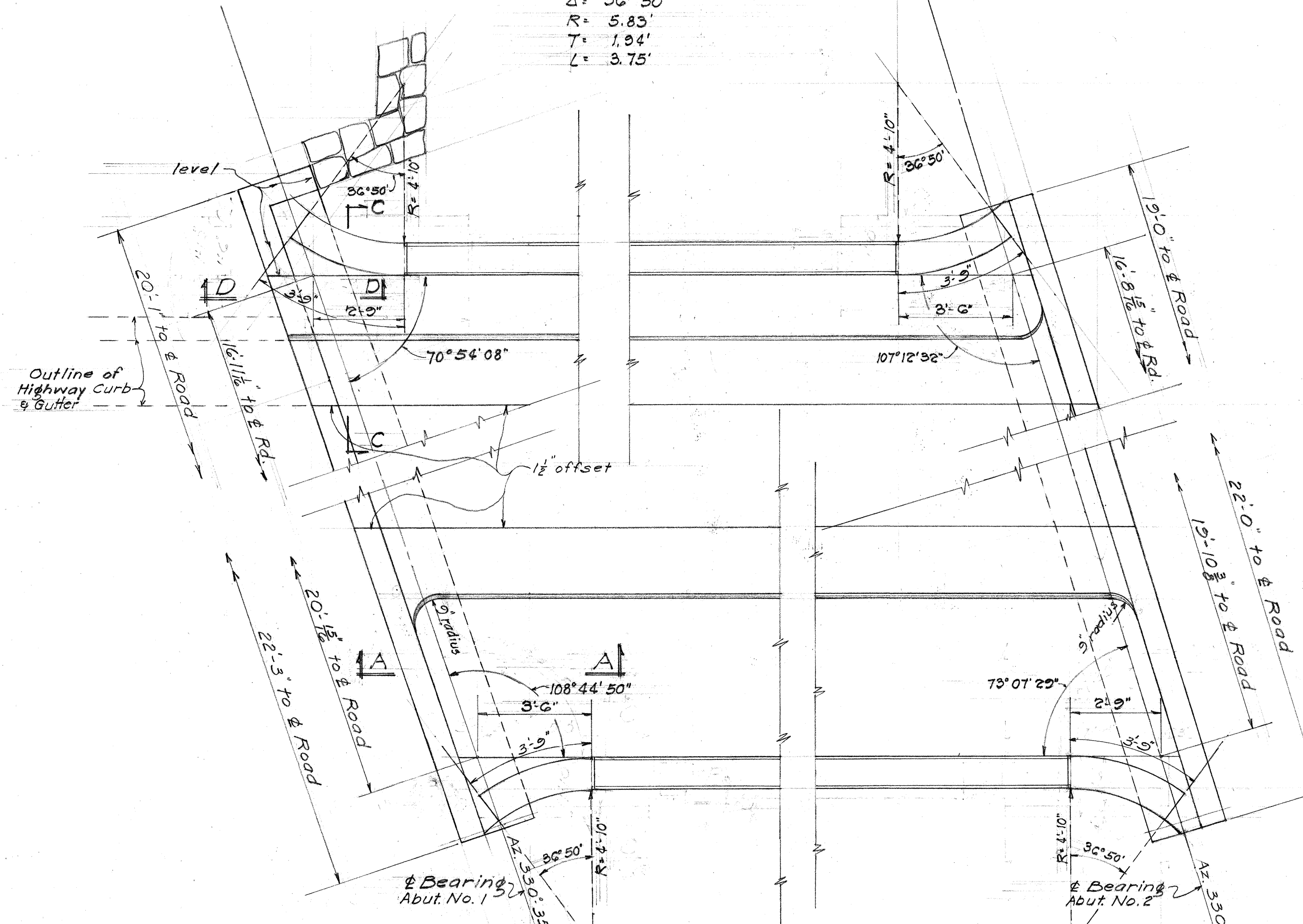


See Shts. #3 and #4
for tip elevations.

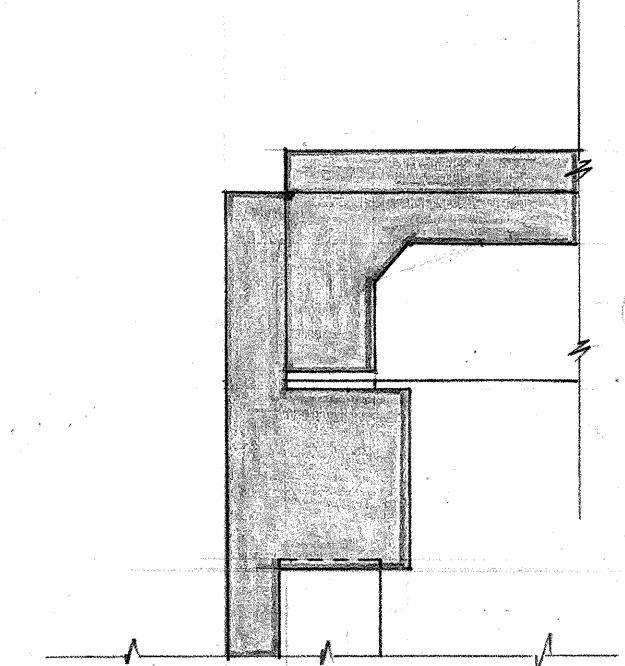
RAILING CURVE DATA

Along Inside Face
 $\Delta = 36^\circ 50'$
 $R = 5.83'$
 $T = 1.04'$
 $L = 3.75'$

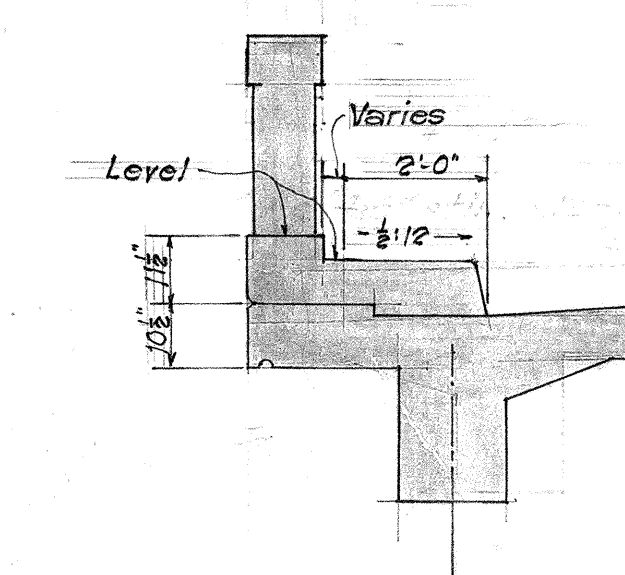


PLAN-END POST DETAIL
 Scale: $\frac{3}{8}'' = 1'-0''$

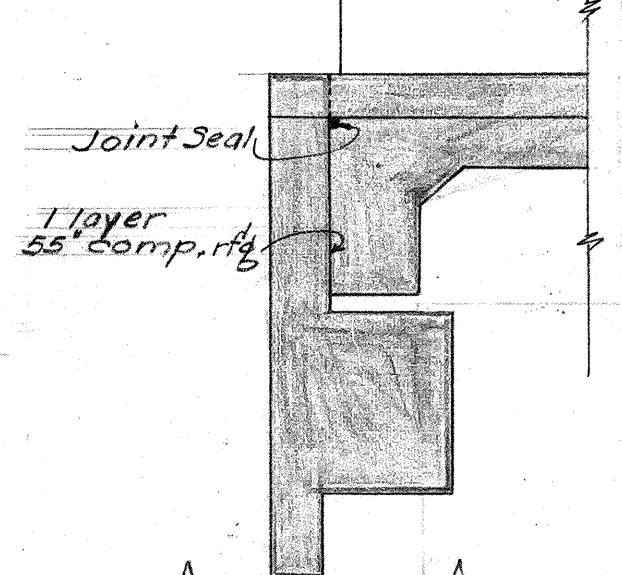
NOTE:
 For more End Post details
 and reinf. see sht. 5 of 5



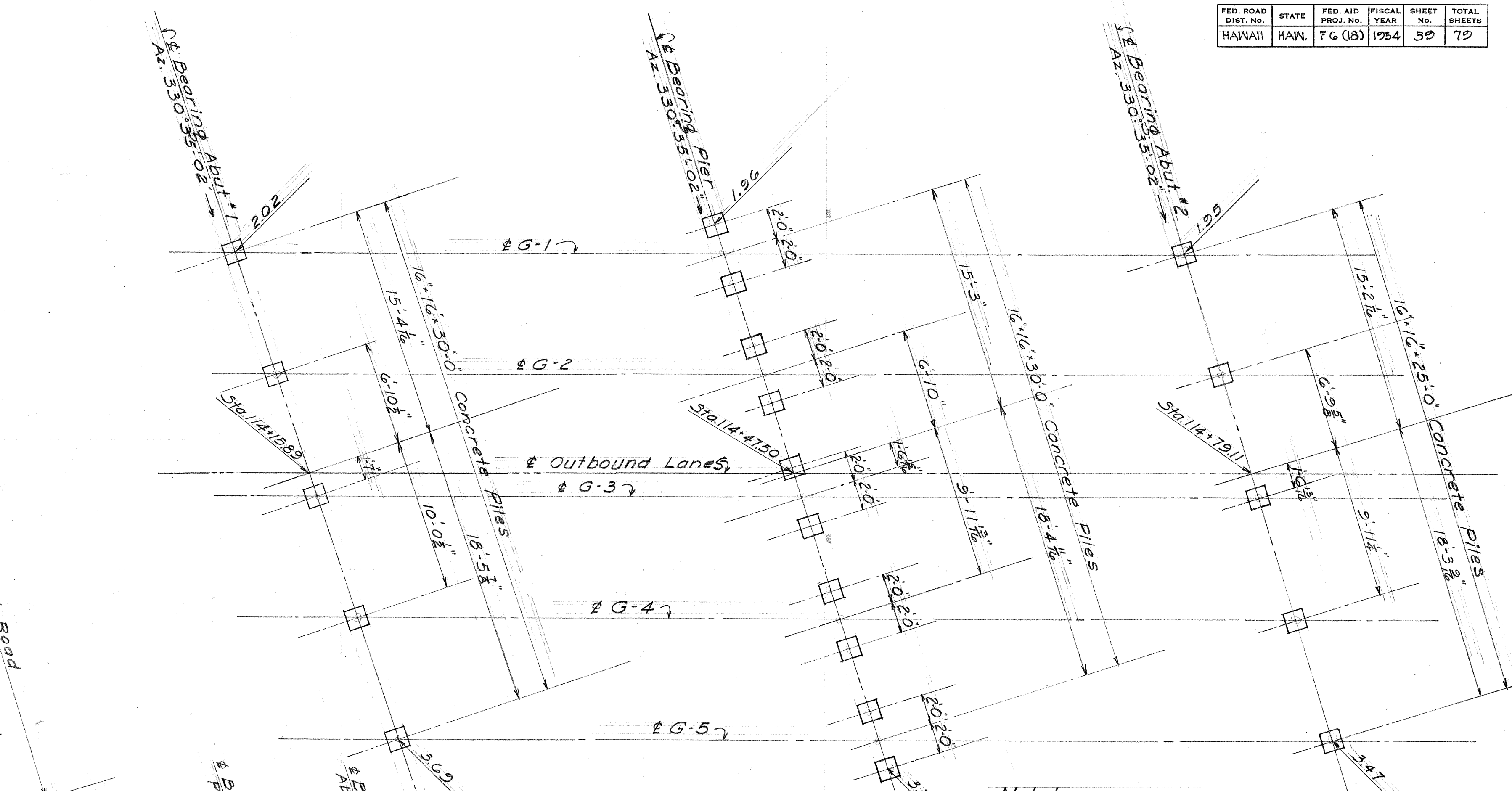
SECTION A-A
 Scale: $\frac{3}{8}'' = 1'-0''$



SECTION C-C
 Scale: $\frac{3}{8}'' = 1'-0''$

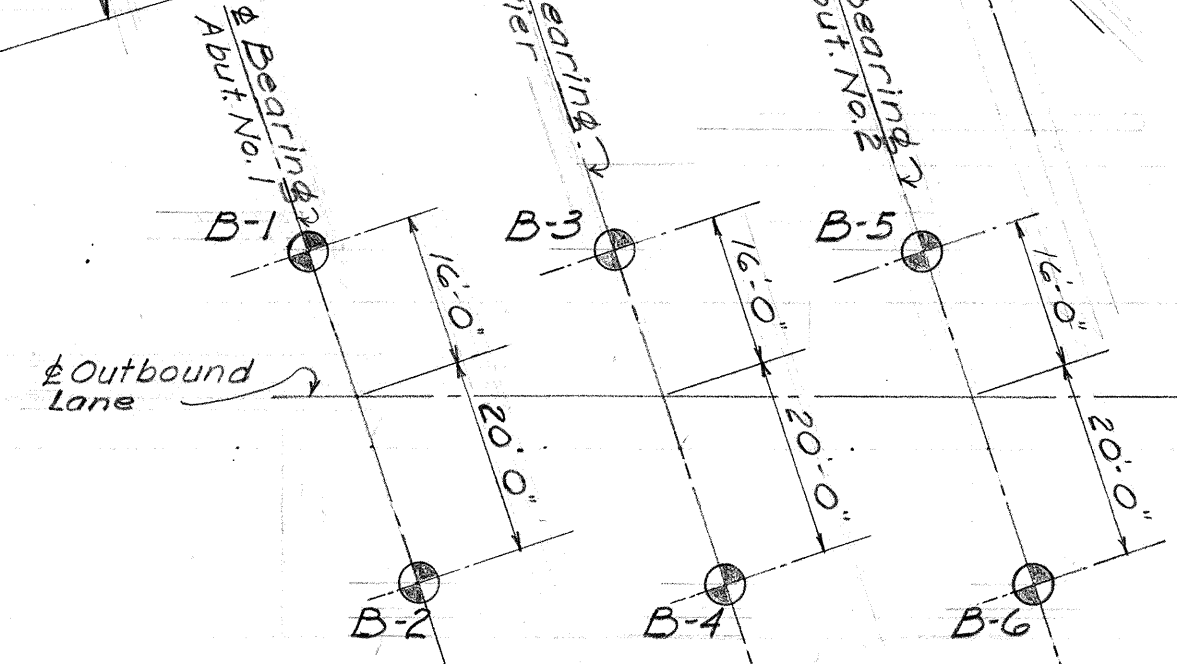


SECTION D-D
 Scale: $\frac{3}{8}'' = 1'-0''$

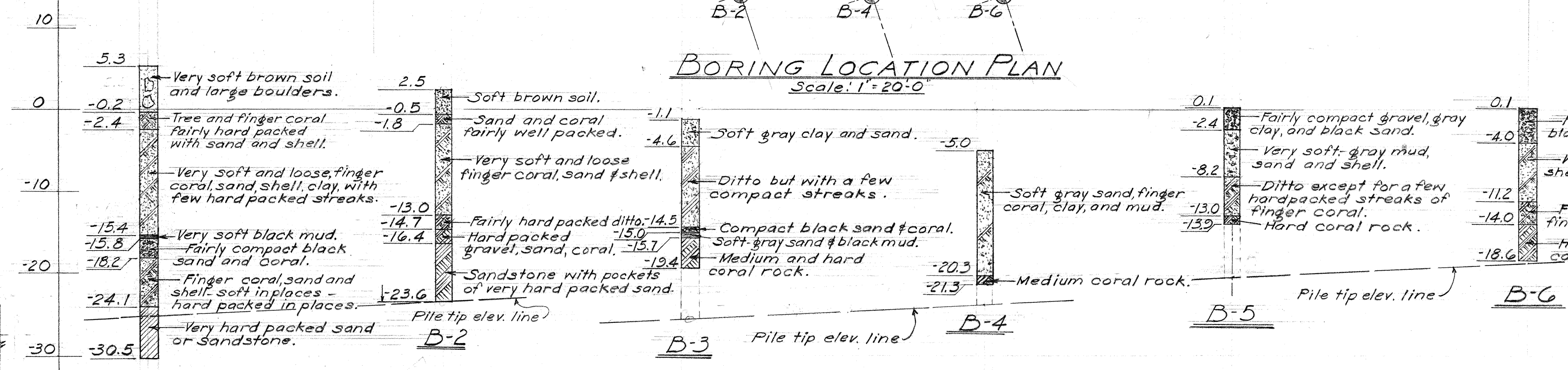


PILE LAYOUT PLAN
 Scale: $\frac{1}{16}'' = 1'-0''$

Note:
 All elevations shown are
 pile cut-off elevations.



BORING LOCATION PLAN
 Scale: $1'' = 20'-0''$



BORING DATA
 Scale: $1'' = 10'-0''$

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII

WAILUPE BRIDGE

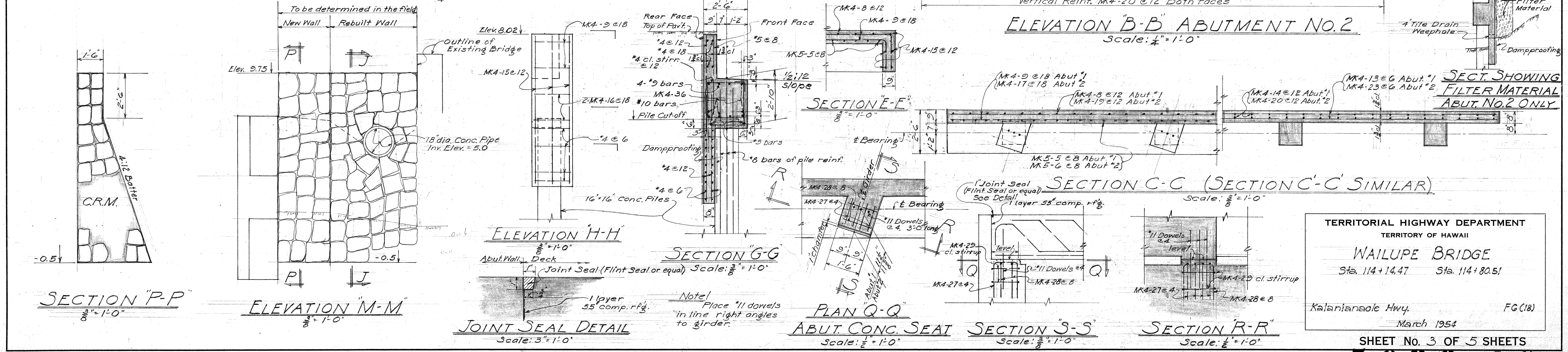
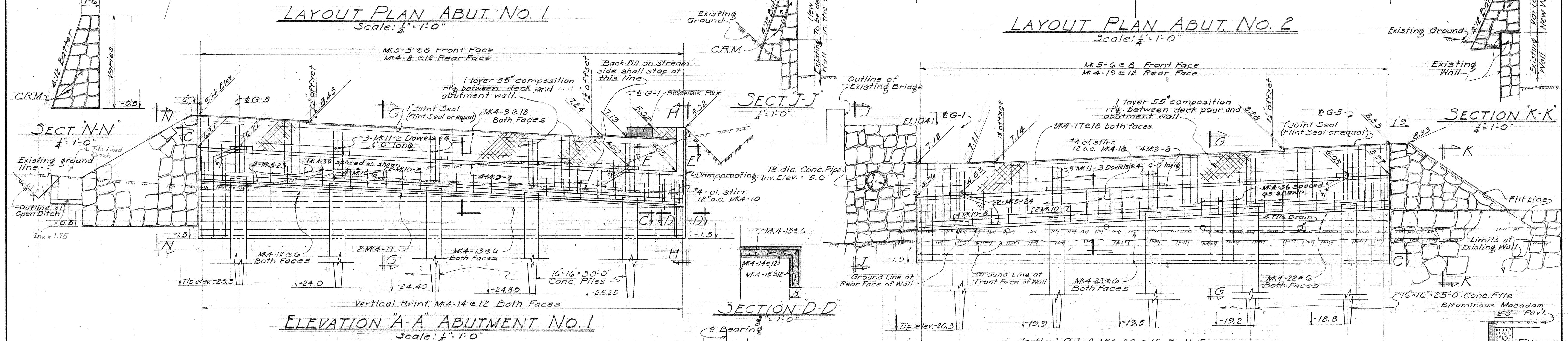
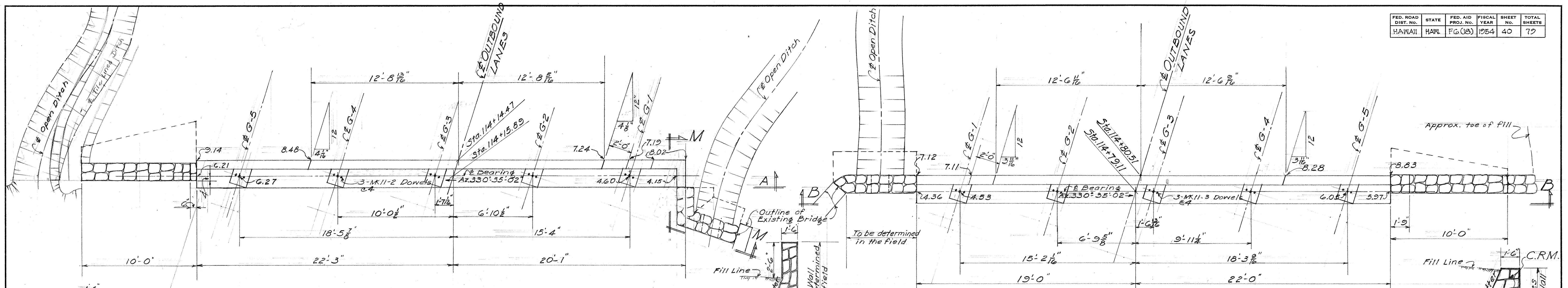
Sta. 114+14.47 ~ Sta. 114+80.51

Kalaniana'ole Hwy. March 1954 FG (18)

