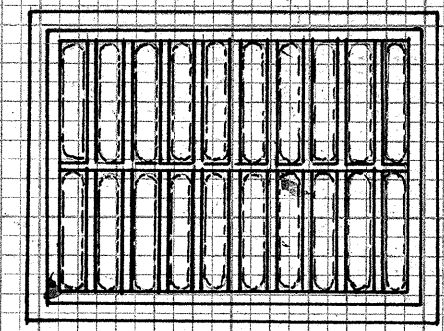
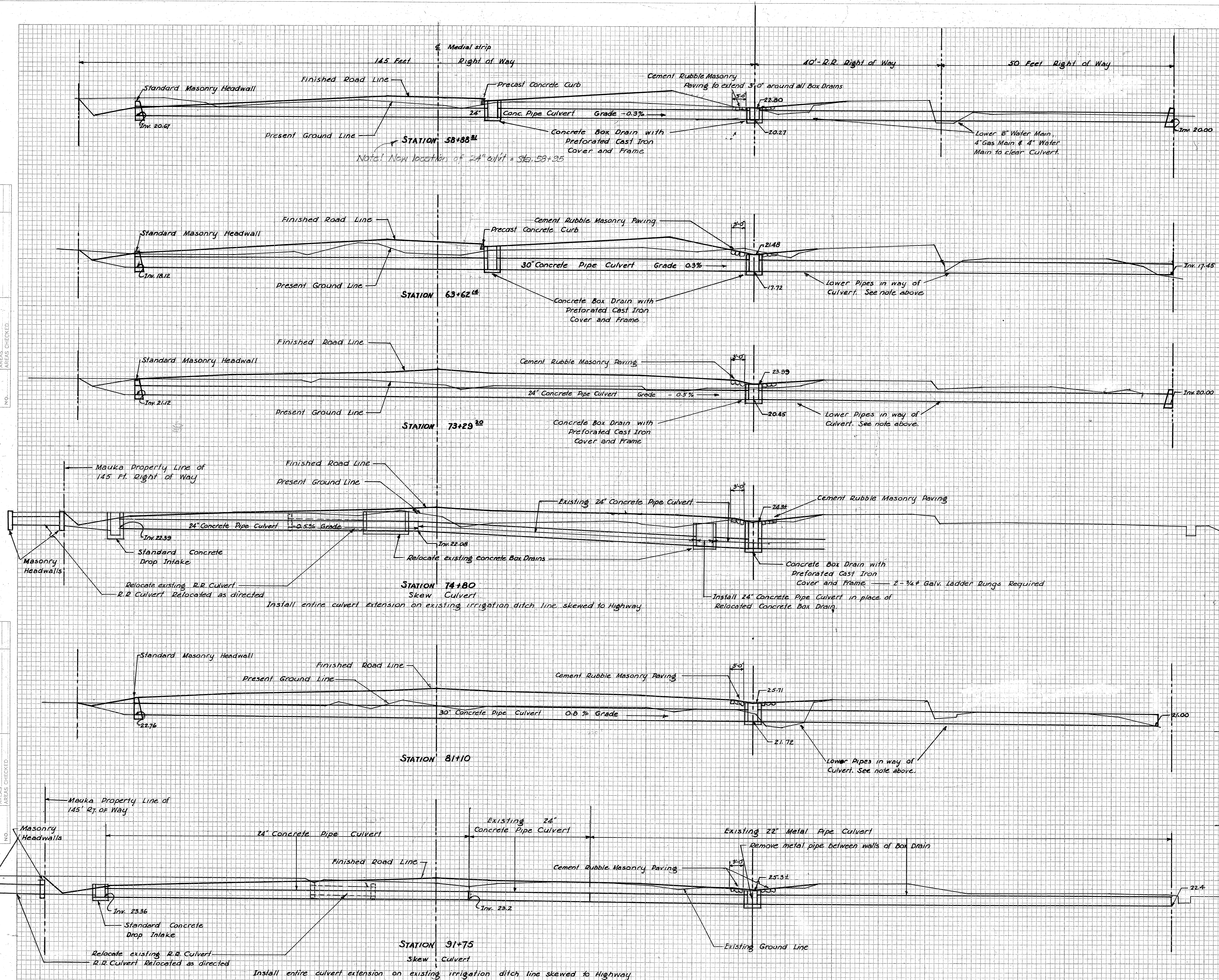


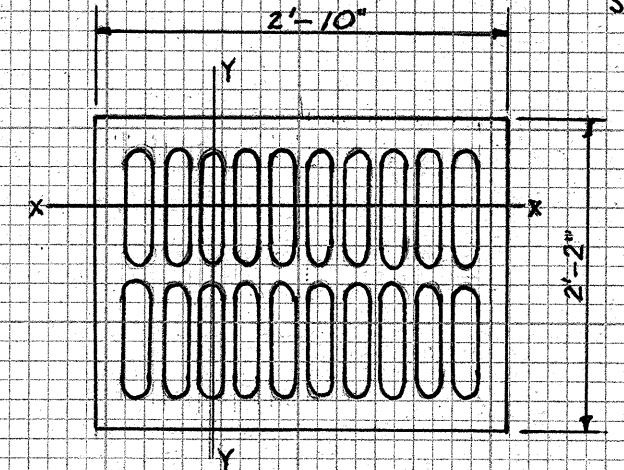
FINAL SURVEY PLOTTED
NOTE BOOK NO. 1
AREAS CHECKED

ORIGINAL SURVEY PLOTTED
NOTE BOOK NO. 1
AREAS CHECKED

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5091.12	HAWAII	5091.12	FAP 9-46 1941	12	25



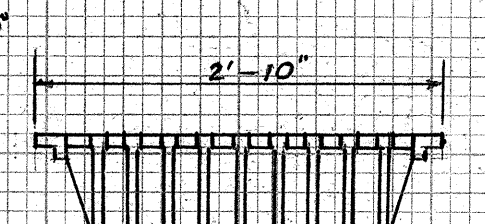
Plan Bottom of Grating



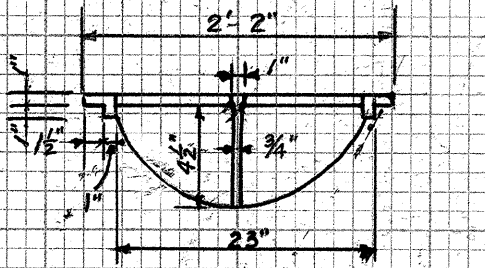
Plan Top of Grating

Cast Iron Drain Scale 3/4" = 1'-0"

