Holders of Authorized Roadway Standards Books may secure additional prints of standards by writing direct to:

Standards Desk, Office of Chief Engineer, San Francisco.

Note: Standards marked (*) in index are in process of development or revision, or are not in general circulation. Information regarding such standards may be had by writing to Standards Desk.

Standards marked **OLD STANDARD** are no longer considered current practice, but must be maintained for information or to protect existing installations. Such standards may be generally used to maintain or order parts for existing installations, but should not be used for new work unless otherwise directed.

INDEX

TO ALL HOLDERS OF AUTHORIZED BOOKS OF ROADWAY STANDARDS

The following standards have been revised as shown. Old prints should be destroyed and the attached prints added to your books.

C.E. STD. NO.	REVISION
Index	Addition of latest revision or drawing date (except signs).
S-4A	Usage notes deleted.
S-5	Notes referring to weight and rail joint company. Deleted.
S-41	Ballast section reduced.
S-41-A	" " "
S-54	Revised for use of dome head drive spikes.
S-84	" " " " " " " "
S-85	" " " " " " " "
S-87	Timber treatment notes added.
S-125	Notes deleted.
S-147	Drilling changed to current standard and now includes 115-lb. rail.
S-148	Drilling corrected to current standards.
S-157	" " " " "
S-187-A	Notes added for 8½" width punching changed from 3/4" to 11/16".
S-196-A	Same as S-187-A.
S-203	Reissued as old standard - for information only.
S-212	Replaces S-212-A - Drilling corrected to current standard.
S-220	Reissued as new standard with corrected drilling.

The following standards are reissued with the suffix "WS" added to the C.E.S. No. to indicate Western Standards. These are Old Standard -- for information only.

S-147-WS
S-148-WS
S-157-WS
S-212-WS

The following are new standards to be added to you books:

C.E. STD. NO.	DESCRIPTION
S-121-A	16'-6" switch for 100-lb. R.E. rail.
S-300	Switch slide and heel plates for 115, 119, 132 and 136-lb. switches.
S-330	Switch heel joints for 16'-6" and 24'-0" switches 115 through 136-lb.
S-335	16'-6" switch points - Standard Design - for use with 115 through 136-lb. rail.

The following standards are issued as "Old Standard" and are for information only. New standards referred to on these sheets are now in the process of development and will be issued shortly.

S-213, Sheet 1 of 2 132-lb. 24'-0" split switch for use with switch machines.

S-215, Sheet 1 of 2 132-lb. 16'-0" split switch for use with switch machines.

Office of Chief Engineer
San Francisco, California

December 1, 1969

F R O G S

					Latest Date Issued
# 5 1/2	85#	Bolted Rigid Frog		S-152	12 - 21 - 54
# 5 1/2	85#	Bolted Rigid Frog	Plate Replacement	S-152A	11 - 15 - 59
# 7	85#	Bolted Rigid Frog		S-151	12 - 21 - 54
# 7	85#	Bolted Rigid Frog	Plate Replacement	S-151A	11 - 15 - 59
# 8 1/2	85#	Bolted Rigid Frog		S-150	12 - 21 - 54
# 8 1/2	85#	Bolted Rigid Frog	Plate Replacement	S-150A	11 - 15 - 59
# 7	85#	Self-Guarded Frog		S-191	9 - 20 - 55
# 7	100#	Self-Guarded Frog		S-70	11 - 15 - 59
# 8 1/2	85#	Self-Guarded Frog		S-190	9 - 20 - 55
# 8 1/2	100#	Self-Guarded Frog		S-71	7 - 15 - 59
#10	85#	Self-Guarded Frog		S-198	9 - 20 - 55
#10	100#	Self-Guarded Frog		*S-72	
#10	85#	Spring Rail Frog		S-117	2 - 1 - 38
#10	100#	Spring Rail Frog (Old Standard)		S-120	3 - 2 - 36
#10	100#	Spring Rail Frog (New Style)		*S-120A	
#10	112#	Spring Rail Frog		S-110	3 - 2 - 36
#10	115#	Spring Rail Frog		S-205	3 - 20 - 48
#10	119#	Spring Rail Frog		S-205	3 - 20 - 48
#10	132#	Spring Rail Frog		*S-214	
#10	136#	Spring Rail Frog		*S-214	
#14	115#	Spring Rail Frog		S-202	9 - 1 - 48
# 7	100#	Railbound Manganese Frog		S-138	9 - 1 - 36
# 8 1/2	112#	Railbound Manganese Frog		S-135	9 - 1 - 36
#10	100#	Railbound Manganese Frog		S-137	9 - 1 - 36
#10	112#	Railbound Manganese Frog		S-136	9 - 1 - 36
#10	115#	Railbound Manganese Frog		S-136	9 - 1 - 36
#10	119#	Railbound Manganese Frog		S-148 ****	12 - 1 - 68
#10	136#	Railbound Manganese Frog		S-157 ****	12 - 1 - 68
#14	112#	Railbound Manganese Frog		S-133	1 - 25 - 55
#14	115#	Railbound Manganese Frog		S-133	1 - 25 - 55
#14	119#	Railbound Manganese Frog		S-147 ****	12 - 1 - 68
#14	132#	Railbound Manganese Frog		S-212 ****	12 - 1 - 68
#14	136#	Railbound Manganese Frog		S-212 ****	12 - 1 - 68

****Indicates existence of coinciding western standard of the same No. followed by the letters "WS" Latest Date shown for "Standard" Drwg. only.

SWITCH STANDS

		Latest Date Issued
High Star Switch Stand	S-90	4 - 14 - 31
Low Star Ground Throw Switch Stand	S-101	3 - 23 - 32
Parallel Ground Throw Switch Stand	S-142	11 - 5 - 36
Jack Knife Switch Stand	S-167	2 - 1 - 41
Jack Knife Switch Stand Box and Cover	S-168	2 - 1 - 41
Connecting Rods for Switch Stands	S-141	11 - 5 - 36
Spring Switch - Target	*S-188	
Application of Switch Stands	*S-29	

GUARD RAILS

85#	11'-0"	Guard	Rail	S-30	1 - 9 - 54
100#	"	"	"	S-110	3 - 2 - 36
112#	"	"	"	S-108	3 - 2 - 36
115#	"	"	"	*S-108A	
115#	13'-0"	"	"	S-204	1 - 23 - 57
119#	11'-0"	"	"	*S-108A	
119#	13'-0"	"	"	S-204	1 - 23 - 57
132#	11'-0"	"	"	S-216	6 - 1 - 51
132#	13'-0"	"	"	S-217	8 - 15 - 67
136#	11'-0"	"	"	S-216	6 - 1 - 51
136#	13'-0"	Guard	Rail	S-217	8 - 15 - 67
Guard Rails - Double				S-60	7 - 15 - 63
" " - Single				S-60A	7 - 15 - 63
Guard Rails for Curves - 85#				S-105	6 - 1 - 33
" " " " - 100# and Heavier				S-132	6 - 15 - 69

GUARD RAILS SWITCH STANDS

R A I L & J O I N T S

		Latest Date Issued
Standard Sections 85 lb. to 136 lb.	S-220	12 - 1 - 68
85 lb. CF&I Rail	S-2	9 - 1 - 23
85 lb. Joint	S-5	7 - 1 - 27
85 lb. Track Bolt	S-40	12 - 1 - 26
100 lb. R. E. Rail	S-118	2 - 25 - 35
100 lb. Joint	S-107	3 - 1 - 35
112 lb. R. E. Rail	S-106A	1 - 2 - 37
112 lb. Joint	S-112	3 - 1 - 35
115 lb. R. E. Rail	S-200	2 - 1 - 54
115 lb. Joint	S-201	12 - 15 - 54
119 lb. CF&I Rail (Old Standard)	S-221 WS	10 - 15 - 54
119 lb. CF&I Rail	S-221	10 - 1 - 59
119 lb. Joint (Old Standard)	S-201 WS	12 - 15 - 54
119 lb. Joint	S-201	10 - 1 - 59
132 lb. R. E. Rail	S-210	10 - 15 - 54
132 lb. Joint	S-211	12 - 15 - 54
136 lb. CF&I Rail (Old Standard)	S-222 WS	10 - 15 - 54
136 lb. CF&I Rail	S-222	10 - 1 - 59
136 lb. Joint (Old Standard)	S-211 WS	12 - 15 - 54
136 lb. Joint	S-211	10 - 1 - 59
141 lb. Girder Rail & Joint	S-13	9 - 17 - 54
159 lb. Girder Rail	S-173	8 - 15 - 42
159 lb. Girder Rail Joint	S-174	3 - 13 - 44
174 lb. Girder Rail	S-38	8 - 15 - 42
174 lb. Girder Rail Joint	S-174	3 - 13 - 44

T R A C K F A S T E N I N G S

Track Spike 6"	S-4	11 - 12 - 37
Track Spike 5 1/2"	S-4A	12 - 1 - 68
Track Spike 6" Full Throated	S-4B	6 - 1 - 63
Track Bolt	S-40	12 - 1 - 26
Lag Screw Spike	S-192	1 - 17 - 56
Tie Bars for Tee Rails	S-33	5 - 23 - 44
Tie Bars for Girder Rails	S-33A	11 - 27 - 45
Tie Bars - Patent Type	S-33B	3 - 15 - 57
Tie Plate Shims	*S-159	
Rail Anchor Placement - Single Track	S-143	11 - 19 - 59
Rail Anchor Placement - Double Track	S-144A	11 - 19 - 59
Rail Anchor Placement - Welded Rail	*S-143B	11 - 19 - 59

ROADBED, BALLAST, RIGHT OF WAY

		Latest Date Issued
Ballast Sections	S-41	4 - 29 - 65
" "	S-41A	4 - 29 - 65
" "	S-41B	10 - 19 - 55
Roadbed Sections	S-42	2 - 1 - 58
" "	S-42A	10 - 12 - 59
" "	S-42B	2 - 1 - 58
" "	S-42C	2 - 1 - 58
" "	S-42D	2 - 1 - 58
" "	S-42E	10 - 12 - 59
Road Crossing - Paved Center	S-84	12 - 1 - 68
Road Crossing - Plank Center	S-85	12 - 1 - 68
Crossing Planks	S-87	12 - 1 - 68
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Flangeway Liner Filler Blocks	S-134	8 - 14 - 59
Flangeway Liner for Pavement 85#	S-127	5 - 1 - 36
Right-of-Way Fence	S-83	3 - 1 - 44
Right-of-Way Fence	S-83A	3 - 1 - 44
Sand and Snow Fence	S-111	6 - 1 - 37
Cattle Guard	S-126	6 - 1 - 36
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" "	S-48B	11 - 16 - 55
" "	S-48C	11 - 16 - 55
Traffic Barrier Posts	S-69	1 - 21 - 55
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Switch Point Derail for 85 lb.-Rail	S-91	10 - 23 - 36
Property Line Post	S-35	6 - 20 - 32
" "	S-35A	6 - 1 - 36
Siding Capacity	S-97	10 - 1 - 67
Head Block Mount	S-80	12 - 1 - 63

S W I T C H & S W I T C H P A R T S

				Latest Date Issued
10'-0"	Switch	85#	S-154A	12 - 15 - 54
15'-0"	Switch	85#	S-153A	12 - 15 - 54
16'-6"	Switch	85#	S-116A	12 - 15 - 54
16'-6"	Switch	100#	*S-121A	
16'-6"	Switch In Pavement	100#	*S-390	
16'-6"	Switch	112#	S-109	3 - 2 - 36
16'-6"	Switch	115#	S-207	7 - 1 - 54
16'-6"	Switch	119#	*S-207	
16'-6"	Switch	132#	*S-215	***
16'-6"	Switch	136#	*S-215	***
16'-6"	Switch	115# to 136#	*S-352, 352A	
24'-0"	Switch	115#	S-203	3 - 1 - 52
24'-0"	Switch	119#	*S-203	
24'-0"	Switch	132#	S-213	***
24'-0"	Switch	136#	S-213	***
24'-0"	Switch	115# to 136#	*S-370, 370A	
16'-6"	Knife Switch points	115# to 136#	S-335	12 - 1 - 68
16'-6"	Samson Switch points	115# to 136#	*S-336	
24'-0"	Knife Switch points	115# to 136#	*S-340	
24'-0"	Samson Switch points	115# to 136#	*S-342	
16'-6"	Switch-Heel Joints	115# to 136#	S-330	12 - 1 - 68
24'-0"	Switch-Heel Joints	115# to 136#	S-330	12 - 1 - 68
Switch-Slide and Heel Plates		115# to 136#	S-300	12 - 1 - 68
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Switch Point Guard		100#	*	
Switch Point Guard		112#	S-20	9 - 16 - 55
Switch Point Guard		115#	S-20	9 - 16 - 55
Switch Point Lock			*S-129	

***Issued as OLD STANDARD October 1969, for information only.

TIE PLATES

			Latest Date Issued
85#	8x9 Tie Plates	S-3A	7 - 8 - 34
100#	8x11 Joint Tie Plate	S-67D	1 - 5 - 37
100#	8x11 Intermediate Tie Plate	S-67E	1 - 5 - 37
100#	8-3/4x11 Joint Tie Plate	S-67F	1 - 4 - 45
100#	8-3/4x11 Intermediate Tie Plate	S-67G	1 - 3 - 47
112#	8x11 Joint Tie Plate	S-67D	1 - 5 - 37
112#	8x11 Intermediate Tie Plate	S-67E	1 - 5 - 37
112#	8-3/4x11 Joint Tie Plate	S-67F	1 - 4 - 45
112#	8-3/4x11 Intermediate Tie Plate	S-67G	1 - 3 - 47
112#	8x12 Tie Plate	S-186	12 - 1 - 49
115#	8-3/4x11 Tie Plate	S-67G	1 - 3 - 47
115#	8x12 Tie Plate	S-186	12 - 1 - 49
115#	8x13 Tie Plate	S-187 or S-187A	1 - 25 - 55
119#	7-3/4x13 Tie Plate	*S-187B or *S-187C	
119#	8x13 Tie Plate	S-187 or S-187A	1 - 25 - 55
132#	8x4 Tie Plate	S-196 or S-196A	1 - 25 - 55
136#	7-3/4x14 Tie Plate	*S-196B or *S-196C	
136#	8x14 Tie Plate	S-196 or S-196A	1 - 25 - 55
141#	8x12 Tie Plate	S-65	12 - 9 - 54
159#	8x12 Tie Plate	S-65	"
174#	8x12 Tie Plate	S-65	"
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Tie Plate Shims		*S-159	

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Tie Plug	S-55	12 - 15 - 54
Tie Plate Shims	*S-159	
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Sizes and Spacing - S.N. & T.S.	S-218A	1 - 1 - 63

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		Latest Date Issued
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Tie Commander	S-161	7 - 15 - 40
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" - Slow, Resume Speed	S-25A	8 - 18 - 57
" - Multiple Speed	S-25B	4 - 1 - 57
Flagmen's Stop Sign	S-12	8 - 29 - 23

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Scrap Bin	*S-59	
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Rail Anchor Placement - Single Track	S-143	11 - 19 - 59
Rail Anchor Placement - Double Track	S-144	11 - 19 - 59
Siding Capacity	S-97	10 - 1 - 61

TURNOUTS

								Latest Date Issued
# 5 1/2	T.O.	85#	B.R.	Frog	10'-0"	Pts.	S-114A	1 - 21 - 55
# 5 1/2	T.O.	85#	B.R.	Frog	15'-0"	Pts.	S-223	1 - 21 - 55
# 7	T.O.	85#	B.R.	Frog	15'-0"	Pts.	S-96	1 - 17 - 56
# 7	T.O.	85#	S.G.	Frog	15'-0"	Pts.	S-99	1 - 21 - 55
# 7	T.O.	100#	S.G.	Frog	16'-6"	Pts.	*	
# 8	T.O.	Girder Rail 250' Rad. Switch					S-11	4 - 8 - 55
# 8	T.O.	Girder Rail 400' Rad. Switch					S-9	4 - 8 - 55
# 8 1/2	T.O.	85#	B.R.	Frog	16'-6"	Pts.	S-93	1 - 17 - 56
# 8 1/2	T.O.	85#	S.G.	Frog	16'-6"	Pts.	S-93A	1 - 21 - 55
# 8 1/2	T.O.	100#	S.G.	Frog	16'-6"	Pts.	*	
#10	T.O.	85#	S.R.	Frog	16'-6"	Pts.	S-92	8 - 15 - 57
#10	T.O.	85#	S.G.	Frog	16'-6"	Pts.	S-224	1 - 21 - 55
#10	T.O.	100#	S.G.	Frog	16'-6"	Pts.	*	
#10	T.O.	100#	S.R.	Frog	16'-6"	Pts.	S-73	11 - 1 - 63
#10	T.O.	100#	R.B.M.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	112#	S.R.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	112#	R.B.M.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	115#	S.R.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	115#	R.B.M.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	119#	S.R.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	119#	R.B.M.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	132#	S.R.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	132#	R.B.M.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	136#	S.R.	Frog	16'-6"	Pts.	S-73	"
#10	T.O.	136#	R.B.M.	Frog	16'-6"	Pts.	S-73	11 - 1 - 63
#14	T.O.	115#	S.R.	Frog	24'-0"	Pts.	S-206	4 - 7 - 49
#14	T.O.	115#	R.B.M.	Frog	24'-0"	Pts.	S-208	1 - 18 - 57
#14	T.O.	119#	R.B.M.	Frog	24'-0"	Pts. 39' Rail	S-208	1 - 18 - 57
#14	T.O.	119#	R.B.M.	Frog	24'-0"	Pts. 78' Rail	S-208A	1 - 25 - 57
#14	T.O.	132#	R.B.M.	Frog	24'-0"	Pts.	S-208	1 - 18 - 57
#14	T.O.	136#	R.B.M.	Frog	24'-0"	Pts. 39' Rail	S-208	1 - 18 - 57
#14	T.O.	136#	R.B.M.	Frog	24'-0"	Pts. 78' Rail	S-208A	1 - 25 - 57
#20	T.O.	119#	R.B.M.	Frog			*S-15	
#20	T.O.	136#	R.B.M.	Frog			*S-15	

T U N N E L S, B R I D G E S, C U L V E R T S

		Latest Date Issued
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Pile Trestle - OD - Main Lines	*S-103	
Pile Trestle - Ballast Deck	*S-162	
Frame Trestle - OD	*S-130	
Water Barrels on Trestles	S-78	7 - 28 - 36
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Tell-Tale (Bridge & Tunnel Warning) New Style	*S-58A	
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Advance Warning Sign - R.R. Crossing	S-17
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"BEGIN TCS"	
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"CL"	S-184
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Crossing Advance Warning Sign	S-17
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"DERAIL PIPE CONNECTED TO..."	S-178
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"END TCS"	
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"NO TRESPASSING UNDER PENALTY..."	S-10A

SIGNS (CONT'D.)

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THE WESTERN PACIFIC RAILROAD COMPANY

MASTER LIST OF AUTHORIZED HOLDERS OF STANDARDS BOOKS

Chief Engineer
Principal Assistant Engineer
Track Engineer
Engineer of Bridges & Structures
Office Engineer
Valuation Engineer
Assistant Engineer - Statistics & AFEs
Design Engineer
Drafting Room
San Francisco Field Party
Standards Desk
General Supervisor - S&WE
General Supervisor - MW&S Welding
Signal Engineer
Office Engineer - Signals
Signal Supervisor, Sacramento
Signal Constr. Supervisor, Sacramento
Signal Supervisor, Elko
General Manager
Chief Clerk - Purchasing
Head Buyer
Manager of Materials & Stores
General Storekeeper
Storekeeper
Section Stockman
Mechanical Engineer
Shop Superintendent
Blacksmith Foreman
Painter Foreman
Mill Foreman
Boiler Foreman
President & General Manager - SN
Valuation Engineer - SN
Superintendent - TS
Superintendent - West. Divn.
Division Engineer - West. Divn.
Head MofW Clerk - West. Divn.
B&B Supervisor - West. Divn.
Roadmaster, 1st District - West. Divn.
Roadmaster, 2nd District - West. Divn.
Roadmaster, 3rd District - West. Divn.
Roadmaster, 4th District - West. Divn.
Drafting Room - West. Divn. Office
Superintendent - East. Divn.
Division Engineer - East. Divn.
B&B Supervisor - East. Divn.
Assistant to Divn. Engineer - East. Divn.
Roadmaster, 1st District - East. Divn.
Roadmaster, 2nd District - East. Divn.
Roadmaster, 3rd District - East. Divn.
Roadmaster, 4th District - East. Divn.

- -

(PLEASE DETACH AND RETURN PROMPTLY)

Date ______________________

Mr. F. R. Woolford:
San Francisco

I have received Roadway Standards Book corrections dated ______________.

(NAME)____________________ (TITLE)______________

THE WESTERN PACIFIC RAILROAD COMPANY

AUTHORIZED HOLDERS OF ROADWAY STANDARDS BOOKS

Chief Engineer
Assistant Chief Engineer
Engineer Maintenance of Way & Structure
Engineer of Bridges & Structures
Principal Assistant Engineer
Office Engineer
Engineer of Costs, Valuation & Statistics
Drafting Room - San Francisco
San Francisco Field Party
Standards Desk
General Supervisor MW&S Welding
Project & Assistant Valuation Engineer - Signals (San Francisco)
General Supervisor of Track - Oroville
Vice President & General Manager
Head Buyer - Purchasing
General Storekeeper
Storekeeper-Sacramento
Section Stockman
Storekeeper - Portola
Storekeeper - Elko
Mechanical Engineer
Shop Superintendent
Blacksmith Foreman
Painter Foreman
Mill Foreman
President & General Manager - SN Railway
Superintendent - Sacramento
Division Engineer - Sacramento
Division Engineer - Elko
Head M of W Clerk - Sacramento
Roadmaster - Oakland
Roadmaster - Sacramento
Roadmaster - Keddie
Roadmaster - Keddie (NCE)
Roadmaster - Portola
Roadmaster - Elko
Roadmaster - Wendover
Assistant Roadmaster - Sacramento
Assistant Roadmaster - Keddie
Assistant Roadmaster - Elko
Track Supervisors (2) - Oakland
Track Supervisor - Stockton - TS Railway
Track Supervisor - Winnemucca
Track Supervisor - Herlong
Track Supervisor - Elko
Track Supervisor - Salt Lake City
B&B Supervisor - Sacramento
B&B Supervisor - Elko
Signal Engineer - Sacramento
Signal Shop Foreman - Sacramento
Signal Supervisors (5) Hayward, Sacramento, Oroville, Elko, Winnemucca
Office Engineer - Southern Pacific Company

(Please detach and return promptly)

Mr. A. W. Carlson
The Western Pacific RR Co.
San Francisco

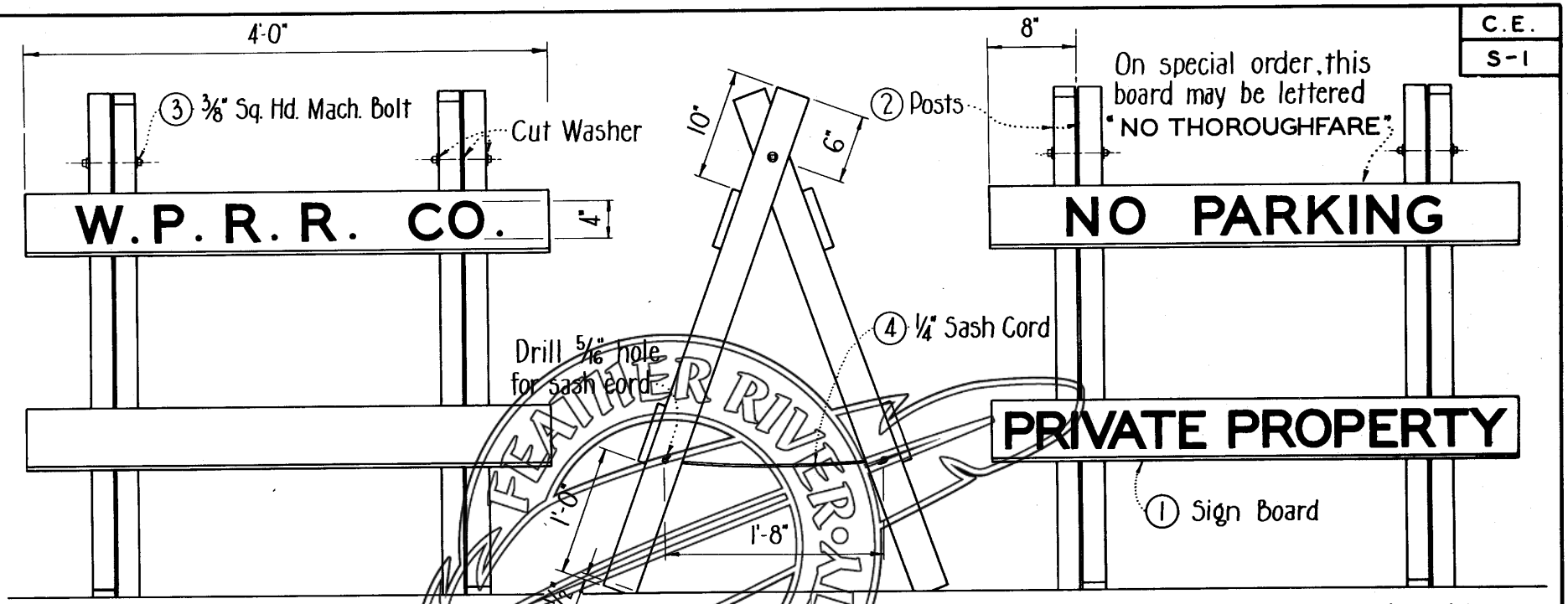
I have received Roadway Standards Book Corrections dated _____.

NAME: _____

TITLE: _____

DATE: _____

C.E.
S-1



BILL OF MATERIALS

Pc. Mk.	Name of Part	Req'd.	Remarks
①	Sign Boards	4	1"x6"x4'-0" D.F. S4S
②	Posts	4	2"x3"x4'-0" D.F. S4S
③	Bolts	2	3/8" Sq. Hd. Mach. Bolt with 1 Sq. Nut & 3 Cut Washers.
④	Sash Cord	2	1/4" Sash Cord - 26" Long

Use 8d common nails to fasten Sign Boards to Posts.

Note: All wooden members to be painted white, all lettering to be black. Paint Materials to be as directed by the Chief Engineer and the Chief Mechanical Officer.

Approved: Frank R. Woolfolk
Chief Engineer

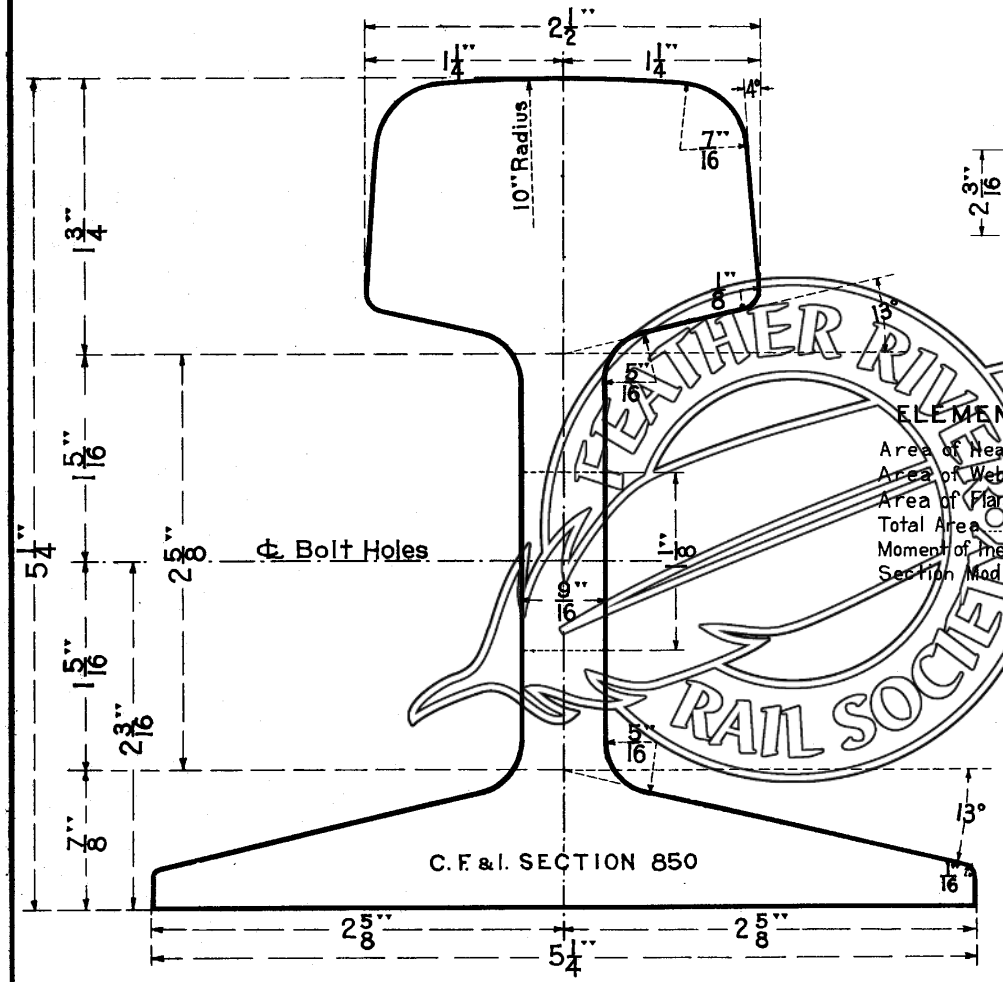
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

PORTABLE "NO PARKING" SIGN

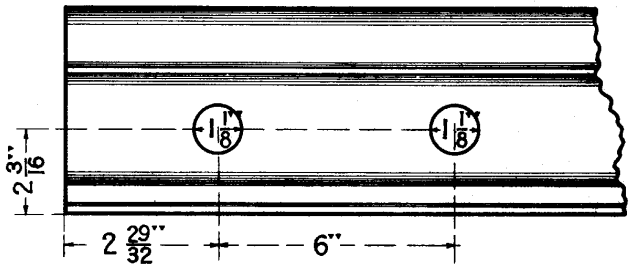
NO SCALE

ADOPTED: Oct. 15, 1954

C. F. S-2



SECTION OF RAIL
SCALE : FULL SIZE



DRILLING OF RAIL
SCALE : 3"= 1'

ELEMENTS OF RAIL SECTION

Area of Head	3.814 Sq. In.	45.68%
Area of Web	1.506 Sq. In.	18.04%
Area of Flange	3.029 Sq. In.	36.28%
Total Area	8.349 Sq. In.	100.00%
Moment of Inertia	29.80 Bq. In.	
Section Modulus	11.22 Cu. In.	

APPROVED : J. M. Williams
CHIEF ENGINEER

APPROVED: E. O. Mason
VICE-PRESIDENT AND GENERAL MANAGER

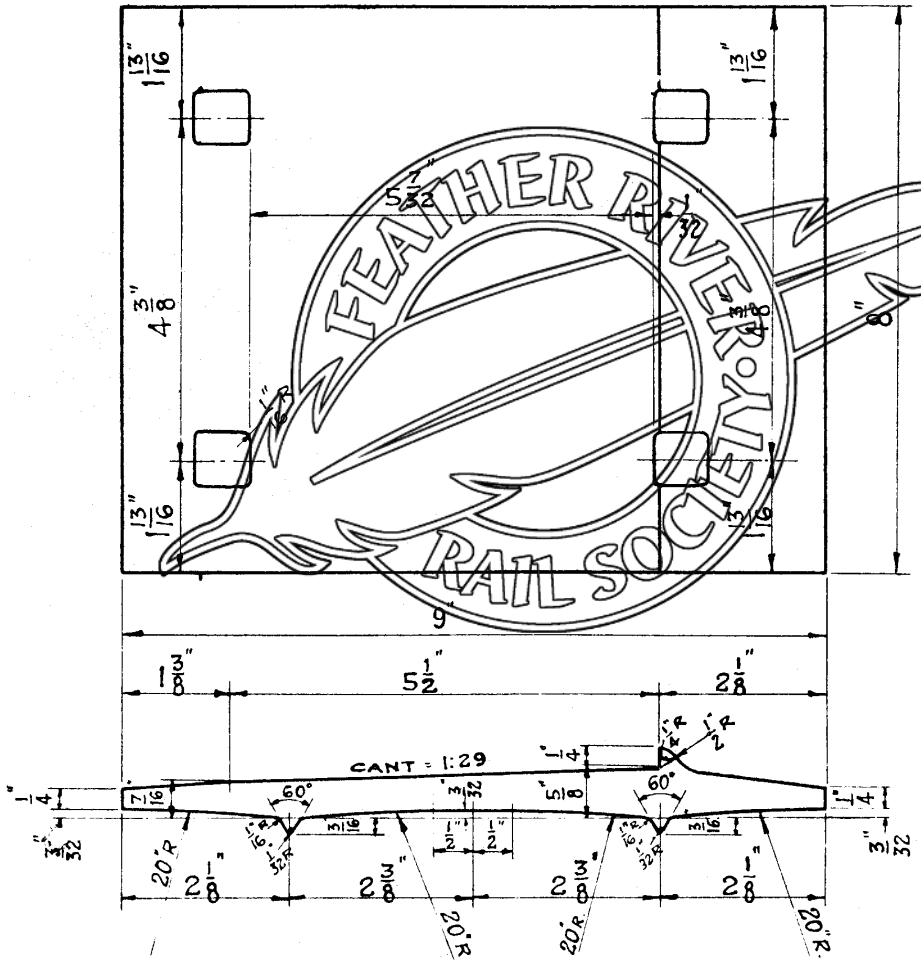
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
85 LB. RAIL
SCALES: AS NOTED. ADOPTED SEPTEMBER-1923

DRWG. NO. STP.- 69
SECTION NO.- 905
ORDER NO. See Table NO. OF PCS. See Table
CUSTOMER WESTERN PACIFIC R.R. CO.

COLUMBIA STEEL CO.
PITTSBURG CALIF.
Dim'd. by M.O. Approved by
Checked by L.T.P. date

C.E.
S 3A (STP 69)

ORDER NO.	NO. PCS.
P-RM-129	20,000
P-RM-483	20,000
(1934)	25,000



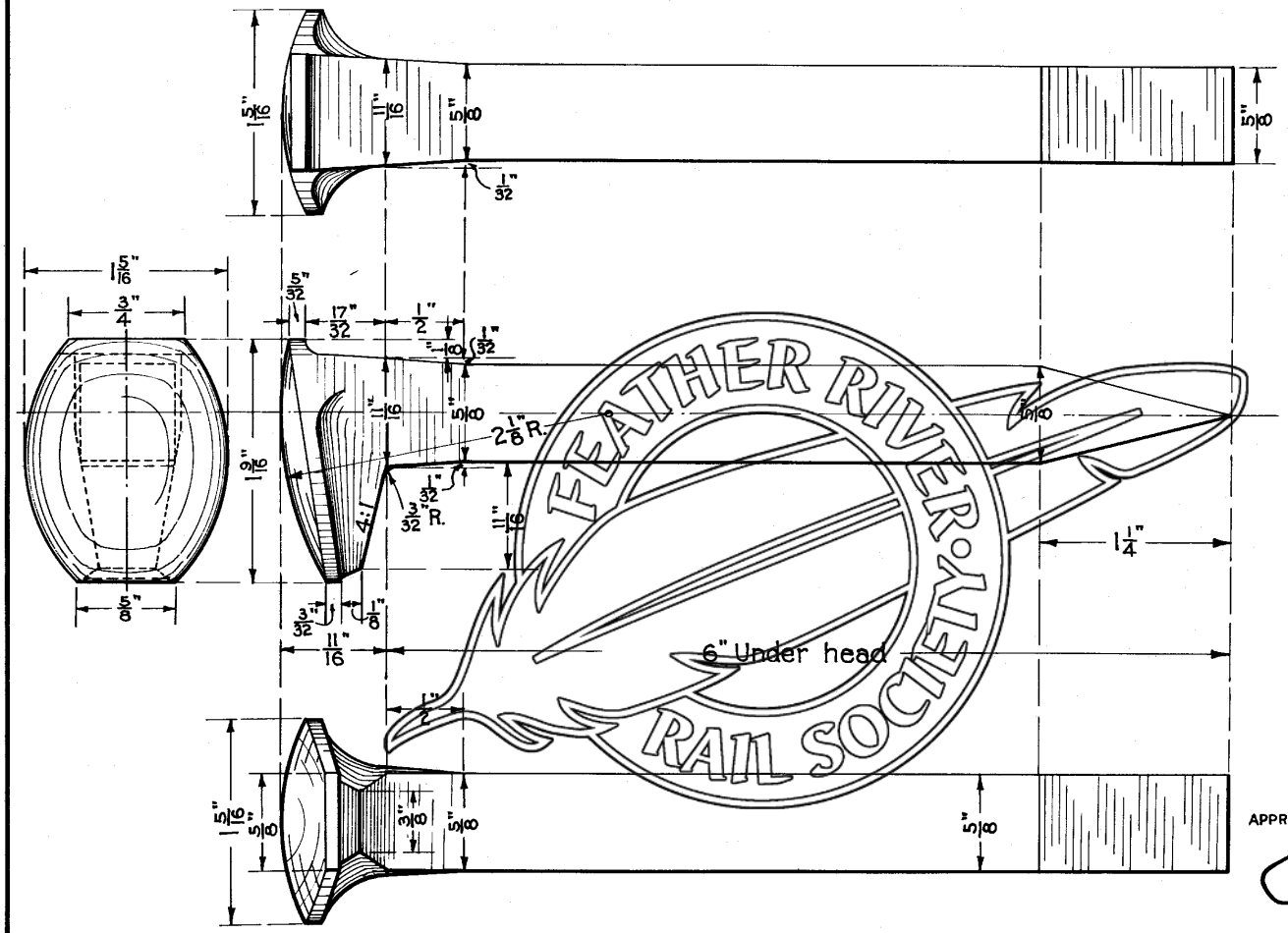
APPROVED:

CHIEF ENGINEER THE WESTERN PACIFIC RAILROAD COMPANY.

Size of Hole FOUR $\frac{11}{16}$" SQ.
Gross Wt. per Ft. 13.94 lbs.
Gross Wt. per In. 1.16 lbs.
Wt. per Tie Plate 9.02 lbs.
For Use with 85# RAIL

Punch Details Dwg. No. STP-122.

C.E.
S-4



A.R.E.A. design for cut track spike with reinforced throat, adopted March 1937.

6" SPIKE:

Average number per box - 241

Average weight per spike - 0.83 lb.

For use in:

(1.) Main track, Oakland to Salt Lake City, and Keddie to Bieber.

(2.) All main track turnouts.

APPROVED: J. M. Williams
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

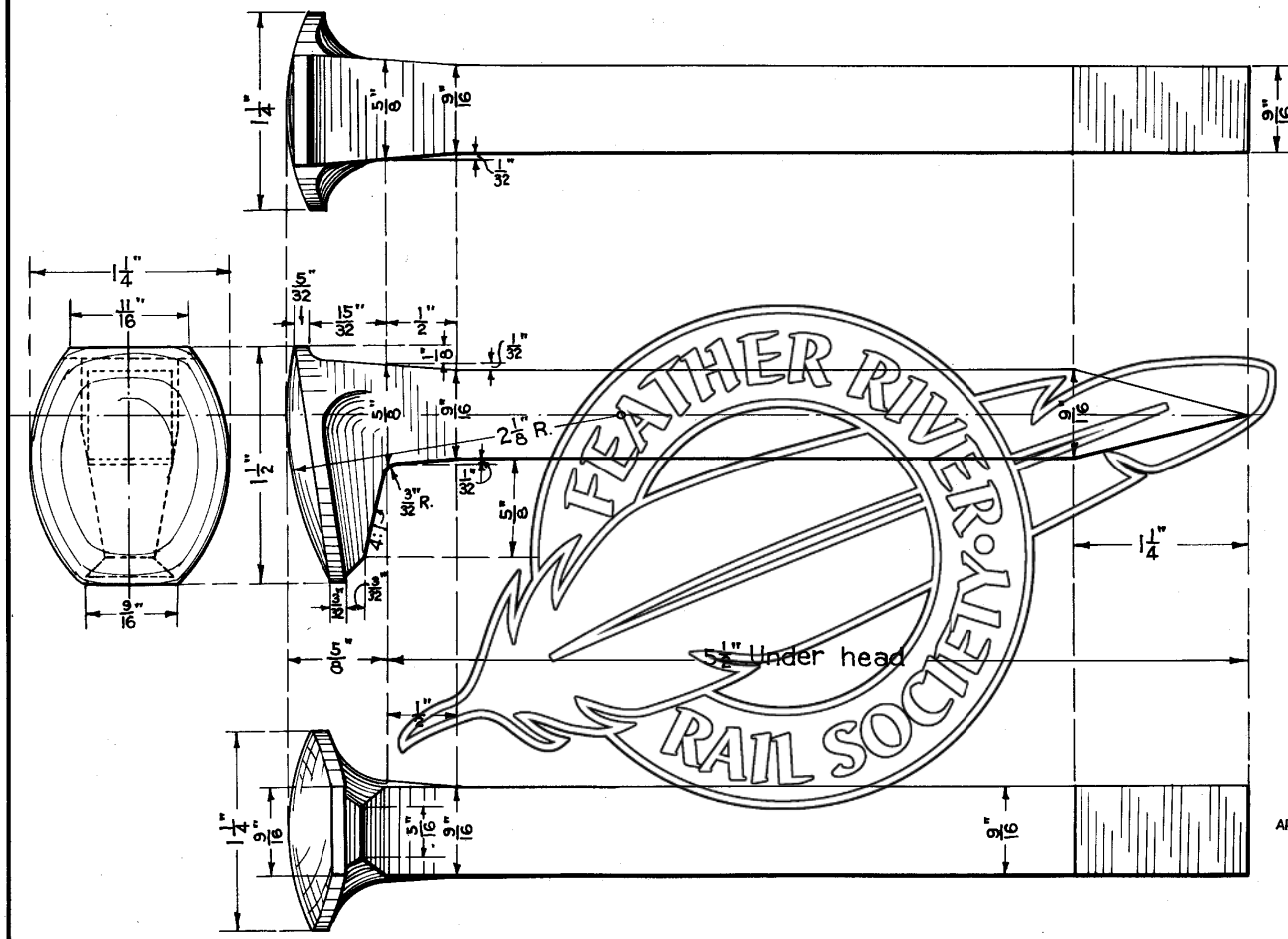
STANDARD

6" TRACK SPIKE

NO SCALE

ADOPTED NOV. 12, 1937.

C.E.
S-4A



A.R.E.A. design for cut track spike with reinforced throat, adopted Mar. 1937.
5½" SPIKE:
Average number per box – 317
Average weight per spike – 0.63 lb.

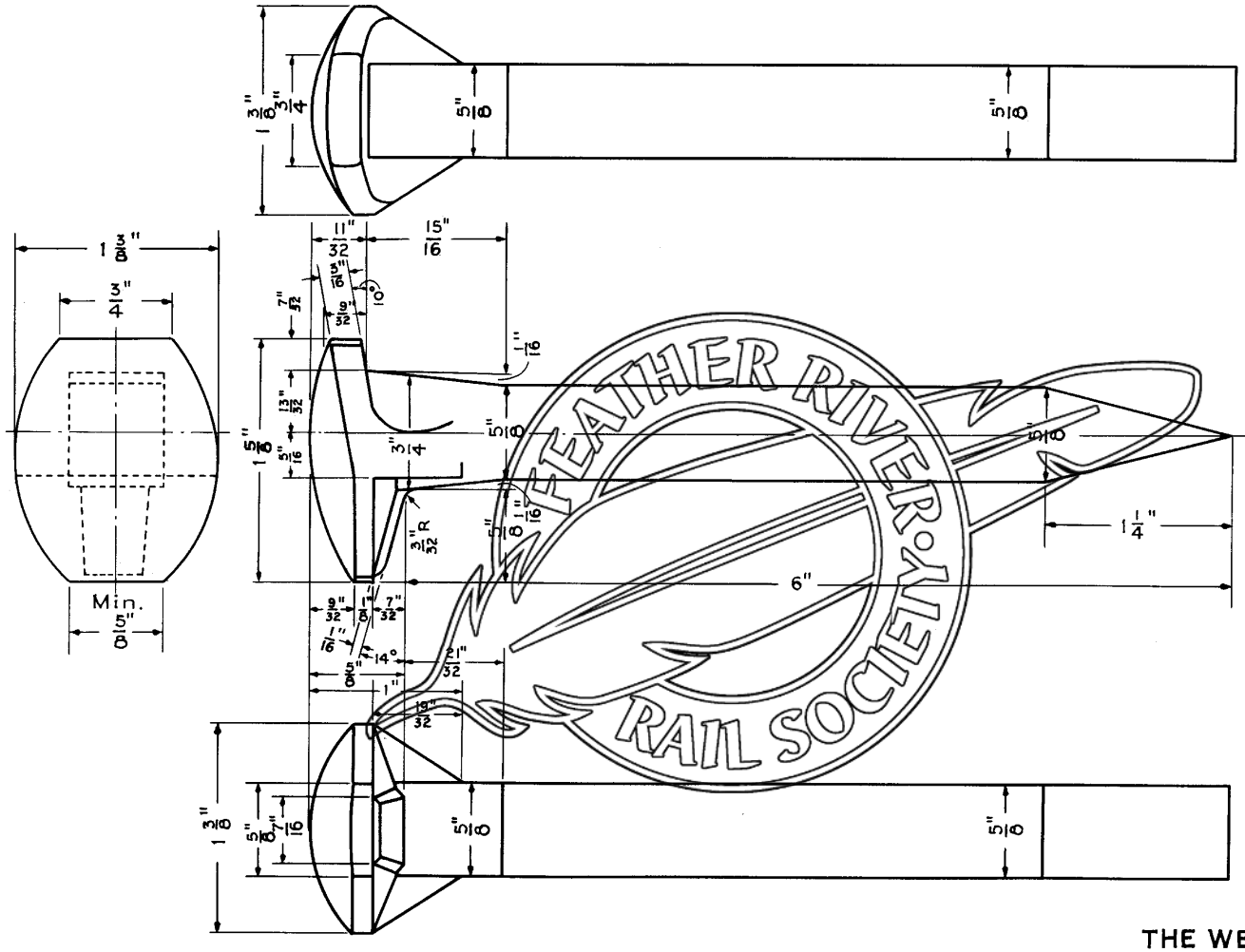
APPROVED: J. M. Williams
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
5½" TRACK SPIKE

NO SCALE

ADOPTED NOV. 12, 1937.
REVISED DEC 1, 1968

C.E.
S-4B

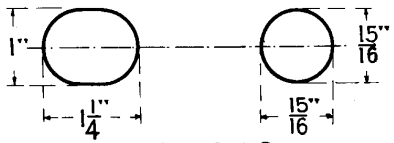


Faries design for full throated cut track spike.
Manufactured per A.R.E.A. specifications for soft steel cut track spikes - Reapproved 1953.
6" Spike:
Average number per keg - 241
Average weight per spike - 0.83 lb.
For use in:
(1) Main track, Oakland to Salt Lake City, and Keddie to Bieber.
(2) All main track turnouts.
(3) All main track crossing installations.

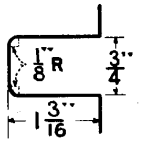
APPROVED: Frank R. Woolford
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
6" FULL THROATED TRACK SPIKE
NO SCALE ADOPTED June 1, 1963

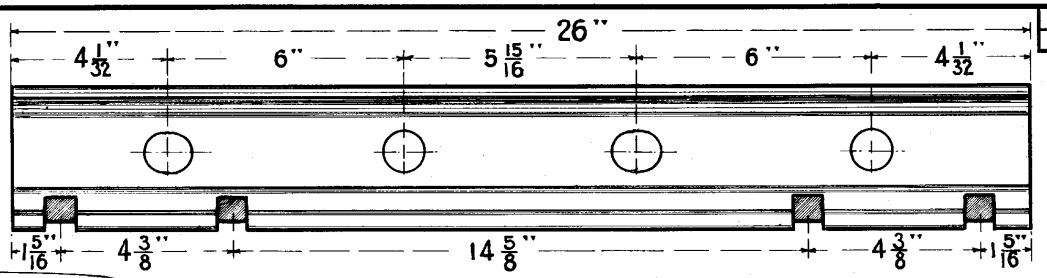
C. F. S.-5



BOLT HOLES
ALTERNATE OVAL AND ROUND



SPIKE SLOT
SCALE: 6"=1"



ELEVATION
SCALE: 3"=1"

ELEMENTS OF ANGLE BAR

I		4.95
M	T	2.54
	B	2.88
A		3.70 Sq. In.
WT/IN		1.01 Lbs.

Weight of Angle Bars 52.41 Lbs. per Pair.

SECTION OF JOINT
SCALE: FULL SIZE

C. F. & I. SECTION 850

APPROVED
J. W. Williams
CHIEF ENGINEER.

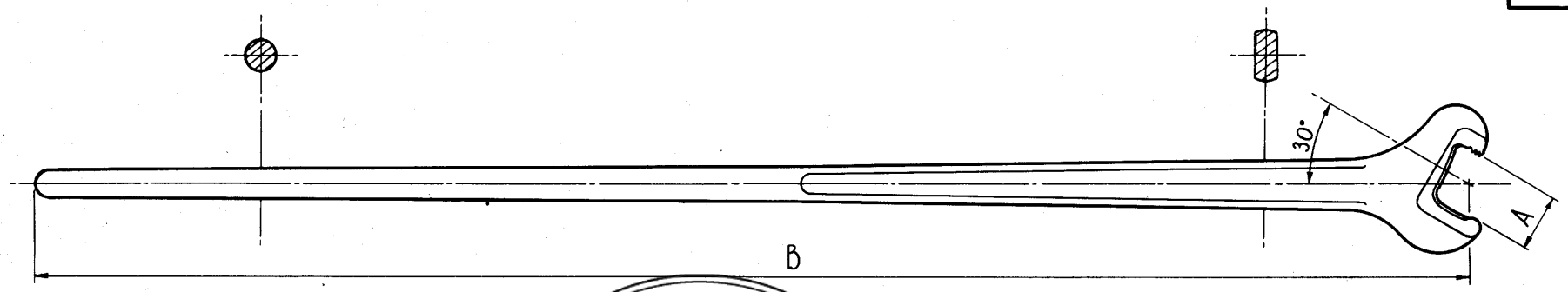
THE WESTERN PACIFIC RAILROAD CO.

STANDARD

100% 85 LB. JOINT

SCALES: AS NOTED ADOPTED JULY, 1927.

C. E.
S-6



Pc. Mk.	Bolt Sizes	Width of Nut	A	B
①	7/8	1 7/16	1 1/2	36
②	1	1 5/8	1 11/16	42
③	1 1/8	1 13/16	1 15/16	48
④	7/8	1 7/16	1 1/2	18
⑤	7/8	1 7/16	1 1/2	24
⑥	7/8	1 7/16	1 1/2	30
⑦	1	1 5/8	1 11/16	18
⑧	1	1 5/8	1 11/16	24
⑨	1	1 5/8	1 11/16	30
⑩	1	1 5/8	1 11/16	36
⑪	1	1 5/8	1 11/16	48
⑫	1 1/8	1 13/16	1 15/16	30
⑬	1 1/8	1 13/16	1 15/16	36
⑭	1 1/8	1 13/16	1 15/16	42

All dimensions in inches.

NOTES

Width of nut shall be stamped plainly on one side of head near jaw.

Piece Marks 1 through 3 are stock items.

Piece Marks 4 through 14 are available sizes and lengths but are not to be stocked or ordered without special authority.

When ordering, specify piece mark and Standard number in addition to specifying width of nut.

Approved: Frank R. Mansfield
Chief Engineer

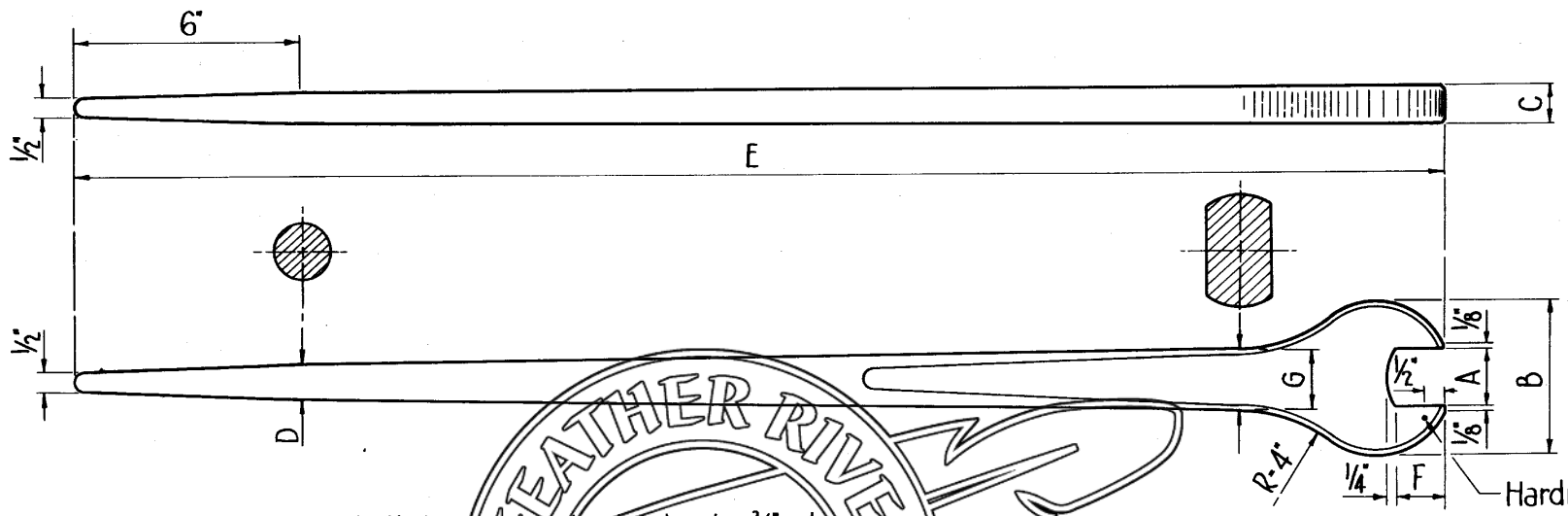
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
RATCHET ACTION

TRACK WRENCHES

NO SCALE

ADOPTED : Sept. 15, 1955

C. E.
S-7



Hardness at this point to be Brinell 375-450. Test to be taken on all wrenches.

Note: Width of nut shall be stamped plainly in ¾" characters on one side of head near jaw.
Tolerance: 2% on length, 5% on cross section.
All wrench jaws shall be milled to dimensions shown.
When ordering, specify Piece Mark and Standard Number in addition to specifying Width of Nut.

Pc. Mk.	Bolt Sizes	Width of Nut	A Min.	A Max.	B	C	D	E	F	G
①	¾	1¼	1.257	1.330	3½	15/16	¾	30	1¼	1½
②	⅞	1 7/16	1.445	1.519	4	15/16	¾	36	1¼	1½
③	1	1⅝	1.634	1.709	4	15/16	⅞	42	1⅜	1½
④	1⅛	1 13/16	1.822	1.898	4⅛	15/16	⅞	48	1 9/16	1½
⑤	1¼	2	2.011	2.088	4½	1	⅞	48	1¾	1½
⑥	1⅜	2 3/16	2.199	2.277	5	1	⅞	54	1 15/16	1½

All dimensions in inches.

Approved: Fremont R. Wood
Chief Engineer

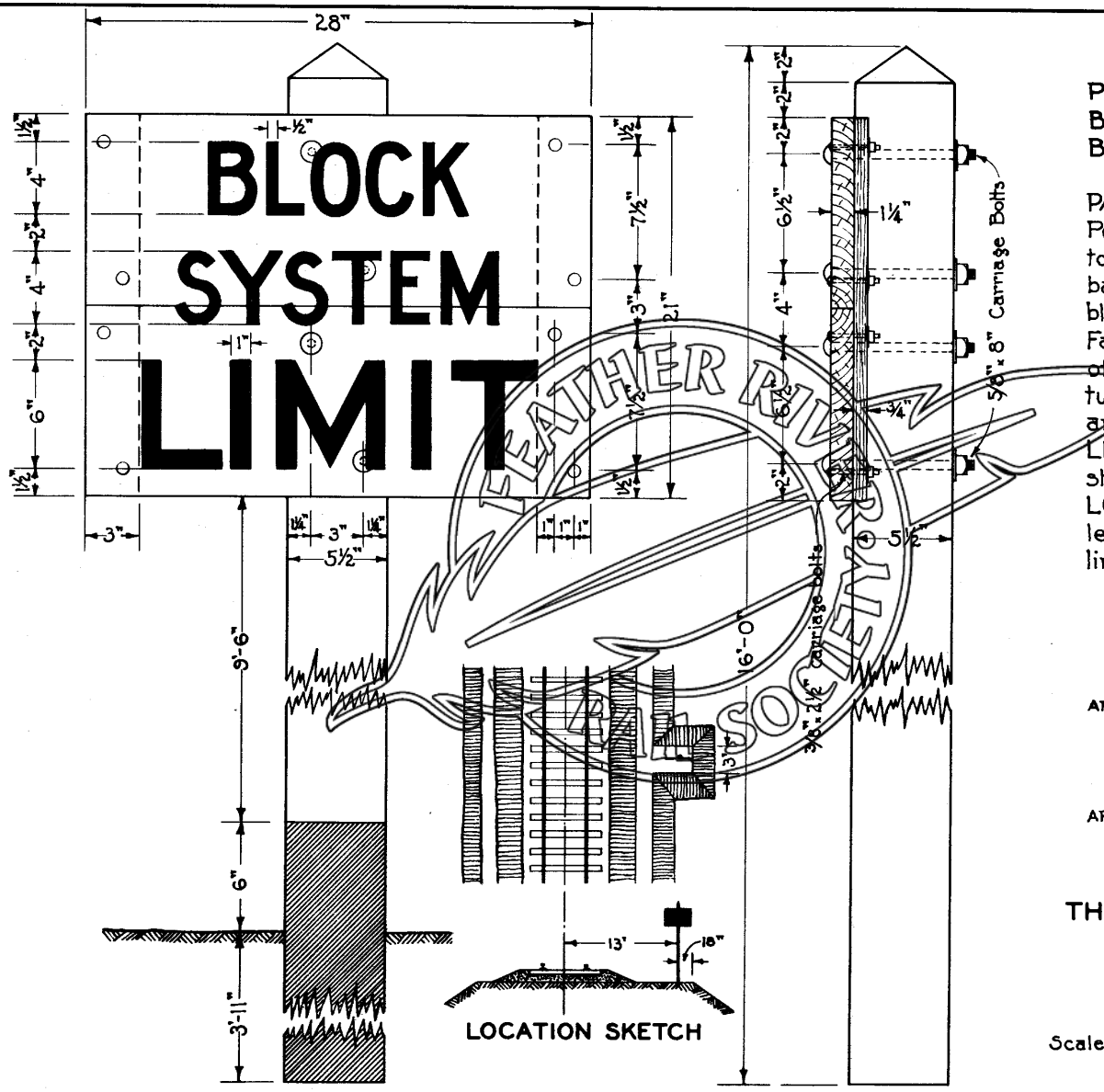
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

TRACK WRENCHES

NO SCALE

ADOPTED: Feb. 20, 1923
REVISED: Dec. 1, 1954

C.E.
S-8



POSTS: 6"x6"x16'-0" S4S Redwood Extra Merch
BOARDS: Redwood Clear.
BOLTS: 5/8"x 8" & 3/8"x2½" Carriage Bolts with cut washers.
PAINTING: Face of board white, letters black. Posts to have a coat of coal tar applied hot, to 6" above ground, balance of post and back of board painted with metallic and lamp black making a very dark brown.
Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.
LETTERING: Gothic, of size and weight shown.
LOCATION: On engineer's side of track leaving Block System, 13'-0" from center line of track.

APPROVED: J. Phillips
CHIEF ENGINEER.

APPROVED: E.W. Mason
VICE-PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

BLOCK SYSTEM LIMIT SIGN

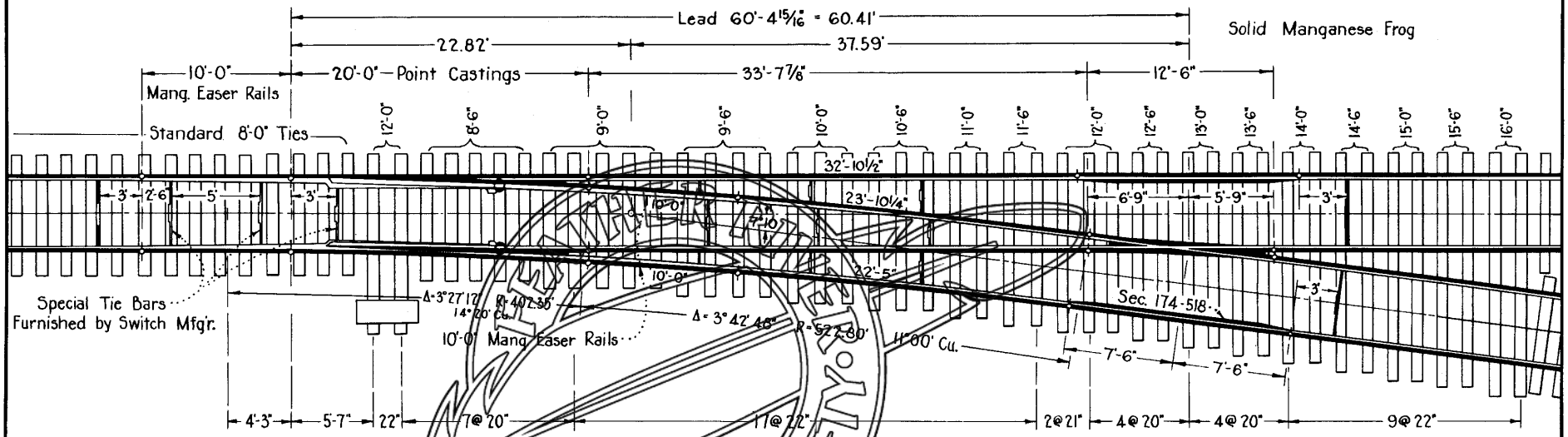
Scale: 1½"=1'-0"

ADOPTED. Dec. 16, 1922.
REV. April. 12, 1944.

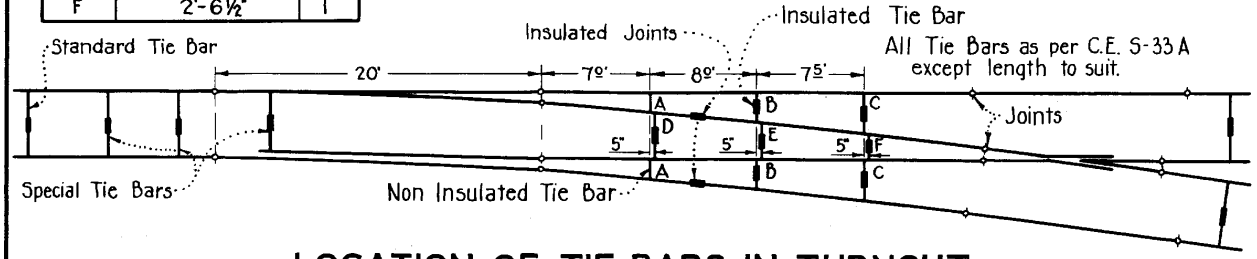
SWITCH TIE LIST																	
Pieces 7"x 9"																TOTAL NUMBER PIECES	TOTAL FEET B.M.
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
5	5	4	3	3	2	2	5	2	2	2	2	2	2	2	2	45	2730#

FROG ANGLE _____ 7° 10'
DEGREE OF TURNOUT CURVE _ 11° 00'
LEAD _____ 60'-4 15/16"

C.E.
S-9



1 SET SWITCH TIE BARS		
BAR	OVERALL LENGTH	NO.
A	1'-11 1/2"	2
B	2'-3"	2
C	3'-0"	2
D	4'-1"	1
E	3'-3"	1
F	2'-6 1/2"	1



LOCATION OF TIE BARS IN TURNOUT

PLAN OF Nº 8 GIRDER RAIL TURNOUT

Approved: Frank R. Mansfield
Chief Engineer

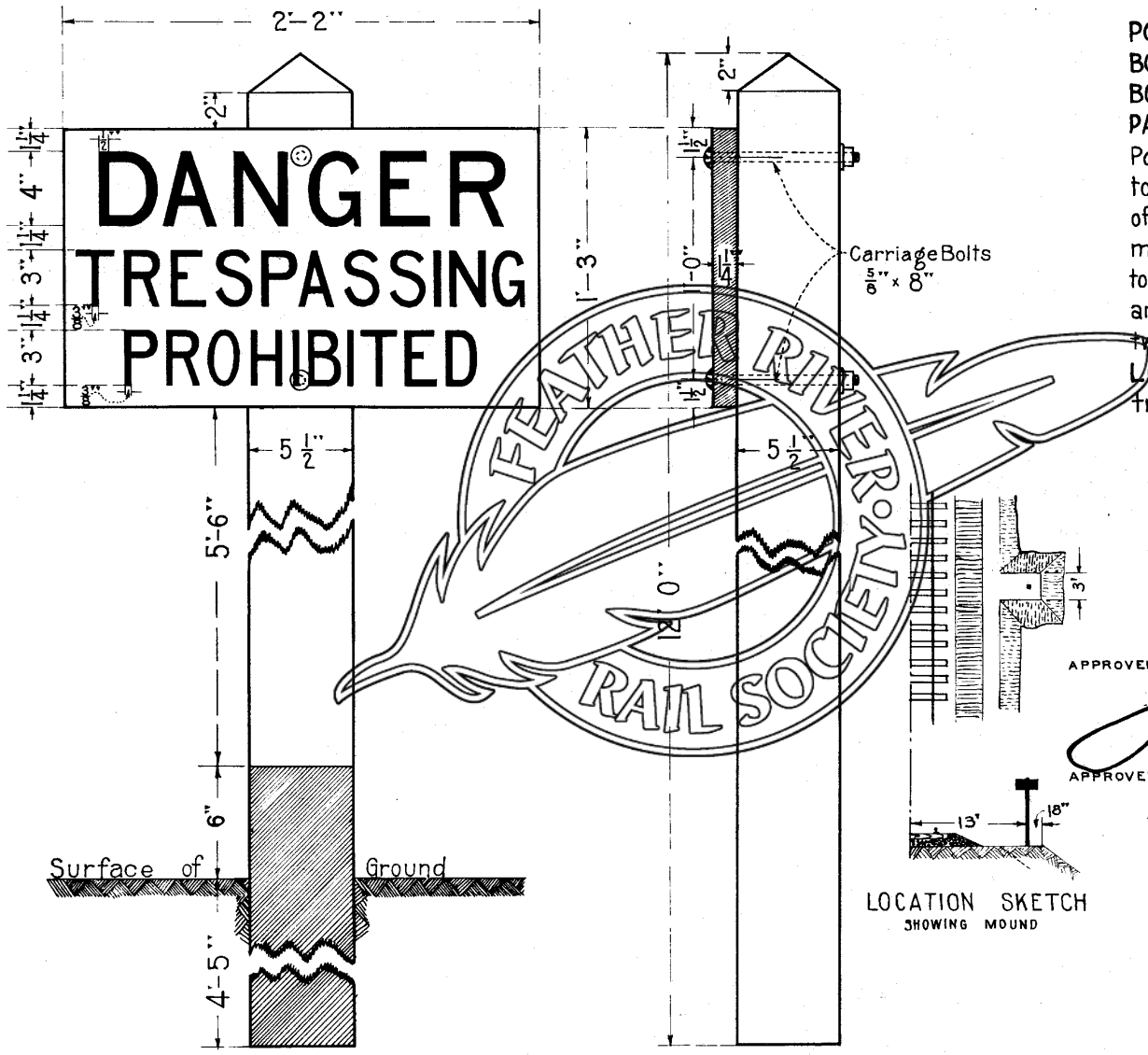
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 8 GIRDER RAIL TURNOUT WITH 400' RADIUS SWITCH

NO SCALE

ADOPTED: Feb. 12, 1938
REVISED: April 8, 1955

C. E.
S.-10.



LOCATION SKETCH
SHOWING MOUND

POST: 6"x 6"x 12'-0" S4S Redwood Extra Merch.
BOARDS: Redwood Clear
BOLTS: ⅝" Diameter with washers
PAINTING: Face of board white, letters black. Post to have a coat of coal tar applied hot, to 6" above ground, balance of post and back of board painted with metallic and lamp black making a very dark brown. Face of board to be given a priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.
LOCATION: 13'-0" from center line of track.

APPROVED: J. P. Williams
CHIEF ENGINEER

APPROVED: E. Emmason
VICE-PRESIDENT AND GENERAL MANAGER

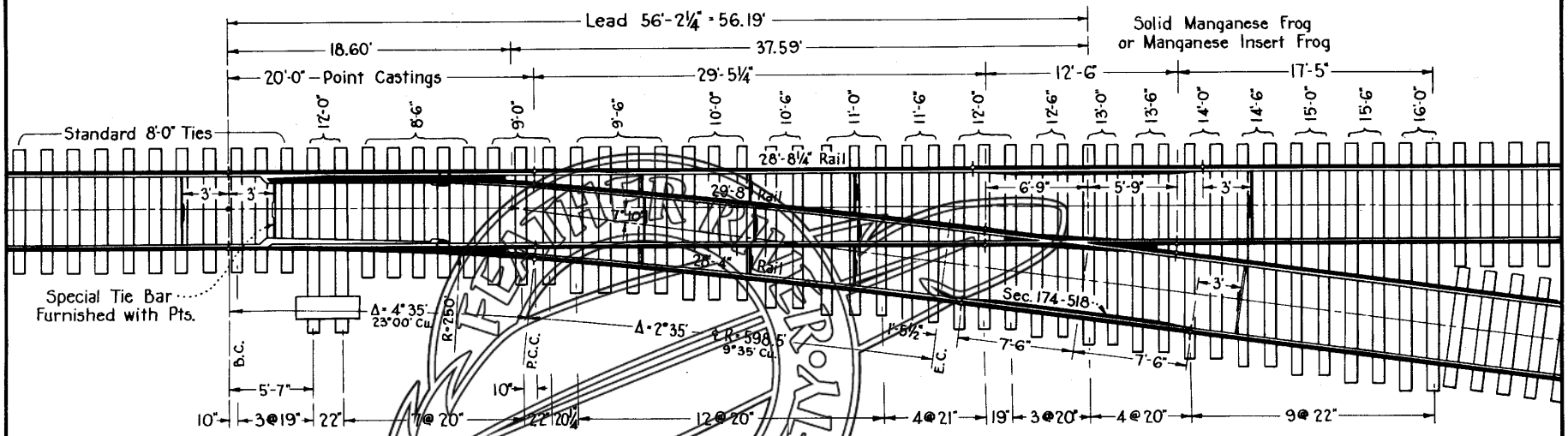
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NON TRESPASSING SIGN

SCALE: 1½" = 1' ADOPTED AUGUST 1924
REV. JUNE 1, 1936

SWITCH TIE LIST																	
Pieces 7"x 9"																TOTAL NUMBER PIECES	TOTAL FEET B.M.
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
5	3	4	3	2	3	2	5	2	2	2	2	2	2	2	2	43	2638!

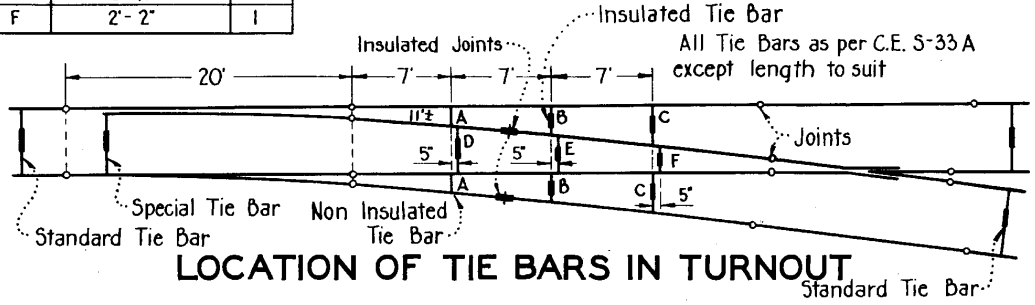
FROG ANGLE _____ 7° 10'
DEGREE OF TURNOUT CURVE _ 9° 35'
LEAD _____ 56'-2¼"

C.E.
S-11



PLAN OF Nº 8 GIRDER RAIL TURNOUT

I SET SWITCH TIE BARS		
BAR	OVERALL LENGTH	NO.
A	1'-9"	2
B	2'-5"	2
C	3'-2"	2
D	3'-8"	1
E	2'-11"	1
F	2'-2"	1



LOCATION OF TIE BARS IN TURNOUT

Approved: Frank E. Wadsworth
Chief Engineer

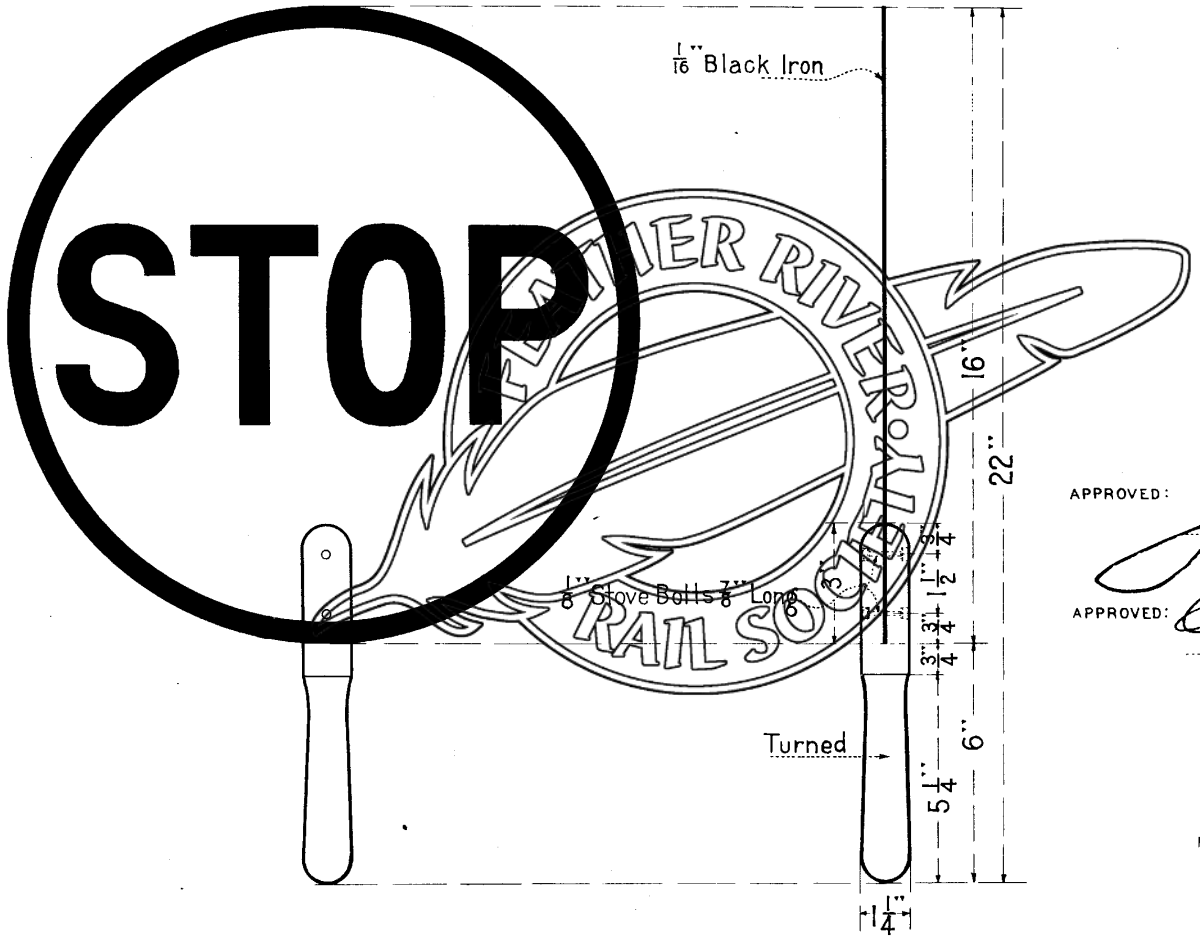
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 8 GIRDER RAIL TURNOUT
WITH 250' RADIUS SWITCH

NO SCALE

ADOPTED: Feb. 2, 1938
REVISED: April 8, 1955

C. E.
S.-12.



Metal Disc 16" in Diameter.
Painted White Field with
Black Letters 5" High, 3" Wide,
Lines 3/4" Stroke.
Border Line Black, 1/2" Wide.
Both Sides of Disc the Same.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. Vrman
VICE-PRESIDENT AND GENERAL MANAGER

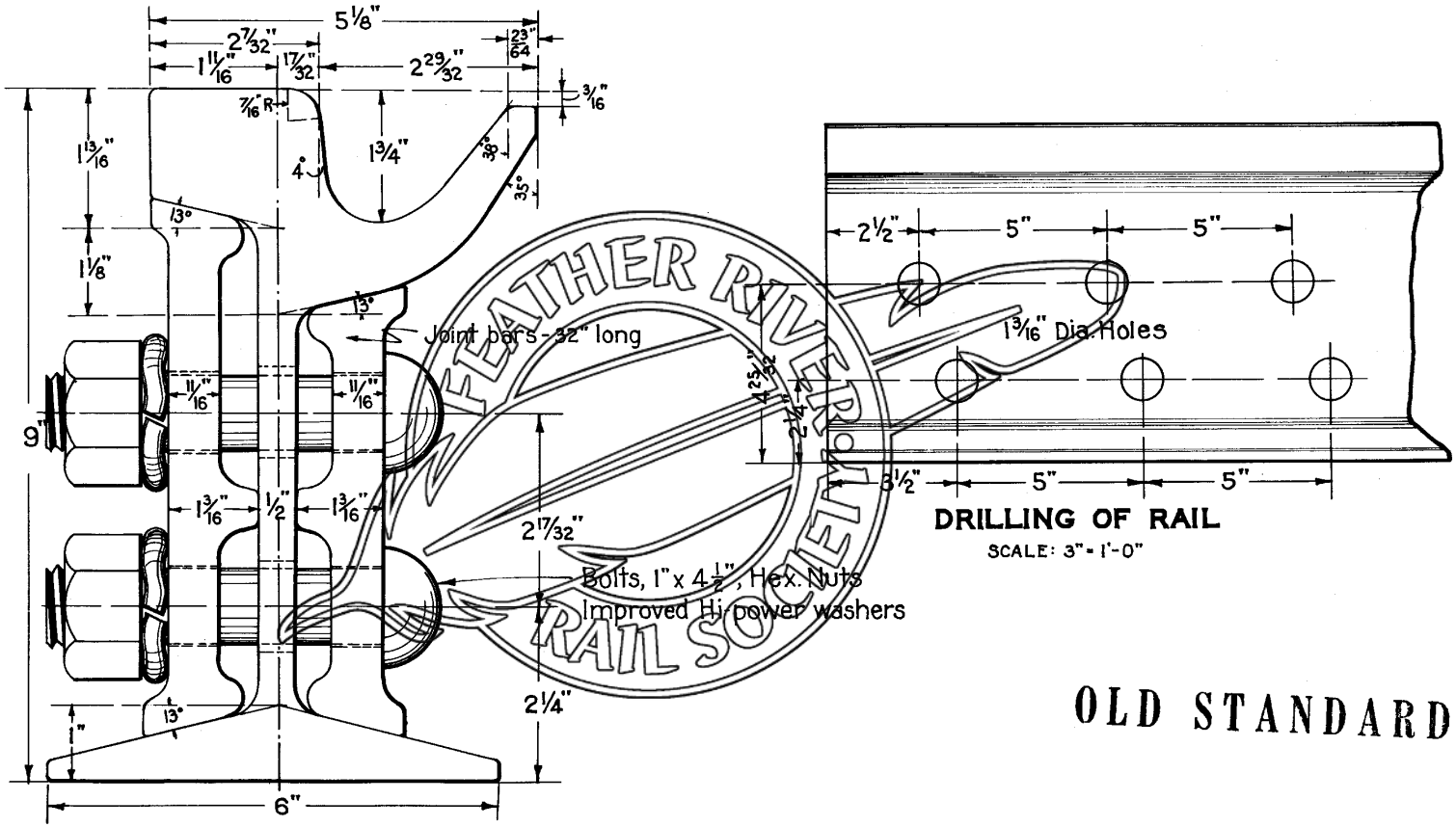
THE WESTERN PACIFIC RAILROAD CO.

STANDARD

FLAGMAN'S STOP SIGN

SCALE: 3" = 1' ADOPTED AUGUST 29TH, 1923.

C.E.
S-13



SECTION

SCALE HALF SIZE

(L.S.Co. Sec. 141-465
Beth. Sec. 141-263)

DRILLING OF RAIL

SCALE: 3" = 1'-0"

OLD STANDARD

Approved: Frank R. MacFate
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
141 LB. GIRDER RAIL

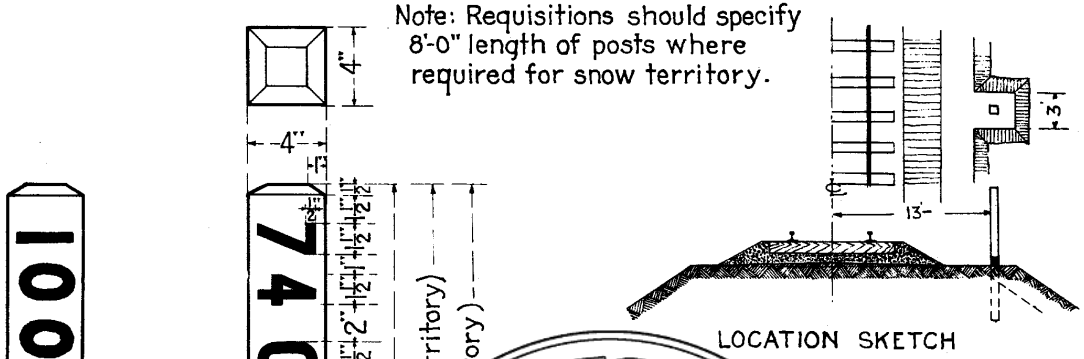
SCALE AS SHOWN

JAN. 1924
Rev. Dec. 9, 1937
Sept. 17, 1954

C. E.
S.-14

Note: Requisitions should specify 8'-0" length of posts where required for snow territory.

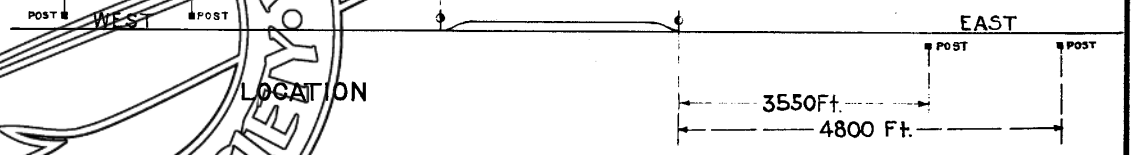
POST: 4"x4"x 6'-0" Redwood Extra Merch.
PAINTING: Post to have a coat of coal tar applied hot to 6" above ground. Balance of post to have one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. Letters black.



LOCATION SKETCH

LOCATION

Post to be Placed on Engineer's Side of Track preferably 13 feet from center line of track



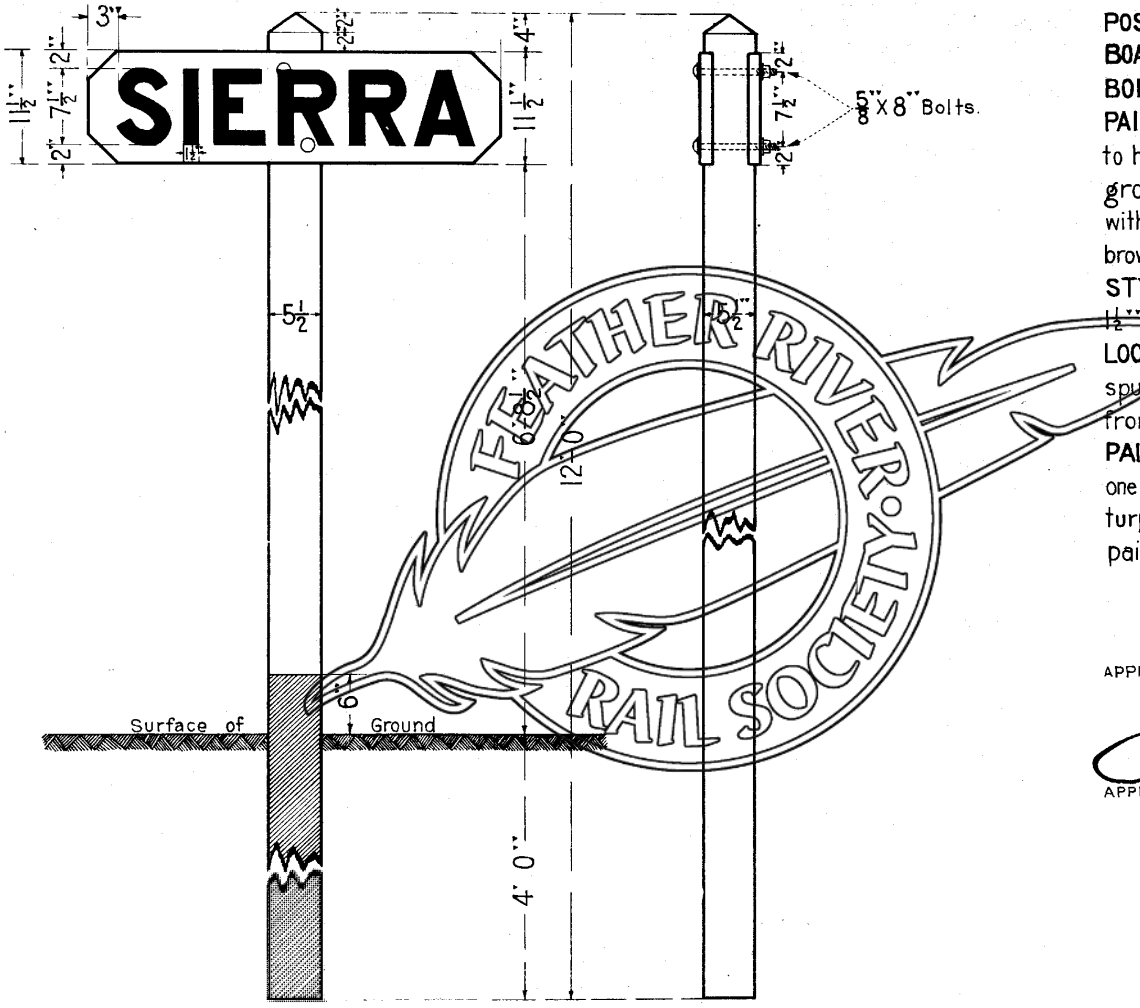
APPROVED: J. M. Williams
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
SIGN INDICATING
CAR LENGTHS FROM SWITCH

SCALE: 1½" = 1'

ADOPTED FEBRUARY 29-1924
Revised June 19, 1935 Rev. Dec. 30, 1940
Revised: Dec. 1924 - Dec. 1927
REV. JUNE 1, 1936
REV. SEPT. 5, 1952

C. E. S-16



POST: 6" x 6" x 12'-0" S.4S. Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: $\frac{5}{8}$" Diameter with washers.
PAINTING: Face of board white, Letters black, Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Egyptian 7½" high with 1½" stroke as indicated.
LOCATION: Place at right angles about center of spur or siding on main track side and about 15 feet from center of track.
PAINTING OF BOARD: Face of board to be given one coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

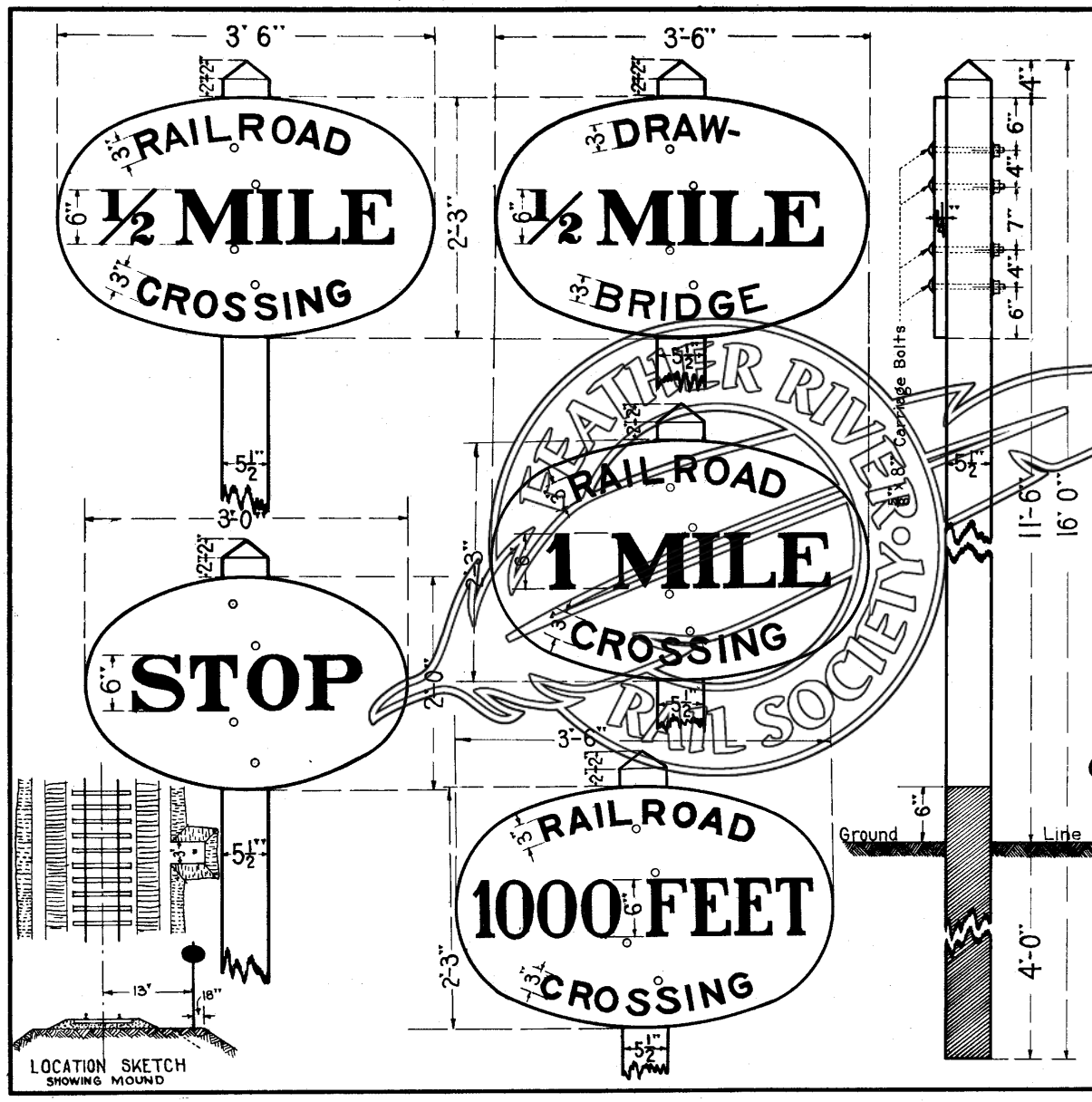
APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE-PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NON-AGENCY SIGN

SCALE: $\frac{3}{4}$" = 1'-0" ADOPTED JUNE 30-1924
REV. JUNE 1, 1936

C. E. S-17



POST: 6"x 6"x16'-0" S.4S. Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: $\frac{5}{8}$" Diameter with washers.
PAINTING: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. Letters black. Post to have a coat of tar applied hot, to 6" above ground, balance of post and back of board painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Egyptian 3" high with $\frac{1}{4}$" stroke and 6" Roman as indicated.
LOCATION: Place at right angles to track on Engineer's side 13 feet from center of track.

