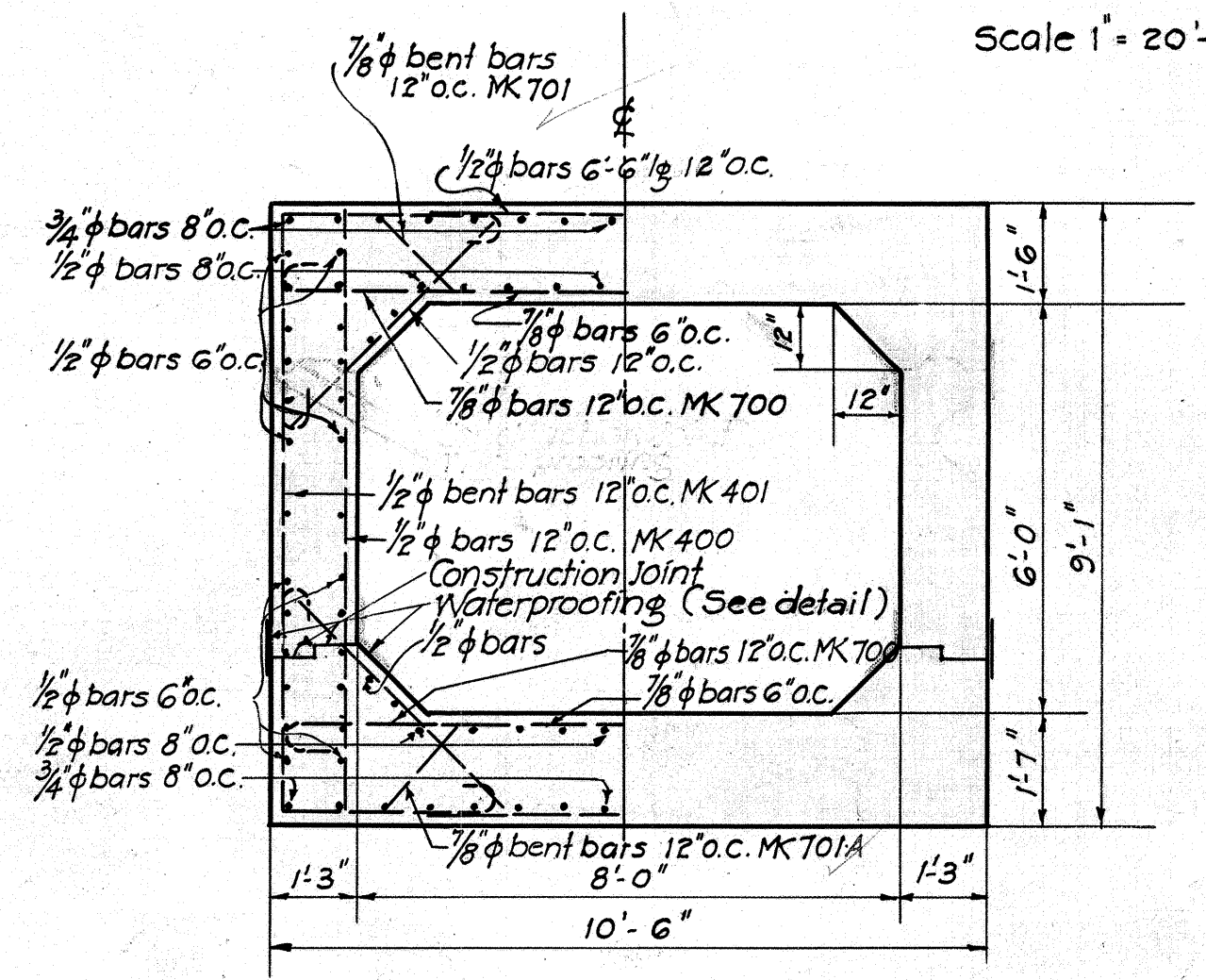
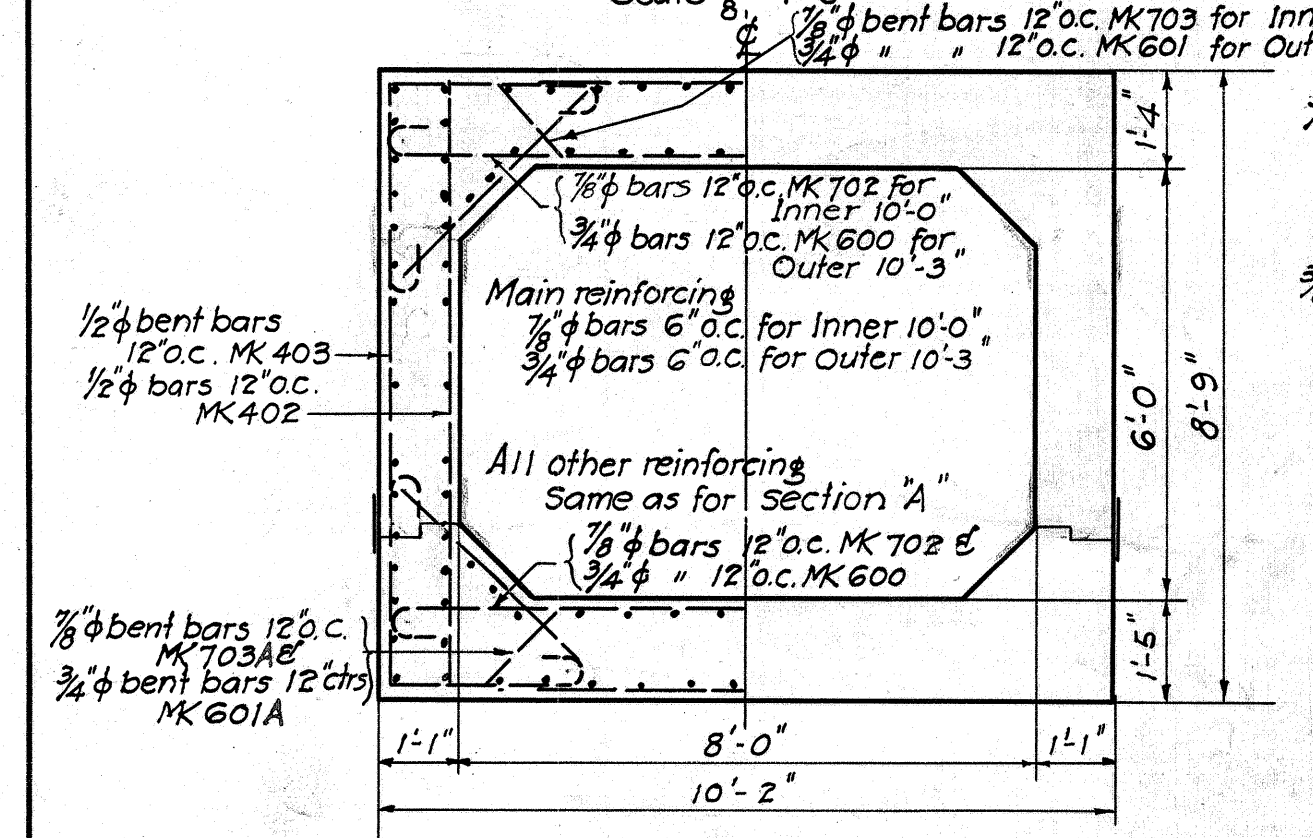


CURVE DATA
 PC 51+37.61
 PT 51+53.044
 Δ = 38° 35'
 D = 2° 30'
 R = 2292
 T = 802.3
 L = 1543.4

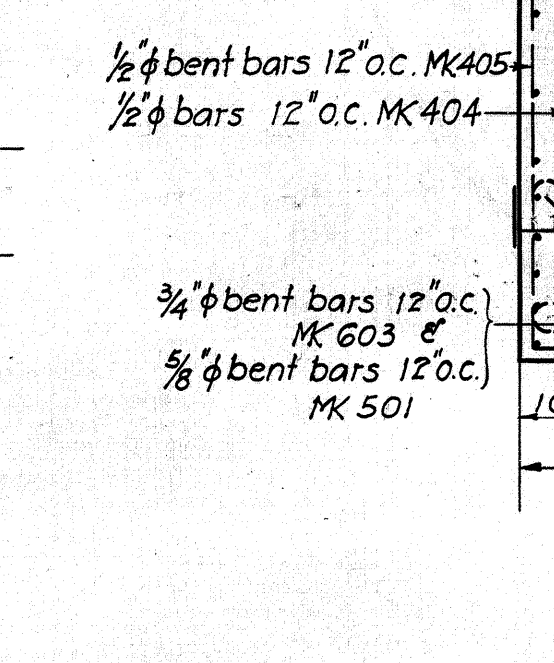
LOCATION PLAN
 Scale 1" = 20'-0"



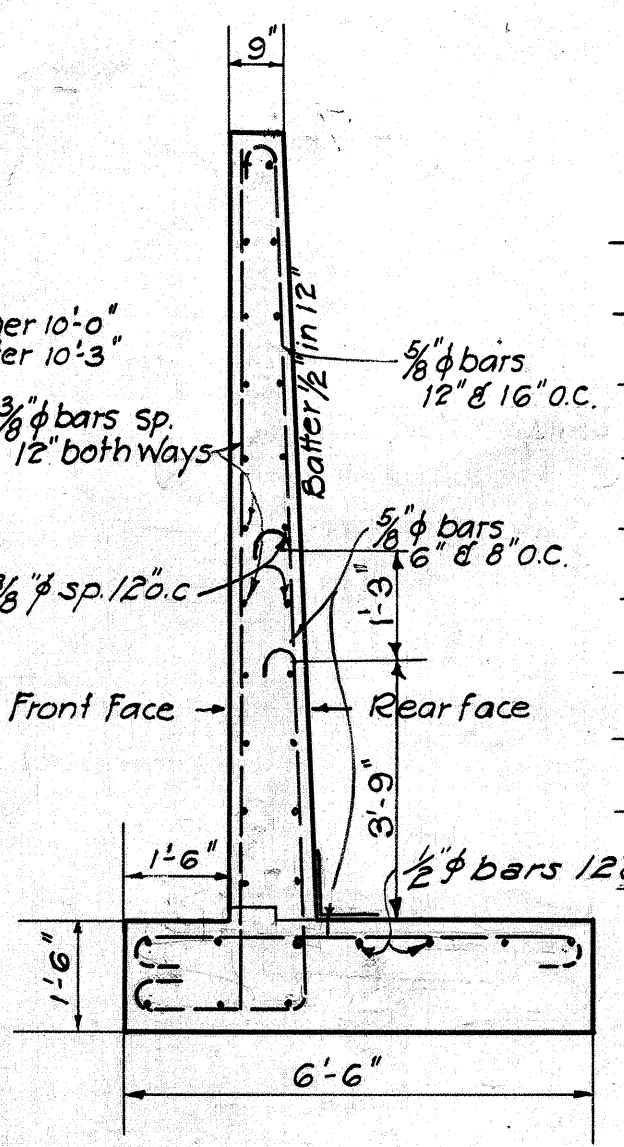
SECTION A
 Scale 3/8" = 1'-0"



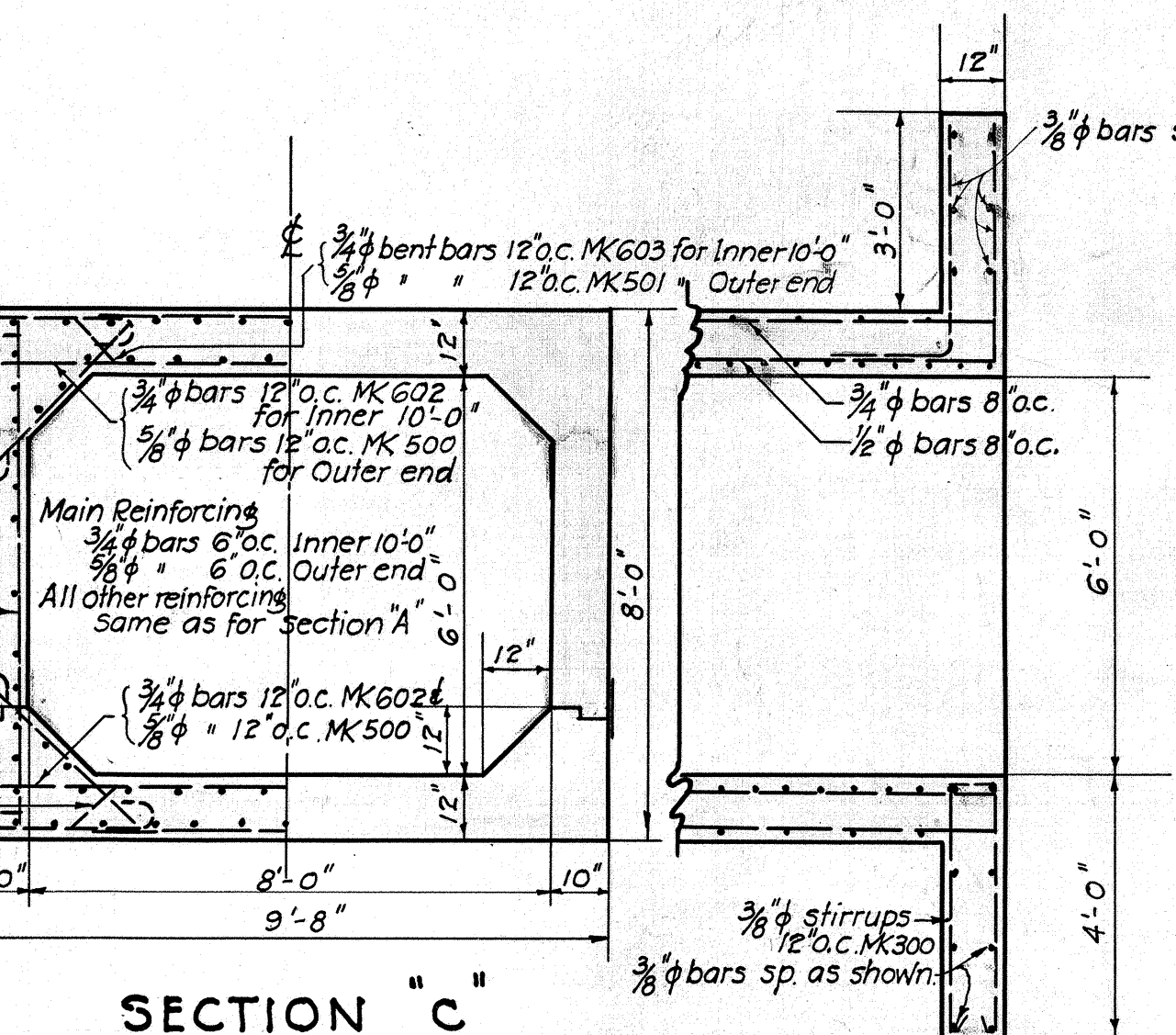
SECTION B
 Scale 3/8" = 1'-0"



