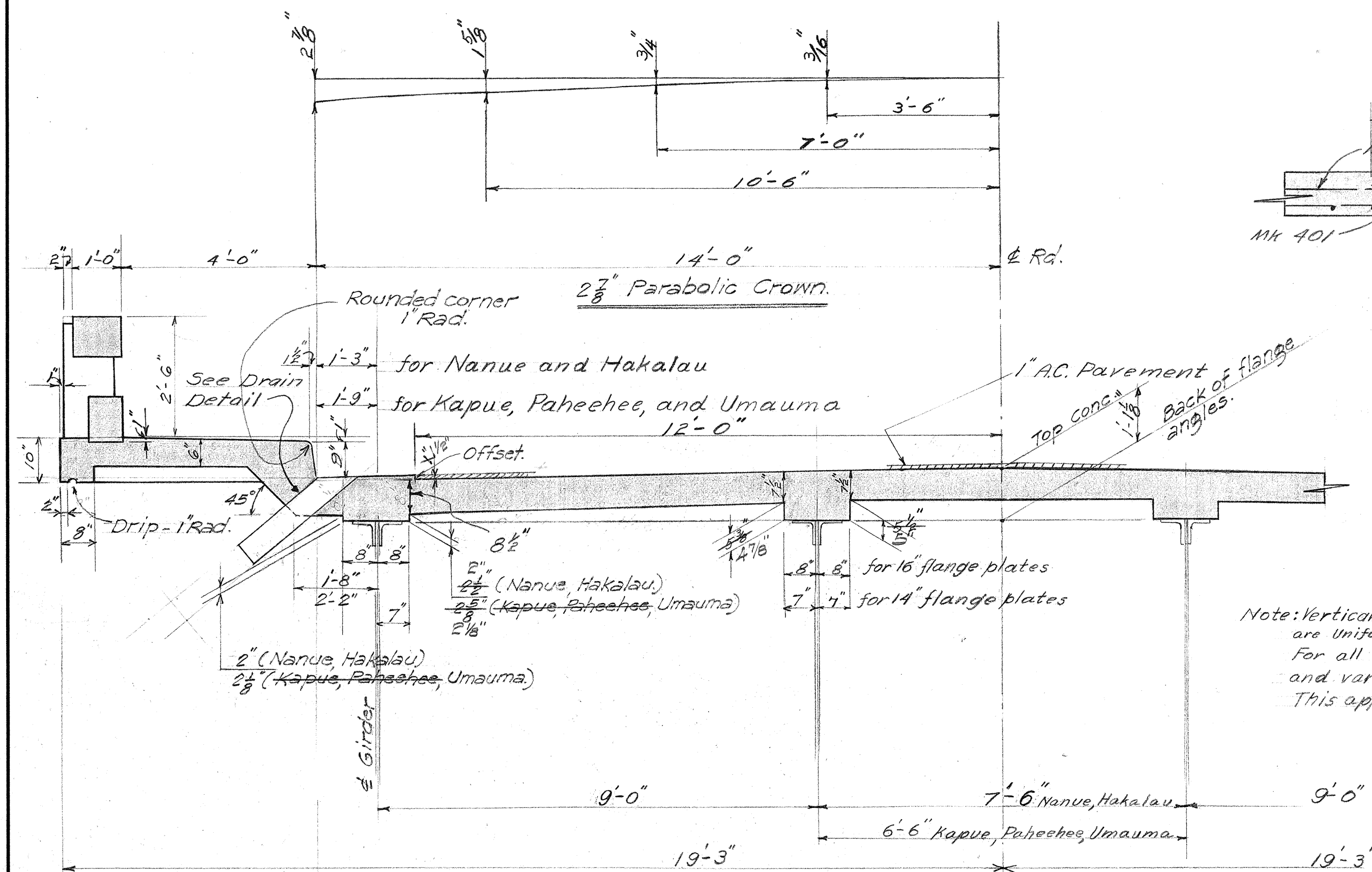


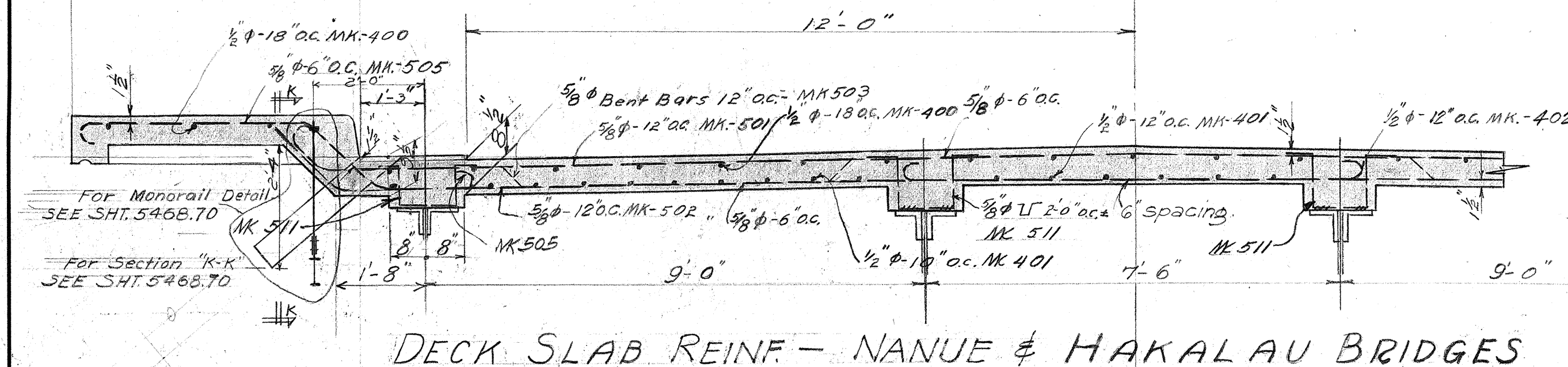
11/8/50



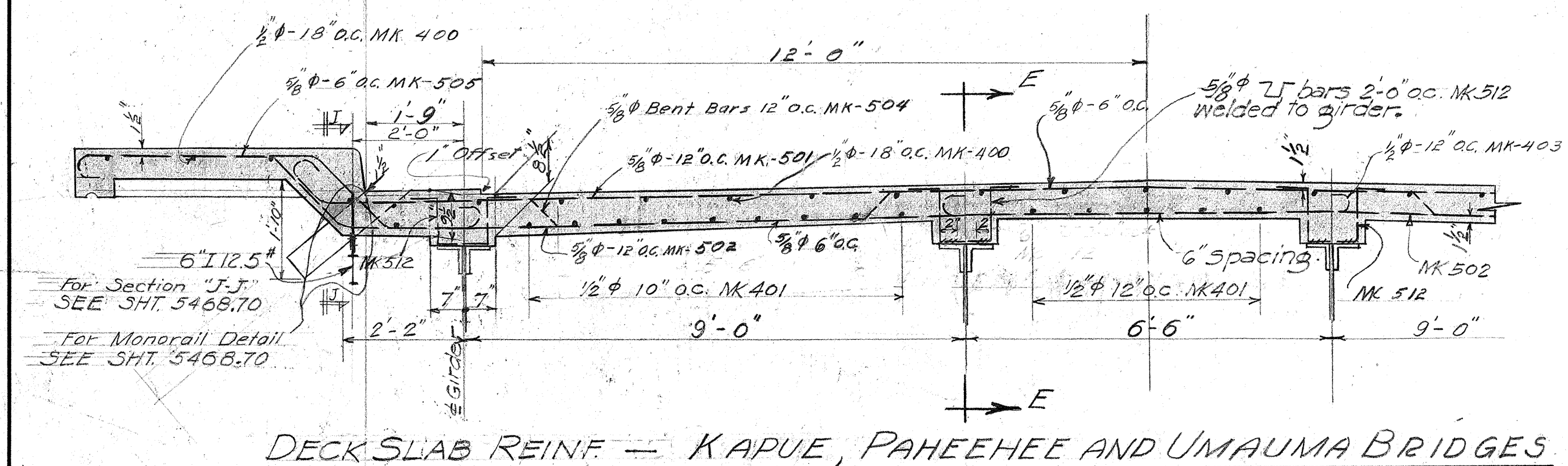
DETAIL AT FIXED BEARINGS
3/4" = 1 Ft.

Note: Vertical dimensions of bolsters on girders as shown here are uniform for entire length for Kapue and Nanue Bridges. For all other bridges they hold for the ends of the steel girders only and vary over their length, as shown elsewhere. This applies also to the distance from Flt. Gr. to back of Flange Angles.

Note: Kapue and Paheehoe Bridges are not in this contract.



DECK SLAB REINF. - NANUE & HAKALAU BRIDGES

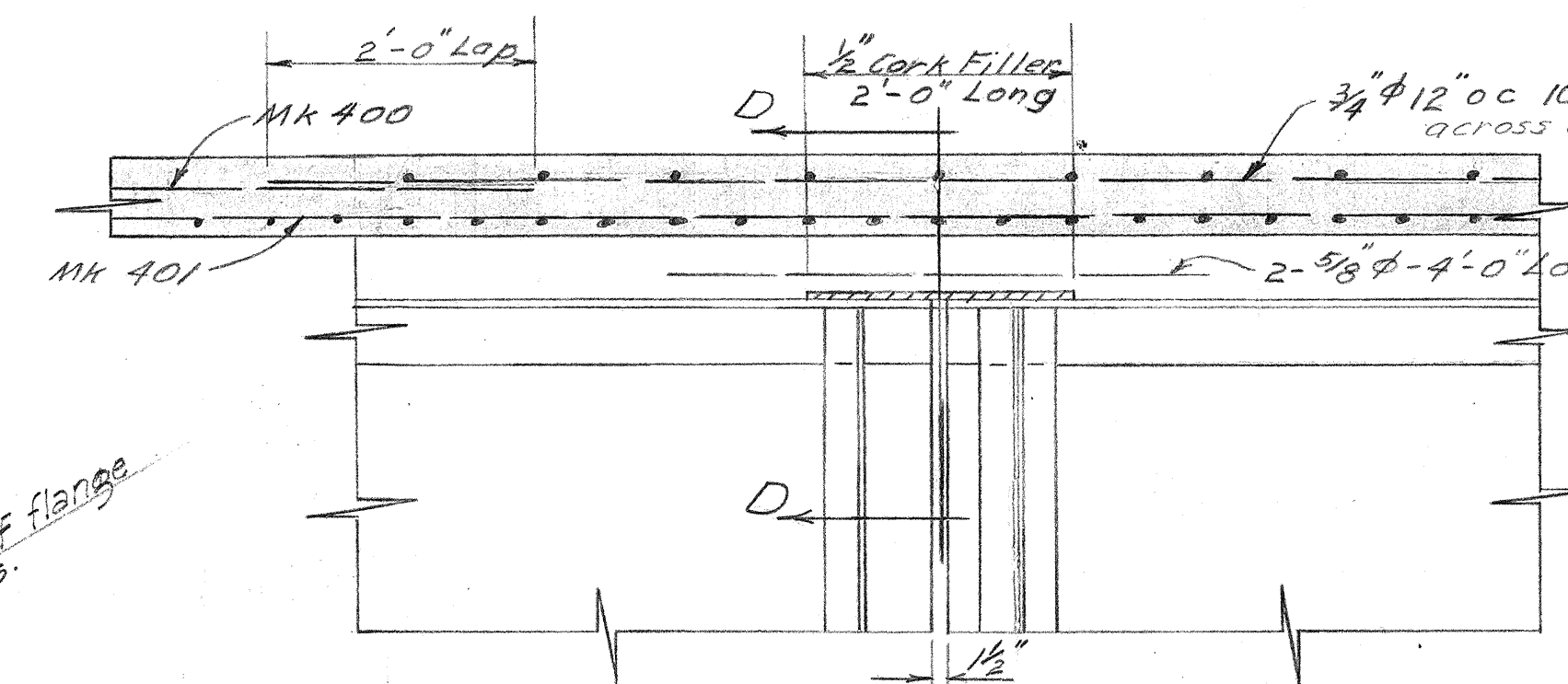


DECK SLAB REINF. - KAPUE, PAHEEHOE AND UMAUMA BRIDGES

SCALE 1/2" = 1'-0"

See Std. Details for further details

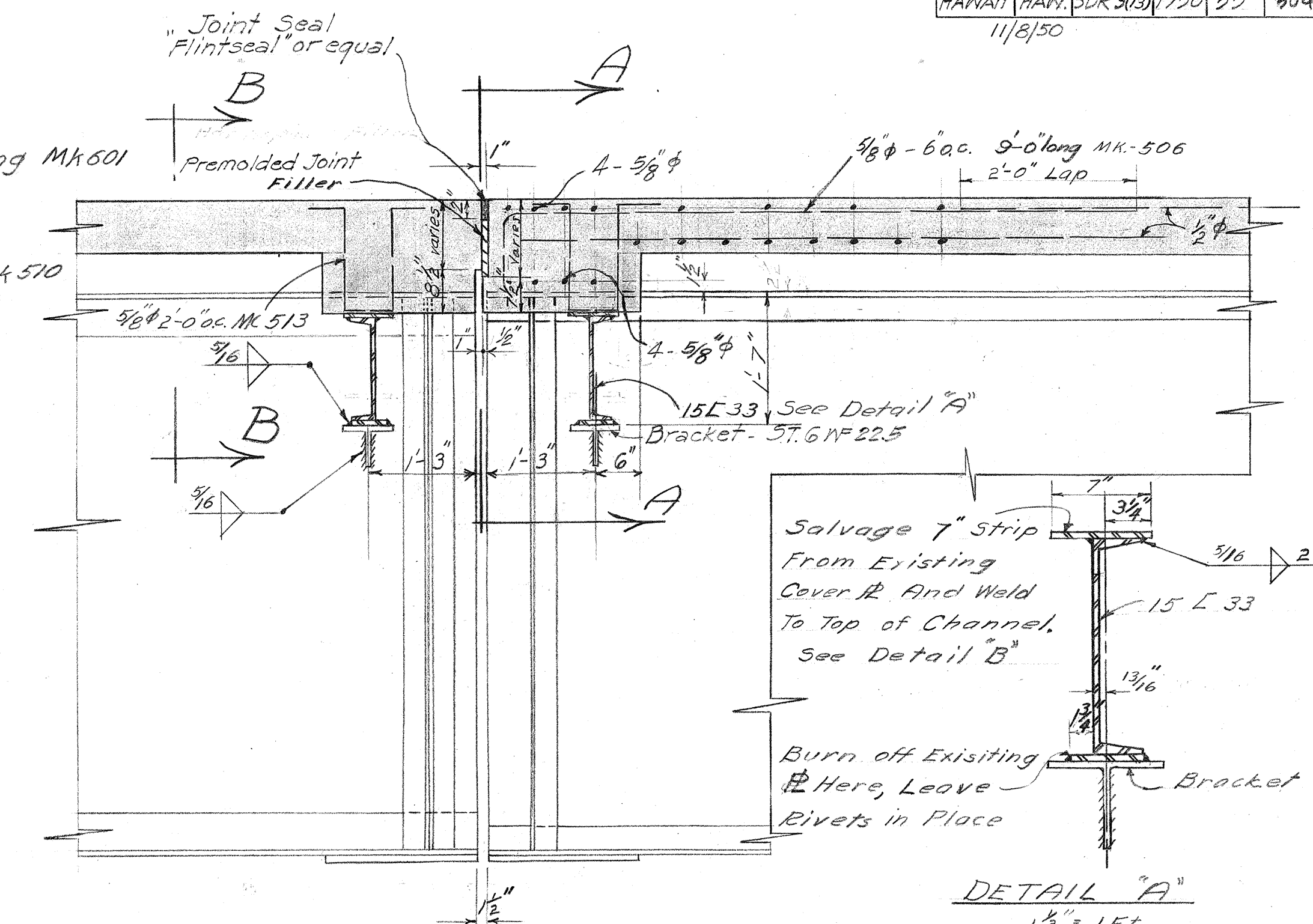
DRAIN DETAIL



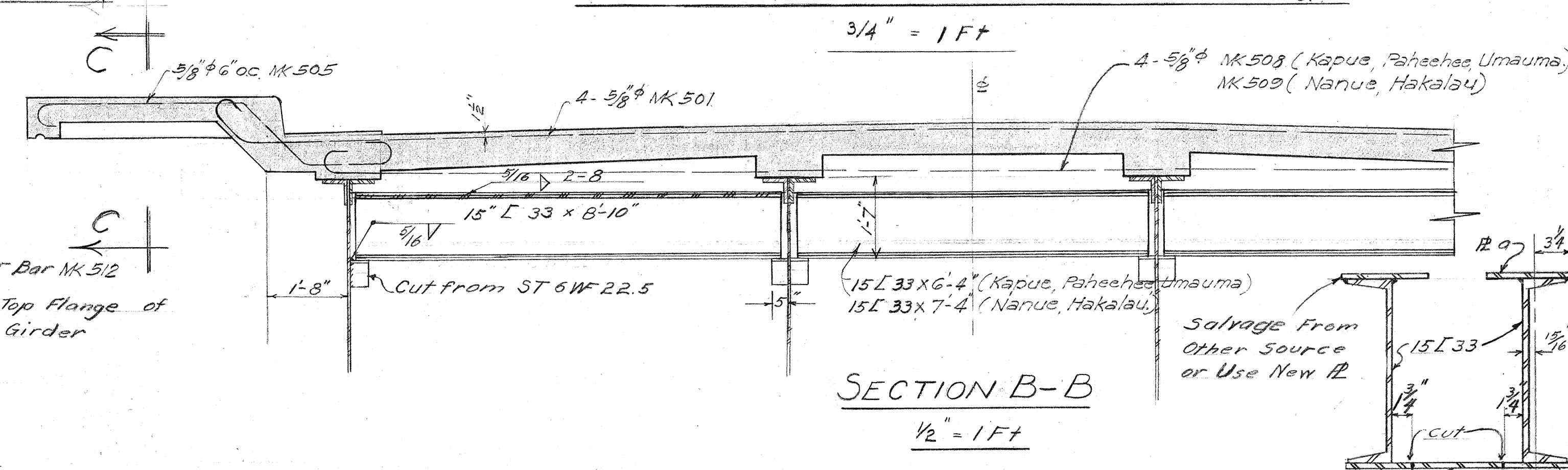
DETAIL AT FIXED BEARINGS
3/4" = 1 Ft.

Note: Vertical dimensions of bolsters on girders as shown here are uniform for entire length for Kapue and Nanue Bridges. For all other bridges they hold for the ends of the steel girders only and vary over their length, as shown elsewhere. This applies also to the distance from Flt. Gr. to back of Flange Angles.

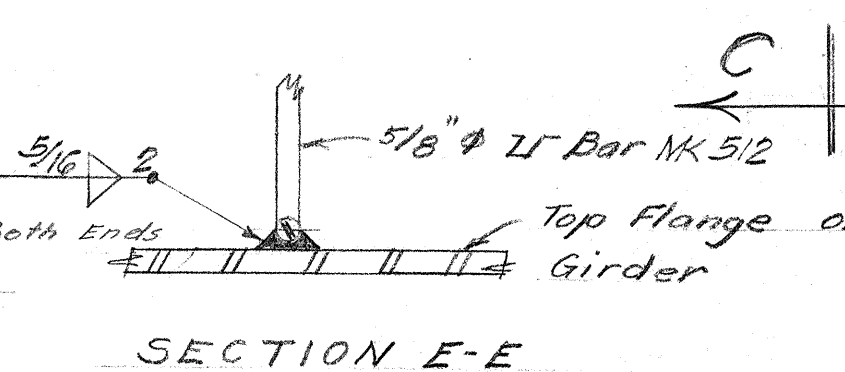
Note: Kapue and Paheehoe Bridges are not in this contract.



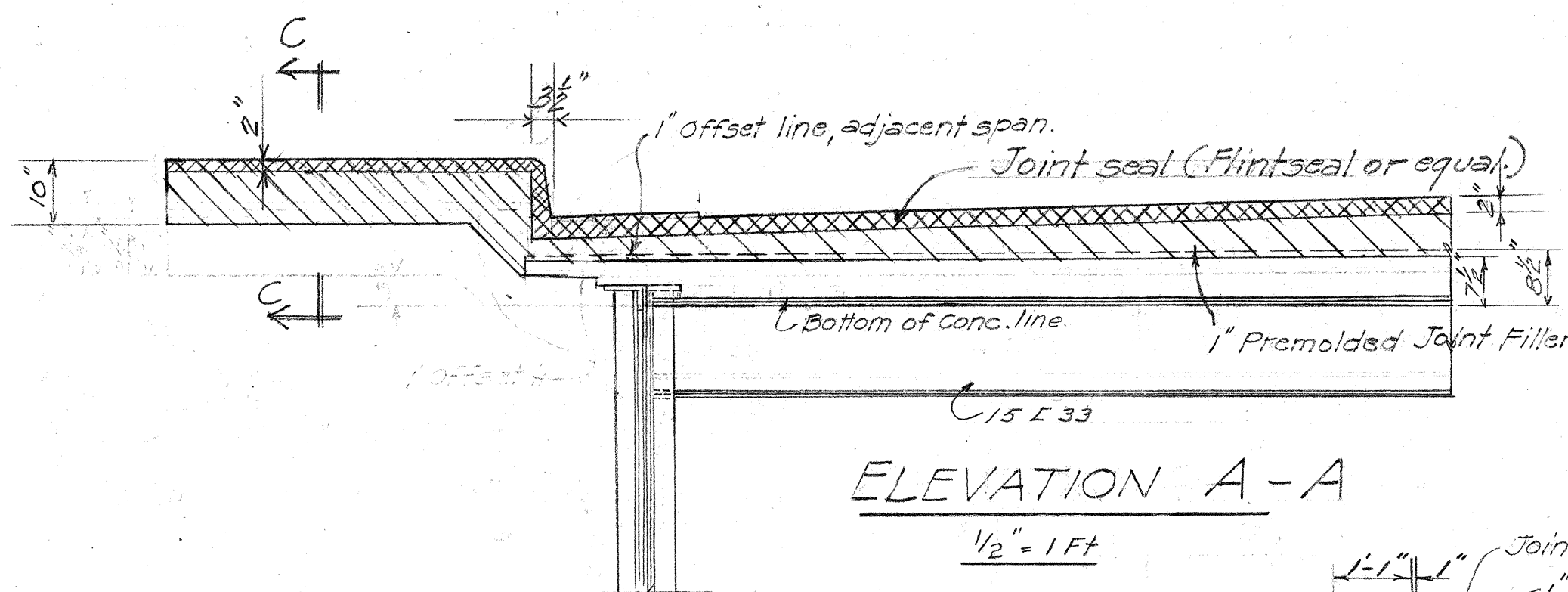
DETAIL AT EXPANSION BEARINGS
3/4" = 1 Ft.



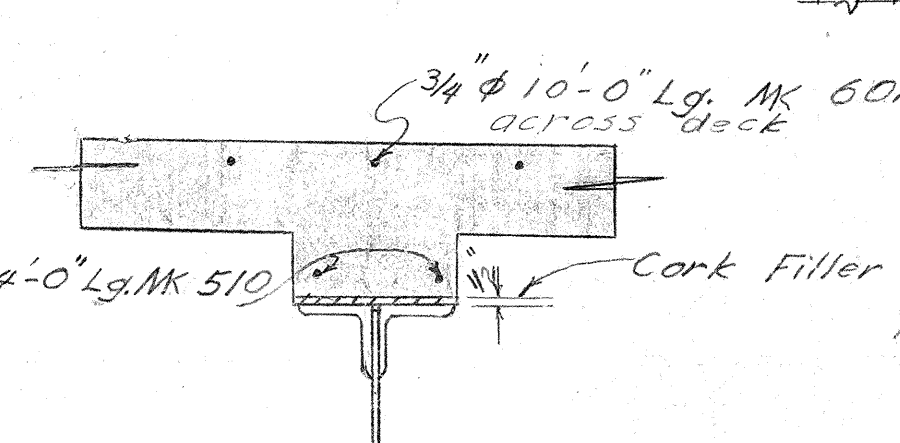
SECTION B-B
1/2" = 1 Ft.



