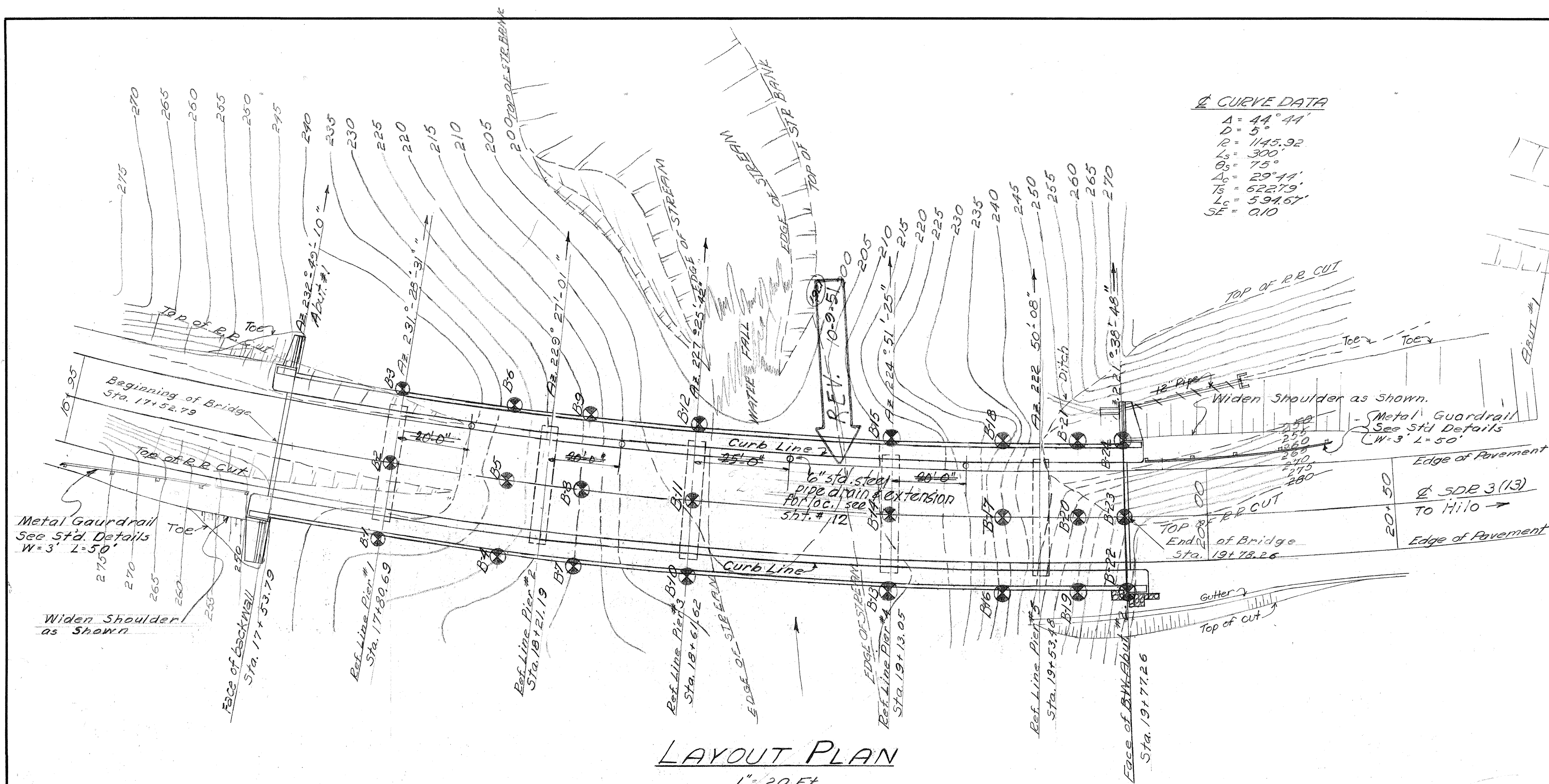




PLAN-EXISTING R.R. TRESTLE

Note:

Timber trestle to be removed by others. Masonry piers for bents #4 and #5, portions of masonry pier for bent #6 as shown in the plans, pile abutment and any other existing masonry piers that interfere with new construction shall be removed by the contractor.

GENERAL NOTES

Design Data:

H-20-44 Loading
 $f_s = 20,000 \text{ #/in}^2$
 $f_c = 1,000 \text{ #/in}^2$
 $n = 10$
 $f_s = 12,000 \text{ #/in}^2$ Salvaged Steel

Construction Methods:

Surfaces:
Surface finish: All surfaces of railings, railing posts and end posts above top of sidewalk to have class 1 surface finish.

Welding: All welding shall conform to the latest standard specifications for Welded Highway and Railway Bridges. Design, Construction and Repair of the American Welding Society.

Materials:

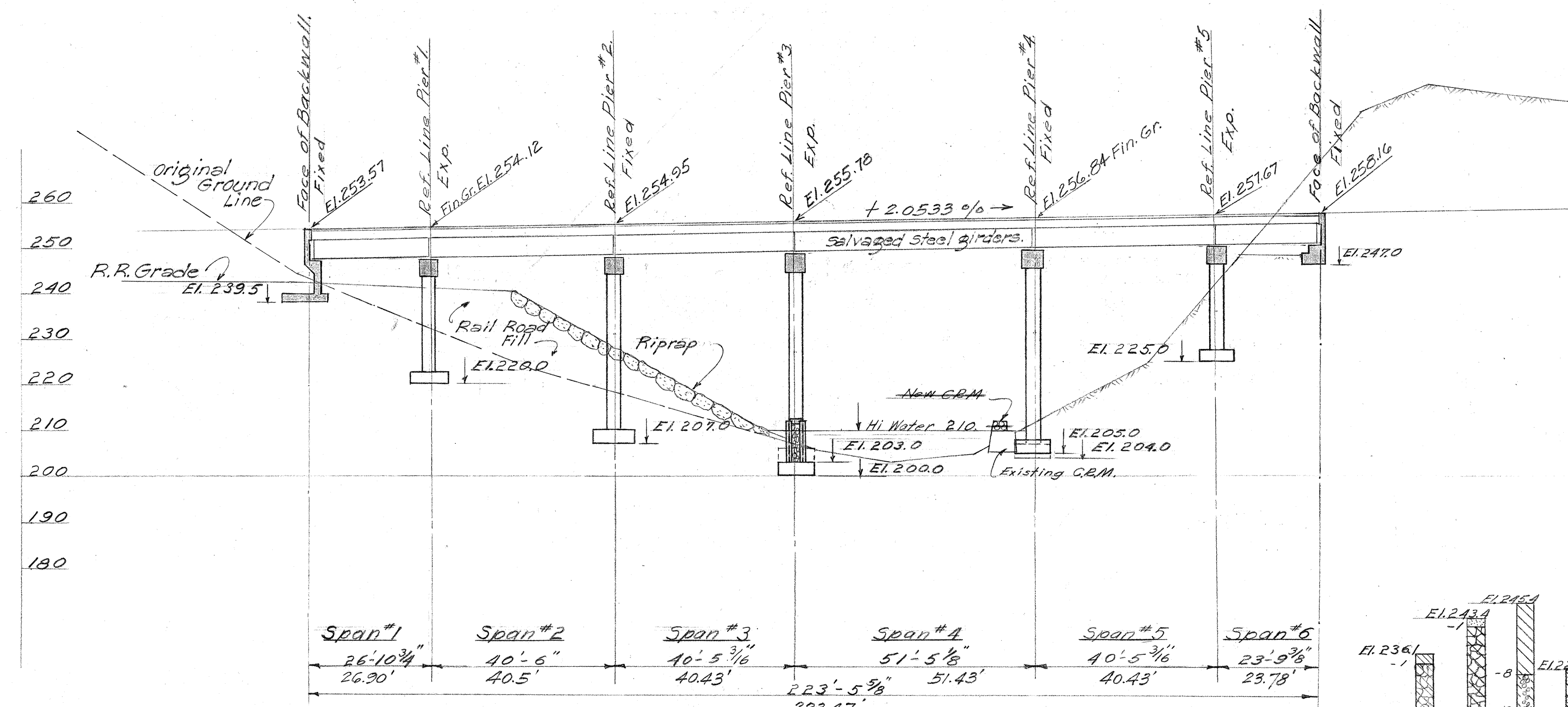
All new steel shall be structural carbon steel, A.S.T.M. Designation A-7

Rivet Steel: All rivets shall be structural rivet steel. ASTM DA141

Premolded joint filler shall be cork type.
Concrete: Class A-1 unless otherwise noted.

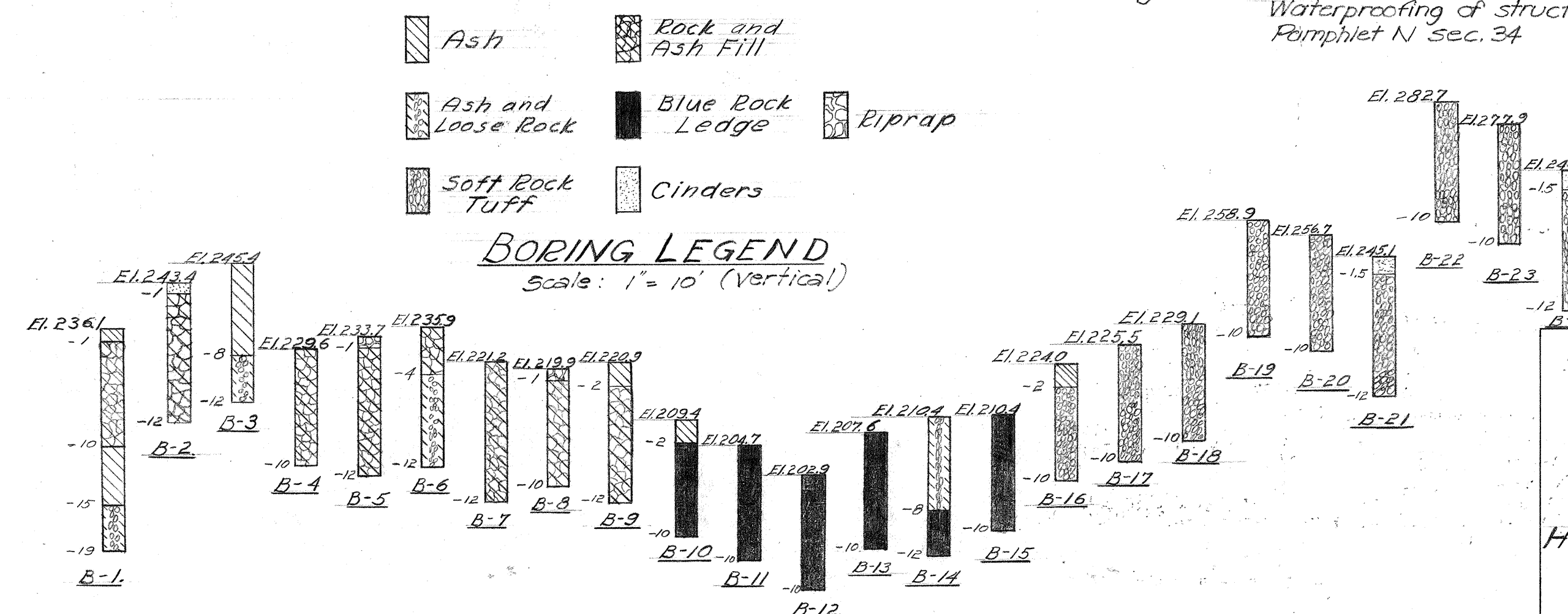
Waterproofing :

Waterproofing of structure required in accordance with Specifications Pamphlet N sec. 34



LONGITUDINAL SECTION

AT £
1" = 20 Ft.



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

OPEA BRIDGE

Sta. 17+52 79 - Sta. 19+78.26

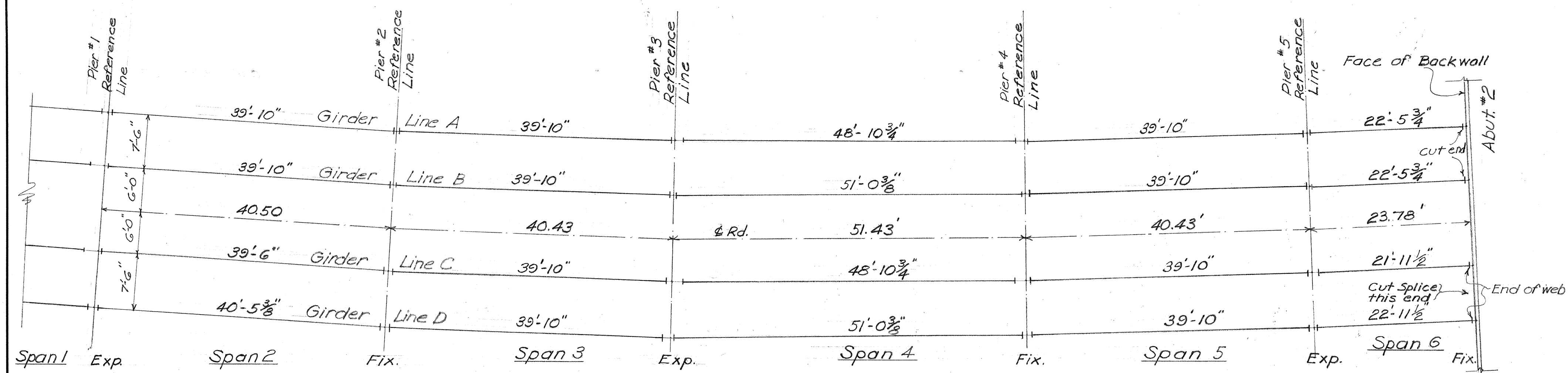
Hawaii Belt Road

S.D.R. 3(13)

June 1950

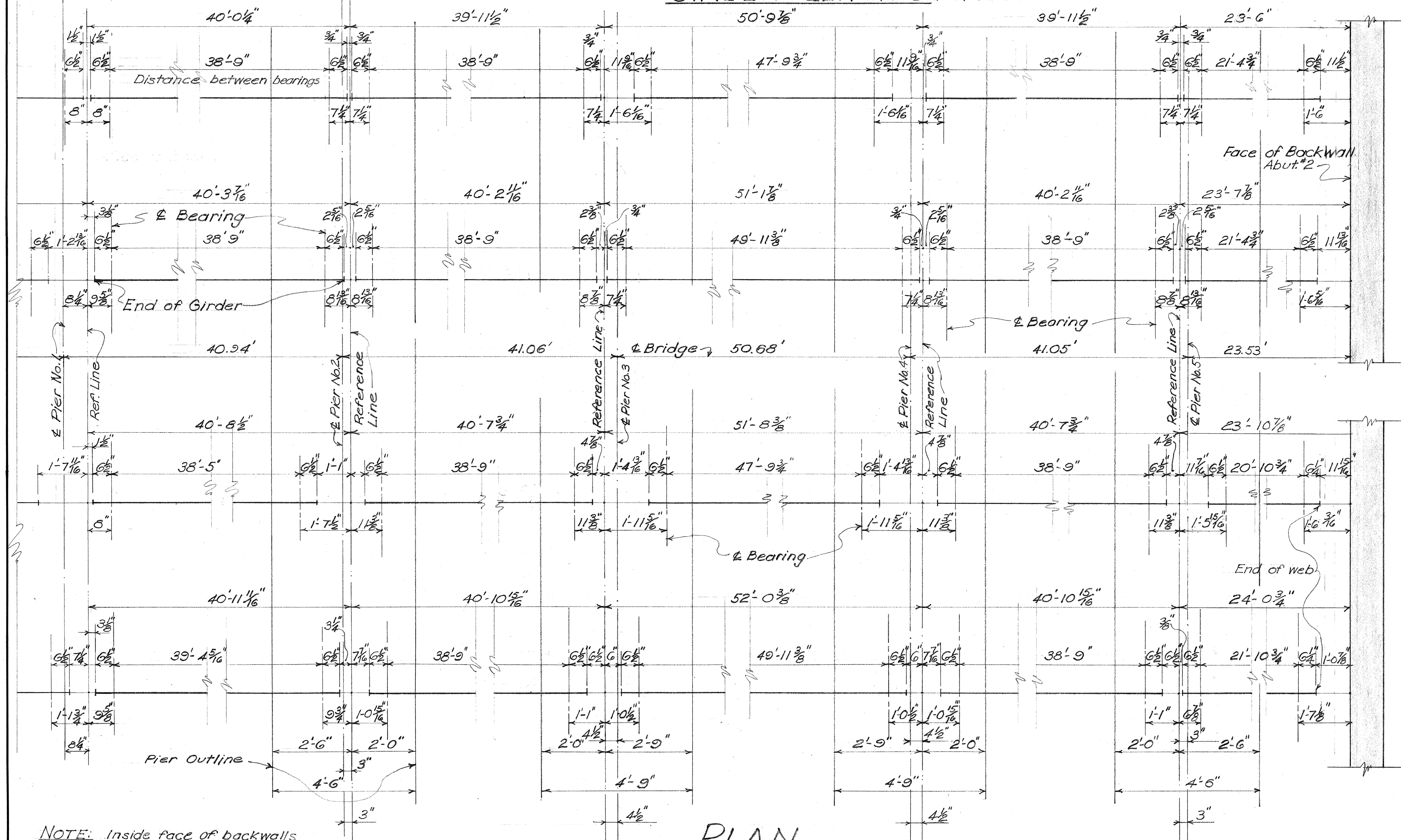
SHEET No. / OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	SDR 3/13	1950	42	304

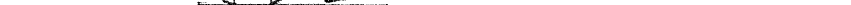


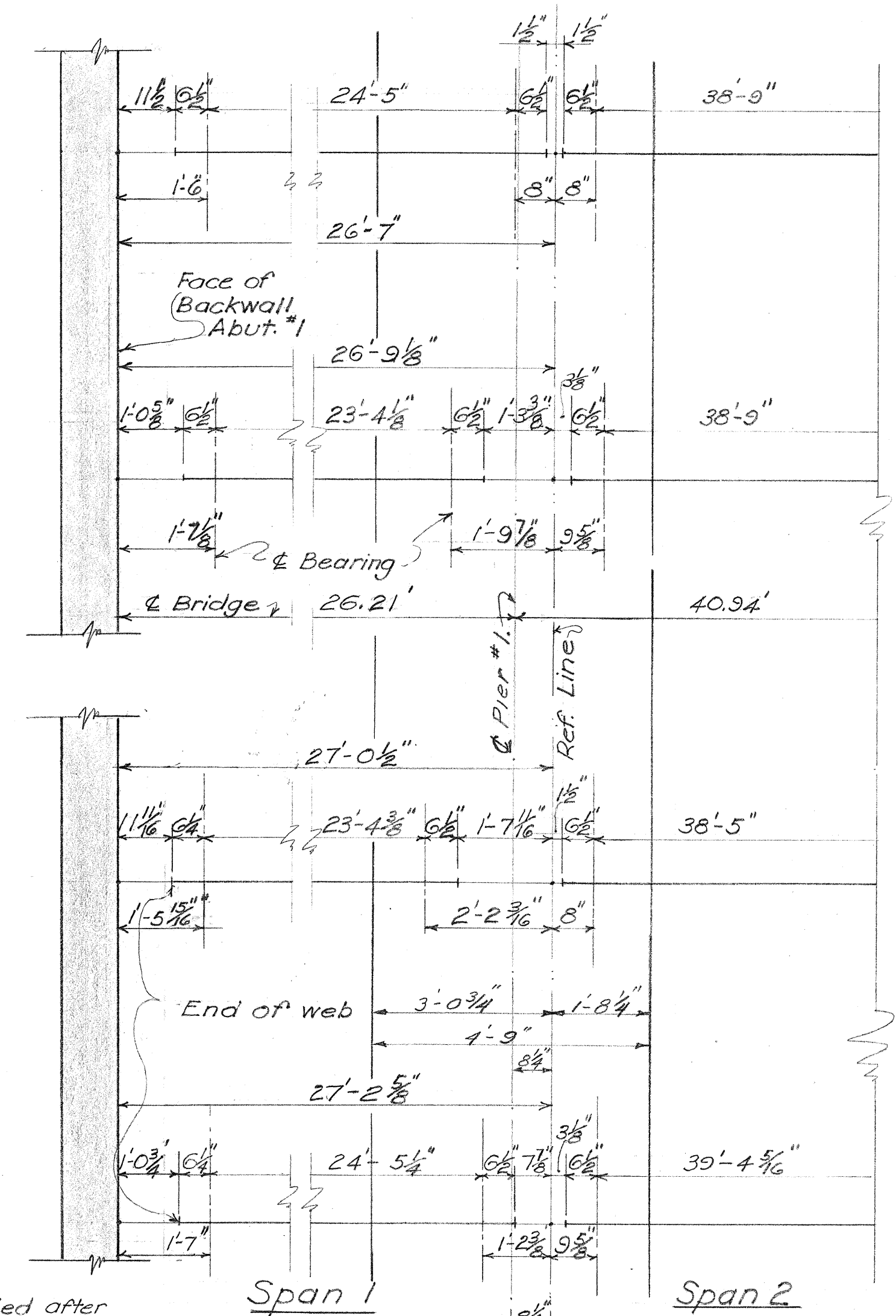
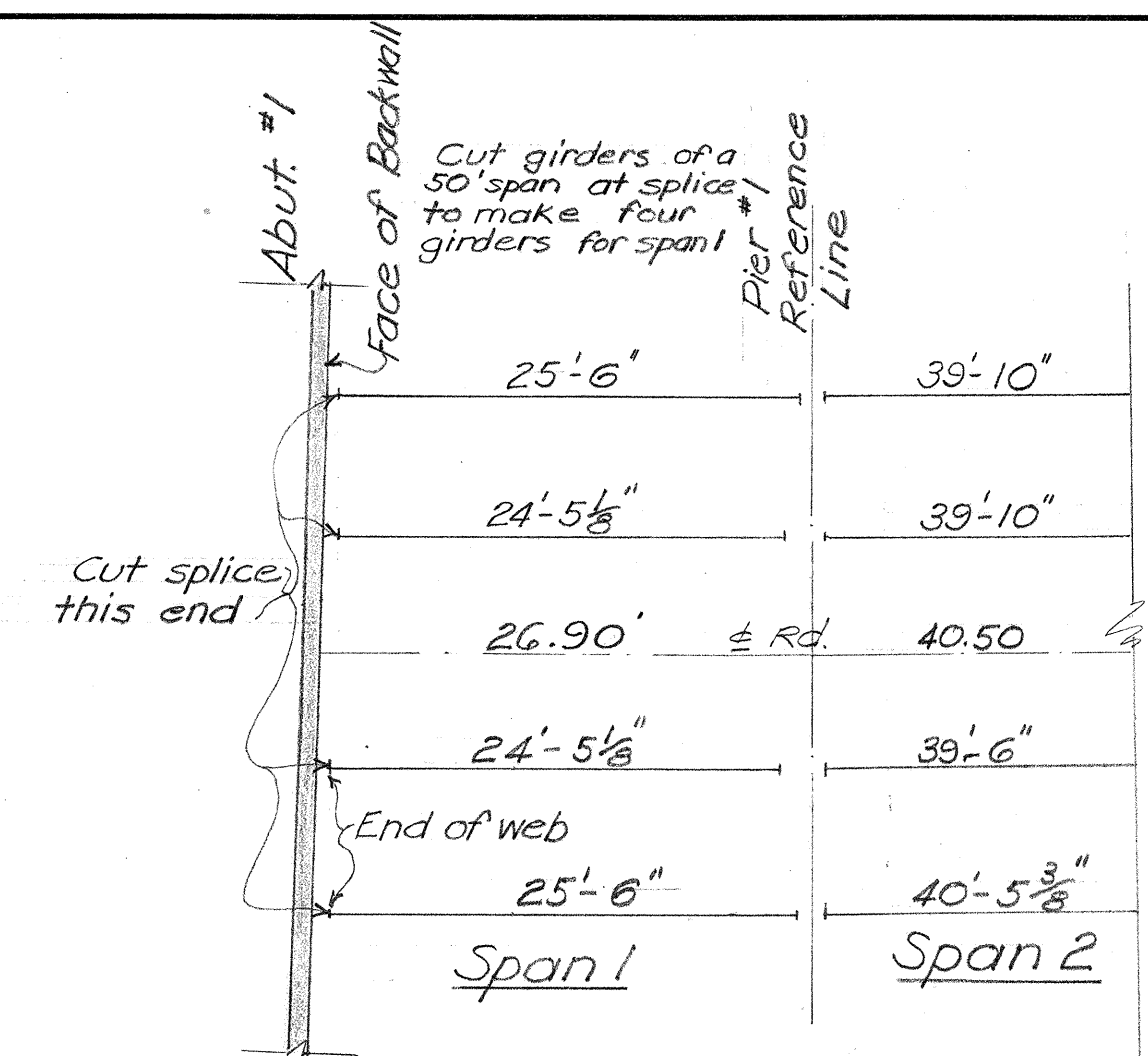
All Girders from Kaawalii Bridge