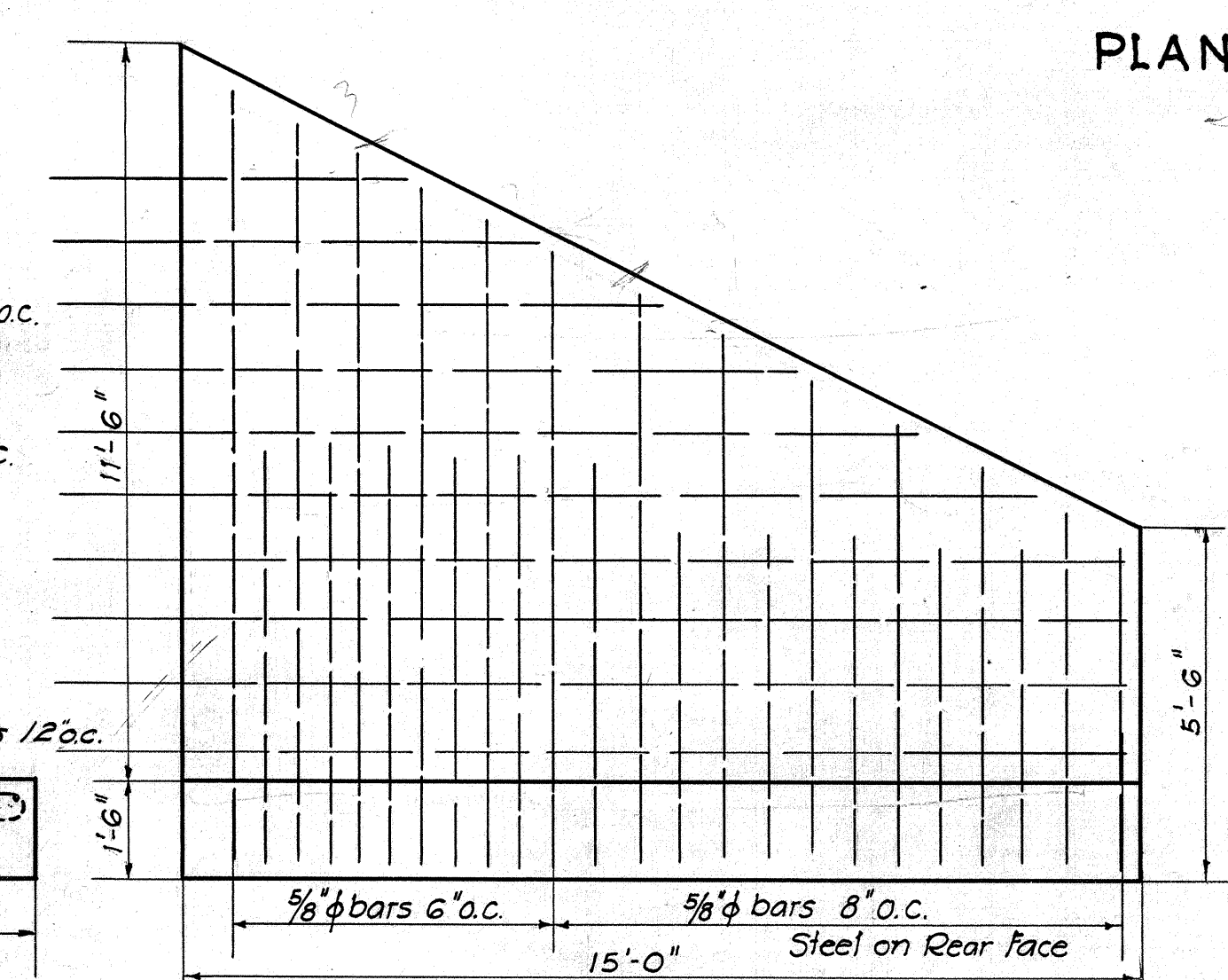
SECTION C
 Scale 3/8" = 1'-0"



WING WALL SECTION
 Scale 3/8" = 1'-0"

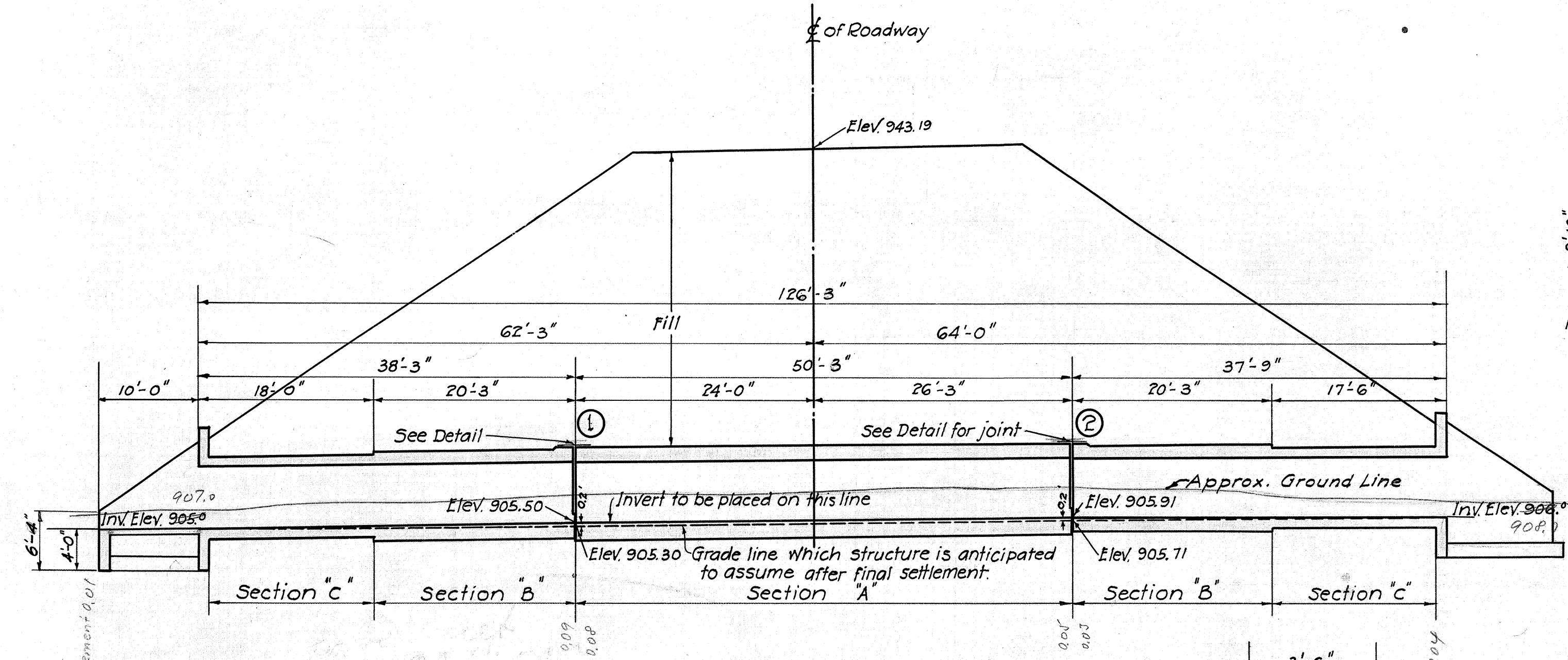


END DETAIL UPSTREAM
 Scale 3/8" = 1'-0"

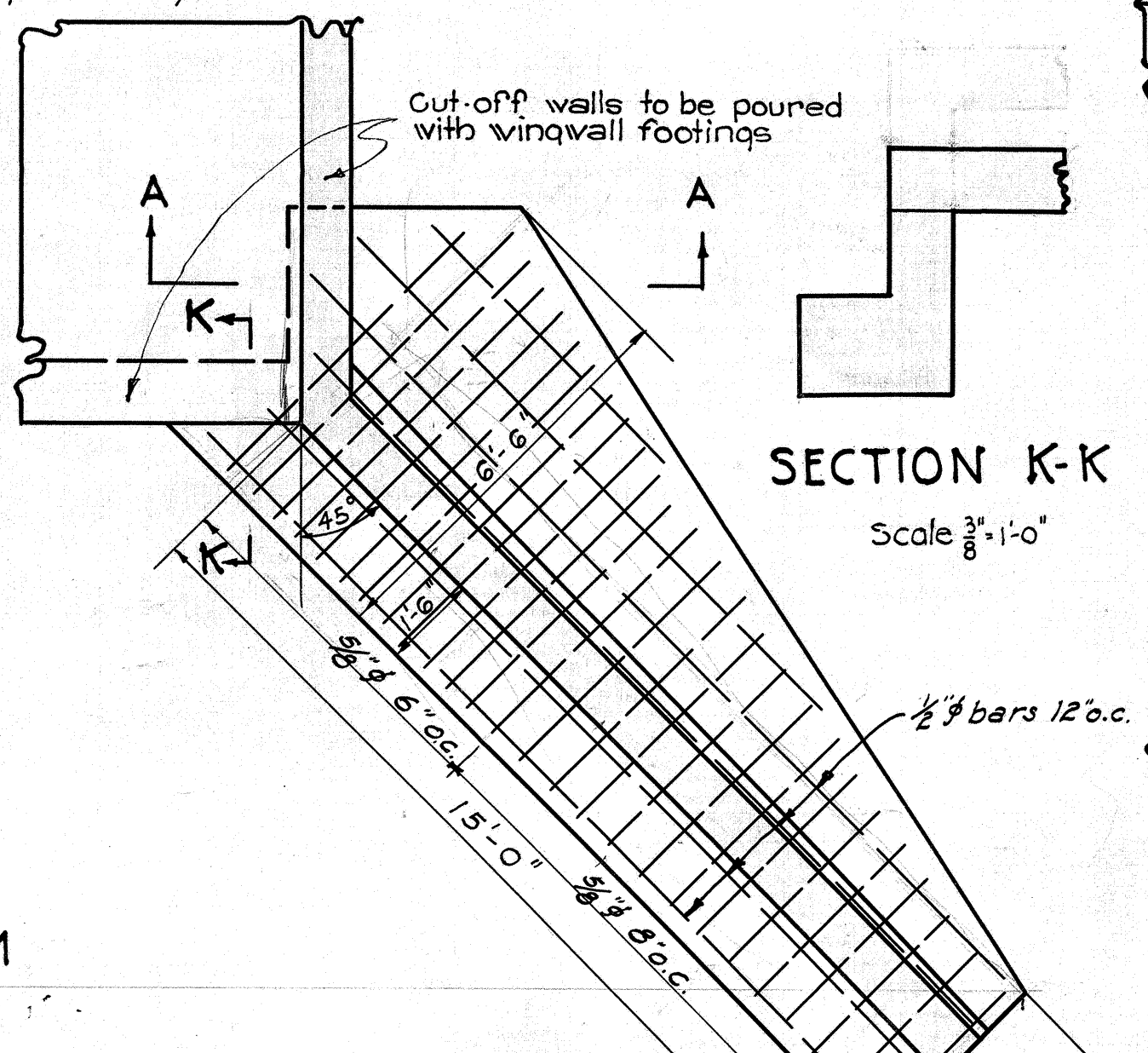


ELEVATION
 Scale 3/8" = 1'-0"

SECTION THRU
 Scale 1" = 10'-0"

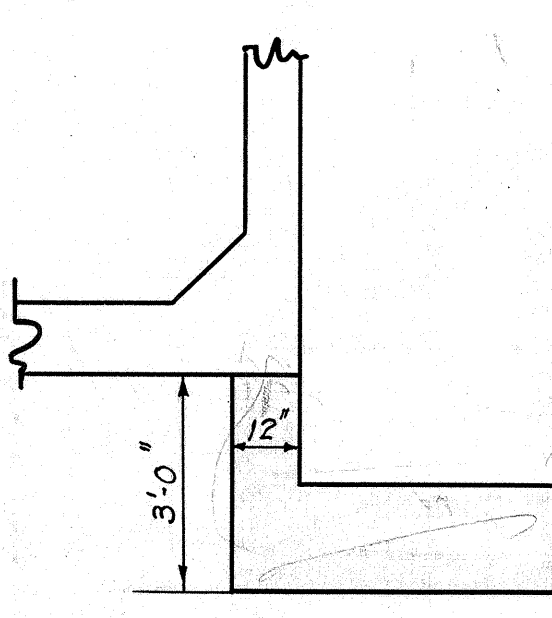


SECTION K-K
 Scale 3/8" = 1'-0"

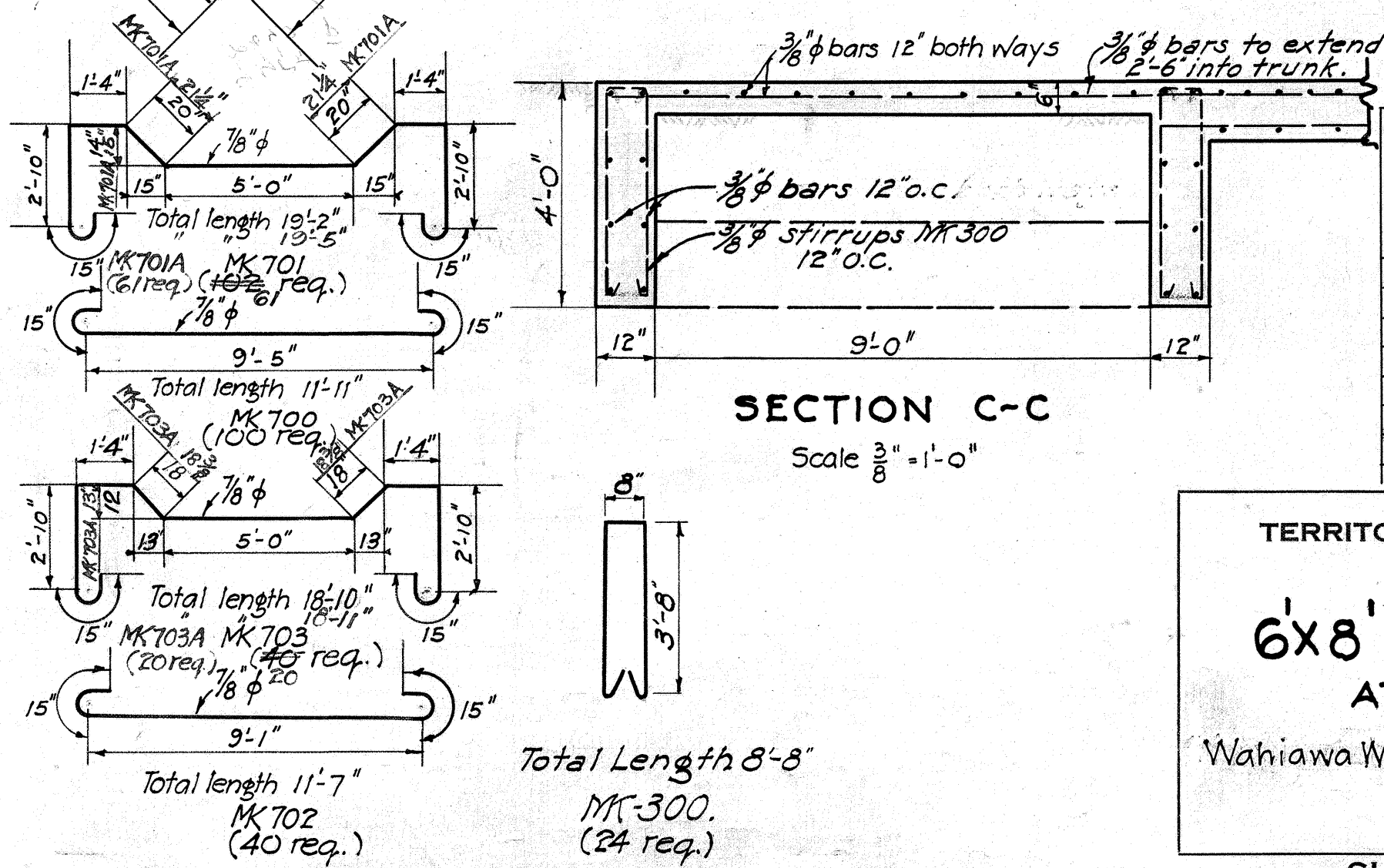


PLAN WING WALL AT INTAKE
 Scale 3/8" = 1'-0"

