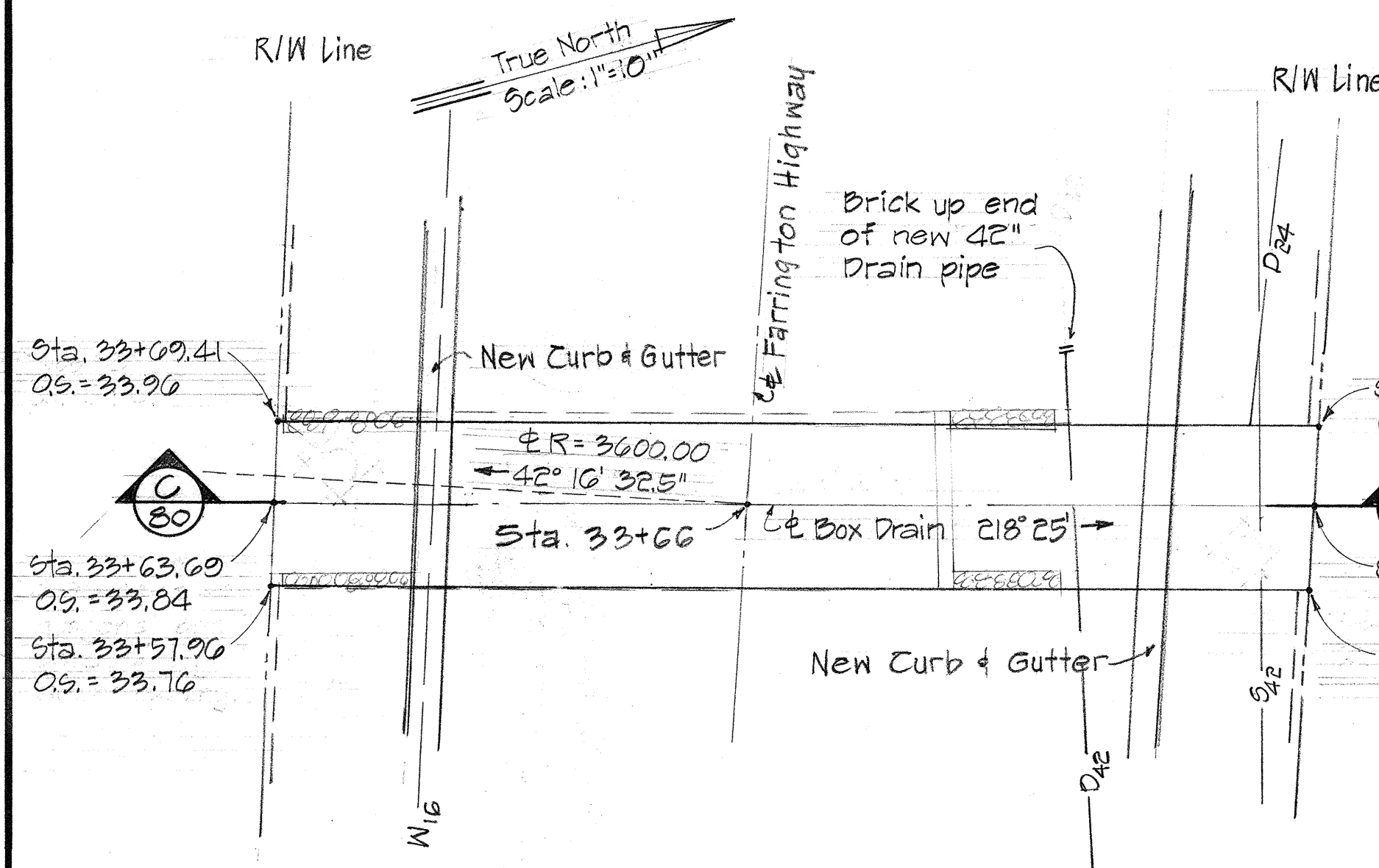
SPECIAL DRAINAGE DETAILS

FARRINGTON HIGHWAY WIDENING
LUUALAEI HOMESTEAD ROAD TO JADE STREET
PROJECT NO. 93B-01-75, UNIT I
SCALE: AS SHOWN
DATE: _____

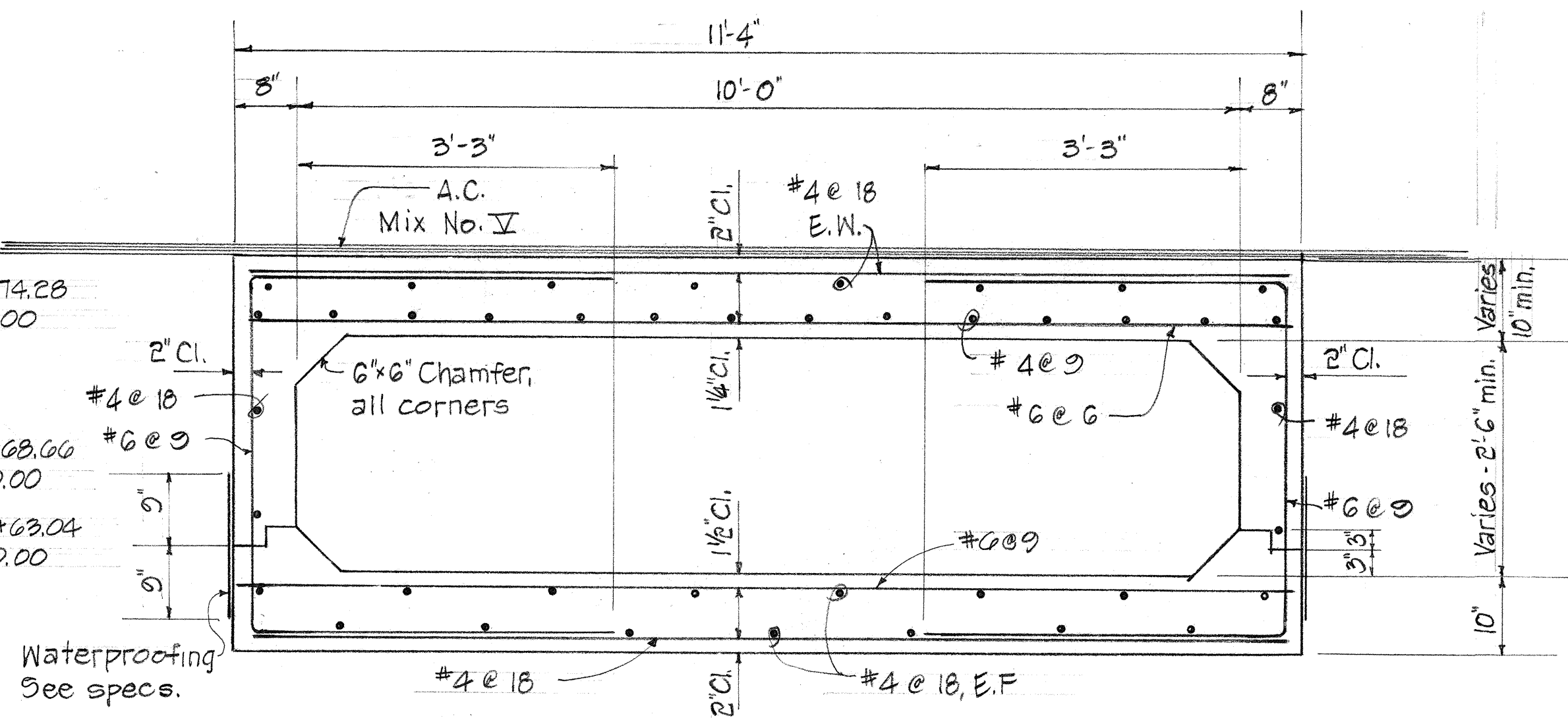
SHEET NO. 8 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	80	150

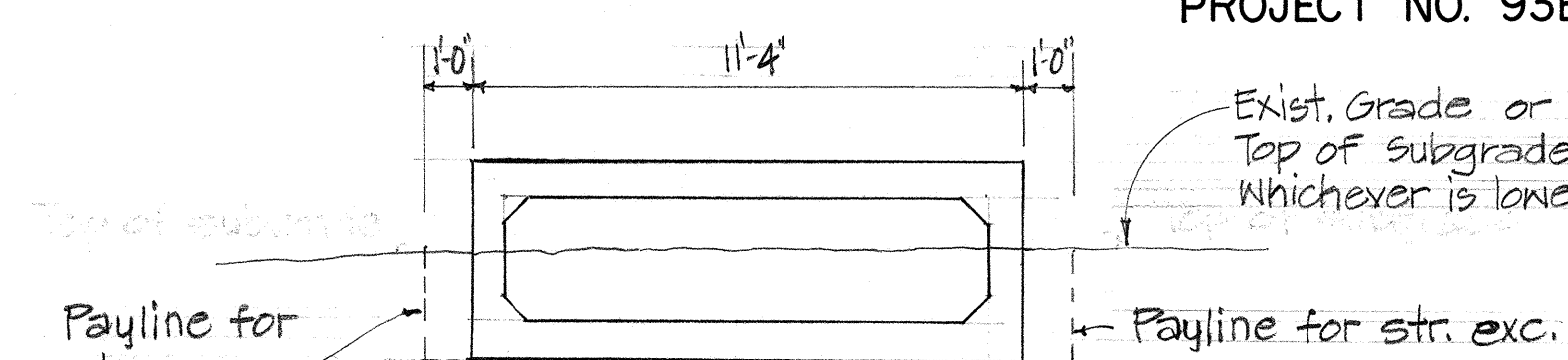
PROJECT NO. 93B-01-75



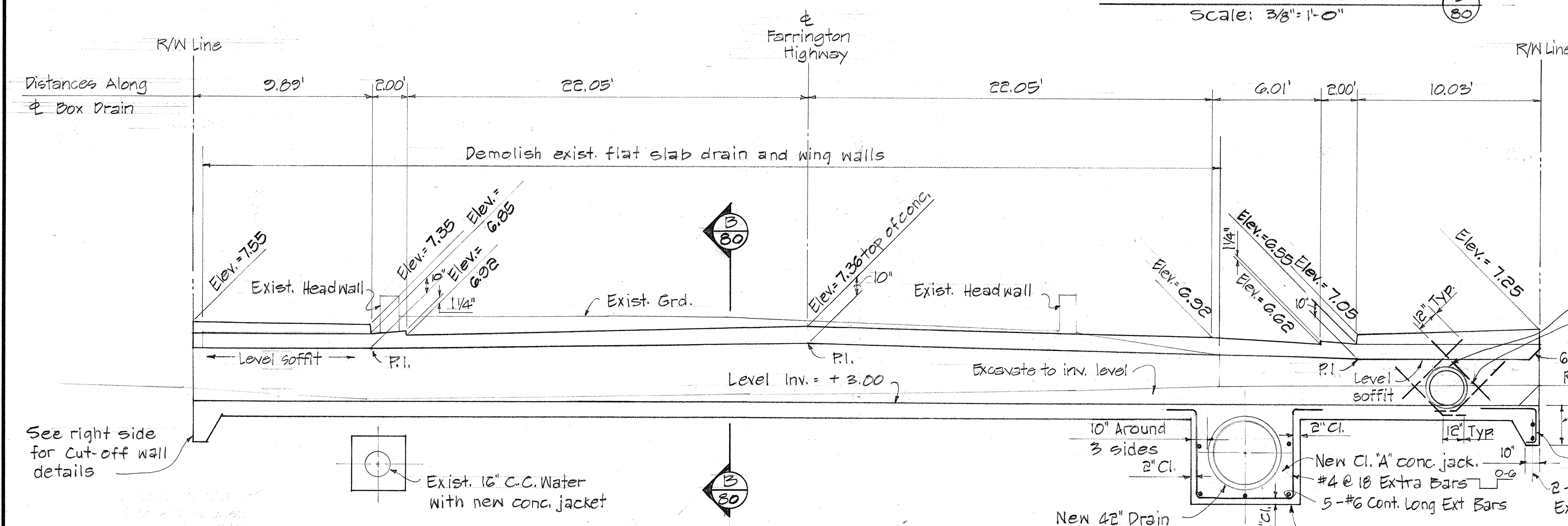
PLAN OF NEW BOX CULVERT AT STA. 33+66 (A) 80
SCALE: 1"=10'



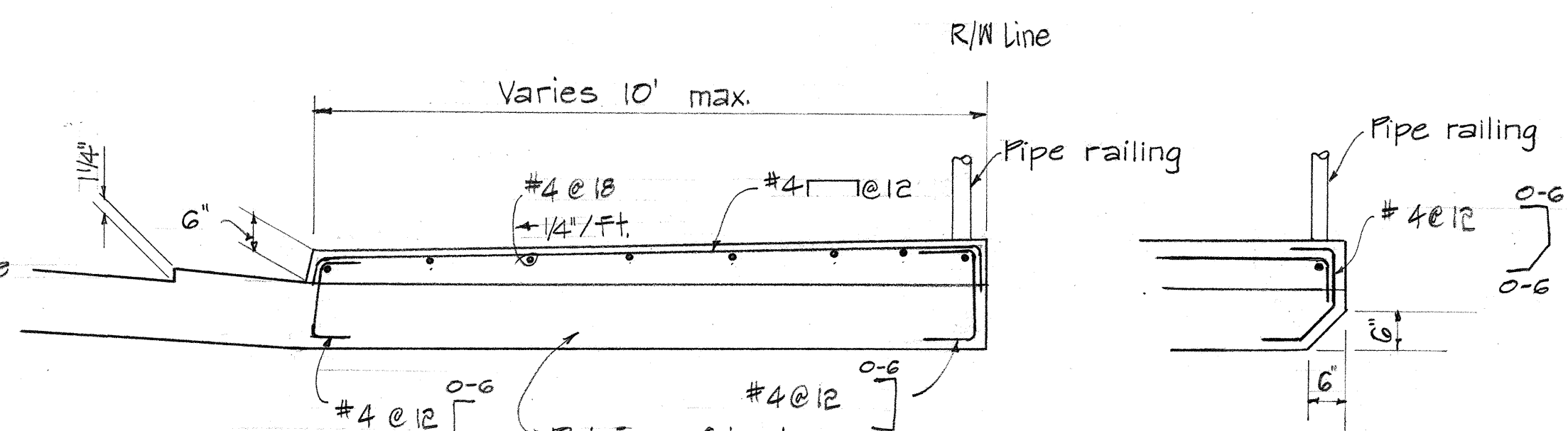
TYPICAL SECTION (B) 80
Scale: 3/8"=1'-0"



LIMITS OF STRUCTURAL EXCAVATION
Scale: 1/4"=1'-0"



PROFILE (C) 80
Scale: 1/4"=1'-0"



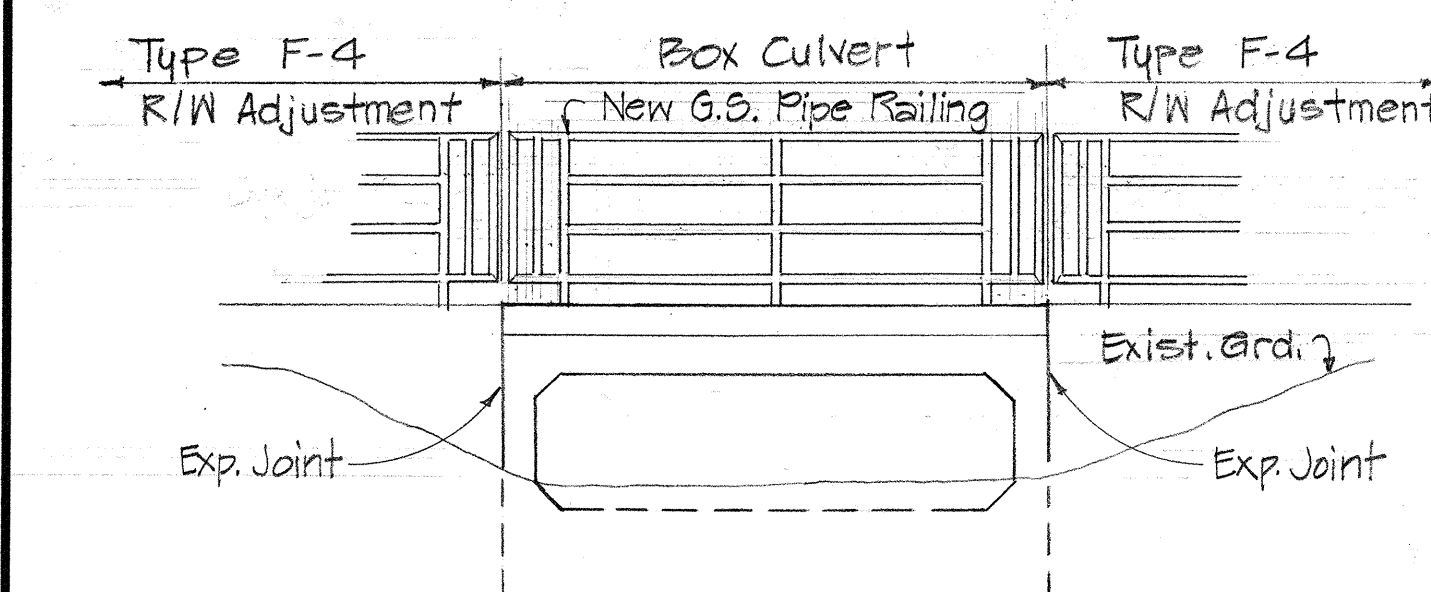
SIDEWALK DETAIL (D) 80
Scale: 1/2"=1'-0"