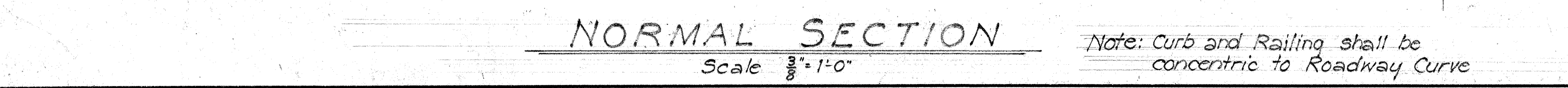
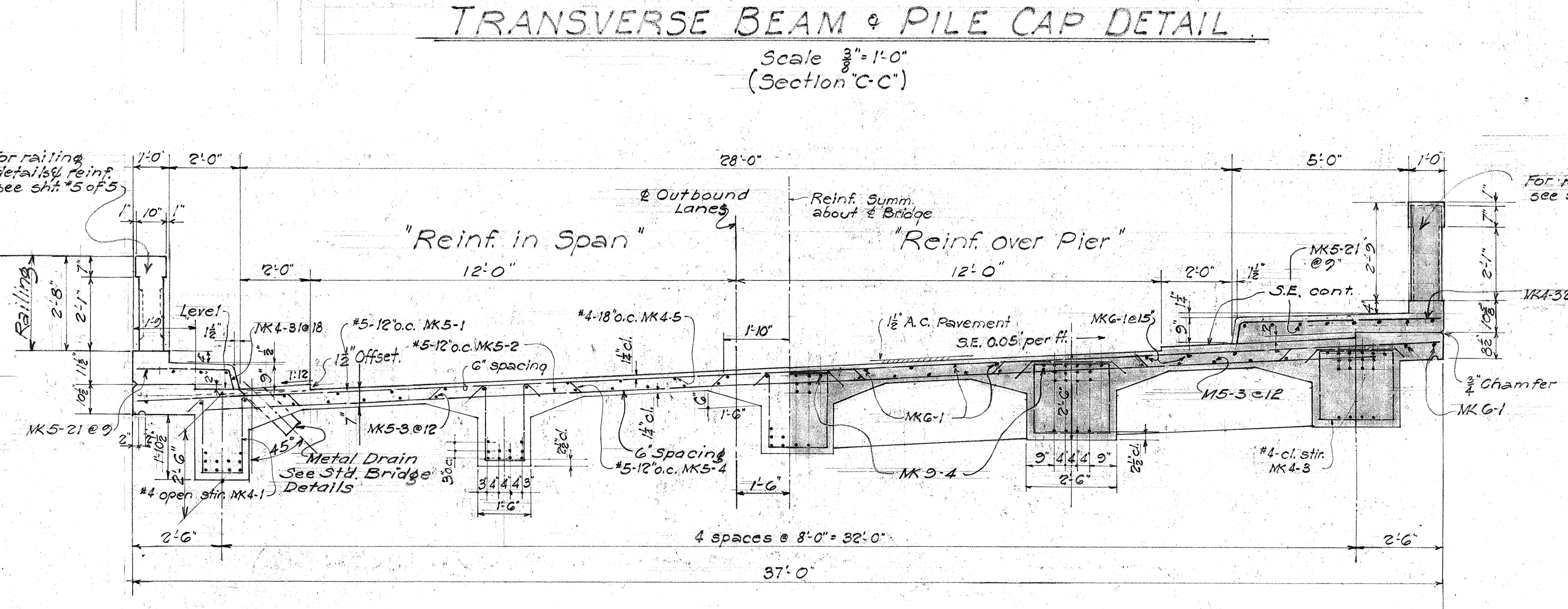
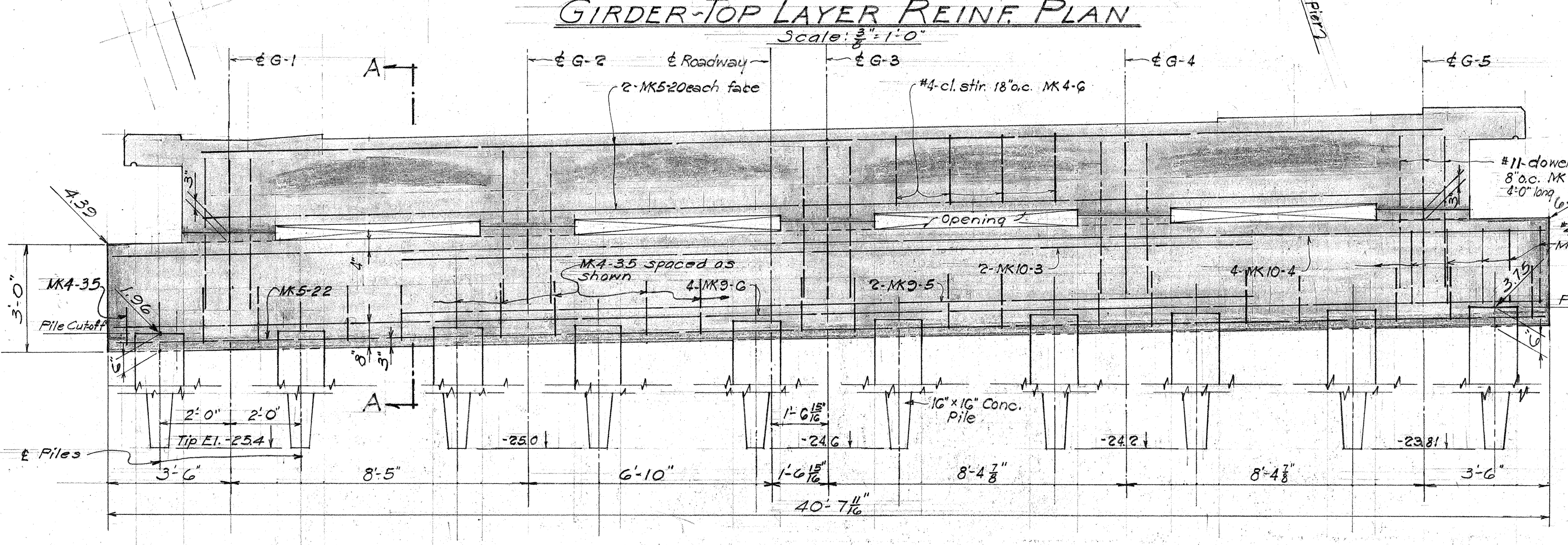
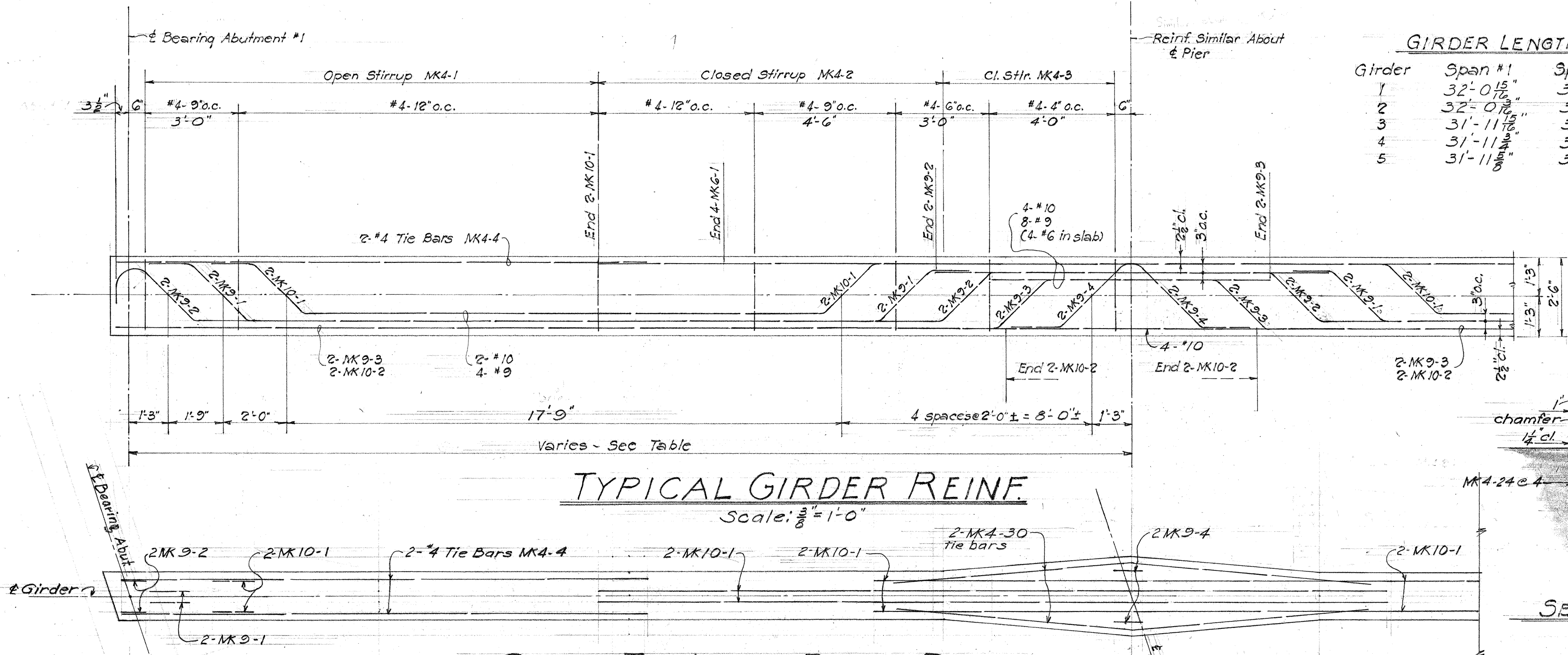
SHEET NO. 2 OF 5 SHEETS

5686.39

DATE: _____
 SURVEY PLOTTED BY: _____
 DESIGNED BY: _____
 DRAWN BY: _____
 QUANTITIES BY: _____
 NOTE BOOK NO. _____
 CHECKED BY: _____

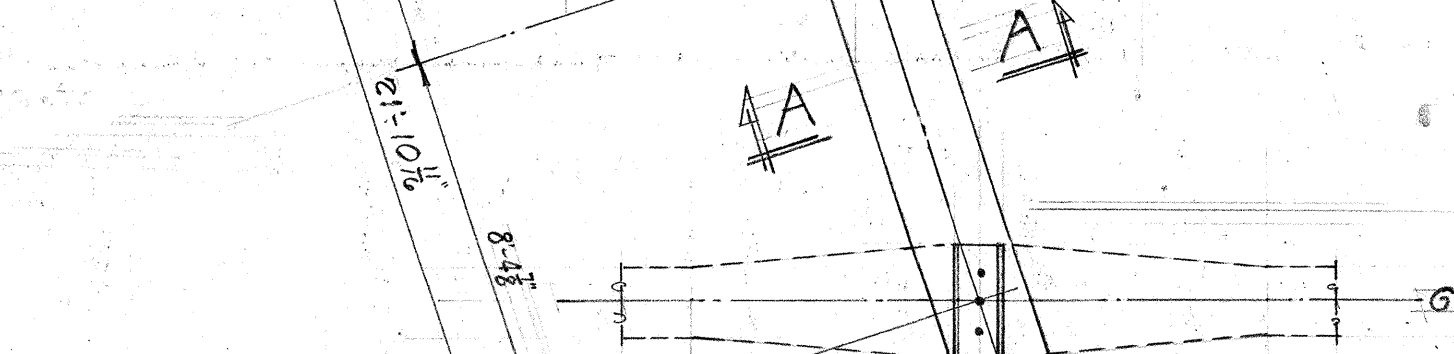
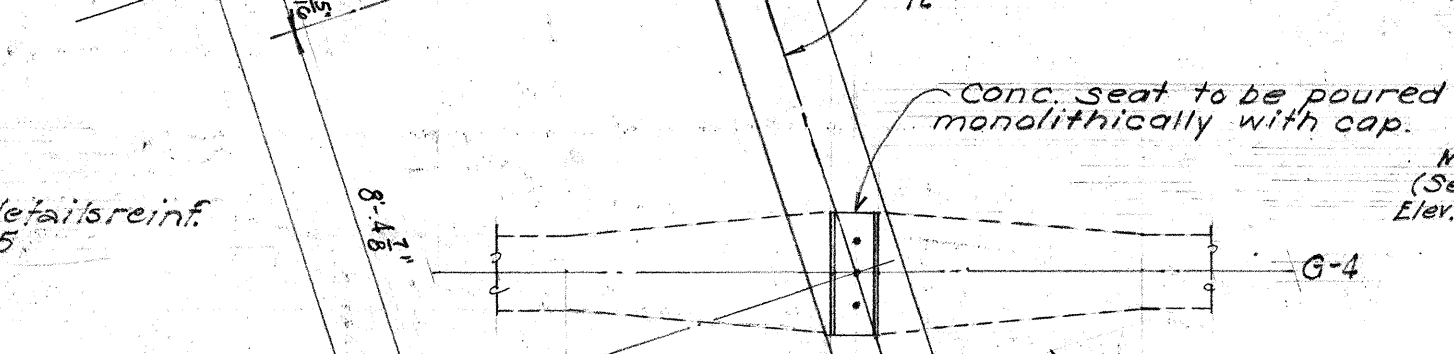
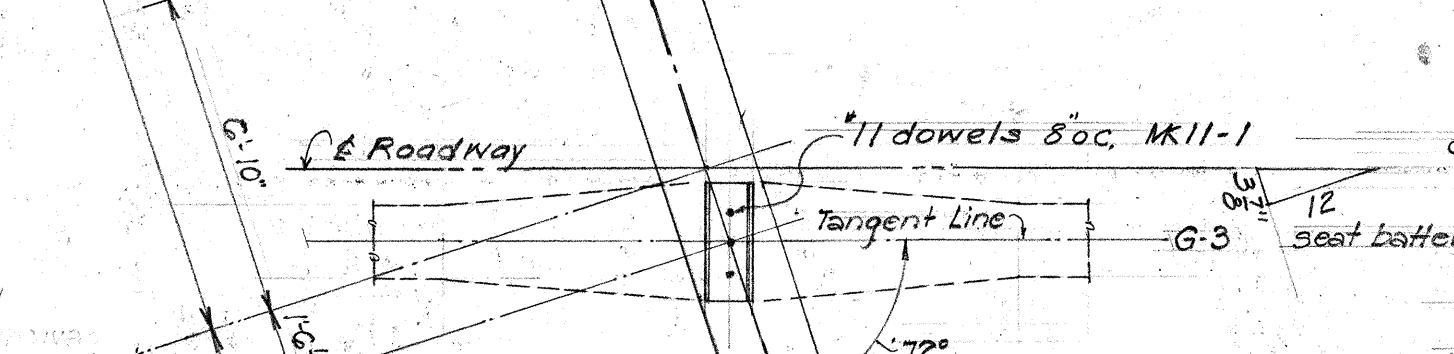
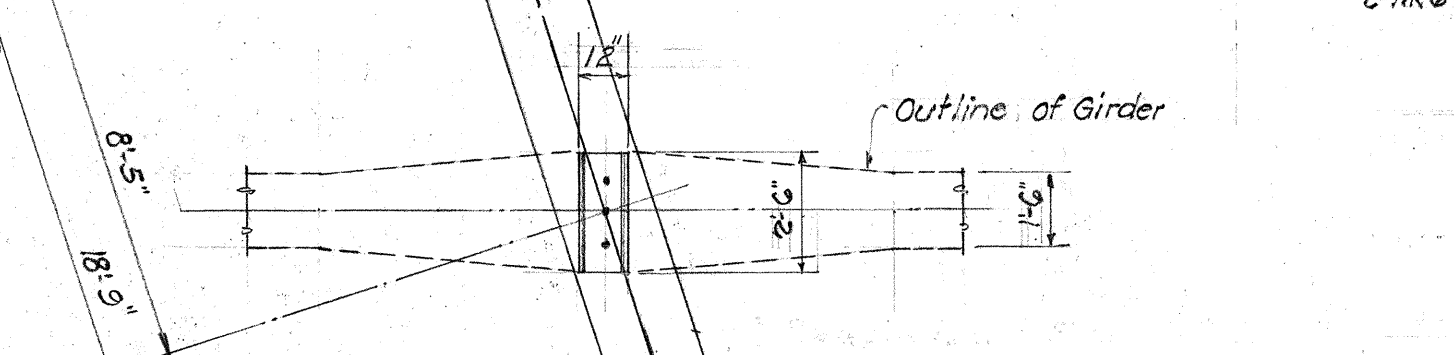
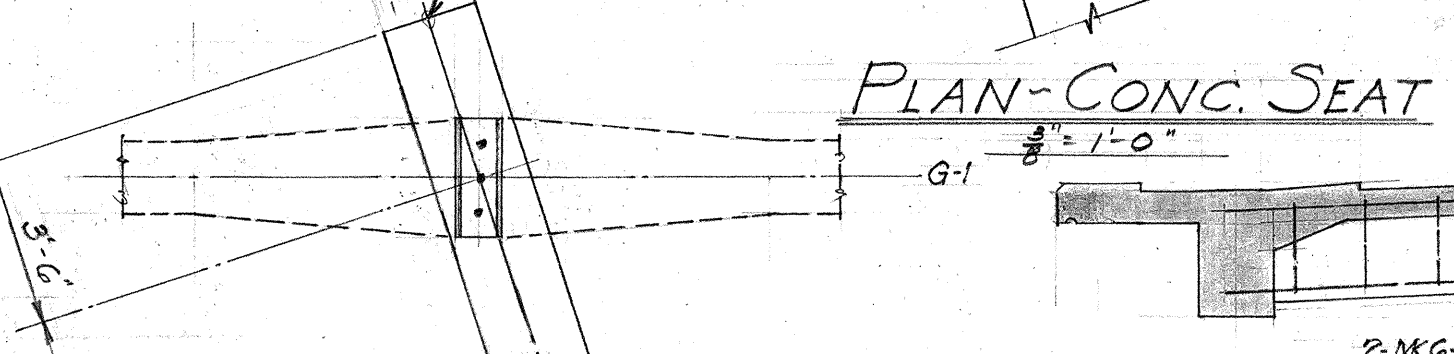
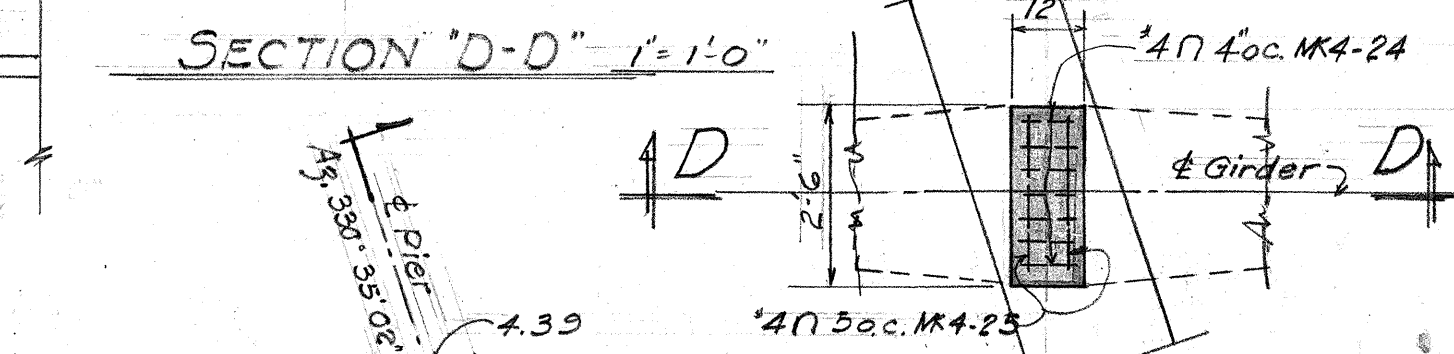
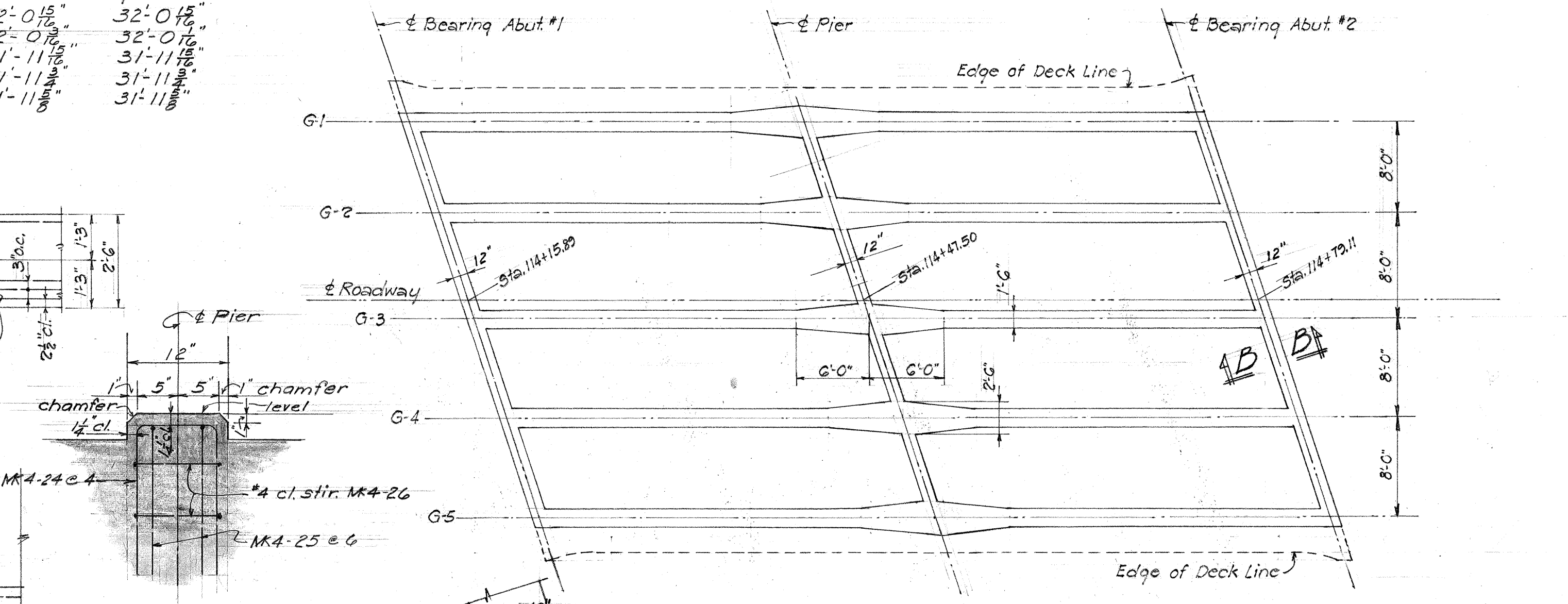


TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
WAILUPE BRIDGE
Sta. 114+14.47 Sta. 114+80.51
Kalanianaʻoolle Hwy. FG (18)
March 1954