Railroad Crossing distance signs to be used in advance of all railroad crossings.

Stop signs to be used only when approved by General Manager.

The distance at which any of these signs is to be located from fouling point to be approved by General Manager.

APPROVED: J. M. Williamson
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE-PRESIDENT AND GENERAL MANAGER

Revision Approved: J. M. W. Ewm JULY, 20, 1931.

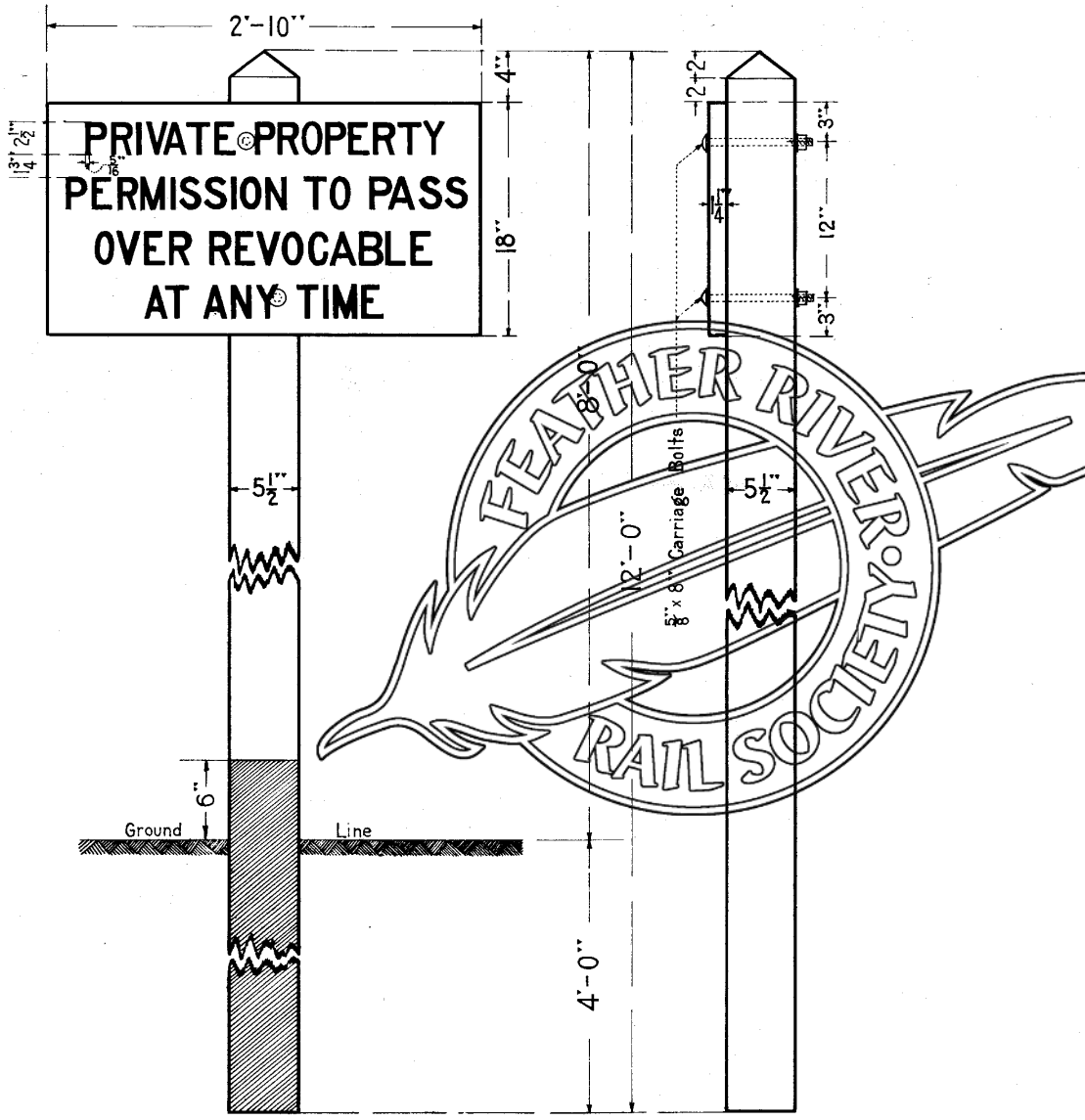
THE WESTERN PACIFIC RAILROAD CO.

STANDARD

R. R. CROSSING — DRAWBRIDGE & STOP SIGNS

SCALE: $\frac{3}{4}$" = 1'-0" ADOPTED JUNE 30-1924
REV. JUNE 1, 1936

C. E.
S-18



POST: 6" x 6" x 12'-0" S.4S. Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: $\frac{5}{8}$" Diameter with washers.
PAINTING: Face of board white, Letters black, Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Egyptian 2½" high with $\frac{5}{16}$" stroke as indicated.
LOCATION: To be placed at location designated but not less than 13'-0" from center line of nearest track.
PAINTING OF BOARD: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

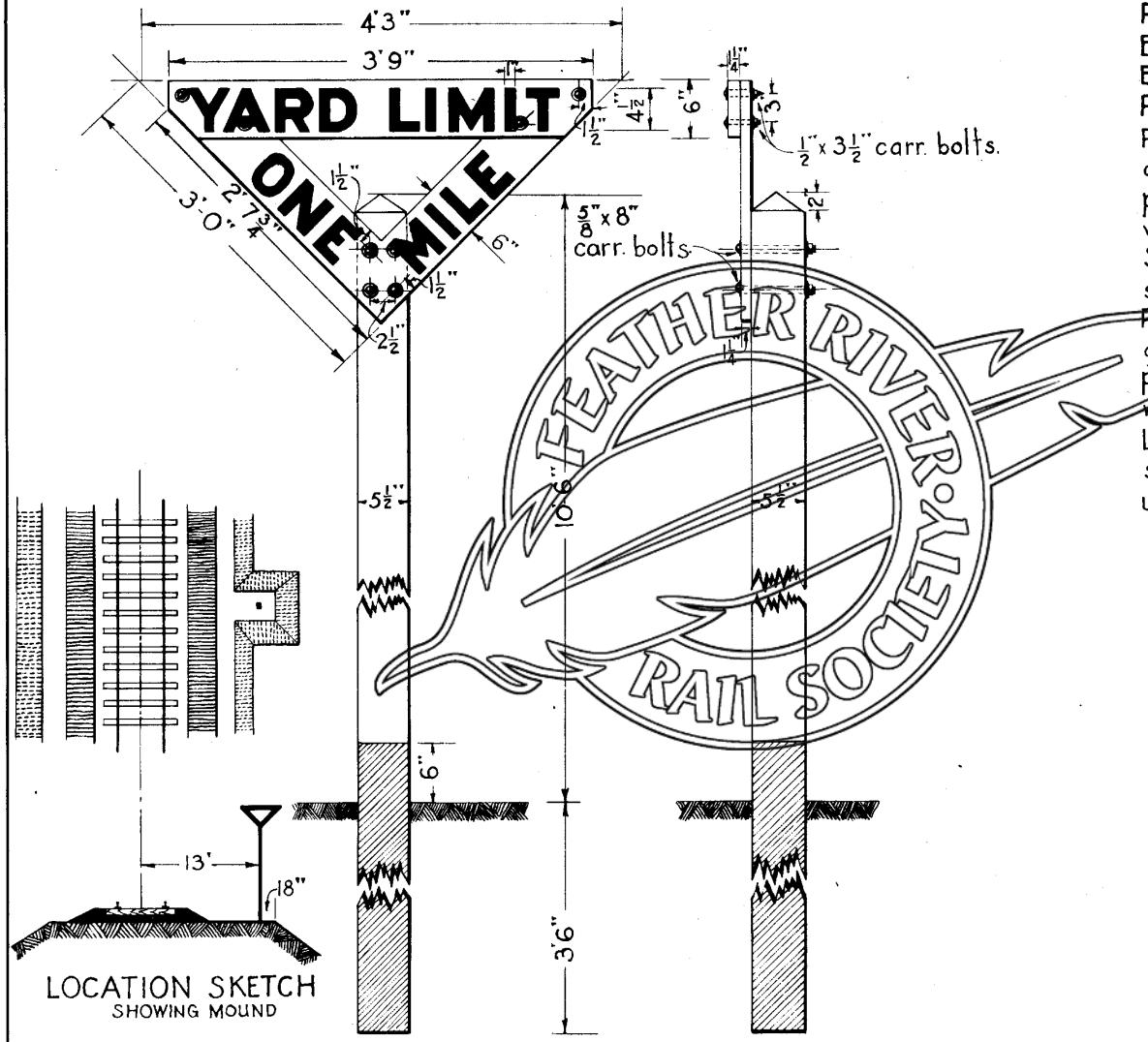
APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. Mason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
PRIVATE PROPERTY SIGN

SCALE: 1" = 1'-0" ADOPTED JUNE 30-1924
REV. JUNE 1, 1936

C.E.
S-19



LOCATION SKETCH
SHOWING MOUND

POST: 6"×6"×14'-0" S4S Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: ⅝" and ½" diameter as indicated With cut washers.
PAINTING: Face of board white. Letters black. Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Egyptian 4½" high with 1" stroke as indicated.
PAINTING OF BOARDS: Face of boards to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.
LOCATION: Post to be set on Engineer's side 13'0" from the center of track. To be used only in conjunction with yard limit sign

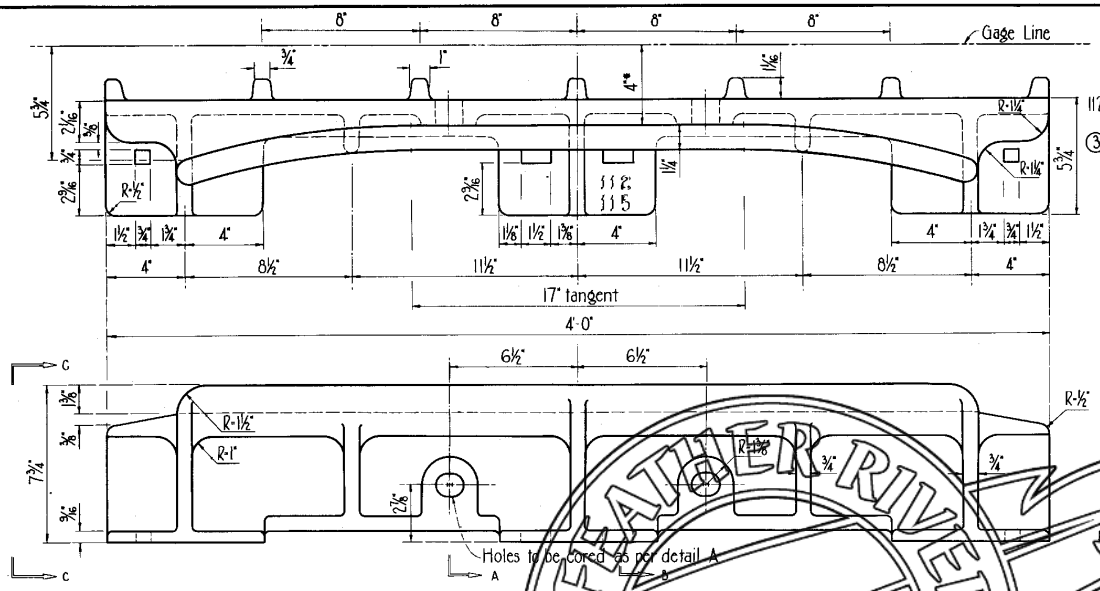
APPROVED: J. O. Phillips
CHIEF ENGINEER.

APPROVED: W. A. Mitchell
VICE-PRESIDENT AND GENERAL MANAGER.

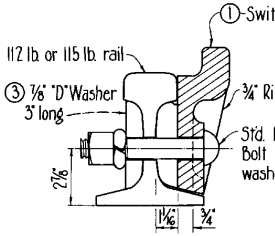
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
YARD LIMIT ONE MILE SIGN

SCALE ¾" = 1'-0" ADOPTED JAN. 1, 1947

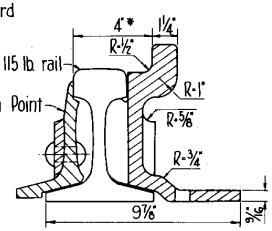
C.E.
S-20



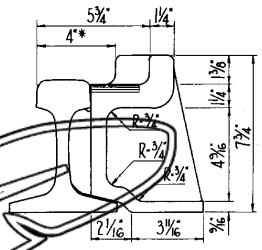
MANGANESE SWITCH POINT GUARD



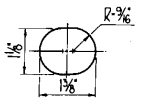
SECTION A-A



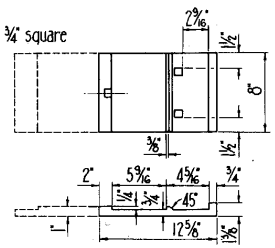
SECTION B-B



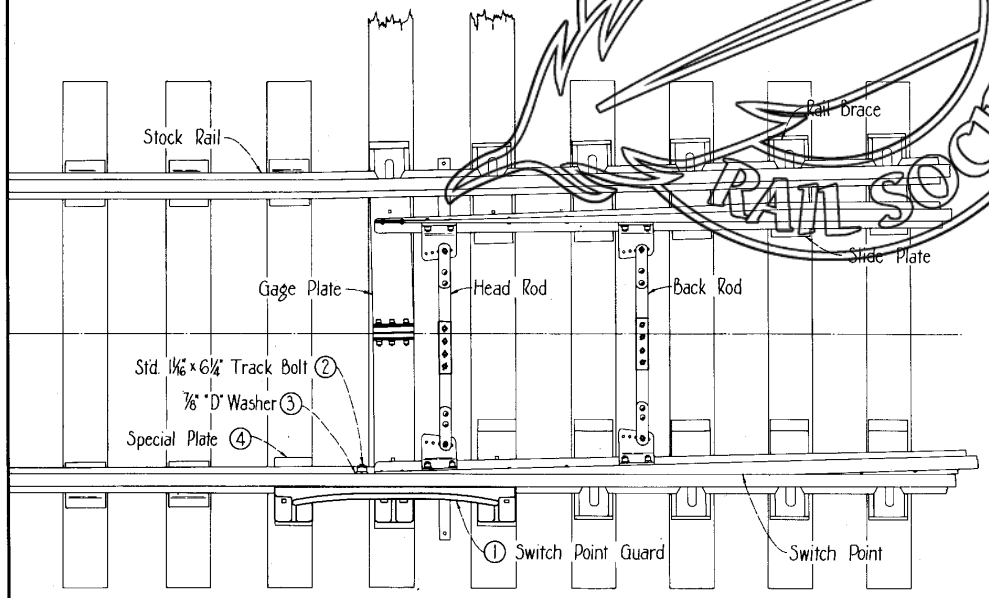
ELEVATION C-C



DETAIL A
Cored Bolt Holes



SPECIAL PLATE
May be made from Standard Rolled Slide Plate Section.



NOTES

When ordering replacement parts refer to Piece Mark and Drawing Number in addition to specifying name and size of part.

Store will furnish all parts listed in Parts List when requisition states "Switch Point Guard Complete."

* When distance from gage line of rail to rubbing surface of Point Guard reaches 4¼" guard must be built up by welding or replaced.

Point Guard to be installed on straight stock rail side to protect Turnout point.

Use only one bolt on Point Guard as shown in plan view at left.

PARTS LIST

Pc. Mk.	Name of Part	Reqd.	Remarks
①	Switch Point Guard	1	Solid Manganese
②	Std. 1⅛" x 6¼" Track Bolt	1	Includes 1 sq. nut and 1 spring washer as per C.E. dwgs. S-112 or S-201
③	⅞" "D" Washer	1	3" long, punched 1⅛" dia.
④	Special Plate	1	Std. Slide Plate may be used.

Approved: Frank P. Wood Jr.
Chief Engineer

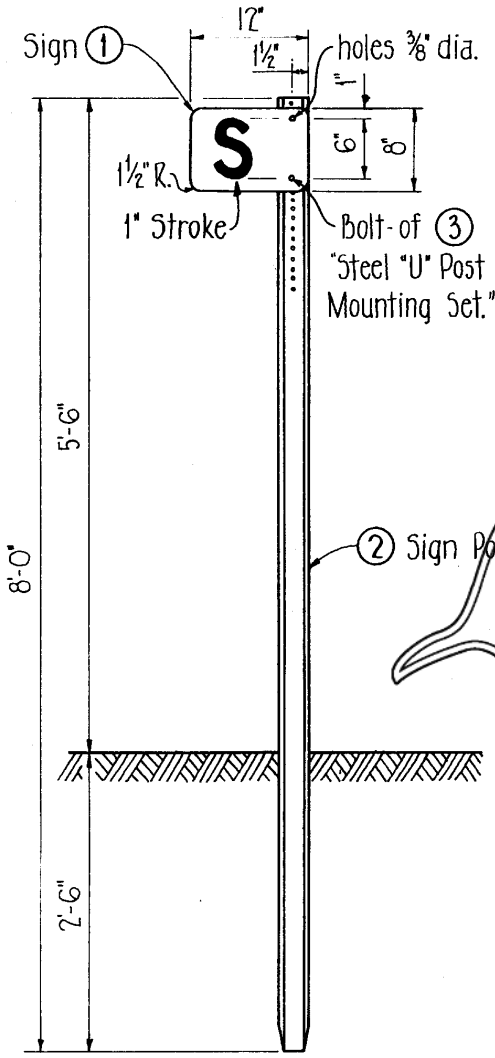
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

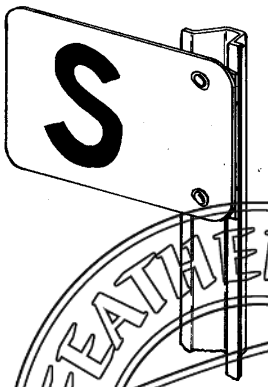
SWITCH POINT GUARD
FOR USE WITH 112 LB. & 115 LB. RAIL

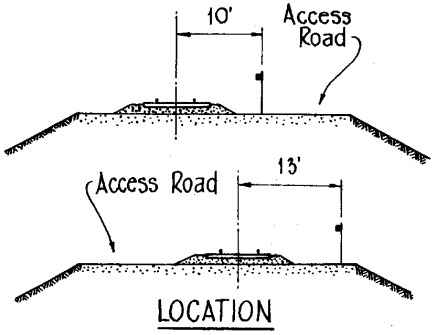
NO SCALE

ADOPTED: Sept. 16, 1955

C.E.
S-21







NOTES

For letter stroke and shape see S-39.

Sign to be placed one mile in advance of siding switch in areas as designated by the Chief Engineer.

Sign to be of .081 gage aluminum sheet, unpainted, specification for aluminum alloy 6061-T6.

Letter to be of black, non-reflective material, on one side only. Material to be as per letter instructions.

PARTS LIST

P.C. Mk.	Name	Req'd.	Remarks
1	Sign Face	1	
2	Sign Post	1	Type "C", S-82.
3	Steel "U" Post Mounting Set	1	Complete-as per S-82.

When ordering replacement parts refer to Piece Mark and Dwg. № in addition to Name of Part.

When order states "Station One Mile Sign Complete" store will furnish Piece Marks 1 through 3, assembled.

Approved: Frank R. Woodford
Chief Engineer

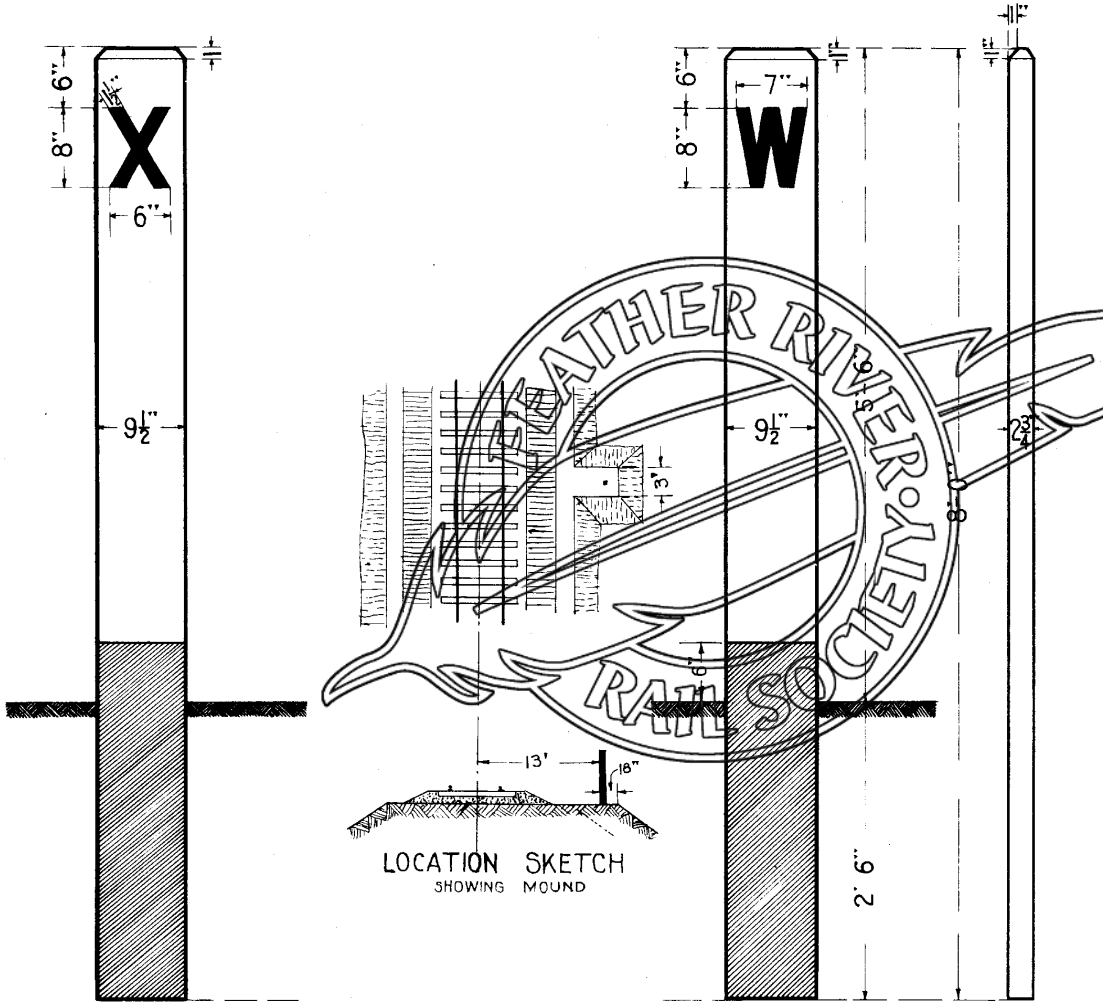
THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

STATION ONE MILE SIGN

No Scale

Adopted: Nov. 16, 1959

C. E.
S-22



POST: 3"x10"x 8'-0" S.4S. Redwood Extra Merch.
PAINTING: Face of post white, Letters black, sides and back of post painted with metallic and lamp black making a very dark brown, Post to have a coat of coal tar applied hot to 6" above ground.
STYLE OF LETTERS: Egyptian 8" high with 1½" stroke as indicated.
LOCATION: Place at rightangles to track on Engineer's side 13 feet from center of track. X and W Posts to be placed as nearly as practicable ¼ mile distant from crossing, tunnel, etc.
PAINTING OF FACE: Face of post to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

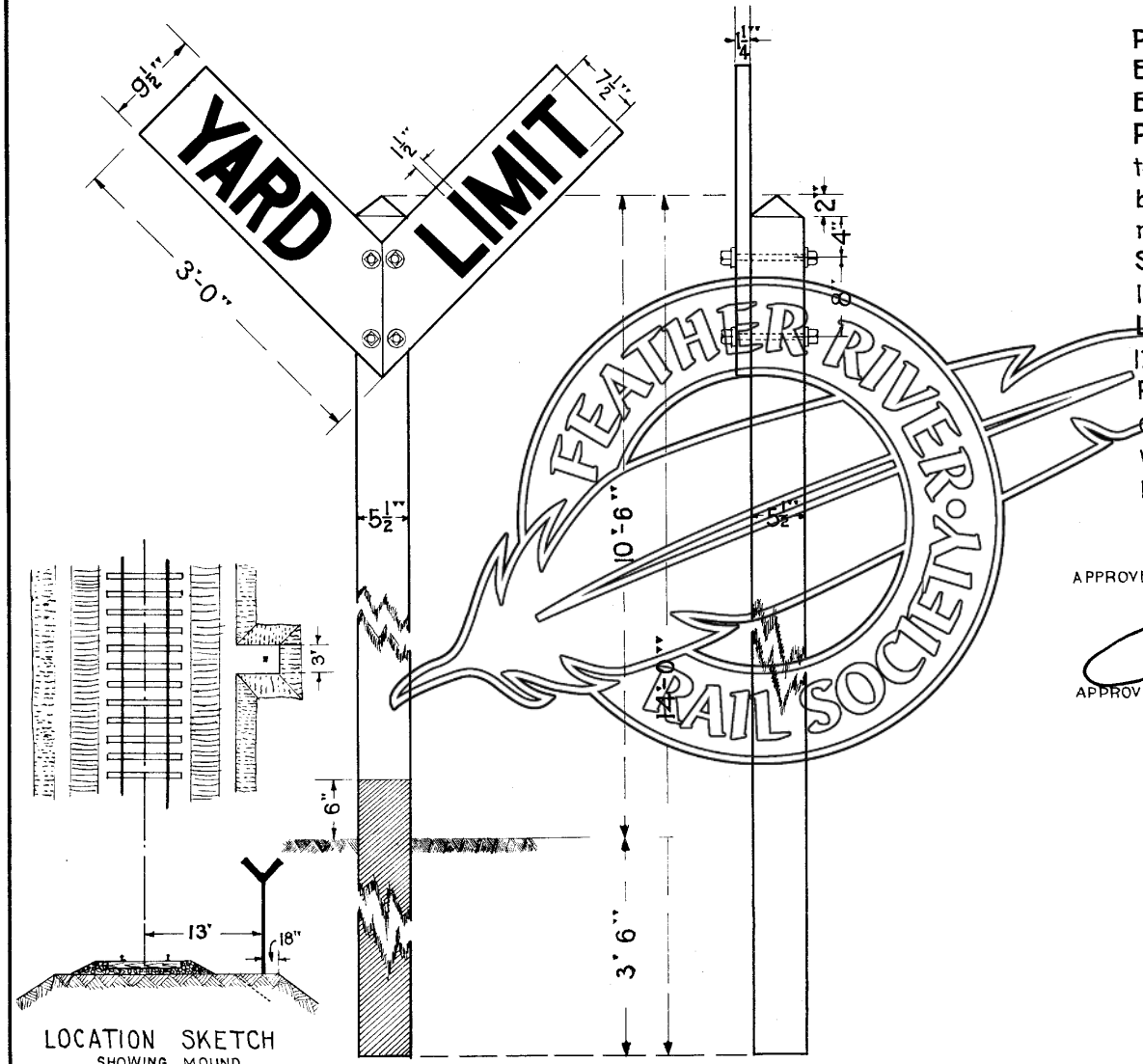
APPROVED: J. P. Williams
CHIEF ENGINEER

APPROVED: E. Evernden
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
WHISTLING POSTS

SCALE: ¾" = 1'-0" ADOPTED JUNE 30-1924
REV. JUNE 1, 1936

C. E.
S-24



POST: 6"×6"×14'-0" S 4S Redwood Extra Merch.
BOARDS: Redwood Clear
BOLTS: $\frac{5}{8}$" Diameter with washers.
PAINTING: Face of board white. Letters black. Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Egyptian 7½" high with 1½" stroke as indicated.
LOCATION: Posts to be set on Engineer's side 13'0" from the center of track.
PAINTING OF BOARDS: Face of boards to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. Engmason
VICE-PRESIDENT AND GENERAL MANAGER.

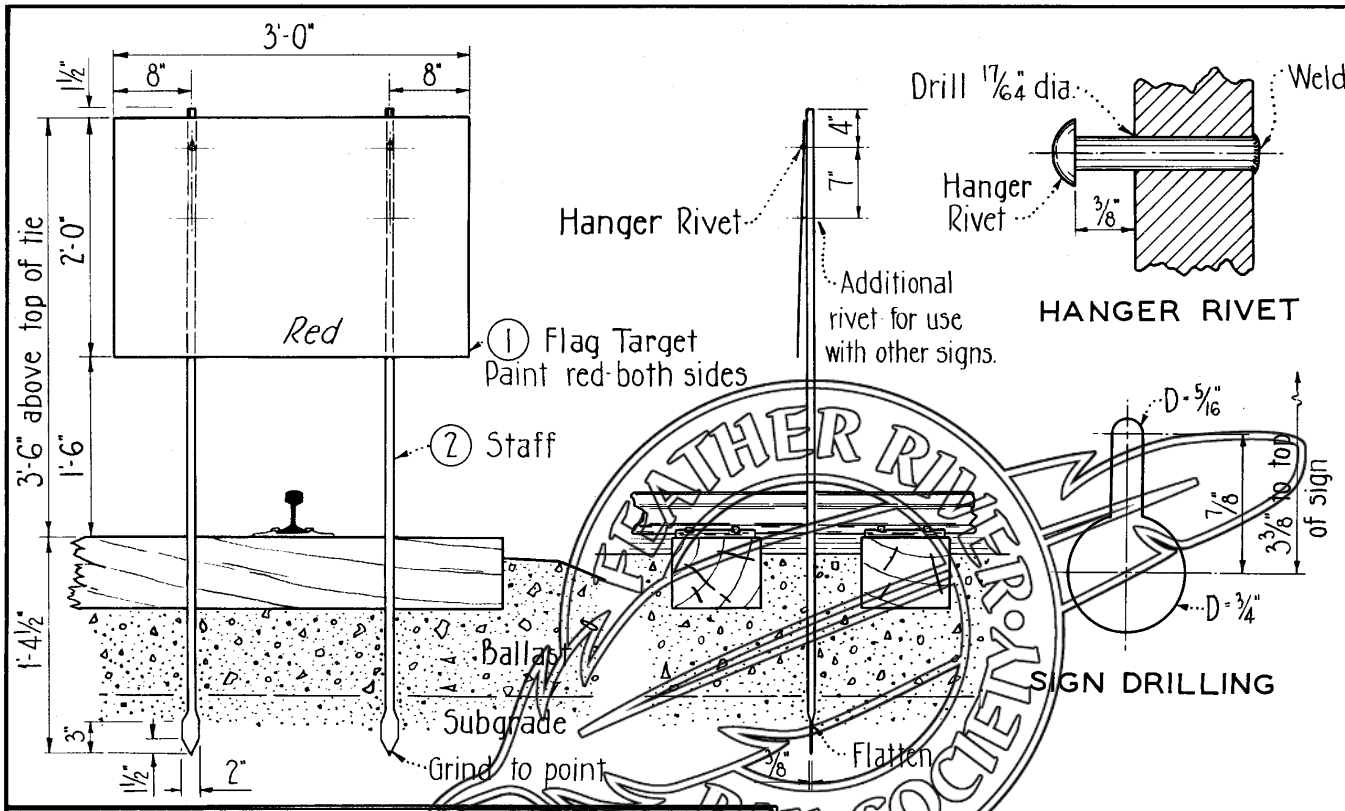
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
YARD LIMIT SIGN

SCALE $\frac{3}{4}$" = 1'-0"

ADOPTED JUNE 1924
REV. JUNE 1, 1936

4-57: Grind & flatten pt. rivet moved, one added.

C. E.
S-25



HANGER RIVET

SIGN DRILLING

NOTES

Both faces of sign to be painted. Color to be red, number 1538 as shown in Paint Standard C.E. 5-195. Staffs and Hanger Bolts to be painted black.

For proper use of these signs see Maintance of Way and Structures Rule Book, rules 2003 thru 2005.

PARTS LIST

When order states "Red Warning Flag Complete" store will furnish one Target and two Staffs with rivets.

Pc. Mk.	Name of Part	Req'd.	Remarks
1	Target	1	16 Gage sheet metal - both faces painted red.
2	Staff	2	1" Rod - 5'-0" long, painted black - includes rivets.

When ordering replacement parts refer to Piece Mark and Drawing Number in addition to Name of Part.

◯ Indicates Piece Mark

Approved: Frank R. Woodfield
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

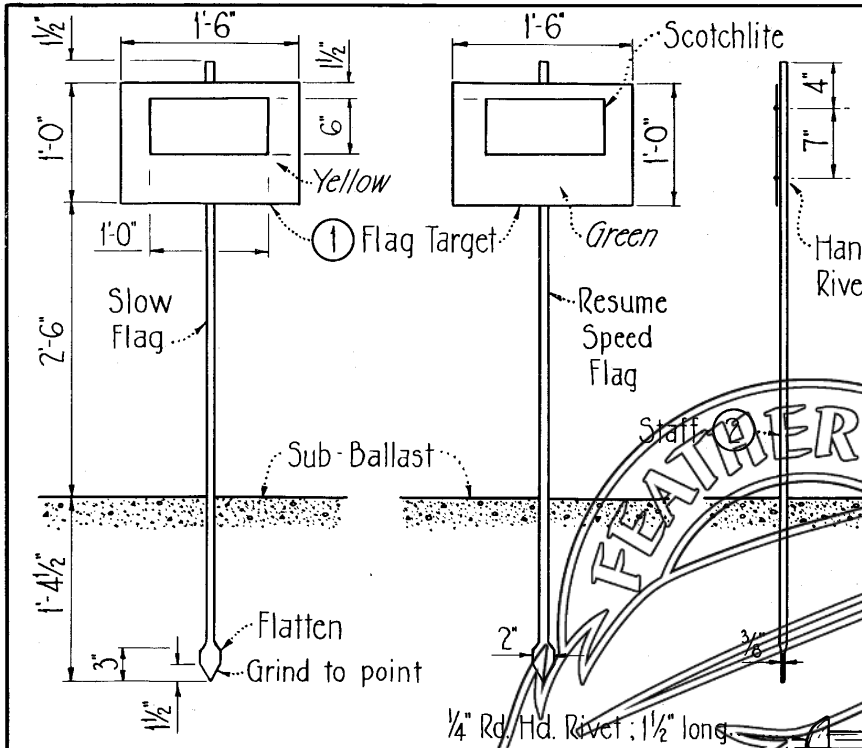
RED WARNING FLAG

NO SCALE

ADOPTED: Jan. 17, 1956
Revised: April 1, 1957

4-'51: Redrawn; Flatten points; 5'-2" to 5'-0"; add rivets.
7-'57: Increase Scotchlite.

C. E.
S-25A



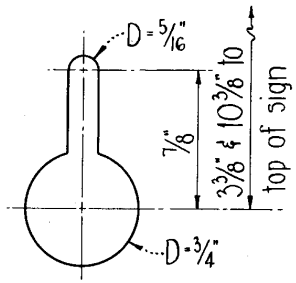
Hanger Rivet

PARTS LIST

When order states "Slow Flag Complete or "Resume Speed Flag Complete" store will furnish one target and one Staff with rivets.

Pc. Mk.	Name of Part	Req'd.	Remarks
1	Target	1	16 Gage sheet metal
2	Staff	1	1" Rod - 5'-0" long, painted black - includes rivets.

When ordering replacement parts specify piece mark and drawing number in addition to name of sign and name of part.



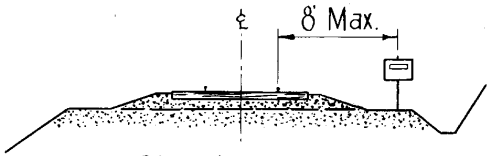
Sign Drilling

NOTES

For proper use of these signs see Maintenance of Way and Structures Rule Book, Rule 2006.

Slow Flag is to be painted on one face only, yellow Scotchlite to be applied as shown on same face. Paint to be yellow, № 1524 as shown in Paint Standard S-195.

Resume Speed Flag to be painted on both faces. Green Scotchlite to be applied as shown on both faces. Paint to be green, № 1528 as shown in Paint Standard.



Sign Location

Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

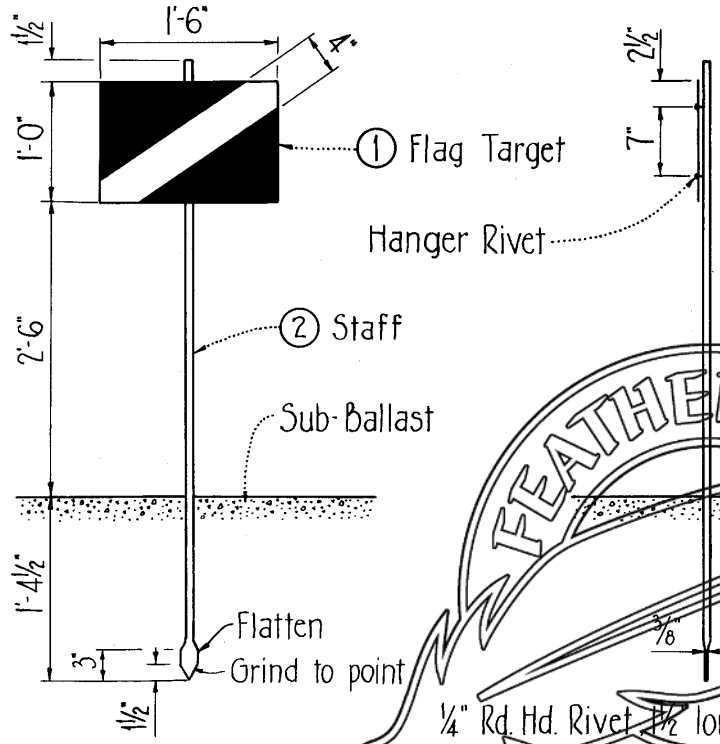
SLOW FLAG AND RESUME SPEED FLAG

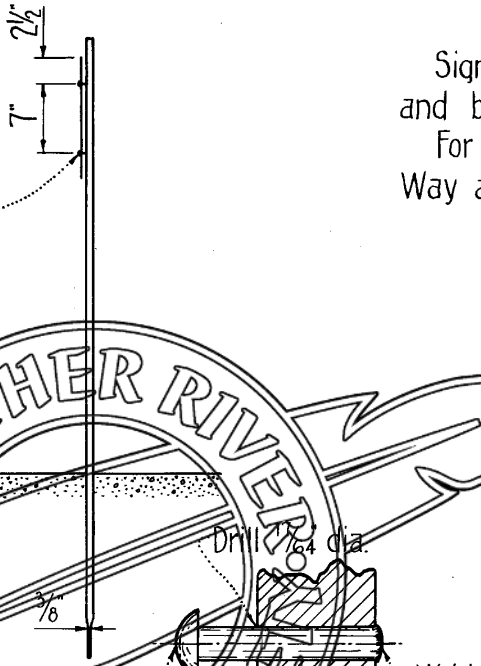
NO SCALE

ADOPTED: Jan. 17, 1956
REVISED: Aug. 18, 1957

4-57: Rivet, flatten point.

C. E.
S-25 B

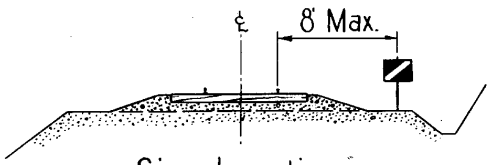




NOTES

Sign to have yellow diagonal Scotchlite stripe and black Scotchcal background, both sides.

For proper use of this sign see Maintance of Way and Structures Rule Book, Rule 10 B.



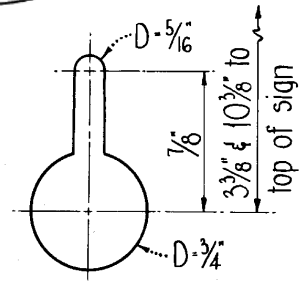
Sign Location

PARTS LIST

When order states "Multiple Speed Flag Complete" store will furnish one Target and one Staff with rivets.

Pc. Mk.	Name of Part	Req'd.	Remarks
1	Target	1	16 Gage sheet metal
2	Staff	1	1" Rod - 5'-0" long, painted black - includes rivets.

When ordering replacement parts specify piece mark and drawing number in addition to name of part.



Sign Drilling

◯ Indicates Piece Mark

Approved: Frank R. Mansfield
Chief Engineer

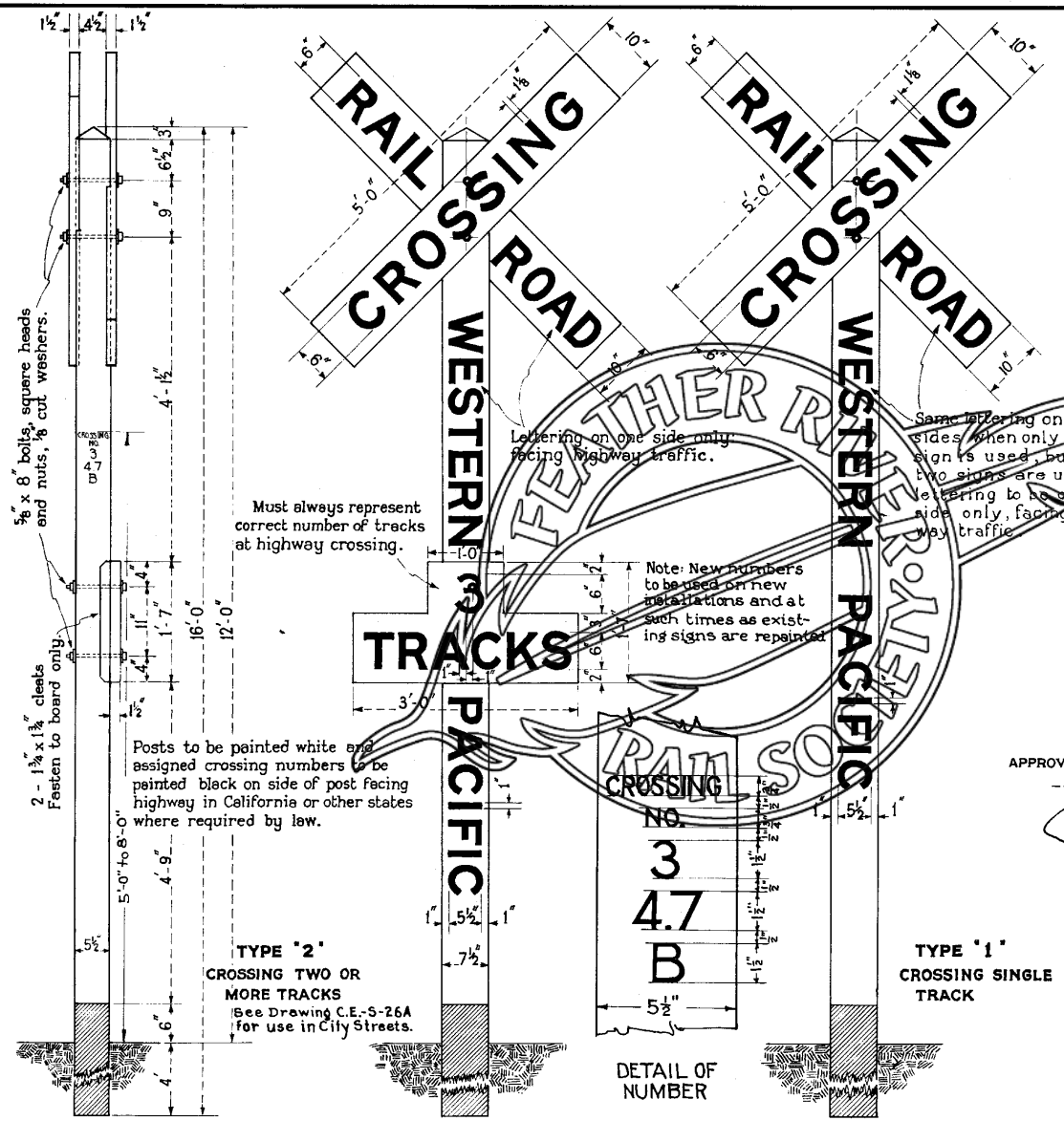
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

MULTIPLE SPEED FLAG

NO SCALE

ADOPTED: Oct. 15, 1956
REVISED: April 1, 1957

C.E.
S-26



POSTS: 6" x 8" x 16'0" S4S Redwood Extra Merch.
BOARDS: Redwood Clear. S4S
PAINTING: Base of posts to have a coat of coal tar applied hot to 6" above ground, balance of post and both sides of boards to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. The words "Railroad Crossing" and "Western Pacific" to be painted on both sides of Type "1" sign and on one side of Type "2" signs. All letters to be painted black.
STYLE OF LETTERS: Egyptian 6" on boards, and 5½" on post as indicated.
LOCATION: Post to be set in most conspicuous place about 25 feet from center of nearest track, facing highway travel, preferably at corner of crossing intersection on right hand side of highway traffic, and in advance of the railroad track. Use one Type "1" sign where only one track is crossed. Use two Type "2" signs where two or more tracks are crossed, placing one sign on each side of tracks crossed on right hand side of highway traffic.
NOTE: When Western Pacific tracks parallel foreign line tracks the total number of tracks of both carriers should be shown, each carrier furnishing one sign. The road crossing number is to be used in California only and number is to be painted on one 5½" face of post facing highway.

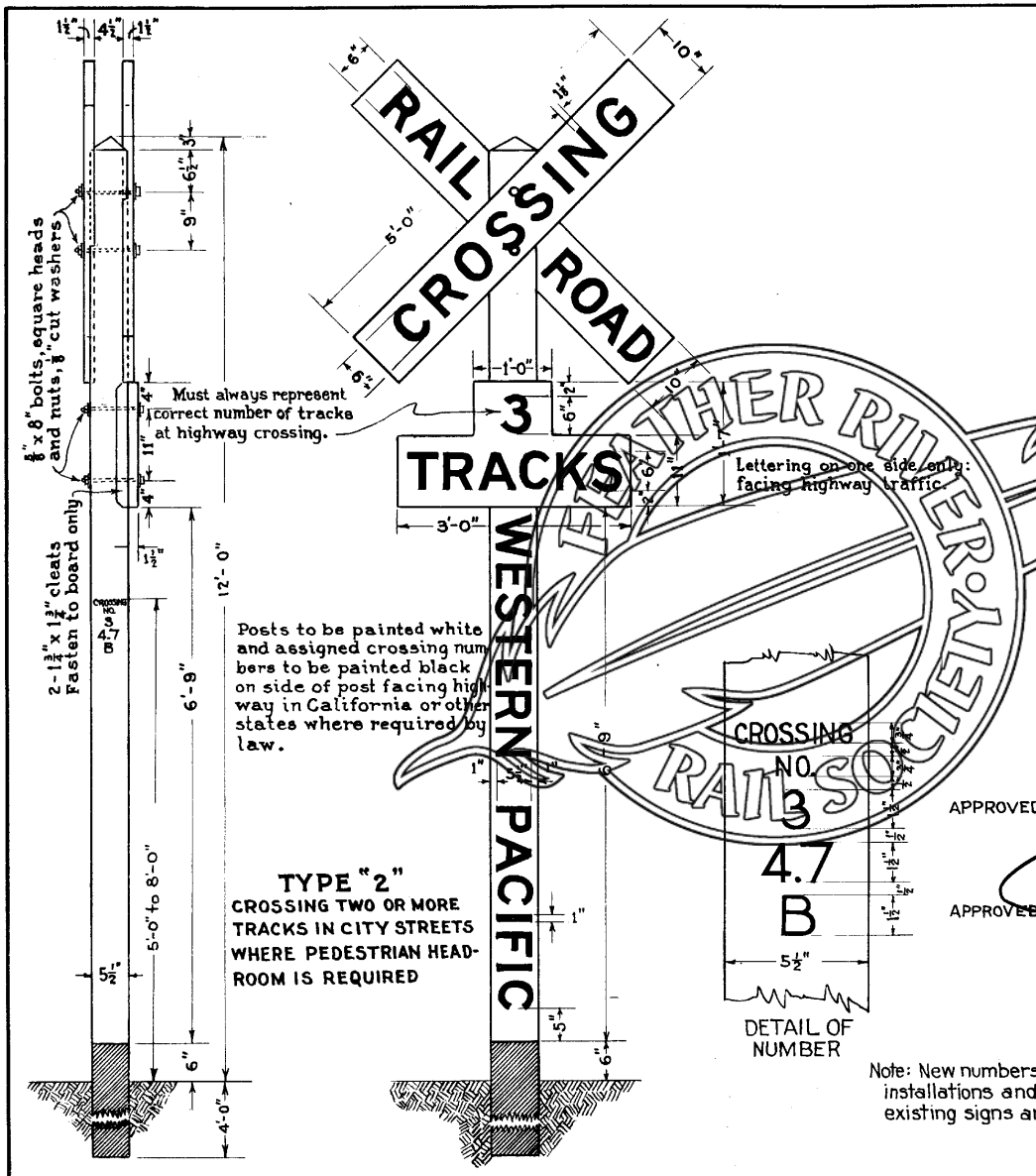
APPROVED J. M. Williams
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
HIGHWAY CROSSING SIGN

SCALE ½" = 1 FT.

ADOPTED AUGUST, 1925.
REVISED AUGUST 1, 1929.
" APRIL 4, 1931.
" AUGUST 16, 1931.
" JUNE 16, 1932.
" JUNE 1, 1936

C.E.
S.26A



TYPE "2"
CROSSING TWO OR MORE TRACKS IN CITY STREETS WHERE PEDESTRIAN HEADROOM IS REQUIRED

Note: New numbers to be used on new installations and at such times as existing signs are repainted.

POSTS: 6"x 8"x 16'-0" S 4 S Redwood Extra Merch.
BOARDS: Redwood-Clear S 4 S.
PAINTING: Base of posts to have a coat of coal tar applied hot to 6"above ground, balance of post and both sides of boards to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. The words "Railroad Crossing" and "Western Pacific" to be painted black on one side only.
STYLE OF LETTERS: Egyptian- 6"on boards, and 5½" on post as indicated.
LOCATION: Post to be set in most conspicuous place about 25 feet from center of nearest track, facing highway travel, preferably at corner of crossing intersection on right hand side of highway traffic and in advance of railroad track. Use two of these signs where two or more tracks are crossed, placing one sign on each side of tracks crossed on right hand side of highway traffic.
NOTE: When WESTERN PACIFIC tracks parallel foreign line tracks, the total number of tracks of both carriers shall be shown, each carrier furnishing one sign. The road crossing number is to be used in California only and number is to be painted on one 5½" face of post facing highway.

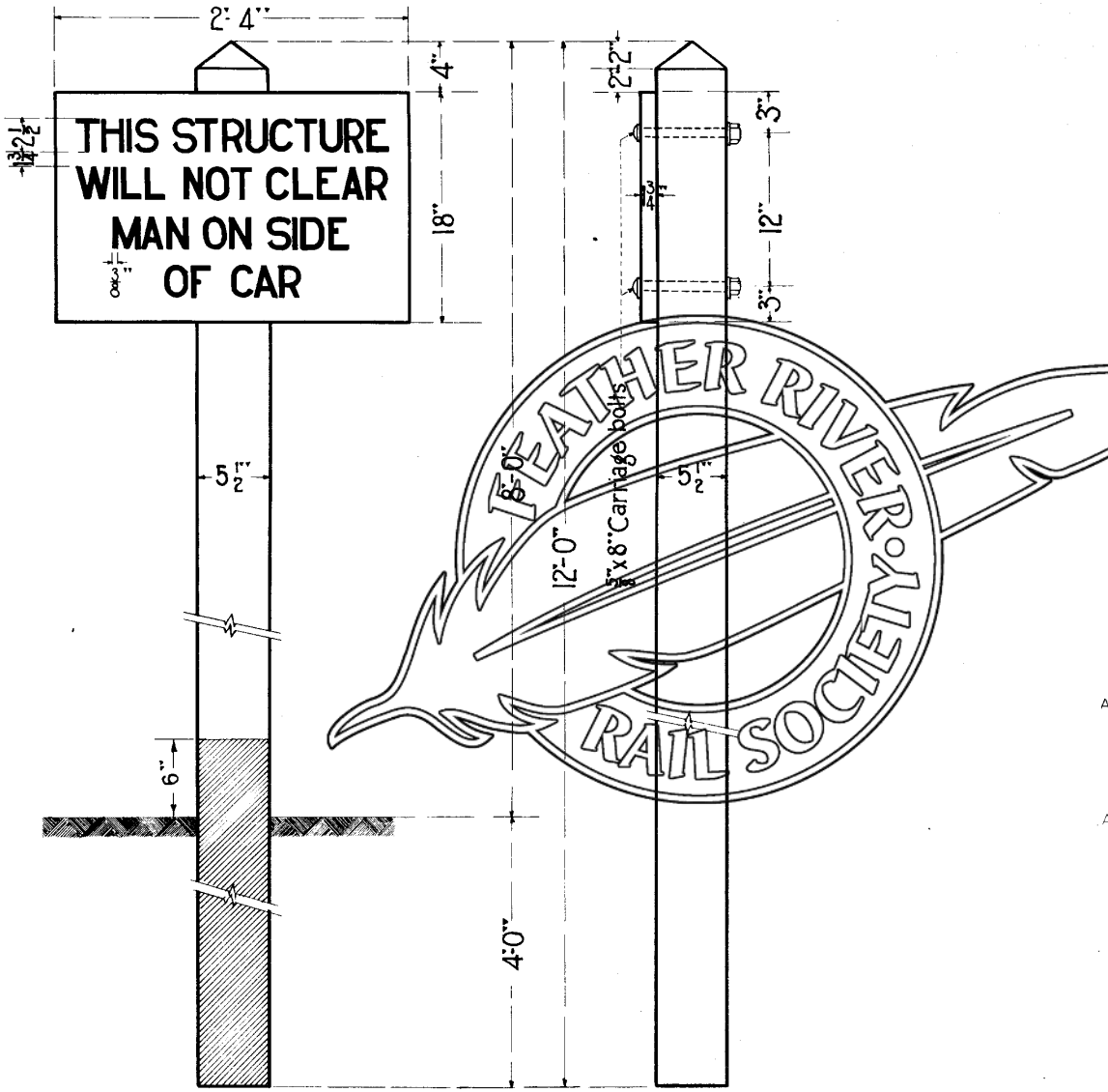
APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. Ewmason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
HIGHWAY CROSSING SIGN
FOR CITY STREETS

SCALE ½" = 1 FT.
ADOPTED APRIL, 4, 1931
REVISED AUGUST, 18, 1931.
" JUNE 16, 1932
" JUNE 1, 1936

C.E.
S-27



POST: 6"x6"x 12'0" S-4-S Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: $\frac{5}{8}$" Diameter with washers.
PAINTING: Face of board white. Letters black. Post to have a coat of coal tar applied hot to 6" above ground; balance of post and back of boards painted with metallic and lamp black, making a very dark brown.
STYLE OF LETTERS: Egyptian 2½" high with ⅜" stroke as indicated.
LOCATION: Not less than 13 ft. from center line of track and in advance of structure with impaired clearance.
PAINTING OF BOARD: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

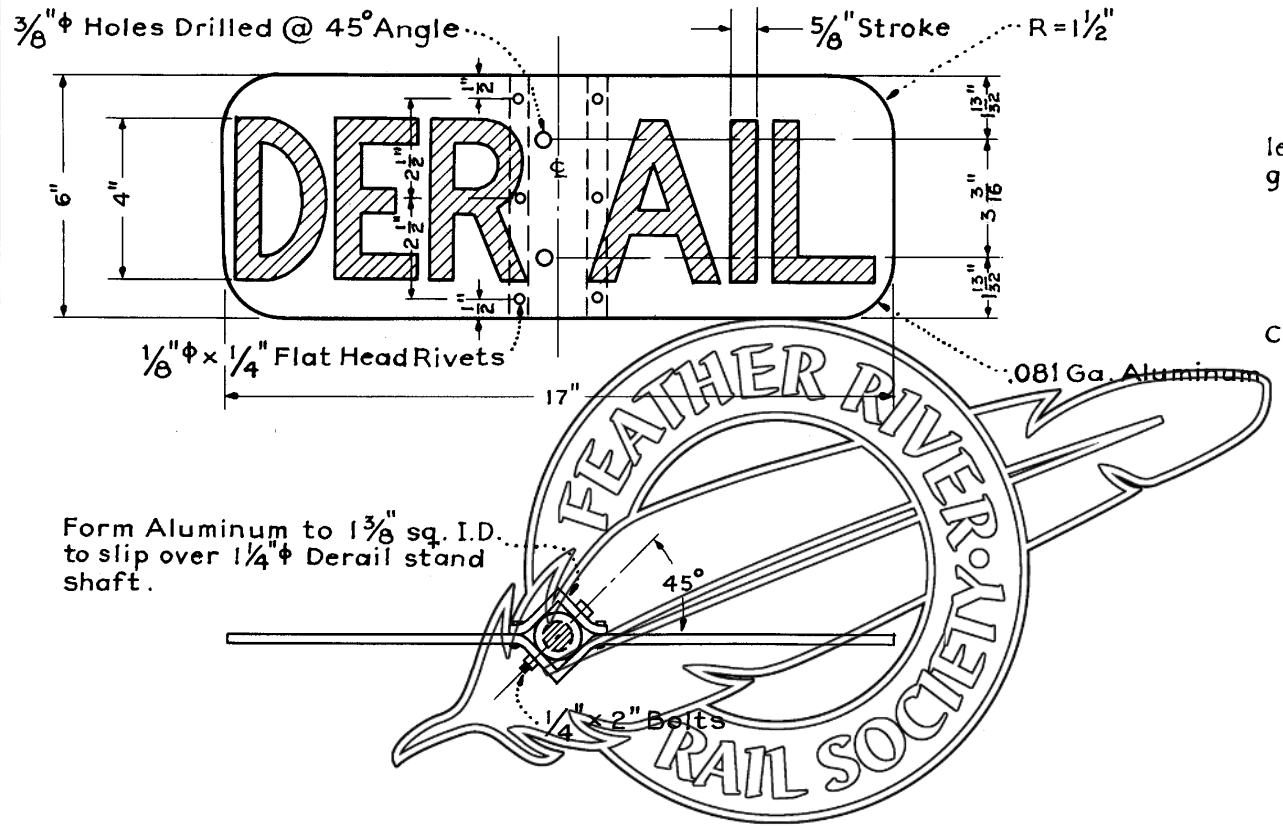
APPROVED J. V. Williams
CHIEF ENGINEER

APPROVED E V Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
IMPAIRED CLEARANCE SIGN

SCALE: 1"=1'-0" ADOPTED JANUARY, 1927
REV. JUNE 1, 1936

C.E.
S-28



NOTES

Sign to have black non-reflective letters on yellow reflective background, both sides.

When ordering refer to "Derail Target C.E. S-28".

APPROVED: Frank R. Woolford
CHIEF ENGINEER

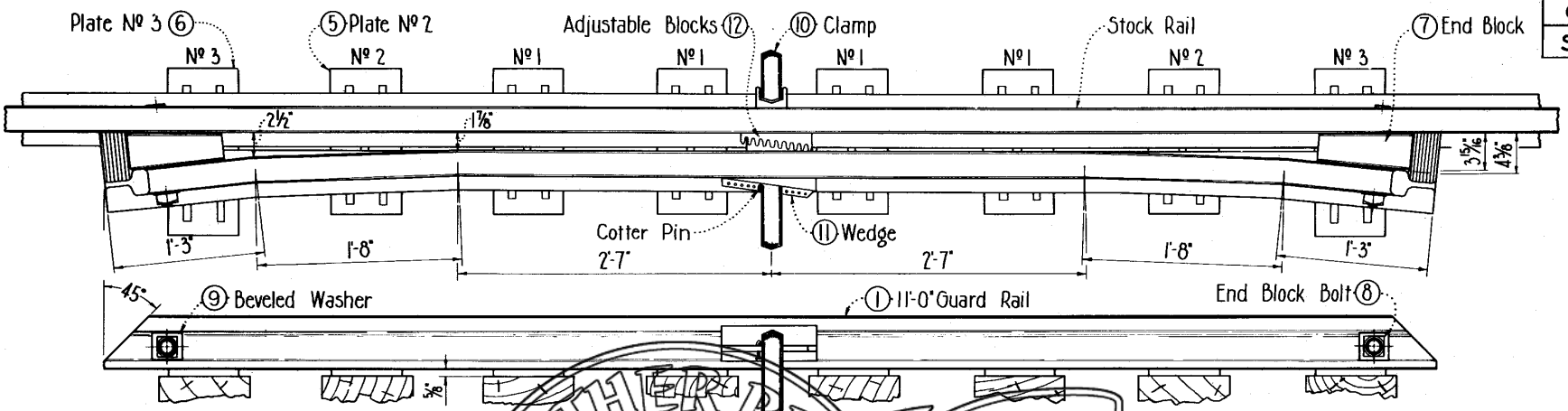
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

DERAIL TARGET

NO SCALE

ADOPTED: Jan. 1, 1963

C.E.
S-30



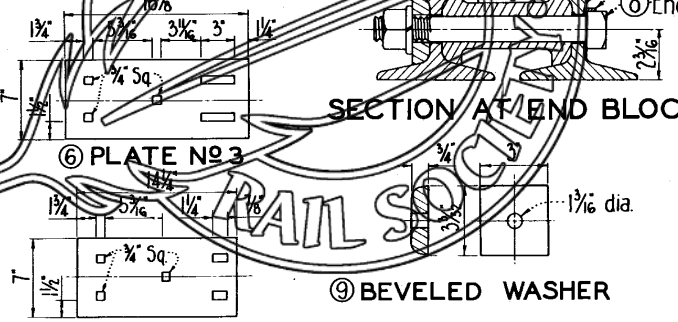
PARTS LIST
GUARD RAIL COMPLETE

Pc. Mk.	Name of Part	Reqd	Remarks
1	Guard Rail	1	85 Lb. Rail, 11'-0" long
2	End Block Assembly	2	Includes Block & Mach. Bolt with Nut, Lock-washer, Headlock & Beveled Washer.
3	Clamp Assembly	1	Includes Clamp, Wedge, Rail Block & Pair of Adjustable Blocks.
4	Plate Nº 1	4	
5	Plate Nº 2	2	
6	Plate Nº 3	2	

REPLACEMENT PARTS

	End Block Assembly		
7	End Block	1	Cast Iron
8	End Block Bolt	1	1⅛" x 9½" Sq. Hd. Mach. Bolt, includes 1 Sq. Nut, 1 Hi-Chrome Nut Lock & 1-¼" Headlock.
9	Beveled Washer	1	Racor Nº F-3
	Clamp Assembly		
10	Clamp	1	Racor Forged-H.T.-Nº 2
11	Wedge	1	Includes Cotter Pin
12	Adjustable Blocks	1 pr.	Racor, Nº L-605 & L-853
13	Rail Brace	1	Racor, Nº L-927

Note: When ordering, specify Piece Mark and Drawing Number in addition to Name and Size of Part.
All fastening for 11'-0" Guard Rail and obsolete 8'-3" Guard Rail are interchangeable.

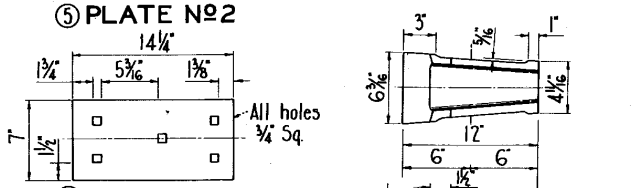


SECTION AT END BLOCK

⑥ PLATE Nº 3

⑨ BEVELED WASHER

⑤ PLATE Nº 2

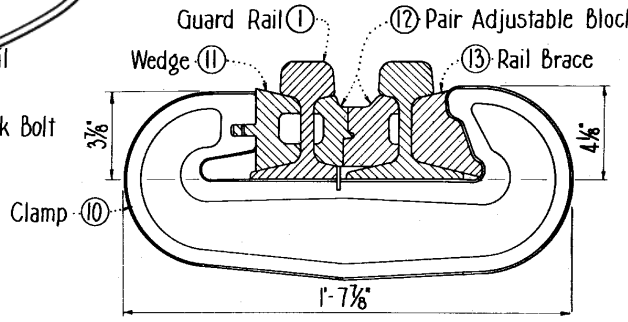


④ PLATE Nº 1

TIE PLATES
All plates ⅝" thick

⑦ END BLOCK

◯ Indicates Piece Mark



SECTION AT CLAMP

OLD STANDARD

Approved: Frank A. Macomber
Chief Engineer

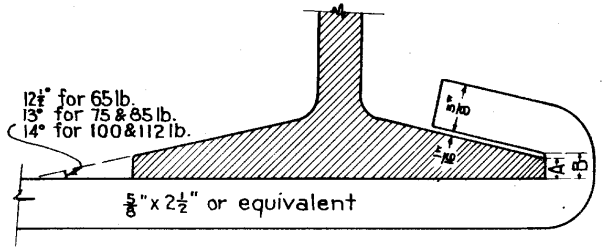
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

11 FOOT 85 LB. GUARD RAIL

NO SCALE

ADOPTED: JULY, 1926
REVISED: DEC 9, 1954

C.E.
S-33



DETAIL OF TIE ROD

DIMENSIONS "A" and "B" FOR VARIOUS WEIGHTS OF RAIL

WT. OF RAIL	A	B
65#	¼"	5/16"
75#	9/32"	11/32"
85#	¼"	5/16"
100#	⅜"	7/16"
112#	7/16"	½"

G = Track gauge.
S = Spread, out to out of base, or length of rod.
Maximum track gauge for 20 degree curve or over is 4'-9¼".
Curves 8° degrees and under should be standard gauge of 4'-8½".
Degree of curvature should be specified when ordering tie rods.
Gauge should be widened one eighth inch for each two degrees or fraction thereof over eight degrees, to a maximum of 4'-9¼" for track of standard gauge. Guage, including widening due to wear, should never exceed 4'-9½"
Rods to be spaced 5'-6" center to center.
Rods to be used on all curves over 10° and at other locations approved by General Manager.

DEGREE OF CURVE	8°	10°	12°	14°	16°	18°	20°
G = GAUGE	4'-8½"	4'-8⅝"	4'-8¾"	4'-8⅞"	4'-9"	4'-9⅛"	4'-9¼"
WEIGHT OF RAIL	S = SPREAD OF RAIL						
45#	5'-2¼"	5'-2⅜"	5'-2½"	5'-2⅝"	5'-2¾"	5'-2⅞"	5'-3"
56#	5'-2½"	5'-2⅝"	5'-2¾"	5'-2⅞"	5'-3"	5'-3⅛"	5'-3¼"
60#	5'-3⅛"	5'-3¼"	5'-3⅜"	5'-3½"	5'-3⅝"	5'-3¾"	5'-3⅞"
65#	5'-3⅜"	5'-3½"	5'-3⅝"	5'-3¾"	5'-3⅞"	5'-4"	5'-4⅛"
70#	5'-3 9/16"	5'-3 11/16"	5'-3 13/16"	5'-3 15/16"	5'-4 1/16"	5'-4 3/16"	5'-4 5/16"
75#	5'-3¾"	5'-3⅞"	5'-4"	5'-4⅛"	5'-4¼"	5'-4⅜"	5'-4½"
85#	5'-4¼"	5'-4⅜"	5'-4½"	5'-4⅝"	5'-4¾"	5'-4⅞"	5'-5"
100#	5'-4½"	5'-4⅝"	5'-4¾"	5'-4⅞"	5'-5"	5'-5⅛"	5'-5¼"
112#	5'-4 11/16"	5'-4 13/16"	5'-4 15/16"	5'-5 1/16"	5'-5 3/16"	5'-5 5/16"	5'-5 7/16"

OLD STANDARD

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

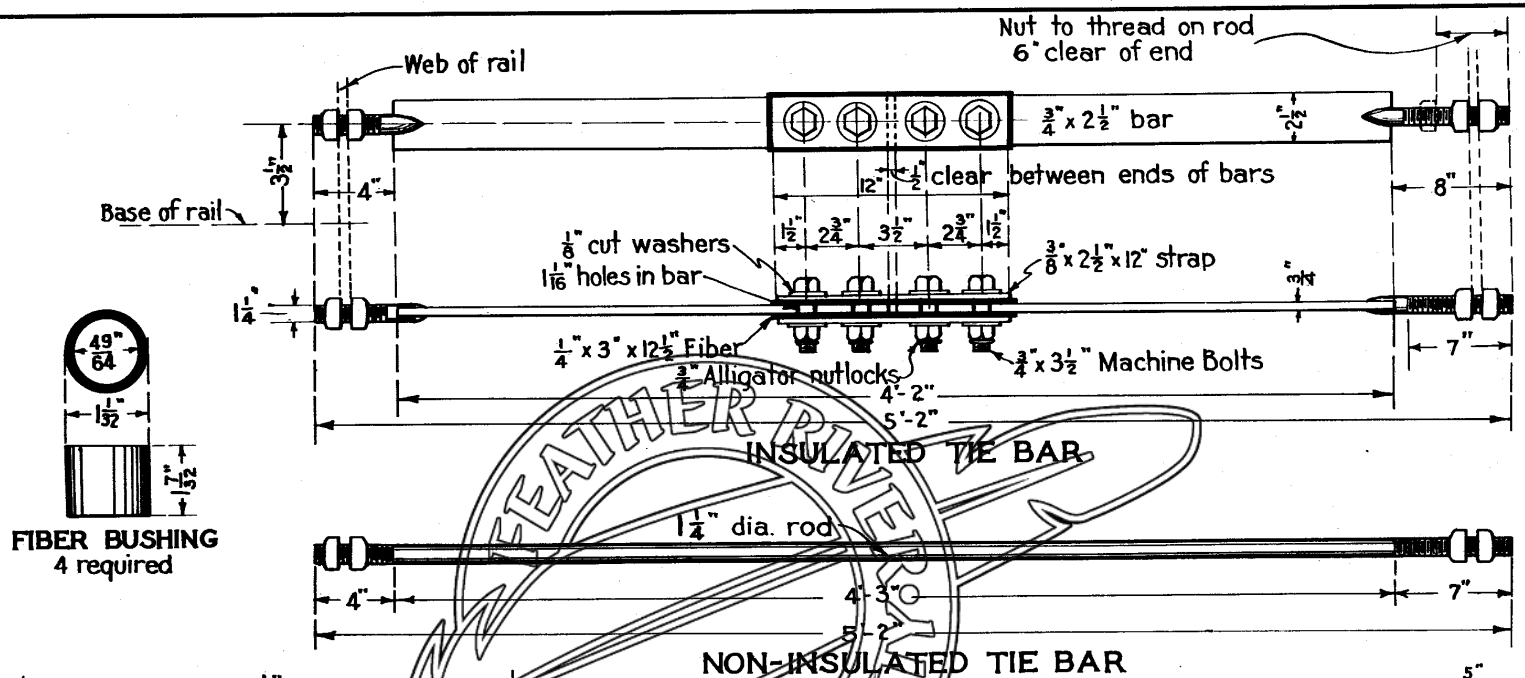
STANDARD TIE BARS

FOR VARIOUS WEIGHTS OF TEE RAIL ON CURVED TRACK USED BY ROAD ENGINES

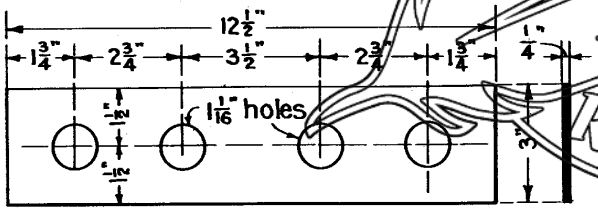
NO SCALE

ADOPTED MAY 11, 1932.
REVISED MAY 23, 1944.

C.E.
S-33A

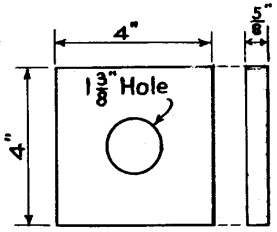


FIBER BUSHING
4 required

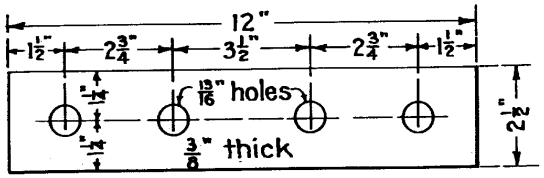


FIBER PLATE
2 required

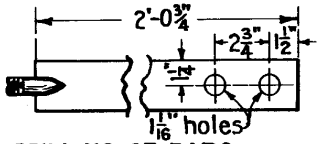
Bars to be spaced 5'-0" to 5'-6" centers.
Bars of 1 1/4" dia. rod to be used when insulated bars are not required.



STEEL WASHER
2 per bar.



STEEL STRAP
2 required



DRILLING OF BARS

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

TIE BAR FOR GIRDER RAIL

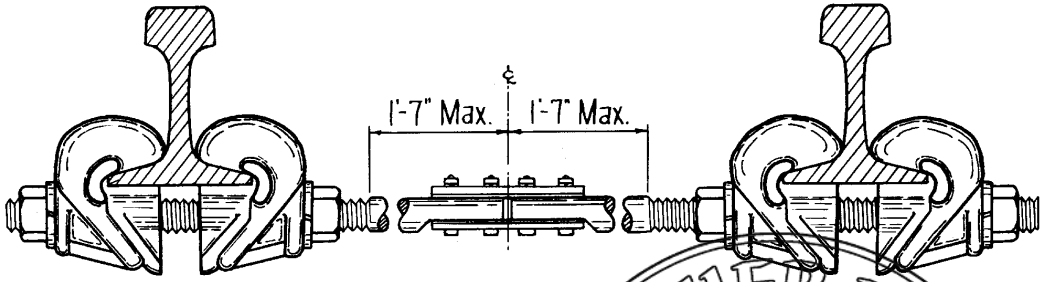
NO SCALE

SEPT. 1, 1916
Rev. Mar. 28, 1935, Jan. 14, 1938, Sept. 9, 1938
Mar. 27, 1939, May 29, 1944, Nov. 27, 1945.

Approved: Frank R. Woolford
Chief Engineer

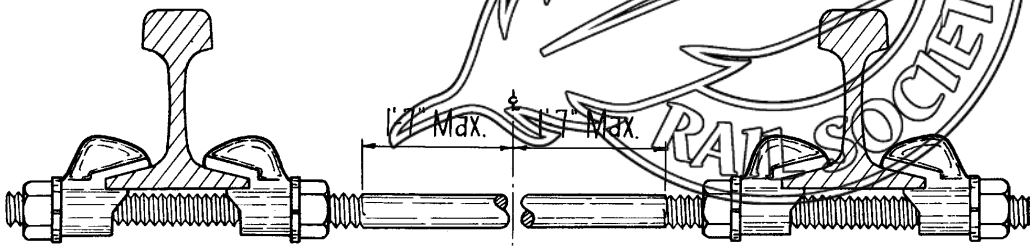
'/57 : Added 1'-7" to allow use with guard rail.

C.E.
S-33B



JUMBO BRACE

Shown with insulated rod. - May be ordered with non-insulated rod.
For use on curves 20° and over.



ECONOMY BRACE

Shown with non-insulated rod. - May be ordered with insulated rod.
For use on curves 12° to 19°-59'.

Degree of Curve	8°	10°	12°	14°	16°	18°	20°	22°	24°	26°	28°	30°
Gauge	4'-8½"	4'-8⅝"	4'-8¾"	4'-8⅞"	4'-9"	4'-9⅛"	4'-9¼"	4'-9¼"	4'-9¼"	4'-9¼"	4'-9¼"	4'-9¼"

NOTES

Gauge, including widening due to wear, should never exceed 4'-9½".

Braces to be applied against edge of tie to prevent rail creep.

When ordering specify either insulated or non-insulated rods.

Braces to be applied four per rail length except where six or more are authorized by Chief Engineer. When four braces are used, apply one at each joint and one at each quarter. When six braces are used, apply two at each joint and one at each quarter. Additional braces to be applied where required, when authorized.

Approved: Frank R. Wood
Chief Engineer

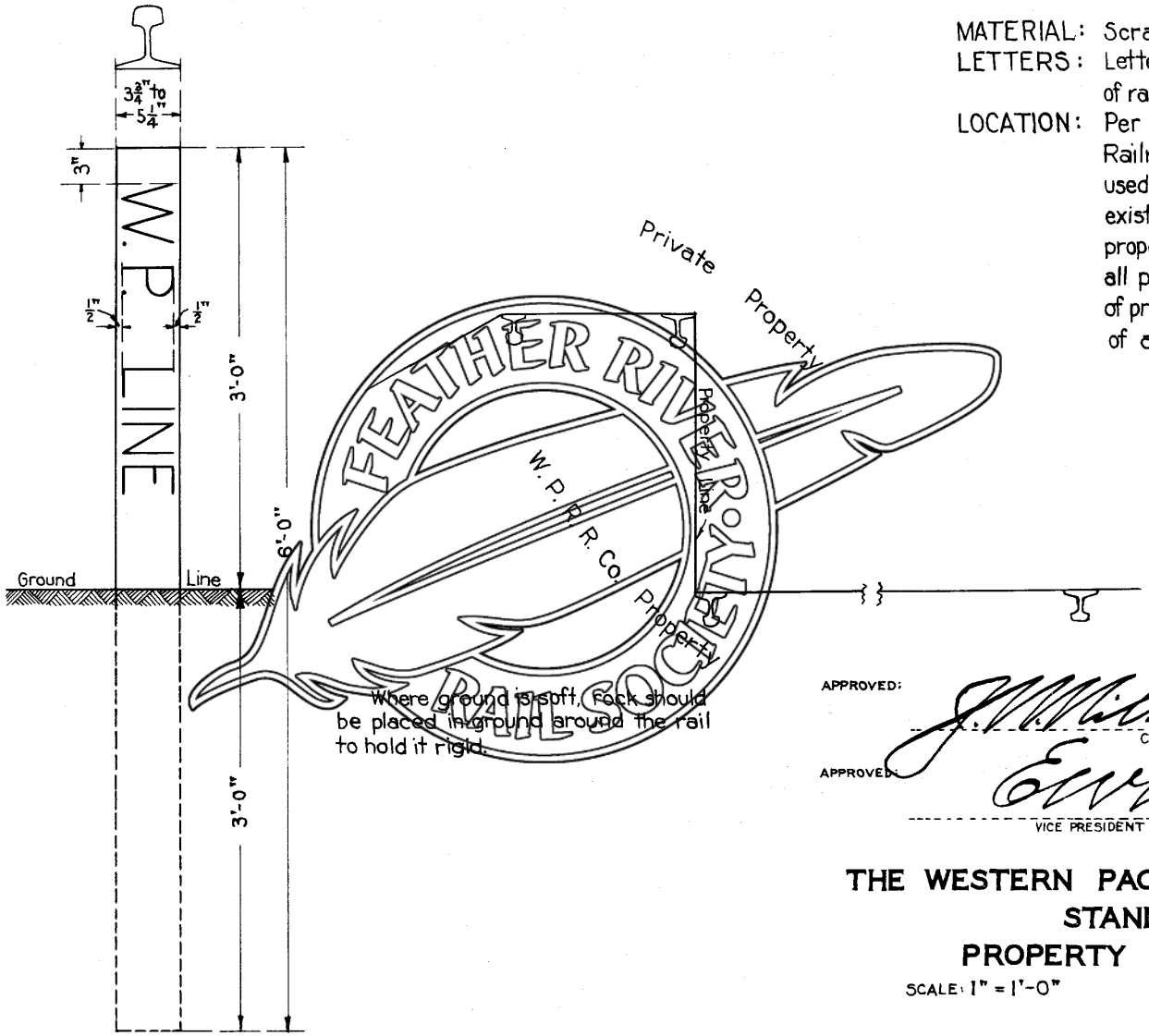
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

COMBINED TIE BAR AND RAIL BRACE

NO SCALE

ADOPTED: Jan. 17, 1956
Revised : Mar. 15, 1957

C.E.
S-35



Where ground is soft, rock should be placed in ground around the rail to hold it rigid.

MATERIAL: Scrap Rail, 45 to 85 lb.
LETTERS: Lettering to be raised on base of rail by means of electric welder.
LOCATION: Per location diagrams.
Railroad property line post to be used where no right of way fences exist and it is desired to define property line. Posts to be set at all points of change in direction of property line and at intervals of about 1000 feet or as directed.

APPROVED: J. M. Williams
CHIEF ENGINEER.

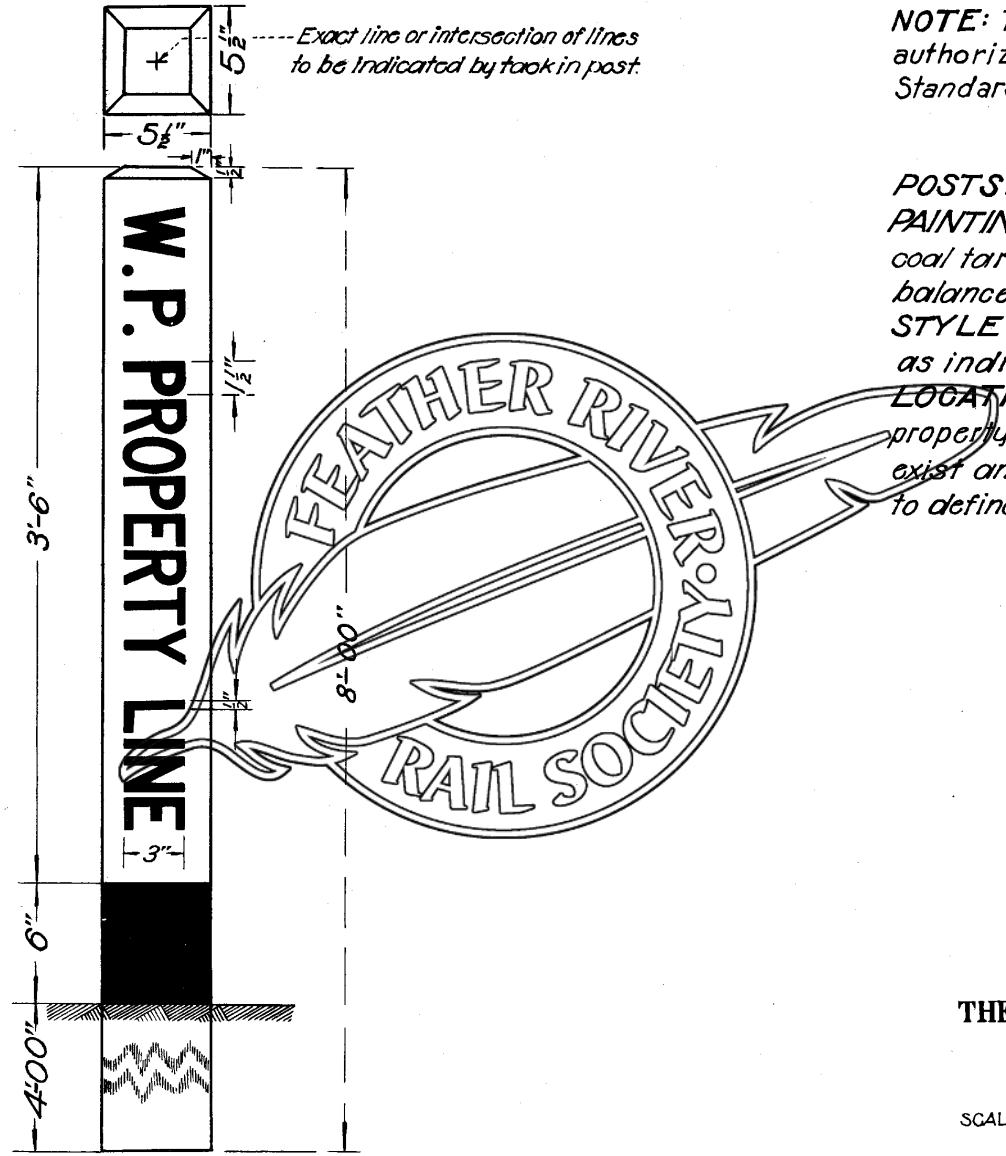
APPROVED: E. V. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
PROPERTY LINE POST

SCALE: 1" = 1'-0"

ADOPTED MAY, 3, 1932.
REVISED JUNE 20, 1932.

C.E.
S-35A



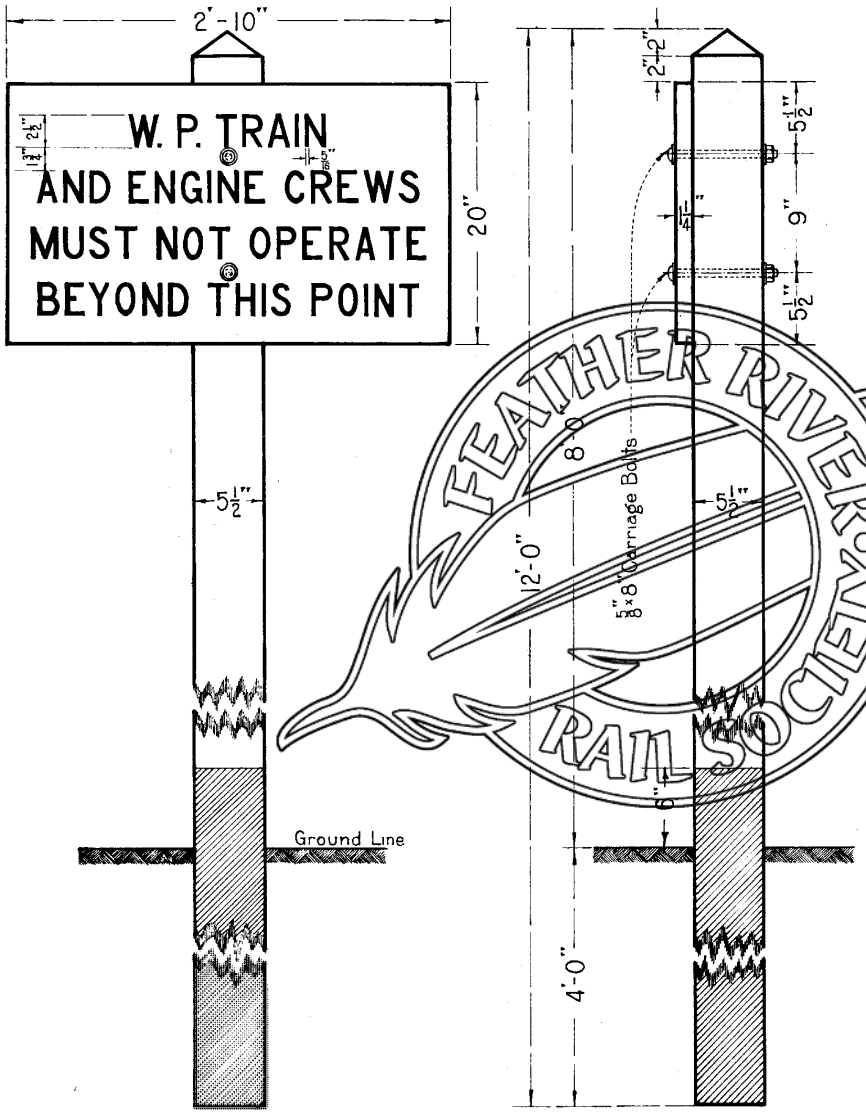
Exact line or intersection of lines to be indicated by tool in post.

NOTE: To be used only when authorized. See C.E.-S-35 for Standard Property Line Post.

POSTS: 6"x6"x8': S.4.S. Redwood Extra Merch.
PAINTING: Posts to have a coat of coal tar applied hot to 6" above ground, balance of post white, letters black
STYLE OF LETTERS: Egyptian, as indicated.
LOCATION: To be set at all corners of property; at places where no fences exist and at points where it is desirable to define the property line.

THE WESTERN PACIFIC RAILROAD CO.
SPECIAL
PROPERTY LINE POST
SCALE: 1½" = 1' ADOPTED JULY 1925
REV. JUNE 1, 1936

C.E.
S-36.