NOTES:

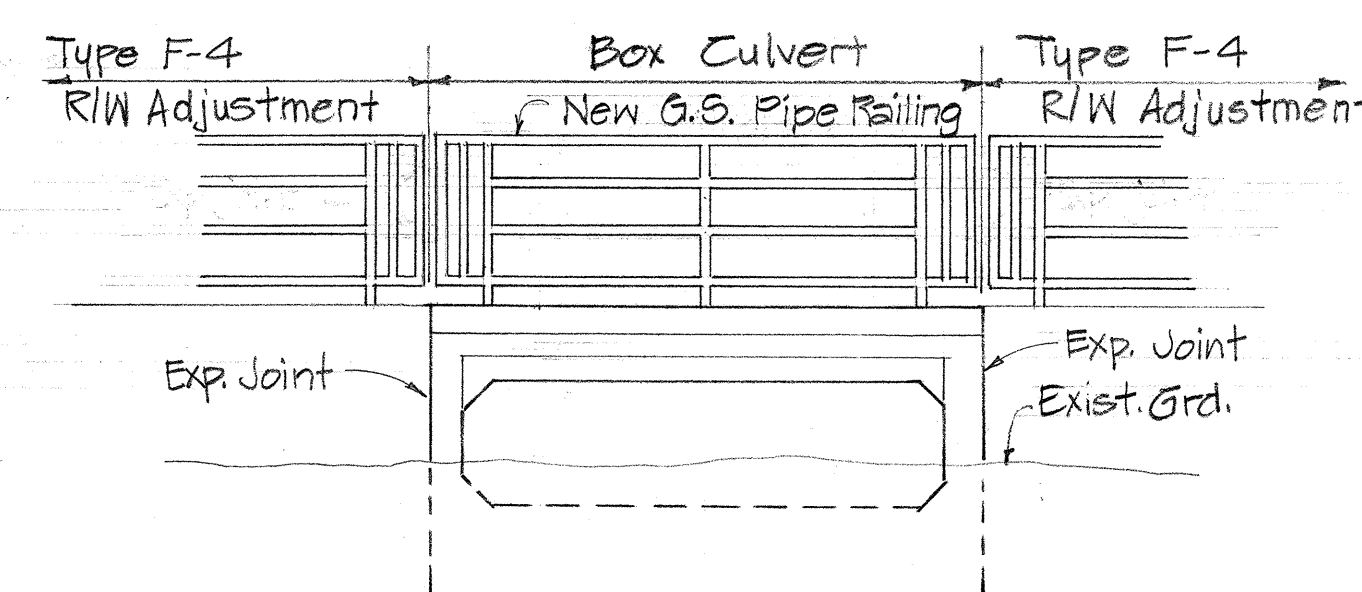
- All concrete shall be Class "A".
- Reinf. steel shall be A.S.T.M. A615, Grade 40.
- The following shall be incidental to the various contract items:
 - Removal of exist. structures
 - Expansion Joints in railings & concrete
 - Waterproofing
 - Sleeves for pipe railing

ESTIMATED QUANTITIES

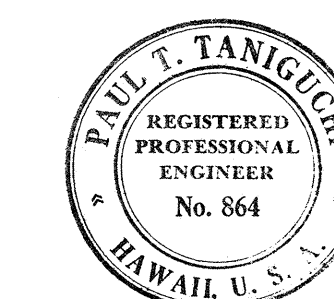
Str. exc. for box culverts = 120 C.Y.
Concrete for box culverts = 88 C.Y.
Reinf. steel for box culverts = 11,308 C.Y.



LEFT SIDE ELEVATION
Scale: 1/4"=1'-0"



RIGHT SIDE ELEVATION
Scale: 1/4"=1'-0"



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPECIAL DRAINAGE DETAILS
BOX CULVERT AT STA. 33+66
FARRINGTON HIGHWAY WIDENING
LUALUALEI HOMESTEAD ROAD TO JADE STREET
PROJECT NO. 93B-01-75, UNIT I
SCALE: AS SHOWN DATE:

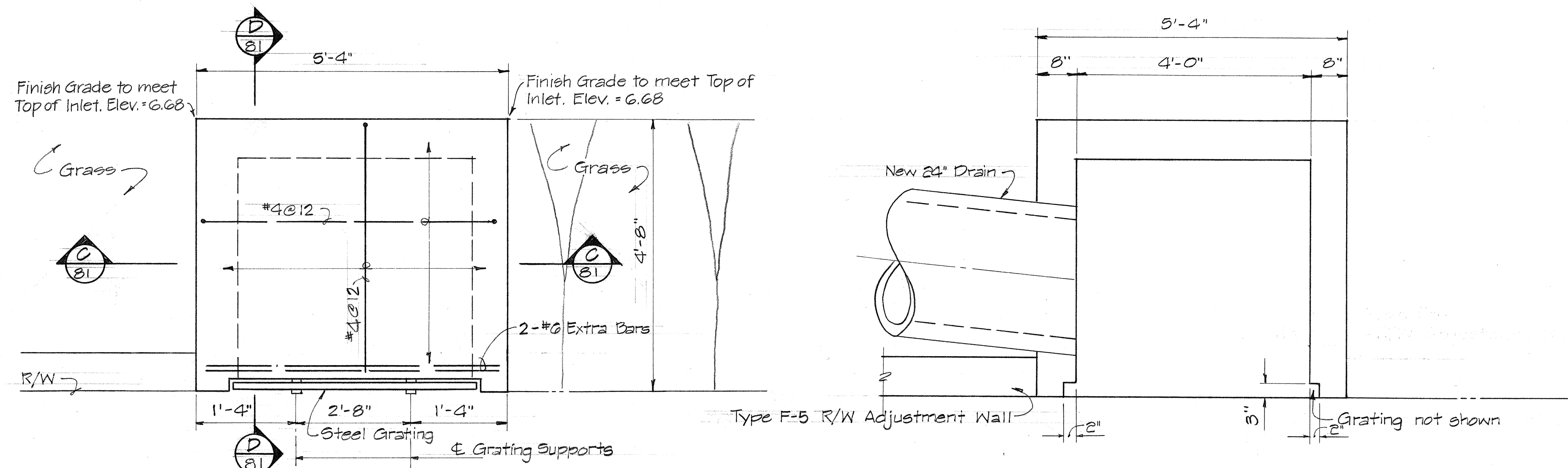
SHEET NO. 9 OF 14 SHEETS

C.O.80

DATE: _____
DRAWN BY: _____
CHECKED BY: _____
DESIGNED BY: _____
NOTE BOOK: _____
NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	81	159

PROJECT NO. 93B-01-75

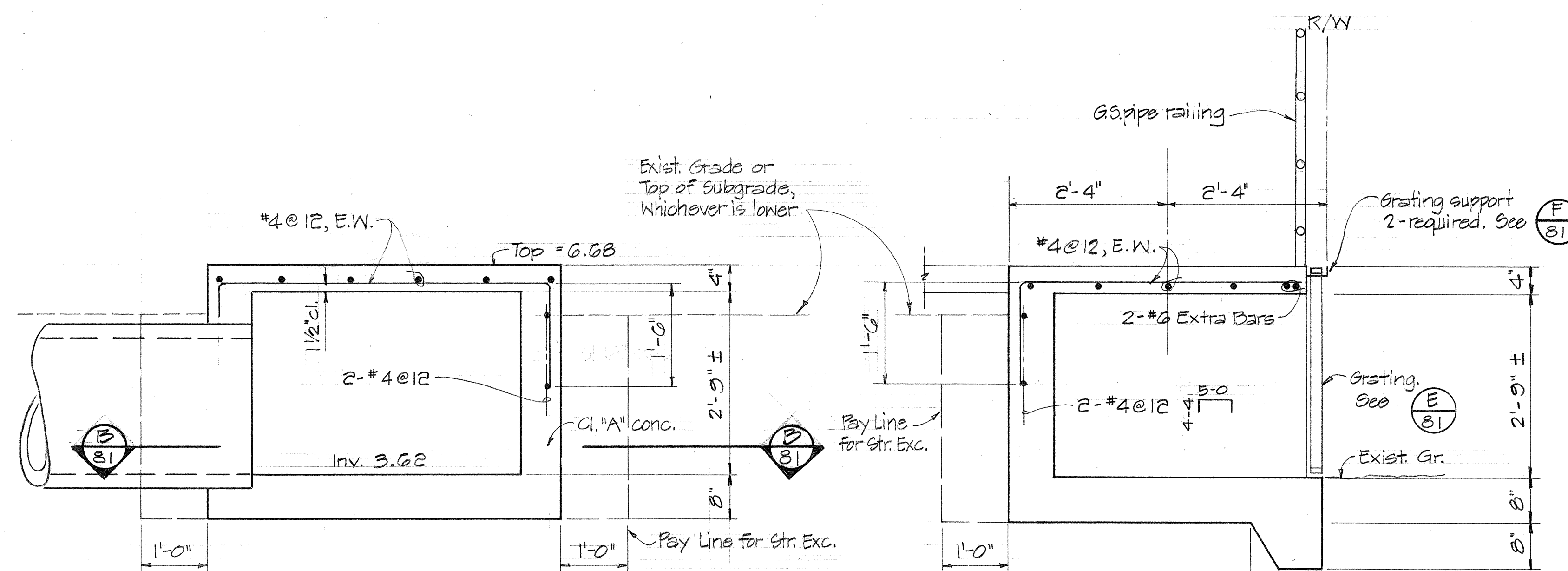


PLAN OF SPECIAL INLET (A)
AT STA. 34+80
Scale: 3/4" = 1'-0"

PLAN-SECTION (B)
Scale: 3/4" = 1'-0"

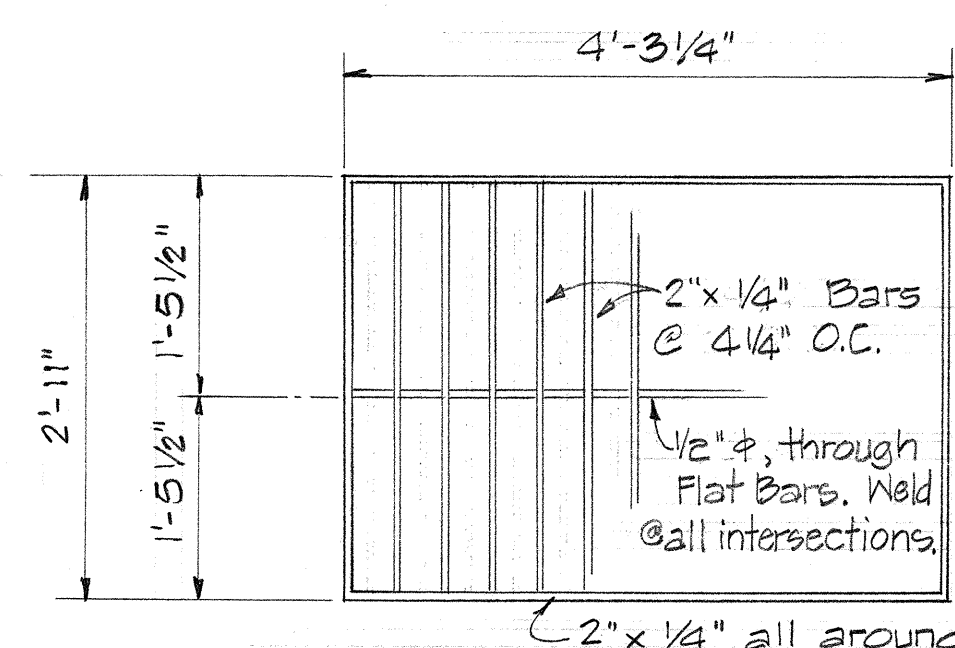
General Notes on Grating

1. Grate and support bars shall be hotdipped galvanized after fabrication.
2. All welds shall be 1/4".
3. Grating and supports shall conform to A.S.T.M. A-283, Grade D.
4. All concrete shall be Class "A".
5. Reinf. steel shall be A.S.T.M. A615, Grade 40.

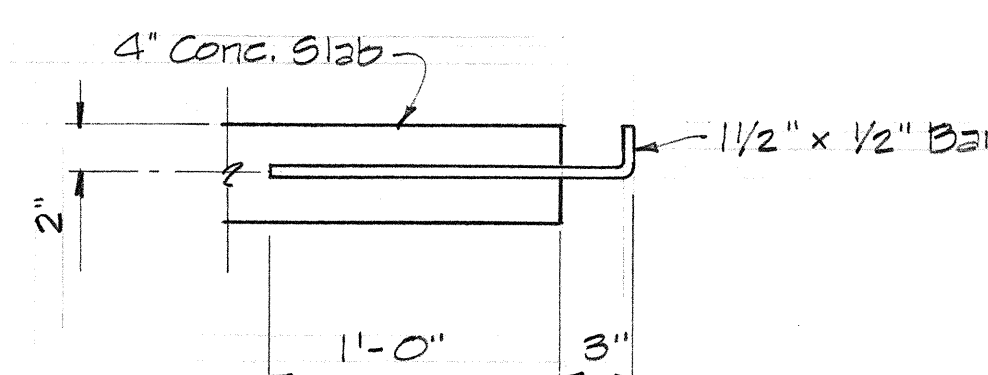


SECTION (C)
Scale: 3/4" = 1'-0"

SECTION (D)
Scale: 3/4" = 1'-0"

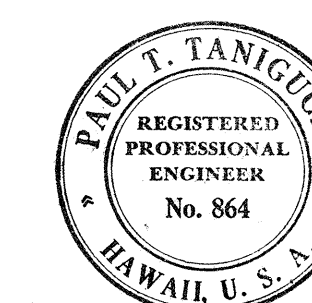


TYPE "X" GRATING DETAIL (E)
Scale: 3/4" = 1'-0"



GRATING SUPPORT DETAIL (F)
Scale: 1 1/2" = 1'-0"