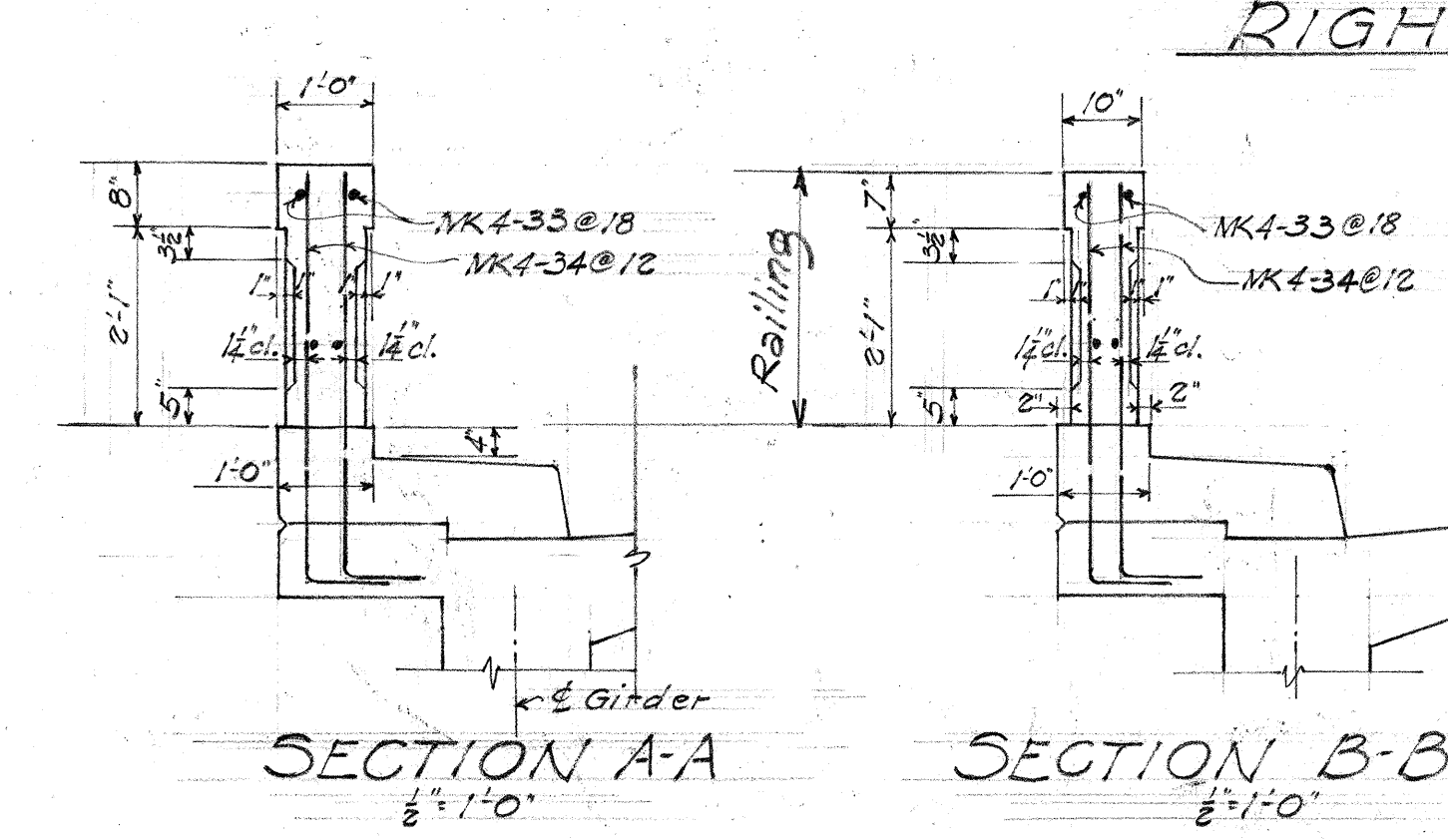
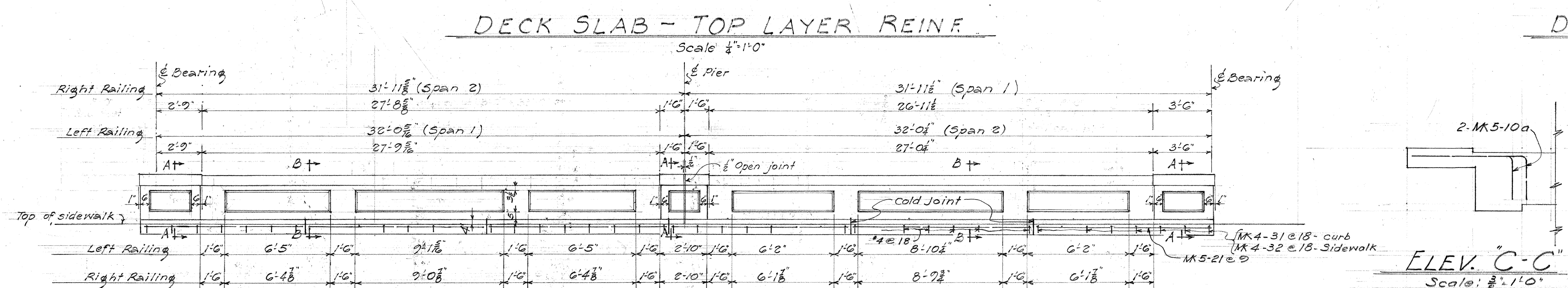
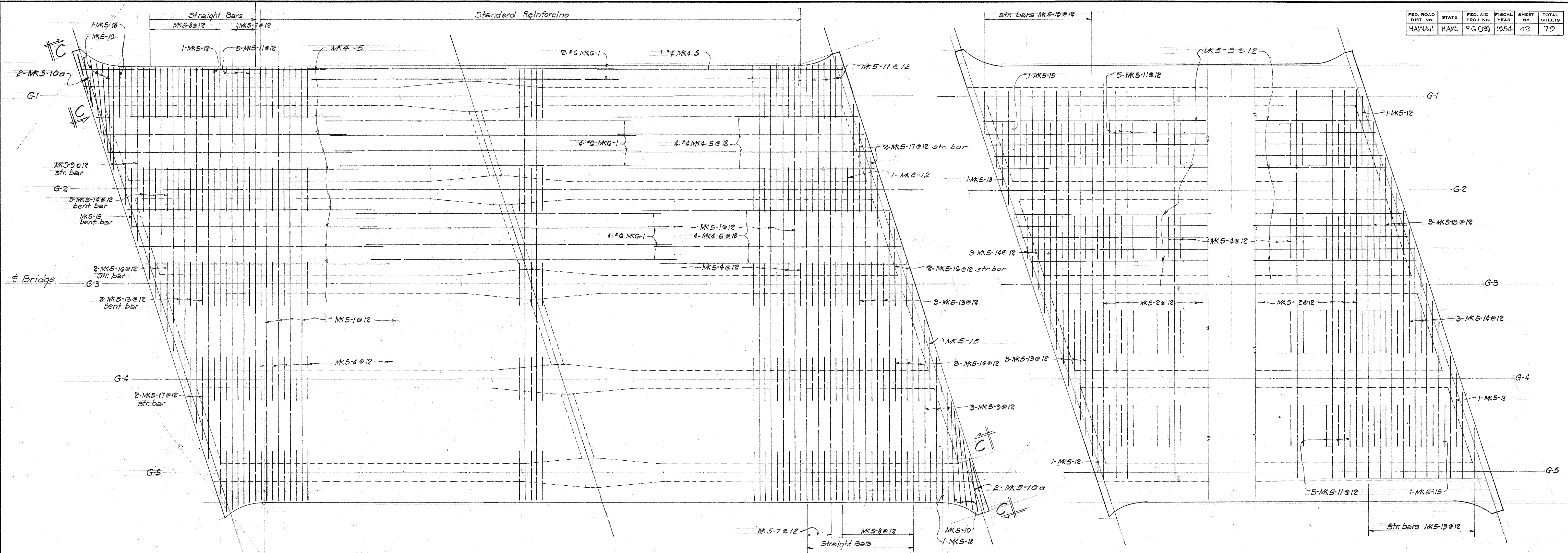


GIRDER LENGTHS

Girder	Span #1	Span #2
1	32'-0 $\frac{1}{2}$ "	32'-0 $\frac{1}{2}$ "
2	32'-0 $\frac{1}{2}$ "	32'-0 $\frac{1}{2}$ "
3	31'-11 $\frac{1}{2}$ "	31'-11 $\frac{1}{2}$ "
4	31'-11 $\frac{1}{2}$ "	31'-11 $\frac{1}{2}$ "
5	31'-11 $\frac{1}{2}$ "	31'-11 $\frac{1}{2}$ "



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FG (18)	1954	42	72



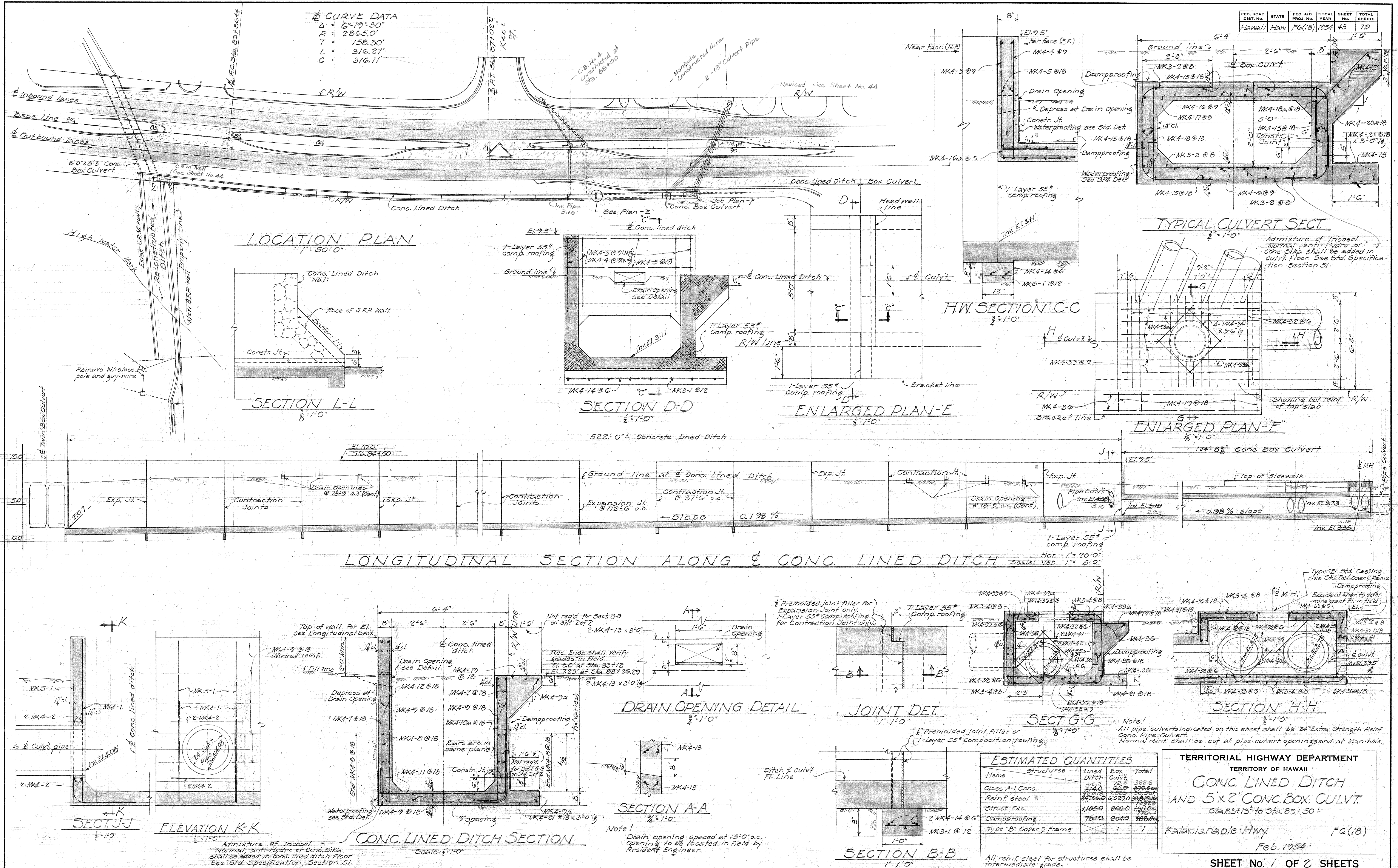
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
WAILUPE BRIDGE
Sta. 114+14.47 ~ Sta. 114+80.51
Kalanian'ole Hwy. FG (18)
March 1954

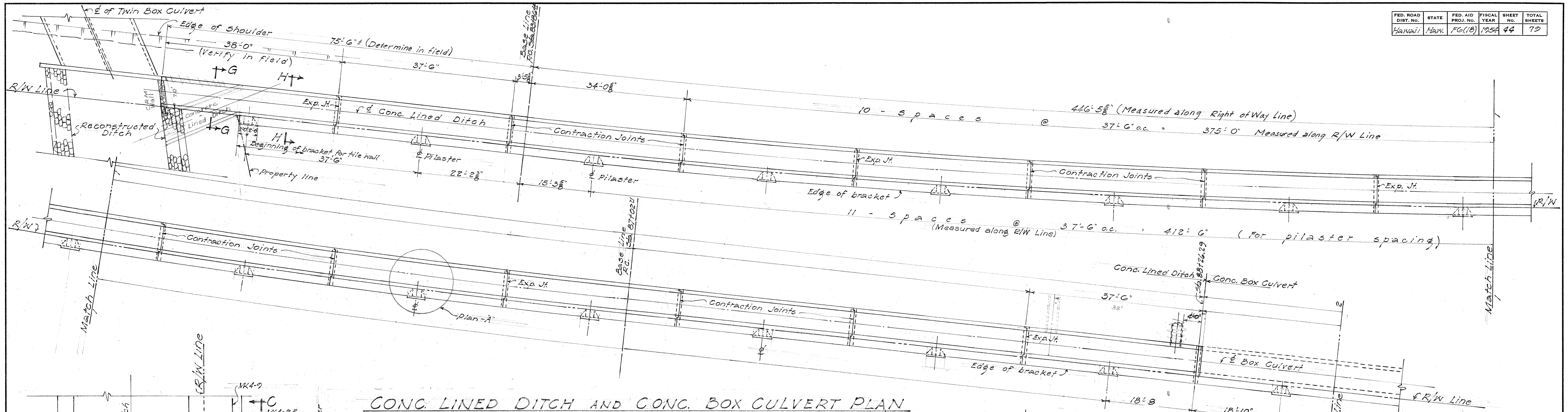
SHEET NO. 5 OF 5 SHEETS

5686.42

DATE:
SURVEY PLOTTED BY:
DESIGNED BY:
DRAWN BY:
NOTE BOOK:
QUANTITIES CHECKED BY:
NO.

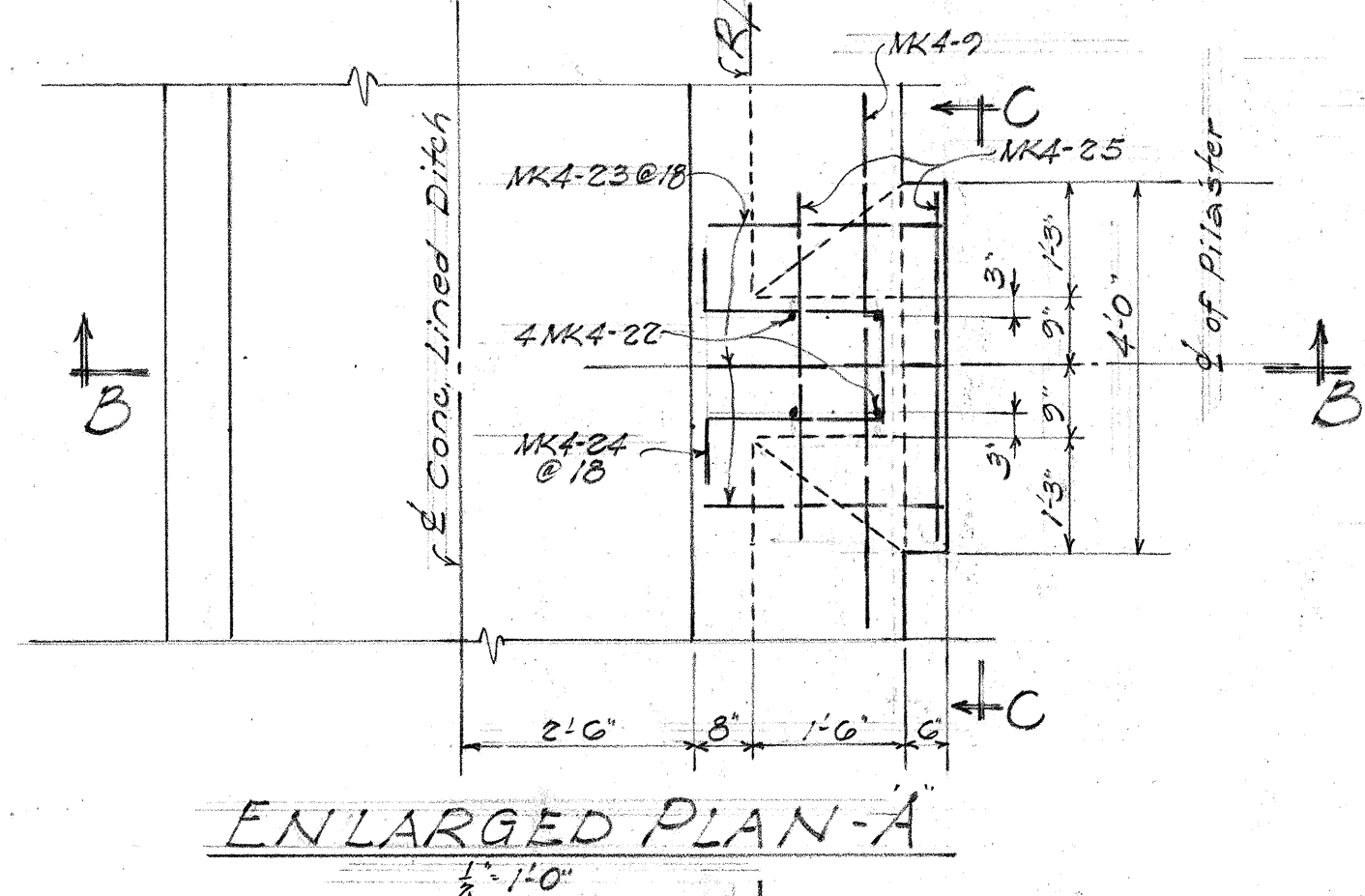
FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
Hawaii	Haw.	FG(18)	1954	43	79



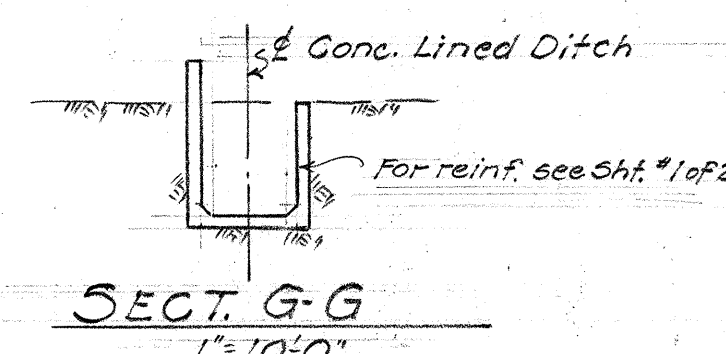


CONC. LINED DITCH AND CONC. BOX CULVERT PLAN

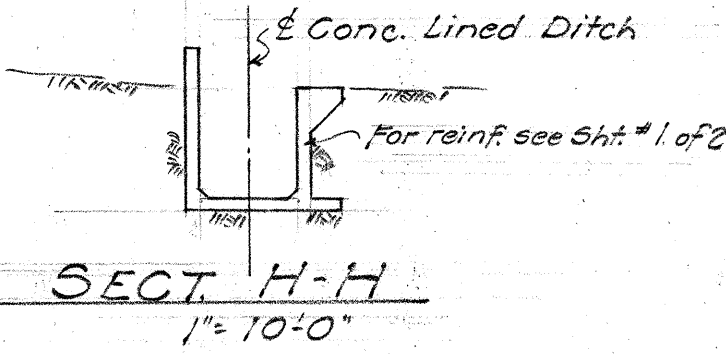
Scale: 1"=10'-0"



ENLARGED PLAN-A
1/2"=1'-0"

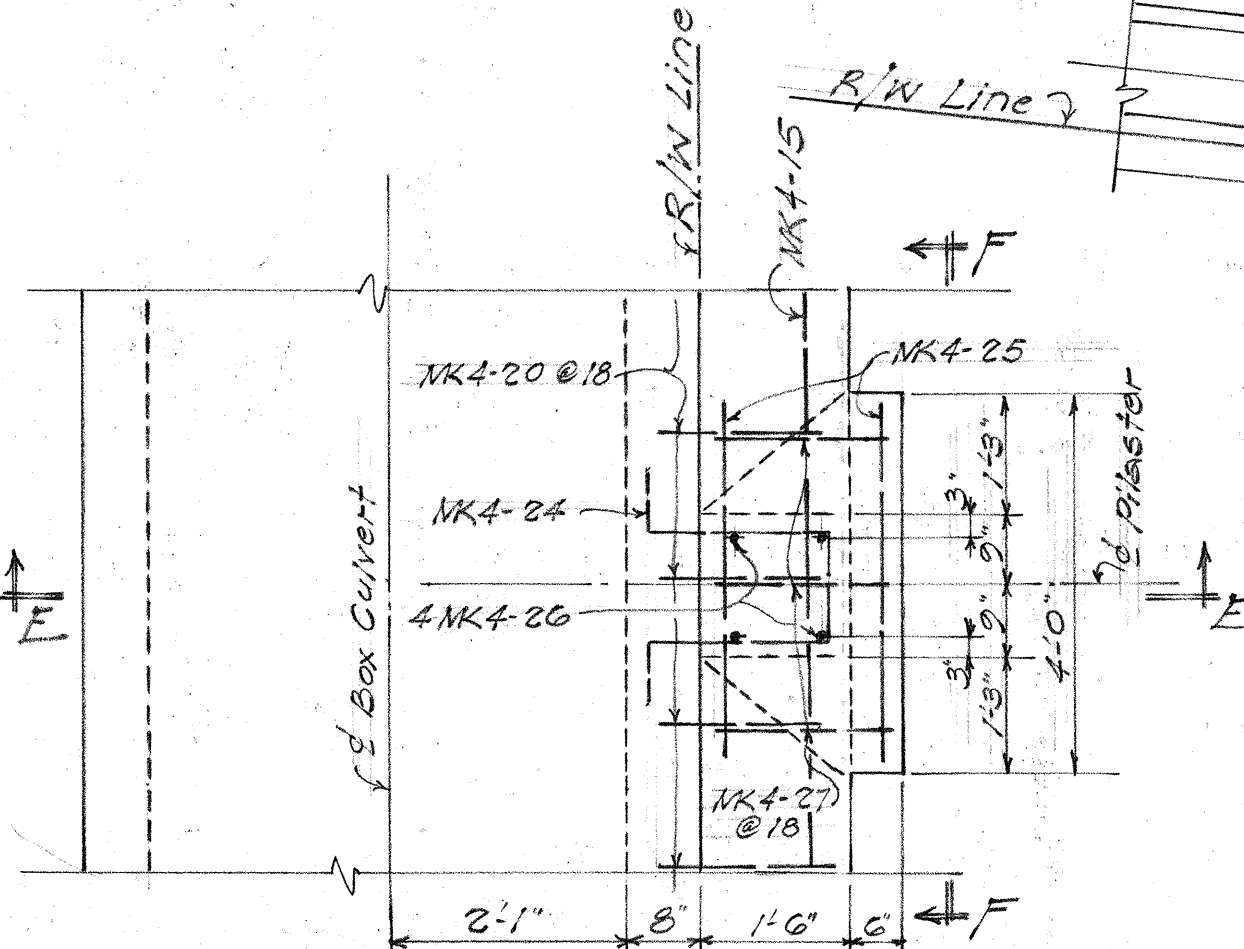


SECT. G-G
1"=10'-0"