GIRDER LENGTHS (out to out of Steel)



NOTE: Inside face of backwalls and reference lines are on radial lines. E's of piers are parallel to reference lines.


PLAN
SHOWING LOCATION OF & BEARING ON PIERS



NOTE:
Span No. 1 was added after
"PLAN" had been drawn. Local
conditions called for an
additional span at beginning of bridge.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

OPEA BRIDGE

Sta. 17+52.79 - Sta. 19+78.26

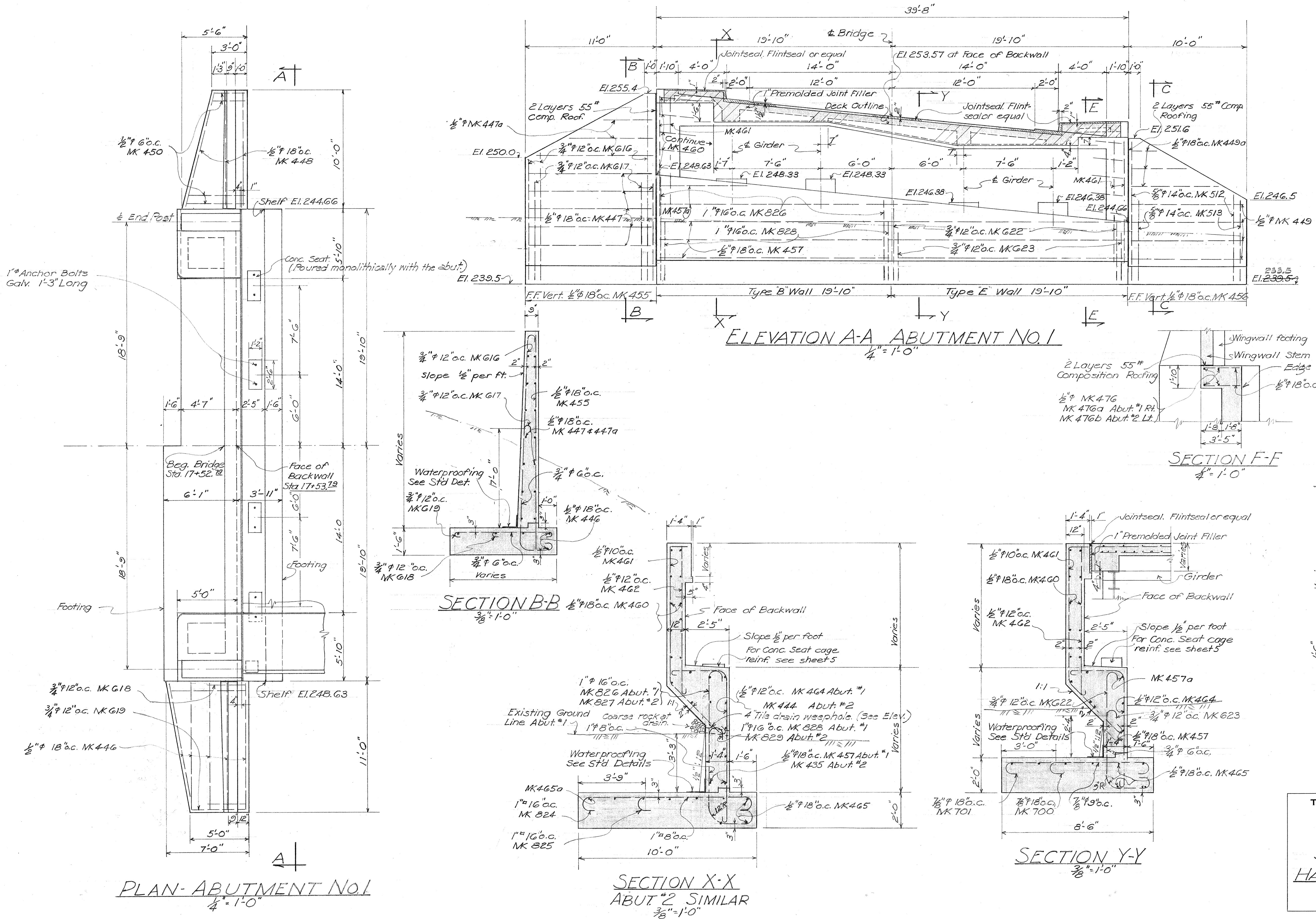
HAWAII BELT RD. SDR3(13)

June 1950

SHEET No. 2 OF 14 SHEETS

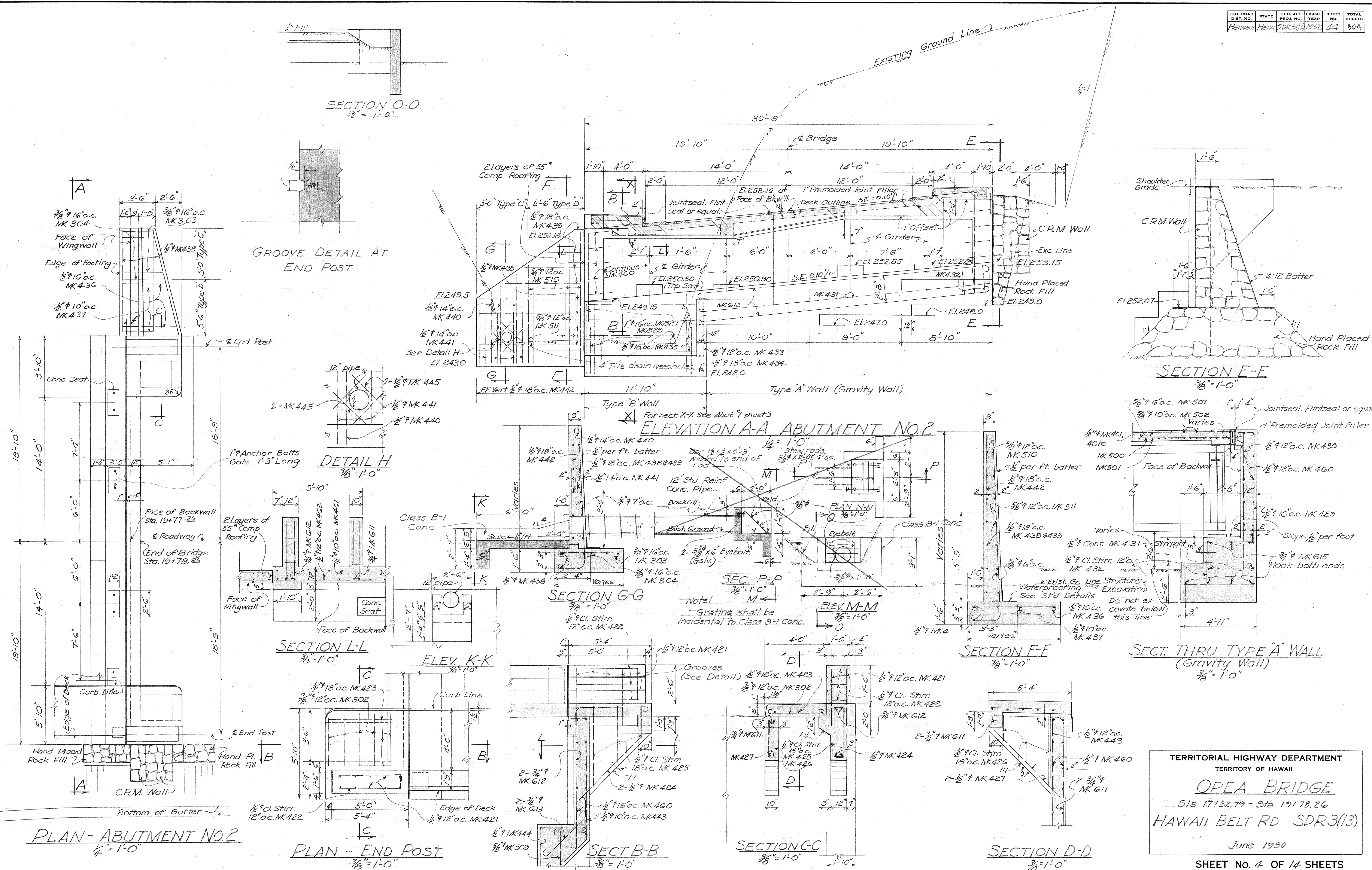
5468.42

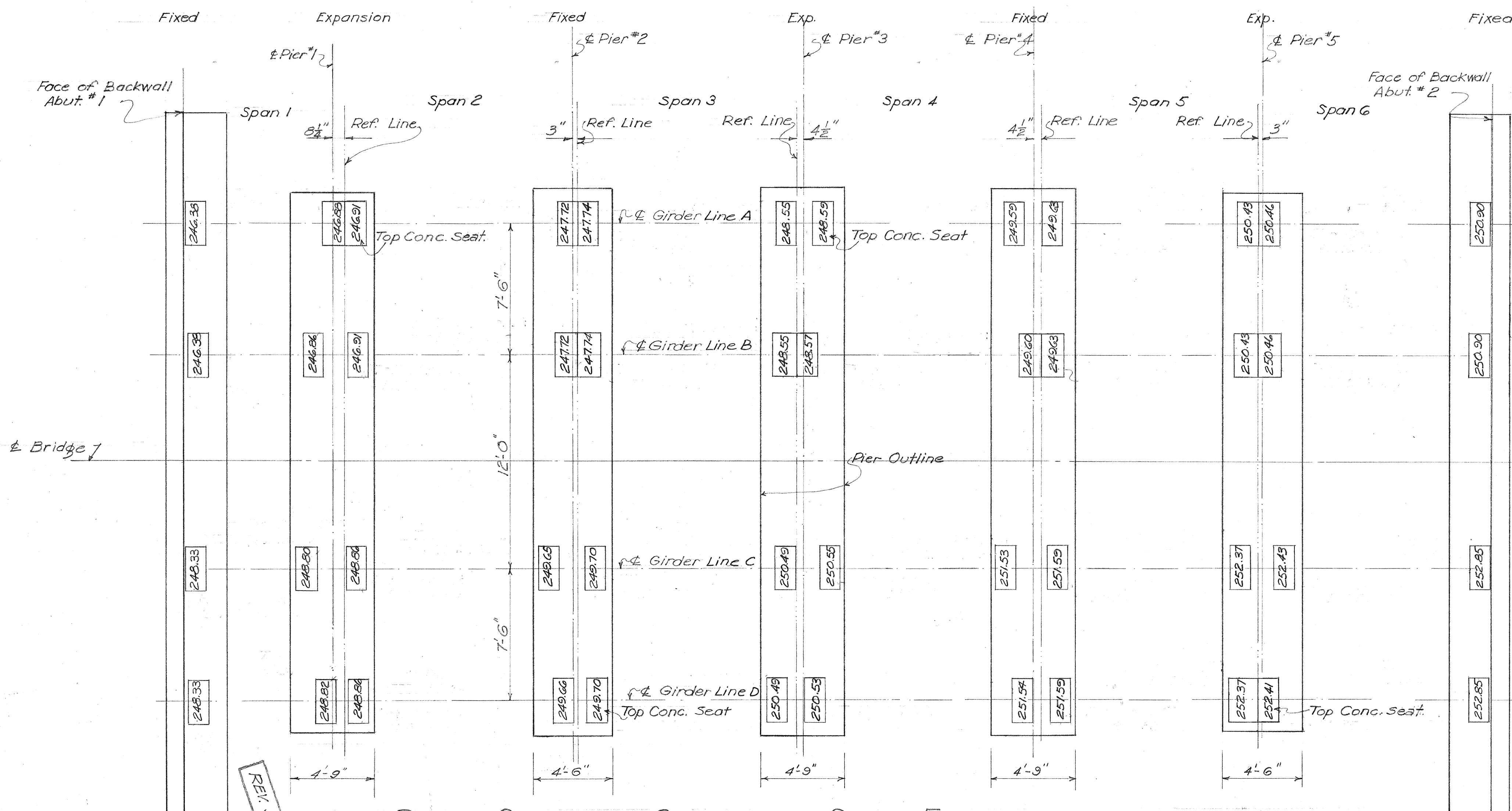
DATE
DESIGNED BY
DRAWN BY
CHECKED BY
NOTE BOOK
QUANTITIES CHECKED BY
S. T. TONG



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

OPEA BRIDGE
Sta 17+52.79 - Sta 17+78.26
HAWAII BELT RD. SDR3/13
June 1950

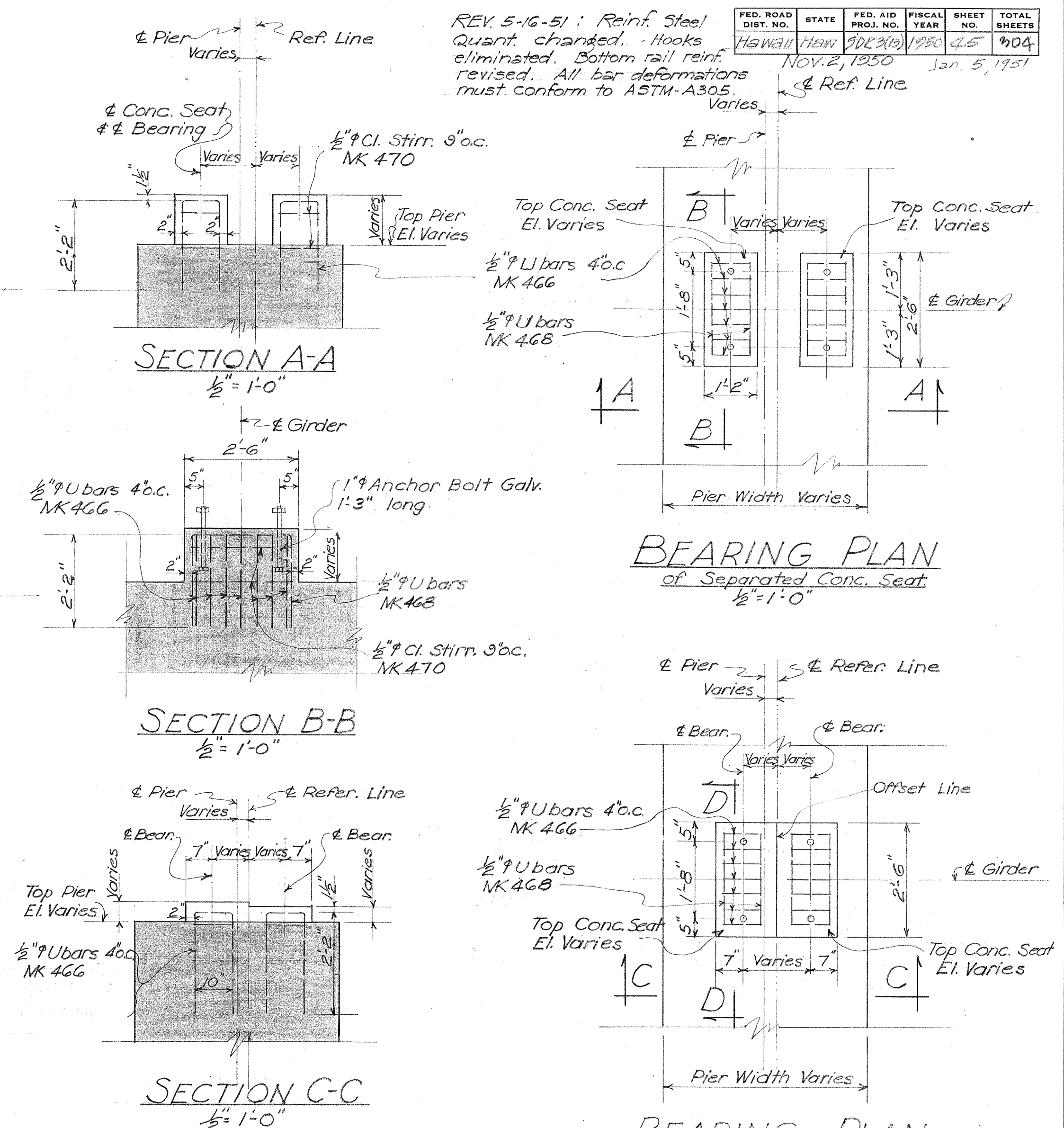




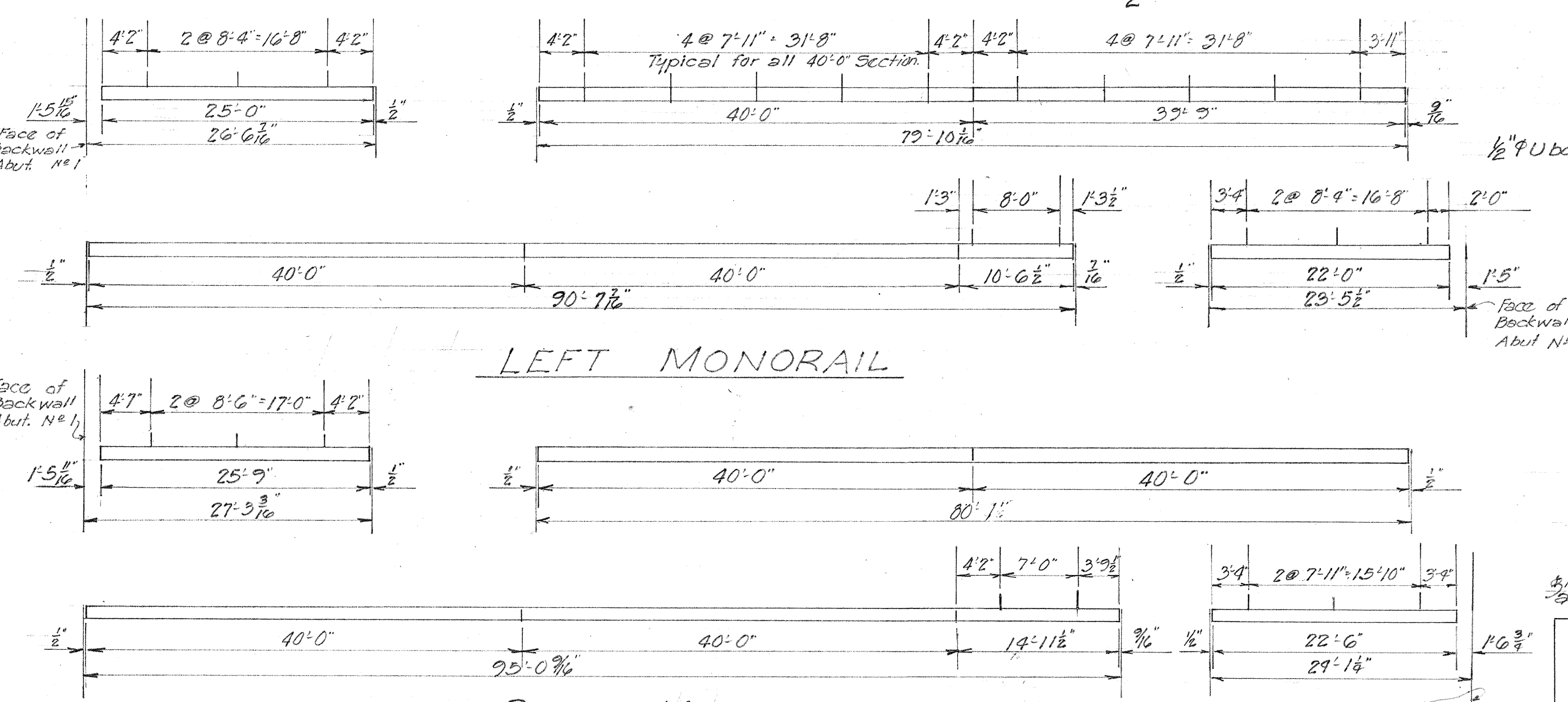
PLAN SHOWING CONCRETE SEAT ELEVATION
1/4" = 1'-0"

