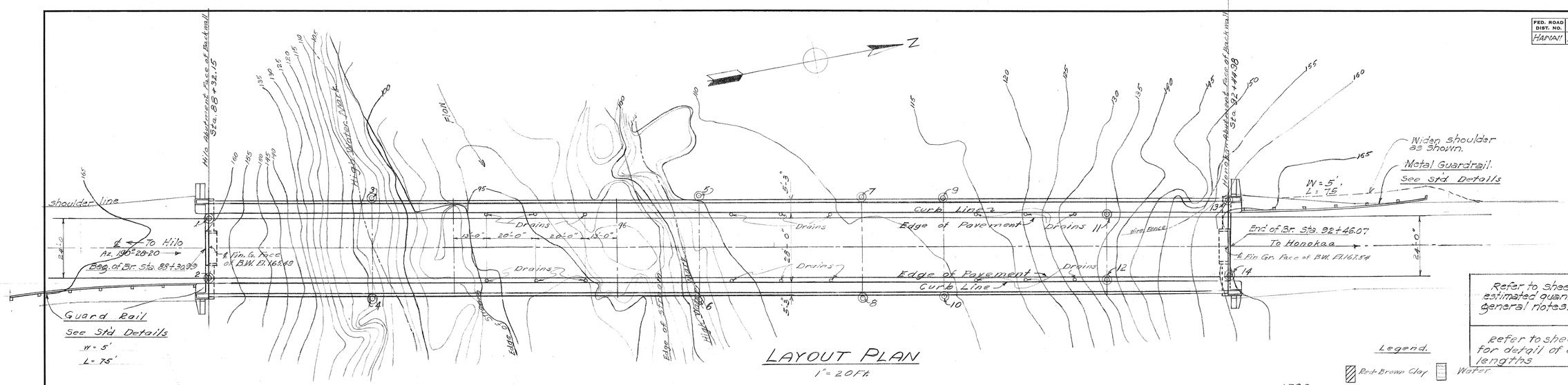
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	SDR 3(9)	1949	16	43

1ST. UNIT



LAYOUT PLAN

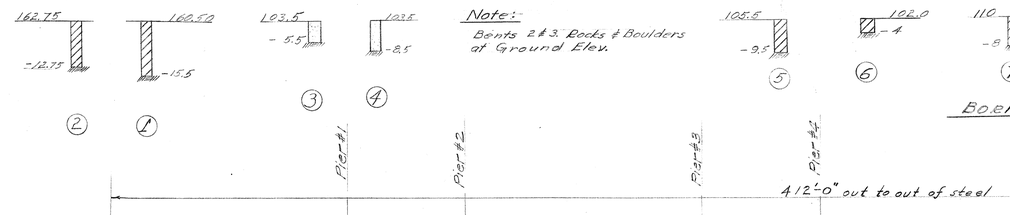
1" = 20 Ft.

Refer to Sheet 5415.19 for estimated quantities and general notes.

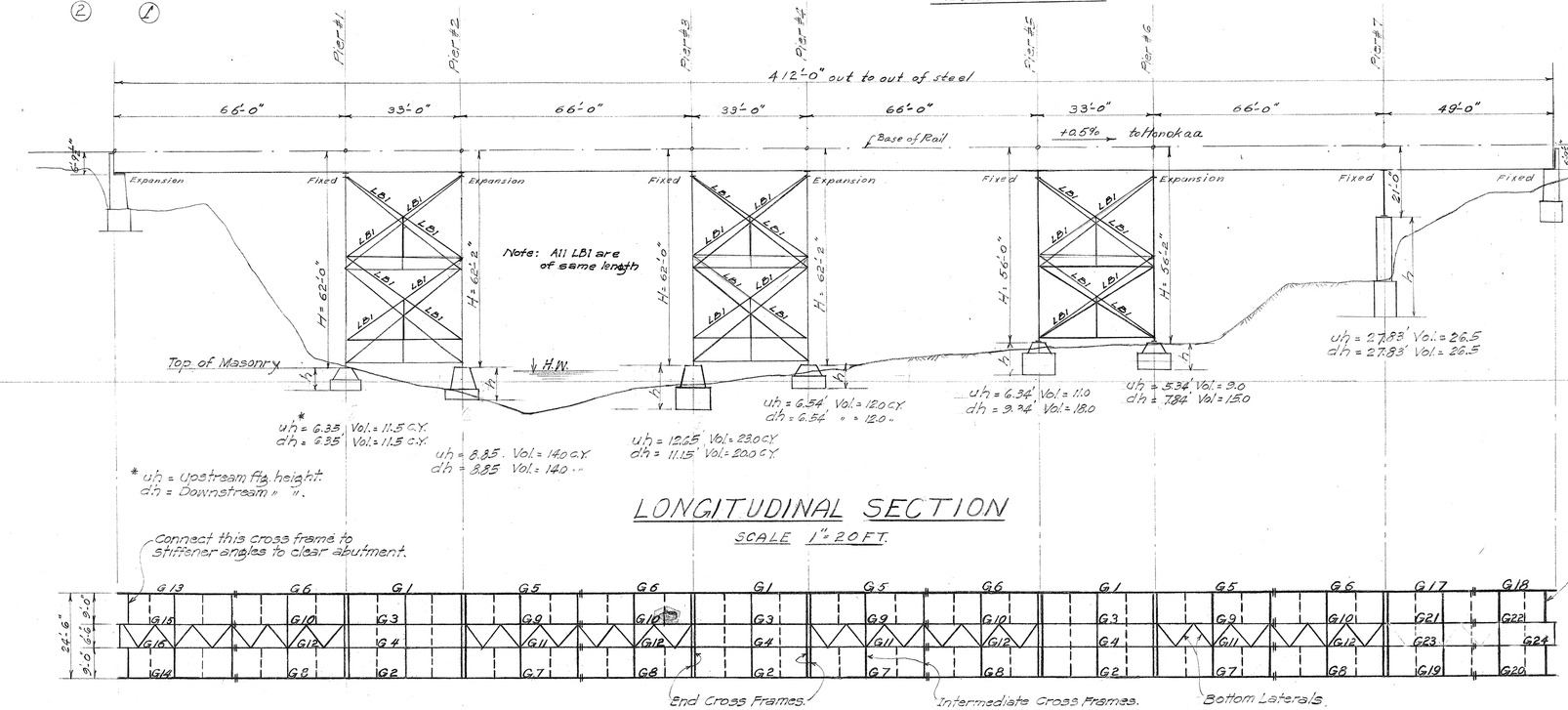
Refer to sheet 5415.8 for detail of column lengths

Legend.

- Red-Brown Clay
- Water
- Dark Brown Clay
- Boulders
- Loose Rock



BORING DATA



* uh = Upstream ftg. height
dh = Downstream " ".

uh = 6.35' Vol. = 11.5 C.Y.
dh = 6.35' Vol. = 11.5 C.Y.

uh = 8.85' Vol. = 140 C.Y.
dh = 8.85' Vol. = 140 " "

uh = 12.65' Vol. = 230 C.Y.
dh = 11.15' Vol. = 200 C.Y.

uh = 6.54' Vol. = 12.0 C.Y.
dh = 6.54' " = 12.0 "

uh = 6.34' Vol. = 11.0
dh = 9.94' Vol. = 18.0

uh = 5.34' Vol. = 9.0
dh = 7.84' Vol. = 15.0

uh = 27.83' Vol. = 26.5
dh = 27.83' Vol. = 26.5

LONGITUDINAL SECTION

SCALE 1" = 20 FT.

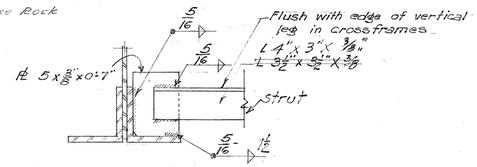
——: Cross Frame.
– – –: Strut

Note: Struts are for maintenance purposes only.
All Struts — L 3½ x 3½ x 5/16
All angles in End Cross Frames — 3½ x 3½ x 3/8
" " " Intermediate C.F. — 3½ x 3½ x 5/16

FRAMING PLAN

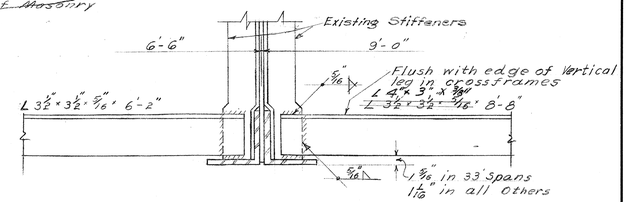
SCALE 1" = 20 FT.