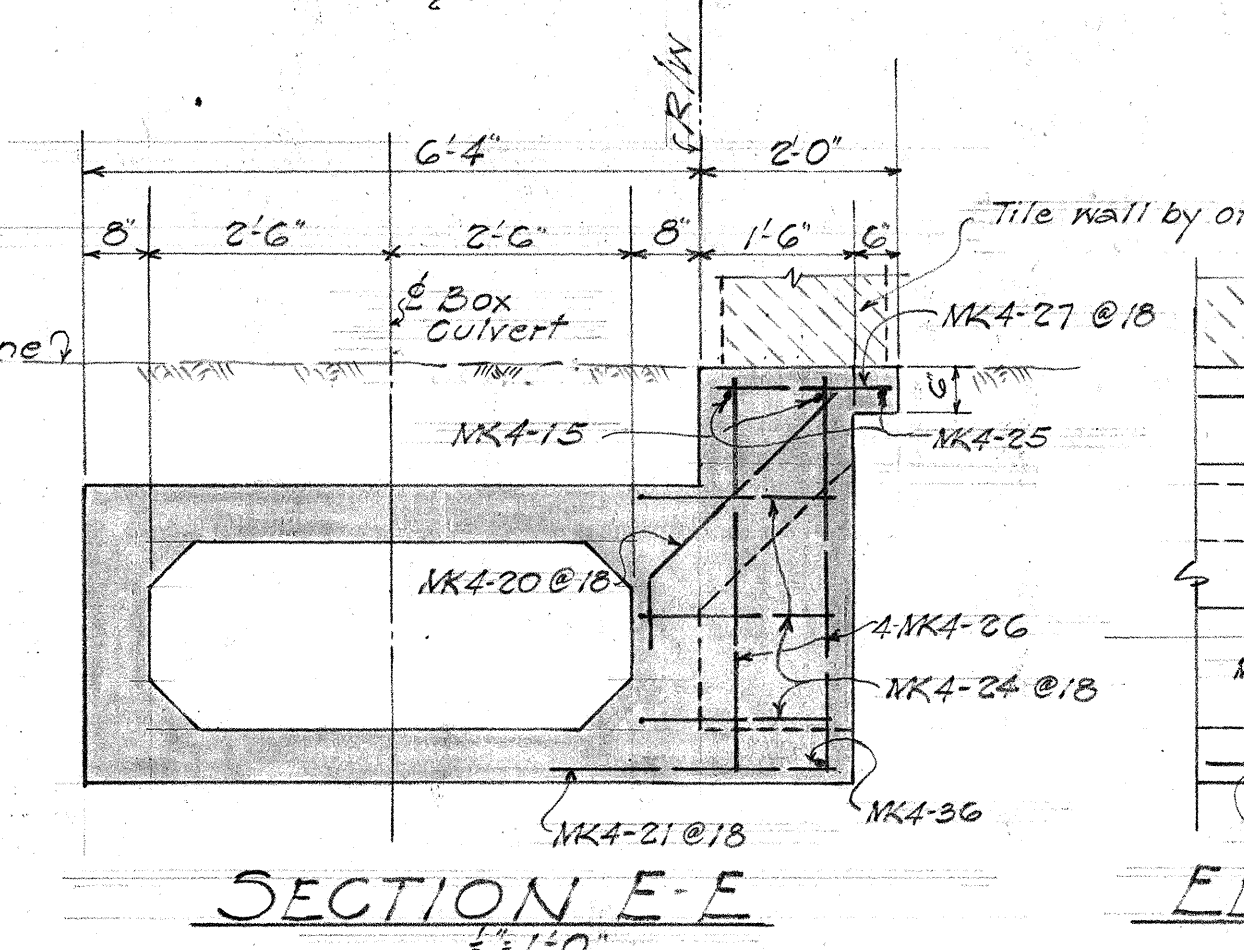


SECT. H-H
1"=10'-0"

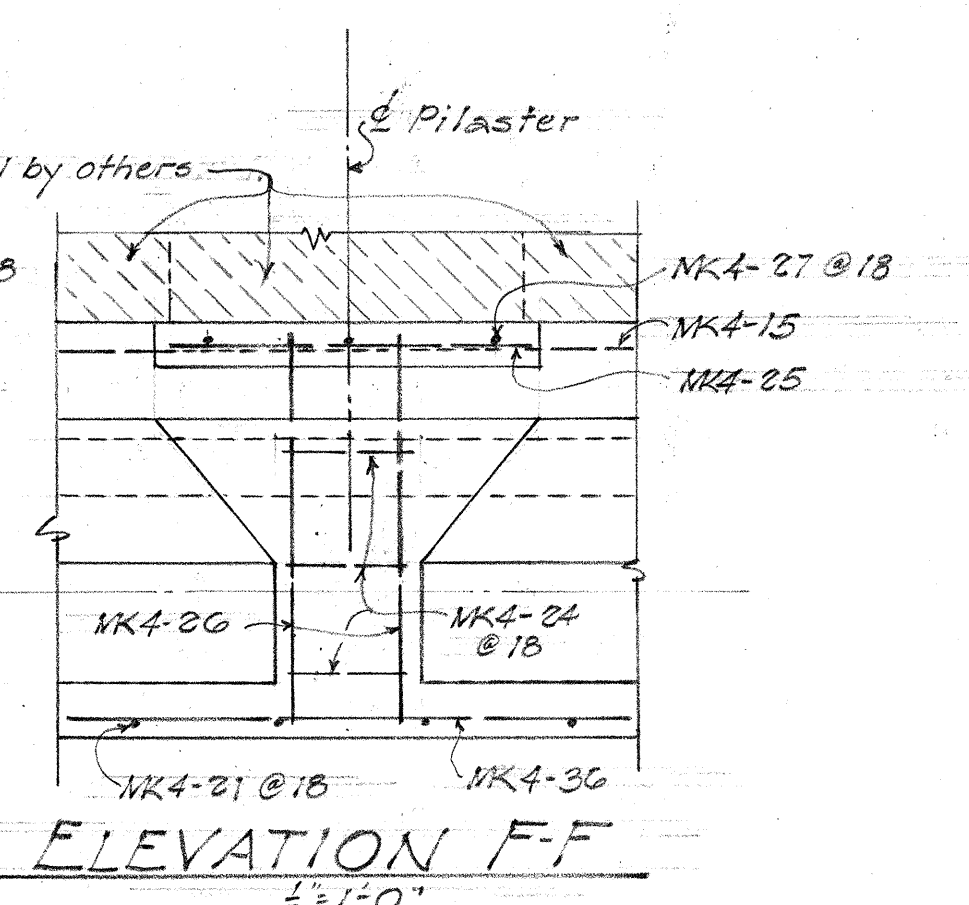
(Typical Section of Conc. Lined Ditch Where bracket for tile wall is provided)



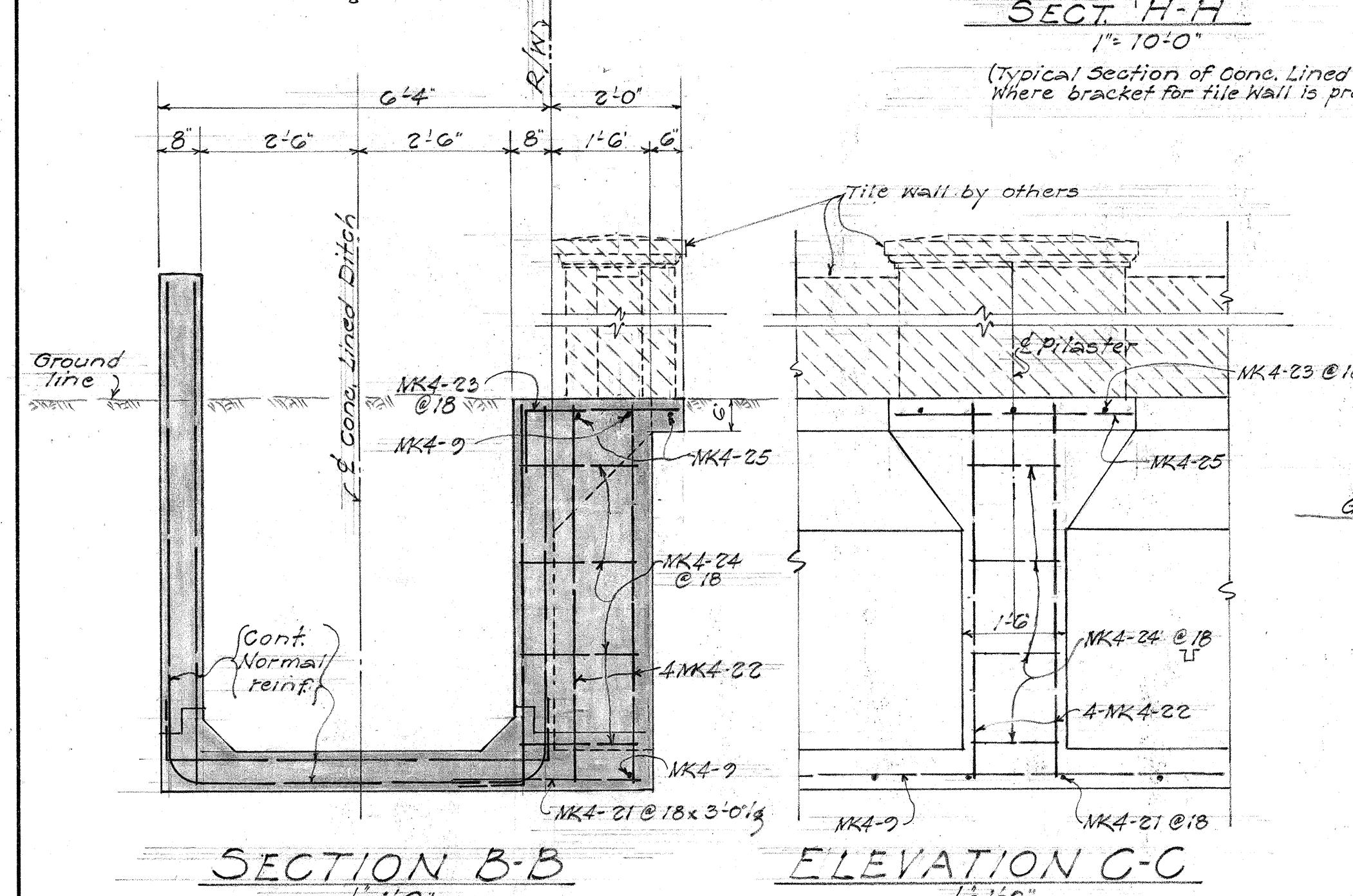
ENLARGED PLAN-D
1/2"=1'-0"



SECTION E-E
1/2"=1'-0"



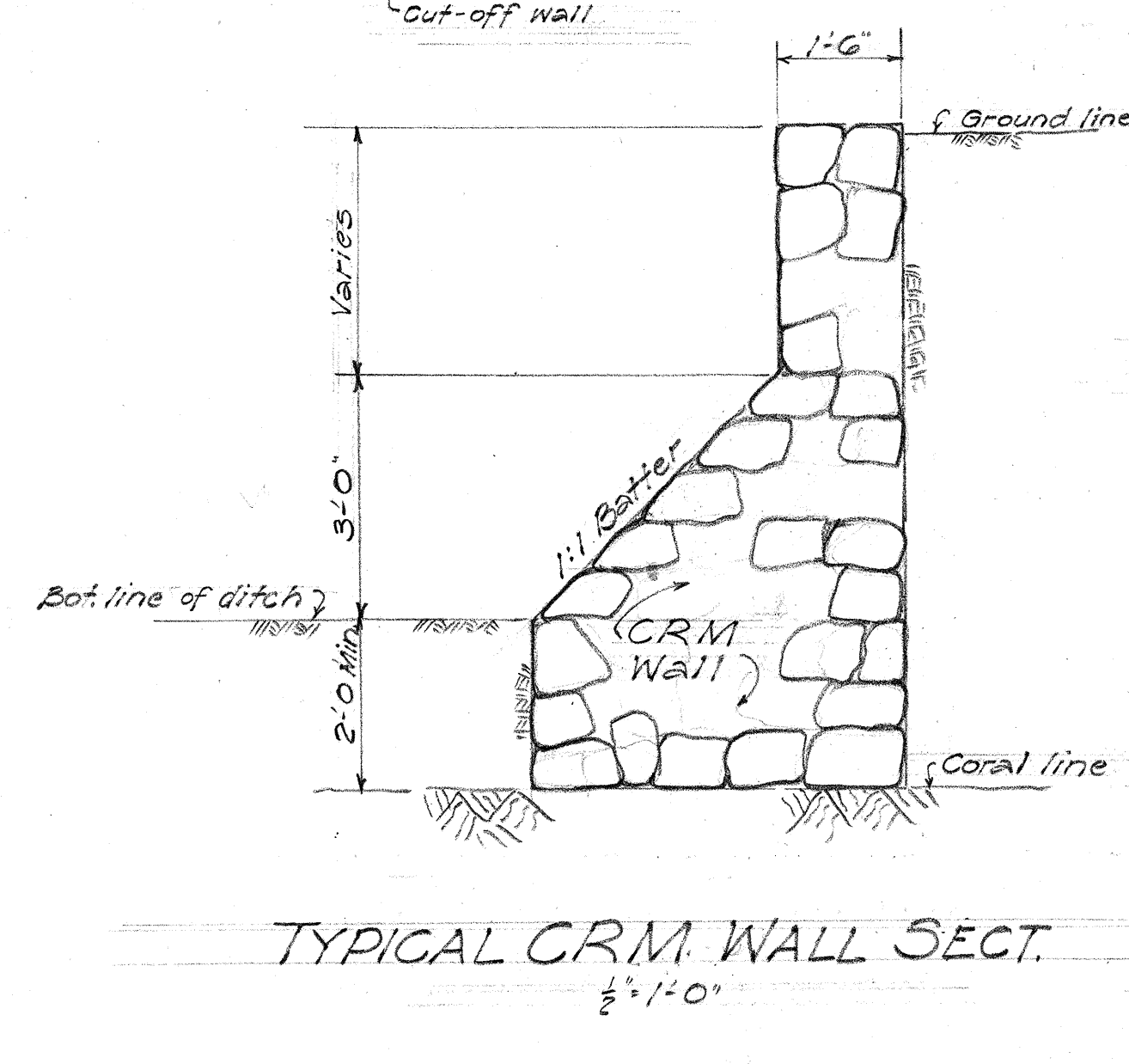
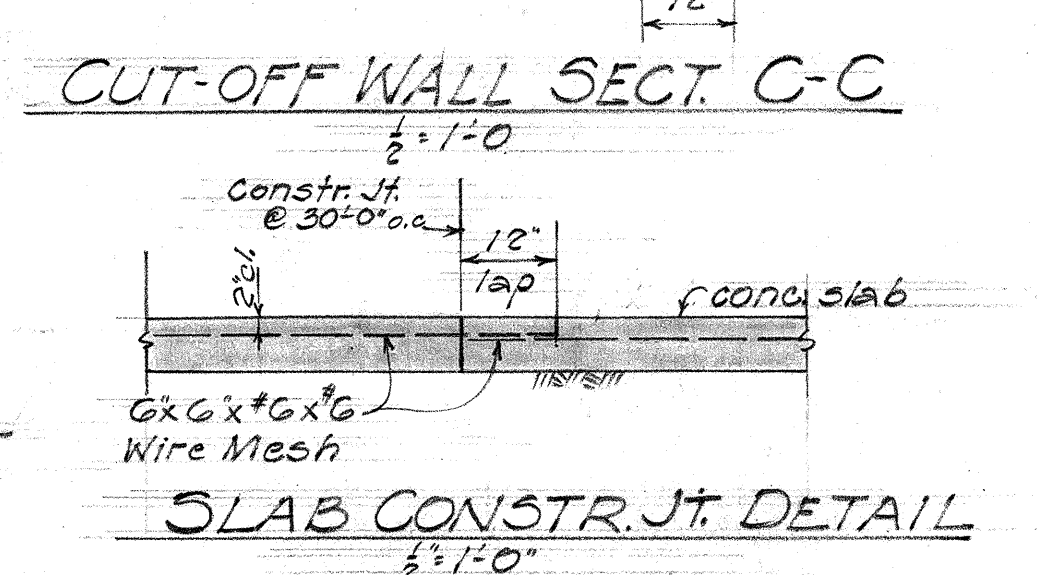
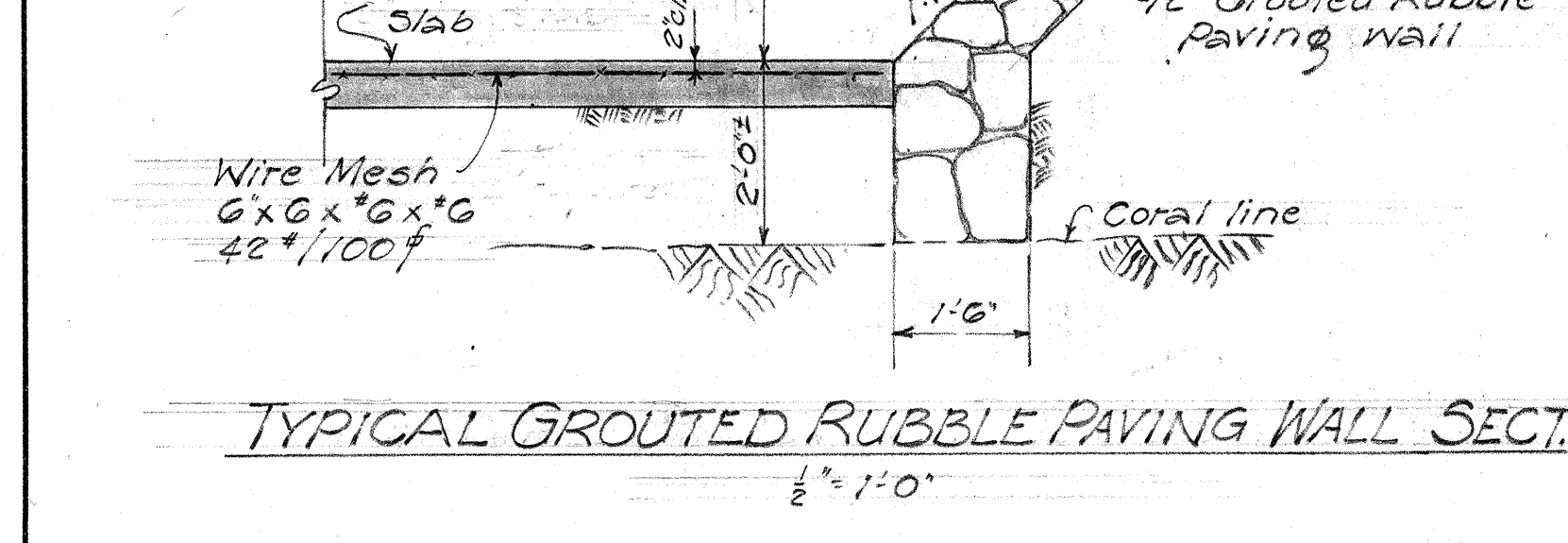
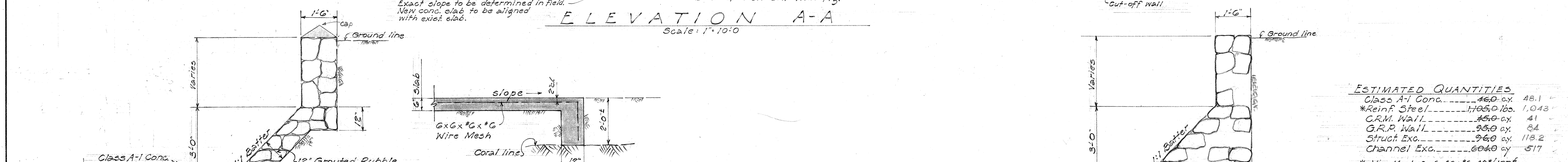
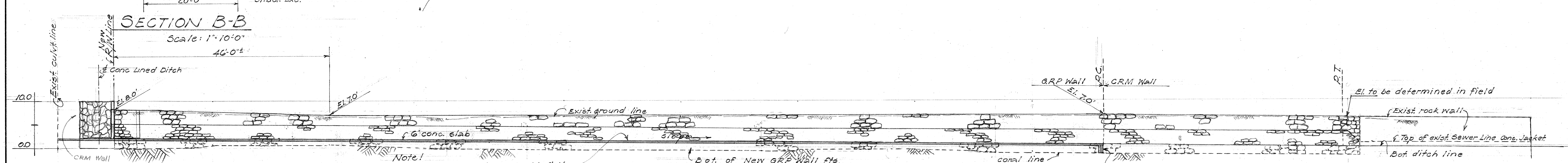
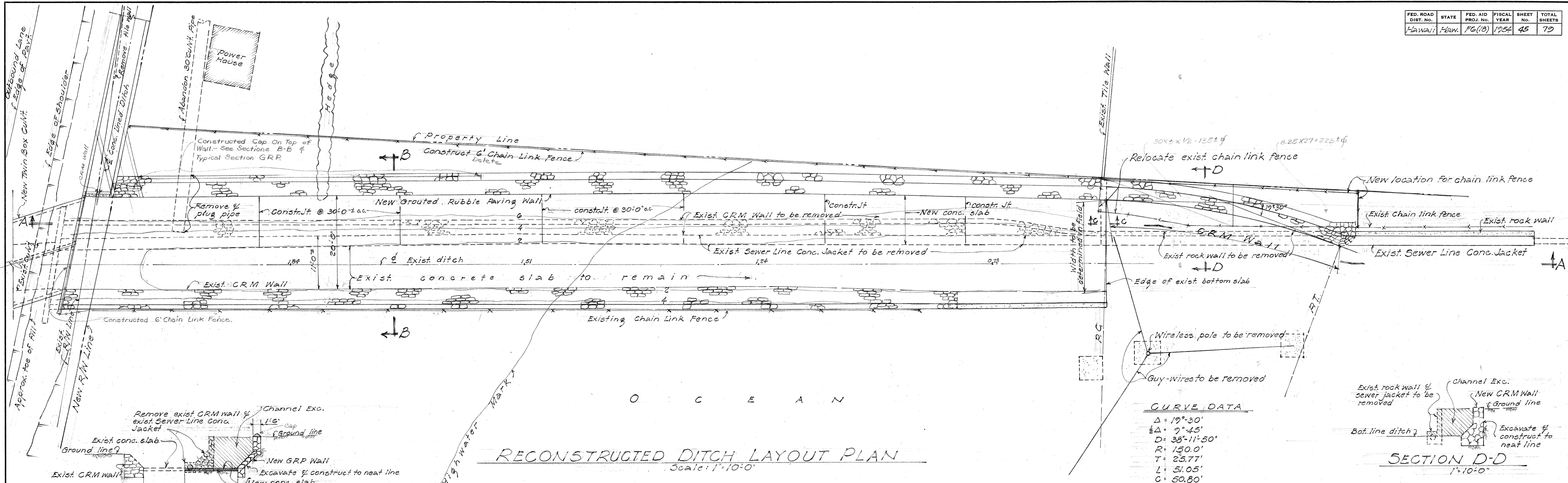
ELEVATION F-F
1/2"=1'-0"



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

ELEVATION C-C
1/2"=1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
CONC. LINED DITCH
AND 5'x2' CONC. BOX CULVT.
Sta. 88+13 to Sta. 89+51
Kalaniana'ole Hwy. April 1954 FG(18)