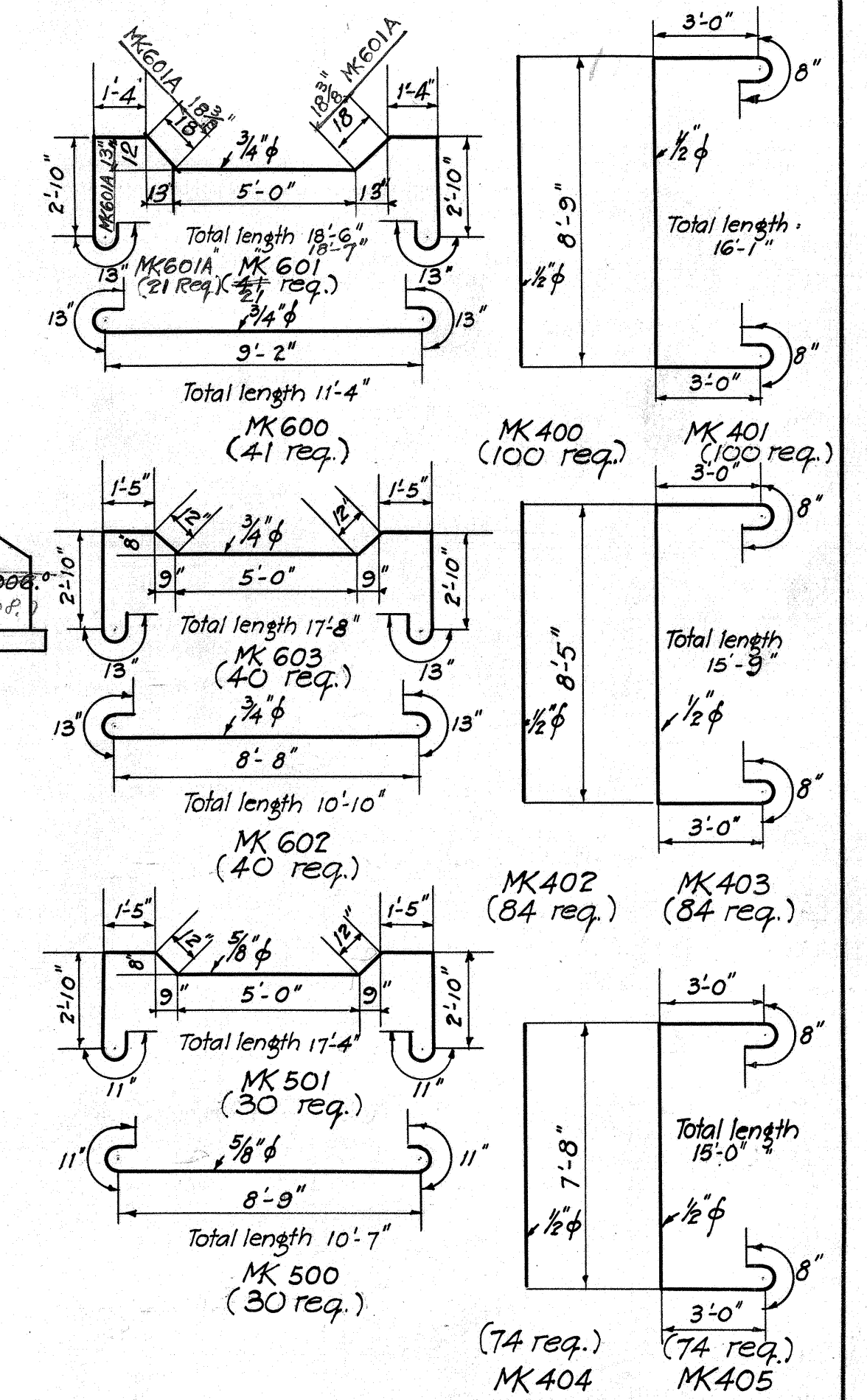
SECTION A-A
 Scale 3/8" = 1'-0"



WING WALL AT DOWNSTREAM END
 Scale 3/8" = 1'-0"



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



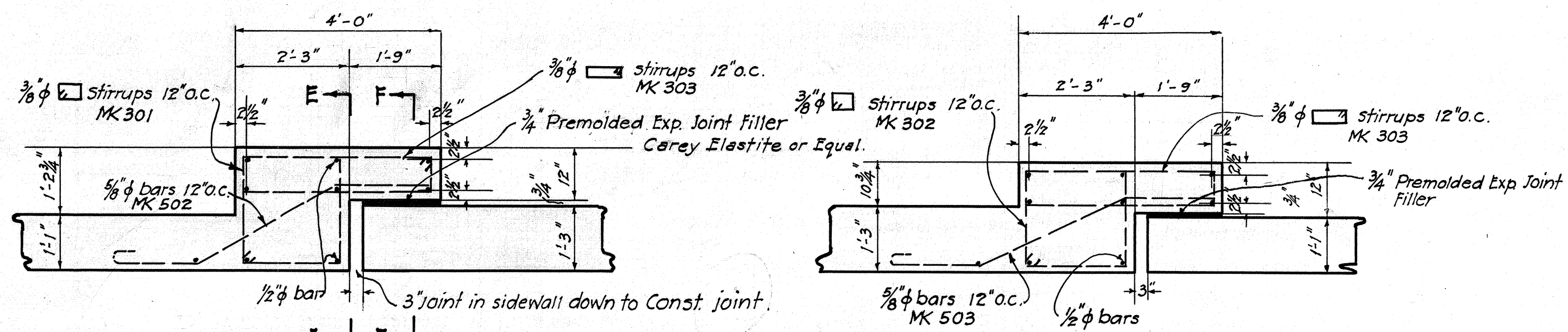
NOTE: All 90° bends of reinforcing bars as detailed shall be bent to form rounded bends with radius equal to 4 diameters of the bars.

SECTION B-B
 Scale 3/8" = 1'-0"

Hook Detail

Mark	Size	C	C+Ad	E	6d	2d	Area
300	3/8"	3"	4 1/2"	6"	3"	3"	0.11
400	1/2"	5"	6"	8"	4"	6"	0.19
400	1/2"	5"	6"	8"	4"	6"	0.25
500	5/8"	5 1/2"	11"	5"	11"	5"	0.31
600	3/4"	6"	13"	6"	14"	6"	0.44
700	7/8"	6 1/2"	15"	7"	17"	7"	0.60

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
6'x8' BOX CULVERT
 AT STA 46+20
 Wahiawa Waiailua Road NRS 21-A
 Aug. 1935

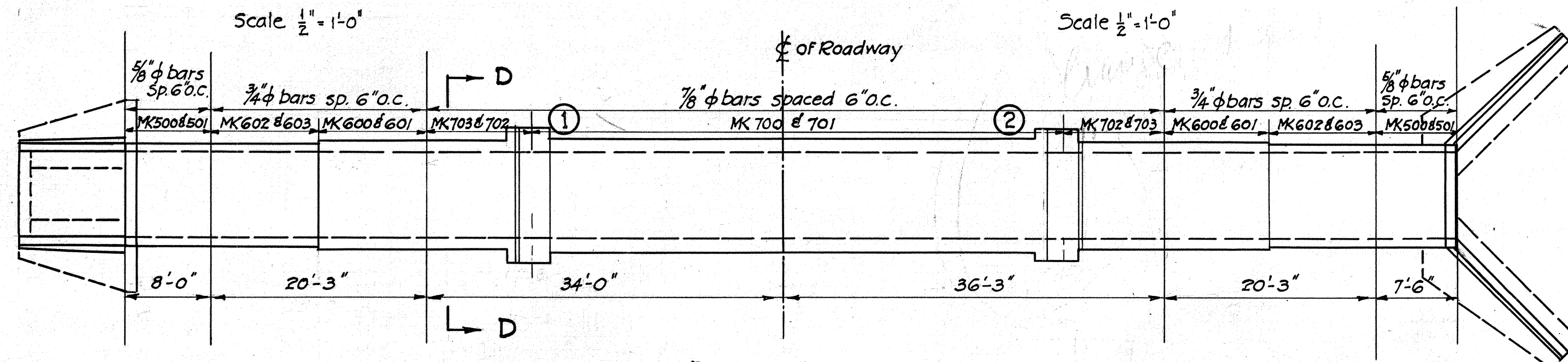


PLAN OF JOINT #1

Scale 1/2" = 1'-0"

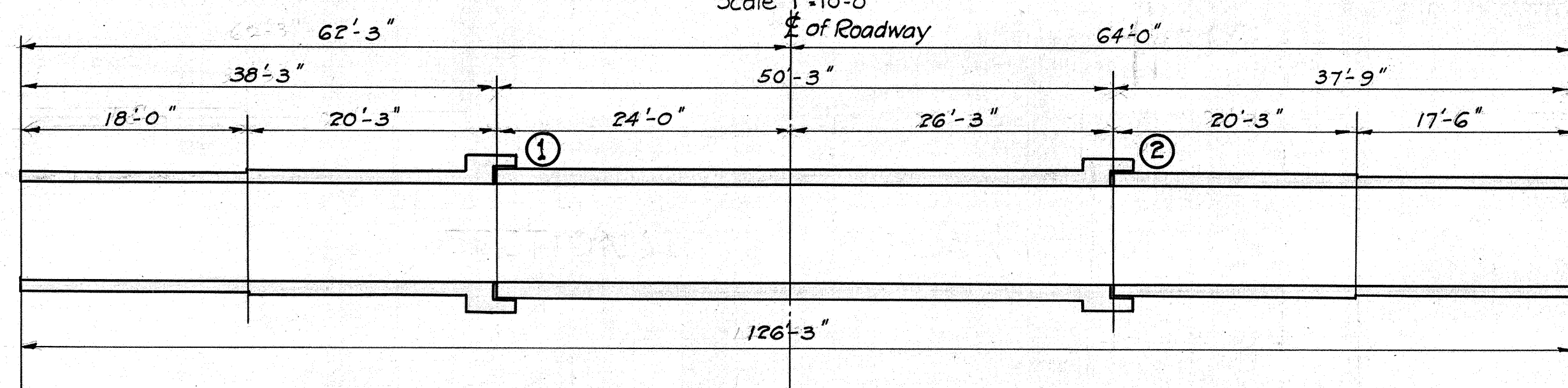
PLAN OF JOINT #2

Scale 1/2" = 1'-0"



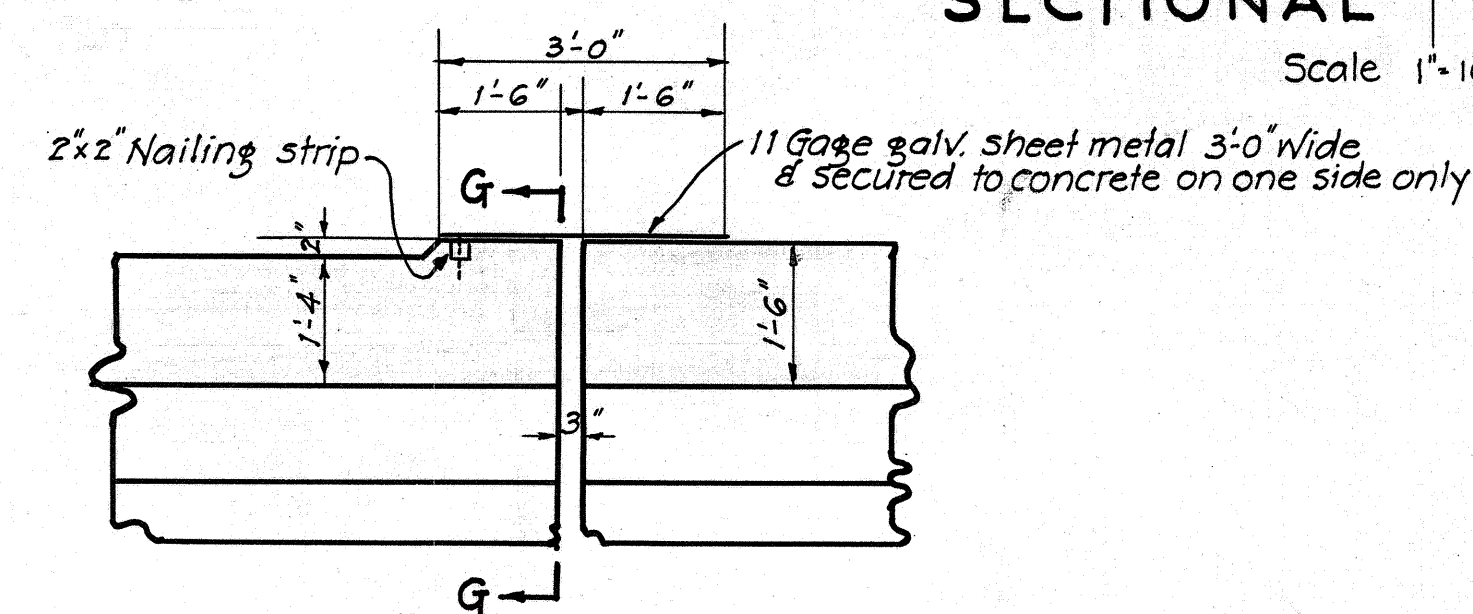
PLAN

Scale 1" = 10'-0"



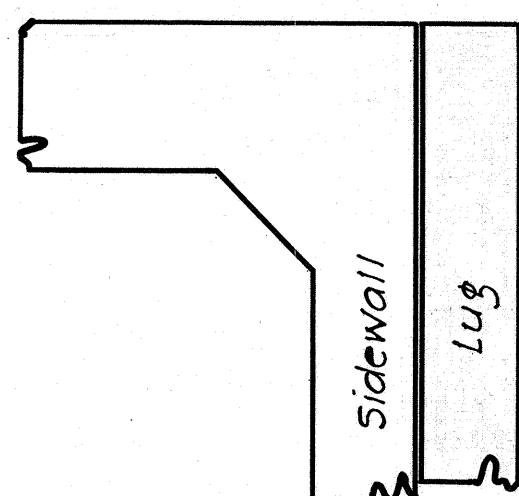
SECTIONAL PLAN

Scale 1" = 10'-0"



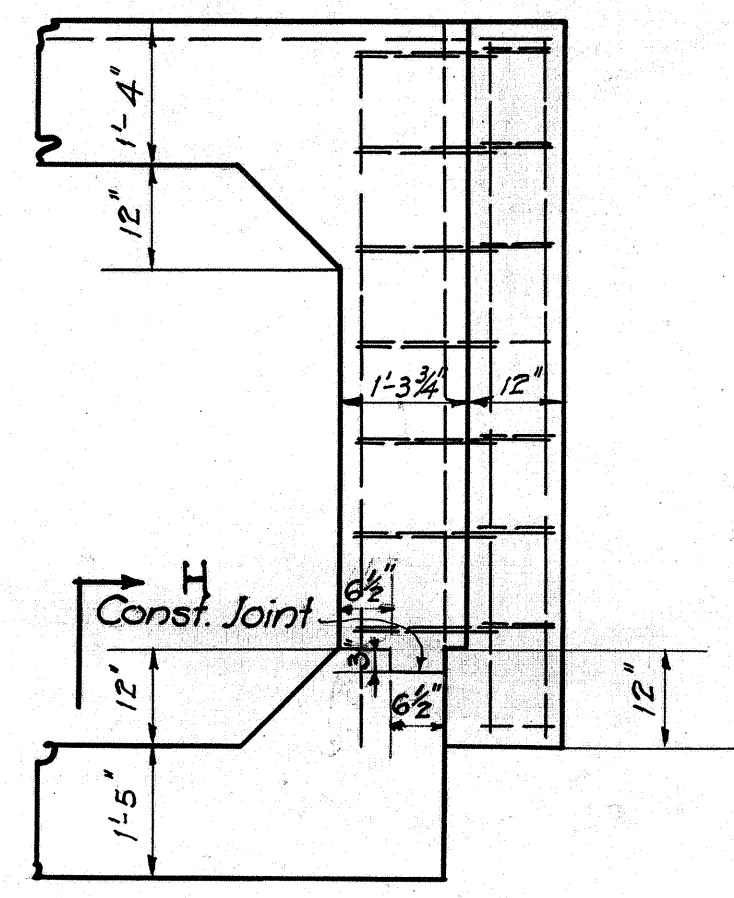
DETAIL OF TOP SLAB AT JOINT #1

Scale 1/2" = 1'-0"