All outside girders available at Honolii Bridge.
All sole plates and column caps in present R.R. Bridge must be duplicated in transferred portion.



STRUT CONNECTION

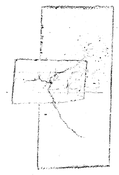
TYPE "B"



STRUT CONNECTION

TYPE "A"

Scale: 1½" = 1'-0"



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

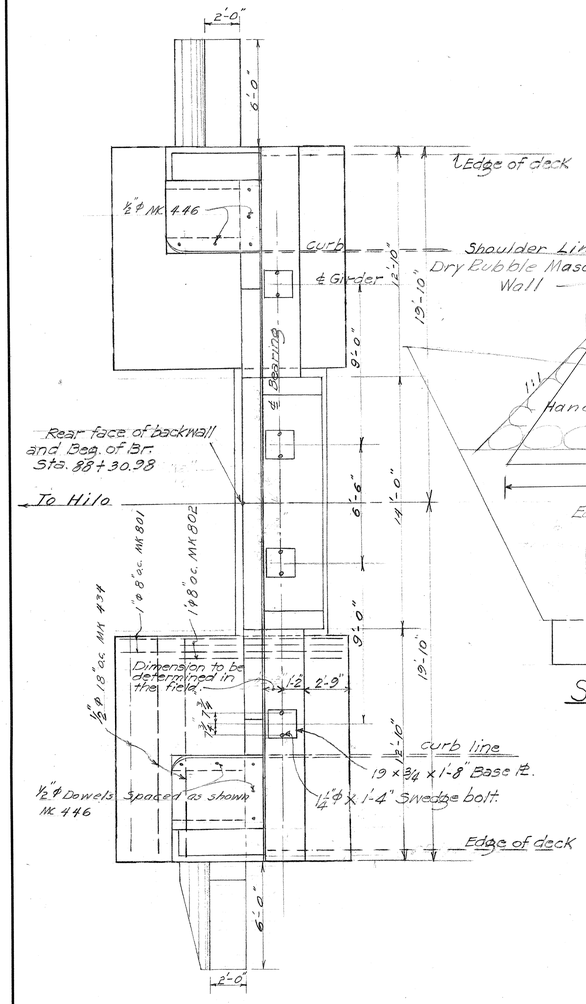
KAPUE BRIDGE
Sta 88+30.99 to 92+46.07
Hawaii Belt Road
SDR-3(9)
1ST. UNIT.
March 1949

SHEET No. 9 OF 13 SHEETS

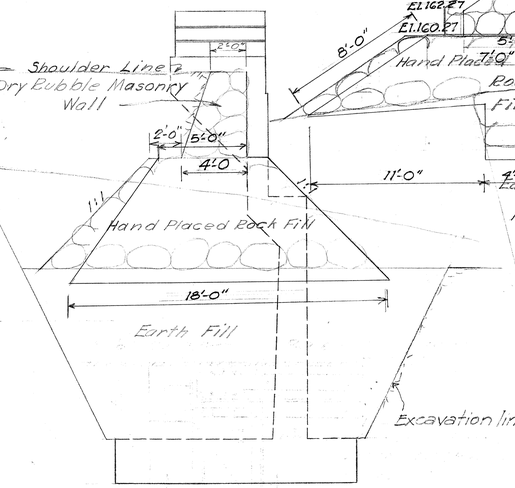
ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	3/49
	DRAWN BY	4/49
	TRACED BY	
NOTE BOOK	QUANTITIES BY	
	QUANTITIES CHECKED BY	4/49
No.	CHECKED BY	4/49

5415.16

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	SDR-3(9) 1ST UNIT	1949	17	43



PLAN - ABUTMENT No. 1
HILO END
¼" = 1'-0"



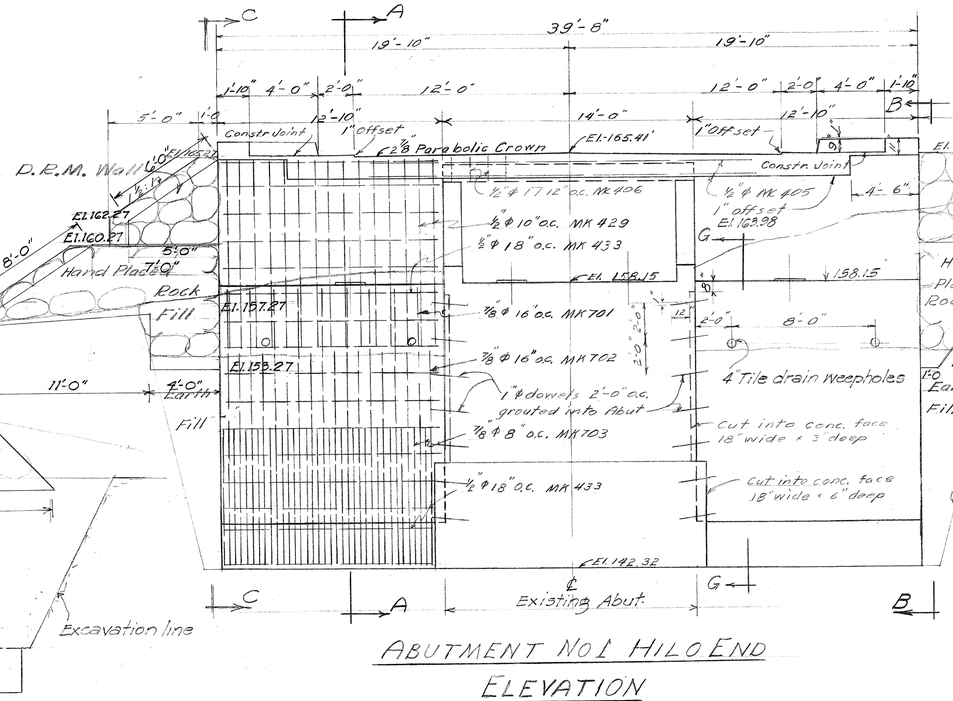
SECTION C-C
¼" = 1Ft.

SECTION AT ℄
⅜" = 1Ft.

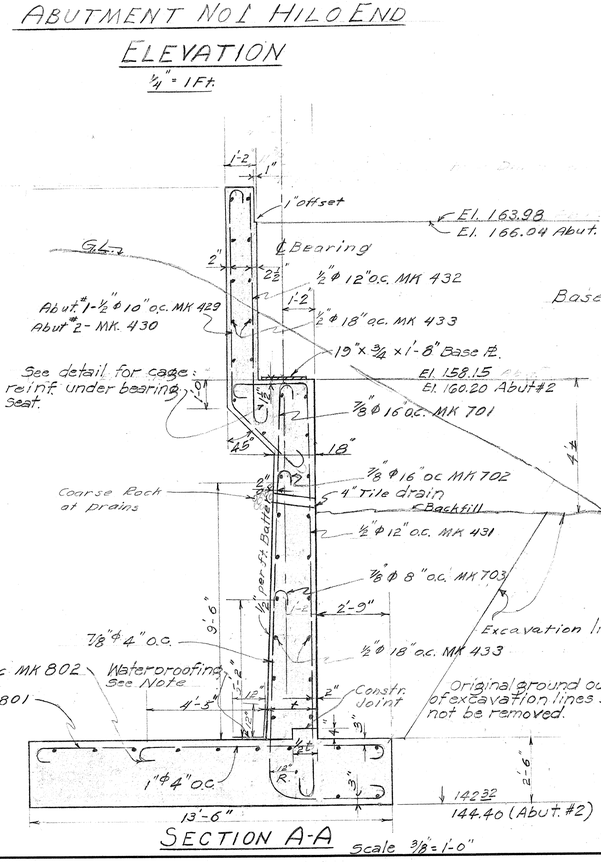
SECTION G-G
¼" = 1Ft.