Plan of Grating Frame

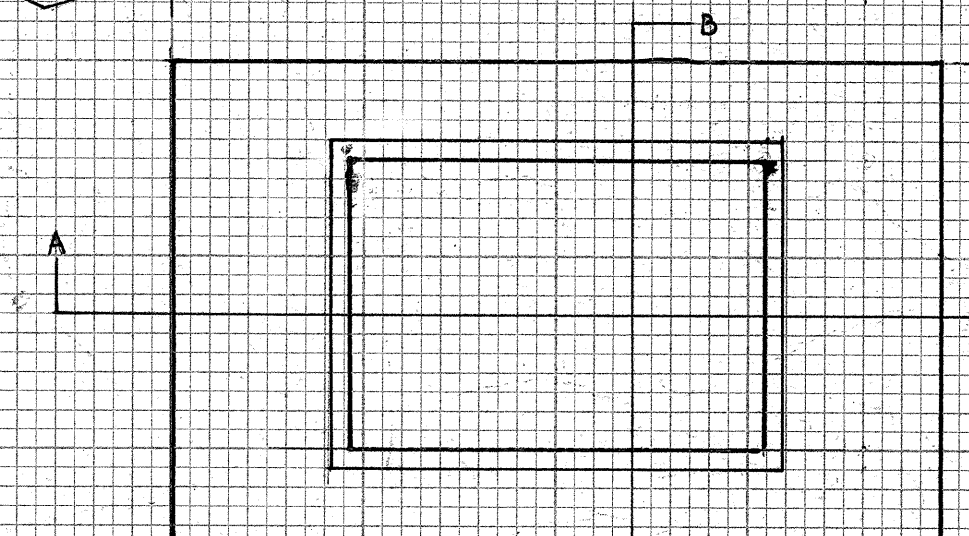


Section X-X

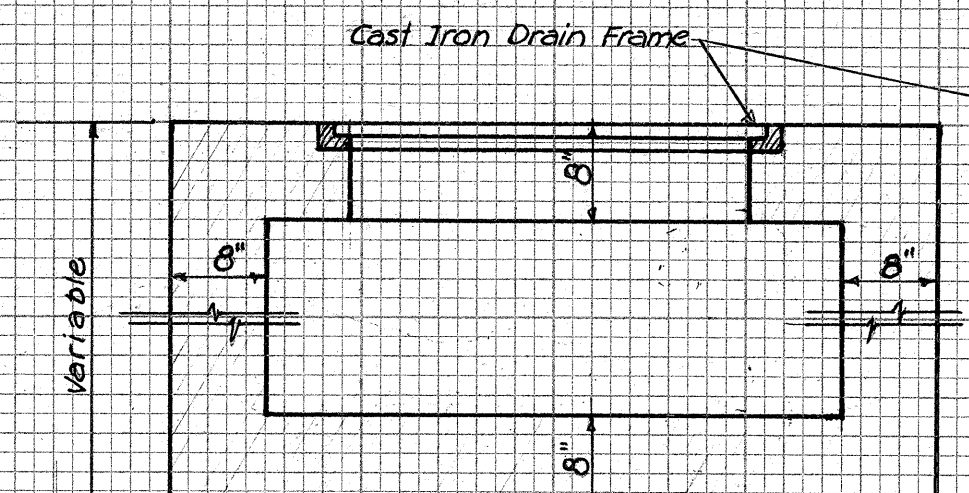


Section Y-Y

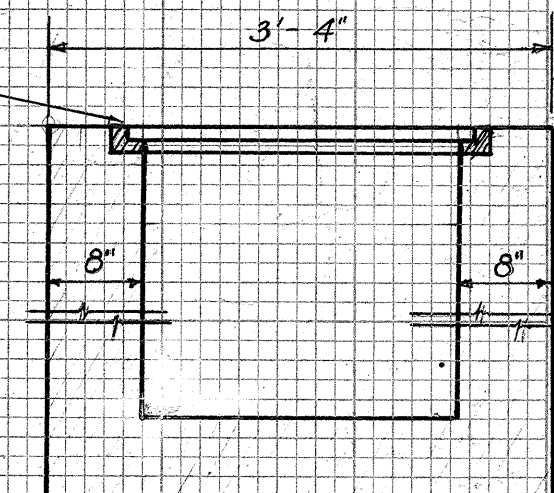
5'-4" for 24" Pipe Culvert
5'-10" for 30" Pipe Culvert
7'-4" for 48" Pipe Culvert



Plan

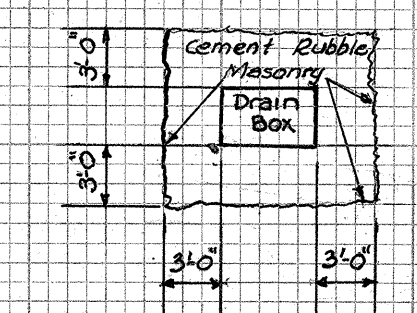


Section A-A



Section B-B

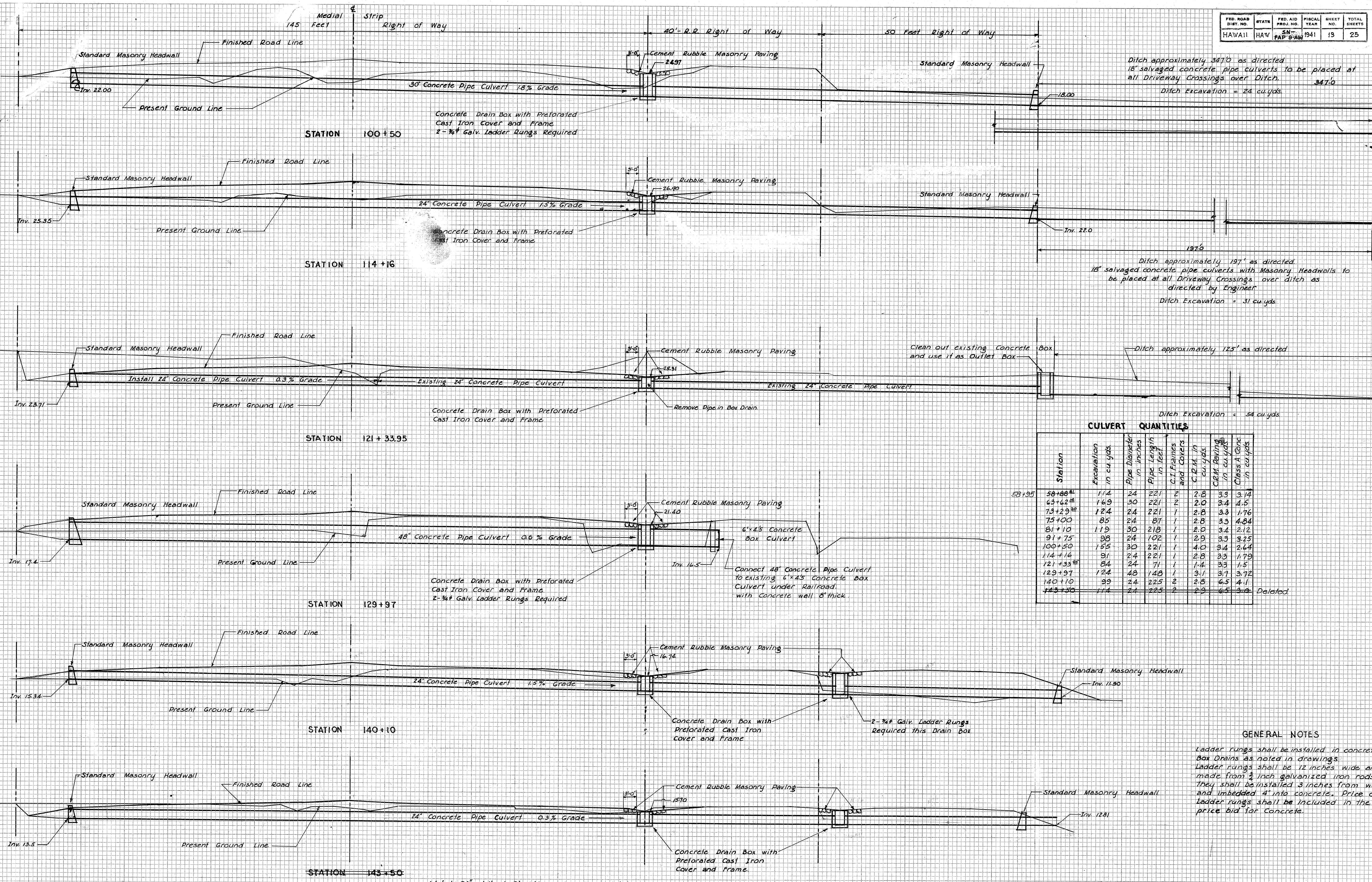
Concrete Box Drains Scale 3/4" = 1'-0"



Plan showing Cement Rubble Masonry Paving around culvert concrete Drain Boxes

Scale - 1" = 10'-0"

Ditch approximately 347.0 as directed
18" salvaged concrete pipe culverts to be placed at
all Driveway Crossings over Ditch.
347.0
Ditch Excavation = 24 cu yds.