POST: 6"x6"x12'-0" S4S Redwood Extra Merch
BOARDS: Redwood Clear.
BOLTS: $\frac{5}{8}$" Diameter with washers.
PAINTING: Face of board white, Letters black, Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown
STYLE OF LETTERS: Egyptian 2½" high with $\frac{5}{16}$" stroke as indicated.
LOCATION: On Engineer's side, 13 ft. from center line of track.
PAINTING OF BOARD: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

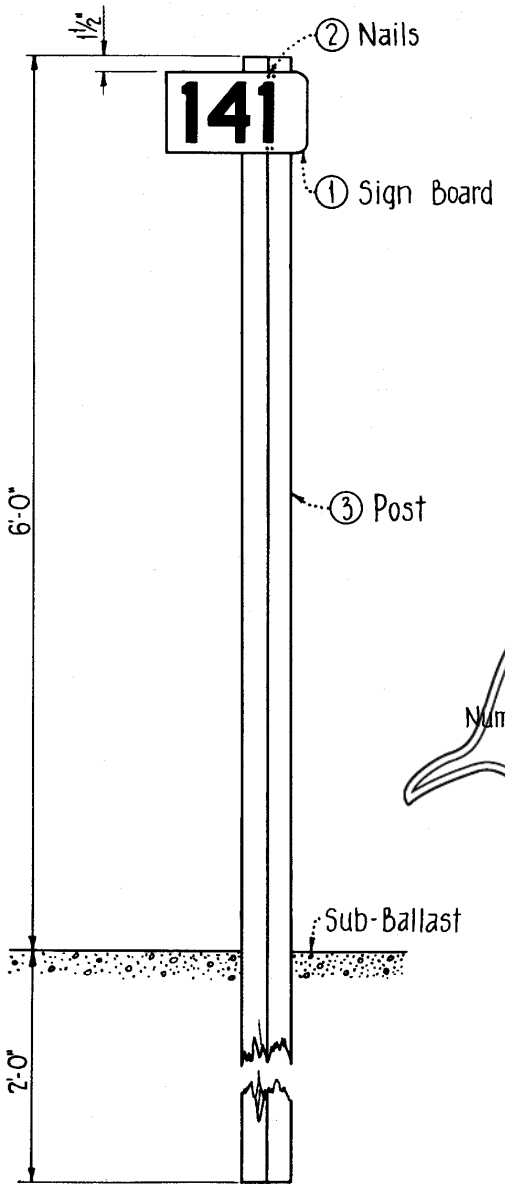
APPROVED: J. M. Williams
CHIEF ENGINEER

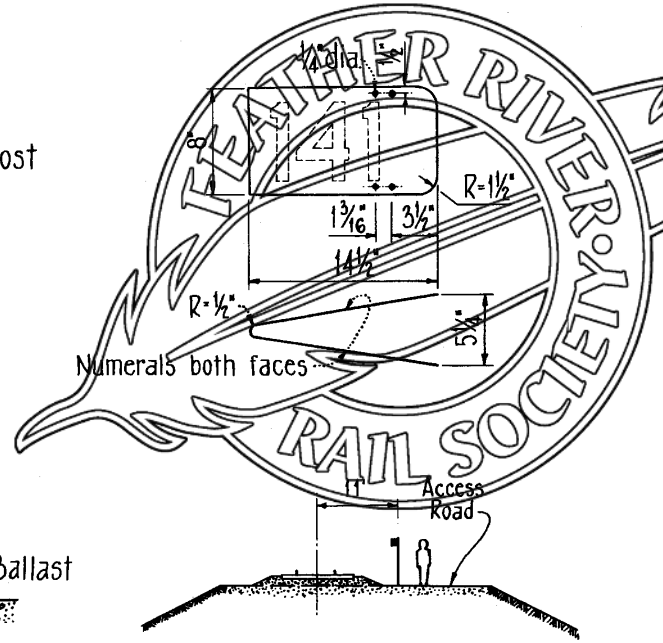
APPROVED: E. E. Mason
VICE-PRESIDENT AND GENERAL MANAGER

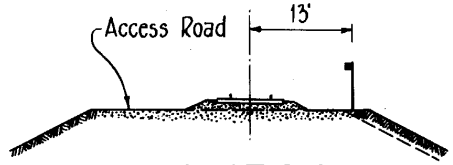
THE WESTERN PACIFIC RAILROAD CO
STANDARD
LIMIT OF OPERATION SIGN

SCALE 1"=1'-0" ADOPTED OCTOBER 1925
REV. JUNE 1, 1936

C. E.
S-37







LOCATION

NOTE

For numeral shape and stroke see S-39.

Sign to have black non-reflective numerals on white non-reflective background. Materials to be as per current instructions.

Mile markers to be located on south side of track except where visibility will be improved by locating on north side, or where sidings or close clearances prevent locating on south side.

PARTS LIST

Pc. Mk.	Name	Req'd.	Remarks
1	Sign Board	1	
2	Nails (Galv.)	4	2" № 9 Nails with 1 № 8 - 1/16" thick lead washer each.
3	Sign Post	1	Type "B", S-82.

When requisition states "Mile Marker Sign Complete" and states mile post required Store will furnish Piece Marks 1 through 3, assembled.

When ordering replacement parts refer to Piece Mark, Drawing Number and mile post, if necessary, in addition to Name of Part.

Approved: Frank R. Wood
Chief Engineer

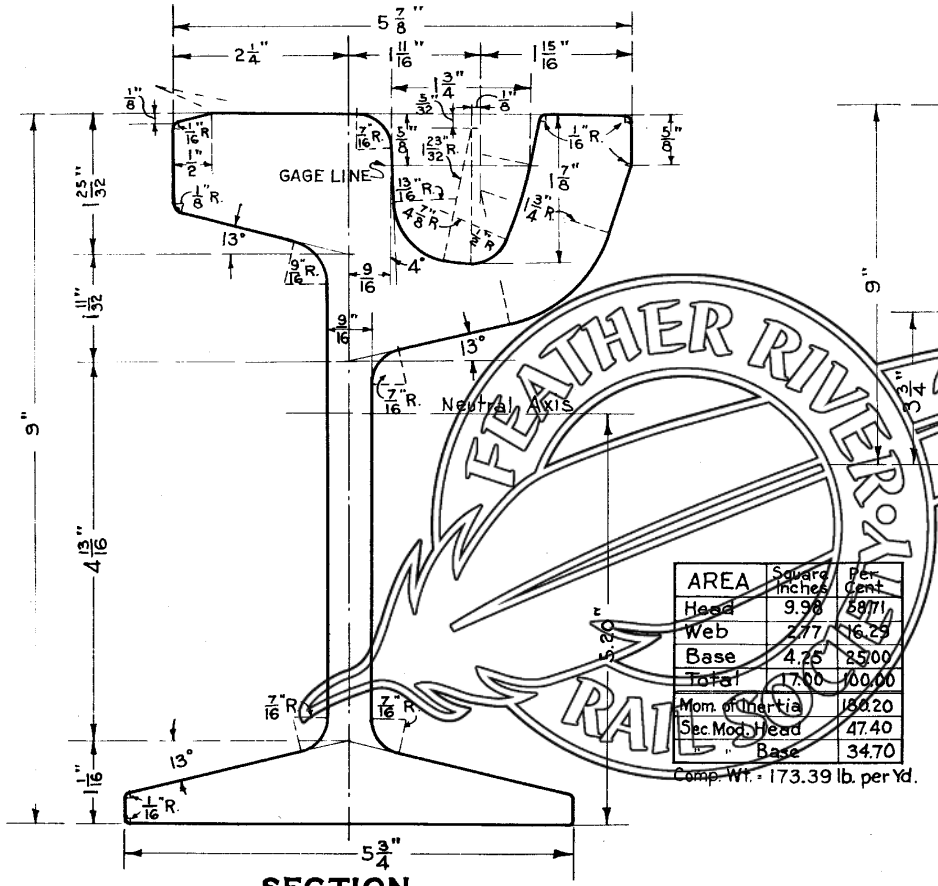
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

MILE MARKER

NO SCALE

ADOPTED: May 15, 1958

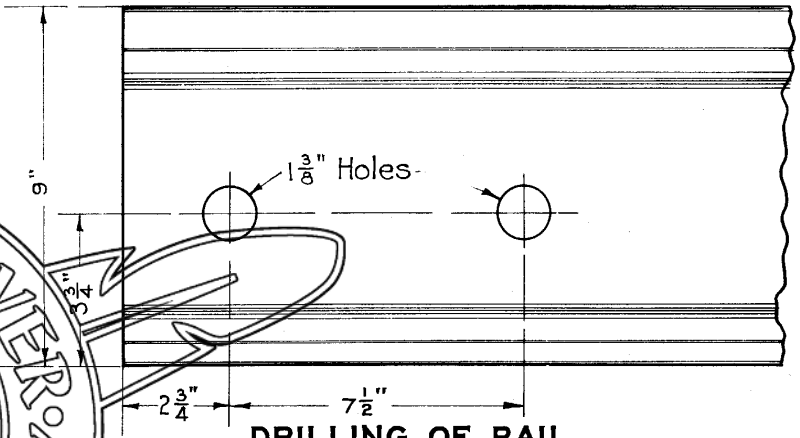
C.E.
S-38



SECTION
SCALE HALF SIZE
Beth. Sec. 174-409
L.S.Co. Sec. 174-518

AREA	Square Inches	Per Cent
Head	9.98	58.71
Web	2.77	16.29
Base	4.25	25.00
Total	17.00	100.00
Mom. of Inertia		150.20
Sec. Mod. Head		47.40
" " Base		34.70

Comp. Wt. = 173.39 lb. per Yd.



DRILLING OF RAIL
SCALE: 3" = 1'-0"

APPROVED: J. Phillips
CHIEF ENGINEER

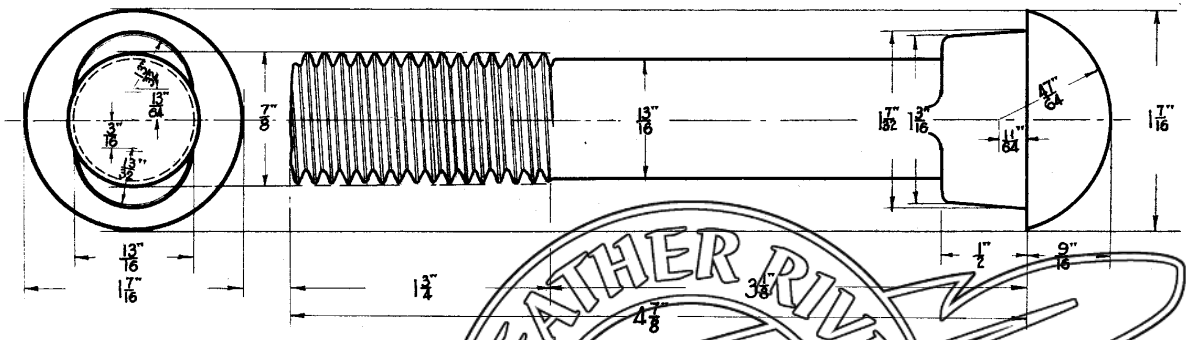
APPROVED: E.W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
174 LB. GIRDER RAIL
A.R.E.A. NO. 174 LB.-RE-9A

SCALE AS SHOWN — ADOPTED AUG. 15, 1942

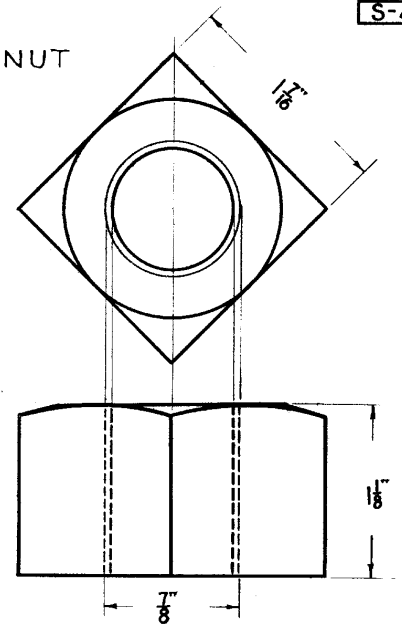
C. E.
S-40

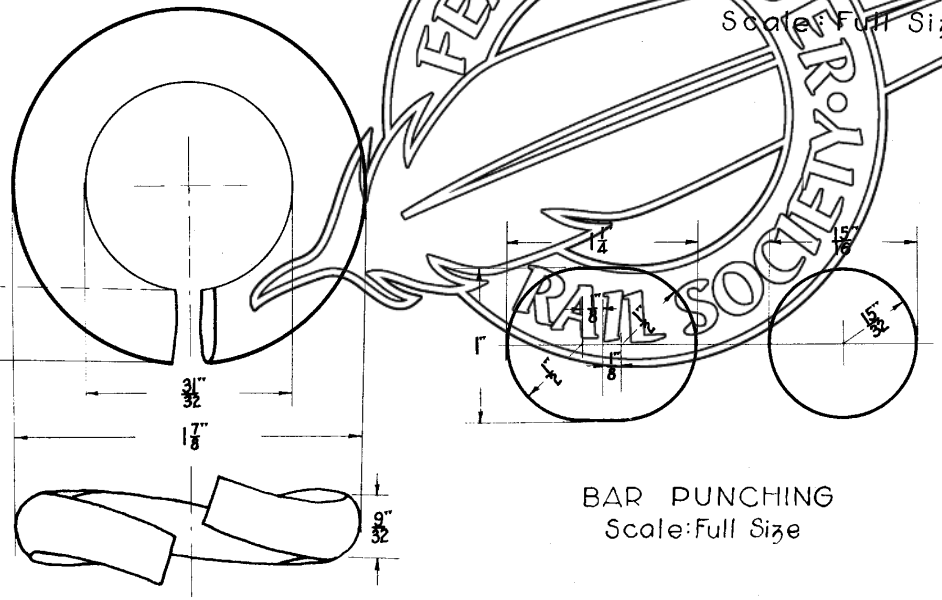
TRACK BOLT



Scale: Full Size

NUT





BAR PUNCHING
Scale: Full Size

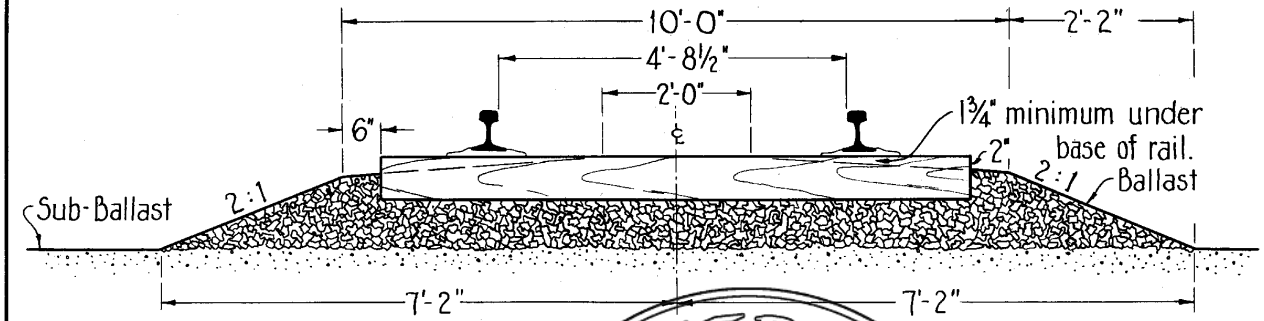
IMPROVED HIPOWER SPRING WASHER
No Scale

APPROVED J. M. Williams
CHIEF ENGINEER

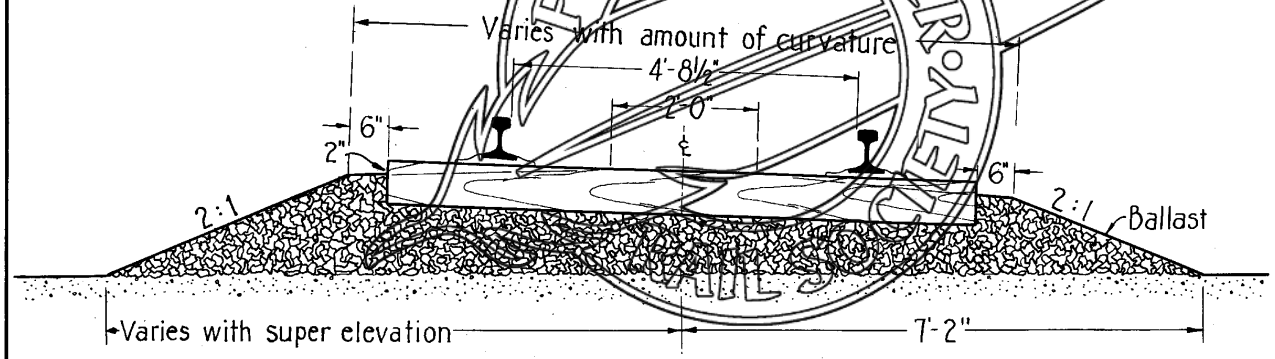
APPROVED E. Ewmason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO
STANDARD
QUENCHED CARBON STEEL TRACK BOLT.
SCALES AS NOTED ADOPTED DEC. 1926

C. E.
S - 41



SECTION FOR USE ON TANGENTS



SECTION FOR USE ON CURVES

NOTES

These dimensions are based on a minimum of 8" ballast under the tie and 7"x 9" ties 9'-0" long.

Approved: Frank R. Wayland
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

BALLAST SECTION

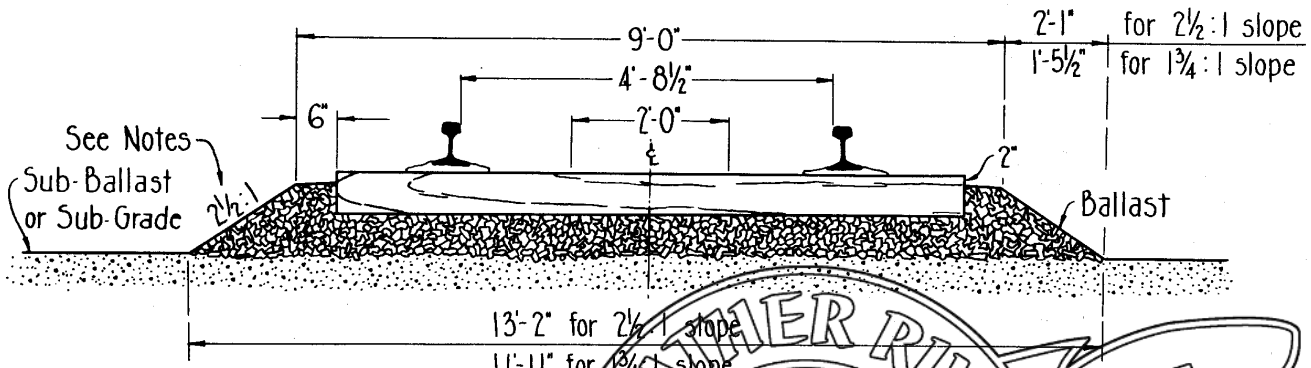
FOR MAIN LINES

NO SCALE

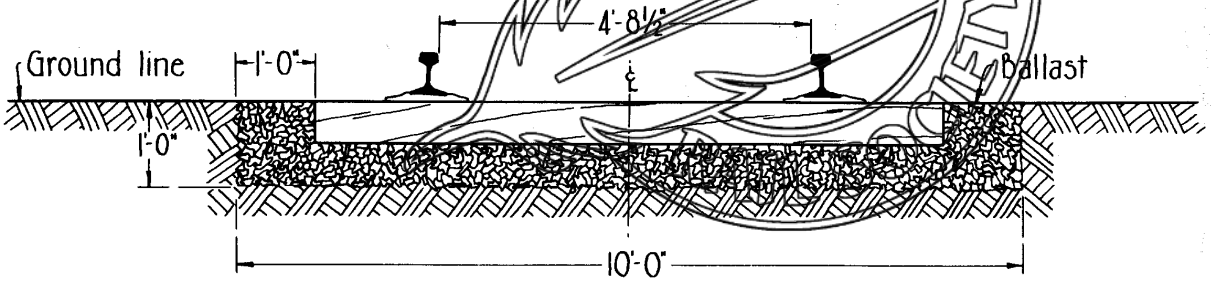
ADOPTED: Oct. 19, 1955
Revised : April 29, 1965

For Main Line Roadbed Sections see C.E. S-42.

C. E.
S-41B



STANDARD SECTION



TRENCH SECTION

NOTES

These dimensions are based on a minimum of 6" ballast under the tie and 6"x8" ties 8'-0" long.

Special attention must be given to provide drainage of trench section.

Where ballast material will stand at steeper slopes than 2½:1 slopes may be steepened to 2:1 or to 1¾:1.

Approved: Frank R. Wood
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

BALLAST SECTIONS

FOR INDUSTRIAL AND YARD TRACKS

NO SCALE

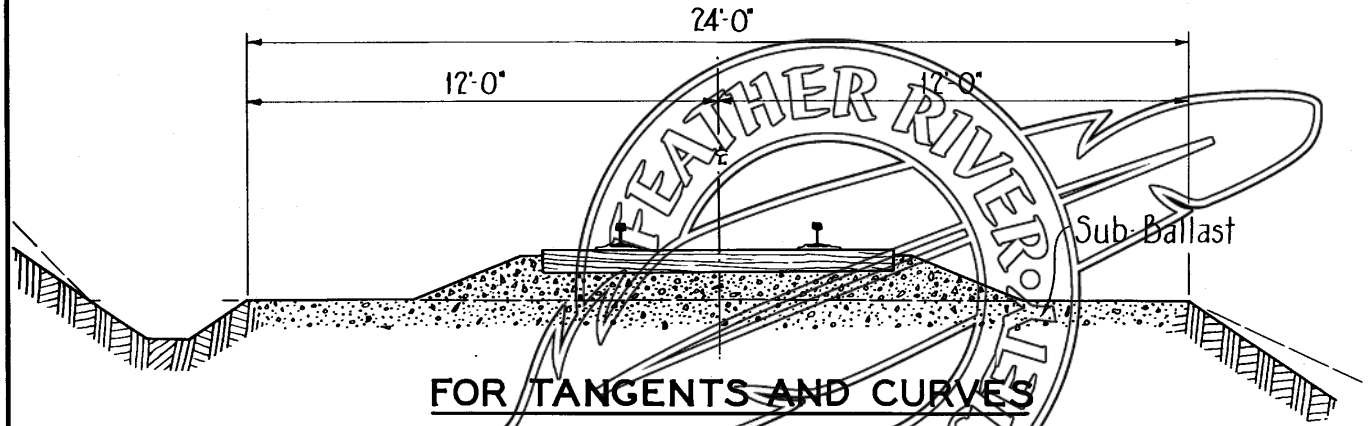
ADOPTED: Oct. 19, 1955

For Roadbed Sections see C.E. S-42A, 42B, 42C.

C. E.
S-42

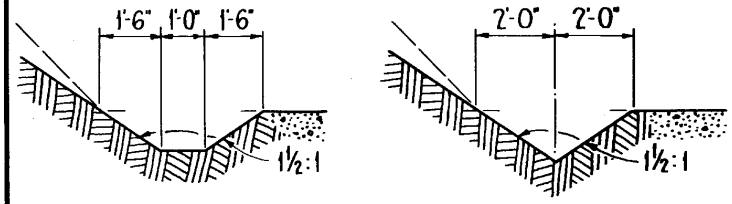
NOTES

Side slopes may vary to suit material.
Either of the two ditch types shown may be used.
Minimum ditch grade to be 0.2 %.



FOR TANGENTS AND CURVES

Approved: Frank R. Wadford
Chief Engineer



ALTERNATE DITCH TYPES

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

MINIMUM ROADBED SECTION

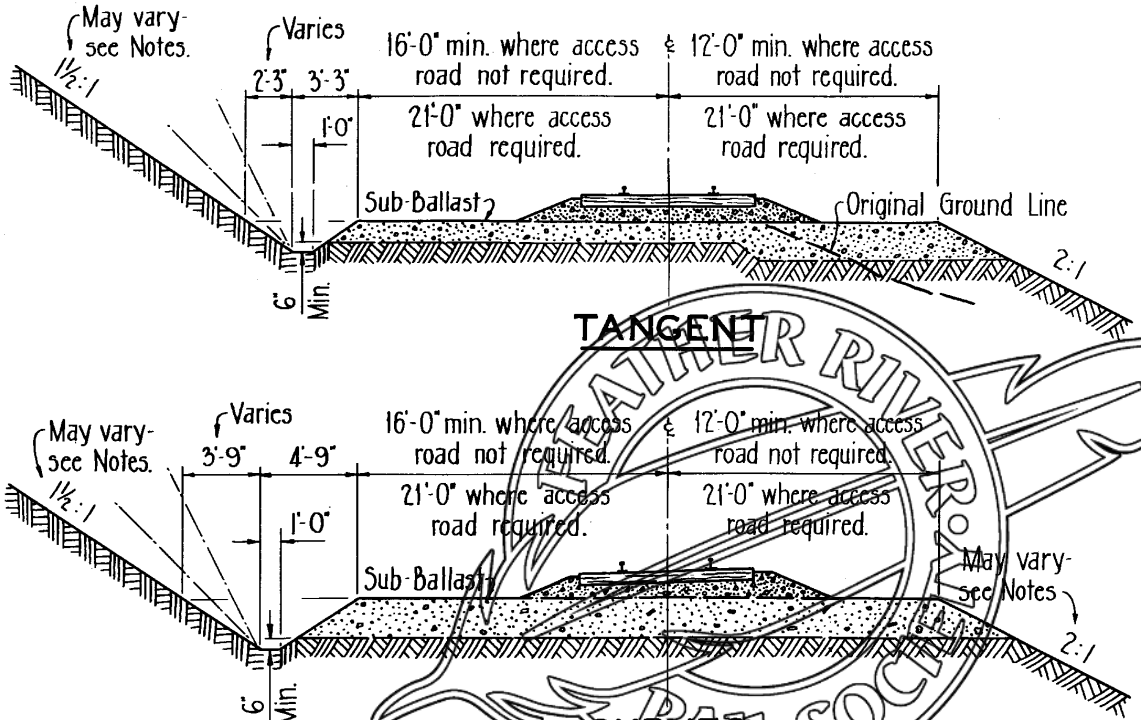
MAIN LINE AND BRANCH LINES

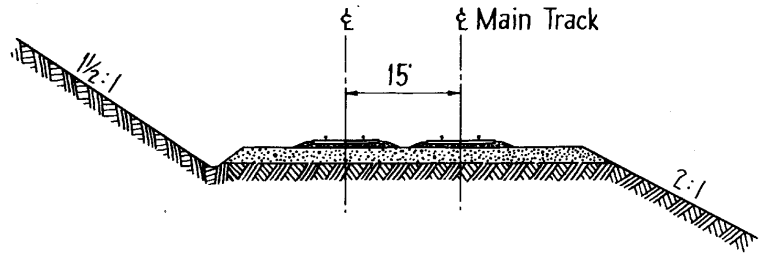
SCALE: 1¼" = 1'-0"

ADOPTED: Feb. 1, 1958

10-12-'59: change 20' access rd. to 21'.

C. E.
S-42A





NOTES

Undercut one foot in rock cuts to place Selected Material Sub-Ballast. In cuts through clay or other unsuitable material Selected Material Sub-Ballast to be two feet. Selected Material Sub-Ballast to be two feet thick on all fills. Suitability of sub-grade to be as directed by the Chief Engineer.

Selected Material for Sub-Ballast shall be as directed by the Chief Engineer.

Minimum ditch grade shall be 0.2%.

The Main Track and any other track shall be 15' centers minimum. All other tracks shall be 14' centers.

Cut slopes may vary to suit material. Maximum cut slope to be ½:1.

Fill slopes may vary to suit material. Maximum fill slope to be 1½:1.

Widen fill shoulder 6" for each 15' of fill. Amount of widening to be determined by difference in elevation between toe and shoulder.

Need for and location of access road to be as determined by the Chief Engineer.

Approved: Fraser R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

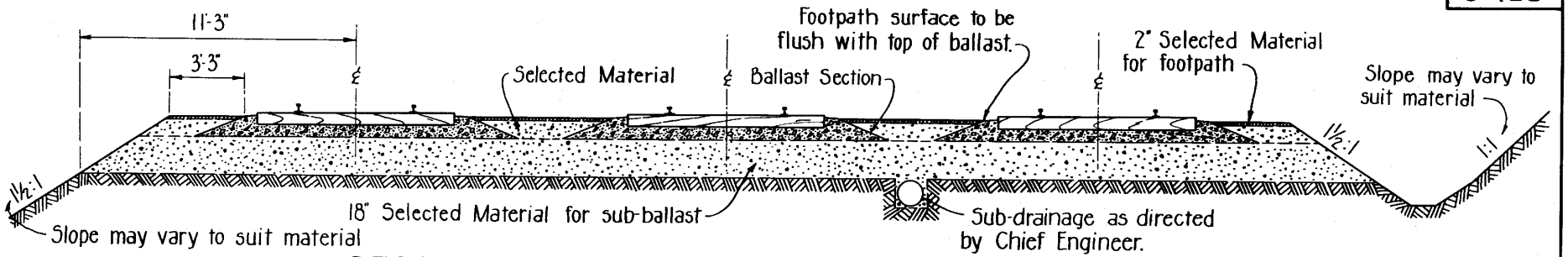
ROADBED SECTIONS

MAIN LINE AND BRANCH LINES

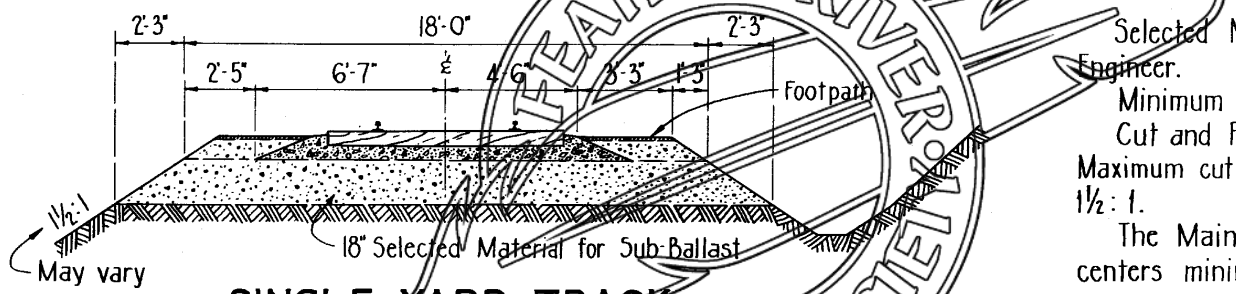
NO SCALE

Adopted : Feb. 1, 1958
Revised : Oct. 12, 1959

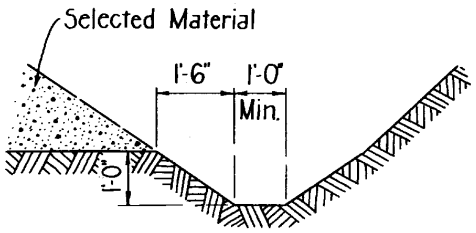
C. E.
S-42B

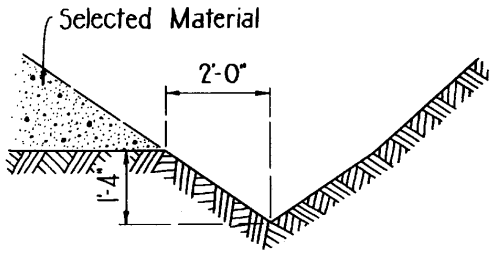


SECTION FOR USE ON YARD TRACKS



SINGLE YARD TRACK





ALTERNATE DITCH TYPES

NOTES

Selected Material shall be as directed by the Chief Engineer.

Minimum ditch grade shall be 0.1 %.

Cut and Fill slopes may vary to suit material. Maximum cut slope to be ½ : 1. Maximum fill slope to be 1½ : 1.

The Main Track and any other track shall be 15' centers minimum. All other tracks shall be 14' centers.

Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

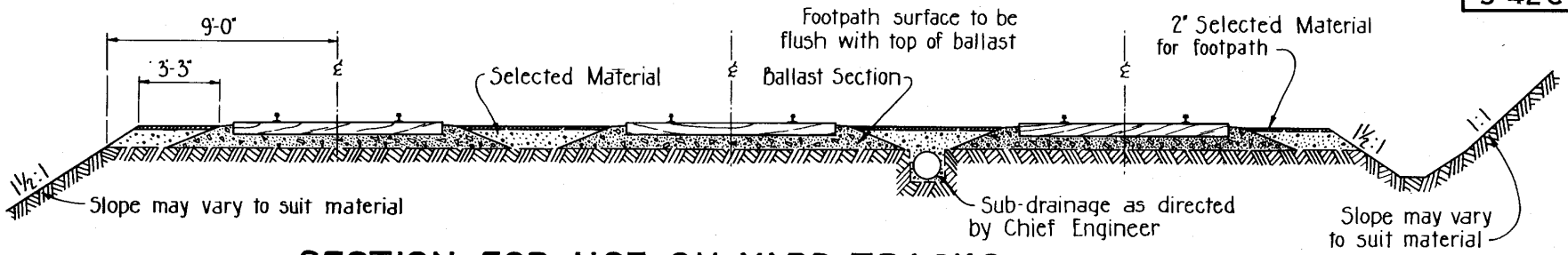
ROADBED SECTIONS

YARD TRACKS WITH SELECTED MATERIAL SUB-BALLAST

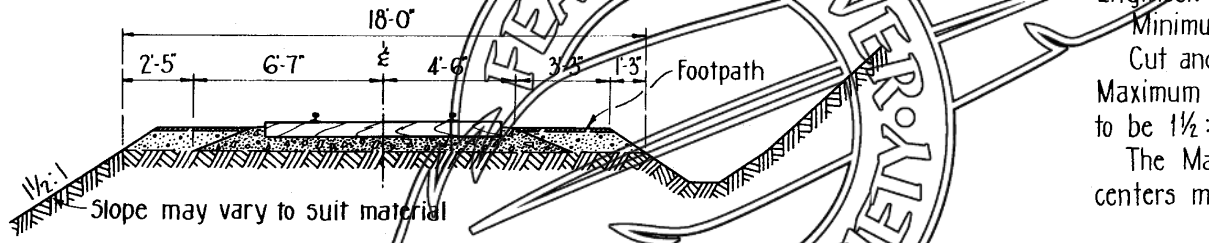
NO SCALE

ADOPTED : Feb. 1, 1958

C. E.
S-42C



SECTION FOR USE ON YARD TRACKS



SINGLE YARD TRACK

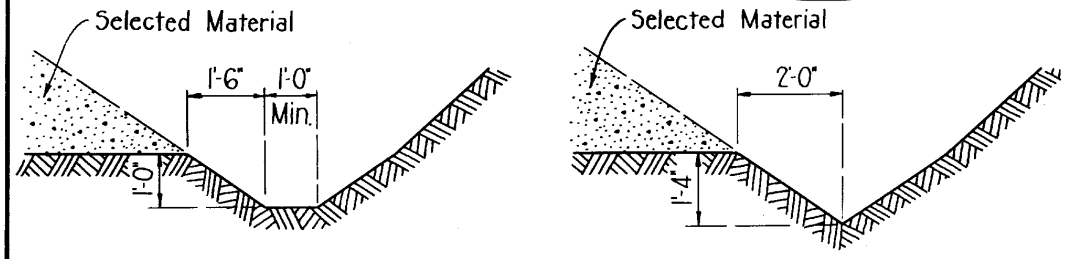
NOTES

Selected Material shall be as directed by the Chief Engineer.

Minimum ditch grade shall be 0.1 %.

Cut and Fill slopes may vary to suit material. Maximum cut slope to be ½:1. Maximum fill slope to be 1½ : 1.

The Main Track and any other track shall be 15' centers minimum. All other tracks shall be 14' centers.



ALTERNATE DITCH TYPES

Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

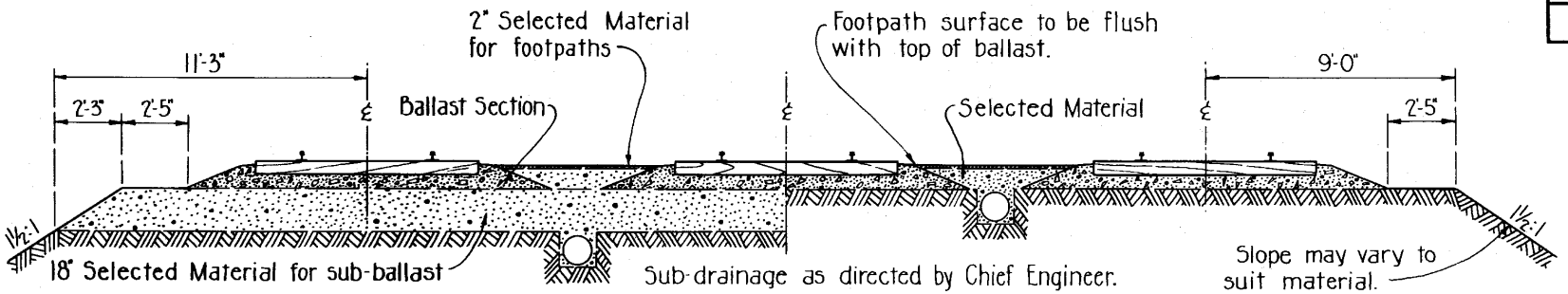
ROADBED SECTIONS

YARD TRACKS WITHOUT SELECTED MATERIAL SUB-BALLAST

NO SCALE

ADOPTED : Feb. 1, 1958

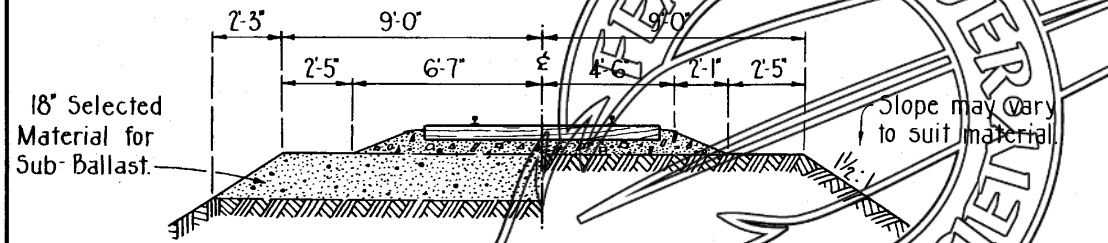
C. E.
S-42 D



WITH SELECTED MATERIAL SUB-BALLAST

WITHOUT SELECTED MATERIAL SUB-BALLAST

SECTION FOR USE ON INDUSTRIAL TRACKS



WITH SELECTED MATERIAL SUB-BALLAST

WITHOUT SELECTED MATERIAL SUB BALLAST

SINGLE INDUSTRIAL TRACK

NOTES

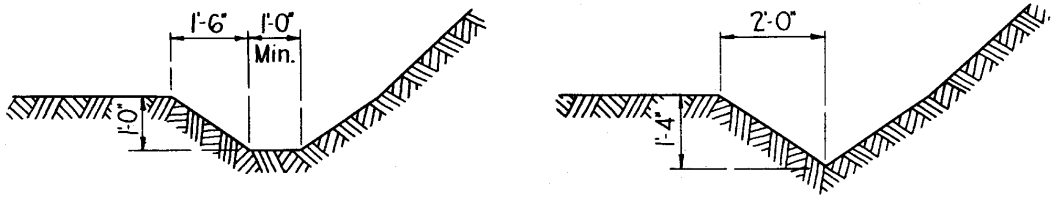
Selected Material shall be as directed by the Chief Engineer.

Minimum ditch grade shall be 0.1 %.

Cut and Fill slopes may vary to suit material. Maximum cut slope to be ½:1. Maximum fill slope to be 1½:1.

Track centers shall be 14' minimum.

Approved: Frank R. Woolford
Chief Engineer



ALTERNATE DITCH TYPES

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

ROADBED SECTIONS

INDUSTRIAL TRACKS

NO SCALE

ADOPTED: Feb. 1, 1958

59: change 20' rd. to 21'.

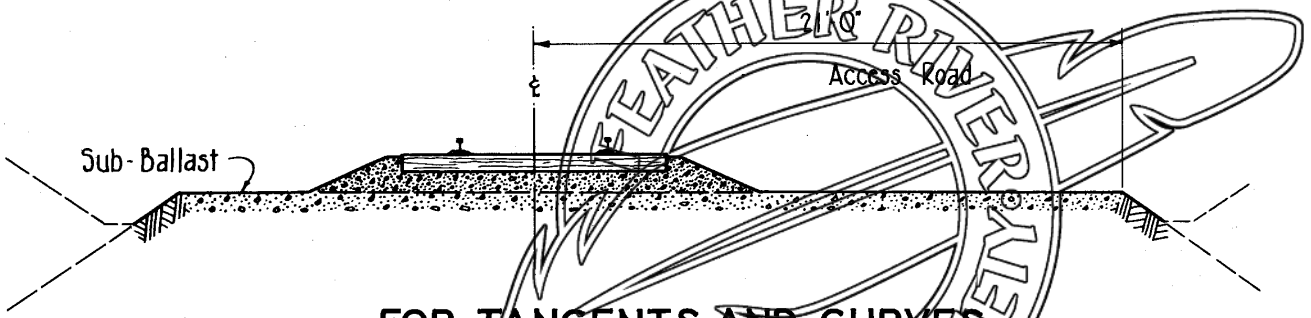
C. E.
S-42 E

NOTES

Fill to be widened on one side only unless otherwise directed by the Chief Engineer.

Both cut and fill slopes may vary to suit material.

Standard ditch sections as per S-42 shall be maintained when widening in cut.



FOR TANGENTS AND CURVES

Approved: Frank R. Moody
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

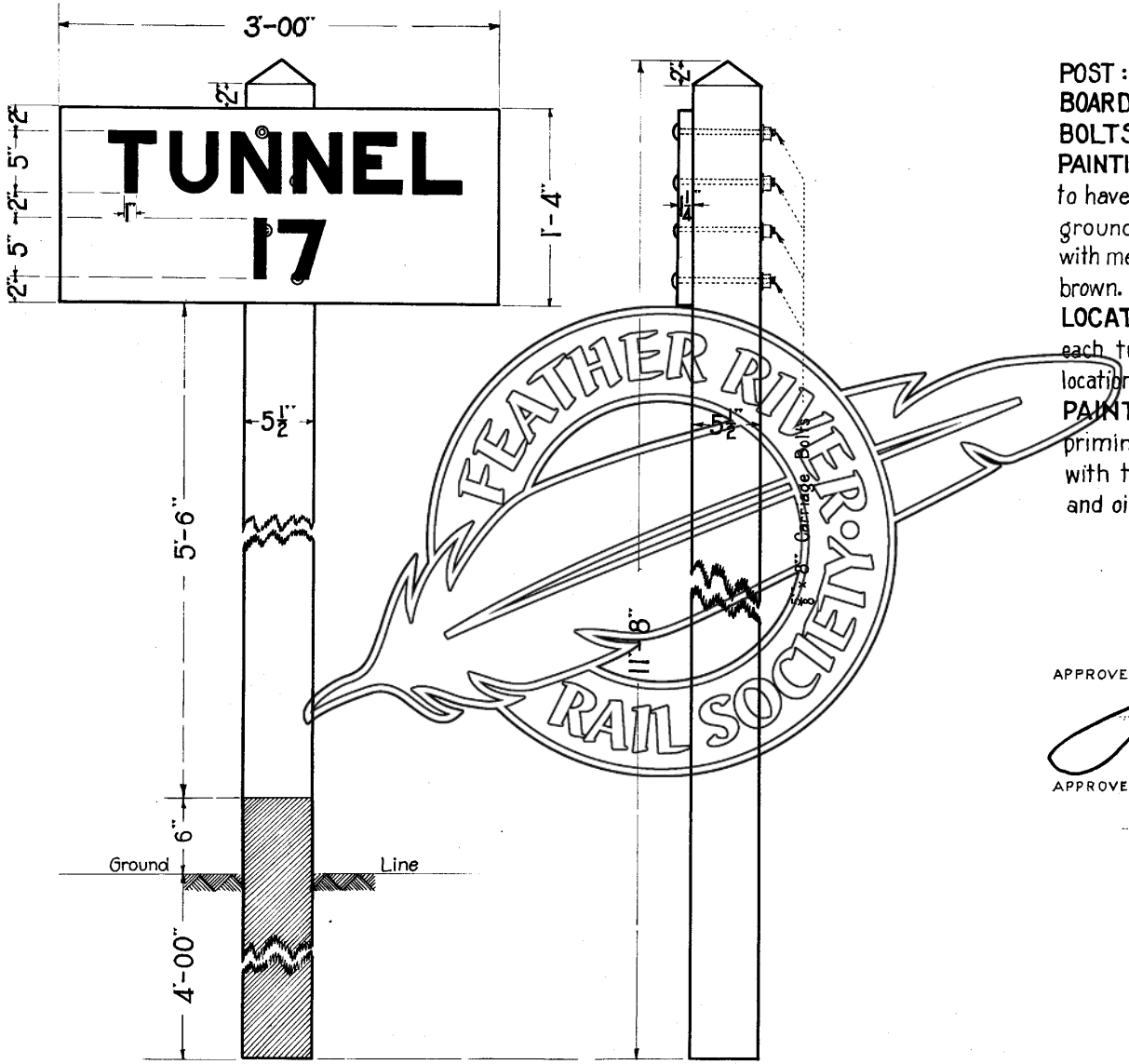
ROADBED WIDENING

TO PROVIDE ACCESS ROAD

SCALE: 1/8" = 1'-0"

Adopted: Feb. 1, 1958
Revised: Oct. 12, 1959

C. E.
S-44



POST: 6" x 6" x 12'-0" S.4S. Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: 5/8" Diameter with washers.
PAINTING: Face of board white, Letters black, Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown.
LOCATION: On Engineer's side, near as possible to each tunnel portal where local conditions will permit location of sign 13 ft. from center line of track.
PAINTING OF BOARD: Face of be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

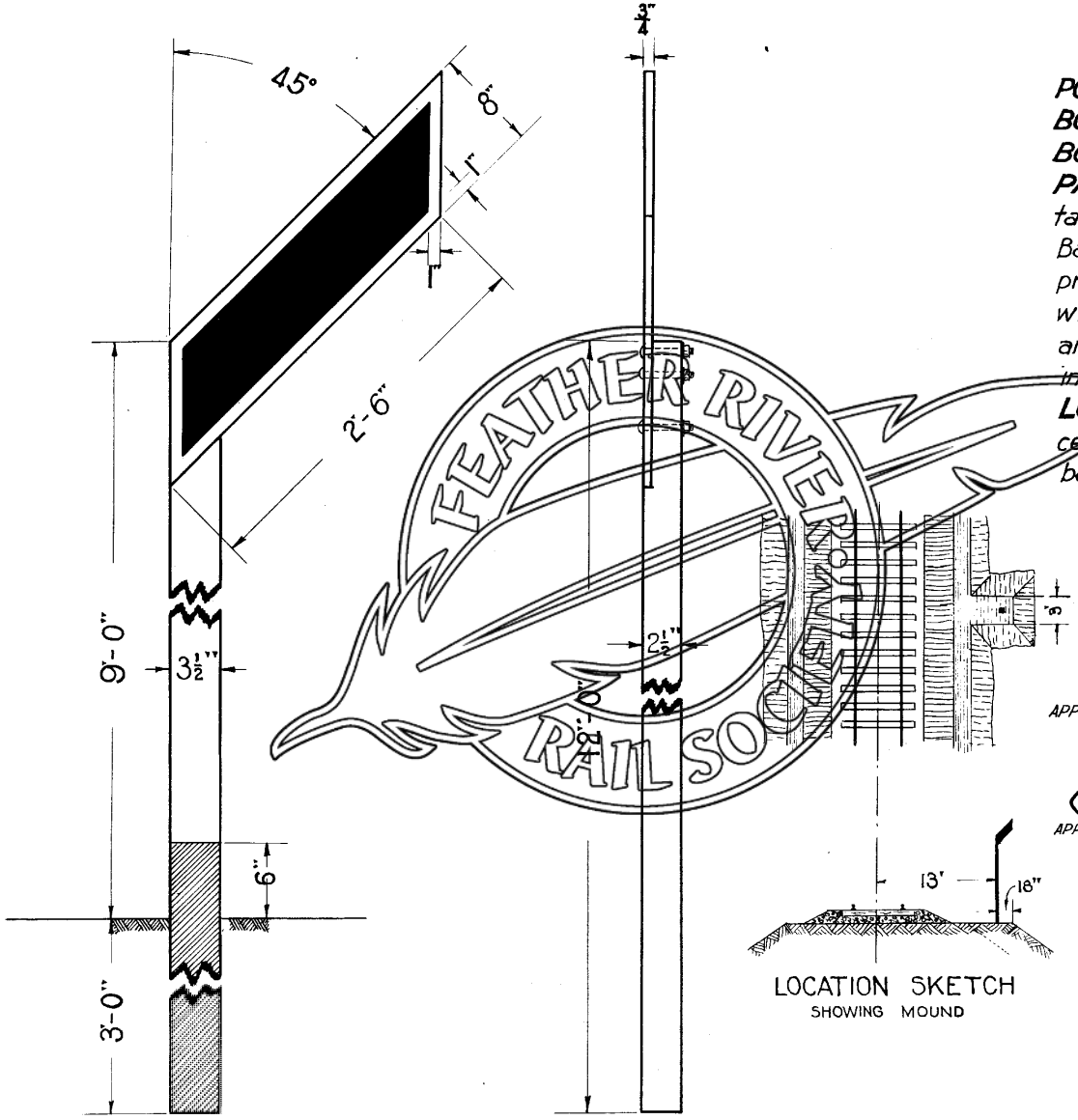
APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. Emmason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
TUNNEL SIGN

SCALE: 1" = 1'-0" ADOPTED MAY, 1926.
REV. JUNE 1, 1936

C. E.
S-45



POST: 3"×4"×12'-0" S.4 S. Extra Merch.
BOARD: Redwood Clear.
BOLTS: ½" Diameter with washers.
PAINTING: Base of Post to have a coat of coal tar applied hot to 6 inches above ground. Balance of Post and Board to be given one priming coat of white lead and oil paint thinned with turpentine, and two coats of white lead and oil paint. Face of Board black with one inch white margin. , REFLECTORIZED
LOCATION: Engineer's side 13 feet from center of track at point where flanger is to be raised.

LOCATION SKETCH
SHOWING MOUND

APPROVED: J. M. Williams
CHIEF ENGINEER

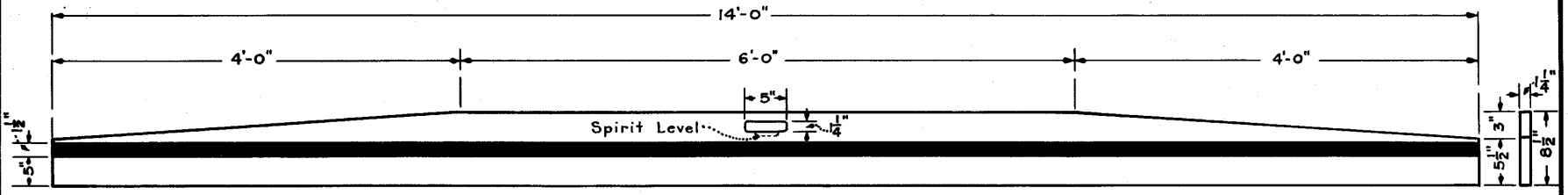
APPROVED: E. E. Mason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
FLANGER SIGN

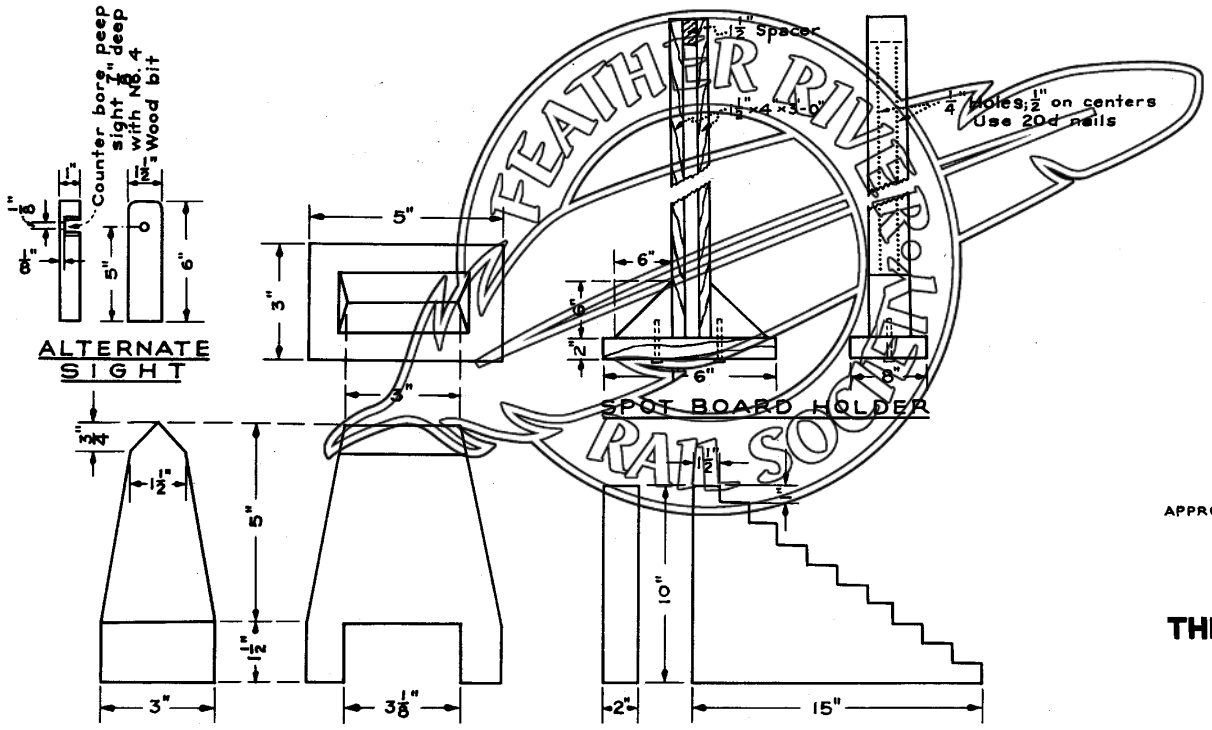
SCALE:- 1"= 1'-00"

ADOPTED NOVEMBER 1926.
REVISED OCT. 19, 1931.
" JUNE 1, 1936
REV. MARCH 1, 1951

C. E.
S-46



SPOT BOARD: Use soft wood (White Wood or White Pine)
Painted white with 1½" Black Strip both sides



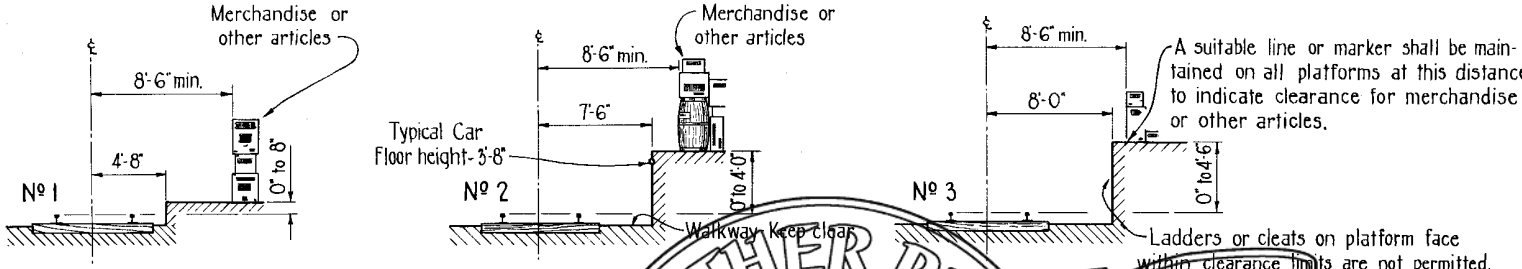
APPROVED:
Frank R. Woodford
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

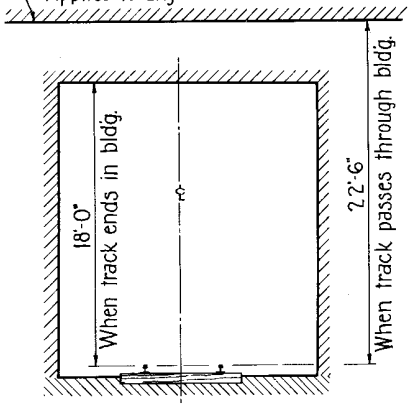
SPOT BOARD

SCALE: ¾"=1'-0"

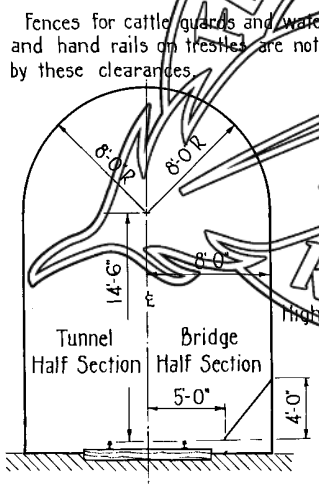
ADOPTED: Nov. 16, 1959



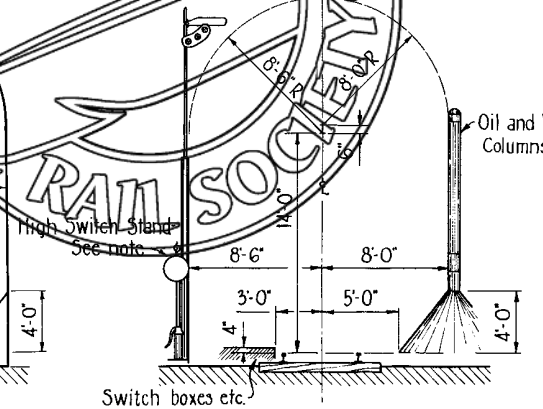
PLATFORM CLEARANCES

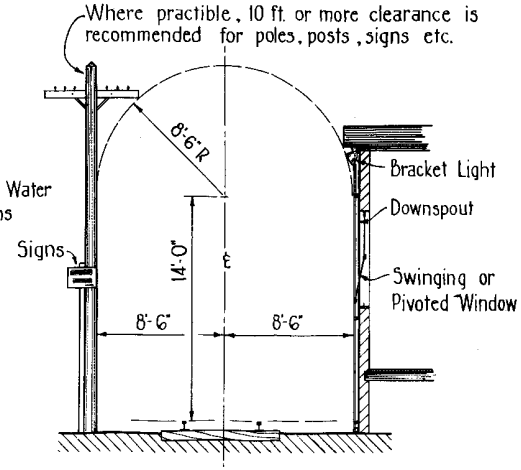


OVERHEAD CLEARANCES BUILDINGS



TUNNEL & BRIDGE CLEARANCES





SIDE CLEARANCES GENERAL

PLATFORM CLE

Platform № 3 to be used prin and unloading refrigerator cars.

Platforms № 1 and № 2 or Pla may be combined provided platform centerline of track and is level from tha form № 2 or № 3.

Icing platforms and supports sh side clearance of 7'-8".

Hand railings for stairs, either a in wells, that project above platfor 8'-6" clearance from track centerli

OVERHEA CLEAR

Low switch star feet or less in heigh ated between track clearance reduced of 6'-0" if actually r

When clear visi get is obscured by legal clearance swit be reduced to 7'-6".

Trolley poles of single or double ma 8'-3" from track cent

These clearances cranes in delivery

C.E.
S-48A

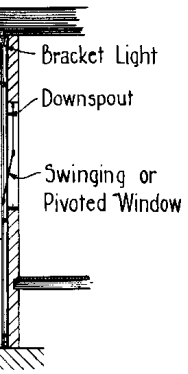
PLATFORM CLEARANCES

Platform Nº 3 to be used principally for loading and unloading refrigerator cars.

Platforms Nº 1 and Nº 2 or Platforms Nº 1 and Nº 3 may be combined provided platform Nº 1 starts 4'-8" from centerline of track and is level from that point to the face of platform Nº 2 or Nº 3.

Icing platforms and supports shall have a minimum side clearance of 7'-8".

Hand railings for stairs, either at end of platform or in wells, that project above platform floor must have 8'-6" clearance from track centerline.



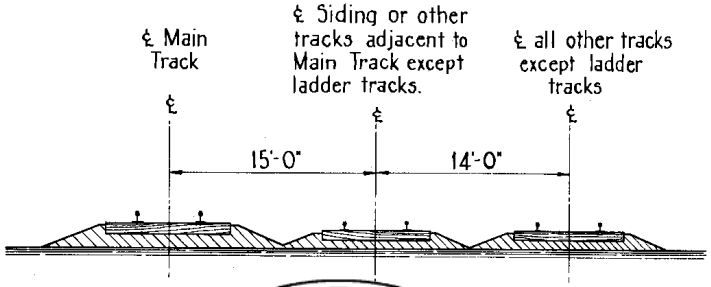
OVERHEAD & SIDE CLEARANCES

Low switch stands or block signals 3 feet or less in height above top of rail, located between tracks, may have horizontal clearance reduced from 8'-6" to a minimum of 6'-0" if actually necessary.

When clear vision of switch stand target is obscured by trolley poles set at legal clearance switch stand clearance may be reduced to 7'-6".

Trolley poles of bracket construction, on single or double main track, may be set at 8'-3" from track centerline.

These clearances do not apply to mail cranes in delivery position.



TRACK CENTERS

No tracks shall be set at less than 14'-0" centers except parallel team, house and industry tracks which may be set at 13'-0" centers.

The centerline of any ladder track, parallel to any other track, including other ladder tracks, shall have a minimum clearance of 20'-0" with such track.

NOTES

All side clearances shown apply to tangent track. For curved track one foot additional clearance is required. Where space is limited this may be amended on authority of the Chief Engineer.

The centerline of any track constructed in and along a public street shall be at least 10 feet from the property line, or if the street has a lawfully established curb line, such track shall be at least 10 feet from such curb line.

Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

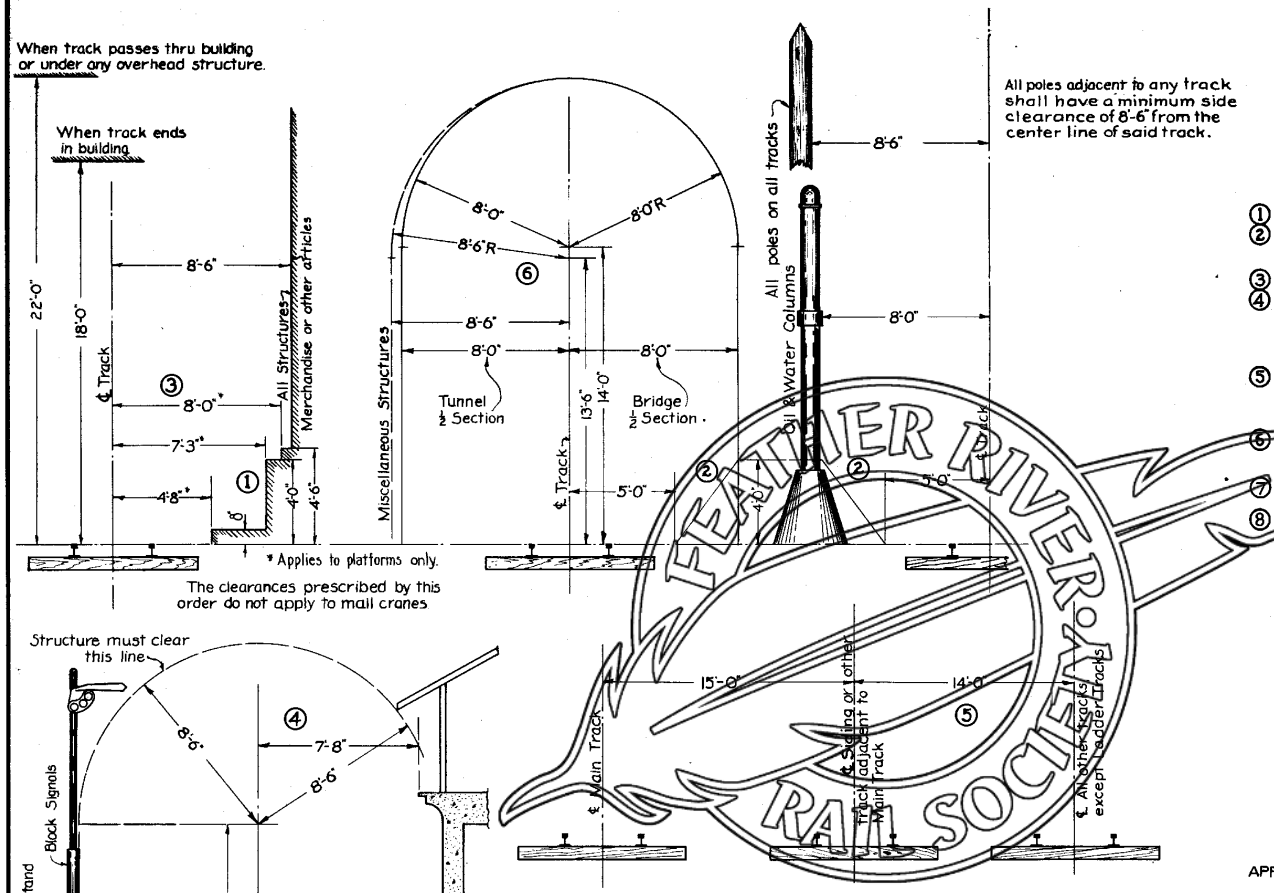
MINIMUM CLEARANCES
CALIFORNIA

NO SCALE

ADOPTED: Feb. 1, 1948
Redrawn: Aug. 15, 1957

Reference: P.U.C. General Order Nº 26D, Effective 2-1-'48

C.E.
S-48b



Note:
Low switch stands or block signals 3 feet or less in height above top of rail, located between tracks may have horizontal clearance reduced from 8'-6" to a minimum of 6'-0" if actually necessary.

GENERAL INSTRUCTIONS

For curved track one foot additional clearance is required. When space is limited side clearance may remain the same for curves not over 12 degrees; for curves over 12 degrees add ¼ inch to standard clearances for each degree of curve. Where track contains superelevation, minimum side clearances shall be increased as necessary to give the equivalent clearances based on tangent track.

Posts, pipes, signs, and other small obstructions, where practicable, 10'-0" or more clearance is recommended. Hand rails other than on bridges and trestles to be not less than 8'-6" from center line unless authorized by General Manager.

No tracks to be less than 13'-0" centers unless authorized by General Manager.

ADDITIONS AND OR EXCEPTIONS

1. Stepped Platforms not permitted.
2. Governs hand rails, water barrels, refuge platforms on bridges or trestles, water or oil columns, block signals, cattle guards and cattle chutes provided minimum clearance for such hand rails is 7'-6" and for fences of cattle guards is 6'-9".
3. Used principally for loading and unloading refrigerator cars or other cars in lieu thereof.
4. Where practicable, tracks adjacent to icing platforms should have 7'-8" clearance. Note: Existing platforms used for loading or unloading refrigerator cars, and existing icing platforms heretofore constructed, may be extended at the existing clearance, provided that such clearance shall not be less than 6'-6" from the center line of track, but no switching or storing of ordinary freight cars is permitted on such tracks.
5. Team tracks may be set at 11'-6" centers provided standard clearances are maintained on opposite side of each track. Minimum clearance between center lines of parallel house or industry tracks shall be 13'-0". Existing tracks may be maintained, reconstructed, or extended at centers in existence as of the effective date of this order.
6. Overhead and side clearances do not apply to engine houses. In shops and buildings in which freight cars are moved for repairs, doorways shall have minimum side clearance of 7'-8".
7. Ladder tracks parallel to any other track shall have a clearance of not less than 20 feet from center line of such other track.
8. A suitable line or marker shall be maintained on all platforms, except passenger platforms, at a distance of 8'-6" from center line of track, to indicate minimum clearance for merchandise and other articles placed thereon.

Log railways may be erected and maintained with impaired clearance when adjacent to tracks operated exclusively for logging purposes.

Where railroads cross above public roads, highways, and streets, the minimum overhead clearance shall be 14 feet and the minimum width of opening for a single span shall be 20 feet, or for two or more spans shall be 12 feet for each opening.

Where public roads, highways, and streets cross above railroad tracks, minimum standard clearances prevail, except that at time of installations of crossings, the minimum overhead clearance of 23 feet above the top of rail, shall be observed.

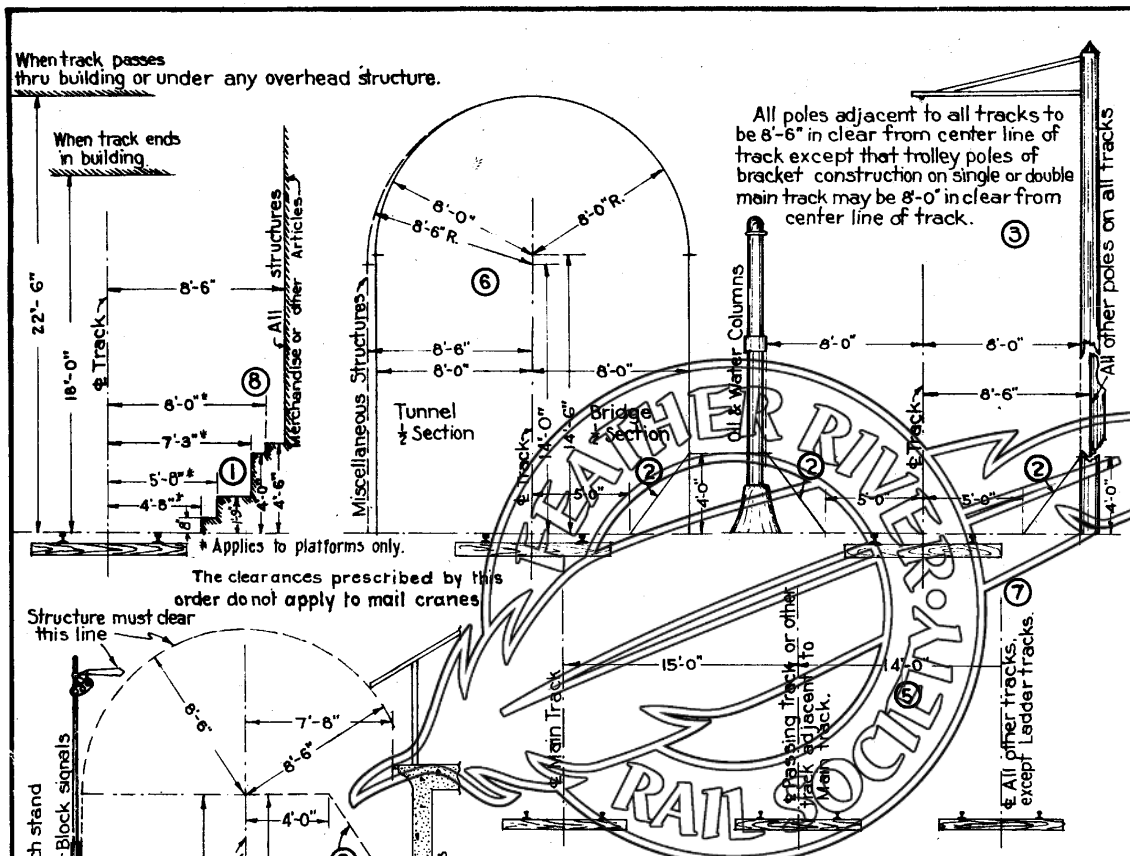
APPROVED: J. Phillips
CHIEF ENGINEER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
MINIMUM CLEARANCES
AS PRESCRIBED BY THE
PUBLIC SERVICE COMMISSION OF NEVADA

CASE 1159 — EFFECTIVE JUNE 2, 1947

NO SCALE — REVISED NOV. 12, 1948
NOV. 16, 1955

C.E.
S-48c



Note:- Low switch stands or block signals 3 feet or less in height above top of rail, located between tracks, may have horizontal clearance reduced from 8.5 feet to a minimum of 6 feet if actually necessary.

GENERAL INSTRUCTIONS

For curved track one foot additional clearance is recommended. When space is limited side clearance may remain the same for curves not over 12 degrees; for curves over 12 degrees add ¼ inch to standard clearances for each degree of curve.

Posts, pipes, signs and other small obstructions, where practicable, 10'-0" or more, clearance is recommended.

Hand rails other than on bridges and trestles to be not less than 8'-6" from center line unless authorized by General Manager.

No tracks to be less than 13'-0" centers unless authorized by General Manager.

ADDITIONS ~~AND~~ OR EXCEPTIONS

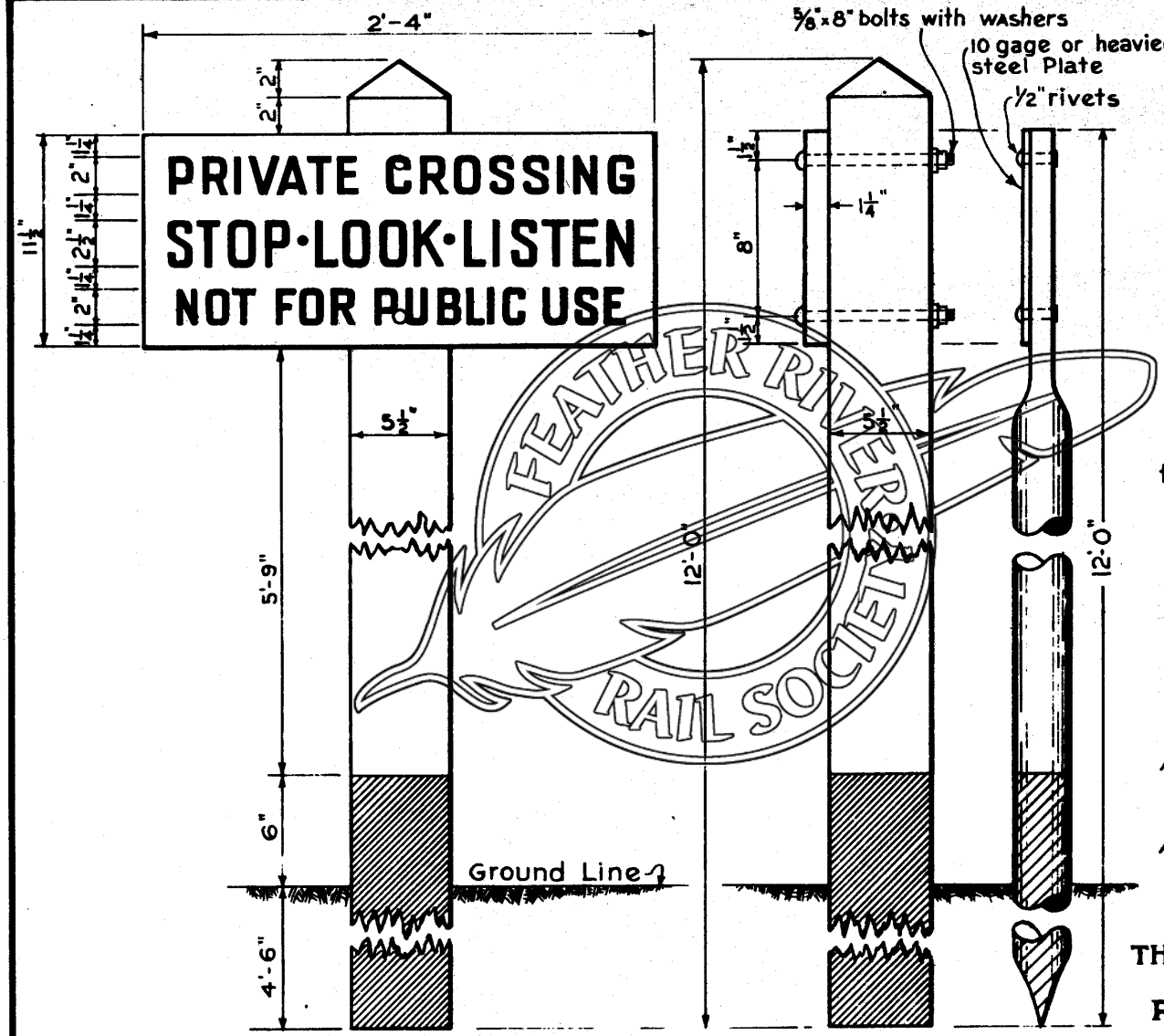
1. Stepped Platforms not permitted.
2. Governs hand rails, water barrels, refuge platforms on bridges or trestles, water or oil columns, block signals, cattle guards and cattle chutes, except minimum clearance for such hand rails is 7'-6" and for fences of cattle guards is 6'-9".
3. Trolley poles of bracket construction adjacent to other than main track must be 8'-6" in clear from center line of track.
4. When clear vision of switch stand target is obscured by poles at legal clearance, switch stand may be set at 7'-6".
5. Team or freight house tracks may be set at 11'-6" centers provided standard clearances are maintained on opposite side of each track.
6. Overhead and side clearances shall not apply to engine houses or shops and buildings in which equipment is moved for repairs but doorways to said buildings shall have a minimum side clearance of 7'-6" from center line of track.
7. Ladder tracks parallel to any other ladder track shall have a clearance of 20 foot centers. Ladder tracks parallel to any track other than a ladder track shall have a clearance of 17 foot centers.
8. A suitable line or marker shall be maintained on all platforms at a distance of 8'-6" from center line of track to indicate minimum clearance for merchandise and other articles thereon.
9. This clearance line for use only in passenger terminals and coach yards where no freight cars are moved. Where railroads cross above public roads, highways and streets, the minimum overhead clearance shall be 14 feet, and the minimum width of opening for a single span shall be 20 feet or for two or more spans shall be 12 feet for each opening.

APPROVED: J. M. Williams
CHIEF ENGINEER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
MINIMUM CLEARANCES
AS PRESCRIBED BY THE
PUBLIC UTILITIES COMMISSION OF UTAH

GENERAL ORDER NO. 25 EFFECTIVE FEBRUARY 10, 1929
NO SCALE Revised: Nov. 16, 1955 ADOPTED MAY 11, 1932

C.E. S-51



POST: 6"x6"x12'-0" Redwood Extra Merch. or 2¼" to 3" ø S.H. Boiler Tube.
BOARD: Redwood or 10 gage steel Plate
BOLTS: 5/8"x8" with washers.
RIVETS: ½" diameter.
PAINTING: Face of board white, letters black. Post to have a coat of coal tar applied hot to 6" above ground, balance of Post and back of Board painted with metallic and lamp black making a very dark brown. Face of Board to have one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

LOCATION

Sign to be located not less than 25 ft. from Center of Track in most conspicous place facing Private Road Travel and to be on side of Track toward Highway from which Private Road diverges.

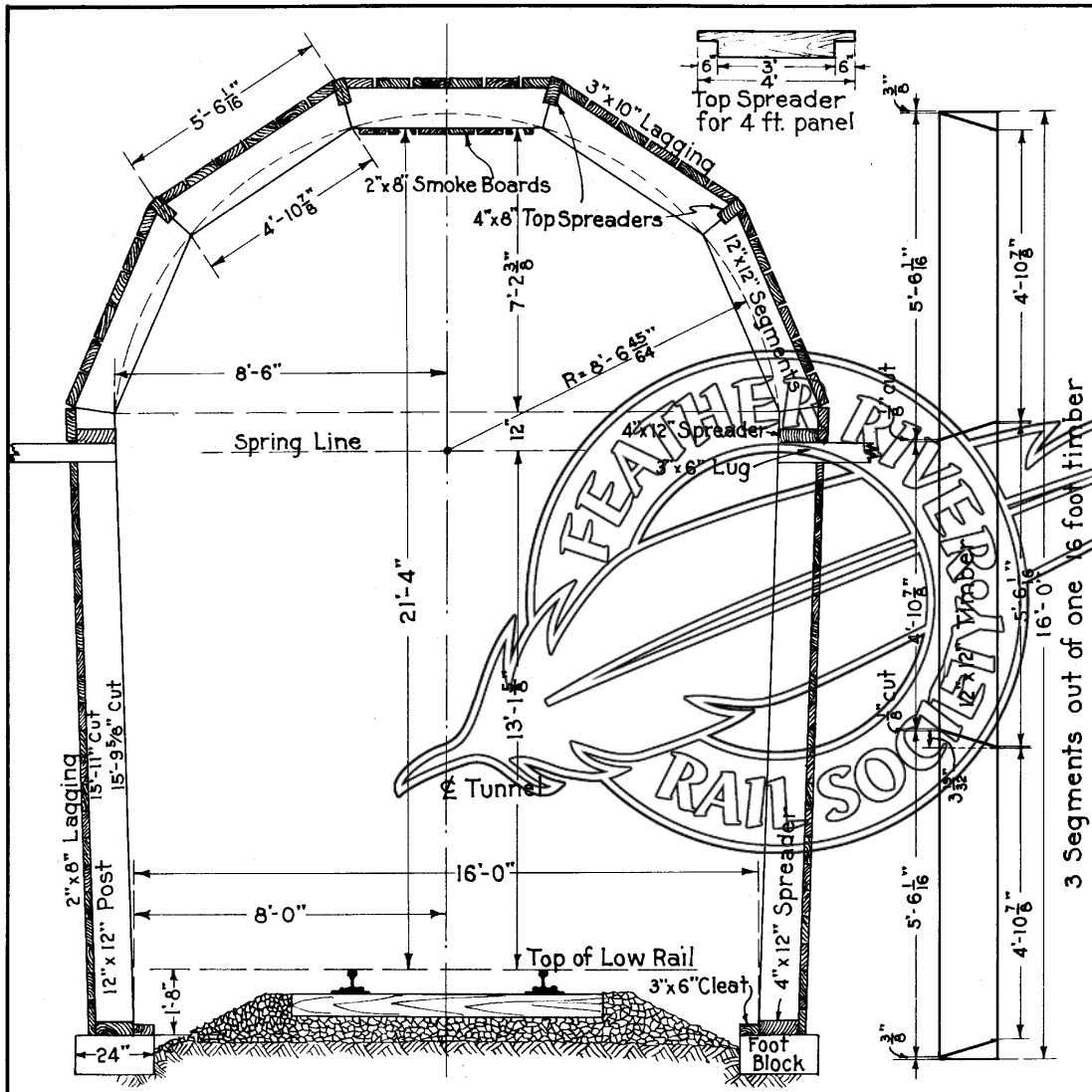
APPROVED _____ CHIEF ENGINEER

APPROVED _____ VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
PRIVATE ROAD CROSSING SIGN

SCALE: 1"=1½" ADOPTED SEPT. 1927
REV. MAY 1948

C.E.
S-52



Material for 3 sets (Any spacing)		
11 Pcs.	12"x12"x16'-0"	Posts & Segments
2 Pcs.	12"x12"x 6'-0"	Foot Blocks
12 Lin.ft.		Dowels
3 Pcs.	3"x6"x12'-0"	Lugs & cleats

Material for 1-4 ft. Panel (Bet. sets)		
11 Pcs.	3"x10"x12'-0"	Top Lagging
15 Pcs.	2"x8"x12'-0"	Side Lagging
1 Pc.	4"x12"x12'-0"	Spreaders
2 Pcs.	2"x8"x12'-0"	Smoke boards
1 Pc.	4" x 8" x 16'-0"	Top Spreaders

Miscellaneous		
50 Pcs.	2"x4"x1'-2"	Wedges for 1 set
4 Pcs.	4"x8"x18'-0"	Crown Bars - 3 sets

Note: For other than 4 ft. panels, it will be necessary to modify above quantities of lagging, spreaders and smoke boards to fit spacing of tunnel sets.

TABLE OF OFFSETS FROM ℄ TUNNEL TO ℄ TRACK	
Degree of Curve	Offset
Tangent	0"
1°	2"
2°	3"
3°	4"
4°	5"
5°	6"
6° to 10°	6"

APPROVED: J. V. Williams
CHIEF ENGINEER

APPROVED: E W Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

TUNNEL TIMBER SET

MAIN LINE

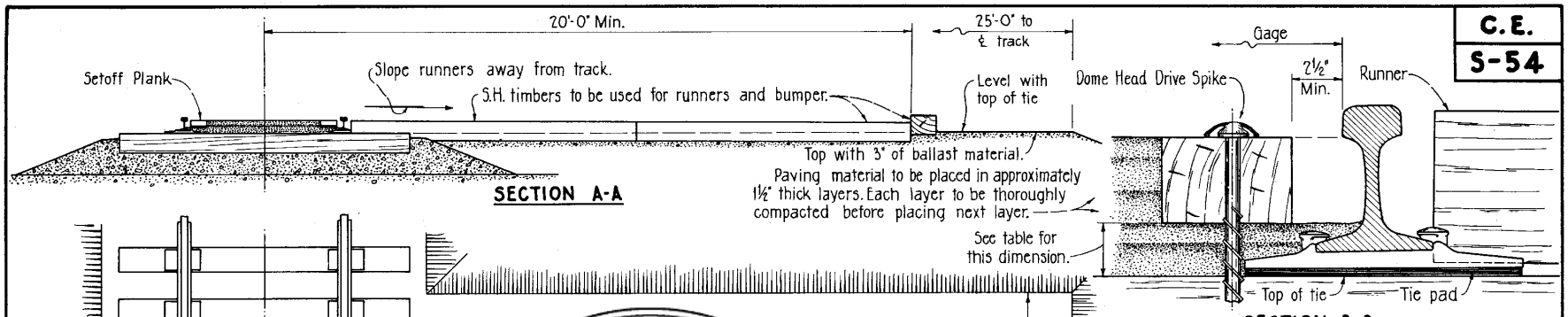
SAN FRANCISCO TO SALT LAKE CITY

NO SCALE

ADOPTED JAN. 30, 1940

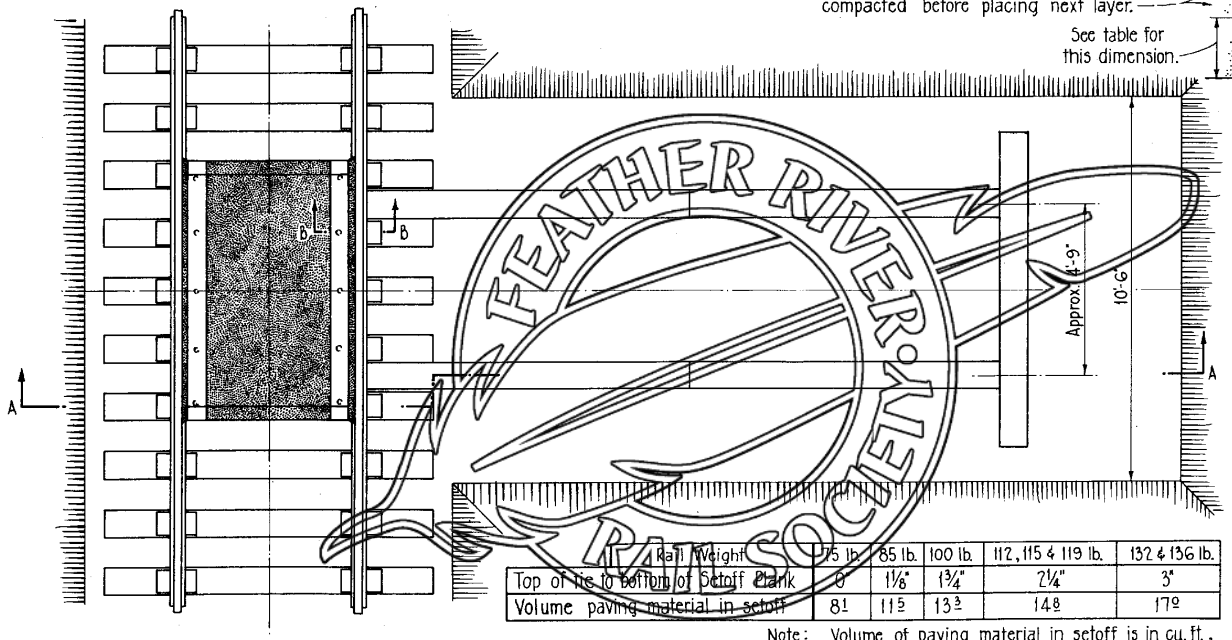
8-24-59 : Added notes "--emulsified asphalt--" "¼"--dusty conditions."
12-1-68 General

C.E.
S-54



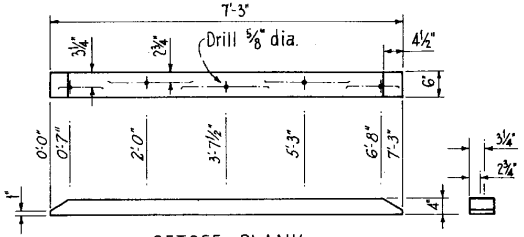
SECTION A-A

SECTION B-B

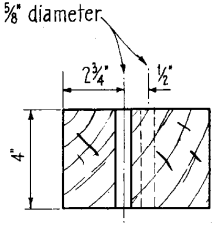


Rail Weight	75 lb.	85 lb.	100 lb.	112, 115 & 119 lb.	132 & 136 lb.
Top of tie to bottom of Setoff Plank	0"	1⅛"	1¾"	2¼"	3"
Volume paving material in setoff	8‡	11‡	13‡	14‡	17‡

Note: Volume of paving material in setoff is in cu. ft., and is the compacted amount required.
Asphalt material should not be placed under dusty conditions.



SETOFF PLANK
2 Req'd. per Setoff



DRILLING DETAIL

NOTE

Setoffs to be built and maintained as authorized by the Chief Engineer.

Tie cribs to be full and thoroughly compacted before placing paving material.

Paving material to be hot-mixed cold-laid asphaltic concrete. Specifications for this material to be as per current letter instructions.

Surfaces to be covered by asphalt material shall be swabbed or sprayed with emulsified asphalt before placing asphalt material. If construction is interrupted between paving material courses last course should be swabbed or sprayed as above before placing next course.

To Requisition: When requisitioning order should state "Two 4"×6"×7'-3" Setoff Planks and ten Dome Head Drive Spikes - all as shown on S-54, revised Dec. 1, 1968."

Paving material will not be furnished from the Sacramento Store. Upon request a list of qualified local suppliers will be furnished by the Office of the Chief Engineer.