8/06/79	Revised R/W Adjustment next to Special Inlet.
DATE	REVISION



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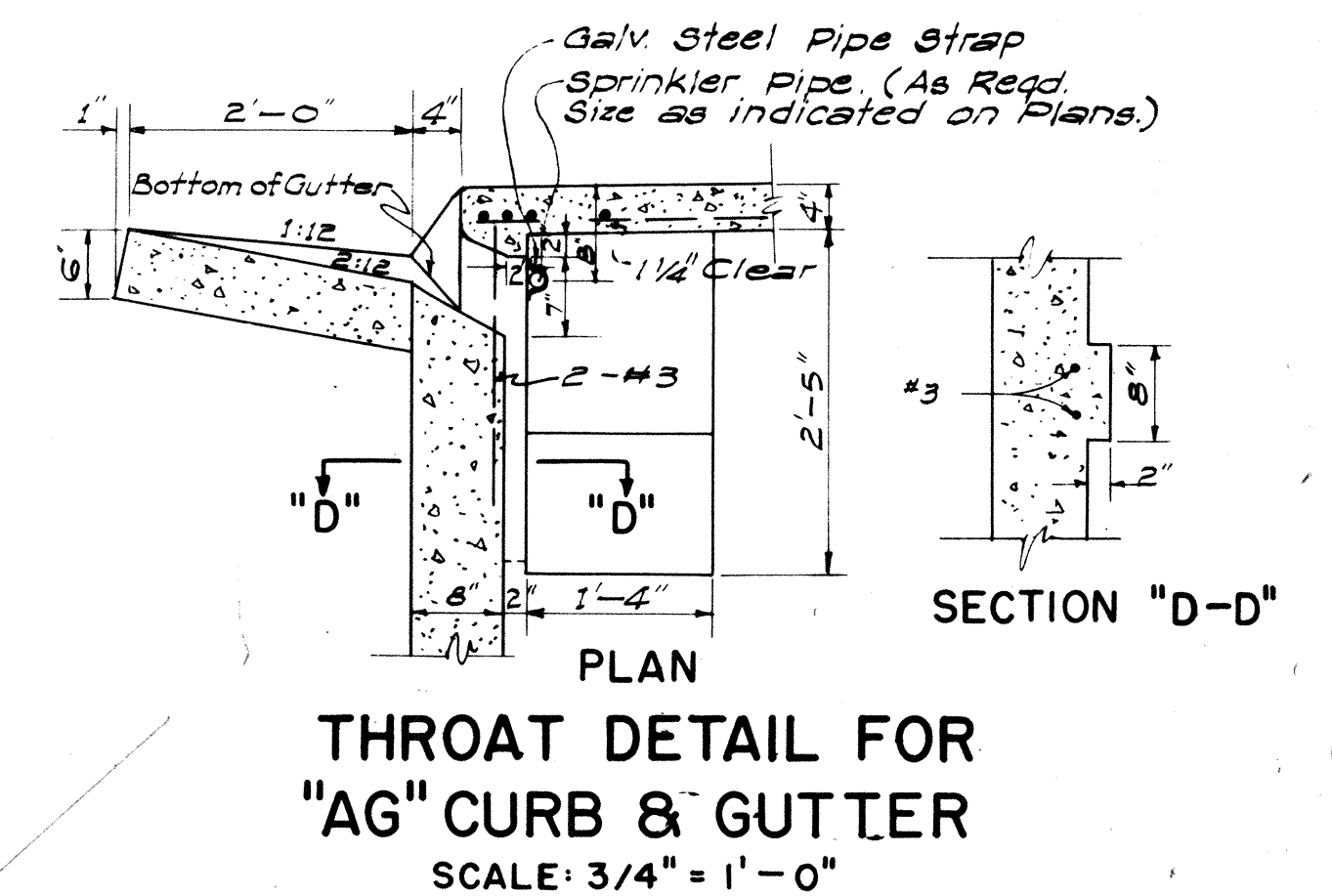
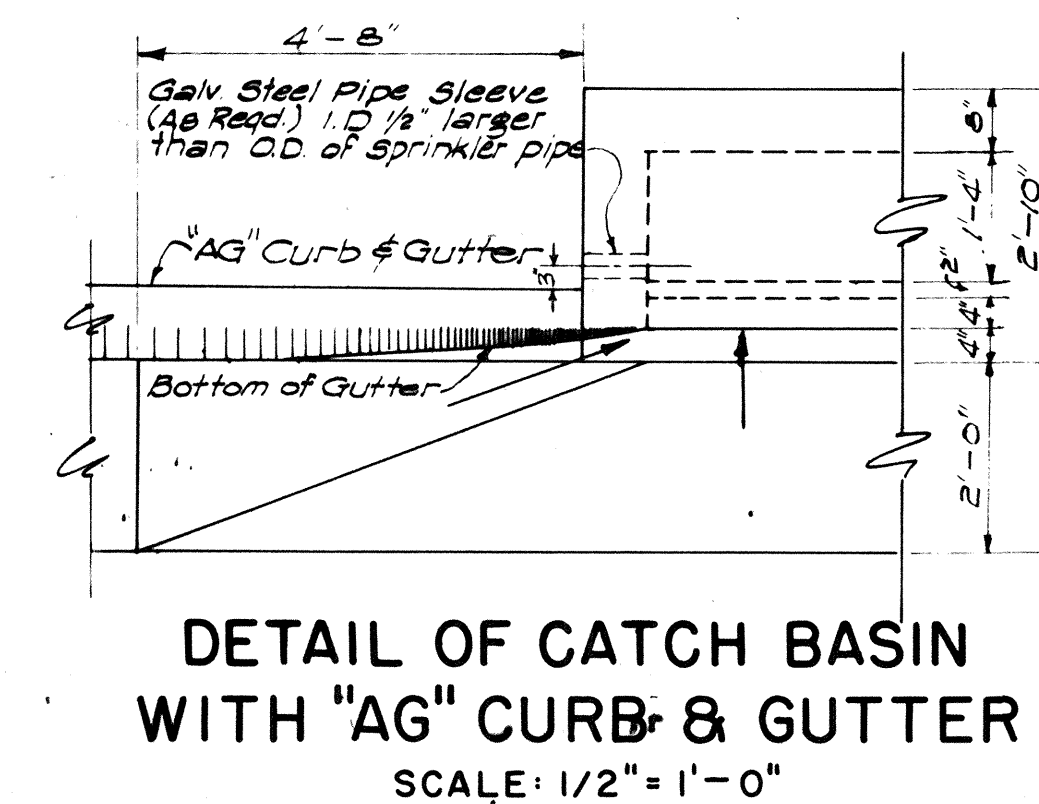
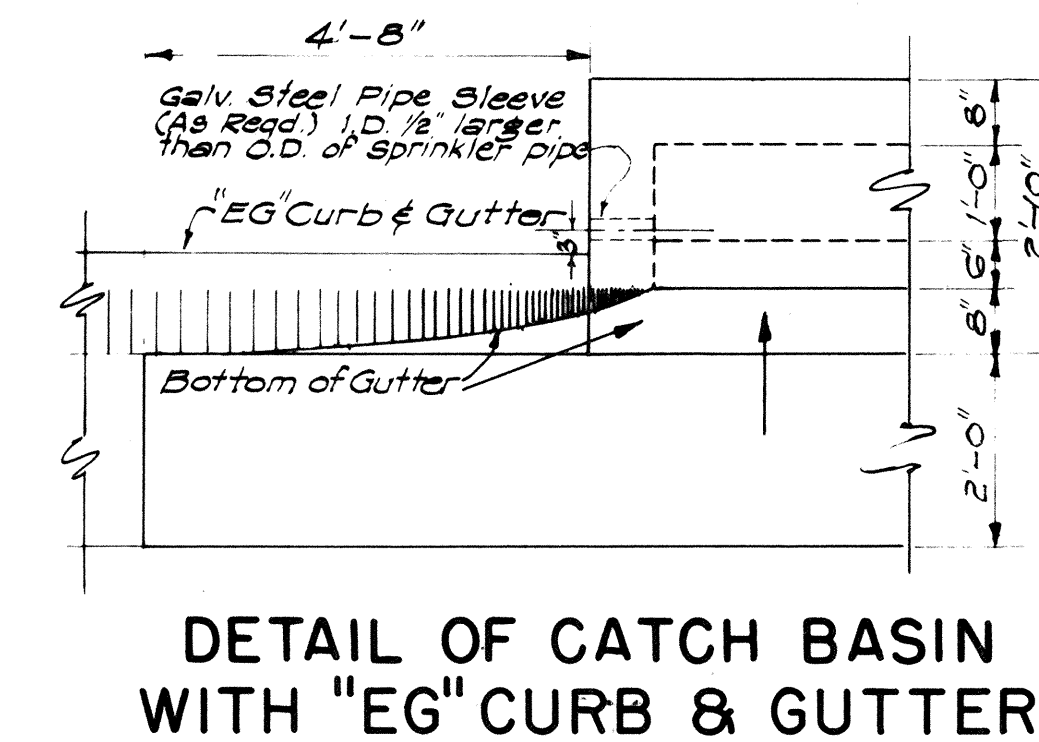
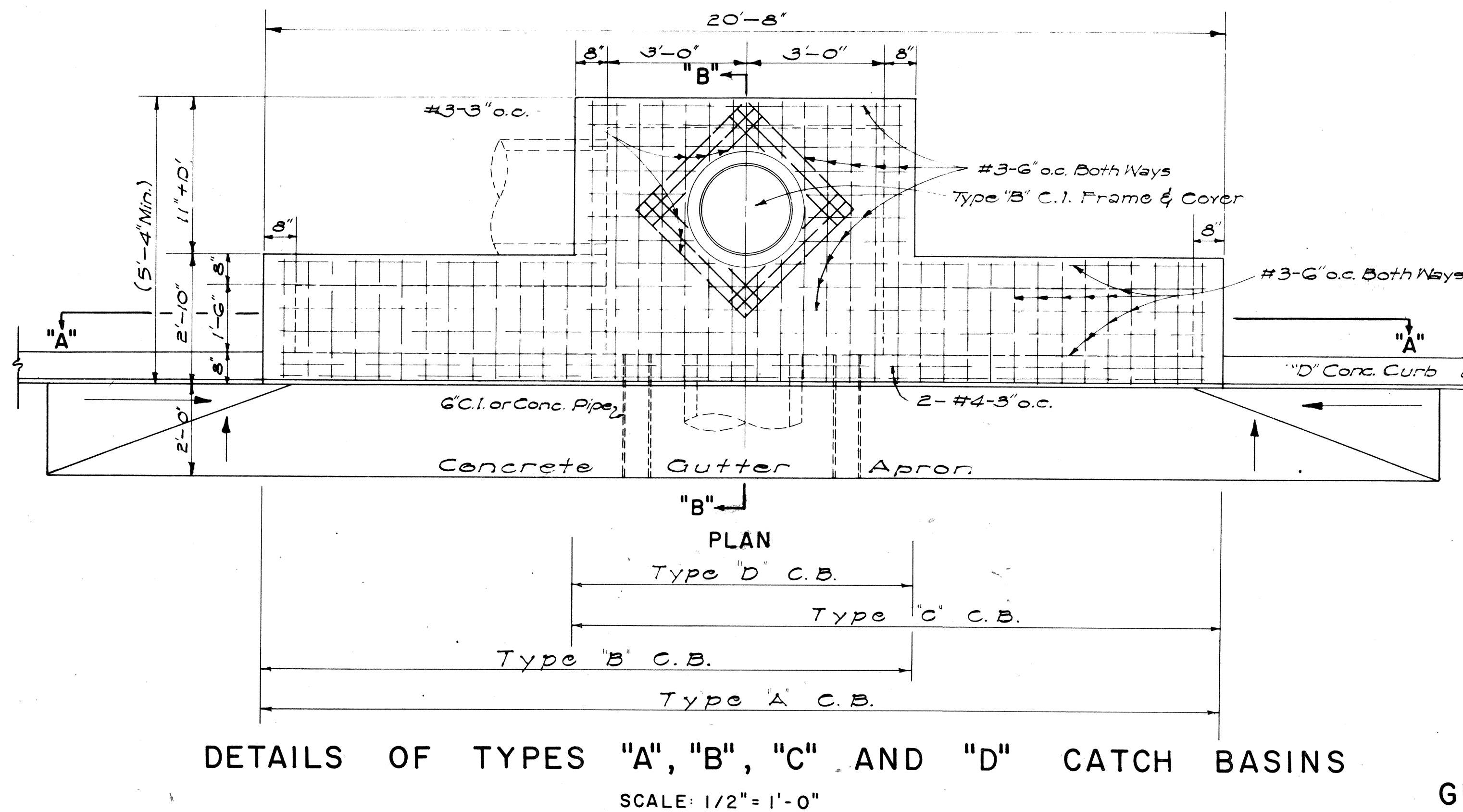
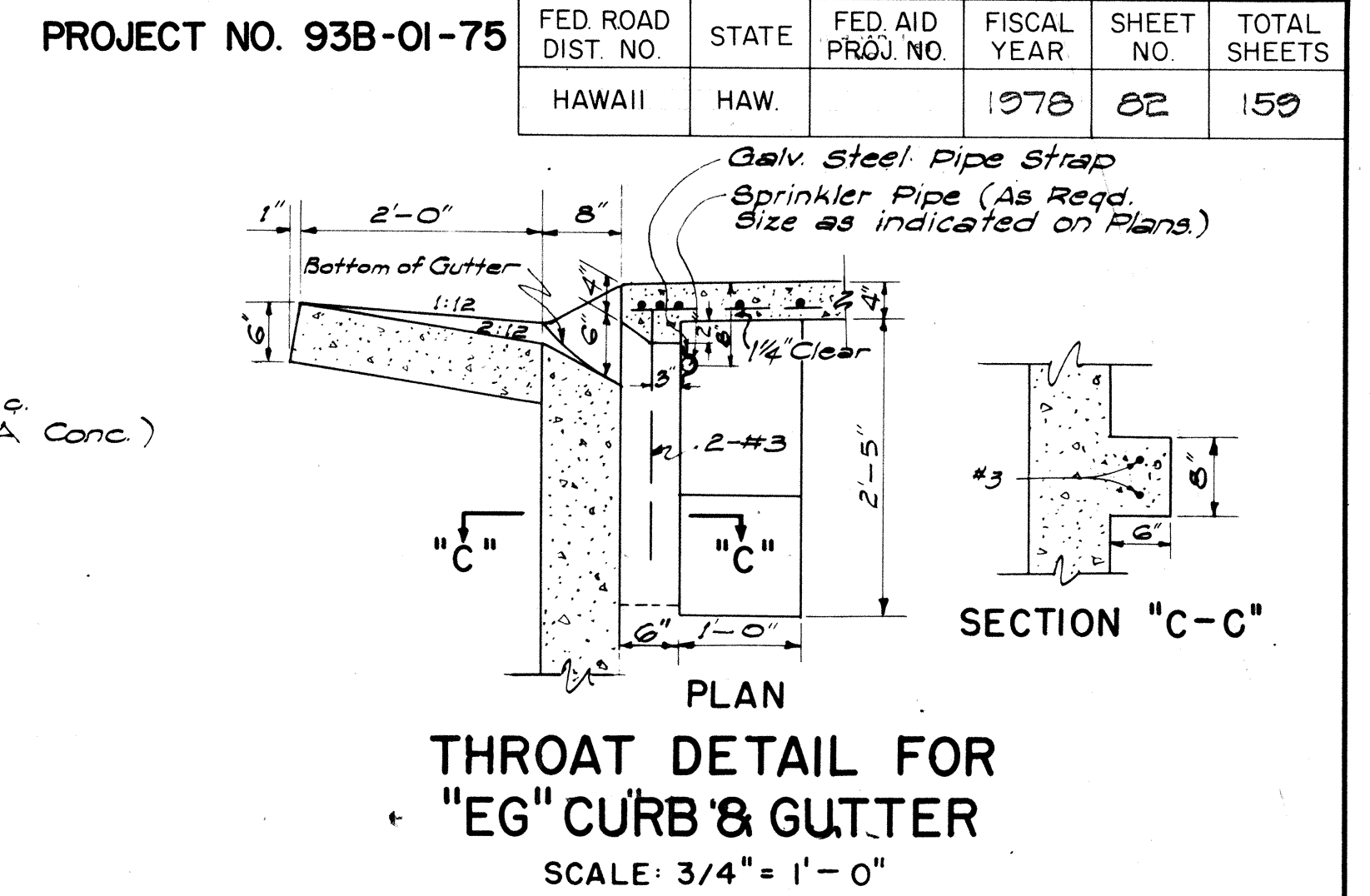
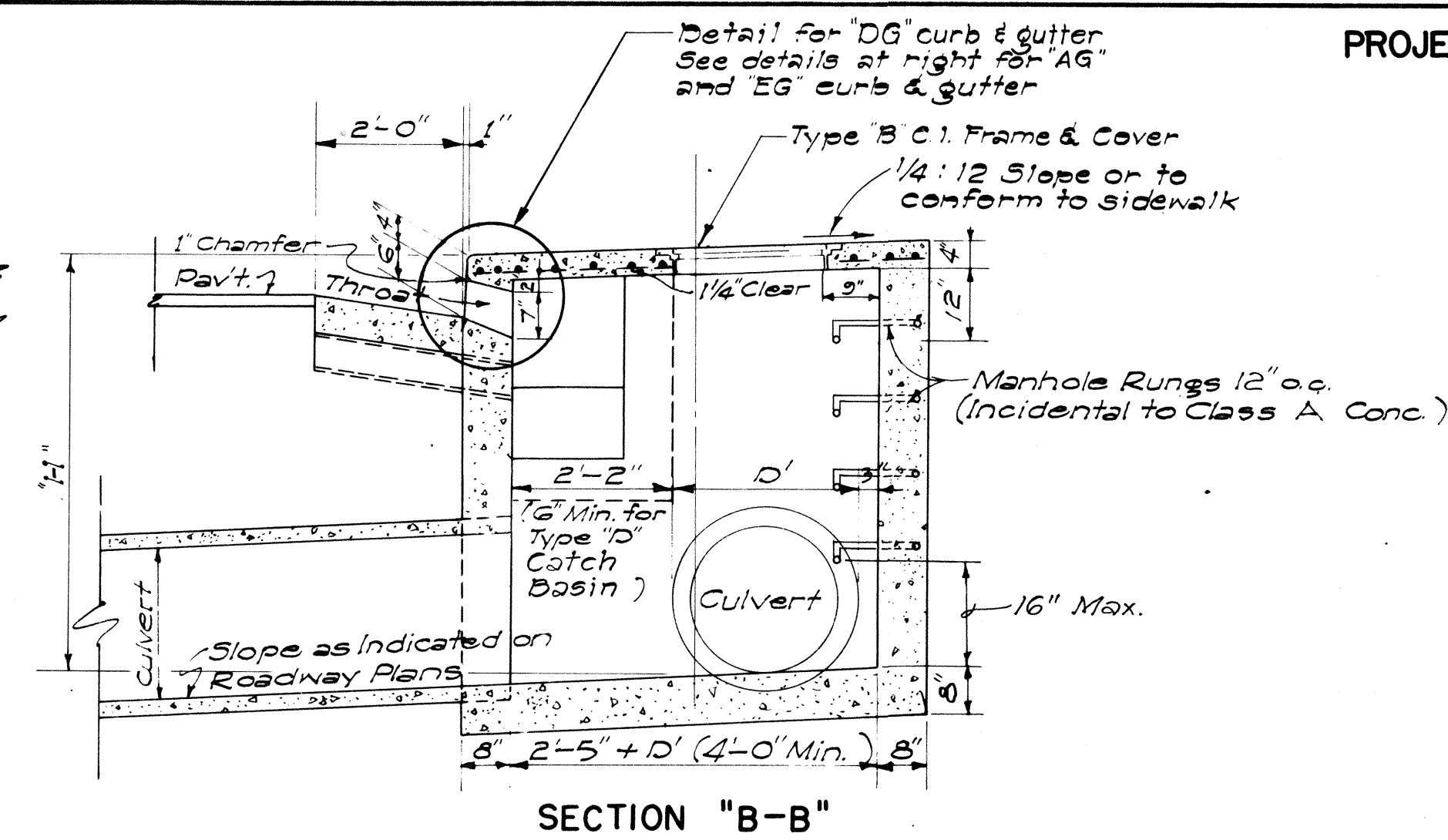
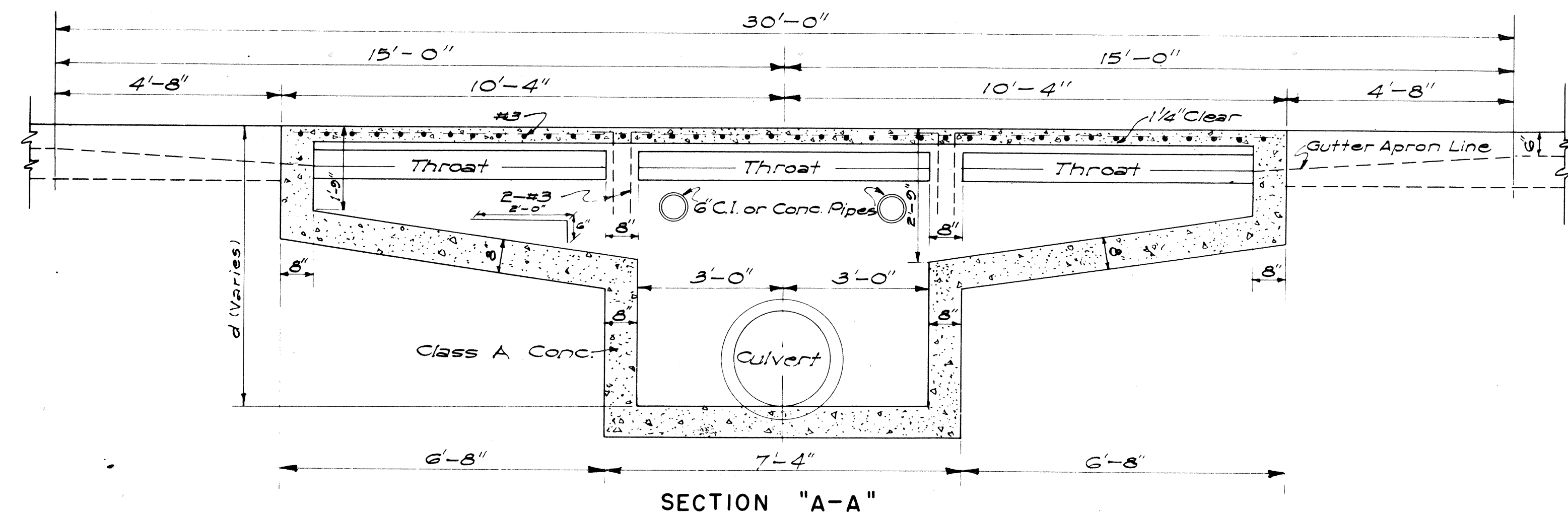
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