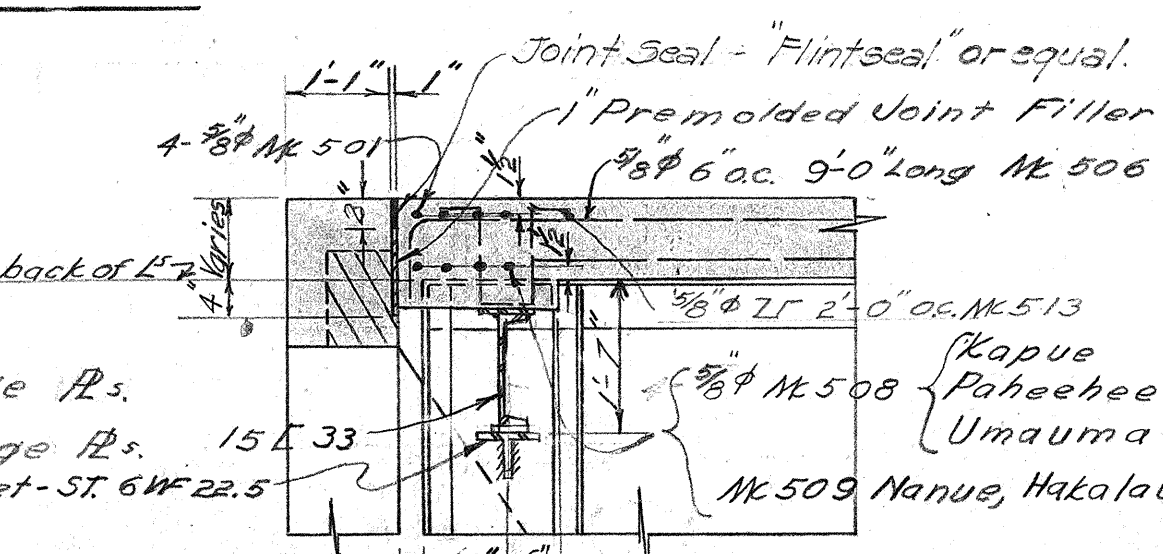
SECTION E-E



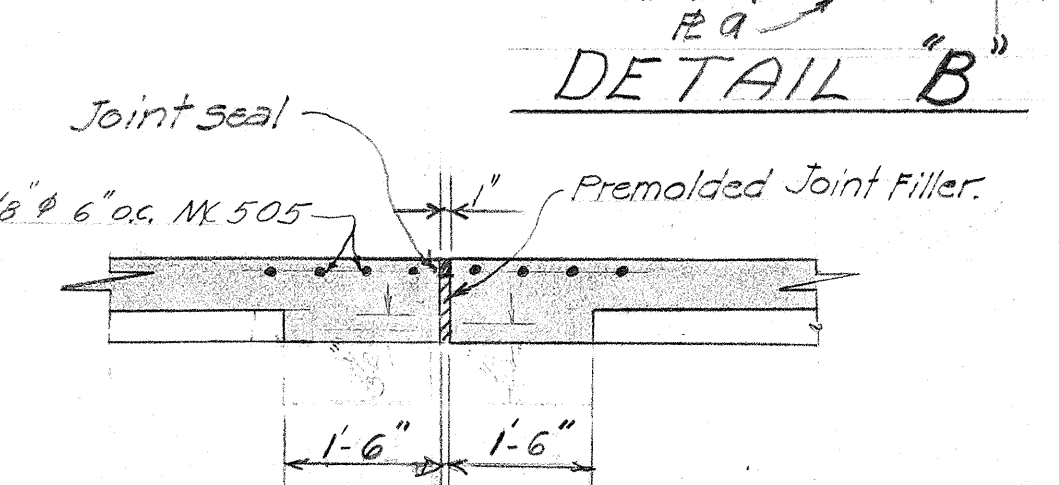
ELEVATION A-A
1/2" = 1 Ft.



SECTION D-D
3/4" = 1 Ft.



DETAIL AT ABUT. BEARINGS
1/2" = 1 Ft.



SECTION C-C
1/2" = 1 Ft.

Note: All concrete in Deck to be Class A-1

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

GENERAL DETAILS

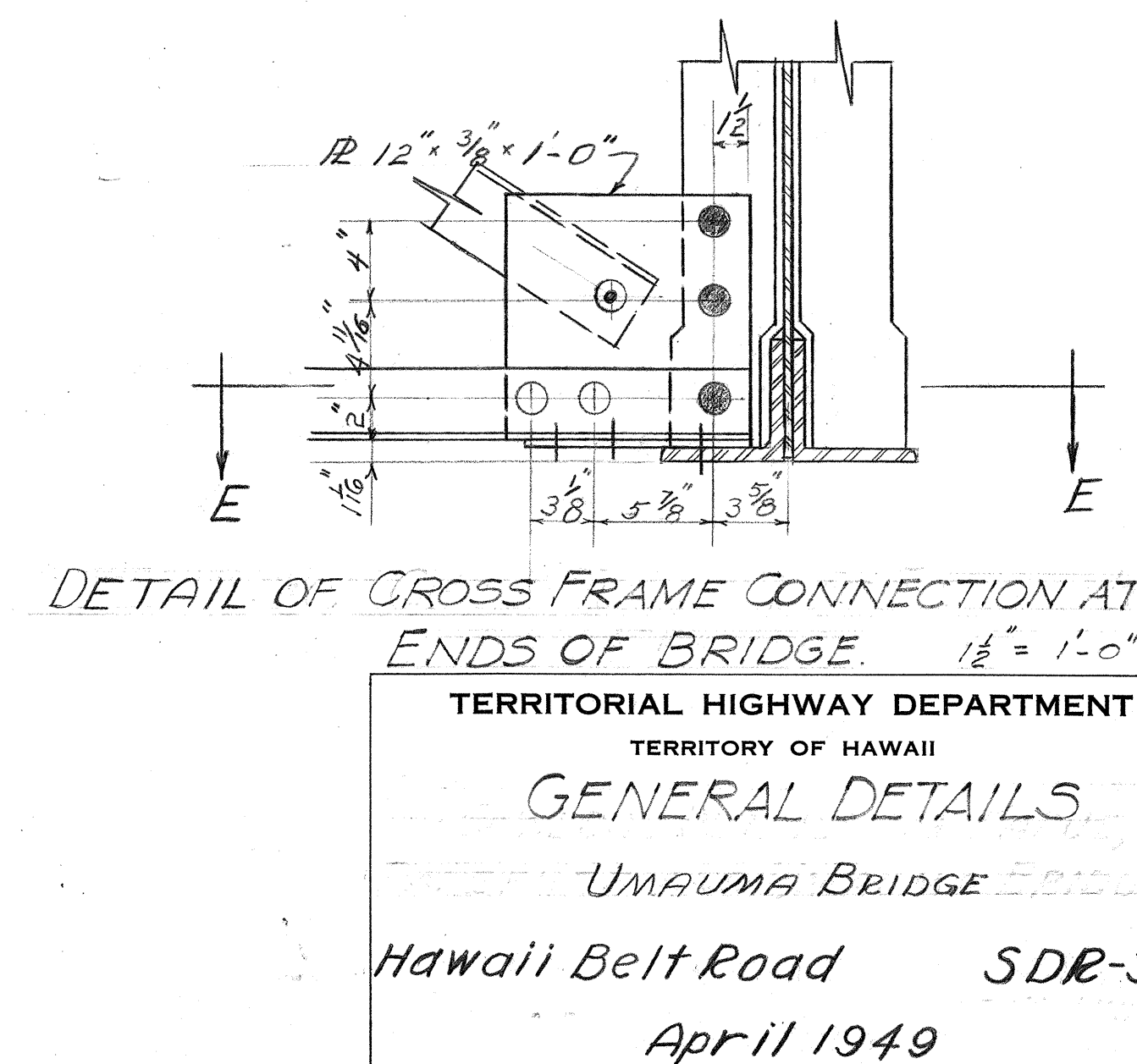
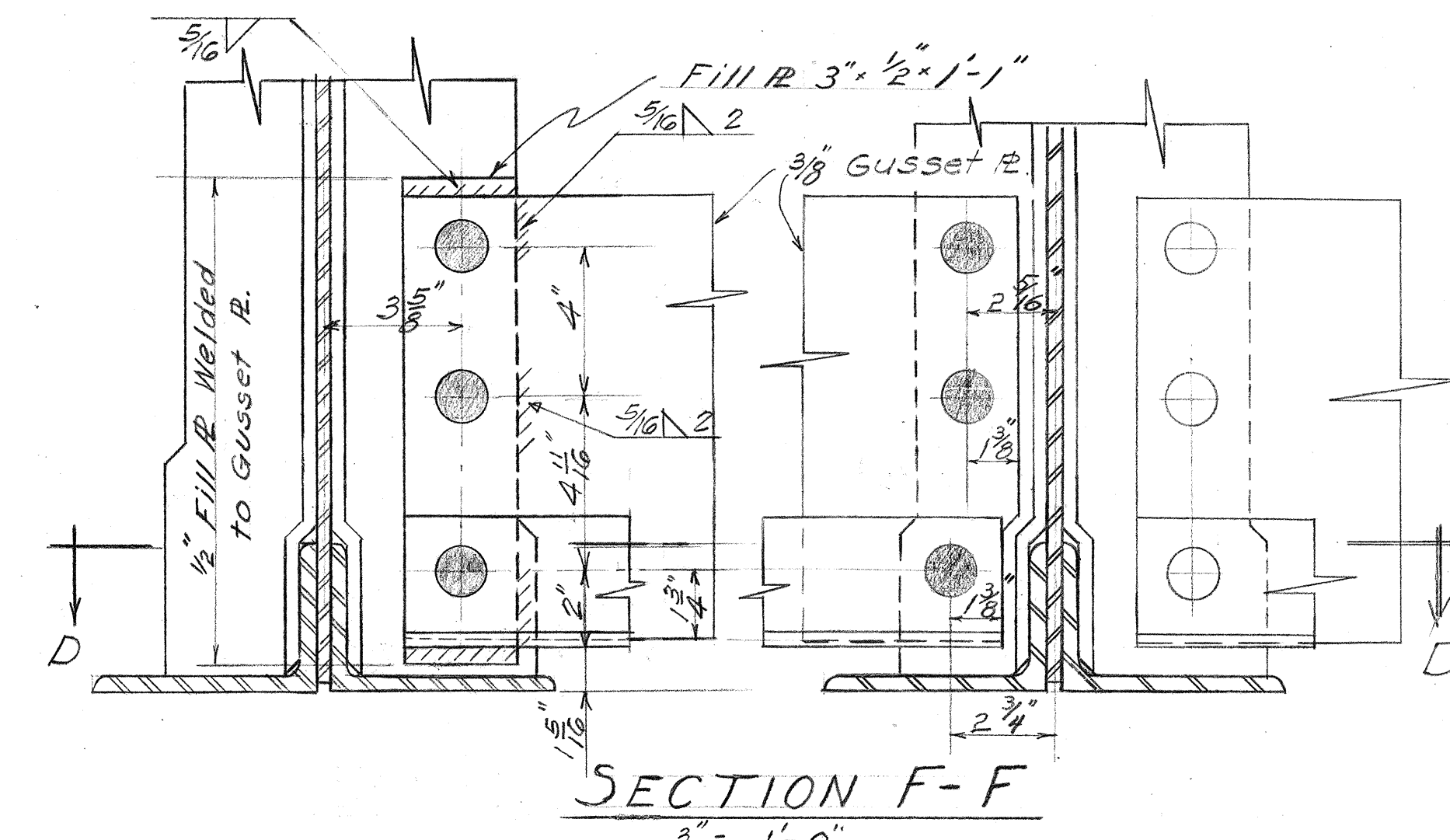
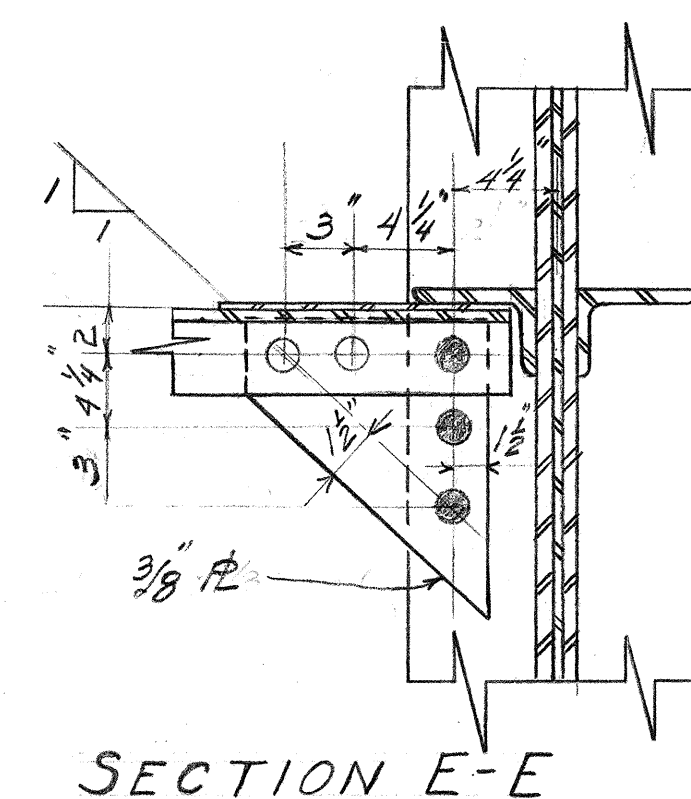
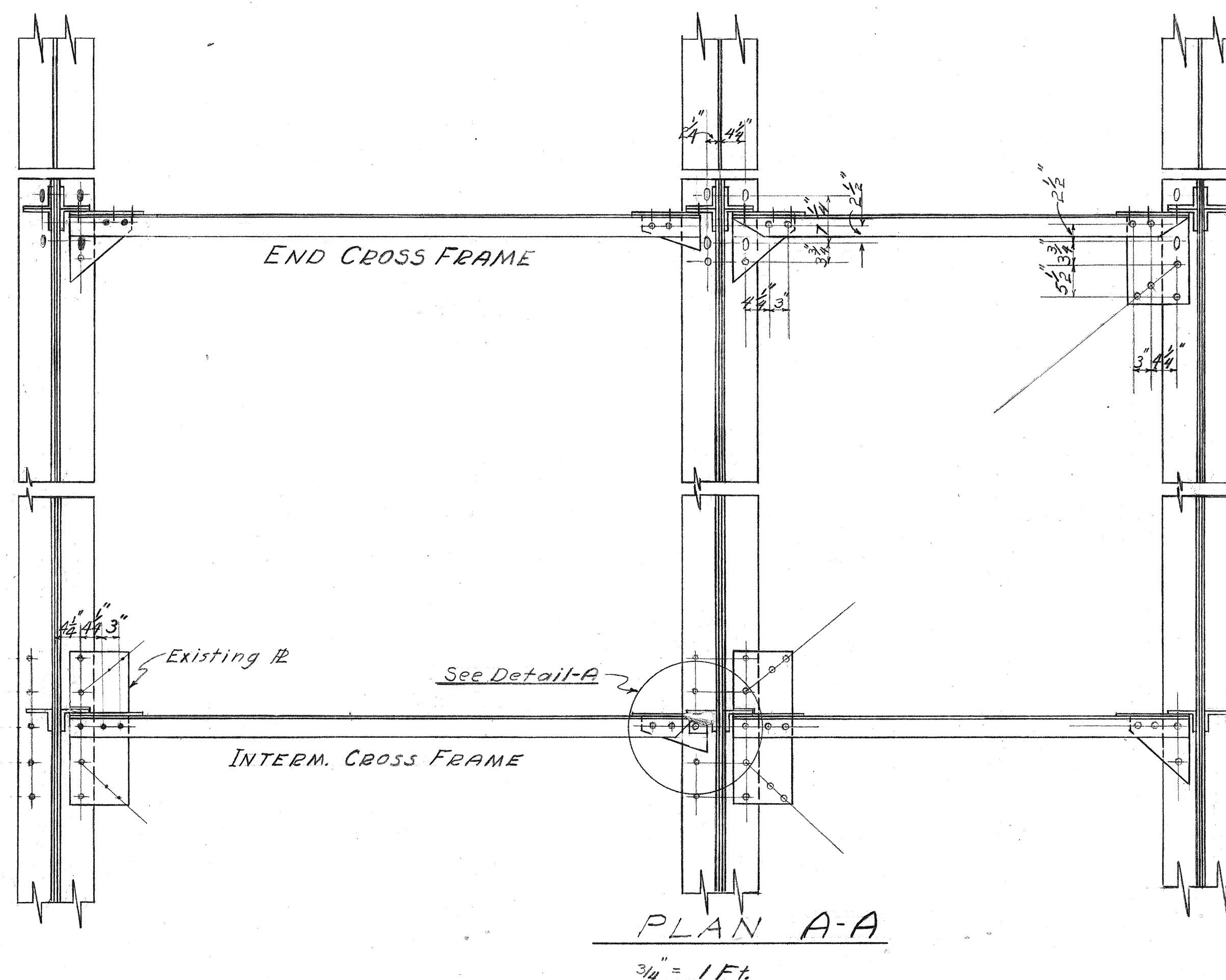
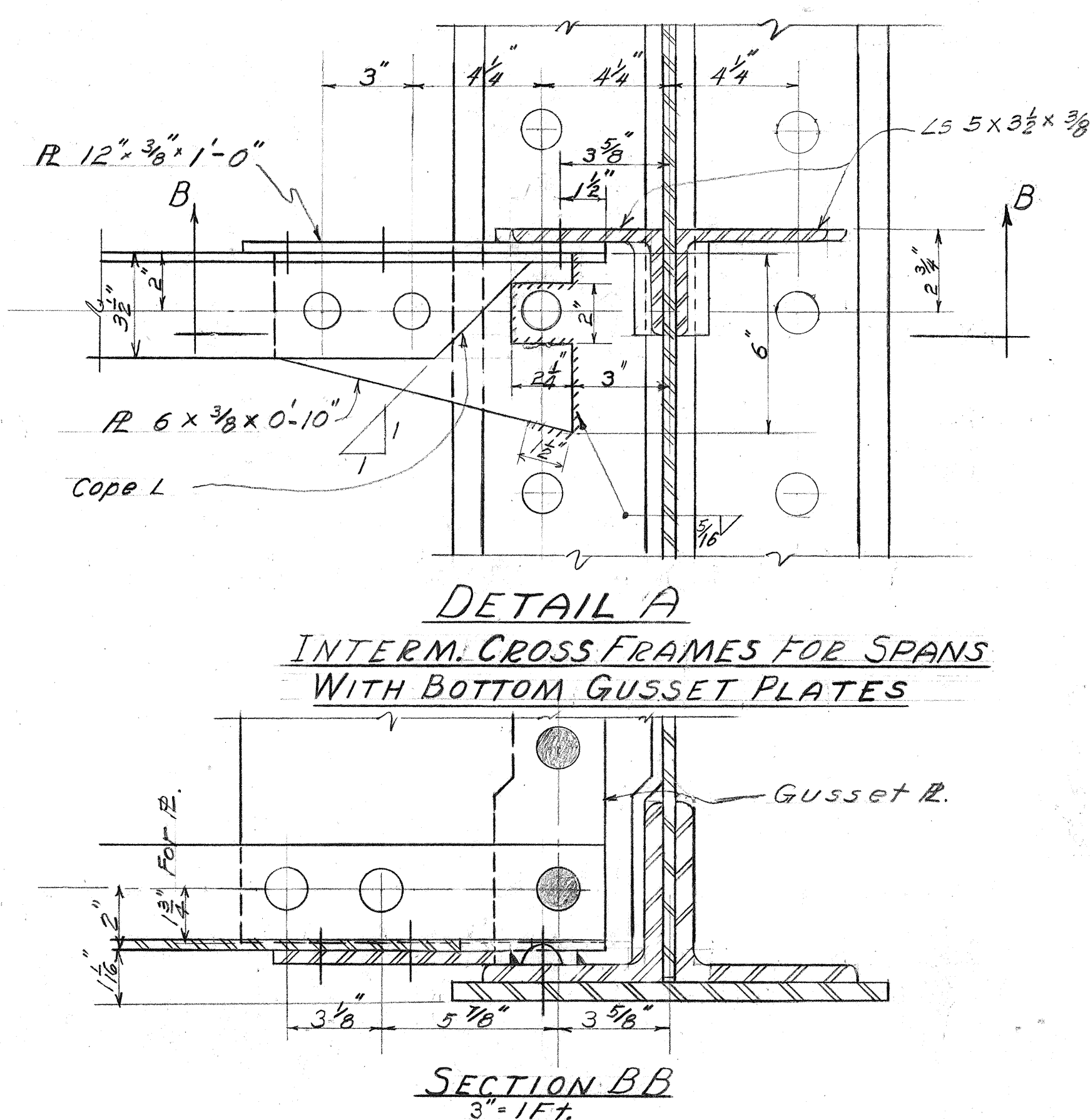
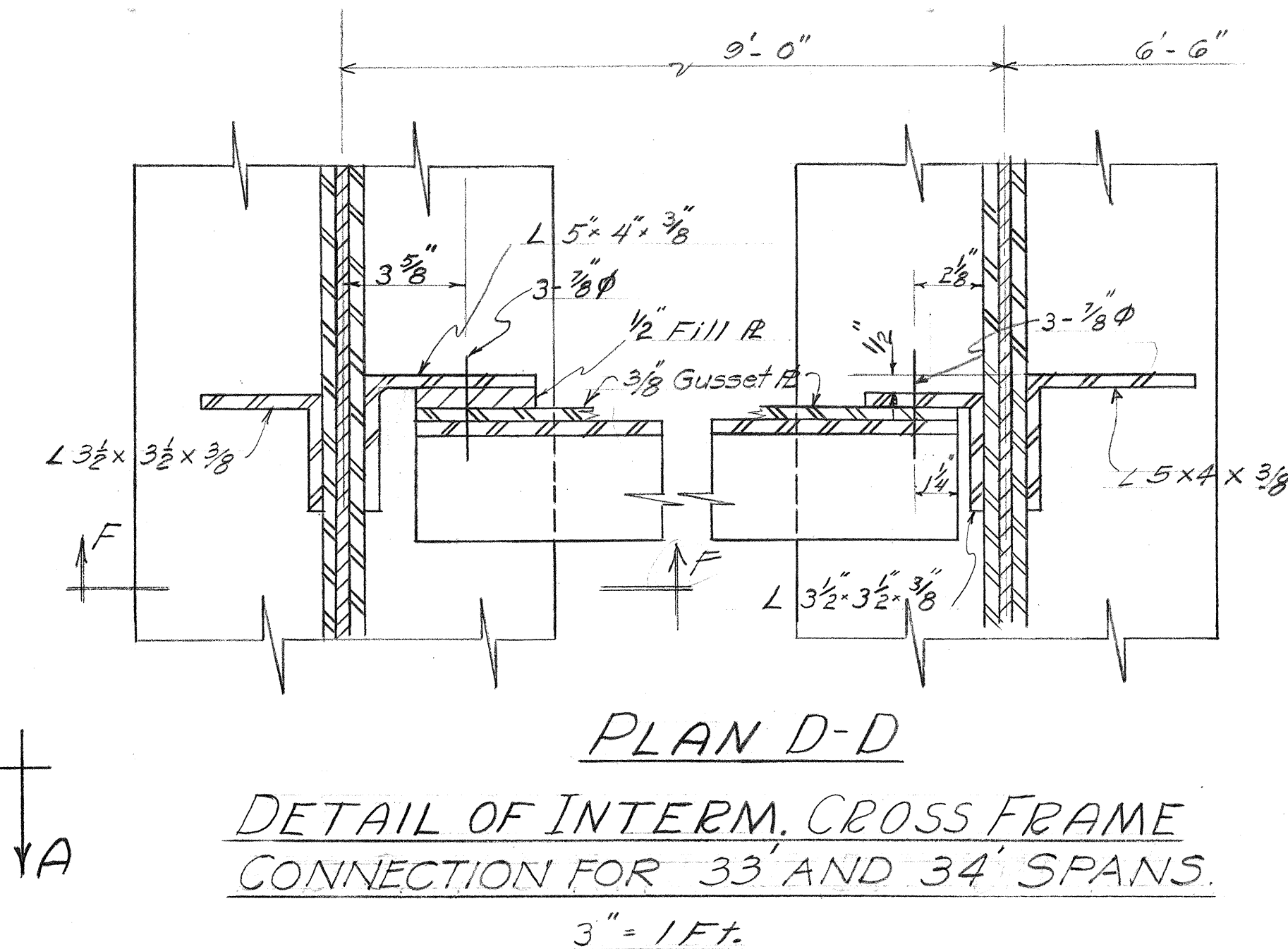
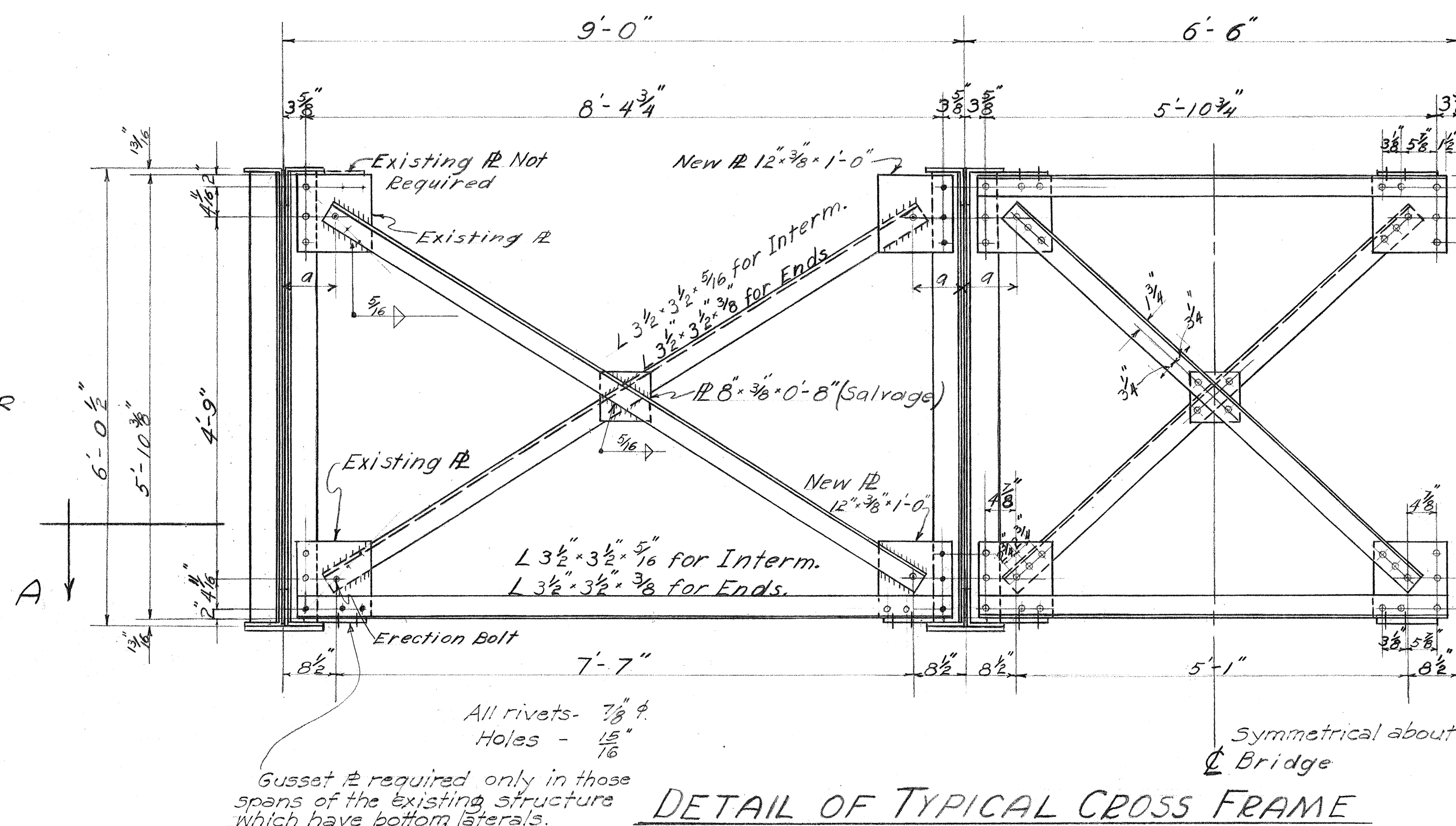
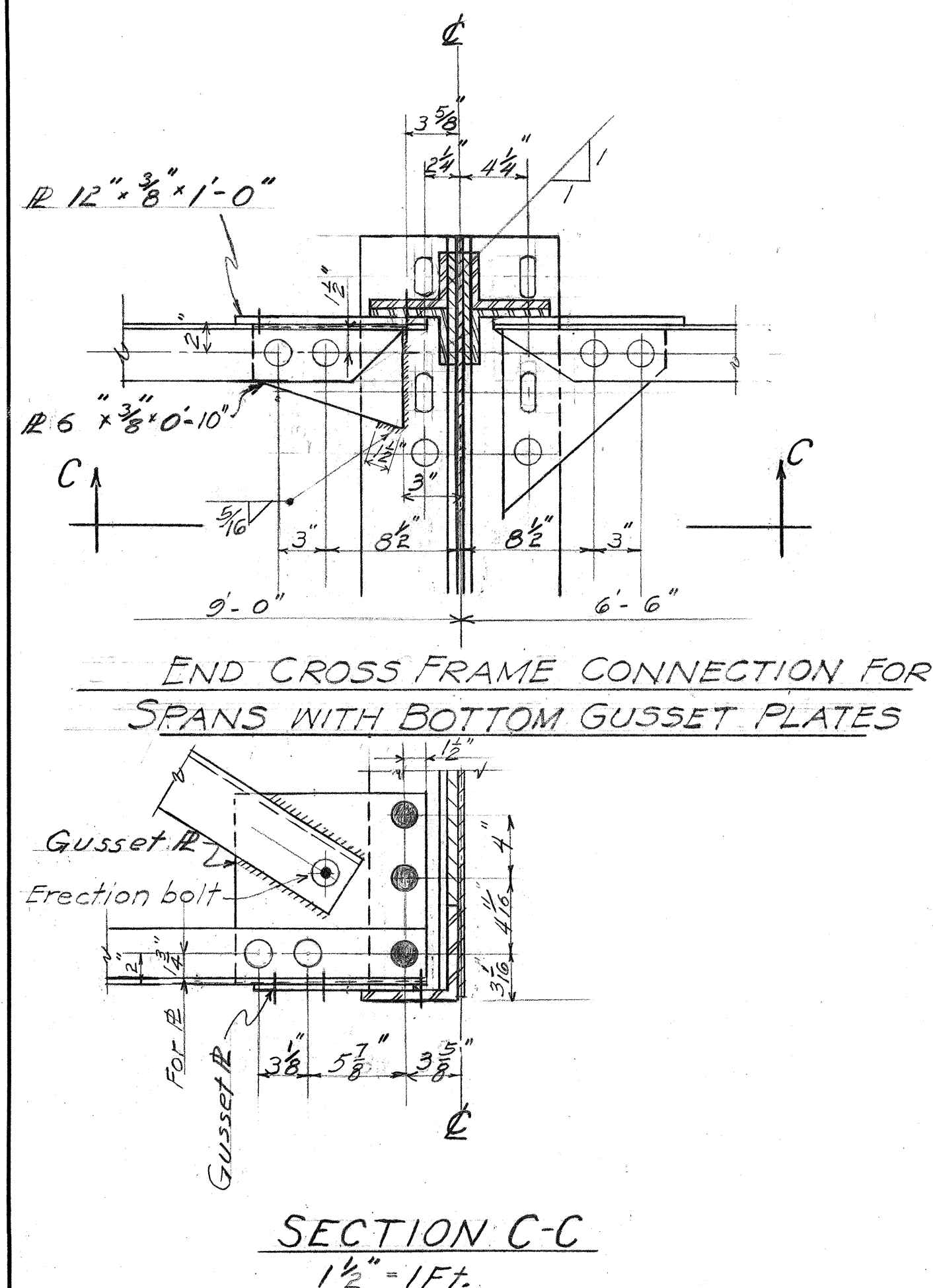
Hawaii Belt Road SDR-3(3)