ESTIMATED QUANTITIES

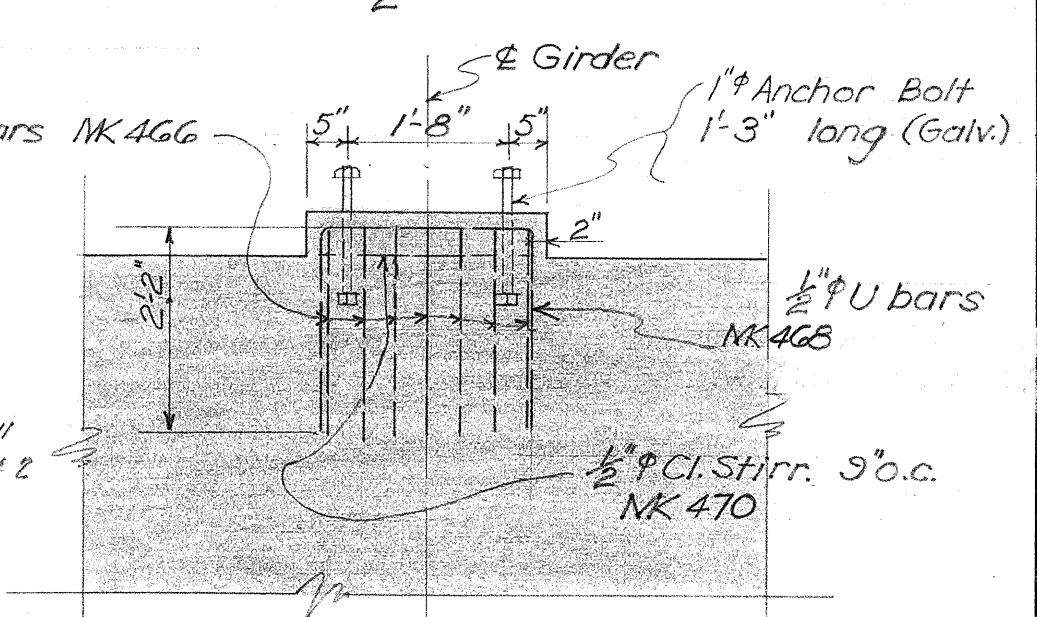
	Concrete Class A-1	Concrete Class B-1	Reinr. Steel	Cement Rubble Masonry	Structure Excavation	A.C. Pavement	Hand Placed Rock Fill	Furnishing fabricating and erecting new steel including one coat of paint	Cleaning, fabricating and erecting salvaged steel including one coat of paint	Removing and replacing 1/2" rivets. At length 1/2"	Painting new and salvaged steel with 2 field coats of paint	1/2" Standard Reinforced Conc. Pipe
	C.Y.	C.Y.	lbs.	C.Y.	C.Y.	Tons	C.Y.	lbs.	lbs.	Each	Lump Sum	Lin. Feet
Superstructure												
Deck	265		52,025			52						
Sidewalk	3		67									
Railing			61									
Railing Post	30		5,865									
End Post			5,450									
Abutment No. 1	68		6,159		107							
			5,225									
Abutment No. 2	52	1	3,605	3.0	205		1.6					35
			3,312									
Pier No. 1	50.8		6,920		171							
			6,558									
Pier No. 2	69.1		10,275		182							
			9,865									
Pier No. 3	92.8		14,401		27							
			13,832									
Pier No. 4	70.4		13,304	31.3	40							
			12,737									
Pier No. 5	45.9		6,651		132							
			6,301									
Totals	747	1	118,772	34.3	864	52	1.6	28,821	213,800	5000		35
			113,758									



BEARING PLAN of Non-Separated Conc. Seat
1/2" = 1'-0"



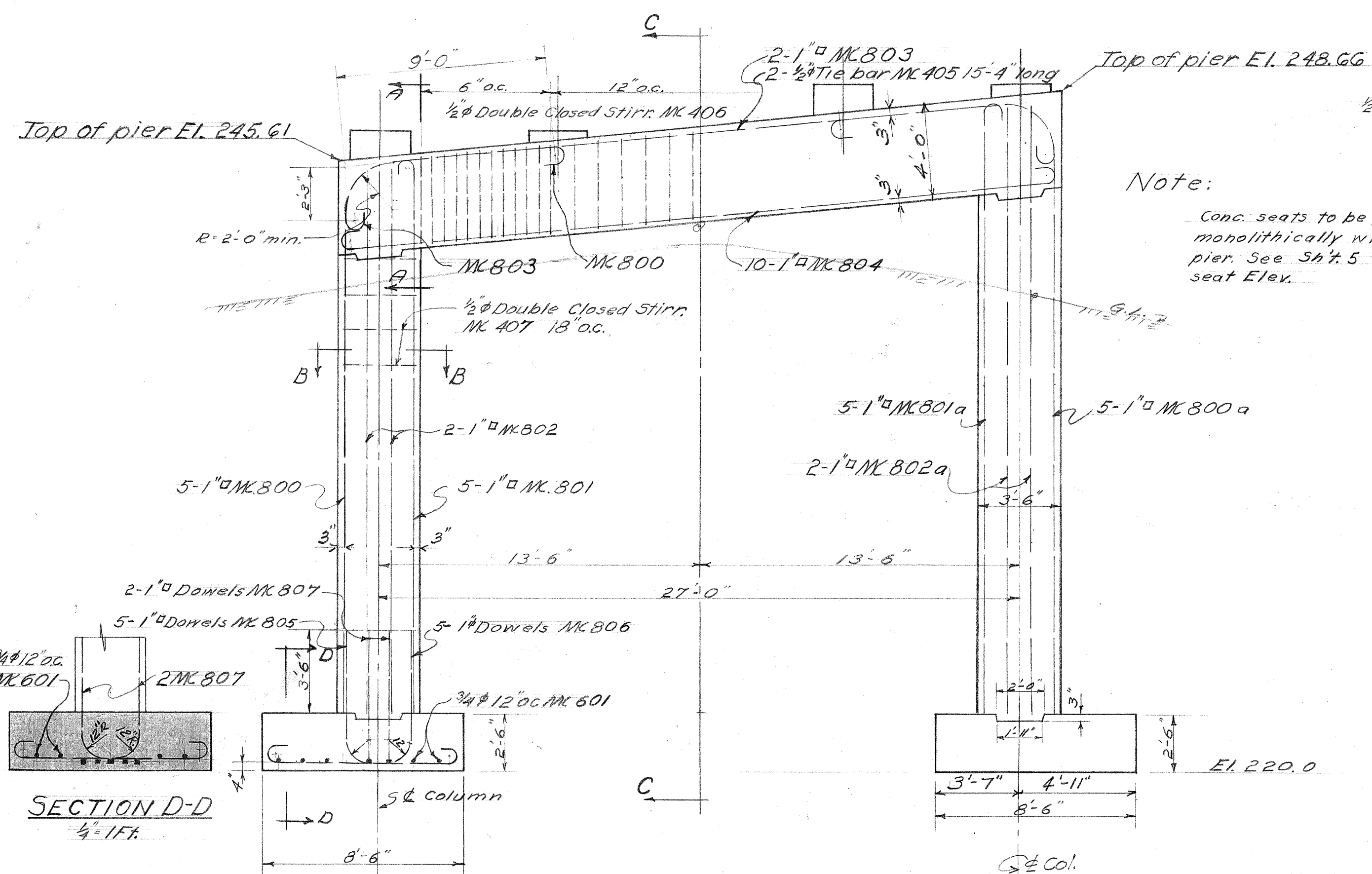
LOCATION OF HANGERS
Scale 1/4" = 1'-0"
(See sheet No. 5468.49 for hanger detail)



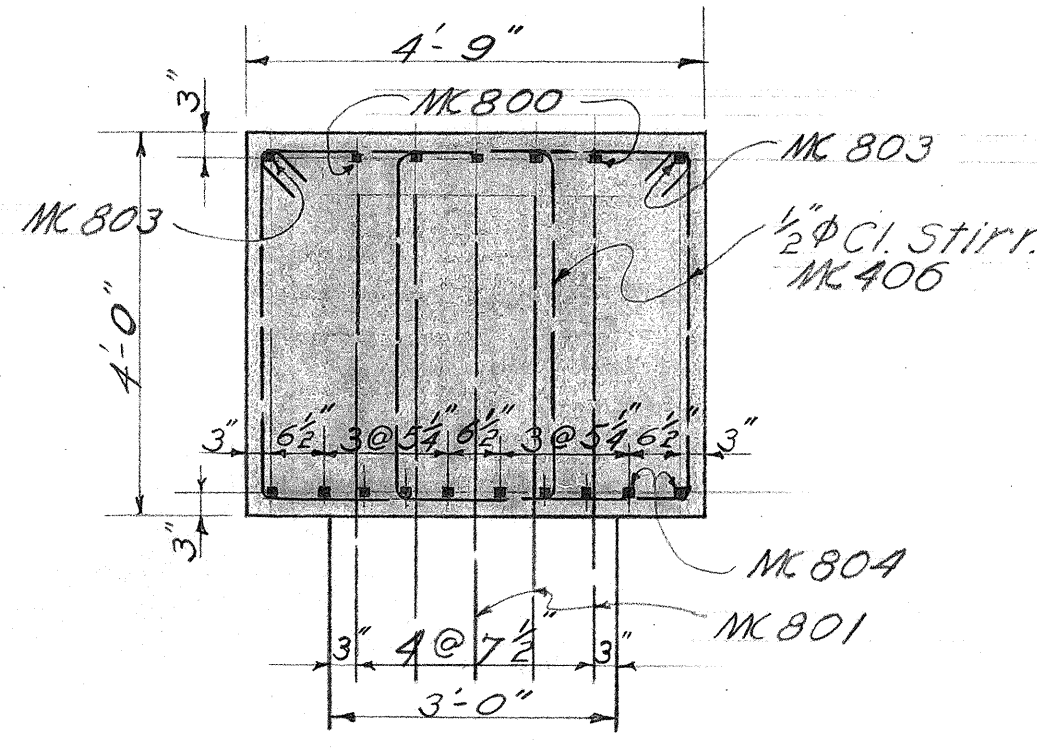
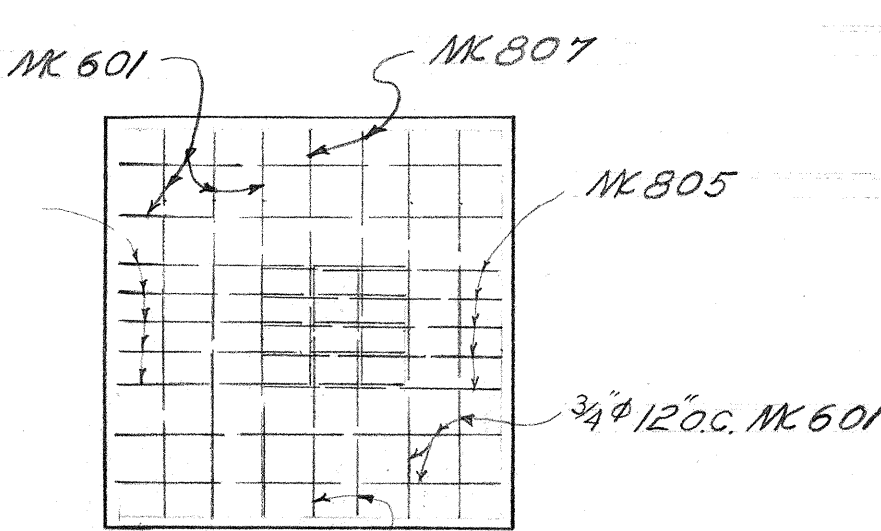
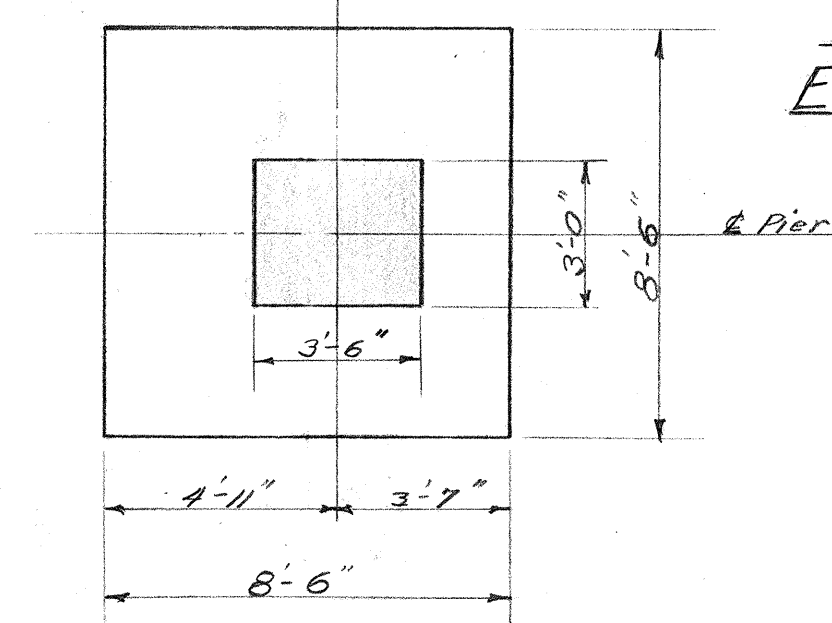
SECTION D-D
1/2" = 1'-0"

NOTE TO FIELD ENGINEER
Locate piers by laying out reference lines on ground and placing piers parallel to these lines according to the dimensions given.

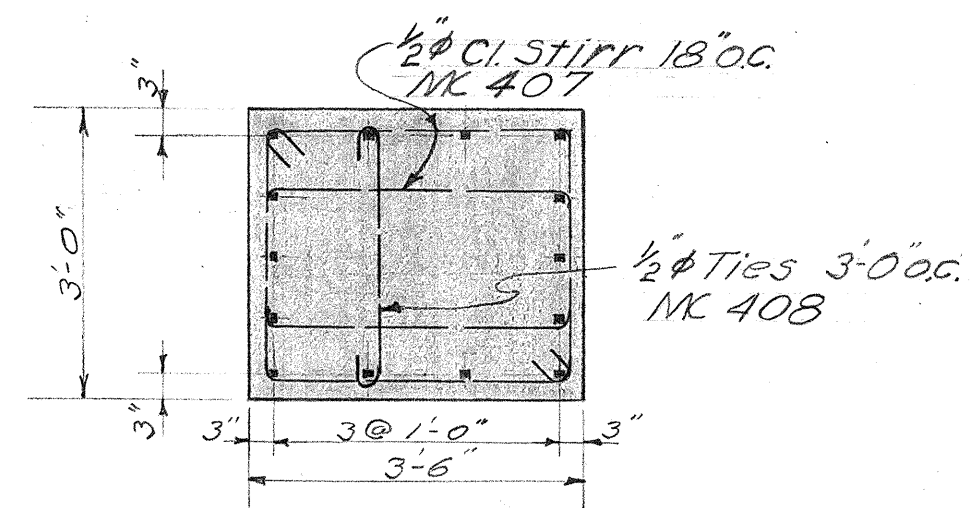
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
OPEA BRIDGE
Sta 17+32.79 - Sta. 19+78.26
HAWAII BELT RD. SDR 3(13)
June 1950



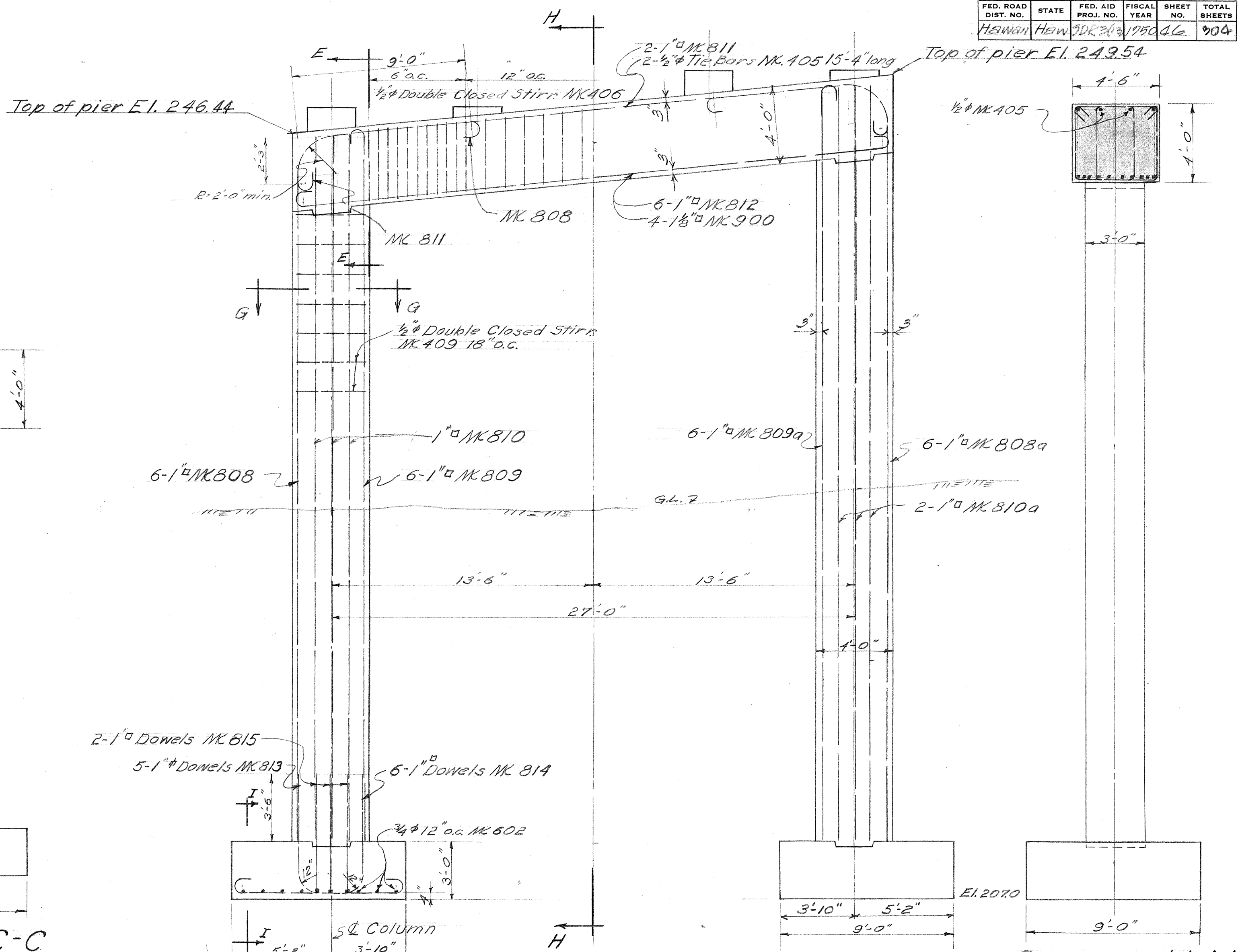
PIER No. 1
ELEVATION
1/4" = 1 FT.