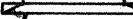
SPECIAL DRAINAGE DETAILS
INLET AT STA. 34+80
FARRINGTON HIGHWAY WIDENING
LUALUALEI HOMESTEAD ROAD TO JADE STREET
PROJECT NO. 93B-01-75, UNIT I
SCALE: AS SHOWN DATE:

SHEET NO. 10 OF 14 SHEETS

C.O.81

ORIGINAL PLAN	SURVEY PLOTTED BY..... DATE.....
NOTE BOOK	DESIGNED BY <u>C. M.</u>
	DRAWN BY <u>J. J.</u>
	TRACED BY.....
	QUANTITIES BY.....
No.	CHECKED BY.....



ESTIMATED QUANTITIES					
Type		Class A Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"		7.5 c.y.	24.7 c.y.	145 lb.	30' - 0"
"B"		6.0 c.y.	21.5 c.y.	108 lb.	23' - 4"
"C"		6.0 c.y.	21.5 c.y.	108 lb.	23' - 4"
"D"		4.0 c.y.	16.5 c.y.	77 lb.	16' - 8"

1. Quantities based on $d = 5.75'$ and $D = 30"$.
2. Quantities do not include concrete for Gutter Apron.
3. The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A Concrete for Construction Drainage. The Engineer shall determine the exact location in the field.
4. 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.
5. The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.
6. The type of curb and/or gutter (Type 1, 2, 3, etc.) shall conform to the type specified on the Roadway plans.
7. Manhole Rungs (12" o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (16 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Type "B" Cast Iron Frame and Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.

NO.	REVISION	APPROVED BY	DATE
	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-78

APPROVAL RECOMMENDED: D. Jakars 12-17-69
HYDRAULIC DESIGN ENGINEER DATE

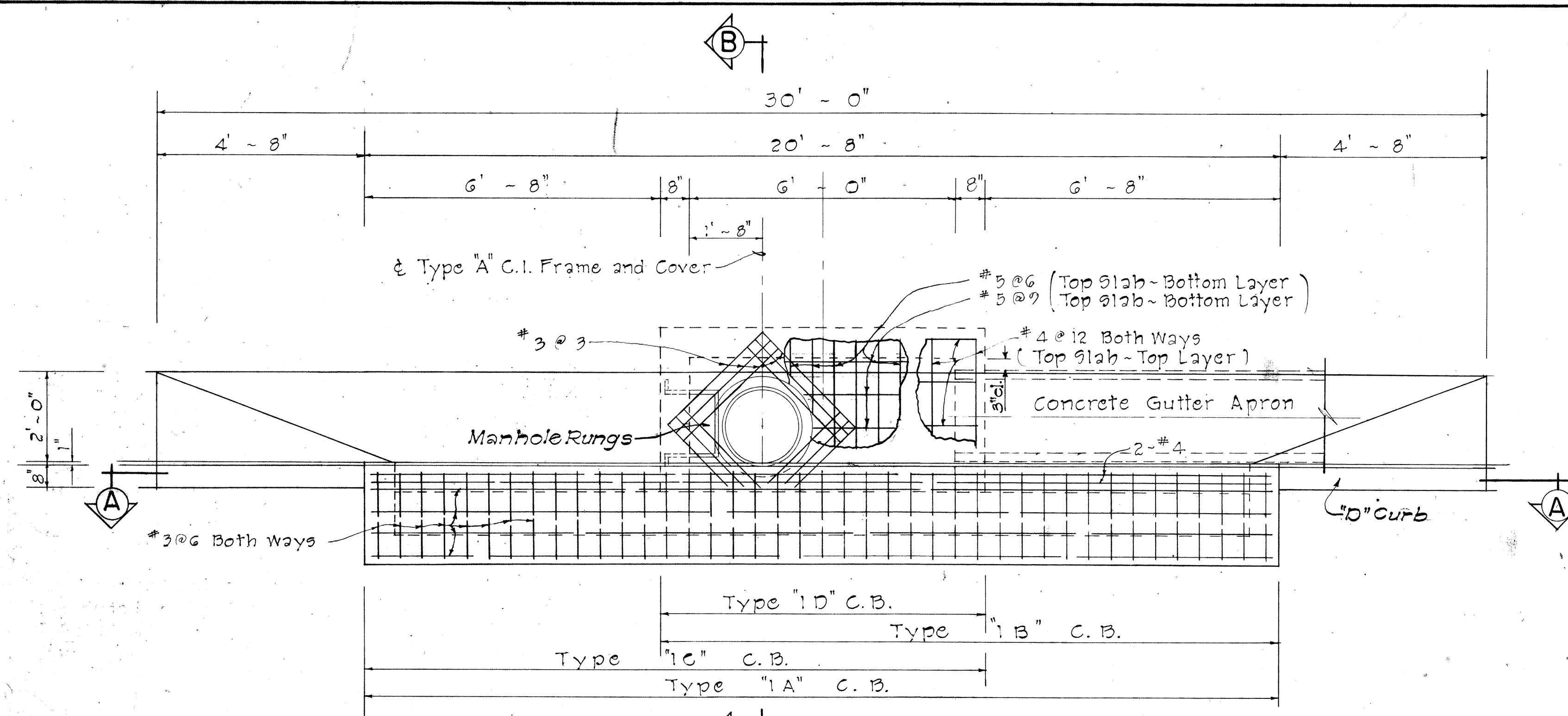
APPROVED: W. J. Salas 12-17-69
ASSISTANT CHIEF, ENGINEERING DATE

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

Scale: As Noted Date: July, 1969
SHEET NO 11 OF 14 SHEETS DH

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
HAWAII	HAW.		1978	83	150

PROJECT NO. 93B-01-75

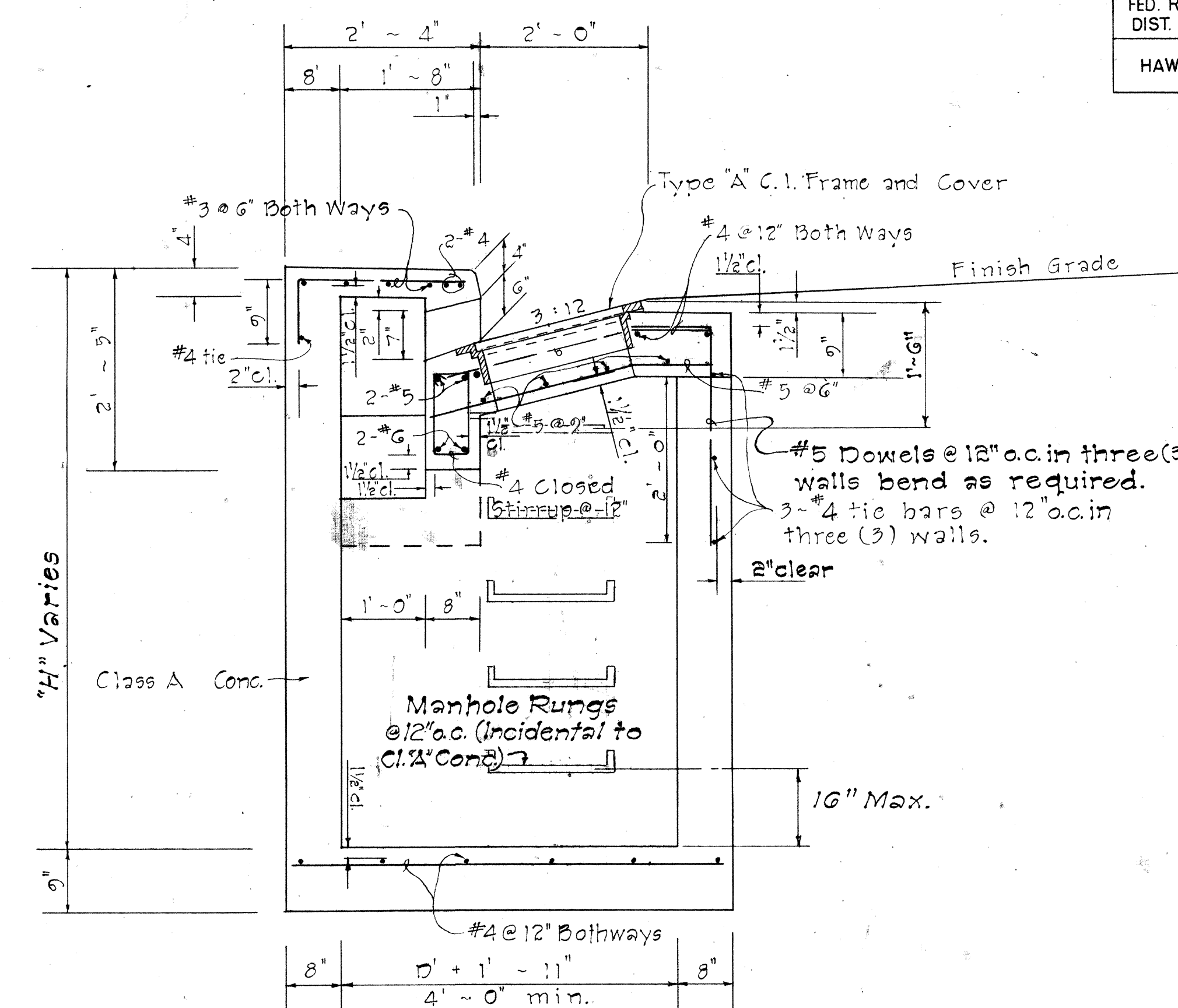


PLAN

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

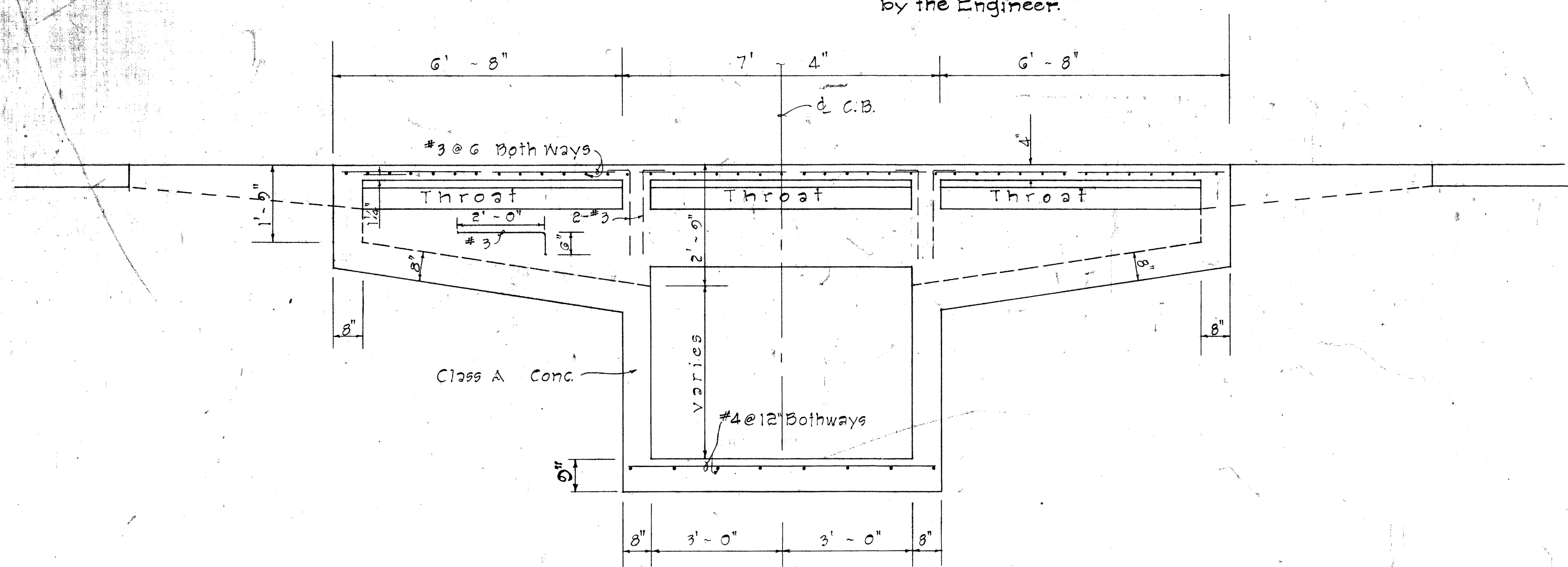
GENERAL NOTES

1. Culvert shall enter and leave C.B. from any position and in the direction indicated by the plans or ordered by the Engineer.
2. D' shall be the maximum outside dimension of the culvert at the C.B. wall.
3. The type of curb and/or gutter (Type 1, 2, 3, etc.) shall conform to the type specified on the roadway plans.
4. Manhole Rungs (12" o.a.) are required when "H" is greater than 4 feet 6 inches. Only one rung (16 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Type "A" C.I. Frame & Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.