March 1949

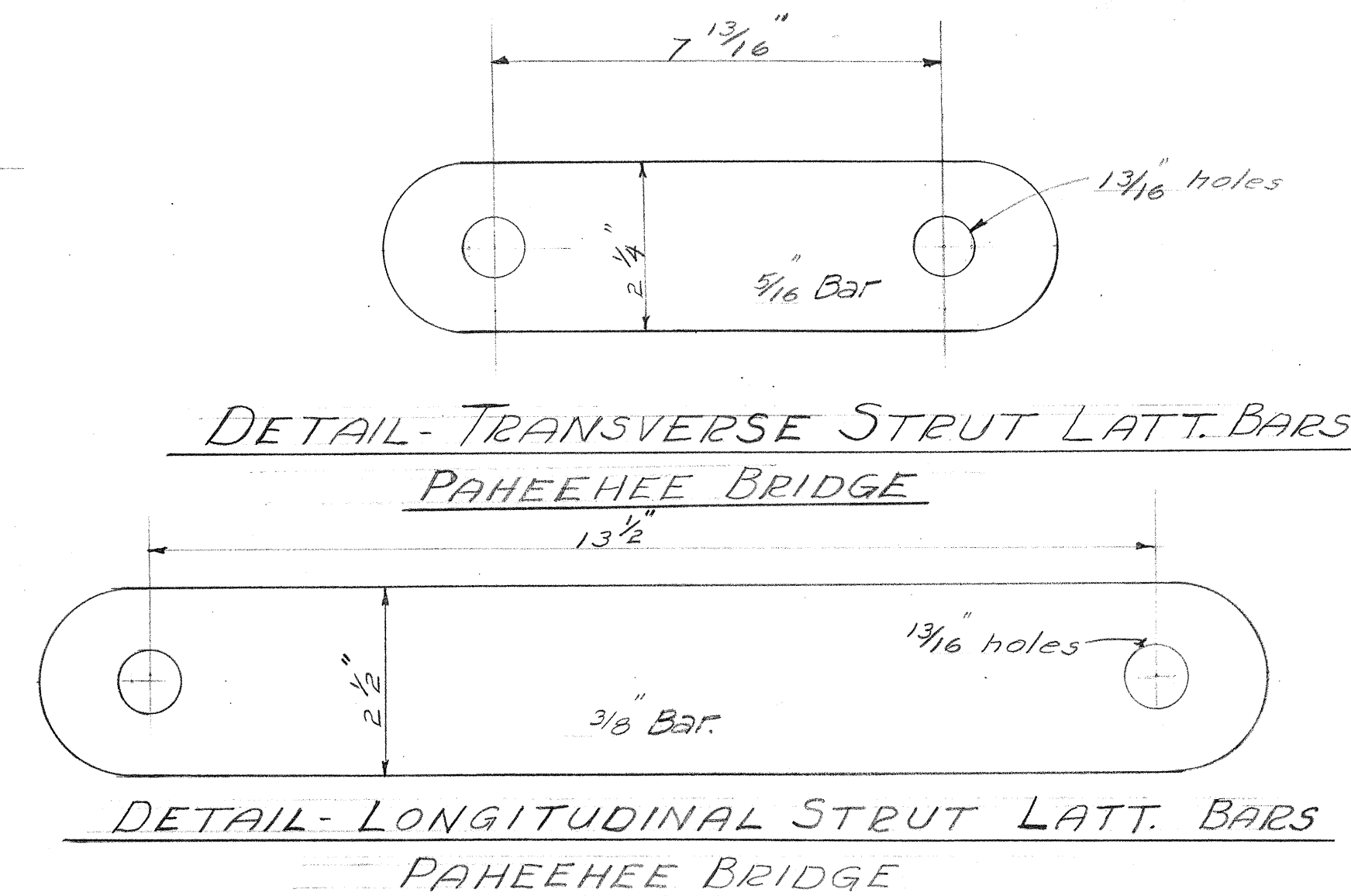
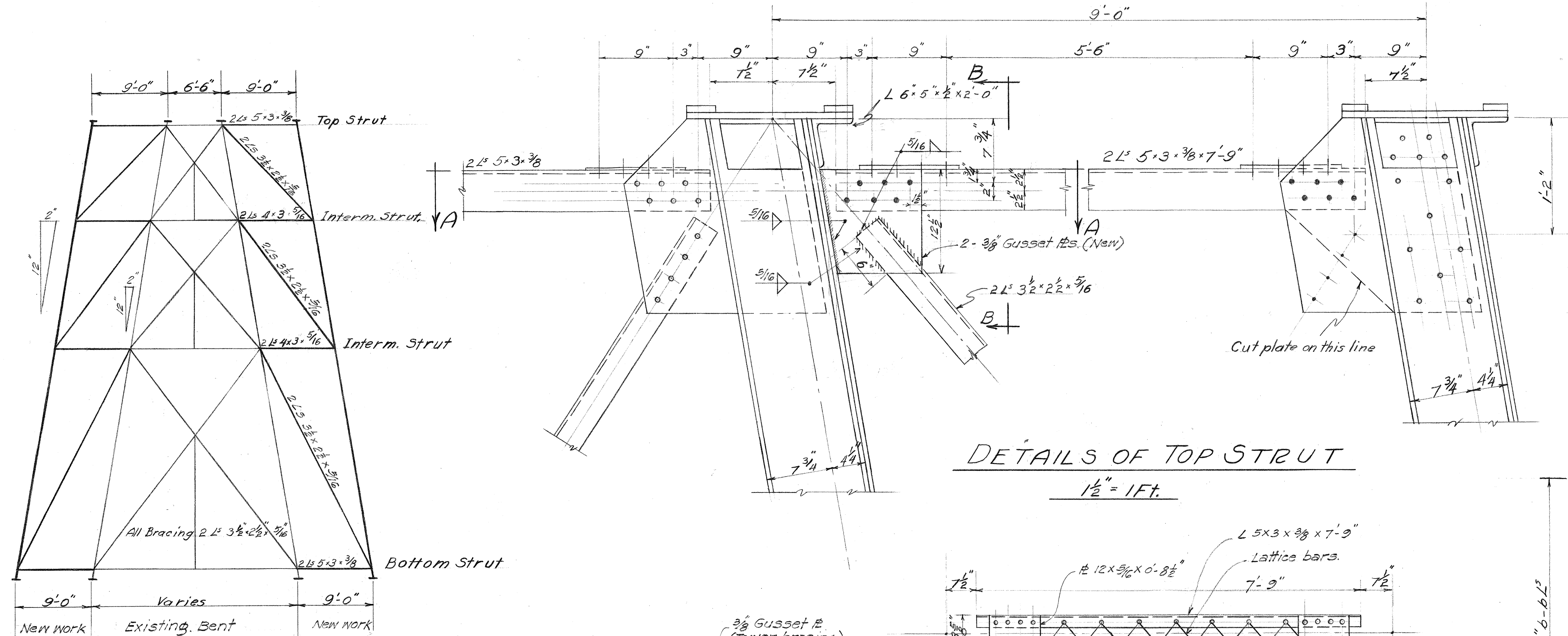
SHEET NO. 1 OF 3 SHEETS

5468.55

ORIGINAL PLAN
DESIGNED BY
CHECKED BY
DATE
3-29
1-20
4-13



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
GENERAL DETAILS
UMAUMA BRIDGE
Hawaii Belt Road SDR-3(13)
April 1949



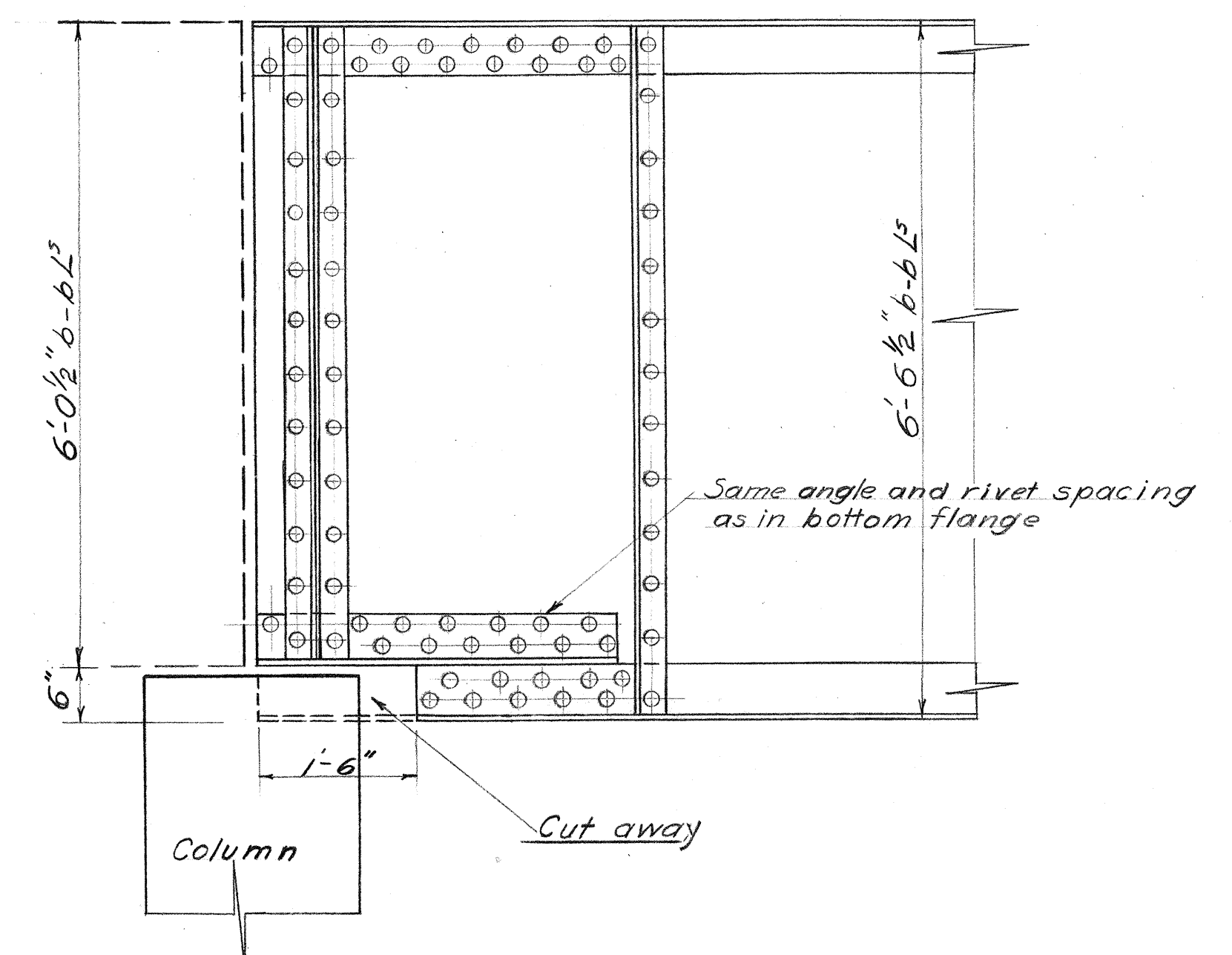
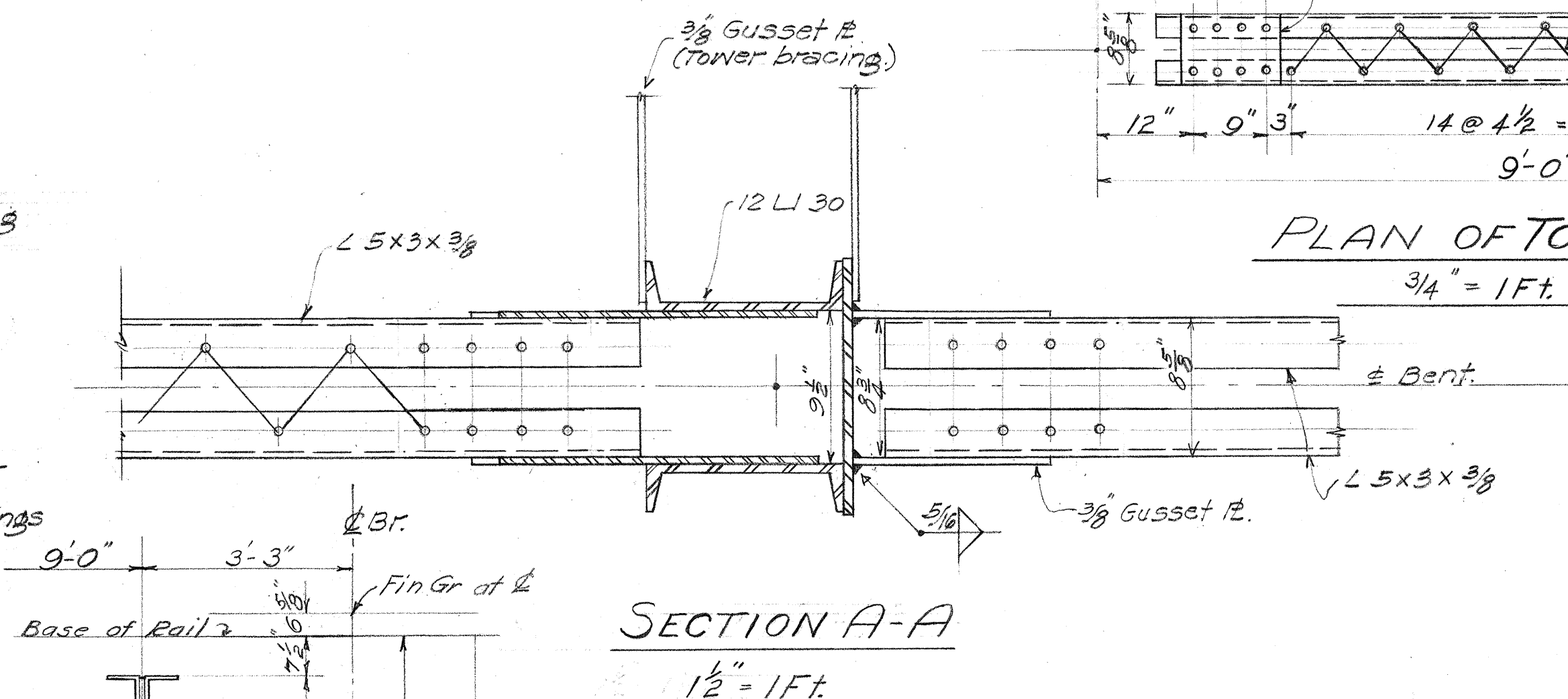
TYPICAL BENT ELEVATION

Note: All struts and diagonals to have tie plate and lattice bar arrangement and outside columns to have tower bracing similar to those in the existing structure.