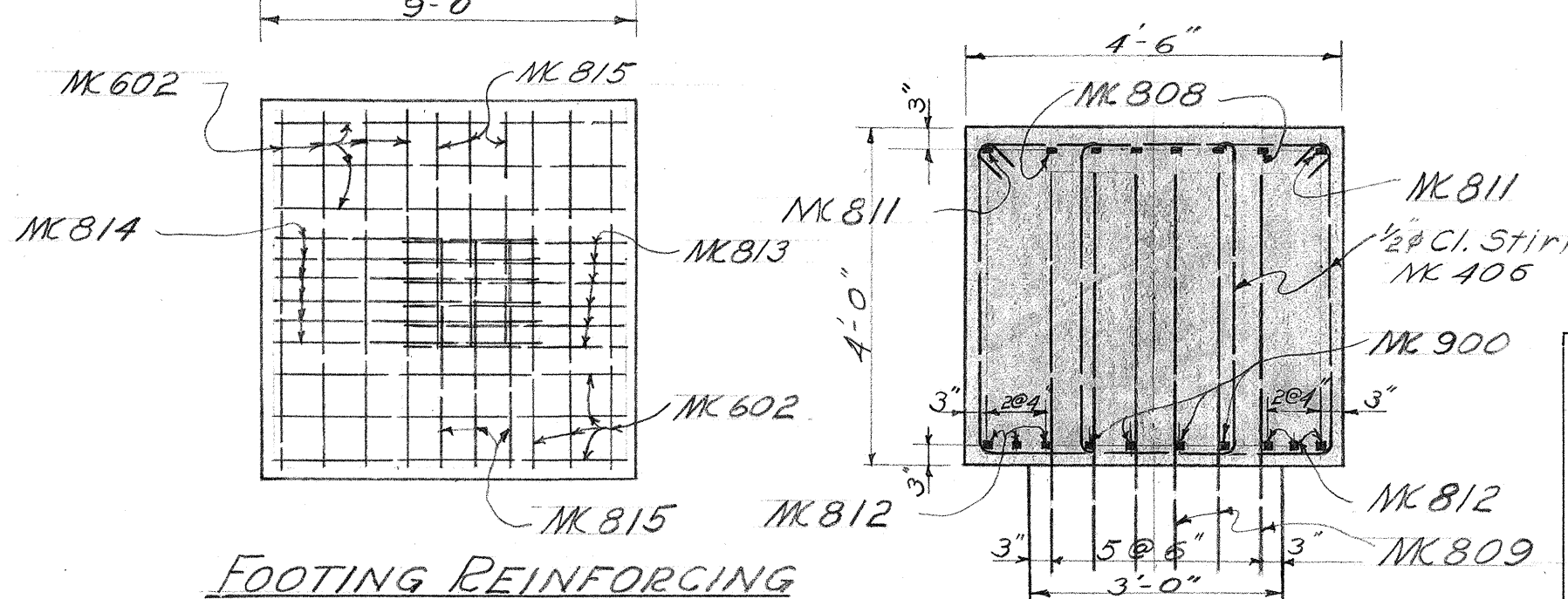
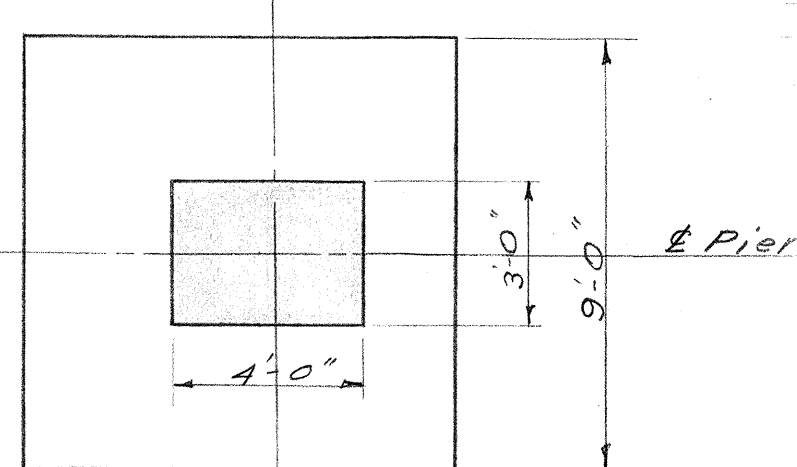
SECTION A-A
1/2" = 1 FT.



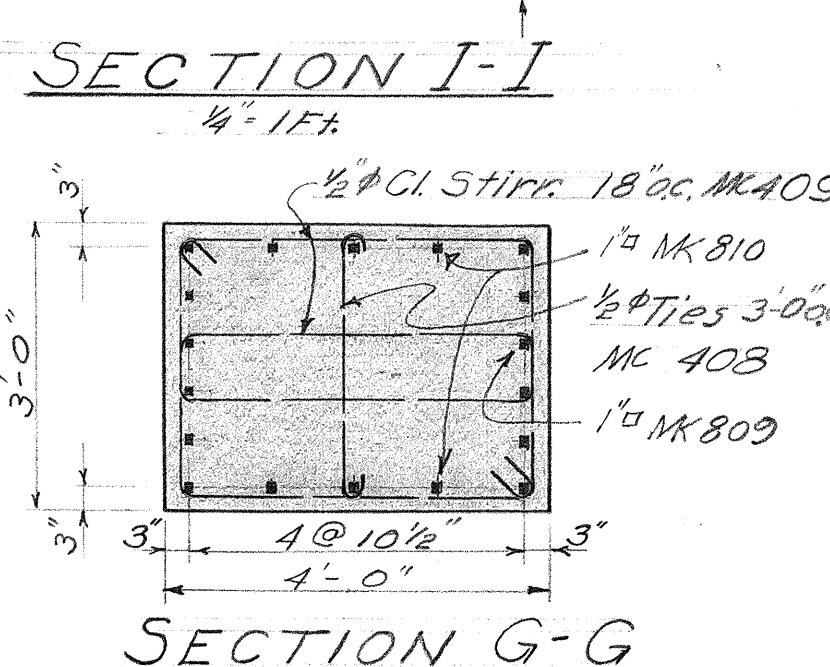
SECTION B-B
1/2" = 1 FT.



PIER No. 2
ELEVATION
1/4" = 1 FT.



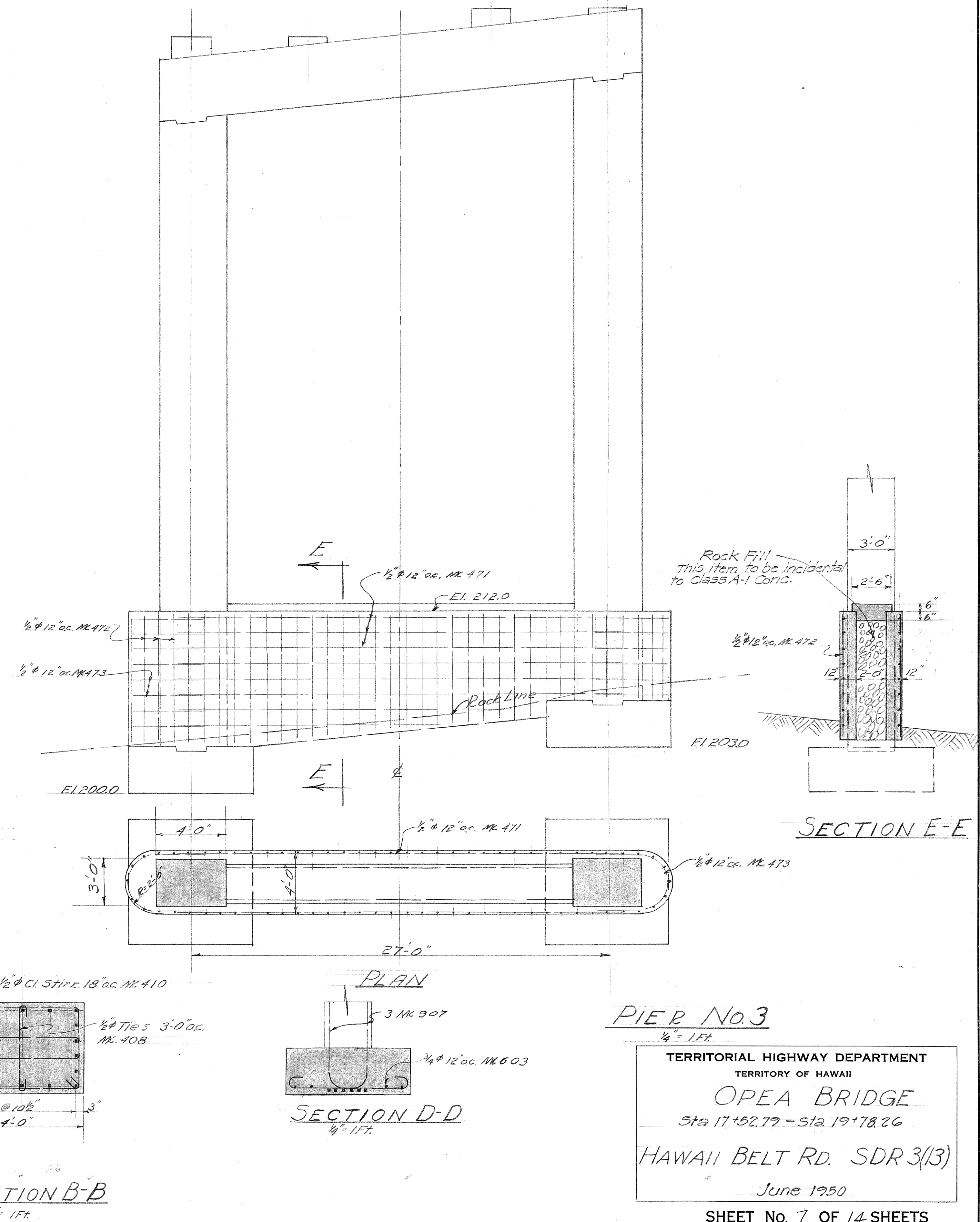
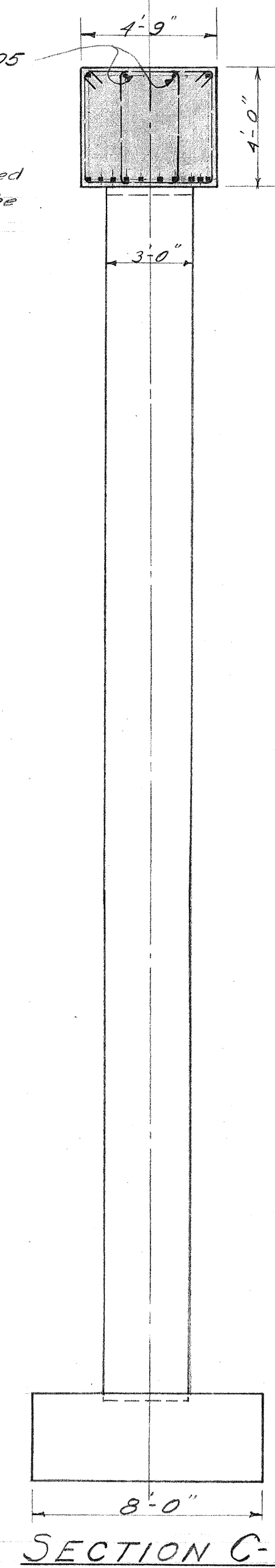
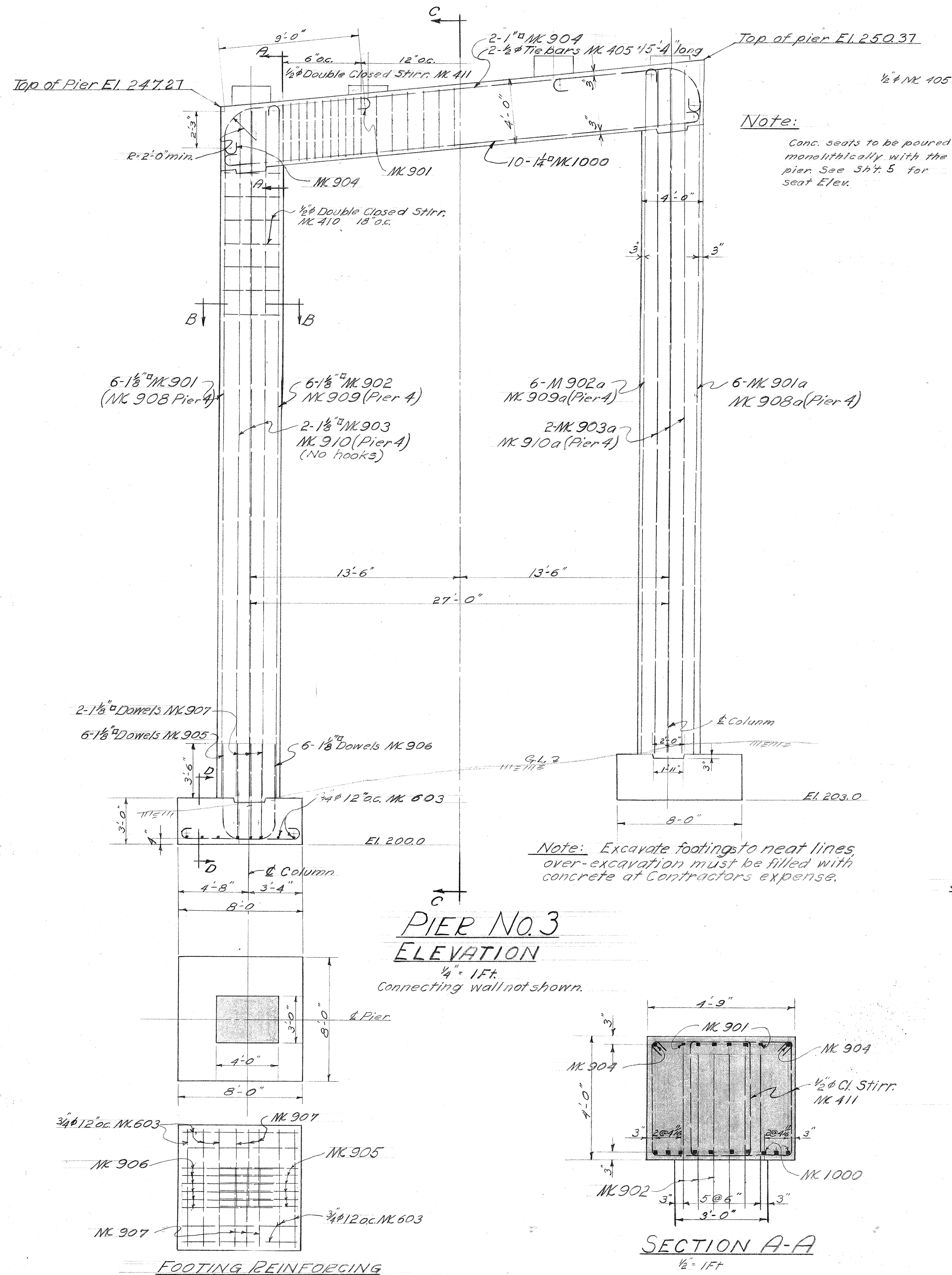
SECTION E-E
1/2" = 1 FT.



SECTION G-G
1/2" = 1 FT.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
OPEA BRIDGE
Sta. 17+52.79 - Sta. 19+78.26
HAWAII BELT RD. SDR 3(13)
June 1950
SHEET NO. 6 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HA W	SDR2413	1950	47	304

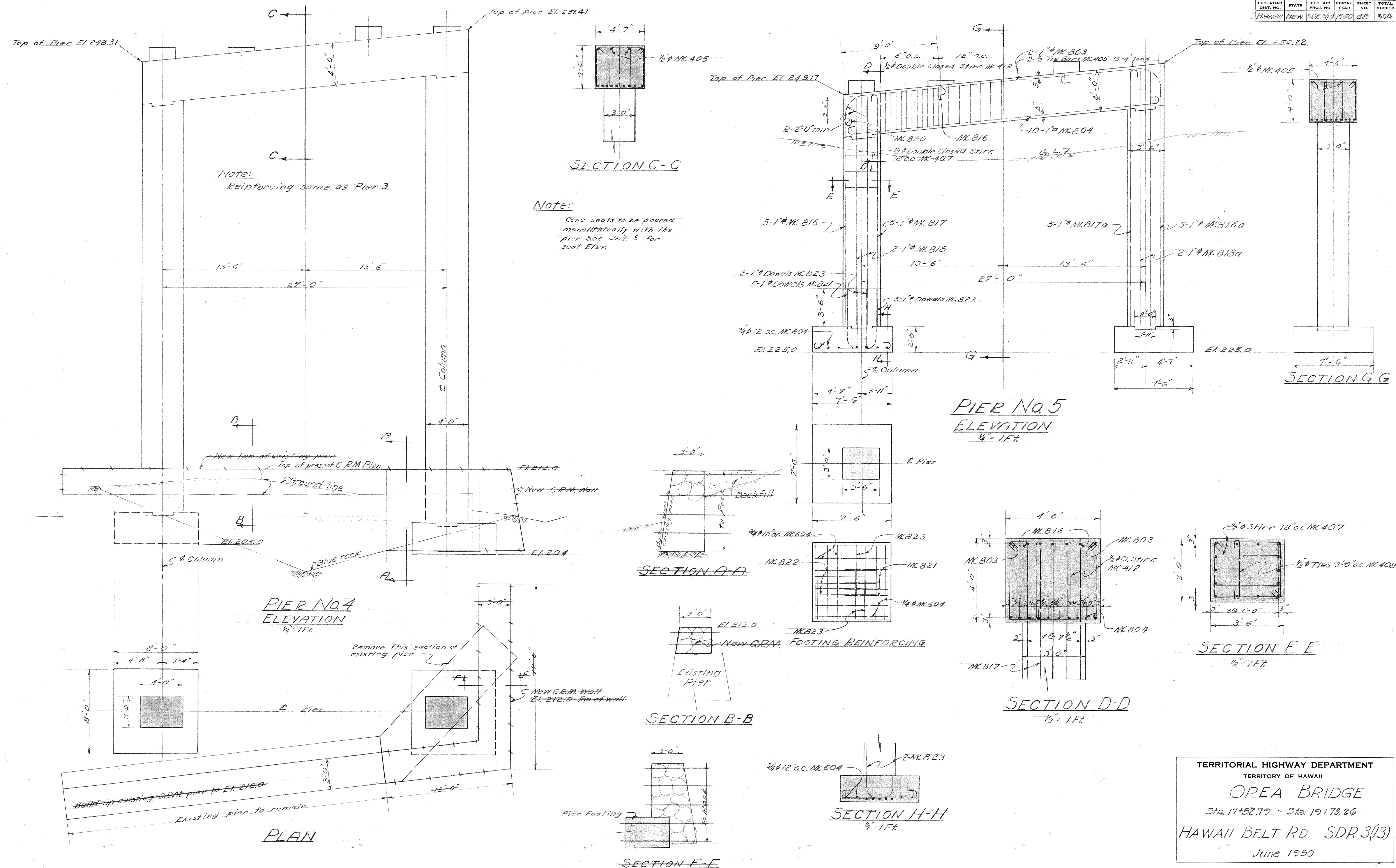


ORIGINAL _____
PLAN _____
NOTE BOOK _____
No. _____

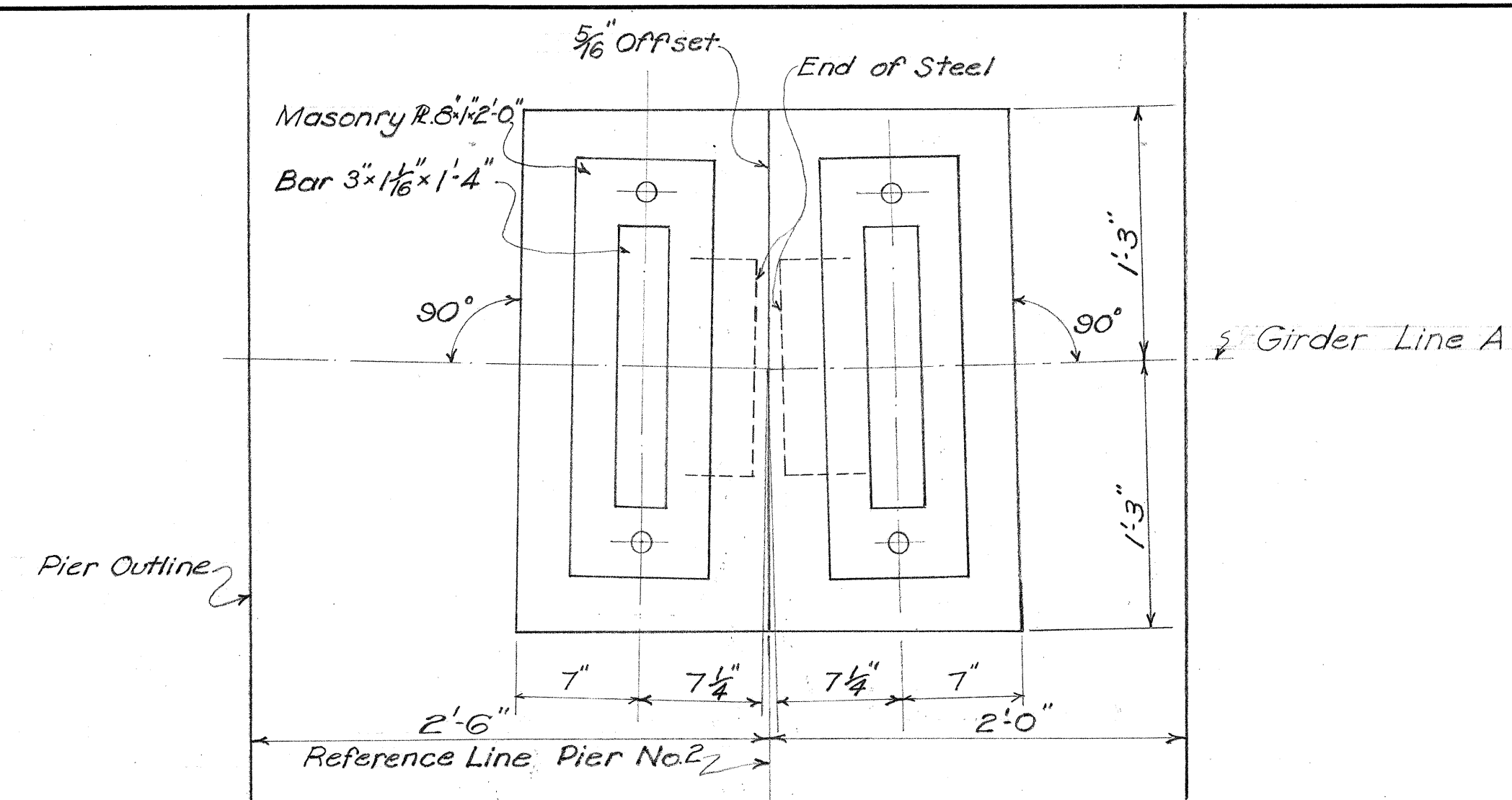
SURVEY PLOTTED BY _____
DESIGNED BY *W. R. Bartels*
DRAWN BY *A. Van Der Werff*
TRACED BY _____
QUANTITIES BY *S. Young*
QUANTITIES CHECKED BY *A. D. W.*
CHECKED BY _____