METHOD OF APPLYING CONSTR. JOINT WATERPROOFING

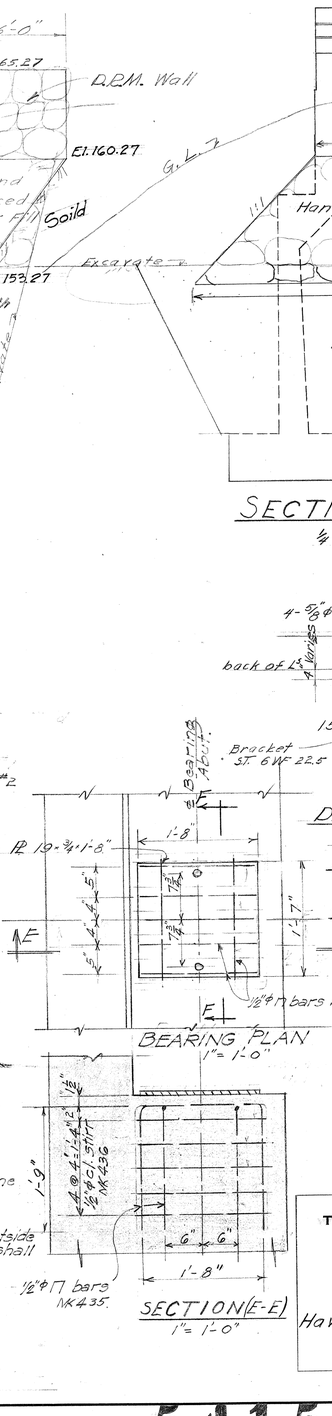
(1.) Mop surface either side of joint as required with asphalt 50-100 penetration (A.S.T.M. Desig. D. 5-25) applied at 200°F.
(2.) Apply one layer of 55 lb composition roofing to hot asphalt.
(3.) Mop surface of composition roofing and 3" beyond all around with thick coat of asphalt as specified under (1.)



ABUTMENT No. 1 HILO END
ELEVATION
¼" = 1Ft.

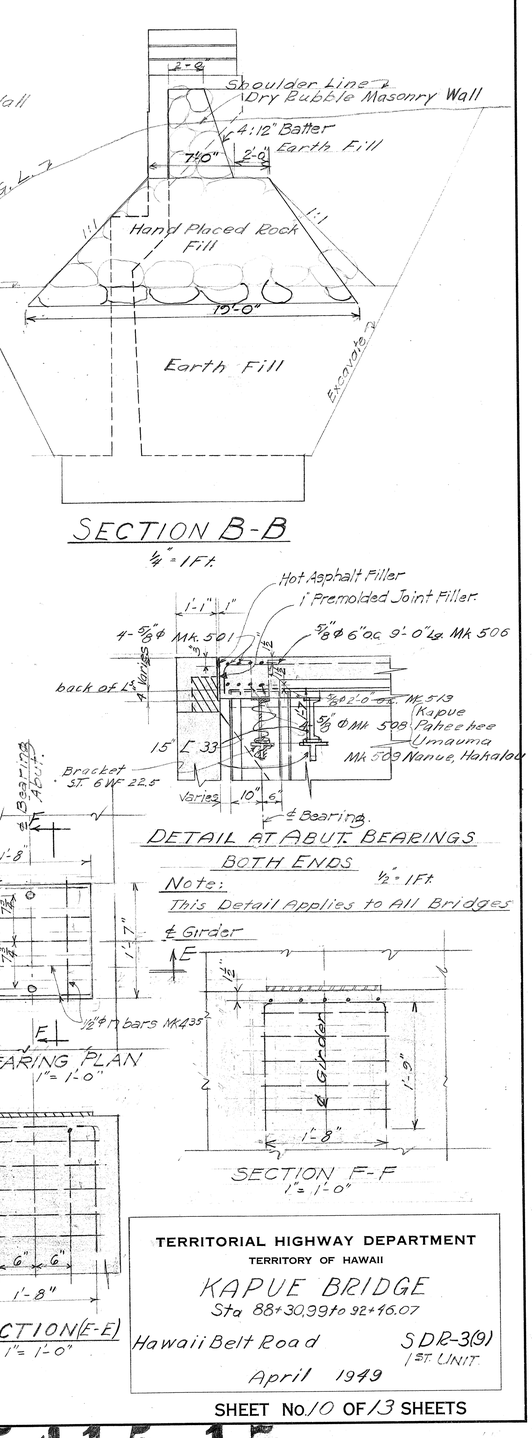


SECTION A-A Scale ⅜"=1'-0"



BEARING PLAN
1" = 1'-0"

SECTION (E-E)
1" = 1'-0"



DETAIL AT ABUT. BEARINGS
BOTH ENDS
½" = 1Ft.

Note:
This Detail Applies to All Bridges

SECTION F-F
1" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KAPUE BRIDGE

Sta 88+30.99 to 92+16.07

Hawaii Belt Road — SDR-3(9) 1ST UNIT.

April 1949

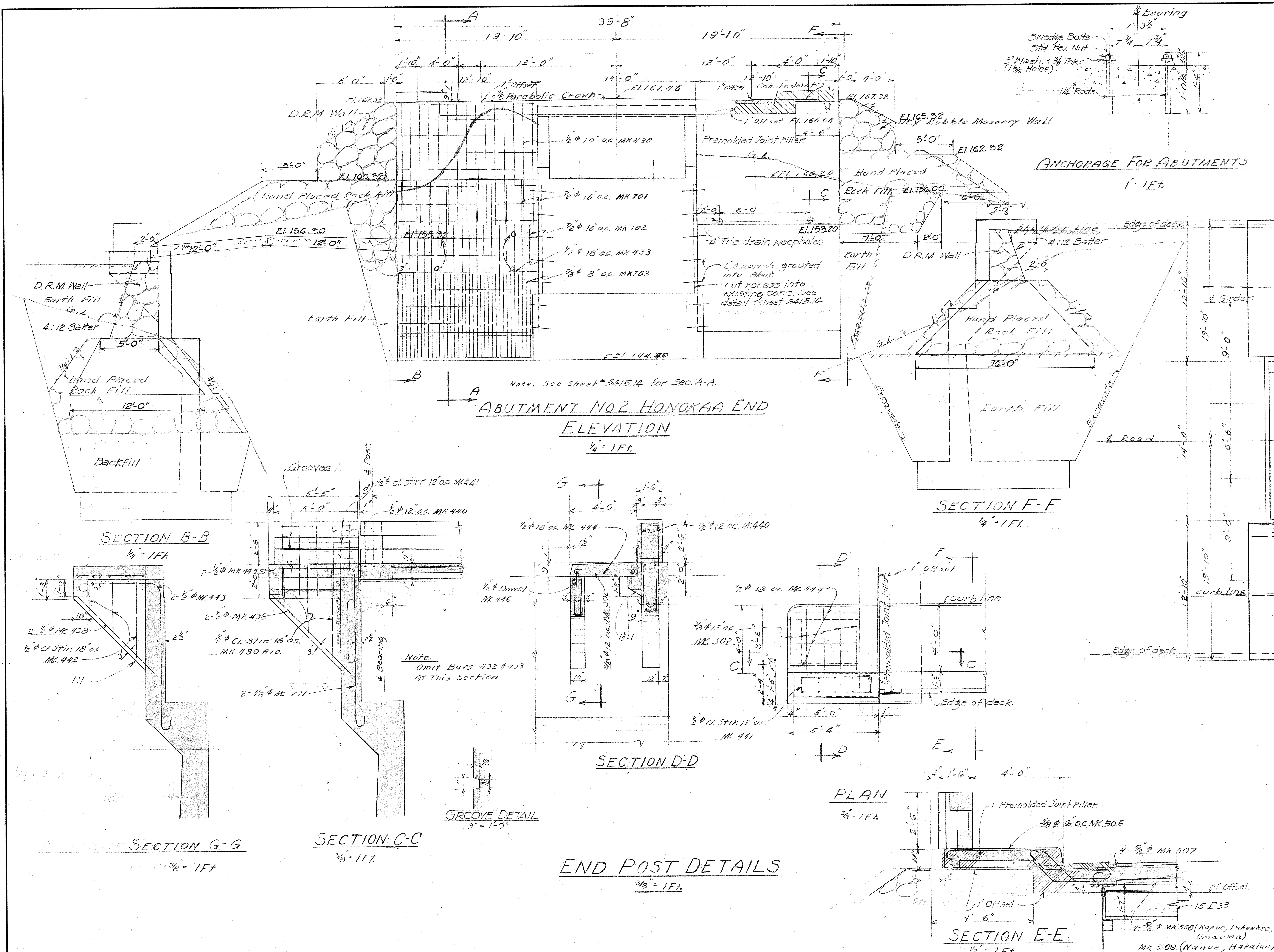
SHEET No. 10 OF 13 SHEETS

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

5415.17

12

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	Haw.	SDR-3(9) 1ST UNIT	1949	18	49