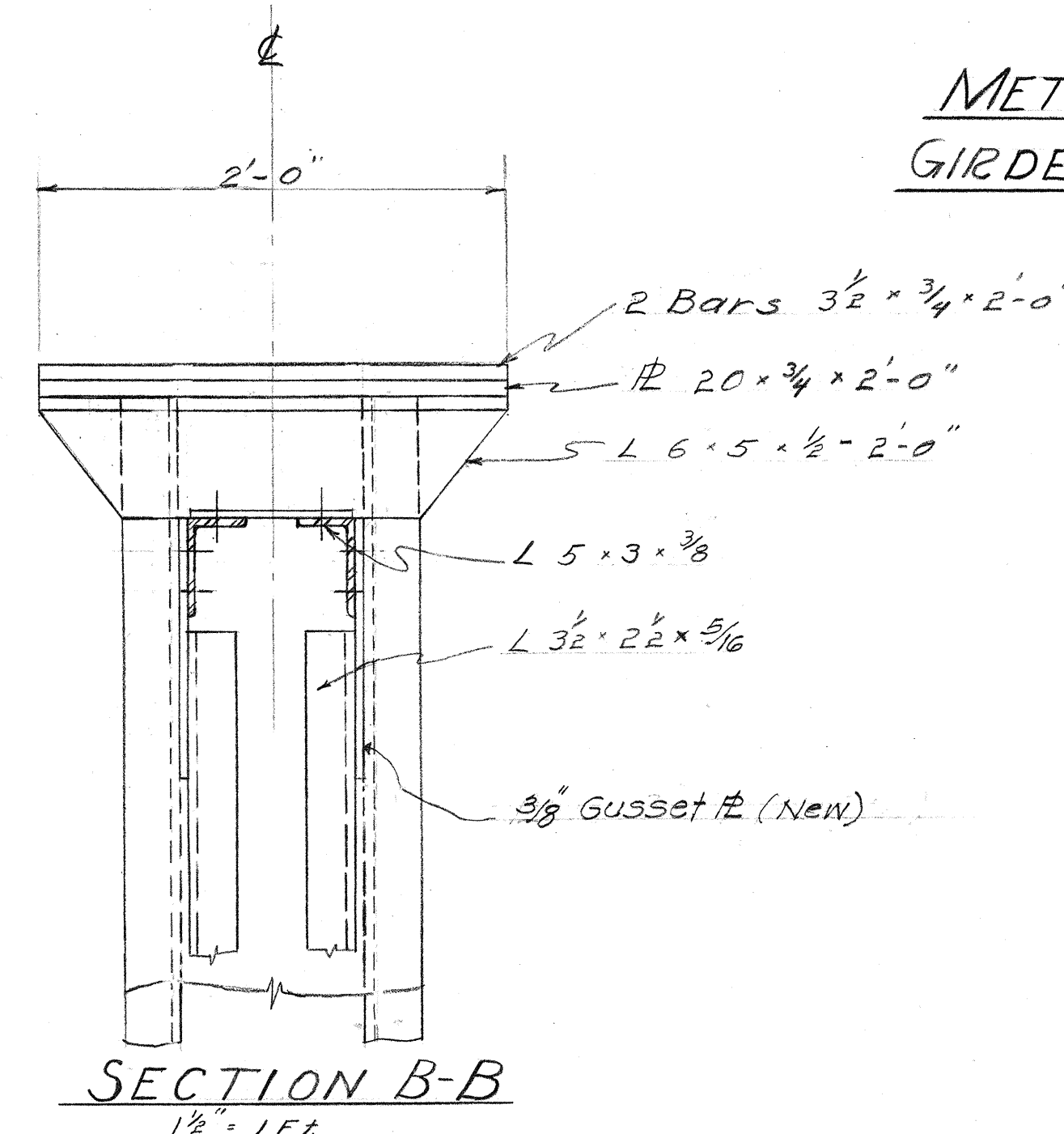
All rivets - 7/8" φ
 Holes - 15/16"

In case of discrepancy between bent elevation as shown here and as shown on shop drawings the latter shall govern.

General Details sheets #1 - #7 have served as a guide to the supplier of salvaged steel for the making of the shop drawings. These sheets in conjunction with the shop drawings shall serve the purpose of fabricating and erecting all steel, both salvaged and new.



NOTE: Where a 78" web girder rests on an abutment lower abutment seat 6" and use girder as is

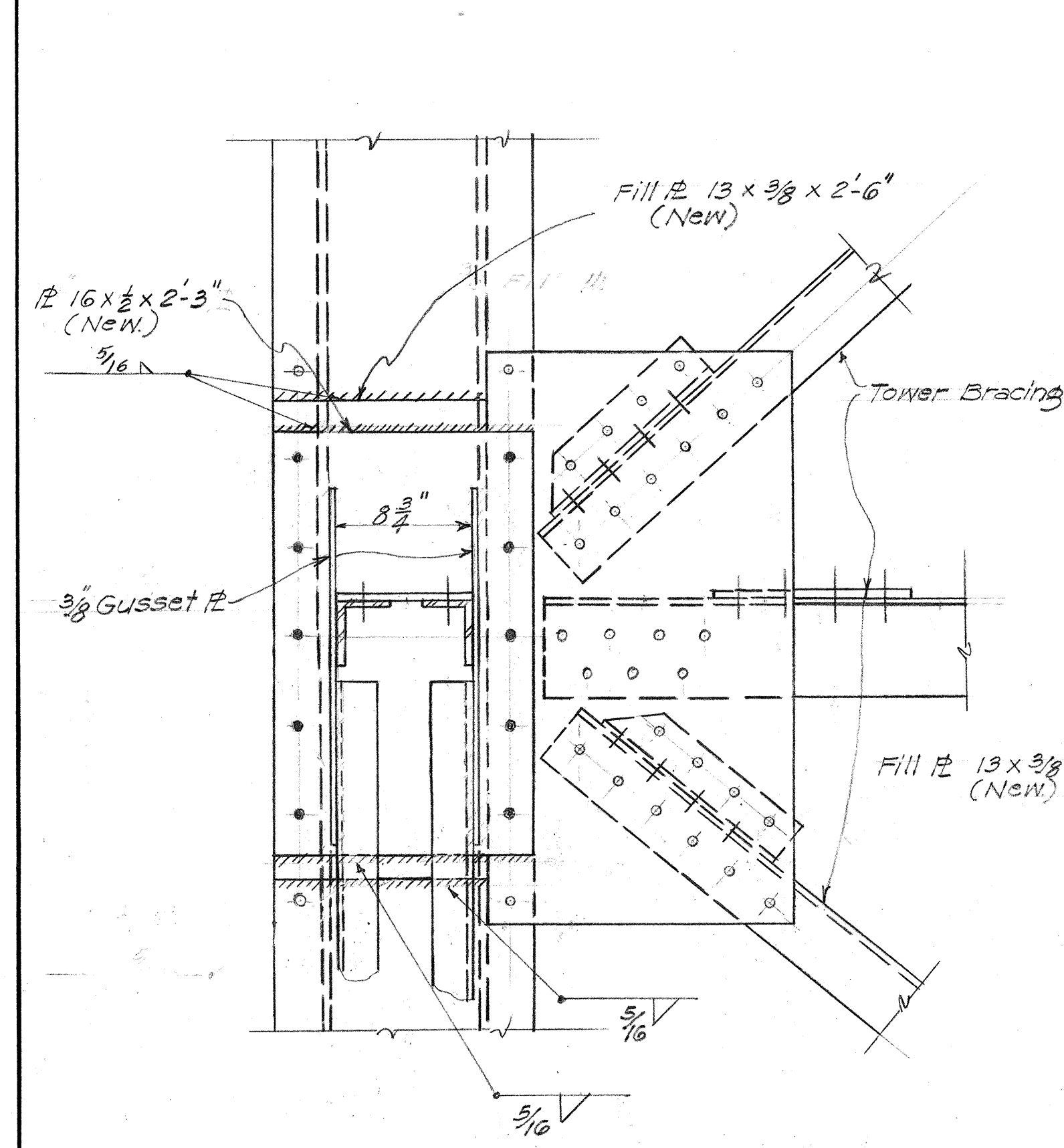


COLUMN LENGTHS

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 GENERAL DETAILS
 WITH UMAUMA BRIDGE RIDGES
 Hawaii Belt Road SDR-3(13)
 April 1949

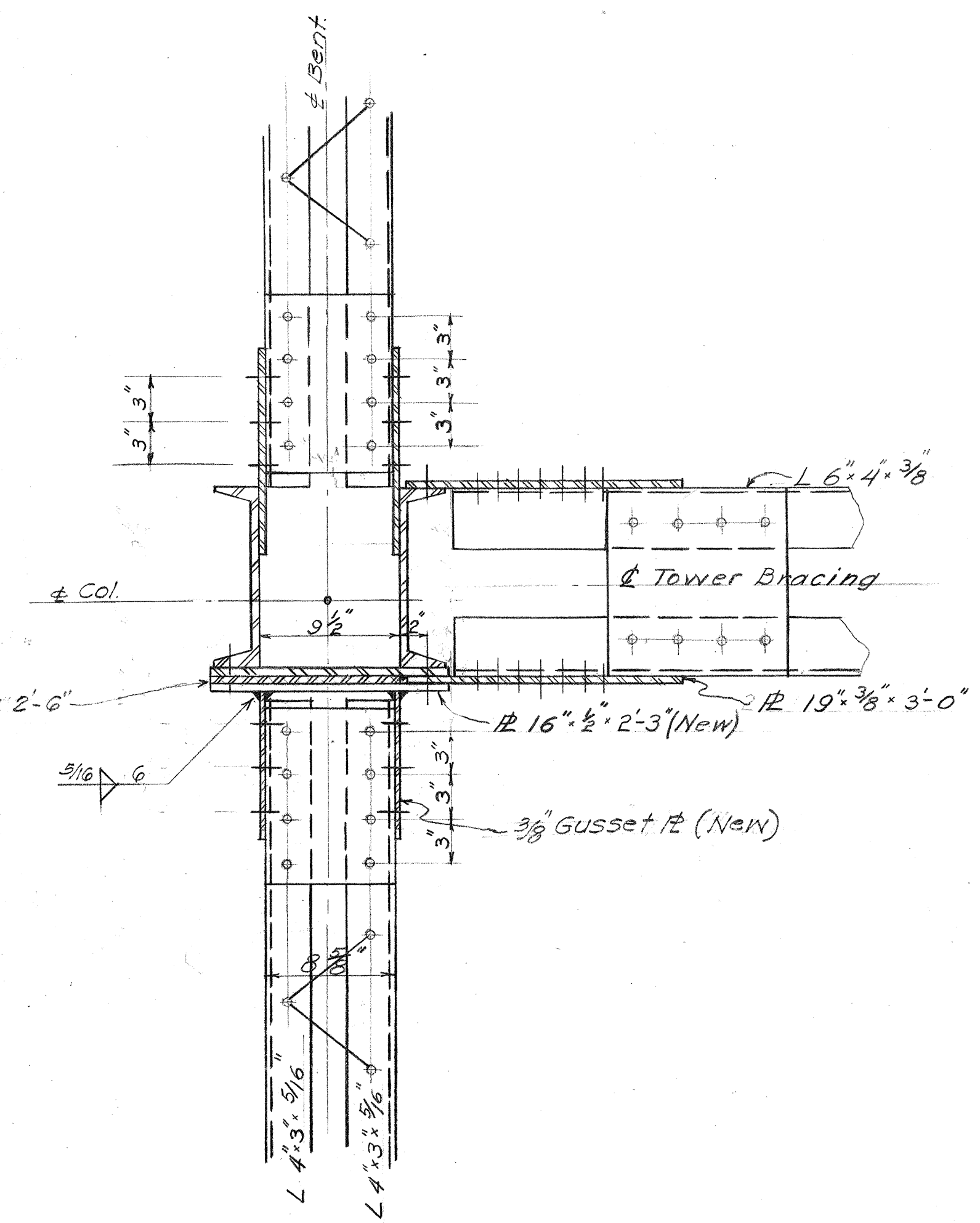
SHEET No. 3 OF 9 SHEETS

5468.57



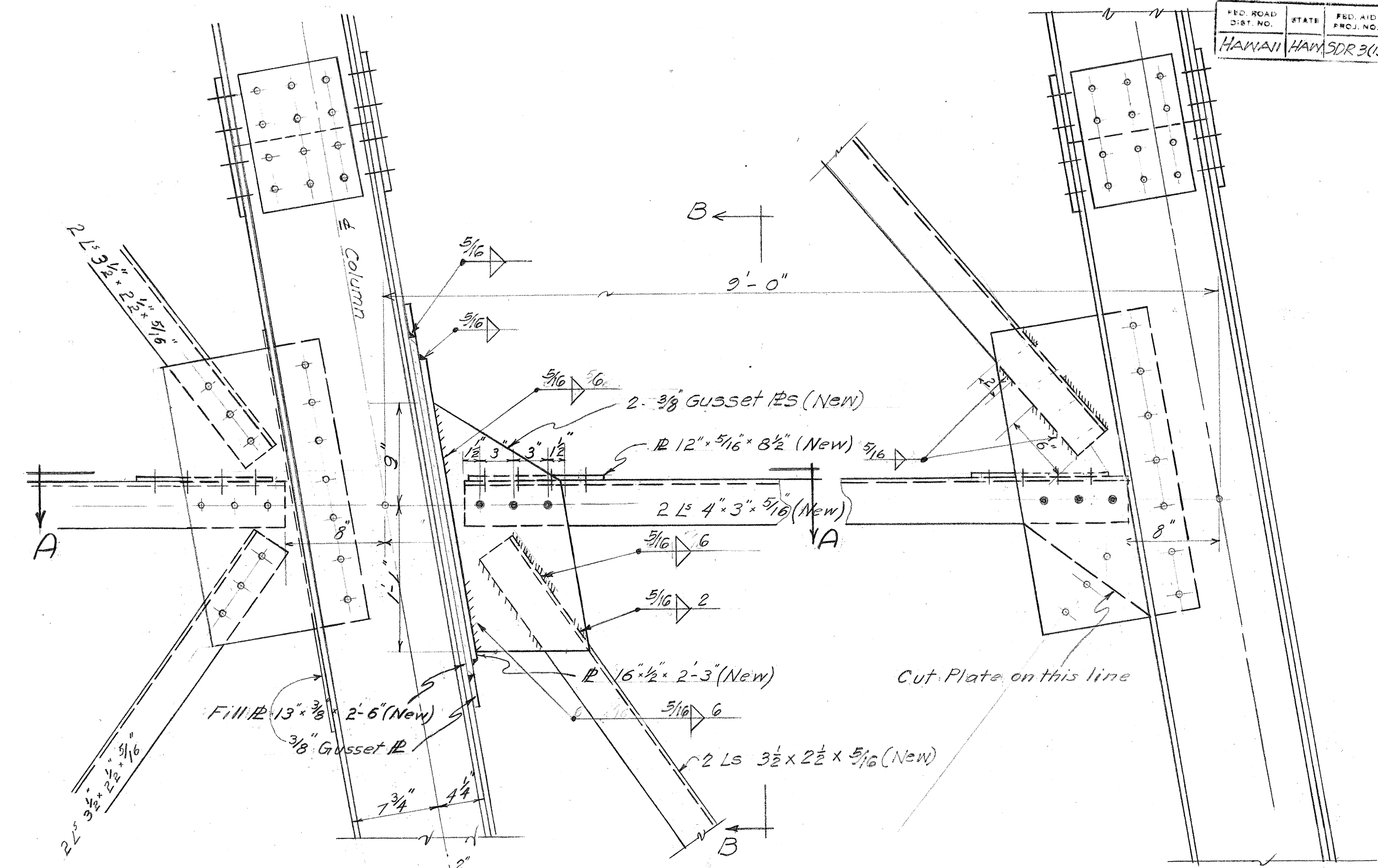
SECTION B-B

1 1/2" = 1 Ft.



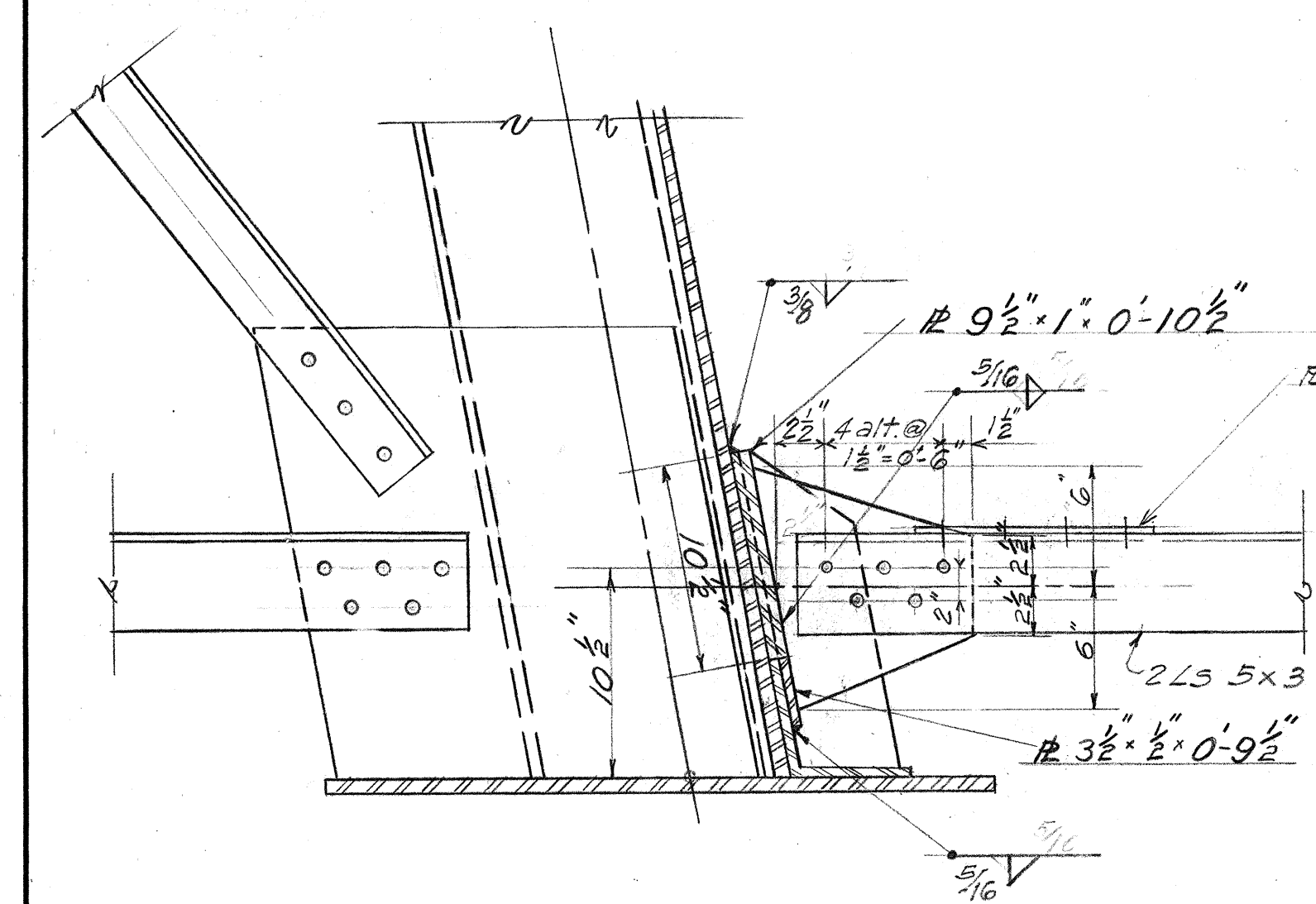
SECTION A-A

1 1/2" = 1 Ft.



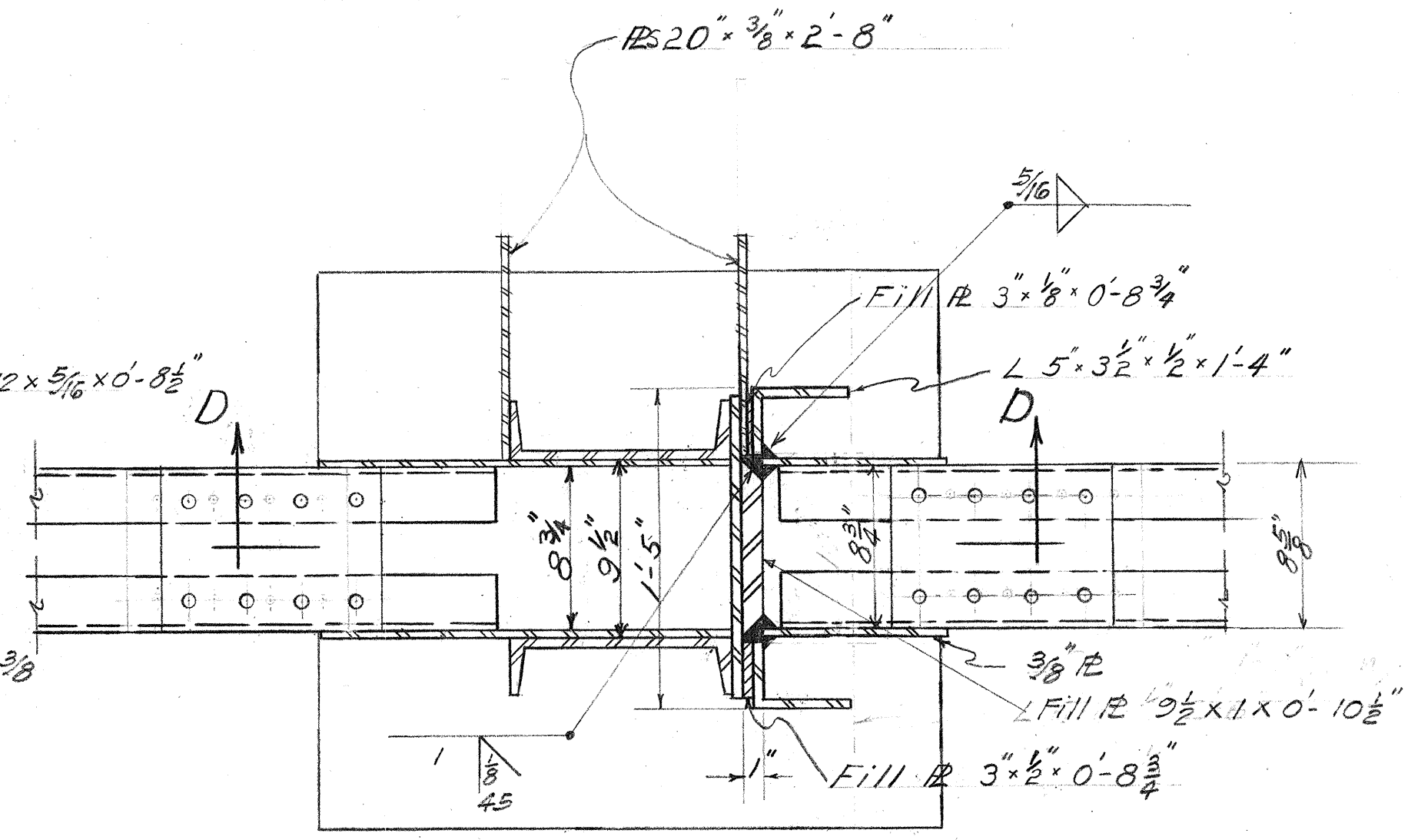
DETAIL OF INTERMEDIATE STRUT

1 1/2" = 1 Ft.



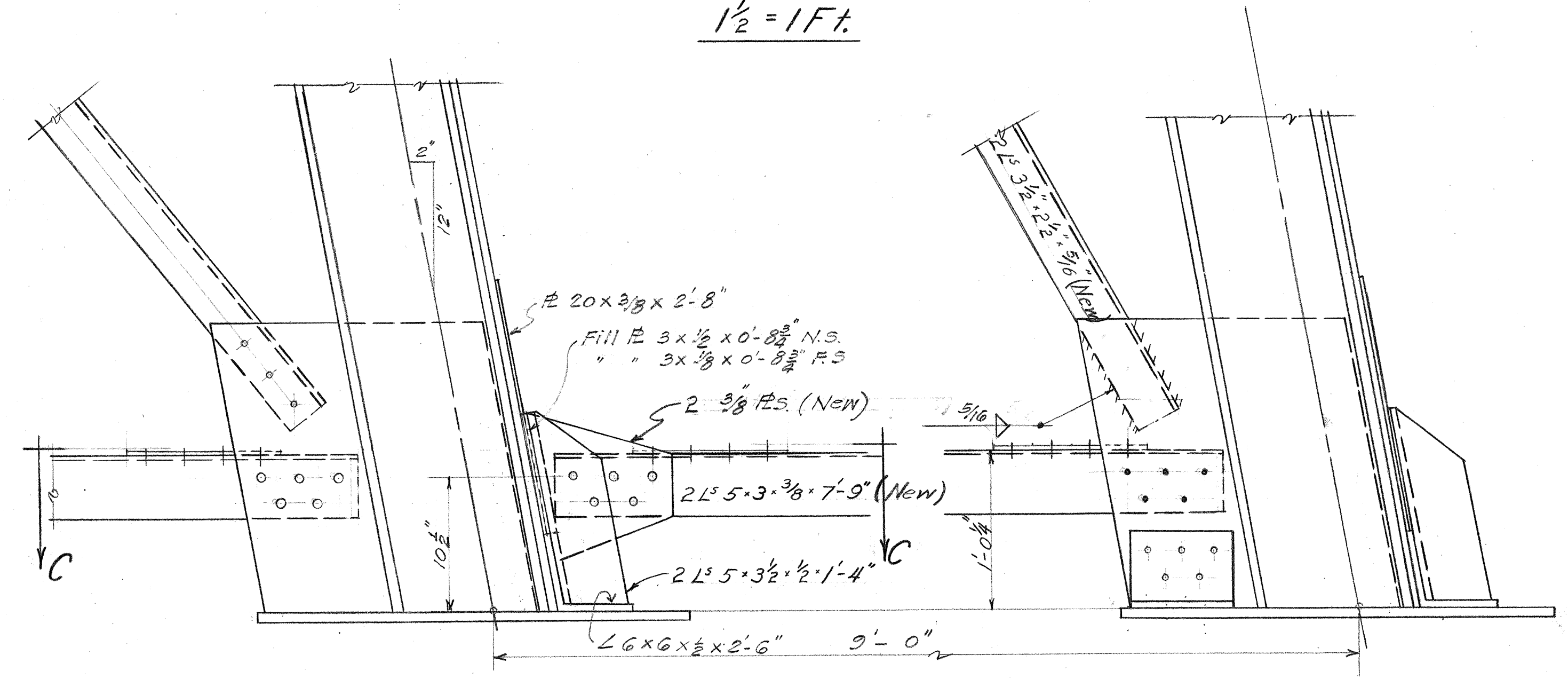
SECTION D-D

1 1/2" = 1 Ft.



