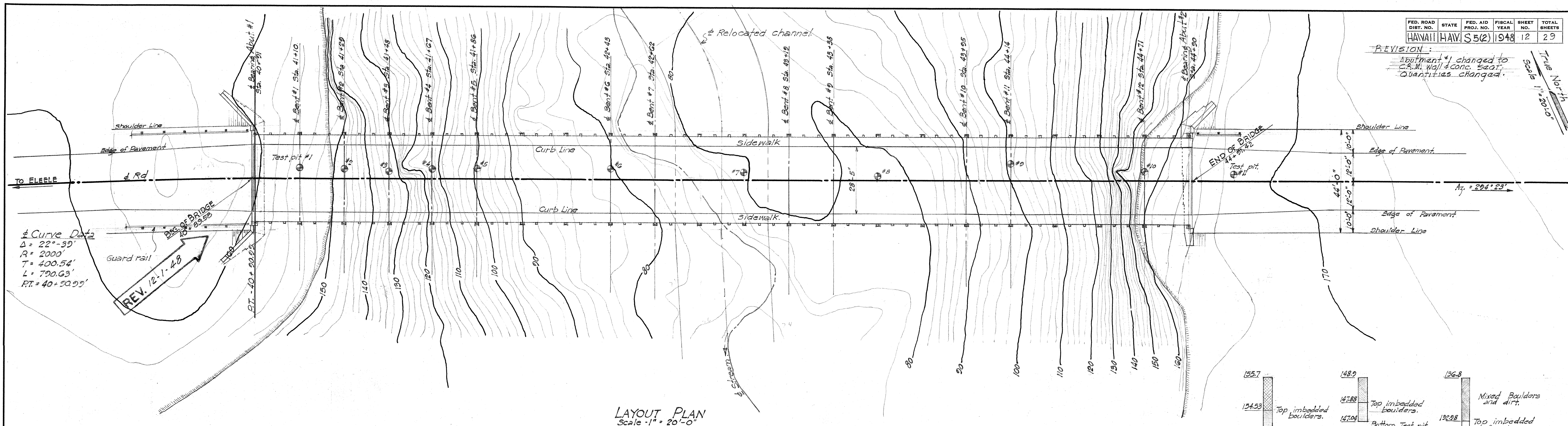
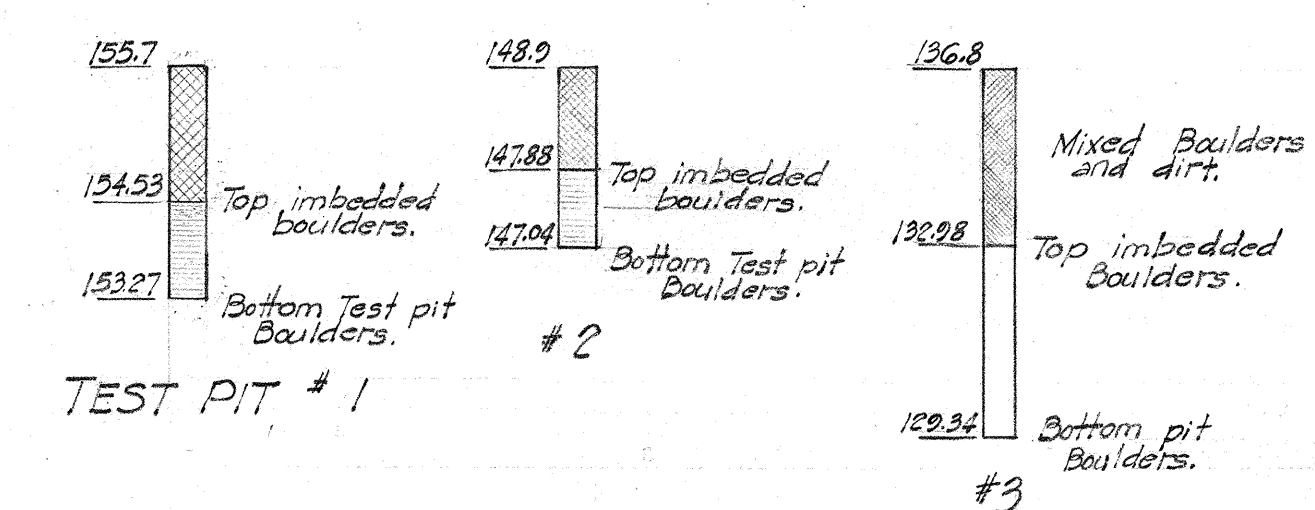


REVISION:
 Abutment #1 changed to
 C&M. wall & conc. seat.
 Quantities changed.

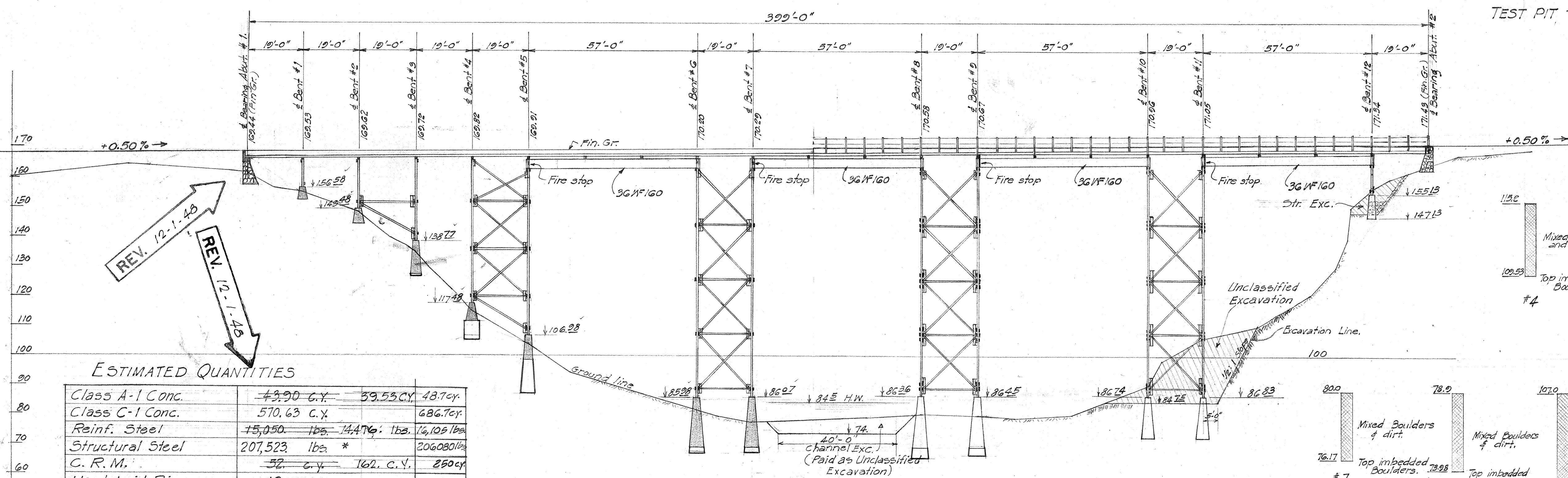
True North
 Scale 1" = 20'-0"



LAYOUT PLAN
 Scale 1" = 20'-0"



TEST PIT DATA



SECTION ALONG & BRIDGE
 Scale 1" = 20'-0"