CULVERT QUANTITIES

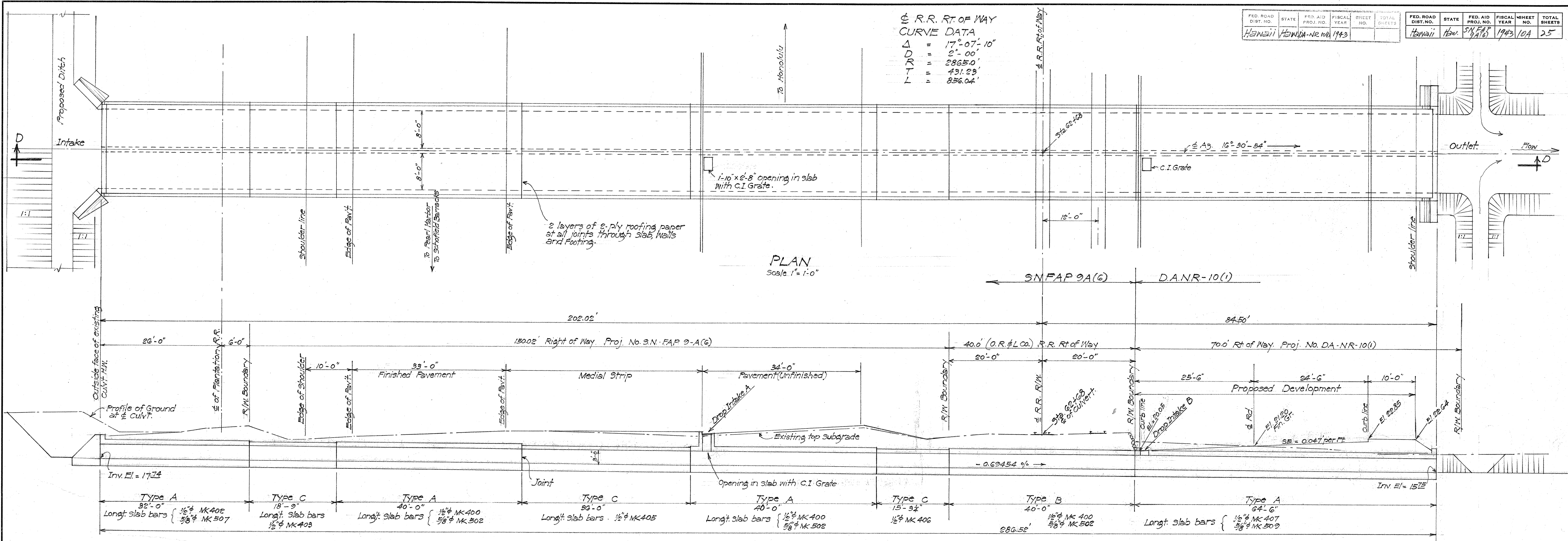
Station	Excavation in cu yds.	Pipe Diameter in inches	Pipe Length in feet	C.I. Frames and Covers	C.I.M. in cu yds.	C.I.M. Paving in cu yds.	Class A Conc. in cu yds.
58+88.4	1.14	24	221	2	2.8	3.3	3.14
63+62.4	1.69	30	221	2	2.0	3.4	4.5
73+29.38	1.24	24	221	1	2.8	3.3	1.76
75+00	.85	24	87	1	2.8	3.3	4.84
81+10	1.19	30	218	1	2.0	3.4	2.12
91+75	.98	24	102	1	2.9	3.3	3.25
100+50	1.55	30	221	1	4.0	3.4	2.64
114+16	.91	24	221	1	2.8	3.3	1.79
121+33.95	.84	24	71	1	1.4	3.3	1.5
129+97	1.24	48	148	1	3.1	3.7	3.72
140+10	.99	24	225	2	2.8	6.5	4.1
143+50	1.14	24	225	2	2.9	6.5	3.0 Deleted

GENERAL NOTES

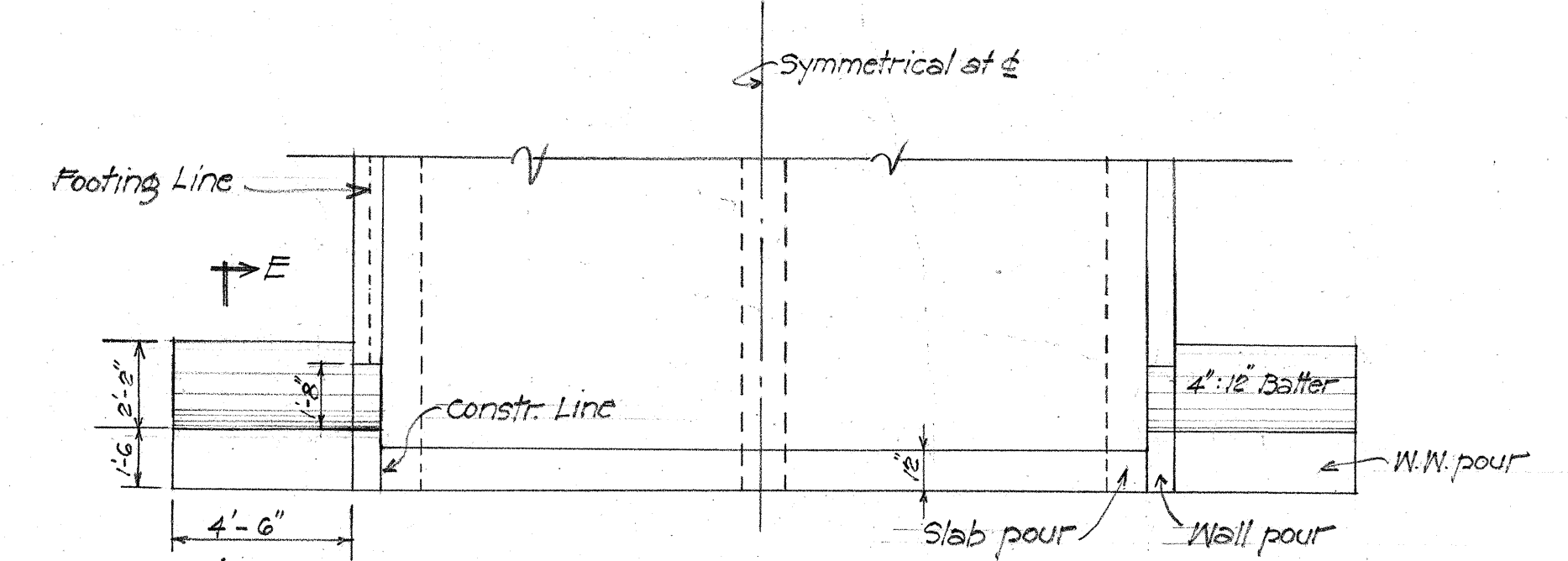
Ladder rungs shall be installed in concrete Box Drains as noted in drawings.
Ladder rungs shall be 12 inches wide and made from 2 inch galvanized iron rods. They shall be installed 3 inches from wall and imbedded 4" into concrete. Price of ladder rungs shall be included in the price bid for concrete.

± R.R. RT OF WAY
 CURVE DATA
 $\Delta = 17^{\circ}07'10''$
 $D = 2^{\circ}00'$
 $R = 2865.0'$
 $T = 431.23'$
 $L = 856.04'$

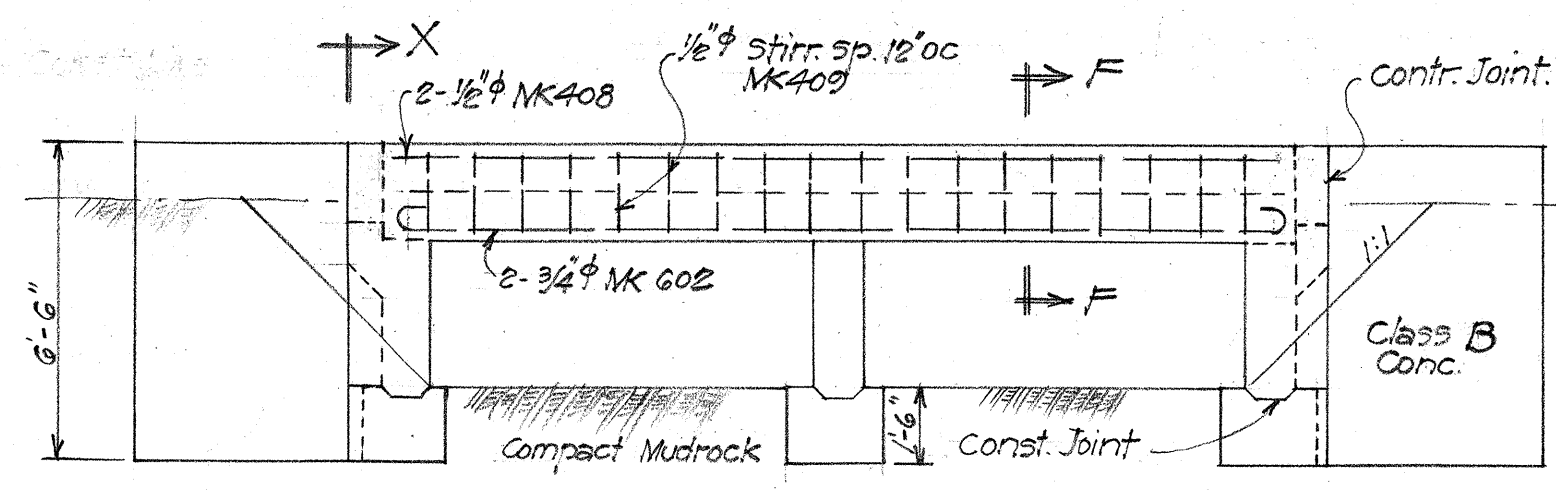
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	NR-100	1943	25	25