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KAPUE BRIDGE
Sta 88+30.99 to 92+46.07

Hawaii Belt Road — SDR-3(9) 1ST UNIT

April 1949

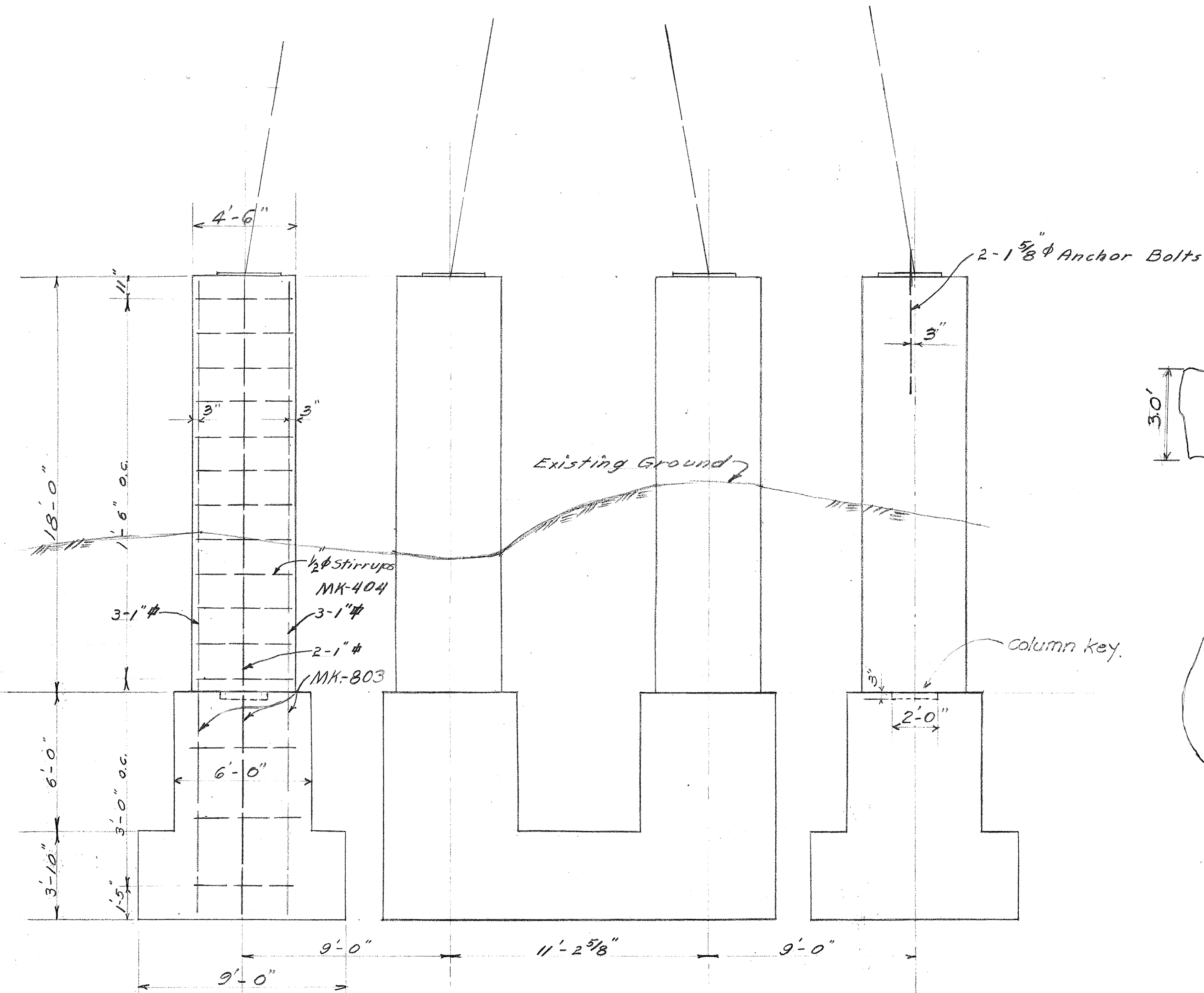
SHEET No. 11 OF 13 SHEETS

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

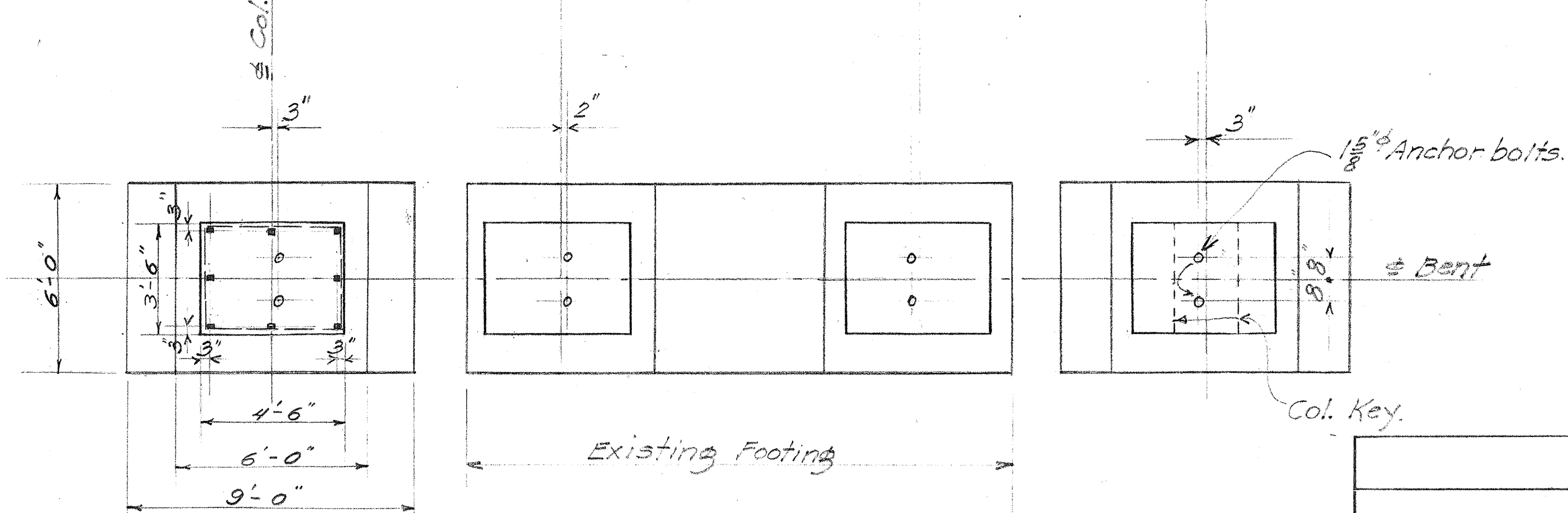
5415.18

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	SDR 3(9)	1949	19	49

1ST. UNIT



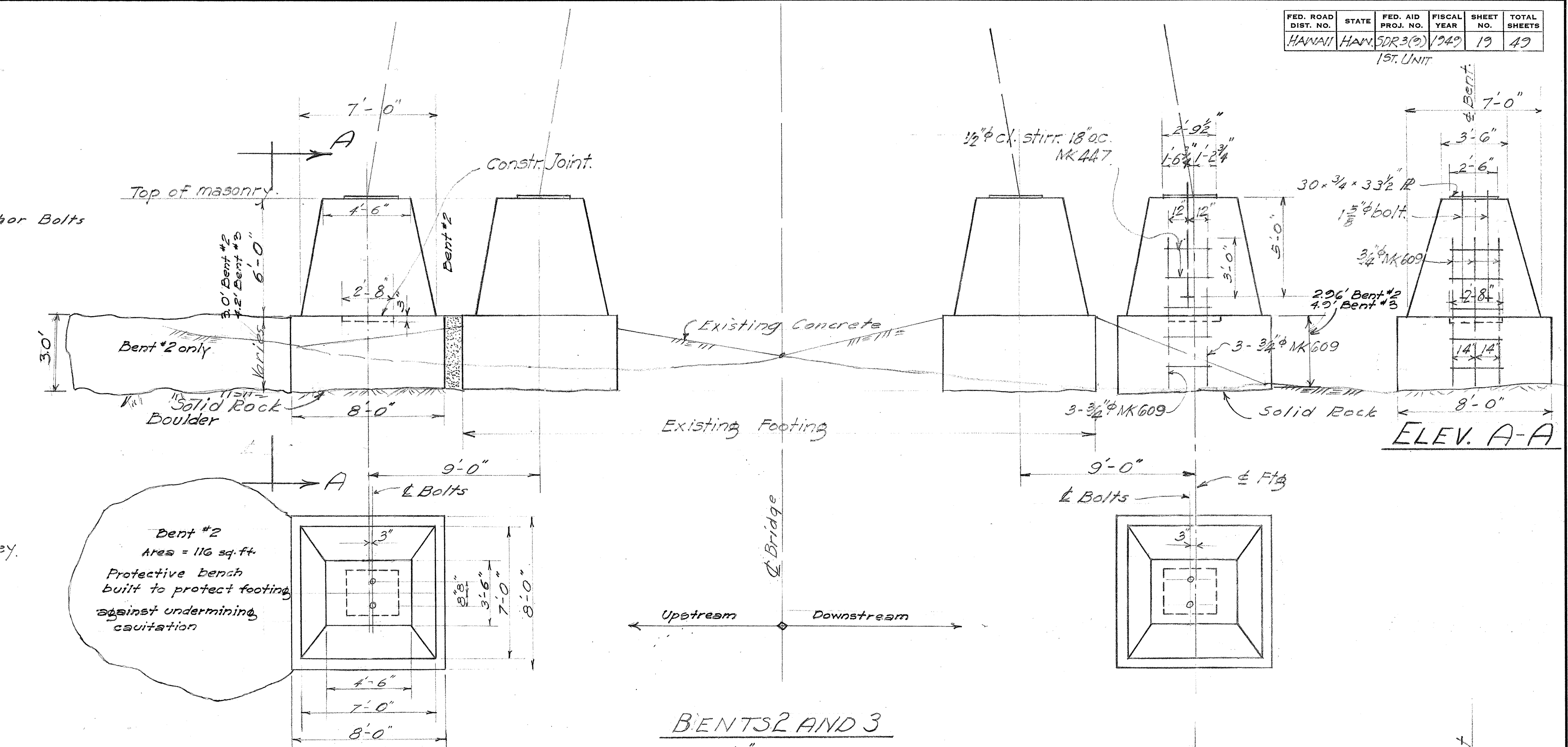
ELEVATION



PLAN

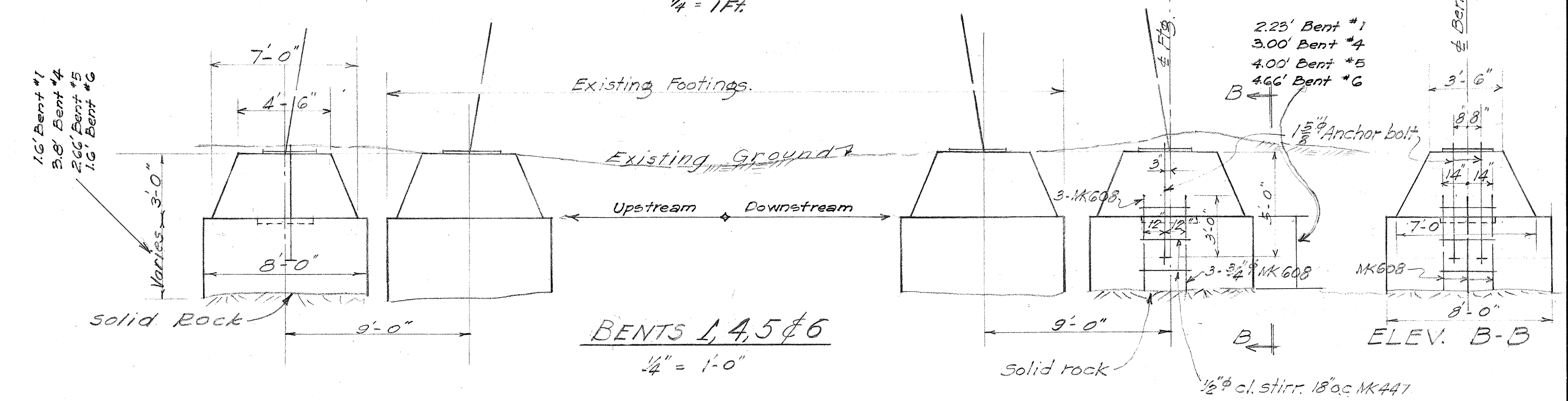
FOOTING BENT NO. 7

1/4" = 1 Ft.



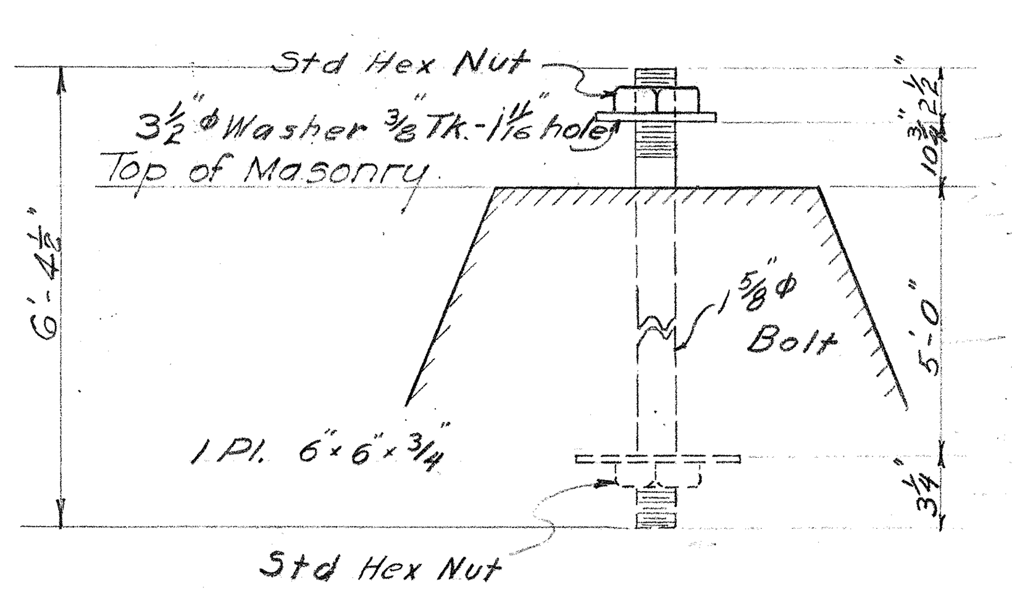
BENTS 2 AND 3

1/4" = 1 Ft.



BENTS 1, 4, 5 & 6

1/4" = 1'-0"



ANCHORAGE FOR ALL PIERS

ESTIMATED QUANTITIES

	Super-structure	Railing & End Posts	Abutments No. 1	Abutments No. 2	Bents	Totals
Class A-1 Conc.	449 cu. yd.	53 cu. yd.	68 cu. yd.	68 cu. yd.		638 cu. yd.
Class B-2 Conc.					224 cu. yd.	224 cu. yd.
Struct. Excav.			360 cu. yd.	320 cu. yd.	458 cu. yd.	1138 cu. yd.