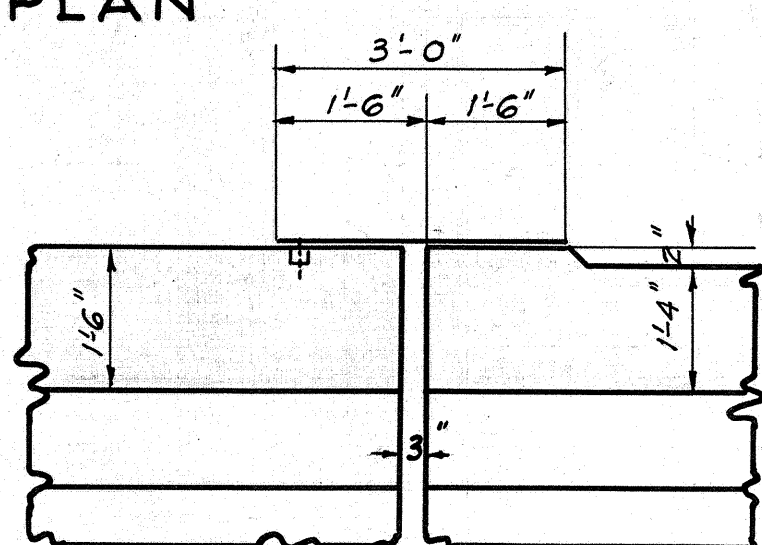
SECTION G-G

Scale 1/2" = 1'-0"



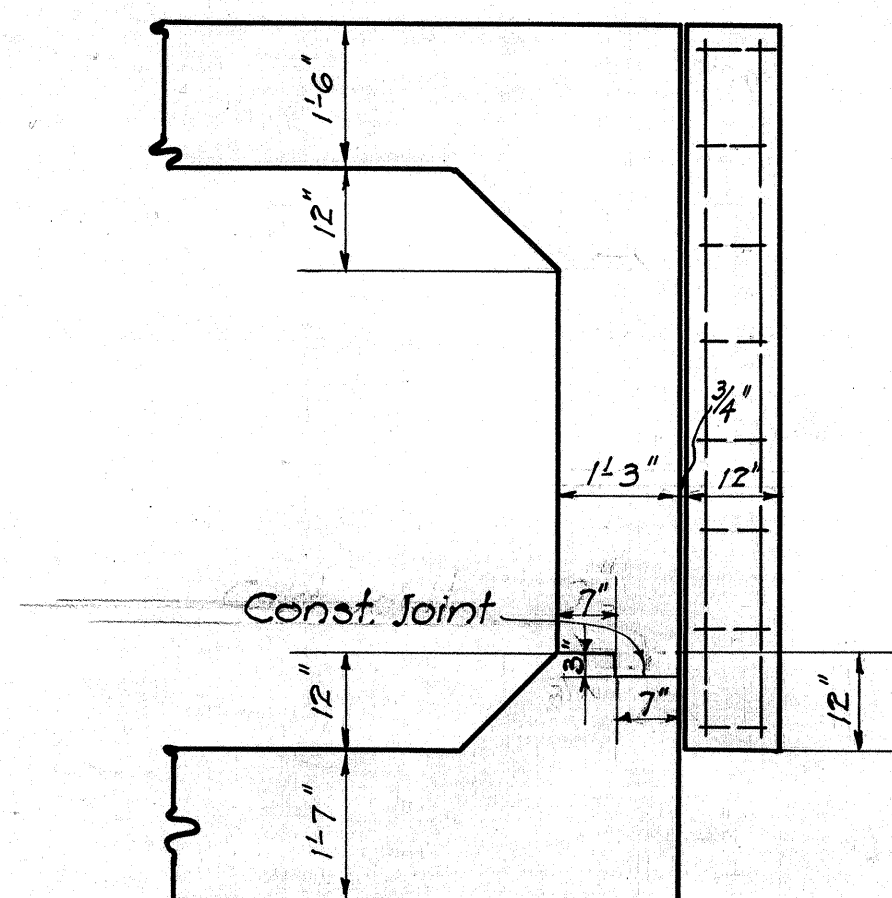
SECTION E-E

Scale 1/2" = 1'-0"



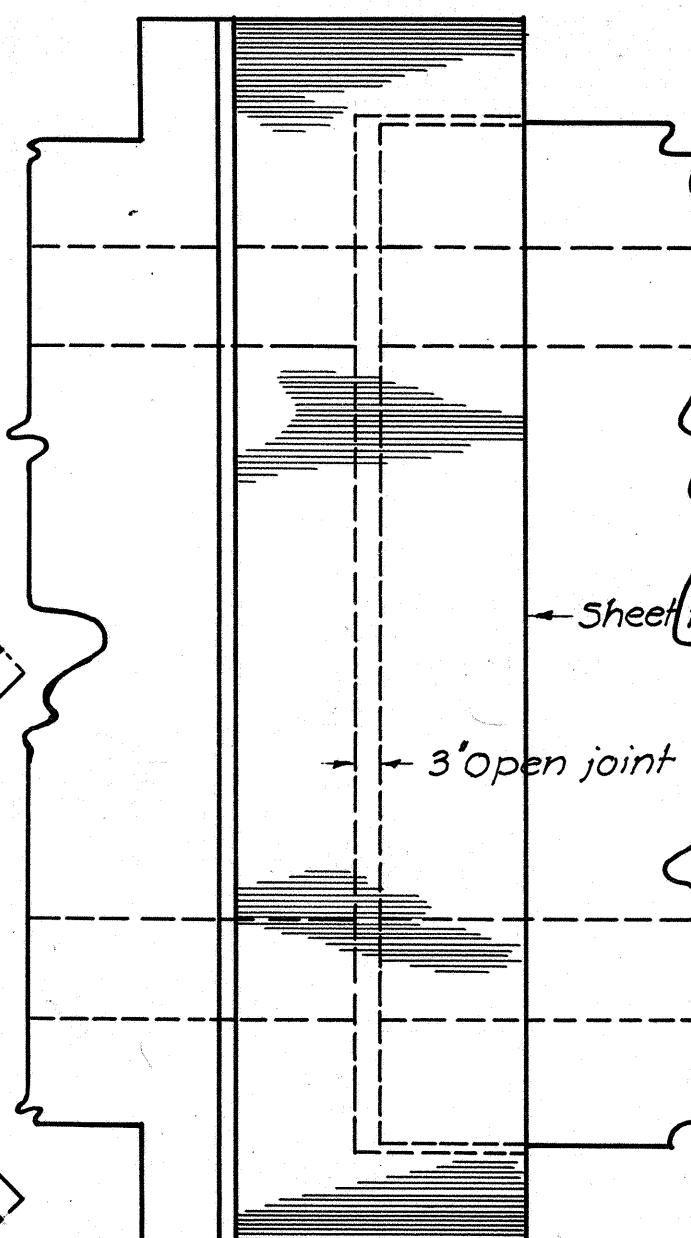
DETAIL OF TOP SLAB AT JOINT #2

Scale 1/2" = 1'-0"



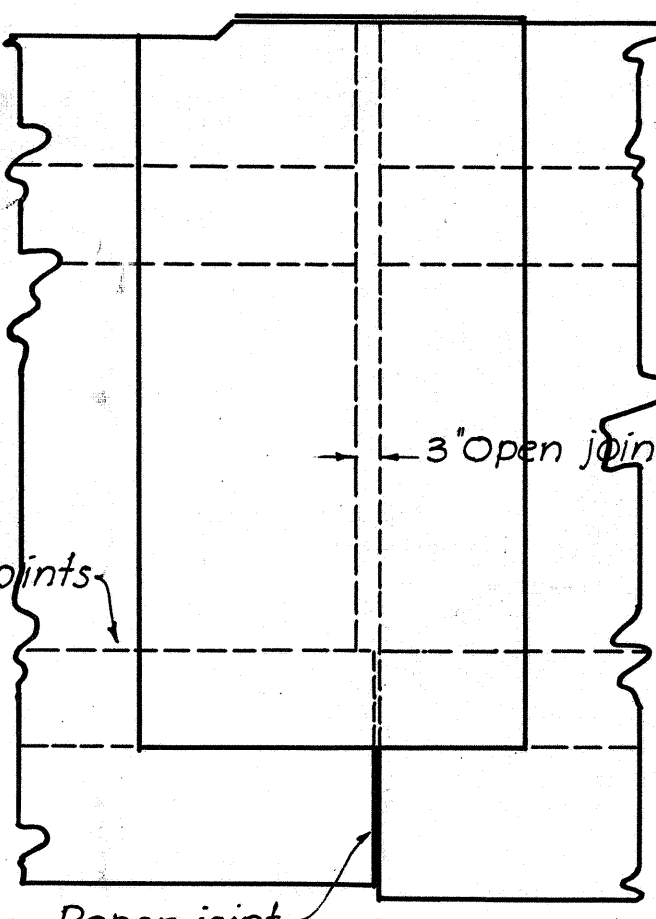
SECTION F-F

Scale 1/2" = 1'-0"



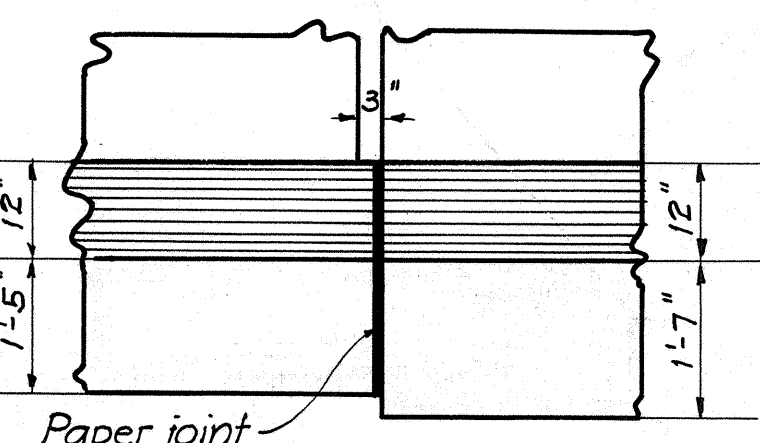
TOP SLAB PLAN JOINT #1

Scale 1/2" = 1'-0"



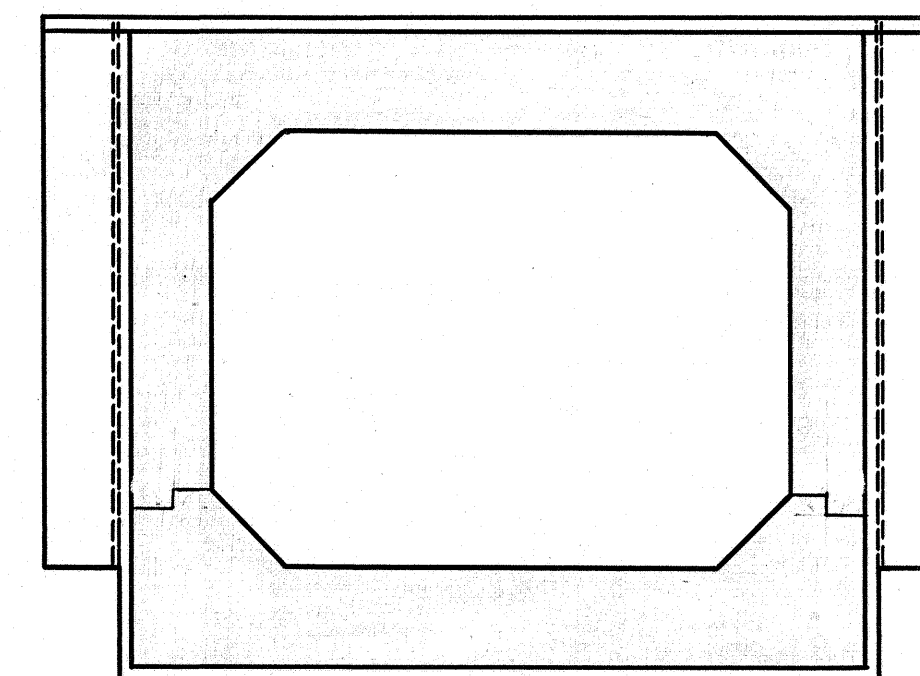
ELEVATION

Scale 1/2" = 1'-0"



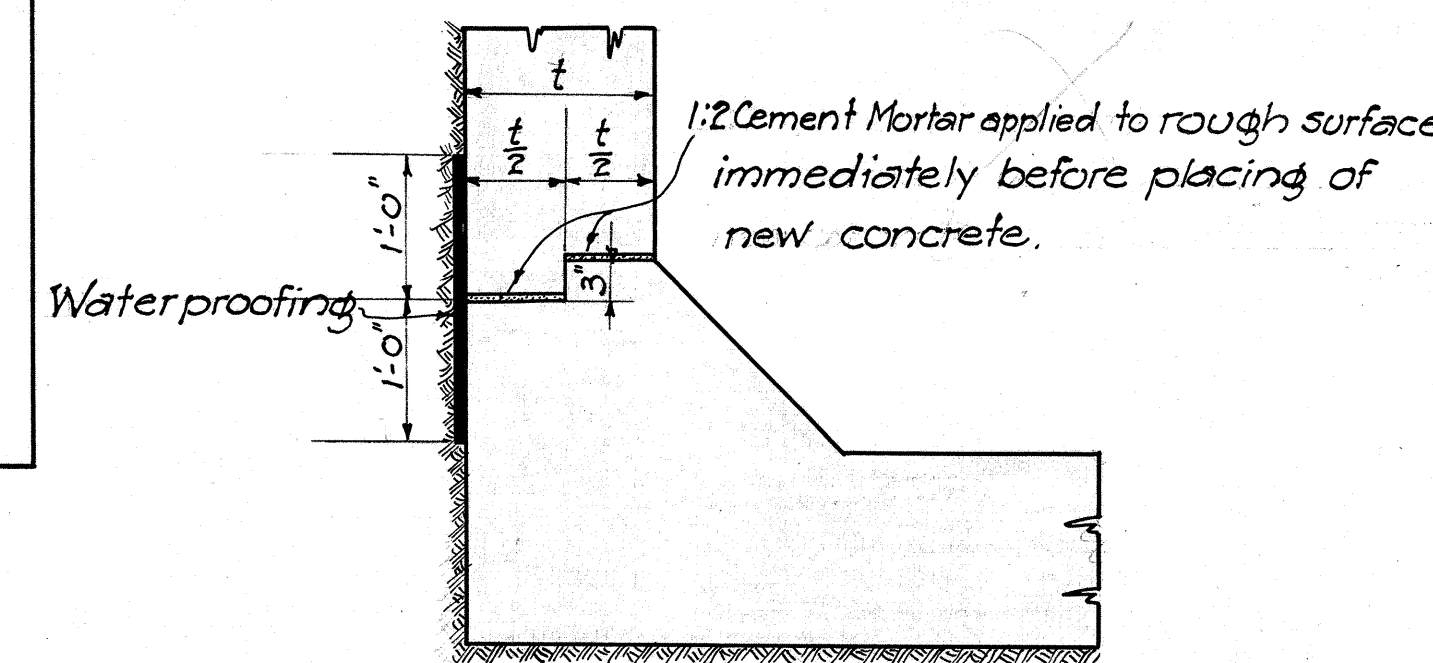
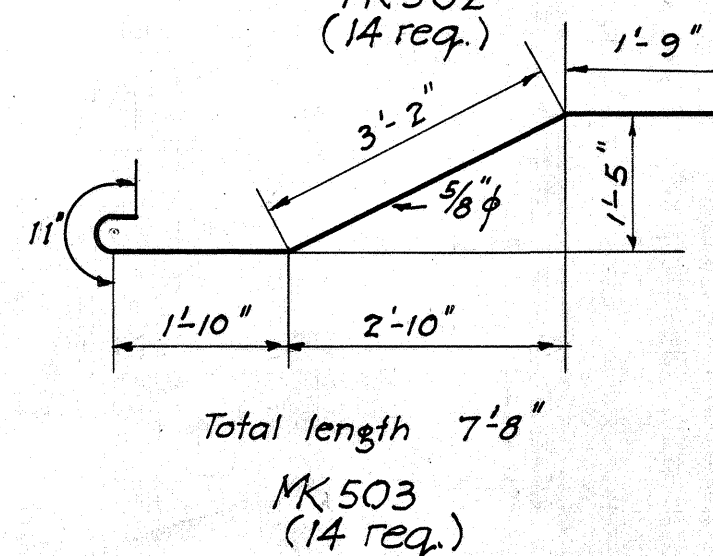
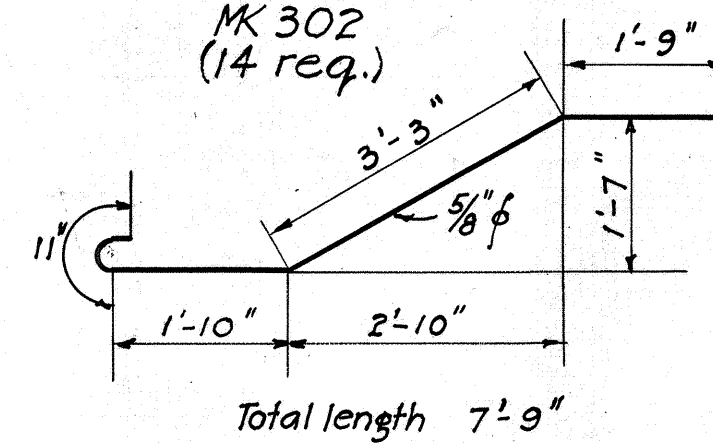
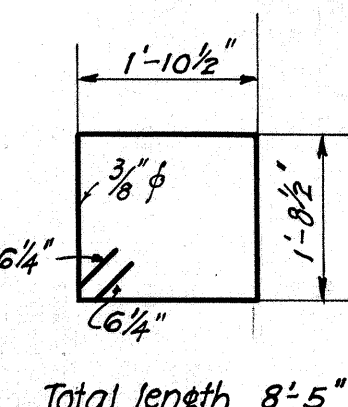
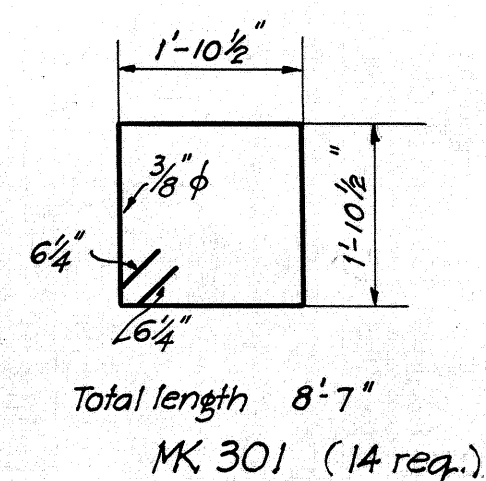
SECTION H-H