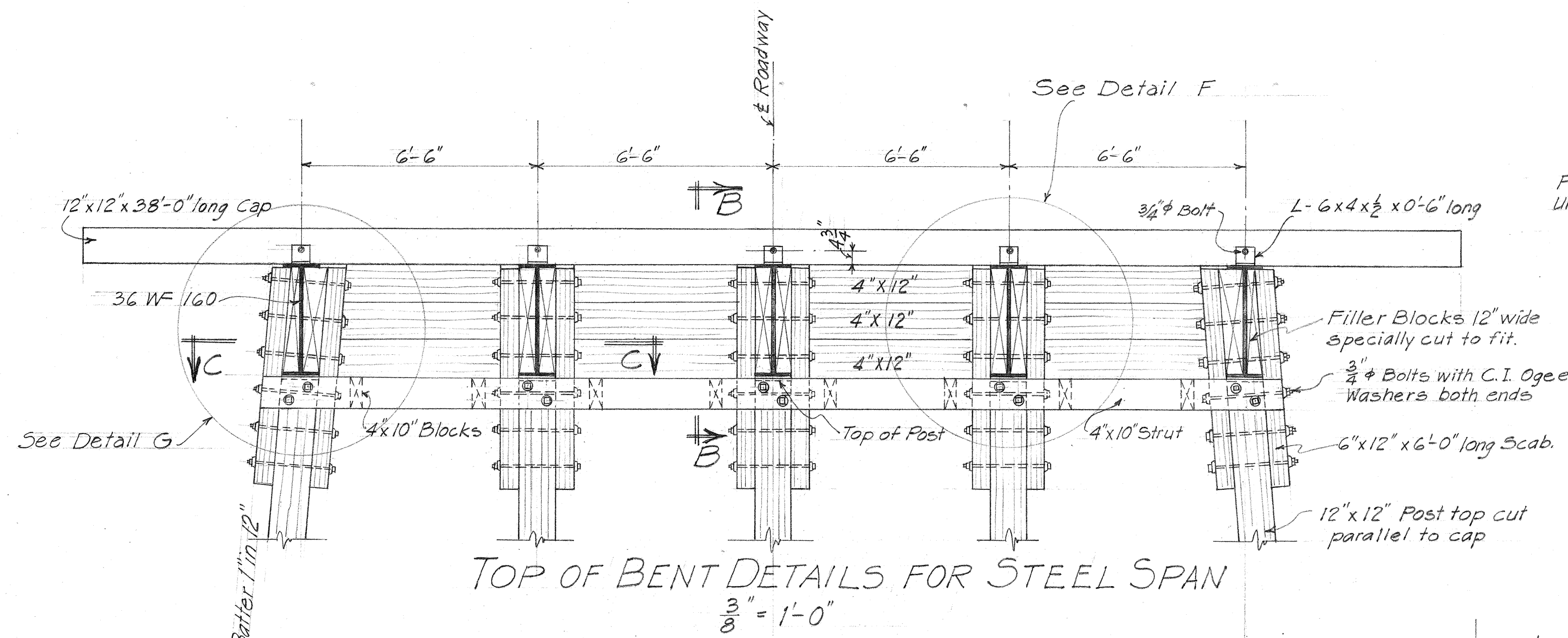
DOWNSTREAM ELEVATION

ESTIMATED QUANTITIES

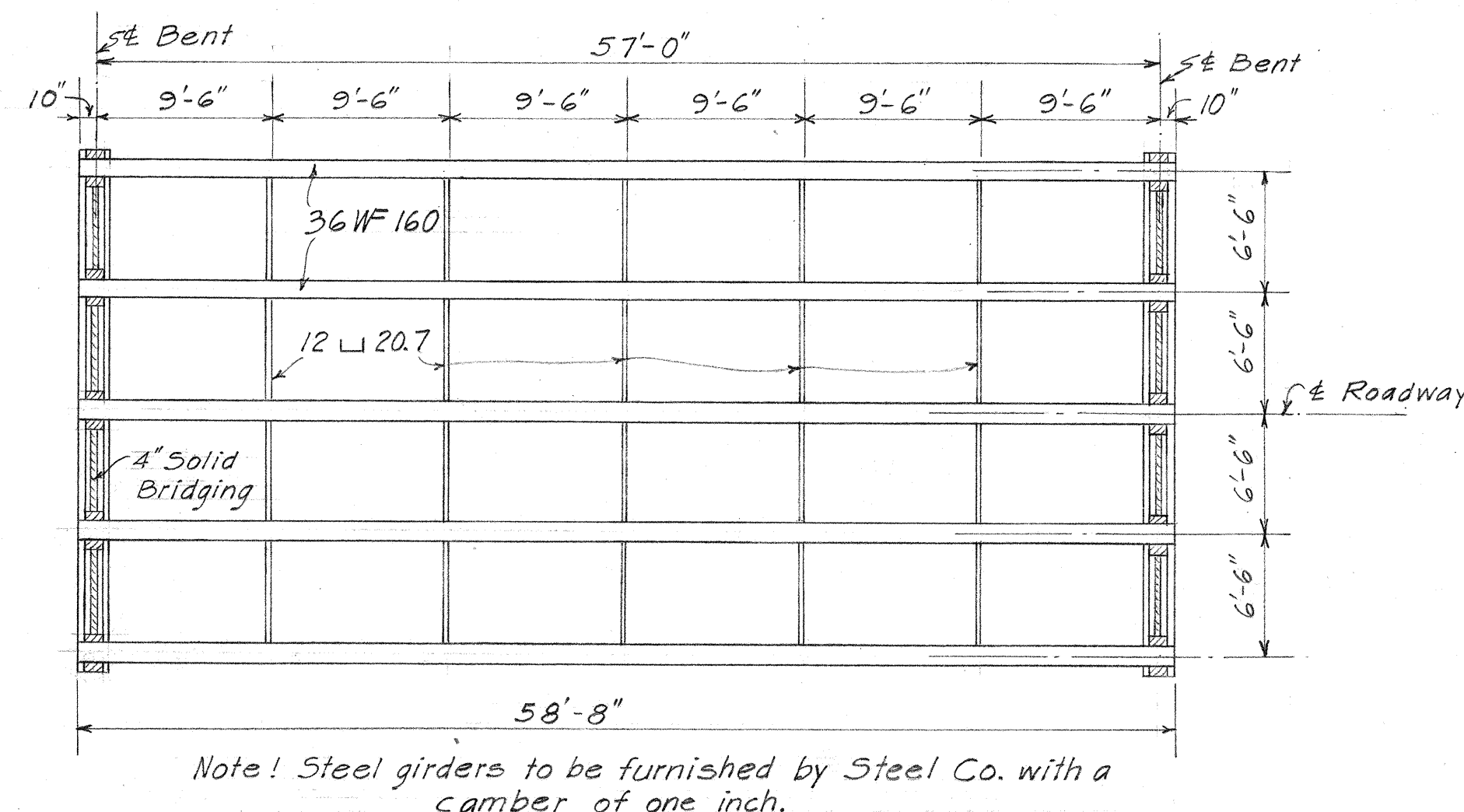
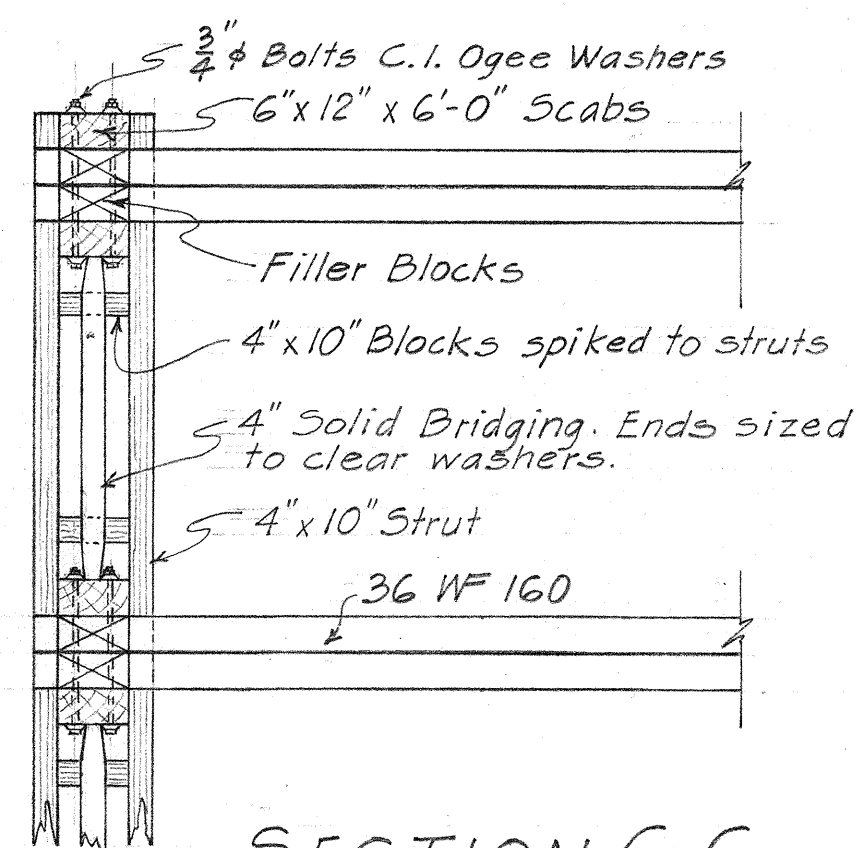
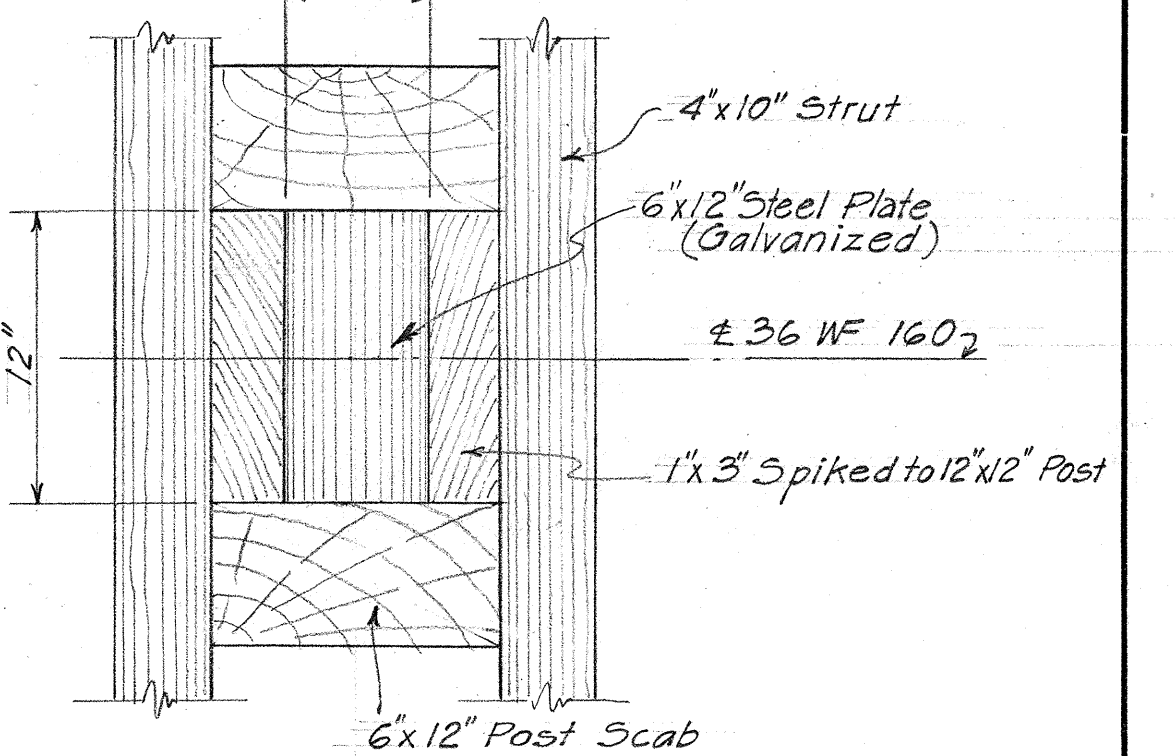
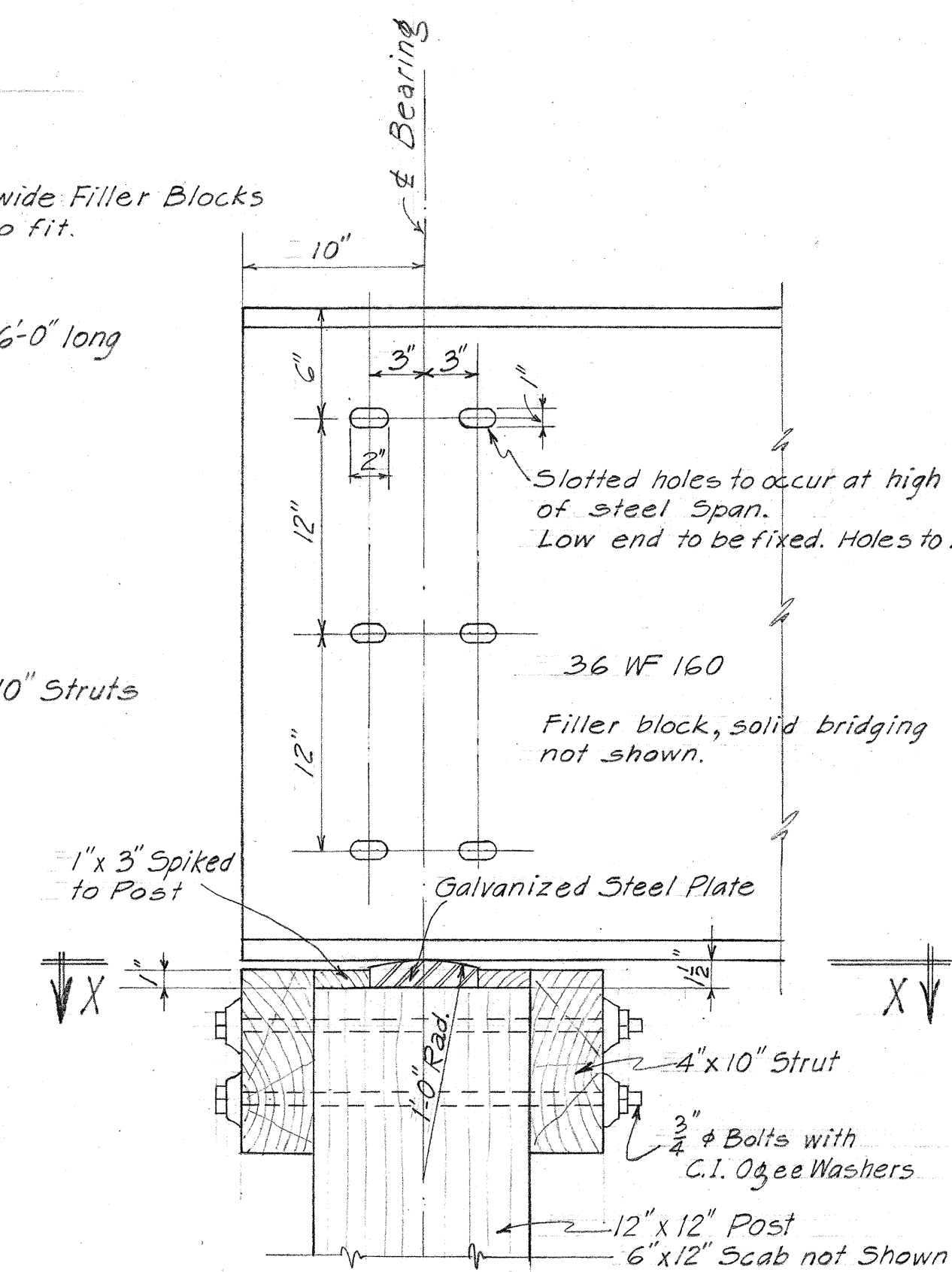
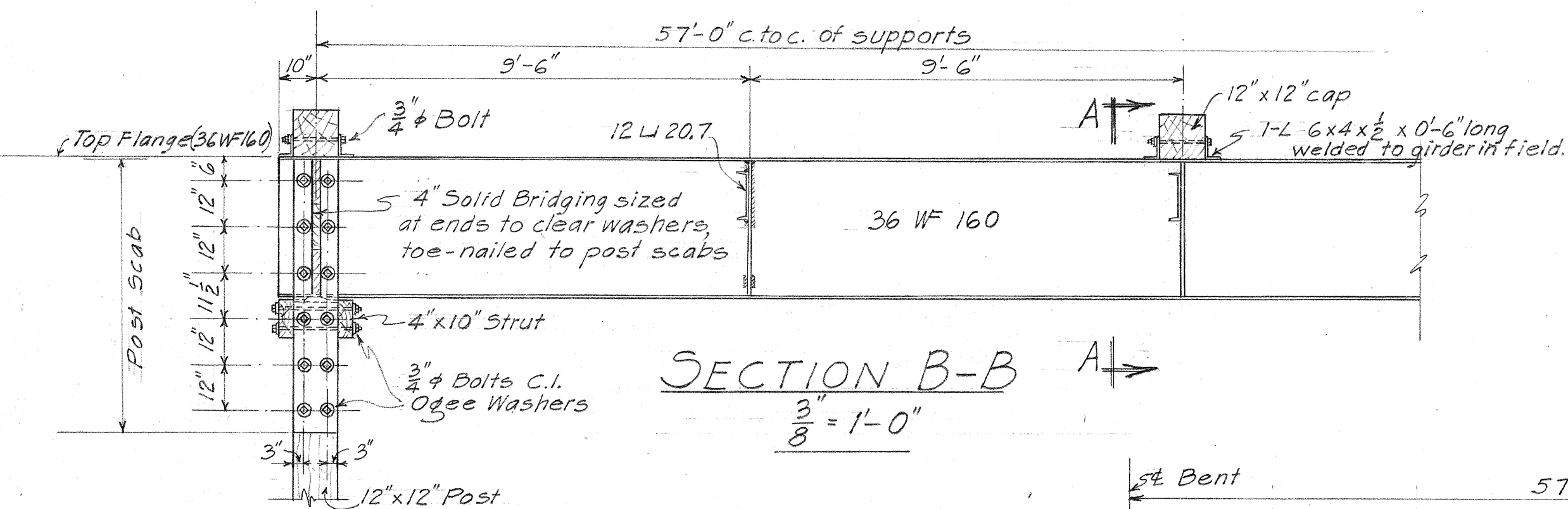
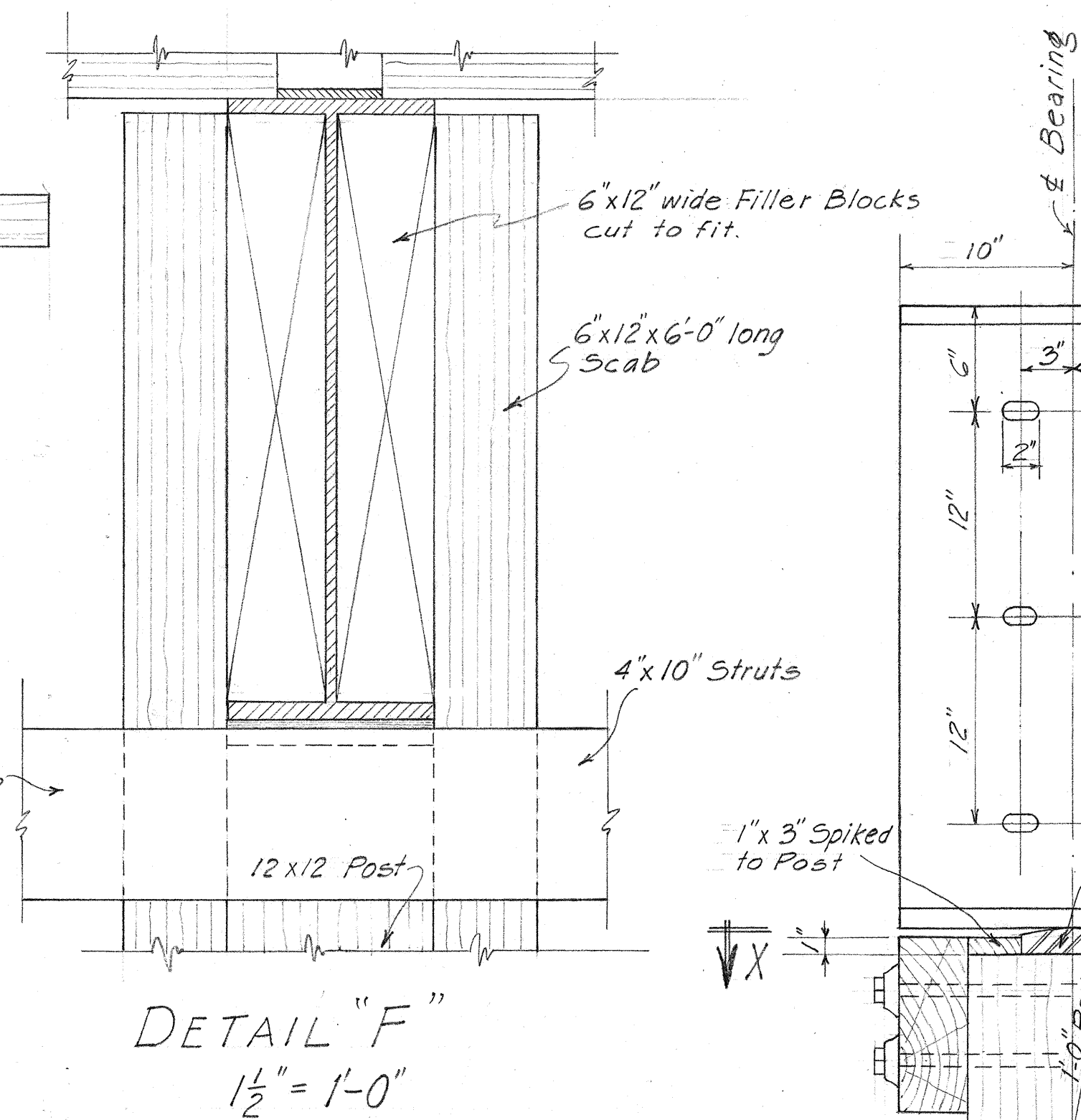
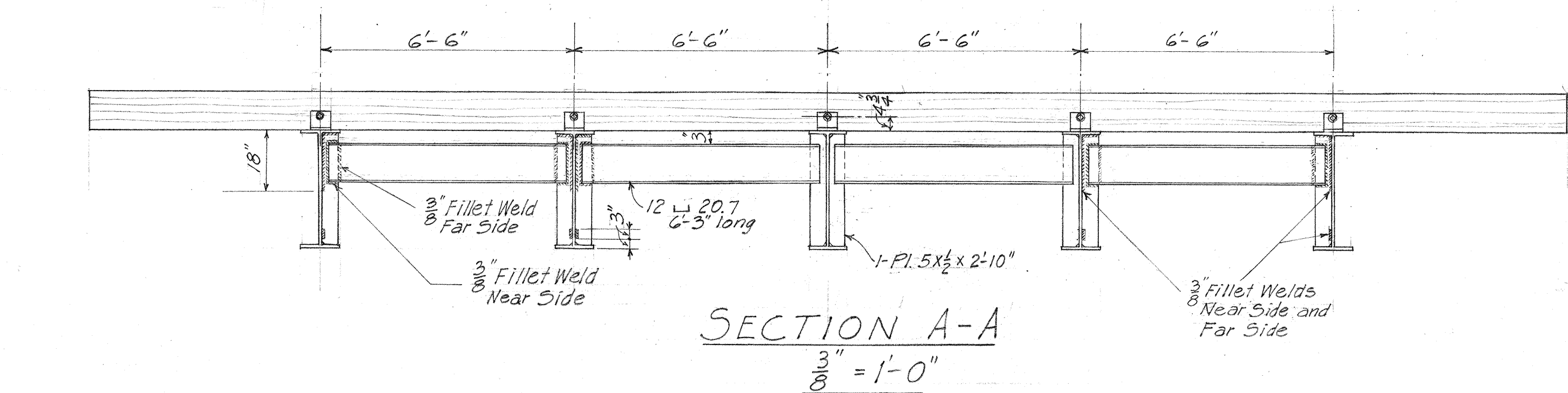
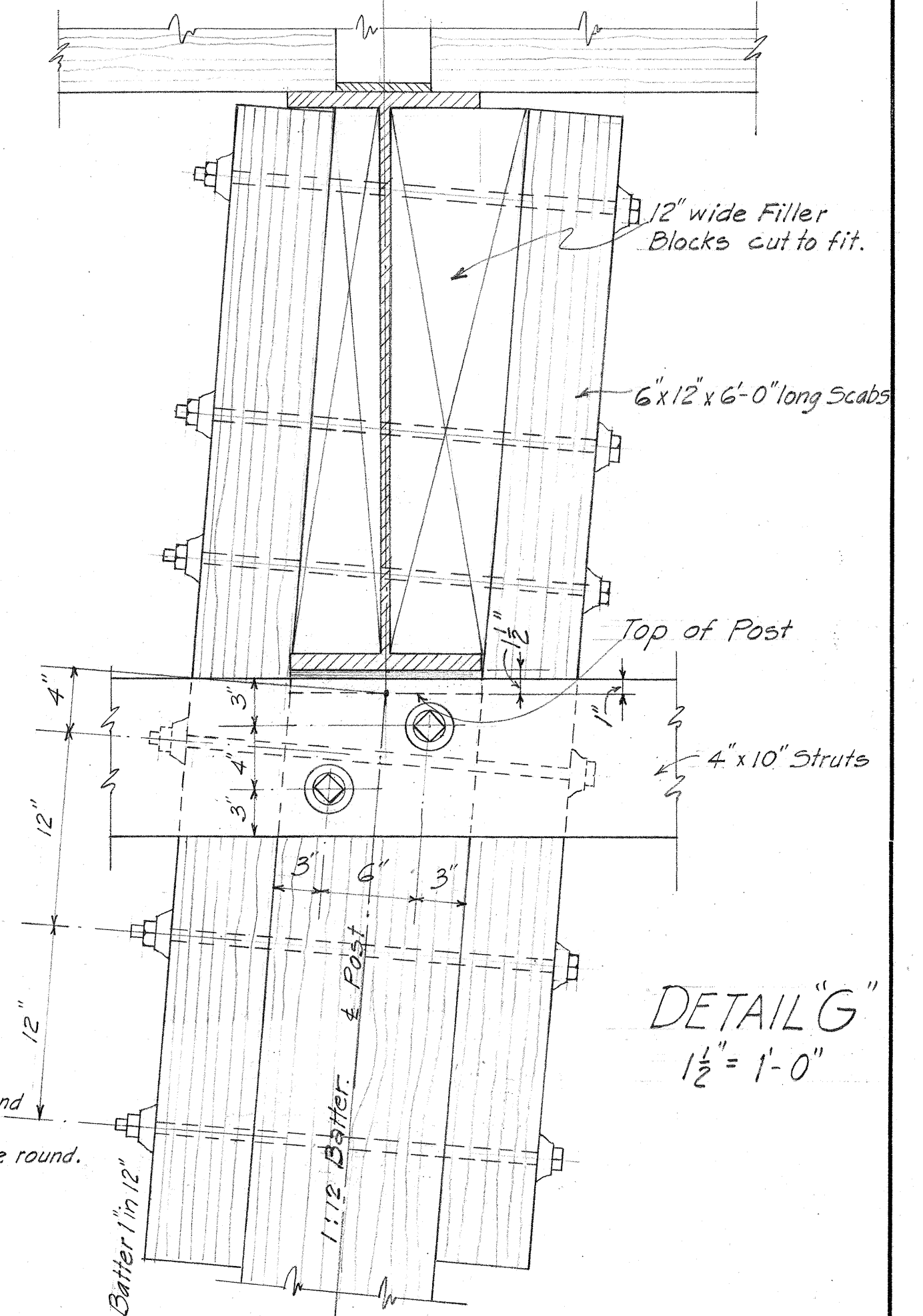
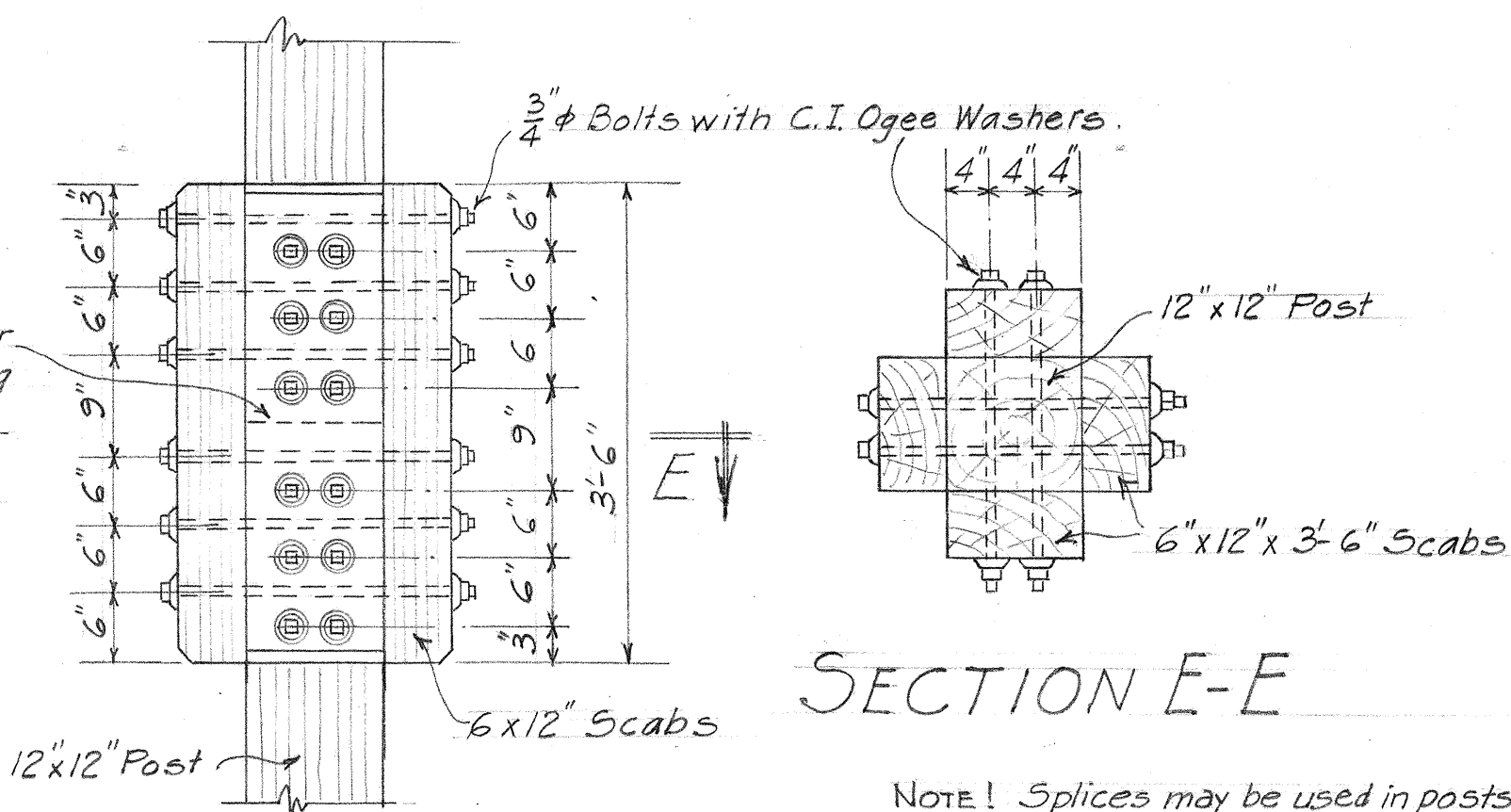
Class A-1 Conc.	43.90 c.y.	39.53 c.y.	48.7 c.y.
Class C-1 Conc.	570.63 c.y.		686.7 c.y.
Reinf. Steel	15,050 lbs.	14,476 lbs.	16,105 lbs.
Structural Steel	207,523 lbs.	*	206,080 lbs.
C. R. M.	52 c.y.	162 c.y.	250 c.y.
Hand-Laid Riprap	19 c.y.		0 c.y.
Hand-Placed Rockfill	29.5 c.y.		0 c.y.
Str. Excavation	1,250 c.y.	1290 c.y.	1658 c.y.
Unclassified Excavation	1800 c.y.		1900 c.y.
Coarse Rock	148.6 c.y.		143 c.y.
Keystone	12.7 c.y.		20 c.y.
Chips	7.0 c.y.		8 c.y.
Rock Sand	5.1 c.y.		5 c.y.
Binder	10.64 tons		12 tons
Treated Timber	294.34 M.F.B.M.	289,058	282,058