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

MOTOR CAR SETOFF

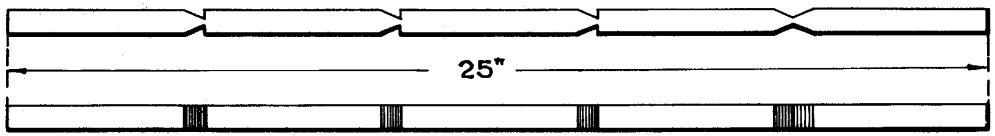
PAVED CENTER: ALL WEIGHTS RAIL

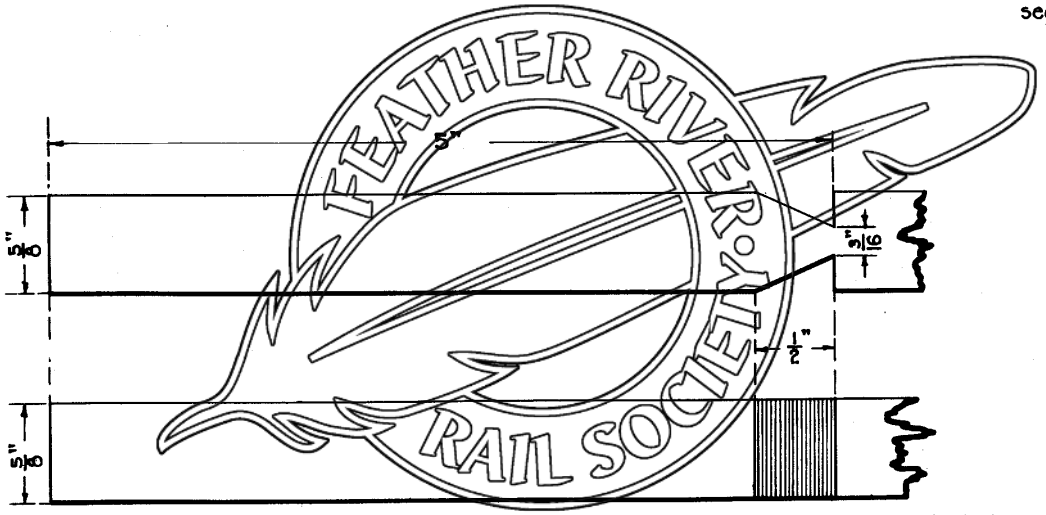
Approved: Frank J. Woolford, Chief Engineer

No Scale Revised: Dec. 1, 1968 Adopted: June 15, 1959

C.E. S-55

MULTIPLE PLUG





Tie plugs shall be sound, seasoned, straight grained Fir, Pine, Cedar or Spruce and free from knots or other defects.

Tie plugs to be manufactured in multiple as indicated, five plugs to a stick, and shipped in bundles of 100 sticks tied securely with wire.

Tie plugs to be creosoted.

APPROVED: J. G. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

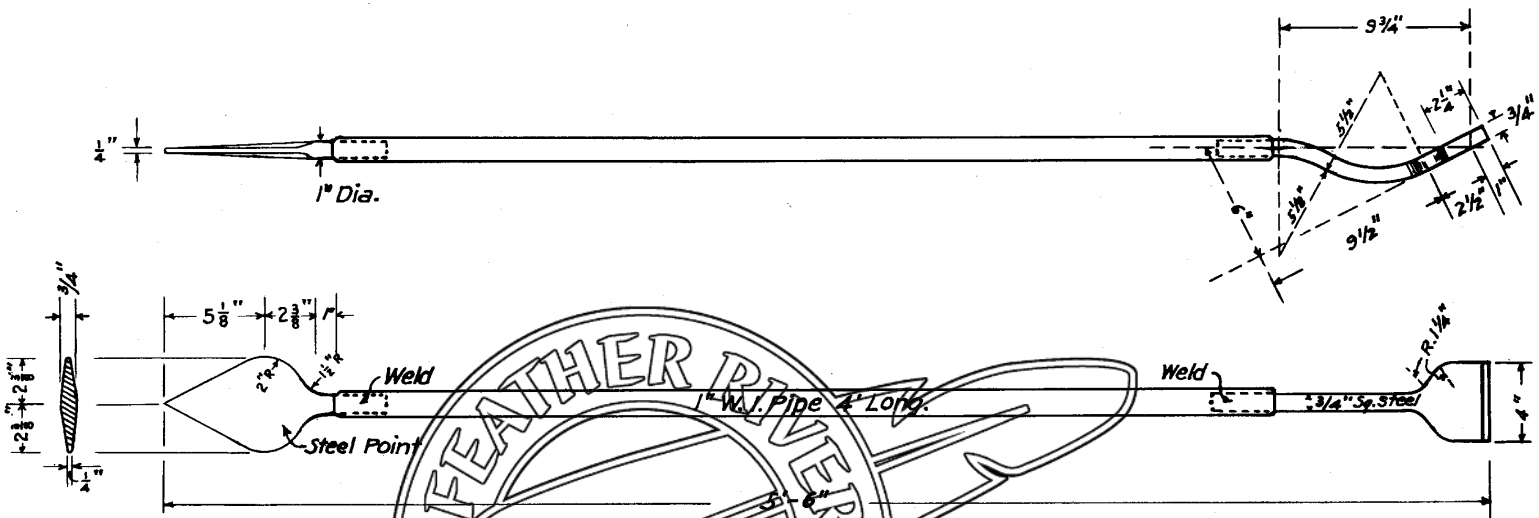
THE WESTERN PACIFIC RAILROAD CO.

STANDARD
TIE PLUG

NO SCALE

ADOPTED MAY 11, 1932
REVISED DEC. 30, 1939
DEC. 15, 1954

C.E.
S-56



APPROVED J.W. Williams
CHIEF ENGINEER.

THE WESTERN PACIFIC RAILROAD CO.

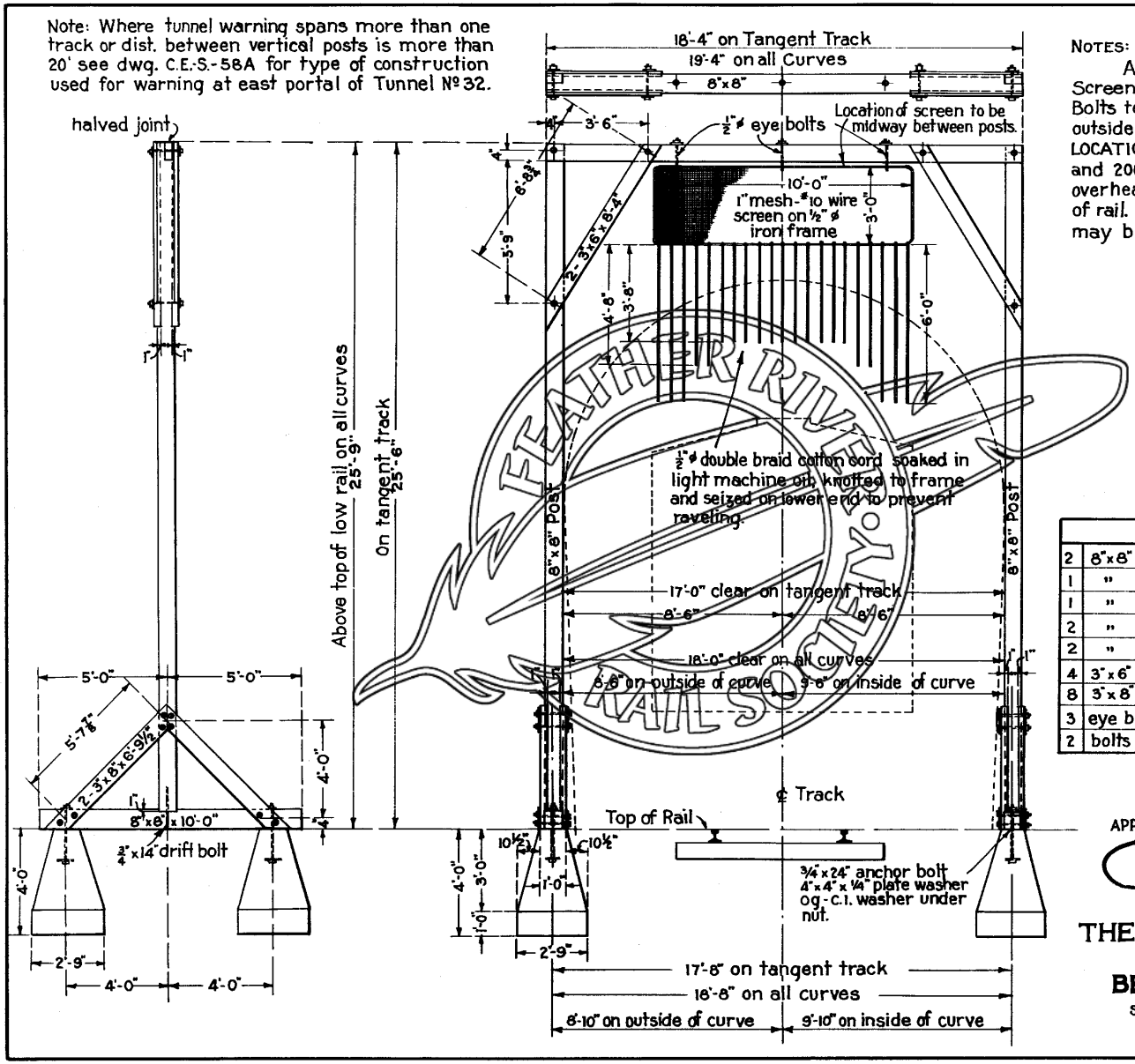
STANDARD

TAMPING BAR

SCALE 1½"-1' ADOPTED FEBRUARY, 1928.
REVISED MARCH, 1931.
SEPT. 20, 1955

C.E.
S-58

Note: Where tunnel warning spans more than one track or dist. between vertical posts is more than 20' see dwg. C.E.-S.-58A for type of construction used for warning at east portal of Tunnel Nº 32.



NOTES:

All bolts in frame to be 5/8" ø with cut washers. Screen to be Galvanized after manufacture. Bolts to be Sherardized. Eye bolts to be 10" long outside of eye and are to be forged around screen frame.

LOCATION: Warnings shall be placed at each end of and 200 feet in advance of structures having an overhead clearance of less than 22 feet above top of rail. Distances of more or less than 200 feet may be used only by authority of the General Manager.

OLD STANDARD

BILL OF MATERIAL				
2	8"x8" x 10'-0"		4	anchor bolts 3/4"x24"
1	" x 18'-4"	on tang. tr.	24	bolts 5/8" x 13"
1	" x 19'-4"	on curve tr.	4	anchor pls. 4"x1/4"x4"
2	" x 25'-7"	on tang. tr.	2	drift bolts 3/4"x14"
2	" x 25'-10"	on curve tr.	3	1/2" C.I. og washers
4	3"x6" x 8'-4"		52	5/8" cut washers
8	3"x8" x 6'-9 1/2"		4	3/4" C.I. og washers
3	eye bolts 1/2"x10"		100	lin. ft. 1/2" ø cotton cord
2	bolts 5/8"x9"		1	Screen & frame 3'-0"x10'-0"

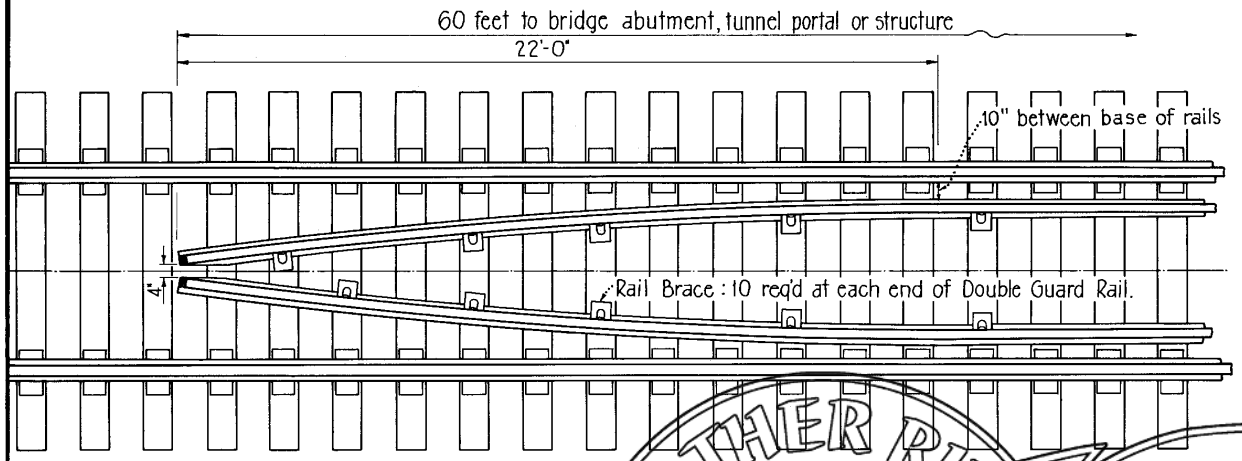
APPROVED: _____ CHIEF ENGINEER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
BRIDGE AND TUNNEL WARNING

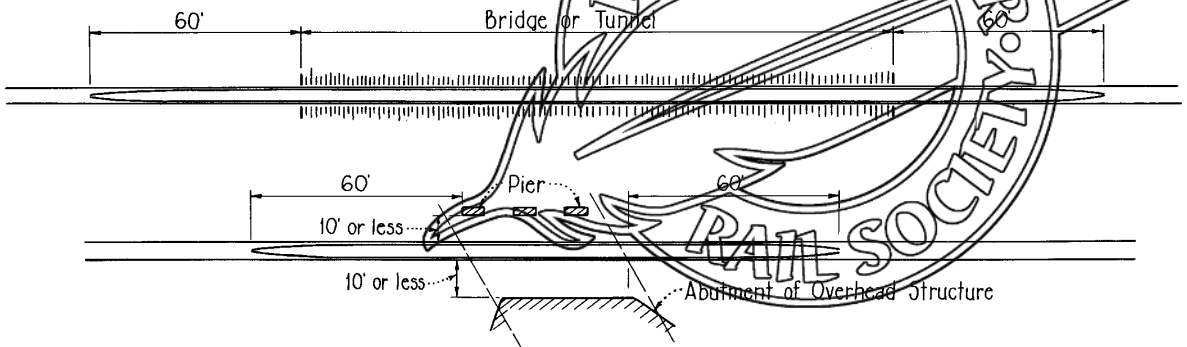
SCALE: 3/16" = 1'-0"

ADOPTED JAN. 1930
REVISED FEB. 18, 1938

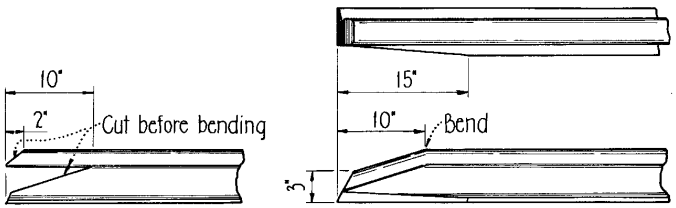
C.E.
S-60



PLAN



LOCATION



Detail of Rail End

NOTES

When authorized by the Chief Engineer double guard rails will be installed and maintained at the following locations :

1.) Through all tunnels having unlined or timber lined sections,
2.) Through all concrete lined tunnels any part of which is tangent or contains a curve of less than 4°00',
3.) On all through truss and through girder bridges,
4.) On all ballast or open bridges or trestles, 60 feet or more in length, and 10 feet or more in height, any part of which is tangent or contains a curve of less than 4°00'.
5.) Opposite adjacent abutments, piers or other structures when such structures are on both sides of main track and within 10 feet of the nearest rail,
6.) At other locations where height, alignment, clearances, grade or other local conditions make installation advisable.

When the distance between adjacent structures to be guarded is less than 200 feet guard rail will be continuous.

When there is a curved approach to the structure the distance from the end of the guard rail to the structure, normally 60 feet, may be increased by the Chief Engineer.

Guard rails to be of 85 lb. or 100 lb. rail as directed by the Chief Engineer.

Guard rail joints to be complete - with 2 joint bars, 4 bolts, nuts and spring washers per joint.

Guard rail to be spiked two spikes per tie per rail except at rail braces which require three spikes each.

Tie plates are not to be used under guard rail.

Approved: Frank R. Woolford
Chief Engineer

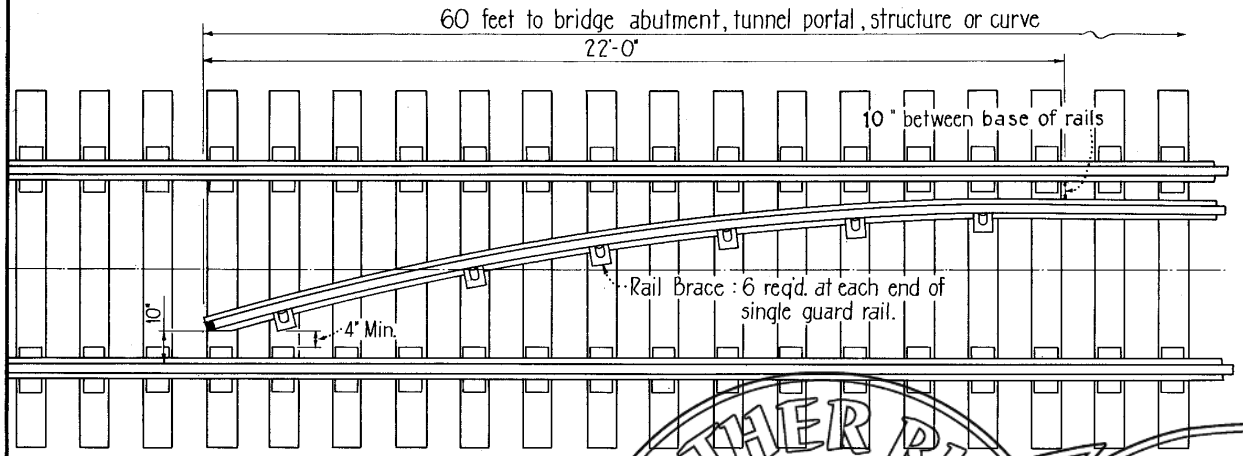
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

DOUBLE GUARD RAILS
FOR TUNNELS AND BRIDGES

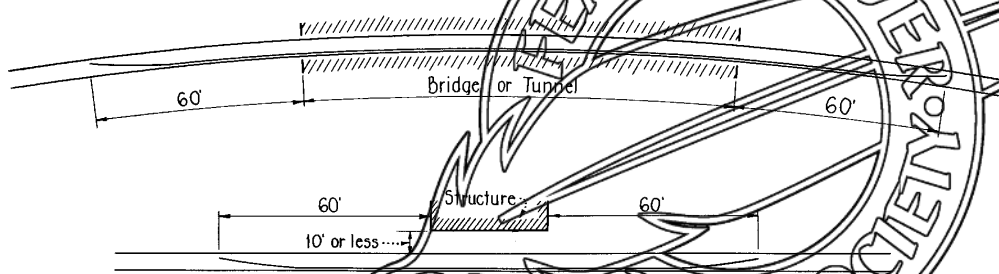
NO SCALE

ADOPTED: April 15, 1958
REVISED: July 15, 1963

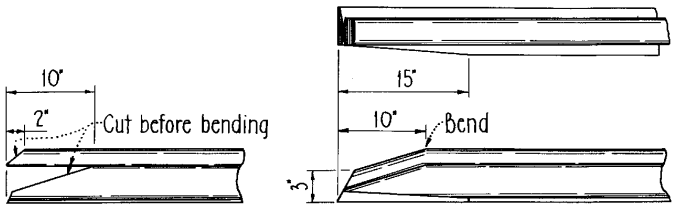
C.E.
S-60A



PLAN



LOCATION



Detail of Rail End

NOTES

When authorized by the Chief Engineer single guard rails will be installed and maintained at the following locations :

1.) Through all concrete lined tunnels all of which is curved and the curve or curves are 4°01' or sharper,

2) On all ballast or open deck bridges or trestles, 60 feet or more in length, and 10 feet or more in height, all of which is curved and the curve or curves are 4°01' or sharper,

3.) Opposite adjacent abutments, piers or other structures when such structures are on only one side of the main track and within 10 feet of the nearest rail,

4.) At other locations where height, alignment, clearances, grade or other local conditions make installation advisable.

When the distance between the ends of adjacent single guard rails on the same rail is less than 75 feet guard rail will be continous.

Where desirable, the distance from the end of the guard rail to the structure or curve, normally 60 feet, may be increased by the Chief Engineer.

Guard rail to be of 85 lb. or 100 lb. rail as directed by the Chief Engineer.

Guard rail joints to be complete - with 2 joint bars, 4 bolts, nuts and spring washers per joint.

Guard rail to be spiked two spikes per tie except at rail braces which require three spikes each.

Tie plates are not to be used under guard rail.

When used to protect structure guard rail will always be on rail farthest from structure, otherwise guard rail will be on inner rail.

Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

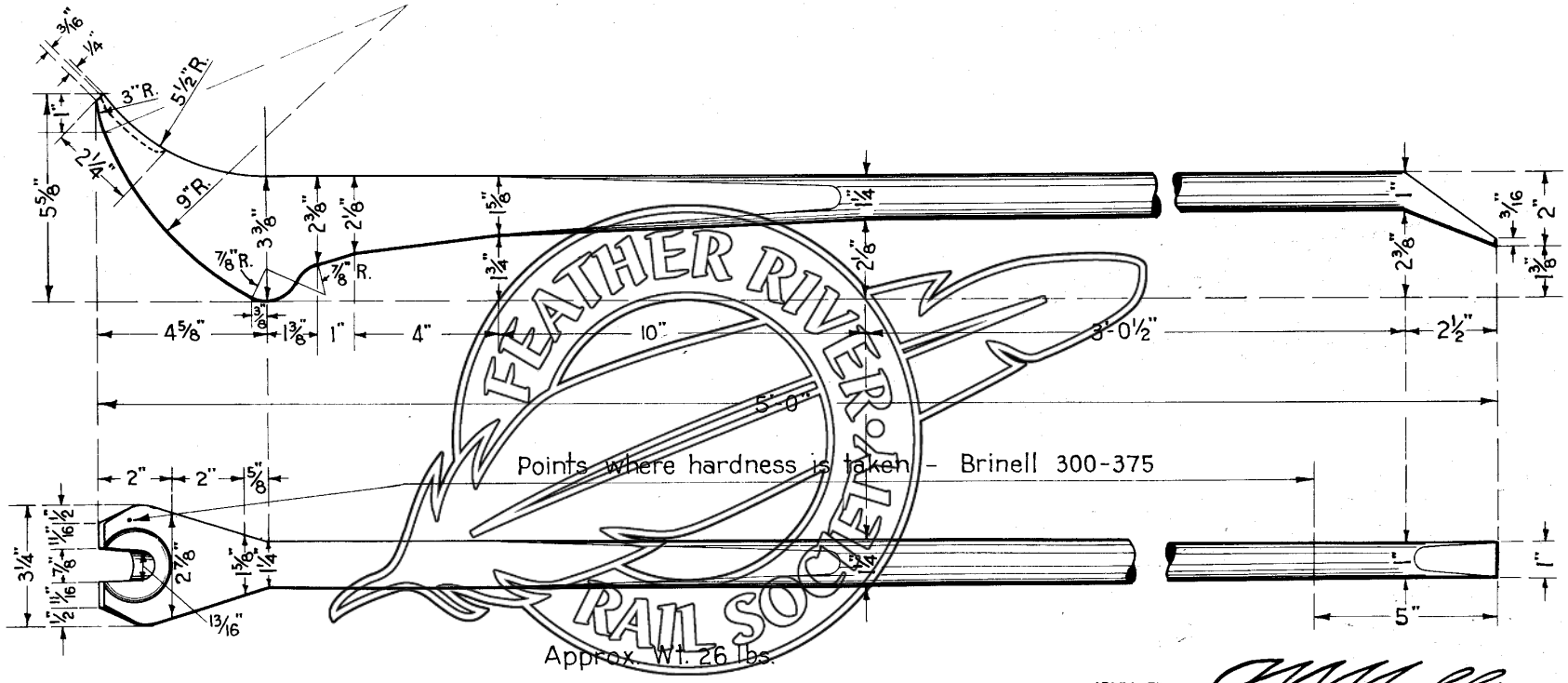
SINGLE GUARD RAIL

FOR CURVES, TUNNELS & BRIDGES

NO SCALE

ADOPTED : April 15, 1958
REVISED : July 15, 1963

C.E.
S-61



Tolerance-
2% on length
5% on cross-section

APPROVED: J. W. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

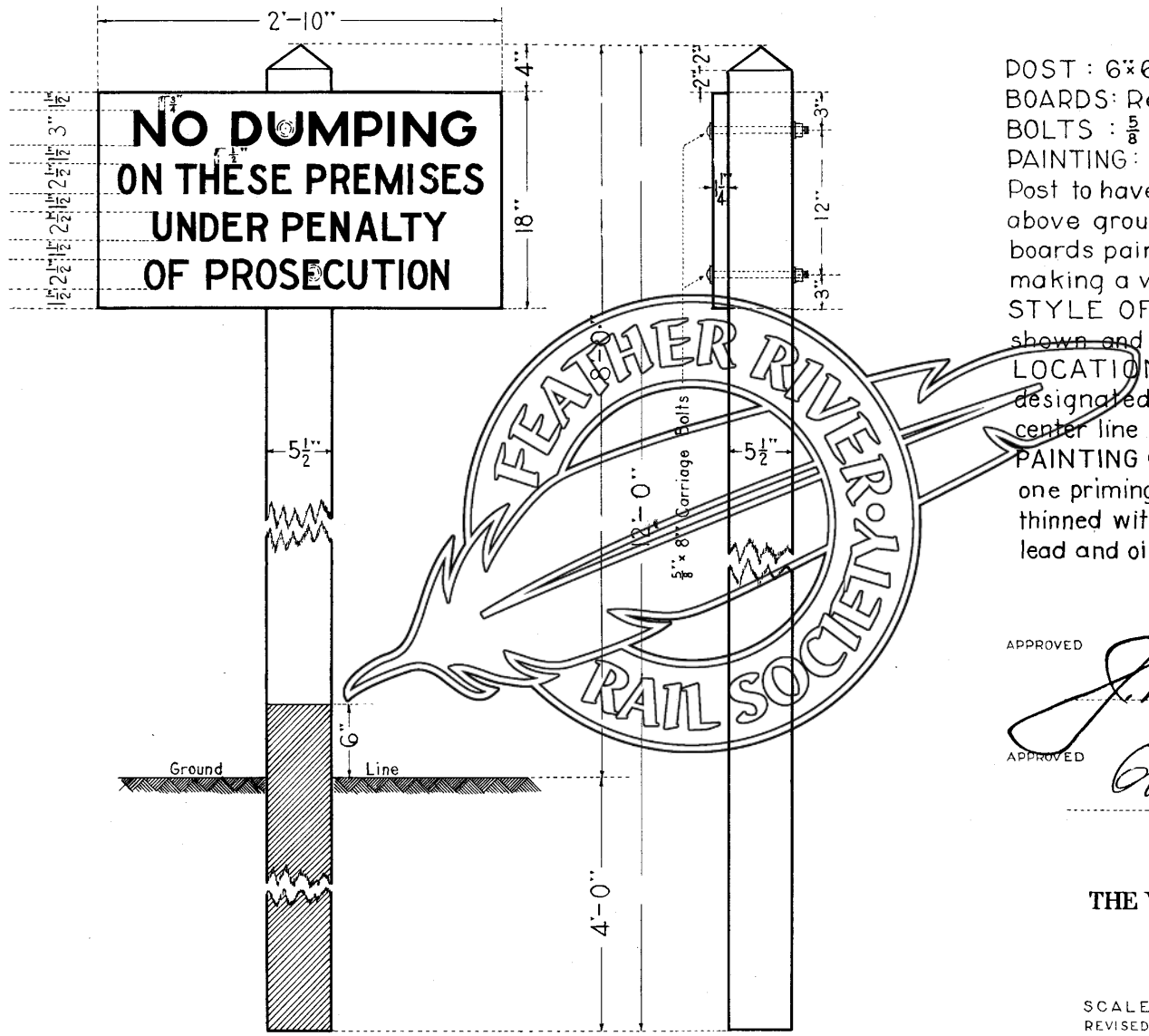
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
CLAW BAR

Scale: 3"=1'-0"

Adopted Mar. 1, 1935
Rev. Mar. 1936

Revised March, 1936 to conform to
A.R.E.A. Design No. 1, Plan No. 11

C.E.
S-62



POST : 6"x6"x12'-0" S 4S Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS : $\frac{5}{8}$ Diameter with washers.
PAINTING: Face of board white, Letters black, Post to have a coat of coal tar applied hot to 6" above ground, balance of post and back of boards painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS : Egyptian, and of sizes shown and strokes as indicated.
LOCATION: To be placed at location designated but not less than 13'-0" from center line of nearest track.
PAINTING OF BOARD: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.

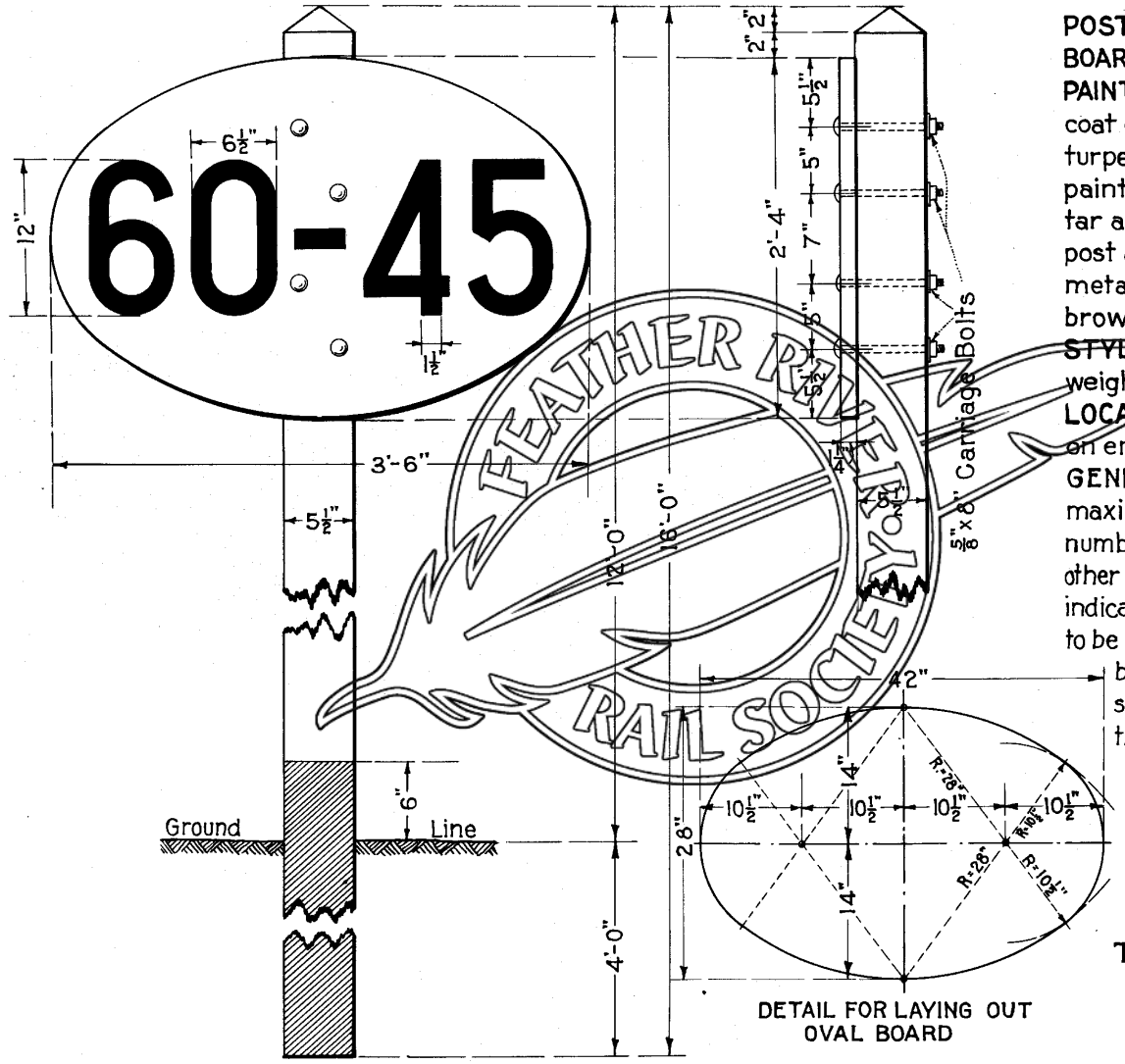
APPROVED J. W. Williams
CHIEF ENGINEER

APPROVED E. Evenson
VICE-PRESIDENT & GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NO DUMPING SIGN

SCALE 1"=1'-0" ADOPTED AUGUST, 1928.
REVISED 11/10/28 REV. JUNE 1, 1936

C. E.
S-63



DETAIL FOR LAYING OUT OVAL BOARD

POST: 6"x6"x16'-0" S4S Redwood Extra Merch.
BOARD: Redwood, Clear.
PAINTING: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine, and two coats of white lead and oil paint. Letters black. Posts to have a coat of tar applied hot to 6" above ground, balance of post and back of board to be painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Gothic, of height and weight as shown.
LOCATION: To be placed at right angles to track on engineer's side, 11 ft. from center of track.
GENERAL: The higher number (60) indicates the maximum speed for passenger trains, the lower number (45) indicates the maximum speed for all other trains, and when but one number is shown it indicates the maximum speed for all trains. This is to be covered by suitable bulletin notice to be issued by superintendents. When two numbers are shown the higher number shall always precede the lower number.

APPROVED: J. M. Williams
CHIEF ENGINEER
APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
SPEED CONTROL BOARD

SCALE: 1"= 1'-0"

MAY 4, 1940

Revised Sta. Names: 4-58
Tunnels 27 & 28, totals: 1-59
— 11-59: Change stas. #26, finish lining 27 & 28.
— 4-61: Change stas. #36, Line #36

THE WESTERN PACIFIC RAILROAD COMPANY

TUNNEL LIST

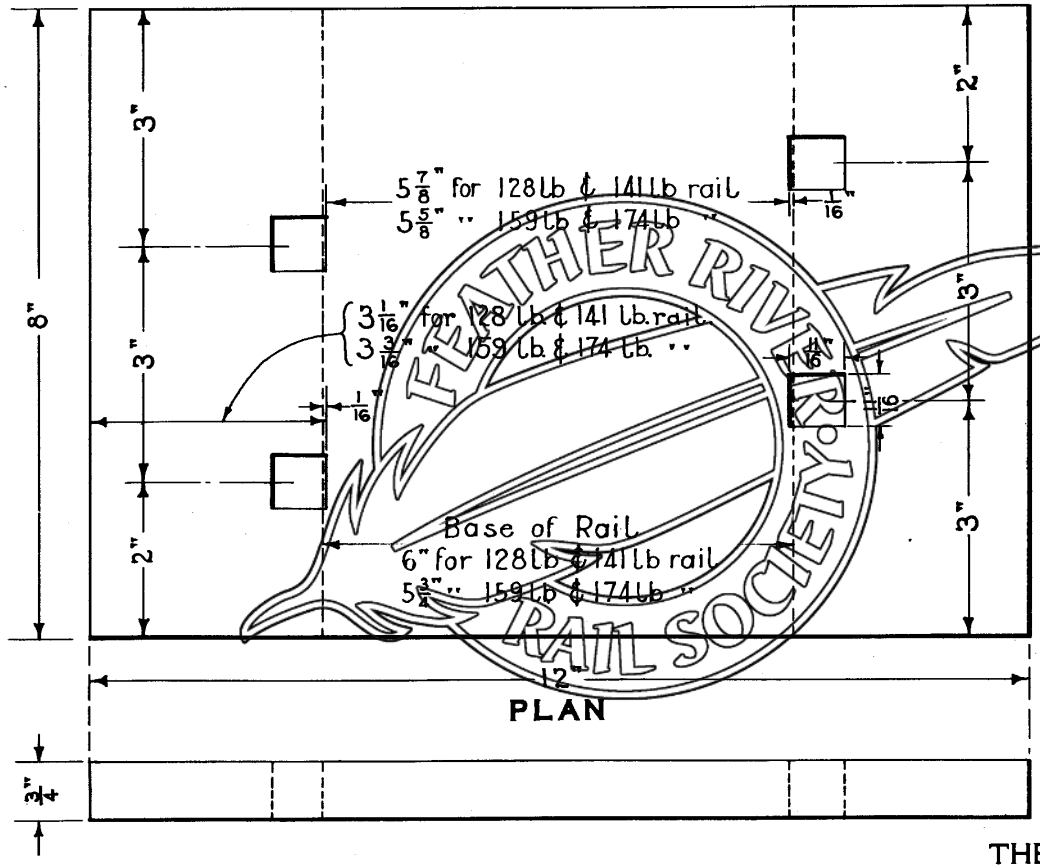
Office of Chief Engineer. San Francisco, Calif. June 1, 1939

C. E. S-64

O.L.C.

NO.	M.P. WEST PORTAL	ENGINEERS STATION WEST PORTAL	ENGINEERS STATION EAST PORTAL	BETWEEN STATIONS		ALIGNMENT	LENGTH LIN. FT.	TIMBER LINED LIN. FT.	CONCRETE LINED LIN. FT.	CONCRETE INVERT LIN. FT.	NOT LINED LIN. FT.	CONC. SILLS LIN. FT.	TYPE OF PORTAL WEST	TYPE OF PORTAL EAST	HEIGHT ABOVE TOP OF LOW RAIL	WIDTH AT TOP OF RAIL	WIDTH AT SPRING LINE	DATE OF LAST REVISION
1	32.12	441+43.5	398+22.6	FREEMONT	SUNOL	Tangent	4320.9		4320.9				CONCRETE	CONCRETE	20.37	15.7	16.0	1/15/58
2	33.39	373+58.5	369+51.2	"	"	226'Sp. to 6°20'C.R. - 181.3' Tan.	407.3		407.3				"	"	21.1	15.8	16.8	
3	57.67	63+43.4	67+58.1	ALTAMONT	MIDWAY	158.1 Sp. - 254.6 6°00' C.R.	414.7	414.7					TIMBER	TIMBER	20.6	16.3	16.9	
4	224.66	828+90.0	852+99.5	ELSEY	JAMES	4°30' C.R.	2409.5		2409.5	2409.5			CONCRETE	CONCRETE	24.0	18.0	18.0	11/1/62
5	227.34	968+62.5	997+85.0	JAMES	POE	Tangent	2922.5		2922.5	2922.5			"	"	24.0	18.0	18.0	"
6	228.14	1010+87.0	1036+70.0	"	"	1,955.8 Tan-400.0 Sp.-227.4 4°00'C.R.	2583.0		2583.0	2583.0			"	"	24.0	18.0	18.0	"
7	229.54	1084+63.0	1128+69.5	"	"	Tangent	4406.5		4406.5	4406.5			"	"	24.0	18.0	18.0	"
8	230.42	1130+93.8	1219+50.1	"	"	Tangent	8856.3		8856.3	8856.3			"	"	24.0	18.0	18.0	"
9	236.37	865+53.7	860+25.9	POE	PULGA	76'Sp. to 3°-0'30'C.R.-390' 0°30'C.R.-62' 1°00' C.R.	551.8		55.2	Gunite —	496.6	1103.9	CONC.	CONC.	22.8	16.1	16.8	1/1/'54
10	237.01	831+49.8	829+18.0	"	"	160' 0°30'C.R.-72'Sp.	231.8	170.8			61.0		TIMBER	TIMBER	20.4	16.0	16.9	"
11	237.33	814+58.1	812+34.3	"	"	1°45'C.L.	223.8	97.3			126.5	189.2	"	"	20.4	16.2	16.8	"
12	237.69	795+72.0	795+20.6	"	"	4°05'C.L. (Rock Shed)	51.4	51.4					"	"	22.5	16.3	16.7	
13	244.92	415+07.4	413+11.5	CRESTA	MERLIN	97'Sp. to 9°30'C.R. - 99' Tan.	195.9	195.9				371.7	"	"	21.0	16.1	16.9	10/27/50
14	246.25	344+55.9	342+11.0	"	"	6.7 8°02'C.L.-200' 8°00'C.L.- 38.2 7°58'C.L.	244.9	244.9				385.1	"	"	21.0	16.2	16.8	1/1/'54
15	250.1	141+73.7	110+55.9	ROCK CR.	TOBIN	113.3 2°55'24"L:150 Sp. 2259.? Tan: 200.0 6°L:Sp./265.8 129.4	3117.8		3117.8				CONC.	CONC.				1/25/57
16	257.43	650+67.9	644+67.0	CAMP RODGERS	BELDEN	174.8 8°00'C.R.-200' 8°06'C.R.-158.8 Sp.-67.? Tan.	600.9	442.2			158.7		"	"	20.8	16.0	16.7	
17	257.85	628+68.0	625+78.5	"	"	10°00' C.R.	324.5		100.0		224.5		CONC.	CONC.	20.5	16.2	16.7	1/1/'54
18	258.08	616+84.1	615+34.0	"	"	150' Sp. to 10°08'C.L.	150.1				150.1		ROCK	ROCK	19.9	16.2	17.1	"
19	258.16	612+60.0	610+96.0	"	"	64.0 10°08'C.L.- 100' Sp.	164.0				164.0		"	"	21.0	20.0	17.5	
20	258.32	604+16.5	601+25.0	"	"	10°00'C.R.	291.5				291.5		"	"	22.0	20.0	20.0	
21	258.85	576+10.0	572+05.0	"	"	342.7 10°00'C.R.- 62.3 Sp.	405.0				405.0		"	"	22.0	20.0	19.7	
22	259.55	539+33.0	536+26.9	"	"	211.0 8°00'C.R.- 55.3 Sp.	306.1		306.1				CONC.	CONC.	19.8	16.3	16.5	4/5/'56
23	262.87	364+70.8	352+13.1	BELDEN	RICH BAR	8°00' C.R.	1257.7		1257.7				CONC.	CONC.	20.7	16.0	16.1	2/1/56
24	263.89	310+66.2	304+50.1	"	"	39.0 Sp.- 577.7 10°00'C.R.	616.1		616.1				"	"	20.8	16.2	16.8	3/28/57
25	265.20	241+66.5	239+80.1	RICH BAR	VIRGILIA	10°00' C.R.	186.4	77.0			109.4	61.4	TIMBER	TIMBER	20.6	16.1	16.9	2/1/56
26	271.58	658+93.4	654+47.4	VIRGILIA	TWAIN	Tangent	446.0		446.0				CONC.	CONC.	20.7	16.1	17.0	10/16/59
27	278.42	295+97.0	292+32.6	PAXTON	KEDDIE	347.0 8°00'C.R.- 17.4 9°00'C.R.	364.4		364.4				"	"	20.9	15.8	16.5	2/6/59
28	278.96	267+44.0	261+34.4	"	"	10°00' C.R.	608.6		608.6				"	"	20.8	16.0	16.5	1/20/59
29	279.19	255+73.3	249+85.5	"	"	Tangent	587.8		587.8				"	"	20.9	16.0	16.4	9/15/'56
30	279.55	235+95.8	230+58.3	"	"	317.3 10°00'C.R.-166 Sp.-55.2 Tan.	537.5		537.5				"	"	20.9	16.0	16.5	8/2/'56
31	280.08	207+77.3	200+90.0	"	"	407.8 10°00'C.R.-120.0 Sp.- 159.5 Tan.	687.3		687.3				"	"	21.0	16.0	17.0	1/1/'54
32	280.37	192+43.1	186+47.9	"	"	212.2 Tan.-112.0 Sp.- 270.3 3°00' C.R.	595.2		595.2				"	"	20.1	16.0	16.6	5/24/56
33	283.06	50+51.5	38+80.0	KEDDIE	SIERRA	644.2 7°00'C.L.- 175.0 Sp.-352.3 Tan.	1270.7		1152.6		118.1		TIMBER	ROCK	20.2	16.1	15.9	10/1/55
34	283.71	16+43.8	13+39.2	"	"	107.0 6°00'C.L.-171.4 Sp.- 26.2 Tan	304.6		304.6				CONC.	CONC.	21.2	16.1	16.7	1/1/54
35	297.18	77+73.5	1328+13.2	SPG. GARDEN	SLOAT	10.6 Sp. to 3°00'C.R-7115.8 Tan.-152.0 Sp.-65.4 8°C.L.	7343.7		7343.7				"	"	20.9	16.1	16.4	
36	316.00	1283+73.4	1276+08.2	CLIO	MABIE	623.6 Tan.-139.1 Sp. to 8°10'C.R.	765.2		765.2				"	"				12/31/60
37	340.34	0+29.3 W-0+61.0 E	59+40.7	CHILCOOT	RENO JCT.	5982.4 Tan.- 19.3 Sp. to 3°00' C.L	6001.7		4509.0		1492.7	3954.8	"	"	20.2	16.1	16.2	10/1/'55
38	628.73	2005+69.4	2000+38.1	CLURO	PALISADE	49.1 Sp-82.2 4°30'C.L- 400.0 4°00½' C.L.	531.3	531.3				80.0	TIMBER	TIMBER	20.2	16.1	16.6	"
39	635.37	1654+04.2	1644+23.5	"	"	790.2 Tan.- 204.0 Sp.- 66.8 5°06'C.R.	1080.7		1080.7				CONC.	CONC.	20.7	15.6	16.5	12/14/57
40	636.80	1578+97.0	1575+75.0	PALISADE	CARLIN	16.0 4°36'C.R.- 209.1 Sp.	322.0		21.0		301.0		CONC.	ROCK	20.3	16.2	16.5	12/14/57
41	649.24	922+94.4	899+52.6	CARLIN	TONKA	185.3 Sp. to 3°00'C.R-2256.5 Tan.	2341.8	2341.8				888.0	TIMBER	TIMBER	20.8	16.2	16.8	10/1/55
42	650.71	844+67.2	833+95.5	TONKA	HUNTER	230.9 Sp. to 4°10'C.R.-932.6 Tan.	1071.7	1071.7				1724.0	"	"	20.6	16.1	16.9	"
43	753.69	1430+81.9	1374+06.0	SPRUCE	LUKE	42.9 Sp. to 5°02½'C.L.-5633.0 Tan.	5675.9	1133.0			4542.9	2336.0	"	ROCK	20.0	16.1	14.9	1/1/'54
KEDDIE - BIEBER LINE																		
NC-1	—	2116+94.3	2110+08.4	EAST LEG - KEDDIE WYE		84.5 Tan.-200'Sp.-268.6 10°C.-94.3 Sp.	685.9		685.9				CONC.	CONC.	22.5	18	18	1/1/'54
NC-2	0.97	2070+23.7	2064+35.4	KEDDIE	MOCCASIN	22.3 Sp.-478.2 10°00' C.R.- 87.8 Sp.	588.3	477.8	110.5	78.2		955.6	TIMBER	"	"	18	18	"
NC-3	2.61	1983+49.7	1977+28.7	"	"	9.7 Sp.- 354.0 10°C.R.-200'Sp.-57.3 Tan.	621.0	166.5	454.5	30.0		323.0	CONC.	"	"	17.0	17.57	"
NC-4	3.39	1942+09.3	1937+39.1	"	"	10°00' C.R.	470.2	398.1	72.1	72.1		322.0	TIMBER	"	"	18.0	18	"
NC-5	3.71	1925+28.4	1922+49.7	"	"	Tangent	278.7	278.7					"	TIMBER	"	17	17	"
NC-6	21.03	1009+36.7	998+33.7	COHALA	ALMANOR	252.7 Tan 255'Sp-179' 10°12'C.R.-416.3' 10°00½'C.R.	1103.0		1103.0	1103.0			CONC.	CONC.	"	17.32	17.32	1/1/54
NC-7		BY-PASSED	1954	"	"													10/1/54
NC-8		BY-PASSED	1954	"	"									"				10/1/54
NC-9		DAYLIGHTED	1953	DIXIE	PIT RIVER													1/1/'54
Note: Curves are shown as R (right) or L (left) facing east from San Francisco.							69,523.6	8093.1	52,788.5	22,461.1	8,642.0	12,695.8	Totals				Correct as of 11/1/62	

C.E.
S-65



This tie plate for use on intermediate and joint ties.

Plates should be made from second hand material, if available, in which case thickness may vary from $\frac{1}{2}$" to $\frac{3}{4}$". When purchased new, thickness shall be $\frac{3}{4}$".

Approved: Frank R. Meadows
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.

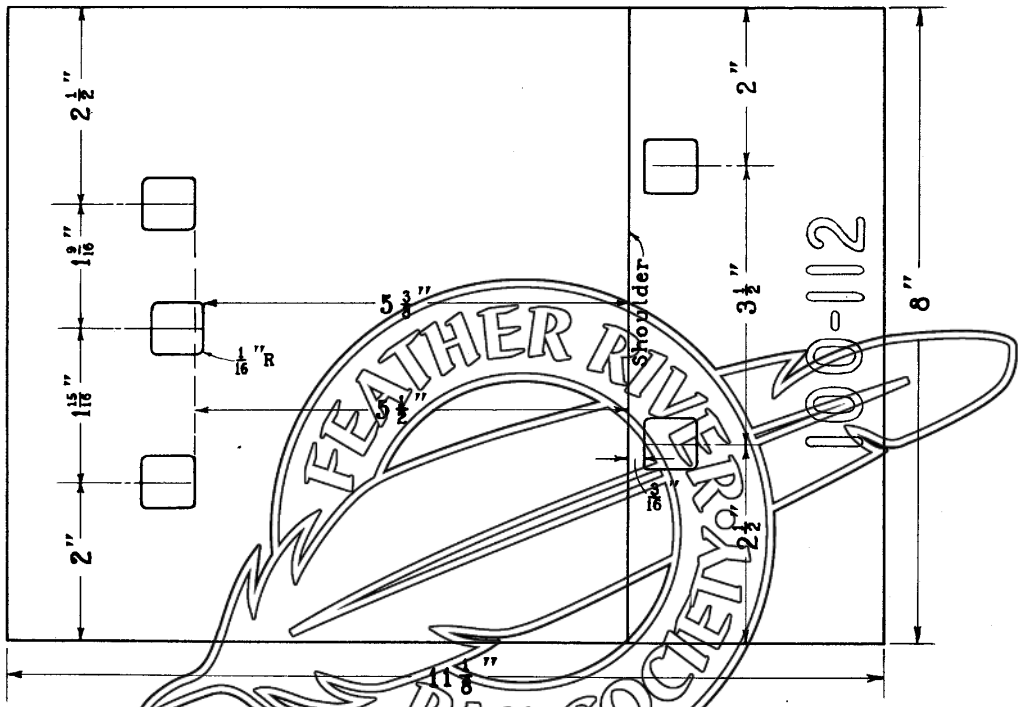
STANDARD

TIE PLATE

FOR GIRDER RAILS

Scale: half size Adopted: Sept. 1, 1916
Revised: Dec. 9, 1954

C. E.
S-67B



All holes to be punched $\frac{11}{16}$" square with $\frac{1}{16}$" R in corners.

Note :- Center Spike Hole moved to $1\frac{9}{16}$" c-c from nearest hole. 3/22/35.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD PUNCHING
FOR 8" x 11 1/8" INTERMEDIATE TIE PLATE
FOR 100 lb. AND 112 lb. R.E. RAIL.

SCALE :- HALF SIZE FEB. 25, 1935.
REV. MAR. 22, 1935.

DRWG. NO. STP-99
SECTION NO. 1121
ORDER NO. See Table
CUSTOMER Western Pacific R.R.

ISSUED JAN 5 1937

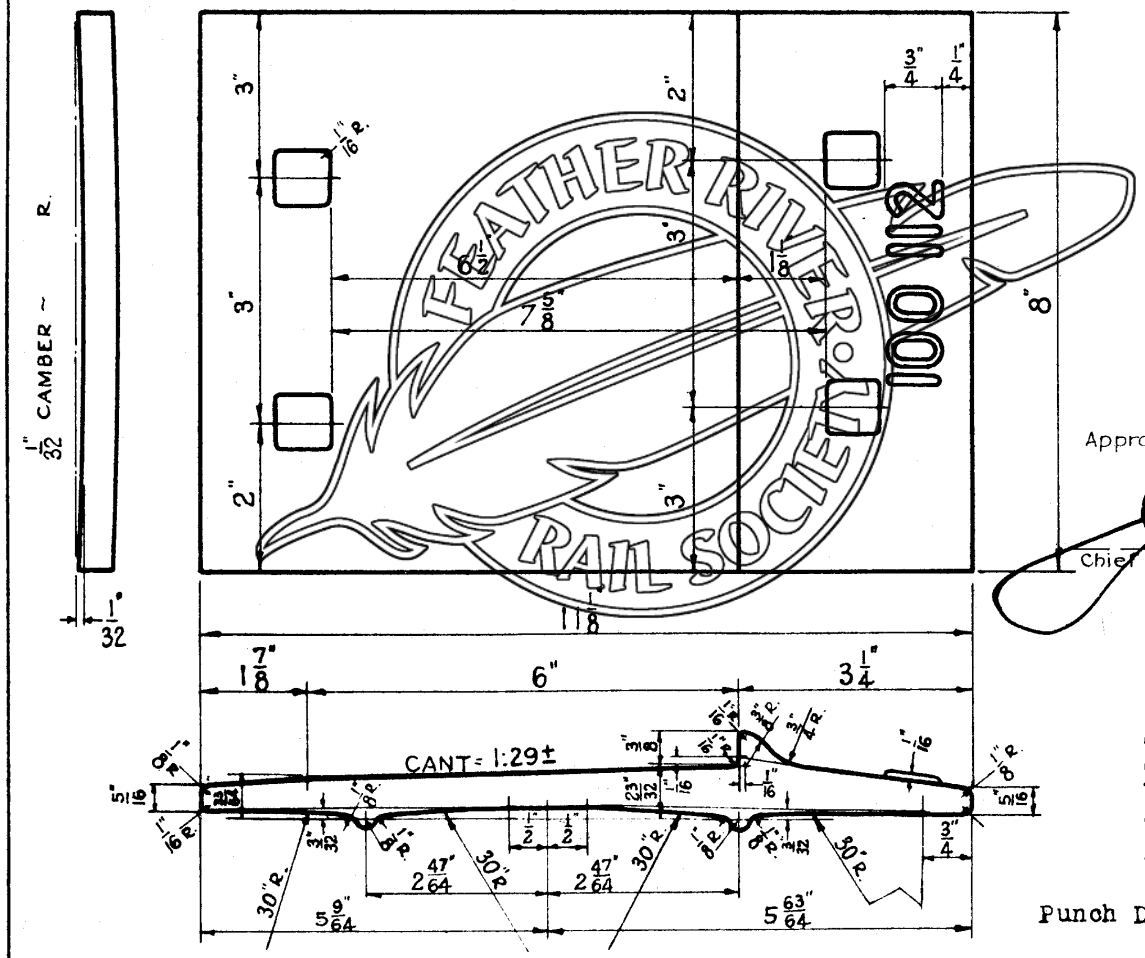
Rev. Jan. 4-37-M.O. Camber Reduced to 1/32"

Columbia Steel Company
PITTSBURG, CALIF.

Dim'd. by M.O. Approved by
Checked by L.T.P. Date

CE-S
67D (S.T.P.99)

DATE	ORDER NO.	NO. PCES.
	PRM-2380	27,000
	" 2381	46,000
	" 2382	32,500
8-31-36	" 3078	100,000



Approved:

Chief Engineer. The Western Pacific Railroad Co

Size of Hole 11/16" Sq.
Gross Wt. per Ft. 19.856 lbs.
Wt. per Tie Plate 12.998 lbs.
Gross Wt. per Inch 1.655 lbs.
For use with 100-112 Lb. R.E.Rail

JOINT PLATE.

Punch Details Drwg. No. STP-151

DRWG. NO. STP- 94 ISSUED
SECTION NO.- 1121 JAN 5 1937
ORDER NO.
CUSTOMER WESTERN PACIFIC R.R.

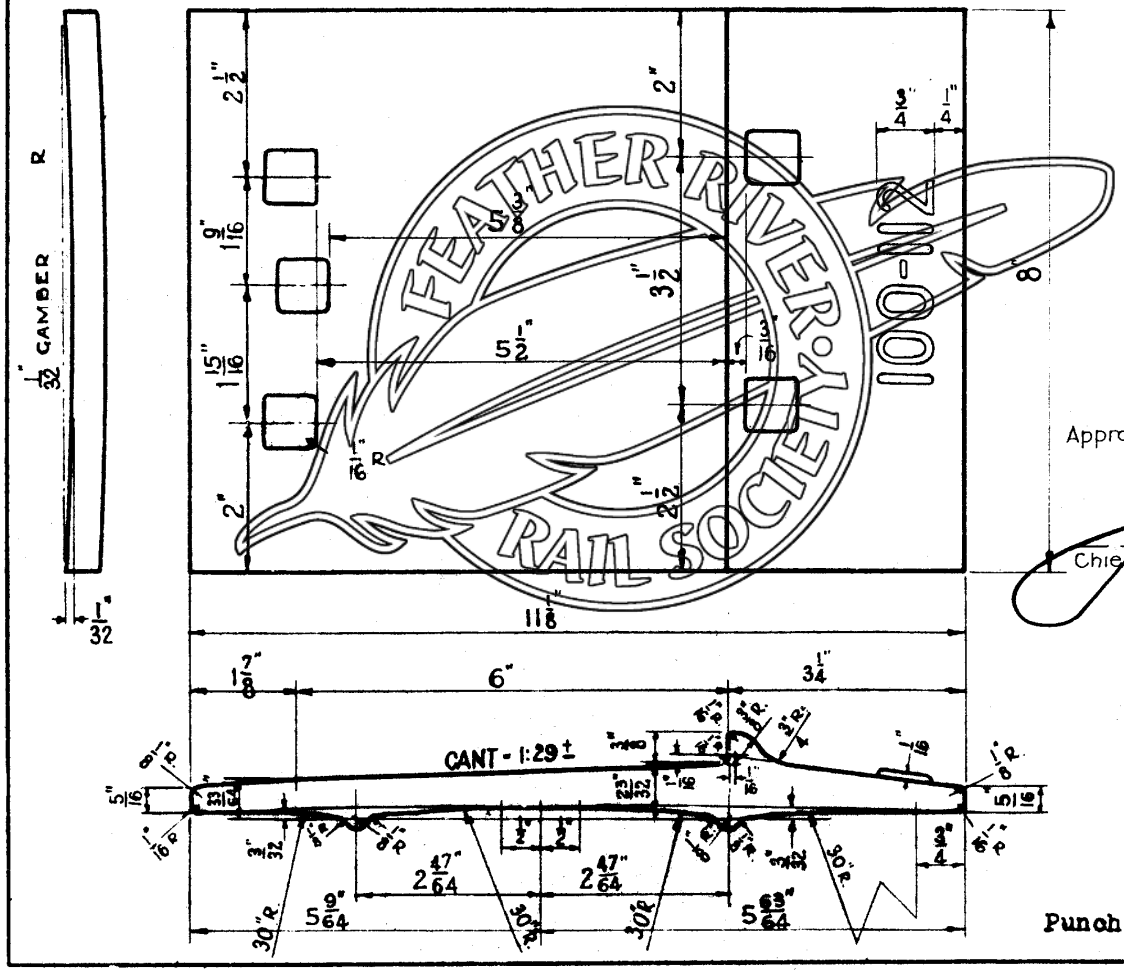
Rev. March 28-35-M.O.
" Jan. 4-37- "
(Camber reduced to 1/32"

CE-S
67E (STP94)

COLUMBIA STEEL CO.
PITTSBURG, CALIF.

Dim'd. by M. Olvera Approved by
Checked by L.T.P. Date

DATE	ORDER NO.	NO. PCES.
	PRM 1641	120,000
	1637	293,000
	1639	5,700
	1640	3,000
	1638	21,300
	2380	285,000
	2381	250,000
	2382	336,500
8-31-36	3078	410,000



Approved :

Chief Engineer The Western Pacific Railroad Co.

Size of Hole 11/16" Square
Gross Wt. per Ft. 19.856 lbs.
Wt. per Tie Plate 12.8173 lbs.
Gross Wt. per inch 1.655 lbs.
For use with 100-112 lb. R.E. RAIL

INTERMEDIATE PLATE

Punch Details Drwg. No. STP- 149

Drawing No. STP-510 APPROVED BY W.P.R.R. 1-4-45.
Section No. 1121
Order No. See order.
Customer - Western Pacific Railroad

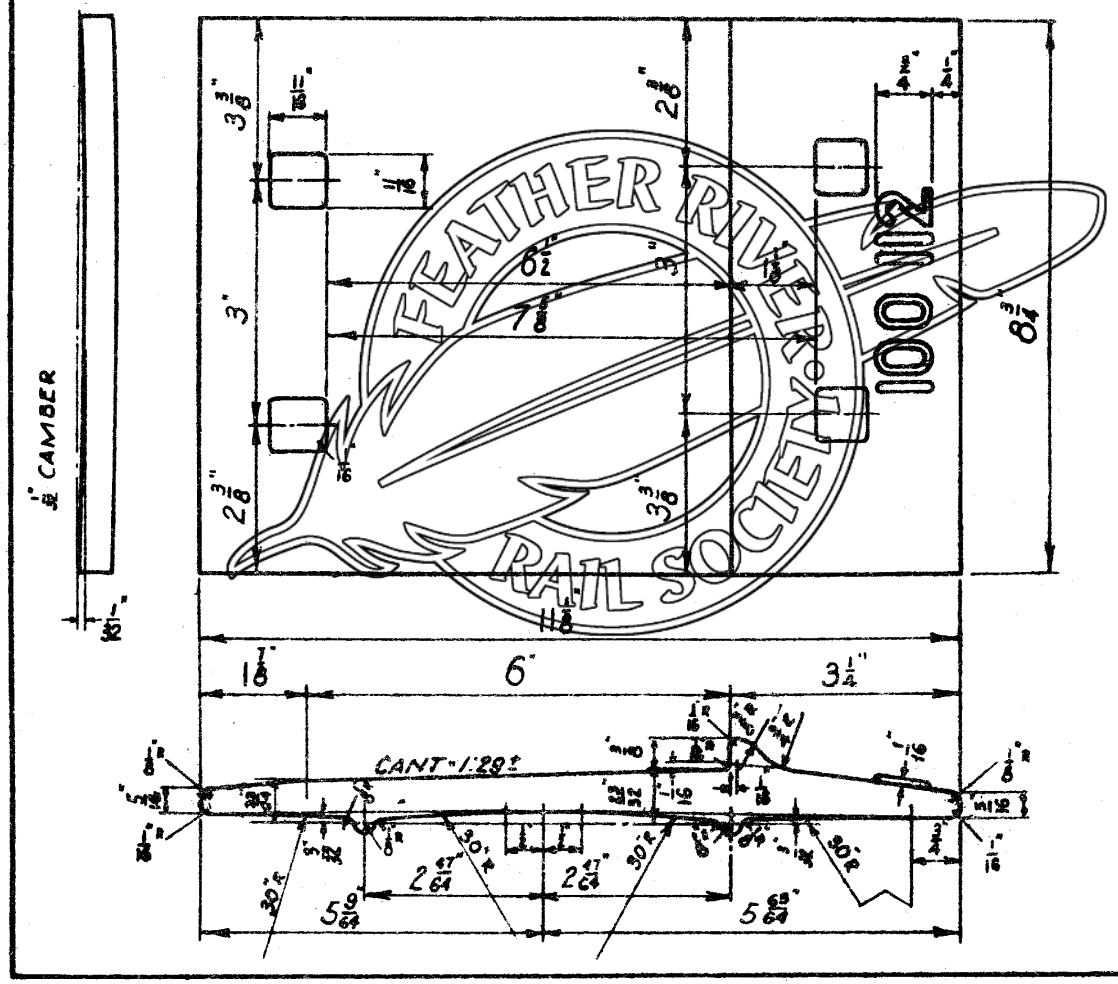
COLUMBIA STEEL COMPANY
Pittsburg, California

C.E.
67 - F

Dim'd. by P. G.
Checked by M. O.

Approved by
Date

Date	Order No.	No. Pieces
12-18-44	PHF-4550	7,000
3-10-45	PHF-5818	7,000



APPROVED
CHIEF ENGINEER

Size of Hole - 11/16 sq.
Gross wt. per ft. 19.856 lbs.
Wt. per plate, punched 14.259 lbs.
For use with 100-112 lb. R.E. Rail
Punch details - Dwg. No. STP-151

JOINT PLATE

Approved by WPRR Co. Jan. 3, 1947

Drawing No. - STP-332

Section No. - 1121

Customer - Western Pacific

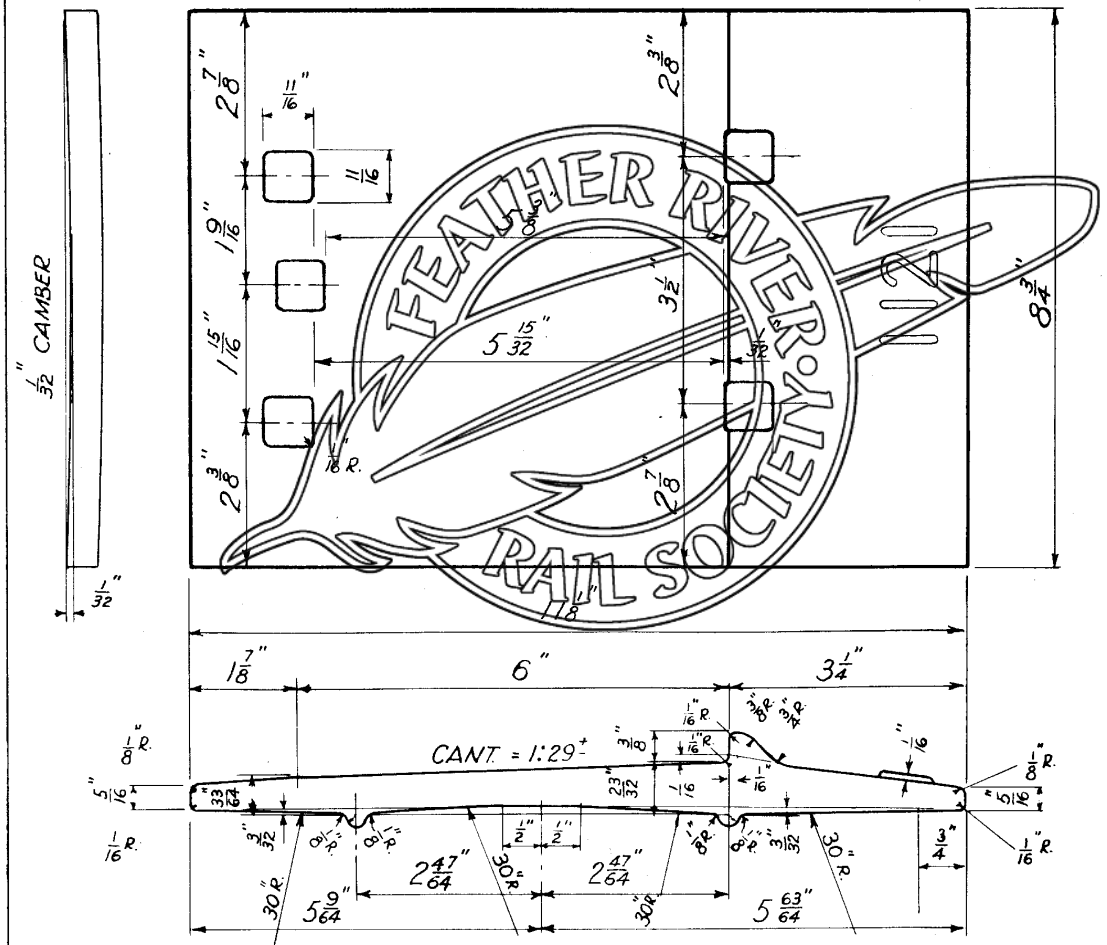
COLUMBIA STEEL COMPANY
Pittsburg, California

C.E.
S-67 G

Dimensioned by: C.S. Approved by:

Checked by: M.C. Date:

Date	Order No.	No. Pieces
12/13/46	PHF-5939	240,000

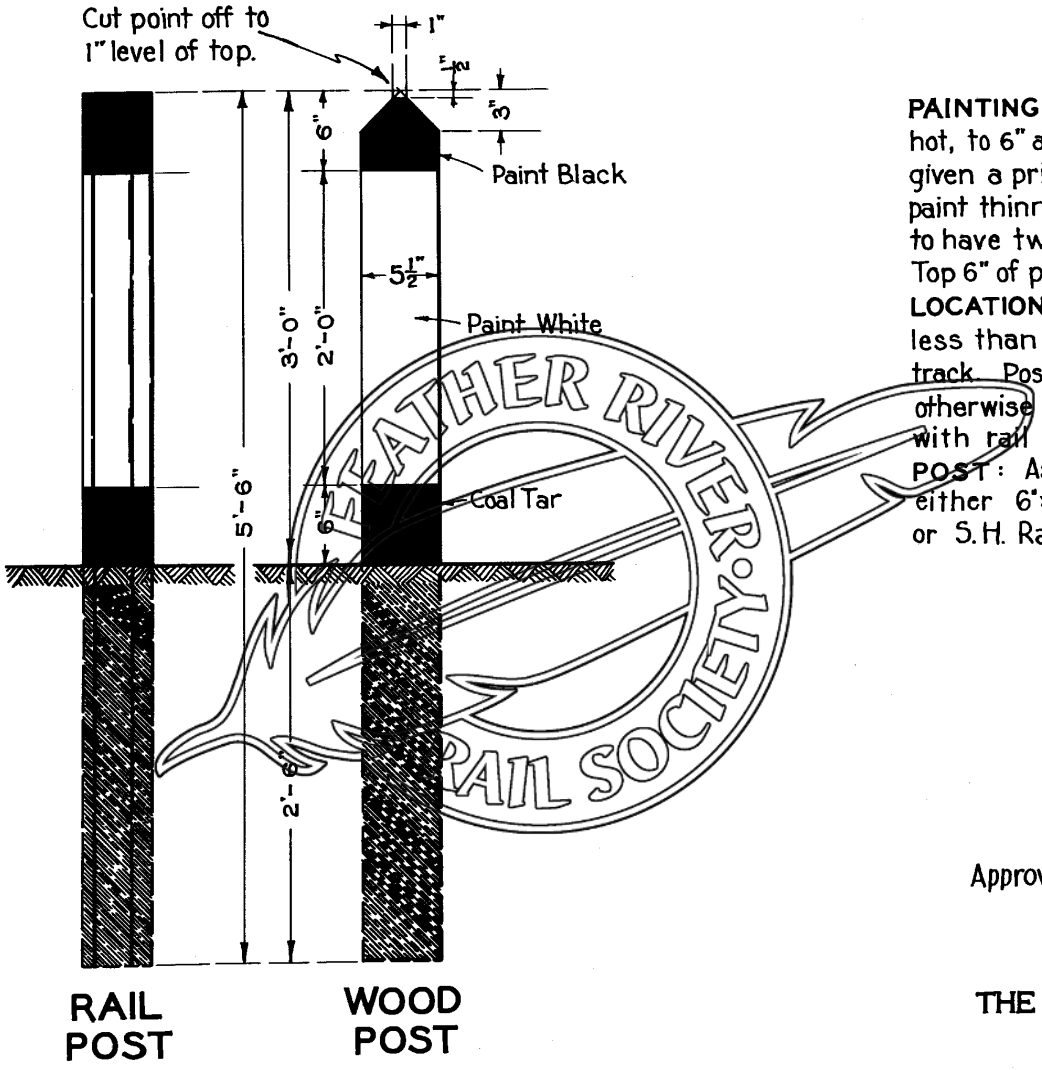


Size of Hole - 11/16" Sq.
Gross Wt. - 19.856 Lbs.
Wt. per Plate, Punched - 14.0583 Lbs.
For use with 100,112 & 115 lb. R.E. Rail

INTERMEDIATE PLATE

Punch Details - Dwg. No. STP-

C.E.
S-69



PAINTING: Post to have a coat of coal tar applied hot, to 6" above ground. Balance of post to be given a priming coat of white lead and oil paint thinned with turpentine and white portion to have two coats of white lead and oil paint. Top 6" of post to be painted black.

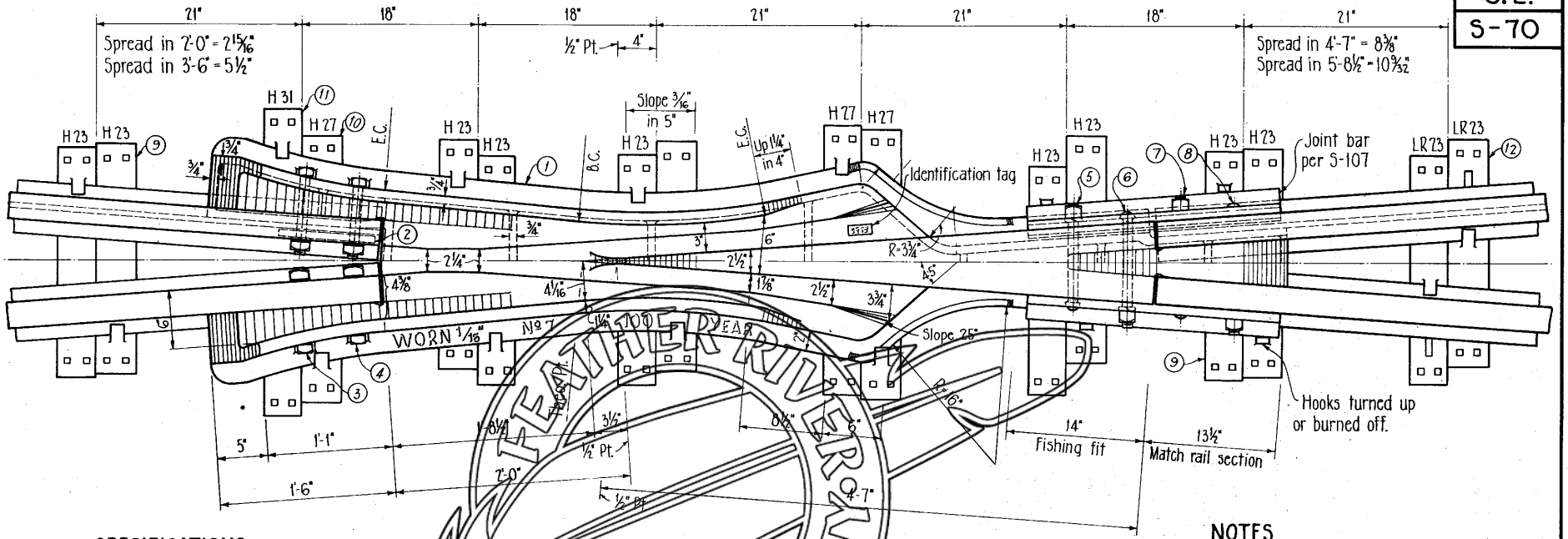
LOCATION: At location designated but not less than 13'-0" from center line of nearest track. Posts to be spaced 5'-0" centers unless otherwise authorized. Rail post to be placed with rail head facing traffic.

POST: As directed by the Chief Engineer - either 6"x6"x 5'-6" Redwood S4S, Extra Merch., or S.H. Rail.

Approved: Frank R. Wadsworth
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
TRAFFIC BARRIER POST
SCALE: 1"=1'-0"
ADOPTED : OCT. 22,1940
REVISED : JAN. 21,1955

C.E.
S-70



SPECIFICATIONS

Frog to be of manganese steel, and as per A.R.E.A. plan 641-55 except as shown, and as per A.R.E.A. Specifications.

Wall thickness to be ¾" as shown and as per A.R.E.A. plan 640-41.

Depressed point per A.R.E.A. plan 600 B-55.

Rail drilling and joint bars per W.P. Dwg. S-107, dated March, 1935. Rail worn 1/16".

Joint bars furnished by R.R.

Identification tag furnisher manufacturer by R.R. Tag to be tack welded to casting.

Flangeways to be 1⅛" wide, 1⅛" deep.

Unless otherwise specified manufacturer to furnish Piece Marks 1 through 12 with each frog.

Manufacturer to submit complete set of shop prints for approval before starting work.

PARTS LIST

Pc. Mk.	Name of Part	Req'd.	Remarks
1	Frog Casting	1	Solid Manganese
2	"D" Bar	2	¾" "D" x 10": drilled 1⅛" dia.
3	1" x 8½" Machine Bolt	2	H.C.H.T., Sq.Hd., Heavy Sq. Nut. Each with 1 spring wash.
4	1" x 7½" Machine Bolt	2	
5	1 1/16" x 10" Track Bolt	1	1" shank dia., 1 1/16" thread dia., H.C.H.T., each with 1 thick sq. nut and 1 spring washer.
6	1 1/16" x 11" Track Bolt	1	
7	1 1/16" x 11½" Track Bolt	1	
8	1 1/16" x 12½" Track Bolt	1	
9	H-23 Hook Twin Tie Plate	10	As per S-219
10	H-27 Hook Twin Tie Plate	3	
11	H-31 Hook Twin Tie Plate	1	
12	LR-23 Hook Twin Tie Plate	2	

NOTES

When requisition states "№ 7 100 lb. Self Guarded Frog Complete per S-70" store will furnish Piece Marks 1 through 8, assembled, and 9 through 12, loose.

When ordering replacement parts refer to Piece Mark and Drawing Number in addition to Name of Part.

Use only one spike in each end of each Hook Twin Tie Plate.

Approved: Frank R. Woolford
Chief Engineer

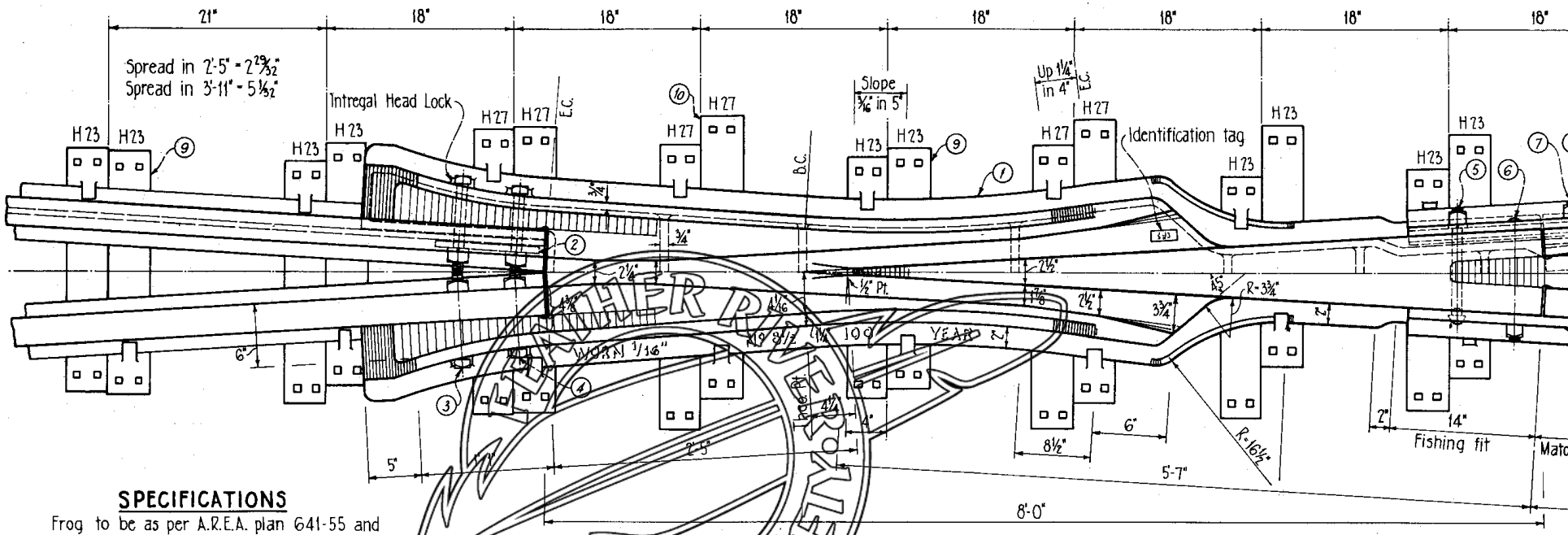
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

№ 7 SELF GUARDED FROG
FOR 100 LB. R.E. RAIL

No Scale

Adopted: Nov. 15, 1959

Drawn: 6-4-59
6-23-59: changed worn 1/8" to worn 1/16".
7-15-59: 1" ribs to 3/4"; flare 7'4"-7'4" to 0'4"-6"



SPECIFICATIONS

Frog to be as per A.R.E.A. plan 641-55 and A.R.E.A. Specifications except as shown.

Wall thickness to be 3/4" as shown and as per A.R.E.A. plan 640-41.

Depressed point as per A.R.E.A. plan 600B-55.

Rail drilling and joint bars for 100 lb. R.E. rail as per W.P. Dwg. S-107, dated March, 1935.

Identification tag furnished manufacturer by railroad. Tag to be tack welded to casting

Flangeways to be 1 7/8" wide, 1 7/8" deep.

Unless otherwise specified, manufacturer to furnish Piece Marks 1 through 12 with each frog.

Manufacturer to submit complete set of shop drawings for approval before starting work.

PARTS LIST

Pc. Mk.	Name of Part	Reqd.	Remarks
1	Frog Casting	1	Solid Manganese
2	"B" Bar	2	3/4" "D" x 10": drilled 1 1/8" dia.
3	1" x 8 1/2" Machine Bolt	2	Sq. Hd., heavy Sq. Nut. Each with 1 spring washer.: H.C.H.T.
4	1" x 7 1/2" Machine Bolt	2	
5	1 1/16" x 10" Track Bolt	1	1" Shank dia., 1 1/16" thread dia. High carbon, heat treated. Each with 1 thick sq. nut & 1 spring washer.
6	1 1/16" x 11" Track Bolt	1	
7	1 1/16" x 11 1/2" Track Bolt	1	
8	1 1/16" x 12" Track Bolt	1	
9	H-23 Hook Twin Tie Plate	12	As per W.P. Dwg. Nº S-219.
10	H-27 Hook Twin Tie Plate	6	
11	LR-23 Hook Twin Tie Plate	2	
12	LR-27 Hook Twin Tie Plate	2	

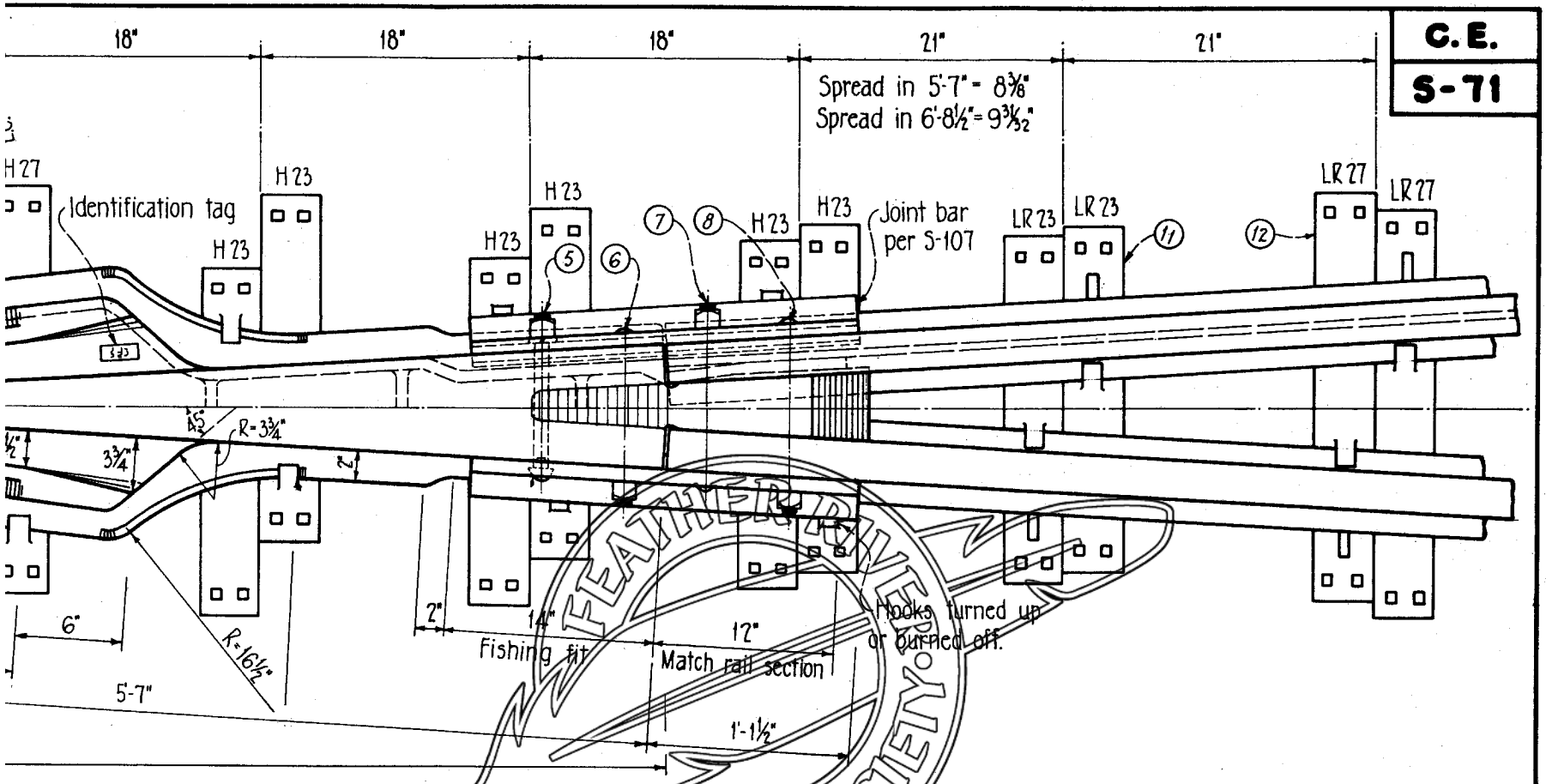
NOTES

When requisition states "Nº 8 1/2 Self Guarded Frog per S-71, complete" store will furnish Piece Marks 1 through 8, assembled, and 9 through 12, loose.

When ordering replacement parts refer to Piece Mark, Name of Part and number needed in addition to Drawing Number and Drawing date.

Use only 1 spike in each end of each Hook Twin Tie Plate.

C.E.
S-71



NOTES

When requisition states "№ 8½ Self Guarded Frog per S-71, complete" store will furnish Piece Marks 1 through 8 , assembled, and 9 through 12, loose.

When ordering replacement parts refer to Piece Mark, Name of Part and number needed in addition to Drawing Number and Drawing date.

Use only 1 spike in each end of each Hook Twin Tie Plate.

Approved: Fred R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

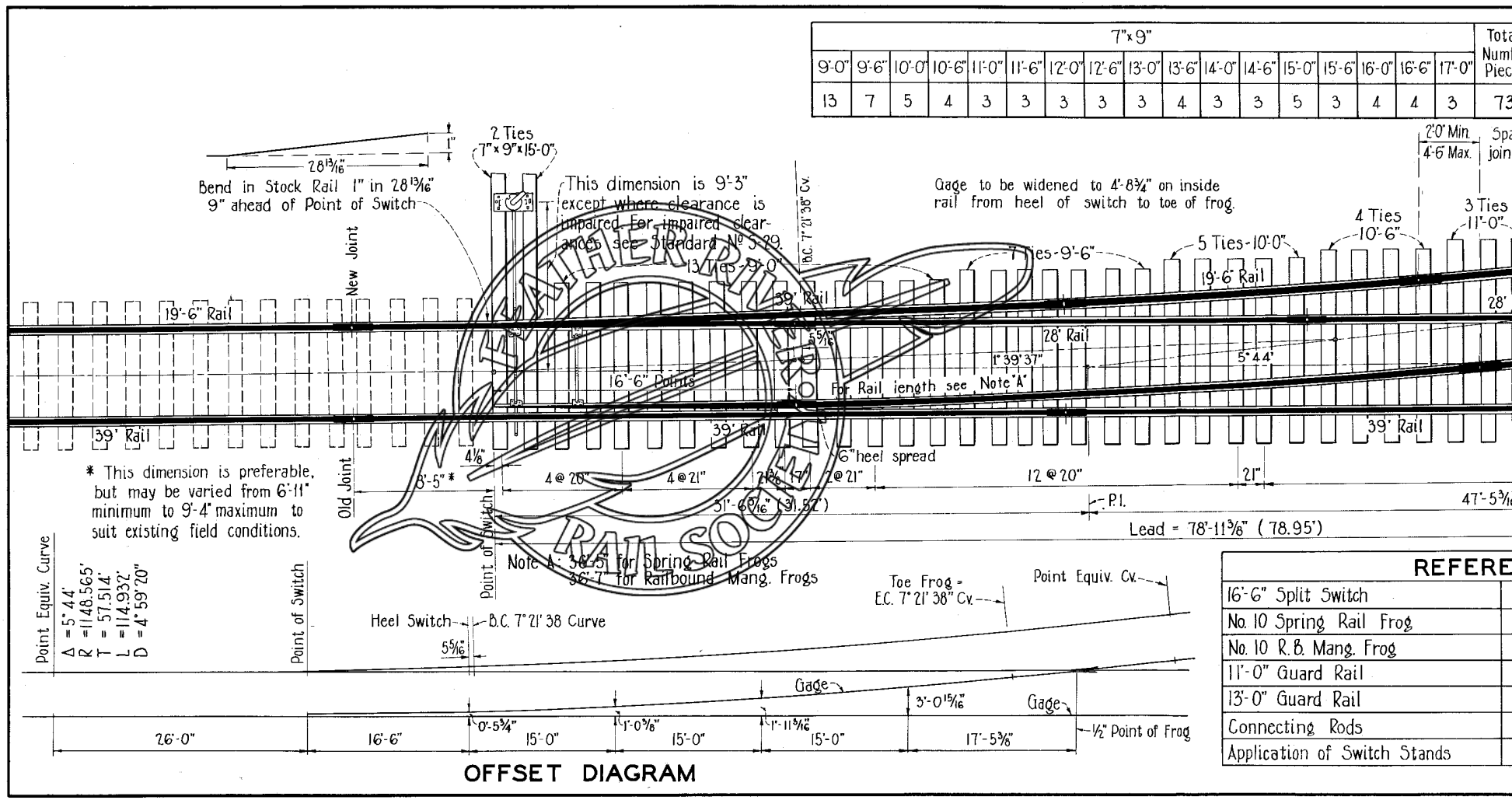
№ 8½ SELF GUARDED FROG

FOR 100 LB. R.E. RAIL

No Scale | Revised: 7-15-'59 | Adopted: June 1, 1959

4-57 : Insul. Jt. Notes.
Min. & Max. pt lead note.
ded Spread., Title, Ties
11-63 Corrected
total number
ties.