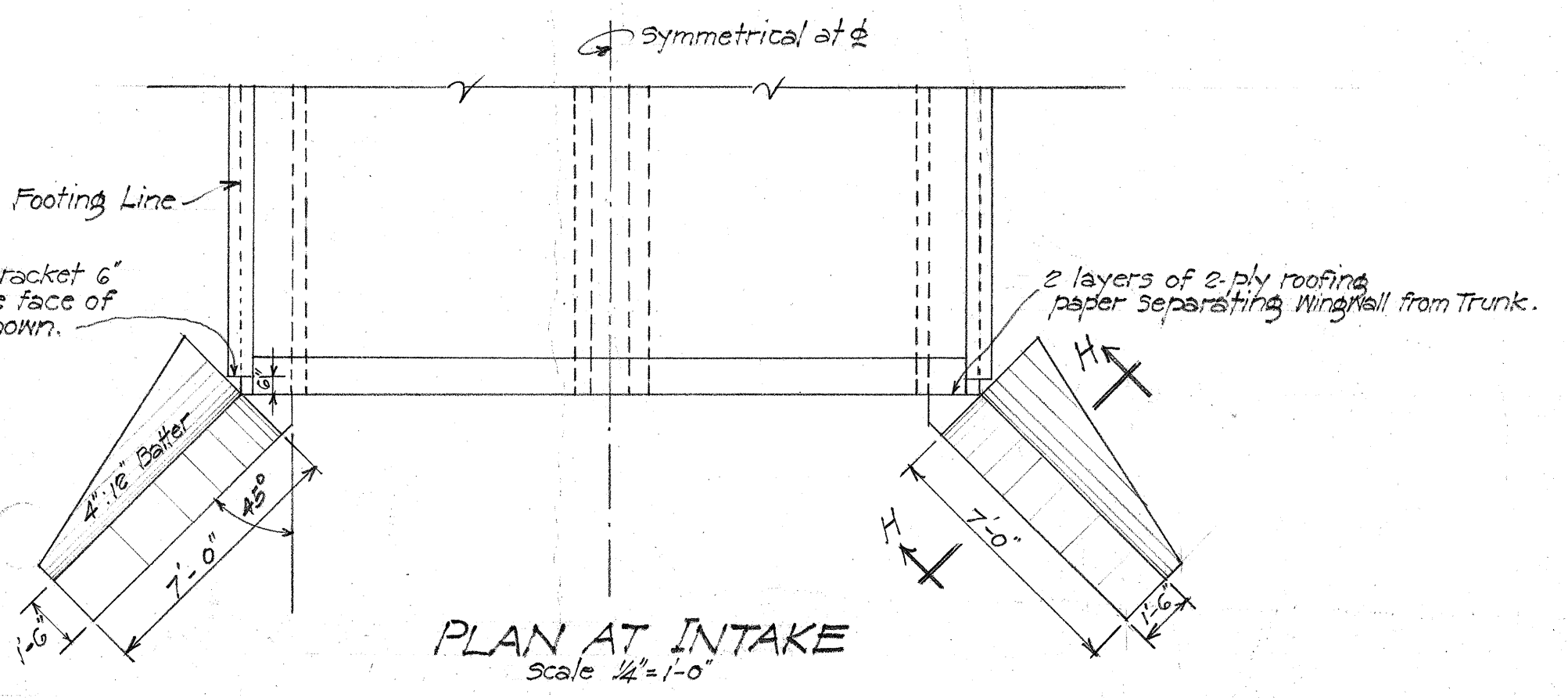
SECTION D-D
 Scale 1" = 10'-0"



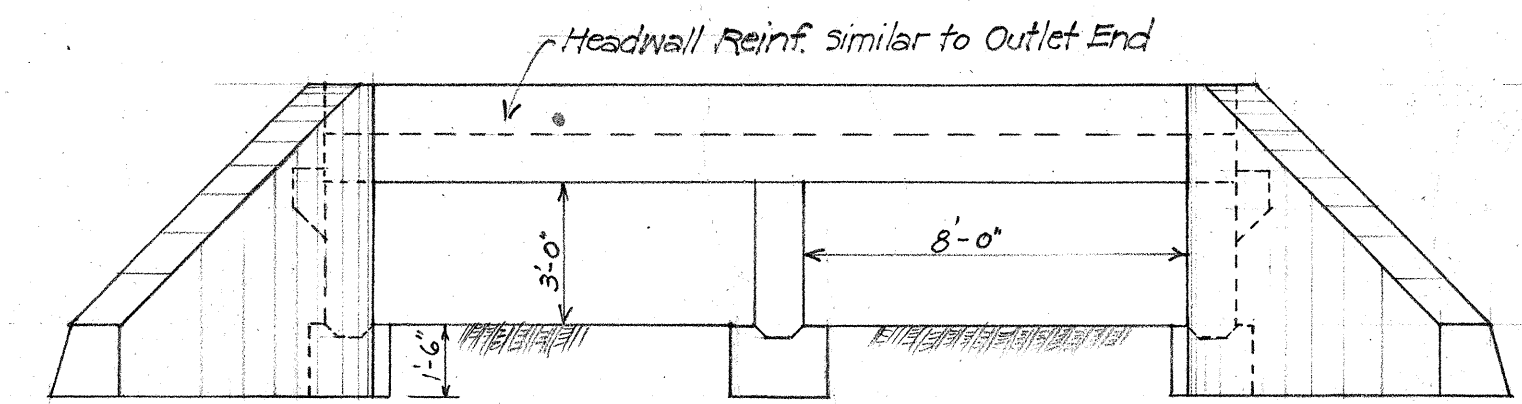
PLAN AT OUTLET
 Scale 1/4" = 1'-0"



ELEVATION AT OUTLET
 Scale 1/4" = 1'-0"



PLAN AT INTAKE
 Scale 1/4" = 1'-0"



ELEVATION AT INTAKE
 Scale 1/4" = 1'-0"

SECTION H-H
 Scale 1/4" = 1'-0"

HEADWALL SECT F-F
 Scale 3/8" = 1'-0"

Note to Bureau of Public Roads:
 Allowable stress used in Slab
 $f_c = 700$
 $f_s = 22,000$

ESTIMATED QUANTITIES

Item	Quantity SN.FAP 9A(6)	Quantity DANR-10(1)	Total Quantity
Class A Conc.	145.71 C.Y.	46.09 C.Y.	191.80 C.Y.
Class B Conc.	159.78 C.Y.	50.61 C.Y.	210.39 C.Y.
Reinf. Steel	16,591 lbs.	5,352 lbs.	21,943 lbs.
Str. Exc.	794 C.Y.	188 C.Y.	982.0 C.Y.
Channel Exc.	660 C.Y.	140 C.Y.	800.0 C.Y.