DATE _____
" _____
" _____
" _____
" _____

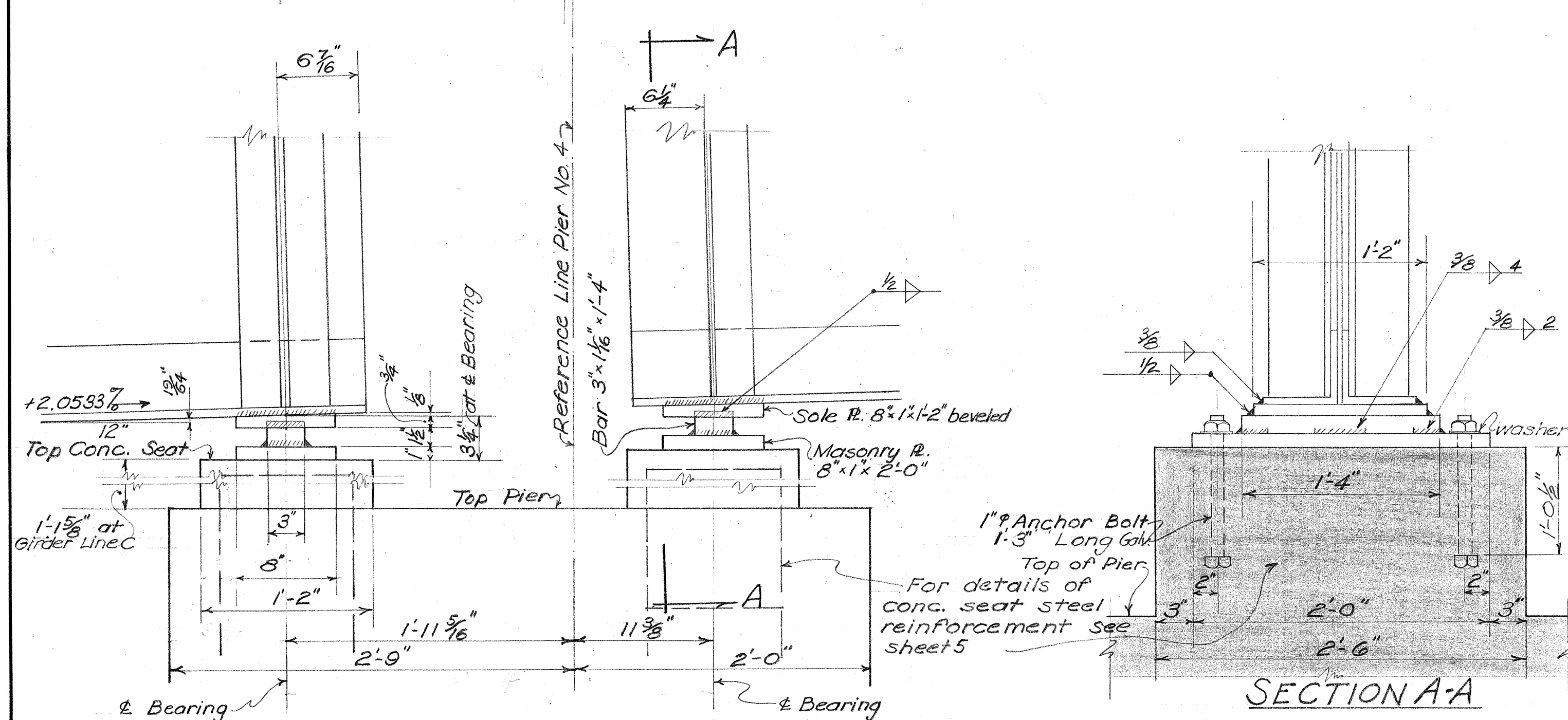
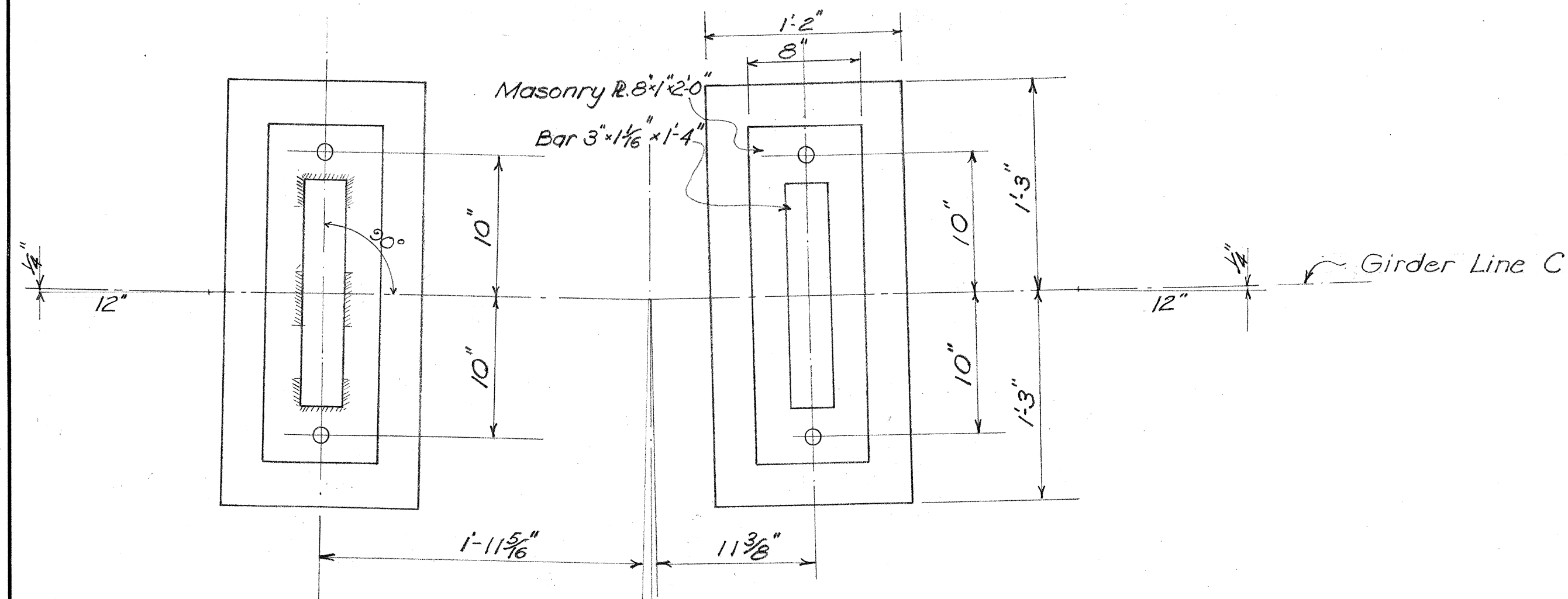
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HA	SDR 2(13)	1950	48	304



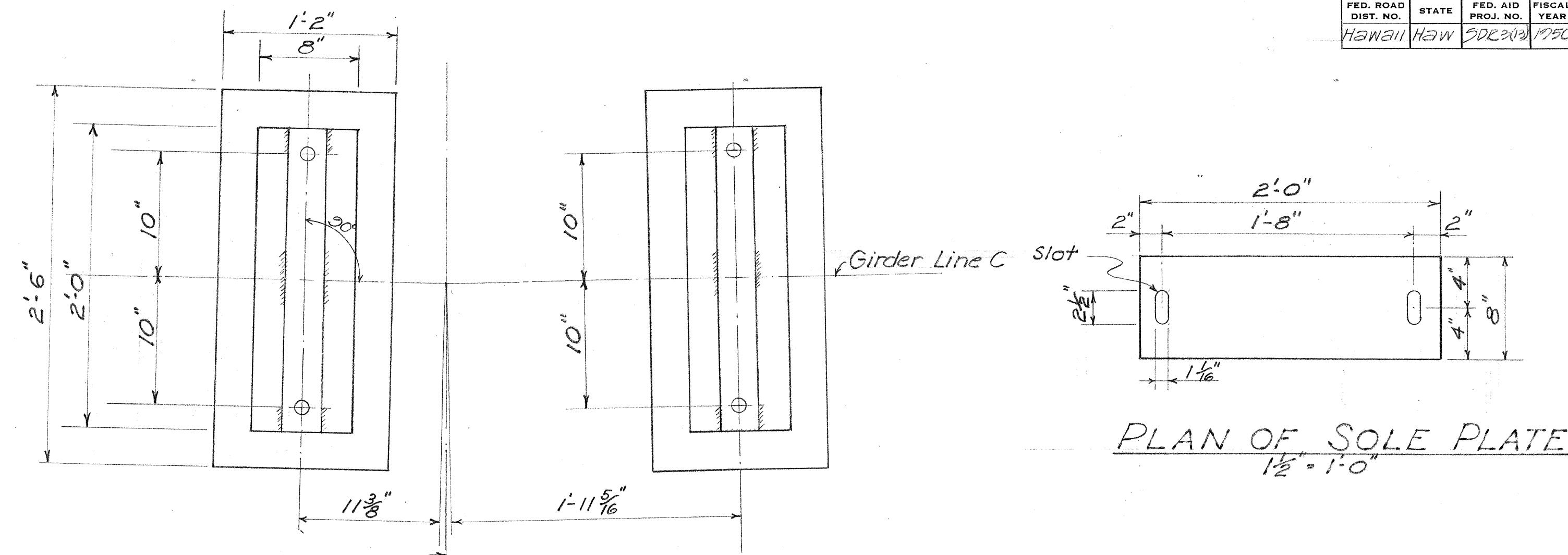
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
OPEA BRIDGE
Sta. 17+52.77 - Sta. 19+78.26
HAWAII BELT RD. SDR 3(13)
June 1950



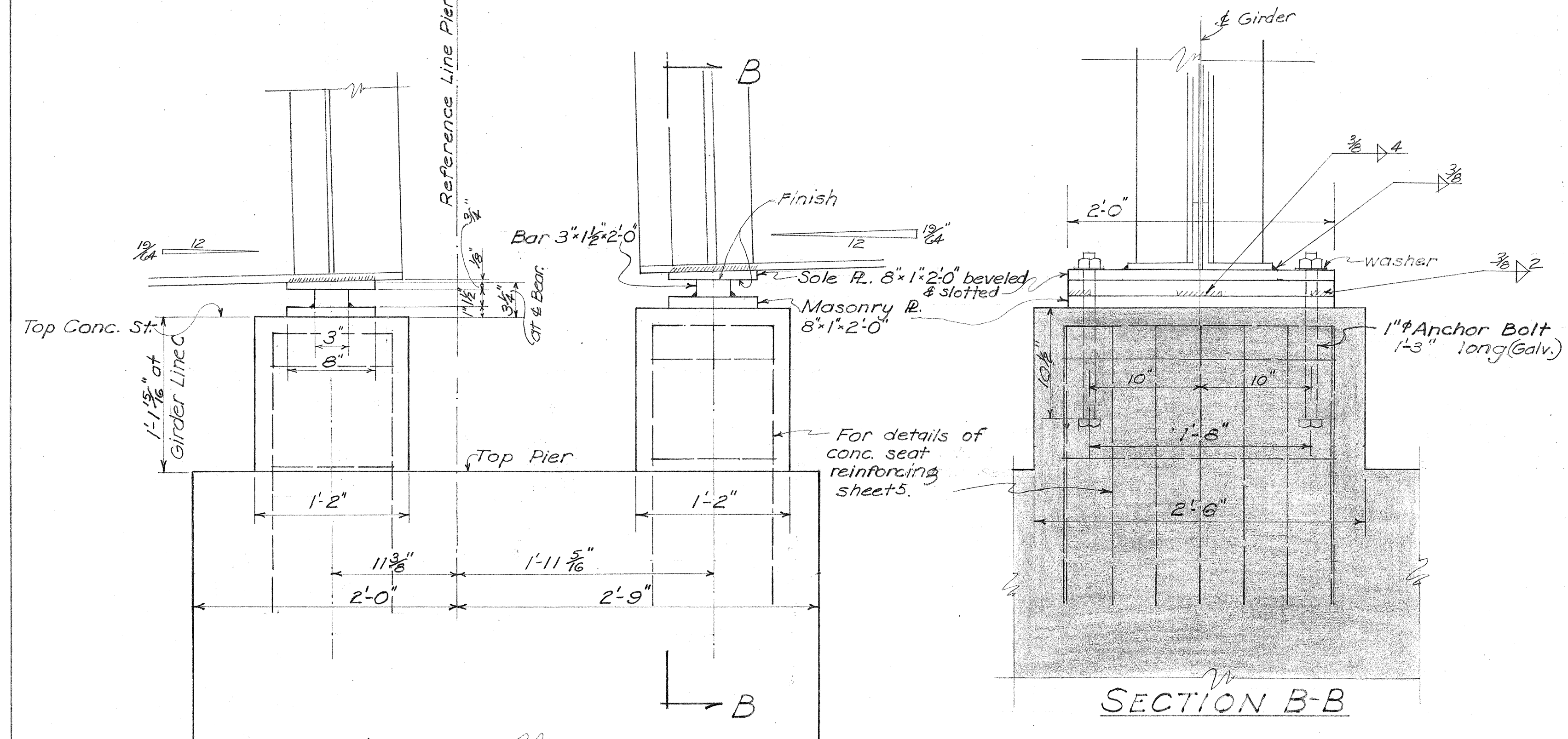
PLAN - GIRDER LINE A, PIER #2
1 1/2" = 1'-0"



FIXED BEARING - DRAWN FOR GIRDER LINE C, PIER #4
1 1/2" = 1'-0"



PLAN OF SOLE PLATE
1 1/2" = 1'-0"



EXPANSION BEARING - DRAWN FOR GIRDER LINE C, PIER #3
1 1/2" = 1'-0"

NOTE: All bearing plates to be Structural Carbon Steel A.S.T.M. Designation: A7

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

OPEA BRIDGE

Sta. 17+52.79 - 3/2.19 + 78.26

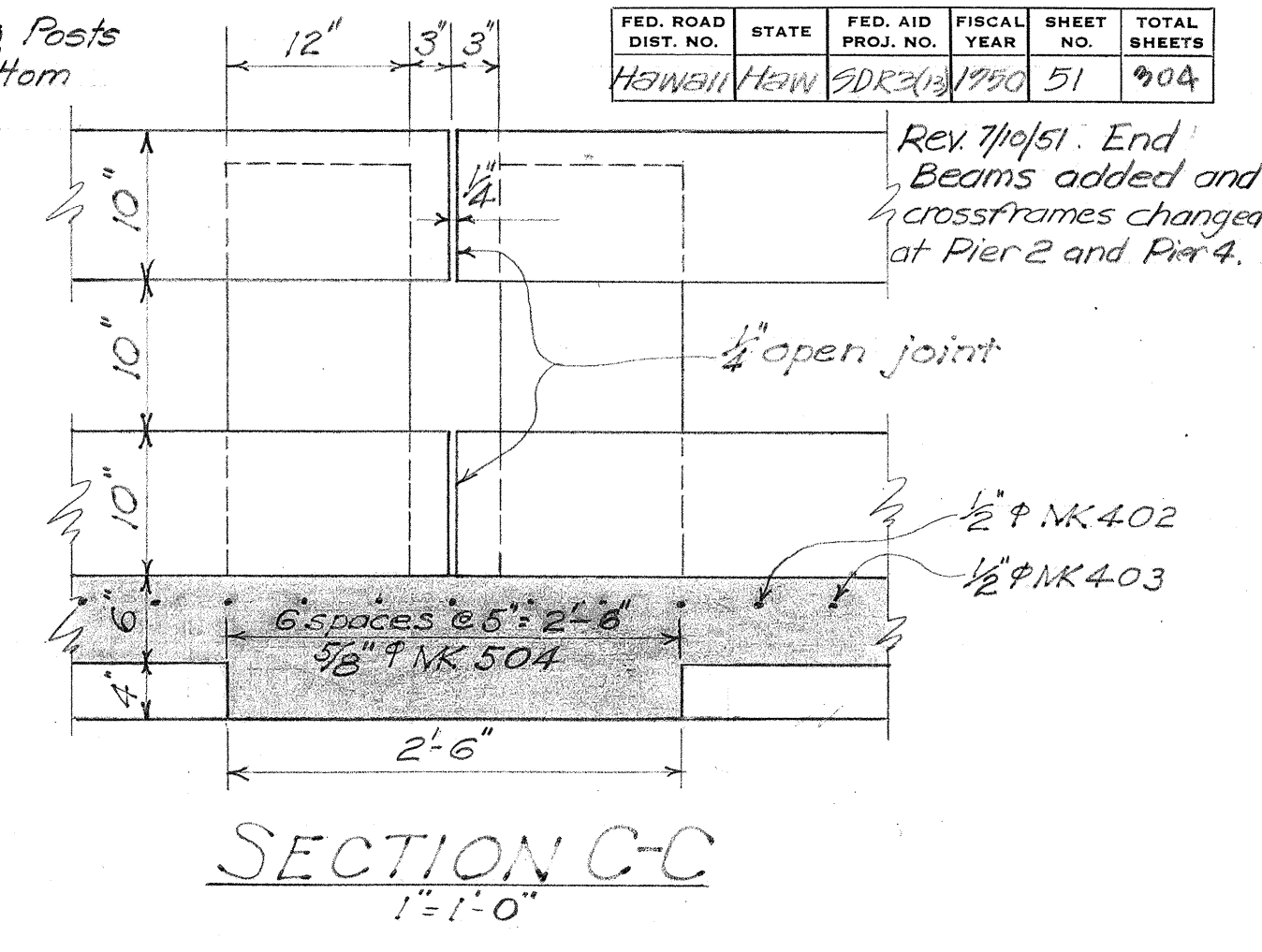
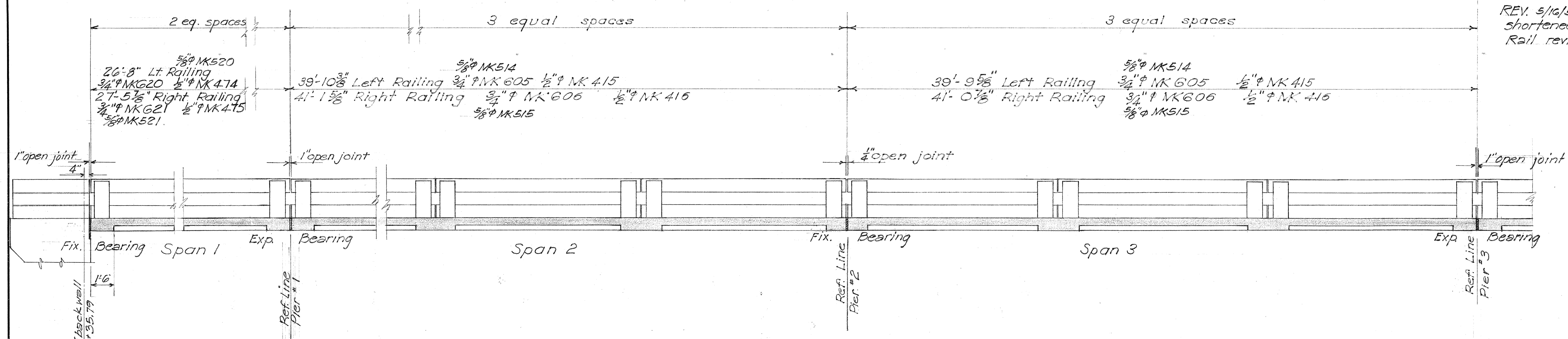
HAWAII BELT RD - SDR3(13)