7"×9"																	Tota Numb Piec
9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"	
13	7	5	4	3	3	3	3	3	4	3	3	5	3	4	4	3	73



OFFSET DIAGRAM

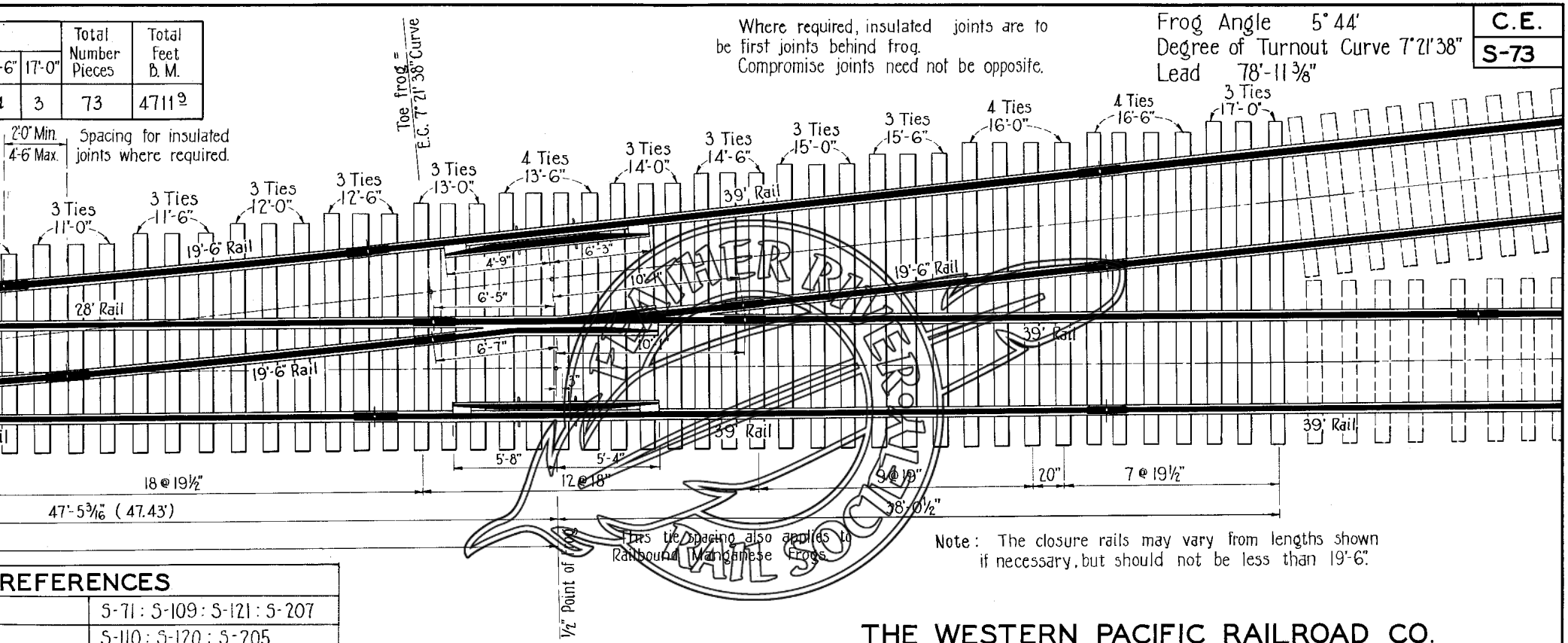
REFERE
16'-6" Split Switch
No. 10 Spring Rail Frog
No. 10 R.B. Mang. Frog
11'-0" Guard Rail
13'-0" Guard Rail
Connecting Rods
Application of Switch Stands

		Total Number Pieces	Total Feet B. M.
-6"	17'-0"		
4	3	73	4711 9/12

Where required, insulated joints are to be first joints behind frog.
Compromise joints need not be opposite.

Frog Angle 5° 44'
Degree of Turnout Curve 7° 21' 38"
Lead 78'-11 3/8"

C.E.
S-73



This tie spacing also applies to Railbound Manganese Frogs.

Note: The closure rails may vary from lengths shown if necessary, but should not be less than 19'-6".

REFERENCES	
	S-71 : S-109 : S-121 : S-207
	S-110 : S-120 : S-205
	S-136 : S-137
	S-70 : S-108 : S-119
	S-204
	S-141
Sands	S-29

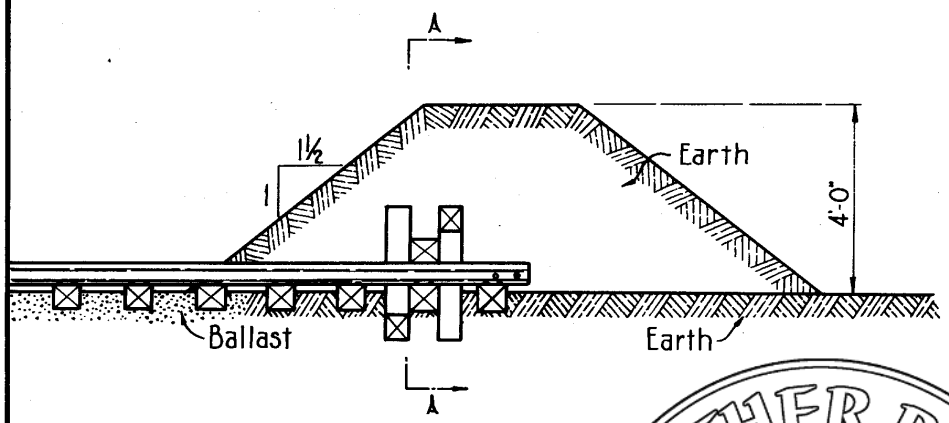
Approved: Frank A. Woodfield
Chief Engineer

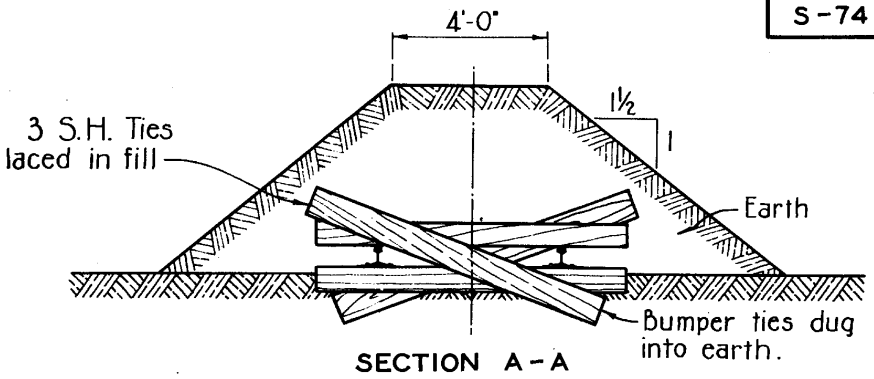
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
№ 10 TURNOUT COMPLETE
SPRING RAIL AND R. B. MANG. FROGS
RAIL 100 LBS. AND HEAVIER
39 FOOT RAILS

No Scale

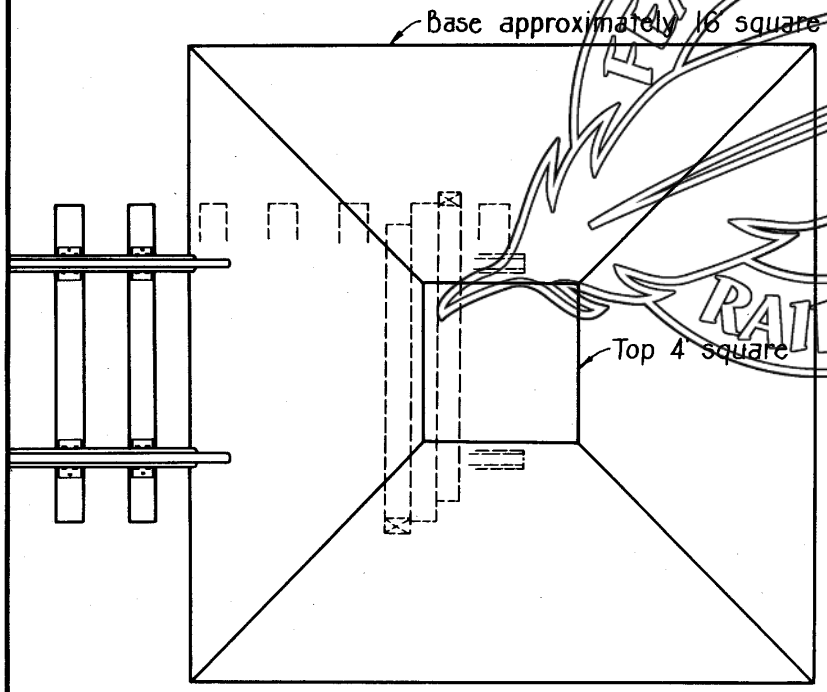
Adopted: Jan. 21, 1955
Revised: Nov. 1, 1963

C. E.
S-74





SECTION A-A



NOTES

Earth for bumper to be clean and free from any rubbish.

Top and sides of mound to be sodded where possible, otherwise top and sides to be compacted and neatly dressed.

Approved: Frank R. Wood
Chief Engineer

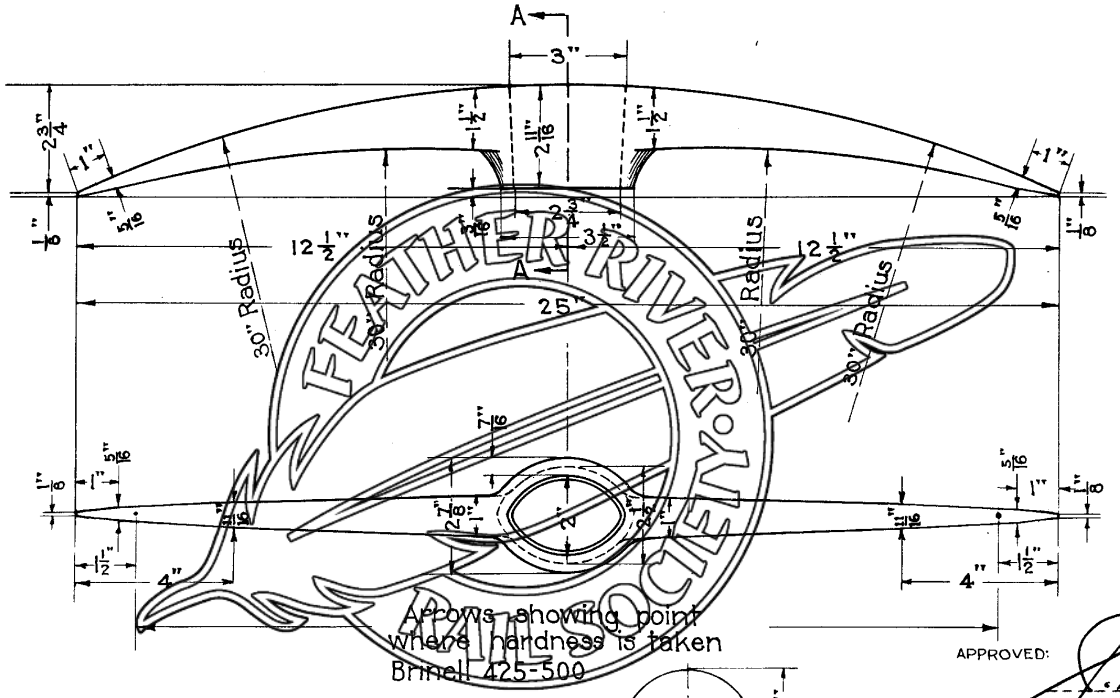
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

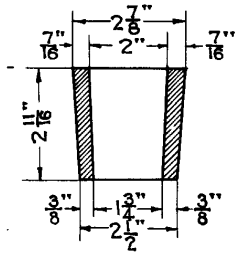
EARTH BUMPER

NO SCALE

ADOPTED: Nov. 15, 1959

C.E.
S-75



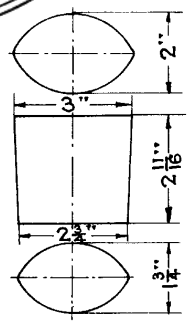


SECTION A-A

Approximate Weight - 7 lbs.

Name of Manufacturer and Purchaser's initials to be stamped on each pick.

Note–
Old picks to be re-steeled when worn down to 19" over all.



DETAIL OF EYE

APPROVED: J. W. Williams
CHIEF ENGINEER.

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
CLAY PICK

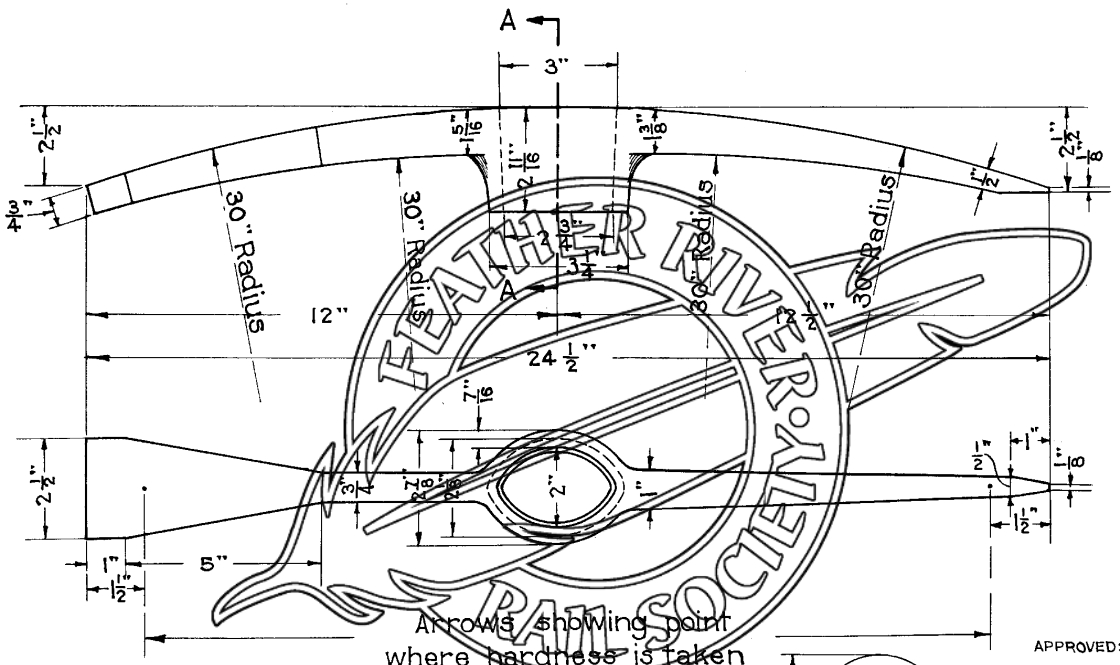
SCALE: 3" = 1'

ADOPTED MARCH, 1930.
REVISED MAY 15, 1930.
REVISED JUNE 24, 1930.
REVISED FEB. 16, 1932.
REVISED APR. 28, 1937.

For full scale detail see drawing C.E. 9-27

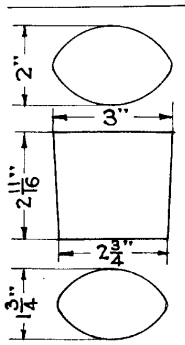
Chisel Point Eliminated May 15, 1930

C. E.
S-76

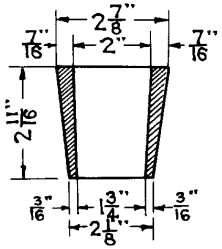


Arrows showing point where hardness is taken Brinell 425-500

Name of Manufacturer and Purchaser's initials to be stamped on each pick.



DETAIL OF EYE



SECTION A-A

Approximate Weight = 8 lbs.

APPROVED: J. W. Williams
CHIEF ENGINEER.

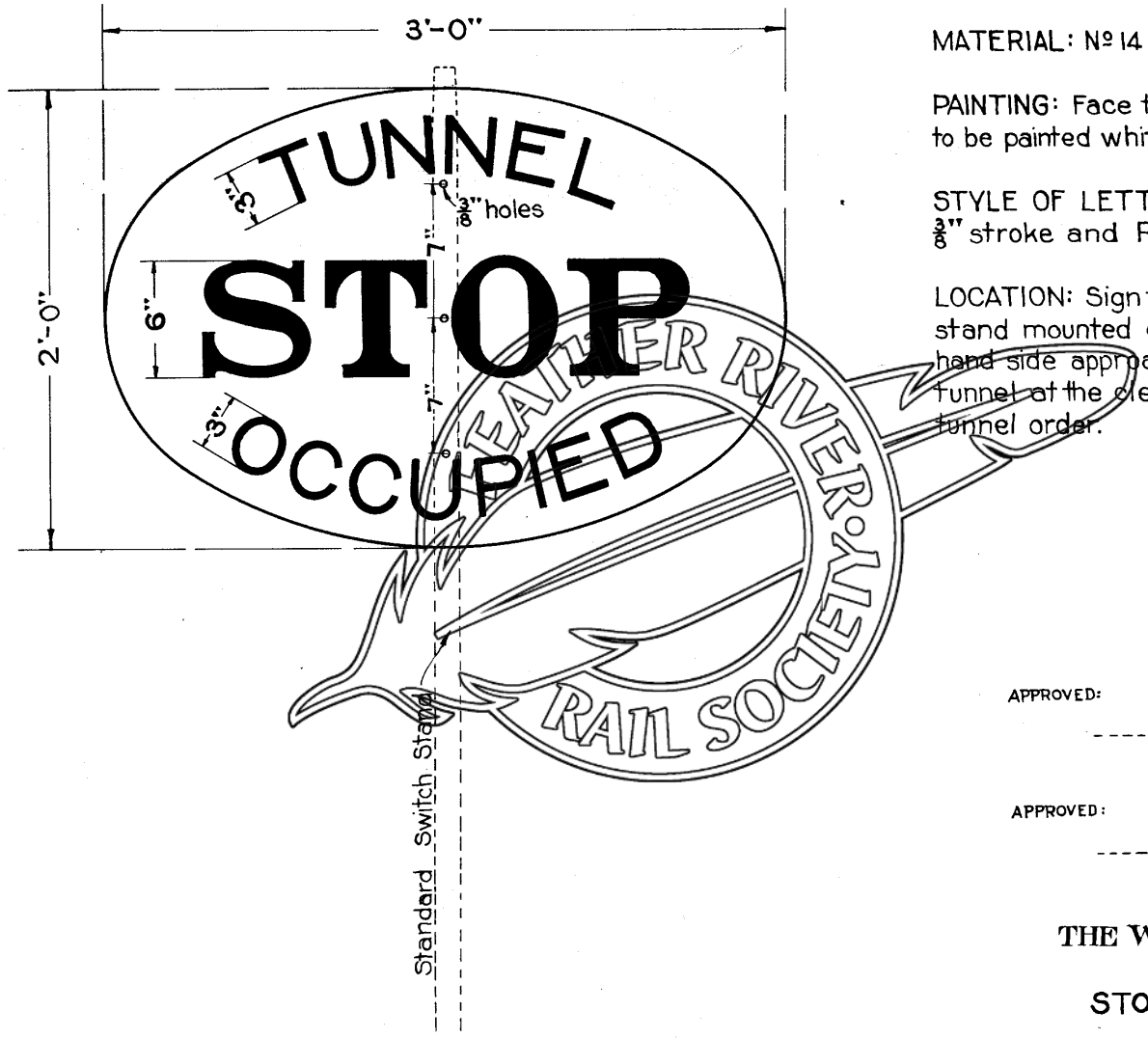
APPROVED: E. Erwin Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
TAMPING PICK
A.R.E.A. PLAN Nº 2

SCALE: 3" = 1'

ADOPTED MARCH, 1930.
REVISED MARCH, 1936

C.E.
S-77



MATERIAL: Nº 14 Gauge (B.W.G.) Sheet Iron

PAINTING: Face to be painted red. Letters to be painted white.

STYLE OF LETTERS: Gothic 3" high with $\frac{3}{8}$" stroke and Roman 6" high as indicated.

LOCATION: Sign to be put on a standard switch stand mounted on a headblock timber on right-hand side approaching tunnel at each end of tunnel at the clearance distance specified in tunnel order.

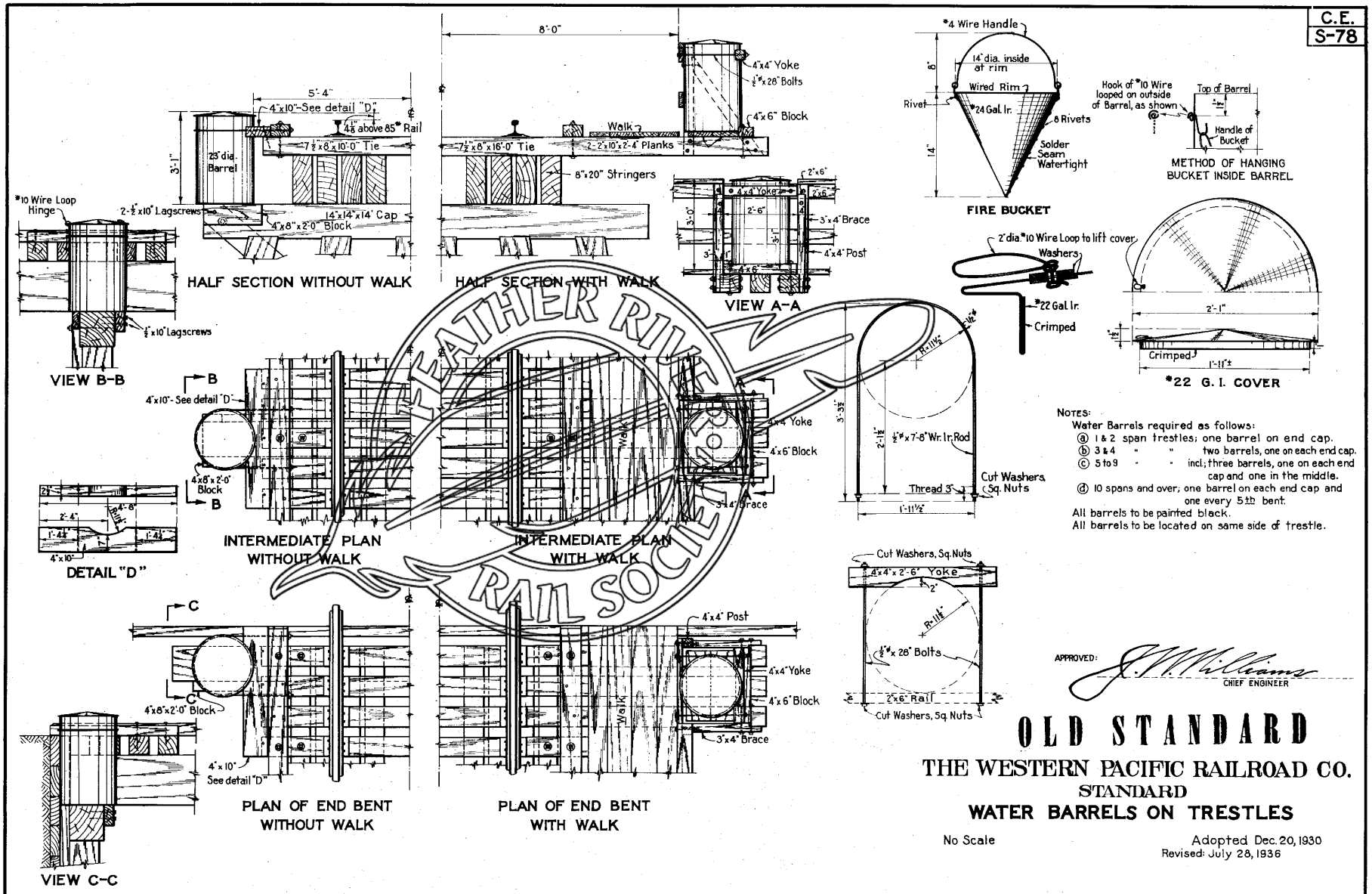
APPROVED: L. Phillips
CHIEF ENGINEER

APPROVED: E W Mason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
STOP TUNNEL OCCUPIED SIGN

SCALE: $1\frac{1}{2}$"=1'-0" ADOPTED DEC. 16, 1942

C.E.
S-78



NOTES:
Water Barrels required as follows:
- (a) 1 & 2 span trestles; one barrel on end cap.
- (b) 3 & 4 " " two barrels, one on each end cap.
- (c) 5 to 9 " " incl; three barrels, one on each end cap and one in the middle.
- (d) 10 spans and over; one barrel on each end cap and one every 5th bent.

All barrels to be painted black.
All barrels to be located on same side of trestle.

APPROVED: J. M. Williams
CHIEF ENGINEER

OLD STANDARD

THE WESTERN PACIFIC RAILROAD CO.

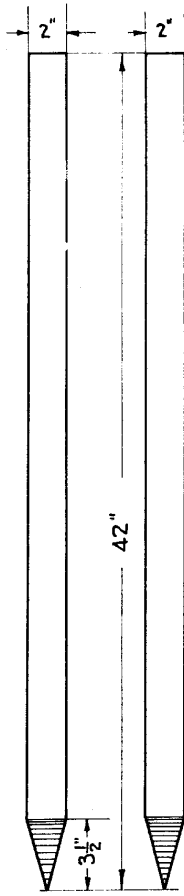
STANDARD

WATER BARRELS ON TRESTLES

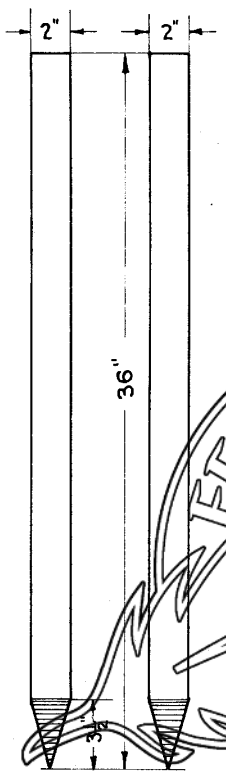
No Scale

Adopted Dec. 20, 1930
Revised: July 28, 1936

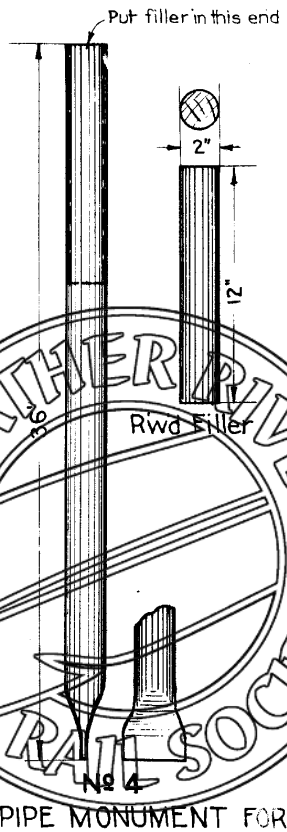
C.E.
S-79



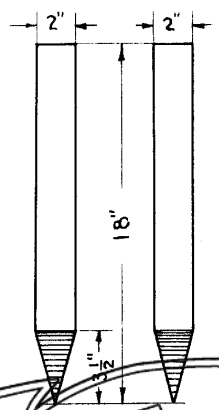
№ 6
GRADE STAKES
2"x2"x42" Rough
Material: Pine
To be securely tied
in bundles of 25
№ 6 furnished in 48" lengths
when specified in requisition.



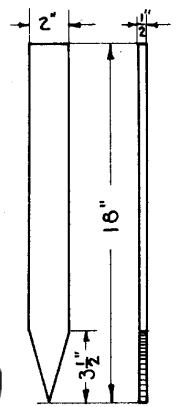
№ 5
GRADE STAKES
2"x2"x36" Rough
Material: Pine
To be securely tied
in bundles of 25



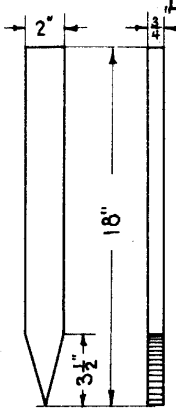
№ 4
PIPE MONUMENT FOR CURVE POINTS
Material: Old Boiler flue
Filler, Redwood
Redwood filler to be put
in pipe and end of pipe flattened
as indicated unless otherwise
specified in requisition.



№ 3
HUBS
2"x2"x18" Rough
Material: Pine
To be securely tied
in bundles of 25



№ 2
MARKERS
1"x2"x18" S2S
Material: Pine
To be securely tied
in bundles of 100



№ 1
MARKERS
1"x2"x18" S2S
Material: Pine
To be securely tied
in bundles of 50

APPROVED: J. W. Williams
CHIEF ENGINEER

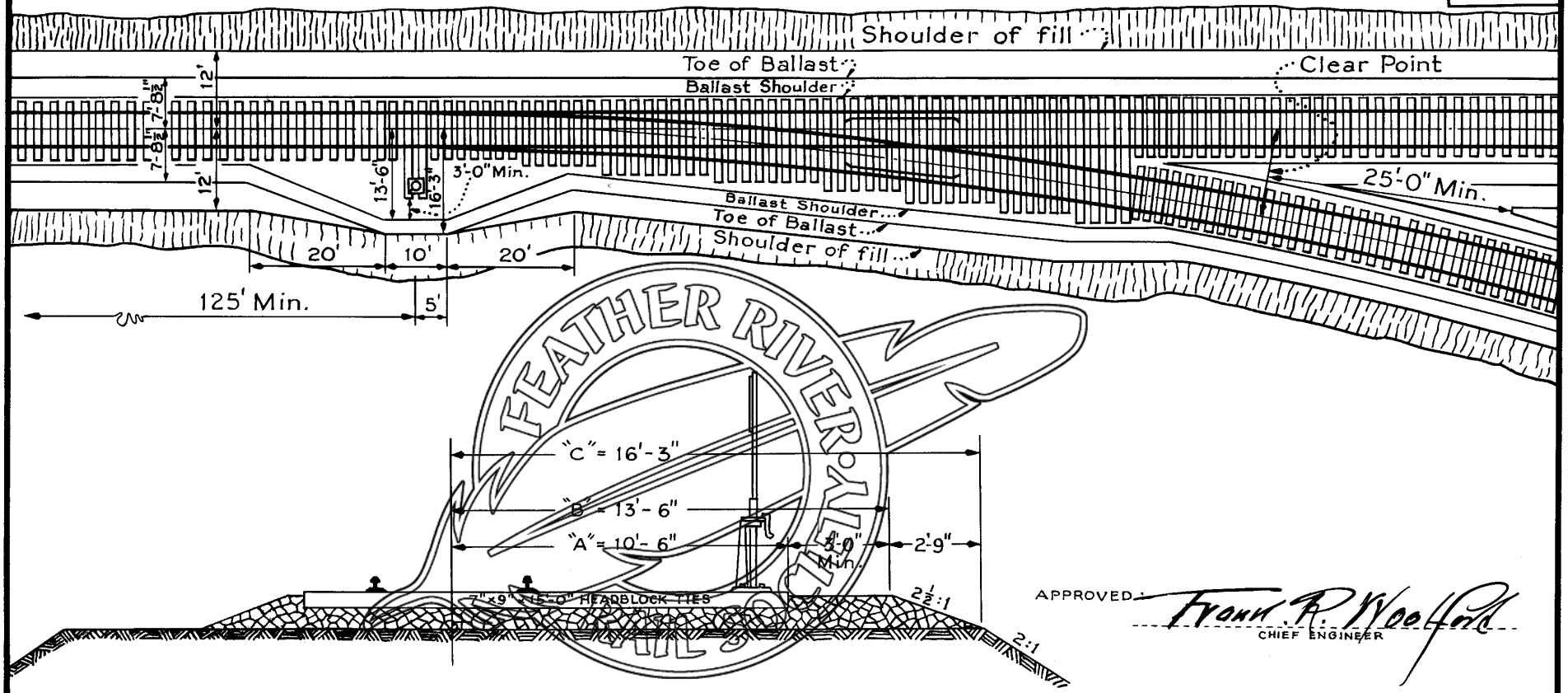
APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD
STAKES AND MONUMENTS FOR SURVEYS

SCALE: 1" = 1½" ADOPTED APRIL 4, 1931.

C. E.
S-80



APPROVED: Frank R. Woolford
CHIEF ENGINEER

Notes:

Ballast material to be used to a depth of 8" under tie.

Slope of Ballast and shoulder of fill to conform to Standard Ballast Section and Standard Roadbed Section C.E. S-41 & C.E. S-42

In territory where switch is power operated 9"x 10"x 11'-6" Headblock ties will be used. Distance "A" will be 7'-0", Distance "B" will be 10'-0" and Distance "C" will be 12'-9".

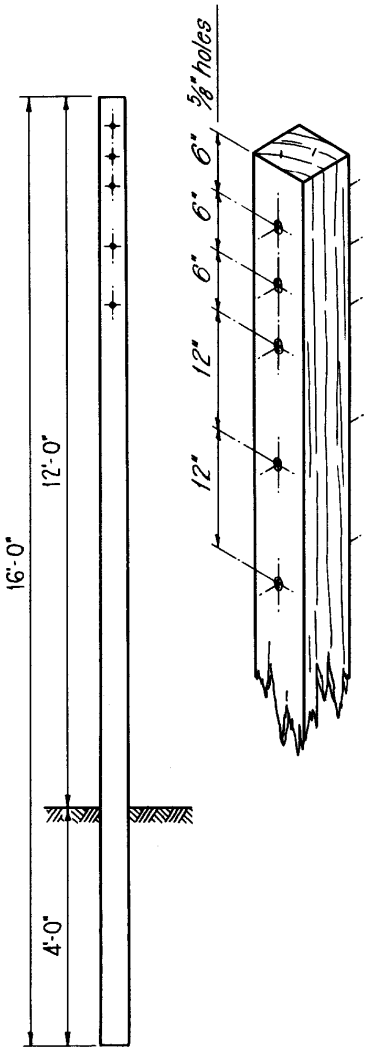
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

HEADBLOCK MOUND
MAIN LINE & BRANCH LINES

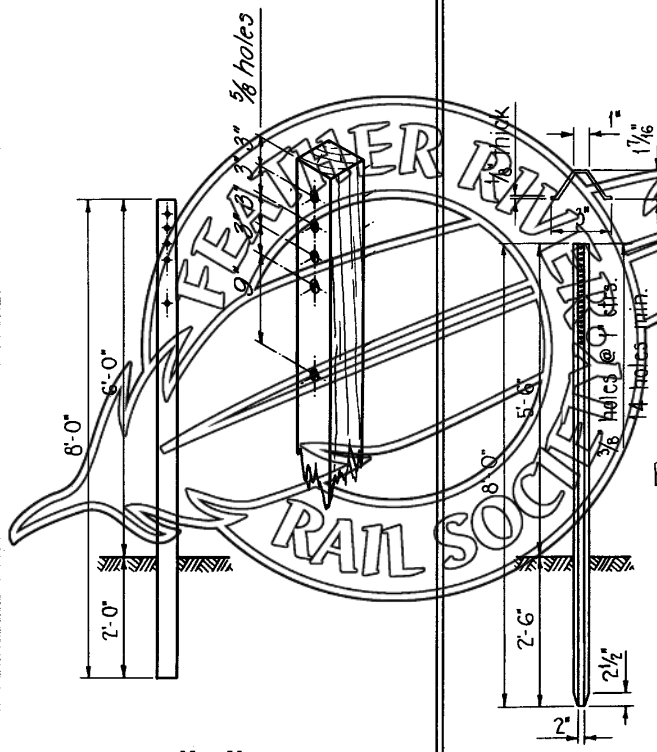
NO SCALE

ADOPTED: Dec. 1, 1963

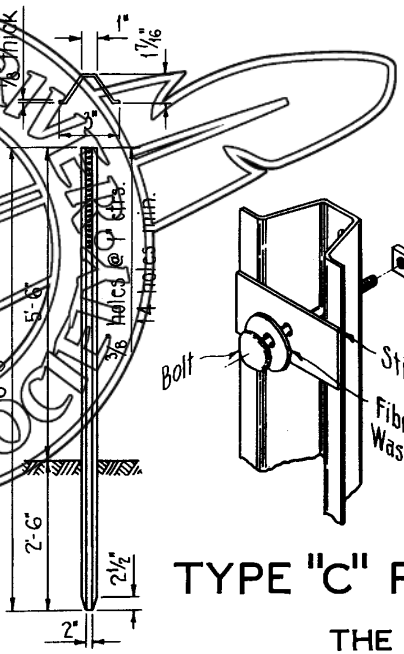
C. E.
S-82



TYPE "A" POST
6" x 6"



TYPE "B" POST
4" x 4"



TYPE "C" POST

NOTES

When ordering posts specify type and Standard Number.

Wood posts to be creosoted after drilling.

Steel posts to be galvanized.

When "Steel U Post Mounting Set" is requisitioned store will furnish 2-1½" x 3" x ⅛" thick Stiffener Plates, 2-5/16" x 2¼" Special Bolts with Nuts, all galvanized, and 2 Fibre Washers.

Approved: Frank A. Woolford
Chief Engineer

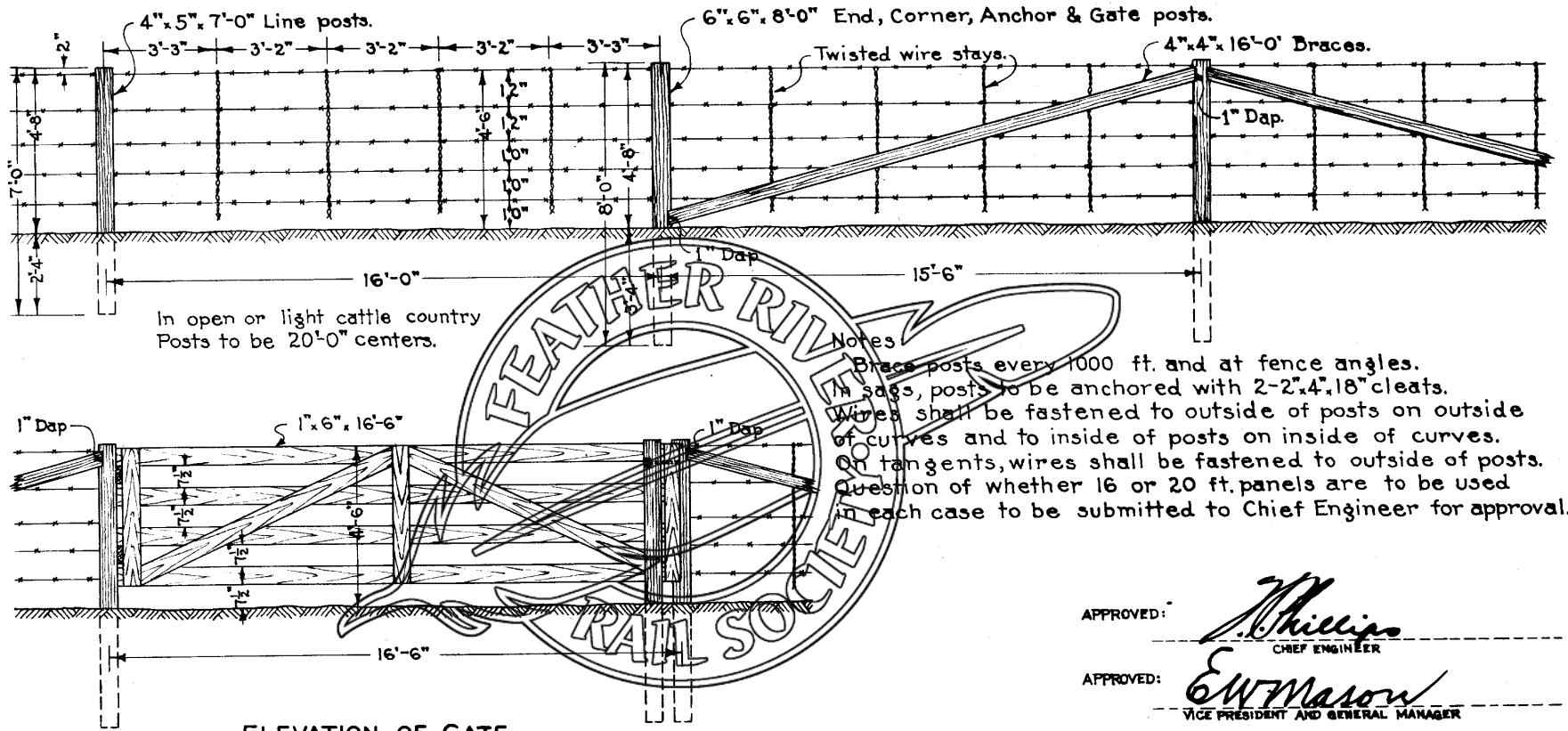
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

SIGN POSTS

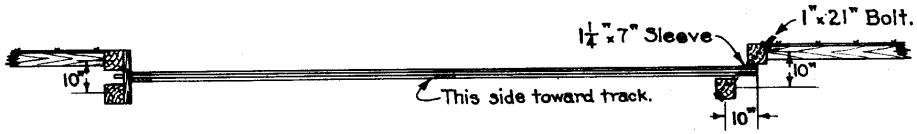
NO SCALE

ADOPTED: May 15, 1958

C.F.
S-83



ELEVATION OF GATE



PLAN OF GATE

Notes
Brace posts every 1000 ft. and at fence angles.
In sags, posts to be anchored with 2-2"x4"x18" cleats.
Wires shall be fastened to outside of posts on outside of curves and to inside of posts on inside of curves.
On tangents, wires shall be fastened to outside of posts.
Question of whether 16 or 20 ft. panels are to be used in each case to be submitted to Chief Engineer for approval.

APPROVED: J. Phillips
CHIEF ENGINEER

APPROVED: E W Mason
VICE PRESIDENT AND GENERAL MANAGER

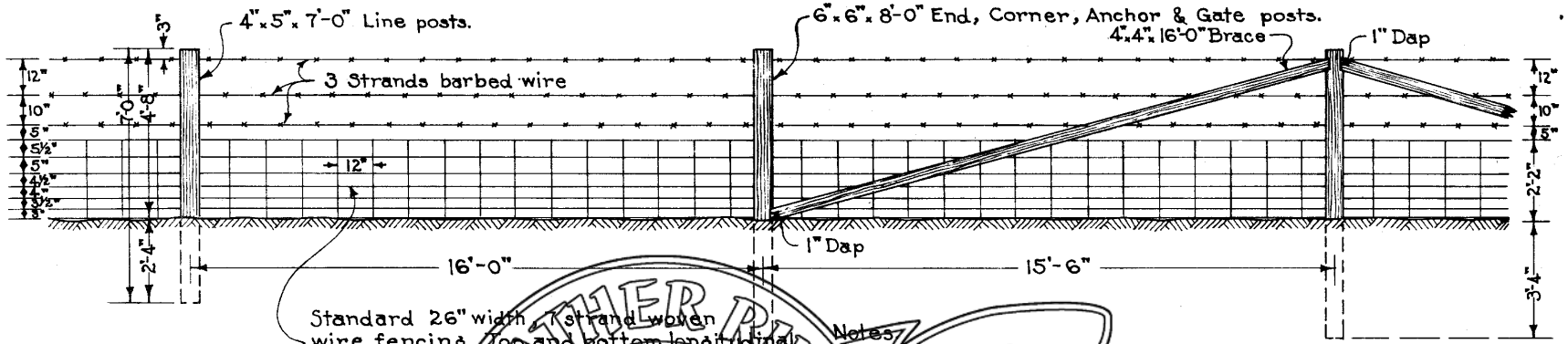
THE WESTERN PACIFIC RAILROAD CO
STANDARD

BARBED WIRE RIGHT-OF-WAY FENCE AND FARM GATE.

Scale: ¼"=1'-0"

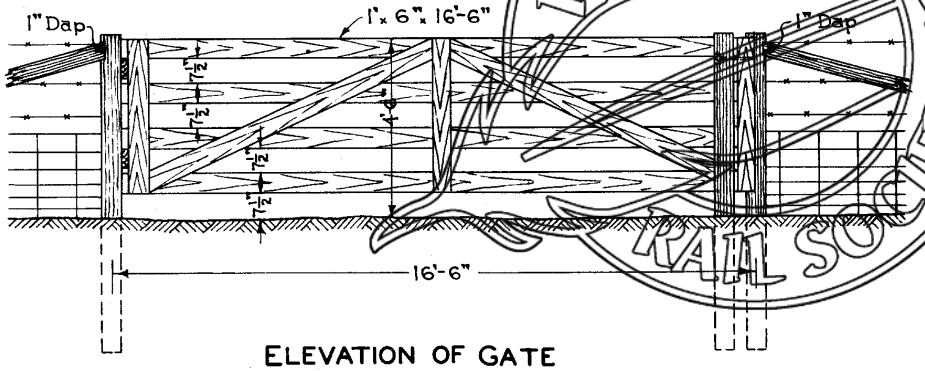
Adopted March, 1944.

C.E.
S-83A

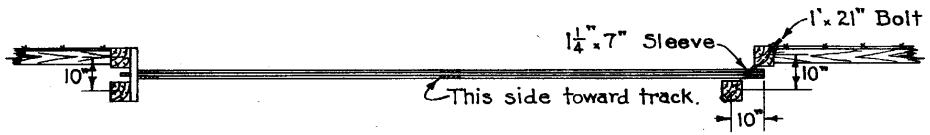


Standard 26" width, 7 strand woven wire fencing. Top and bottom longitudinal wire #9 gage, intermediate and stay wires #11 gage. Stay wires 12" centers.

Notes:
Brace posts every 1000 ft. and at fence angles.
In sags, posts to be anchored with 2-2"x4"x18" cleats.
Wires shall be fastened to outside of posts on outside of curves and to inside of posts on inside of curves.
On tangents, wires shall be fastened to outside of posts.



ELEVATION OF GATE



PLAN OF GATE

APPROVED: _____ CHIEF ENGINEER

APPROVED: _____ VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
WOVEN WIRE RIGHT-OF-WAY FENCE AND FARM GATE.

Scale: ¼"=1'-0" Adopted. March, 1944.

TO REQUISITION: Requisition should state number of each type plank required and weight of rail in addition to Standard Number.

Types "A", "B", "C" & "D" planks require 11 Dome Head Drive Spikes each. Type "E" planks require 6 Dome Head Drive Spikes each. Requisition should state total number of Dome Head Drive Spikes required.

C.E.
S-84

NOTES

See Drawing № S-87 for Crossing Plank details.

All planks, as delivered from store, to be 16'-0" long except Type "E", which are 8'-0" long.

Planks shall extend at least one foot beyond edge of road on all crossings, measured along plank. Planks to be shortened in field to avoid excessive projection beyond edge of road.

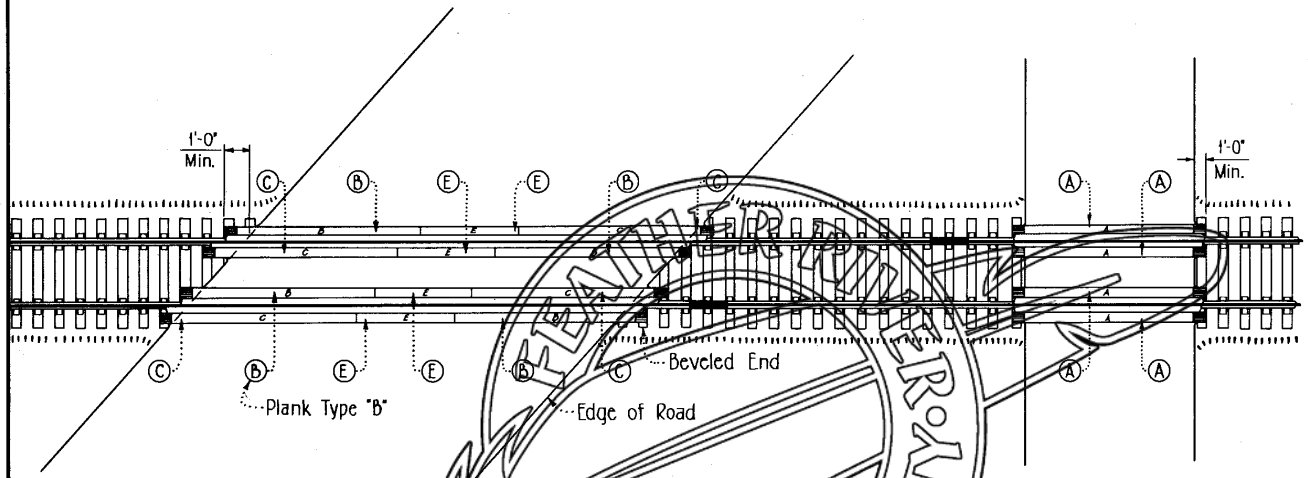
Tie spacing through crossing to be 19¼" or approximately 24 ties per 39 foot rail. Where necessary, ties will be respaced to match drilling.

Ties under crossing planks which require more than a minor amount of adzing will be replaced when installing crossing.

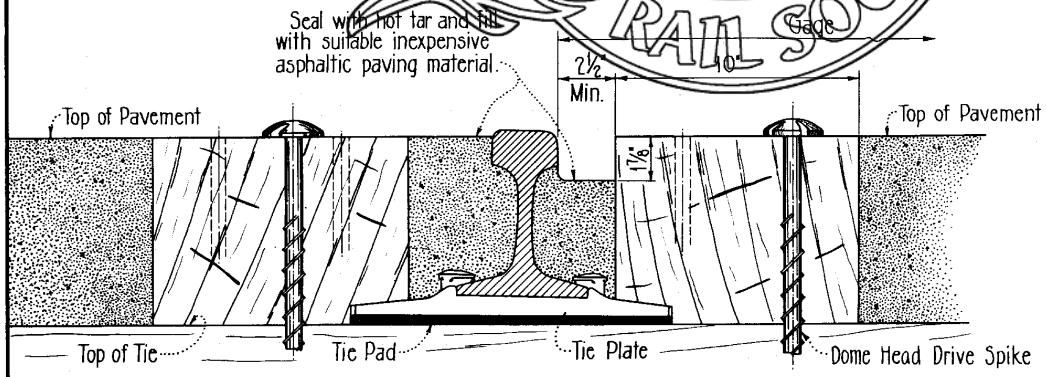
Asphaltic paving material shall be as per current instructions.

Signal bootleg connections must not be closer than two tie spaces to crossing plank.

Unless otherwise directed by the Chief Engineer, welded rail, tie pads and largest plates available for rail weight will be used in all crossings.



TYPICAL INSTALLATIONS



Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

ROAD CROSSING

PAVED CENTER - 10" PLANKS

FOR USE ON TANGENT TRACK AND CURVES UP TO 8°

NO SCALE

ADOPTED: May 15, 1958
Revised: Dec. 1, 1968

TO REQUISITION: Requisition should state number of each type plank required and weight of rail in addition to Standard Number.

Types "A", "B", "C", "D", "F", "G" & "H" planks require 11 Dome Head Drive Spikes. each. Types "E" & "J" planks require 6 Dome Head Drive Spikes. Requisition should state total number of Dome Head Drive Spikes required.

C.E.
S-85

NOTES

Plank center crossings will not be built or maintained without the approval of the Chief Engineer.

See Drawing Nº S-87 for Crossing Plank details.

All planks, as delivered from store, to be 16'-0" long except Types "E" & "J" which are 8'-0" long.

Planks shall extend at least one foot beyond edge of road on all crossings, measured along plank. Planks to be shortened in field to avoid excessive projection beyond edge of road.

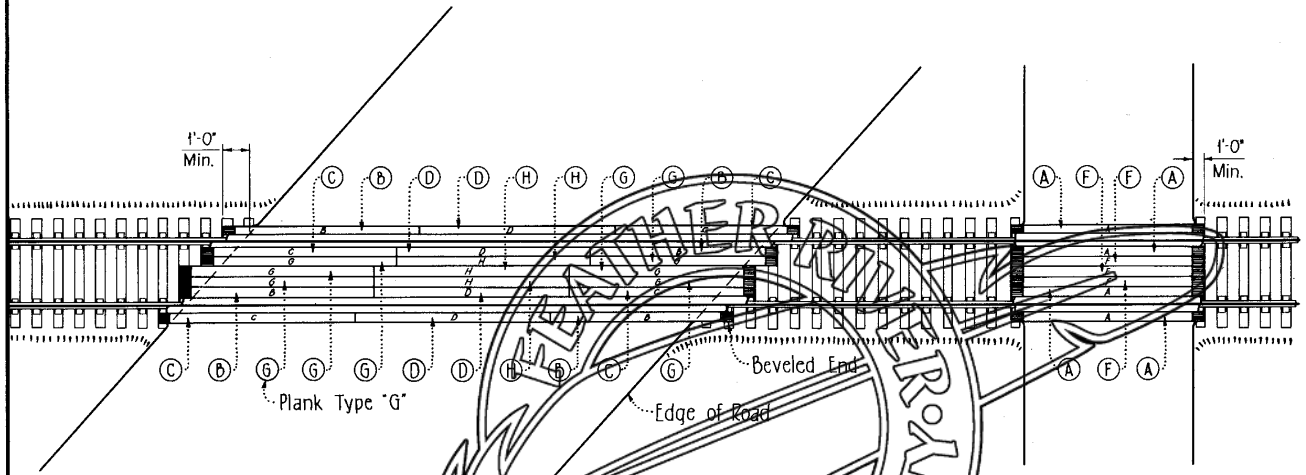
Tie spacing through crossing to be 19¼" or approximately 24 ties per 39 foot rail. Where necessary, ties will be respaced to match drilling.

Ties under crossing planks which require more than a minor amount of adzing will be replaced when installing crossing.

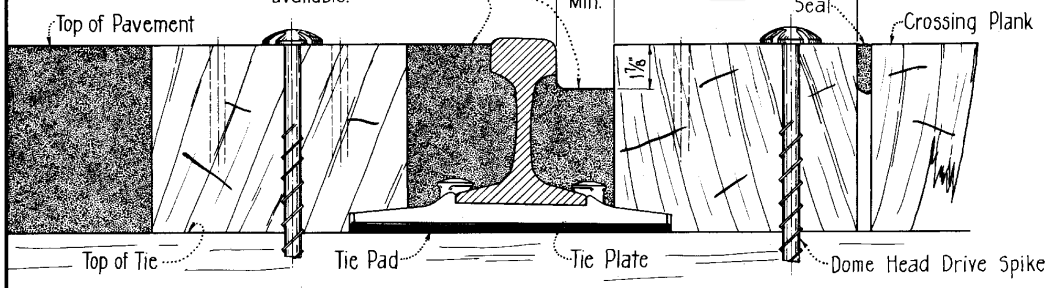
Asphaltic paving material shall be as per current instructions.

Signal bootleg connections must not be closer than two tie spaces to crossing plank.

Unless otherwise directed by the Chief Engineer, welded rail, tie pads and largest plates available for rail weight will be used in all crossings.



TYPICAL INSTALLATIONS



Approved: Frank R. Wood
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

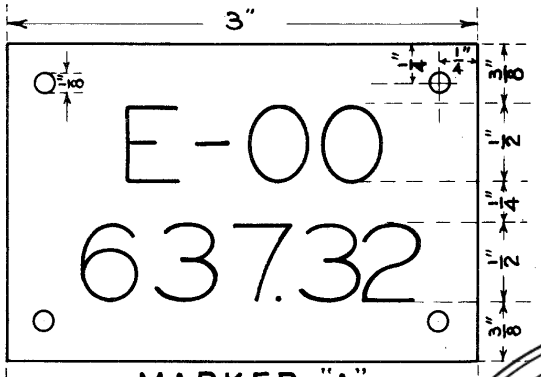
ROAD CROSSING

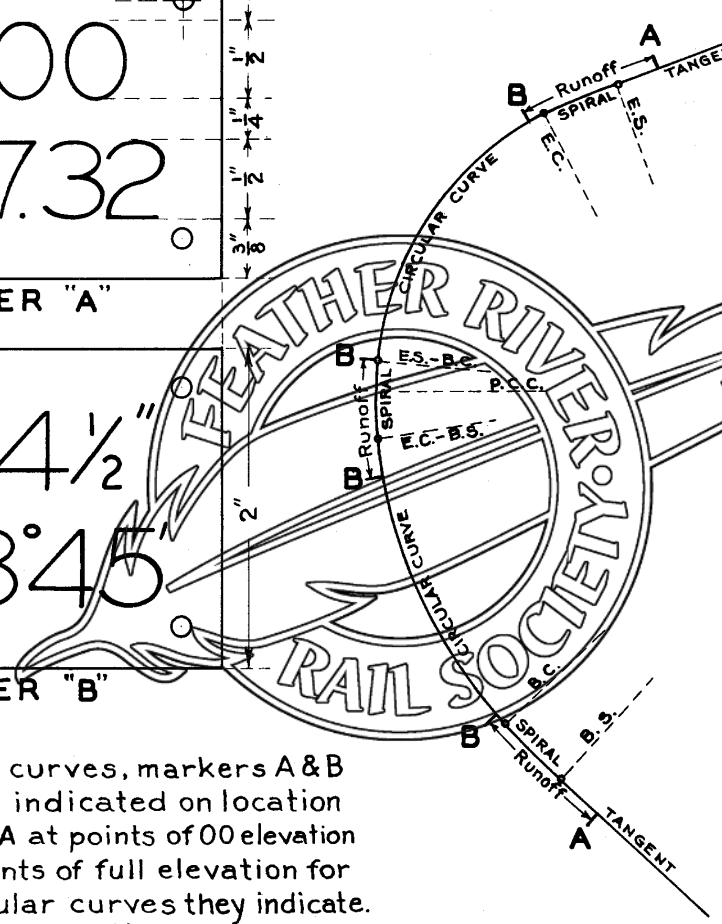
PLANK CENTER - 10" PLANKS
FOR USE ON TANGENT TRACK AND CURVES UP TO 8°

NO SCALE

ADOPTED: May 15, 1958
Revised: Dec. 1, 1968

C. E.
S-86





LOCATION OF MARKERS ON COMPOUND CURVE
NO SCALE

Markers shall be made of #18 B&S gage, Aluminum. Letters shall be stamped with dies having clean, sharp faces. Markers shall be fastened to tie, one foot inside of North rail, with four 6d aluminum nails.

APPROVED J. W. Williams
CHIEF ENGINEER

APPROVED E. Vreeland
VICE PRESIDENT & GENERAL MANAGER

Note:- On compound curves, markers A & B shall be placed as indicated on location sketch, i.e., markers A at points of 00 elevation and markers B at points of full elevation for the respective circular curves they indicate.

Curves are numbered at the B.S. on the west or San Francisco end and the numbers indicate the mile post at that point. Each curve is assigned one number regardless of whether the curve is single or compound.

THE WESTERN PACIFIC RAILROAD CO.

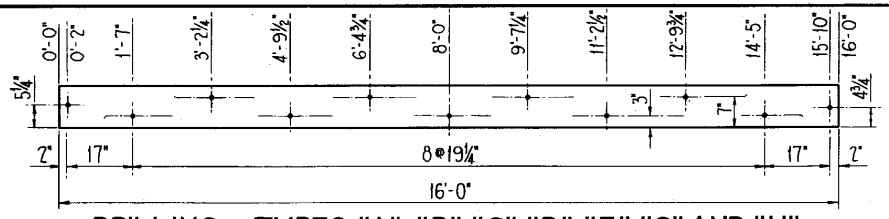
STANDARD

SUPERELEVATION MARKERS

NATURAL SCALE ADOPTED MAY, 3, 1932.

7-7-59: Enlarge 85 lb. tie plate slot to fit repunched 8"x11" plates.

C.E.
S-87



DRILLING - TYPES "A", "B", "C", "D", "F", "G" AND "H"

Type "F" plank same as type "A" plank without tie plate slot.

TYPE "A" PLANK

Type "G" plank same as type "B" plank without tie plate slot.

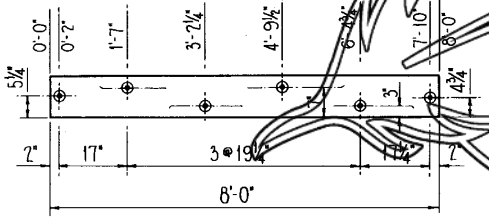
TYPE "B" PLANK

TYPE "C" PLANK

Type "H" plank same as type "D" plank without tie plate slot.

TYPE "D" PLANK

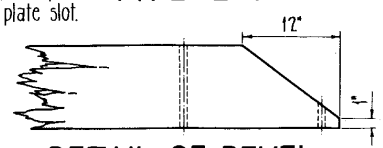
All drilled holes to be ⅝" dia.



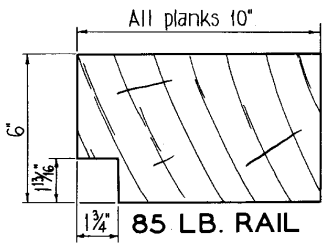
DRILLING - TYPES "E" AND "J"

Type "J" plank same as type "E" plank without tie plate slot.

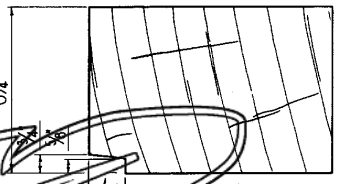
TYPE "E" PLANK



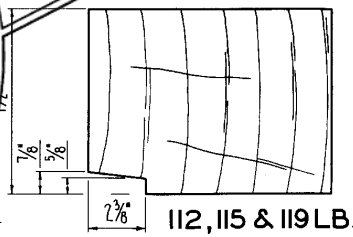
DETAIL OF BEVEL



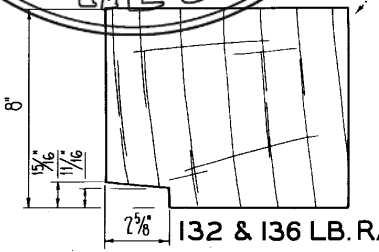
85 LB. RAIL



100 LB. RAIL



112, 115 & 119 LB. RAIL



132 & 136 LB. RAIL

NOTES

All planks to be framed accurately to dimensions shown.

Planks to be cedar or fir, straight and free from warp or twist.

Second-hand stringers or other second-hand timbers, properly framed, may be used provided wood is in sound condition.

Requisition should state number and type of each plank required and weight of rail in addition to Standard Number.

Timber treatment per current specifications.

When practicable, plank to be cut with grain vertical as shown.

Approved: Frank R. Wood
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

10" CROSSING PLANKS
FOR USE ON ROAD CROSSINGS

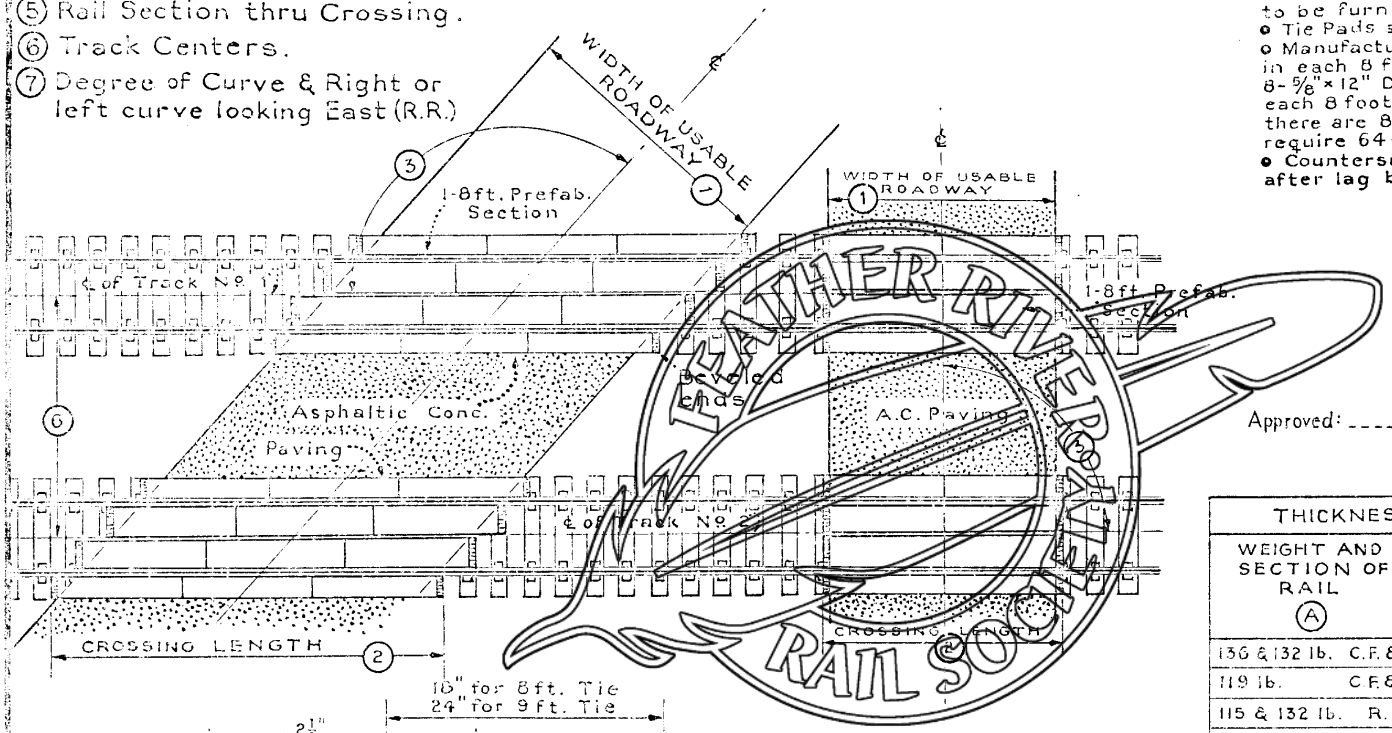
NO SCALE

ADOPTED: May 15, 1958
Revised: Dec. 1, 1968

C.E.
S-88

DESCRIPTION MUST STATE:

1. Width of Useable Roadway.
2. Crossing length (Multiple of 8' except by Approval of Chief Eng'r.)
3. Crossing Angle.
4. Size of ties; Length, height, width.
5. Rail Section thru Crossing.
6. Track Centers.
7. Degree of Curve & Right or left curve looking East (R.R.)



TYPICAL FRAMING SECTION

NOTES:

- Tie spacing through Crossing is to be 19¼ inches or approximately 24 ties per 39 foot rail. Where necessary, ties are to be respaced to match drilling.
- Ties under crossing which will require more than minor adzing are to be replaced.
- Ends of all end sections of crossing panels are to be furnished beveled.
- Tie Pads are to be used through all Crossings.
- Manufacturer is to predrill Eight Tiedown holes in each 8 foot section. W.P. Store is to furnish 8-5/8"×12" Drive Lag Bolts, Nuts and Washers for each 8 foot section. (i.e., in a 16ft. wide crossing there are 8-8ft. sections of varying widths, which require 64-Lag bolts).
- Countersunk holes are to be filled with mastic after lag bolts are in place.

Approved: _____
Chief Engineer

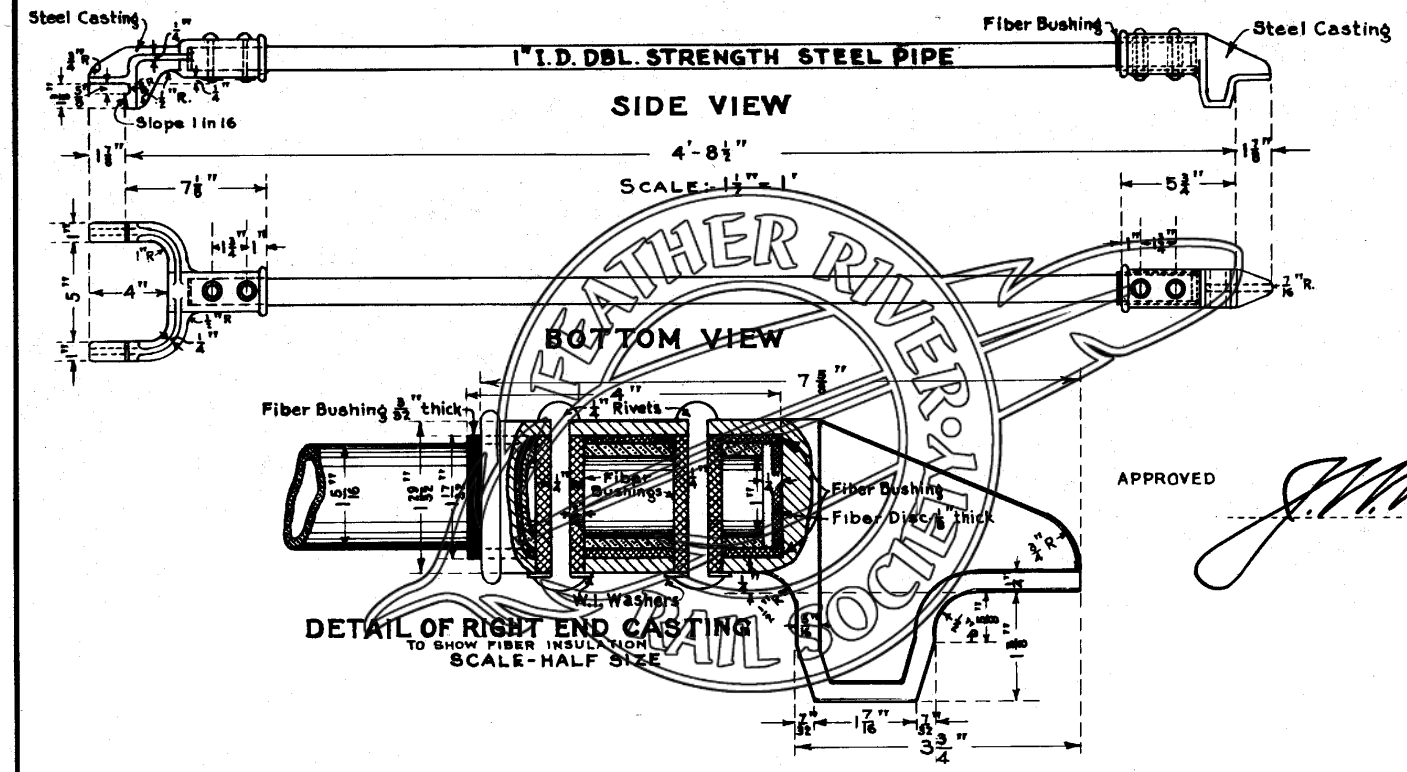
THICKNESS OF PREFABRICATED SECTION				
WEIGHT AND SECTION OF RAIL (A)	TIE PLATE			Thickness of Prefabricated SECTION (C)
	Thickness (B_1)	Outside Projection (B_2)	Inside Projection (B_3)	
136 & 132 lb. C.F.&I	7/8"	4 3/8"	3 7/8"	8¼"
119 lb. C.F.&I	7/8"	4 1/8"	3 5/16"	8"
115 & 132 lb. R.E.	3/4"	3 5/8"	2 7/16"	7½"
100 lb. R.E.	3/4"	3¼"	1½"	7"
85 lb. C.F.&I	5/8"	2⅛"	2⅛"	6"

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

PREFABRICATED-SECTIONALIZED HARDWOOD ROAD CROSSING

NO SCALE ADOPTED:

C. E.
S-89

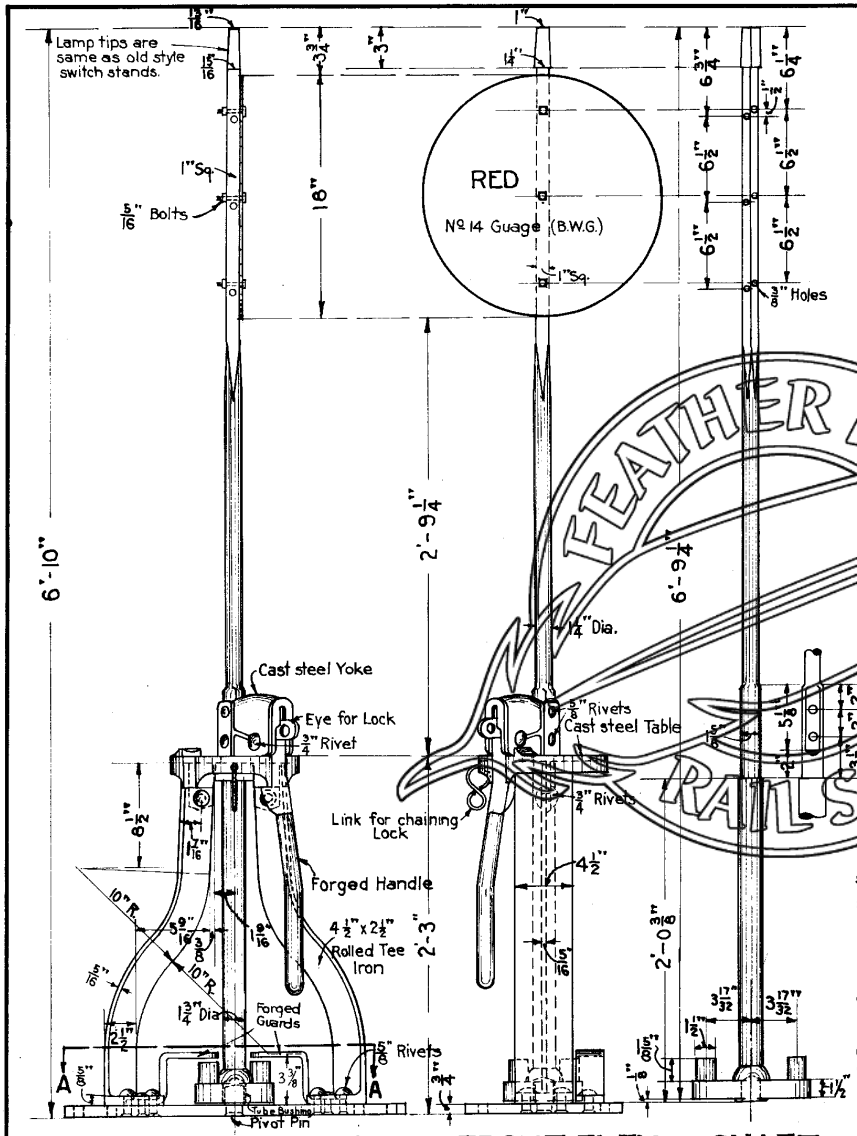


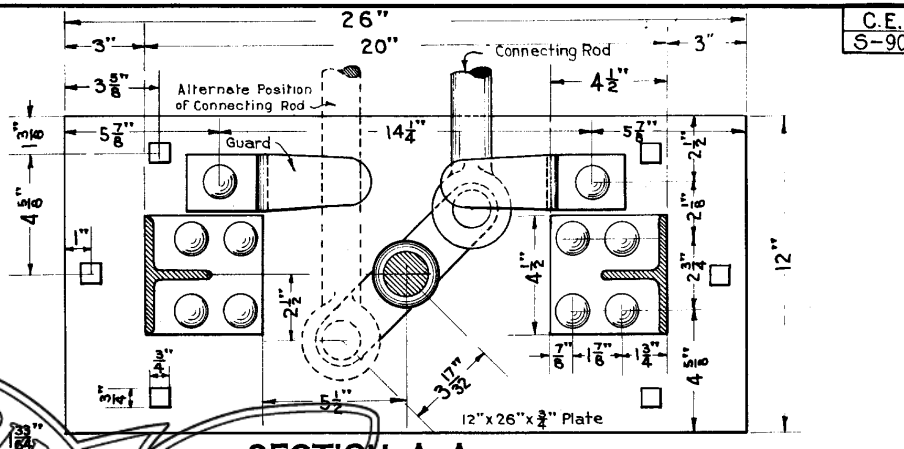
APPROVED J. W. Williams
CHIEF ENGINEER

Notes:-
Insulate by use of Fiber Bushings & Disc at one end.
Center Line to be marked on Gage.
No Tolerance allowed in Gage Distance.

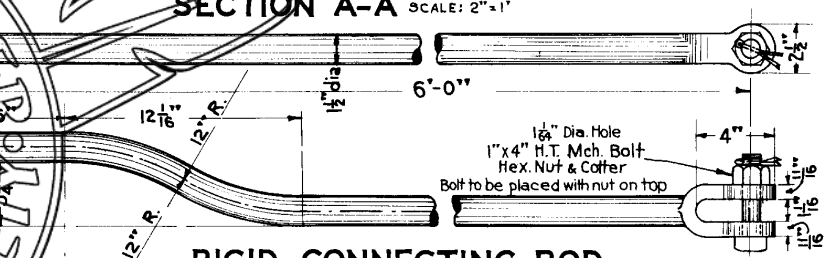
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
TRACK GAGE
A.R.E.A. PLAN NO. 20.
SCALES AS SHOWN ADOPTED MAR. 12, 1931.
REVISED SEPT. 14, 1955

C.E.
S-90





SECTION A-A SCALE: 2"=1'



RIGID CONNECTING ROD
SCALE: 1 1/2"=1'

Note:- For replacing old standard single head block type of switch stand with High Star Stand at main line 85lb turnouts, it will be necessary to order new 6'9" head rod (specify insulated if desired) with connecting end for 1" bolt, new 6'-0" connecting rod with jaw end connection and two 7"x9"x15'0" head block ties.

APPROVED: J. W. Williams
CHIEF ENGINEER

APPROVED: E. V. Mason
VICE PRESIDENT AND GENERAL MANAGER

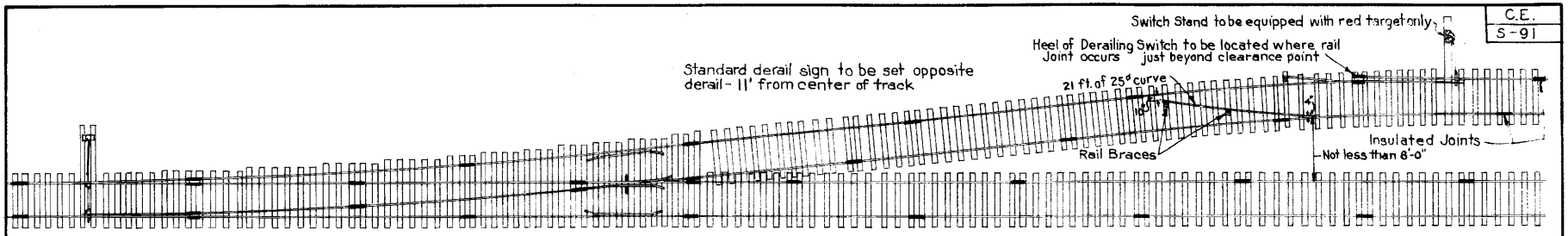
THE WESTERN PACIFIC RAILROAD CO.

STANDARD

NO. 6 HIGH STAR SWITCH STAND FOR DOUBLE HEAD BLOCK

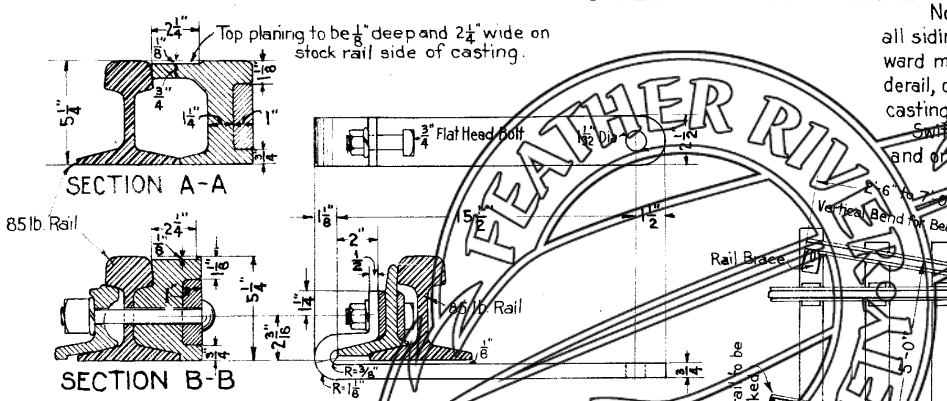
SCALES AS NOTED ADOPTED APRIL, 14, 1931.

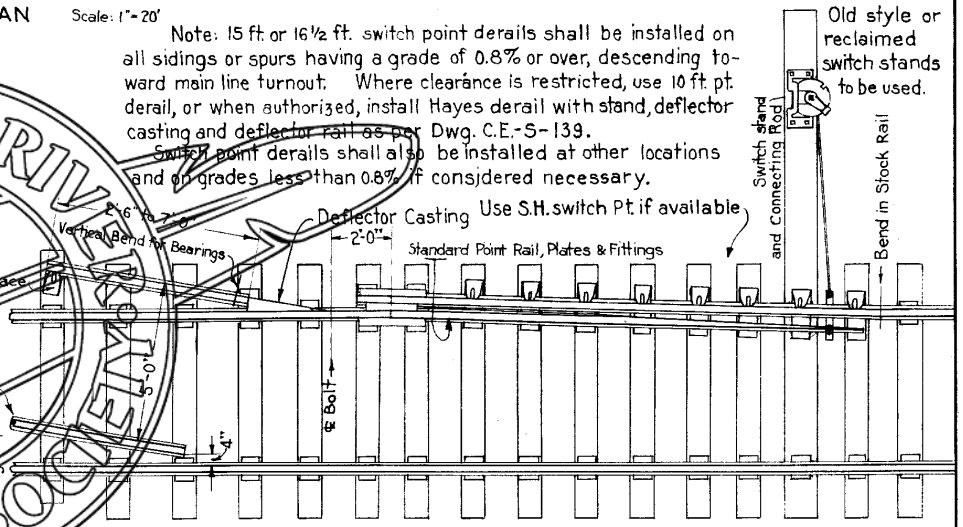
C.E.
S-91



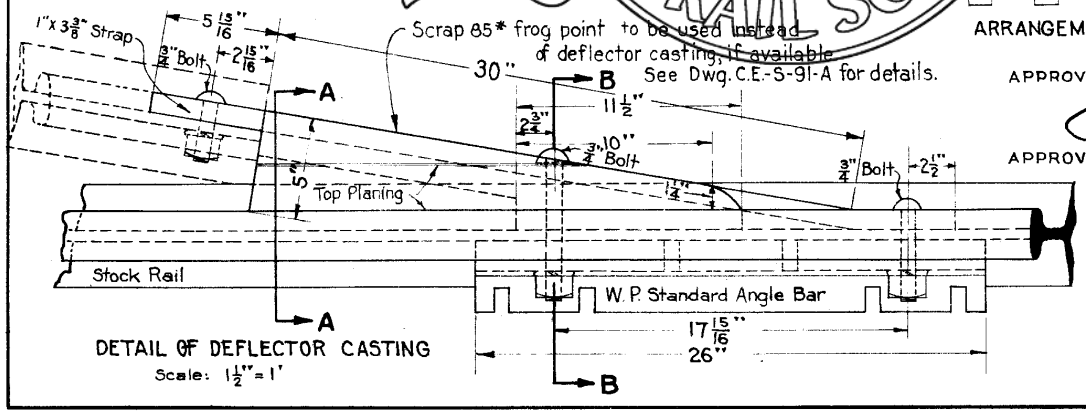
GENERAL PLAN Scale: 1" = 20'

Note: 15 ft or 16½ ft. switch point derails shall be installed on all sidings or spurs having a grade of 0.8% or over, descending toward main line turnout. Where clearance is restricted, use 10 ft. pt. derail, or when authorized, install Hayes derail with stand, deflector casting and deflector rail as per Dwg. C.E.-S-139.
Switch point derails shall also be installed at other locations and on grades less than 0.8% if considered necessary.





ARRANGEMENT OF POINT AND DEFLECTING RAILS Scale: 1" = 5'



DETAIL OF DEFLECTOR CASTING
Scale: 1½" = 1'

APPROVED J. M. Williams CHIEF ENGINEER

APPROVED E. W. Mason VICE-PRESIDENT & GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD SWITCH POINT DERAIL 85 LB. RAIL

SCALES AS NOTED ADOPTED APRIL 4, 1931.
Revised Oct. 23, 1936.

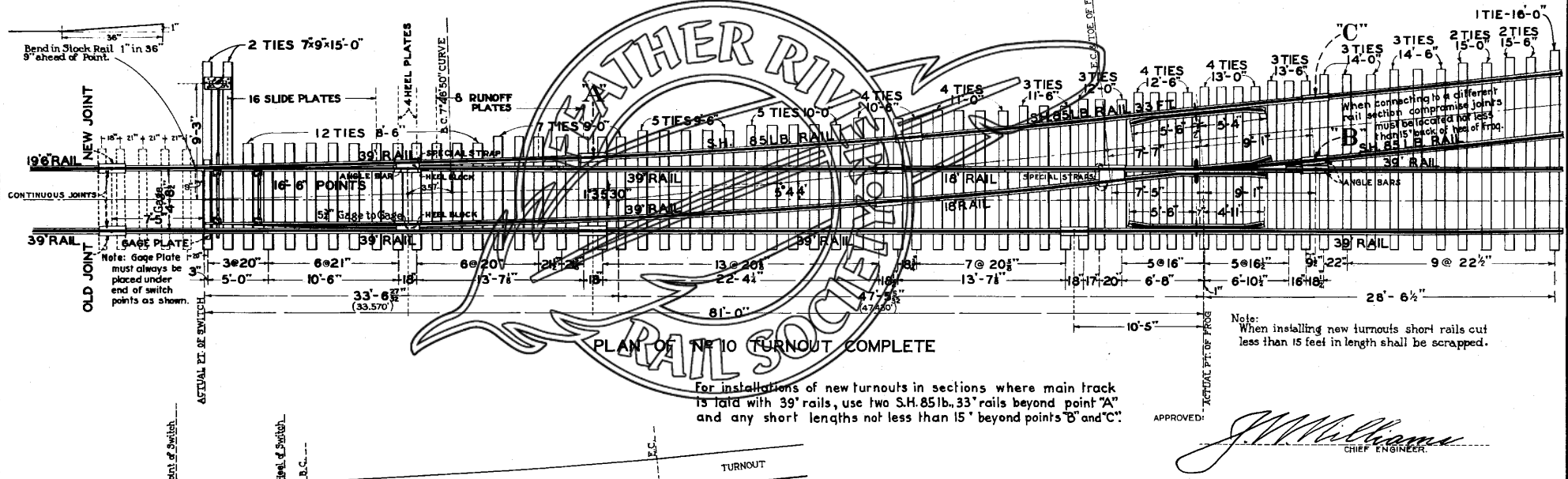
C.E.
S-92

LIST OF TIES

PIECES 7"X 9"															TOTAL NUMBER PIECES	TOTAL F.B.M.
8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0	15'-6	16'-0	
12	7	5	5	4	4	3	3	4	4	3	3	3	2	2	1	65	3801

FROG ANGLE ---------- 5° 44'
DEGREE OF TURNOUT CURVE---7°46' 50"
LEAD ---------- 81'-0"
CLOSURE RAILS ---------- 2-18' & 2-39'
ALTERNATE CLOSURE RAILS MAY BE USED AS FOLLOWS:- 2-26' & 2-31'
2-27' & 2-30'
2-28' & 2-29'
2-25' & 2-32'

Note: When alternate closure rails are used it will be necessary to change tie spacing to fit. However the number and length of ties must not be changed.

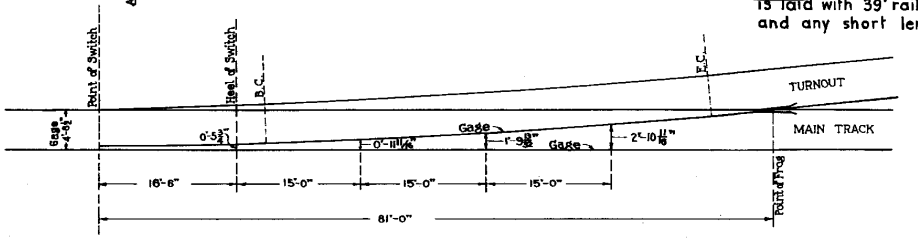


PLAN OF № 10 TURNOUT COMPLETE

For installations of new turnouts in sections where main track is laid with 39' rails, use two S.H. 85lb., 33' rails beyond point "A" and any short lengths not less than 15' beyond points "B" and "C".

Note:
When installing new turnouts short rails cut less than 15 feet in length shall be scrapped.

APPROVED:
J. M. Williams
CHIEF ENGINEER.