Scale 1/2" = 1'-0"



SECTION D-D

Scale 3/8" = 1'-0"



CONSTRUCTION JOINT

METHOD OF APPLYING WATERPROOFING:-

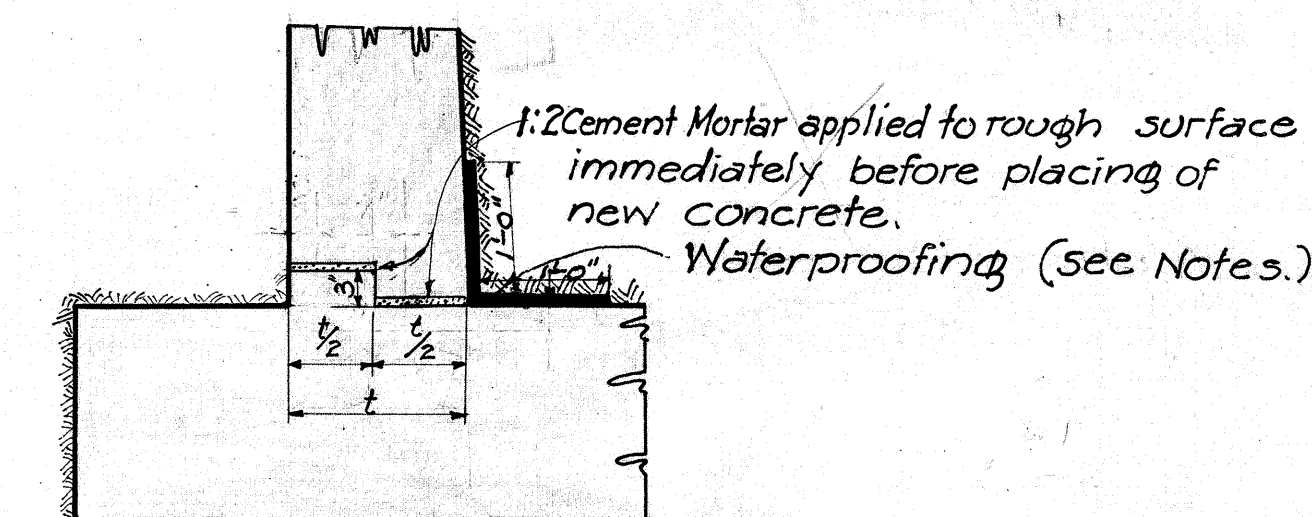
FIRST: Map surface 18" either side of joint with asphalt, 85-100 penetration, applied at 200°F.

SECOND: Apply one layer of 2 ply roofing paper lapping 12" either side of joint to hot asphalt, then mop entire surface with a thick coat of hot asphalt.

GENERAL NOTES:- All construction joints to be constructed according to details shown on this sheet. Bottom construction joints in culverts to be placed at top of haunches only.

ESTIMATED QUANTITIES

STRUCTURAL EXCAVATION	306 C.Y.
UNCLASSIFIED "	80 C.Y.
CLASS "A" CONCRETE	237 C.Y.
REINFORCING STEEL	36,450 LBS.



RETAINING WALL CONSTRUCTION JOINT

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

6'x8' BOX CULVERT
AT STA 46+20

Wahiawa Waiolua Road NRS 21-A

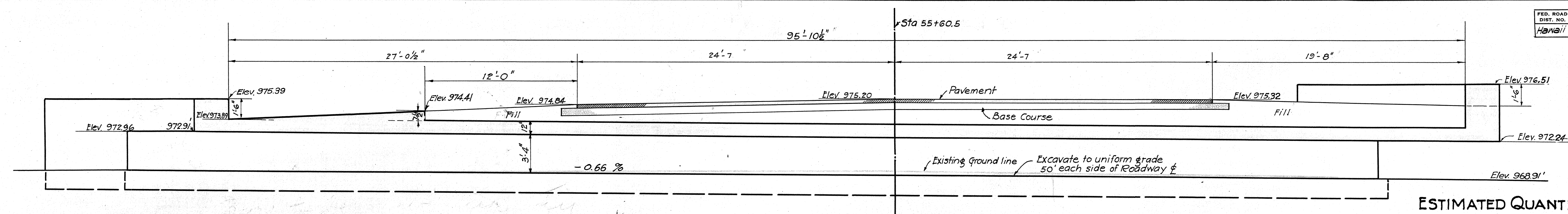
Aug. 1935

SHEET NO 2 OF 2 SHEETS

4346.11

SURVEY PLOTTED BY	DATE
DESIGNED BY	7-27-35
DRAWN BY	8-13-35
CHECKED BY	8-27-35
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	N.R.S. 21-A	1935	12	43

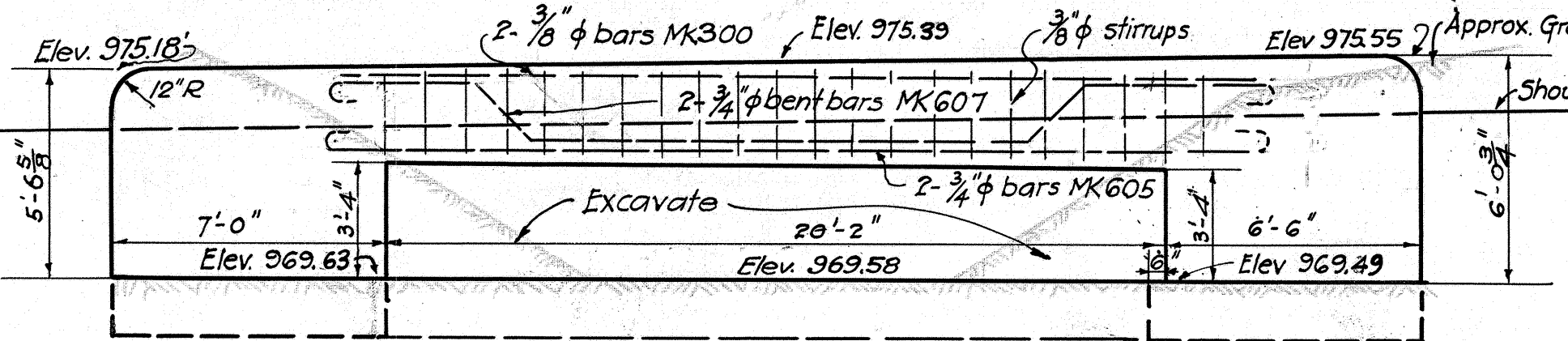


LONGITUDINAL SECTION THRU 1/2 OF CULVERT

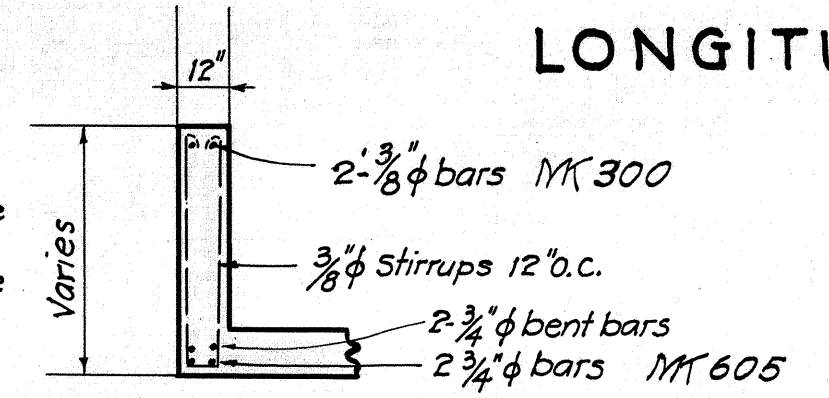
Scale 1/4" = 1'-0"

ESTIMATED QUANTITIES

STRUCTURAL EXCAVATION	107.5 C.Y.
CLASS "A" CONCRETE	95.7 C.Y.
REINFORCING STEEL	4890. LBS.

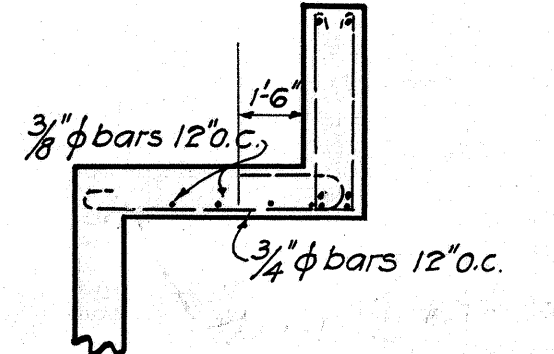


ELEVATION UPSTREAM END



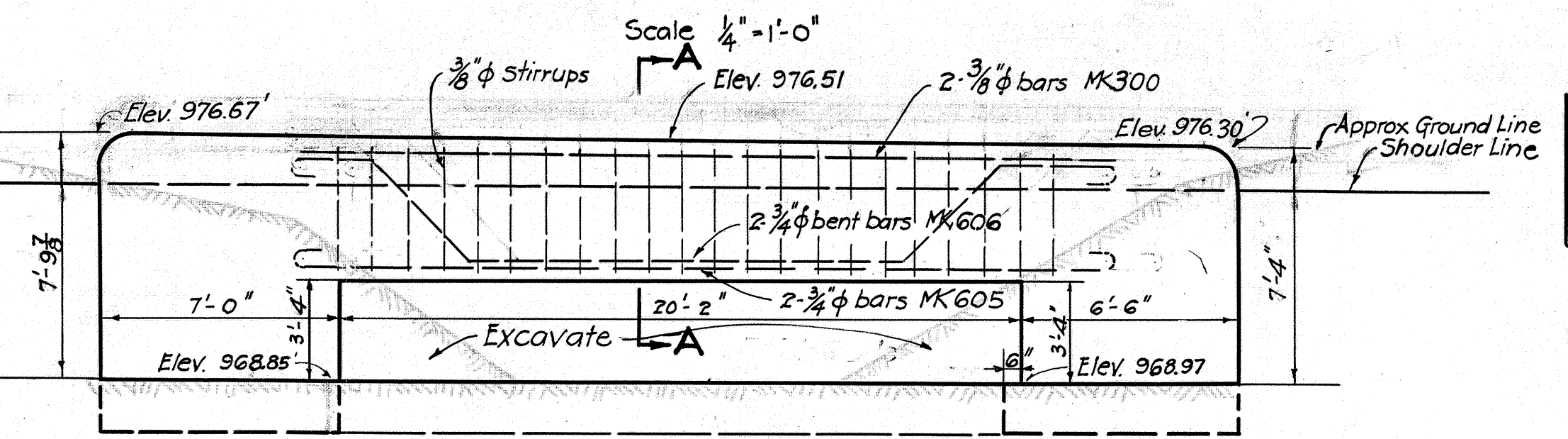
SECTION A-A

Scale 1/4" = 1'-0"



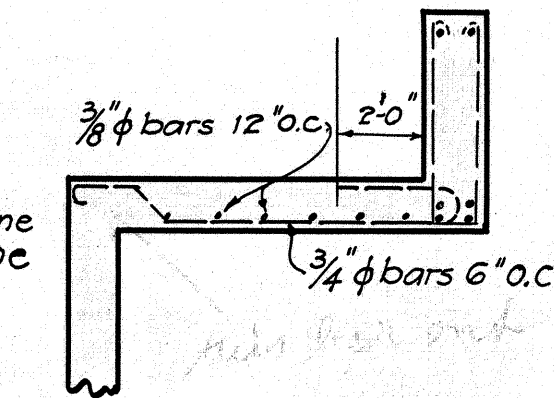
SECTION C-C

Scale 1/4" = 1'-0"



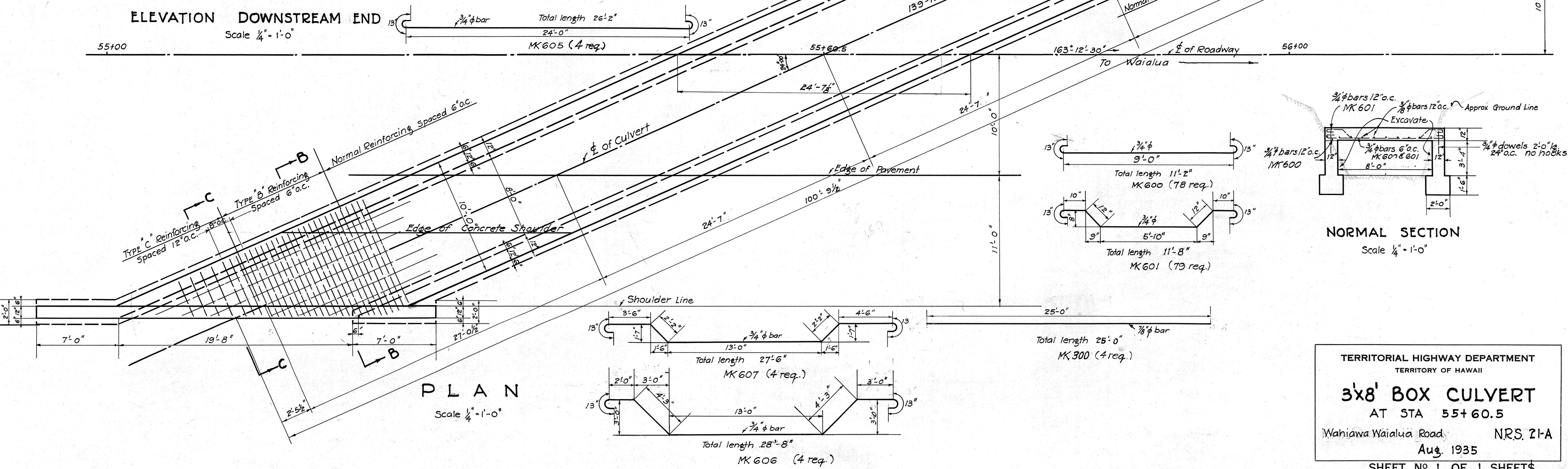
ELEVATION DOWNSTREAM END

Scale 1/4" = 1'-0"