ESTIMATED QUANTITIES

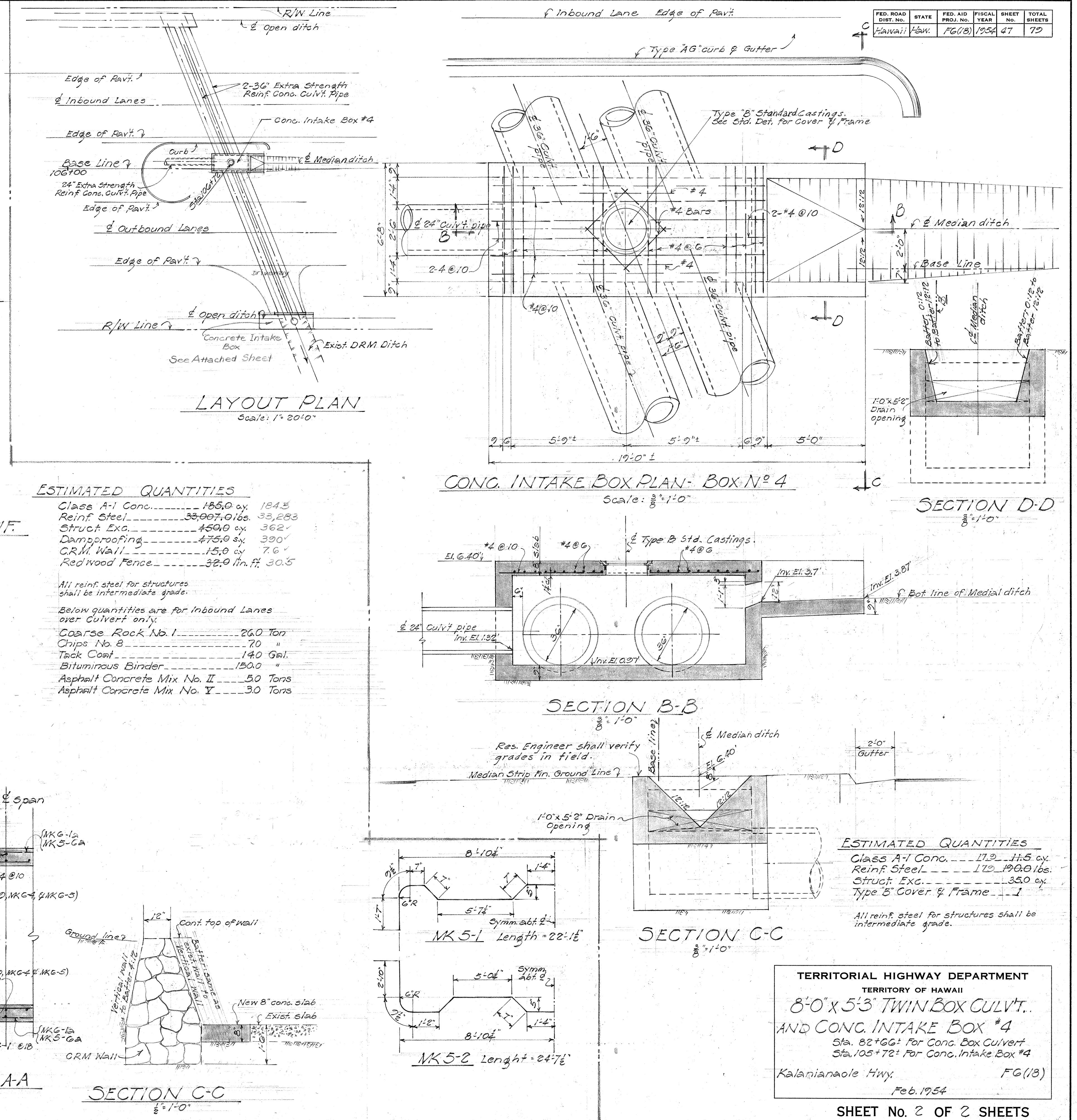
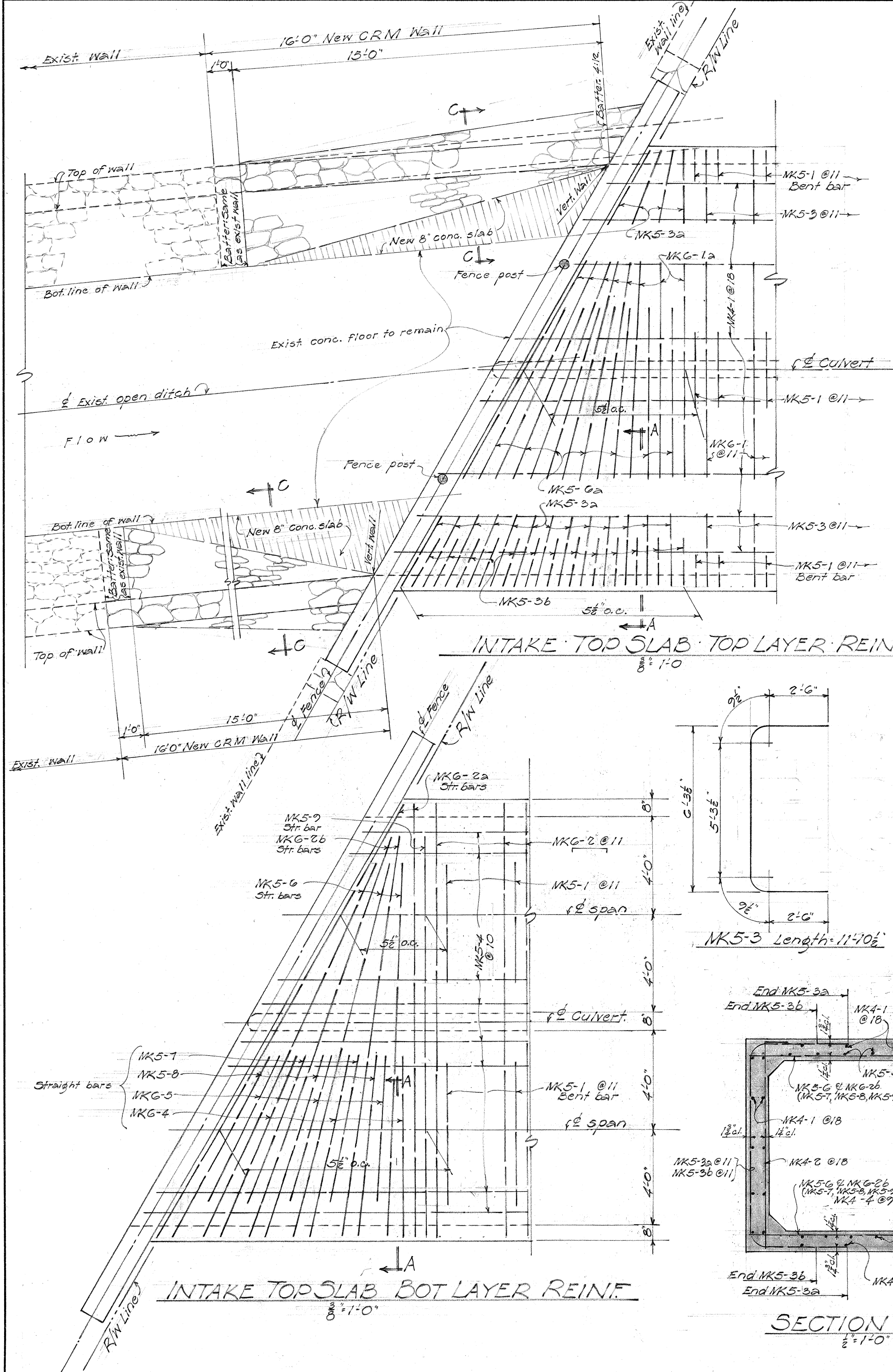
Class A-1 Conc.	46.0 cy	48.1
*Reinf. Steel	1,045.0 lbs.	1,043
CRM Wall	45.0 cy	41
GRP Wall	95.0 cy	84
Struct. Exc.	96.0 cy	118.2
Channel Exc.	60.40 cy	517

* Wire Mesh 6x6x6x6 42"/100'
Channel Excavation will be paid for under Item No. 13, Unclassified Excavation

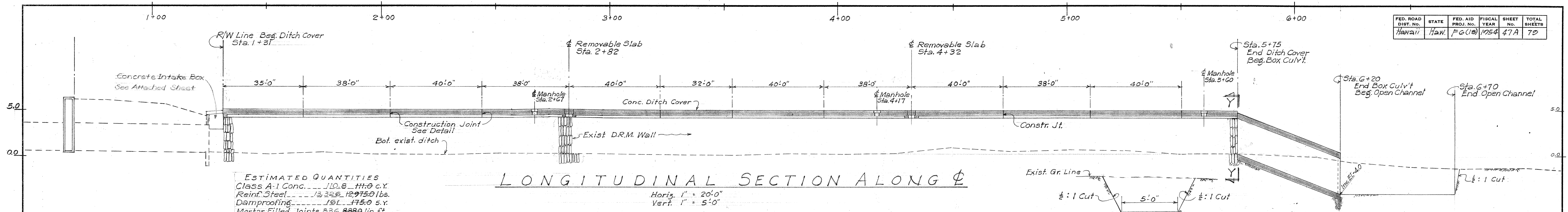
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
RECONSTRUCTED DITCH
Sta. 82+25 ±

Kaiananalo Hwy FG(18)
March 1954

DESIGNED BY	DATE
TRACED BY	Feb. 1952
QUANTITIES BY	Feb. 1952
QUANTITIES CHECKED BY	Feb. 1952
REVISIONS	
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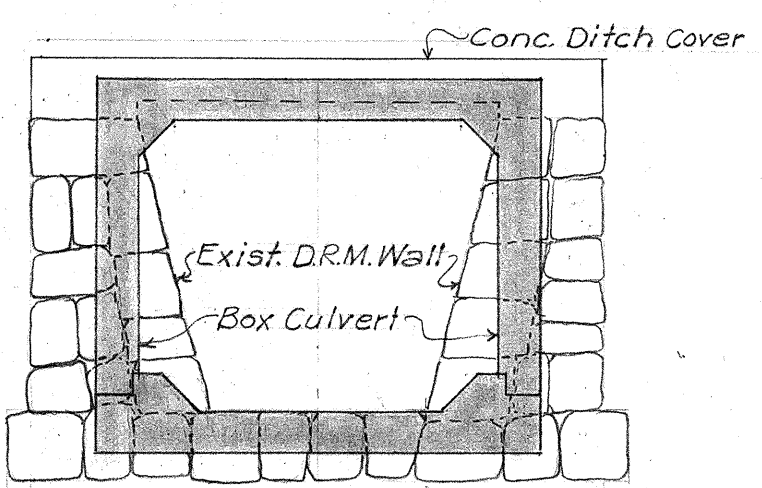
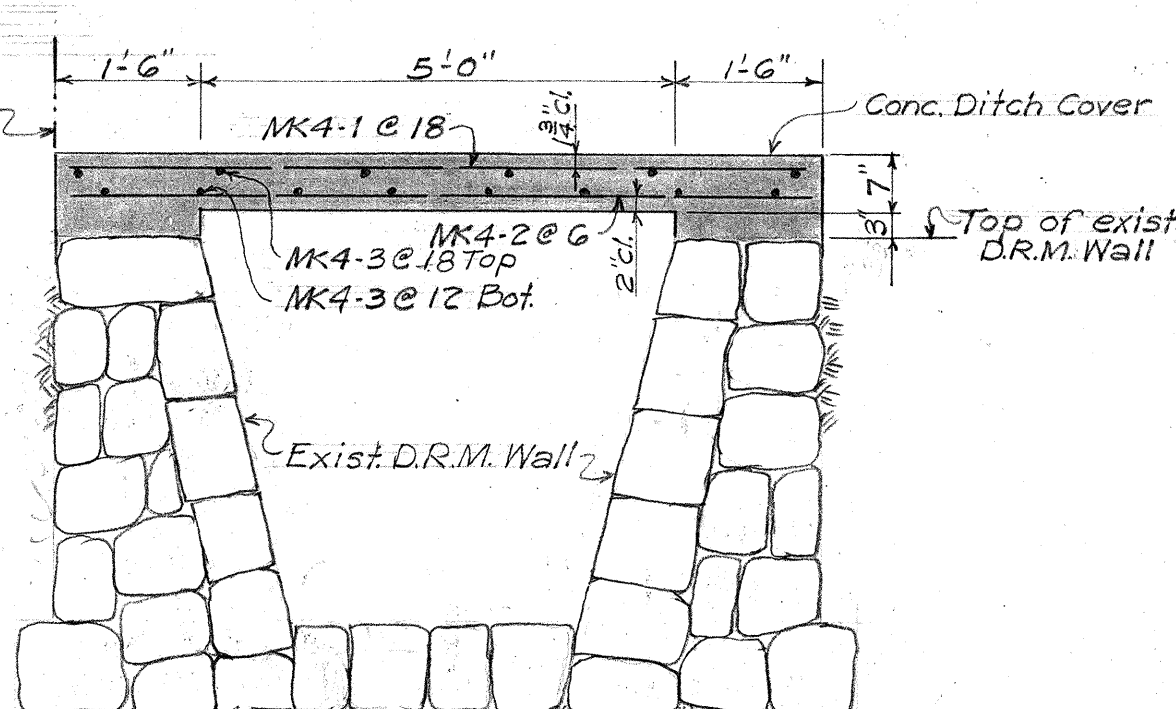
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FG(10)	1954	47A	70



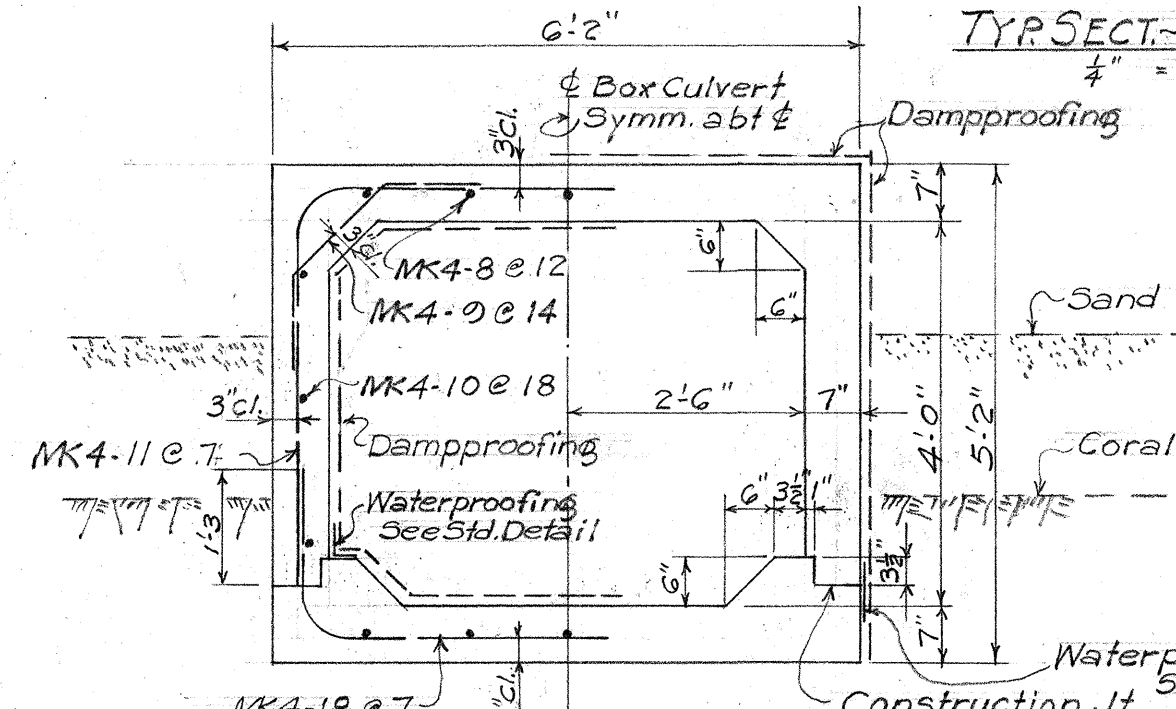
ESTIMATED QUANTITIES
 Class A-1 Conc. 110.8 cu. yd.
 Reinf. Steel 13,326.12 lbs.
 Dampproofing 191.475 sq. yd.
 Mortar Filled Joints 336.8880 lin. ft.
 C.R.M. 2.40 cu. yd.
 Structure Exc. 35.360 cu. yd.
 Channel Exc. 76.450 cu. yd.
 Type 'A' Frame & Cover 3

LONGITUDINAL SECTION ALONG CENTERLINE

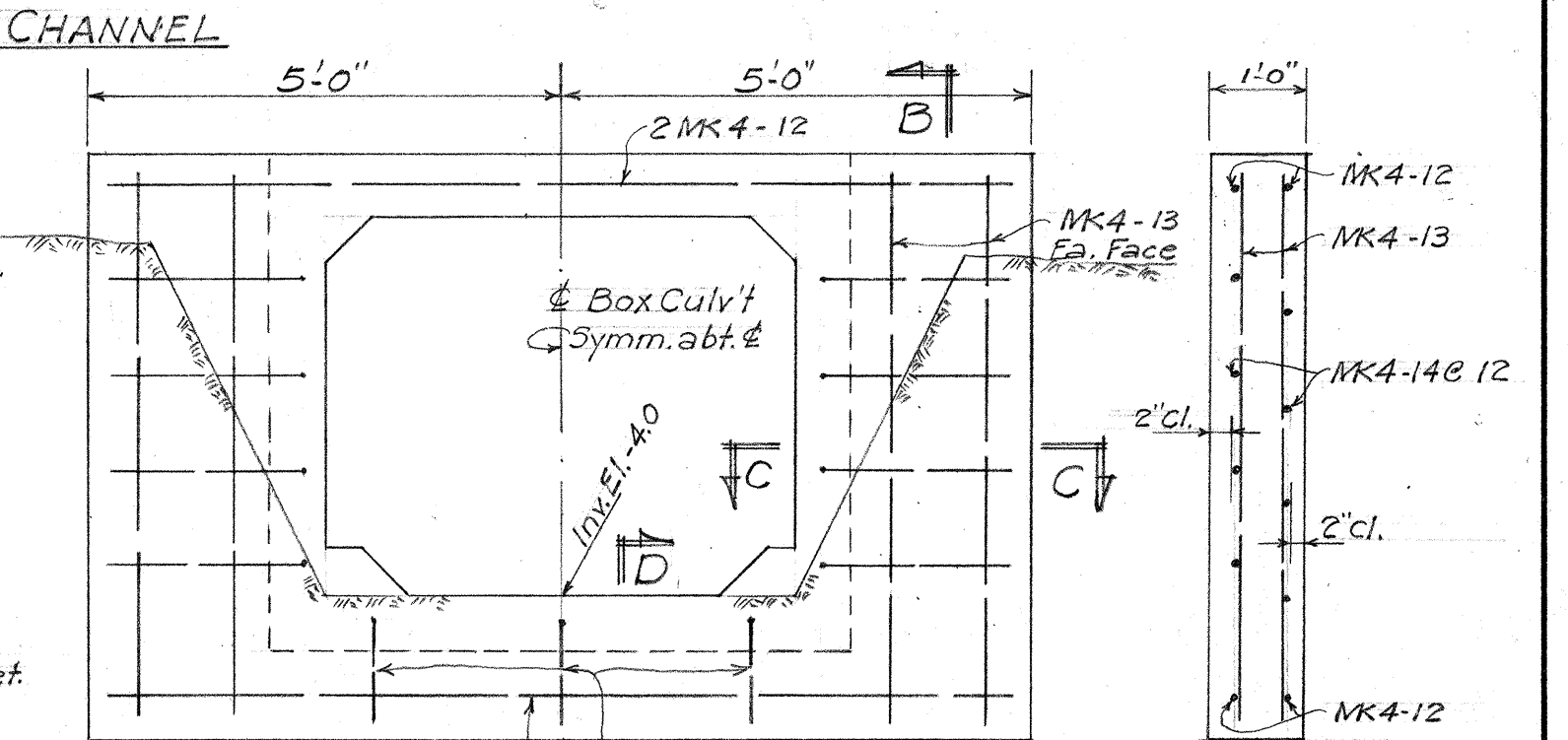
Horiz. 1" = 20'-0"
 Vert. 1" = 5'-0"