OFFSET DIAGRAM

Equivalent Curve
Δ - 5° 44'
R - 1128.595'
T - 56.514'
L - 112.933'
D - 5° 04' 40"

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

№ 10 TURNOUT COMPLETE

FOR USE WITH C.F.&I. SEC. 850 - 39' RAIL

NO SCALE

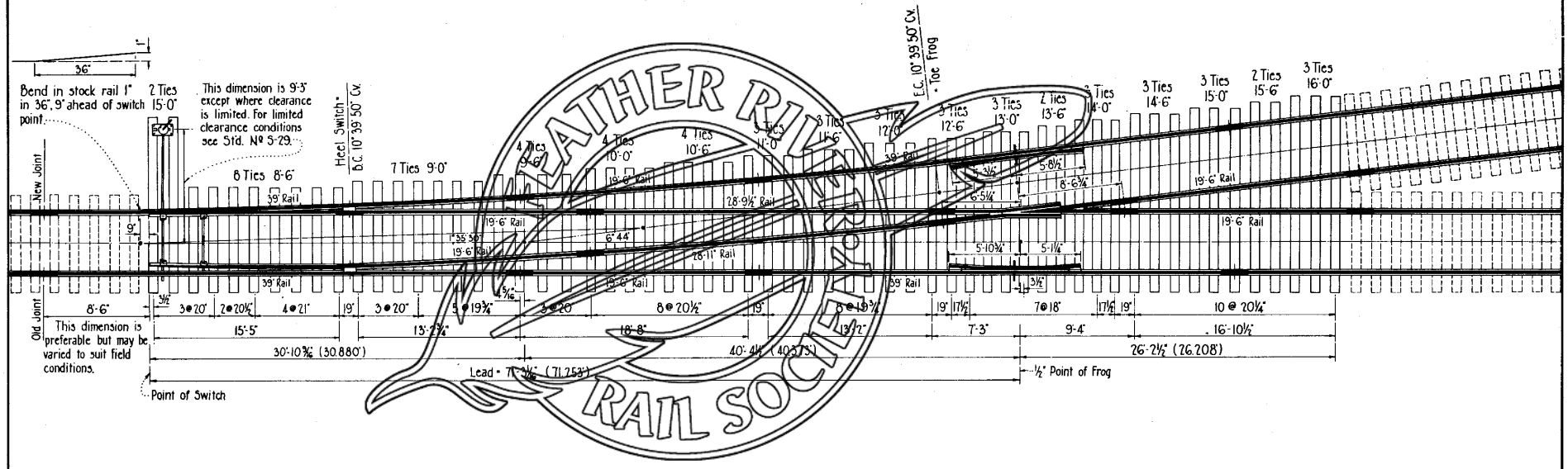
ADOPTED MARCH. 1, 1934
REVISED FEB. 25, 1938
REVISED DEC. 1, 1949. : AUG. 15, 1957

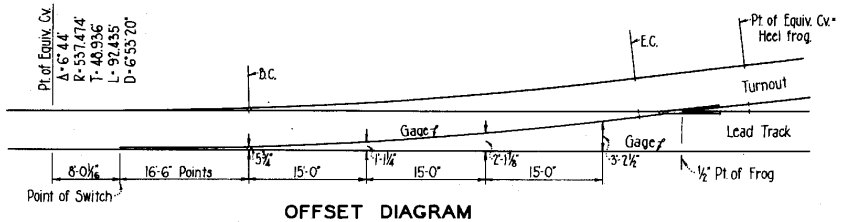
C.E.
S-93

FROG ANGLE 6°44'
DEGREE OF TURNOUT CURVE 10°39'50"
LEAD 71'-3⅛"
CLOSURE RAILS 2-19'-6", 1-28'-9½", 1-28'-11"
Other lengths may be used for closure rails but minimum length should be 15'0.

SWITCH TIE LIST

Pieces 7"×9"															Total Number Pieces	Total Feet B.M.
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
8	7	4	4	4	3	3	3	3	3	2	3	3	5	2	3	60	3661⅔





OFFSET DIAGRAM

REFERENCES	
16'-6" Split Switch	S-116A
Nº 8½ Bolted Rigid Frog	S-150
11'-0" 85 Lb. Guard Rail	S-30
Connecting Rods	S-141
Application of Switch Stands	S-79

Approved Frank A. Woolfolk
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 8½ TURNOUT COMPLETE
FOR USE WITH 85 LB., 39' RAIL
16'-6" POINTS, BOLTED RIGID FROG

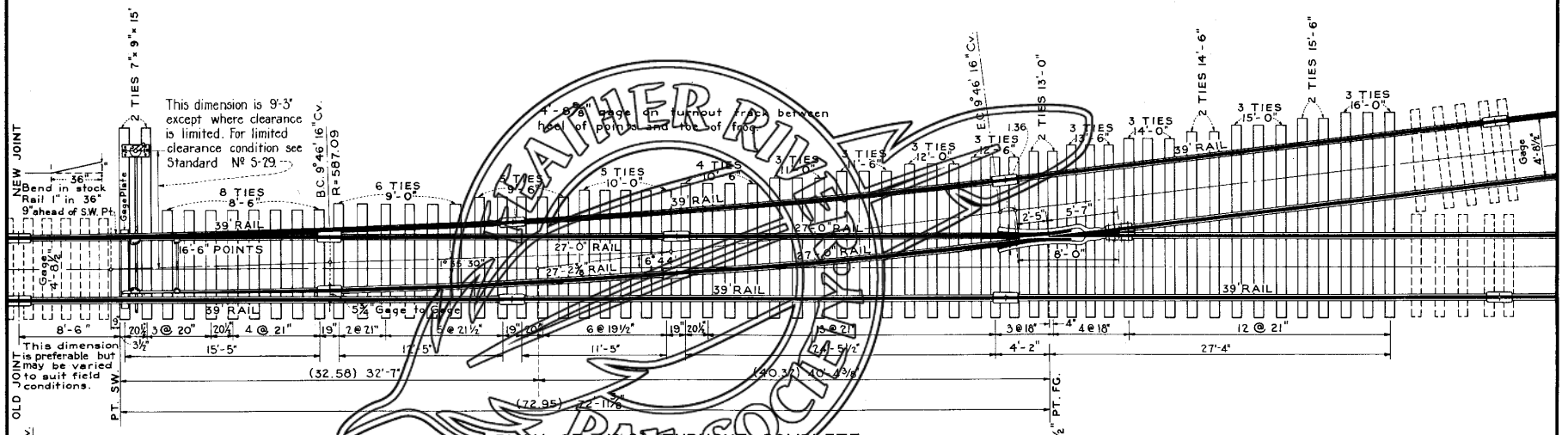
NO SCALE

ADOPTED: Nov. 1, 1944
REVISED: Jan. 17, 1956

C.E.
S-93A

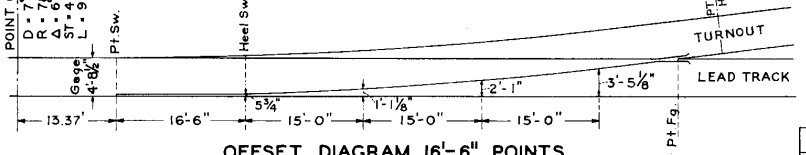
SWITCH TIE LIST																
PIECES 7" X 9"															TOTAL NUMBER PIECES	TOTAL FEET F.B.M.
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	
8	6	5	5	4	3	3	3	3	2	3	3	2	5	2	3	60	3643.5

FROG ANGLE ..... 6° 44'
DEGREE OF TURNOUT CURVE ..... 9° 46' 16"
LEAD ..... 72' 11 5/8"
Note: Other lengths may be used for closure rails, but minimum length should be 15'-0"



PLAN OF Nº 8½ TURNOUT COMPLETE

Note: Gage Plate must always be placed under end of switch points as shown.



OFFSET DIAGRAM 16'-6" POINTS
Offsets shown are at right angles to lead track

REFERENCES	
16'-6" Split Switch	S-116A
Nº 8½ S.G. Mang. Frog	S-190
Connecting Rods	S-141
Application of Switch Stands	S-29

APPROVED Frank R. Noonan
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 8½ TURNOUT COMPLETE

FOR USE WITH C.F. & I. SEC. 850-39' RAIL
SELF GUARDED FROG - 16'-6" POINTS

NO SCALE

ADOPTED : January 21, 1955

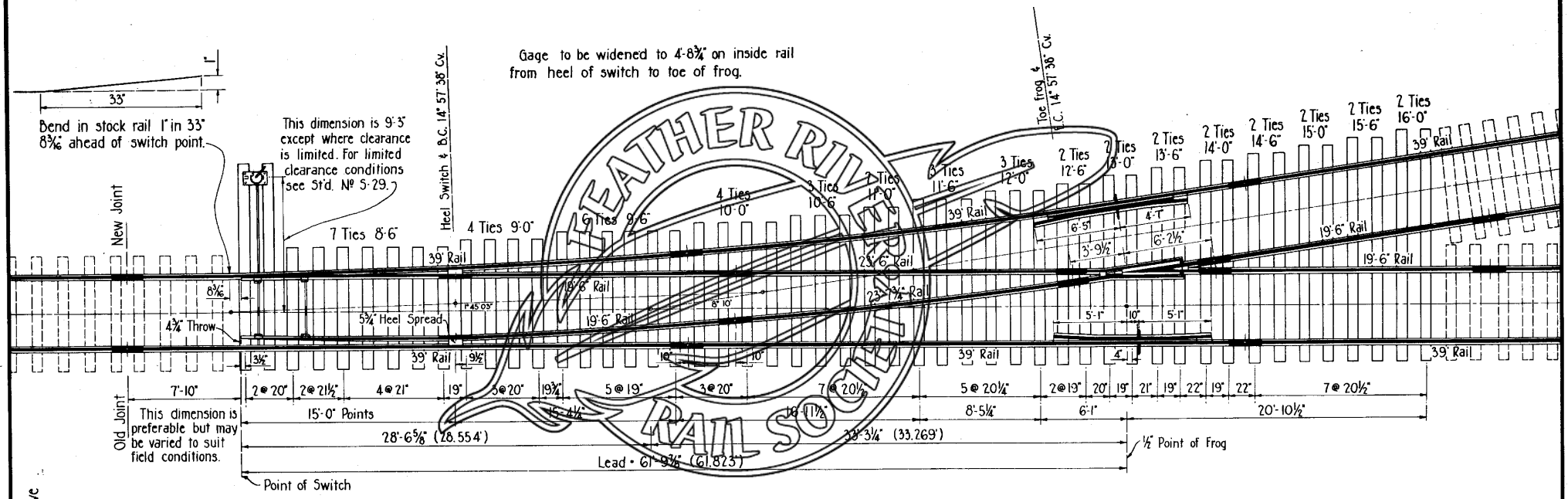
C.E.
S-96

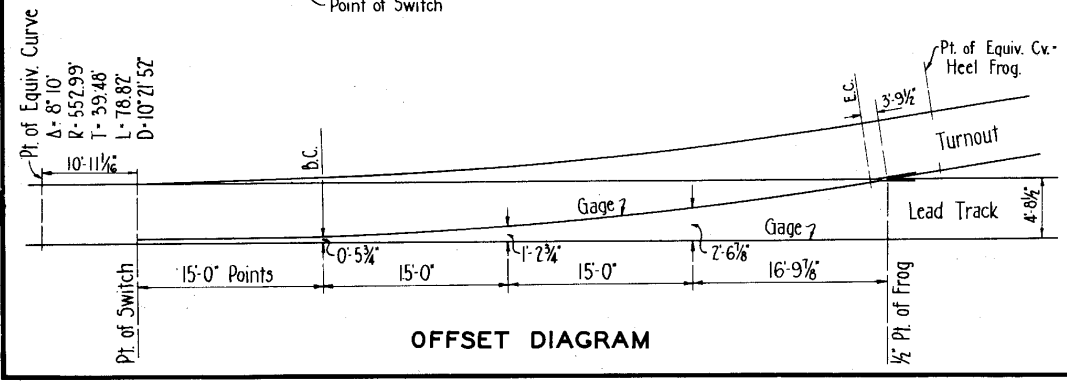
SWITCH TIE LIST

Pieces 7"x9"																Total Number Pieces	Total Feet B.M.
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
7	4	6	4	3	2	3	3	2	2	2	2	2	4	2	2	50	3016±

Frog Angle _____ 8° 10'
Degree of Turnout Curve ___ 14° 57' 38"
Lead _____ 61'-9⅞"
Closure Rails ___ 2-19'-6" : 1-23'-6" : 1-23'-7¾"

Other lengths may be used for closure rails but minimum length should be 15'-0".





OFFSET DIAGRAM

REFERENCES	
15'-0" Split Switch	S-153 A
Nº 7 Bolted Rigid Frog	S-151
11'-0" 85 Lb. Guard Rail	S-30
Application of Switch Stands	S-29
Connecting Rods	S-141

Approved: Frank R. Wadsworth
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

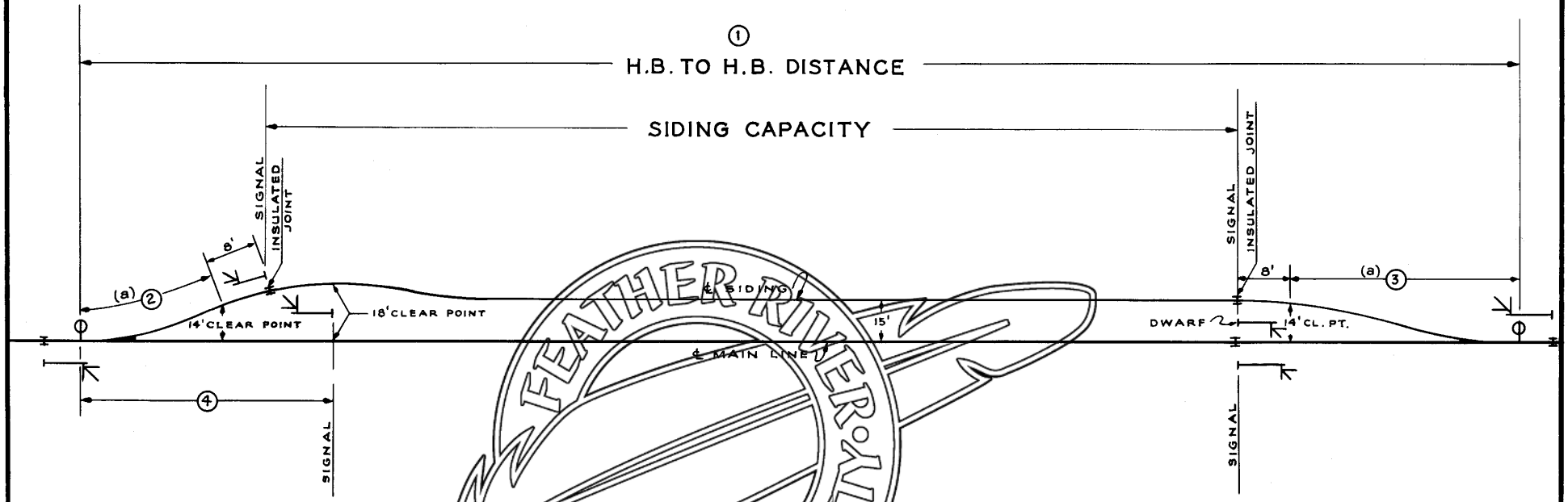
Nº 7 TURNOUT COMPLETE

FOR USE WITH 85 LB., 39 FT. RAIL
15'-0" POINTS, BOLTED RIGID FROG

NO SCALE

ADOPTED: Feb. 1, 1937
REVISED: Jan. 17, 1956

C.E.
S-97



TURNOUT NUMBER	DISTANCE (a)② (a)③ ④			H.B. TO H.B. DISTANCE SIDING CAPACITY* (1)					
				80 CARS	90 CARS	100 CARS	110 CARS	115 CARS	125 CARS
10	173	181	254	4780	5300	5820	6340	6600	7120
14	241	252	348	4919	5439	5959	6479	6739	7259
15	250	267	374	4943	5463	5983	6503	6763	7283
20	306	376	457	5108	5628	6148	6668	6928	7448

(a) ②—③ Vary according to curvature.

*Capacity is based on coupler length of 52 feet, Engine & Caboose 250 ft.

APPROVED Frank R. Woolford
Chief Engineer

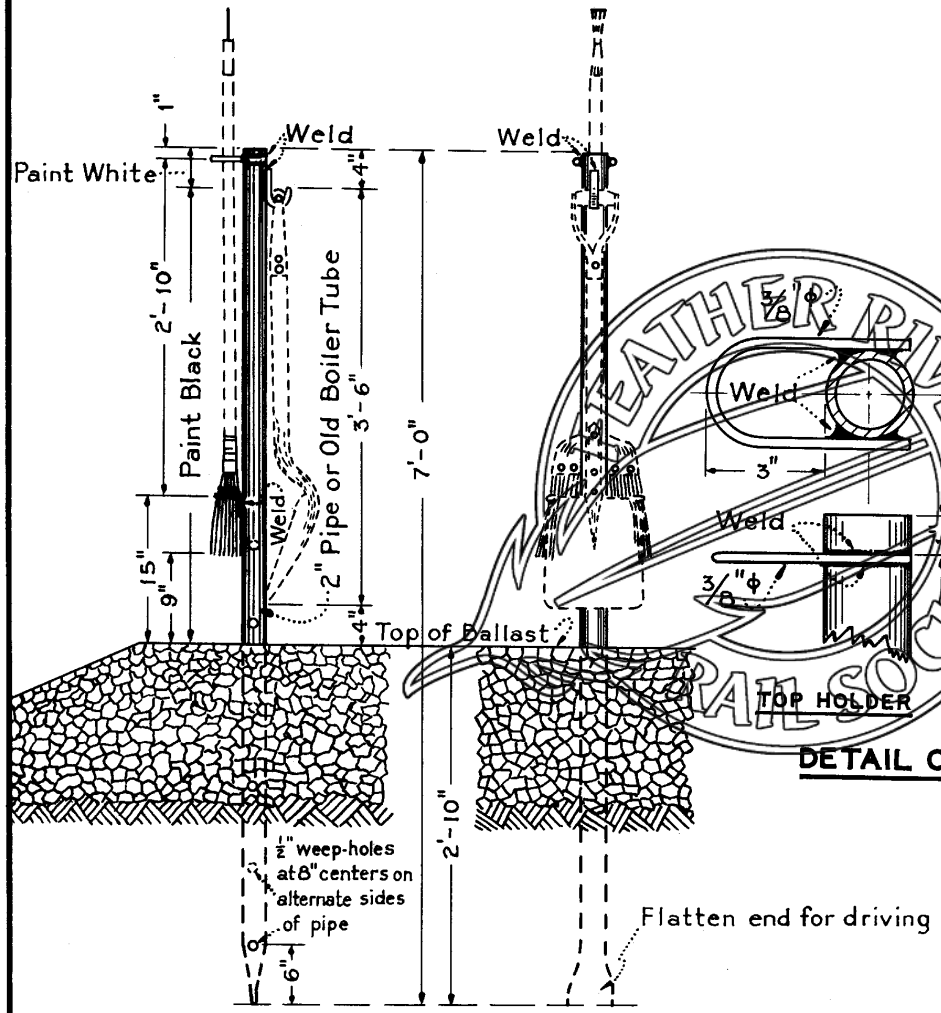
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

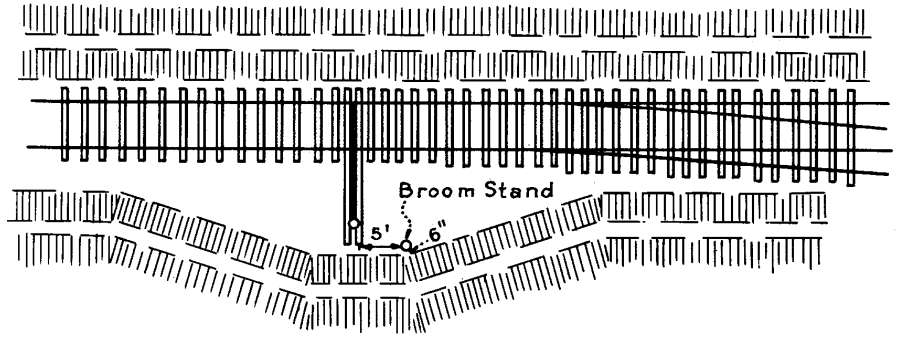
SIDING CAPACITY

NO SCALE

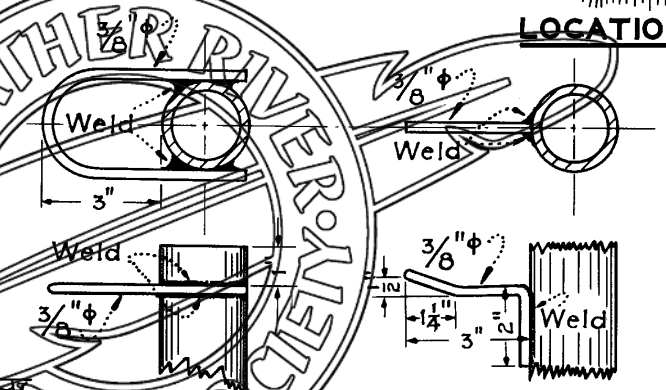
ADOPTED : Oct. 1, 1961

C.E.
S-98





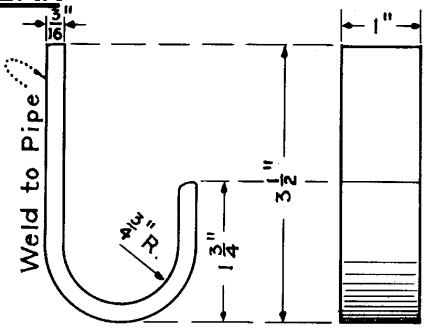
LOCATION PLAN



TOP HOLDER

BOTTOM HOLDER

DETAIL OF BROOM HOLDER



DETAIL OF HOOK

APPROVED: Frank R. Wolfe
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

BROOM & SHOVEL HOLDER

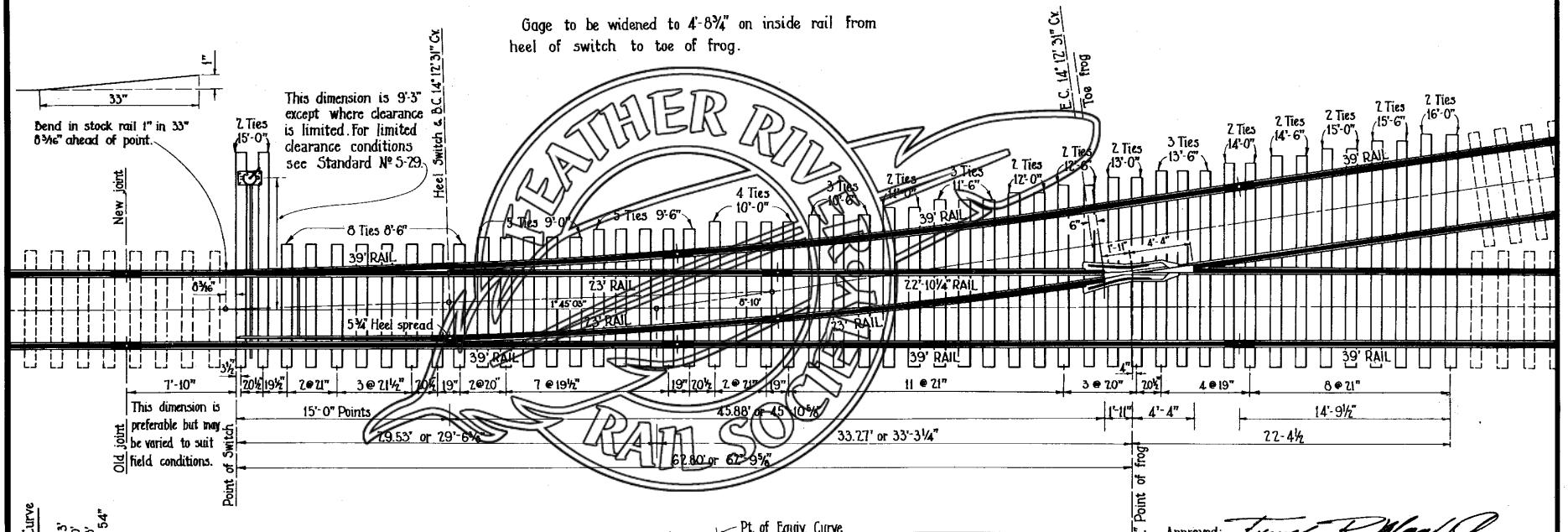
NO SCALE

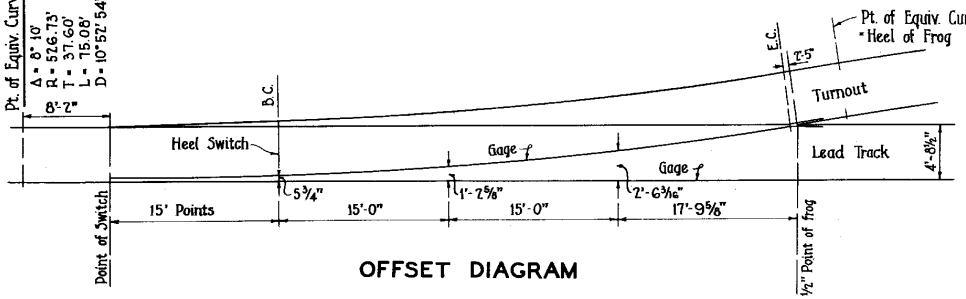
ADOPTED: May 3, 1932
REVISED: Dec. 7, 1962

C.E.
S-99

SWITCH TIE LIST																	
Pieces 7"x 9"																Total Number Pieces	Total Feet B.M.
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
8	5	5	4	3	2	3	2	2	2	3	2	2	4	2	2	51	3066

FROG ANGLE ..... 8° 10'
DEGREE OF TURNOUT CURVE ..... 14° 12' 31"
LEAD ..... 62'-9⅝"
CLOSURE RAILS ..... 3-23' & 1-22'-10¼"
Other lengths may be used for closure rails but minimum length should be 15'-0".





OFFSET DIAGRAM

REFERENCES	
15'-0" Split Switch	S-153 A
Nº 7 S.G. Mang. Frog	S-191 A
Connecting Rods	S-141
Application of Switch Stands	S-29

Approved: Frank R. Wood
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

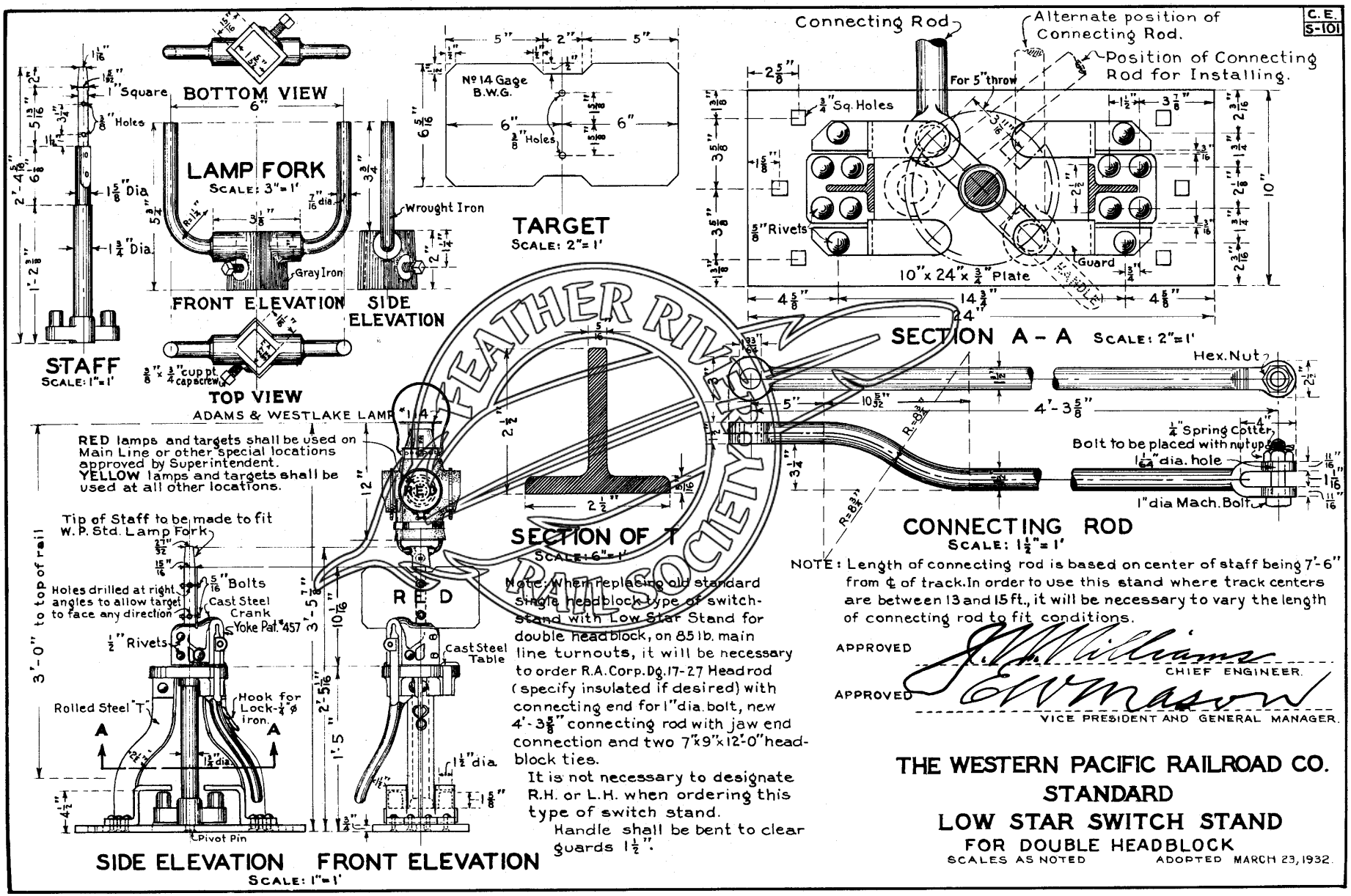
NO 7 TURNOUT COMPLETE

FOR USE WITH 85 LB., 39 FT. RAIL
15'-0" POINTS

NO SCALE

ADOPTED : January 21, 1955

C.E. S-101



RED lamps and targets shall be used on Main Line or other special locations approved by Superintendent.
YELLOW lamps and targets shall be used at all other locations.

Tip of Staff to be made to fit W. P. Std. Lamp Fork.

Holes drilled at right angles to allow target to face any direction.

Note: When replacing old standard single headblock type of switch-stand with Low Star Stand for double headblock, on 85 lb. main line turnouts, it will be necessary to order R.A.Corp. Dg. 17-27 Headrod (specify insulated if desired) with connecting end for 1"dia. bolt, new 4'-3⅝" connecting rod with jaw end connection and two 7"x9"x12'-0" headblock ties.

It is not necessary to designate R.H. or L.H. when ordering this type of switch stand.

Handle shall be bent to clear guards 1½".

NOTE: Length of connecting rod is based on center of staff being 7'-6" from ℄ of track. In order to use this stand where track centers are between 13 and 15 ft., it will be necessary to vary the length of connecting rod to fit conditions.

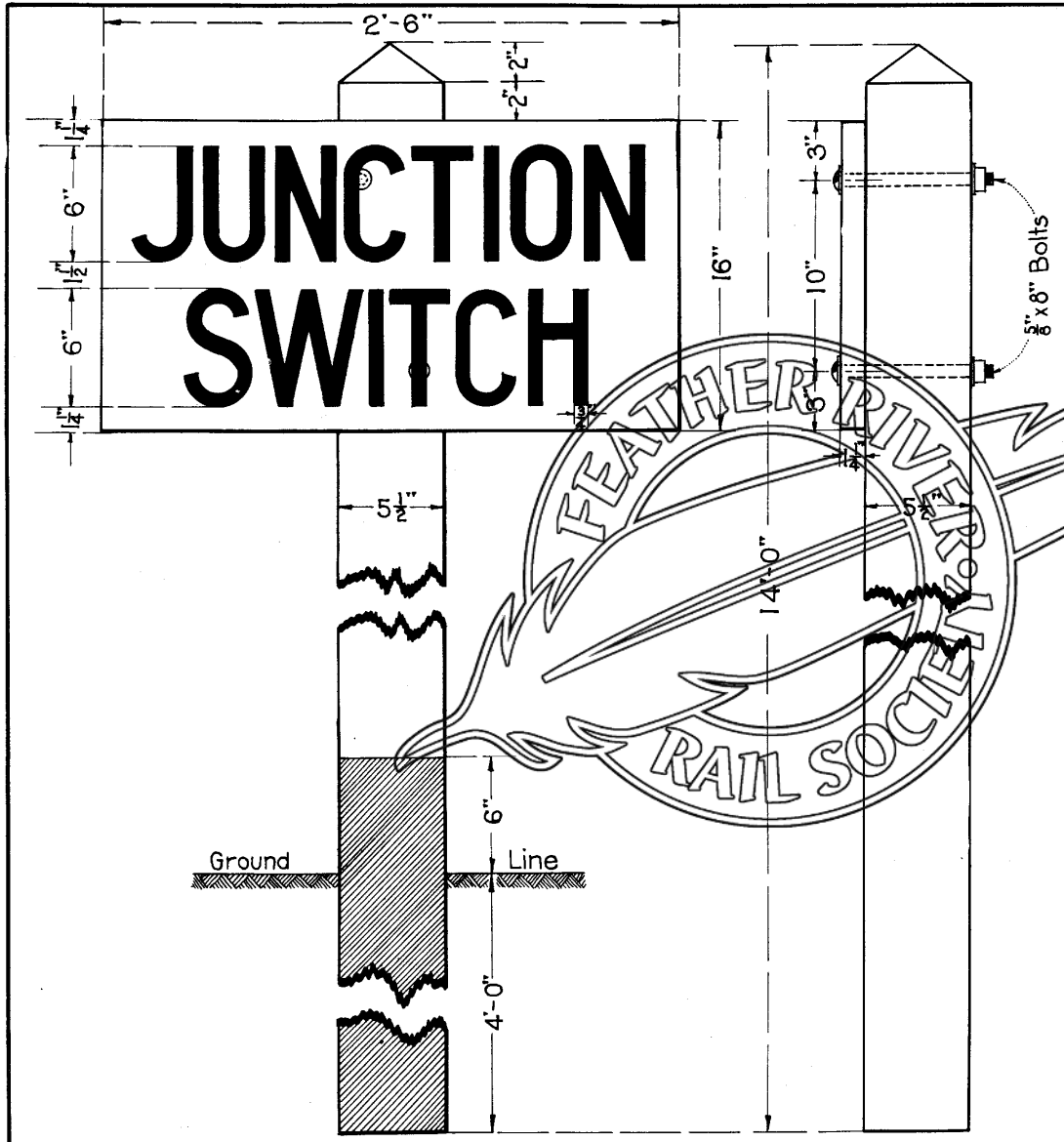
APPROVED J. B. Williams CHIEF ENGINEER.

APPROVED E. W. Mason VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
LOW STAR SWITCH STAND
FOR DOUBLE HEADBLOCK

SCALES AS NOTED ADOPTED MARCH 23, 1932.

C.E.
S-102



POST: 6"x6"x14'-0" S.4S. Redwood Extra Merch.
BOARD: 1¼"x16"x2'-6" S.4S. Redwood Clear.
BOLTS: ⅝"x8" Carriage Bolts & Washers
PAINTING: Letters black, style and size as indicated. Face of Board to be given one priming coat of white lead and oil paint thinned with turpentine, and two coats of white lead and oil paint. Base of Post to have a coat of coal tar applied hot to 6" above ground. Balance of Post and back of Board to be painted with metallic and lamp black making a very dark brown.
LOCATION: Post to be set on engineer's side, 13'-0" from center line of track.

APPROVED: J. M. Williams
CHIEF ENGINEER.

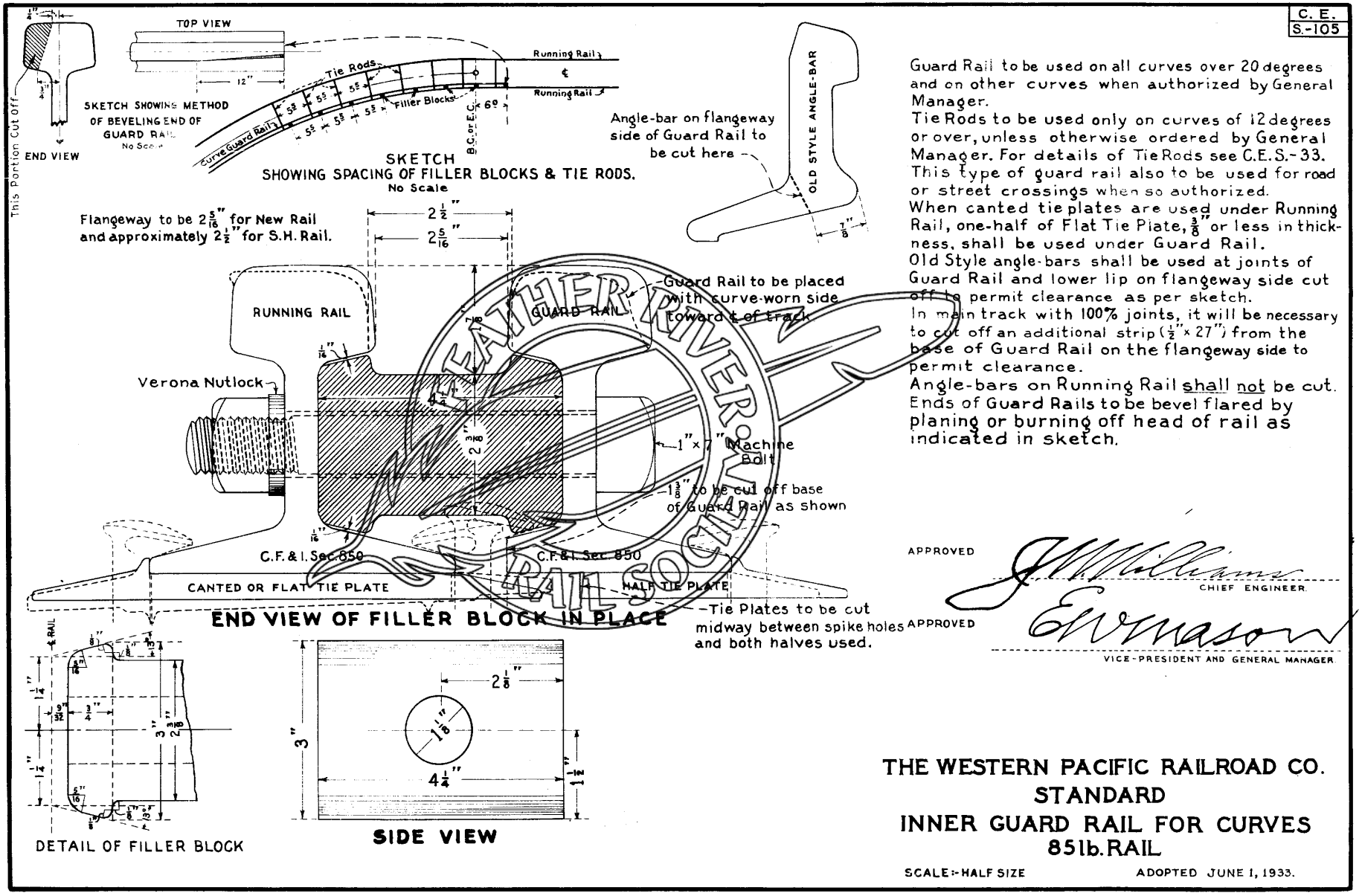
APPROVED: Evrnason
VICE-PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
JUNCTION SWITCH SIGN

SCALE: 1½"=1'-0"

ADOPTED MAY, 3, 1932.
REV. JUNE 1, 1936

C. E.
S.-105



Guard Rail to be used on all curves over 20 degrees and on other curves when authorized by General Manager.

Tie Rods to be used only on curves of 12 degrees or over, unless otherwise ordered by General Manager. For details of Tie Rods see C.E.S.-33.

This type of guard rail also to be used for road or street crossings when so authorized.

When canted tie plates are used under Running Rail, one-half of Flat Tie Plate, 3/8" or less in thickness, shall be used under Guard Rail.

Old Style angle-bars shall be used at joints of Guard Rail and lower lip on flangeway side cut off to permit clearance as per sketch.

In main track with 100% joints, it will be necessary to cut off an additional strip (1/2" x 27") from the base of Guard Rail on the flangeway side to permit clearance.

Angle-bars on Running Rail shall not be cut.

Ends of Guard Rails to be bevel flared by planing or burning off head of rail as indicated in sketch.

APPROVED

CHIEF ENGINEER.

APPROVED

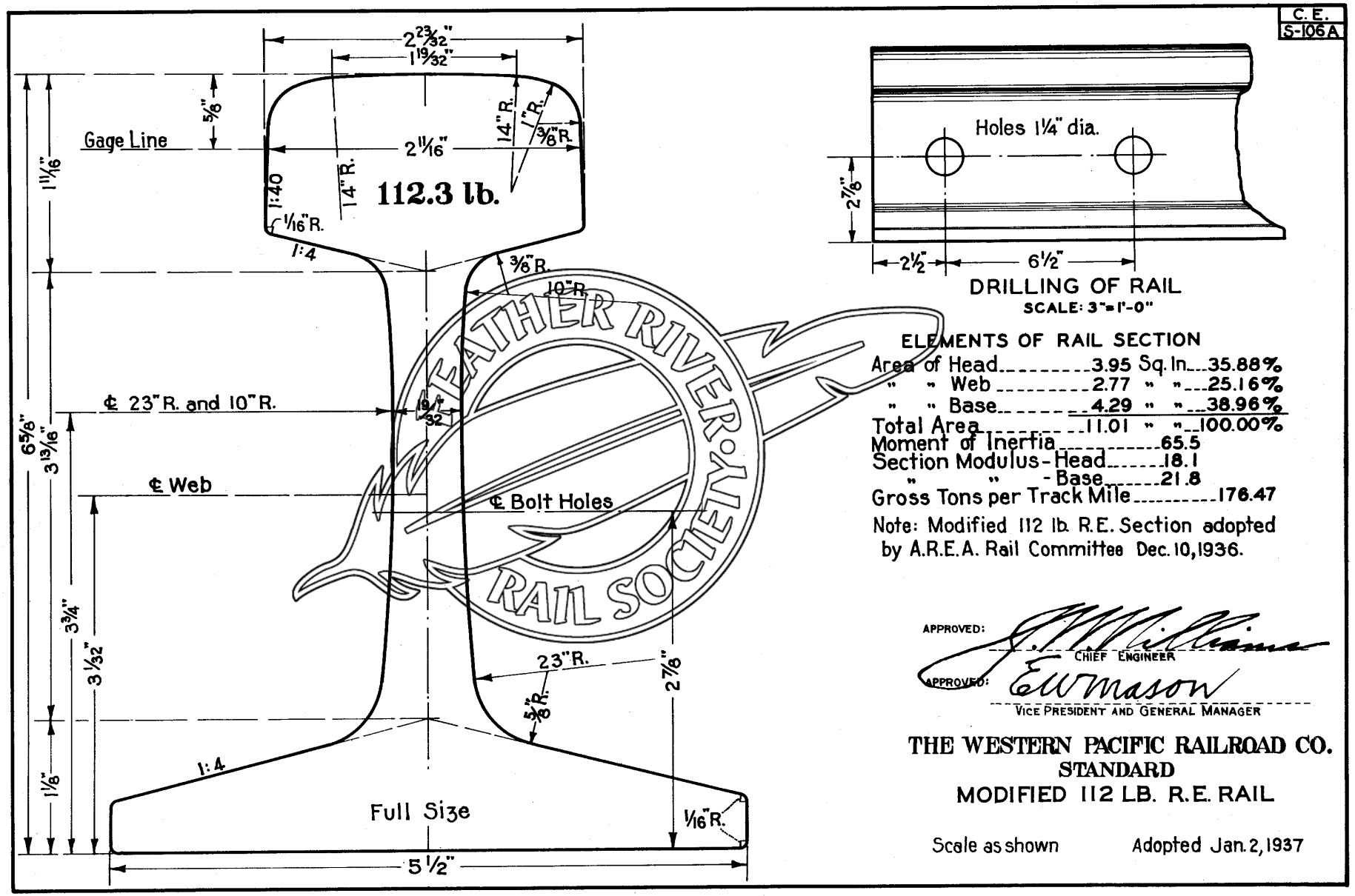
VICE-PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
INNER GUARD RAIL FOR CURVES
85lb. RAIL

SCALE:-HALF SIZE

ADOPTED JUNE 1, 1933.

C. E.
S-106A



DRILLING OF RAIL
SCALE: 3"=1'-0"

ELEMENTS OF RAIL SECTION

Area of Head	3.95	Sq. In.	35.88%
" " Web	2.77	" "	25.16%
" " Base	4.29	" "	38.96%
Total Area	11.01	" "	100.00%
Moment of Inertia	65.5		
Section Modulus - Head	18.1		
" " - Base	21.8		
Gross Tons per Track Mile	176.47		

Note: Modified 112 lb. R.E. Section adopted by A.R.E.A. Rail Committee Dec. 10, 1936.

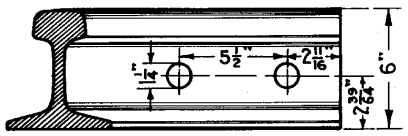
APPROVED: _____ CHIEF ENGINEER

APPROVED: E W Mason
VICE PRESIDENT AND GENERAL MANAGER

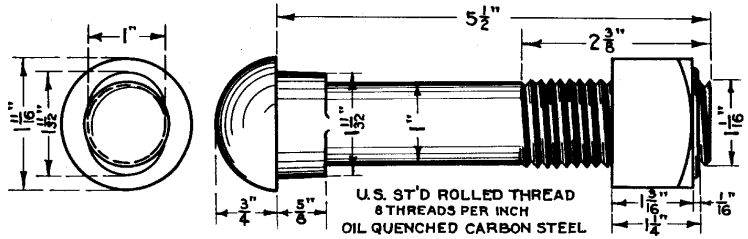
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
MODIFIED 112 LB. R.E. RAIL

Scale as shown Adopted Jan. 2, 1937

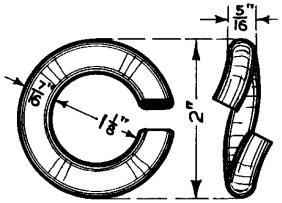
C. E. S-107



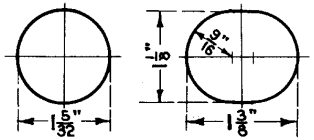
RAIL DRILLING
SCALE: 1½" = 1'-0"



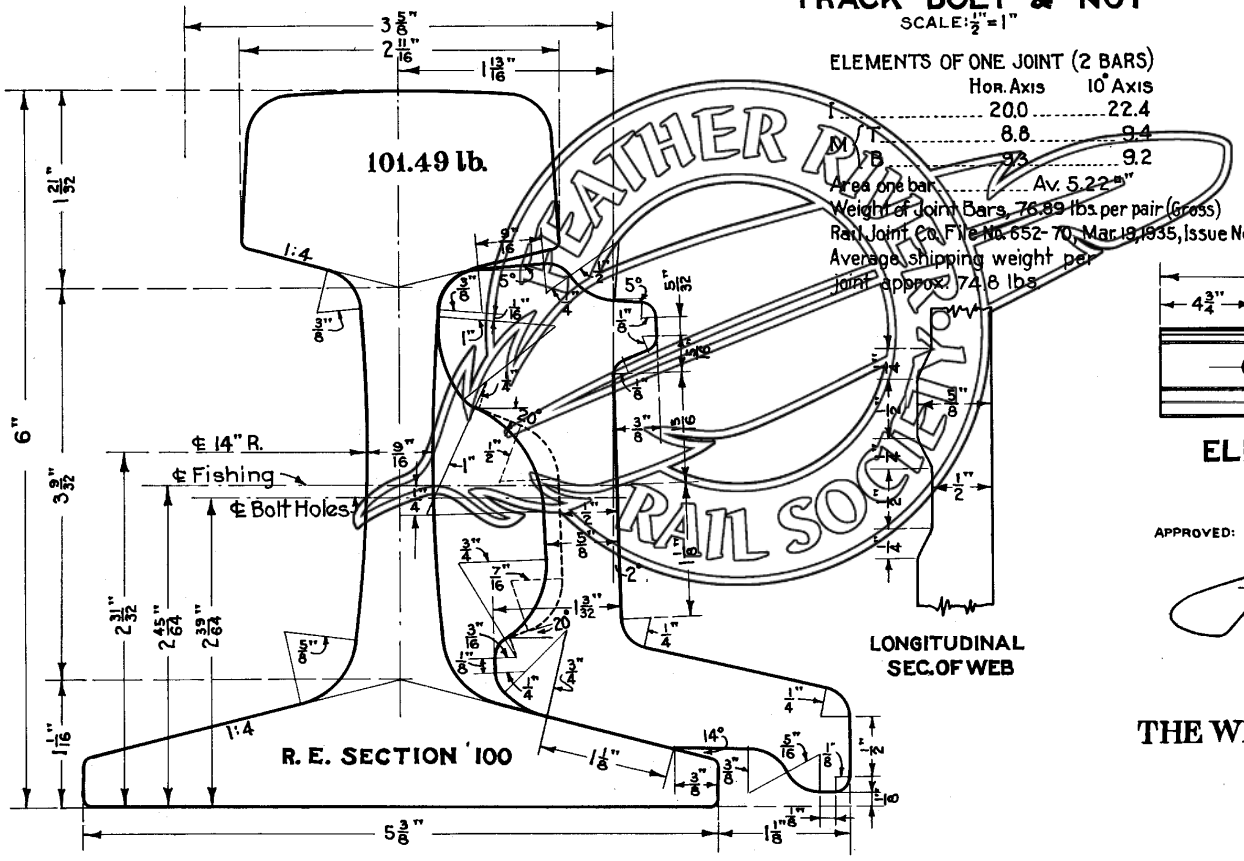
TRACK BOLT & NUT
SCALE: 1" = 1"



IMP. HI POWER SPRING WASHER



BOLT HOLES
ALTERNATE ROUND AND OVAL



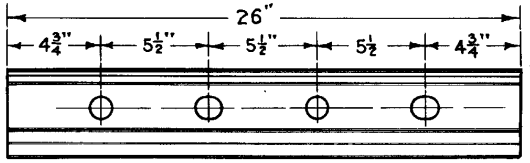
END ELEVATION OF RAIL AND JOINT BAR
SCALE: ¾" = 1"

ELEMENTS OF ONE JOINT (2 BARS)

	Hor. Axis	10° Axis
I	20.0	22.4
M/T	8.8	9.4
M/B	9.3	9.2

Area one bar ..... Av. 5.22 sq in
Weight of Joint Bars, 76.89 lbs per pair (Gross)
Rail Joint Co. File No. 652-70, Mar. 19, 1935, Issue No. 2
Average shipping weight per joint approx. 74.8 lbs.

LONGITUDINAL SEC. OF WEB



ELEVATION OF JOINT BAR
NO SPIKE SLOTS IN JOINT BARS
SCALE: ⅛" = 1"

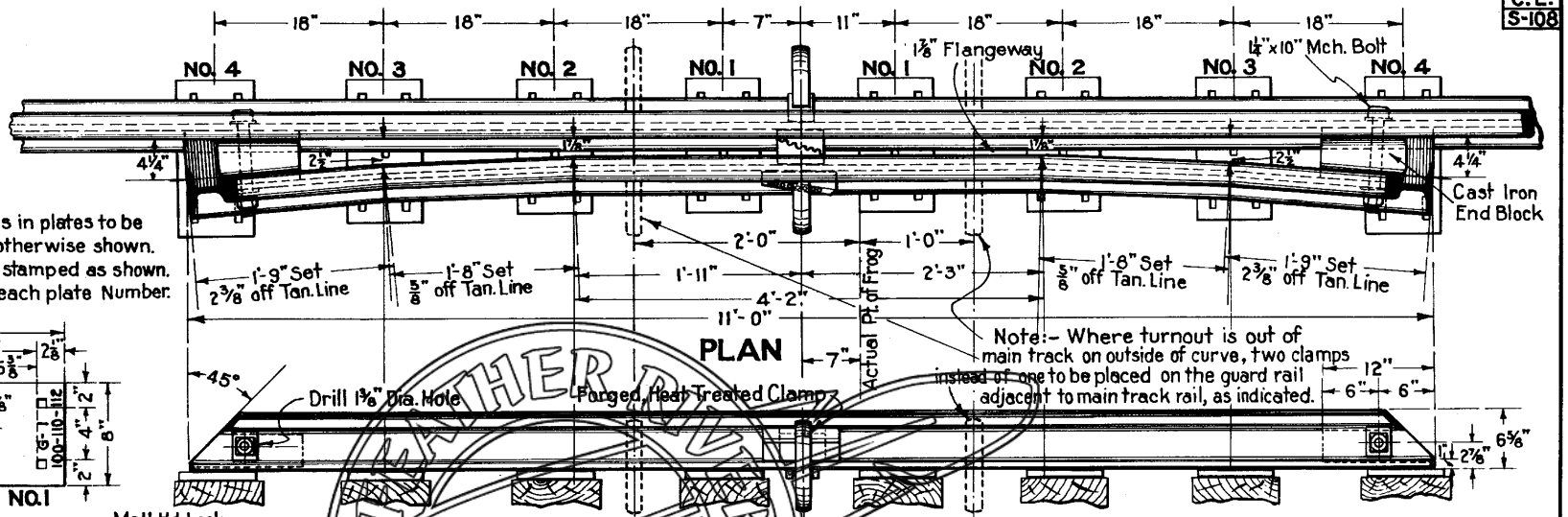
APPROVED:

J. M. Williams
CHIEF ENGINEER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
HEADFREE 100% JOINT
FOR
100* R.E. RAIL

SCALES AS SHOWN — ADOPTED MAR. 1935

C.E. S-108



Note:
All spike holes in plates to be ¾"x¾" unless otherwise shown.
All plates to be stamped as shown.
2 Required of each plate Number.

PLATE NO.1

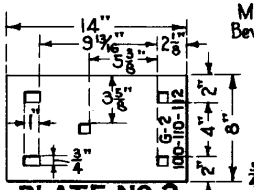


PLATE NO.2

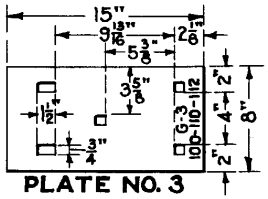


PLATE NO. 3

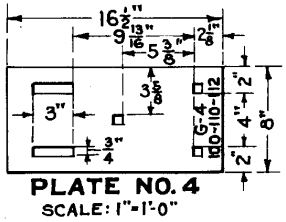
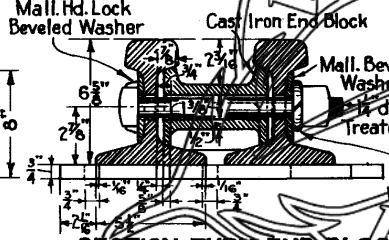
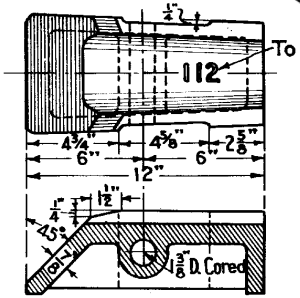


PLATE NO. 4
SCALE: 1"=1'-0"

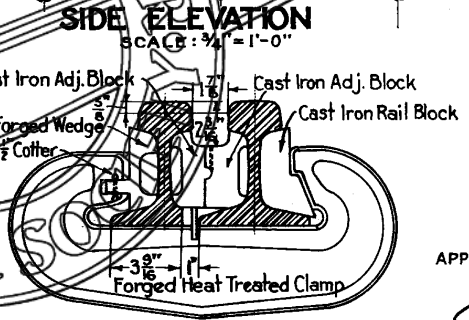


SECTION THRU END BLOCK

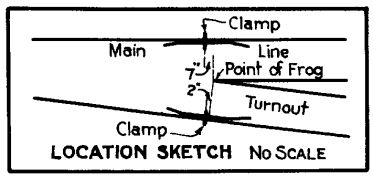


CAST IRON END BLOCK
SCALE: 1½"=1'-0"

SIDE ELEVATION
SCALE: ¾"=1'-0"



DETAIL OF CLAMP ASSEMBLY
SCALE: 1½"=1'-0"



LOCATION SKETCH No SCALE

Specifications:- As per A.R.E.A. Specifications, Appendix A, adopted March, 1934.
Plan 505 for guard railsclamps, adopted Mar. 1934.

NOTE:- The distance from gage line at frog point to inside face of guard rail must always be maintained at 4'-6⅝". If gage of track is more than 4'-8½", the guard rail flangeway must be more than 1⅞" by the same amount.

APPROVED: J. W. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

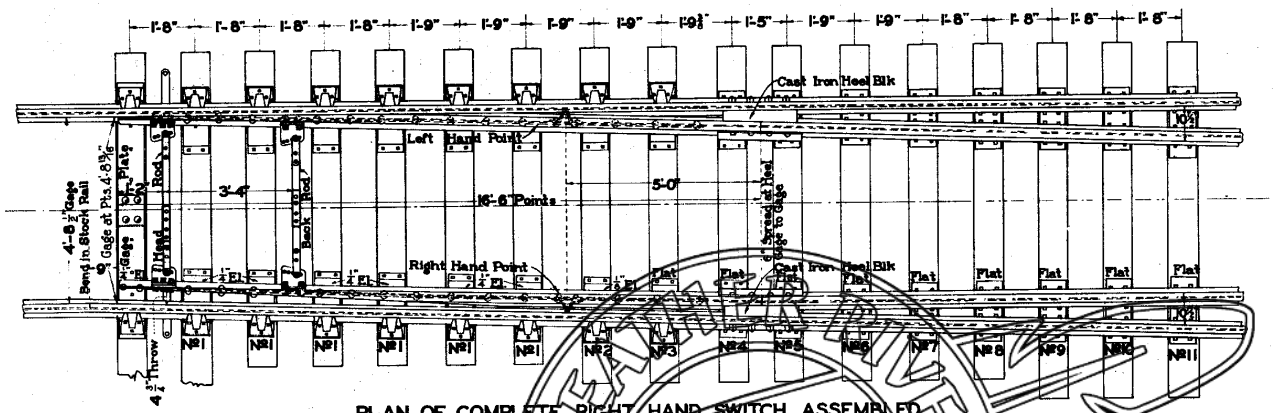
STANDARD

11FT - 112LB. GUARD RAIL

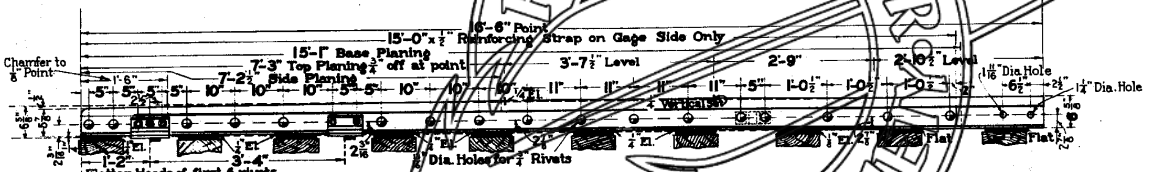
SCALES AS NOTED

ADOPTED MARCH, 1935
REVISED NOV. 1, 1935
" MAR. 2, 1936

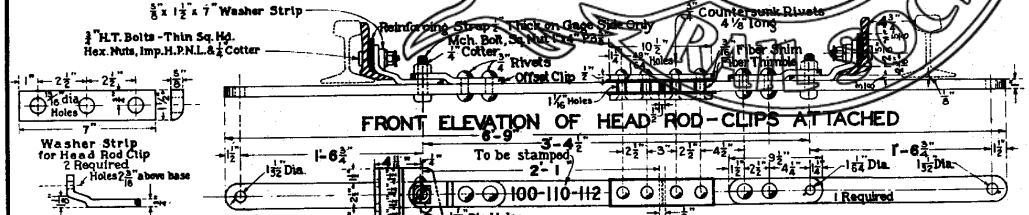
C. E.
S-109
1 of 2



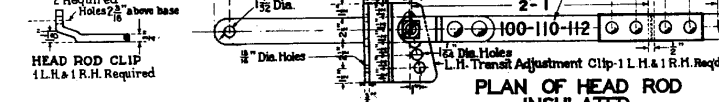
PLAN OF COMPLETE RIGHT HAND SWITCH ASSEMBLED

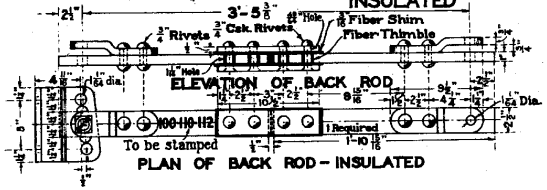


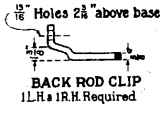
SIDE ELEVATION OF LEFT HAND POINT

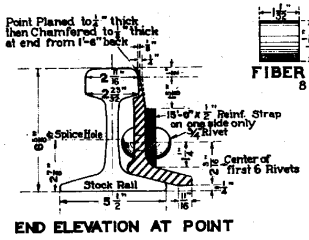


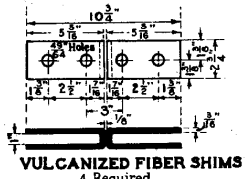
FRONT ELEVATION OF HEAD ROD - CLIPS ATTACHED



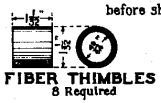








Note:- Annealed steel rivets, riveted cold under hydraulic pressure. All bars tested for insulation before shipment.



Specifications:— As per A.R.E.A. Specifications Appendix A, adopted March 1934.

SHIPPING LIST - ONE SWITCH COMPLETE

1 - R.H. } Switch Point 16'-6" Long reinforced one side only, with stop
1 - L.H. } and transit clips fastened to same.
1 - Bundle of 2 { 1 Head Rod - №1 with rod bolts only.
{ 1 Back Rod - №2 with rod bolts only.
1 - Thru Gage Plate, insulated, ½" Elev, 1" x 8"
3 - Bundles (4 Each) Solid rolled A.R.E.A. Slide Plates 1" x 8" - №1-¼" Elev.
1 - Bundle of 4 - Solid rolled A.R.E.A. Slide Plates 1" x 8" (2 - №2 - ½" Elev) (2 №3 - Blank)
2 - Bundles (4 Each) Flat Heel and Runoff Plates ½" x 8" Each with 1 - №4; 1 - №5; 1 - №6; 1 - №7.
2 - Bundles (4 Each) Flat Runoff Plates ½" x 8" Each with 1 - №8; 1 - №9; 1 - №10; 1 - №11.
2 - Bundles (8 Each) Forged Rail Braces
2 - Cast Iron Heel Blocks, each having 1 W. P. Standard 100% Angle Bar, 1 Heel Strap, 1 Thimble, 4 heat treated Track Bolts and Nuts, 4 Hi Power Nut Locks. Make 1 R.H. and 1 L.H. by setting Angle Bars.
16 - Bundles Total

OLD STANDARD

APPROVED: J. W. Williams
CHIEF ENGINEER.
APPROVED: E. V. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

16 FOOT 6 INCH SPLIT SWITCH

112 LB. R.E. RAIL

NO SCALE

ADOPTED MARCH, 1935.
Revised Nov. 1, 1935, 3/2/1936.

SHEET NO. 1 OF 2 SHEETS

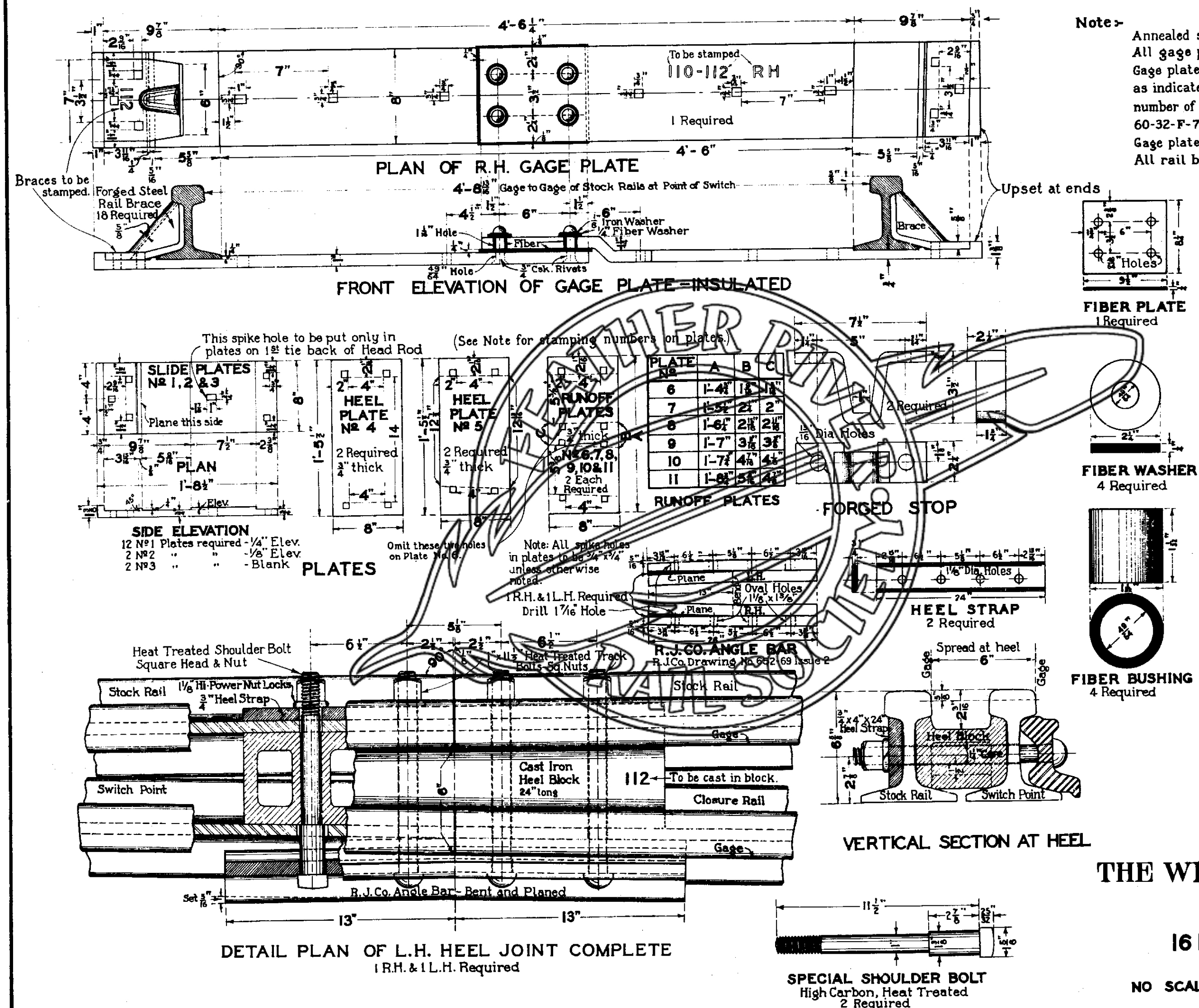


PLATE No	A	B	C
6	1'-4 3/4"	1 9/16"	1 1/8"
7	1'-5 1/2"	2 1/4"	2"
8	1'-6 1/4"	2 13/16"	2 11/16"
9	1'-7"	3 5/16"	3 3/8"
10	1'-7 3/4"	4 7/16"	4 1/8"
11	1'-8 1/4"	5 5/16"	4 7/8"

RUNOFF PLATES

Note:-

Annealed steel rivets, riveted cold under hydraulic pressure.
All gage plates to be tested for insulation before shipment.
Gage plate to be stamped 110-112 and braces stamped 112 as indicated. All other switch plates to be stamped with number of plate and weight of rail as shown on Dwg. C.E.-60-32-F-7.
Gage plate to be stamped RH or LH.
All rail braces to be punched with 3 spike holes.

OLD STANDARD

APPROVED: J. M. Williams CHIEF ENGINEER.

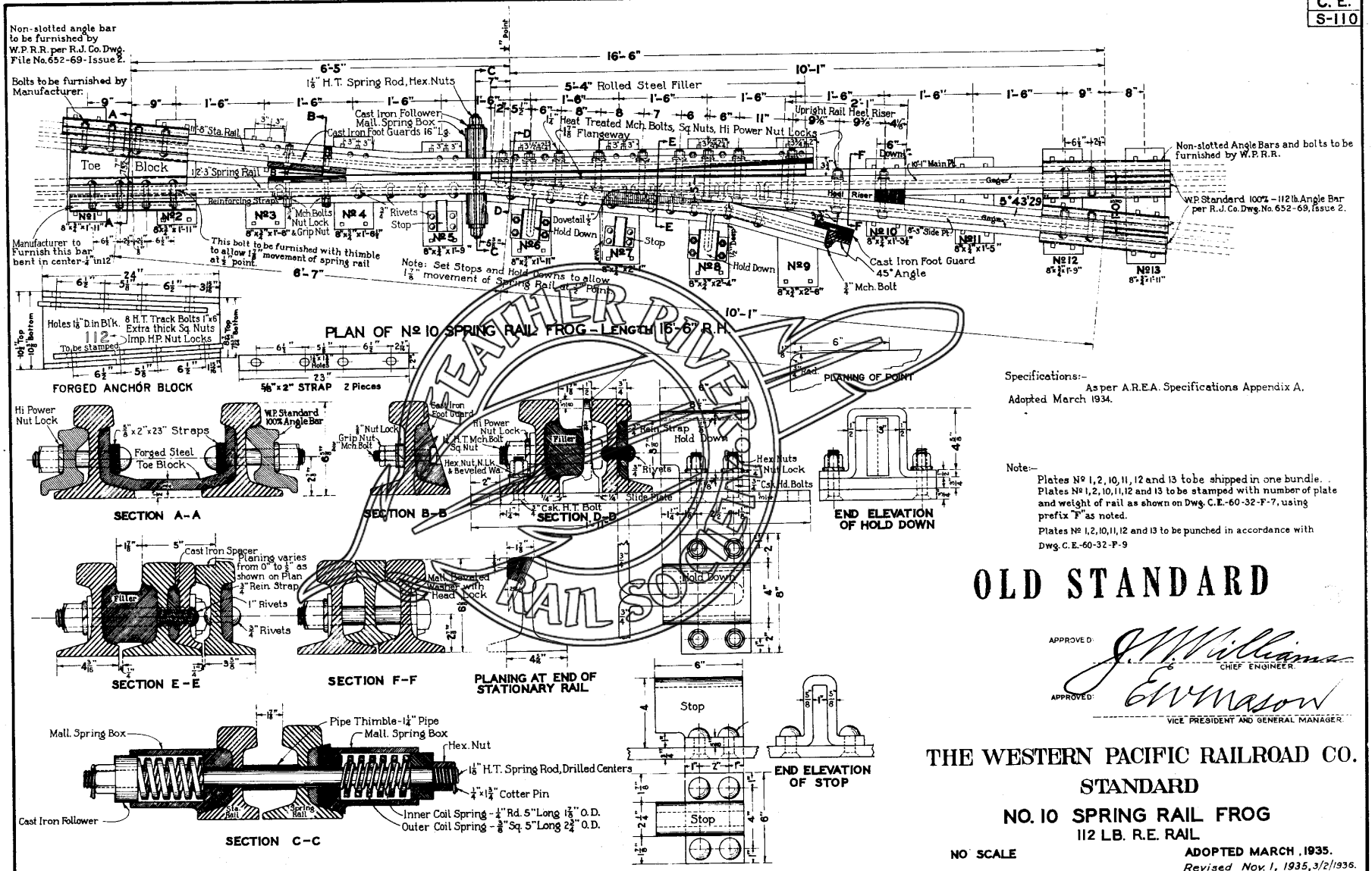
APPROVED: E. W. Mason VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
16 FOOT 6 INCH SPLIT SWITCH
112 LB. R.E. RAIL

NO SCALE

ADOPTED MARCH, 1935
Revised Nov. 1, 1935, 3/2/1936

C. E.
S-110



OLD STANDARD

APPROVED: J. J. Williams, CHIEF ENGINEER.

APPROVED: E. V. Mason, VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

NO. 10 SPRING RAIL FROG

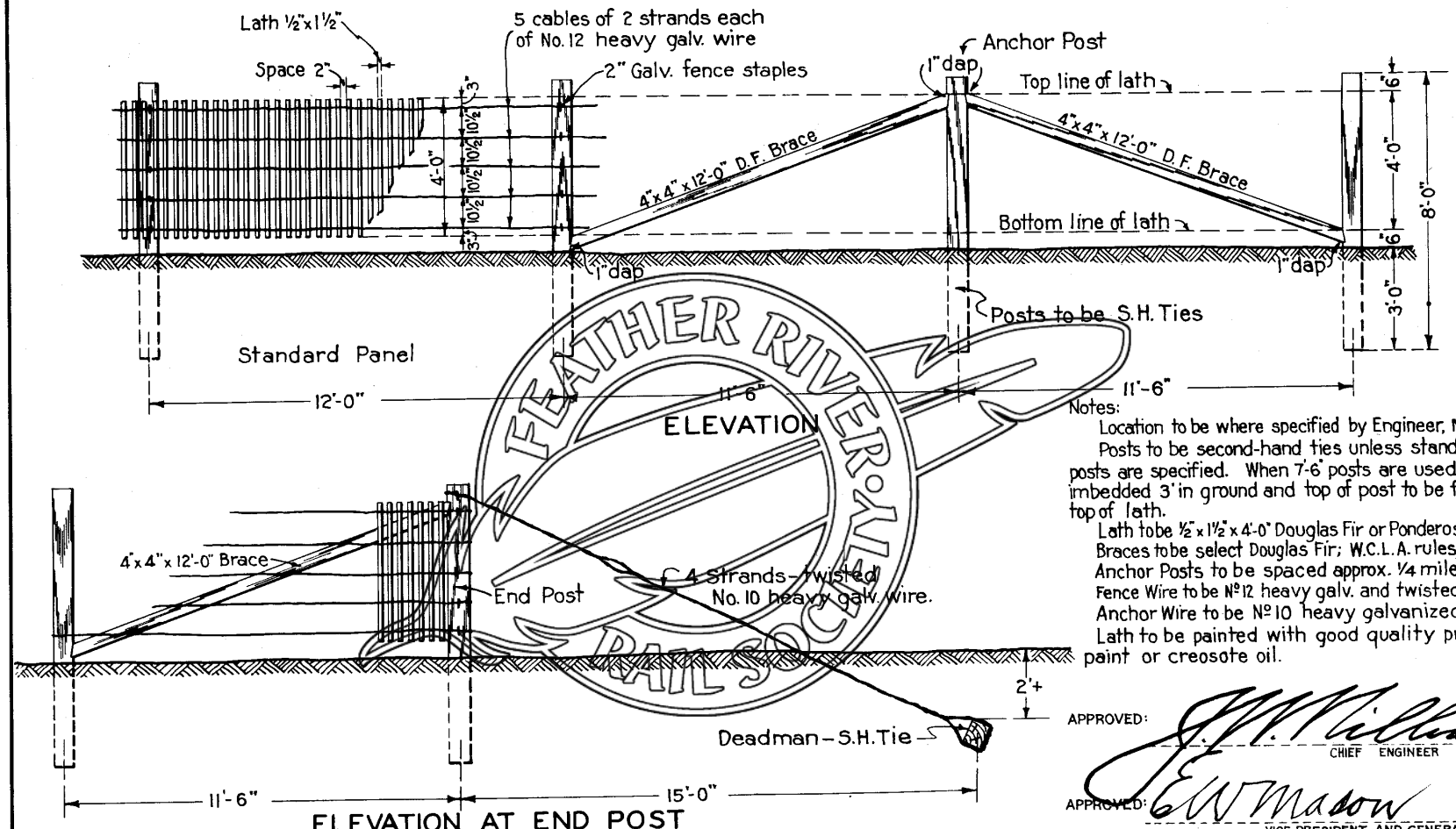
112 LB. R.E. RAIL

NO SCALE

ADOPTED MARCH, 1935.

Revised Nov. 1, 1935, 3/2/1936.

C.E.
S-111



Notes:

Location to be where specified by Engineer, M. of W. and S.

Posts to be second-hand ties unless standard fence posts are specified. When 7'-6" posts are used, bottom to be imbedded 3' in ground and top of post to be flush with top of lath.

Lath to be ½" x 1½" x 4'-0" Douglas Fir or Ponderosa Pine, 2" apart.

Braces to be select Douglas Fir; W.C.L.A. rules, par. 214.

Anchor Posts to be spaced approx. ¼ mile apart.

Fence Wire to be Nº 12 heavy galv. and twisted between lath.

Anchor Wire to be Nº 10 heavy galvanized wire.

Lath to be painted with good quality preservative paint or creosote oil.

APPROVED: J. P. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

Note: Fence to be placed on outside of posts on tangents and on outside of curves; and placed on track side of posts on inside of curves.

THE WESTERN PACIFIC RAILROAD CO.

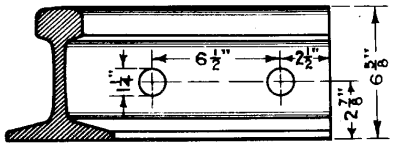
STANDARD

WIRE AND LATH SAND FENCE

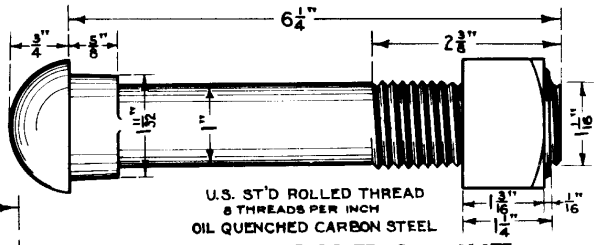
Scale: ¼"=1'-0"

Adopted June 1, 1937

C.E. S-112

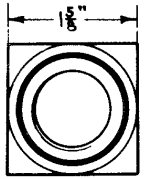


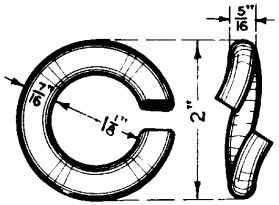
RAIL DRILLING
SCALE: 1½"=1'-0"



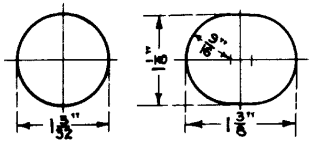
U.S. ST'D ROLLED THREAD
6 THREADS PER INCH
OIL QUENCHED CARBON STEEL

TRACK BOLT & NUT
SCALE: ½"=1"

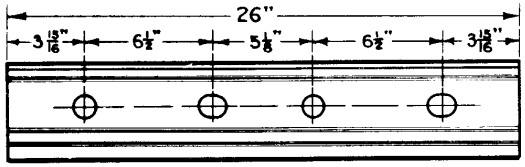




IMP. HI POWER SPRING WASHER



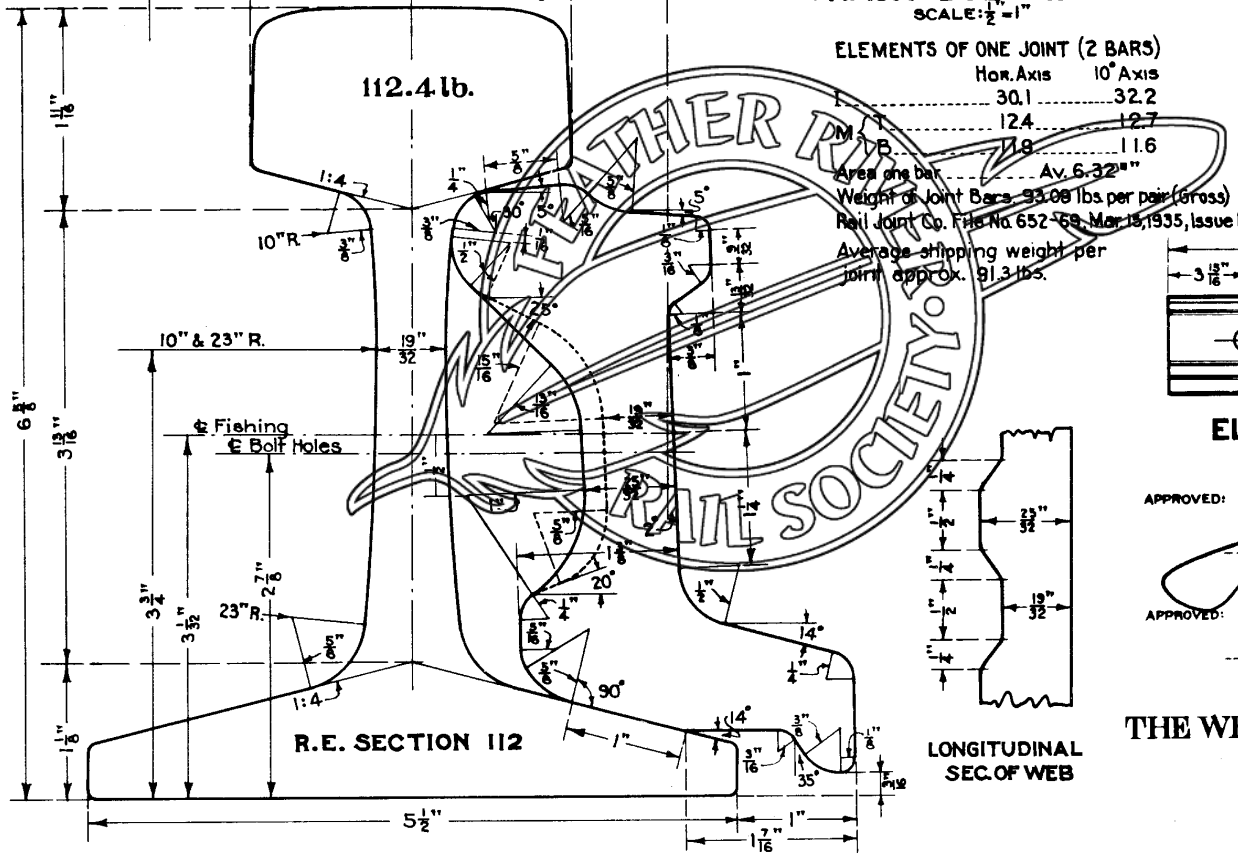
BOLT HOLES
ALTERNATE ROUND AND OVAL



ELEMENTS OF ONE JOINT (2 BARS)

	Hor. Axis	10° Axis
I	30.1	32.2
M	12.4	12.7
B	11.8	11.6

Area one bar ..... Av. 6.32"²
Weight of Joint Bars, 93.08 lbs. per pair (Gross)
Rail Joint Co. File No. 652-68, Mar. 19, 1935, Issue No. 2
Average shipping weight per joint approx. 91.3 lbs.



END ELEVATION OF RAIL AND JOINT BAR
SCALE: ¾"=1"

LONGITUDINAL SEC. OF WEB

ELEVATION OF JOINT BAR
NO SPIKE SLOTS IN JOINT BARS
SCALE: ⅛"=1"

APPROVED: J. M. Williams
CHIEF ENGINEER.

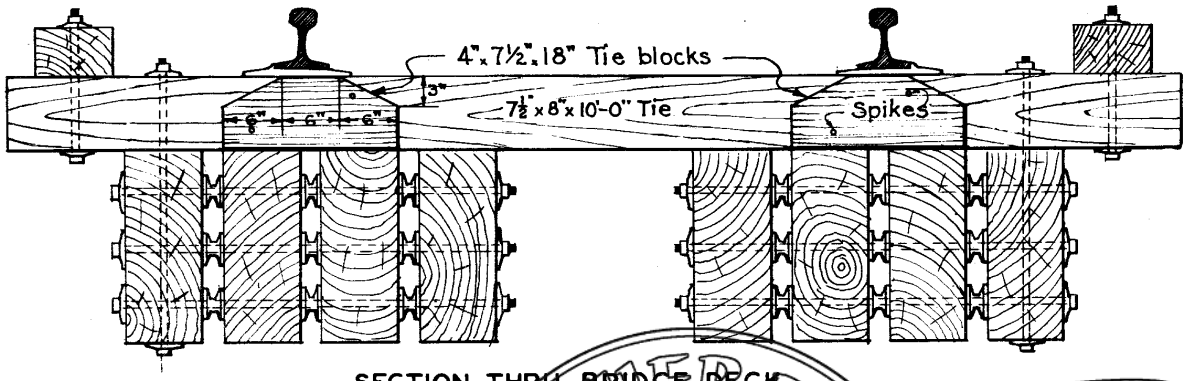
APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

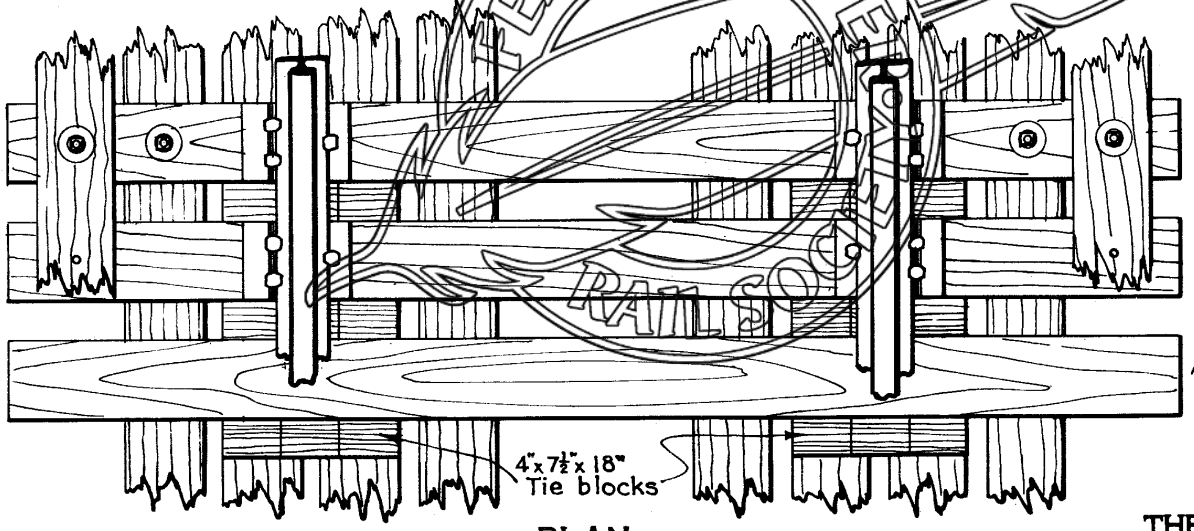
STANDARD HEADFREE 100% JOINT FOR 112* R.E. RAIL

SCALES AS SHOWN — ADOPTED MAR. 1935

C.E.
S-113



SECTION THRU BRIDGE DECK



PLAN

Note: Due to the variation of spaces between ties on steel bridge decks, special instructions will be issued with tie diagrams when bridge ties are renewed.

Tie blocks to be installed only when out of face tie renewals are made on open deck bridges. Due to variations in actual dimensions of ties and tie blocks, it will be necessary to install two or more special tie blocks in each panel to correct spacing of ties to a total of 15 per 15 ft. panel.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
TIE BLOCKS
FOR OPEN DECK TRESTLES

SCALE: 3/4"=1'-0"

ADOPTED SEPT. 16, 1940
Rev. May. 23, 1944

C.E.
S-114A

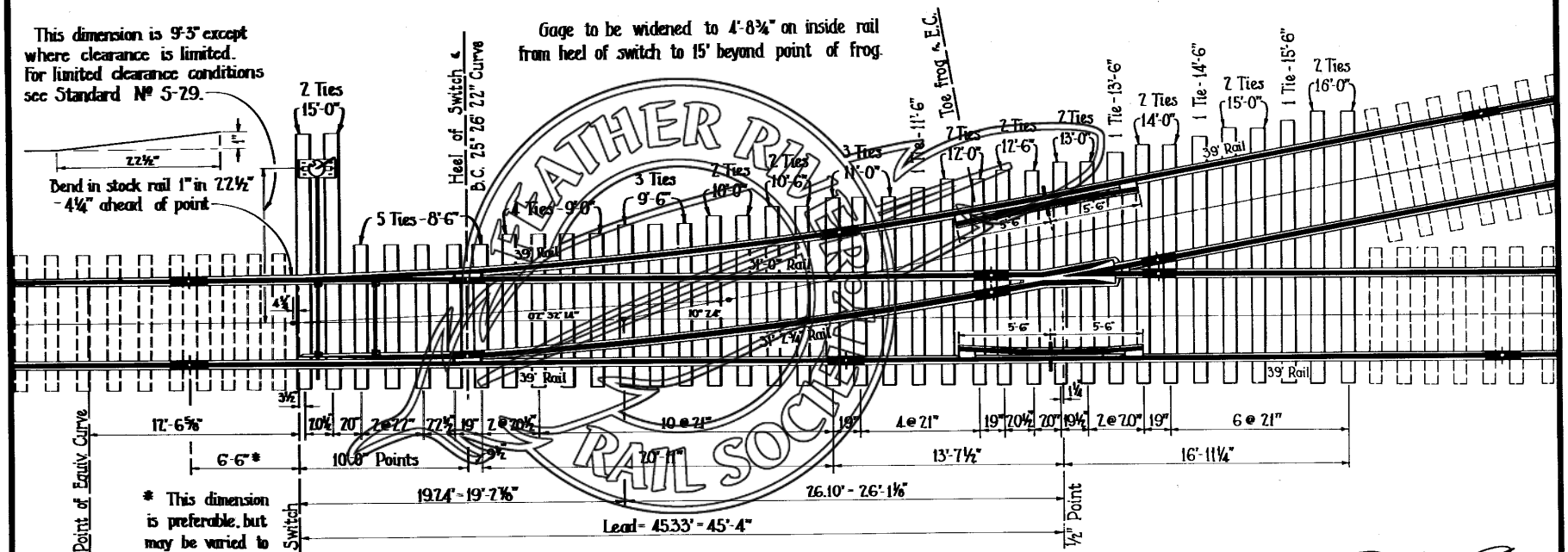
SWITCH TIE LIST

	9"×12"	Pieces 7"×9"															Total Number Pieces	Total Feet B.M.
	16'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	
Double Headblock	0	5	4	3	2	2	3	1	2	2	2	1	2	1	4	1	2	37	2262.8
Single Headblock	1	6	4	3	2	2	3	1	2	2	2	1	2	1	2	1	2	37	2293.9

When single headblock is used place the 9"×12"×16'-0" tie under end of switch points.

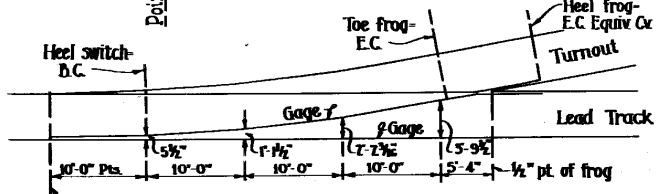
FROG ANGLE ..... 10° 24'
DEGREE OF TURNOUT CURVE .. 25° 26' 22"
LEAD ..... 45'-4"
CLOSURE RAILS ..... 1-31'-0" & 1-31'-2¾"

Note: Other lengths may be used for closure rails, but minimum length should be 15'-0".



* This dimension is preferable, but may be varied to suit field conditions.