* - Includes 1% for overrun and 1/2% for shop paint.

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
WAIHANA BRIDGE
 STA. 40+89.53-44+01.42
 McBryde Mill Rd. 3.5(2)
 Feb. 1948



DETAIL OF POST SPLICE
3/4" = 1'-0"



Note! All Structural Steel to receive one shop coat of red lead paint and two field coats of specified black paint.

Note! All welding shall conform to the current Specifications for Welded Highway and Railway Bridges, Design, Construction, and Repair, of the American Welding Society.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

WAIHAWA BRIDGE
STA 40+90.17 - 44+91.42

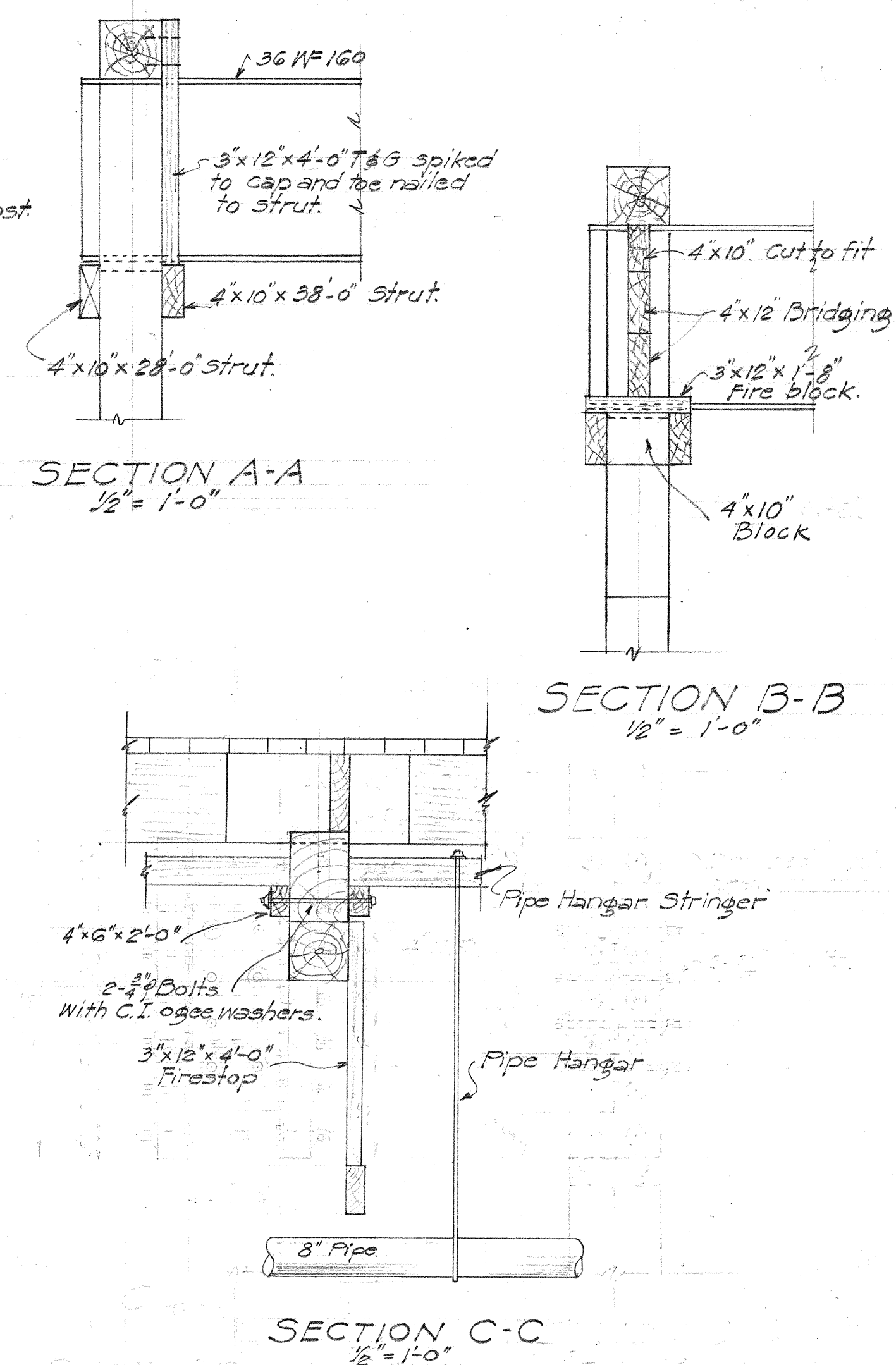
McBryde Mill Rd. S 5(2)