SECTION "B-B"

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



SECTION "A-A"

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

DETAILS OF TYPE "IA", "IB", "IC" AND "ID" CATCH BASIN

APPROVAL RECOMMENDED:

G. Nakano 12-17-69
HYDRAULIC DESIGN ENGINEER • DATE

APPROVED:

Shahid 22 Shahid 12-17-60
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

TYPE "1A", "1B", "1C", AND "1D"

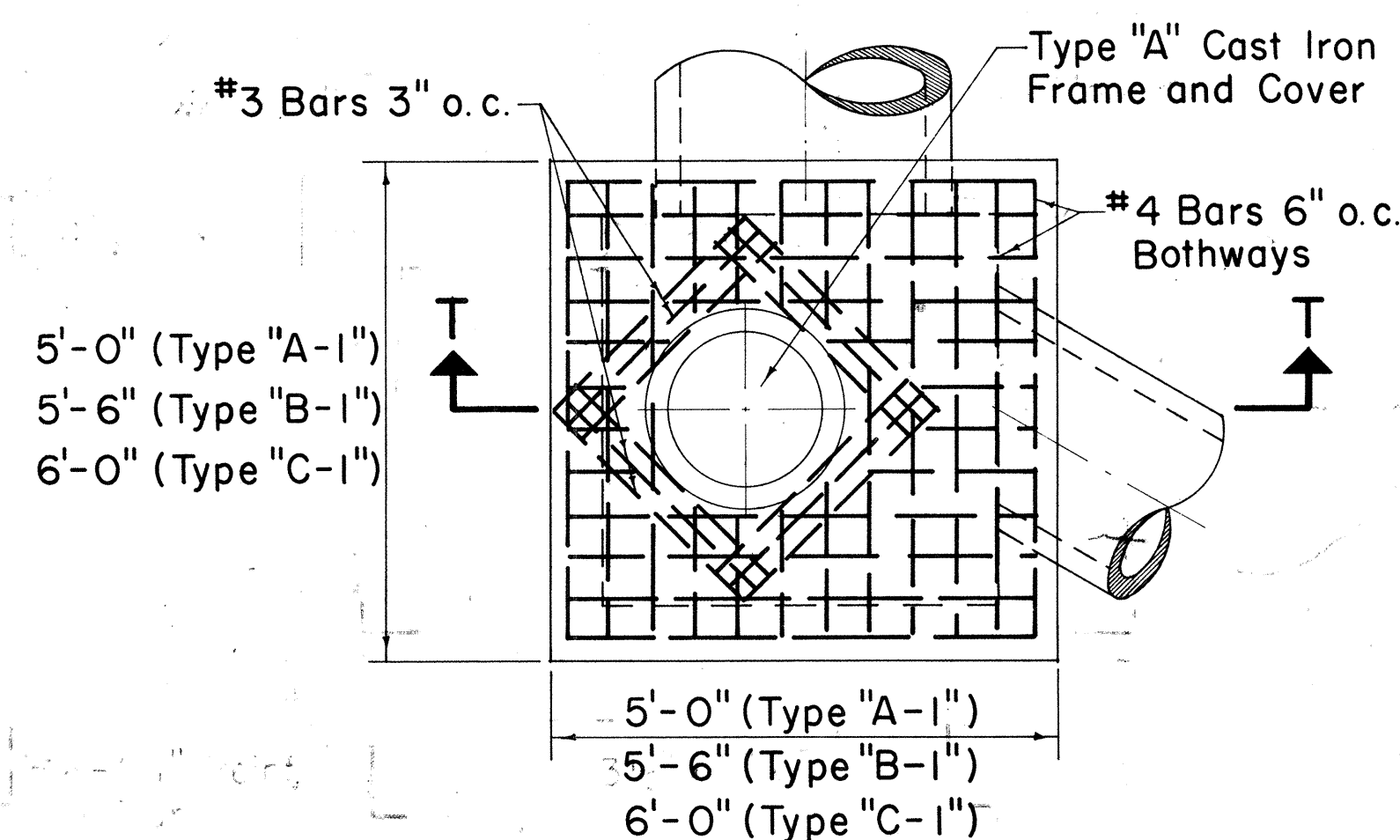
CATCH BASINS

Scale: As Noted Date: July, 1969

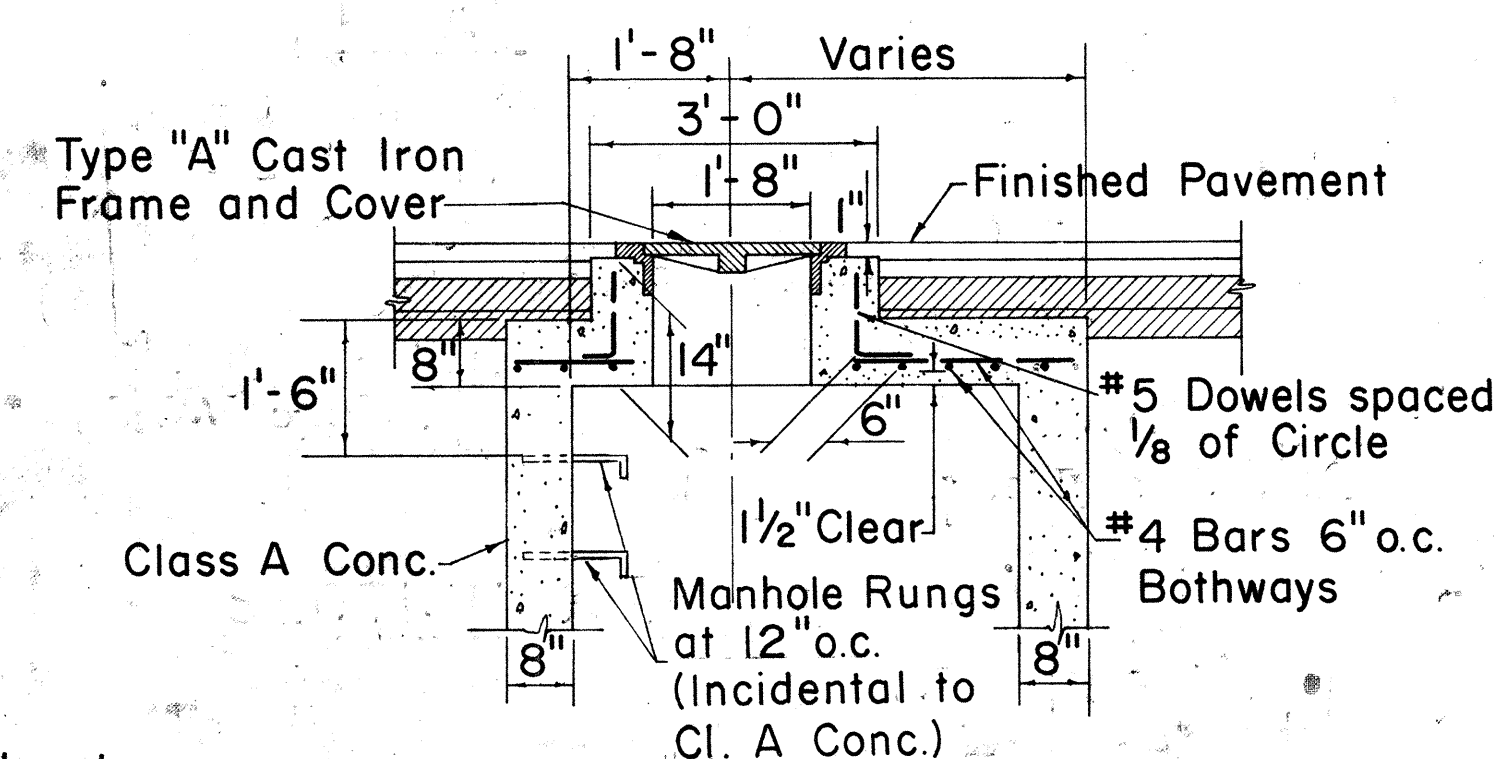
SHEET No. 12 OF 14 SHEETS DH 3

FED. ROAD DIST. NO.	STATE	FED. AID. PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII		1978	84	159

PROJECT NO. 93B-01-75



PLAN



SECTION T-T

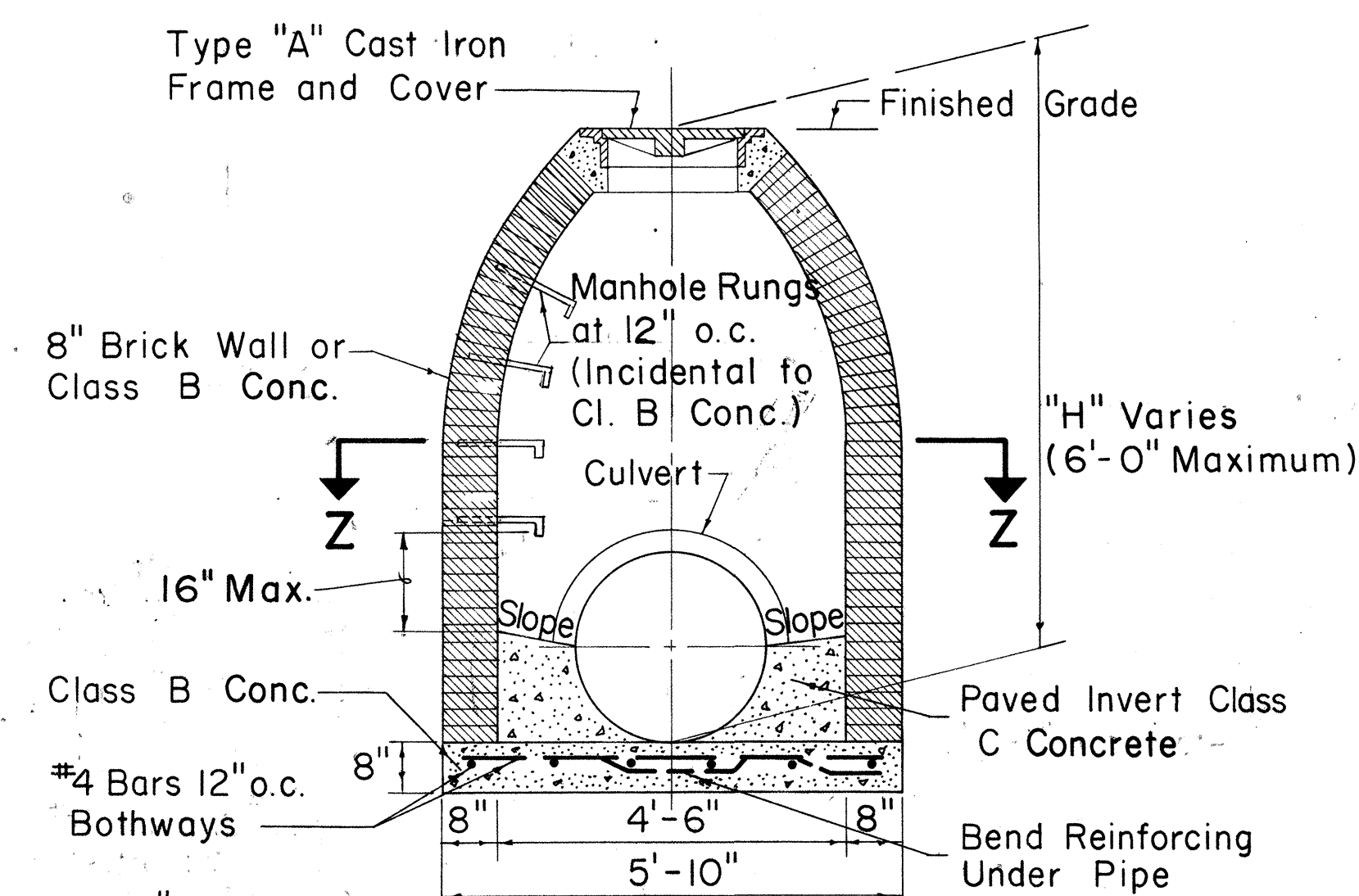
TYPE "A-I", "B-I", & "C-I"
STORM DRAIN MANHOLE
TOP DETAIL UNDER PAVEMENT

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

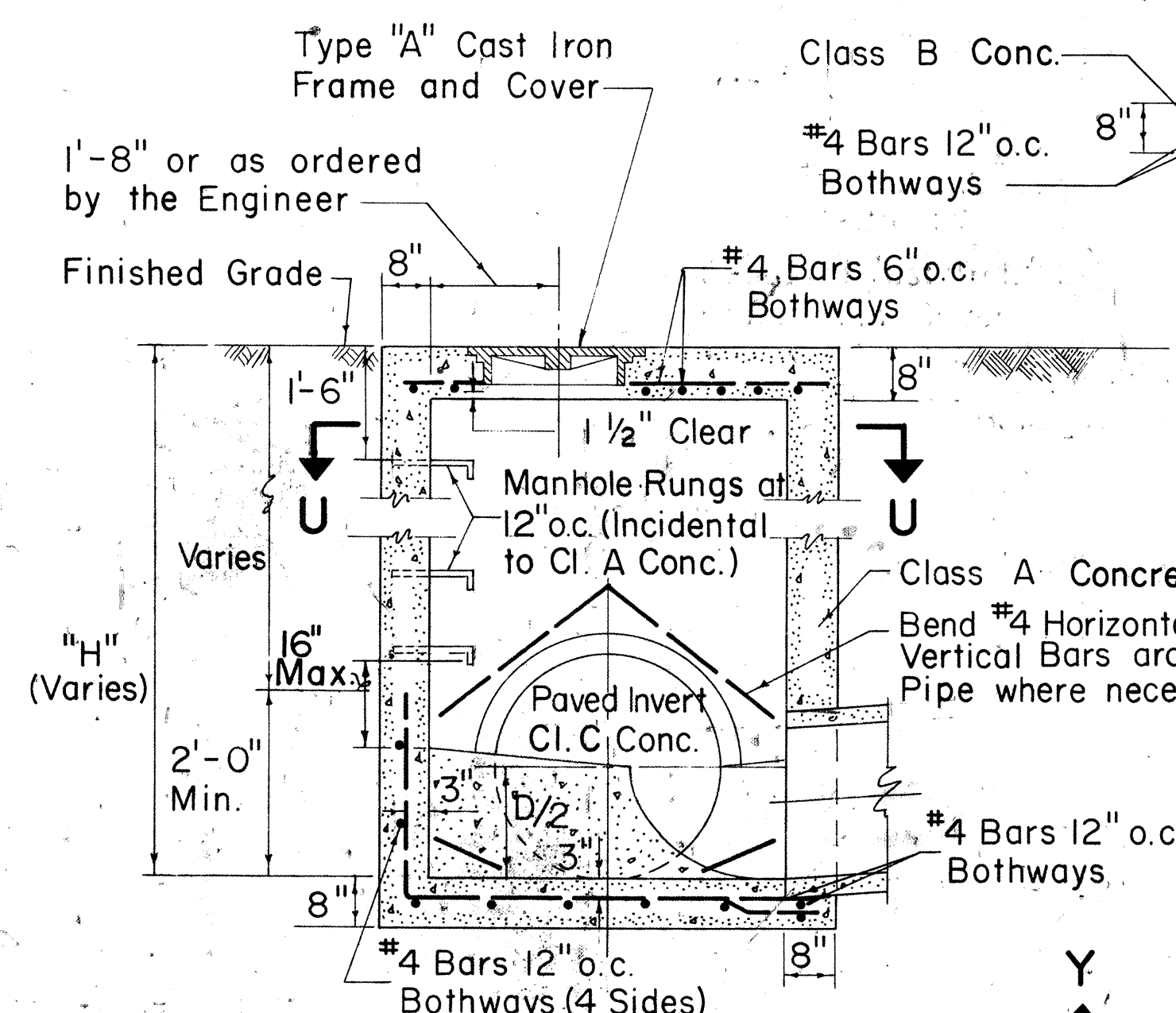
Note:
Bottom detail similar to Type 'A', 'B', & 'C'.