SECTION C-C

1 1/2" = 1 Ft.



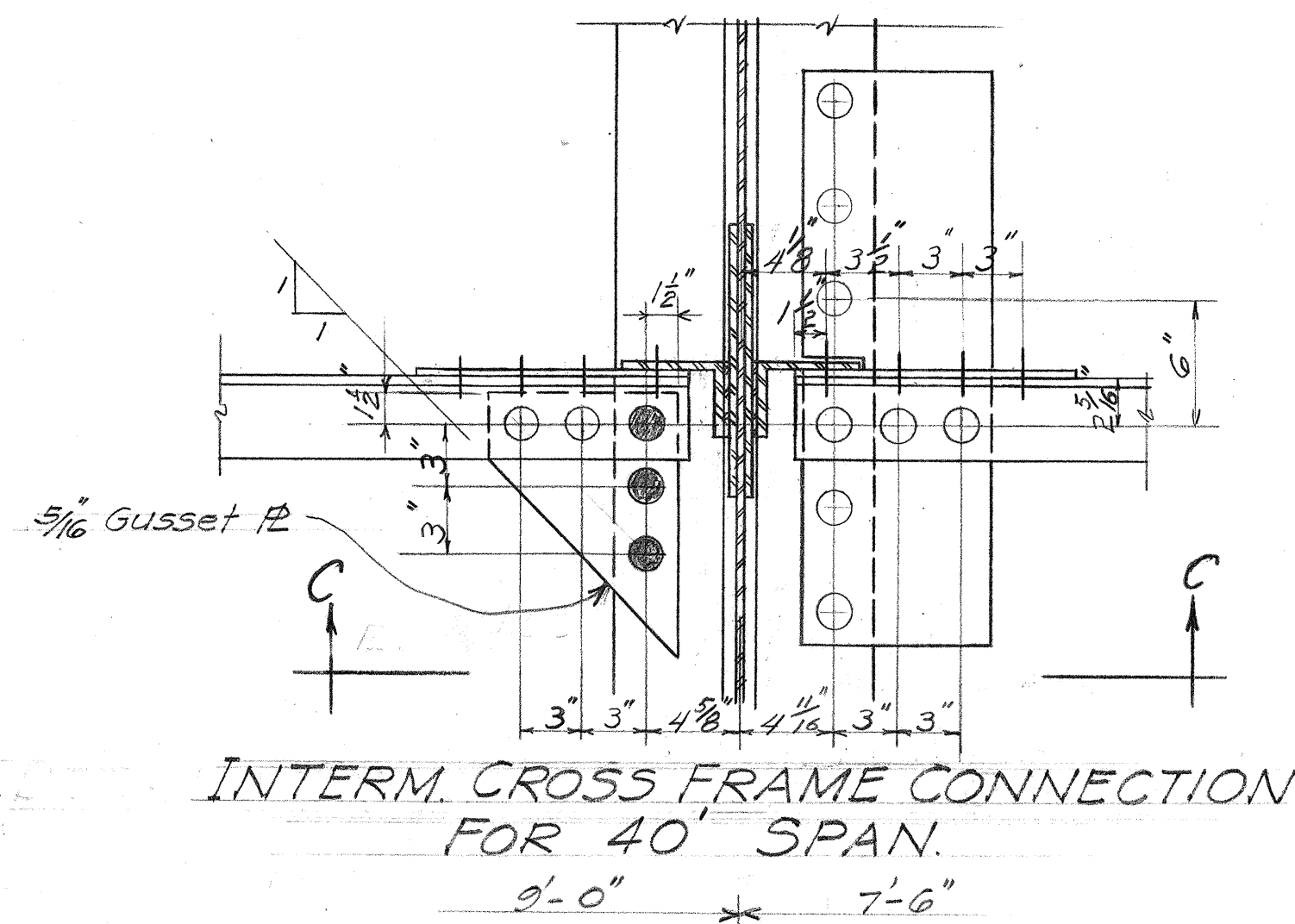
DETAIL OF BOTTOM STRUT

1 1/2" = 1 Ft.

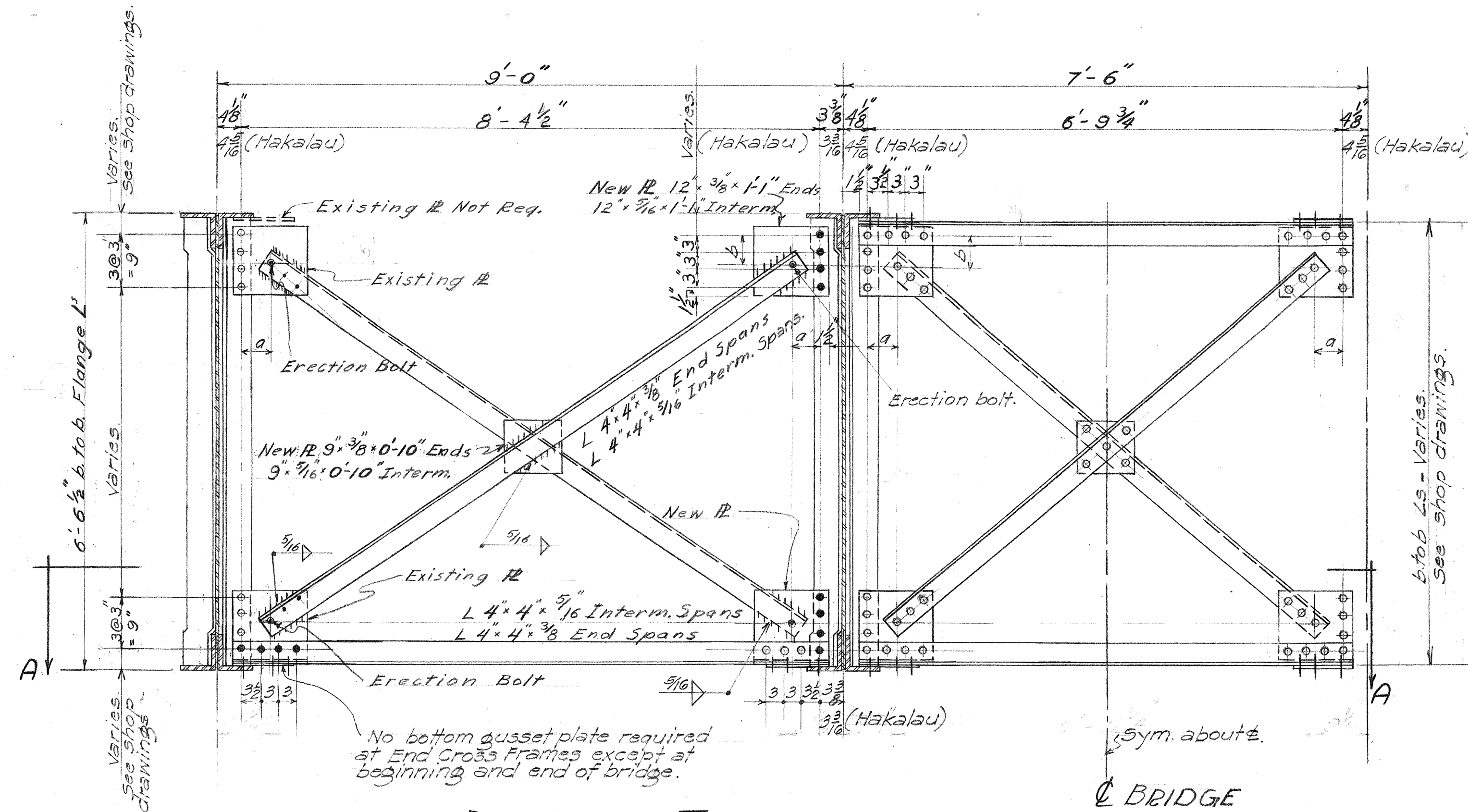
DESIGNED BY: W. R. BARTLETT
 CHECKED BY: A. VAN DER WERFF
 DRAWN BY: P. YAMASHITA
 DATE: 4-49

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 GENERAL DETAILS
 UMAUMA BRIDGE
 Hawaii Belt Road SDR-3(13)
 April 1949
 SHEET 4 OF 9

5468.58

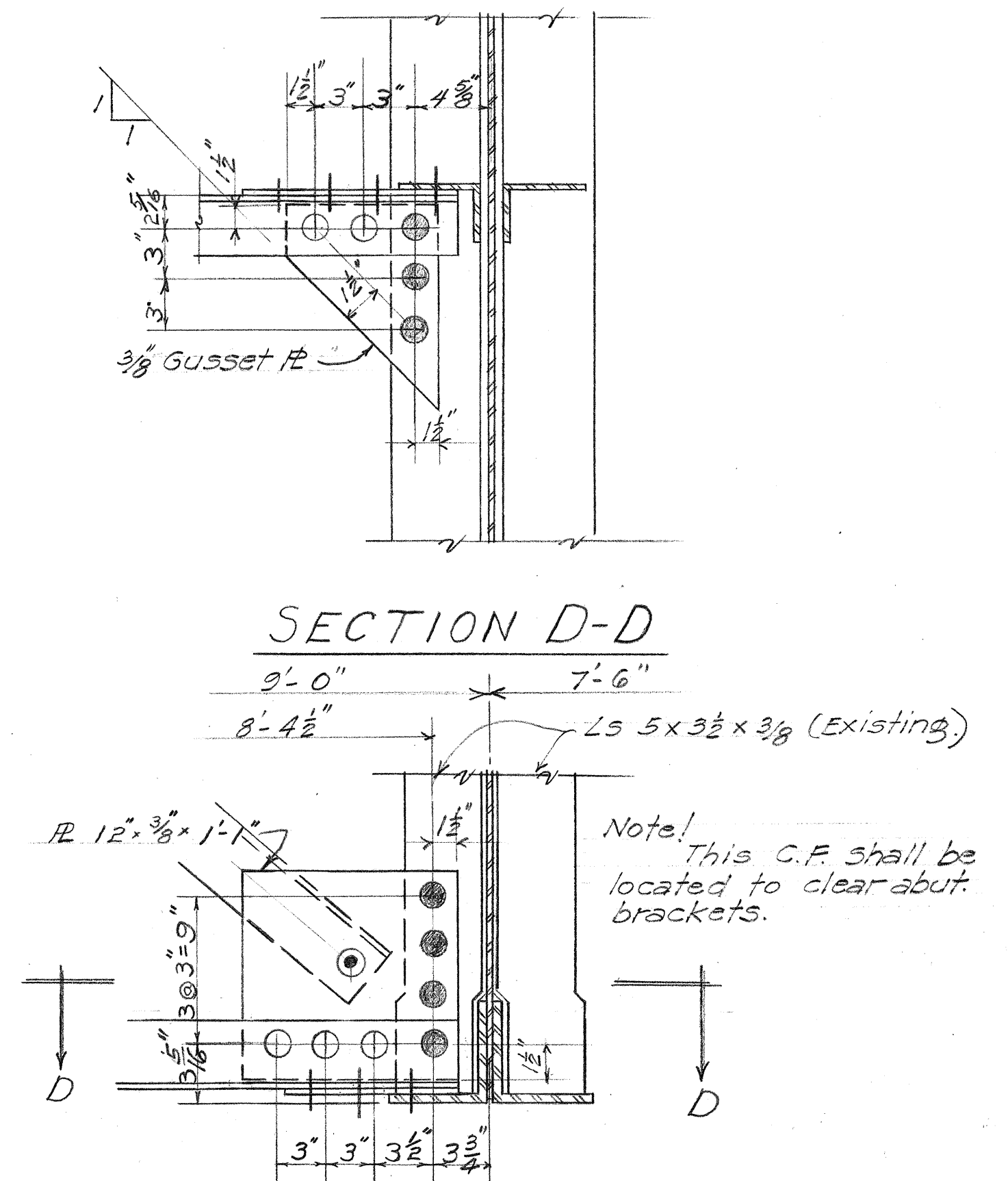


SECTION C-C
1/2" = 1ft.



DETAIL OF TYPICAL CROSS FRAME

Shown for Nanue. Detail of Cross Frame for Hakalau same except where shown otherwise.
All rivets - 7/8"
Holes - 1 1/8"

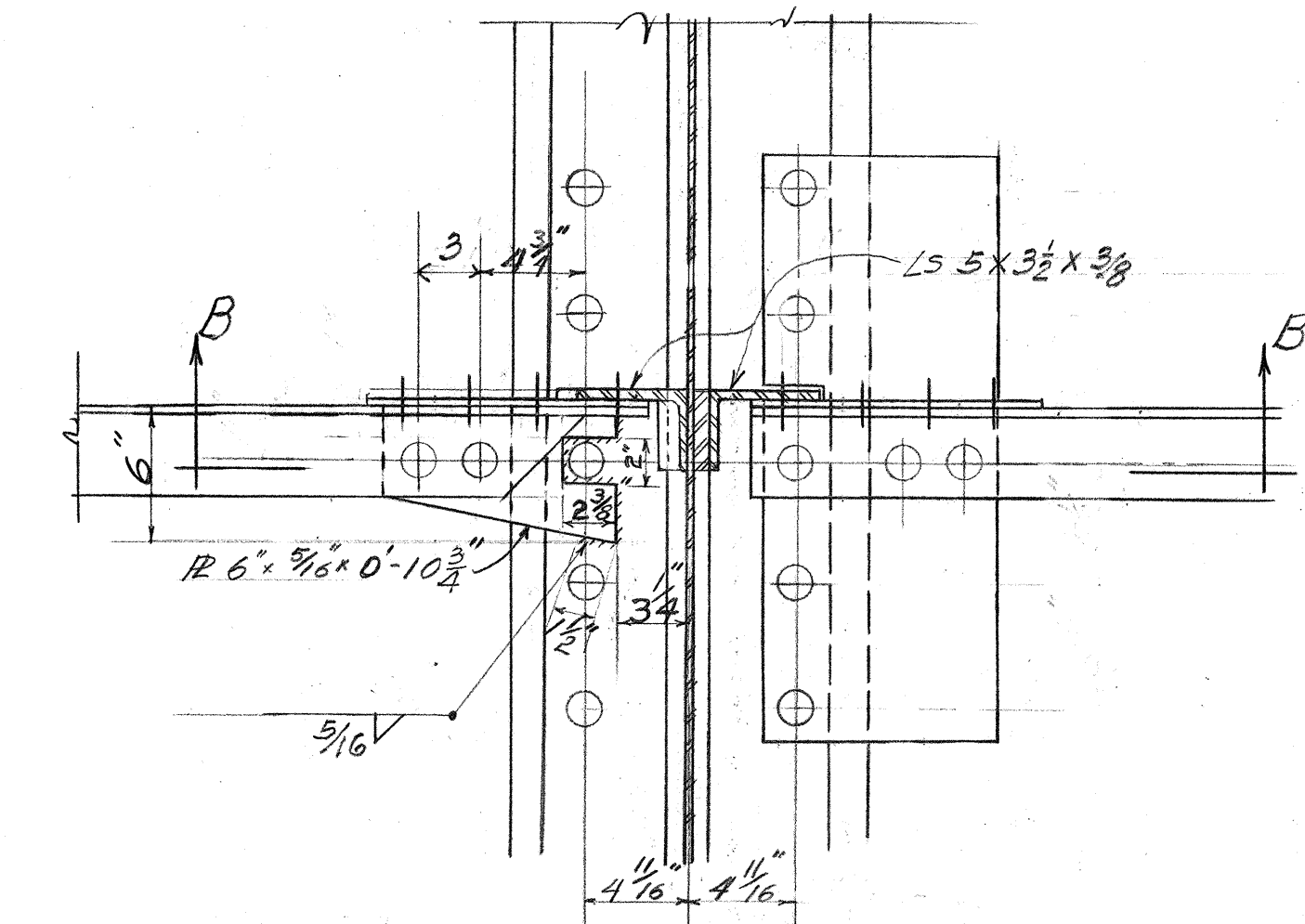


SECTION D-D

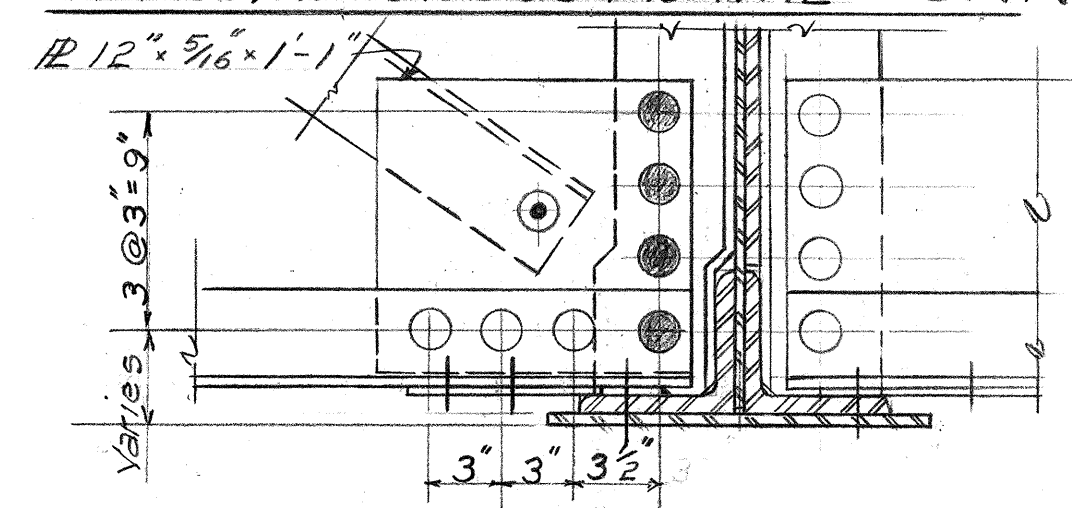
Note: This C.F. shall be located to clear about brackets.

CROSS FRAME CONNECTION AT BEG. AND END OF BRIDGE.

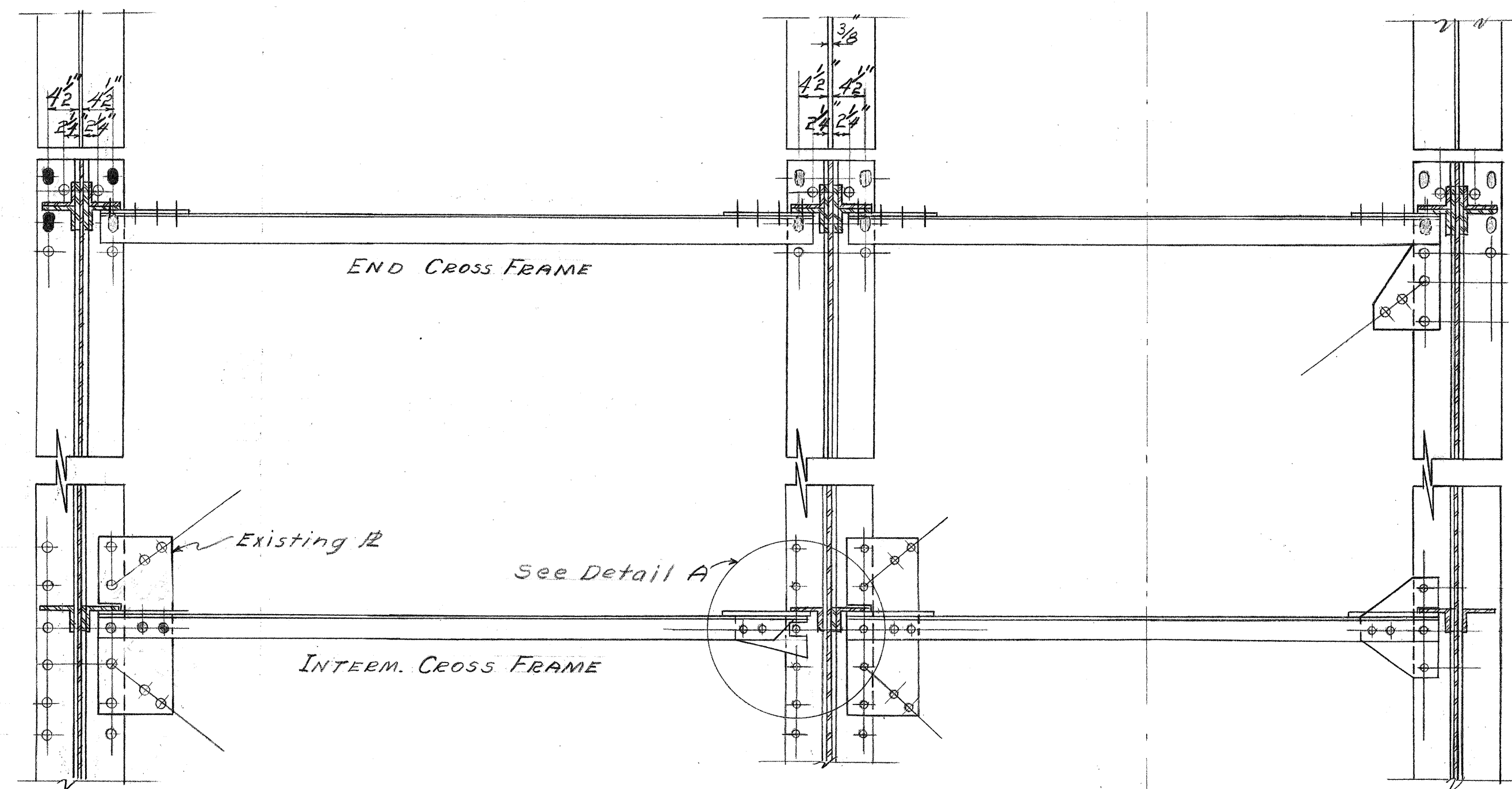
1/2" = 1ft.



DETAIL A
INTERM. CROSS FRAME CONNECTION.



SECTION B-B
1/2" = 1ft.



SECTION A-A

3/4" = 1ft.