June 1950

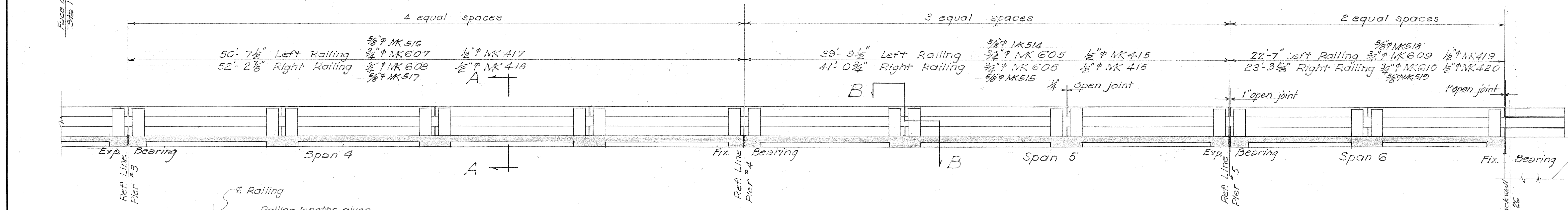
SHEET No. 10 OF 14 SHEETS

3468.50

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HI	SDR3(13)	1990	51	904

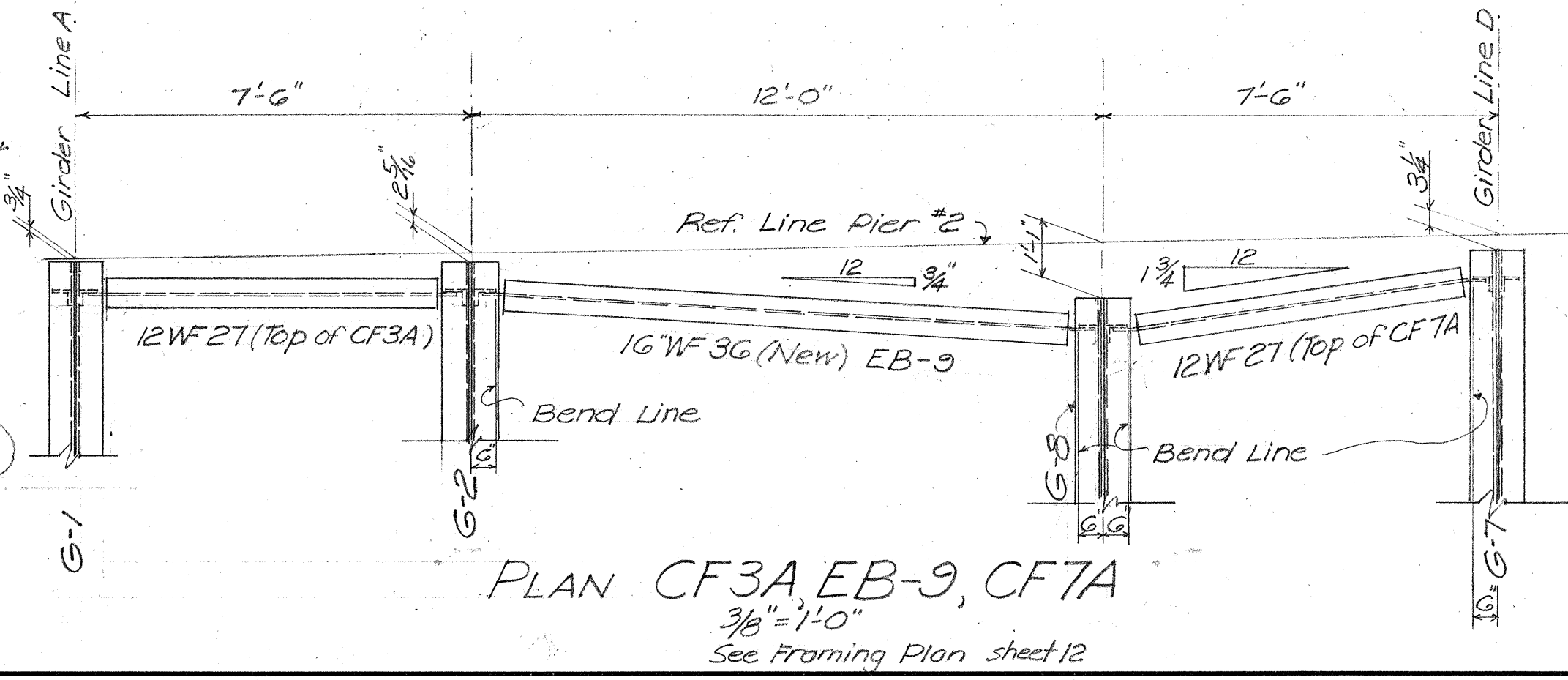
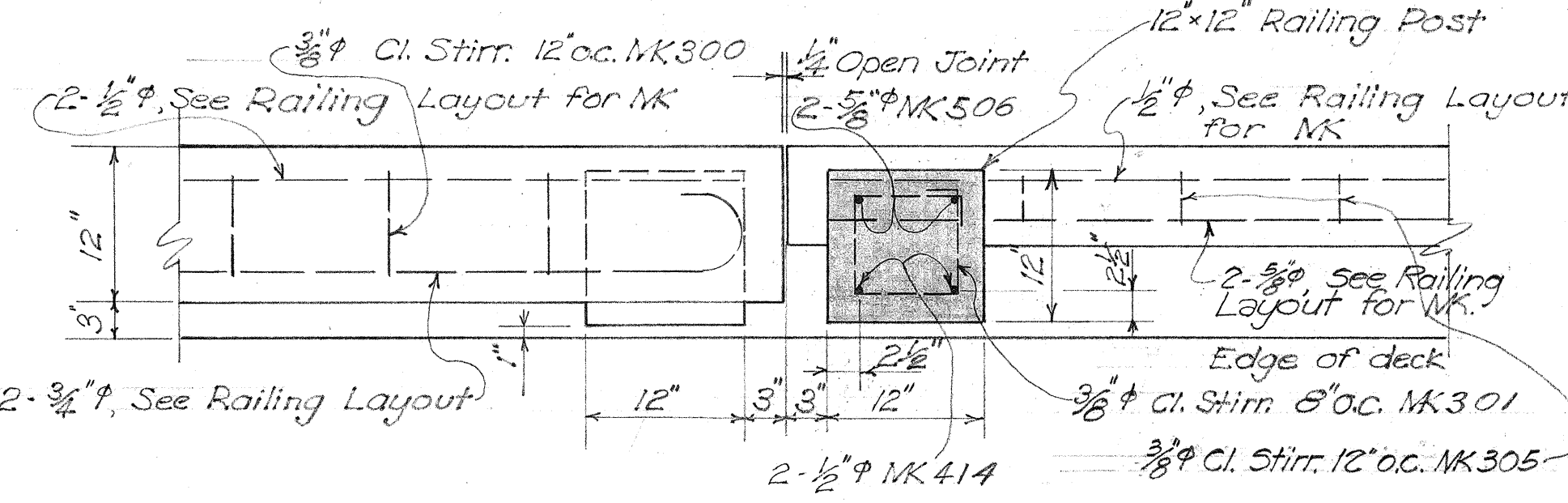
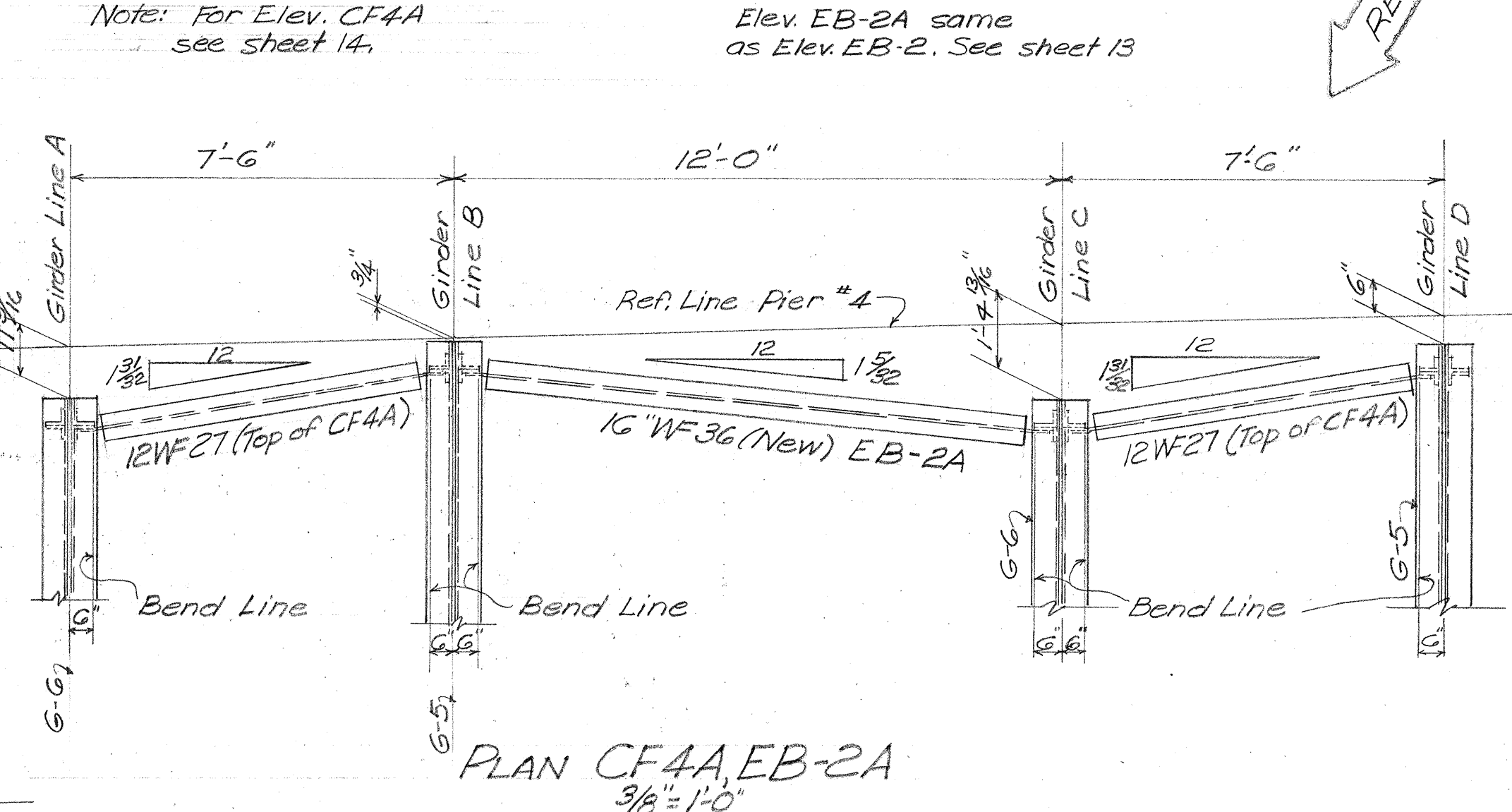
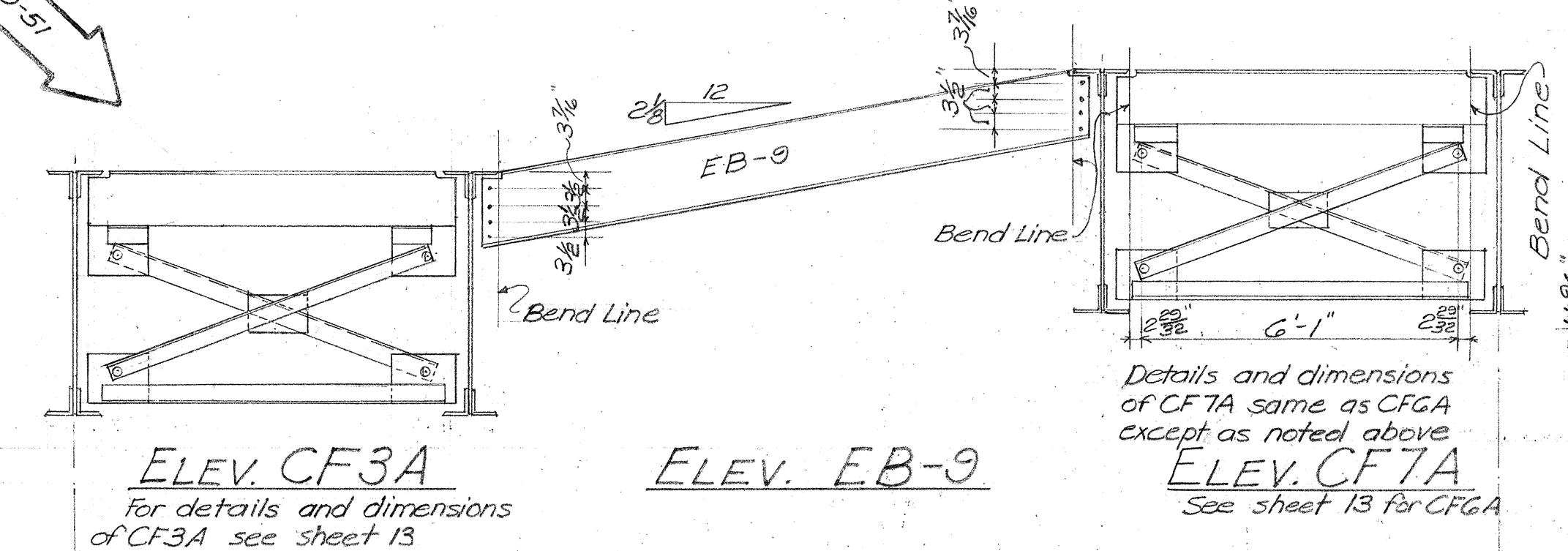
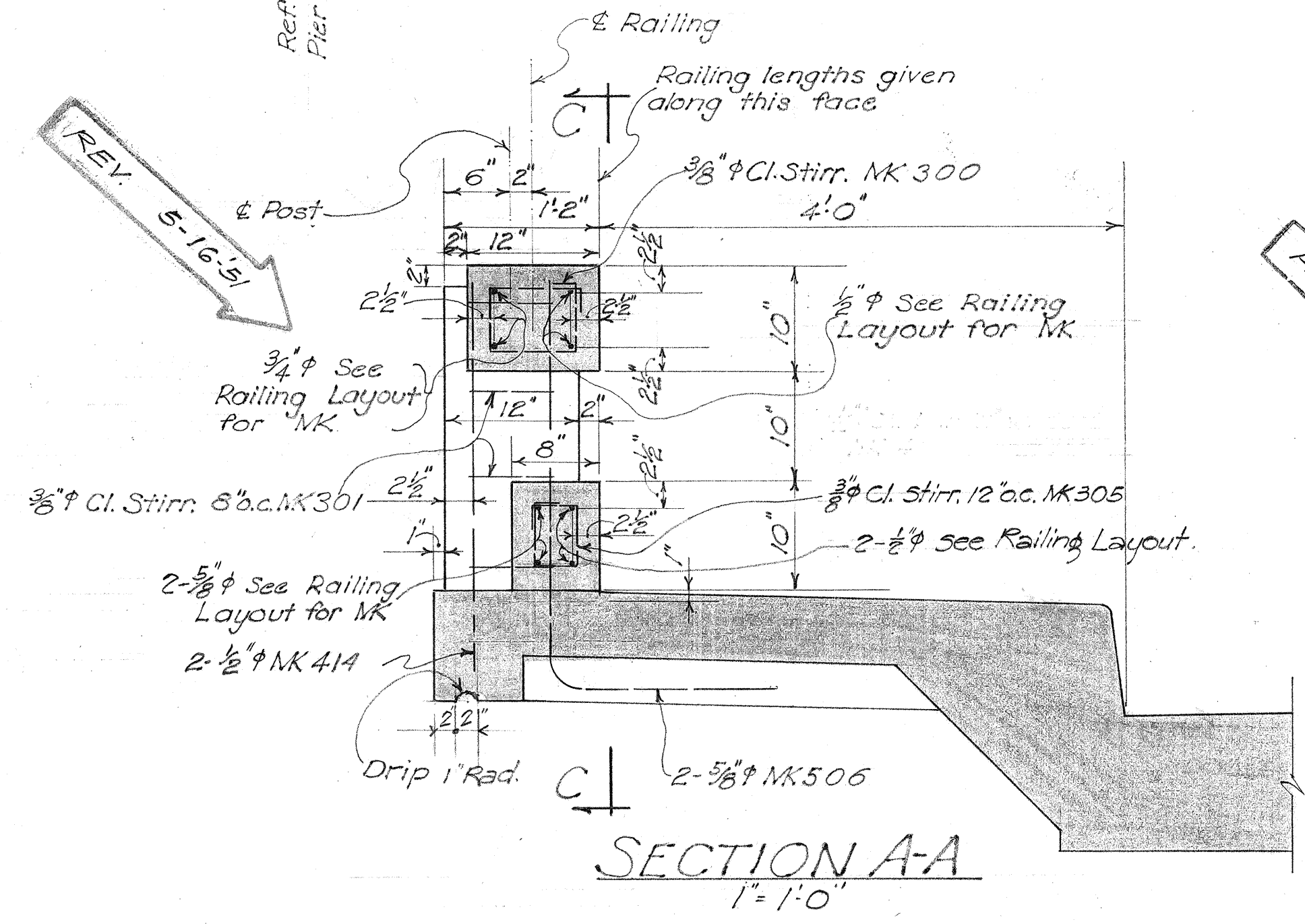


REV. 5/16/51: Railing Posts shortened 2" Bottom Rail revised.



RAILING LAYOUT

NOTE: Railing lengths given along inside face of railing



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
OPEA BRIDGE
Sta. 17+52.79 - Sta. 19+78.26
HAWAII BELT RD. SDR3(13)
June 1950
SHEET No. 11 OF 14 SHEETS

5468.51

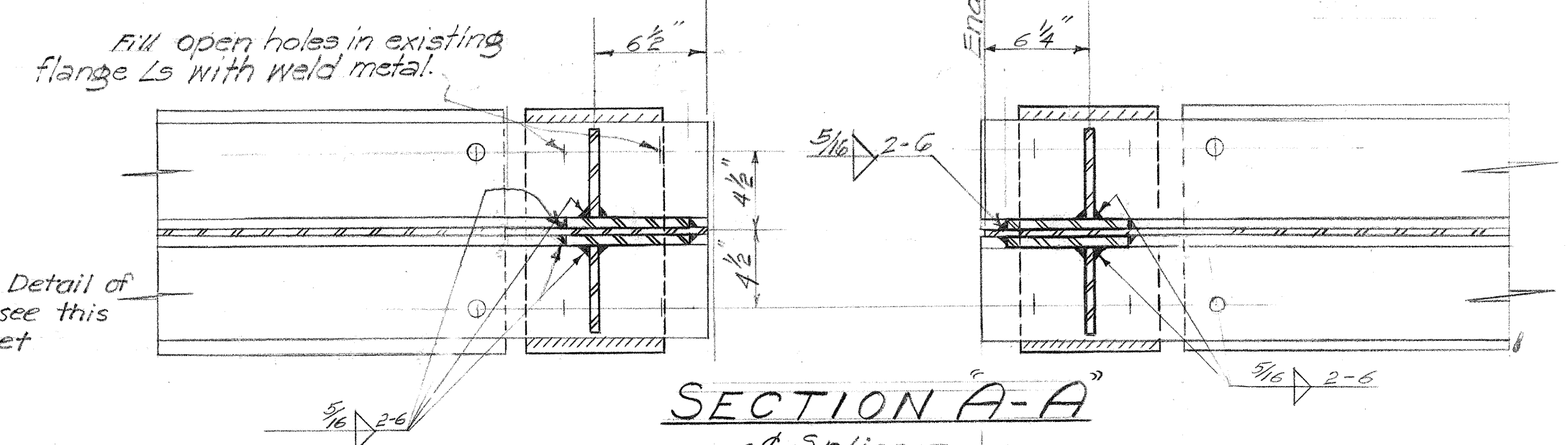
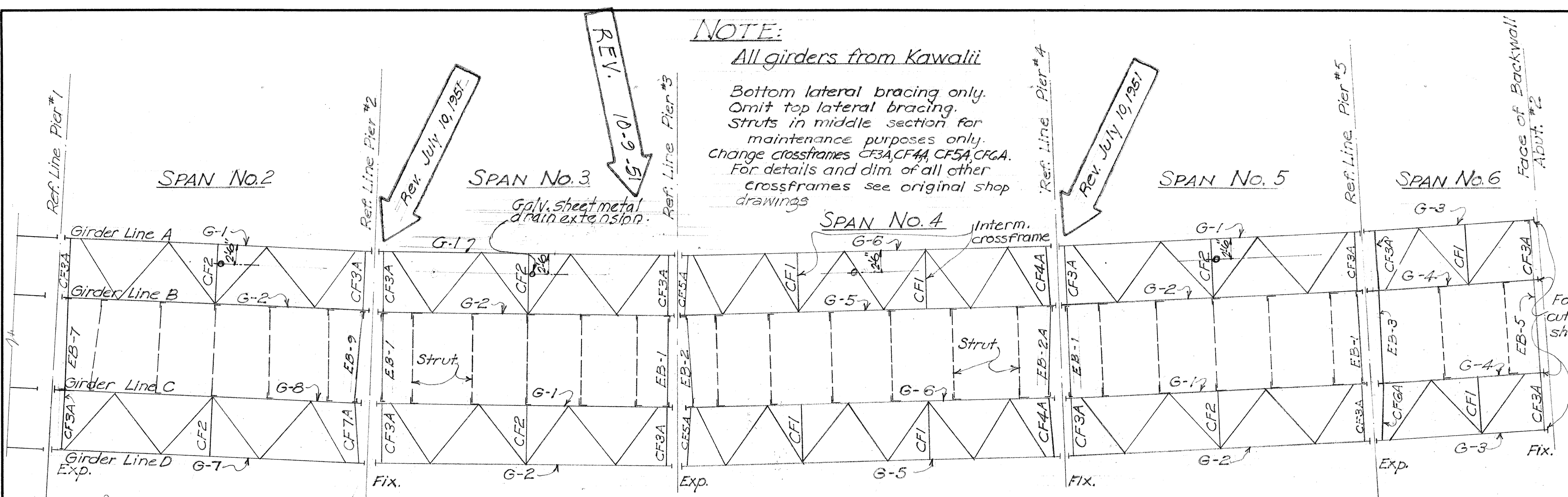
DATE	DESIGNED BY	DRAWN BY	CHECKED BY
	W. B. Bickels	R. C. Cuck	S. J. Young
	QUANTITIES CHECKED BY		
	SAVIMU		
ORIGINAL PLAN	NO. BOOK	NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	SDR3(13)	1950	52	904