GENERAL NOTES

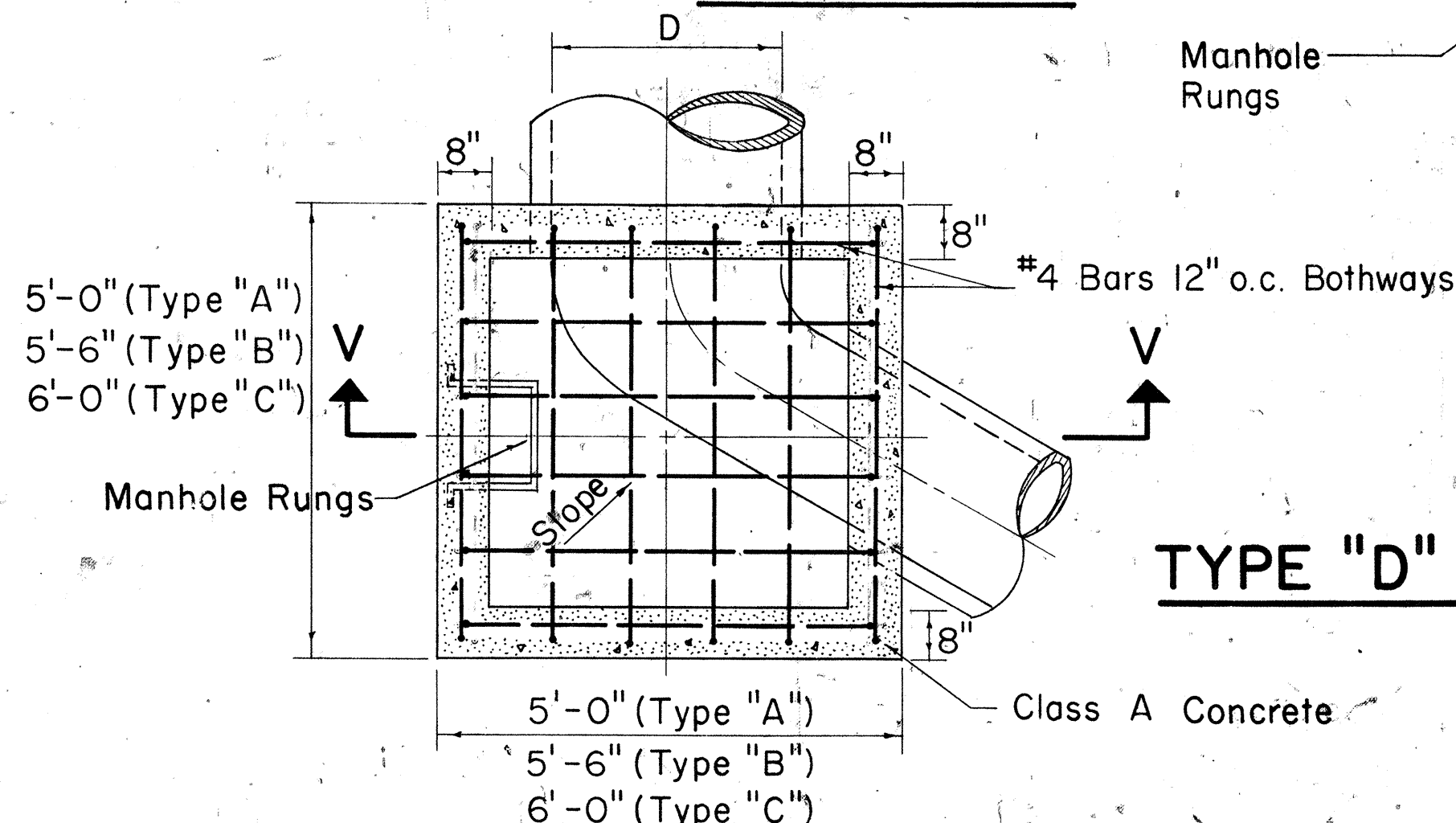
- Culvert shall enter and leave S.D.M.H. from any position and in the direction indicated by the plans or ordered by the Engineer.
- Manhole Rungs (12" o.c.) are required when "H" is greater than 4'-6". Only one rung (16" from the bottom) is required if "H" is 4'-6" or less. Type "A" C.I. Frame and Cover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



SECTION Y-Y



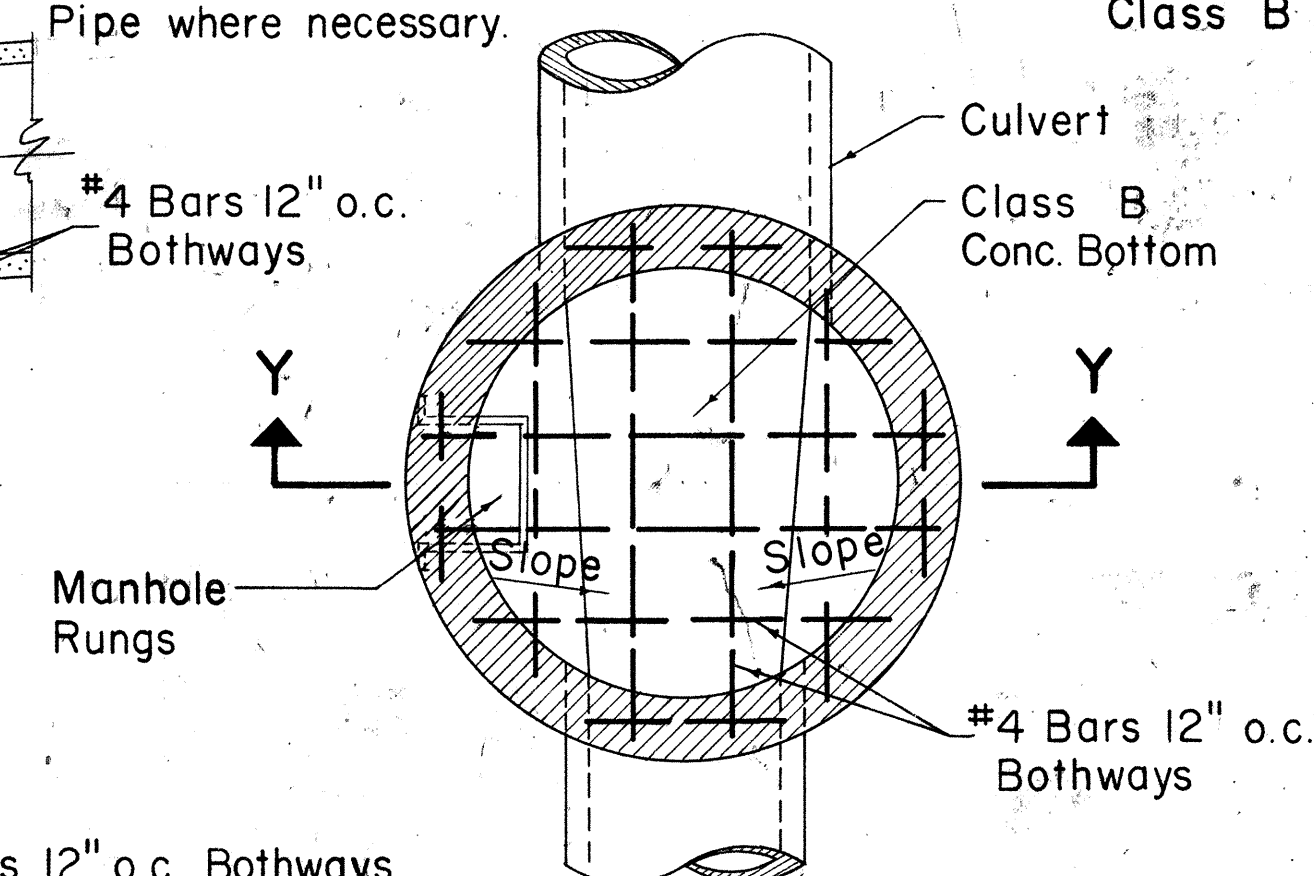
SECTION V-V



SECTION U-U

TYPE "A", "B", & "C"
S.D.M.H.

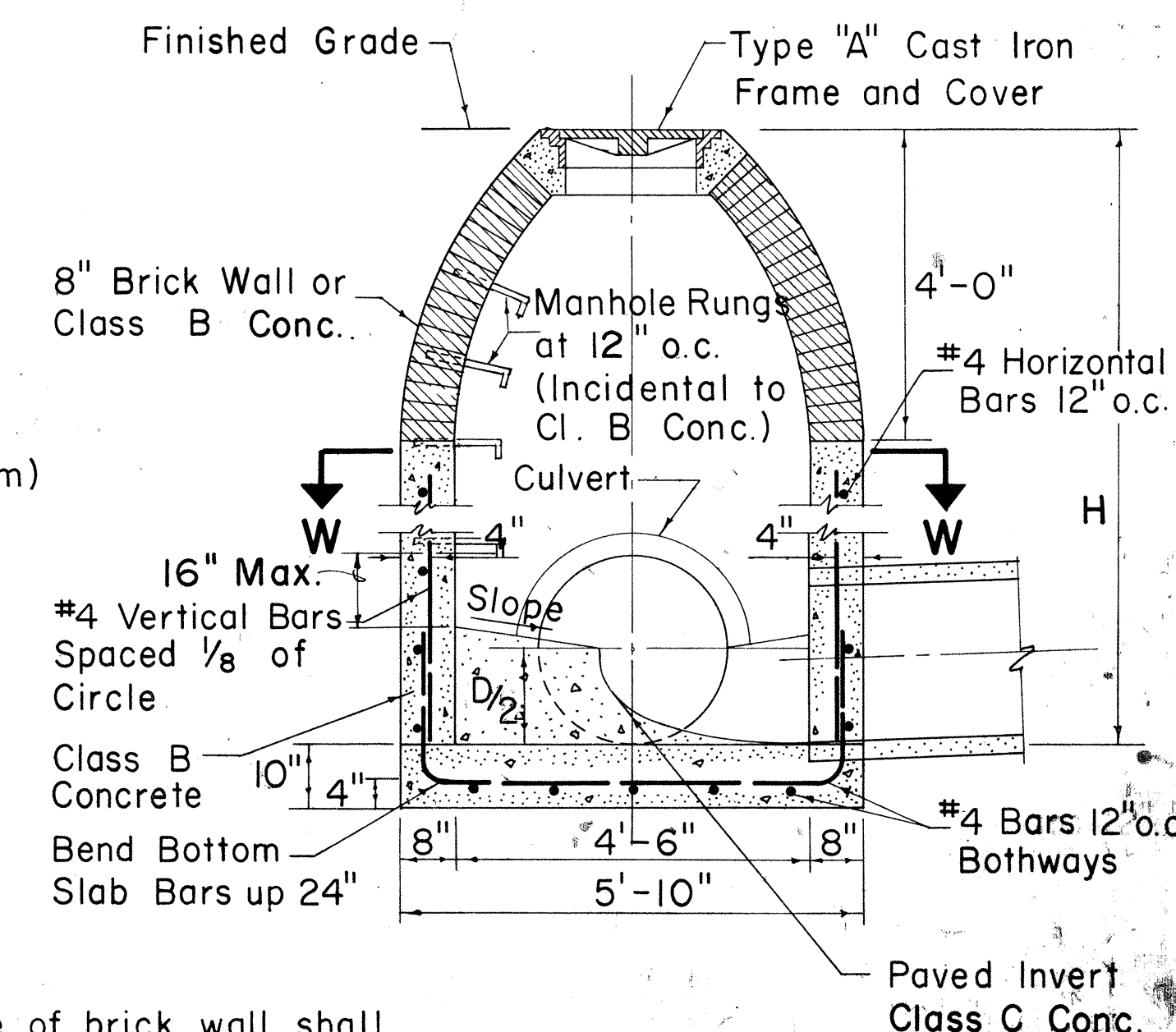
Scale: 1/2" = 1'-0"



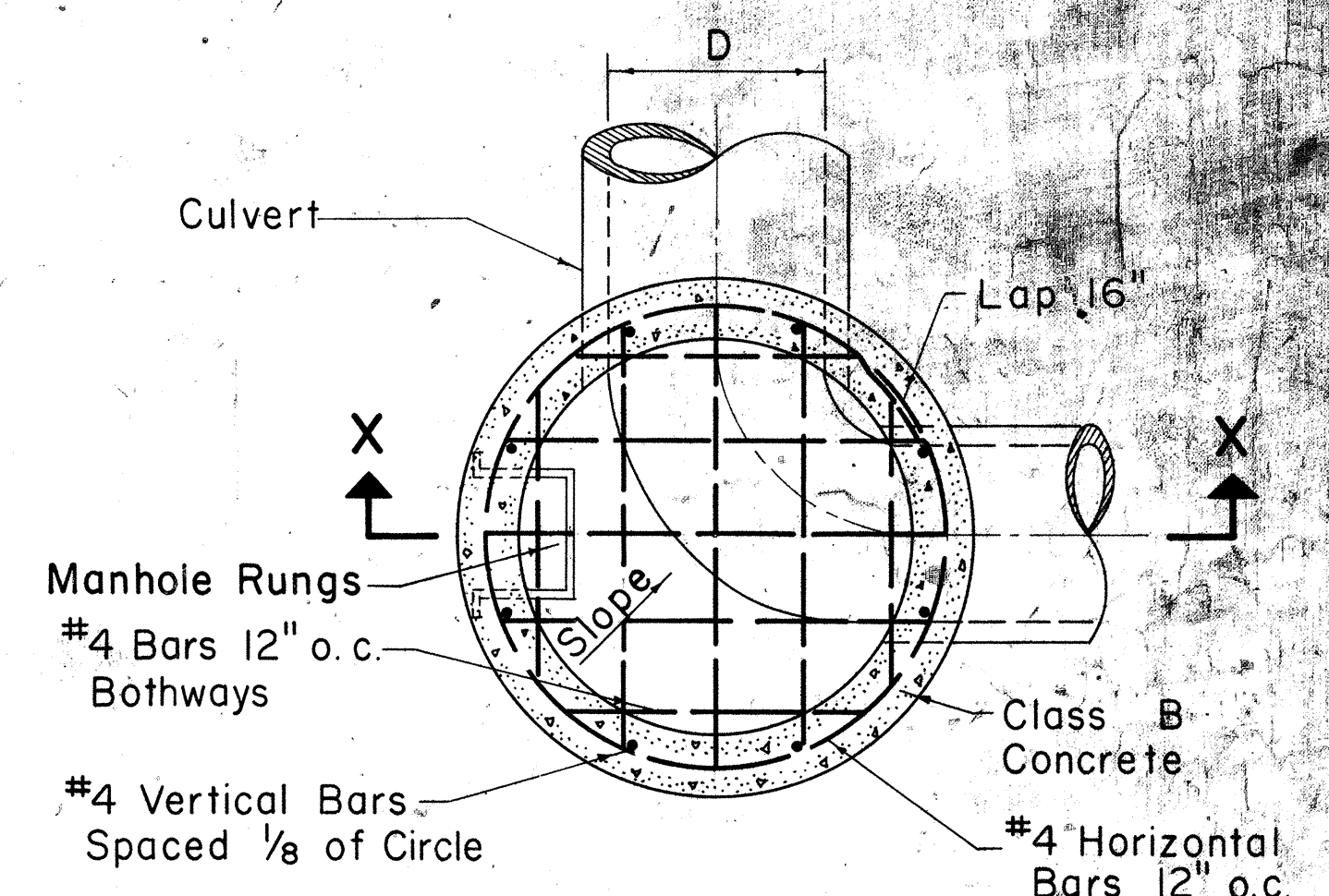
SECTION Z-Z

TYPE "D" STORM DRAIN MANHOLE

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



SECTION X-X



SECTION W-W

TYPE "E" STORM DRAIN MANHOLE

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

NO.	REVISION	APPROVED BY	DATE
1	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-75