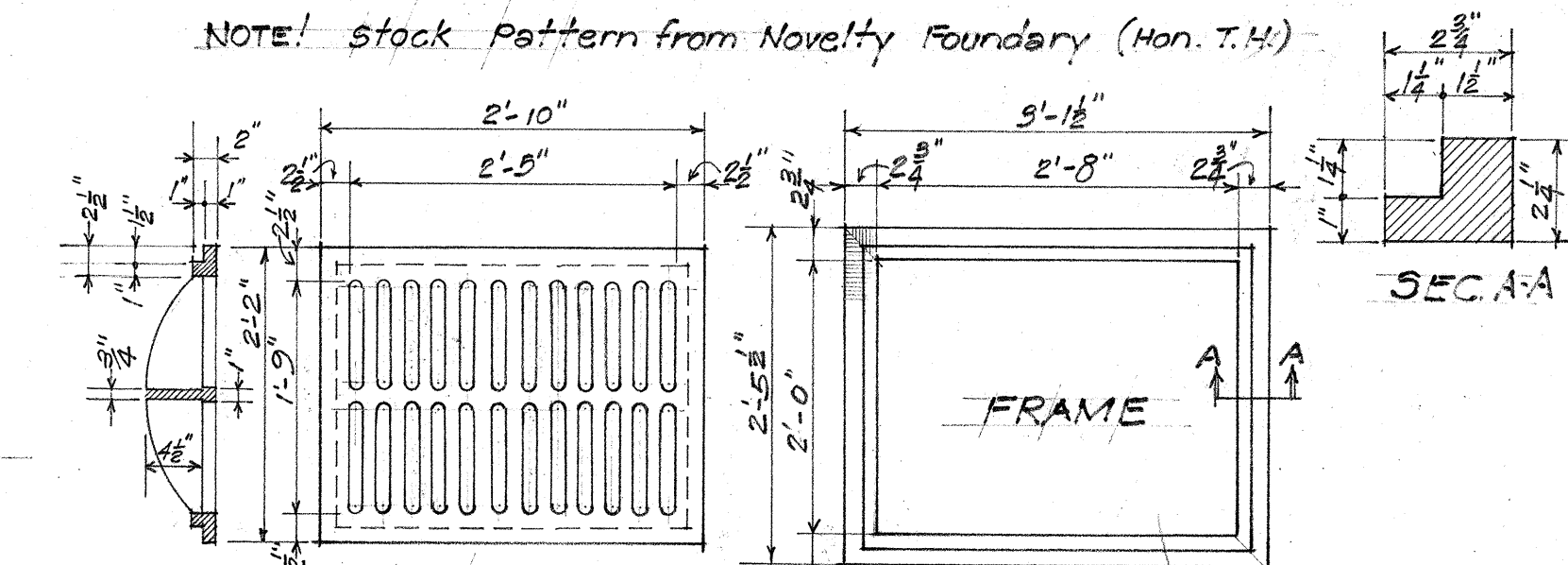
Note: Slab - Class 'A' Conc.
 Walls, Footings, Wingwalls - Class 'B' Conc.

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 DOUBLE 8'x3' FLAT SLAB CULVERT.
 ± R.R. R/W. Sta. 62+68
 KAM. HY. SN.FAP 9-A(6)
 JOHN ROGERS-KEEHI LAGOON D.A.NR-10(1)
 ACCESS RD. June 1943
 SHEET No. 1 OF 2 SHEETS

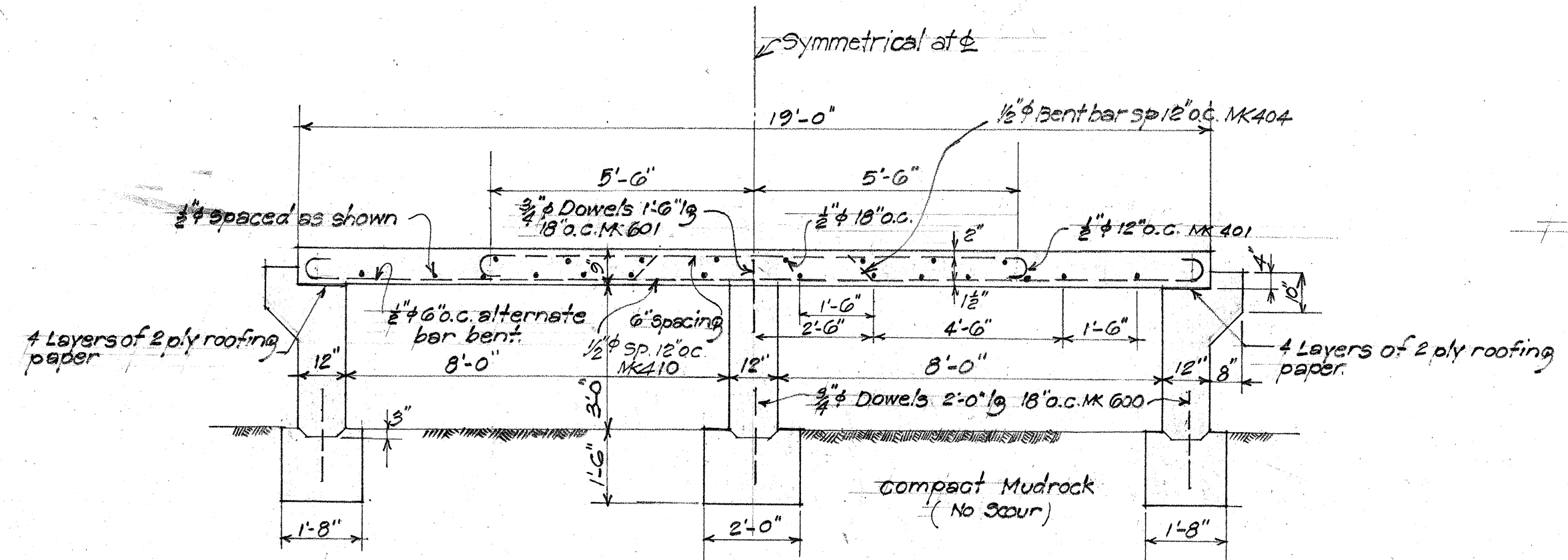
SURVEY PLOTTED BY: DATE: June 1943
 DESIGNED BY: M. S. Daniels
 TRACED BY: M. S. Daniels
 QUANTITIES BY: D. Y. Nagaoka
 CHECKED BY: J. Y. Nagaoka

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HA	DA-NR-10	1943	108	25

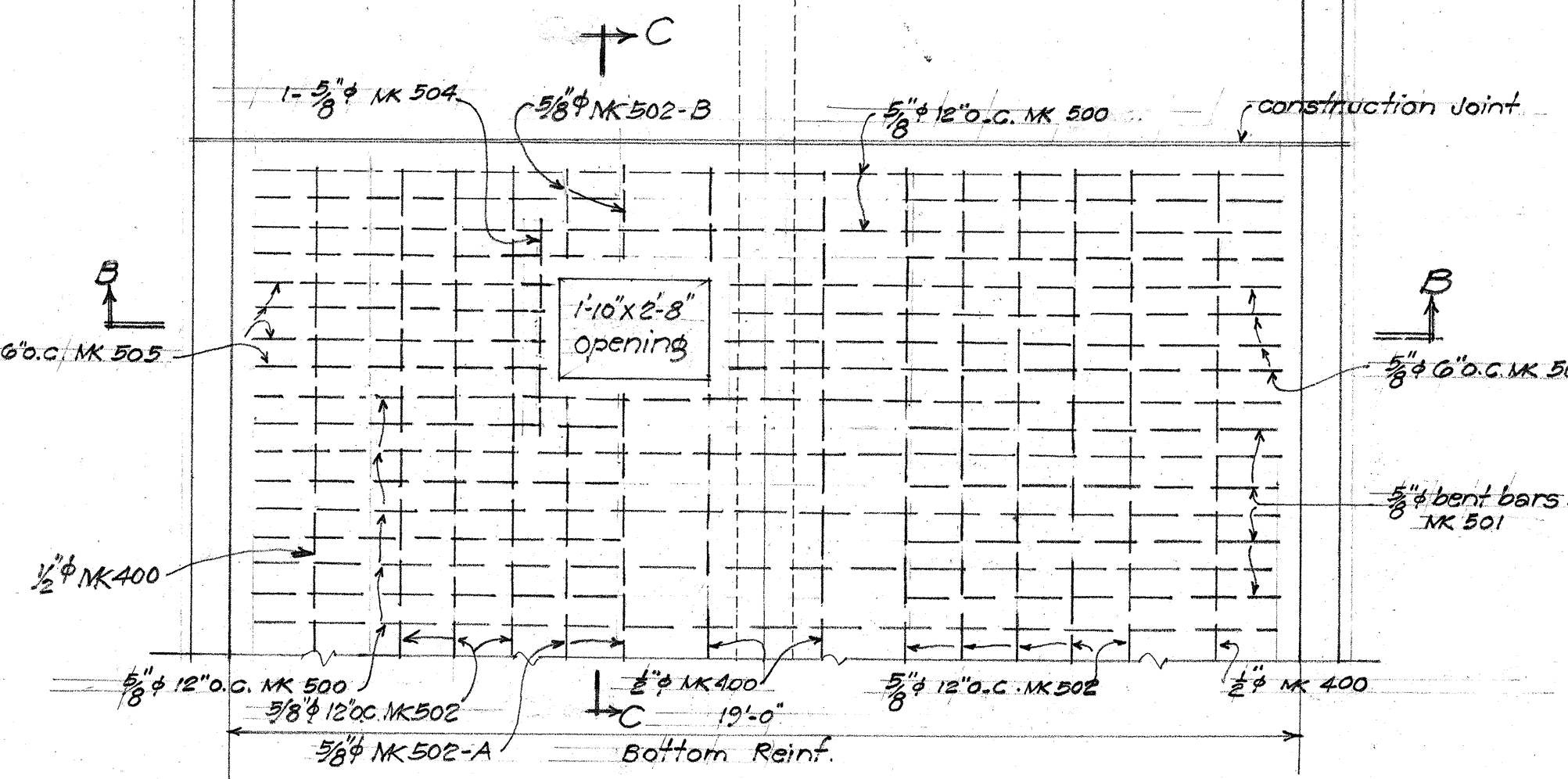
NOTE: stock pattern from Novelty Foundry (Hon. T.H.)