Reinf. Steel	86,453# ~~86469~~#	9784# ~~9783~~#	7103# ~~7101~~#	7130# ~~7129~~#	2692# ~~2693~~#	113,162# ~~113175~~#
Dry Rubble Masonry			5 cu. yd.	6 cu. yd.		11 cu. yd.
Hand-Placed Rock Fill.			39 cu. yd.	46 cu. yd.		85 cu. yd.
Furnishing, fabricating, and erecting new steel.						41,463 ~~25400~~ lbs.
Cleaning, fabricating and erecting salvaged steel.						418,426 ~~395,600~~ lbs.
Cleaning and applying 1st Coat of paint to steel in existing R.R. Bridges.						412,800 ~~408,000~~ lbs.
Painting entire structure with two field coats of paint. (832,000#)						Lump Sum
Removing and replacing 3/4"φ x 2 3/8" (Ave) rivets in tower bracing system.						1,672 ~~1000~~ Pcs.
Removing and replacing 7/8"φ x 3 7/8" (Ave) rivets in girders.						5,200 ~~5000~~ Pcs.
Removing and replacing deteriorated lattice bars, stay plates and gusset plates.						2,553 ~~3000~~ lbs.
A.C. Pavement.	64.34 Tons					57.3 ~~64.34~~ Tons

GENERAL NOTES.