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

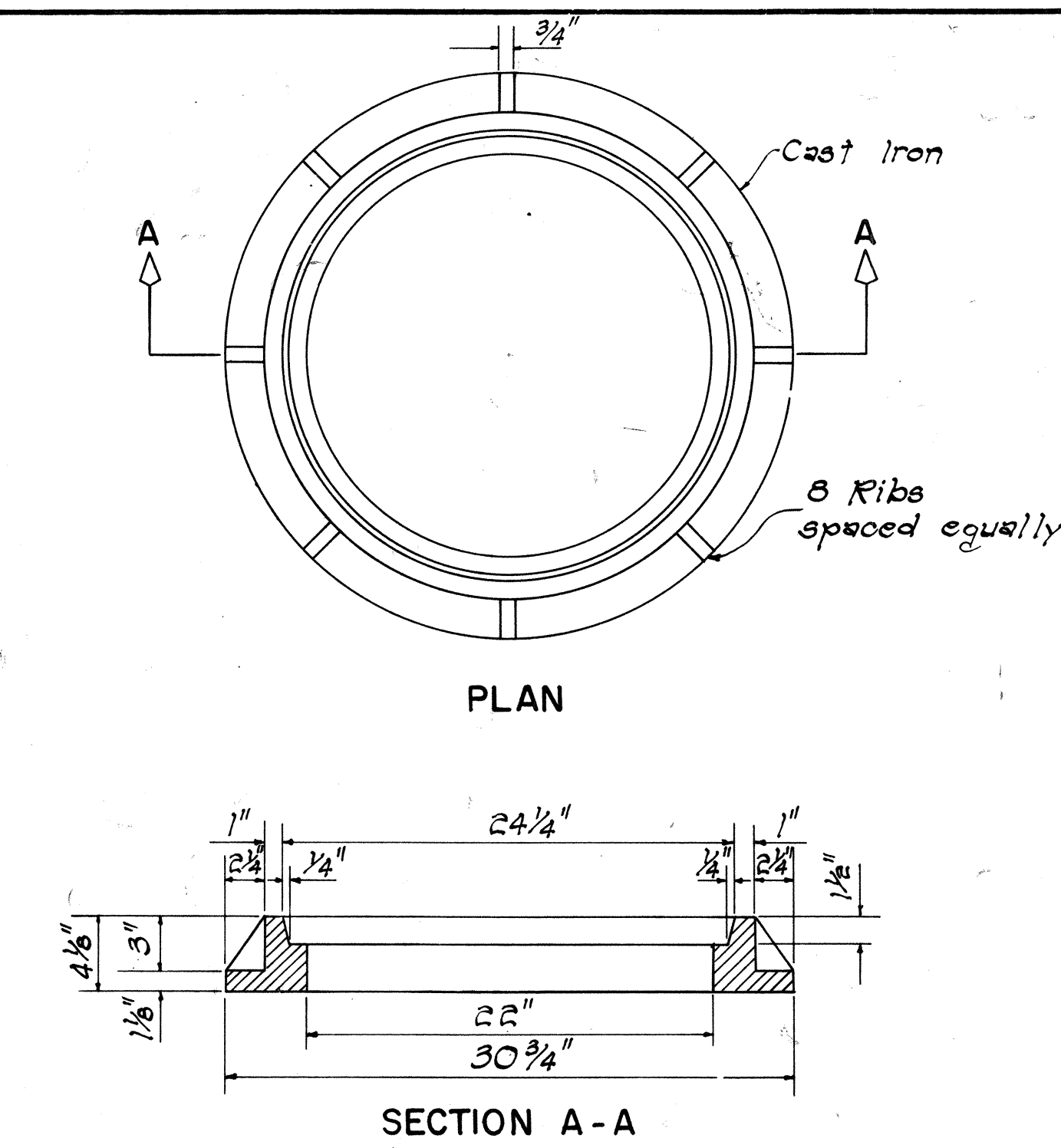
STANDARD DETAILS
STORM DRAIN MANHOLES

Scales: As Noted Date: July, 1969

SHEET NO. 13 OF 14 SHEETS DH 5

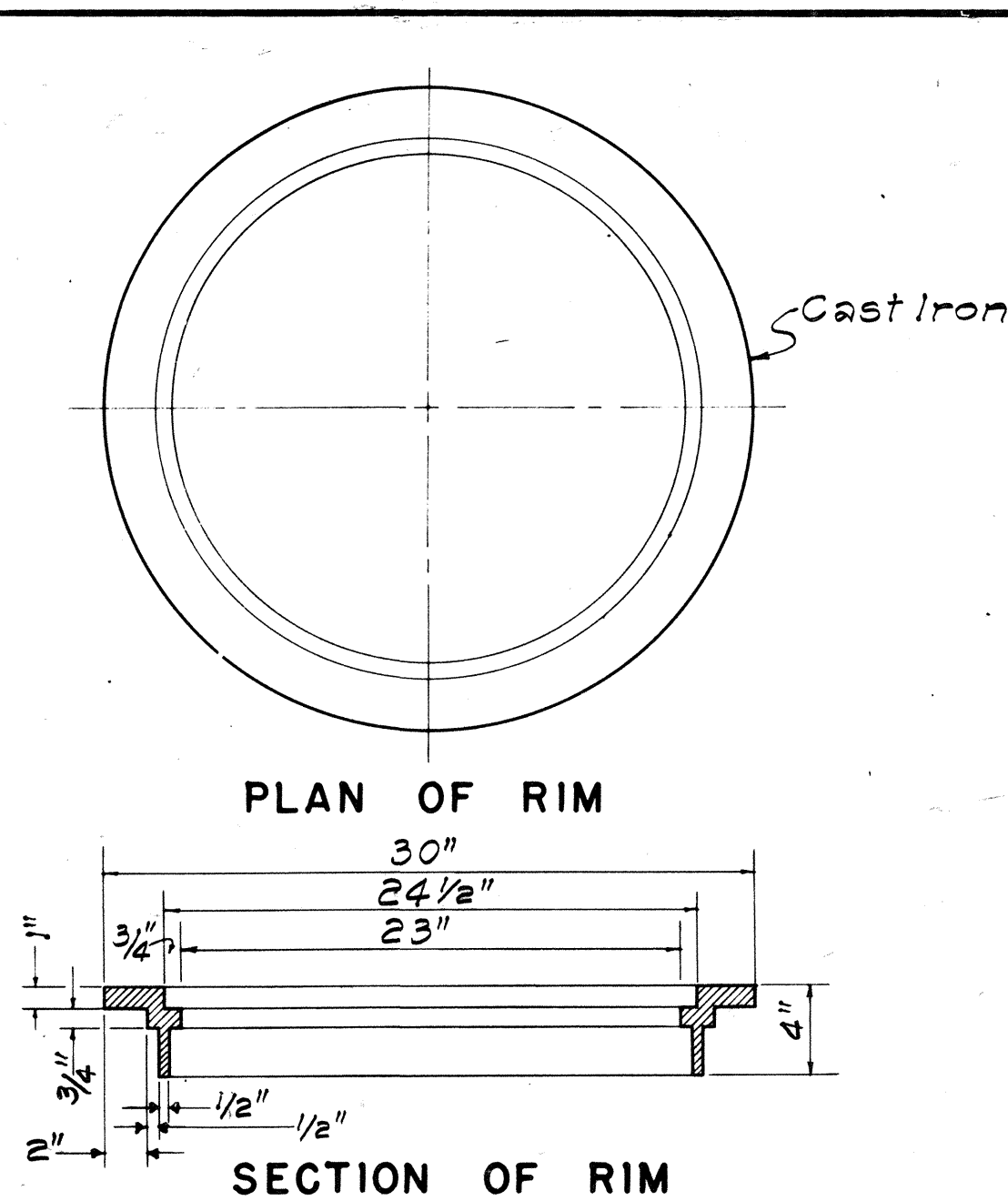
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.		1978	65	150