Feb. 1948

SHEET No 4 OF 11 SHEETS

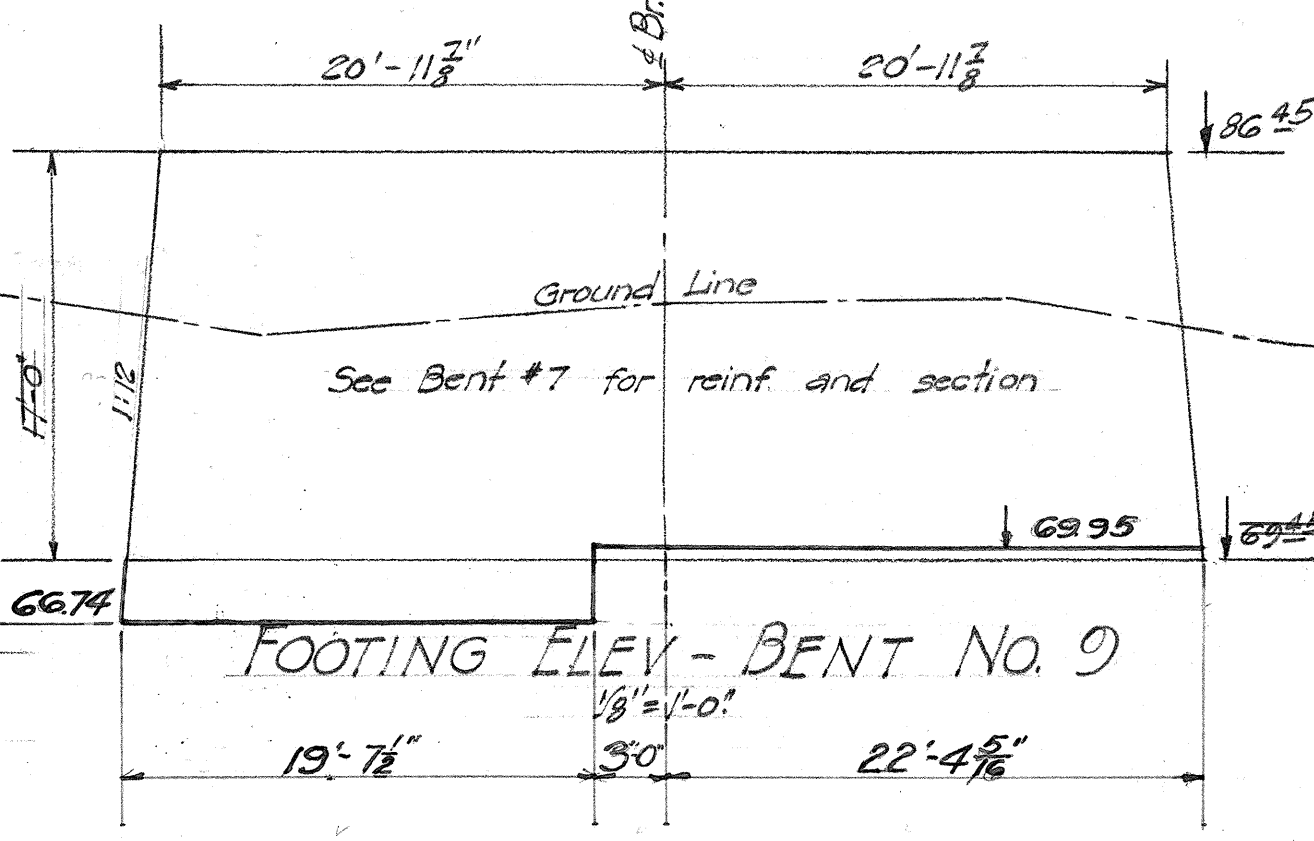
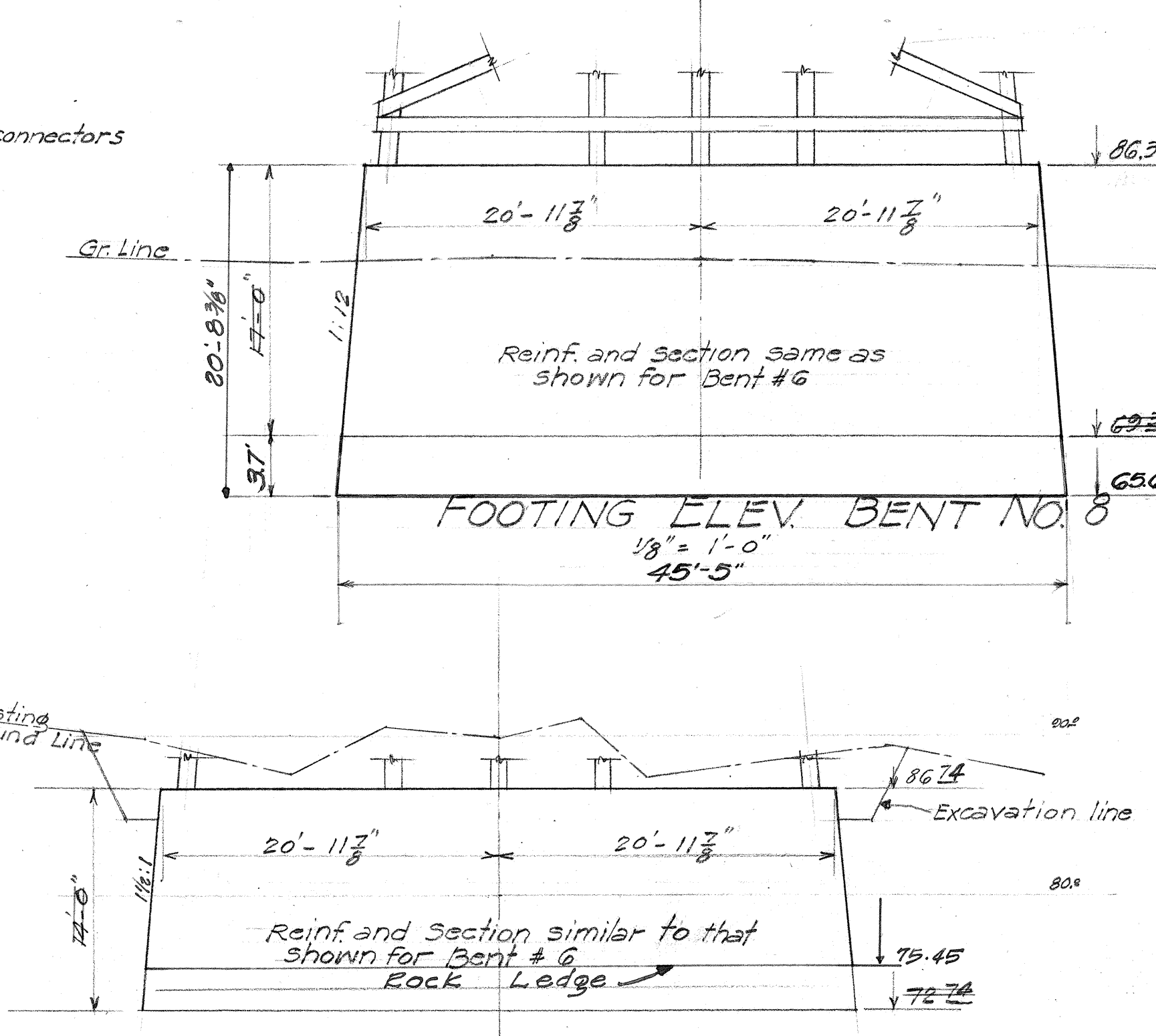
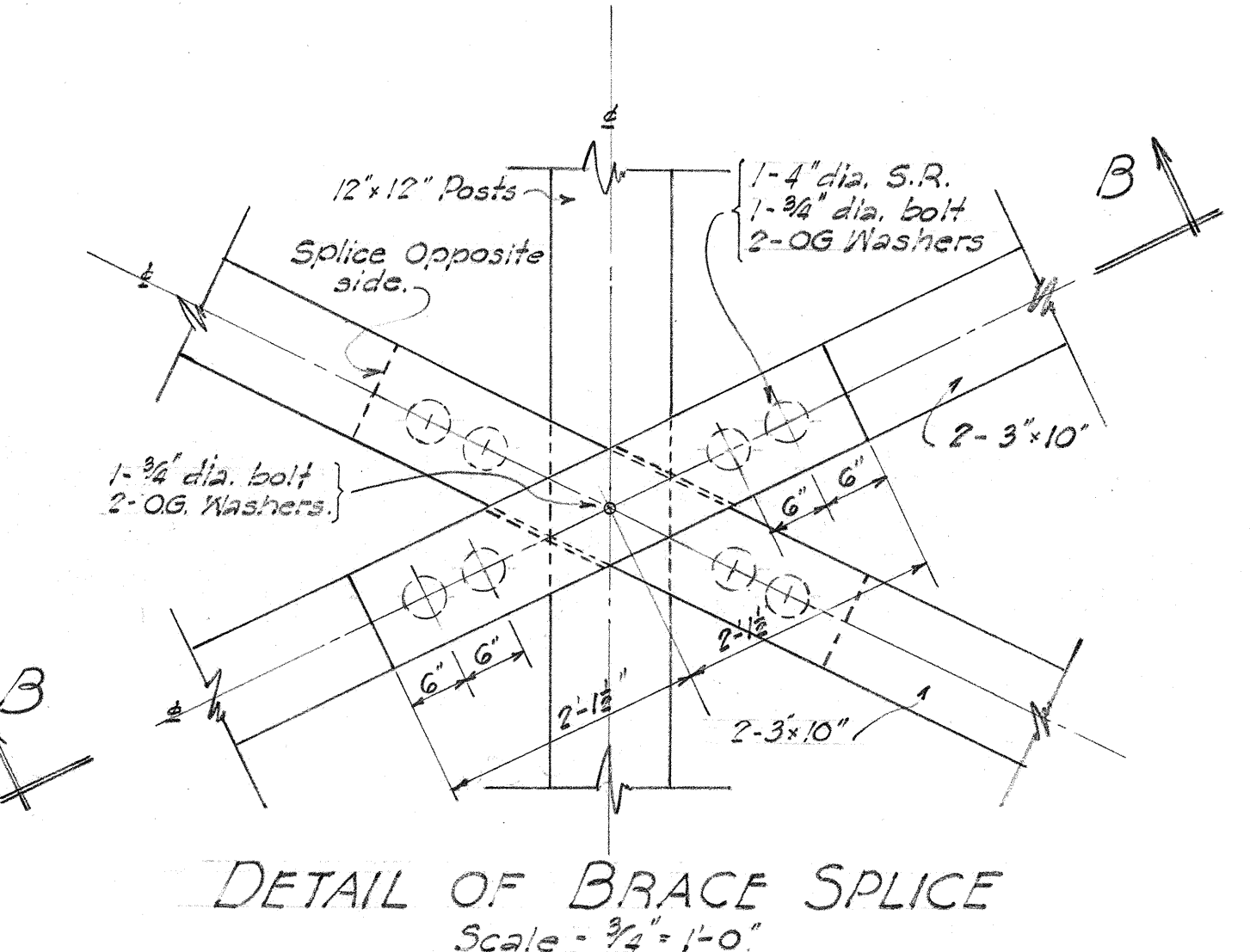
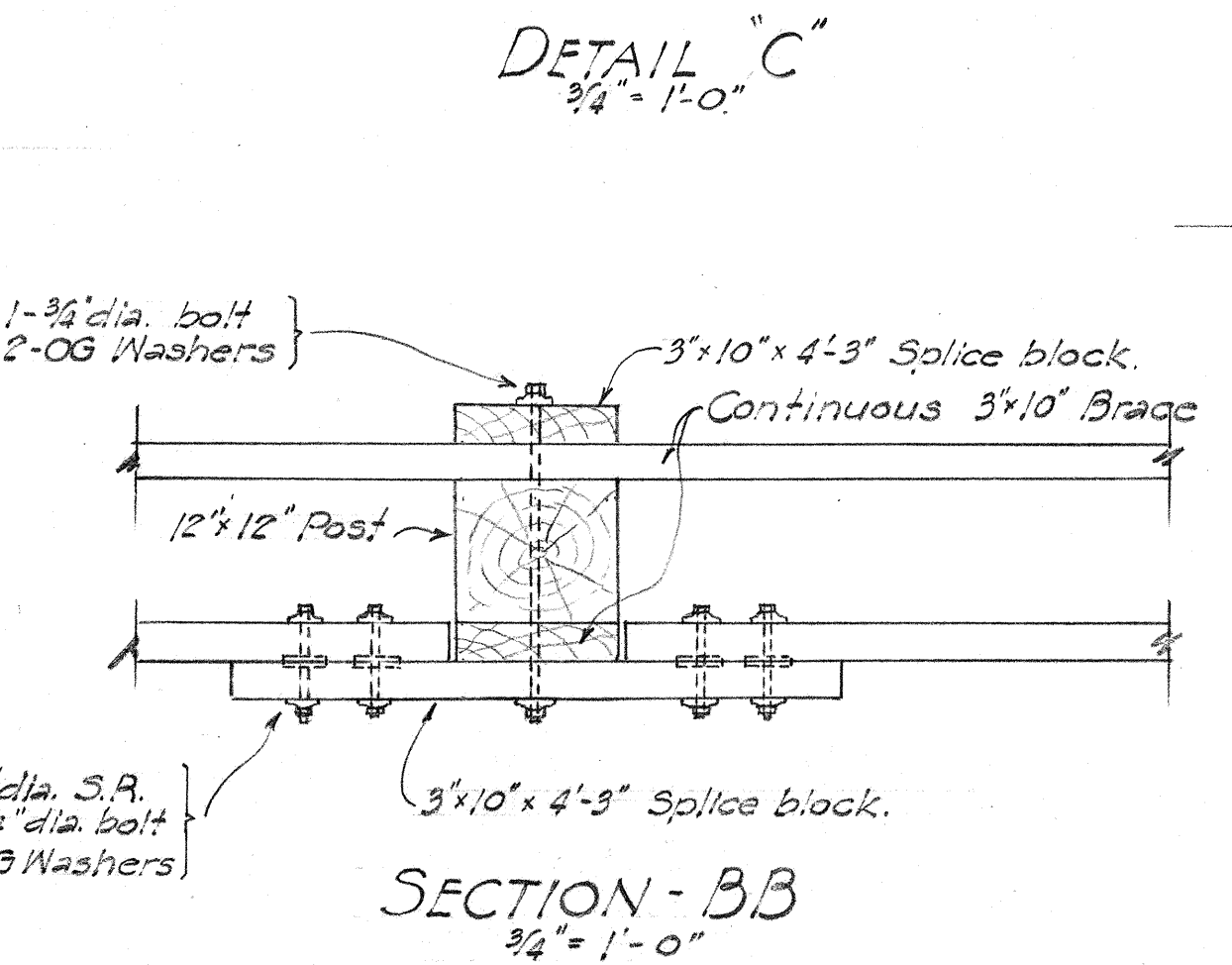
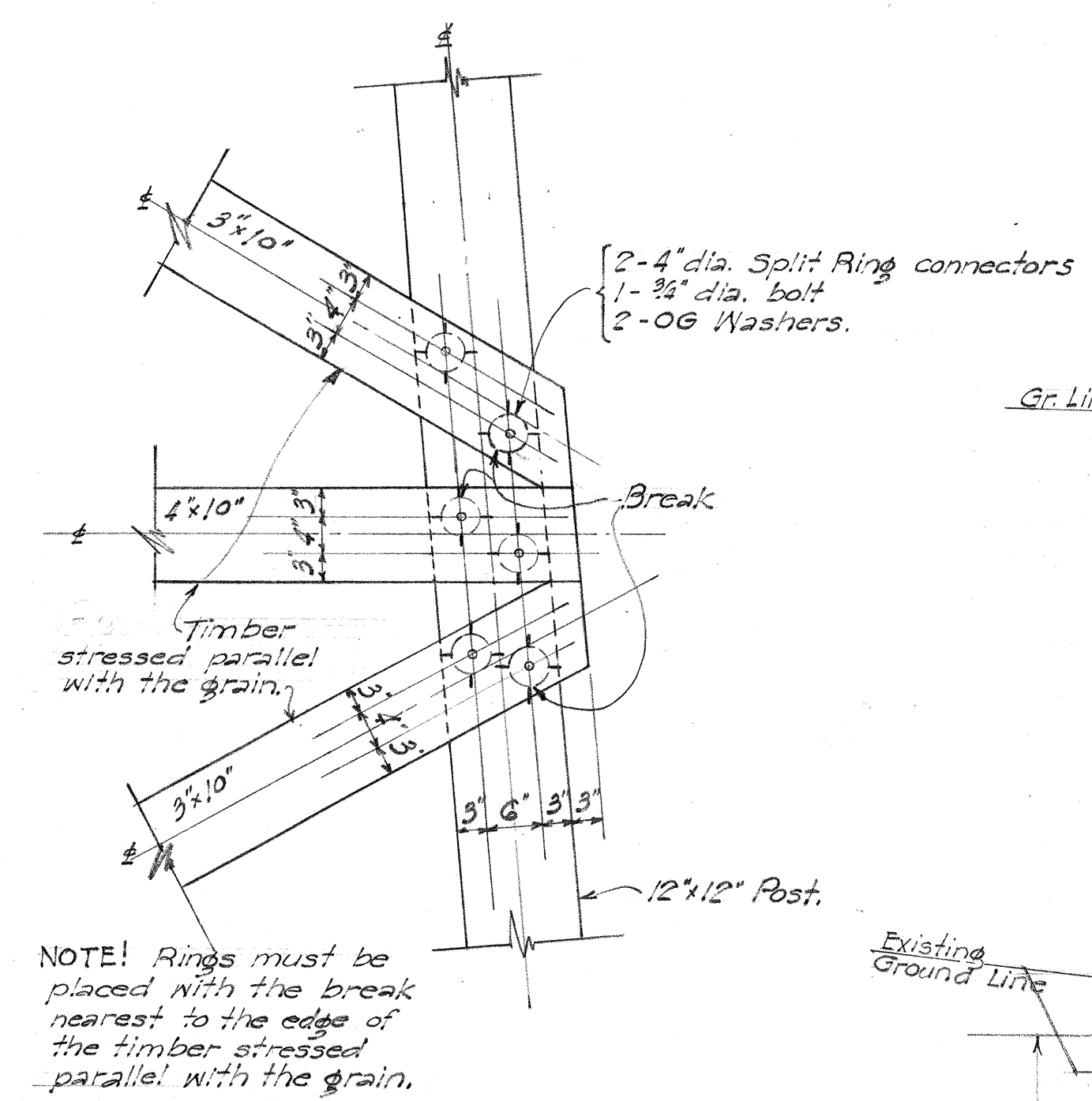
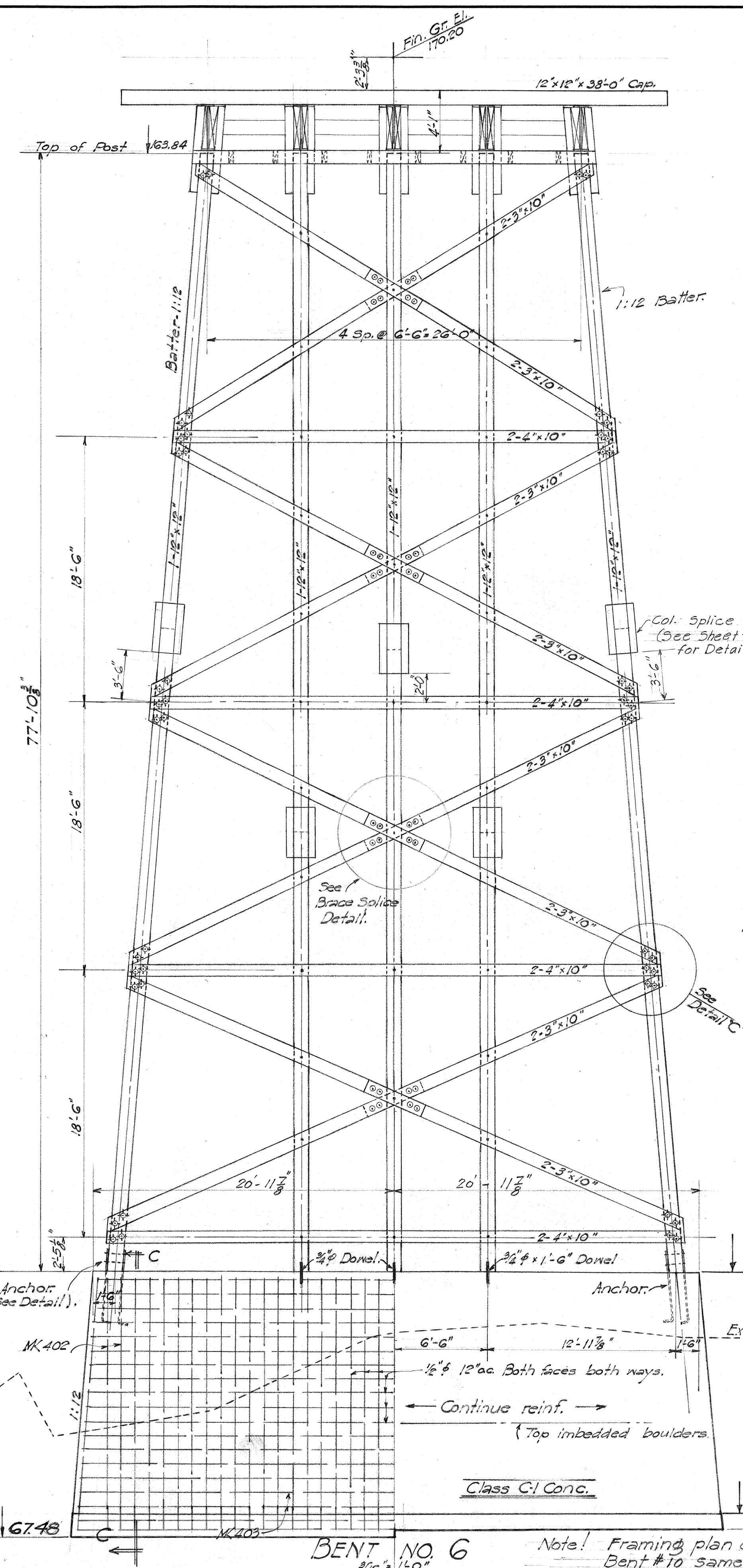
5302.15