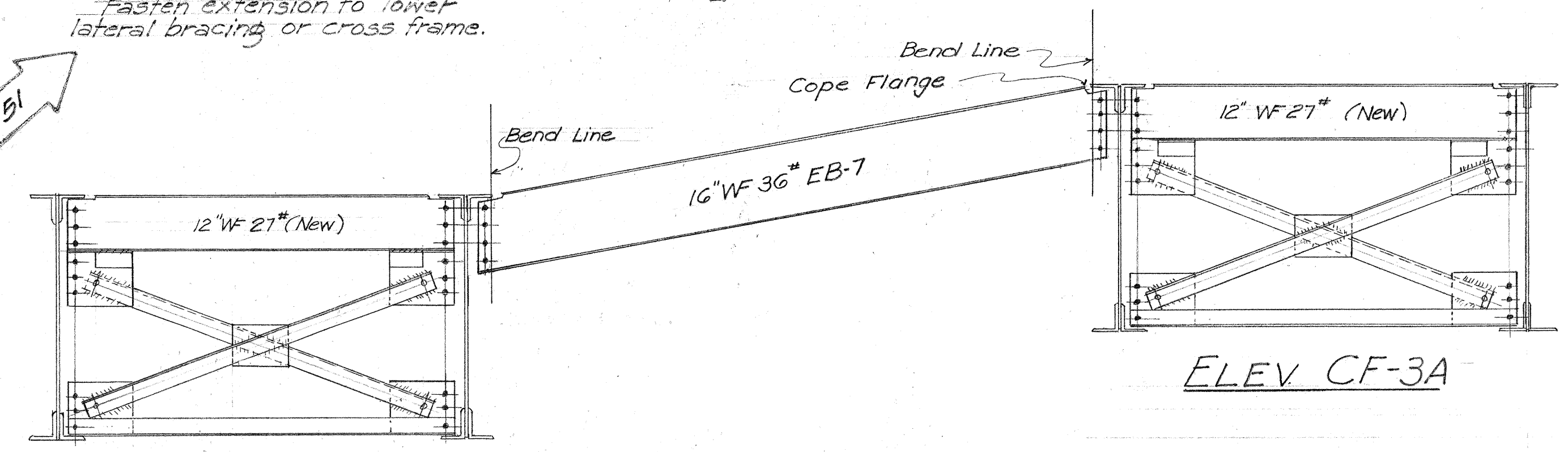
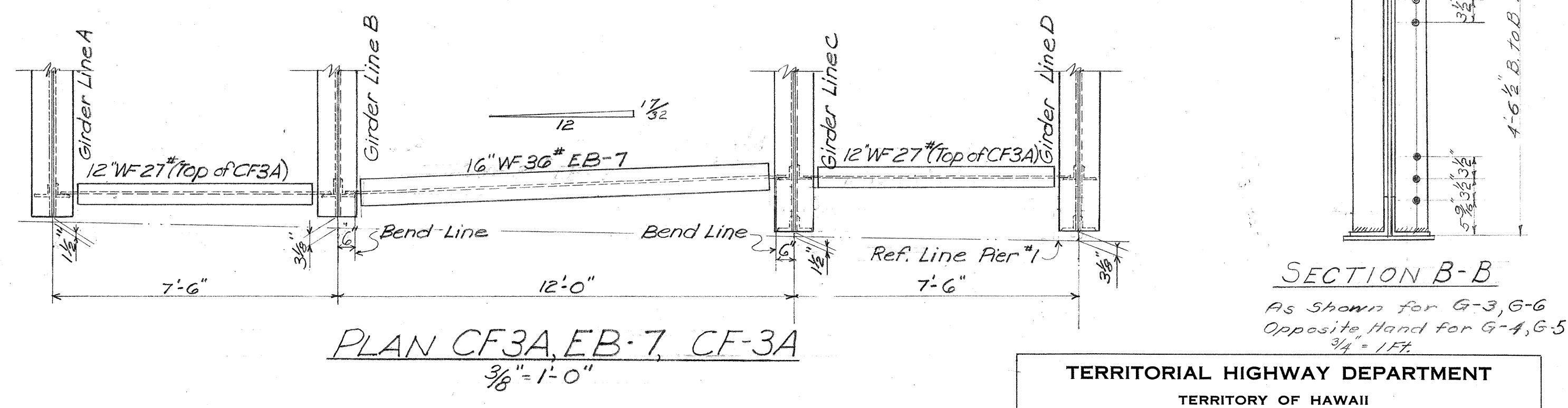
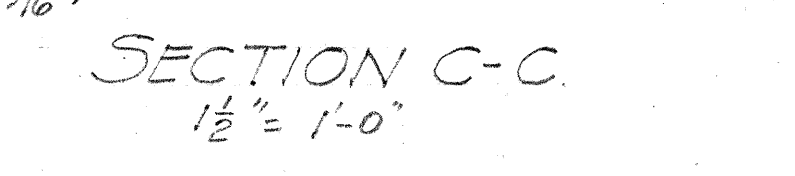
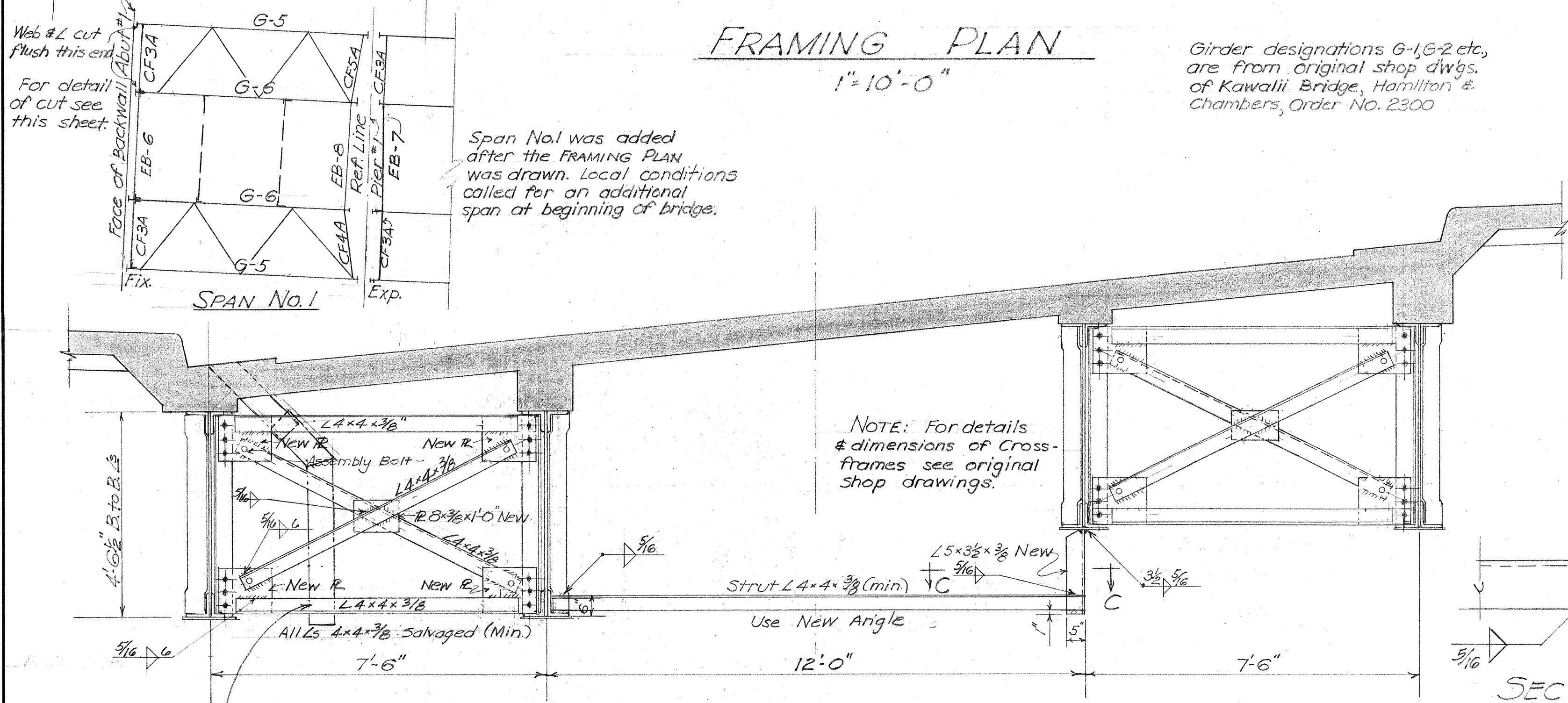
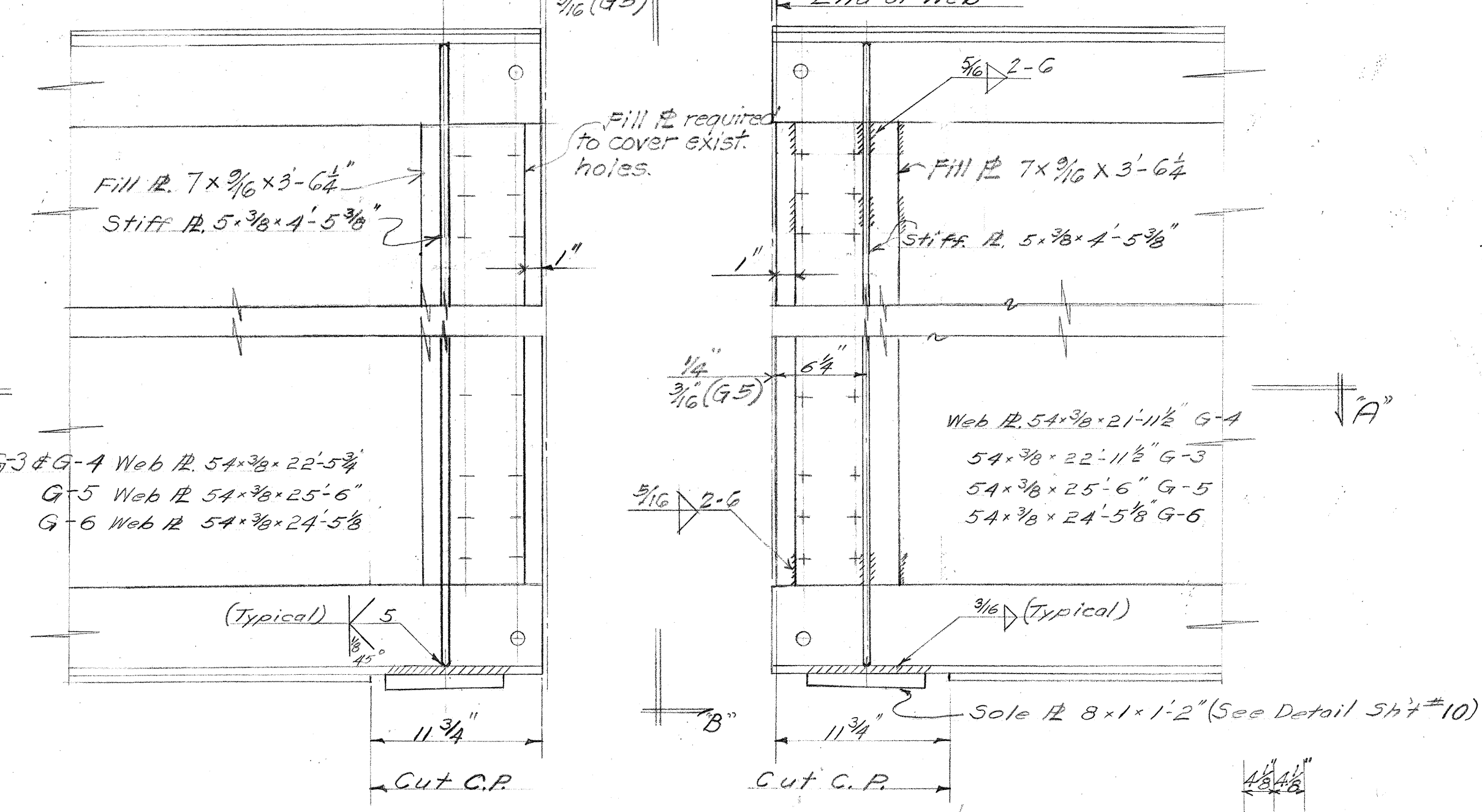
REV. 10-9-51 Extensions added to drains. Drains relocated to come in contact with lower lateral bracing or cross frames. Nov. 2, 1950

Rev. End Beams added and cross frames changed at Pier 2 and Pier 4. July 10, 51

NOTE:
All girders from Kawaiii
Bottom lateral bracing only.
Omit top lateral bracing.
Struts in middle section for maintenance purposes only.
Change crossframes CF3A, CF4A, CF5A, CF6A.
For details and dim. of all other crossframes see original shop drawings



22'-5 3/4" to End of Girders G-3, G-4
25'-6" to End of Girder G-5
24'-5 3/8" to End of Girder G-6
End of Web - Cut Line



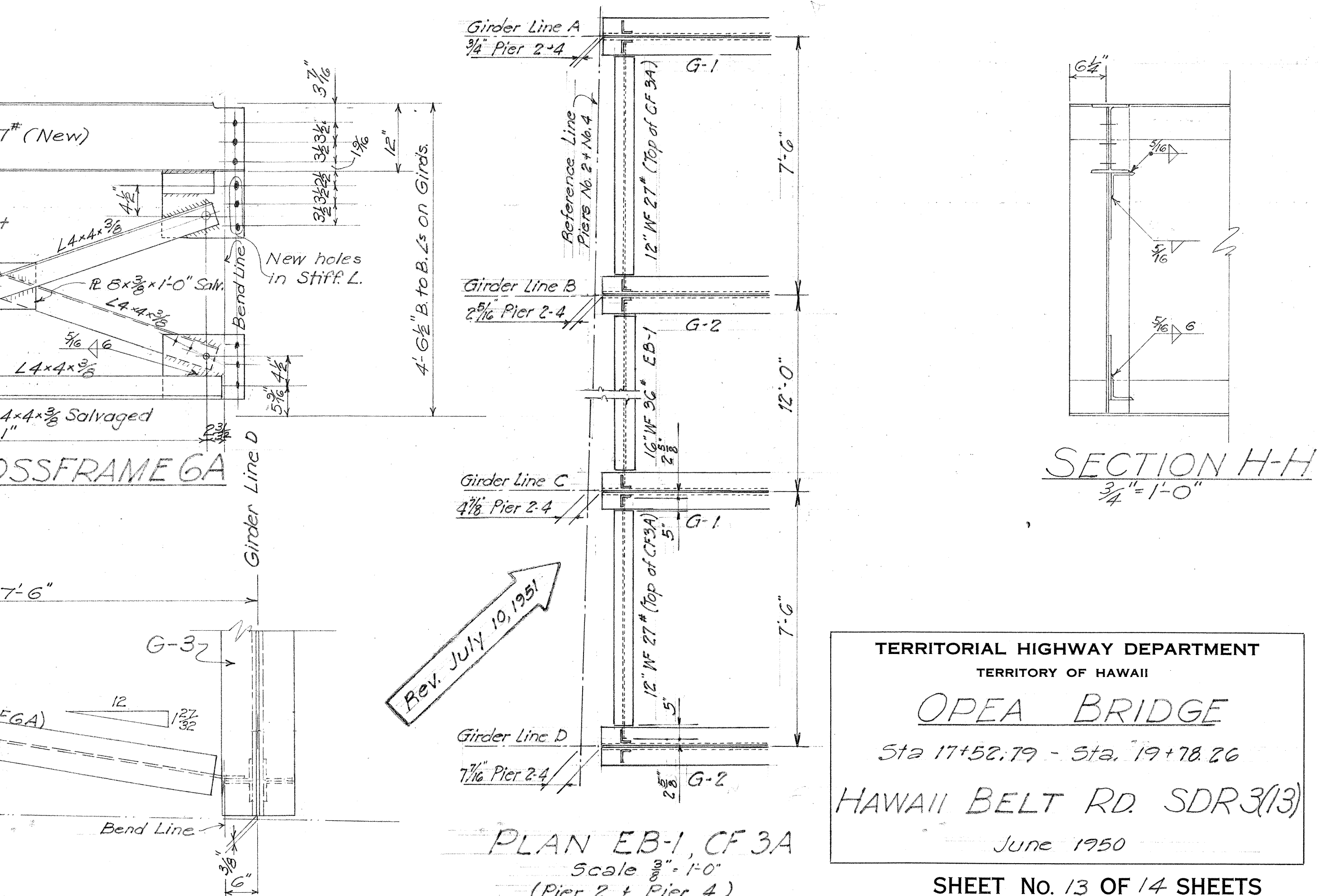
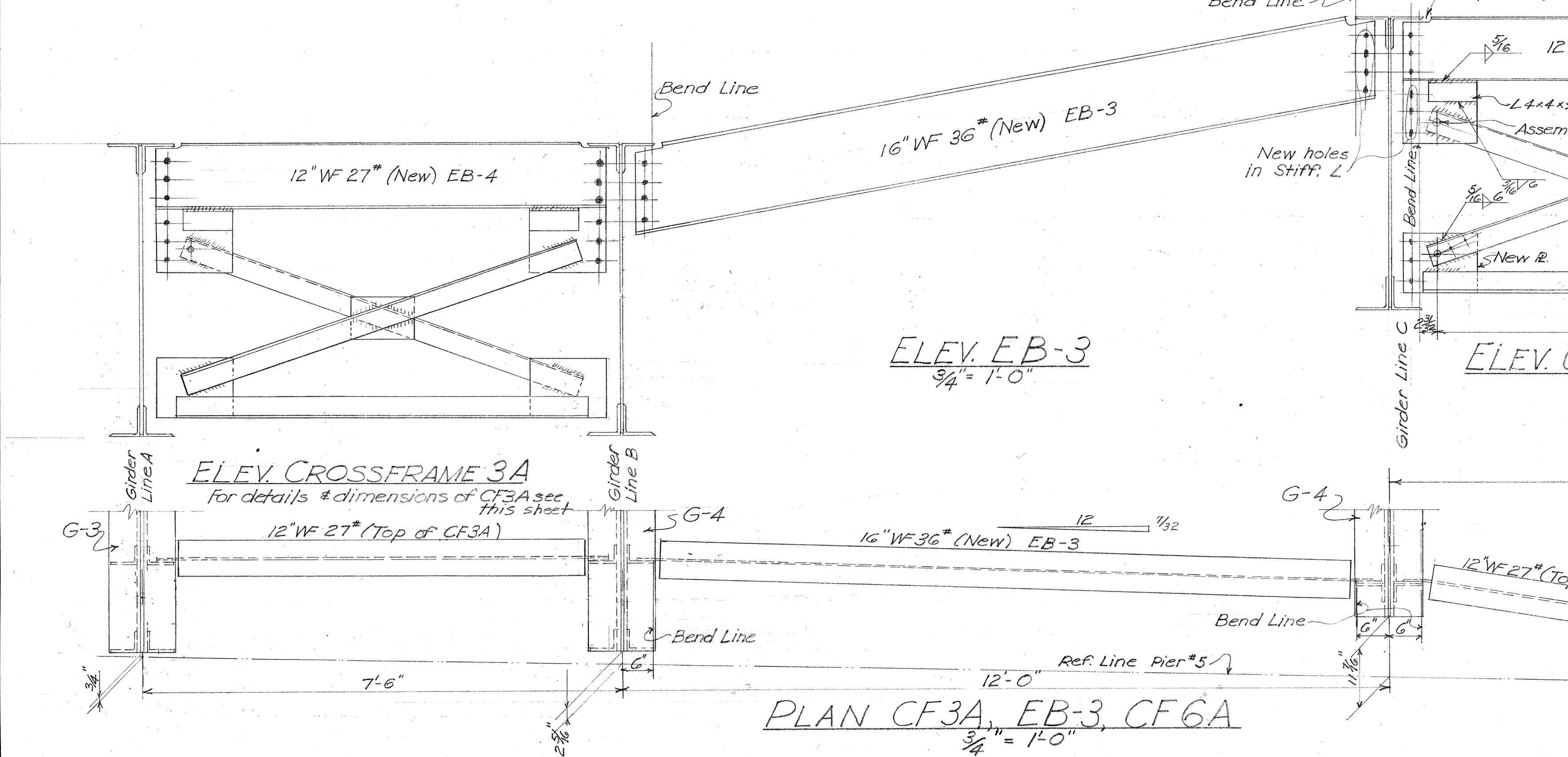
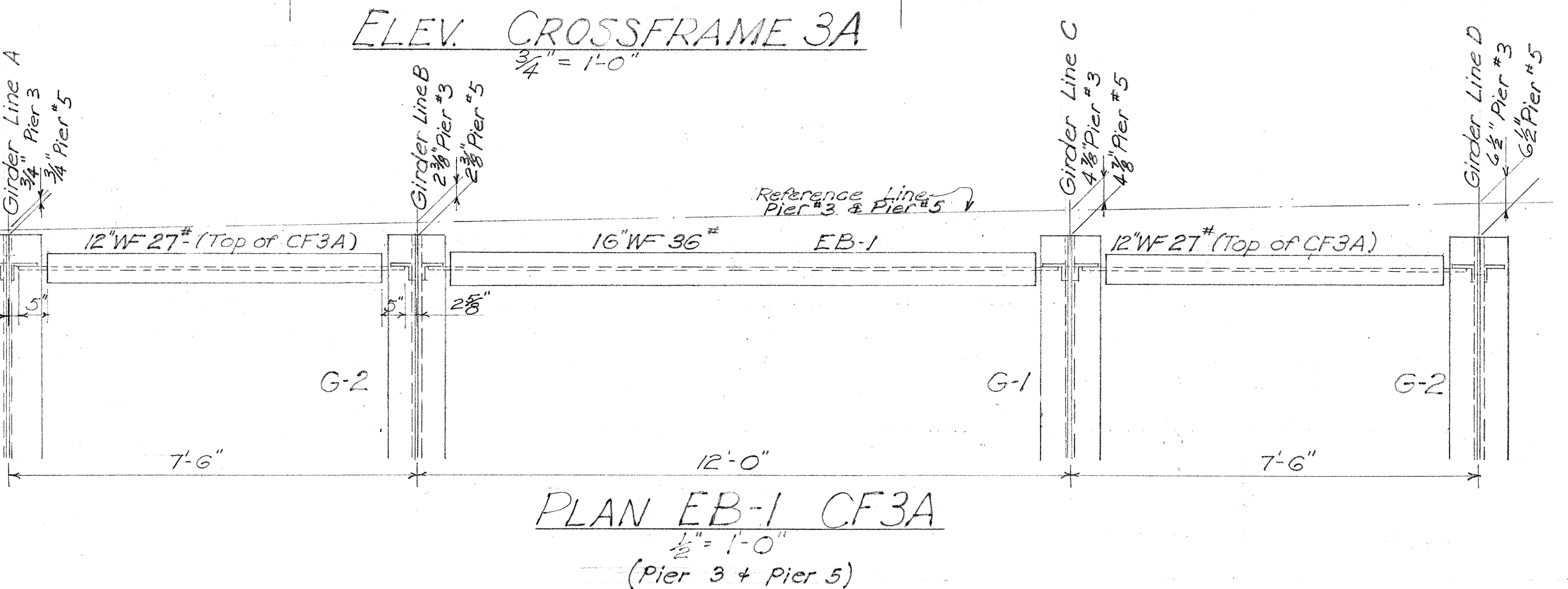
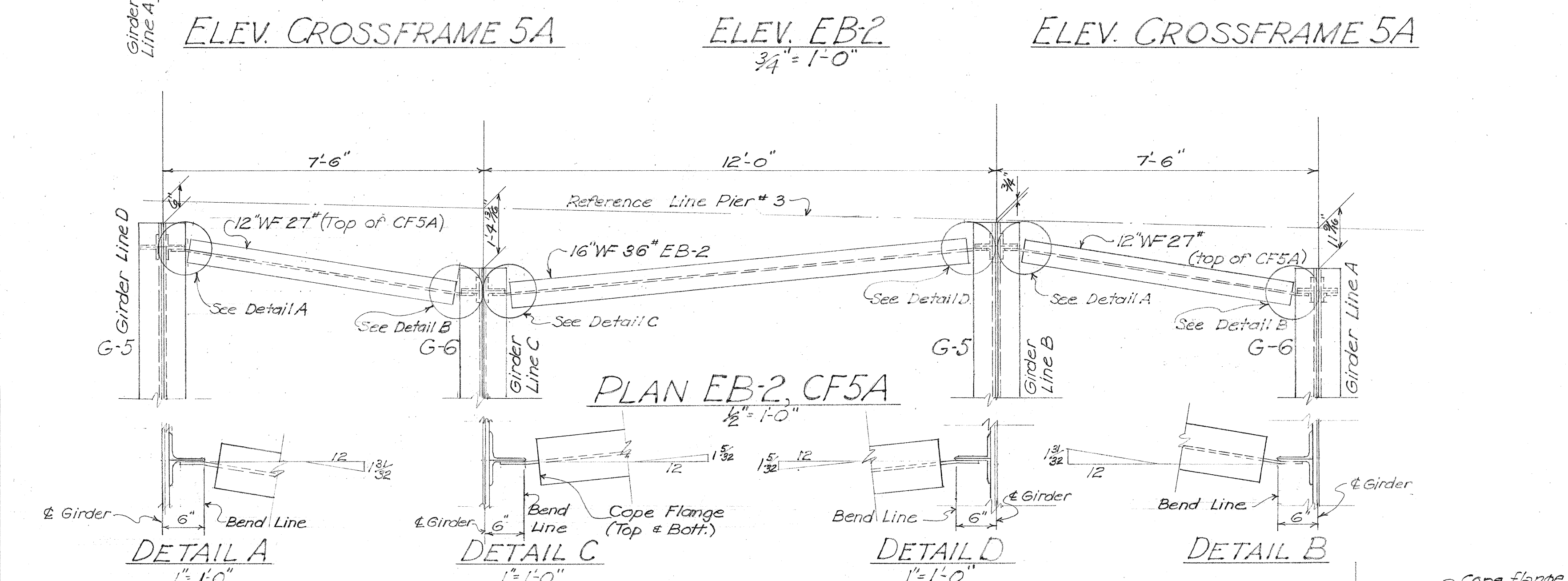
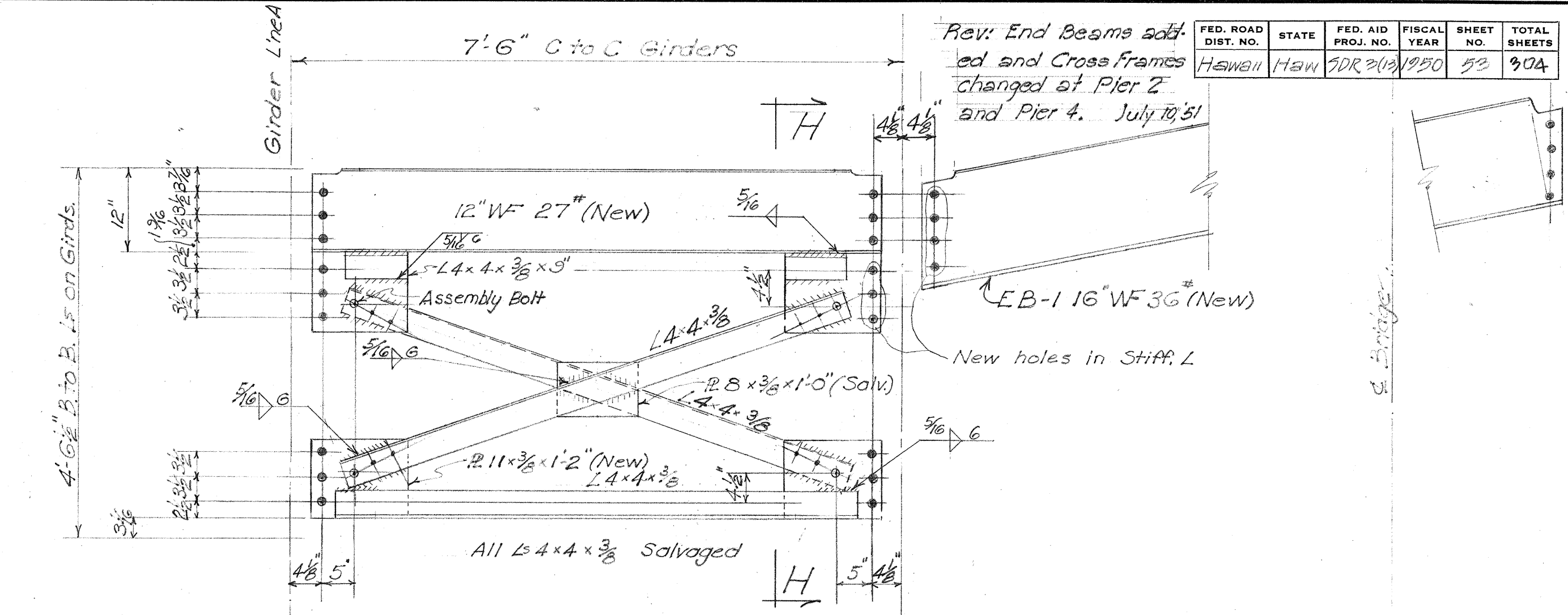
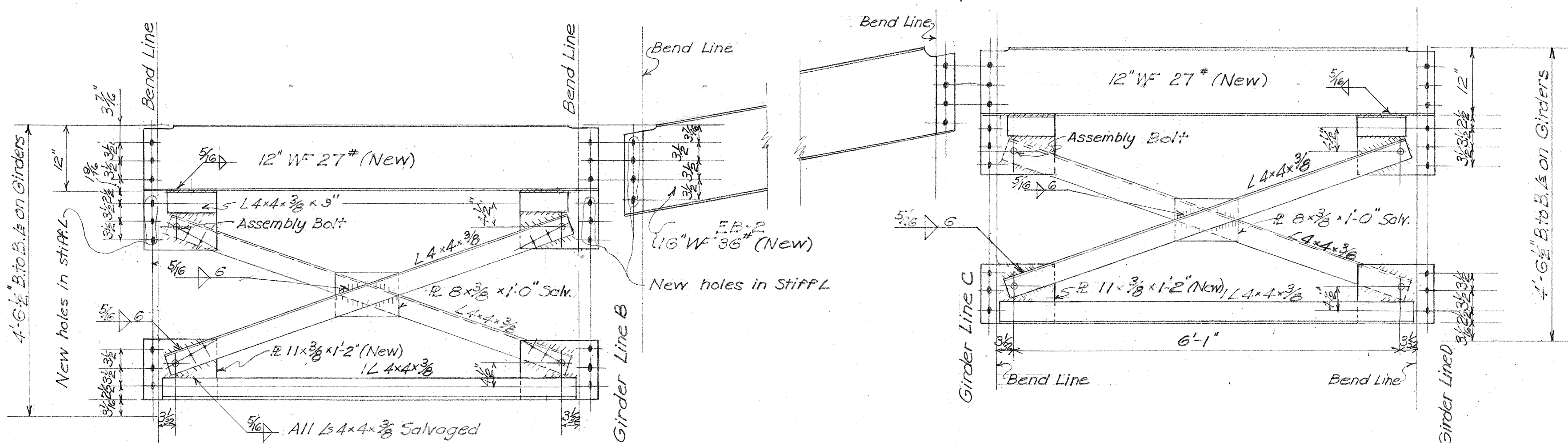
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
OPEA BRIDGE
Sta. 17+52.79 - Sta. 19+78.26
HAWAII BELT ROAD SDR3(13)