SECTION Y-Y

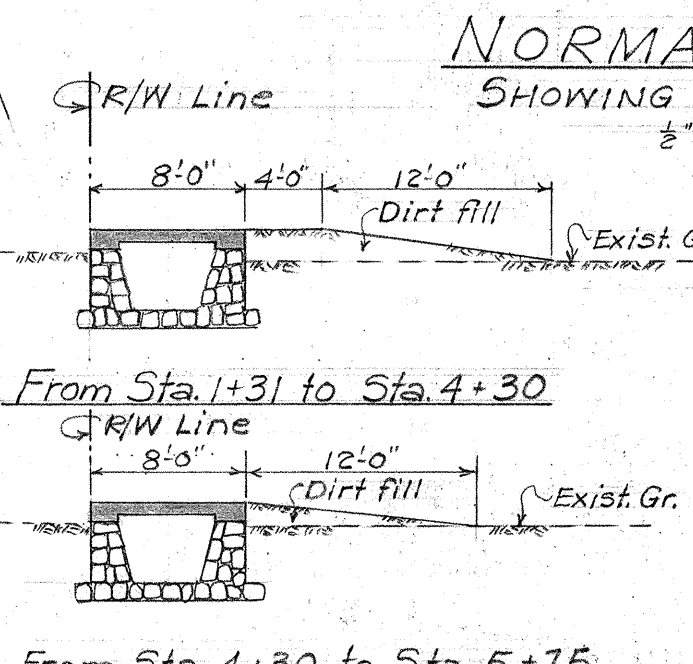


TYP. SECT. - BOX CULVERT

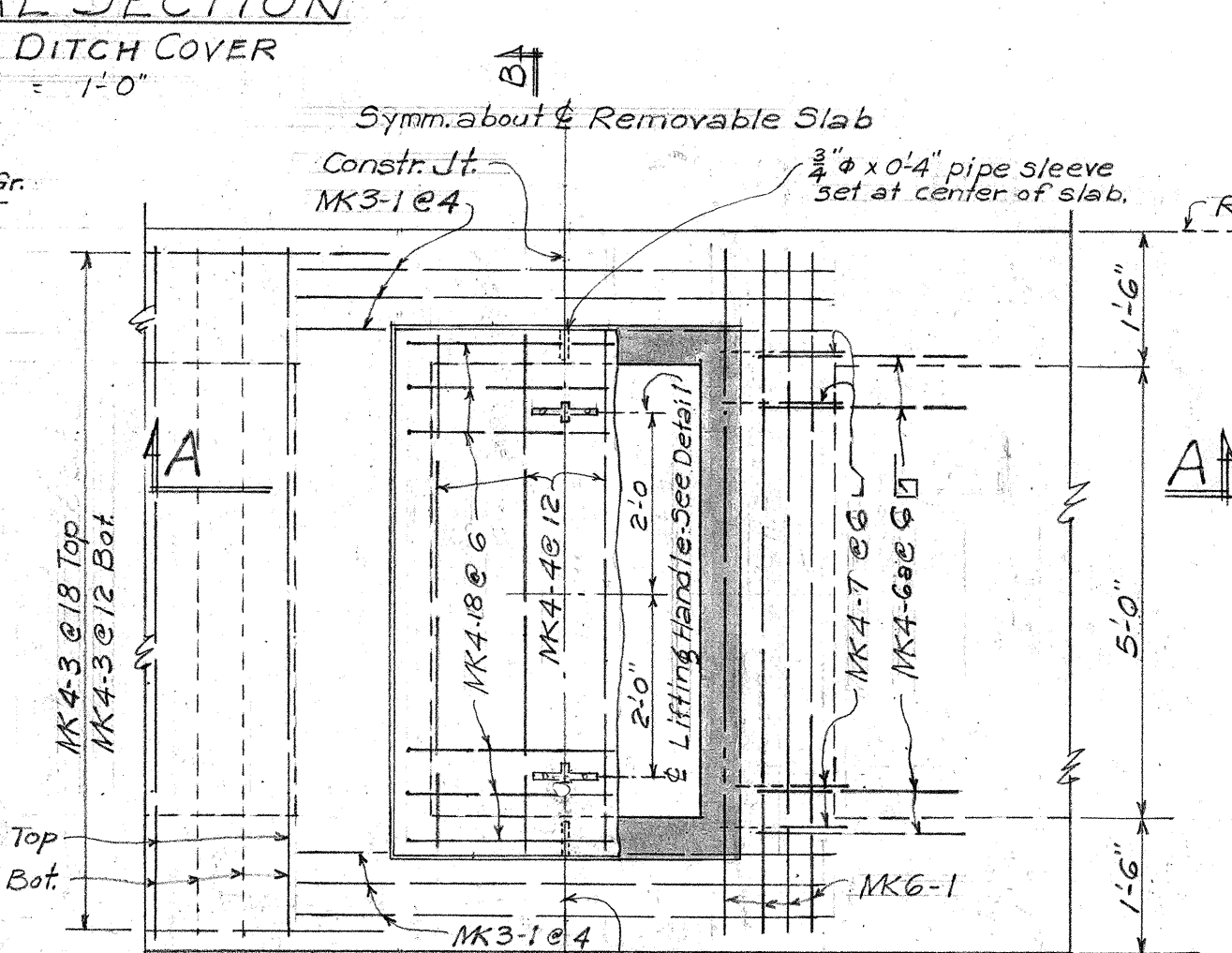


ELEVATION-DISCHARGE HEADWALL

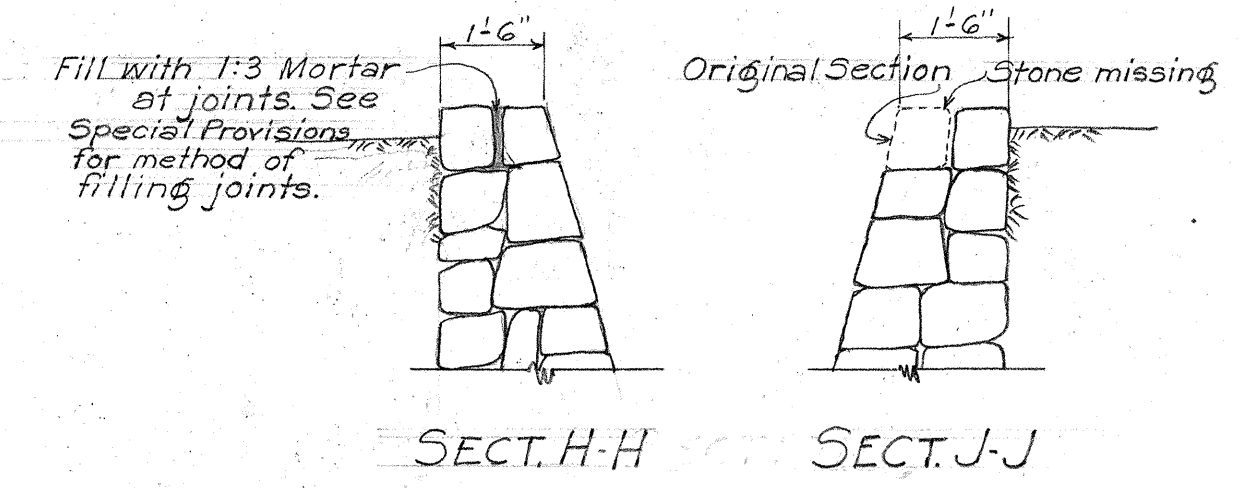
SECTION B-B



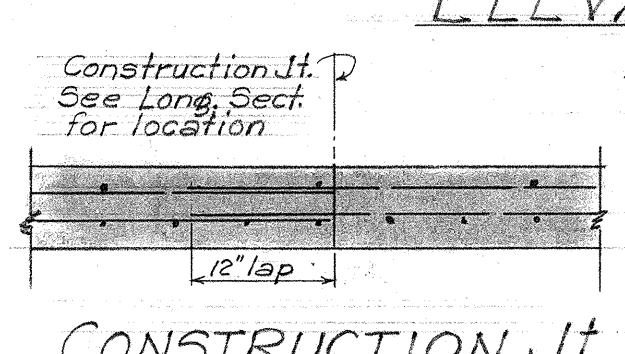
From Sta. 4+30 to Sta. 5+75



REINFORCEMENT PLAN - REMOV. SLAB



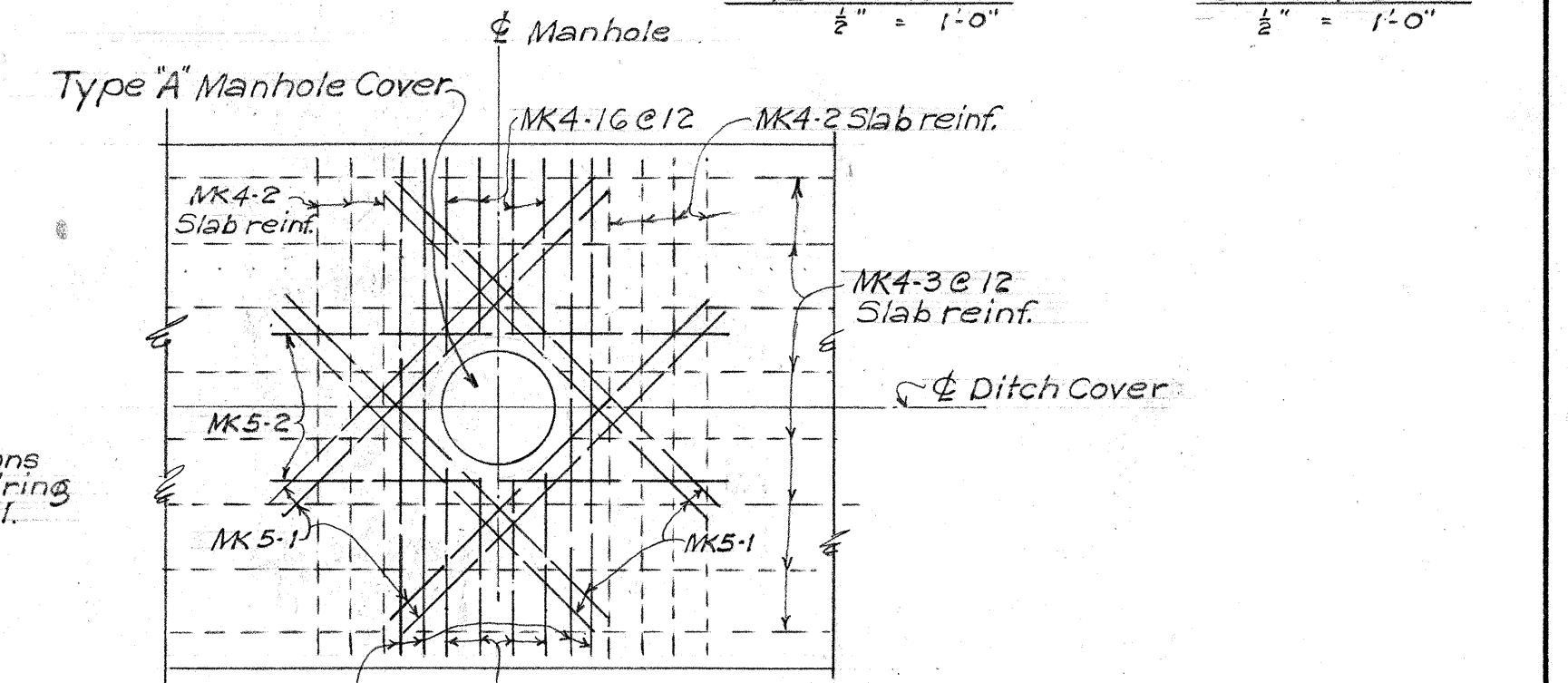
DETAIL OF MORTAR FILLED JOINTS



CONSTRUCTION JOINT

SECTION D-D

SECTION C-C



M.H. REINFORCEMENT PLAN

SHOWN - BOT. LAYER REINF.

ENLARGED PLAN 'A'

SHOWN - BOT. LAYER REINF.

SECTION G-G

SECTION H-H

SECTION J-J

SECTION K-K

SECTION L-L

SECTION M-M

SECTION N-N

SECTION O-O

SECTION P-P

SECTION Q-Q

SECTION R-R

SECTION S-S

SECTION T-T

SECTION U-U

SECTION V-V

SECTION W-W

SECTION X-X

SECTION Y-Y

LAYOUT PLAN

SECTION A-A

SECTION B-B

SECTION C-C

SECTION D-D

SECTION E-E

SECTION F-F

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

Materials
 All concrete Class A-1.
 Type V cement shall be used for concrete in Box Culvert.
 Admixture of Tricosal Normal Concrete Silica or Anti-Hydro
 shall be added to concrete Box Culvert. See Std. Specifications.

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 CONC. DITCH COVER
 and
 5x4 BOX CULVERT OUTFALL
 Sta. 106+80±
 Kalaniana'ole Hwy.
 August, 1954
 SHEET No. 1 OF 1 SHEETS

5686.47A

30" 24" Std. Str. Reinf. Conc. Culv. Pipe

See Enlarged PLAN "X"

R/W Line

Outside Wall

Inside Wall

Conc. Lined Ditch

Exist. 30" Pipe Culvert

Exist. Inv. El. 1.43

See Enlarged PLAN "Y"

R/W Line

2-3# Extra Str. Reinf. Conc. Culv. Pipe

Honolulu

Base Line

Koko Head

Inbound Lanes

Outbound Lanes

PC Sta. 101+42.4

PT Sta. 105+14.23

Curve Data

Δ	8° 31' 30"
R	2865.00
T	213.53
L	426.28

DRAIN OPENING DETAIL

4-MK4-7 x 3'-0" Id.

Open

1'-6"

1'-0"

SECT. F-F

1'-0"

Typical Section CONC. LINED DITCH

Outside Wall

Inside Wall

Conc. Lined Ditch

Dampproofing

Construction Joint

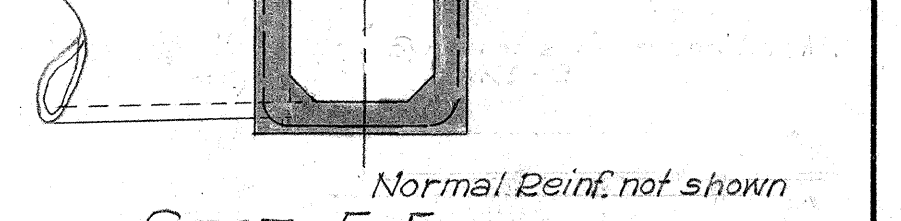
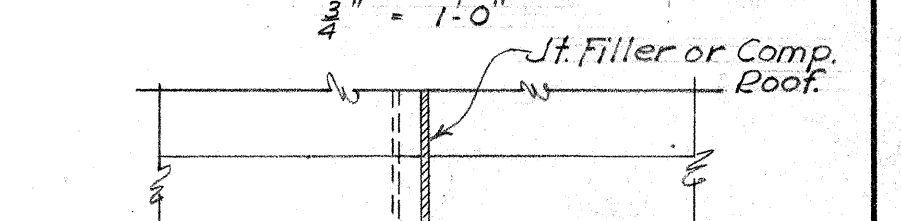
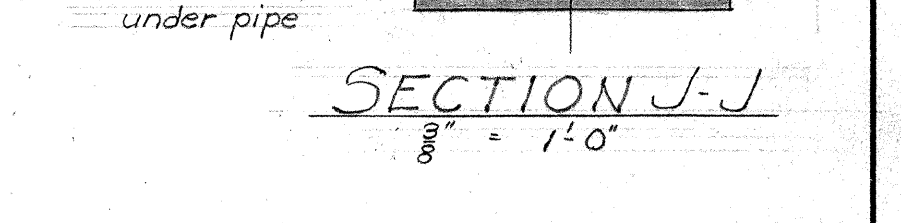
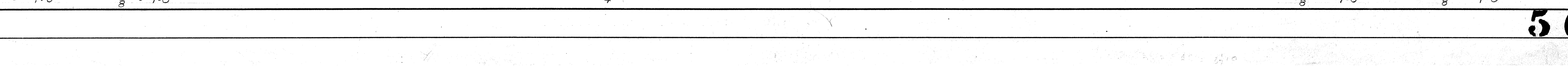
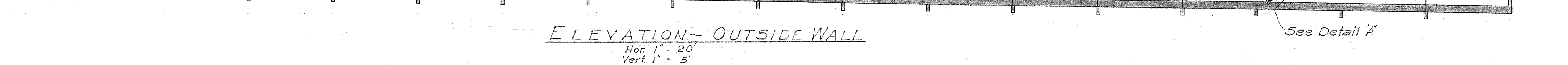
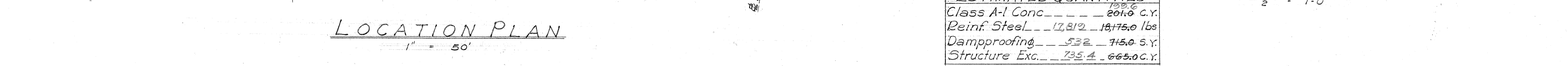
Drain Opening See Detail

Depress at Drain Opening

Fill Line

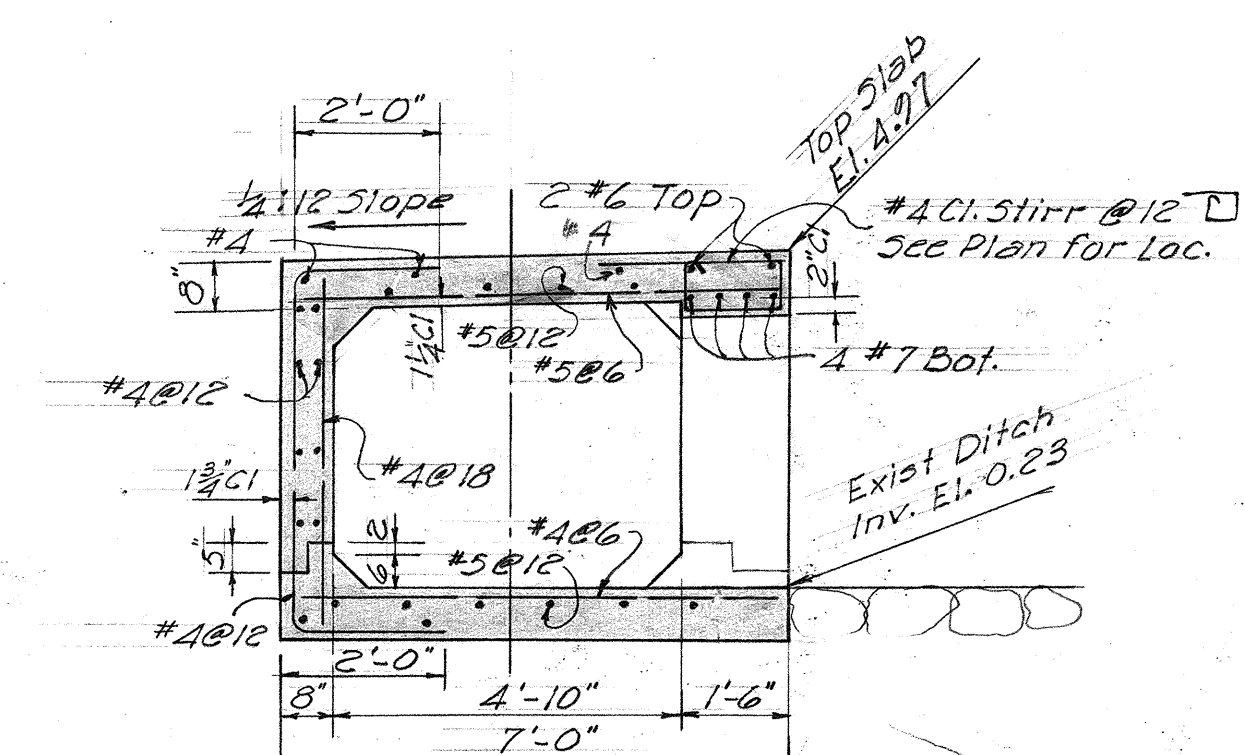
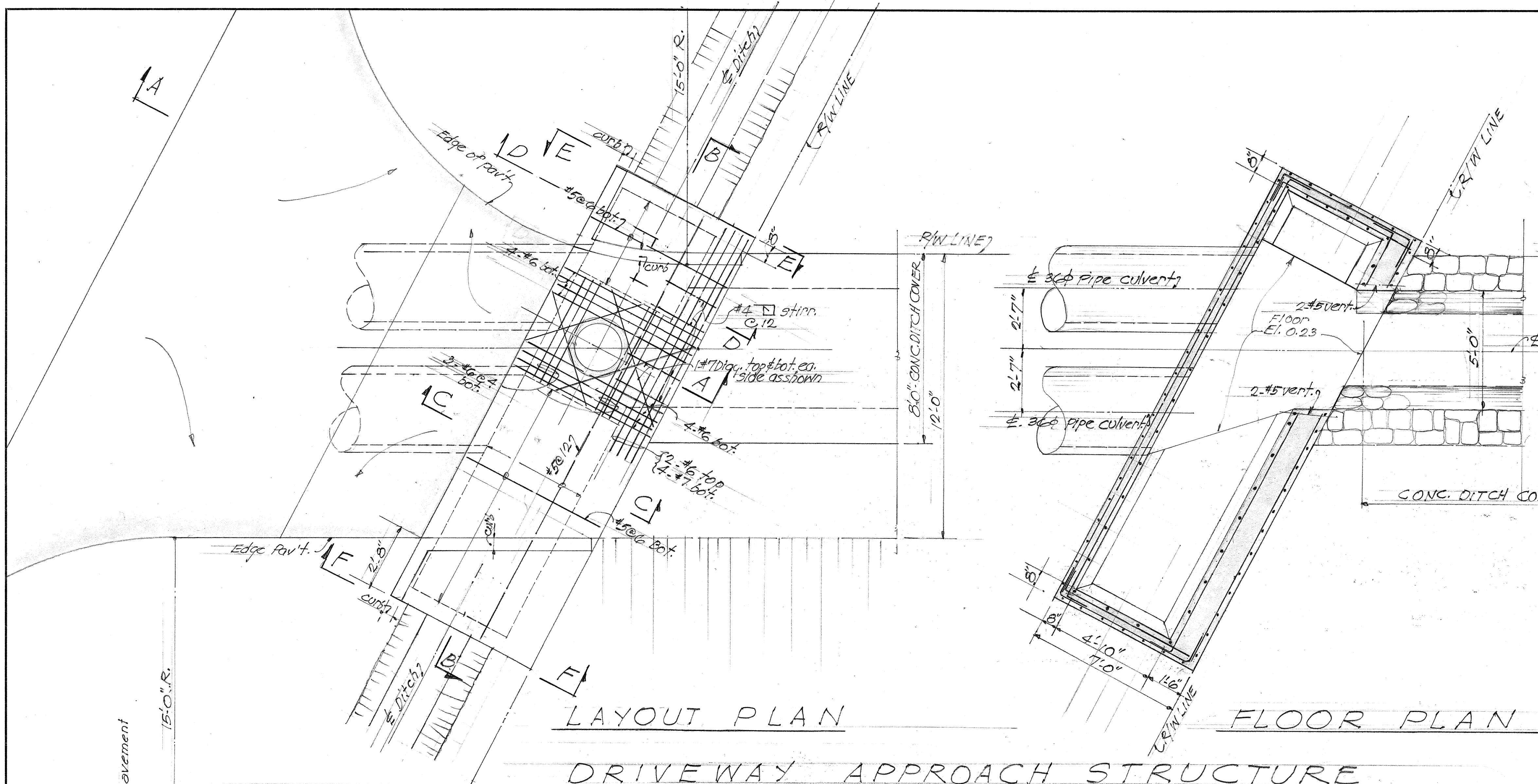
See Typ. Sect. for reinf.

Admixture of Tricosol Normal, Concrete sika, or anti-hydro shall be added in conc. lined ditch floor. See Standard Specification, Section 51.

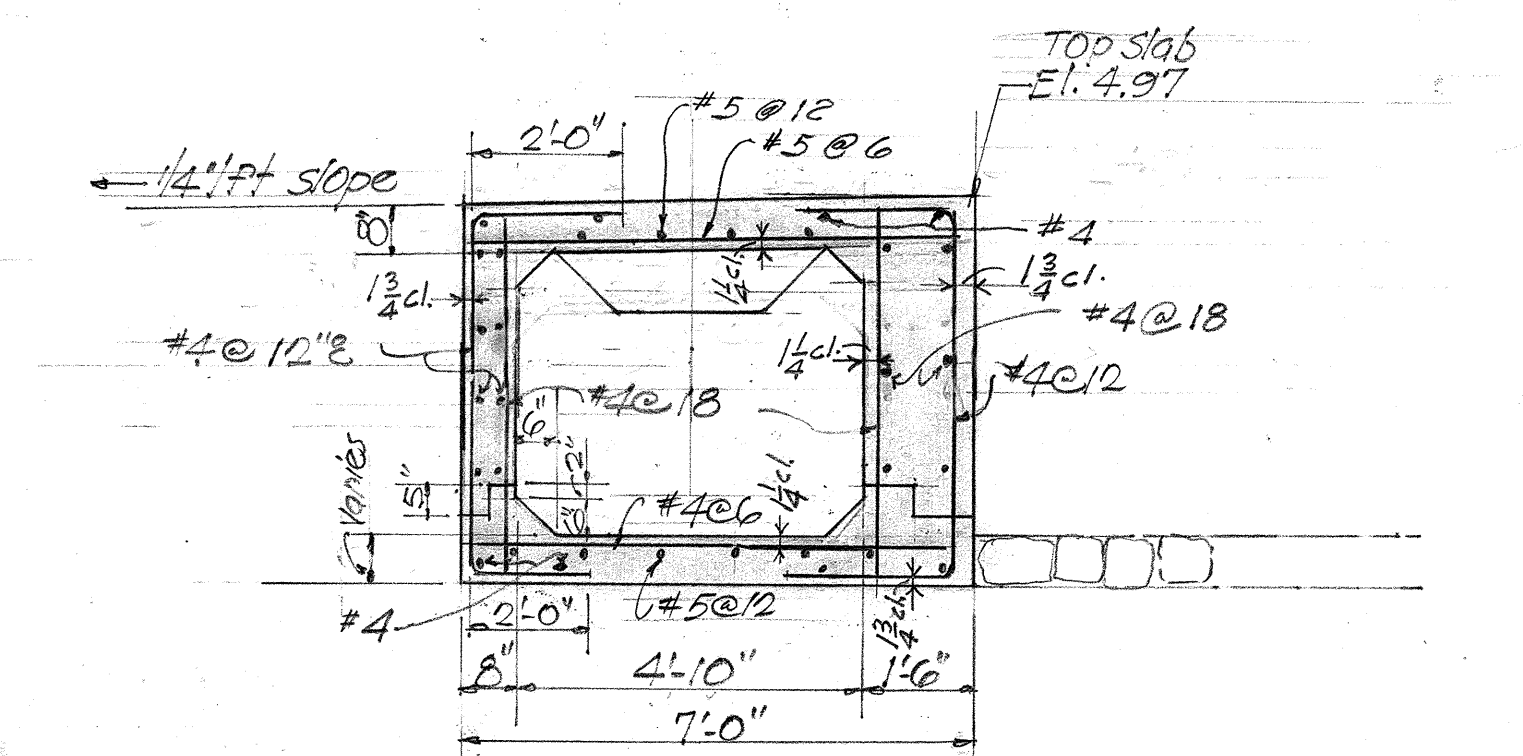


5686.48
FG(18)

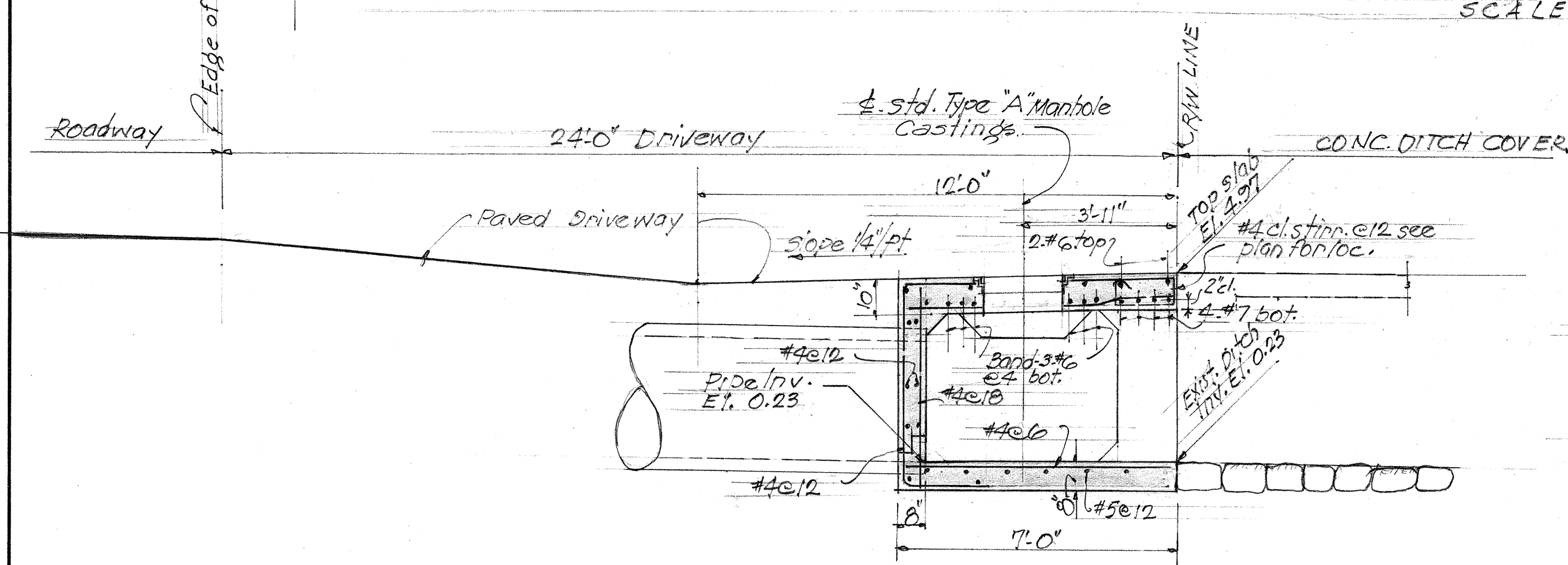
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	FG (18)	1955	1	1