SECTION B-B

Scale 1/4" = 1'-0"



PLAN

Scale 1/4" = 1'-0"

NORMAL SECTION

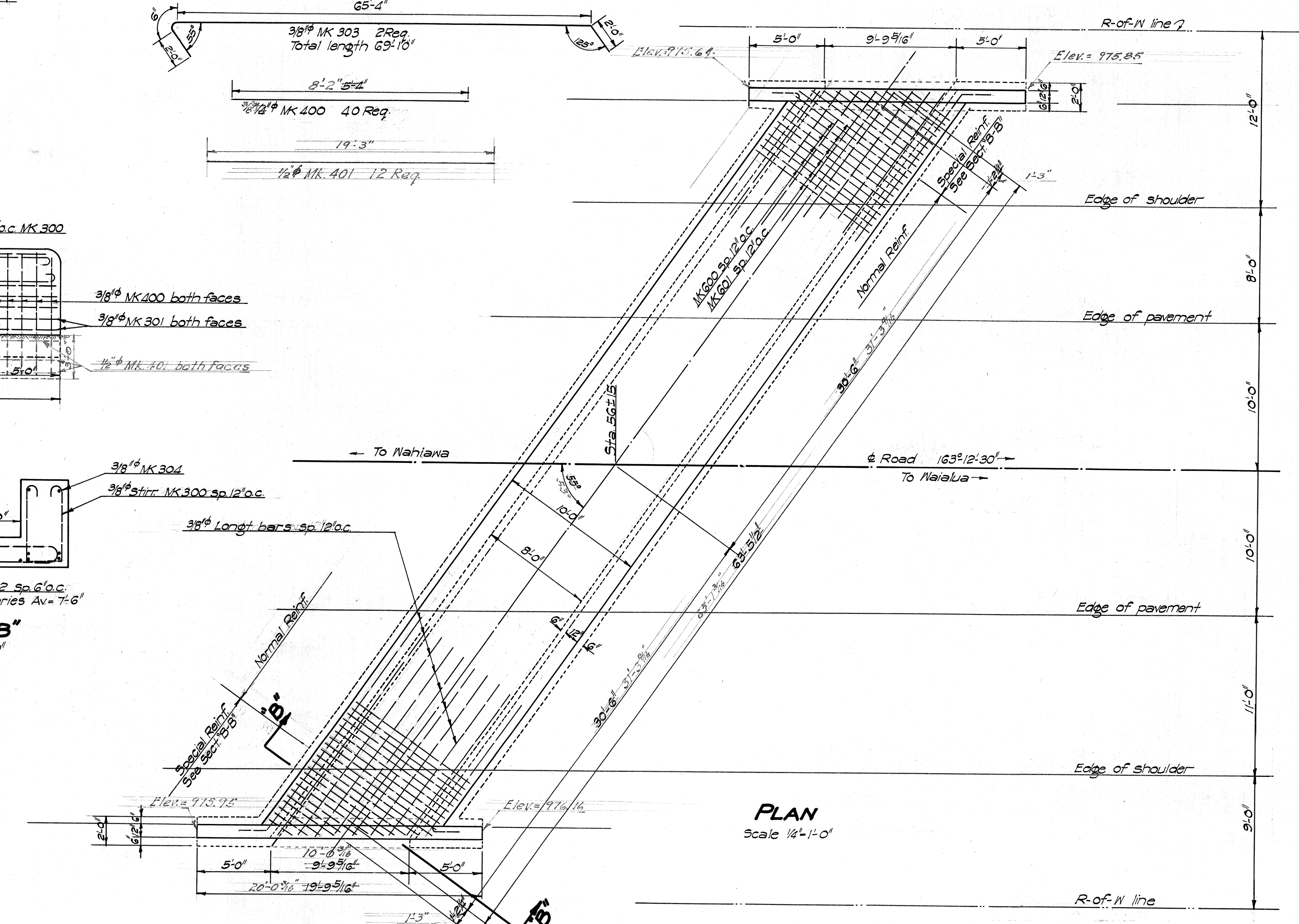
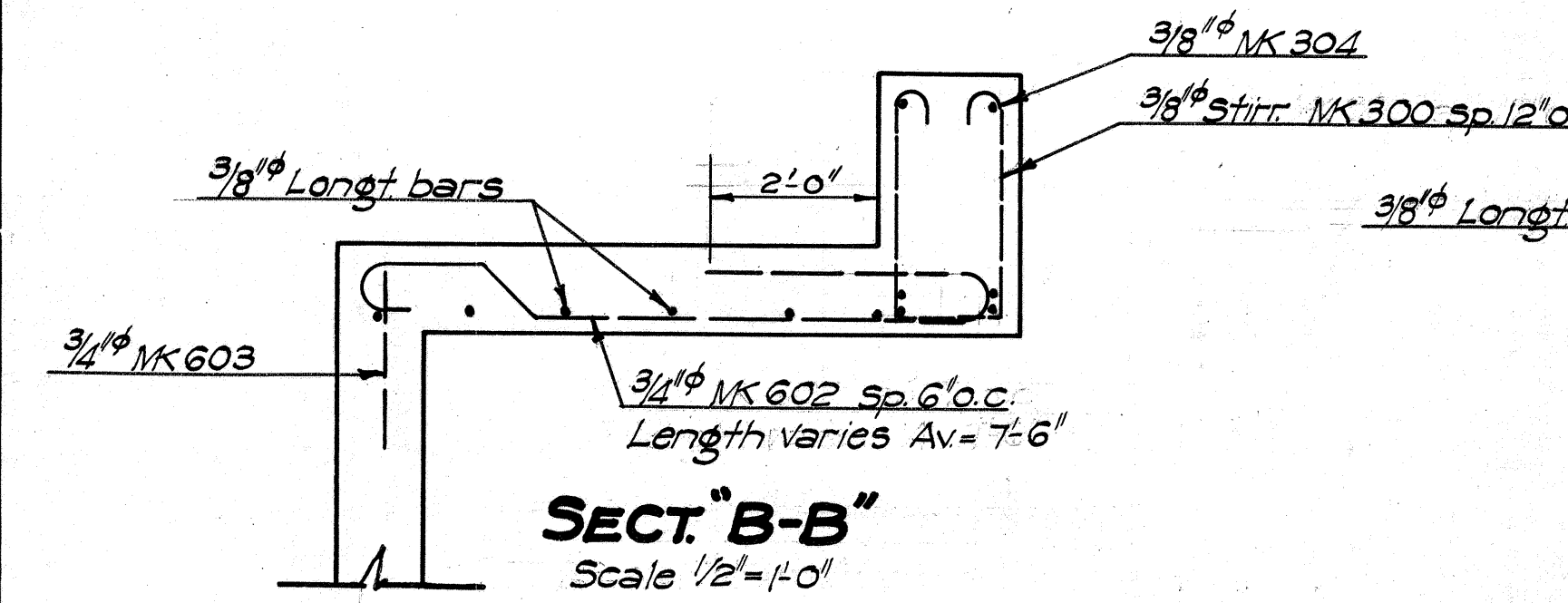
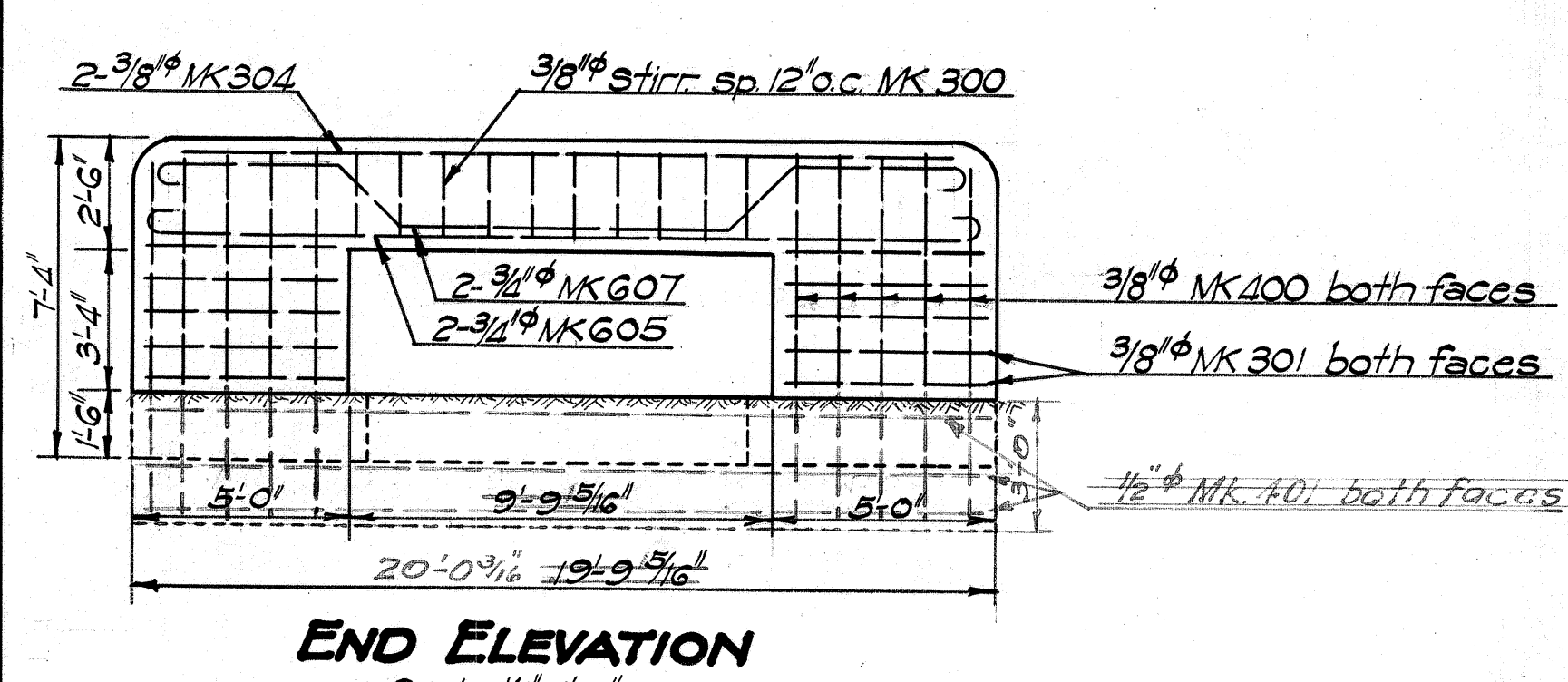
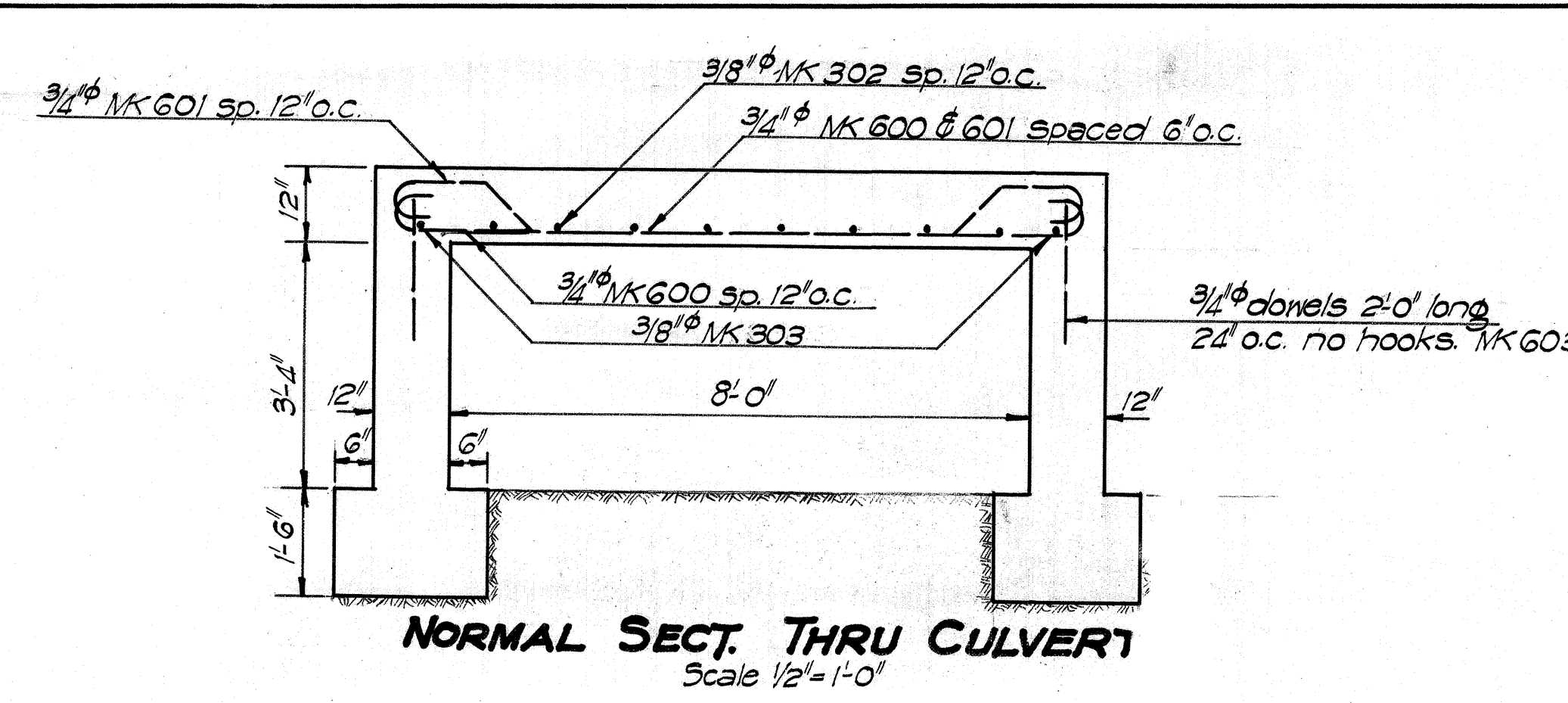
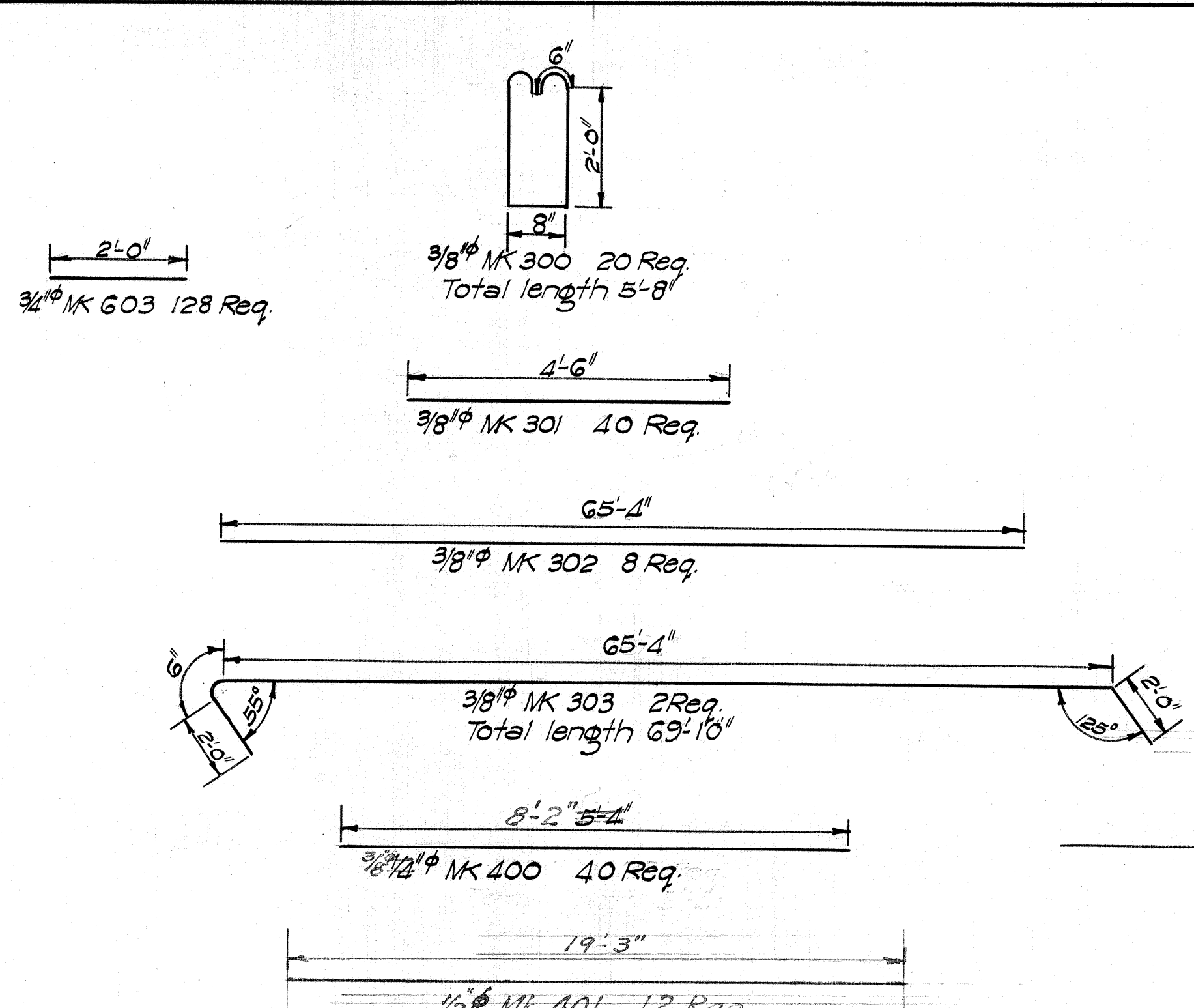
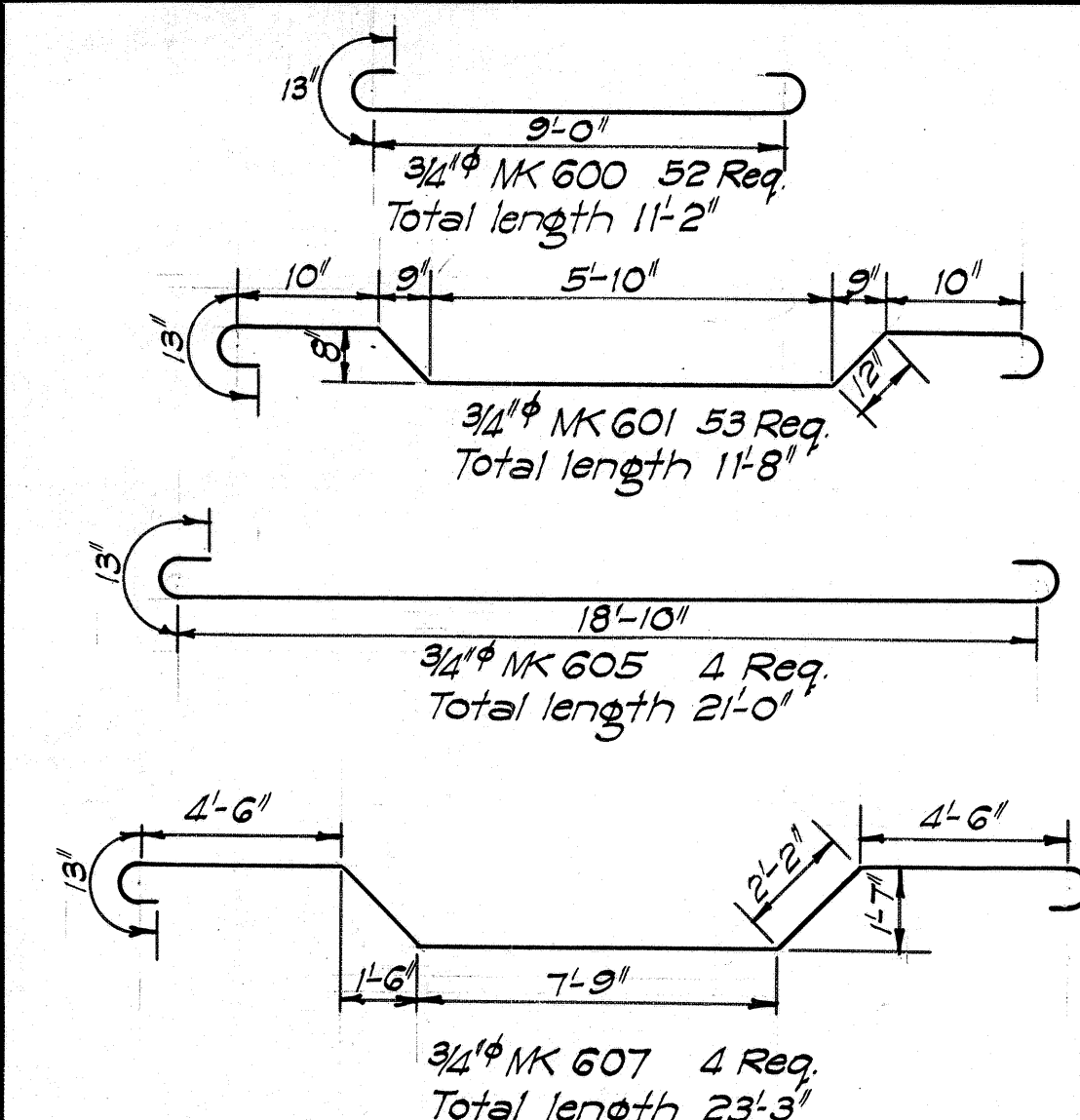
Scale 1/4" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
3'x8' BOX CULVERT
AT STA 55+60.5
Wahiawa Waiialua Road, N.R.S. 21-A
Aug. 1935
SHEET NO. 1 OF 1 SHEETS