Design Data:

H-20-44 Loading
f_c = 1000#
f_s = 20000#
n = 10
f_s (Str. Steel) = 12000#

Materials:

Concrete: All concrete except in Pier Footings - Class A-1.
Concrete in Pier Footings - Class ~~B-2~~ B-1 used

Premolded Joint Filler: Premolded Joint Filler shall be rubber type.

Specification for Asphalt Filler:
Softening Point - 167°-185°F (A.S.T.M. D36-26)
Penetration - 30-45 (A.S.T.M. D5-25)
Flash Point Min. - 446°F (A.S.T.M. D92-46)

Reinf. Steel: Reinf. steel shall be intermediate grade.

Construction Methods:

All surfaces of railings, posts and end posts above top of curb shall have Class 1 Surface finish.

Brush coat waterproofing of structure required in accordance with Specifications, Pamphlet N Sec. 34.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

KAPUE BRIDGE

Sta 88+30.99 to 92+46.07

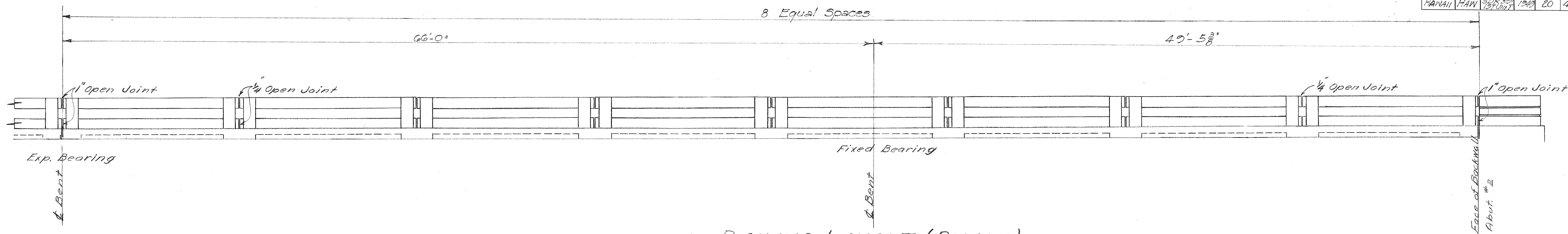
Hawaii Belt Road — SDR-3(9) 1st UNIT

March 1949

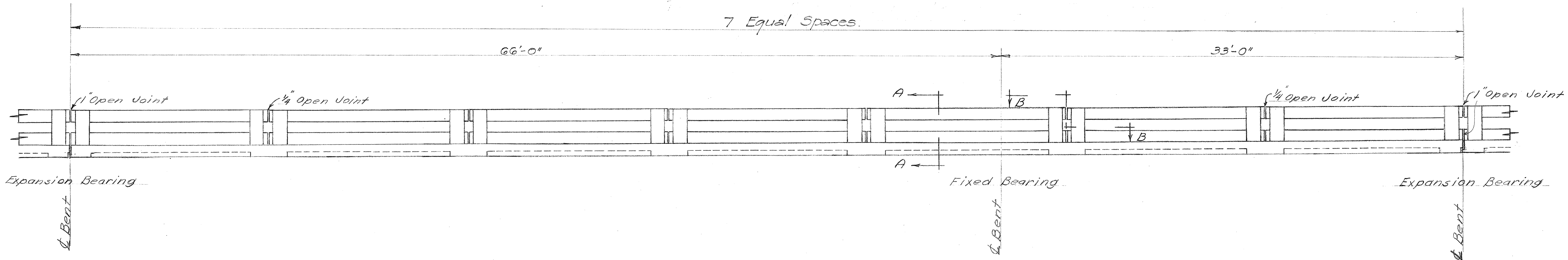
SHEET No. 12 OF 13 SHEETS

5415.19

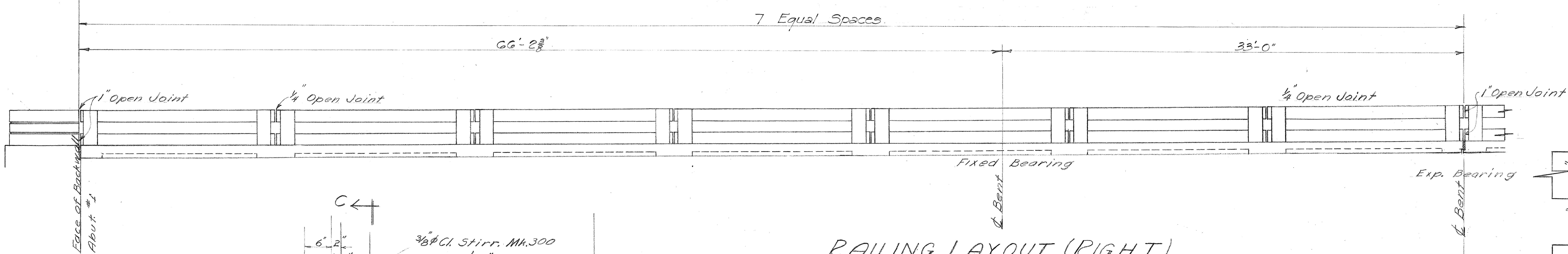
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	SDR 3(9) 1ST UNIT	1949	20	49



RAILING LAYOUT (RIGHT)

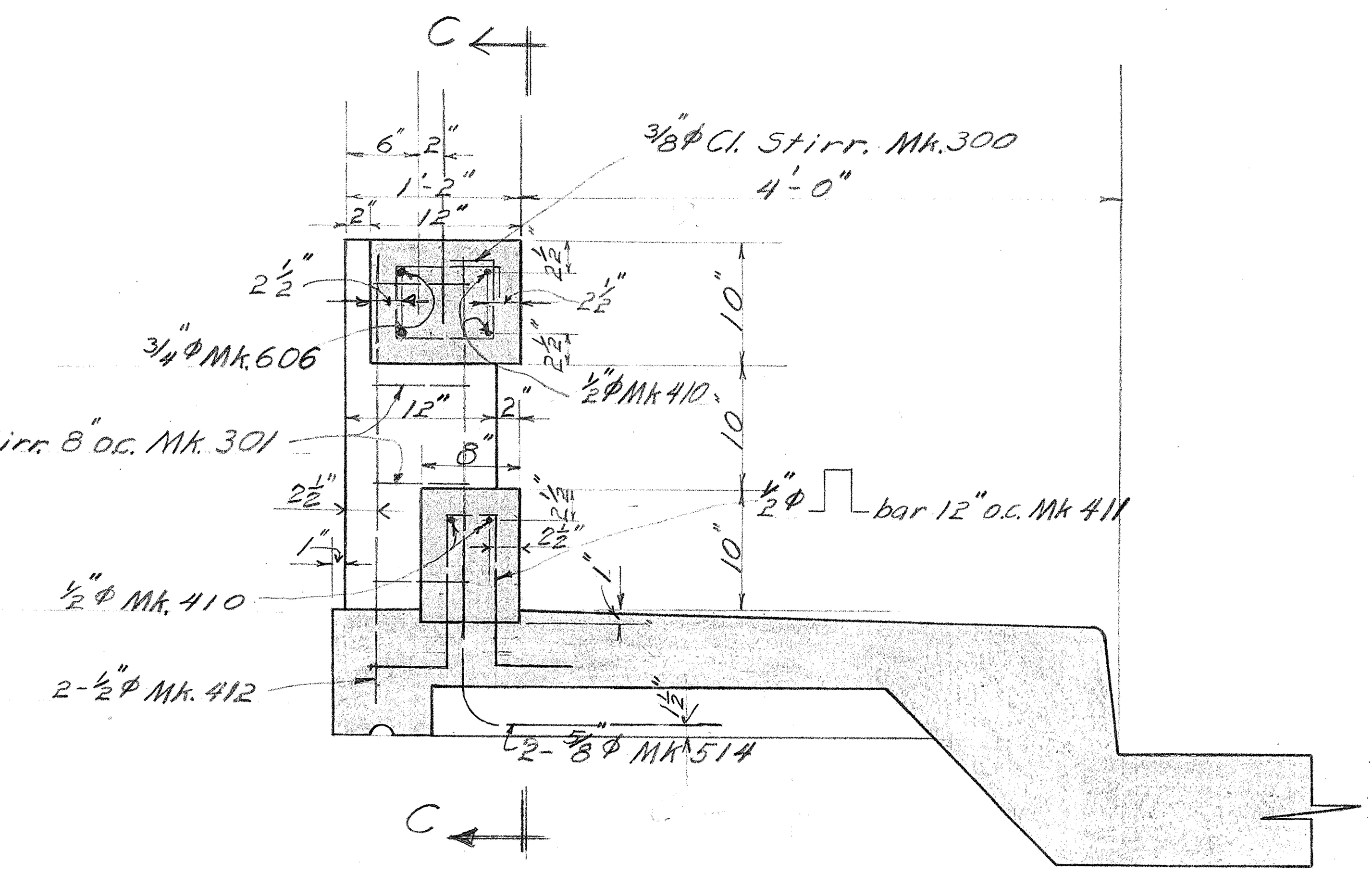


RAILING LAYOUT (RIGHT)