ORIGINAL PLAN	SURVEY PLOTTED BY <i>W. E. Bartels</i>	DATE <i>7-48</i>
	DRAWN BY <i>P. Varrault</i>	" <i>8-48</i>
	TRACED BY	"
	QUANTITIES BY <i>J. Okamoto</i>	"
NOTE BOOK	QUANTITIES CHECKED BY <i>D. Tom</i>	"
No.	CHECKED BY	"

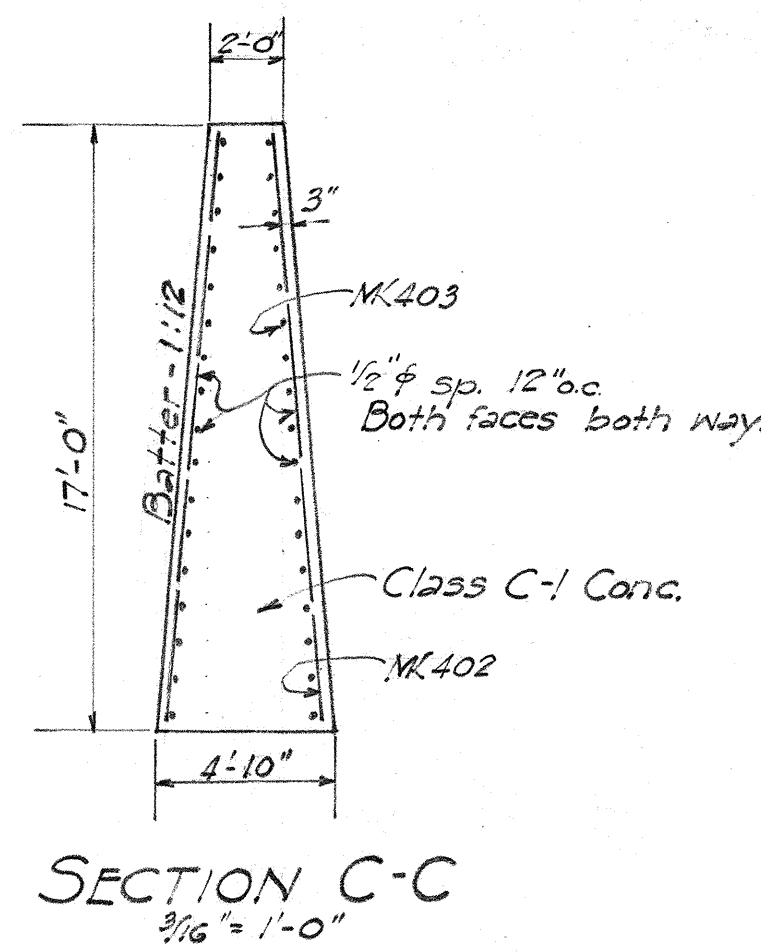
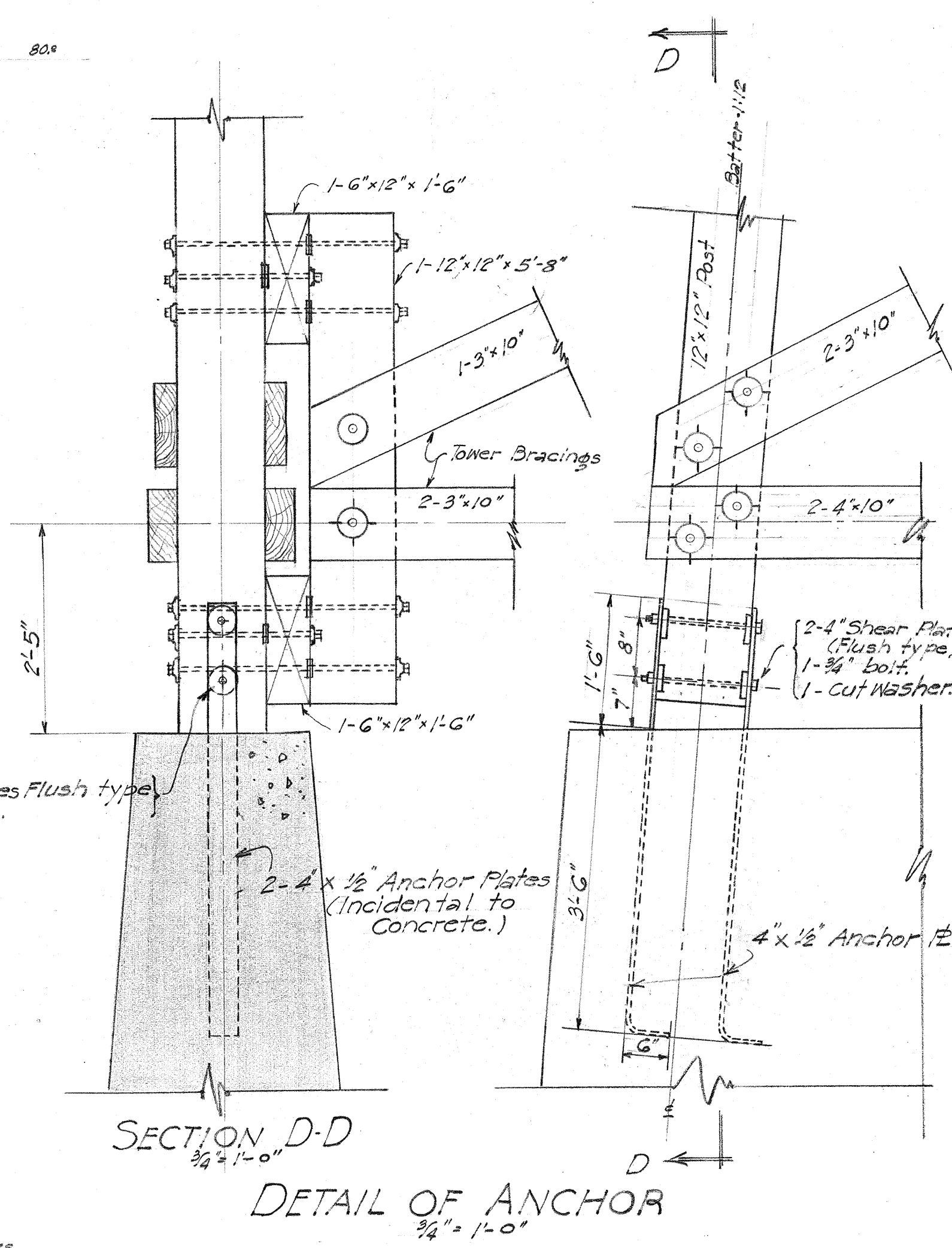