SURVEY PLOTTED BY	W.E.G.
DESIGNED BY	W.E.G.
DRAWN BY	H.Y.M.
QUANTITIES BY	H.Y.M.
CHECKED BY	H.H.C. - J.C.M.
ORIGINAL PLAN	No.
NOTE BOOK	No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	NR521A	1985	24	43

This sheet supercede Sheet 12



ESTIMATED QUANTITIES
 Class 'A' Concrete 42.6 Cu. Yds. 65.5 c.y.
 Reinf. Steel 3,364.0 lbs. 346.2, 15 lbs

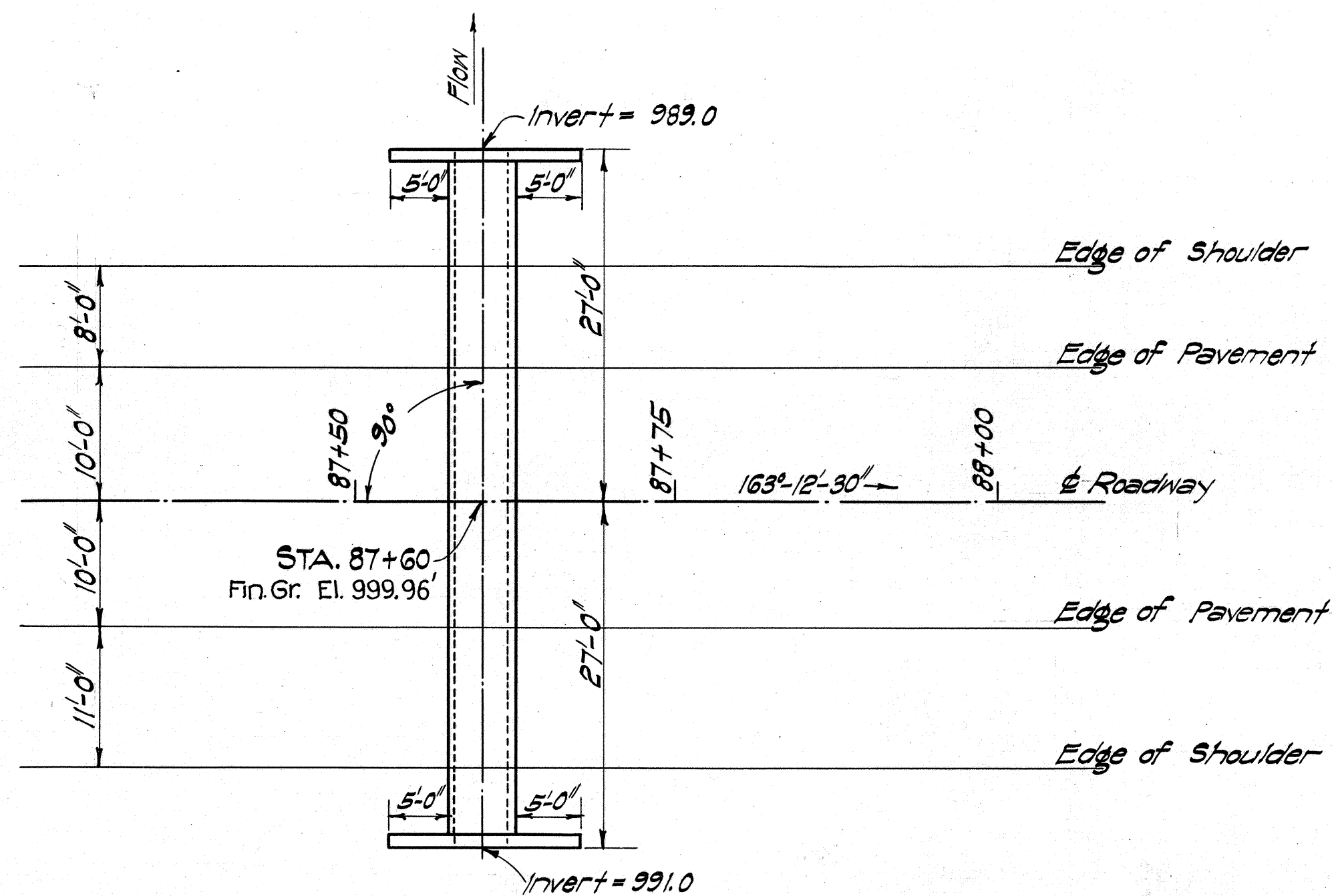
NOTE: Resident Engineer to determine invert grades

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
3'x 8' BOX CULVERT
STA. 56±15
 Wahiawa - Naialua Rd. NRS 21-A.

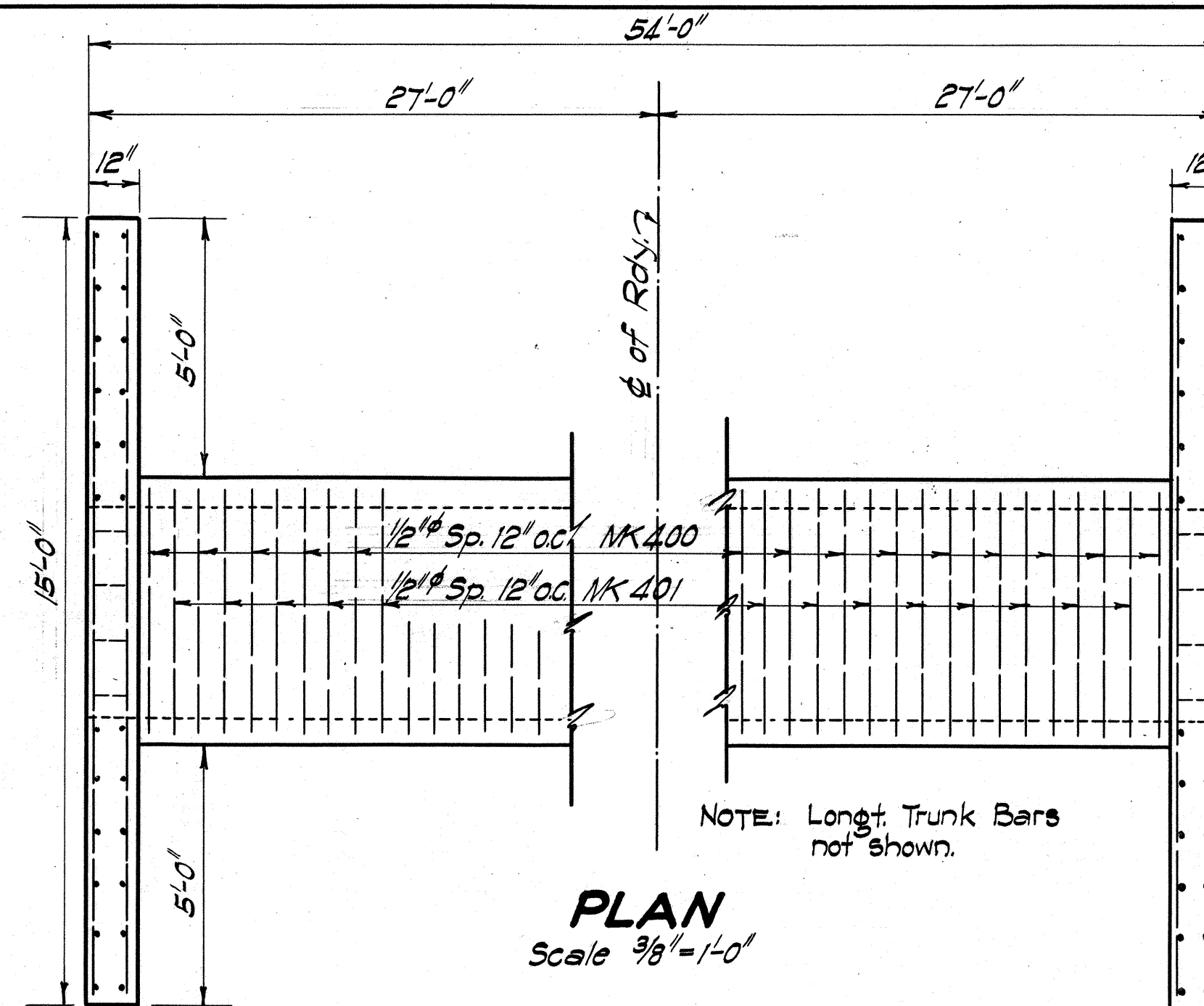
SHEET No 1 OF 1 SHEETS
4346.12A

DESIGNED BY	DATE
DRAWN BY	Aug 30
CHECKED BY	
QUANTITIES BY	
NOTE BOOK	
No.	