SHEET No. 12 OF 14 SHEETS

5468.52

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES CHECKED BY	
CHECKED BY	

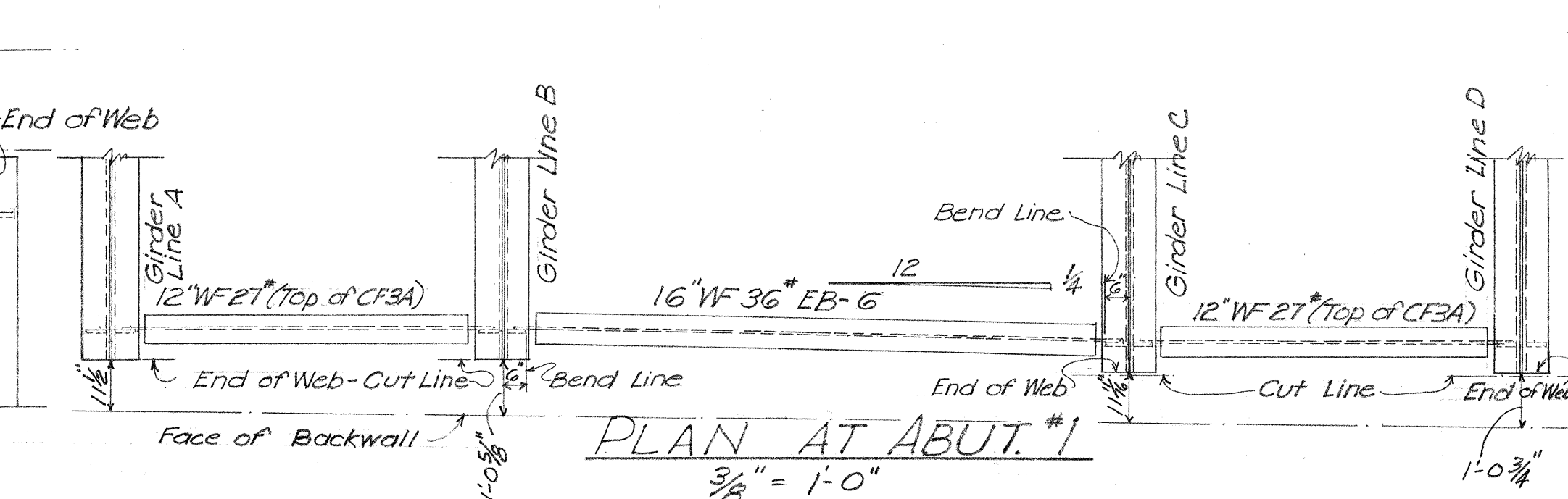
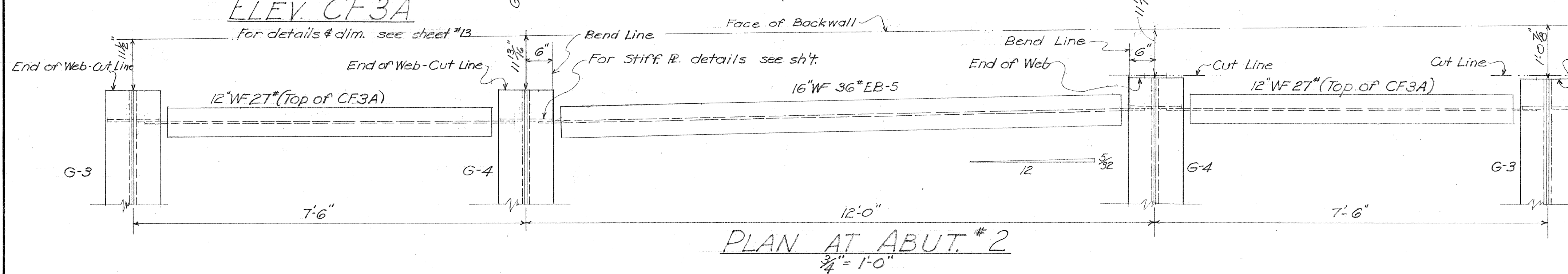
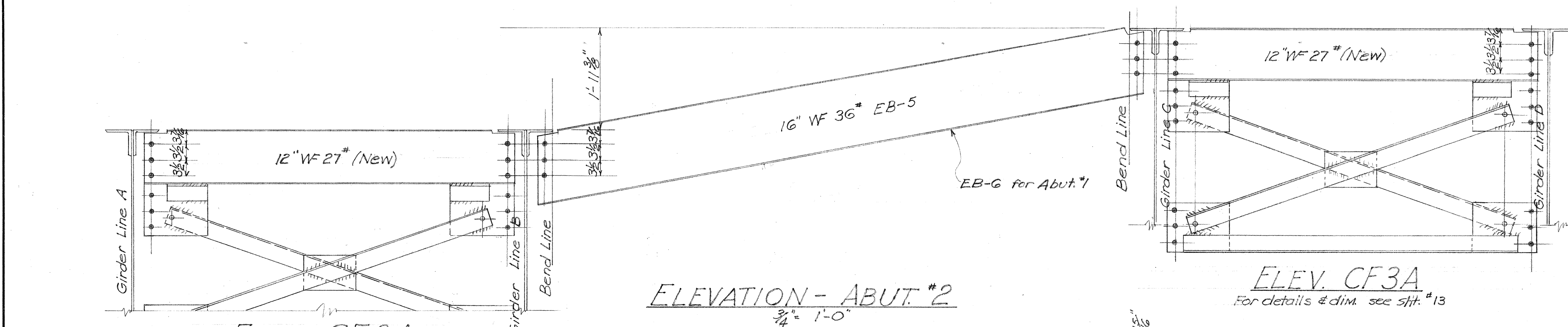
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HA	SDR 3(13)	1950	13	14



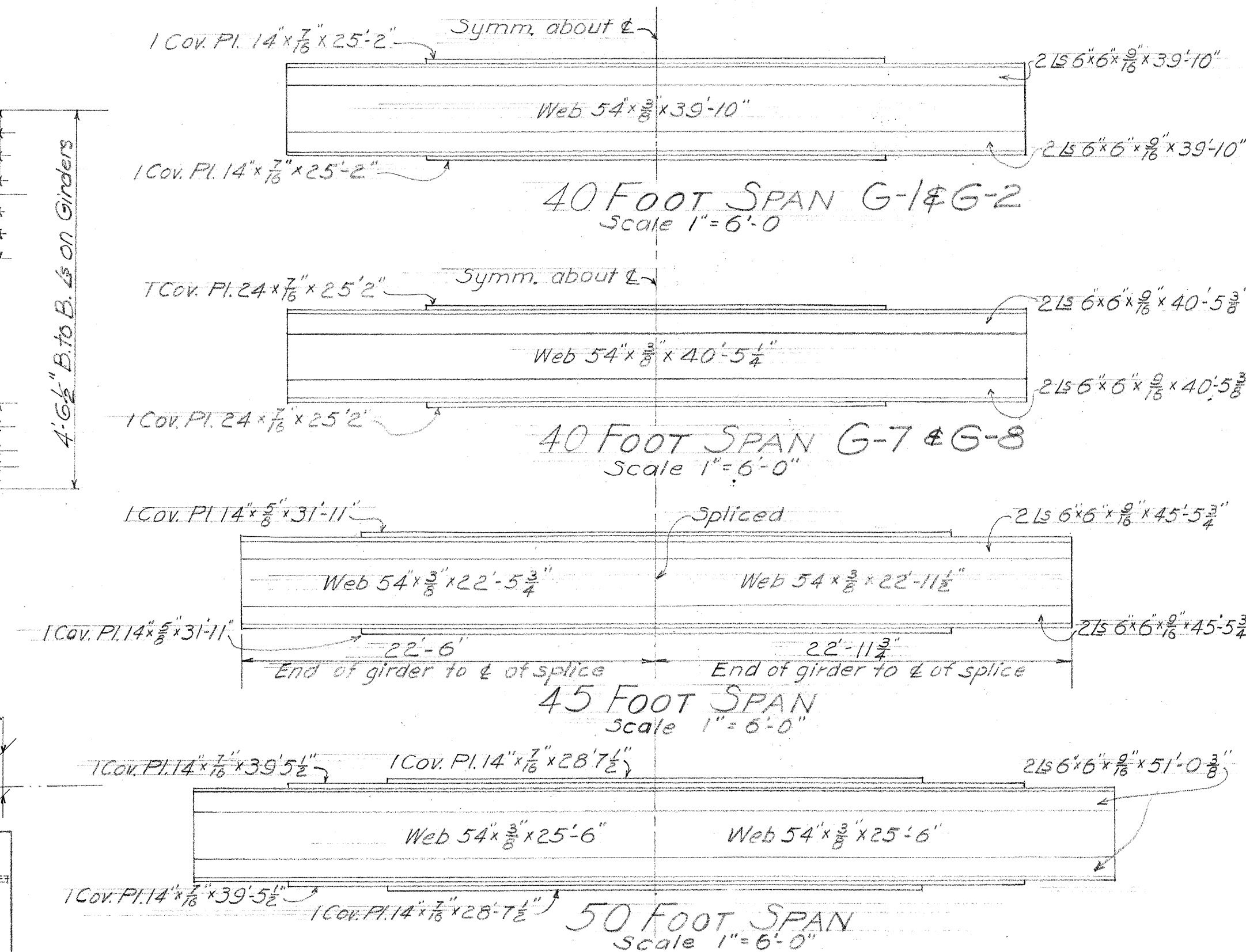
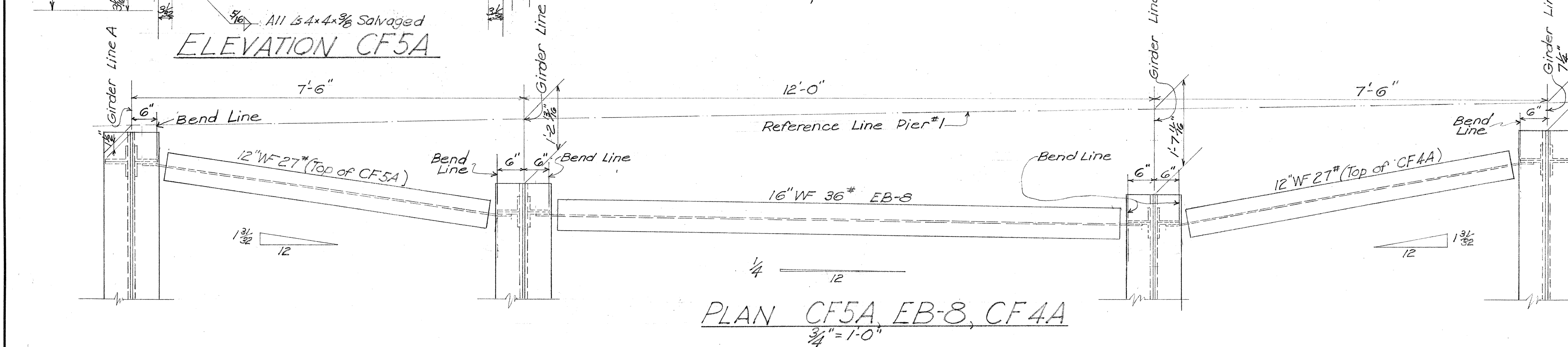
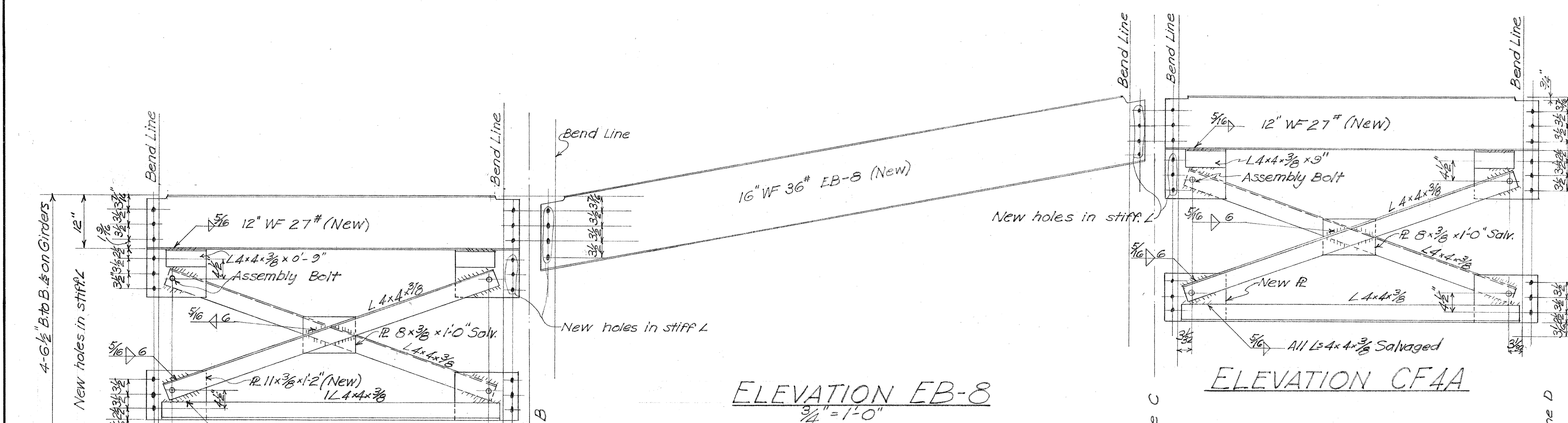
SURVEY PLOTTED BY: *W. Bartels*
 DESIGNED BY: *W. Bartels*
 DRAWN BY: *W. Bartels*
 QUANTITIES BY: *W. Bartels*
 CHECKED BY: *W. Bartels*
 DATE: *July 10, 1951*

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
OPEA BRIDGE
 Sta 17+52.79 - Sta. 19+78.26
 HAWAII BELT RD. SDR3(13)
 June 1950
 SHEET No. 13 OF 14 SHEETS

5468.53



NOTE:
Details and dim. same as Abut. #2
unless otherwise noted.
Abut. #1 Elevation similar to Abut. #2 Elev.



GIRDER DESCRIPTION

NOTE:
All girders to be salvaged
from Kawaiili Bridge

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

OPEA BRIDGE
Sta. 17+52.79 - Sta. 19+78.26
HAWAII BELT RD. SDR3(13)
June 1950

SHEET No. 14 OF 14 SHEETS

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QUANTITIES CHECKED BY
NO.