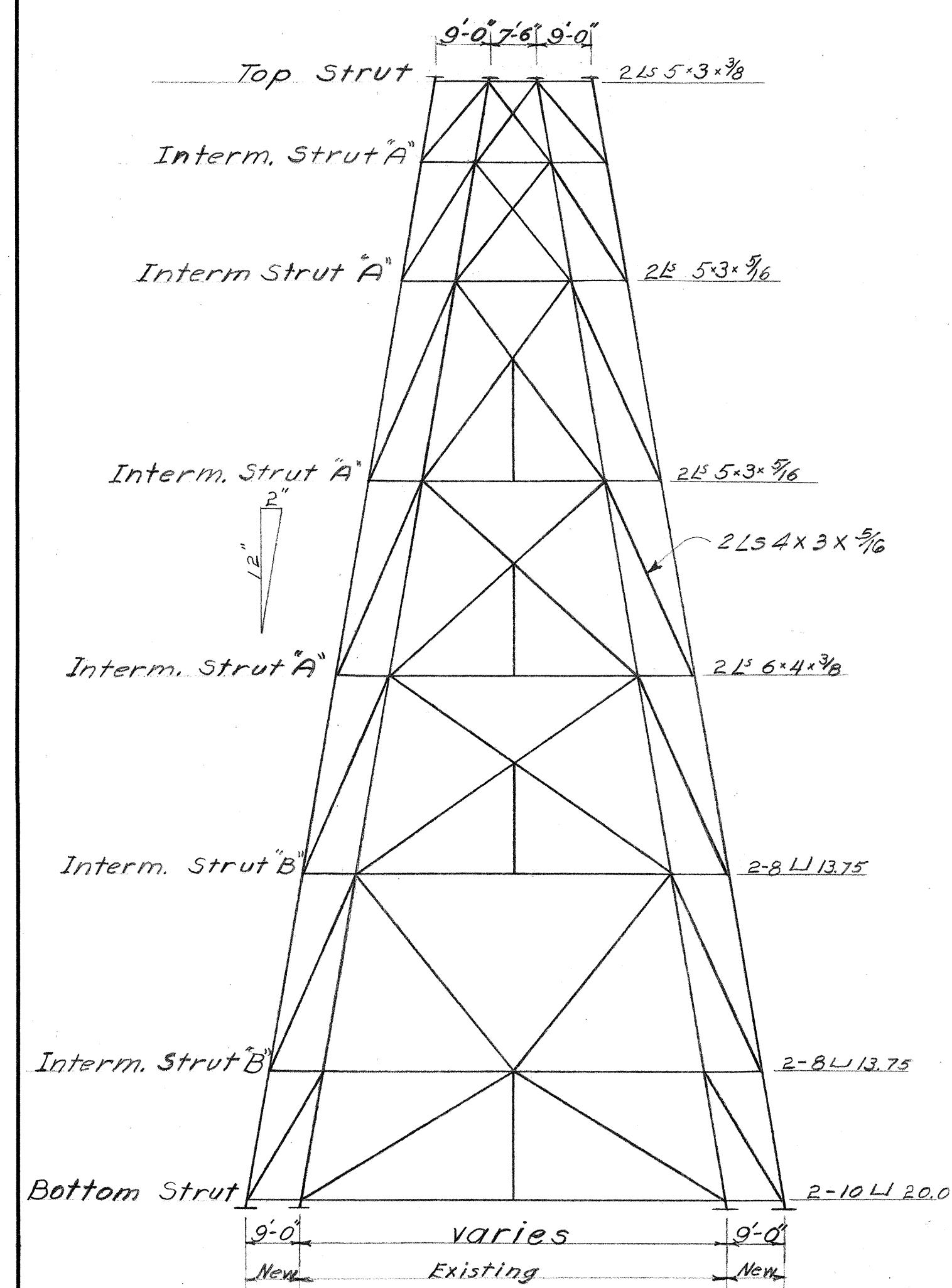
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
GENERAL DETAILS FOR NANUE
AND HAKALAU BRIDGES
Hawaii Belt Road SDR-3(9)
April 1949

SHEET No. 5 OF 9 SHEETS

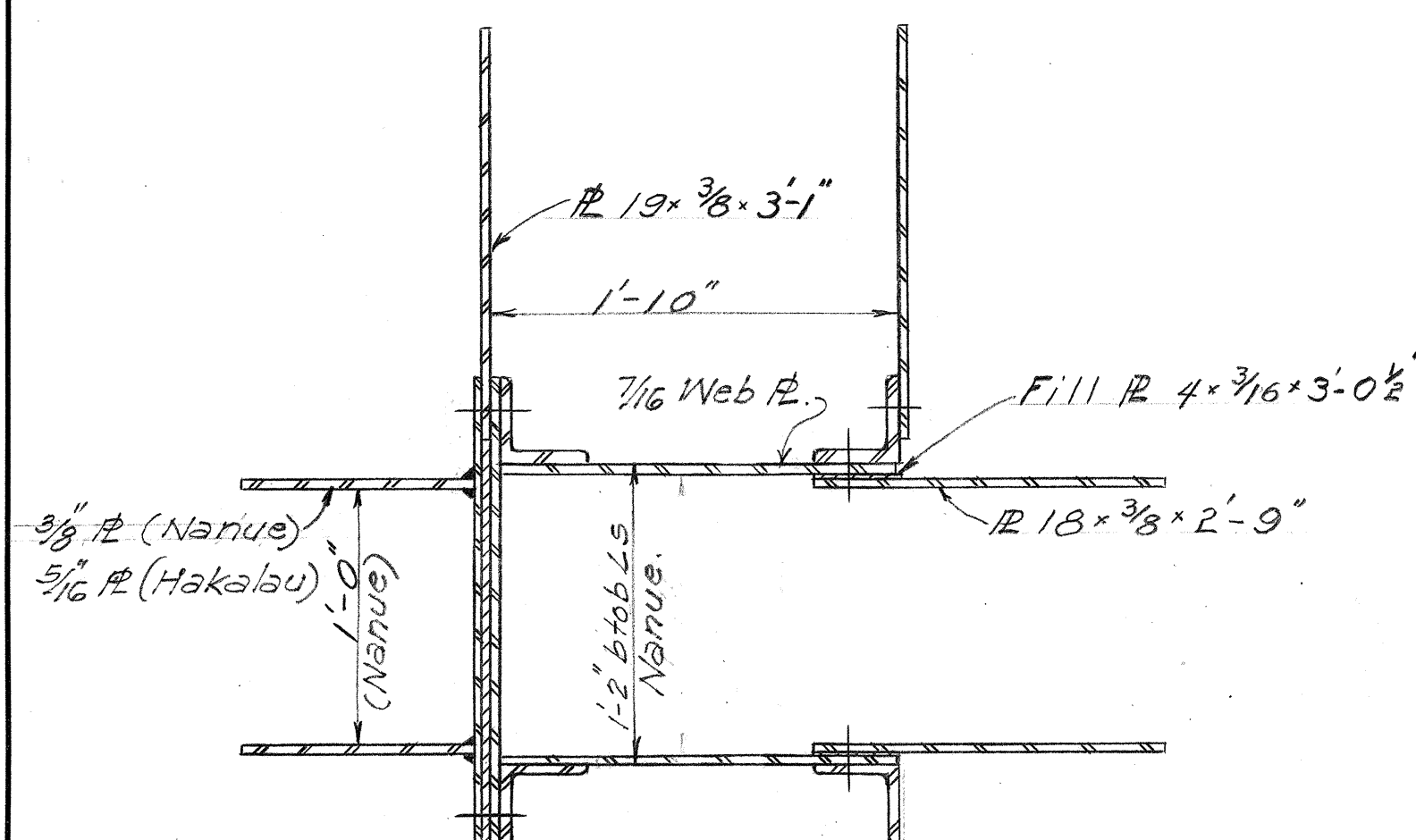
5468.59

ORIGINAL
PLAN
NO.
DATE
DESIGNED BY
DRAWN BY
CHECKED BY
QUANTITIES BY
NOTE BOOK
NO.

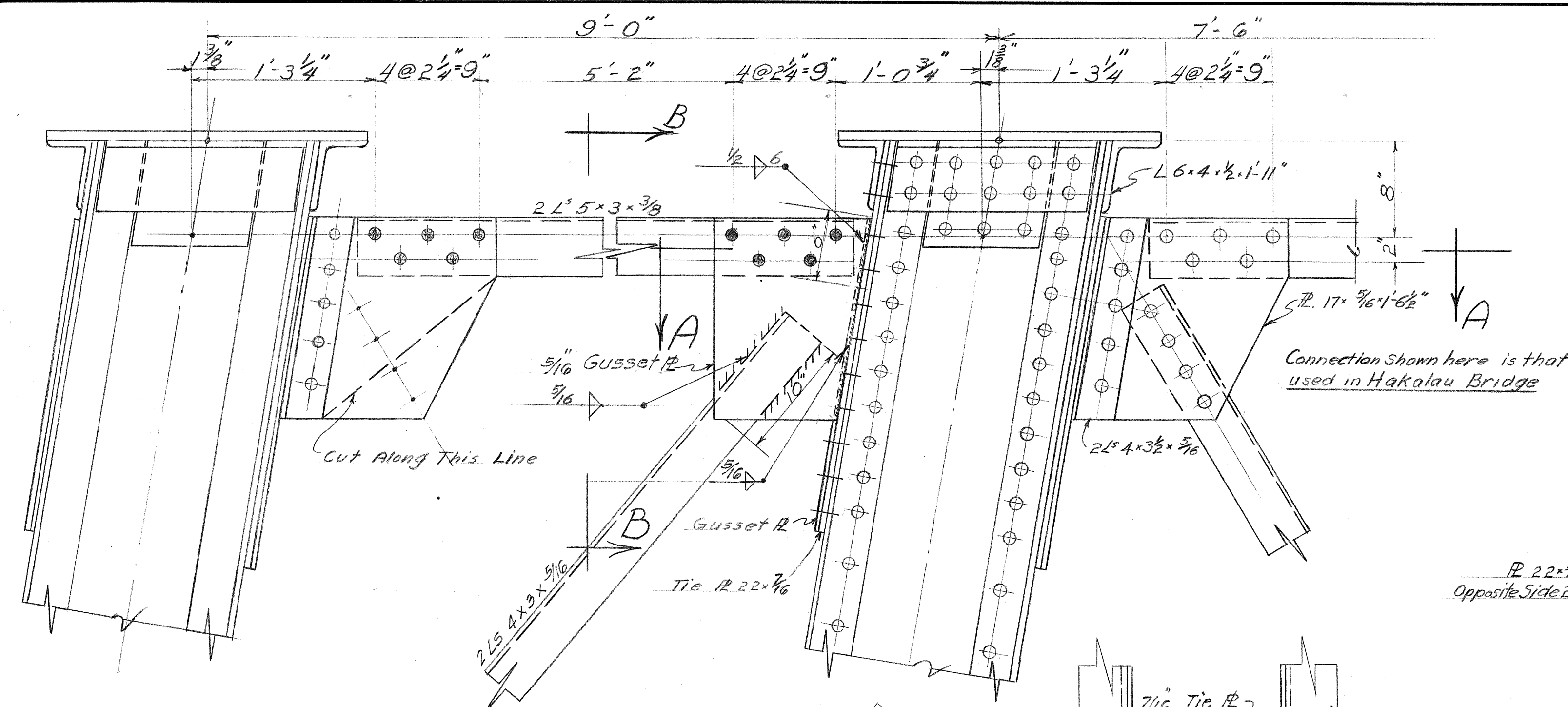
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	HAW	SDR 3(13)	1950	60	300



TYPICAL BENT ELEVATION
Scale: 1" = 20'



SECTION C-C



DETAILS OF TOP STRUT

$$1\frac{1}{2}'' = 1Ft.$$

Note:

All struts and diagonals to have tie plates and lattice bar arrangement similar to those in existing structure.

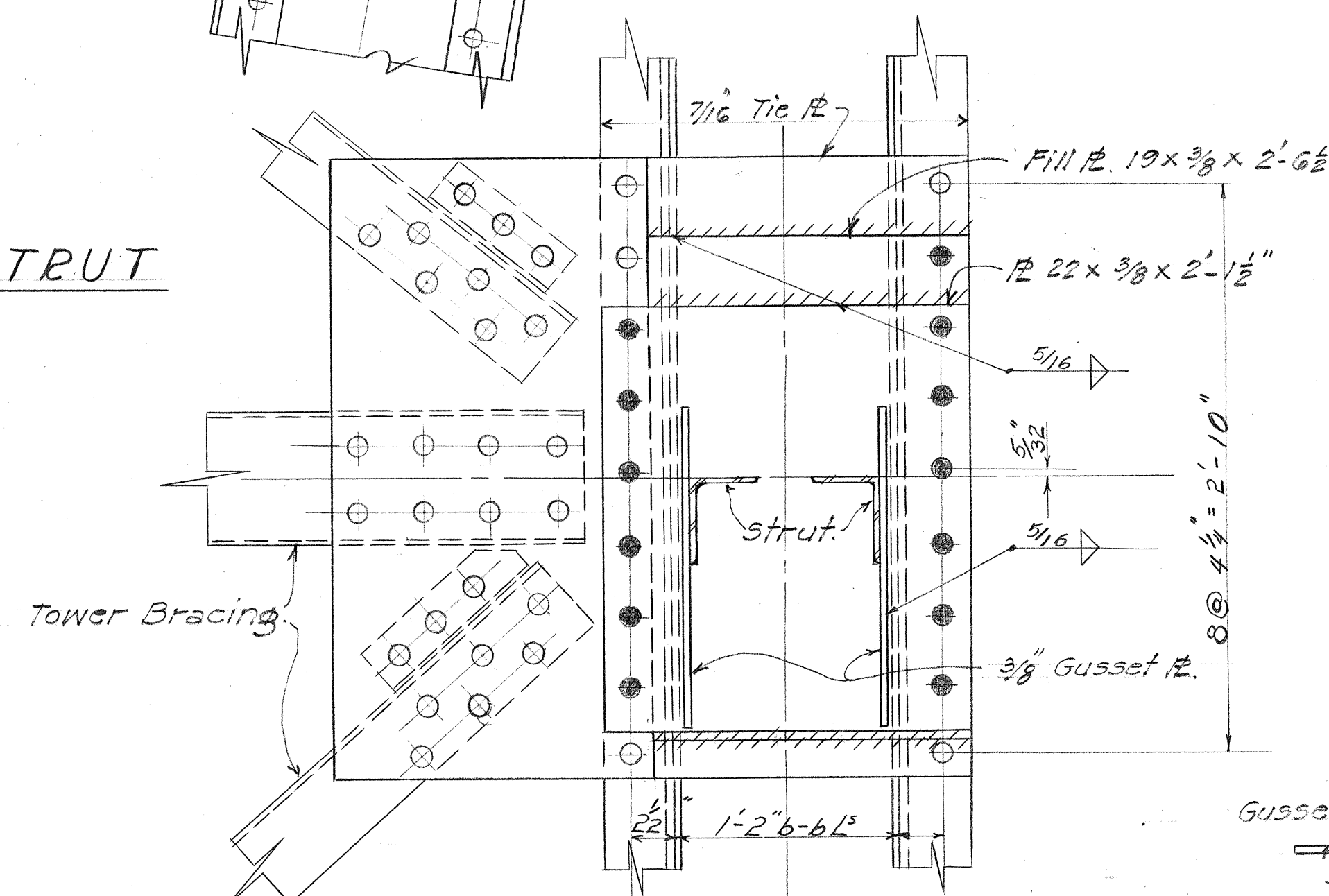
All diagonals - $LS4 \times 3 \times \frac{5}{16}$.

Thickness of gusset plates to be same as in existing structure.

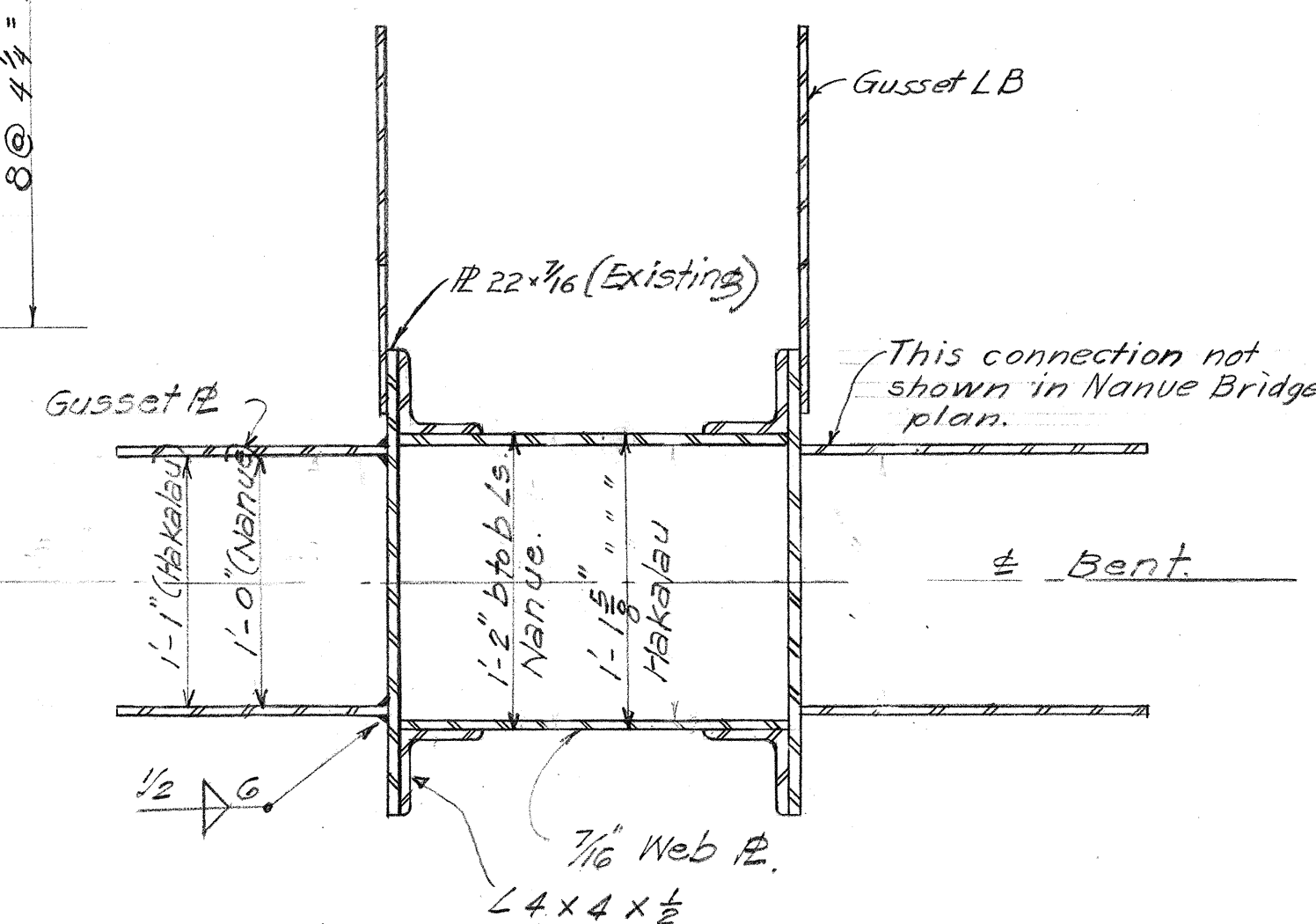
Outside columns to have tower bracing similar to those in the existing structure.

All rivets - $\frac{7}{8} \phi$

Holes - $\frac{15}{16}$ "



SECTION D-D



SECTION A-A

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

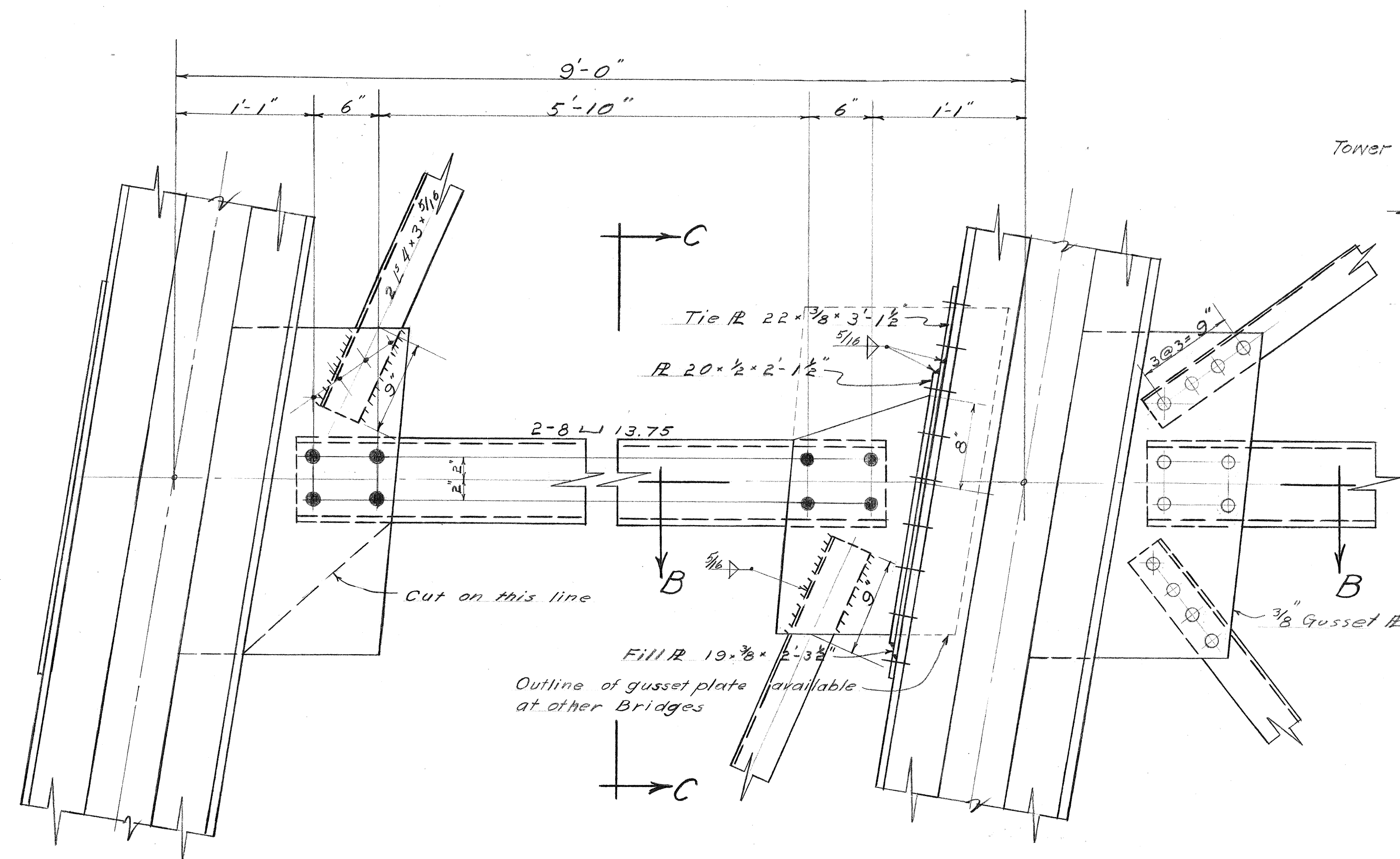
GENERAL DETAILS FOR NANUE AND HAKALAU BRIDGES

Hawaii Belt Road SDR-3(9)