PROJECT NO. 93B-OI-75



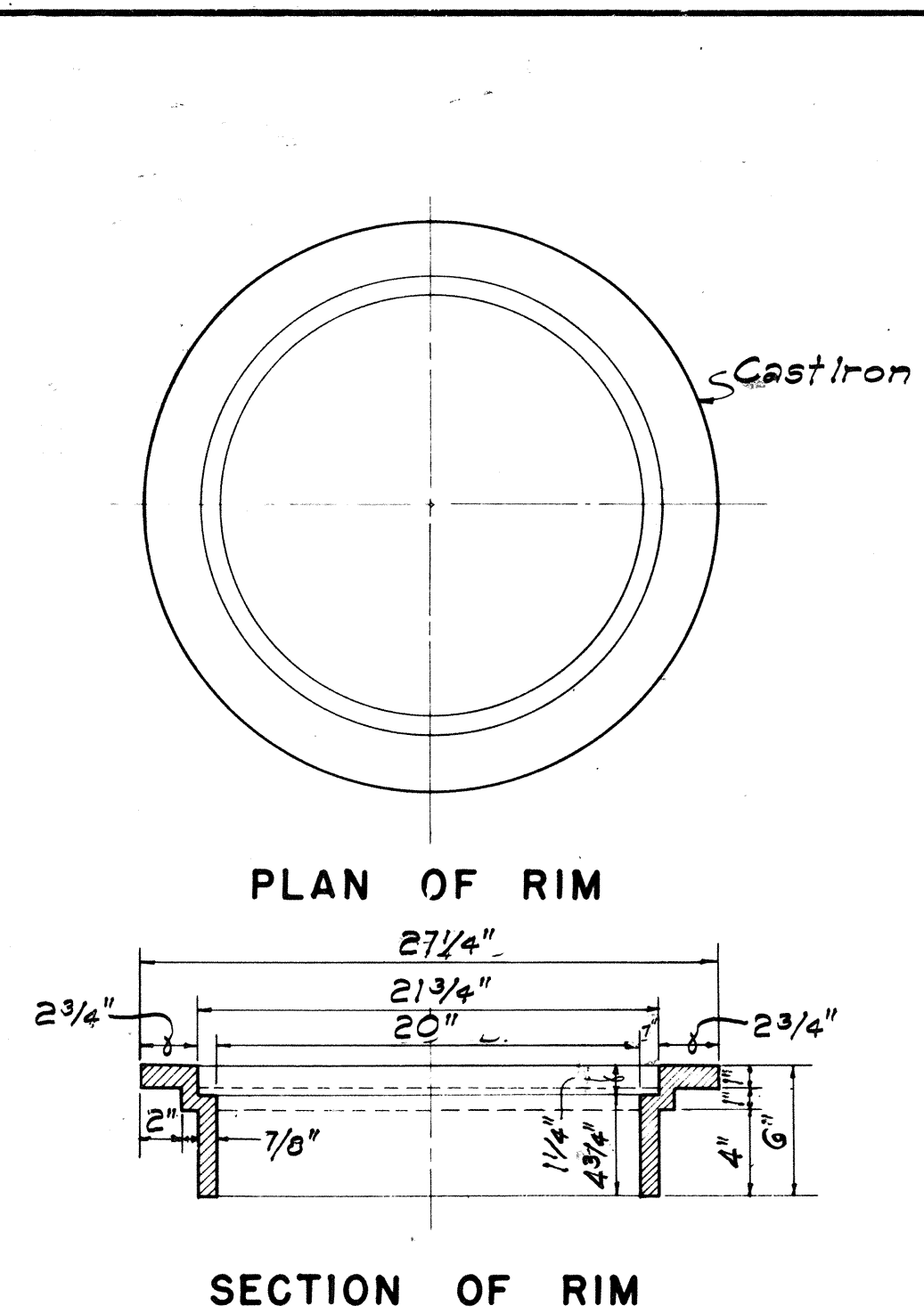
PLAN

SECTION A-A



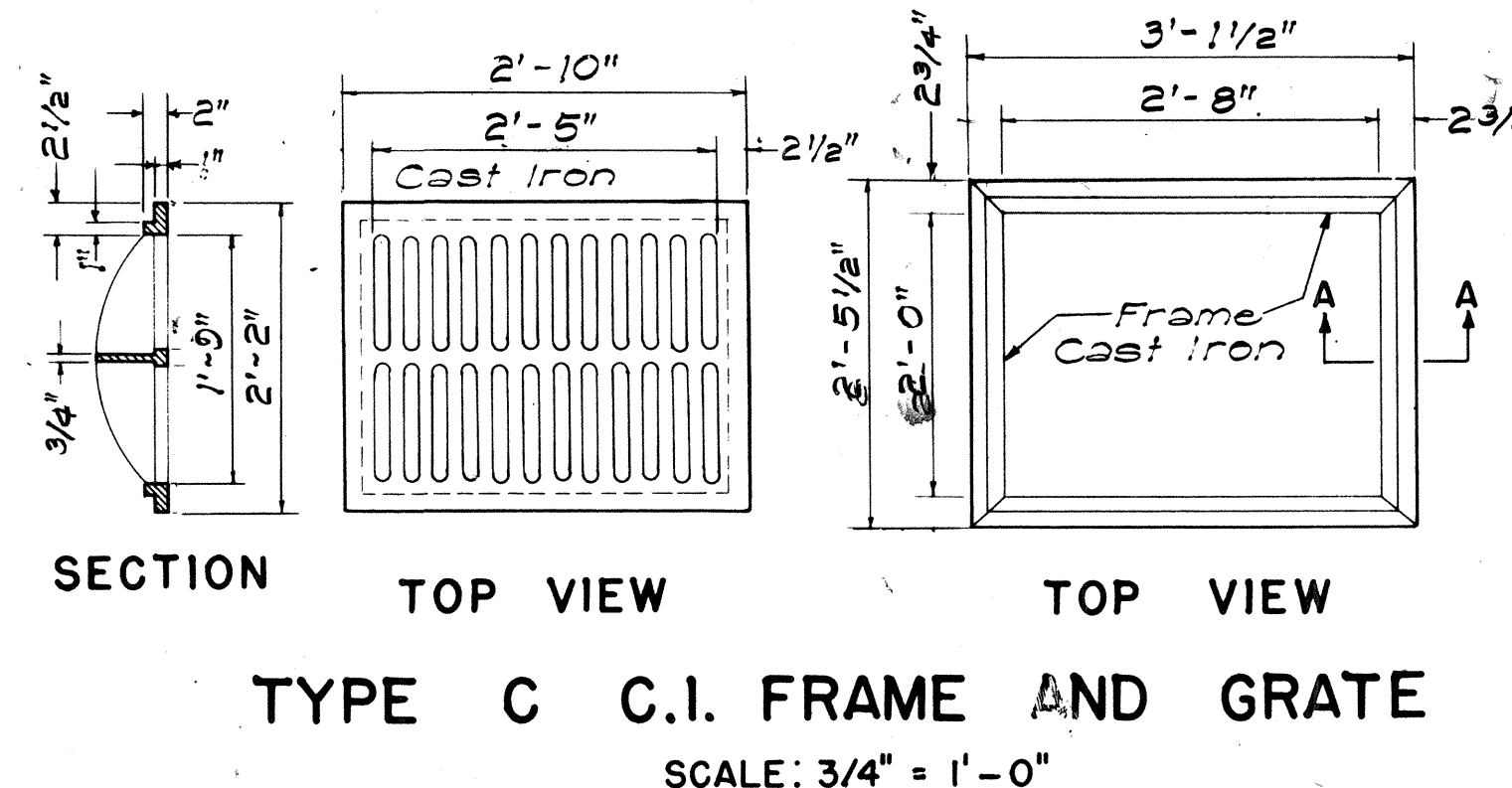
PLAN OF RIM

SECTION OF RIM



PLAN OF RIM

SECTION OF RIM



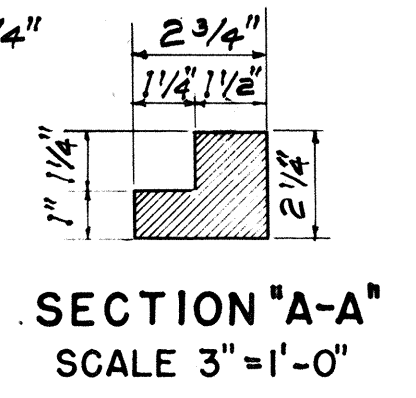
SECTION

TOP VIEW

TOP VIEW

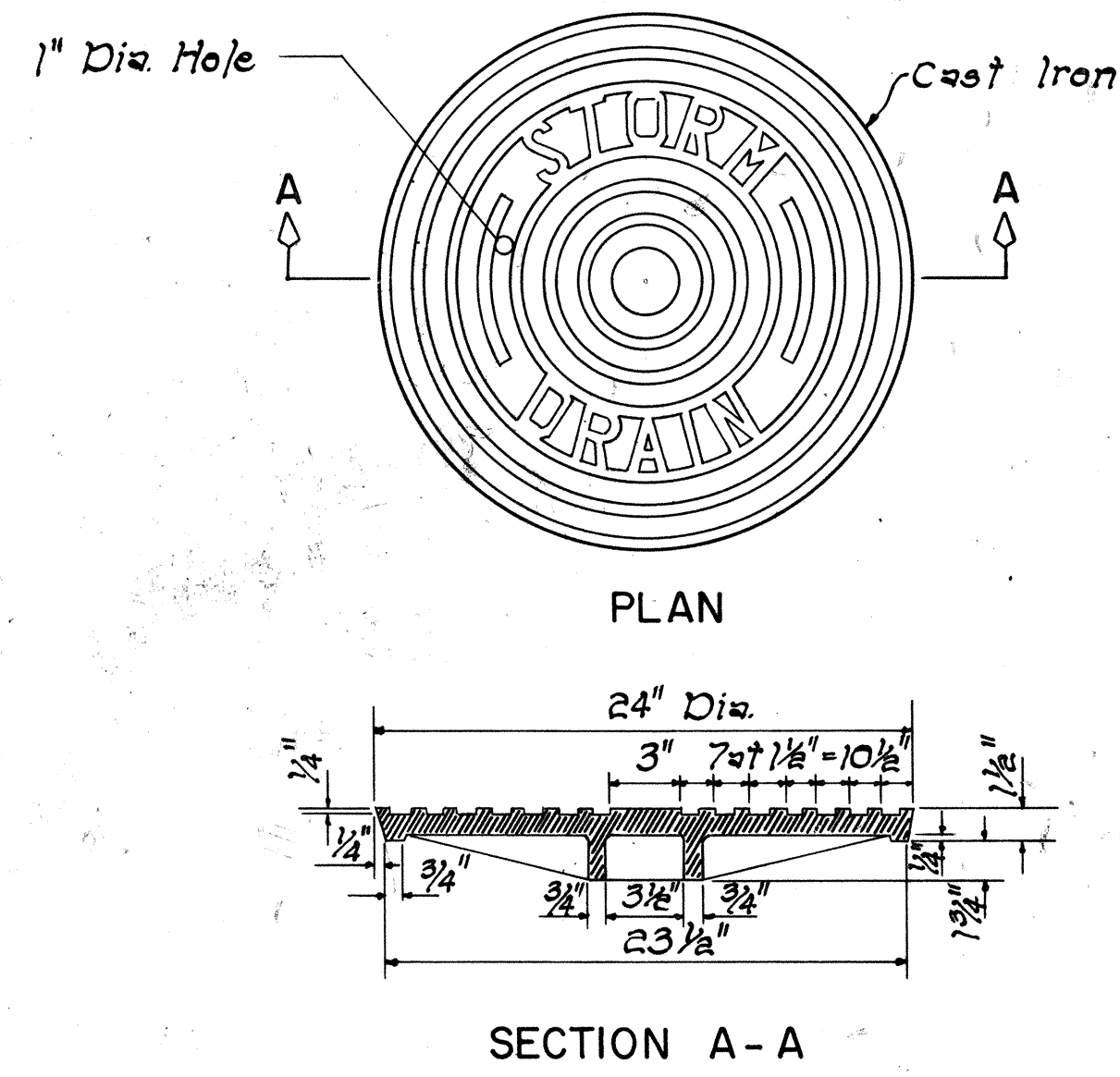
TYPE C C.I. FRAME AND GRATE

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



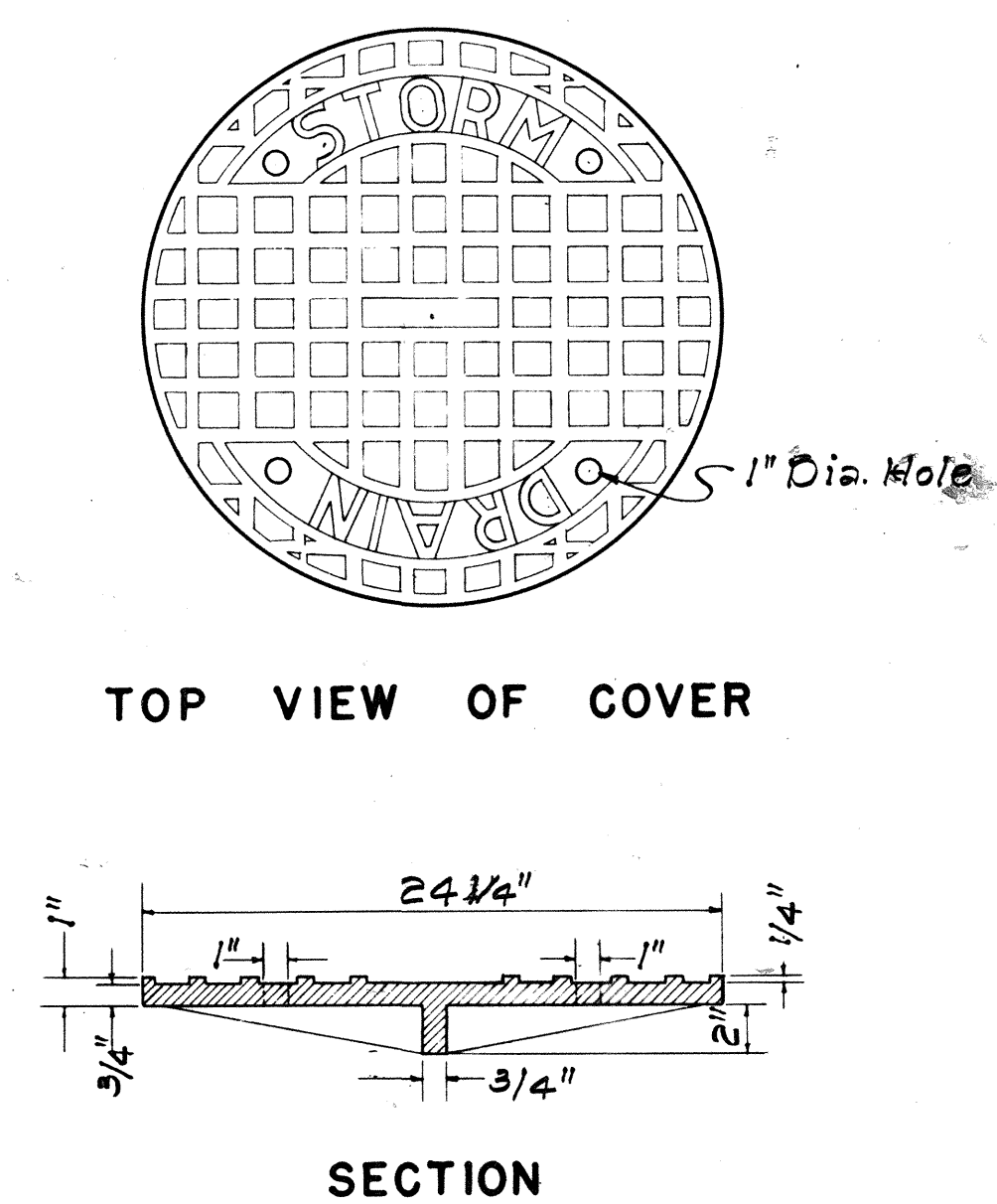
SECTION "A-A"

SCALE 3"=1'-0"



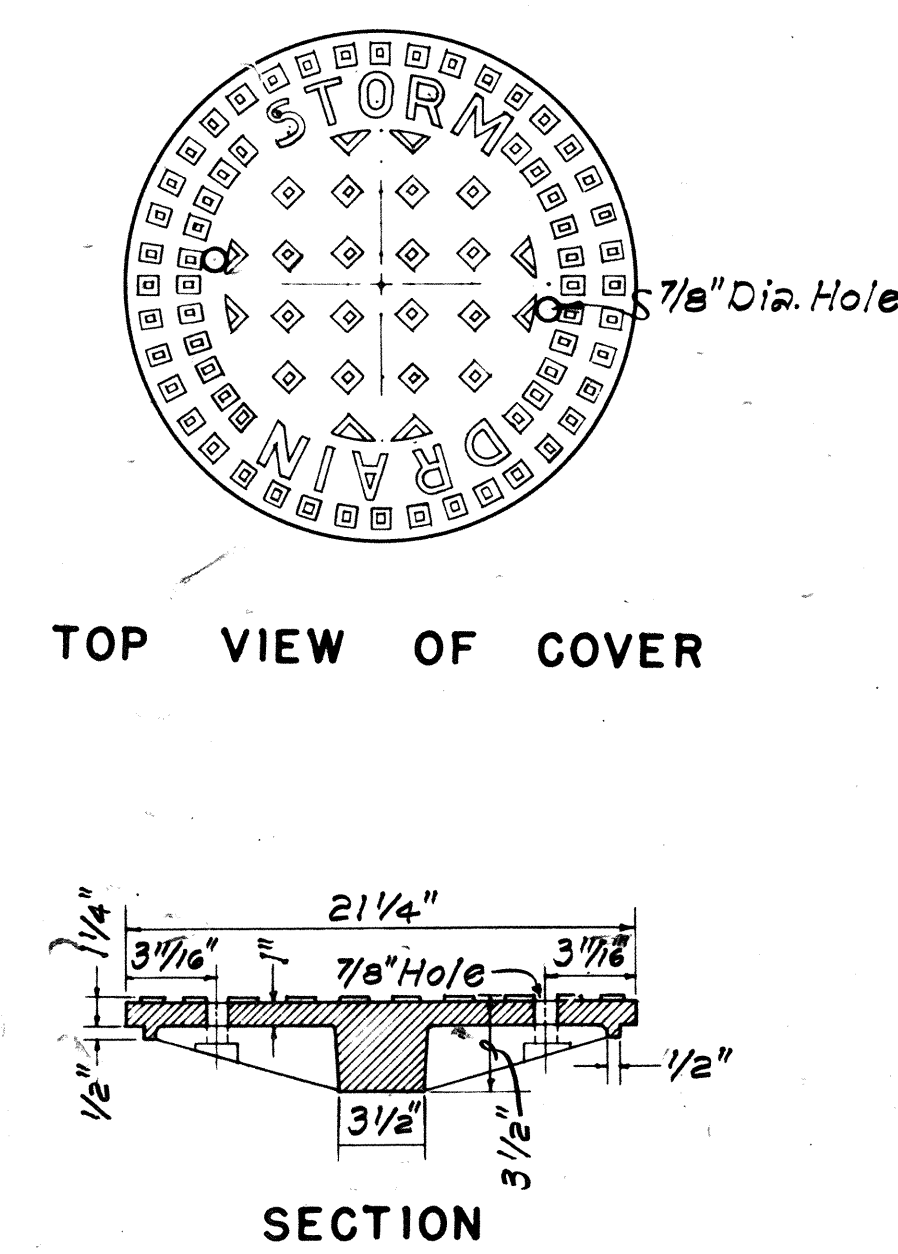
PLAN

SECTION A-A



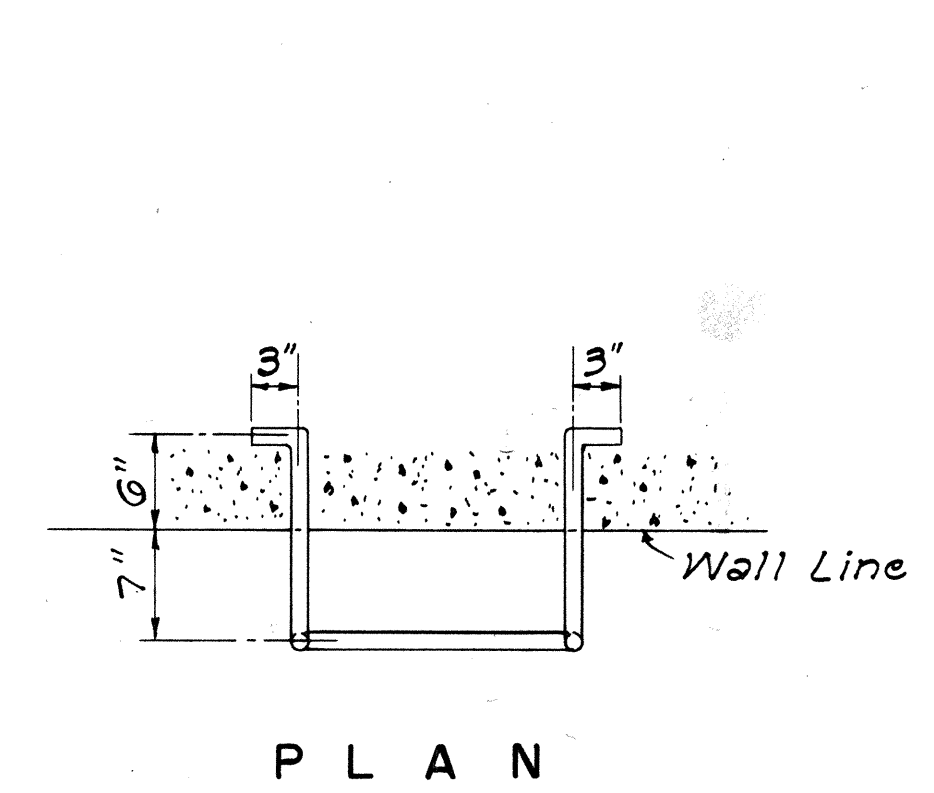
TOP VIEW OF COVER

SECTION



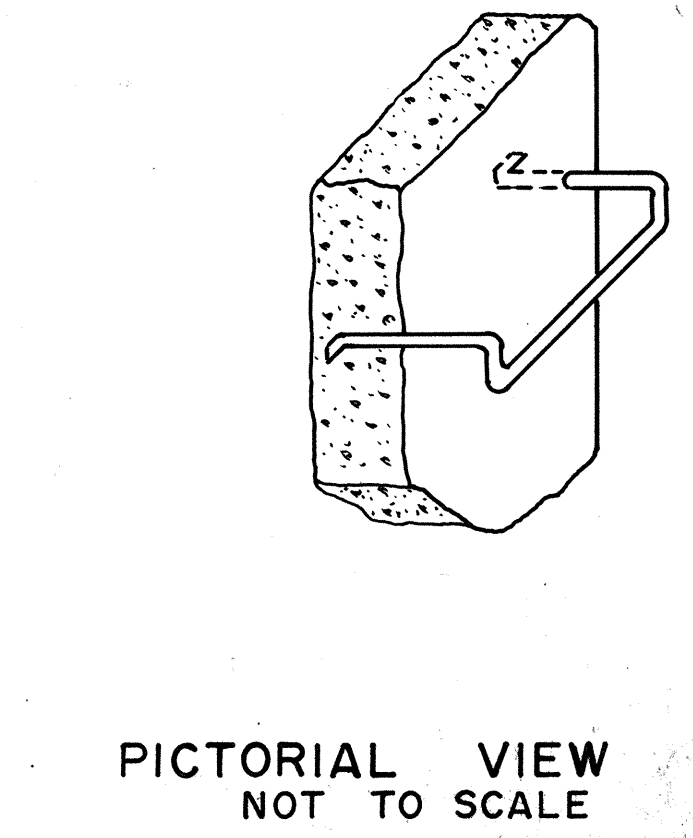
TOP VIEW OF COVER

SECTION



PLAN

FRONT VIEW



PICTORIAL VIEW

NOT TO SCALE

DETAILS OF MANHOLE RUNG

SCALE: 1"=1'-0"

DATE	12-17-69
DESIGNED BY	W. J. Calisto
DRAWN BY	W. J. Calisto
CHECKED BY	W. J. Calisto
NO.	1

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

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

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

NO.	REVISION	APPROVED BY	DATE
1.	Detail of Type "P" Cast Iron Frame and Cover	H.T.	1-6-71
2.	Details of Manhole Rungs to conform to OSHA.	H.T.	1-21-75
3.	Option for Manhole Rungs	H.T.	1-13-76

APPROVAL RECOMMENDED:	12-17-69
HYDRAULIC DESIGN ENGINEER	DATE
APPROVED:	12-17-69
ASSISTANT CHIEF, ENGINEERING	DATE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
STANDARD DETAILS CATCH BASIN AND MANHOLE CASTINGS
Scale: As Noted
Date: July, 1969
SHEET NO. 14 OF 14 SHEETS