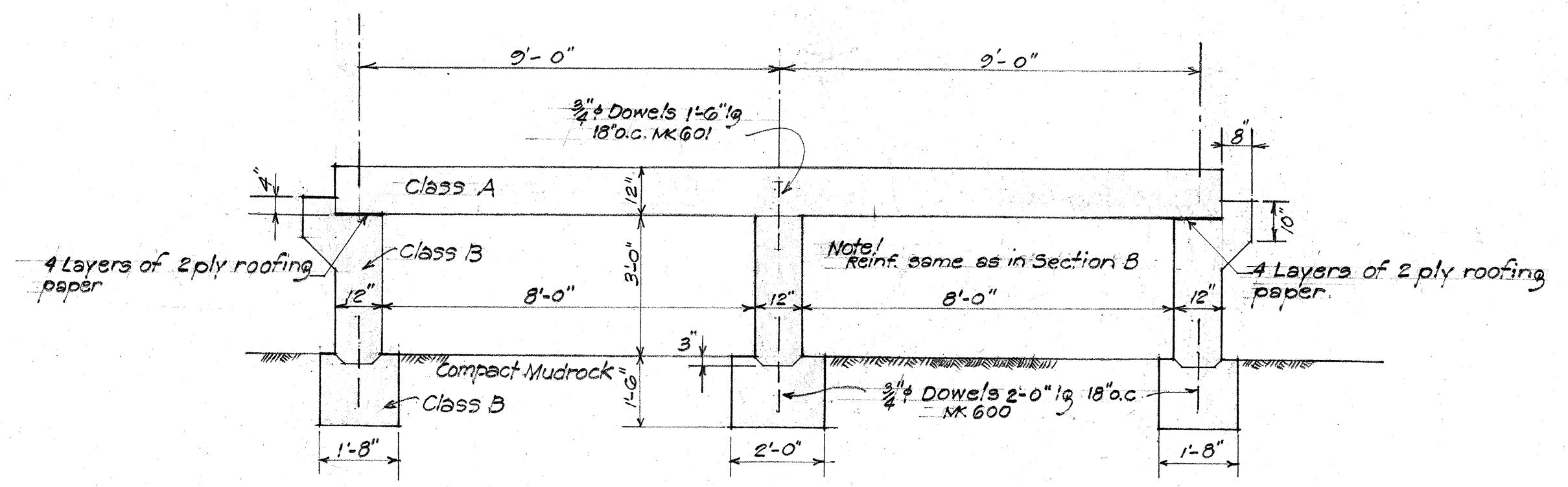
SECTION TOP VIEW
STANDARD C.I. FRAME & GRATING
Scale 3/4" = 1'-0"



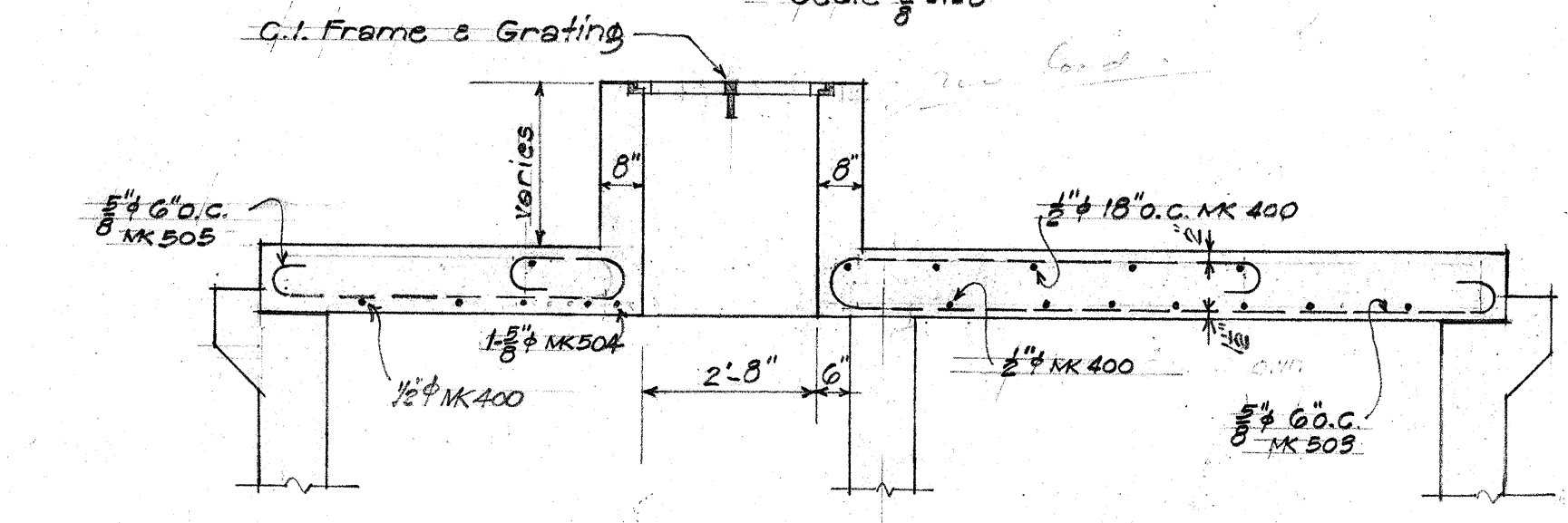
SECTION-TYPE 'C'
Scale 3/4" = 1'-0"
Note: For longitudinal bar No. Refer to Section D-D Sheet 1