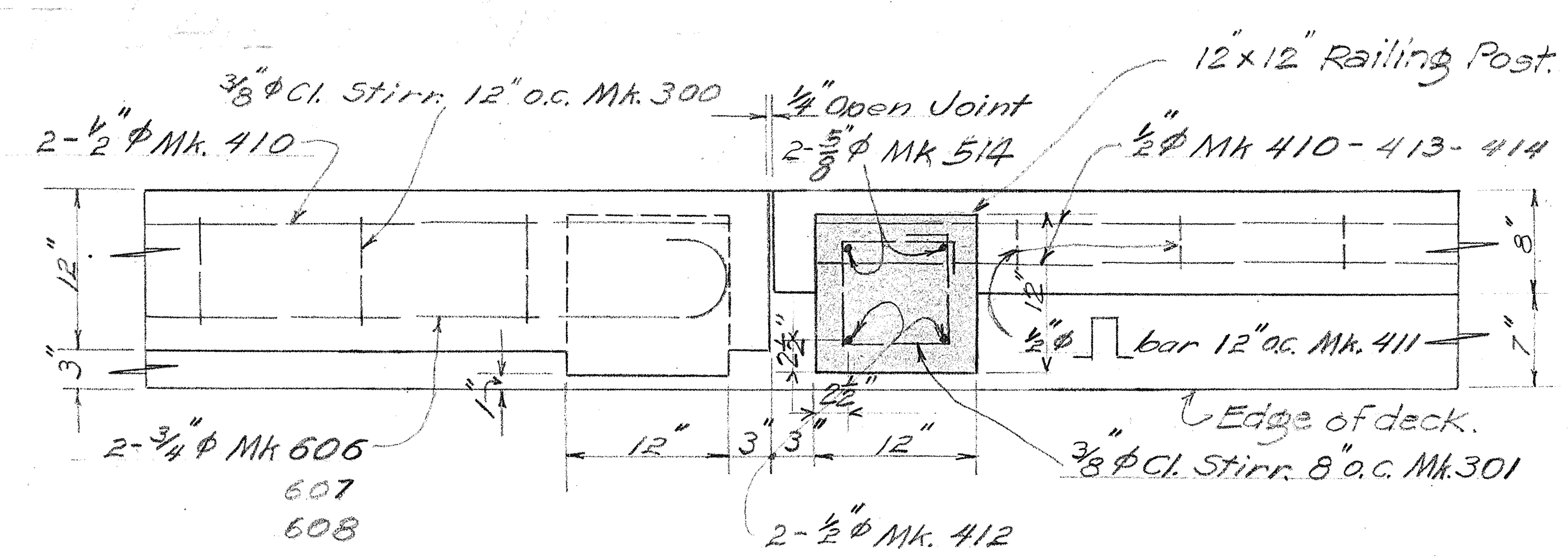
RAILING LAYOUT (RIGHT)

(Left Railing similar)



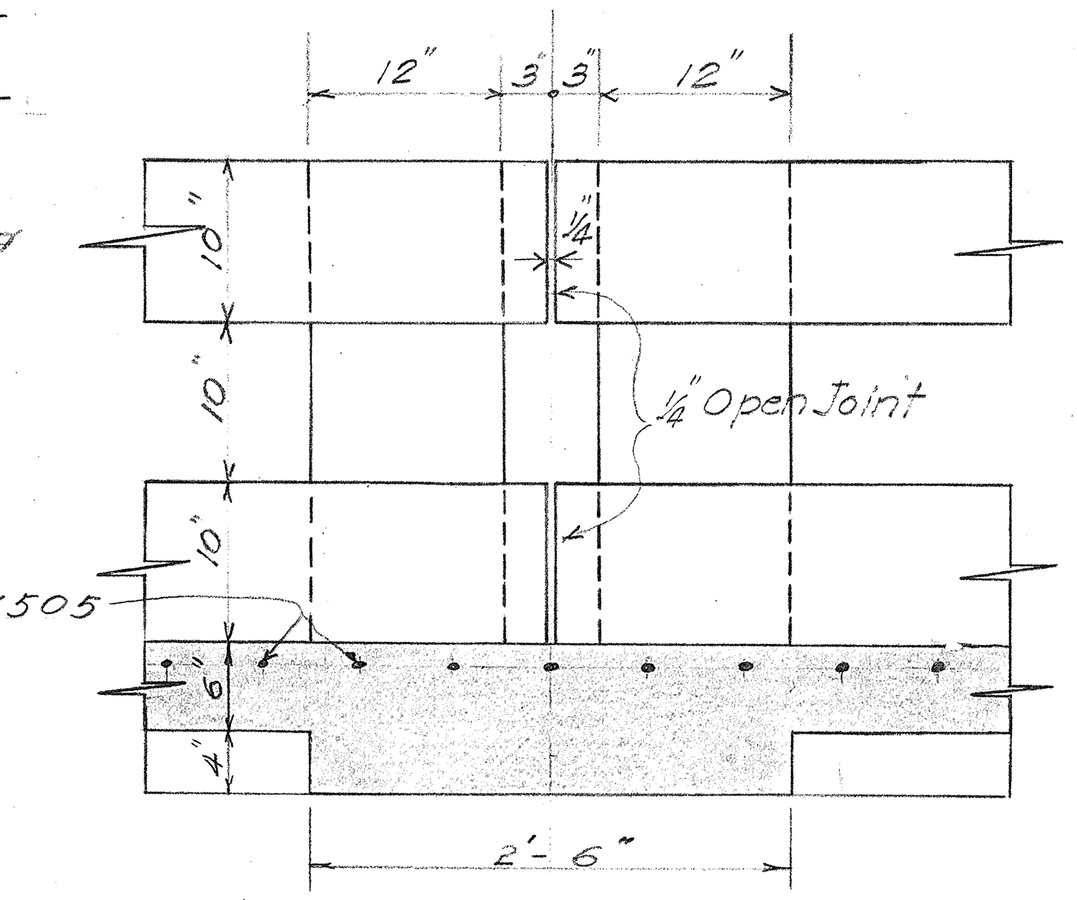
SECTION A-A

1" = 1 Ft.



SECTION B-B

1" = 1 Ft.



SECTION C-C

1" = 1 Ft.