Equiv. Cv.
Δ = 10° 24'
R = 349.258'
T = 31.785'
L = 63.395'
D = 16° 25' 08"



OFFSET DIAGRAM

REFERENCES	
№ 5½ Bolted Rigid Frog	S-152A
10'-0" Split Switch	S-154A
11'-0" Guard Rail	S-30
Connecting Rods	S-141
Application of Switch Stands	S-29

Approved: Frank R. Wayland
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

№ 5½ TURNOUT COMPLETE
FOR USE WITH 85 LB. 39 FT. RAIL
10'-0" POINTS

NO SCALE

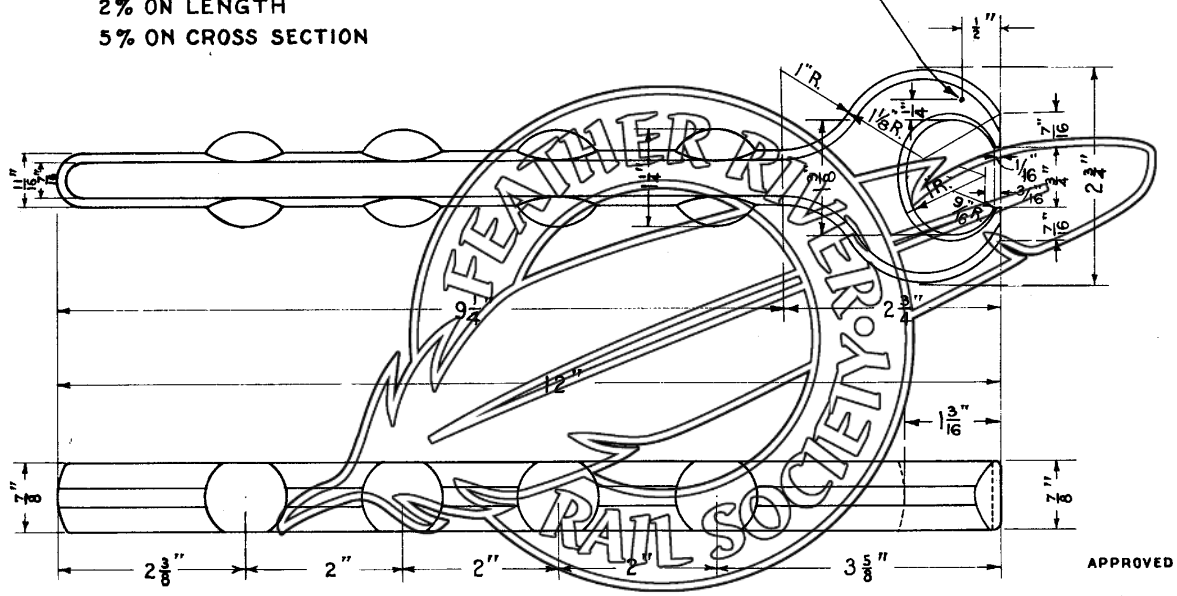
ADOPTED: January 21, 1955

C. E.
S. 115

Tentative A.R.E.A. Specifications for
Track Tools, Plan B & C-1.

Arrow showing point where
hardness is taken
Brinell 375-450

TOLERANCE -
2% ON LENGTH
5% ON CROSS SECTION



APPROXIMATE WT. 2½ LBS.

APPROVED
CHIEF ENGINEER.

APPROVED
VICE-PRESIDENT AND GENERAL MANAGER.

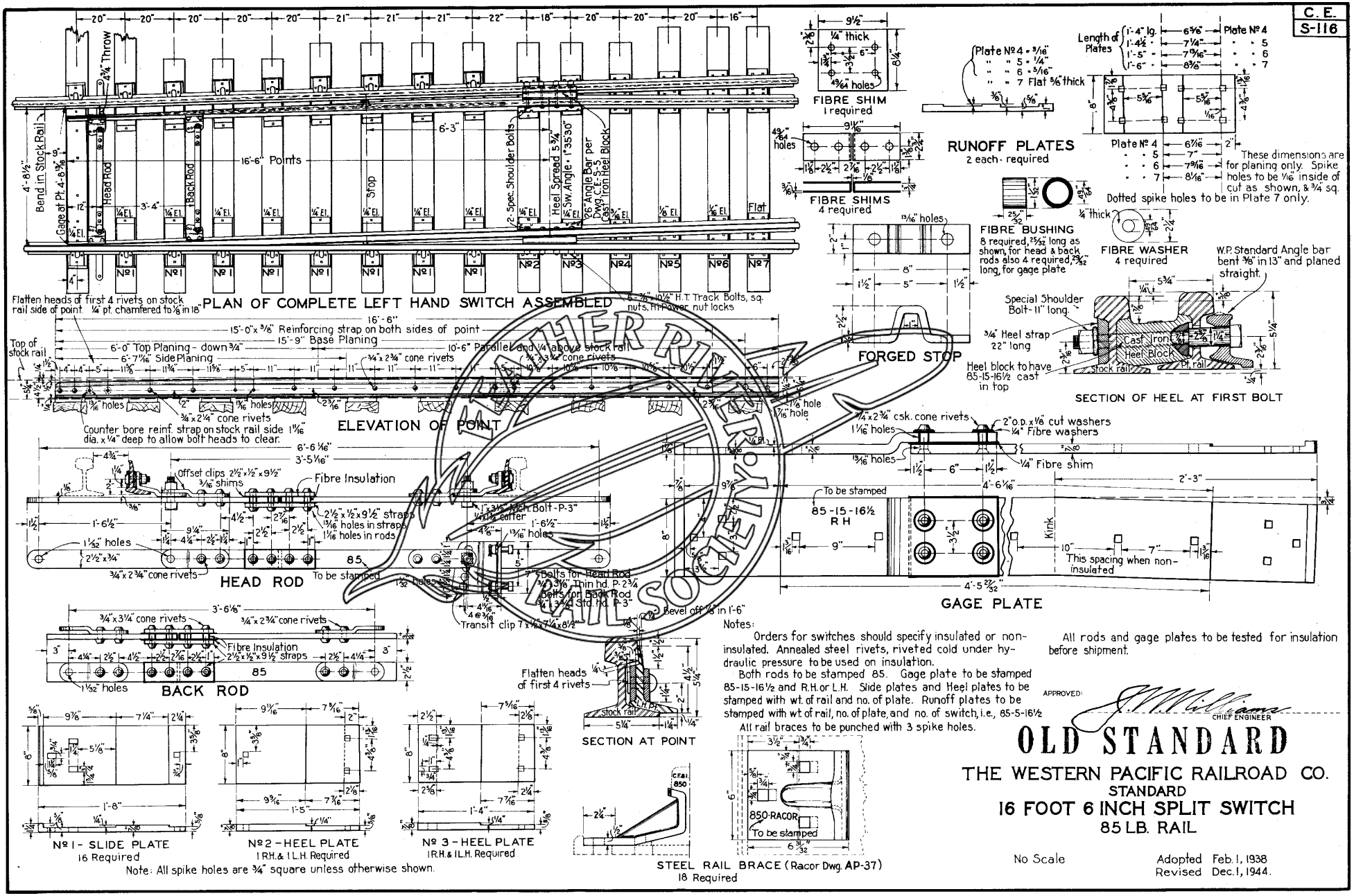
Plan is the same as A.R.E.A. Spike Puller Plan No. 9.
dated Sept. 1929 - Revised Sept. 1933, Rev. Mar. 1936.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
SPIKE PULLER
A.R.E.A. PLAN Nº 9

SCALE:- HALF SIZE

ADOPTED JULY 1, 1934.
Rev. March 1936

C.E.
S-116



Notes:

Orders for switches should specify insulated or non-insulated. Annealed steel rivets, riveted cold under hydraulic pressure to be used on insulation.

Both rods to be stamped 85. Gage plate to be stamped 85-15-16 1/2 and R.H. or L.H. Slide plates and Heel plates to be stamped with wt. of rail and no. of plate. Runoff plates to be stamped with wt. of rail, no. of plate, and no. of switch, i.e., 85-5-16 1/2

All rail braces to be punched with 3 spike holes.

All rods and gage plates to be tested for insulation before shipment.

APPROVED: J. M. Williams
CHIEF ENGINEER

OLD STANDARD

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

16 FOOT 6 INCH SPLIT SWITCH

85 LB. RAIL

No Scale

Adopted Feb. 1, 1938
Revised Dec. 1, 1944.

Note: All parts shown here are interchangeable with corresponding parts shown on S-116 A. When requisition refers to S-116, store will furnish "Old Standard" parts if available, otherwise will furnish parts in accordance with S-116A.

PARTS LIST - SWITCH COMPLETE

Piece Mark	Name of Part	Stamped	Req'd	Remarks
1	Switch Point - Right Hand	–	1	Includes Transit Clips bolted in place except when requisition states "Without Transit Clips."
2	Switch Point - Left Hand	–	1	
3	Gage Plate - Complete	85-16½-15	1	Specify insulated or non-insulated
4	Head Rod - Complete*	85	1	Specify insulated or non-insulated; includes Transit Clip Rod Bolts except when requisition states "Without Transit Clip Rod Bolts"
5	Back Rod - Complete	85	1	
6	Slide Plate	SP-85	16	
7	Heel Plate	HP-85	4	
8	L 23 - Hook Twin Tie Plate	L-23	6	As per W.P. Dwg. N° C.E. 5-219
9	LR 23-Hook Twin Tie Plate	LR-23	6	
10	Run-off Shim	–	2	To be wired to Pc. Mk. 12 for shipment
11	Rail Brace	85	18	
12	L.H. Heel Assembly Complete	–	1	Includes 1 Heel Block, 1 Heel Strap, 1 Bent Joint Bar, 1 Shoulder Bolt, & 3 Track Bolts each.
13	R.H. Heel Assembly Complete	–	1	

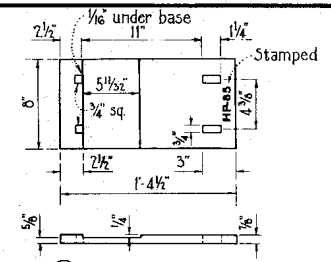
REPLACEMENT PARTS

	Insulated Gage Plate			
14	Gage Plate Half - R.H.	85-16½-15RH	1	¾"x 4¼" Sq. Hd. Mach. Bolt — includes 1 Hex. Nut & 1 Spring lock washer each.
15	Gage Plate Half - L.H.	85-16½-15LH	1	
16	Gage Plate Bolt	-	3	
17	Fibre Bushing	-	3	
18	Fibre Shim	-	2	
19	Fibre Angle	-	2	
20	Steel Strapwasher	-	2	
	Transit Clip			
21	Transit Clip: R.H. or L.H.	-	2 ea	Bolts not included
22	Transit Clip Web Bolt	-	8	¾"x3¼" drilled 2 11/16 Sq. Hd. Mach. Bolt - includes 1 Hex. Nut, 1 Spring lock washer & 1-⅛"x1¼" Cotter pin each
23	Transit Clip Rod Bolt	-	4	1"x3½" drilled 3" Sq. Hd. Mach. Bolt - includes 1 Sq. Nut & 1-¼"x1½" Cotter Pin each.
	Heel Assembly			
24	Heel Block - Right Hand	85-16½-15	1	
25	Heel Block - Left Hand	85-16½-15	1	
26	Heel Strap	-	2	⅞"x 17⅝" H.C. H.T. - includes 2 sq. nuts, 2-⅞" Spring lock washers & 1-¼"x1¼" Cotter Pin each.
27	Bent Joint Bar	-	2	
28	Shoulder Bolt	-	2	
29	Track Bolt	-	6	⅞"x10½" Std. Track Bolt - includes 1 Sq. Nut & 1 Spring lock washer ea.
	Insulated Rod Assembly			
30	Head Rod Half	85	2	
31	Back Rod Half	85	2	¾"x 3¾" drilled 3¼" - Square Head Machine Bolt - includes 1 Sq. Nut & 1 Hi. Chrome lock washer & 1-¼"x1¼" Cotter Pin each.
32	Rod Insulation Bolt	-	8	
33	Fibre Shims	-	2 pr.	
34	Fibre Bushing	-	8	
35	Steel Strap	-	4	2½"x½"x9½"

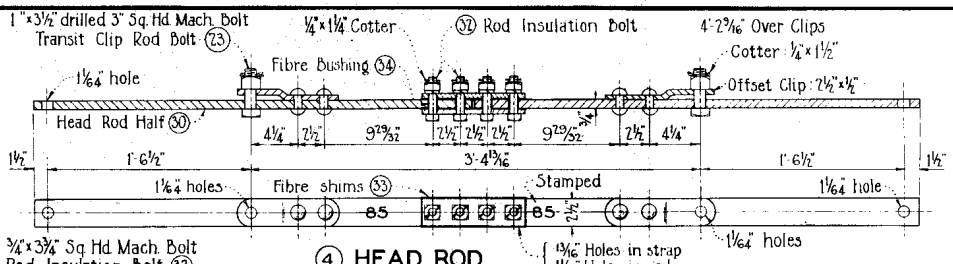
NOTES

When requisition states "Switch Complete" store will furnish Piece Marks 1 through 13 listed under Switch Complete. Requisition must state whether switch is to be insulated or non-insulated.

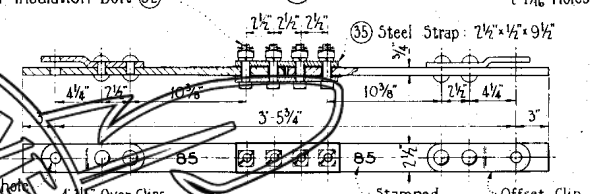
Piece Marks 1 through 13 include all material necessary to equip one complete switch. Piece Marks 14 through 35 are replacement parts only. Replacement Parts list to be used only when ordering individual replacement parts. When ordering, refer to Drawing Number and Piece Mark in addition to specifying name and size of part.



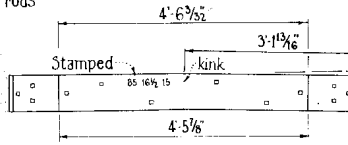
⑦ HEEL PLATE



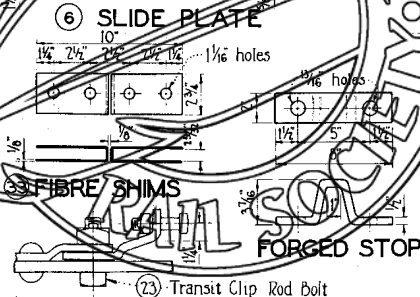
④ HEAD ROD



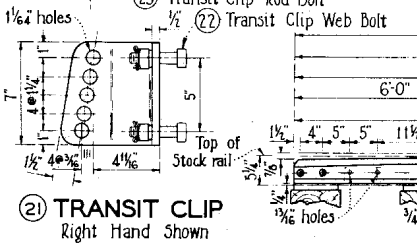
⑤ BACK REND



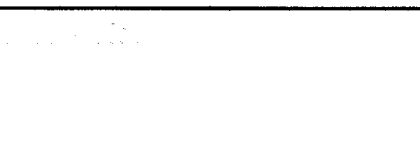
Non-insulated
③ GAGE PLATE
For dimensions not shown see Gage Plate - Insulated.



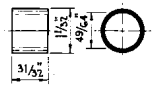
⑥ SLIDE PLATE



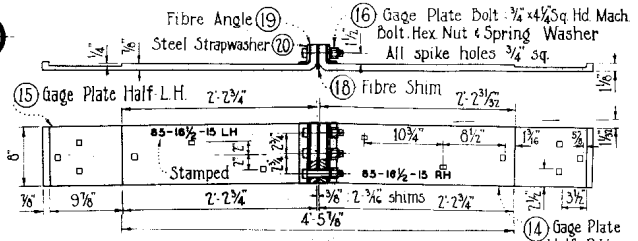
㉝ FIBRE SHIMS



⑰ FIBRE BUSHING



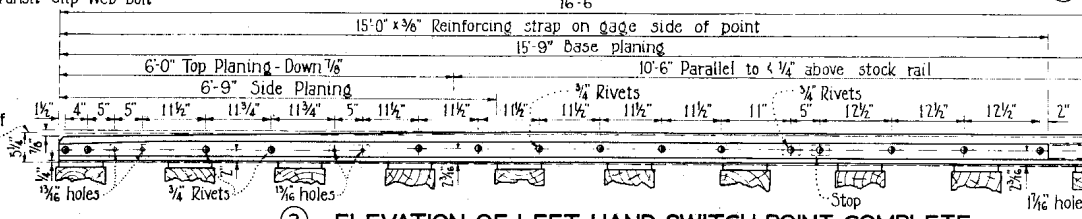
㉞ FIBRE BUSHING



③ GAGE PLATE
Insulated

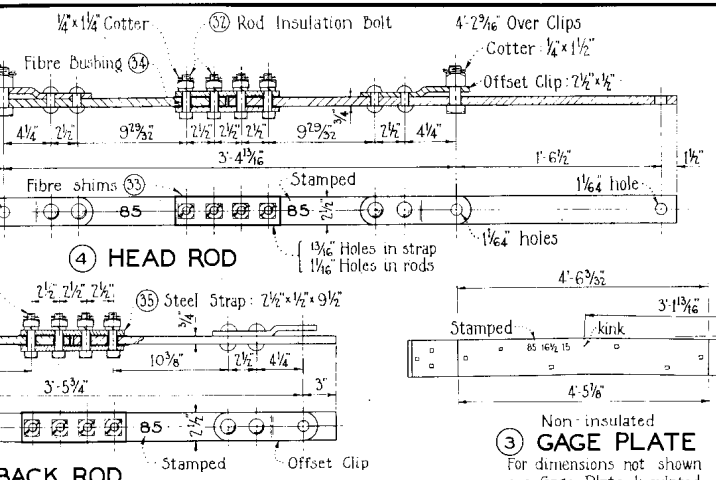
㉓ Transit Clip Rod Bolt
㉒ Transit Clip Web Bolt

㉑ TRANSIT CLIP
Right Hand Shown



② ELEVATION OF LEFT HAND SWITCH POINT COMPLETE

C.E.
S-116A

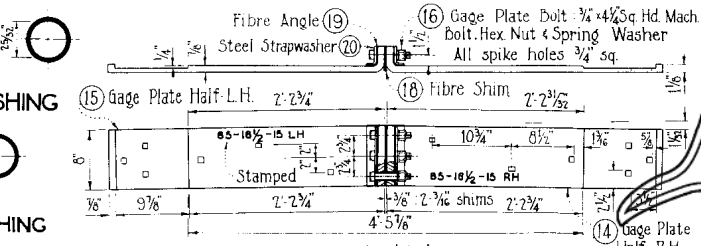


4 HEAD ROD

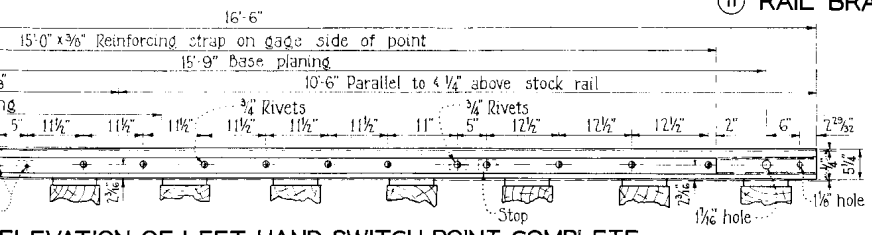
BACK ROD

3 GAGE PLATE

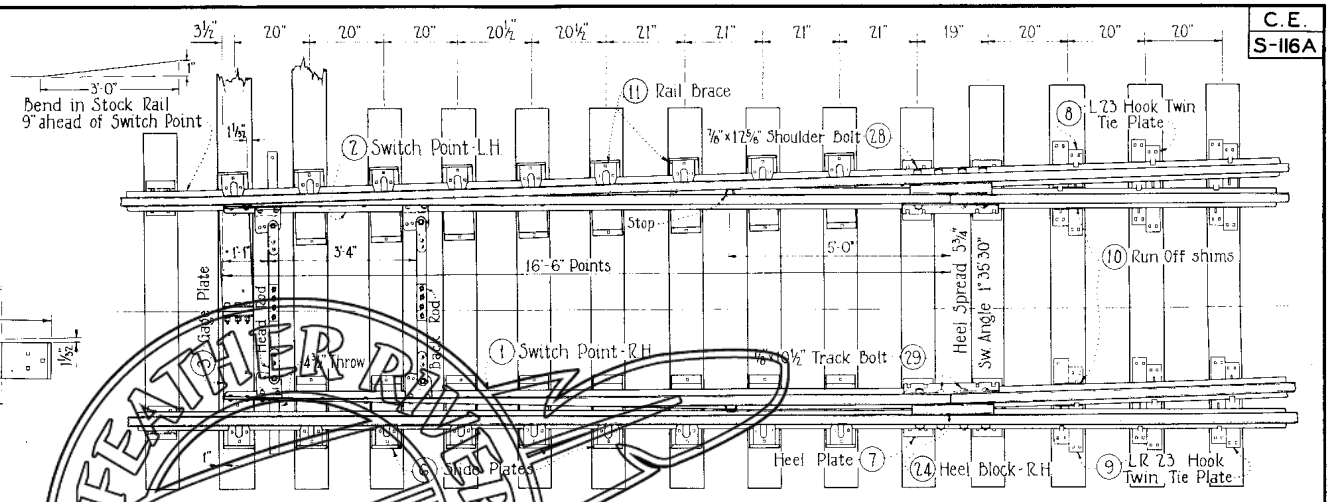
For dimensions not shown see Gage Plate-Insulated.



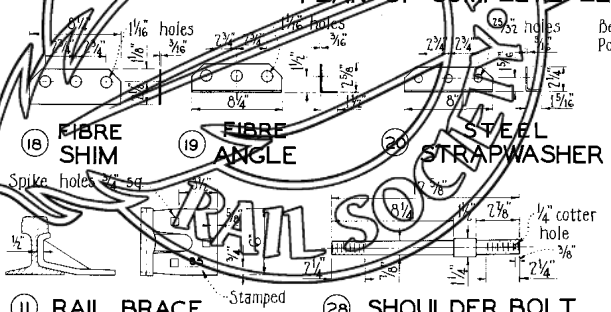
3 GAGE PLATE



ELEVATION OF LEFT HAND SWITCH POINT COMPLETE



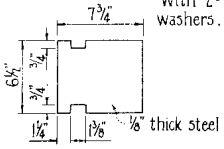
PLAN OF COMPLETE LEFT HAND SWITCH ASSEMBLED



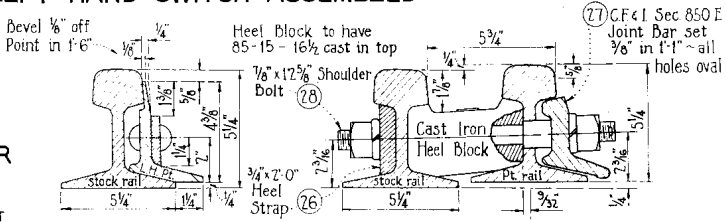
11 RAIL BRACE

28 SHOULDER BOLT

With 2-⅞" Ht. Chrome lock washers, 2 Nuts 4 1-¼"x1¼" Cotter



10 RUN-OFF SHIM



SECTION AT POINT

SECTION OF HEEL AT FIRST BOLT

○ Designates Piece Mark

Approved: Frank E. Woolpert
Chief Engineer

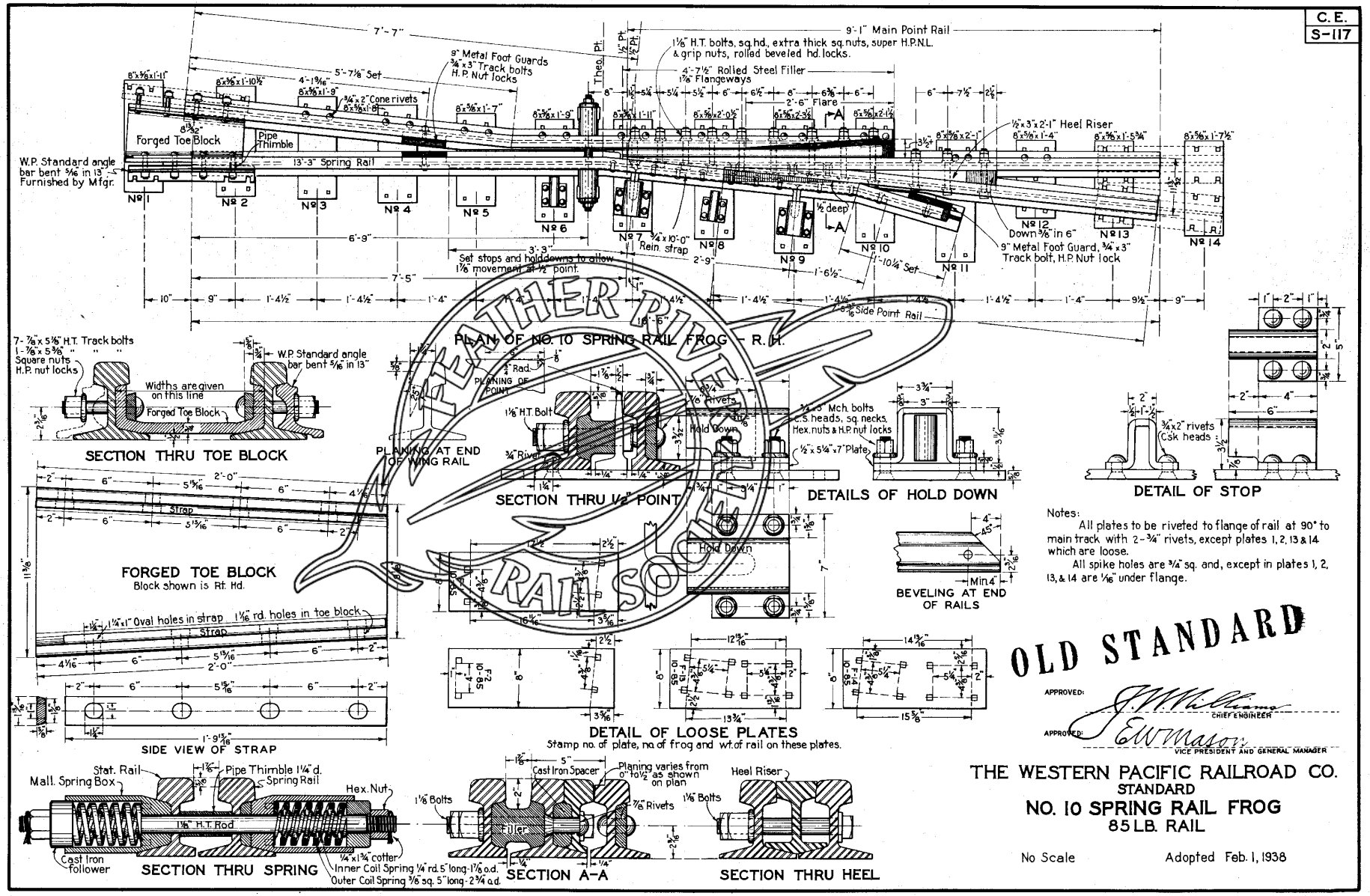
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

16 FOOT 6 INCH SPLIT SWITCH
85 LB. RAIL

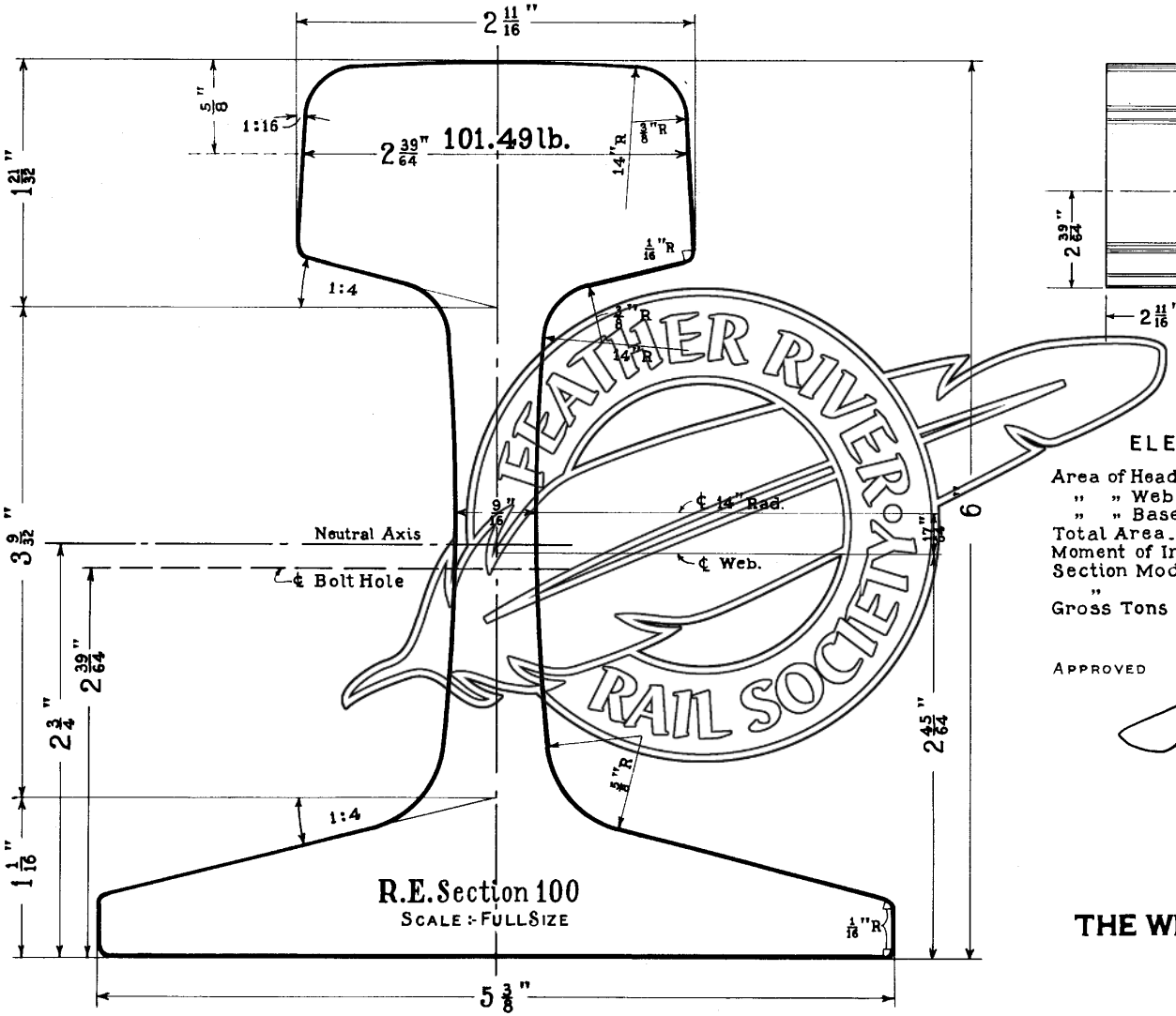
NO SCALE

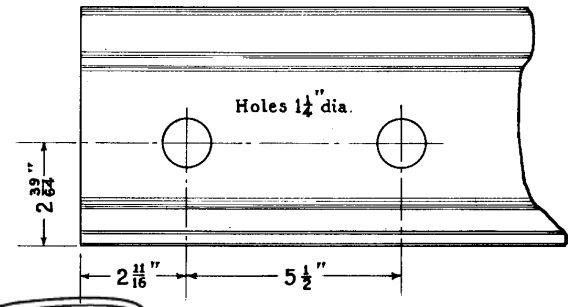
ADOPTED: Dec. 15, 1954

C.E.
S-117


PLAN OF NO. 10 SPRING RAIL FROG - R.H.
SECTION THRU TOE BLOCK
Forged Toe Block
Pipe Thimble
W.P. Standard angle bar bent 5/16" in 13"
Furnished by Mfgr.
13'-3" Spring Rail
9'-1" Main Point Rail
1 1/8" H.T. bolts, sq.hd., extra thick sq.nuts, super H.P.N.L. & grip nuts, rolled beveled hd. locks.
4'-7 1/2" Rolled Steel Filler
1 7/8" Flangeways
2'-6" Flare
9" Metal Foot Guards 3/4"x3" Track bolts H.P. Nut locks
1/2"x3"x2'-1" Heel Riser
9" Metal Foot Guard, 3/4"x3" Track bolt, H.P. Nut lock
Down 3/8" in 6"
1/2" deep
Set stops and holddowns to allow 1 7/8" movement at 1/2 point.
3/4"x10'-0" Rein. strap
10 1/4" Set
5" Side Point Rail
PLANING AT END OF WING RAIL
SECTION THRU 1/2" POINT
DETAILS OF HOLD DOWN
DETAIL OF STOP
FORGED TOE BLOCK
Block shown is Rt. Hd.
Strap
1 1/16"x1 1/4"x1" Oval holes in strap 1 1/16" rd. holes in toe block
SIDE VIEW OF STRAP
BEVELING AT END OF RAILS
DETAIL OF LOOSE PLATES
Stamp no. of plate, no. of frog and wt. of rail on these plates.
SECTION THRU SPRING
Cast Iron follower
Inner Coil Spring 1/4" rd. 5" long-1 7/8" o.d.
Outer Coil Spring 3/8" sq. 5" long-2 3/4" o.d.
SECTION A-A
SECTION THRU HEEL
Notes:
All plates to be riveted to flange of rail at 90° to main track with 2-3/4" rivets, except plates 1, 2, 13 & 14 which are loose.
All spike holes are 3/4" sq. and, except in plates 1, 2, 13, & 14 are 1/16" under flange.
OLD STANDARD
APPROVED: J. M. Williams CHIEF ENGINEER
APPROVED: E. W. Mason VICE PRESIDENT AND GENERAL MANAGER
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NO. 10 SPRING RAIL FROG
85 LB. RAIL
No Scale
Adopted Feb. 1, 1938

C. E.
S-118





DRILLING OF RAIL
Scale:-3"=1'-0"

ELEMENTS OF RAIL SECTION

Area of Head	3.80 Sq.In.	38.2 %
" " Web	2.25 " "	22.6 %
" " Base	3.90 " "	39.2 %
Total Area	9.95 " "	100.0 %
Moment of Inertia		49.0
Section Modulus -Head		15.1
" " -Base		17.8
Gross Tons per Track Mile		159.48

APPROVED

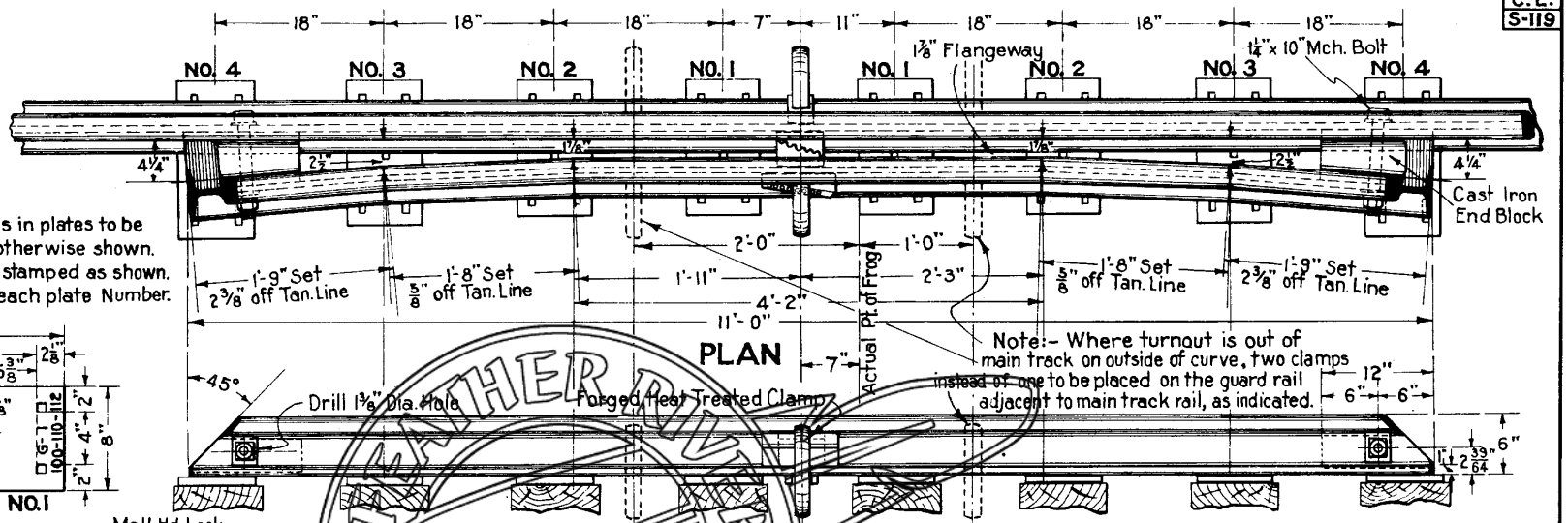
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
100 LB. R.E. RAIL

SCALES AS SHOWN

ADOPTED FEB. 25, 1935.

C.E.
S-119



Note:
All spike holes in plates to be ¾"x¾" unless otherwise shown.
All plates to be stamped as shown.
2 Required of each plate Number.

PLATE NO.1

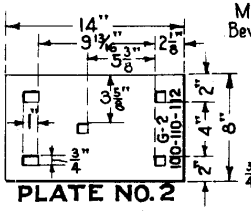


PLATE NO. 2

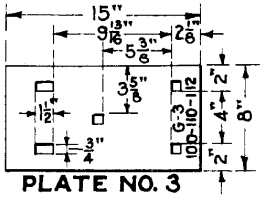


PLATE NO. 3

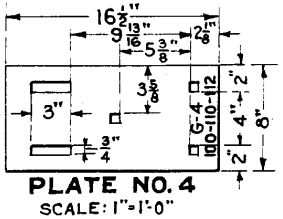
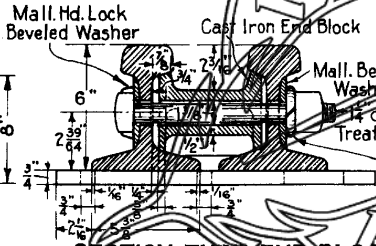
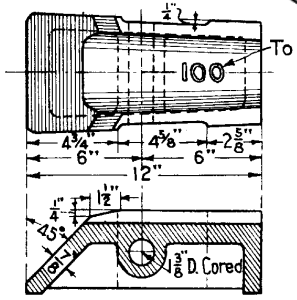


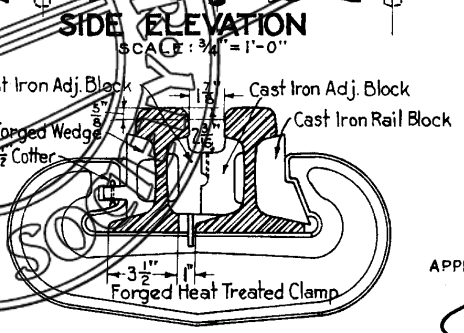
PLATE NO. 4
SCALE: 1"=1'-0"



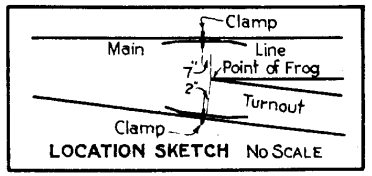
SECTION THRU END BLOCK



CAST IRON END BLOCK
SCALE: 1½"=1'-0"



DETAIL OF CLAMP ASSEMBLY
SCALE: 1½"=1'-0"



LOCATION SKETCH No SCALE

Specifications:- As per A.R.E.A. Specifications, Appendix A, adopted March, 1934.
Plan 505 for guard rails clamps, adopted Mar. 1934.

NOTE:- The distance from gage line at frog point to inside face of guard rail must always be maintained at 4'-6⅝". If gage of track is more than 4'-8½", the guard rail flangeway must be more than 1⅞" by the same amount.

APPROVED: J. M. Williams
CHIEF ENGINEER

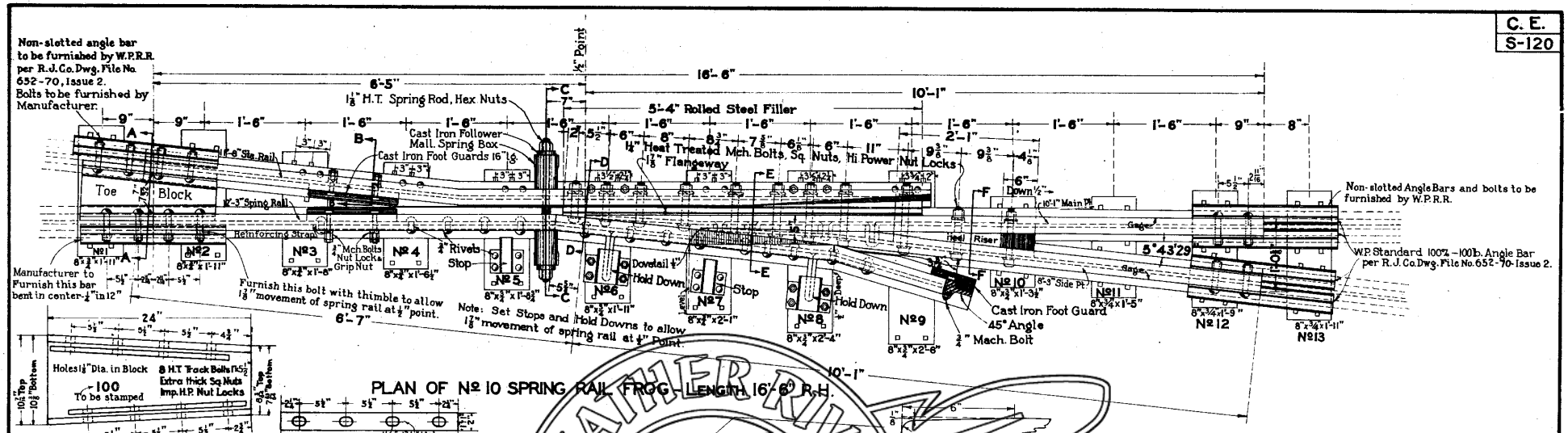
OLD STANDARD

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
11 FT - 100 LB. GUARD RAIL

SCALES AS NOTED

ADOPTED MARCH, 1935
REVISED NOV. 1, 1935
" MAR. 2, 1936

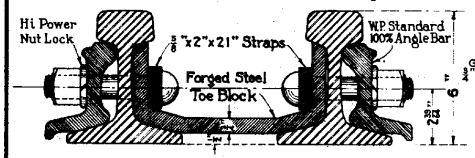
C. E.
S-120



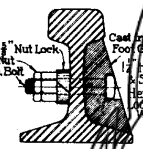
FORGED ANCHOR BLOCK

⅝" x 2" STRAP 2 Pieces

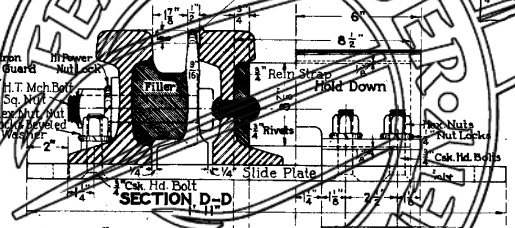
PLAN OF № 10 SPRING RAIL FROG - LENGTH 16'-6" R.H.



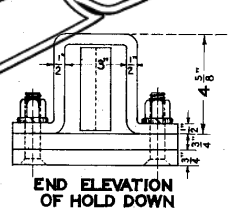
SECTION A-A



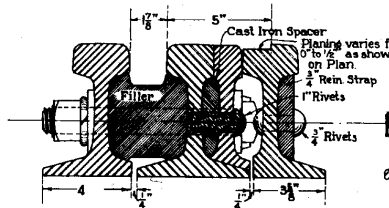
SECTION B-B



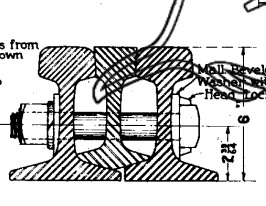
SECTION D-D



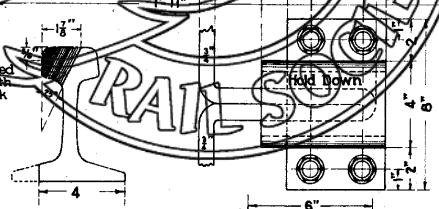
END ELEVATION OF HOLD DOWN



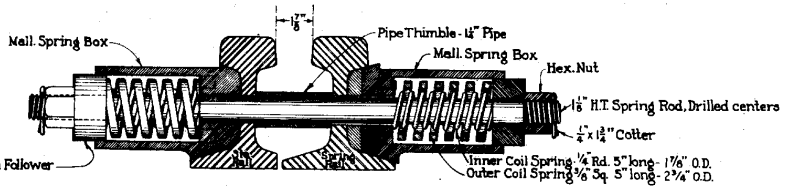
SECTION E-E



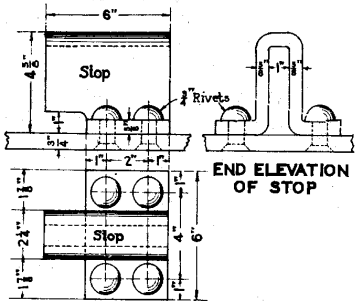
SECTION F-F



PLANING AT END OF STATIONARY RAIL



SECTION C-C



END ELEVATION OF STOP

Specifications:-
As per A.R.E.A. Specifications Appendix A. Adopted March 1934.

Note:-
Plates № 1, 2, 10, 11, 12 and 13 to be shipped in one bundle.
Plates № 1, 2, 10, 11, 12 and 13 to be stamped with number of plate and weight of rail as shown on Dwg. C.E.-60-32-F-7, using prefix "F" as noted.
Plates № 1, 2, 10, 11, 12 and 13 to be punched in accordance with Dwg. C.E. 60-32-F-9.

OLD STANDARD

APPROVED: J. M. Williams
CHIEF ENGINEER.

APPROVED: E. V. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

NO. 10 SPRING RAIL FROG

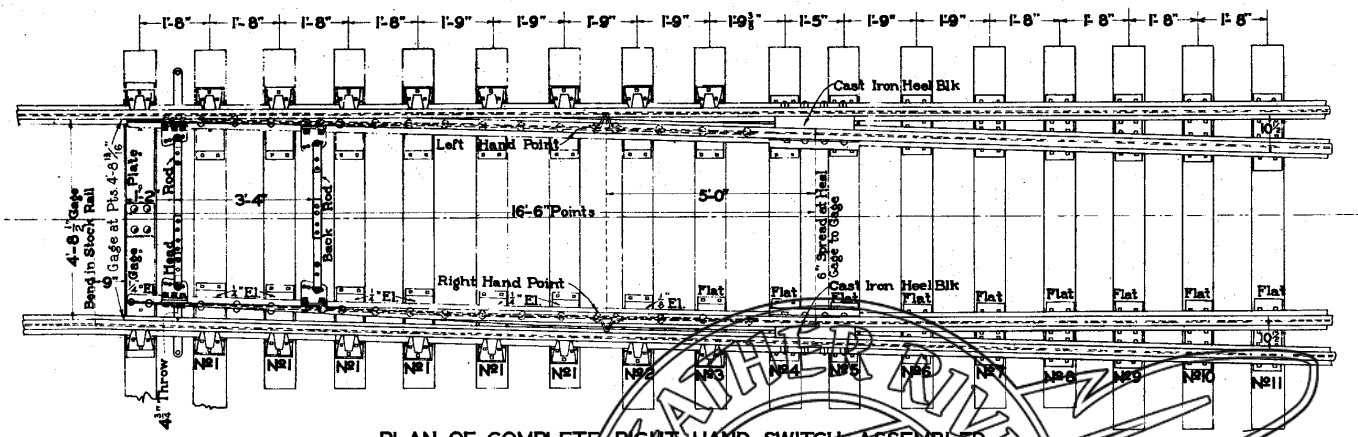
100 LB. R.E. RAIL

NO SCALE

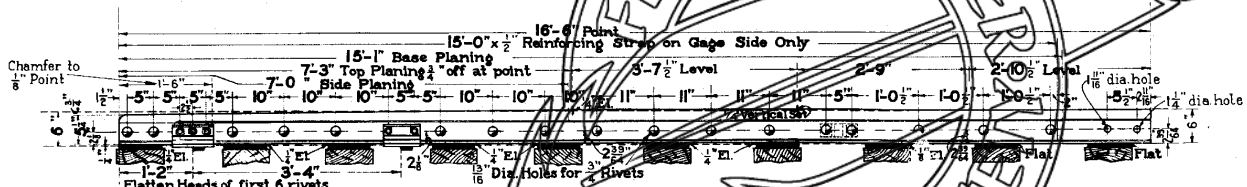
ADOPTED MARCH, 1935.
Revised Nov. 1, 1935, 3/2/1936.

C.E. 8-97

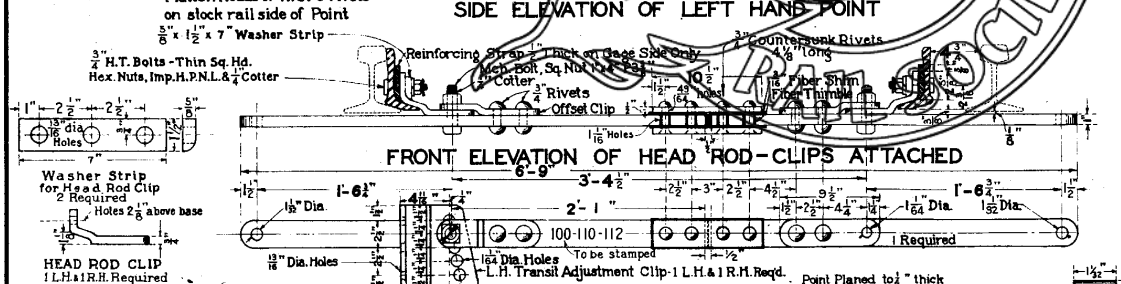
C. E.
S-121
1 of 2



PLAN OF COMPLETE RIGHT HAND SWITCH ASSEMBLED

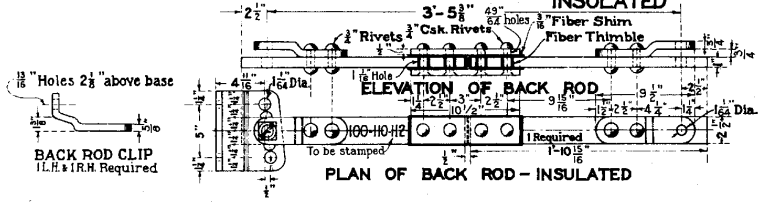


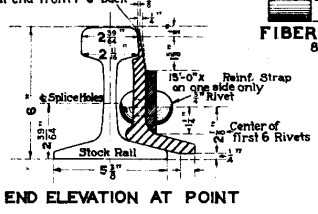
SIDE ELEVATION OF LEFT HAND POINT



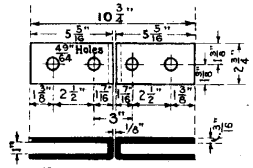
FRONT ELEVATION OF HEAD ROD - CLIPS ATTACHED

PLAN OF HEAD ROD INSULATED





END ELEVATION AT POINT



VULCANIZED FIBER SHIMS
4 Required

Note:- Annealed steel rivets, riveted cold under hydraulic pressure. All bars tested for insulation before shipment.

FIBER THIMBLES
8 Required

Specifications:-
As per A.R.E.A. Specifications Appendix A, adopted March 1934.

SHIPPING LIST - ONE SWITCH COMPLETE

1 - R.H. } Switch Point 16'-6" Long reinforced one side only, with stop
1 - L.H. } and transit clips fastened to same.
1 - Bundle of 2 (1 Head Rod - №1 with rod bolts only.
(1 Back Rod - №2 with rod bolts only.
1 - Thru Gage Plate, insulated, ¼" Elev., 1" x 8"
3 - Bundles (4 Each) Solid rolled A.R.E.A. Slide Plates 1" x 8" - №1 - 1¼" Elev.
1 - Bundle of 4 - Solid rolled A.R.E.A. Slide Plates 1" x 8"
(2 - №2 - ⅛" Elev) (2 №3 - Blank)
2 - Bundles (4 Each) Flat Heel and Runoff Plates ¾" x 8" Each with 1-№4; 1-№5; 1-№6; 1-№7.
2 - Bundles (4 Each) Flat Runoff Plates ¾" x 8". Each with 1-№8; 1-№9; 1-№10; 1-№11.
2 - Bundles (9 Each) Forged Rail Braces
2 - Cast Iron Heel Blocks, each having 1 W. P. Standard 100% Angle Bar, 1 Heel Strap, 1 Thimble, 4 heat treated Track Bolts and Nuts, 4 Hi Power Nut Locks. Make 1 R.H. and 1 L.H. by setting Angle Bars.
16 - Bundles Total

OLD STANDARD

APPROVED: J. M. Williams
CHIEF ENGINEER.
APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

16 FOOT 6 INCH SPLIT SWITCH

100 LB. R.E. RAIL

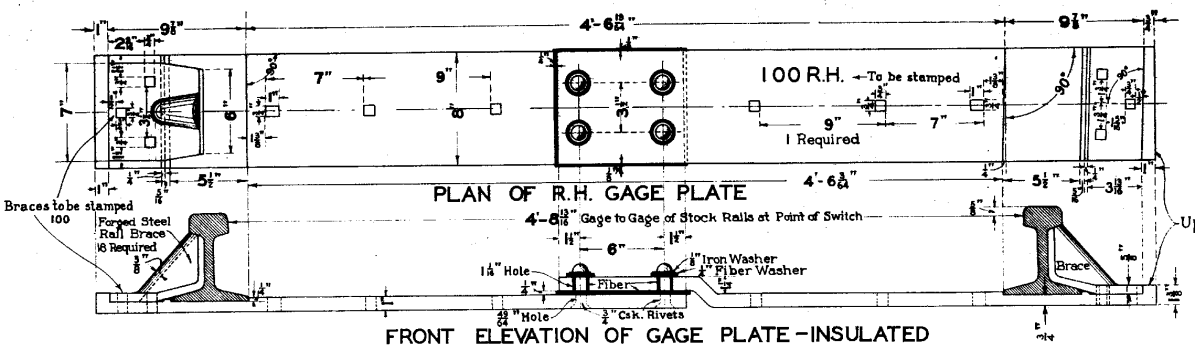
NO SCALE

ADOPTED MARCH, 1935.
Revised Nov. 1, 1935, 3/2/1936.

SHEET NO. 1 OF 2 SHEETS

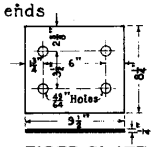
C-E
8-36

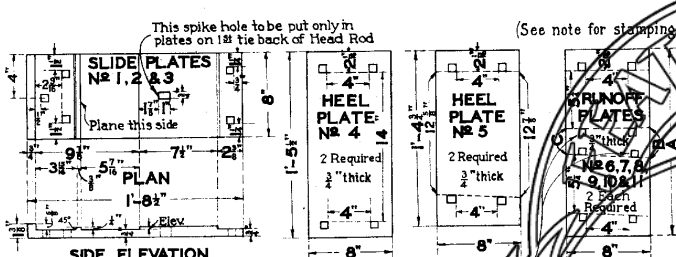
C. E.
S-121
2 of 2



Note:-

Annealed steel rivets, riveted cold under hydraulic pressure.
All gage plates to be tested for insulation before shipment.
Gage plate and braces to be stamped as indicated.
All other switch plates to be stamped with number of plate and weight of rail as shown on Dwg. C.E.-60-32-F-7.

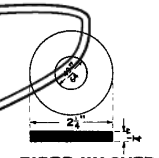


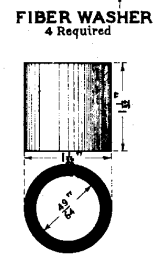


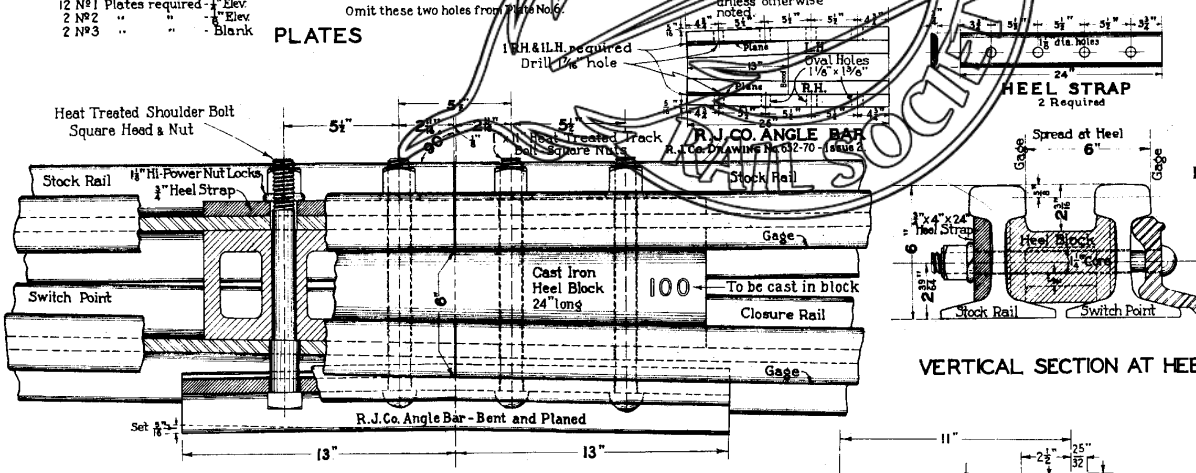
(See note for stamping numbers on plates)

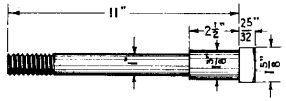
PLATE Nº	A	B	C
6	1'-4 1/2"	1 1/16"	1 1/16"
7	1'-5 1/2"	2 3/16"	2 1/16"
8	1'-6 1/2"	3 1/16"	2 13/16"
9	1'-7"	3 13/16"	3 1/2"
10	1'-7 1/2"	4 5/16"	4 1/2"
11	1'-8 1/2"	5 5/16"	5"

RUNOFF PLATES









OLD STANDARD

APPROVED: J. M. Millar CHIEF ENGINEER.

APPROVED: E. V. Mason VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

16 FOOT 6 INCH SPLIT SWITCH

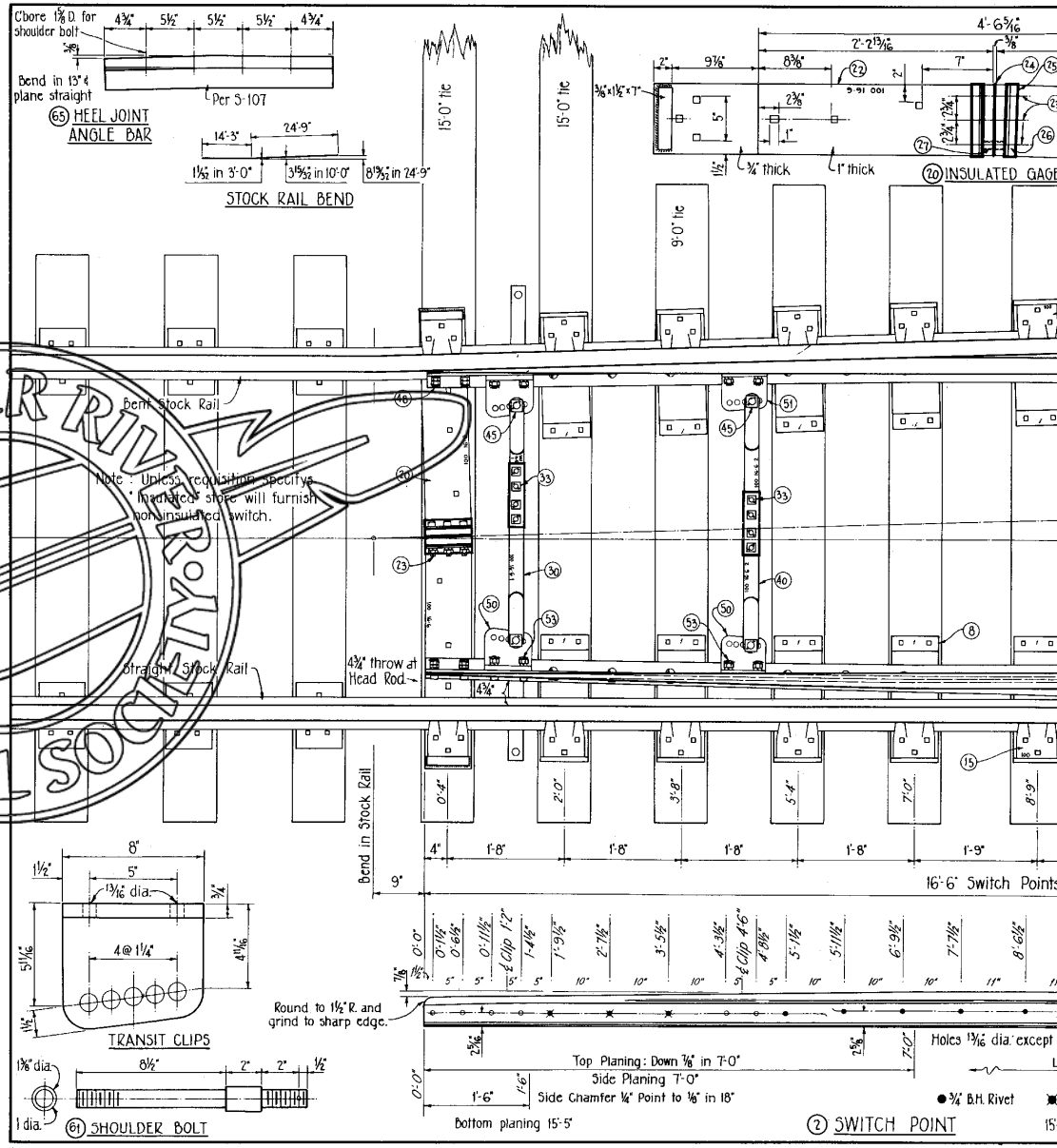
100 LB. R.E. RAIL

NO SCALE

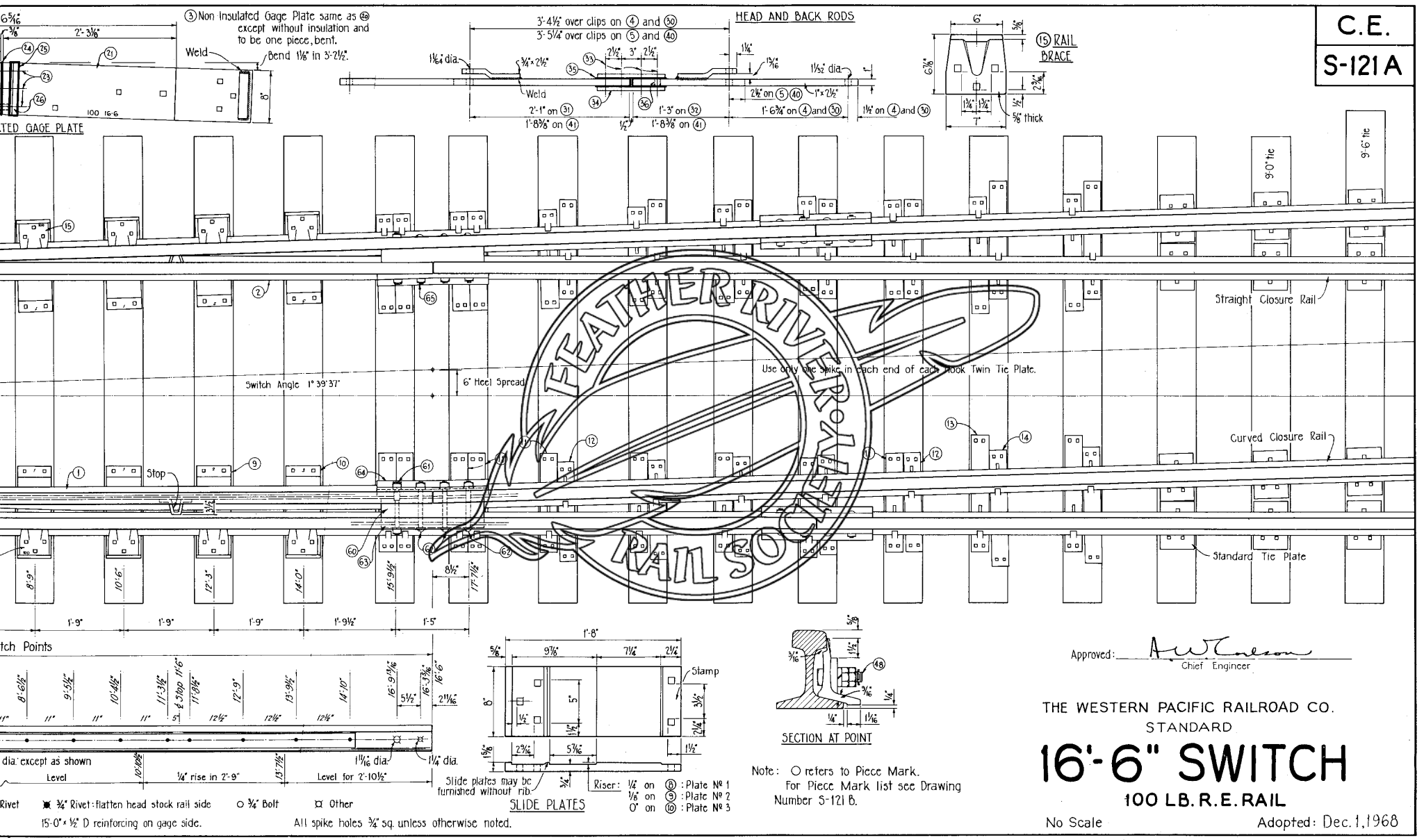
ADOPTED MARCH, 1935.
Revised Nov. 1, 1935, 3/2/1936.

SHEET NO. 2 OF 2 SHEETS

C.E. 8-96



C.E.
S-121 A



Approved: A. W. Carlson
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

16'-6" SWITCH

100 LB. R.E. RAIL

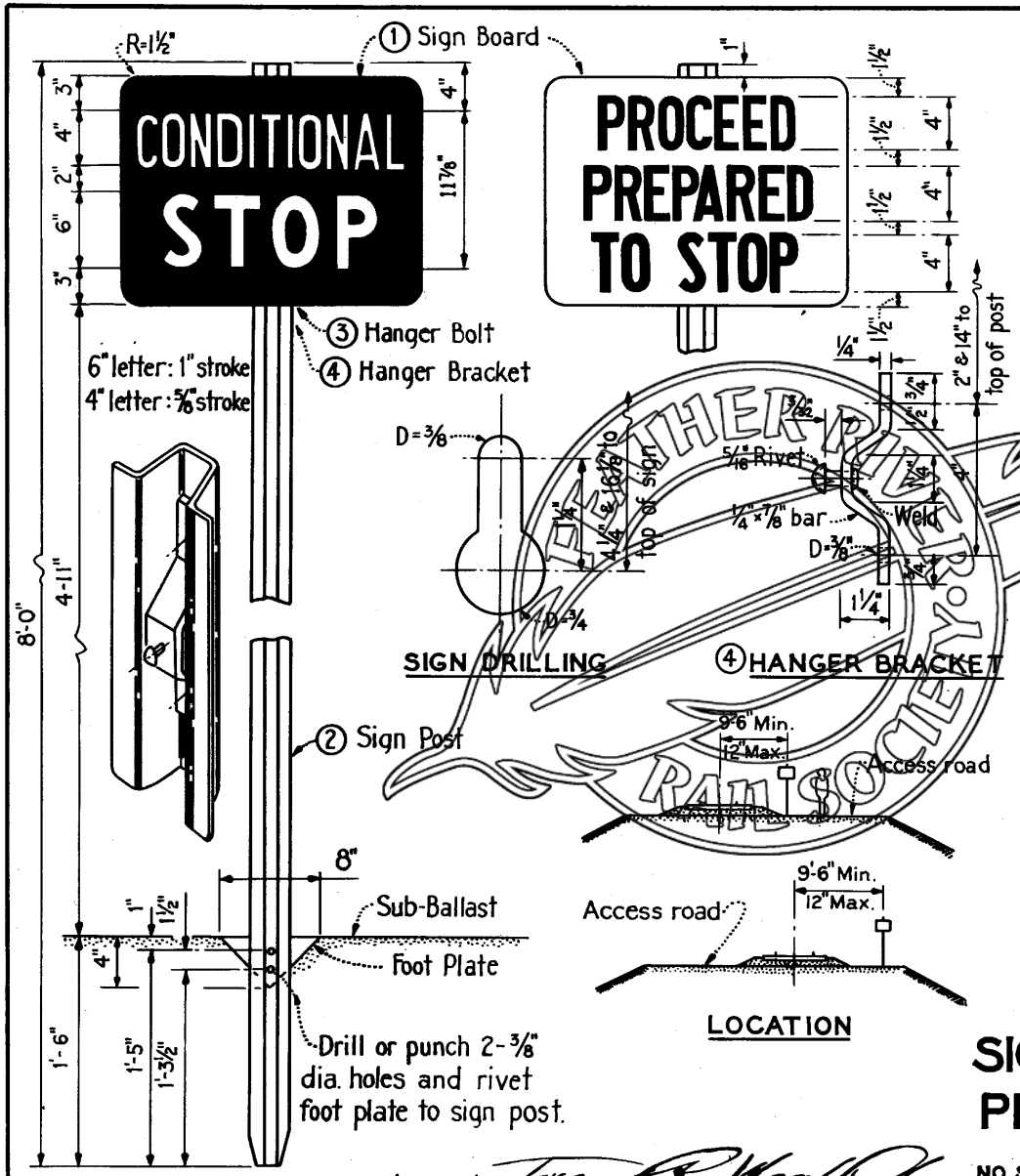
Note: ○ refers to Piece Mark. For Piece Mark list see Drawing Number S-121 B.

No Scale

Adopted: Dec. 1, 1968

8-14-'59 : Change Hanger Bracket; drilling from 12"

C.E.
S-123



NOTE

For proper use of this sign see Maintance of Way and Structures Rule Book, rules 10 H and 10 I.

Proceed Prepared to Stop Sign to have black non-reflective letters on yellow reflective background, one side only.

Materials to be as per current instructions.

Conditional Stop sign to have white non-reflective letters for word "Conditional", white reflective letters for word "Stop". Background to be non-reflective red, one side only.

PARTS LIST

Pc. Mk.	Name	Req'd.	Remarks
1	Sign Board	1	18" x 24"
2	Sign Post	1	Type "C" S-82 with extra holes as shown & without mounting sets.
3	Hanger Bolt	4	5/16" x ¾" galv. stove bolt with 1 galv. nut each.
4	Hanger Bracket	2	Galvanized

When requisition states "Conditional Stop Sign Complete or "Proceed Prepared To Stop Sign Complete" store will furnish Piece Marks 2 through 4 assembled and Piece Mark 1.

When ordering replacement parts refer to Piece Mark. Name of Part and Drawing Number and sign legend.

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

SIGNS-CONDITIONAL STOP AND PROCEED PREPARED TO STOP

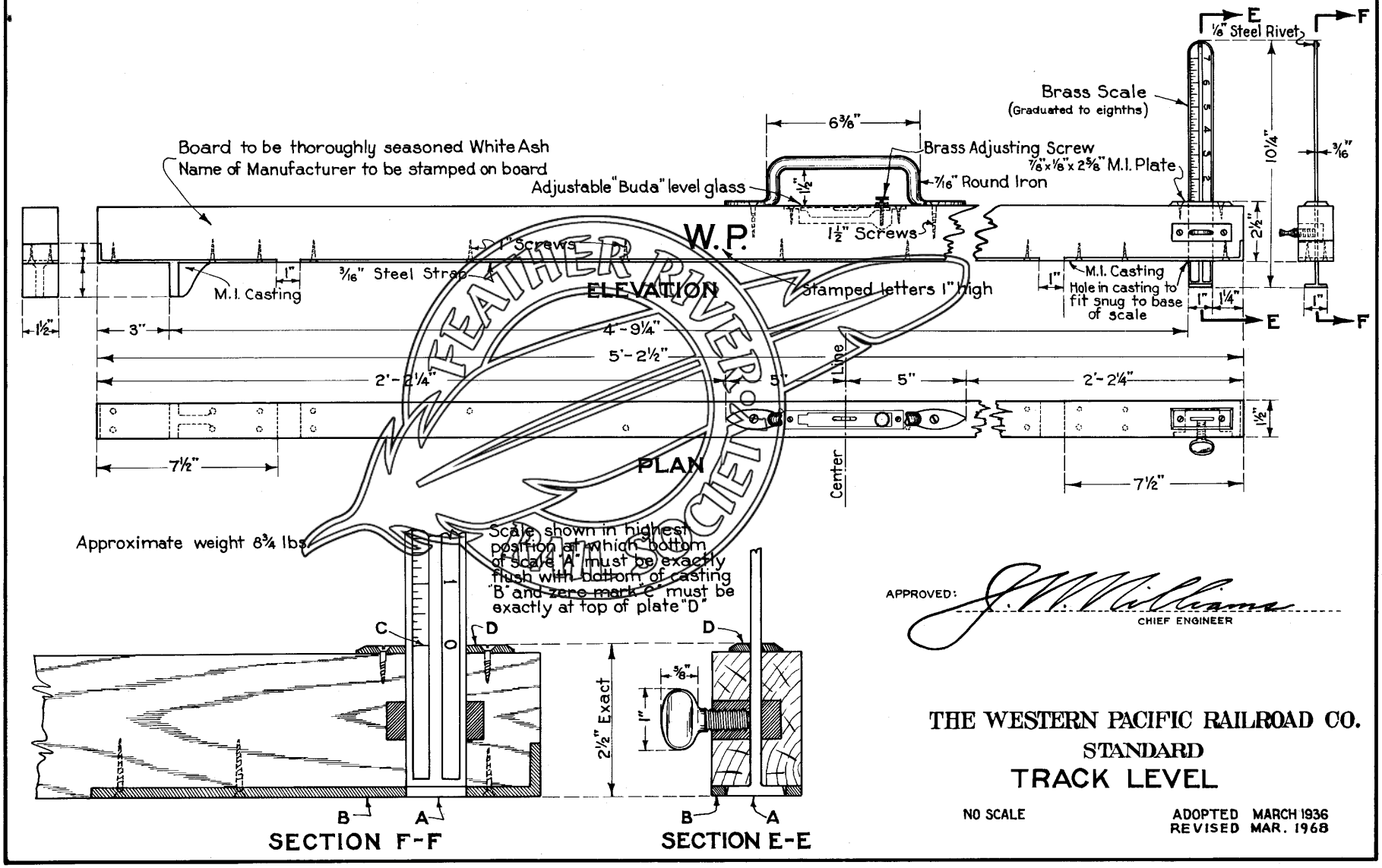
NO SCALE

Revised: 8-14-'59

Adopted: May 22, 1959

Approved: Frank R. Woolford
Chief Engineer

C.E.
S-125



APPROVED: J. M. Williams
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

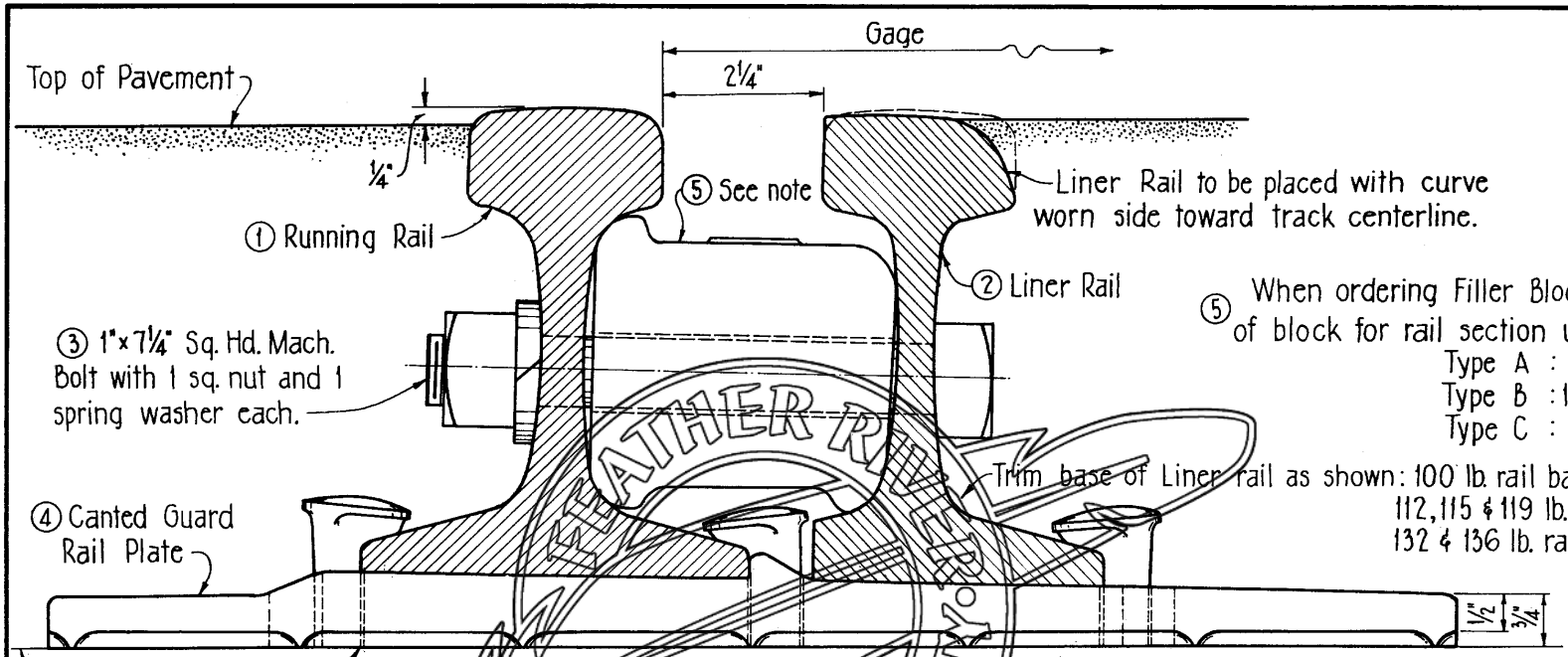
TRACK LEVEL

NO SCALE

ADOPTED MARCH 1936
REVISED MAR. 1968

7-15-59: add plate stamping
8-14-59: block shape, base trimming

C.E.
S-131

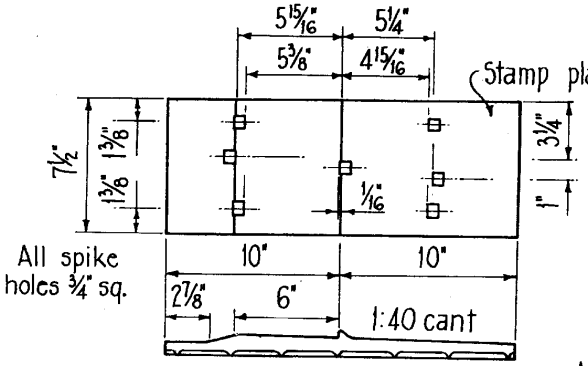


Liner Rail to be placed with curve worn side toward track centerline.

⑤ When ordering Filler Blocks specify type of block for rail section used:
Type A : 100 lb. rail
Type B : 112, 115 & 119 lb. rail
Type C : 132 & 136 lb. rail

Trim base of Liner rail as shown: 100 lb. rail base to be 4⅛", 112, 115 & 119 lb. rail base to be 4 1/16" & 132 & 136 lb. rail to be 4 7/16" base.

Liner rail end to be beveled as shown on S-204.



④ GUARD RAIL PLATE

NOTES

Use guard rail plate as shown on every third tie, on intermediate ties use standard tie plates under running rail only.
Filler Blocks to be spaced at 6'-6" centers or 6 per 39' rail.
For Filler Block details see S-134.
Requisition for Liner Rail should state "Scrap rail for use as Liner Rail".

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

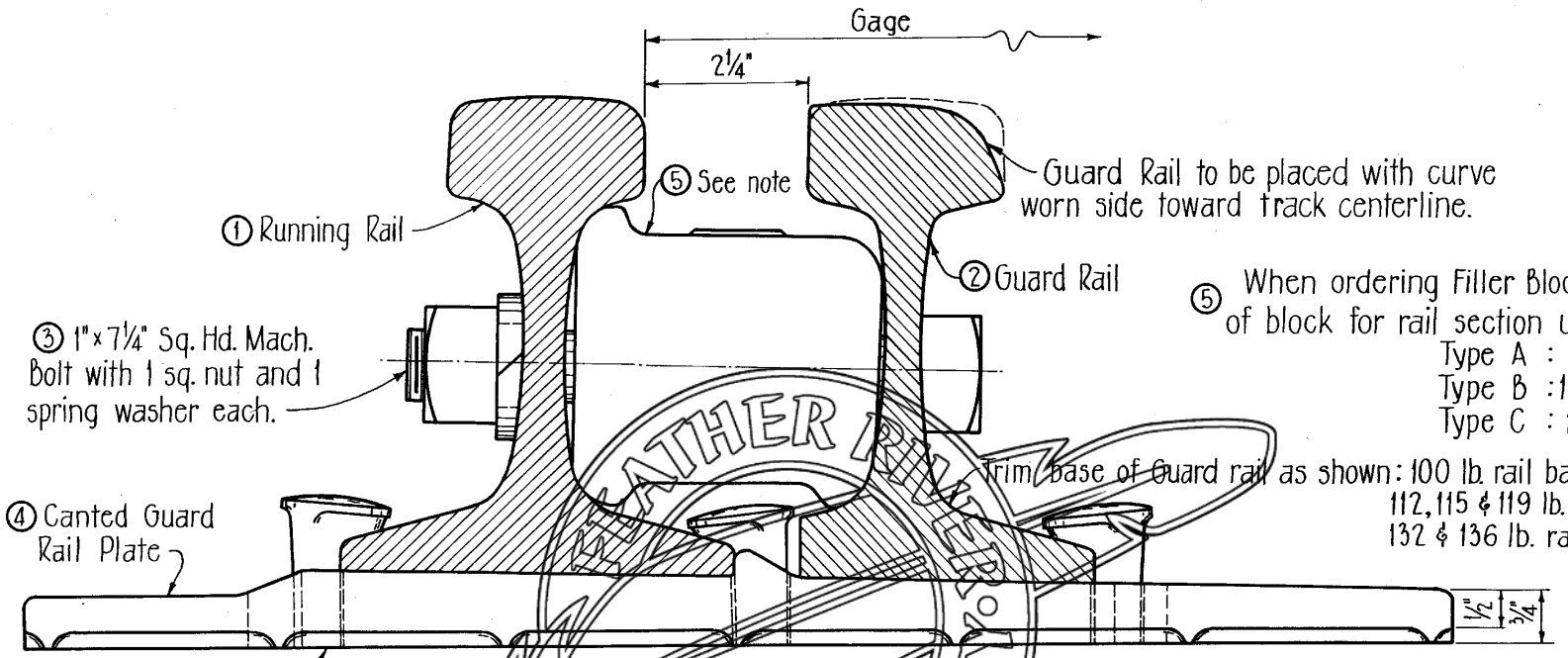
RAIL FLANGEWAY LINER FOR PAVEMENT

RAILS 100 LBS. AND HEAVIER

Approved: Frank R. Woolford
Chief Engineer

No Scale Revised: 8-14-59 Adopted: June 15, 1959

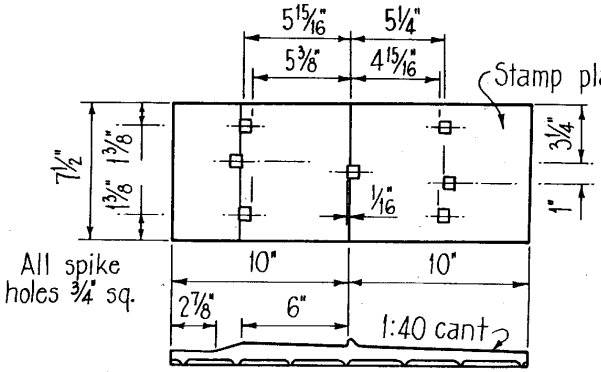
C.E.
S-132



⑤ When ordering Filler Blocks specify type of block for rail section used:

Type A : 100 lb. rail
Type B : 112, 115 & 119 lb. rail
Type C : 132 & 136 lb. rail

Trim base of Guard rail as shown: 100 lb. rail base to be 4⅛", 112, 115 & 119 lb. rail base to be 4 1/16" & 132 & 136 lb. rail base to be 4 7/16".



④ GUARD RAIL PLATE

NOTES

Use guard rail plate as shown on every third tie, on intermediate ties use standard tie plates under running rail only.

Filler Blocks to be spaced at 6'-6" centers or 6 per 39' rail.

For Filler Block details see S-134.

Requisition for Guard Rail should state "Scrap or S.H. rail for use as Guard Rail."

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

INNER GUARD RAIL FOR CURVES

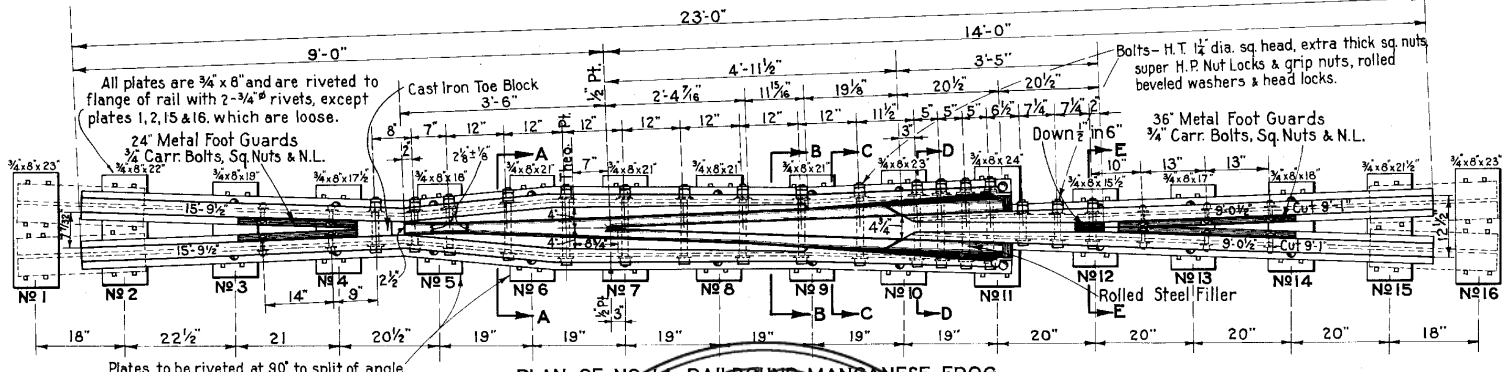
RAILS 100 LBS. AND HEAVIER

Approved: Frank A. Wood
Chief Engineer

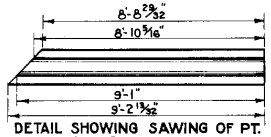
No Scale

Adopted: June 15, 1959

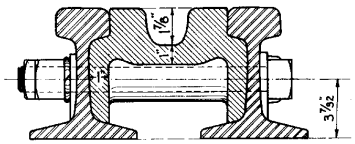
C. E.
S-133



PLAN OF NO. 14 RAILBOUND MANGANESE FROG



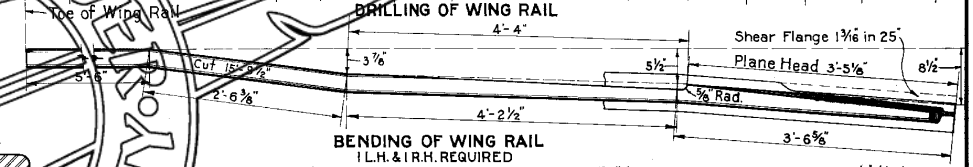
DETAIL SHOWING SAWING OF PT. RAILS BEFORE BENDING



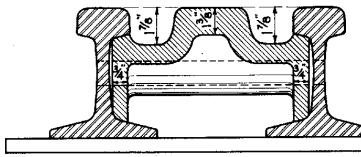
SECTION A-A

SECTION B-B

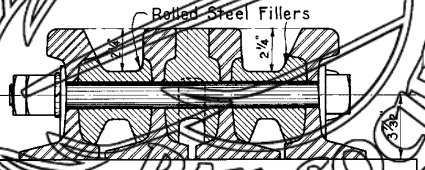
DRILLING OF WING RAIL



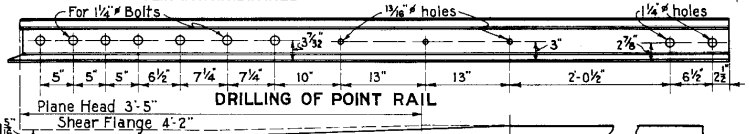
BENDING OF WING RAIL
1 L.H. & 1 R.H. REQUIRED



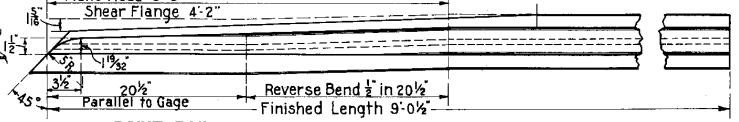
SECTION C-C



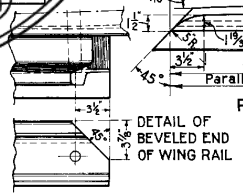
SECTION D-D



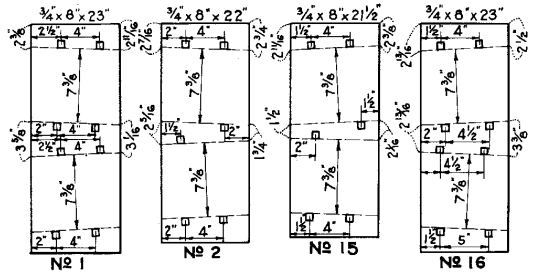
DRILLING OF POINT RAIL



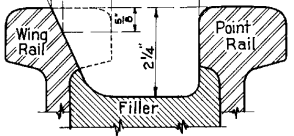
POINT RAIL 1 L.H. & 1 R.H. REQUIRED



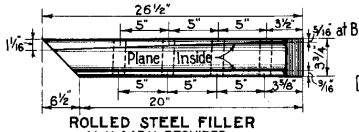
DETAIL OF BEVELED END OF WING RAIL



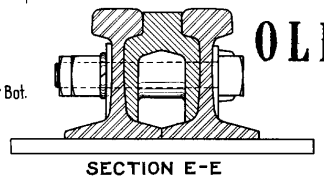
DETAIL OF LOOSE PLATES
Stamp weight of rail, No. of plate and No. of frog as per Dwg. C.E. 60-32-F7



PLANING AT END OF WING RAIL



ROLLED STEEL FILLER
1 L.H. & 1 R.H. REQUIRED



SECTION E-E

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE-PRESIDENT AND GENERAL MANAGER.