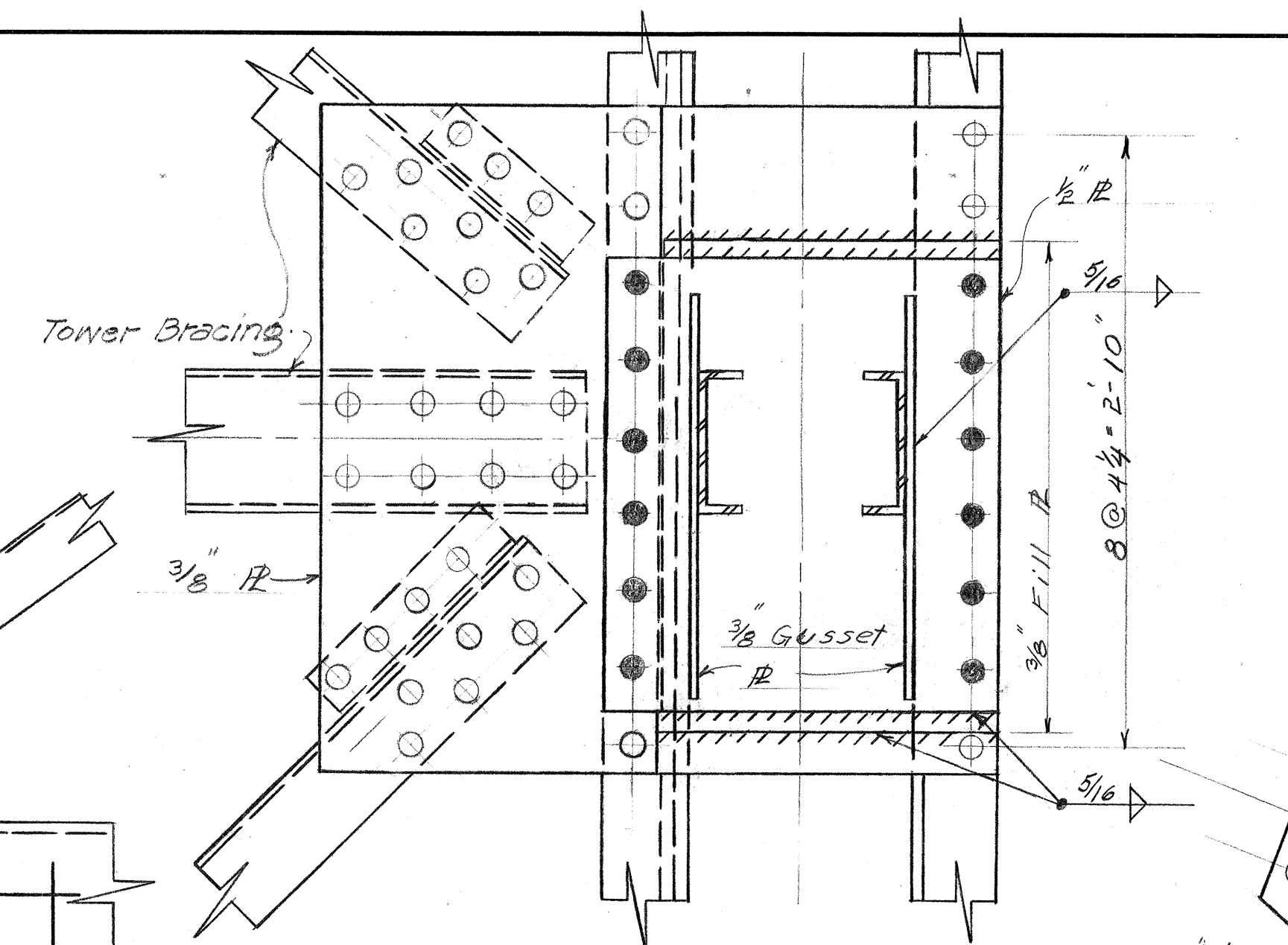
April 1949

SHEET No. 6 OF 9 SHEETS

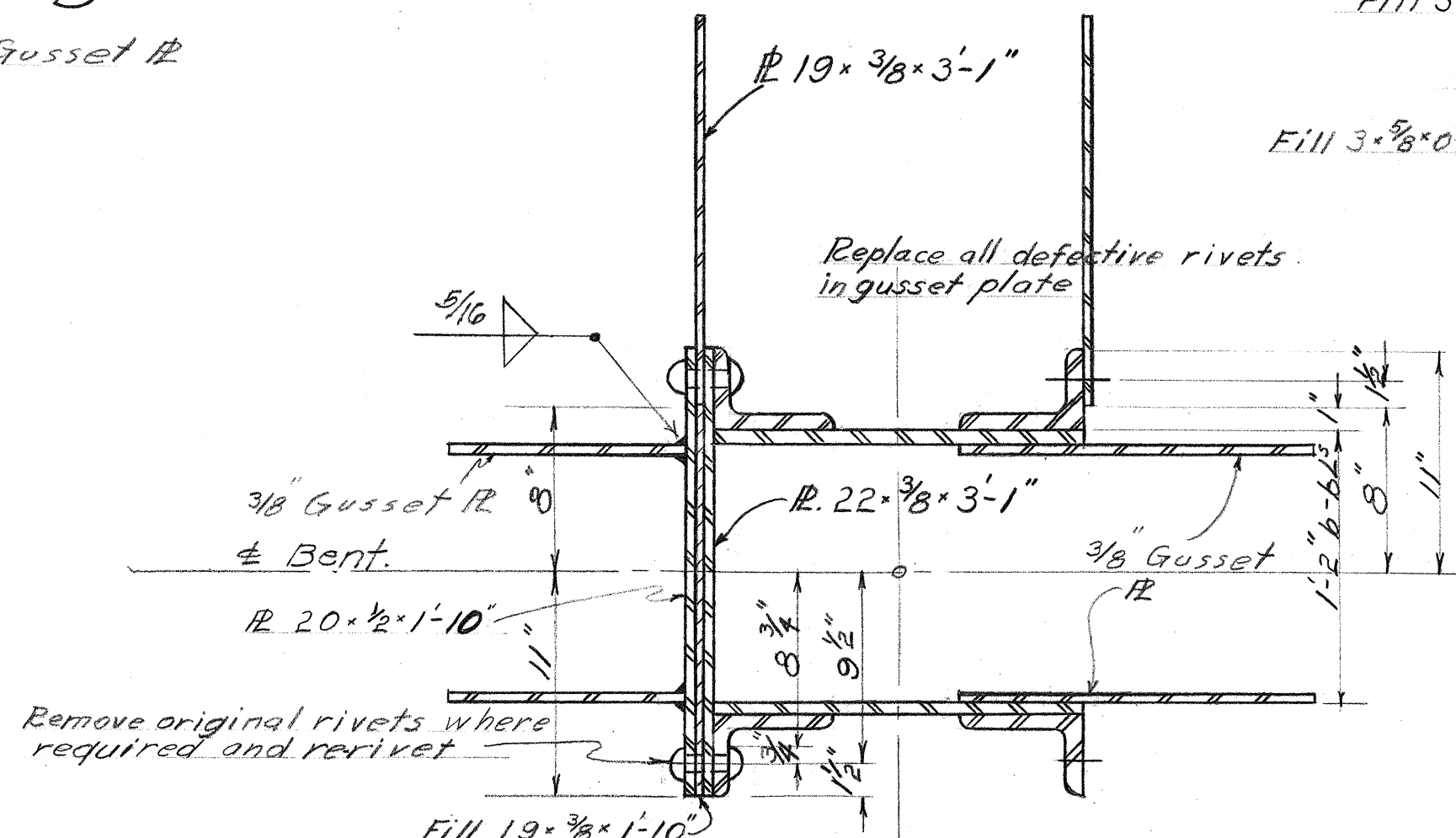
54 G S . 60



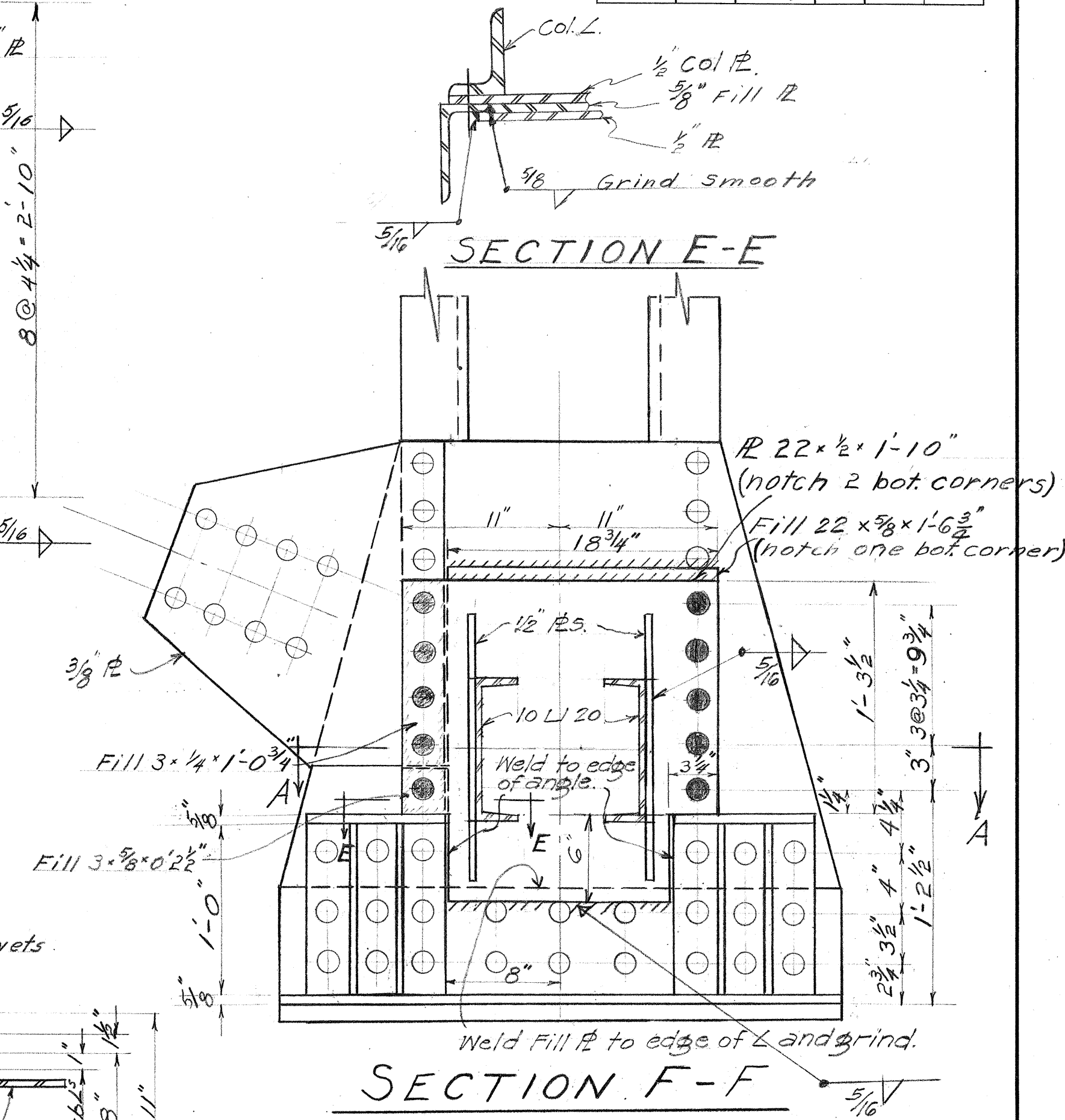
DETAILS OF INTERM. STRUT "B"
1 1/2" = 1 Ft.



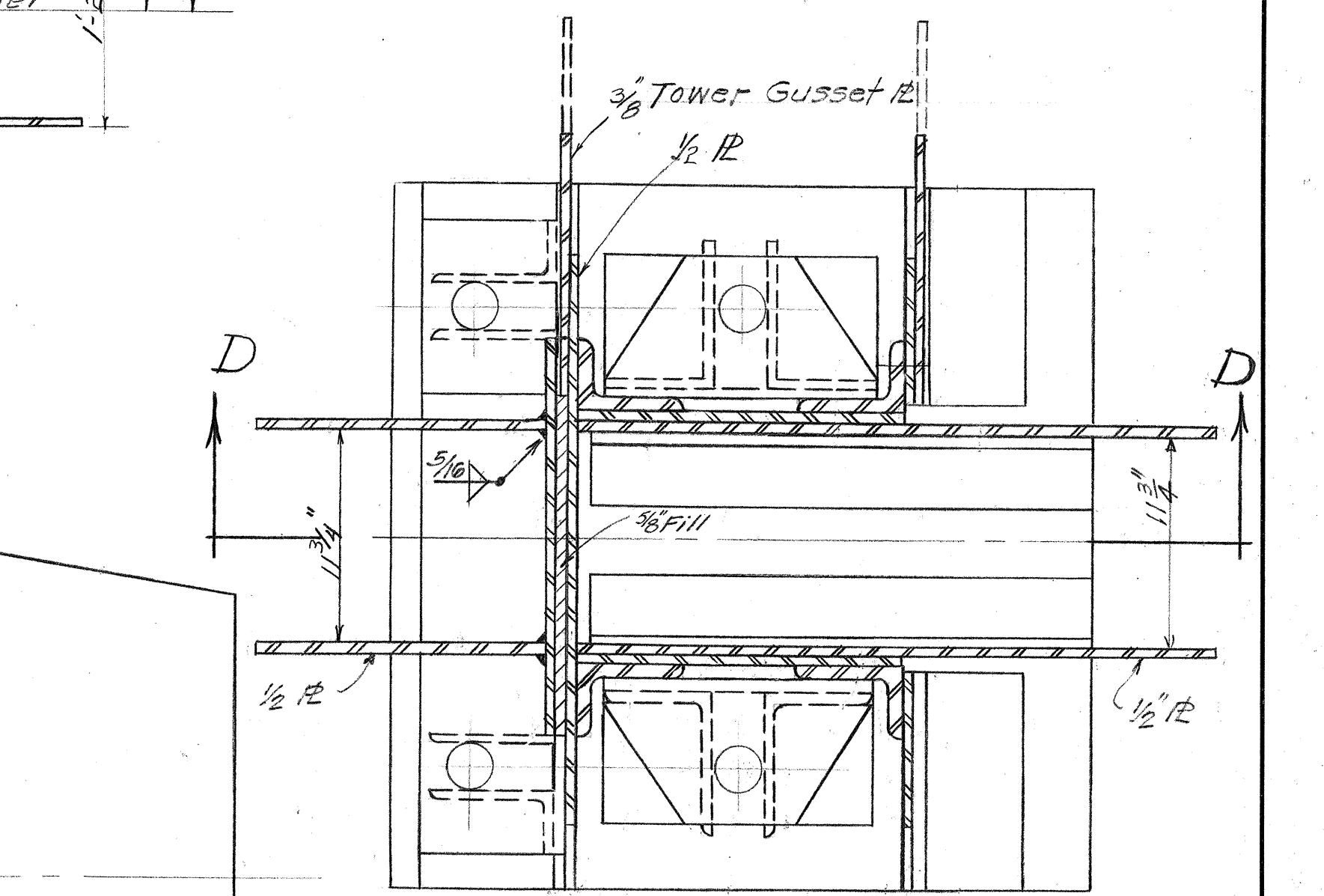
SECTION C-C



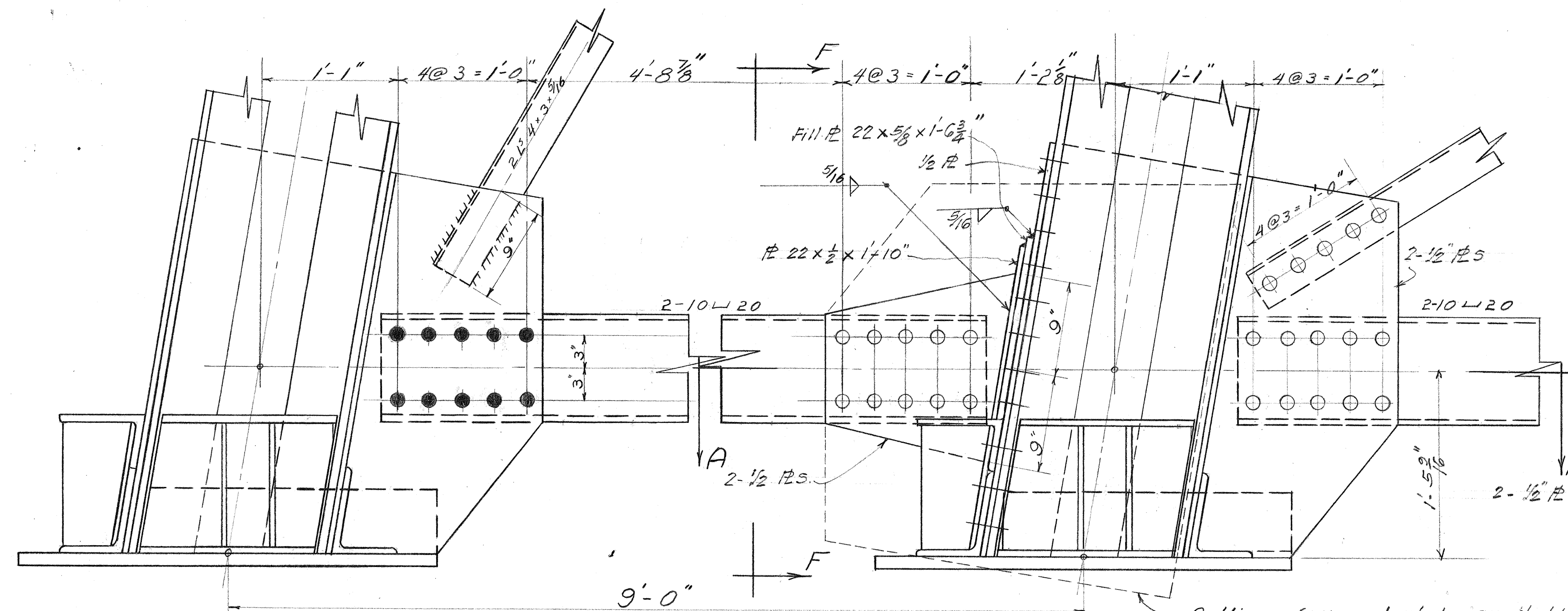
SECTION B-B



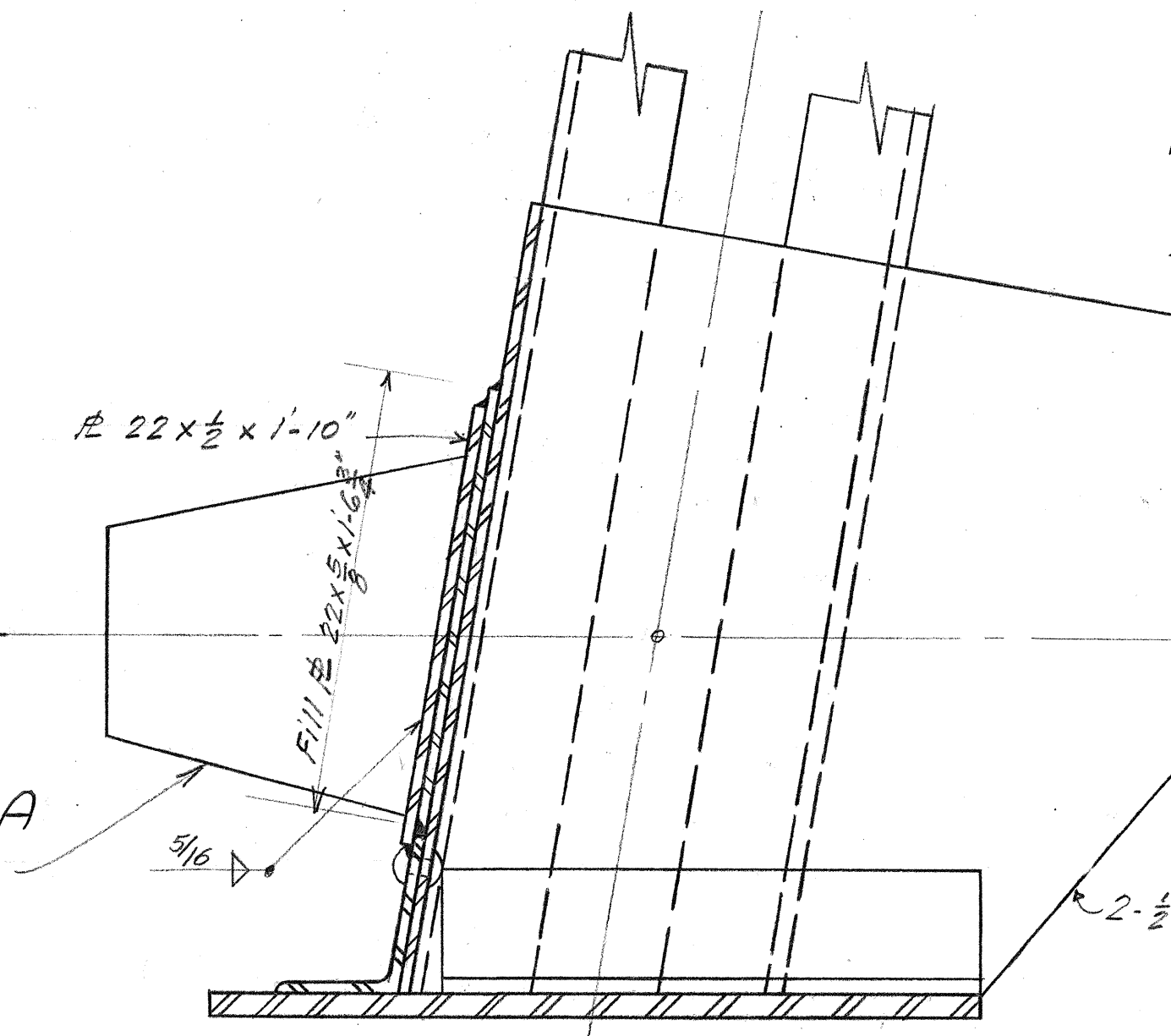
SECTION F-F



SECTION A-A



DETAILS OF BOTTOM STRUT
1 1/2" = 1 Ft.



SECTION D-D

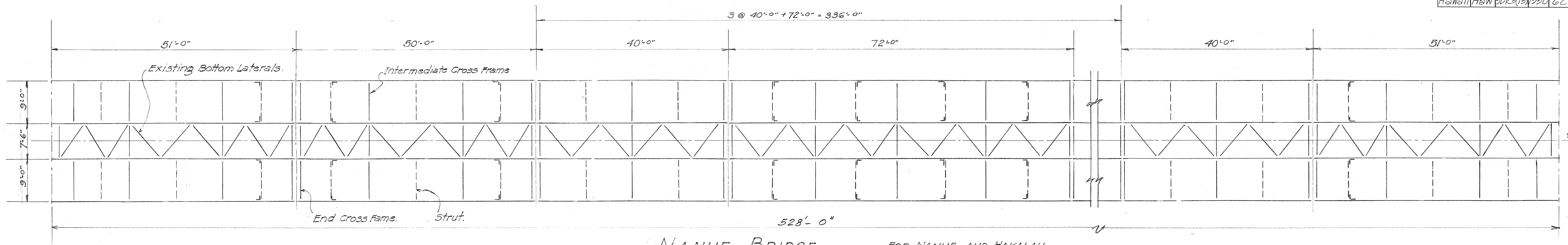
SURVEY PLOTTED BY: DATE: 3-29
DESIGNED BY: M.R. Birtles
DRAWN BY: A. Van Der Horst
CHECKED BY: J. J. J. J.
NOTE BOOK NO. 2-29

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
GENERAL DETAILS FOR NANUE
AND HAKALAU BRIDGES
Hawaii Belt Road SDR-3(9)
April 1949

SHEET NO. 7 OF 9 SHEETS

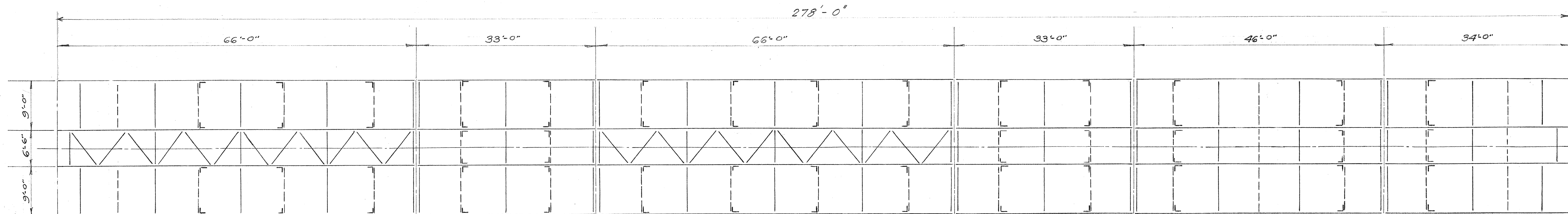
5468.61

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	Haw	SDR 3(13)	1950	62	904



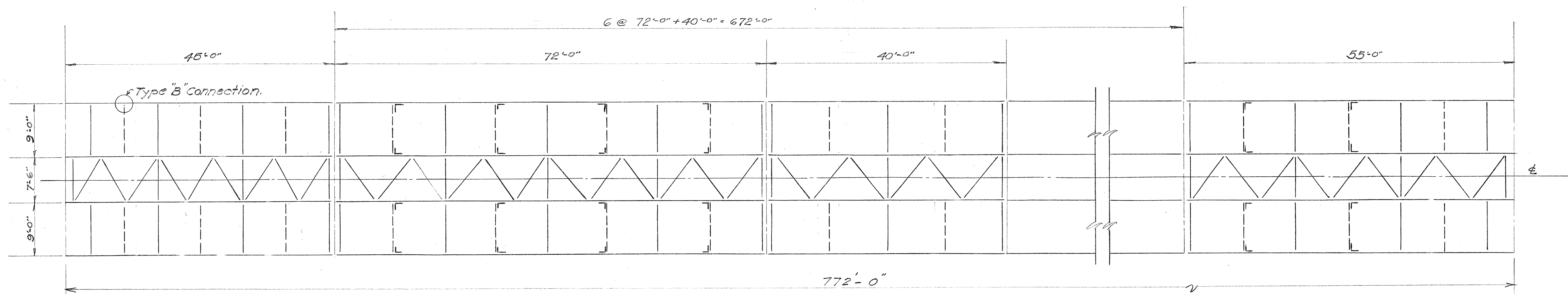
NANUE BRIDGE

FOR NANUE AND HAKALAU
 All struts — $L 3\frac{1}{2} \times 3\frac{1}{2} \times \frac{5}{16}$
 Angles in End C.F. — $4 \times 4 \times \frac{3}{8}$
 Angles in Interm. C.F. — $4 \times 4 \times \frac{5}{16}$



UMAUMA BRIDGE

All struts — $L 3\frac{1}{2} \times 3\frac{1}{2} \times \frac{5}{16}$
 Angles in End C.F. — $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{3}{8}$
 Angles in Interm. C.F. — $3\frac{1}{2} \times 3\frac{1}{2} \times \frac{5}{16}$



HAKALAU BRIDGE

FRAMING PLAN

Scale: 1" = 10'-0"

— Cross Frame
 --- Strut

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII

NANUE, HAKALAU AND
 UMAUMA BRIDGES

HAWAII BELT RD. SDR 3(13)
 Apr. 1949

SHEET No. 8 OF 9 SHEETS

5468.62

SURVEY PLOTTED BY	DATE
DESIGNED BY	3/49
DRAWN BY	4/49
CHECKED BY	
QUANTITIES CHECKED BY	
CHECKED BY	4/49

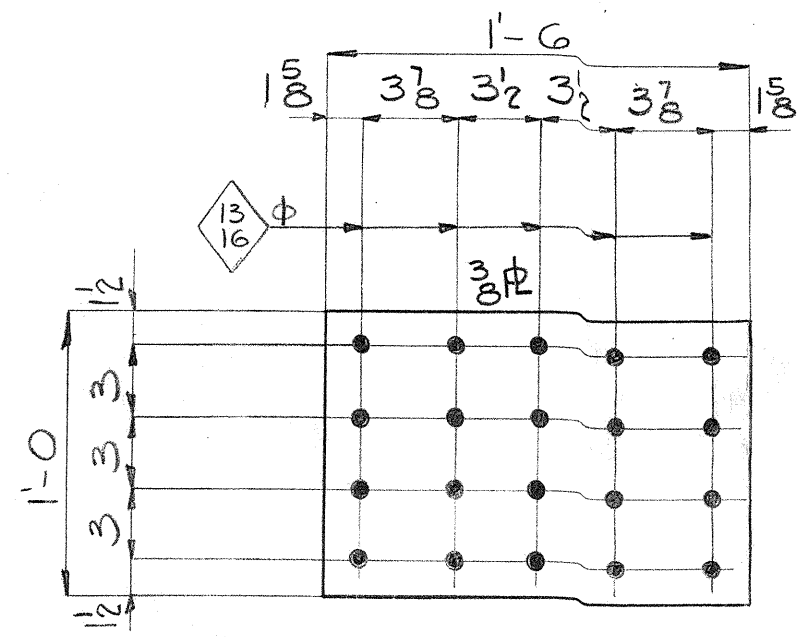
ORIGINAL PLAN	NOTE BOOK
No.	No.