TERRITORIAL HIGHWAY DEPARTMENT

TERRITORY OF HAWAII

KAPUE BRIDGE

Sta 88+30.99 to 92+46.07

Hawaii Belt Road SDR-3(9) 1ST UNIT

June 1949

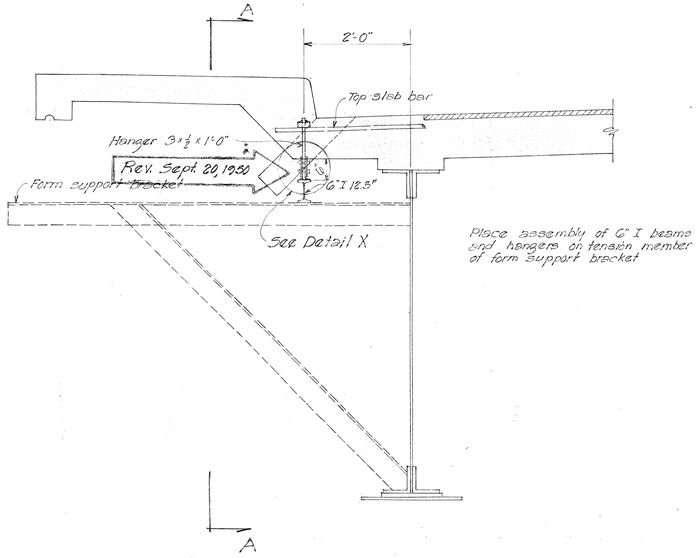
SHEET No. 13 OF 13 SHEETS

5415.20

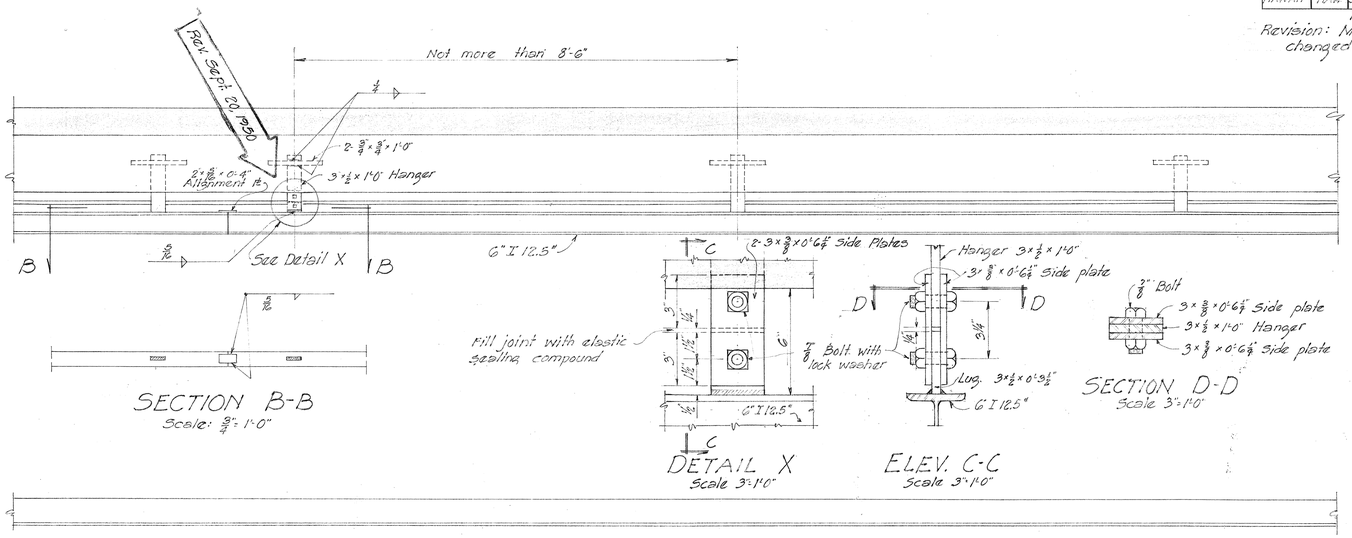
ORIGINAL PLAN	SURVEY PLOTTED BY		DATE
	DESIGNED BY	W. R. Bartels	3-49
	DRAWN BY	A. Van Der Werff	9-49
	TRACED BY		"
NOTE BOOK No.	QUANTITIES BY	A. V. D. W.	"
	QUANTITIES CHECKED BY	R. Kawamura	"
	CHECKED BY	P. Yamashita	"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	SDR 3(9) 1st Unit	1949	20.A	49

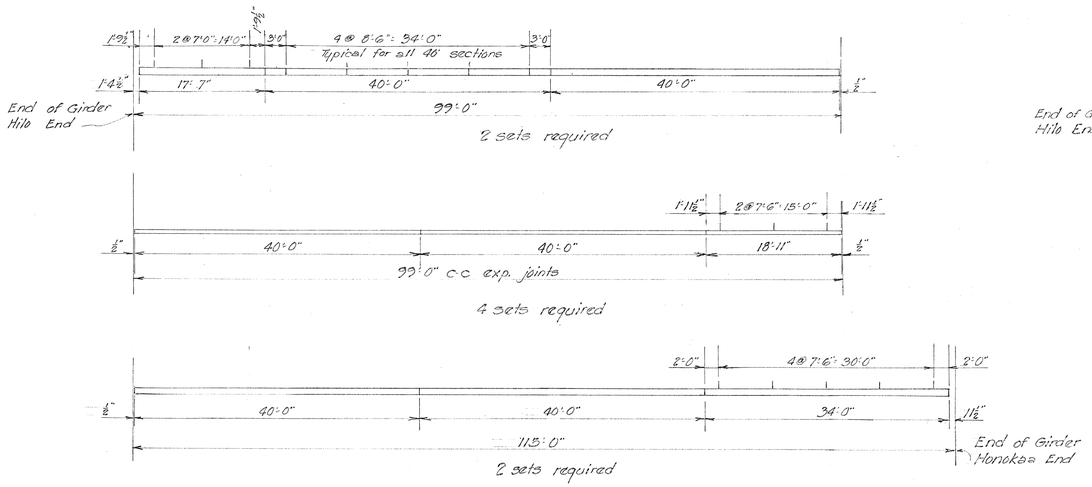
Revision: Monorail hangers changed. Sept. 20, 1950



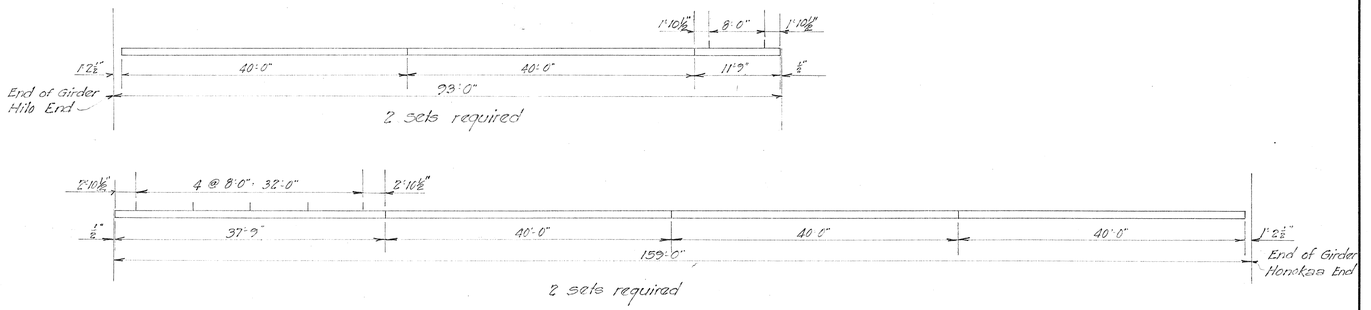
DETAIL OF MONORAIL LOCATION
Scale: 3/4" = 1'-0"



ELEVATION A-A
Scale: 3/4" = 1'-0"



KAPUE BRIDGE
Scale: 1"=10'-0"



PAHEEHEE BRIDGE
Scale: 1"=10'-0"

LIST OF 6"I. 12.5#

No. of pieces	Length	Total Length
26	40'-0"	1040.0'
2	37'-9"	75.5'
2	34'-0"	68.0'
4	18'-11"	75.7'
2	17'-7"	35.2'
2	11'-9"	23.5'
Total		1317.9' = 16,474 lbs.
172 Hangers (3"x½"x1'0") @ 5.1#		877 lbs.
172 Lugs (3"x½"x0'3½") @ 1.5#		258 lbs.
344 Side Plates (3"x⅜"x0'6½") @ 2.0#		688 lbs.
26 Alignment 1/2 (2"x⅜"x0'9") @ 0.7#		18 lbs.
344 Plates for hangers (⅜"x½"x10") @ 1.91#		657 lbs.

Rev. Sept. 20, 1950

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE July 1950
	DESIGNED BY W.R. Bartle	" "
	DRAWN BY	" Aug. 1950
	TRACED BY T. Umeda	" "
NOTE BOOK No.	QUANTITIES BY	" "
	QUANTITIES CHECKED BY	" "
	CHECKED BY	" "

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

MONORAIL

HAWAII BELT ROAD
August 1950
SDR 3(9) 1st Unit

SHEET No. 1 OF 1 SHEETS

5415.20A