5302.17

5302.1



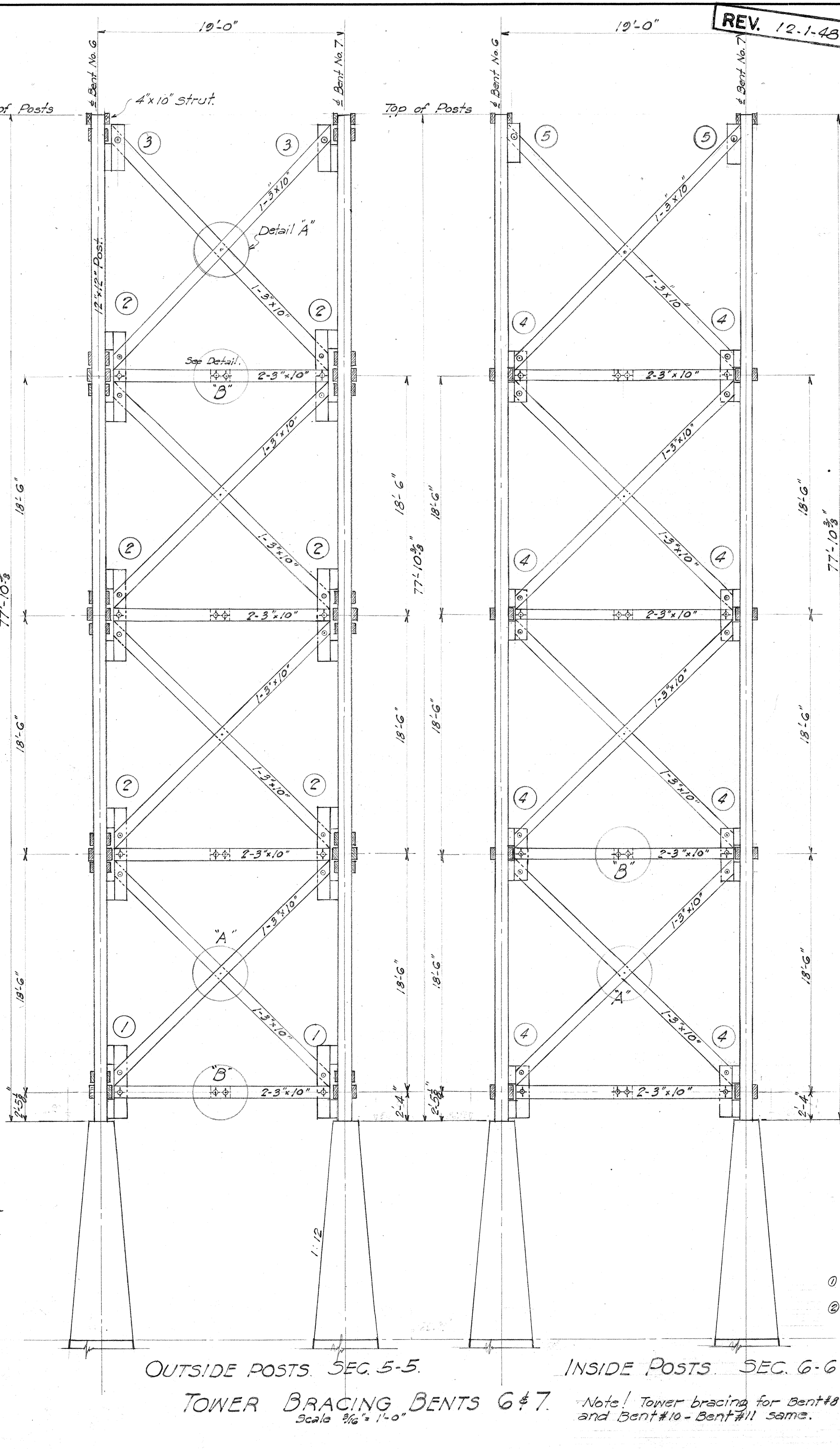
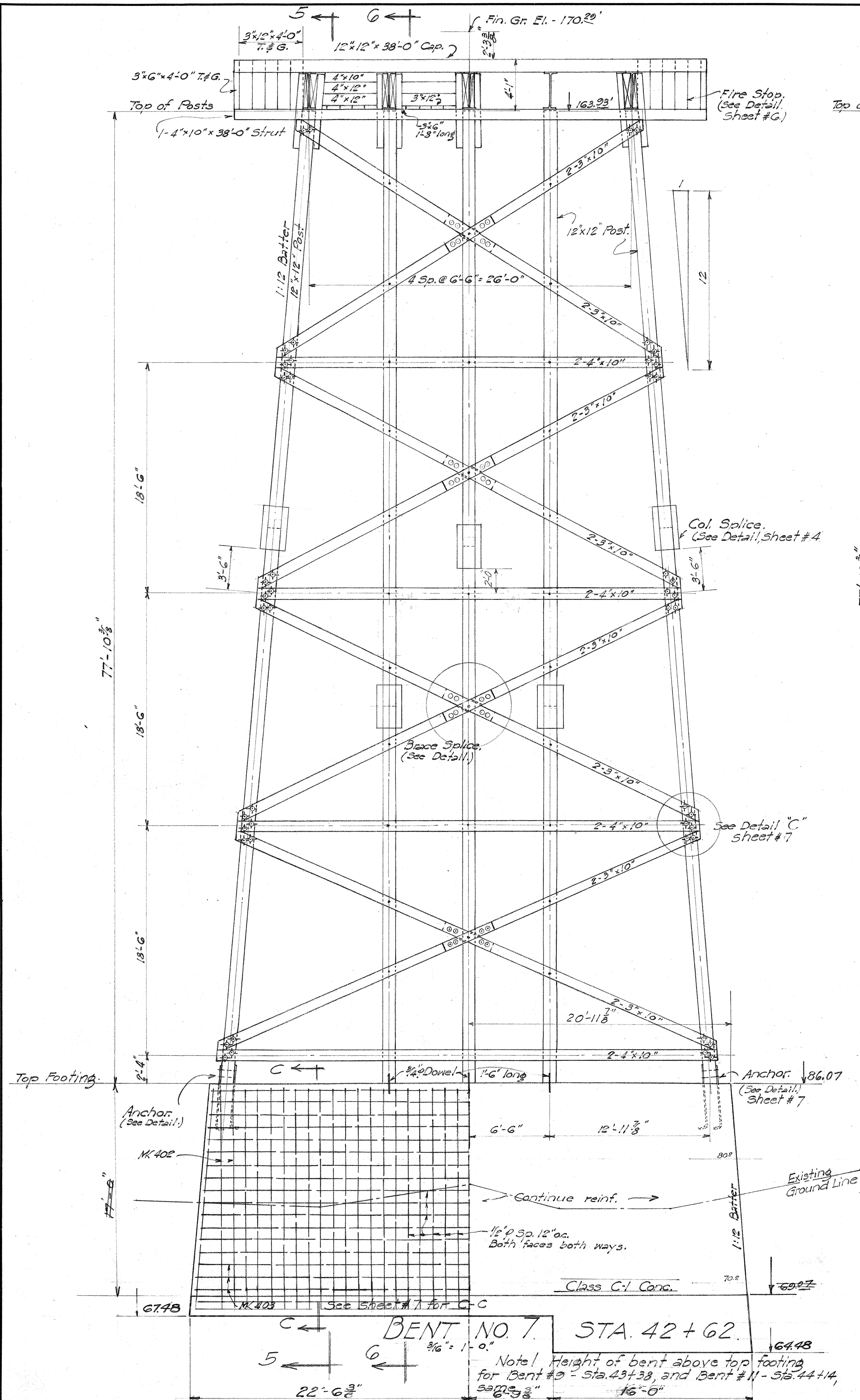
FOOTING ELEVATION
BENT NO. 10
1/8" = 1'-0"



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
WAHIAWA BRIDGE
STA. 40+90.17 - 44+91.42
McBryde Mill Rd. S 5(2)
Feb. 1948

SURVEY PLOTTED BY: DATE: 2/22/43
 DESIGNED BY: J. J. ...
 TRACED BY: J. J. ...
 QUANTITIES BY: J. J. ...
 CHECKED BY: J. J. ...
 NOTE BOOK No.

REVISION: changed timber bill of material



TIMBER BILL OF MATERIAL COAST REGION - DOUGLAS FIR.

MEMBER	SIZE	QTY	LENGTH	GRADING	MILLWORK	FT. B. M.	
Posts	12"x12"	10	10'-0"	No 1 Posts + Timbers	Rough	1200	
"	12"x12"	5	18'-0"	"	"	1080	
"	12"x12"	2	22'-0"	"	"	528	
"	12"x12"	2	24'-0"	"	"	2304	
"	12"x12"	2	26'-0"	"	"	624	
"	12"x12"	8	28'-0"	"	"	2688	
"	12"x12"	12	32'-0"	"	"	4608	
"	12"x12"	13	34'-0"	"	"	5304	
"	12"x12"	10	36'-0"	"	"	4320	
"	12"x12"	6	44'-0"	"	"	3168	
"	12"x12"	12	46'-0"	"	"	6624	
"	12"x12"	12	48'-0"	"	"	6912	
BRACING - BENTS.	4"x10"	12	28'-0"	Dense No 1 F.J. P+S.T.	"	1120	
"	4"x10"	6	30'-0"	"	"	600	
"	4"x10"	16	32'-0"	"	"	1704	
"	4"x10"	6	34'-0"	"	"	680	
"	4"x10"	20	36'-0"	"	"	2400	
"	4"x10"	24	38'-0"	"	"	3040	
"	4"x10"	12	42'-0"	"	"	1680	
"	3"x10"	24	18'-0"	"	"	1080	
"	3"x10"	36	20'-0"	"	"	1800	
"	3"x10"	36	22'-0"	"	"	1980	
"	3"x10"	8	30'-0"	"	"	600	
"	3"x10"	8	32'-0"	"	"	690	
"	3"x10"	12	36'-0"	"	"	1080	
"	3"x10"	12	38'-0"	"	"	1140	
"	3"x10"	12	40'-0"	"	"	1200	
"	3"x10"	12	44'-0"	"	"	1320	
BRACING - TOWERS.	3"x10"	160	18'-0"	"	"	7200	
"	3"x10"	22	20'-0"	"	"	1100	
"	3"x10"	3	22'-0"	"	"	165	
"	3"x10"	29	24'-0"	"	"	1740	
"	3"x10"	120	26'-0"	"	"	7800	
* SPLICE BLOCKS - BENT BR.	3"x10"	12	18'-0"	"	"	540	
* TOWER BR. GUSSET PLATES	4"x12"	102	4'-0"	"	"	1632	
* " " " "	4"x12"	16	12'-0"	"	"	768	
* " " " "	4"x12"	29	14'-0"	"	"	1624	
* TOWER BR. GUSSET PL. BLOCKS	6"x12"	20	2'-0"	Dense No 1 B+S.	"	240	
* " " " "	6"x12"	85	6'-0"	"	"	3060	
* Tower Bracing Blocks	4"x10"	20	6'-0"	Dense No 1 F.J. P+S.T.	"	400	
* " " " "	4"x10"	3	8'-0"	"	"	80	
* " " " "	4"x10"	5	14'-0"	"	"	233	
* POST SPLICE SCABS	6"x12"	40	14'-0"	"	"	3360	
* SCABS AT WF.	6"x12"	80	6'-0"	Dense No 1 B+S.	"	2880	
* BLOCKS between STRUTS	4"x10"	32	2'-0"	No 2 F.J. P+S.T.	"	213	
* FILLER BLOCKS at WF.	10"x12"	4	12'-0"	Dense No 1 B+S.	Cut to fit	480	
* " " " "	6"x12"	16	12'-0"	"	"	1152	
* BRIDGING between WF.	4"x12"	24	12'-0"	No 2 F.J. P+S.T.	Rough	1456	
* " " " "	4"x12"	1	10'-0"	"	"	40	
* " " " "	4"x10"	5	14'-0"	"	"	233	
* " " " "	4"x10"	1	6'-0"	"	"	20	
* FIRE BLOCKS	3"x12"	8	14'-0"	"	"	336	
* " " " "	3"x6"	2	14'-0"	"	"	42	
* FIRE WALL	3"x12"	40	4'-0"	"	"	480	
* " " " "	3"x6"	8	4'-0"	"	"	48	
* Floor Decking	2"x6"	640	8'-0"	No 1 Com. & Better	SIS/IE Hor. 1/2 scant	5120	
"	2"x6"	640	10'-0"	"	"	6400	
"	2"x6"	640	12'-0"	"	"	7680	
"	2"x6"	640	14'-0"	"	"	8960	
"	2"x6"	1280	18'-0"	"	"	23040	
"	2"x6"	1280	22'-0"	"	"	28160	
* DECK STARTER	6"x6"	2	30'-0"	Dense No 1 B+S.	"	180 92	
* BRIDGE RAILING	3"x8"	42	20'-0"	Dense No 1 F.J. P+S.T.	S4S	1680	
"	4"x8"	42	20'-0"	"	"	2240	
"	8"x8"	22	16'-0"	No 1 Posts + Timbers	"	1643	
"	8"x8"	28	16'-0"	"	"	2288	
* SIDEWALK FACE PLANKS	2"x10"	1	10'-0"	No 2 F.J. P+S.T.	SIS Cut to fit	17	
* CURB BLOCK	8"x10"	2	8'-0"	No 1 Posts + Timbers	SIS	107 23	
* PLANKS	3"x8"	581578	8'-0"	No 2 F.J. P+S.T.	SIS	5226 3248	
"	3"x8"	36	12'-0"	"	"	144 72	
* WHEEL GUARD	10"x10"	20	20'-0"	No 1 Posts + Timbers	SIS Develed	6667 6888	
"	10"x10"	4	22'-0"	"	"	198 368	
* BEARING BLOCK for Sidewalk Stringers	12"x18"	10	14'-0"	"	"	SIS Cut to fit	2520
"	12"x18"	1	8'-0"	"	"	144	
"	8"x18"	2	8'-0"	"	"	192 36	
* ROAD BRIDGING Under Sidewalk	4"x16"	3	12'-0"	No 2 F.J. P+S.T.	Cut to fit	576	
" for Stringers	4"x18"	20	14'-0"	"	"	1680	
" for Stringers	4"x18"	4	12'-0"	"	"	288	
* CROSS BRIDGING	2"x4"	136	14'-0"	"	"	1176	
* SPLICE BLOCKS for Stringers	6"x18"	20	12'-0"	Dense No 1 B+S.	SIS	2160	
* FILLER BLOCKS between Stringers	1"x3"	40	2'-0"	No 2 F.J. P+S.T.	Rough	20	
* NAILING BLOCKS for Sidewalk Planks	2"x4"	2	4'-0"	"	"	SIS	6 3
"	2"x3"	2	2'-0"	"	"	Rough	2 3
* SILL (Left #2)	6"x8"	2	38'-0"	No 1 Posts + Timbers	SIS	304 752	
* BUCKHEAD PLANKS	4"x12"	10	22'-0"	No 2 F.J. P+S.T.	Rough	900	
* SCABS (Abut. #1)	4"x12"	1	6'-0"	Dense No 1 F.J. P+S.T.	"	24	
"	4"x12"	1	10'-0"	"	"	40	
"	6"x18"	1	10'-0"	Dense No 1 B+S.	"	60	
"	6"x12"	1	14'-0"	"	"	84	
* STRINGERS	6"x18"	378	20'-0"	"	"	Rough, Ends Spd to 17 1/2 Exact	68040
* CAPS	12"x12"	2400	38'-0"	No 1 Posts + Timbers	SIS	9120 3576	
* PIPE HANGER SUPPORT	4"x6"	42	2'-0"	Dense No 1 F.J. P+S.T.	Rough	168	