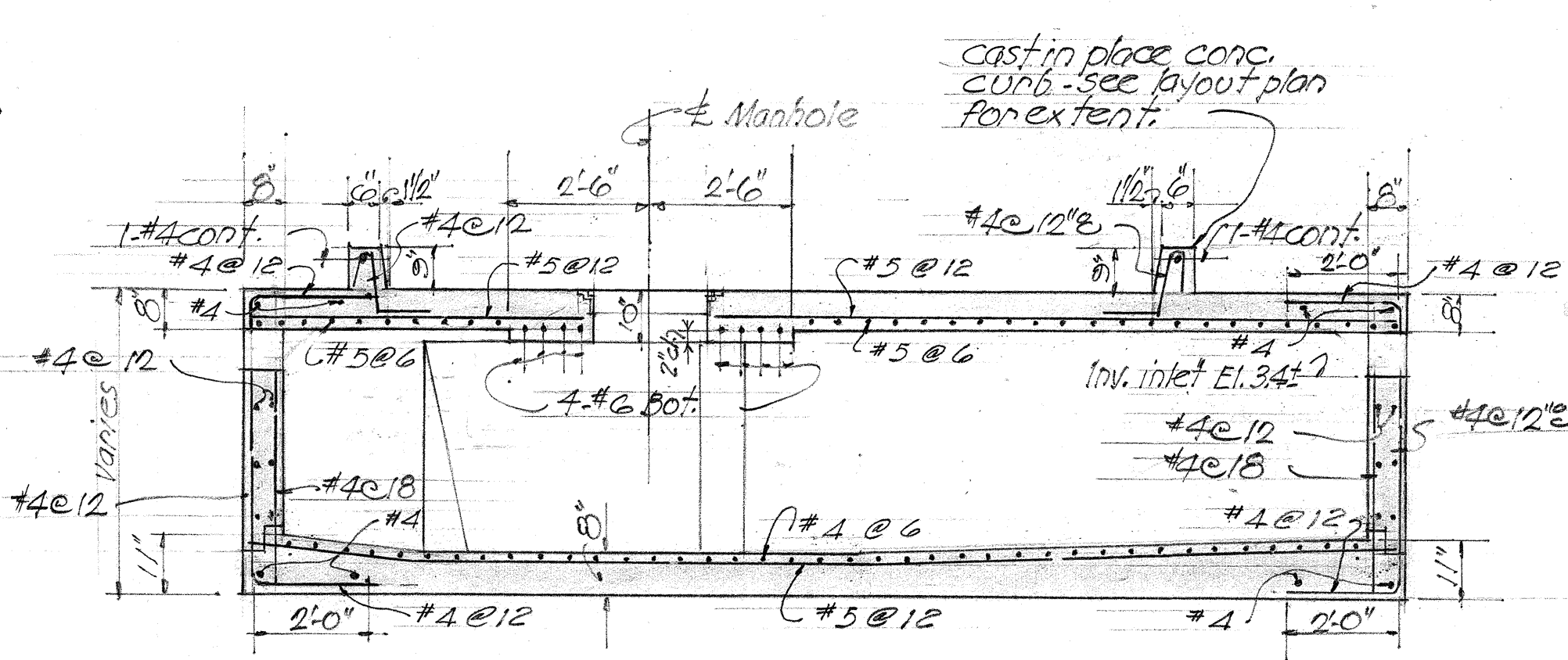
ELEVATION "E-E" AS SHOWN
(ELEV. "F-F" SIMILAR EXCEPT OPP. HAND)
SCALE: 3/8" = 1'-0"



SECTION "C-C" AS SHOWN
Scale: 3/8" = 1'-0"



SECTION "A-A" SCALE: 3/8" = 1'-0"



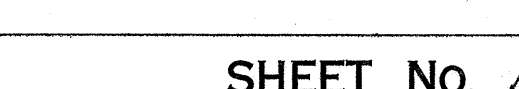
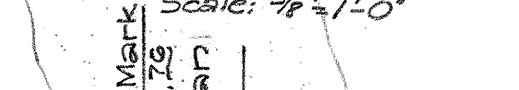
SECTION "B-B" SCALE: 3/8" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
CONC. INTAKE BOX
Sta. 107 +00 ±
KALANIAOLE HWY. PROJ. FG (18)
June 1955

3 ppts.

DATE: June 55
SURVEY PLOTTED BY: [Signature]
PLAN: [Signature]
DRAWN BY: [Signature]
NOTE BOOK: [Signature]
QUANTITIES CHECKED BY: [Signature]
CHECKED BY: [Signature]

SECTION "L-L"

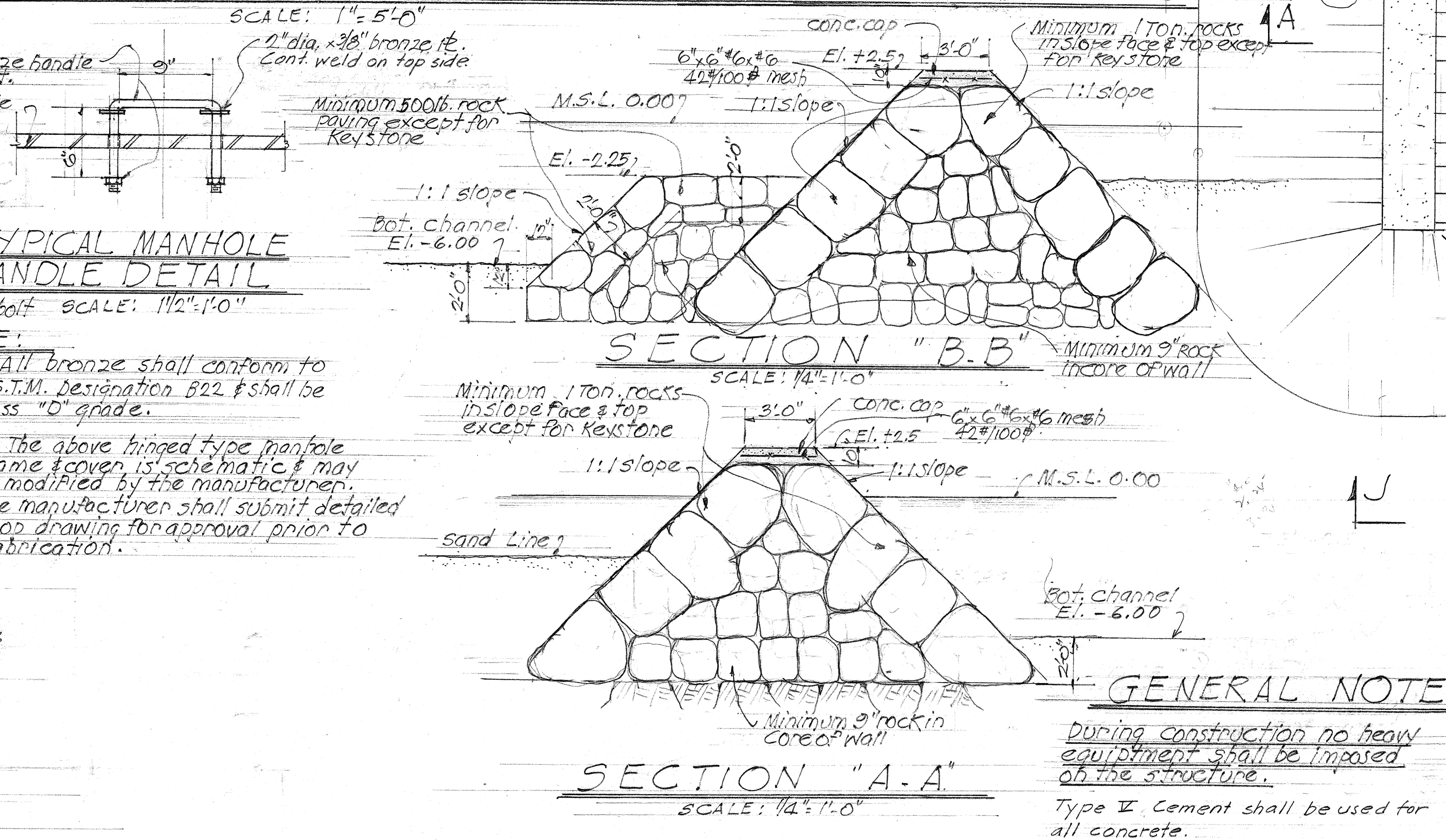
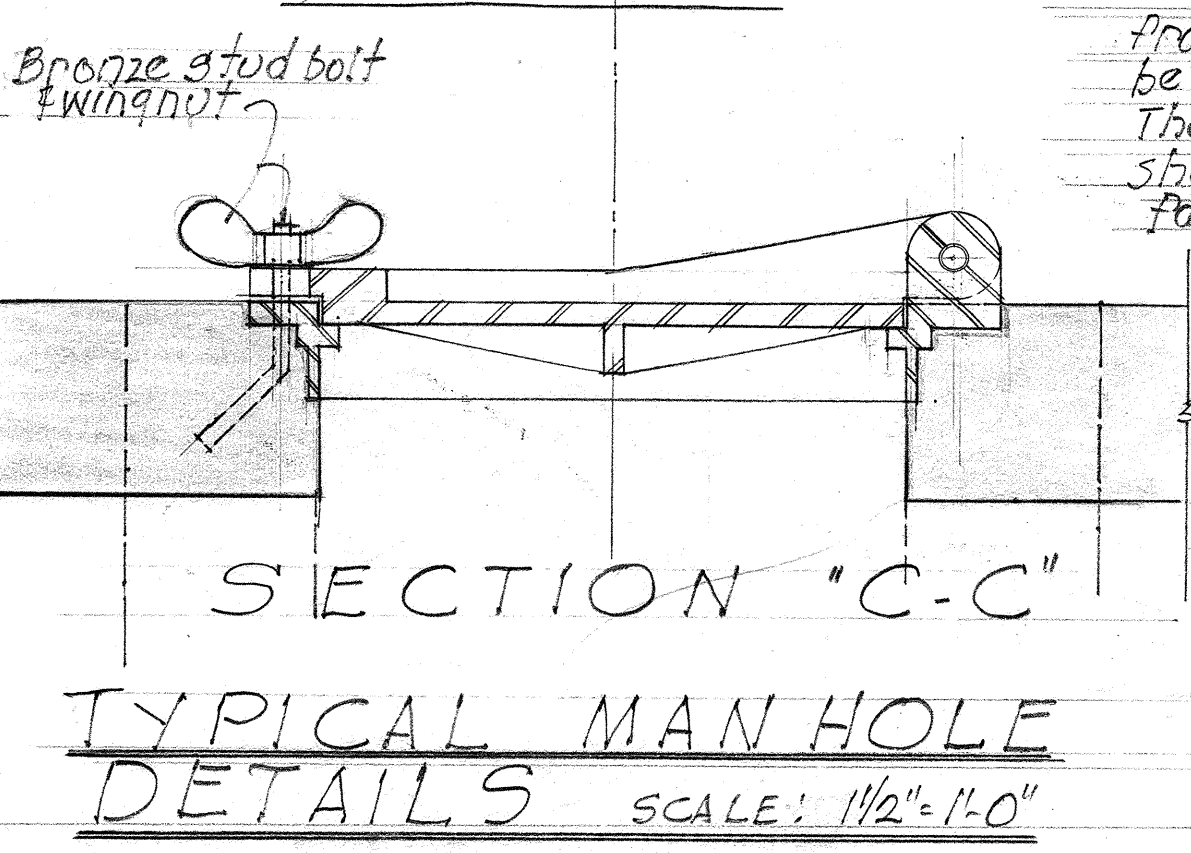
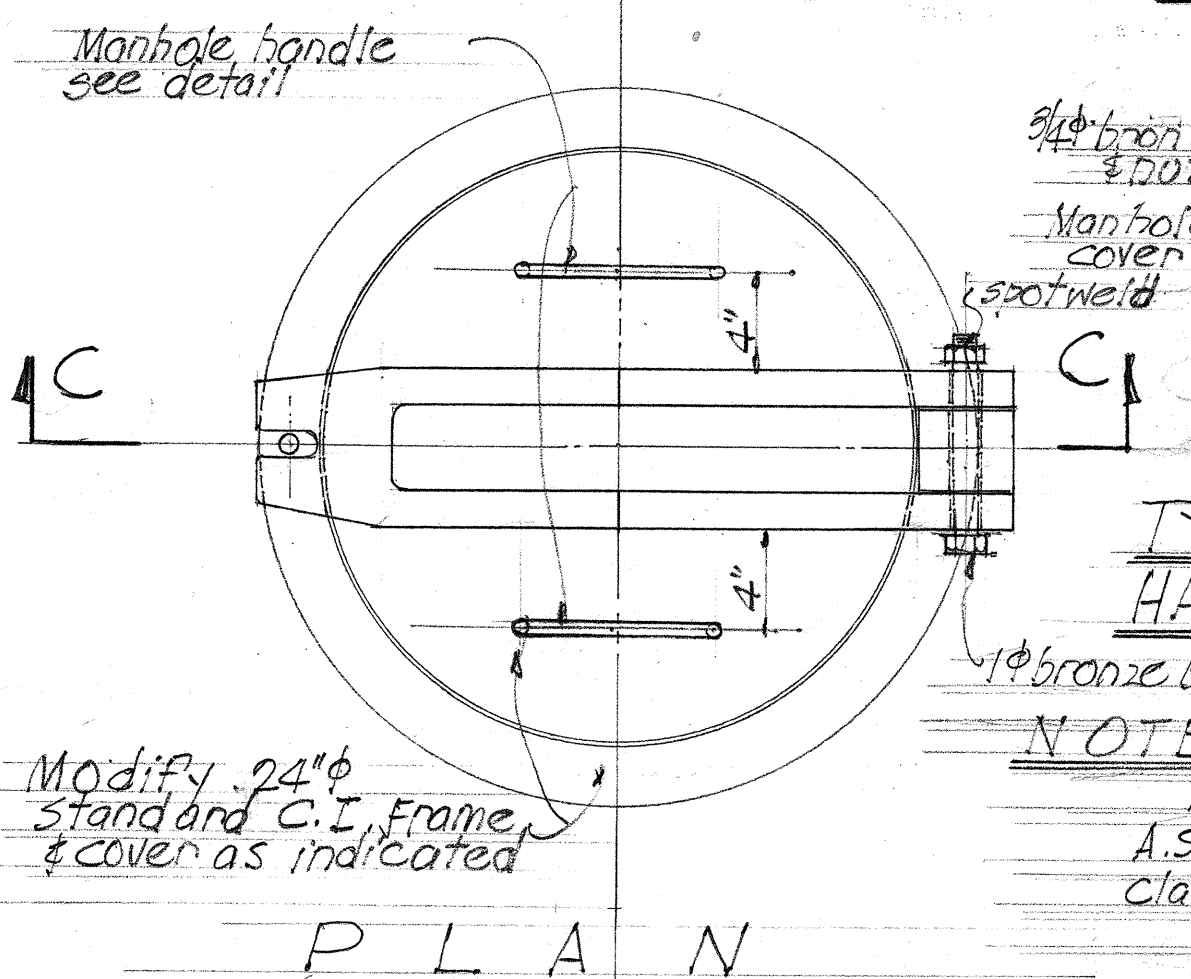
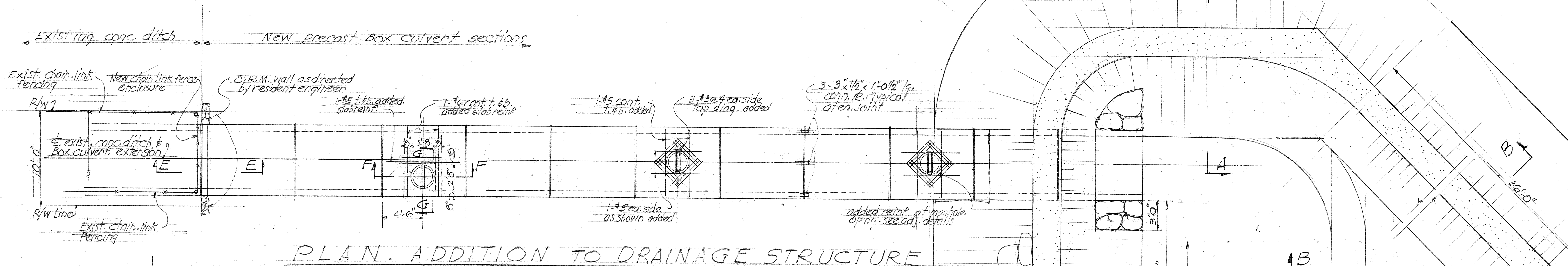
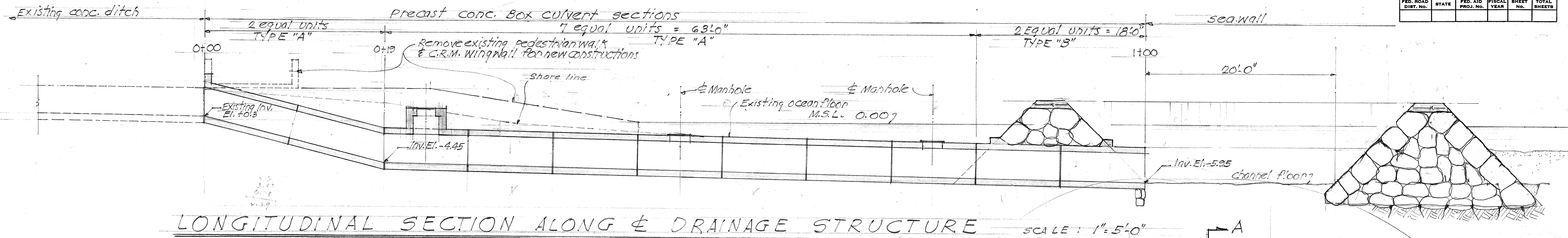


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ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTE BOOK No. _____	DESIGNED BY _____	_____
	DRAWN BY _____	_____
	TRACED BY _____	_____
	QUANTITIES BY _____	_____
	QUANTITIES CHECKED BY _____	_____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS

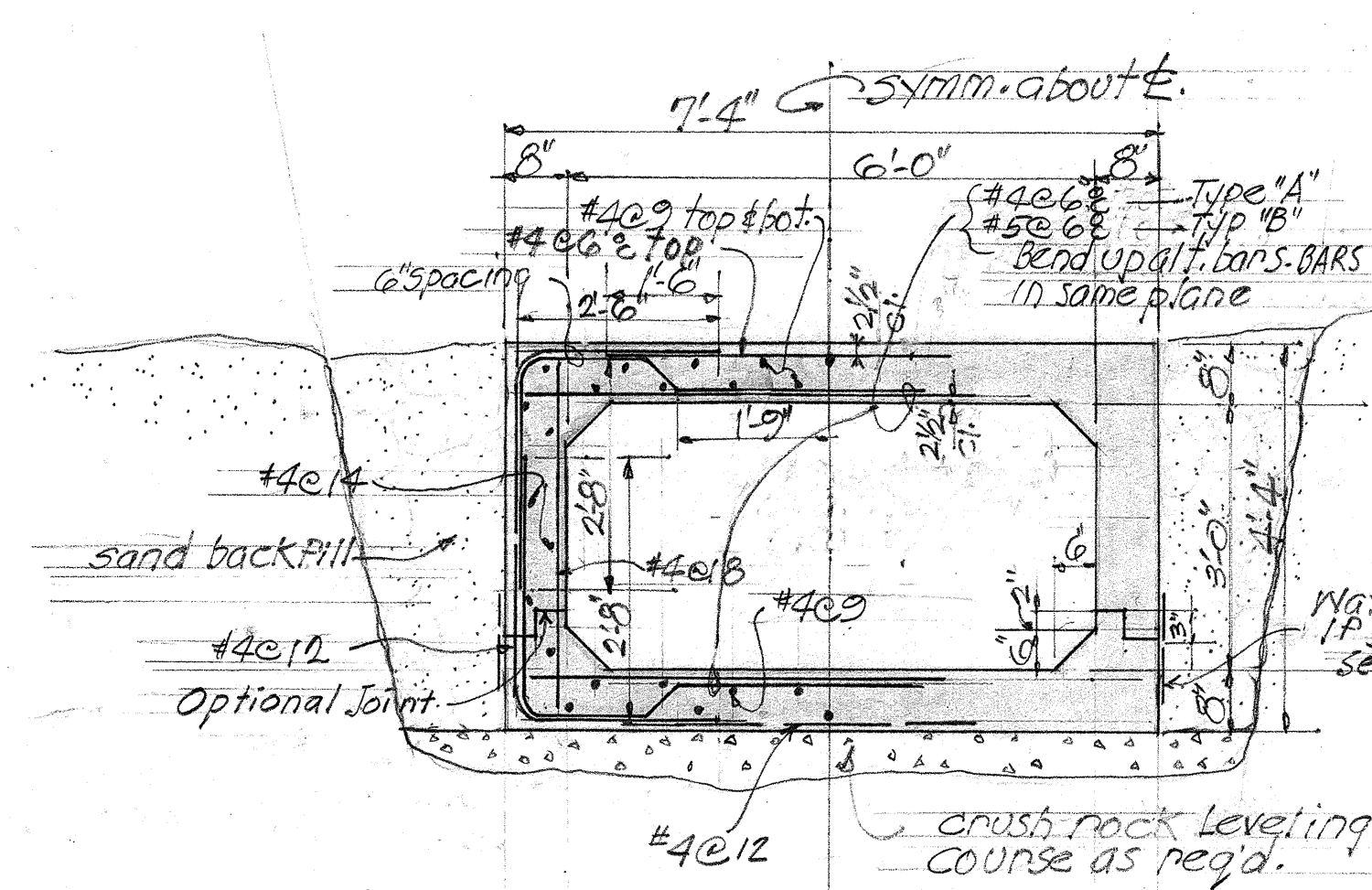


GENERAL NOTE
 During construction no heavy equipment shall be imposed on the structure.
 Type II Cement shall be used for all concrete.