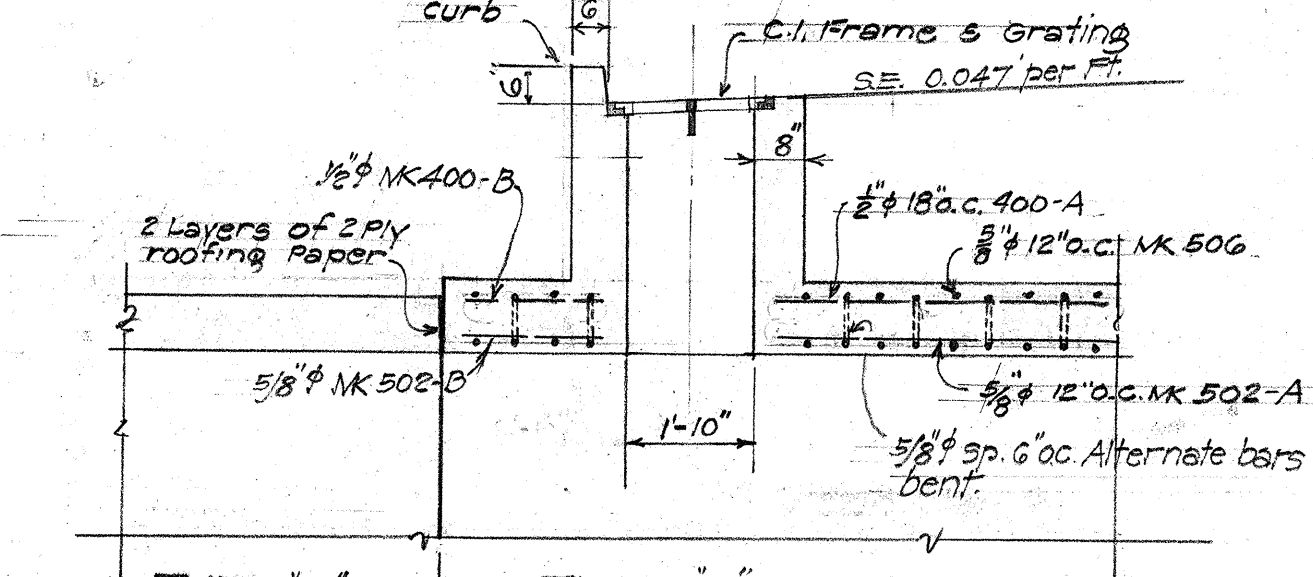
PLAN OF DROP INTAKE 'A'
Refer to sheet 1
Scale 3/4" = 1'-0"



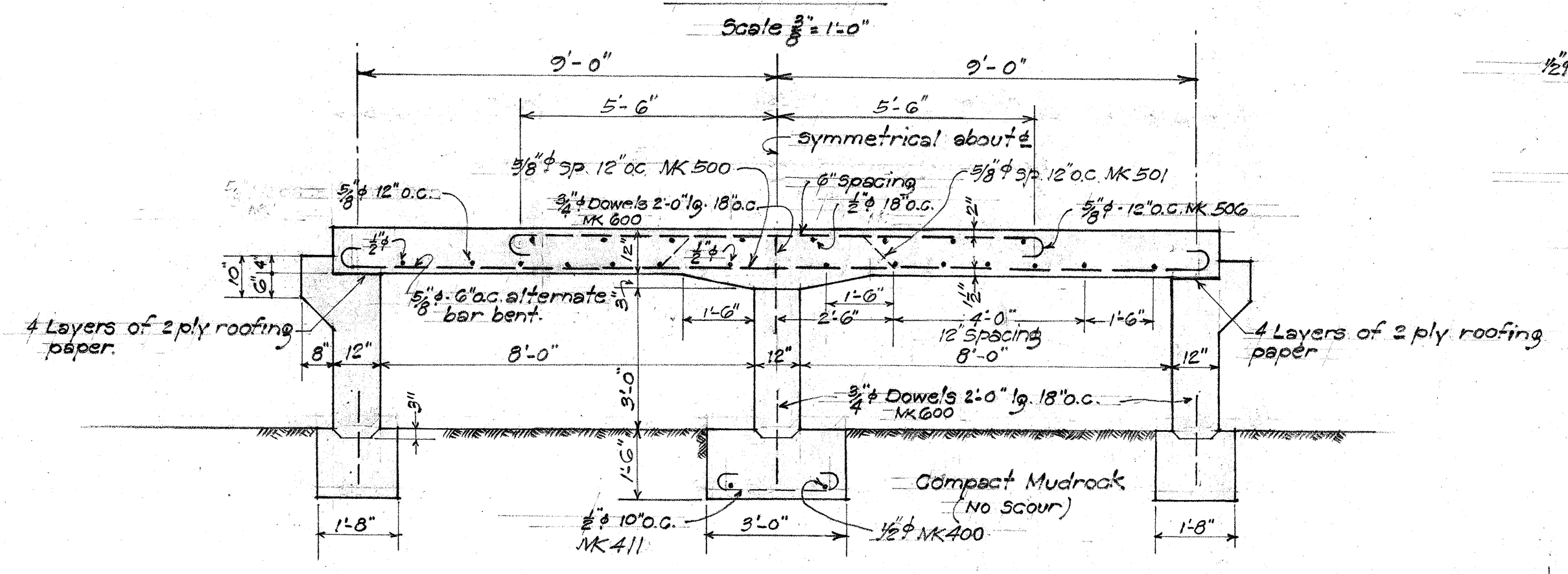
SECTION - TYPE 'A'
Scale 3/4" = 1'-0"



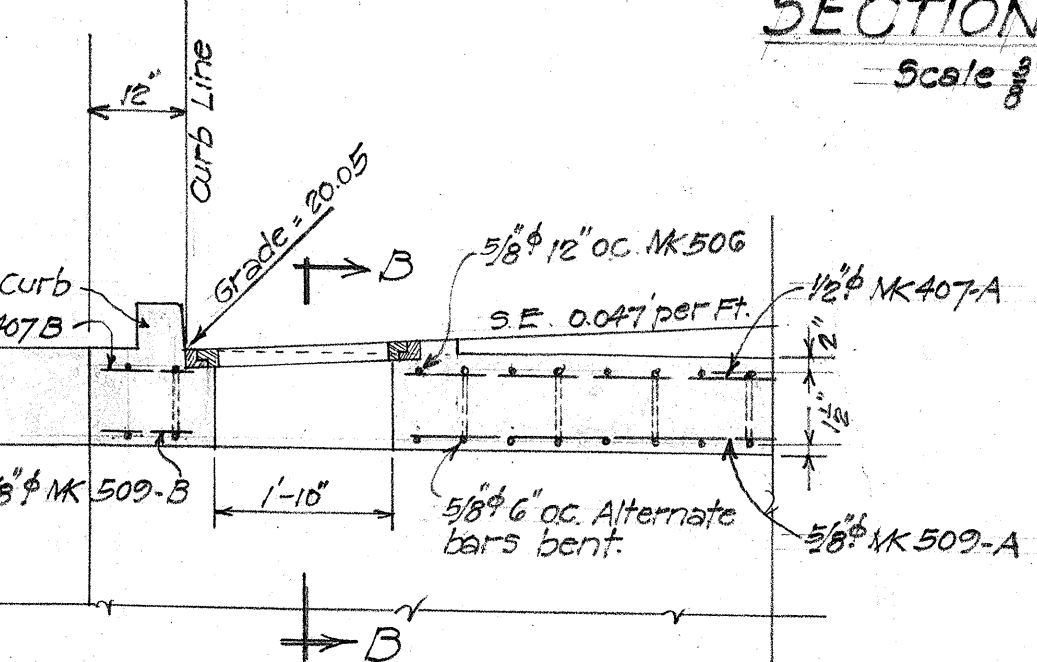
SECTION 'B-B'
Scale 3/4" = 1'-0"



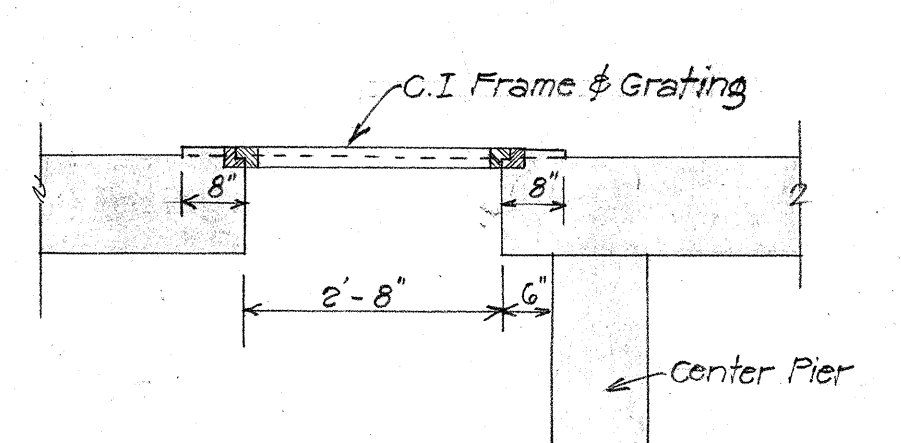
SECTION 'C-C'
Scale 3/4" = 1'-0"