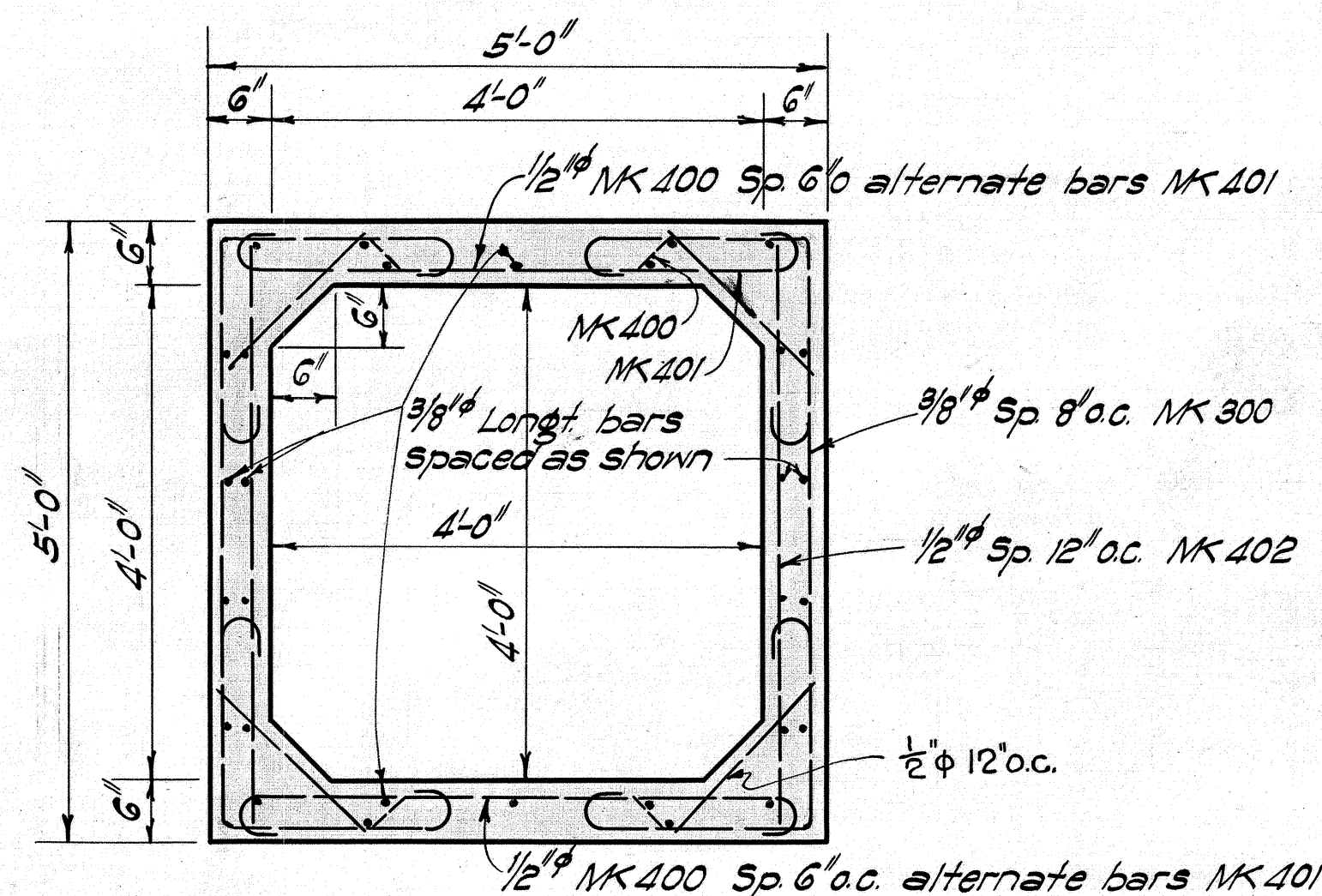
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NRS 21A	1935	13	43



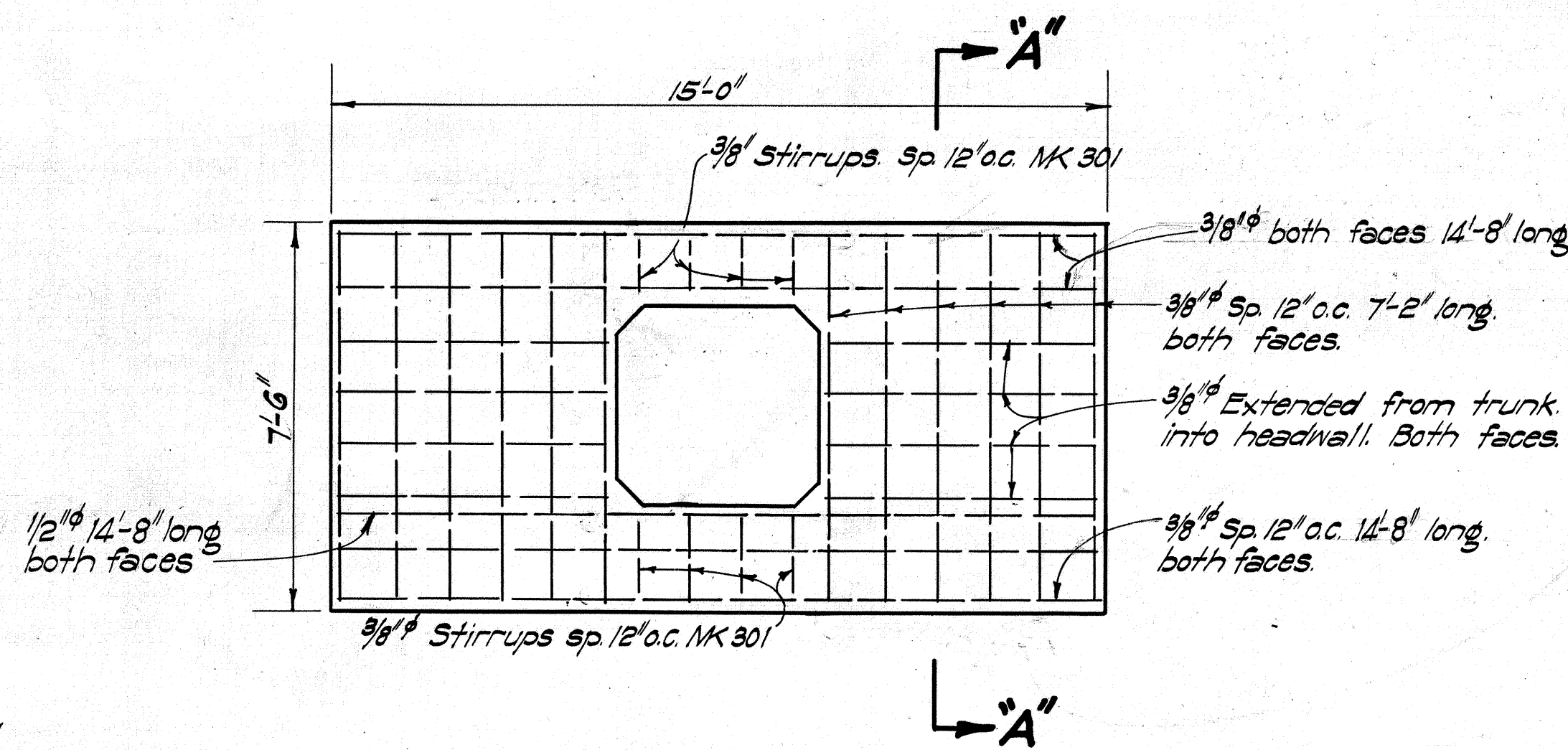
LAYOUT PLAN
Scale 1"=10'



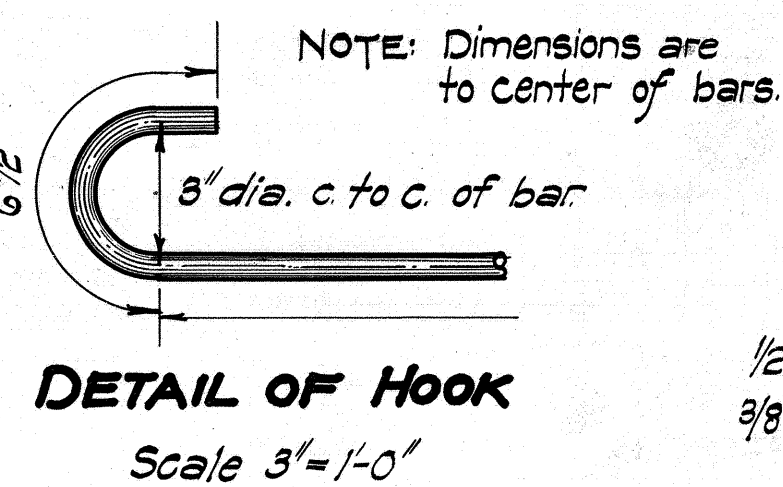
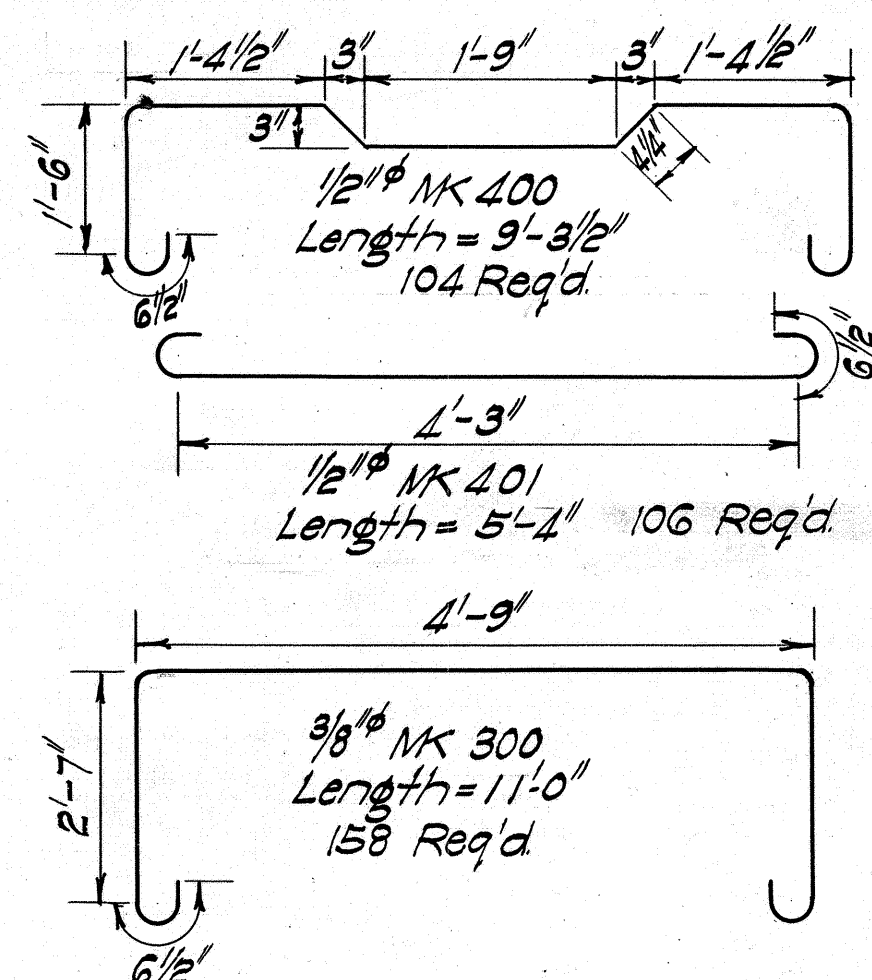
PLAN
Scale 3/8"=1'-0"



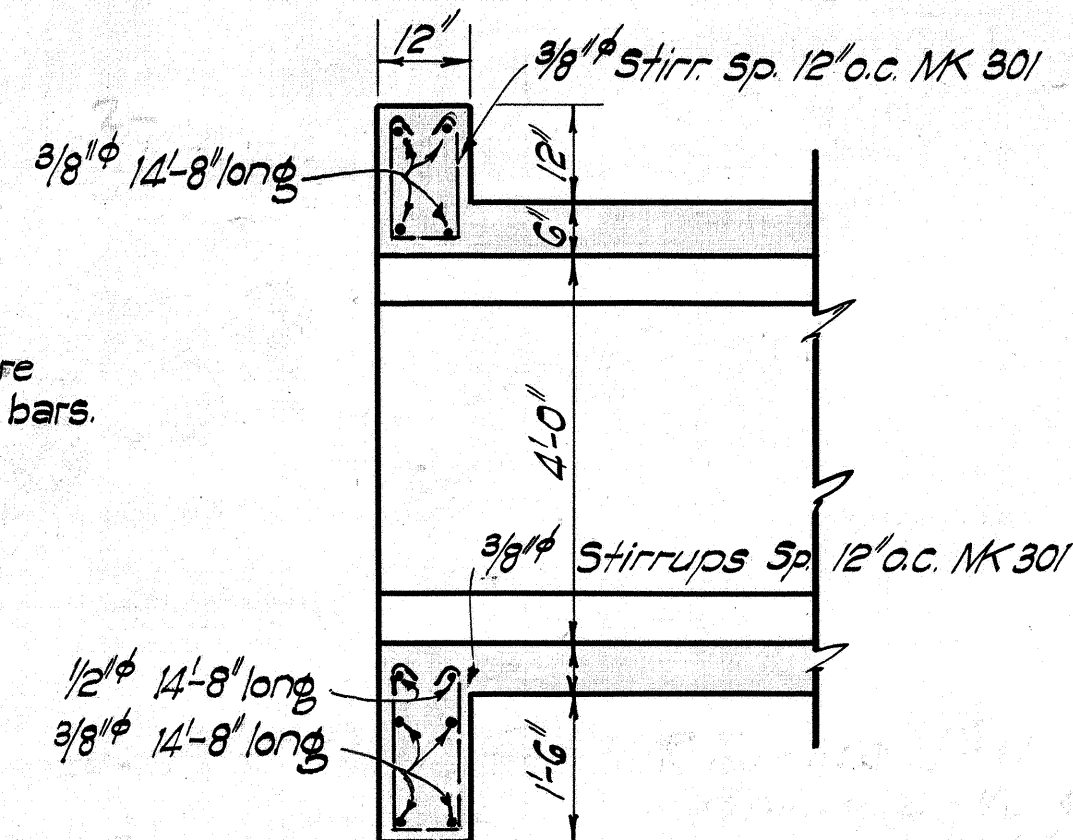
SECT. THRU TRUNK
Scale 3/4"=1'-0"



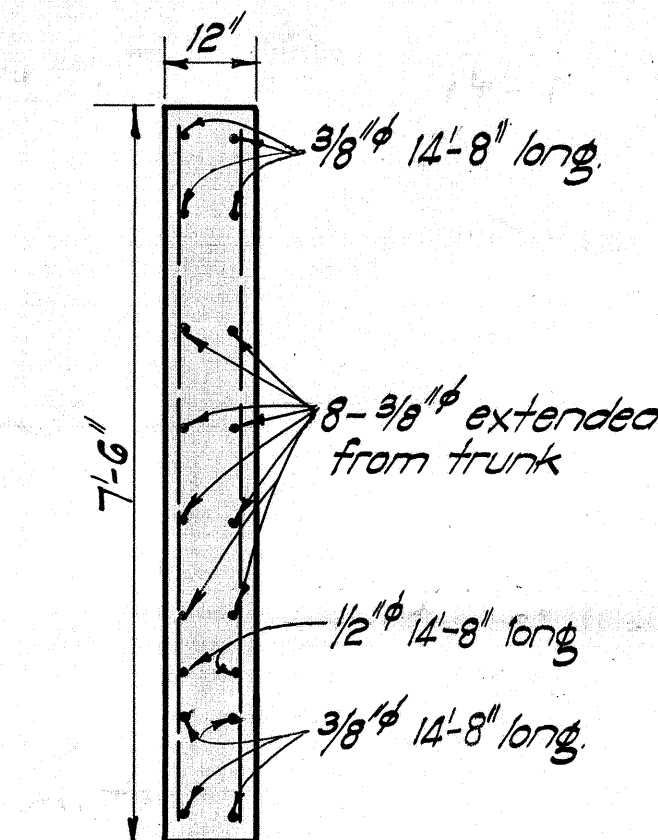
ELEV. OF HEADWALL
Scale 3/8"=1'-0"



DETAIL OF HOOK
Scale 3"=1'-0"



SECT. THRU HEAD
Scale 1/2"=1'-0"



SECT. "A-A"
Scale 1/2"=1'-0"

ESTIMATE OF QUANTITIES

Reinforcing Steel	3220 lbs.	3125 lbs.
Class A Conc.	26 Cu. Yds.	25.5 c.y.
Structure Exc.	5 Cu. Yds.	29.0 c.y.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

4'x4' CONC. BOX CULVERT
STA. 87+60

Wahiawa-Waialae Rd NRS. 21-A

SHEET NO. 1 OF 7 SHEETS

4346.13

DATE	10/2/35
SURVEY PLOTTED BY	M.C.V.
DESIGNED BY	M.C.V.
DRAWN BY	M.C.V.
CHECKED BY	H.H.C. J.C.M.
NOTE BOOK	
NO.	36