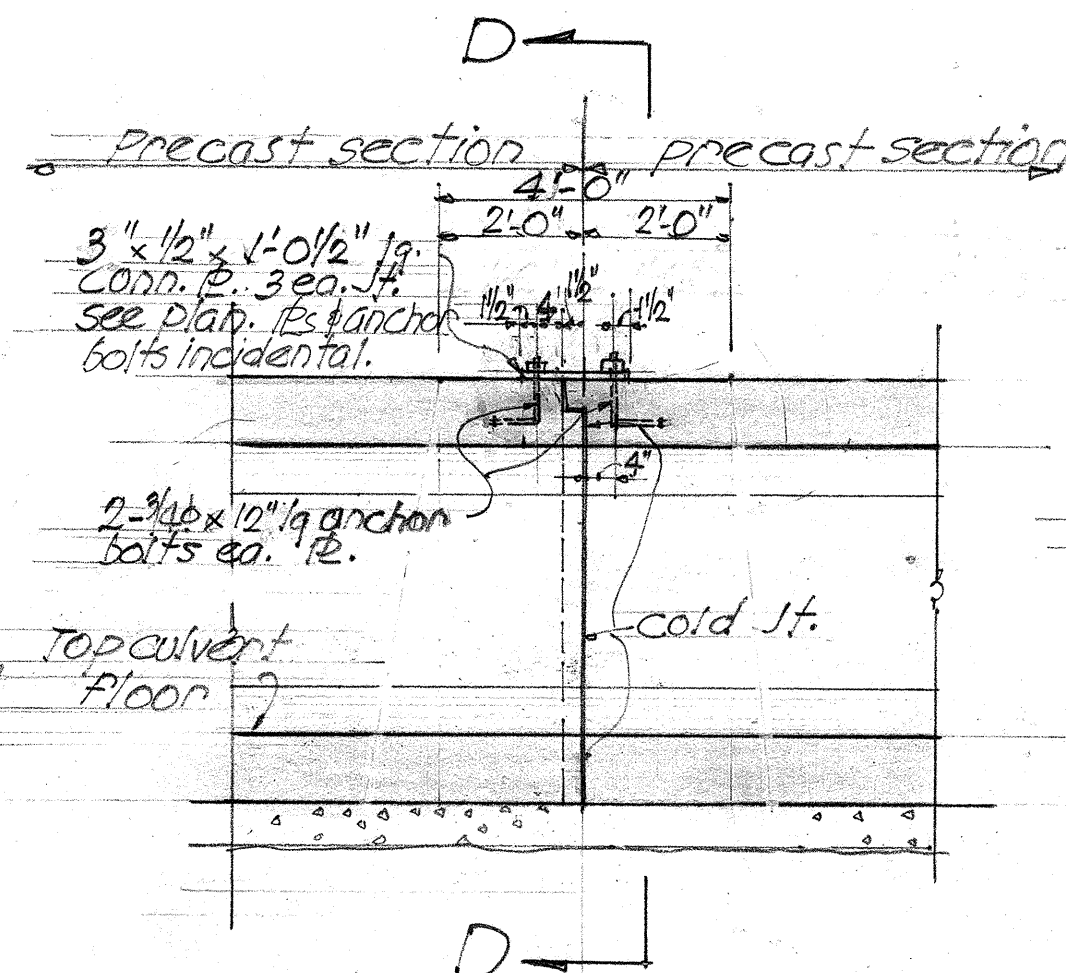
TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
ADDITION TO DRAINAGE STRUCTURE - KIRKWOOD PLACE
 BASE LINE STA. 127+00 ±
 F 6(18) NOVEMBER 1955

5686.49A

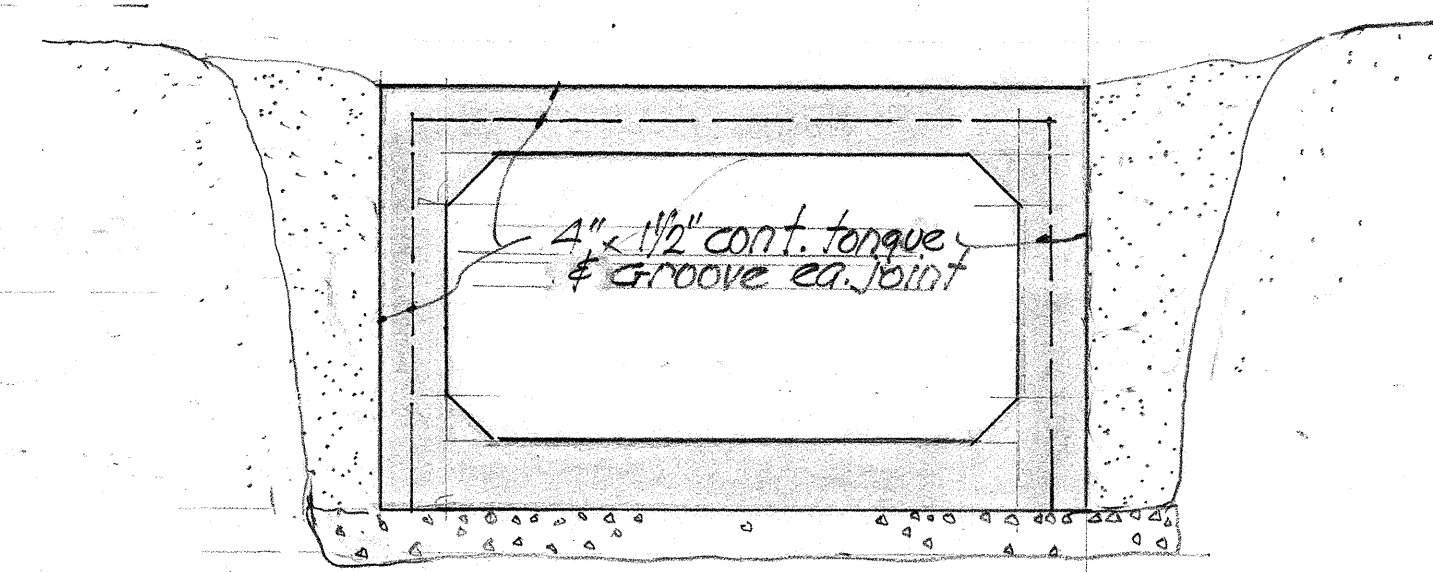
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS



NORMAL SECTION-PRECAST BOX CULVERT TYPE "A"
(TYPE "B" SIMILAR EXCEPT AS OTHERWISE NOTED)
SCALE: 1/2"=1'-0"

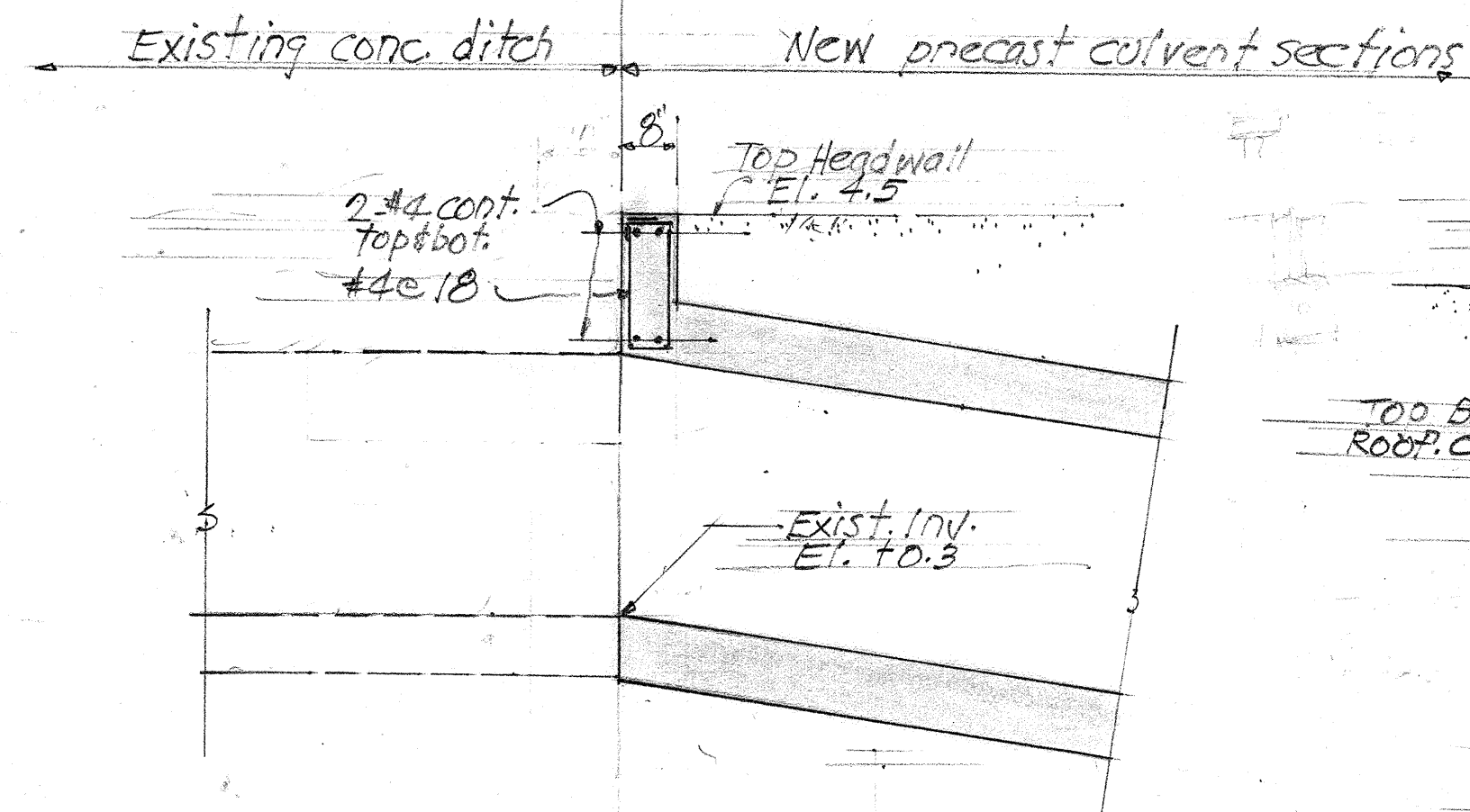


LONGITUDINAL SECTION

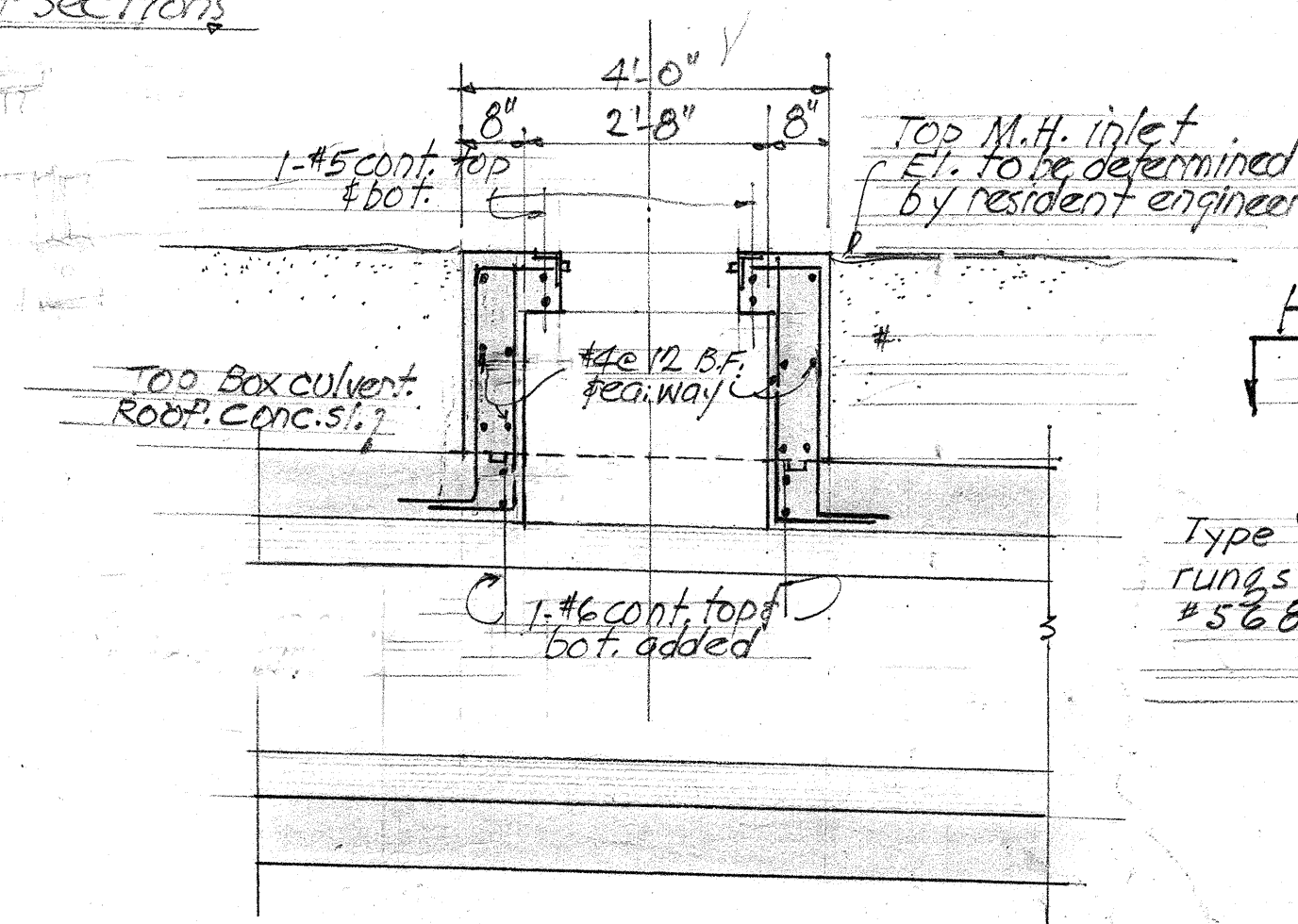


SECTION "D-D"

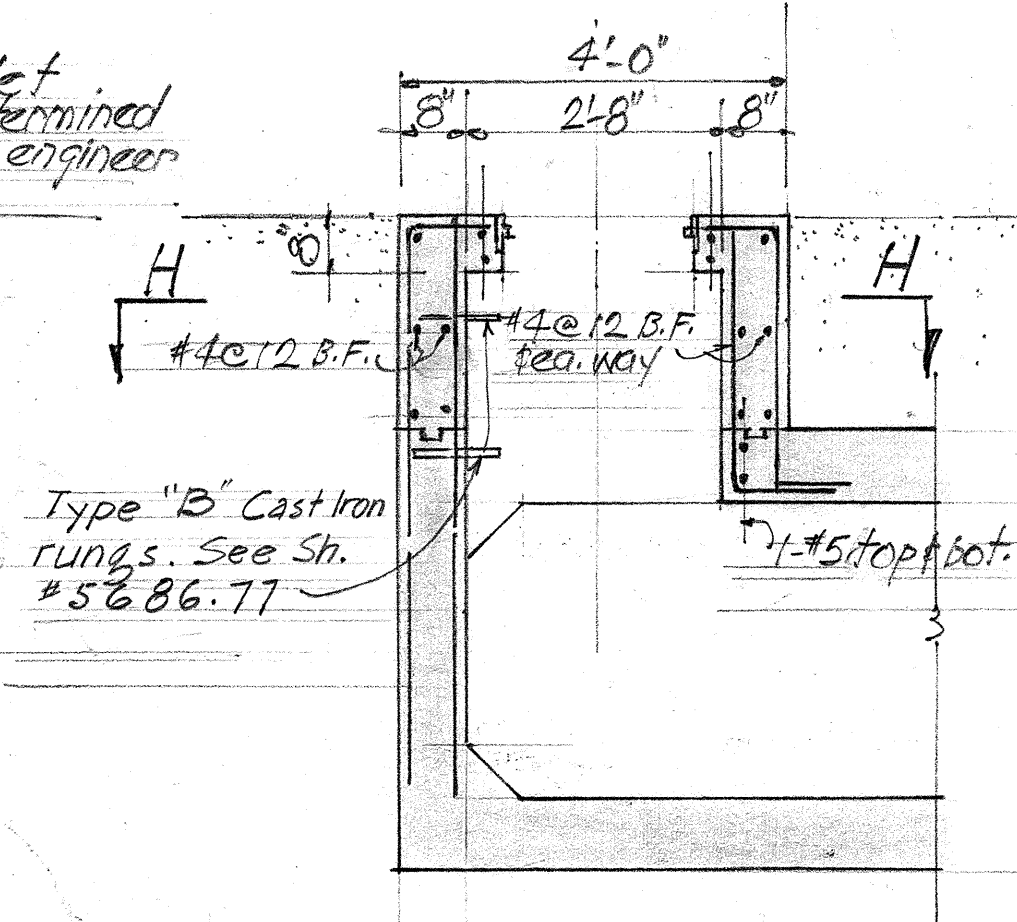
TYPICAL DETAILS OF BOX CULVERT AT JOINTS
SCALE: 1/2"=1'-0"



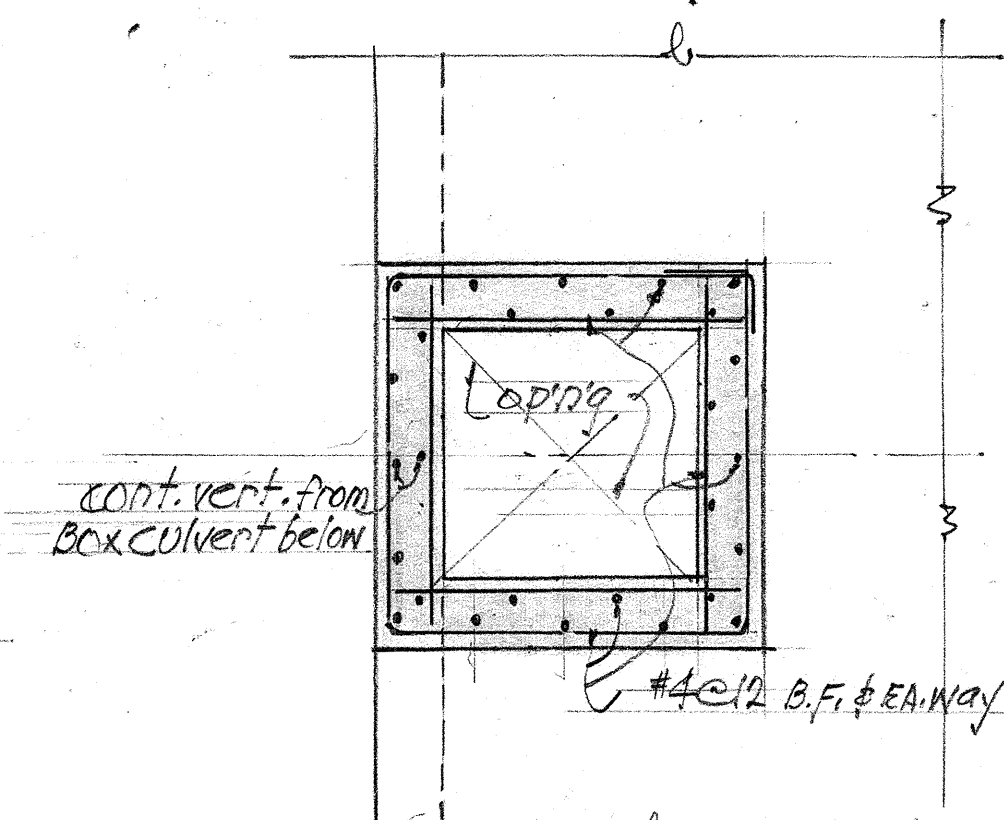
SECTION "E-E"
SCALE: 1/2"=1'-0"



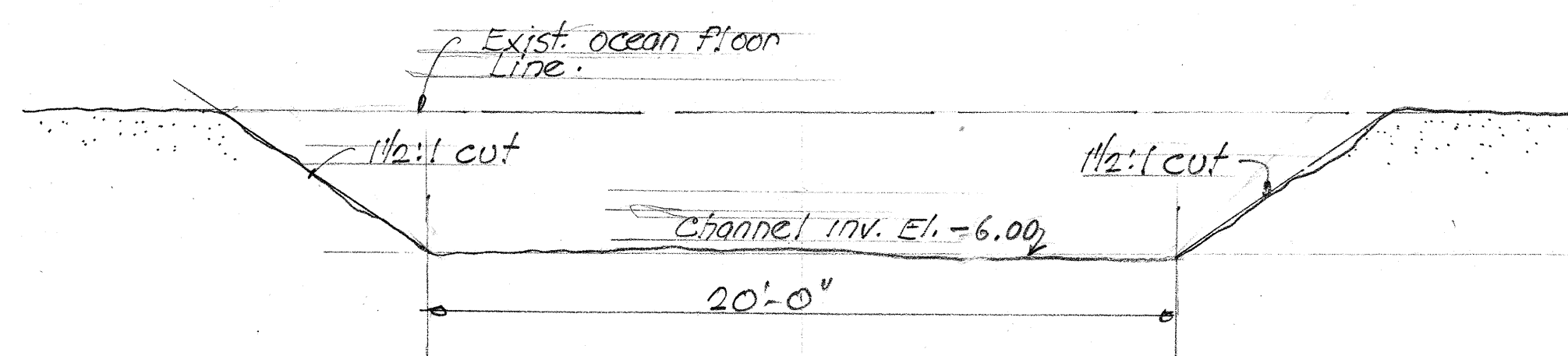
SECTION "F-F"
SCALE: 1/2"=1'-0"



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



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



TYPICAL SECTION "J-J" SCALE: 1/4"=1'-0"

ESTIMATED QUANTITIES

CLASS A-1 CONCRETE	70 c.y.
ROCK FILL	660 c.y.
CHANNEL EXC.	200 c.y.
STRUCTURAL EXC.	800 c.y.
REINF. STEEL	2,700 lbs.
SPECIAL C.I. FRAME & COVER	3 EACH.

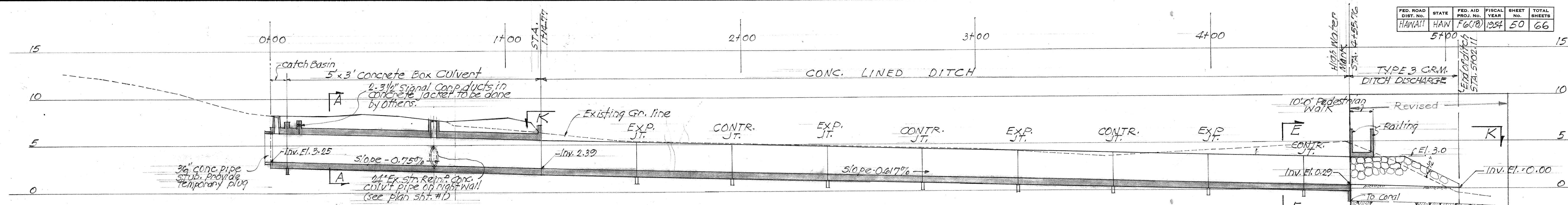
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
ADDITION TO DRAINAGE
STRUCTURE - KIRKWOOD PLACE
BASE LINE STA. 127+00±
FGC(8) NOVEMBER 1955

SHEET No. 2 OF 2 SHEETS

5686.4913

5686.4913

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
QUANTITIES CHECKED BY	
NOTE BOOK	
No.	



ESTIMATED QUANTITIES

Class A-1 Concrete	145.0	179.5 cu. y.
Reinforcing Steel	16,655	16,260.0 #
Structural Excavation	768.8	746.0 cu. y.
CRM	38.5	40.0 cu. y.
Dampproofing	488	481.0 sq. y.
Type A Std. C.I. M.H. Frame & Cover	2	

LONGITUDINAL SECTION ALONG & 5'-0"X3'-0" CONC. BOX CULVERT & DITCH AT KIRKWOOD PLACE