Note 1: Short pieces of odd lengths were combined to a longer commercial length.

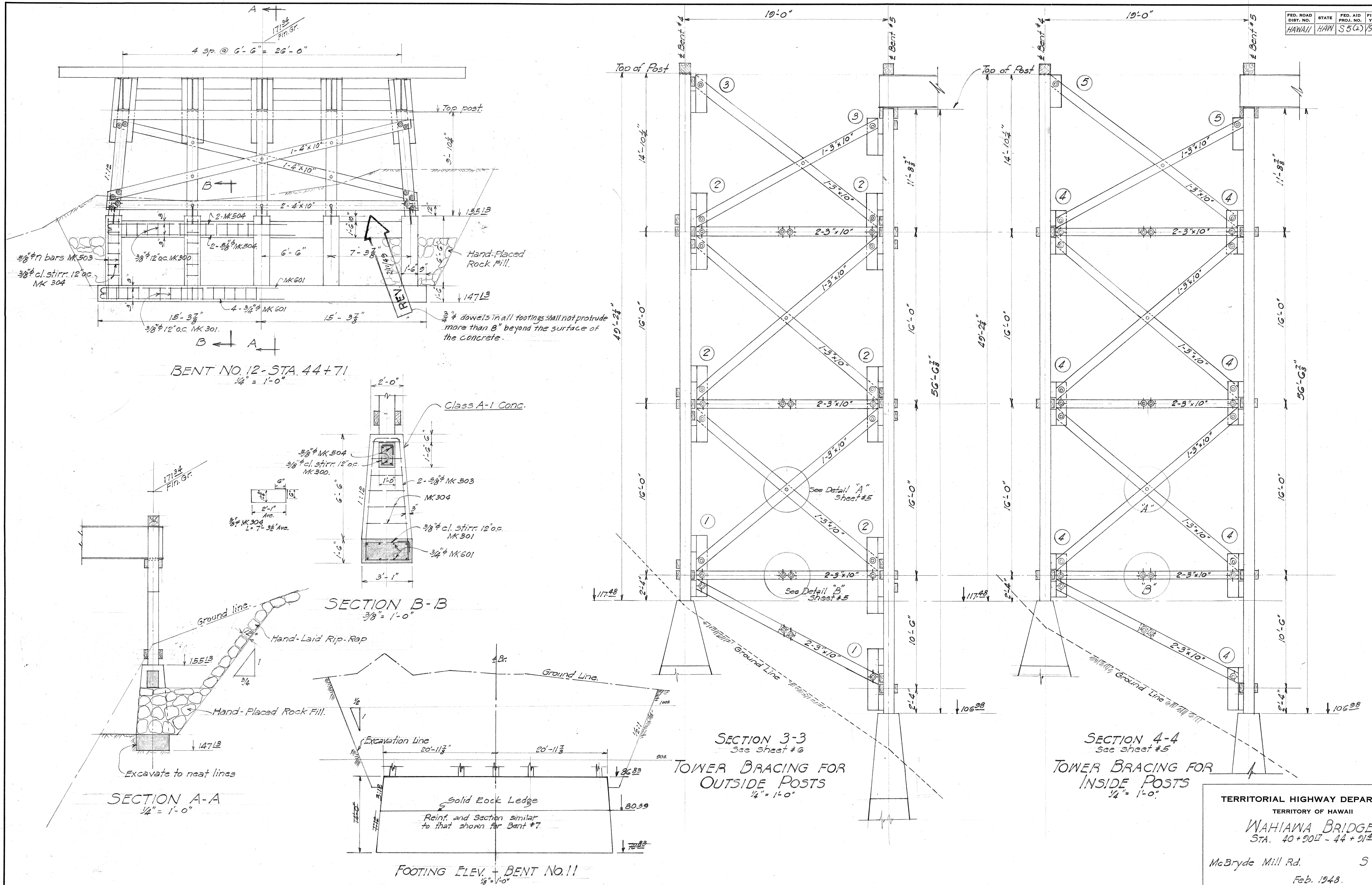
NOTE! ABBREVIATIONS
 ① F.J. P+S.T. = Framing Joists, Plank + Small Timbers.
 ② B+S = Beams + Stringers.

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
WAHIANA BRIDGE
 STA. 40+20.7 - 44+9.42
 McBryde Mill Rd. S 5(2)
 Feb. 1943

SHEET No 8 OF 11 SHEETS

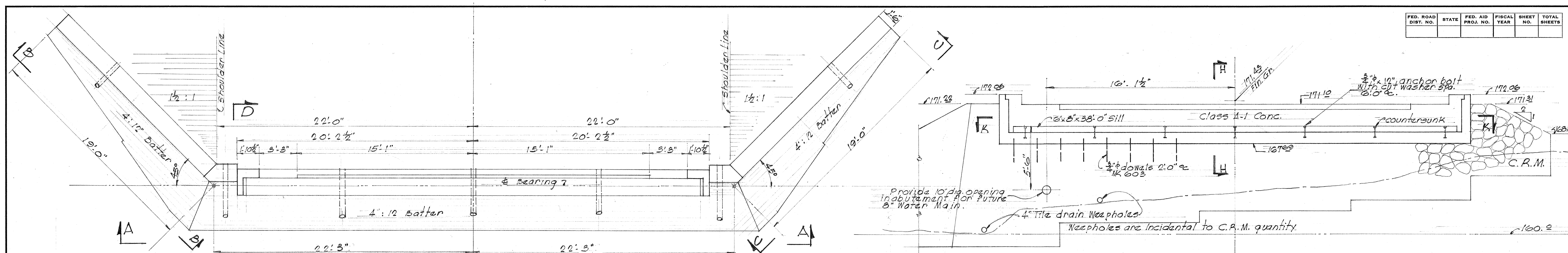
5302.19

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	55(2)	1948	20	29



TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
WAIAWA BRIDGE
 STA. 40+90.17 - 44+91.42
 McBryde Mill Rd. S 5 (2)
 Feb. 1948.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOT. SHEETS



NOTE:-

THIS SHEET SUPERSEDES SHEET NO. 530221

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

WAHIAWA BRIDGE

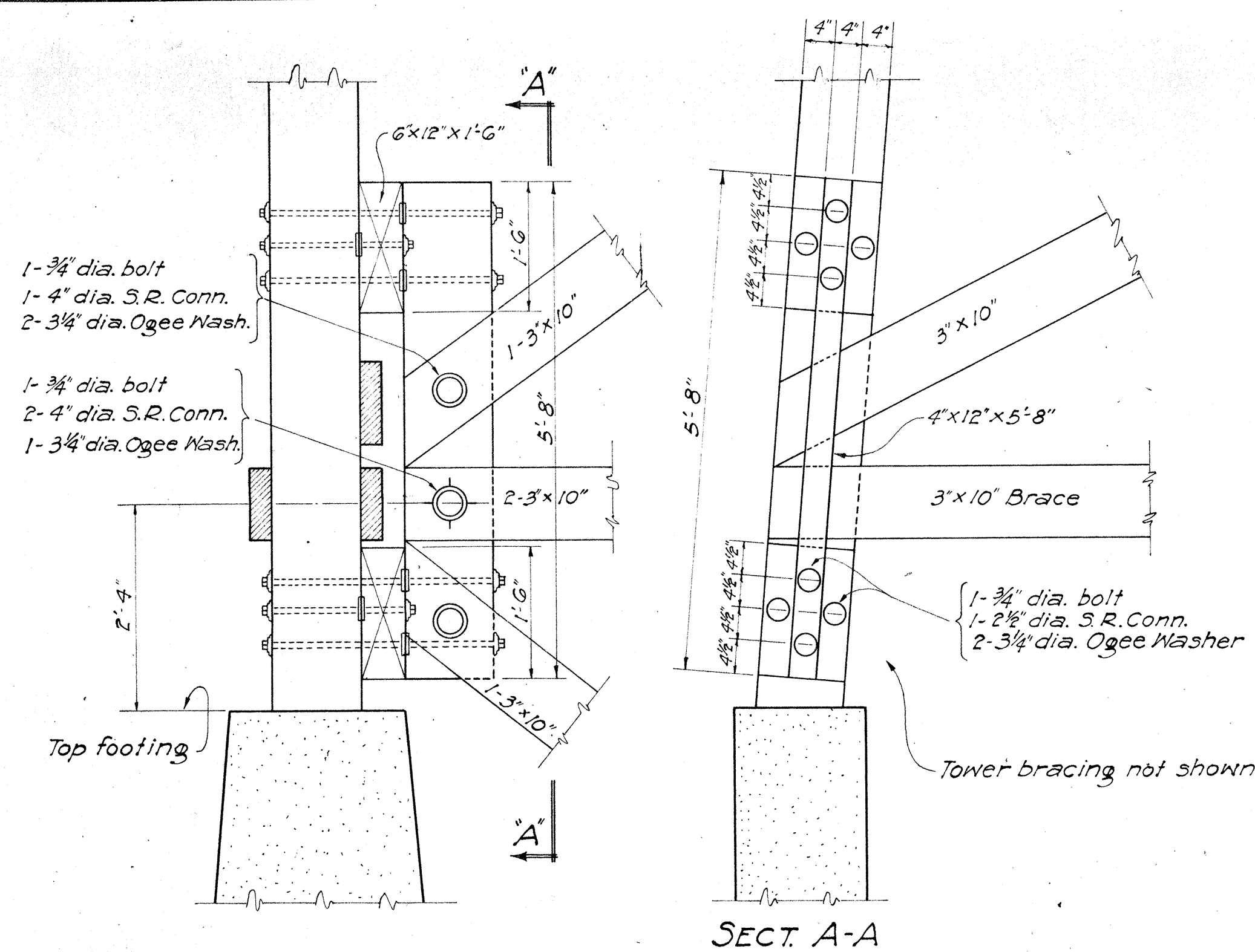
STA. $40+89.58 = 44+91.42$

McBryde Mill Rd. 95(2)