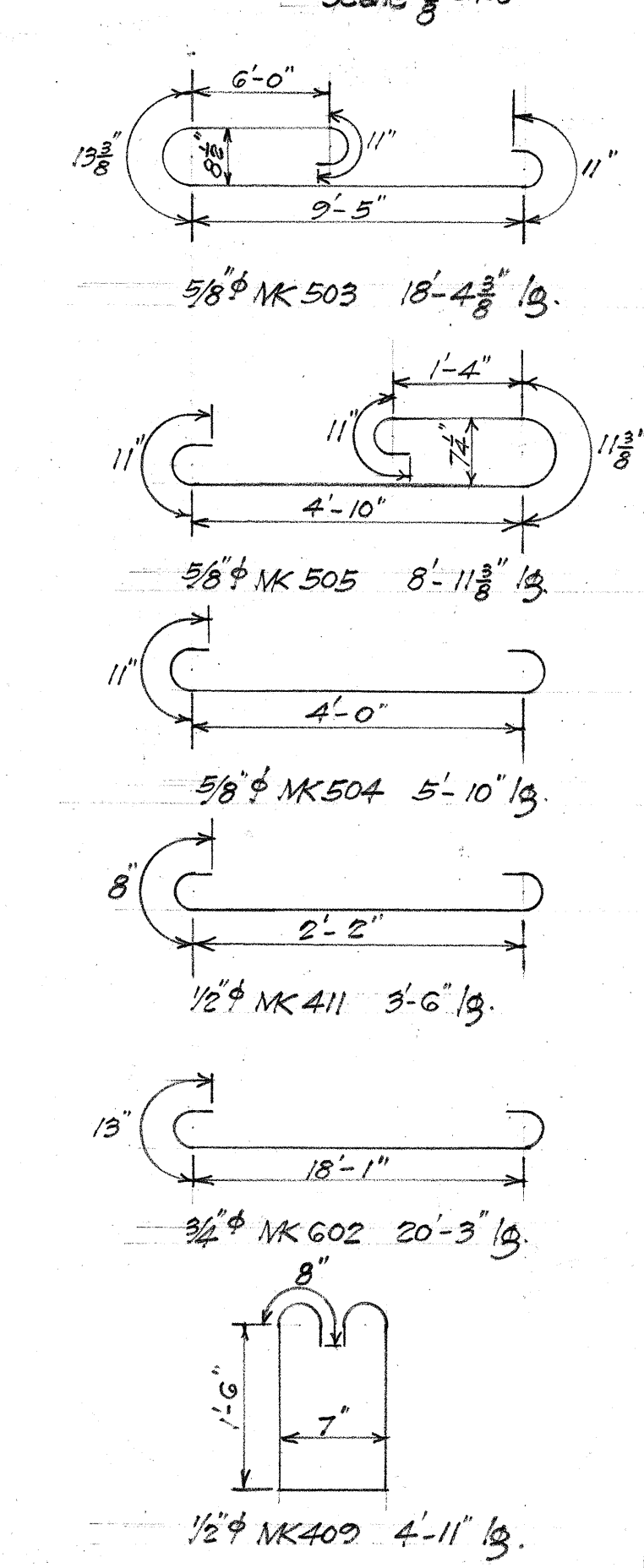
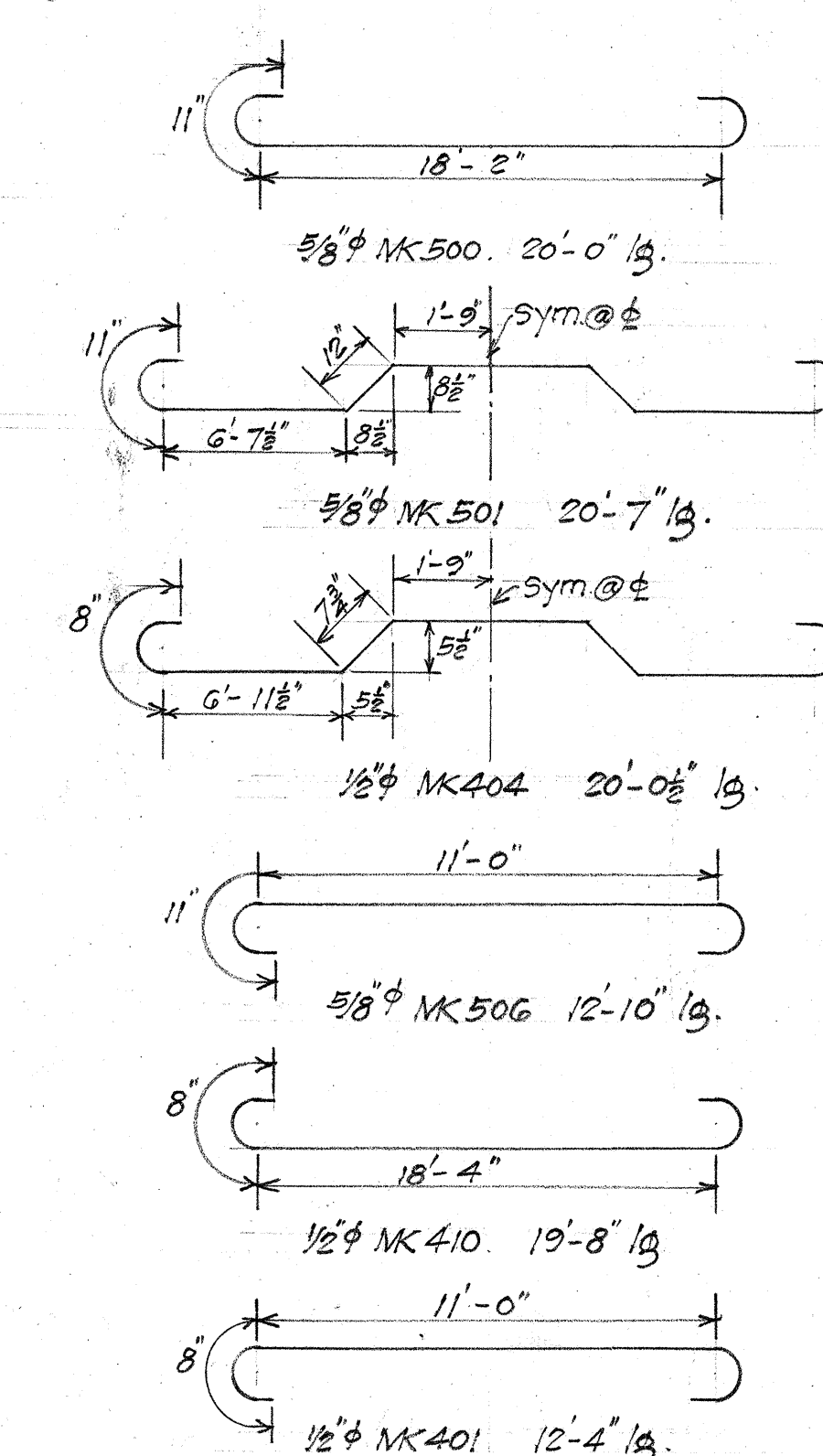
SECTION - TYPE 'B'
Scale 3/4" = 1'-0"



SECTION C-C
DROP INTAKE 'B'
1/2" = 1'-0"



SECTION B-B
INTAKE 'B'
1/2" = 1'-0"
Note: Refer to Intake A for Reinf.



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
DOUBLE 8'x3' FLAT SLAB CULVERT.
± R.R. R/W 575 62+68
KAM. HY. S.N.F.A.P. 9-A(2)
JOHN ROGERS-KEEH! LAGOON D.A. NR-10(1)
ACCESS RD. June 1943
SHEET No 2 OF 2 SHEETS

ORIGINAL PLAN
DESIGNED BY
DRAWN BY
CHECKED BY
DATE
12/2/43
12/2/43
12/2/43
12/2/43

5091.13B 511S.10B