Nov. 1, 1950
12/12/50

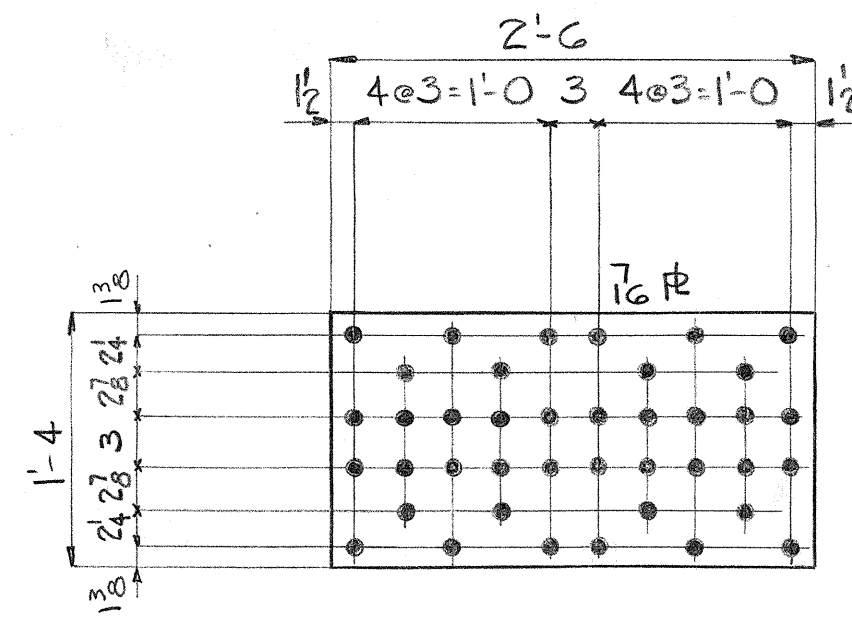
BILL OF MATERIAL INDUSTRIAL DEVELOPMENT CO.

No.	Description	Length Ft.	Ins.	Mark	REMARKS
30	R 12 x 3	1	6	SPI	SALV. FROM: HONOLULU
60	R 12 x 3	1	0	SP2	Do
30	R 18 x 3	1	6	SP3	Do
14	R 12 x 3	1	6	SP1	KOLEKOLE
28	R 12 x 3	1	0	SP2	Do
20	R 13 x 3	1	6	SP3	Do
88	R 16 x 7	2	6	SP6	MAULUA
152	R 22 x 7	2	9	SP7	Do
136	R 16 x 7	2	0	SP8	Do
80	R 16 x 7	2	3	SP9	Do
84	R 22 x 7	2	9	SP5	New
112	R 16 x 7	2	0	SP7	Do
24	R 16 x 7	2	6	SP8	Do
32	R 16 x 7	2	3	SP9	Do
4	R 13 x 3	1	6	SP3	New

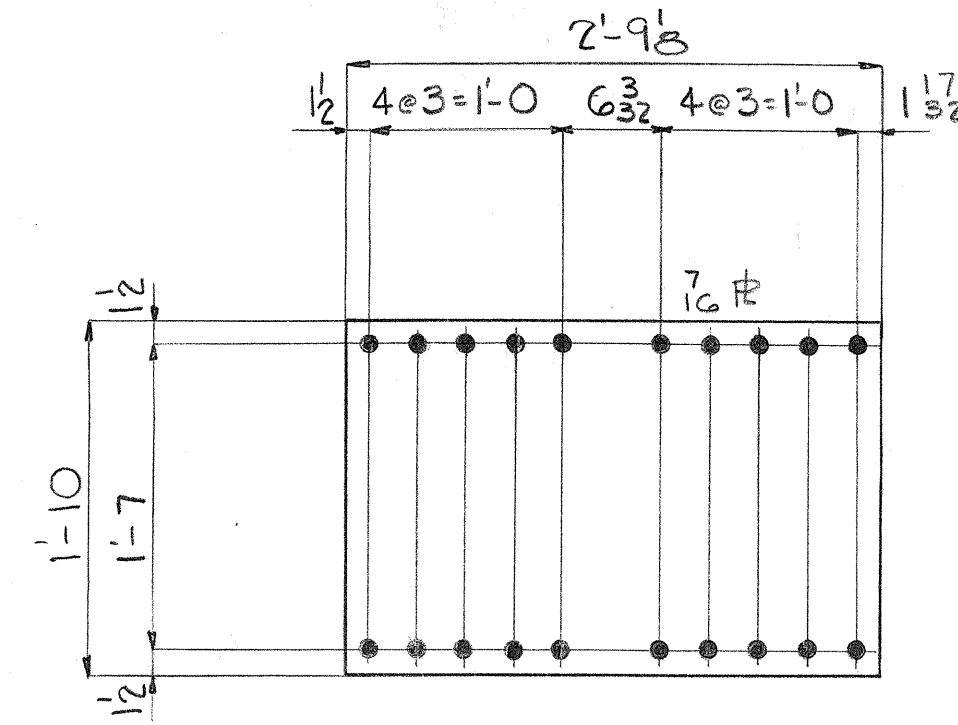
NOTE:
SEE DETAILS FOR NAMES OF BRIDGES TO WHICH THESE R^s ARE TO BE SHIPPED.



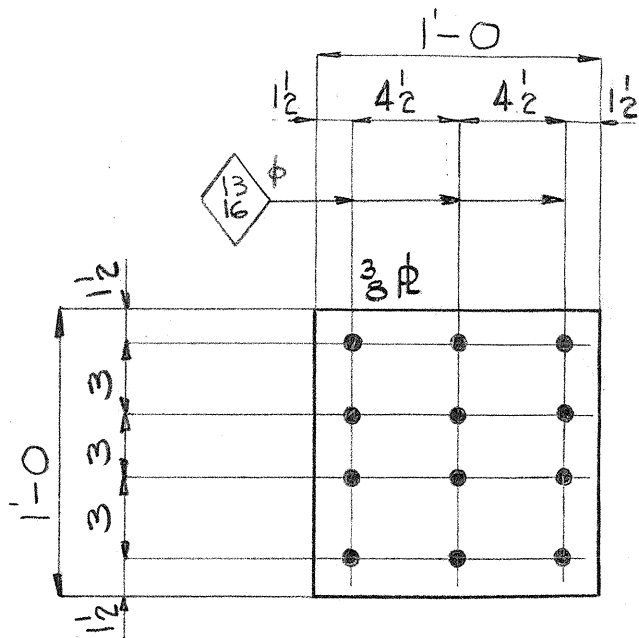
SALV. 30 FROM HONOLULU (SP1)
SALV. 14 FROM KOLEKOLE (SP1)
SHIP 20 TO KAPUE
SHIP 10 TO PAHEEHEE
SHIP 14 TO UMAUMA



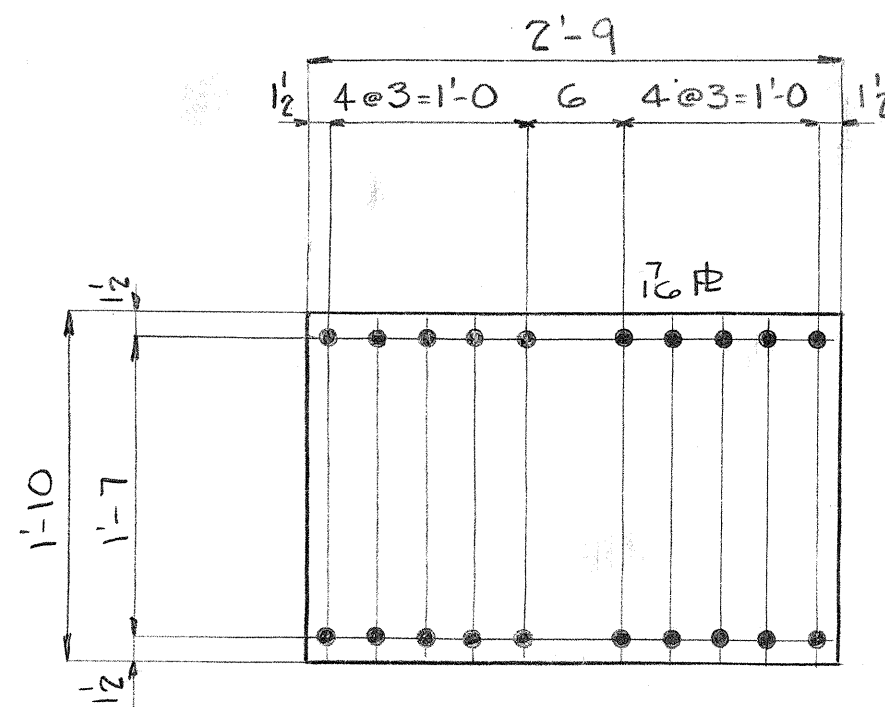
SALV. 88 FROM MAULUA (SP6)
SHIP 88 TO HAKALAU



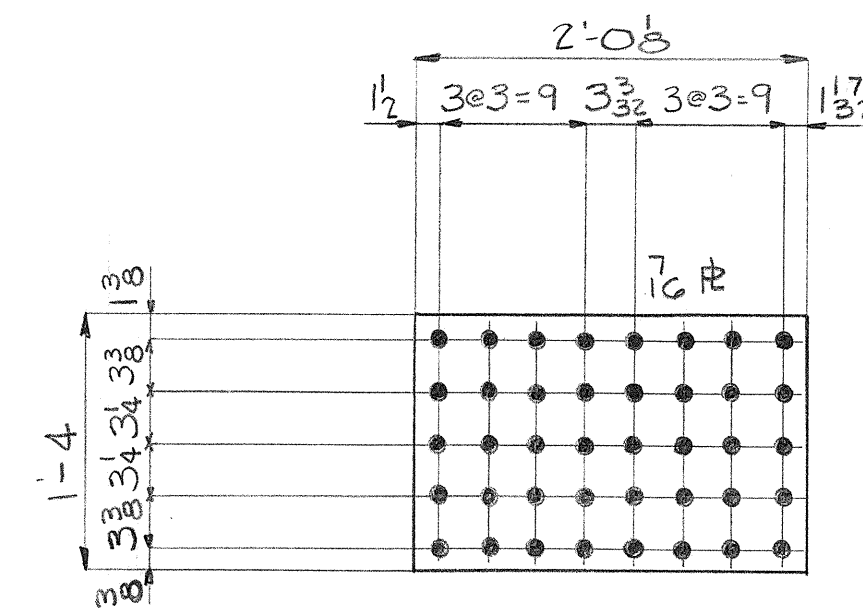
MAKE 84 NEW R-MK SP5
SALV. 64 FROM KEALAHAKA (SP5)
SALV. 20 FROM MAILE (SP5)
SHIP 84 TO NANUE



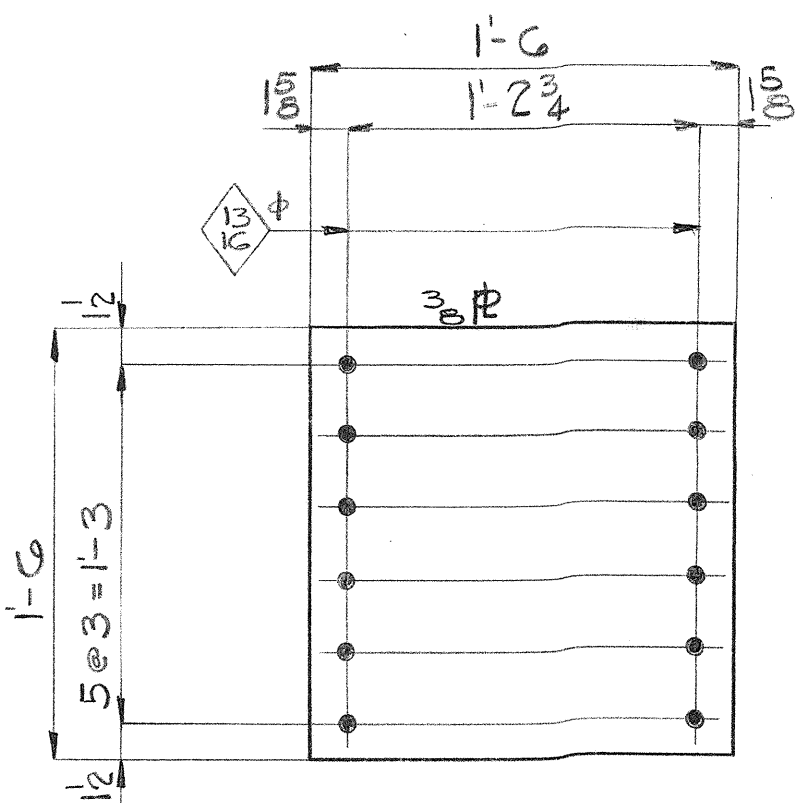
SALV. 60 FROM HONOLULU (SP2)
SALV. 28 FROM KOLEKOLE (SP2)
SHIP 40 TO KAPUE
SHIP 20 TO PAHEEHEE
SHIP 28 TO UMAUMA



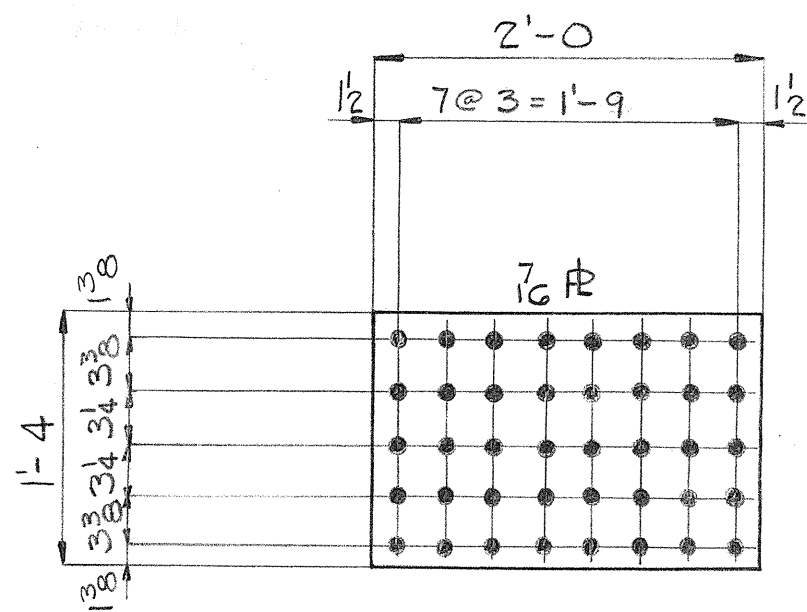
SALV. 152 FROM MAULUA (SP7)
SHIP 152 TO HAKALAU



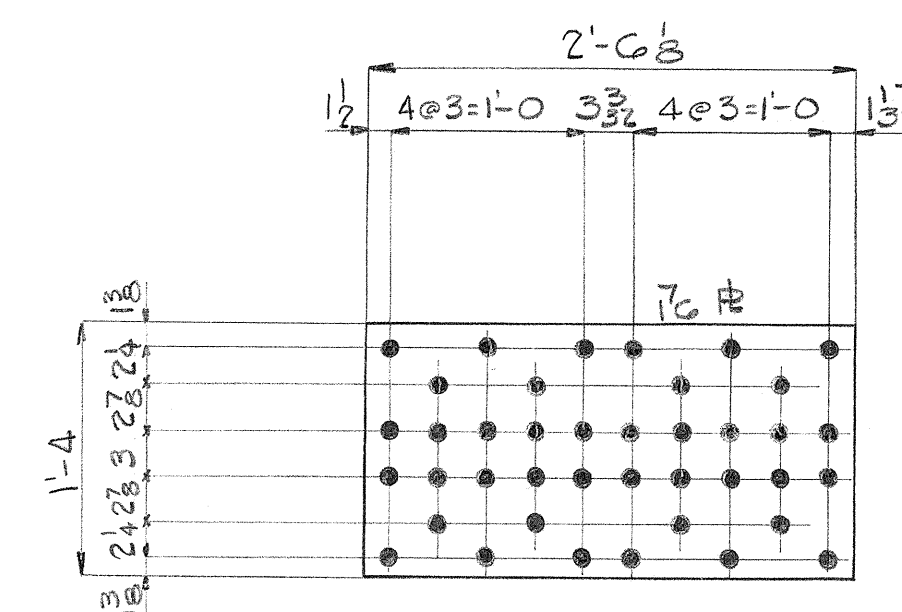
MAKE 112 NEW R-MK SP7
SALV. 72 FROM KEALAHAKA (SP7)
SALV. 40 FROM MAILE (SP7)
SHIP 112 TO NANUE



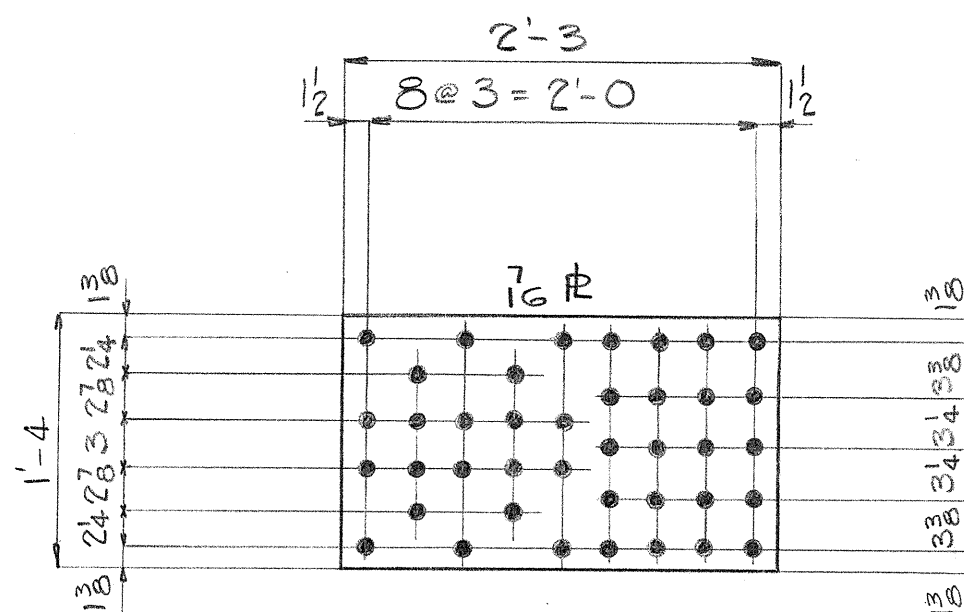
MAKE 4 NEW R-MK SP3
SALV. 30 FROM HONOLULU (SP3)
SALV. 20 FROM KOLEKOLE (SP3)
SHIP 30 TO KAPUE
SHIP 10 TO PAHEEHEE
SHIP 14 TO UMAUMA



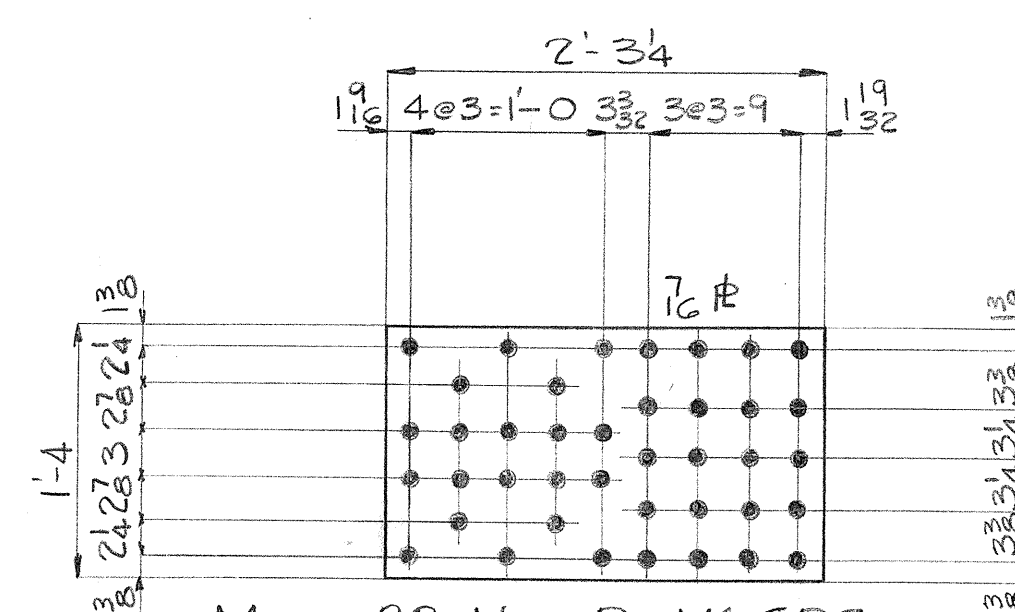
SALV. 136 FROM MAULUA (SP8)
SHIP 136 TO HAKALAU



MAKE 24 NEW R-MK SP8
SALV. 24 FROM KEALAHAKA (SP8)
SHIP 24 TO NANUE



SALV. 80 FROM MAULUA (SP9)
SHIP 80 TO HAKALAU



MAKE 32 NEW R-MK SP9
SALV. 32 FROM KEALAHAKA (SP9)
SHIP 32 TO NANUE

Rivets:
Holes: 1/2" UN.
Paint:

INDUSTRIAL DEVELOPMENT COMPANY
SPLICE R^s FOR THE KAPUE, PAHEEHEE
UMAUMA, HAKALAU, & NANUE
BRIDGES - HAWAII.

INDEPENDENT IRON WORKS, INC.
OAKLAND, CALIF.

MADE BY DAL 2-G-50 ORDER NO. 3807
CHECKED BY SHEET NO. SPI