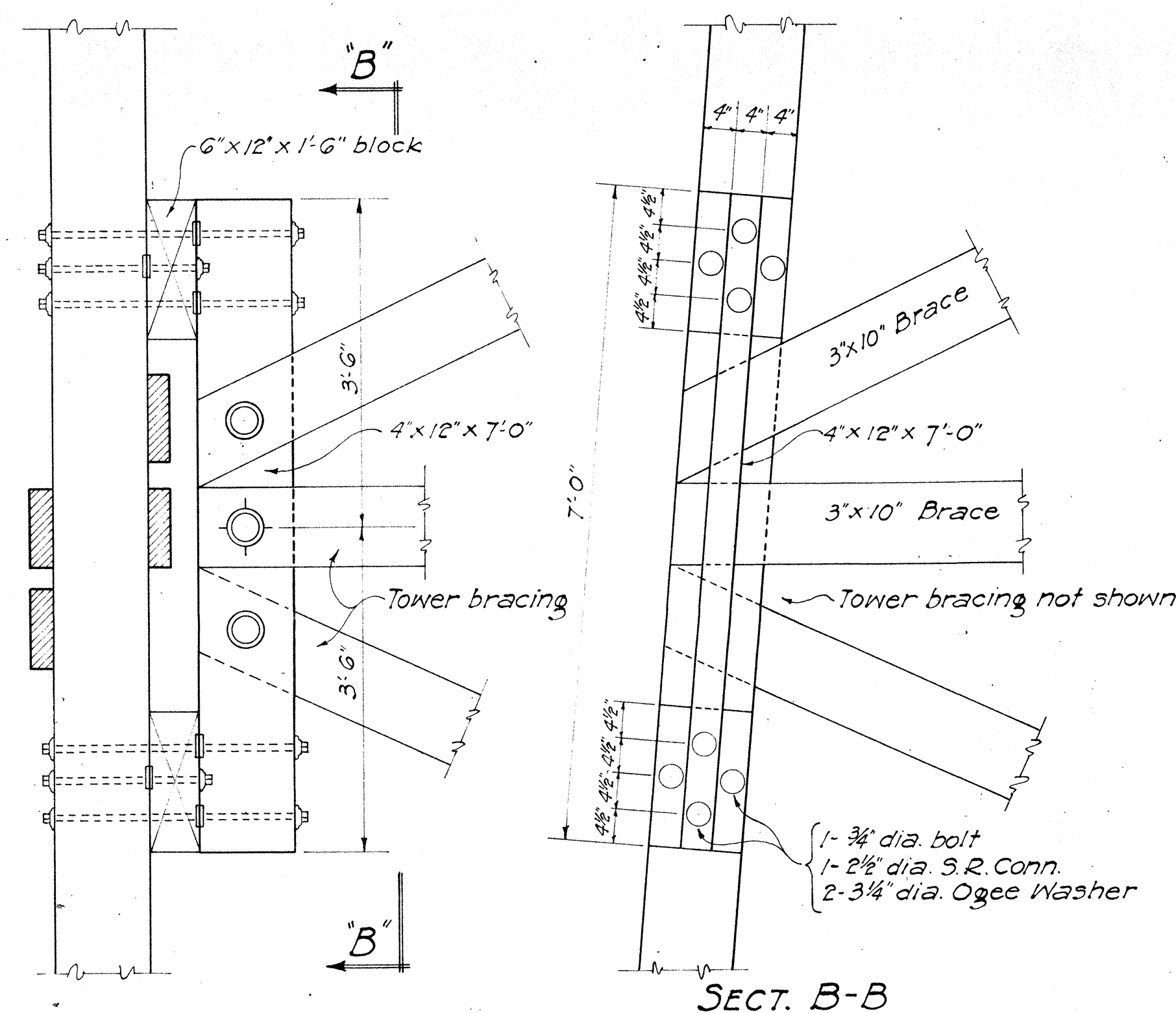
Dec. 1948

SHEET No. 10 OF 11 SHEETS

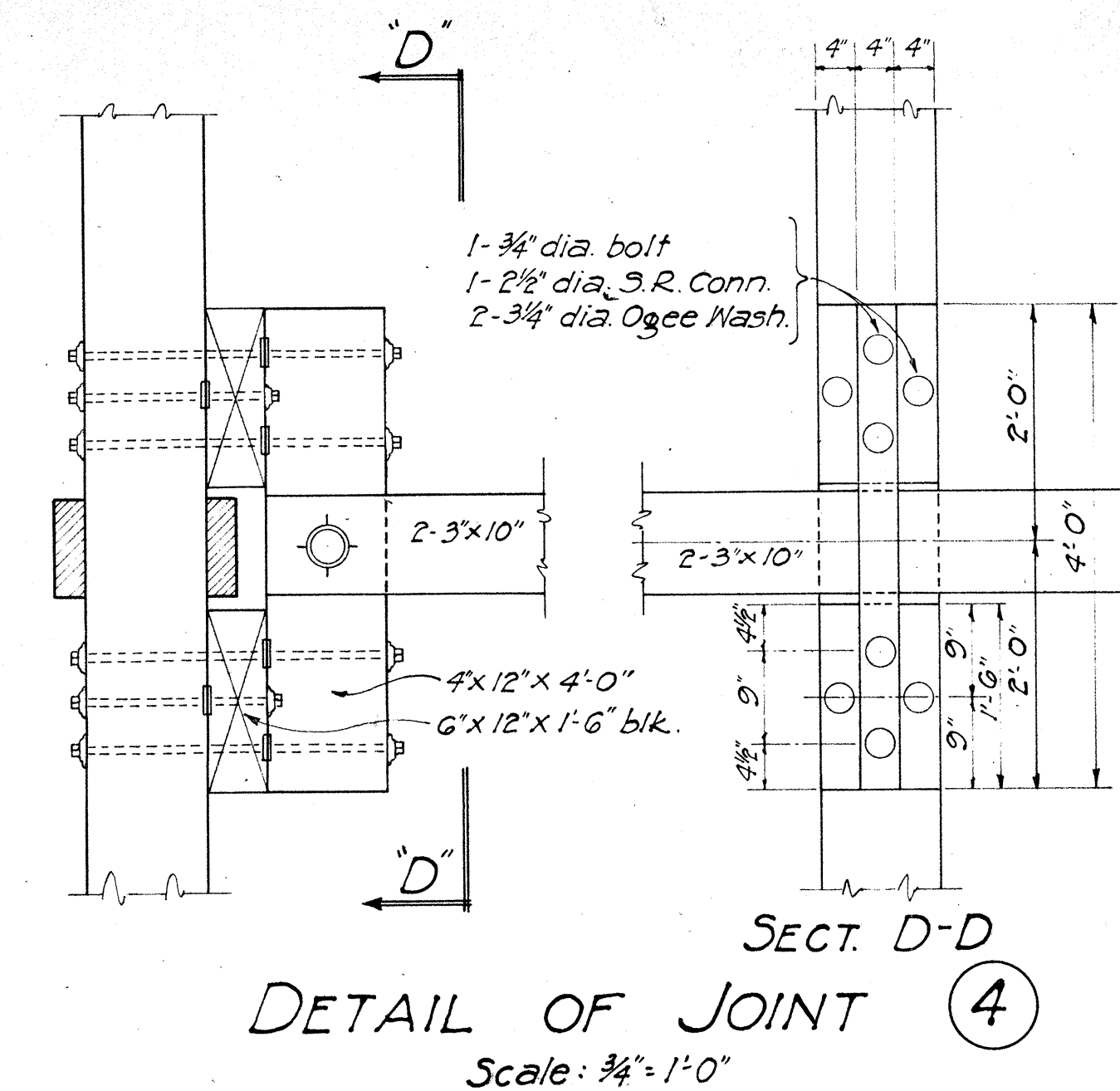
5302.21A



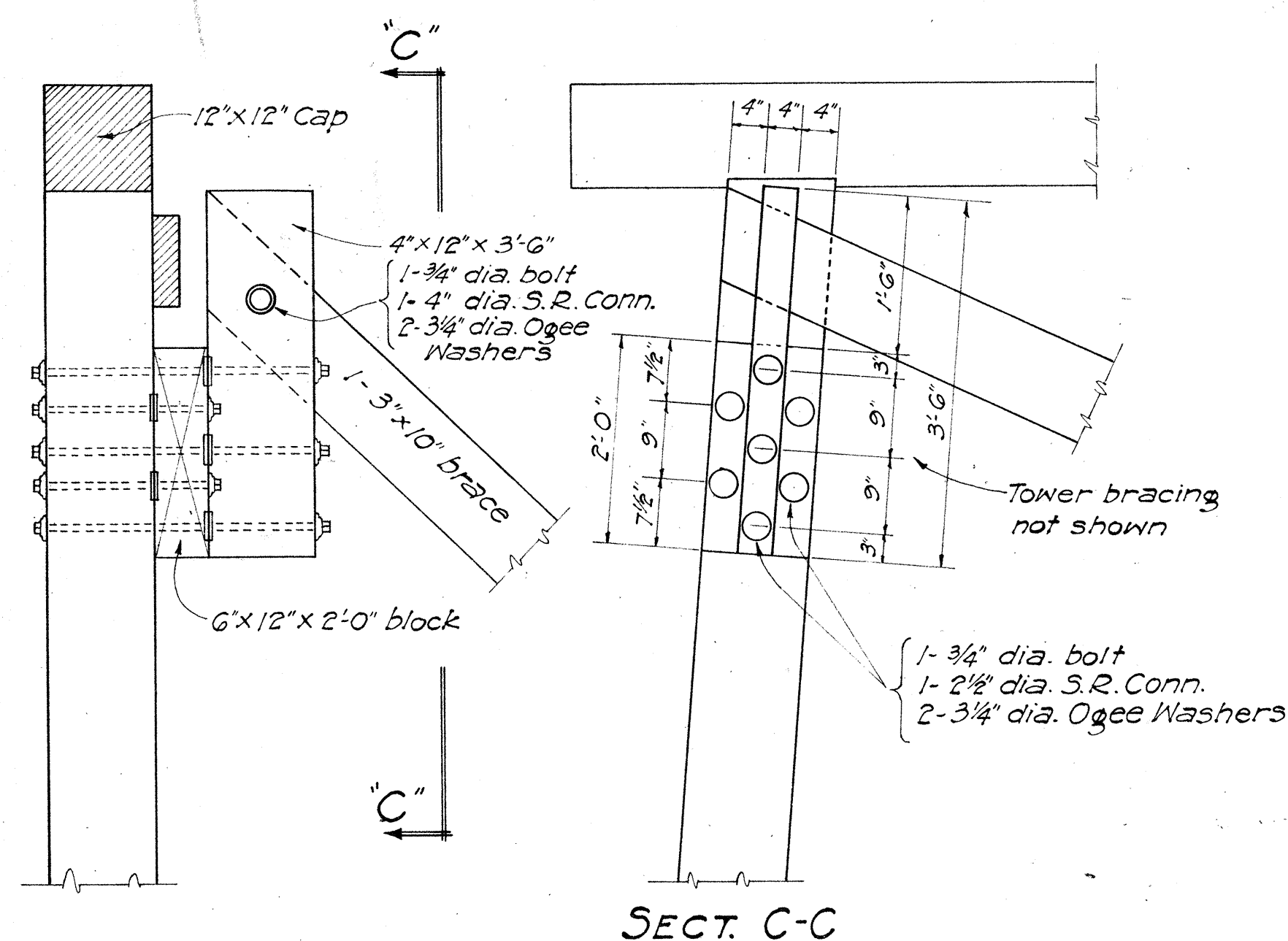
DETAIL OF JOINT (1)
Scale: $\frac{3}{4}" = 1'-0"$



DETAIL OF JOINT (2)
Scale: $\frac{3}{4}'' = 1'-0''$

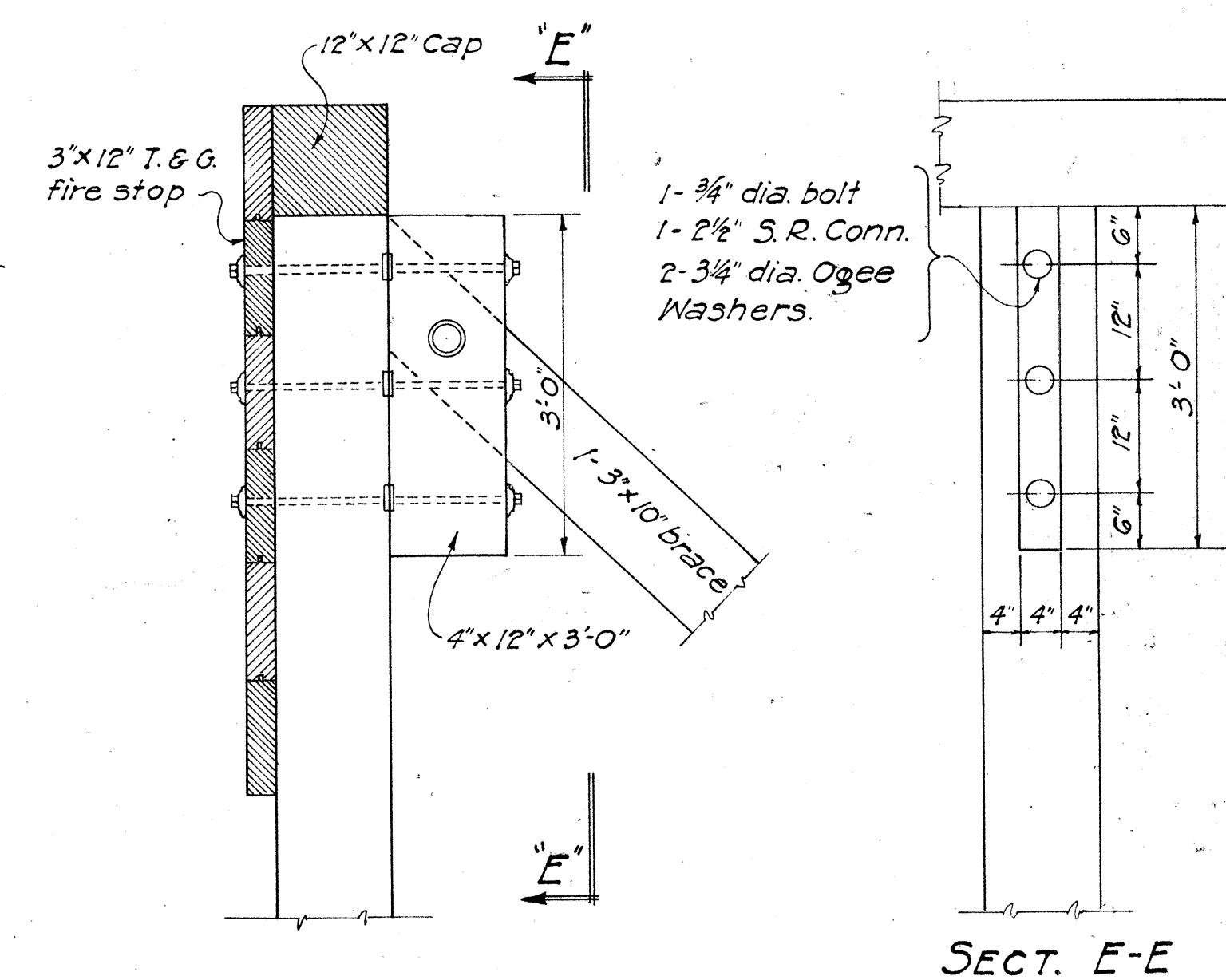


DETAIL OF JOINT (5)



DETAIL OF JOINT (3)
Scale: $\frac{3}{4}" = 1'-0"$

MTL. REQ.		
Joint No.	Gusset Plates	Blocks
①	1- 4" x 12" x 5'-8"	2- 6" x 12" x 1'-6"
②	1- 4" x 12" x 7'-0"	2- 6" x 12" x 1'-6"
③	1- 4" x 12" x 3'-6"	1- 6" x 12" x 2'-0"
④	1- 4" x 12" x 4'-0"	2- 6" x 12" x 1'-6"
⑤	1- 4" x 12" x 3'-0"	



DETAIL OF JOINT (5)
Scale: $\frac{3}{4}'' = 1'-0''$

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STANDARD TOWER BRACING JOINT
DETAILS FOR TIMBER BRIDGES
MAHIAWA BRIDGE
STA 40+00 to 44+01.42
McBryde Mill Rd. S 5 (2)
Feb. 1948