OLD STANDARD

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

NO. 14 RAILBOUND MANGANESE FROG

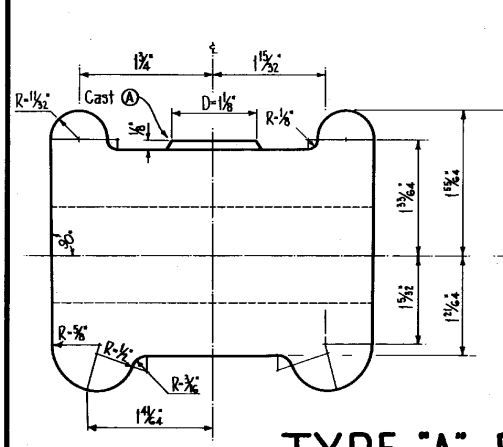
112 LB. & 115 LB. RAIL

No Scale

Adopted : Sept. 1, 1936
Revised : Jan. 25, 1955

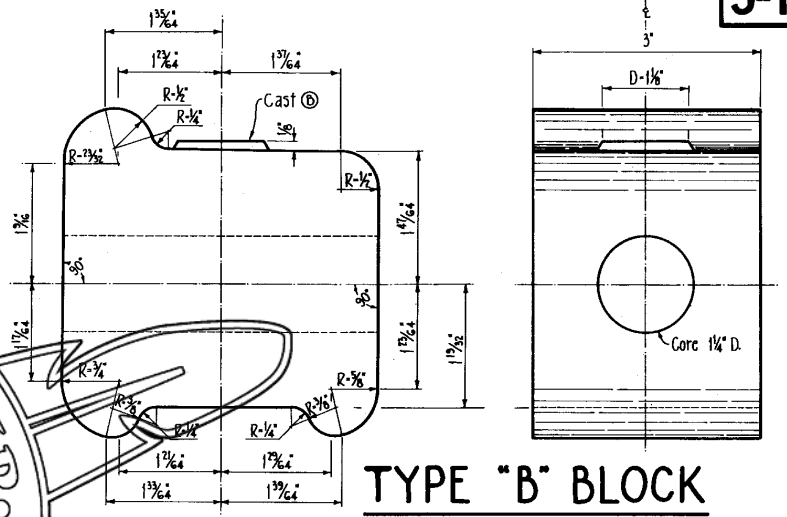
8-14-59 ; Redrawn, change block ends to vertical, change rail fit at top, change width from 4" to 3".

C.E.
S-134



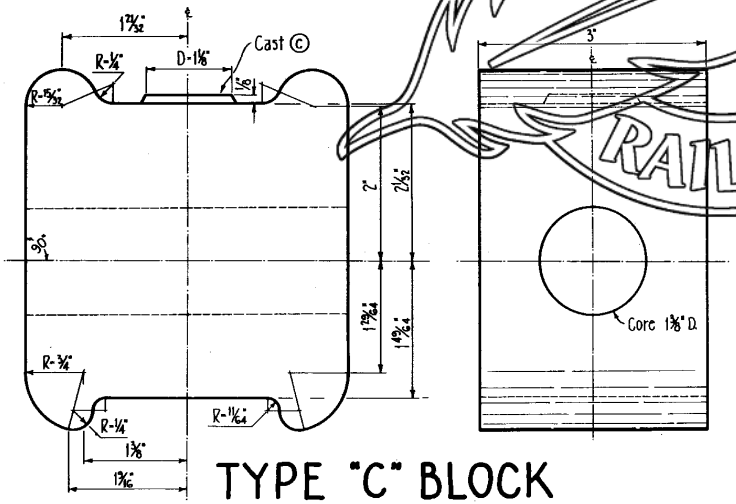
TYPE "A" BLOCK

100 lb. Rail



TYPE "B" BLOCK

112, 115 & 119 lb. Rail



TYPE "C" BLOCK

132 & 136 lb. Rail

Approved : Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

FLANGEWAY FILLER BLOCKS

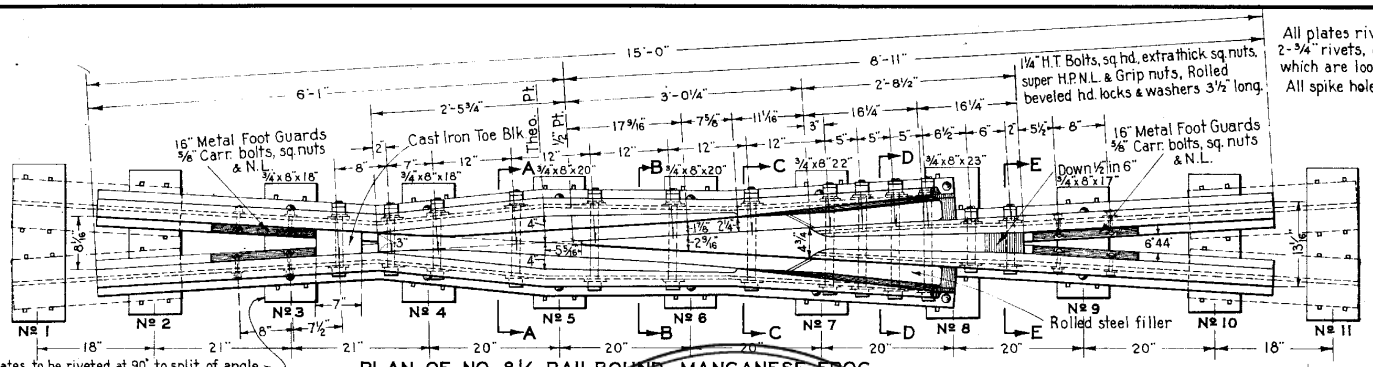
2¼" FLANGEWAY

TYPE "A", TYPE "B" & TYPE "C" BLOCKS

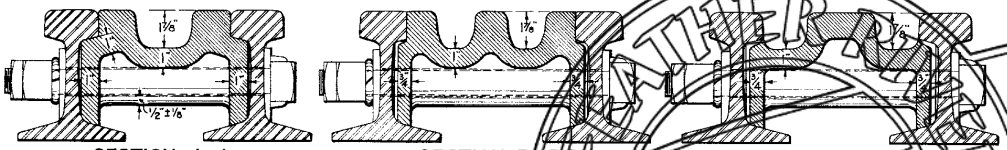
No Scale | Revised : 8-14-59 | Adopted : June 15, 1959

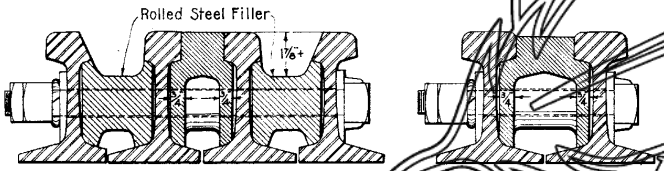
C.E.
S-135

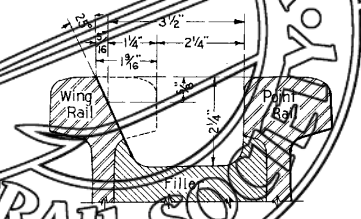
All plates riveted to flange of rail with 2-¾" rivets, except plates 1, 2, 10 & 11, which are loose.
All spike holes are ¾" sq. and 1/16" under flange.



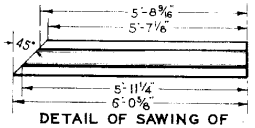
PLAN OF NO. 8½ RAILBOUND MANGANESE FROG



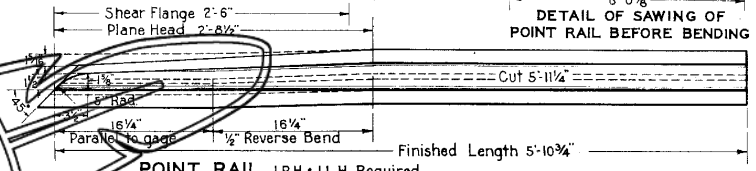




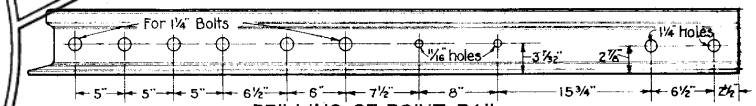
PLANING AT END OF WING RAIL



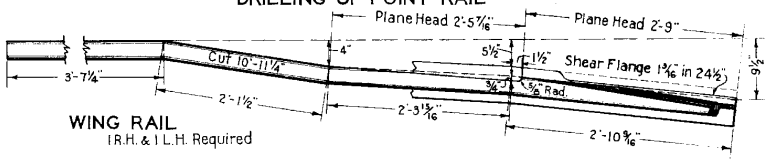
DETAIL OF SAWING OF POINT RAIL BEFORE BENDING



POINT RAIL 1 R.H. & 1 L.H. Required



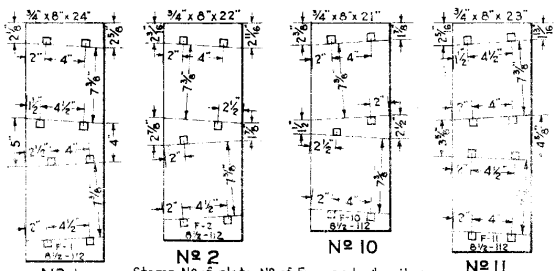
DRILLING OF POINT RAIL



WING RAIL
1 R.H. & 1 L.H. Required

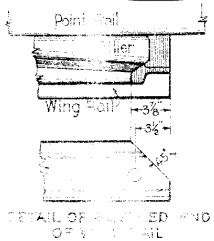
DRILLING OF WING RAIL

Note:- This frog to be used at following locations.
M.P. 280.49 – N.C.E. Turnout
M.P. 321.27 – East R.H. Lead.

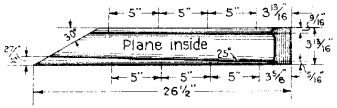


Stamp Nº of plate, Nº of Frog and wt rail on these plates

DETAIL OF LOOSE PLATES
All spike holes ¾" square



DETAIL OF [illegible] END OF [illegible] RAIL



ROLLED STEEL FILLER
1 R.H. & 1 L.H. Required

THE WESTERN PACIFIC RAILROAD CO.

SPECIAL

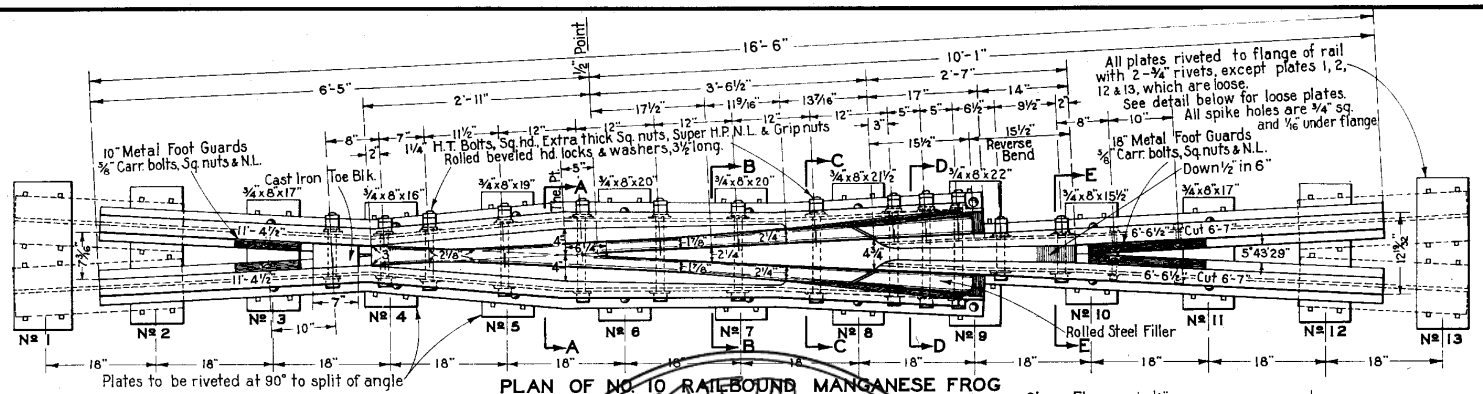
NO. 8½ RAILBOUND MANGANESE FROG

112 LB. R.E. RAIL

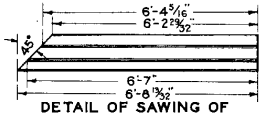
No Scale

Adopted Sept. 1, 1936

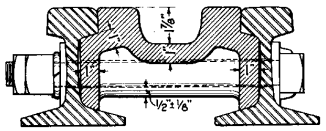
C. E.
S-136



PLAN OF NO. 10 RAILBOUND MANGANESE FROG

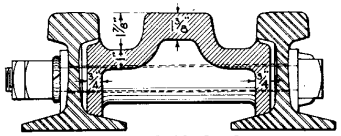


DETAIL OF SAWING OF POINT RAIL BEFORE BENDING



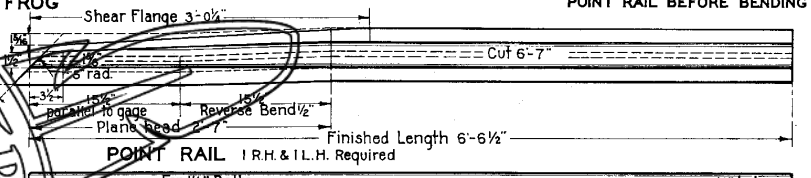
SECTION A-A

SECTION B-B

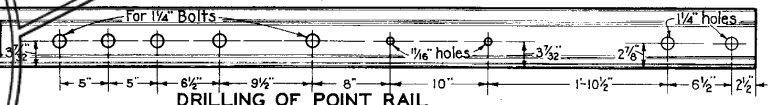


SECTION C-C

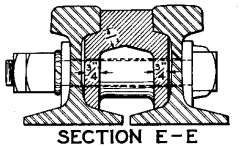
SECTION D-D



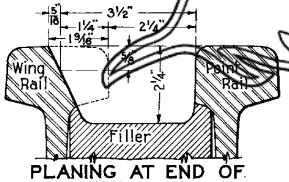
POINT RAIL 1 R.H. & 1 L.H. Required



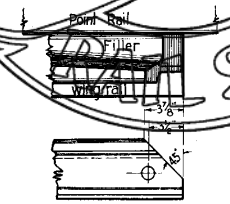
DRILLING OF POINT RAIL



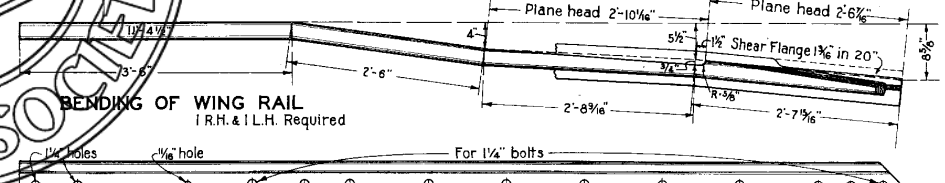
SECTION E-E



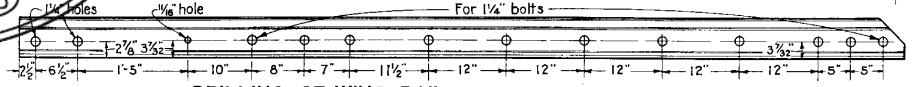
PLANING AT END OF WING RAIL



DETAIL OF BEVELED END OF WING RAIL



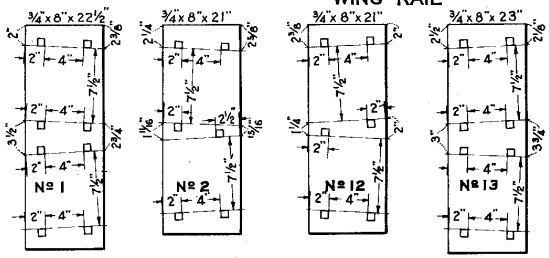
BENDING OF WING RAIL 1 R.H. & 1 L.H. Required



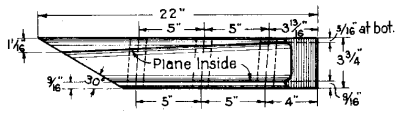
DRILLING OF WING RAIL

Note:-
This frog to be used in main line turnouts thru terminals.

APPROVED: J. M. Williams
CHIEF ENGINEER.



DETAIL OF LOOSE PLATES
Stamp wt of rail, Nº of plate, etc., as per Dwg. C.E.-60-32-F-7



ROLLED STEEL FILLER
1 R.H. & 1 L.H. Required

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

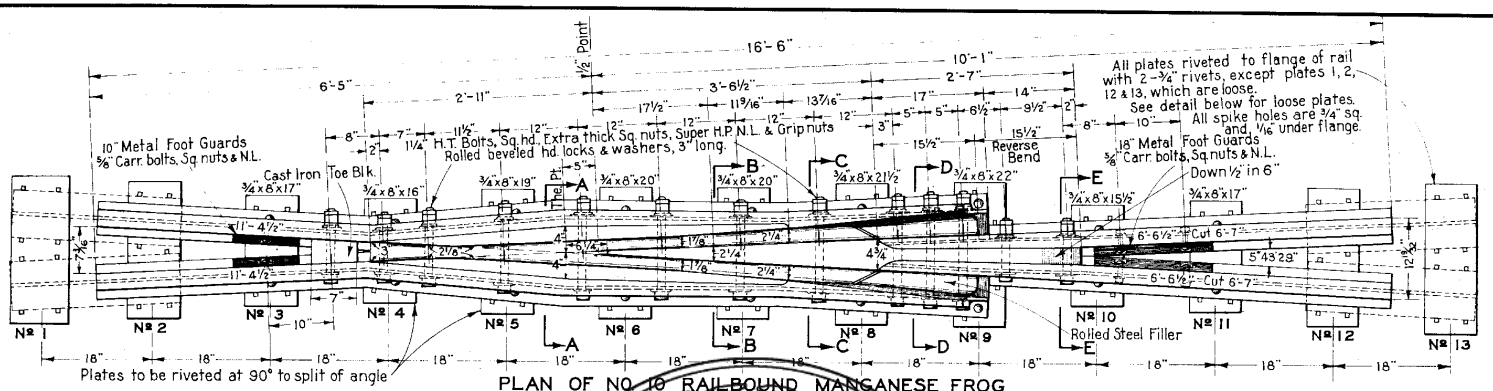
NO. 10 RAILBOUND MANGANESE FROG

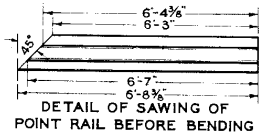
112 LB. R. E. RAIL

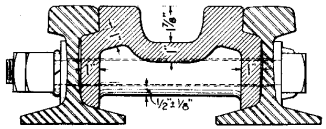
No Scale — Adopted Sept. 1, 1936

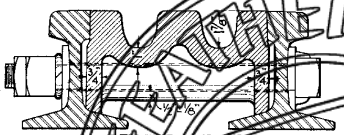
Old Standard - for current standard see S-148

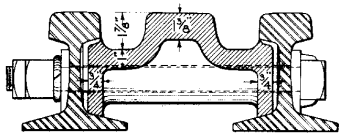
C. E.
S-137

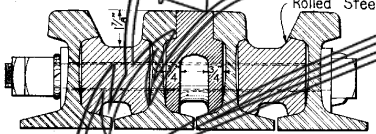




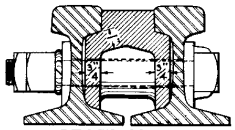

SECTION A-A

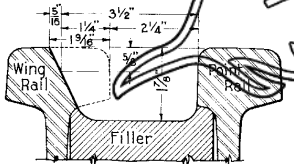

SECTION B-B


SECTION C-C

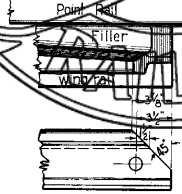


SECTION D-D

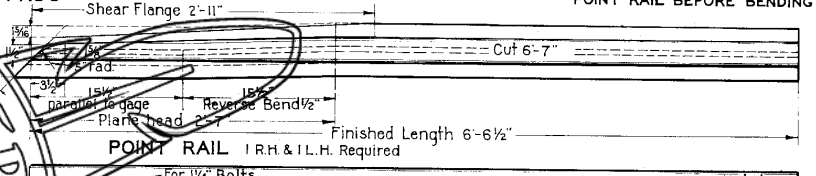

SECTION E-E



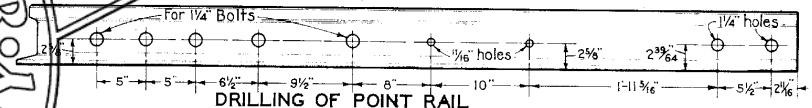
PLANING AT END OF WING RAIL



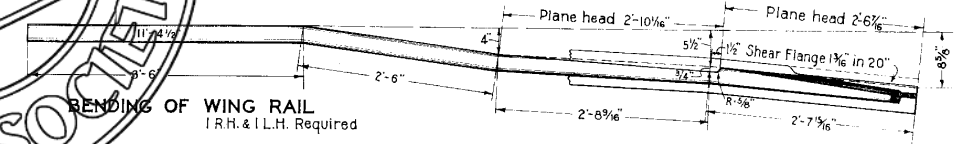
DETAIL OF BEVELED END OF WING RAIL



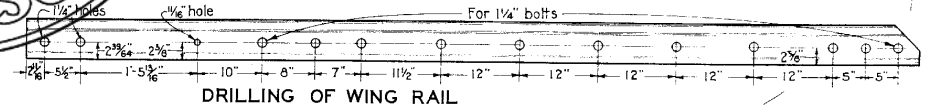
POINT RAIL 1 R.H. & 1 L.H. Required



DRILLING OF POINT RAIL

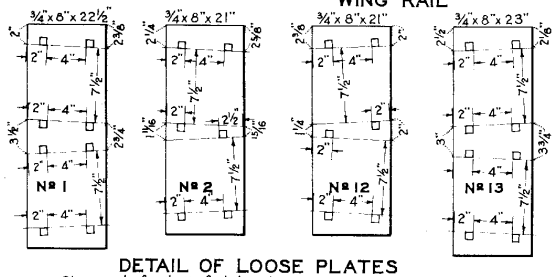


BENDING OF WING RAIL 1 R.H. & 1 L.H. Required

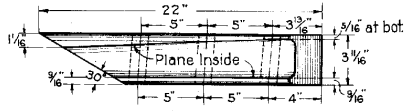


DRILLING OF WING RAIL

Note:
This frog to be used in main line turnouts thru terminals.



DETAIL OF LOOSE PLATES
Stamp wt. of rail, № of plate, etc., as per Dwg. C.E.-60-32-F-7



ROLLED STEEL FILLER
1 R.H. & 1 L.H. Required

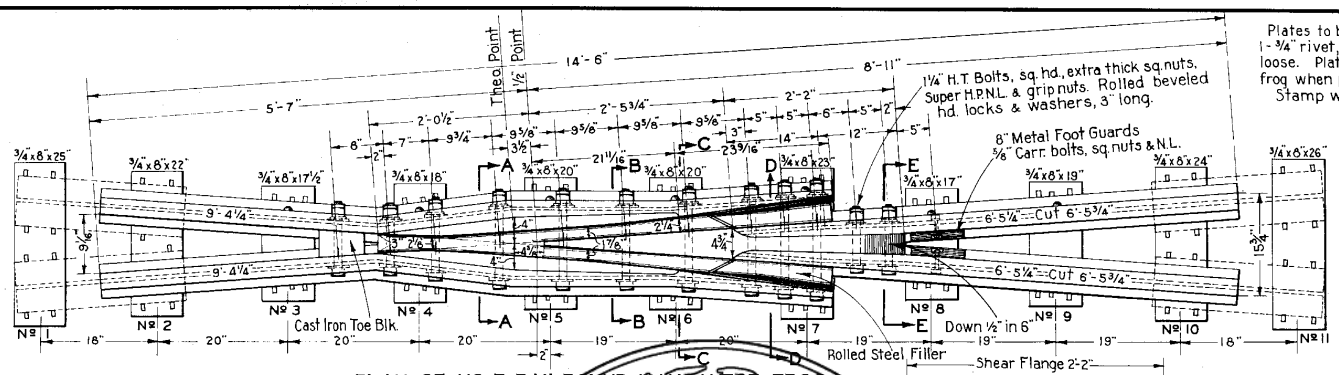
APPROVED: J. M. Williams, CHIEF ENGINEER
APPROVED: E. W. Mason, VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NO. 10 RAILBOUND MANGANESE FROG
100 LB. R. E. RAIL

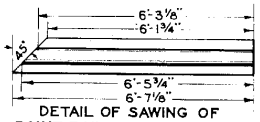
No Scale — Adopted Sept. 1, 1936

C. E.
S-138

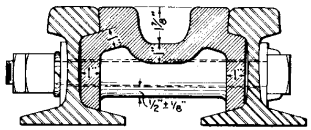
Plates to be riveted to flange of rail with 1-¾" rivet, except plates 1, 2, 10 & 11 which are loose. Plates to be punched to fit base of frog when placed at right angles to either arm. Stamp wt. of rail & № of plate on loose plates.



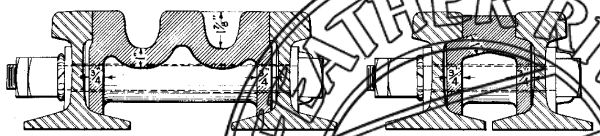
PLAN OF NO. 7 RAILBOUND MANGANESE FROG



DETAIL OF SAWING OF POINT RAIL BEFORE BENDING

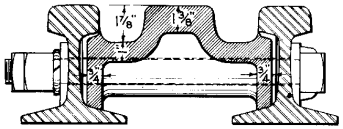


SECTION A-A

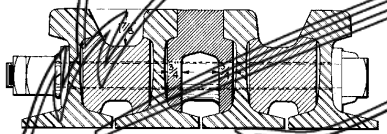


SECTION B-B

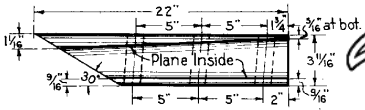
SECTION E-E



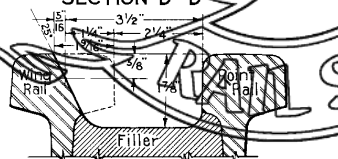
SECTION C-C



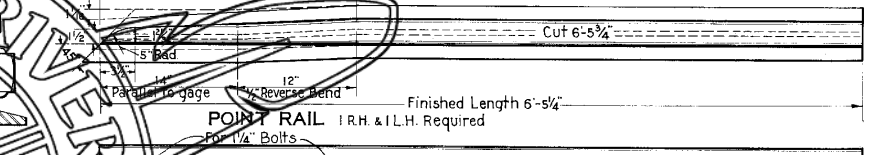
SECTION D-D



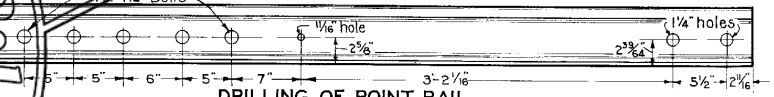
ROLLED STEEL FILLER
1 R.H. & 1 L.H. Required



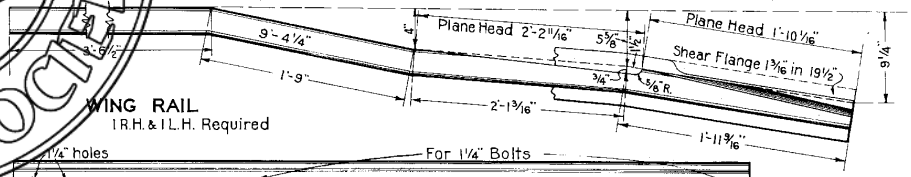
PLANING AT END OF WING RAIL



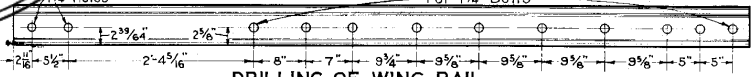
POINT RAIL
1 R.H. & 1 L.H. Required



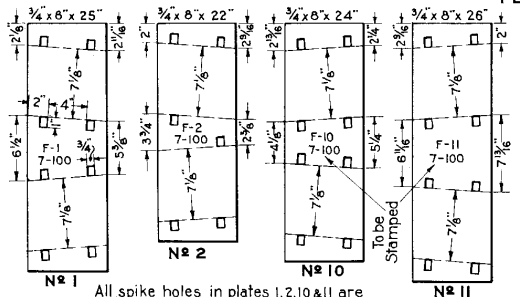
DRILLING OF POINT RAIL



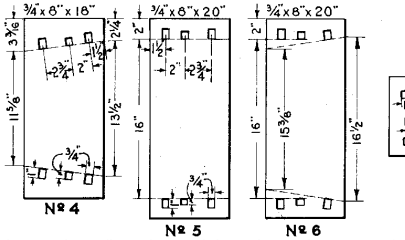
WING RAIL
1 R.H. & 1 L.H. Required



DRILLING OF WING RAIL

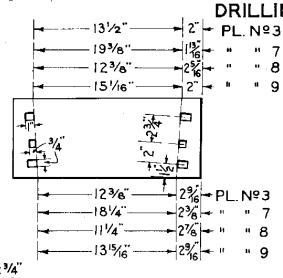


All spike holes in plates 1, 2, 10 & 11 are ¾"x1" and spaced at 2" & 4" as shown.



The center spike holes in plates 3 to 9 incl. are ¾"x¾" all other spike holes are ¾"x1"

DETAILS FOR PUNCHING OF PLATES



Note:-
This frog to be used at following locations.
M.P. 93.10 – Santa Fe Transfer.
Also T. & E. Sts. Sacramento.

THE WESTERN PACIFIC RAILROAD CO.

SPECIAL

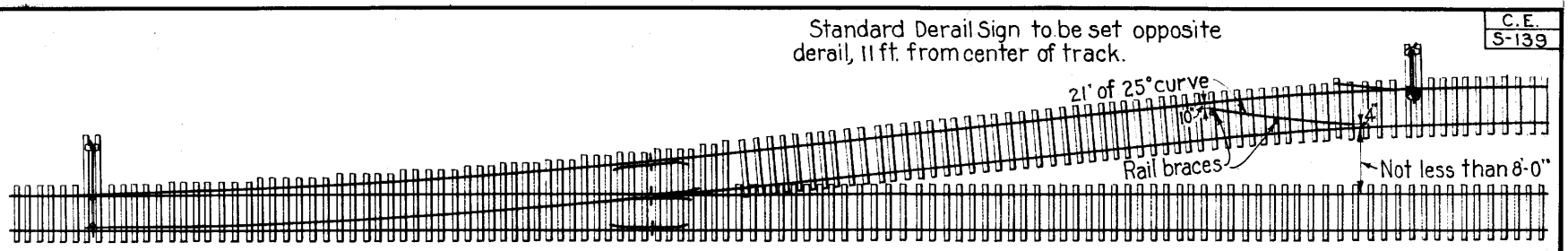
NO. 7 RAILBOUND MANGANESE FROG

100 LB. R. E. RAIL

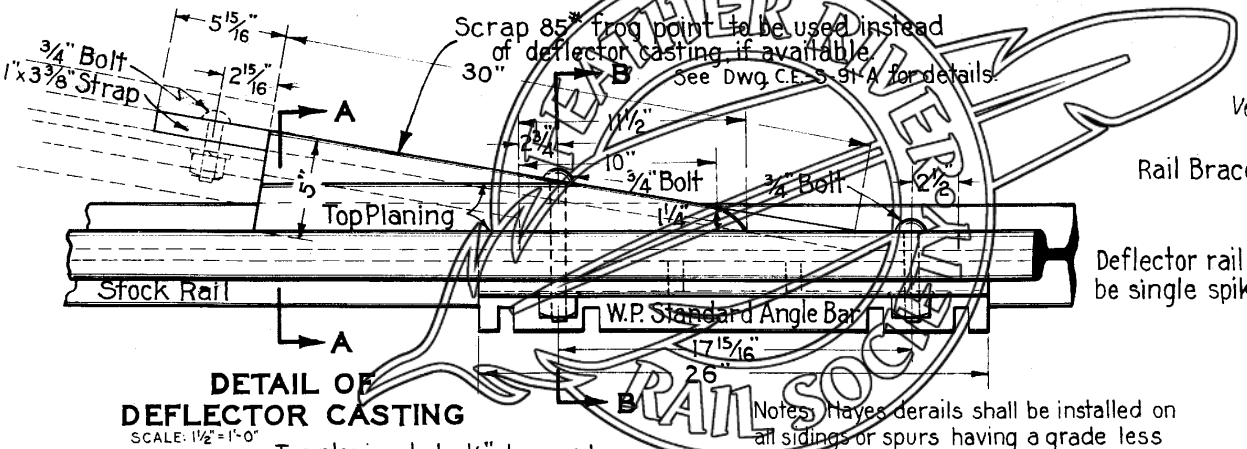
No Scale

Adopted Sept. 1, 1936

C.E. S-139

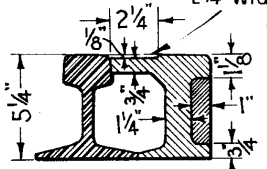


GENERAL PLAN
SCALE: 1" = 20'

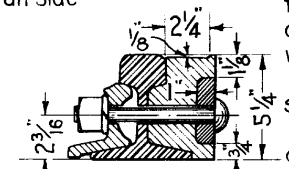


DETAIL OF DEFLECTOR CASTING
SCALE: 1 1/2" = 1'-0"

Top planing to be 1/8" deep and 2 1/4" wide on stock rail side of casting.

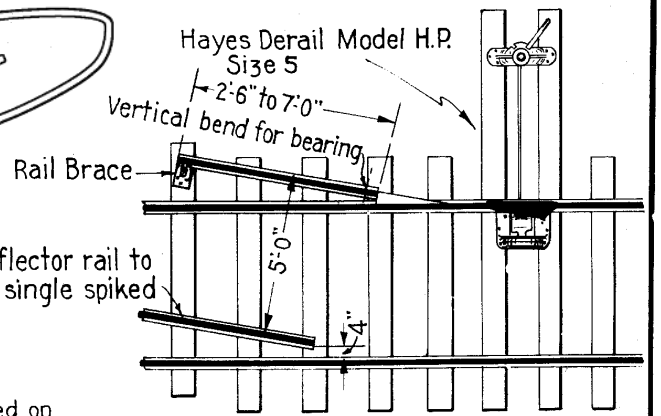


SECTION A-A



SECTION B-B

Hayes Two-tie hand operated stand.



ARRANGEMENT OF DERAIL AND DEFLECTOR RAILS
SCALE: 1" = 5'

Notes: 1. Hayes derails shall be installed on all sidings or spurs having a grade less than 0.8% descending toward main line turnout, if considered necessary, and on grades exceeding 0.8%, when authorized, where clearance is restricted.

For location of switch point derails see Dwg. C.E.-S-91.

At locations on back tracks where derails are necessary, the Hayes derail should be installed, but the Hayes stand, deflector casting and deflector rails should not be installed unless considered necessary.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE-PRESIDENT AND GENERAL MANAGER

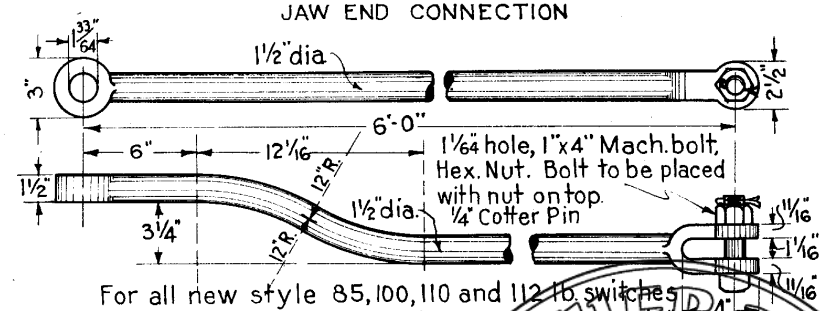
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
HAYES DERAIL FOR 85 LB. RAIL

Scales as shown — Adopted Oct. 23, 1936

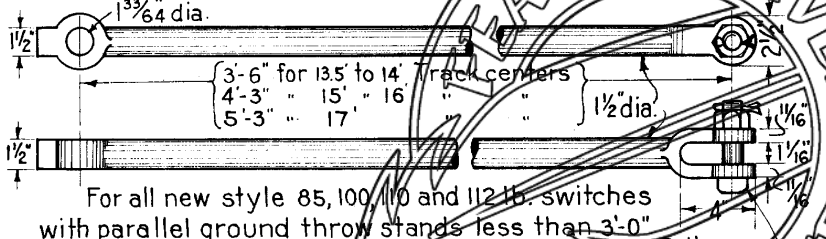
C.E.
S-141

NEW STYLE CONNECTING RODS

JAW END CONNECTION



For all new style 85, 100, 110 and 112 lb. switches with high and pony switch stands more than 3'-0" above top of rail.



For all new style 85, 100, 110 and 112 lb. switches with parallel ground throw stands less than 3'-0" in height above top of rail.

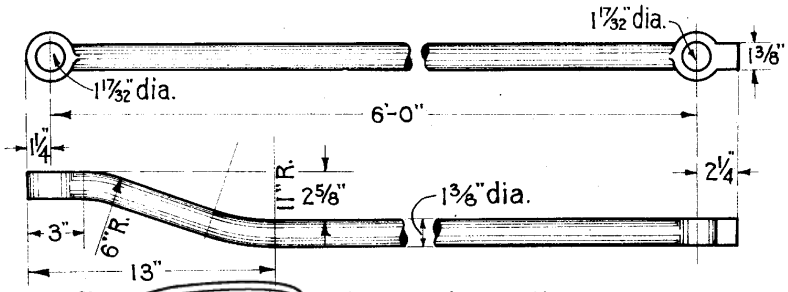
Notes:-

The minimum side clearance regulations in California, Nevada and Utah require 8'-6" in clear from center line of track for all switch stands except that switch stands 3'-0" or less above top of rail, and located between tracks where it is not practicable to provide 8'-6" clearance, may have side clearance reduced to a minimum of 6'-0" if actually necessary.

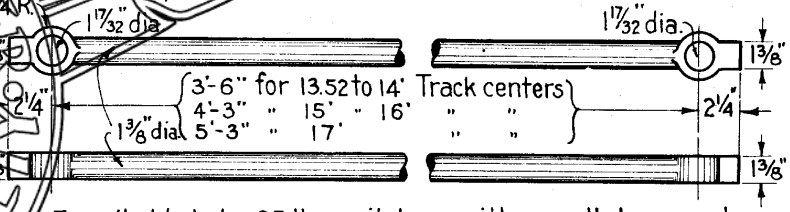
The connecting rod lengths shown on this plan conform with the above requirements. When ordering short connecting rods, specify longest lengths permissable, where switch stands must be located between tracks.

OLD STYLE CONNECTING RODS

SAFETY END CONNECTION



For all old style 85 lb. switches with high and pony switch stands more than 3'-0" above top of rail.



For all old style 85 lb. switches with parallel ground throw stands less than 3'-0" in height above top of rail.

Notes:-

When ordering, specify length and "Jaw end connection" or "Safety end connection."

For tracks 13 ft. to 13.5 ft. centers, order new style Fig. 404 G.T. Stand (Dwg. CE-S-142) with either 3'-3" "Jaw End" connecting rod or 3'-3⅝" "Safety End" connecting rod.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE-PRESIDENT AND GENERAL MANAGER

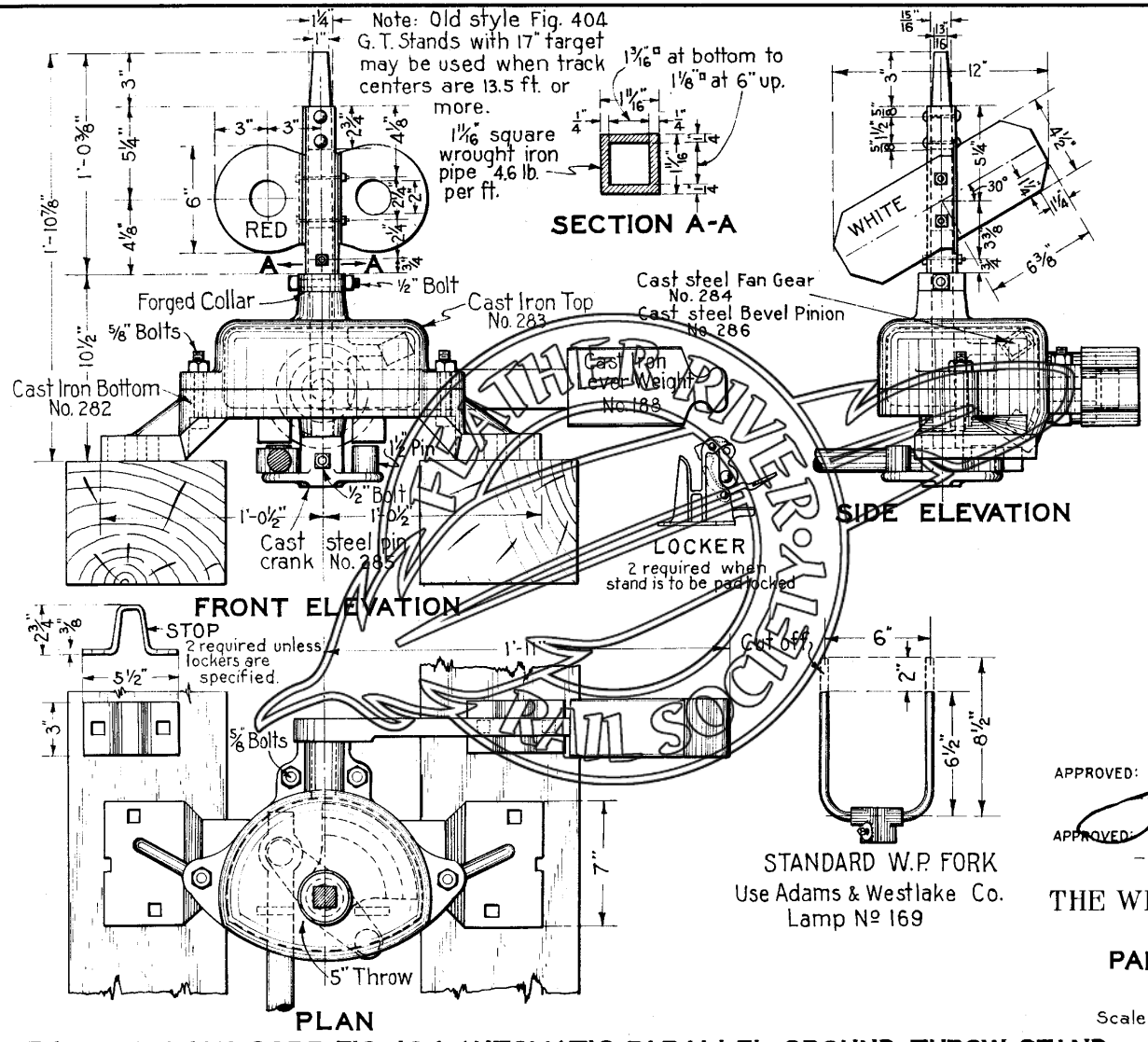
THE WESTERN PACIFIC RAILROAD CO.

STANDARD CONNECTING RODS FOR SWITCH STANDS

SCALE: 1½" = 1'-0"

ADOPTED NOV. 5, 1936

C.E. S-142



Notes:

All bolts and rivets in targets and shaft to be 3/8" diameter.

Vertical shaft for targets to be closed so as to fit vertical shaft of stand with a driving fit. If square tubing can not be procured use heavy gas pipe squared at the ends.

Lamp top fitting to be both riveted and welded to vertical shaft.

Targets to be No. 14 gage (B.W.G.)

Parts numbers are of the Ramapo Ajax Corp.

When ordering specify length of connecting rod - see Dwg. C.E.-S-141

This type of switch stand to be used at locations where clearances limit height to maximum of 3 ft. above top of rail, but is not to be used in Main Line turnouts unless authorized. Tips of fork must be cut off 2" as indicated to limit height to 3 ft. or less above top of rail.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

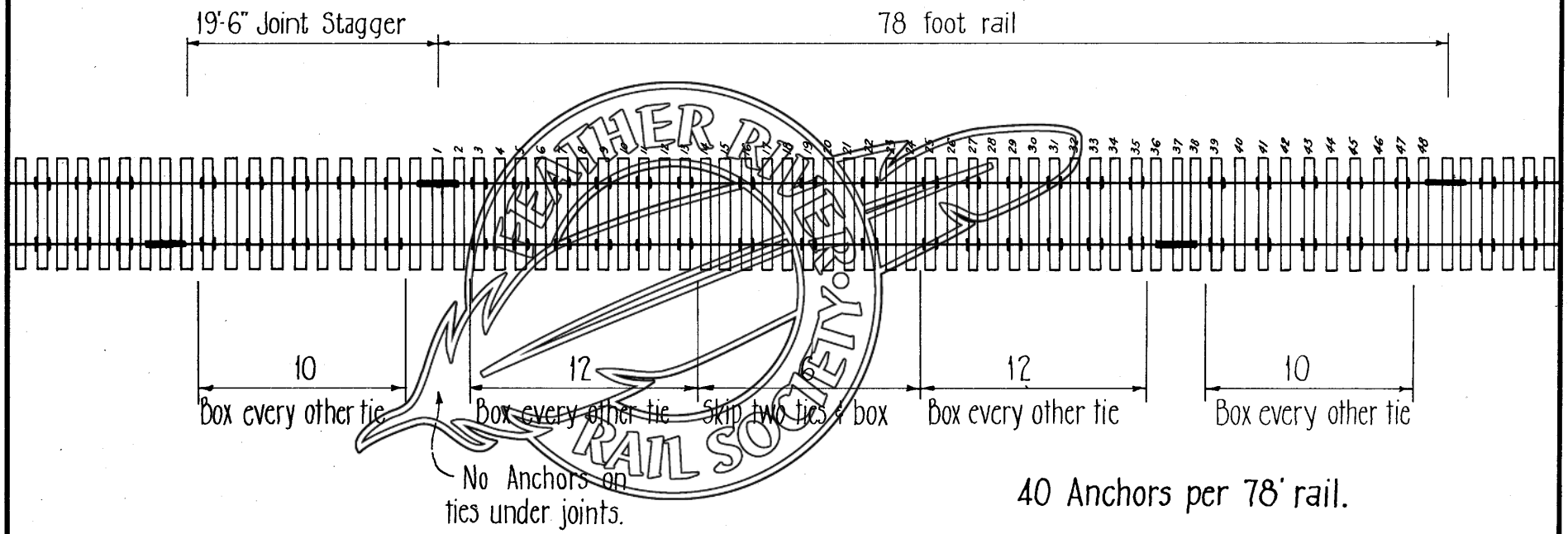
PARALLEL GROUND THROW SWITCH STAND

Scale: 1 1/2" = 1'-0" Adopted Nov. 5, 1936

RAMAPO AJAX CORP. FIG. 404 AUTOMATIC PARALLEL GROUND THROW STAND

C.E.
S-143

Single Track Pattern
Direction of Travel
Two Way Traffic



40 Anchors per 78' rail.

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

RAIL ANCHOR PLACEMENT

78 FOOT RAILS – 19'-6" JOINT STAGGER
SINGLE TRACK PATTERN

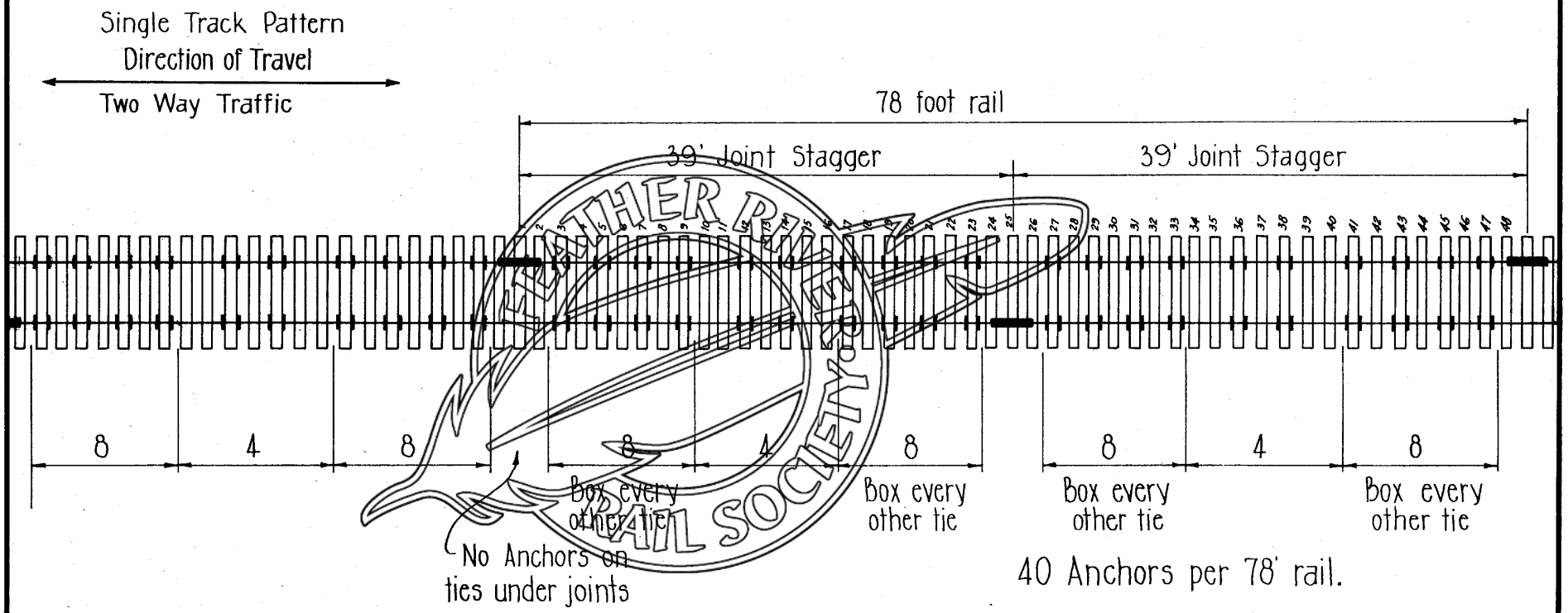
Tie Spacing : 24 ties per 39' rail

Approved: Frank R. Wanger
Chief Engineer

No Scale

Adopted: Nov. 19, 1959

C.E.
S-143 A



THE WESTERN PACIFIC RAILROAD COMPANY

STANDARD

RAIL ANCHOR PLACEMENT

78 FOOT RAILS - 39 FOOT JOINT STAGGER

SINGLE TRACK PATTERN

Tie Spacing: 24 ties per 39' rail

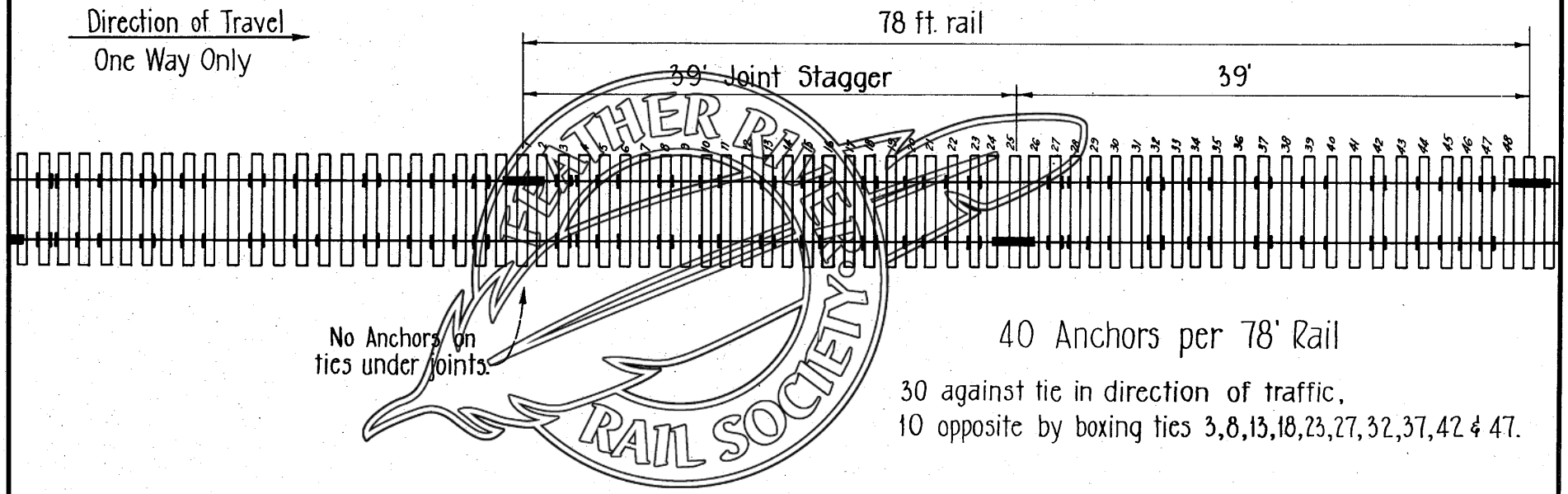
Approved: Frank R. Wolfe
Chief Engineer

No Scale

Adopted: Nov. 19, 1959

C.E.
S-144A

Double Track Pattern
Direction of Travel
One Way Only



No Anchors on ties under joints.

40 Anchors per 78' Rail

30 against tie in direction of traffic,
10 opposite by boxing ties 3,8,13,18,23,27,32,37,42 & 47.

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

RAIL ANCHOR PLACEMENT

78 FOOT RAILS - 39 FOOT JOINT STAGGER
DOUBLE TRACK PATTERN

Tie Spacing: 24 ties per 39' rail

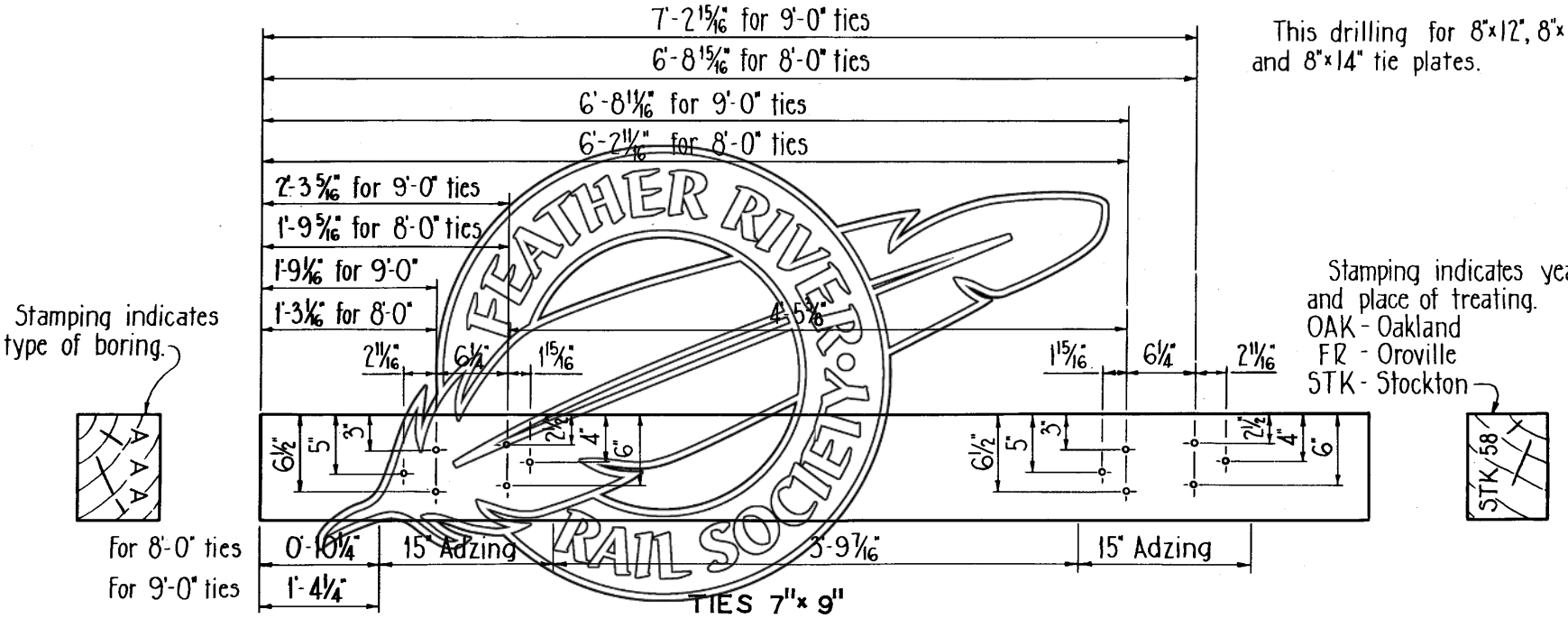
Approved: Frank A. Mc... Chief Engineer

No Scale

Adopted: Nov. 19, 1959

4-58: Add OAK & FR
Remove 8'-6" Ties

C. E.
S-145A



This drilling for 8"x12", 8"x13" and 8"x14" tie plates.

NOTE

All holes to be ½" diameter.

Adzing shall be done only on the sapwood face of the tie, opposite heartwood face.

Ties shall be adzed only to the depth necessary to obtain a full bearing under the tie plate.

Approved: Frank A. Mecham
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

TIE BORING

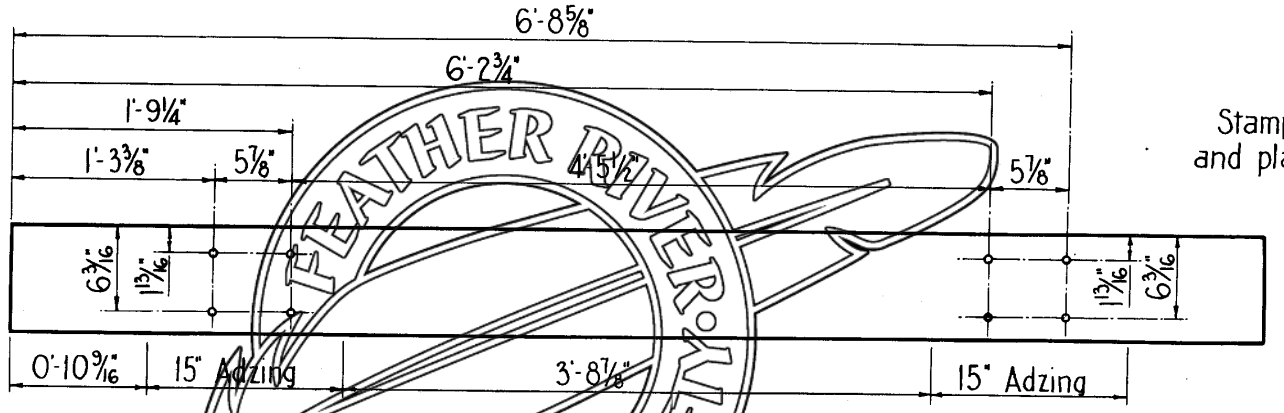
MAIN LINE-RAILS
112 LBS. & HEAVIER

NO SCALE

ADOPTED: March 1,1952
REVISED: April 15,1958

C. E.
S-145C

This drilling for 8"x9" tie plate.



Stamping indicates type of boring.

Stamping indicates year and place of treating.

NOTE

All holes to be ½" diameter.

Adzing shall be done only on the sapwood face of the tie, opposite the heartwood face.

Ties shall be adzed only to the depth necessary to obtain a full bearing under the tie plate.

Approved: Frank R. Meadows
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

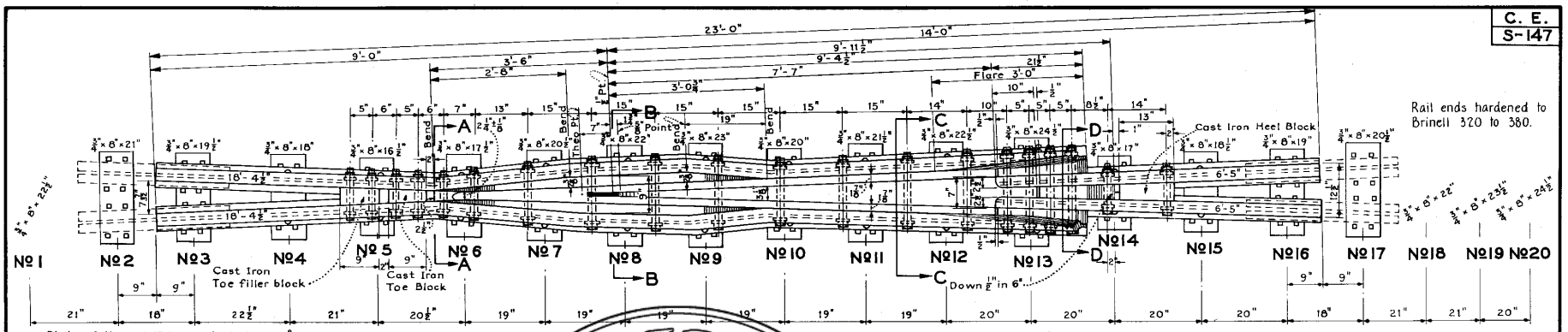
TIE BORING

FOR 6"x 8" OR 7"x 8" TIES
8'-0" LONG

NO SCALE

ADOPTED: Dec. 1, 1936
REVISED: Jan. 17, 1956

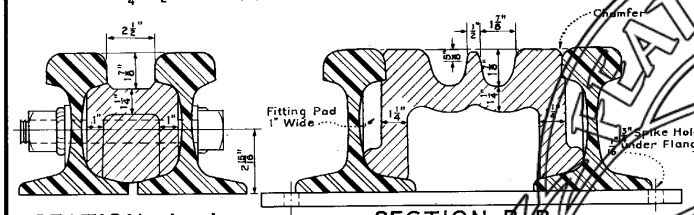
C. E.
S-147



Plates 4 through 15 to be riveted at 90° to split of angle
Rivets to be countersunk and flat on plate bottom
All spike holes to be $\frac{3}{4}$" sq. and $\frac{1}{16}$" under flange
All rivets $\frac{3}{4}$" × 2$\frac{1}{2}$" Button Head

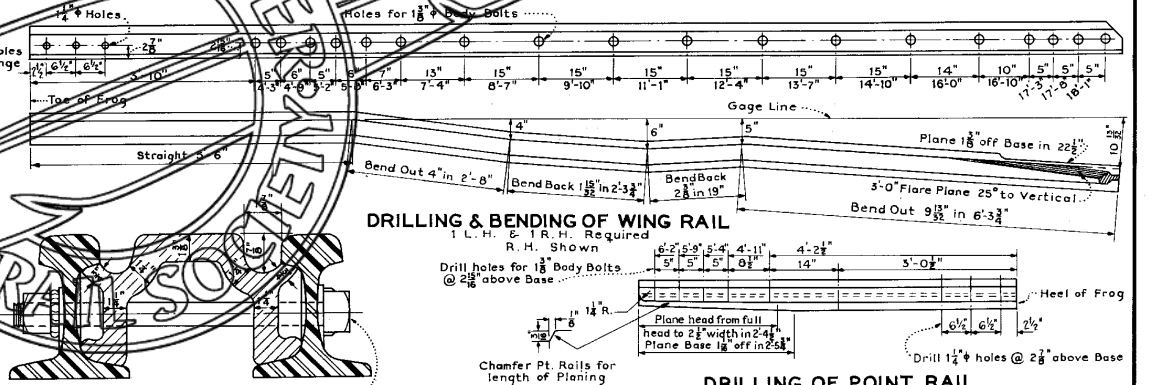
Depress point $\frac{1}{16}$" in 6"

PLAN OF Nº 14 RAILBOUND MANGANESE FROG



SECTION A-A

SECTION B-B

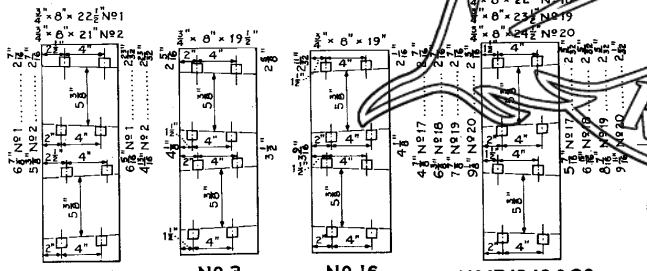


DRILLING & BENDING OF WING RAIL

1 L.H. & 1 R.H. Required
R.H. Shown

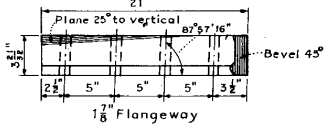
DRILLING OF POINT RAIL

1 L.H. & 1 R.H. Required
L.H. Shown



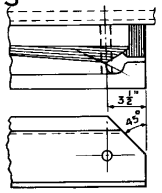
DETAIL OF LOOSE PLATES

Stamp weight of rail, Nº of plate and Nº of frog on plates

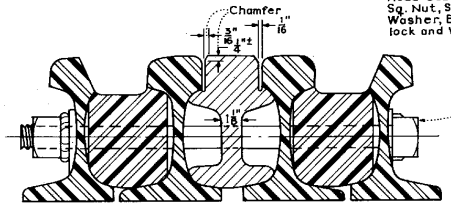


ROLLED STEEL FILLER

1 L.H. & 1 R.H. Required
L.H. Shown



DETAIL OF BEVELED END OF WING RAIL



SECTION C-C

SECTION D-D

1$\frac{3}{4}$" dia. Body Bolts Heat treated Sq. Head Std. Heavy Sq. Nut, Spring Washer, Bevel Head-lock and Washer.

APPROVED Frank R. Woolford
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

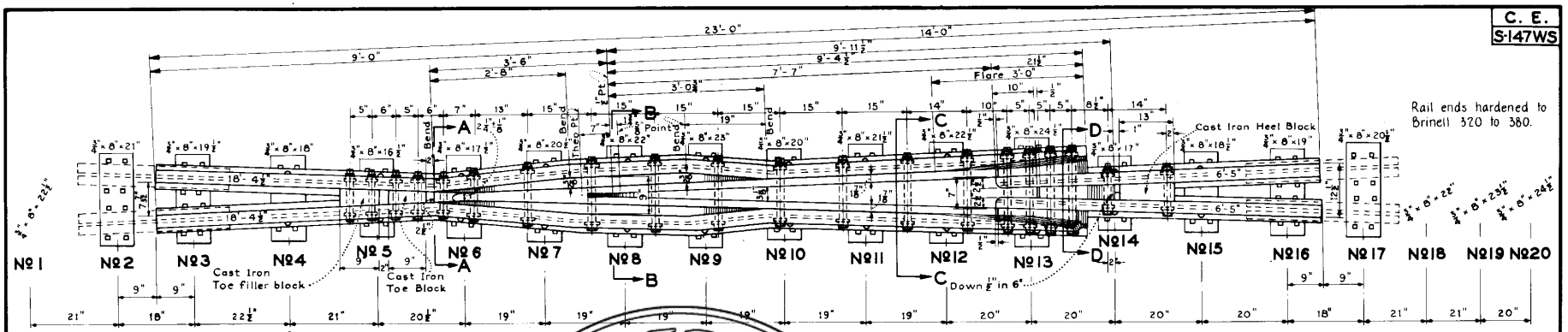
Nº 14 RAILBOUND MANGANESE FROG
115 LB & 119 LB. RAIL

NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

Note: Use 115 lb. frog to replace 112 lb. frog.

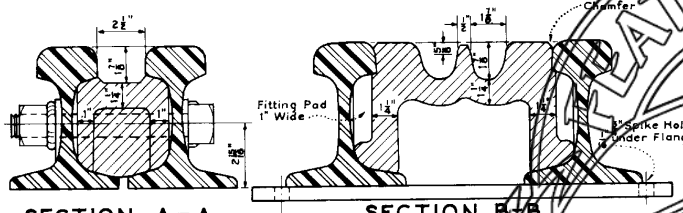
C. E.
S-147WS



Plates 4 through 15 to be riveted at 90° to split of angle
Rivets to be countersunk and flat on plate bottom
All spike holes to be $\frac{7}{8}$" sq. and $\frac{1}{16}$" under flange
All rivets $\frac{7}{8}$" × 2$\frac{1}{2}$" Button Head

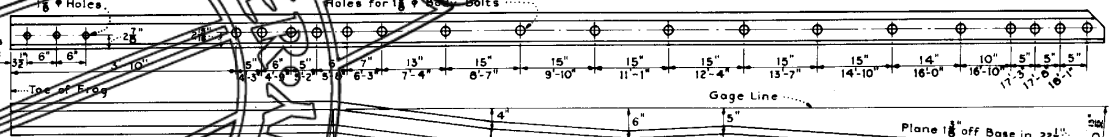
Depress point $\frac{1}{16}$" in 6"

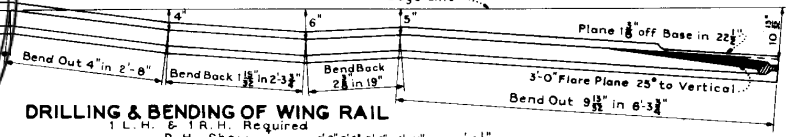
PLAN OF Nº 14 RAILBOUND MANGANESE FROG



SECTION A-A

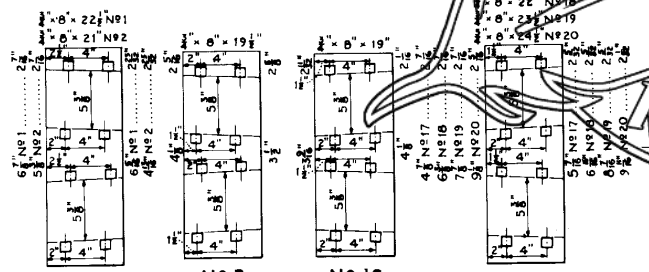
SECTION B-B





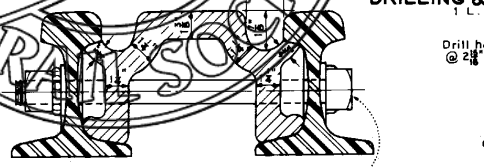
DRILLING & BENDING OF WING RAIL

1 L.H. & 1 R.H. Required
R.H. Shown



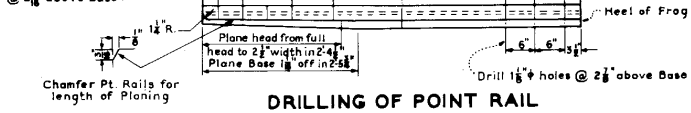
DETAIL OF LOOSE PLATES

Stamp weight of rail, Nº of plate and Nº of frog on plates



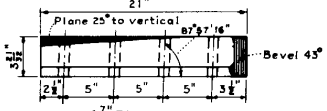
SECTION C-C

1⅛ dia. Body Bolts Heat treated Sq. Head Std. Heavy Sq. Nut, Spring Washer, Bevel Head-lock and Washer.



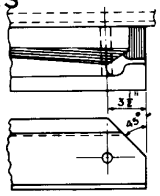
DRILLING OF POINT RAIL

1 L.H. & 1 R.H. Required
L.H. Shown

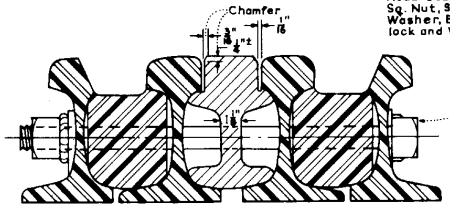


ROLLED STEEL FILLER

1 L.H. & 1 R.H. Required
L.H. Shown



DETAIL OF BEVELED END OF WING RAIL



SECTION D-D

APPROVED Frank R. Woolpert
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 14 RAILBOUND MANGANESE FROG

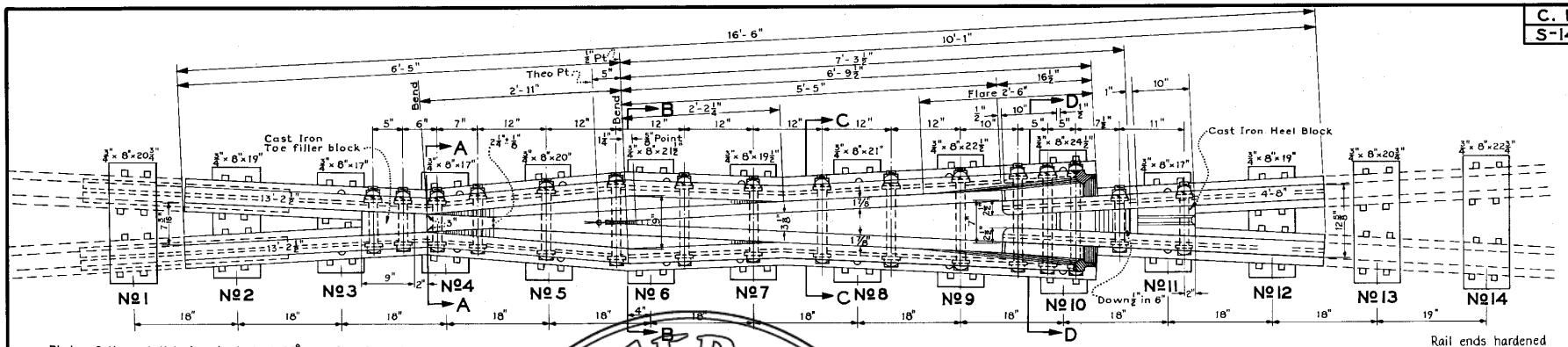
119 LB. C.F. & I. RAIL

NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

Western Standard Drilling

C. E.
S-148

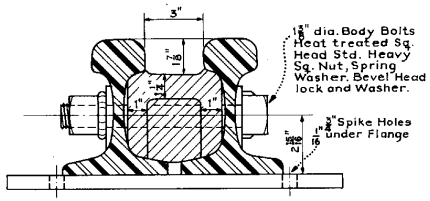


Plates 3 through 11 to be riveted at 90° to split of angle
Rivets to be countersunk and flat on plate bottom
All spike holes to be ¾" sq. and ⅝" under flange
All rivets ¾"×2½" Button Head

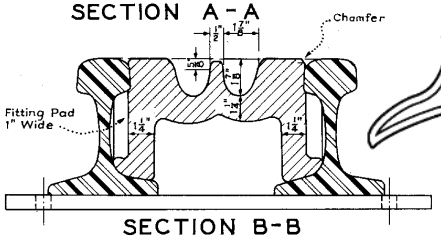
Depress point ½" in 6"

Rail ends hardened to Brinell 320 to 380.

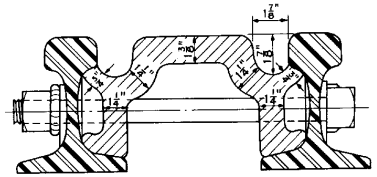
PLAN OF №10 RAILBOUND MANGANESE FROG



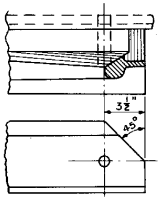
SECTION A-A



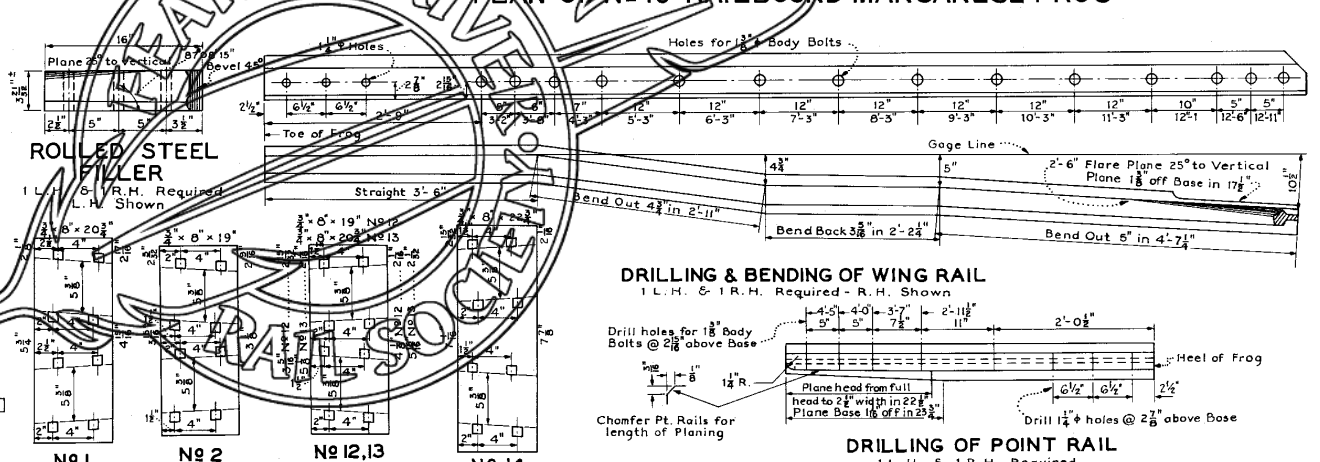
SECTION B-B



SECTION C-C



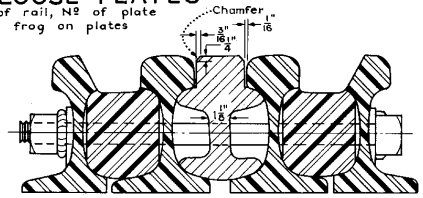
DETAIL OF BEVELED END OF WING RAIL



DETAIL OF LOOSE PLATES
Stamp weight of rail, № of plate and № of frog on plates

DRILLING & BENDING OF WING RAIL
1 L.H. & 1 R.H. Required - R.H. Shown

DRILLING OF POINT RAIL
1 L.H. & 1 R.H. Required
L.H. Shown



SECTION D-D

APPROVED Frank R. Wood
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

№10 RAILBOUND MANGANESE FROG

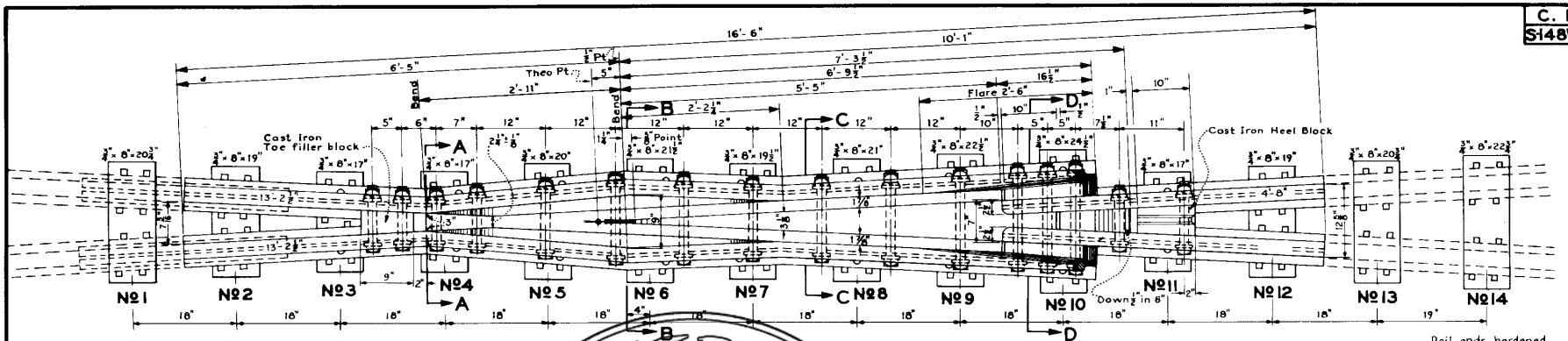
115 LB. & 119 LB. RAIL

NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

Note: Use 115 lb. frog to replace 112 lb. frog.

C. E.
S-148WS

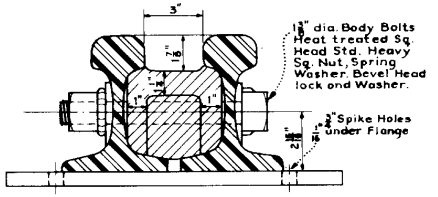


Plates 3 through 11 to be riveted at 90° to split of angle
Rivets to be countersunk and flat on plate bottom
All spike holes to be 3/4" sq. and 3/8" under flange
All rivets 7/8" x 2 1/2" Button Head

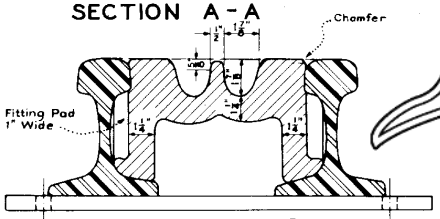
Depress point 1/4" in 6"

Rail ends hardened to Brinell 320 to 380.

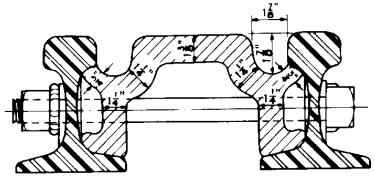
PLAN OF Nº 10 RAILBOUND MANGANESE FROG



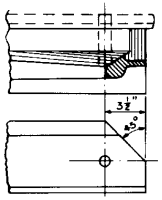
SECTION A-A



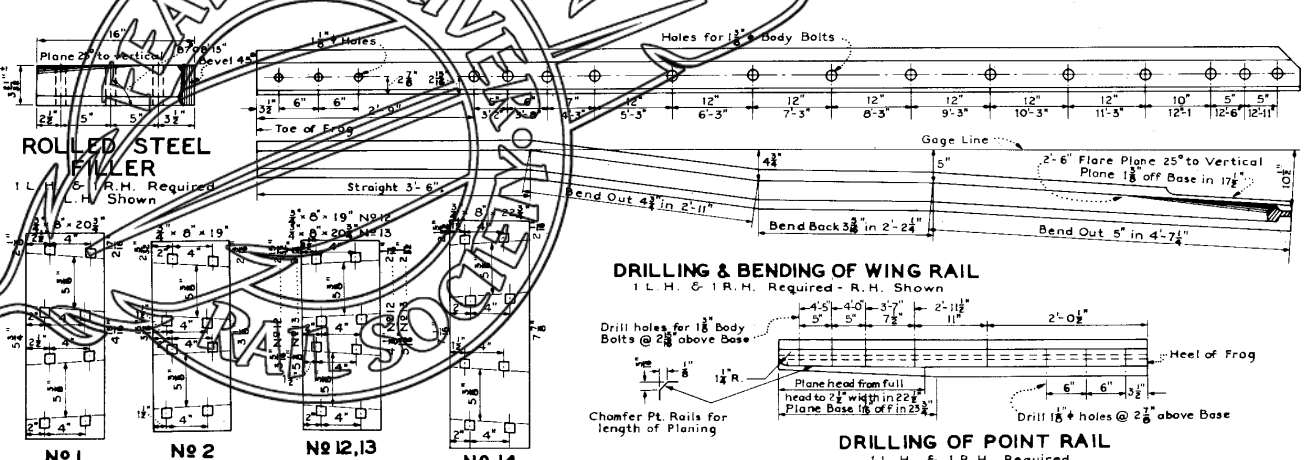
SECTION B-B



SECTION C-C



DETAIL OF BEVELED END OF WING RAIL



DETAIL OF LOOSE PLATES

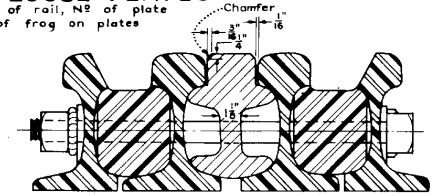
Stamp weight of rail, Nº of plate and Nº of frog on plates

DRILLING & BENDING OF WING RAIL

1 L.H. & 1 R.H. Required - R.H. Shown

DRILLING OF POINT RAIL

1 L.H. & 1 R.H. Required
L.H. Shown



SECTION D-D

APPROVED Frank A. Wood
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 10 RAILBOUND MANGANESE FROG

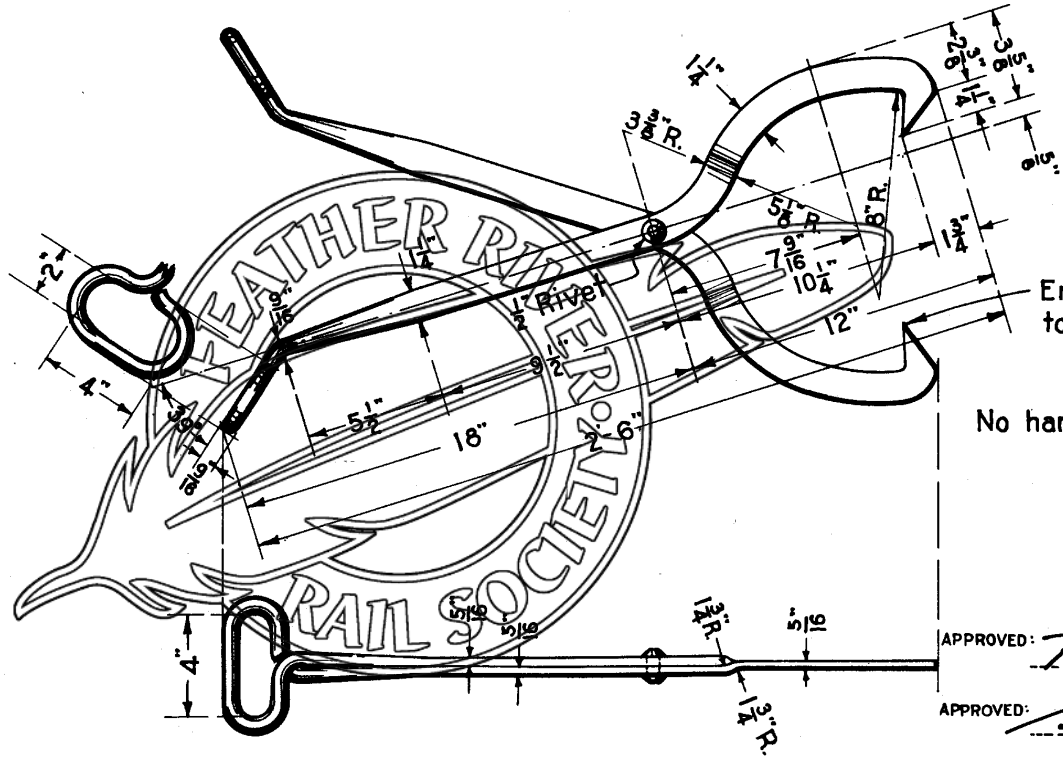
119 LB. C.F. & I. RAIL

NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

Western Standard Drilling

C.E.
S-149



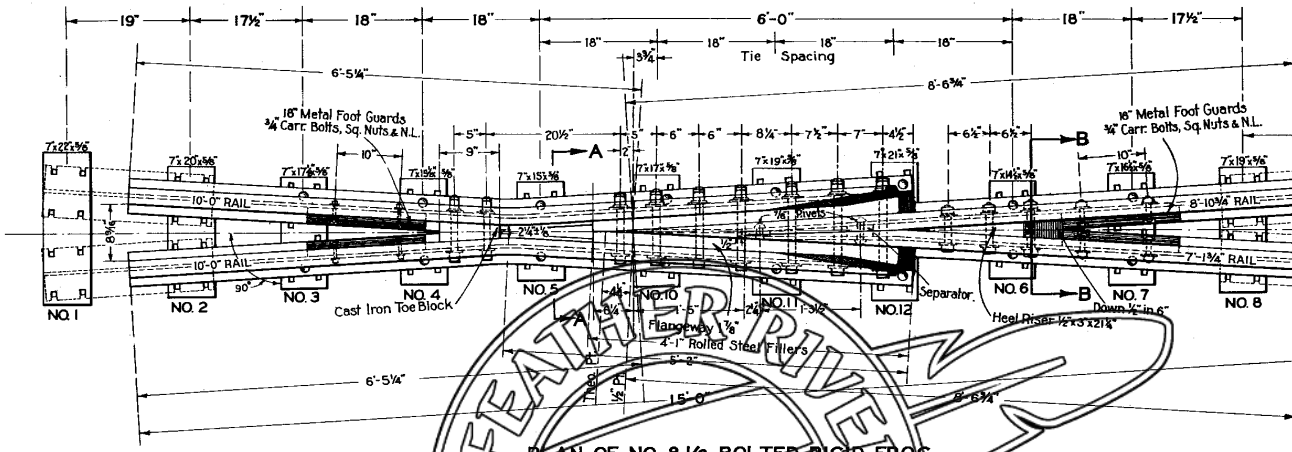
Tolerance–
2% on length
5% on cross section
Approx. wt. 8 lb.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
TIE TONGS

Scale: 2" = 1'-0"

Adopted Aug. 1949

C. E.
S-150



PLAN OF NO. 8 ½ BOLTED RIGID FROG

1⅛" H.T. Bolts, sq. hd, extra thick sq. nuts, super. H.P.N.L. & grip nuts, rolled beveled hd. locks and washers.

All plates to be riveted to flange of rail at 90° to ℄ Frog with 2-¾" rivets, except plates 1, 2, 8 & 9, which are loose.

All spike holes are ¾" square and, except in plates 1, 2, 8 & 9, are 1/16" under flange.

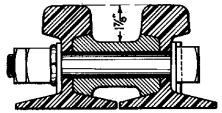
Note:

~~Tie plates~~

~~1 to 9,~~ may be ordered separately for use with old style No. 8½ frogs now in track. When plates are shipped separately, stamp no. of plate, no. of frog, and wt. of rail on each plate, thusly,

F-6
8½-85

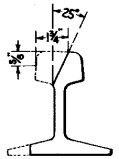
All plates will be furnished only if on hand. If plates are not available Hook Twin Tie Plates will be furnished as per C.E. S-150 A.



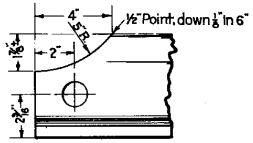
SECTION A-A

SECTION A½ PT.

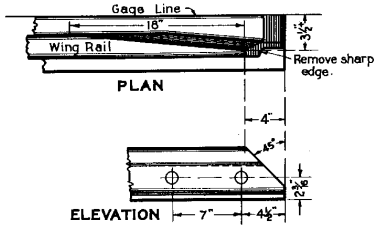
SECTION B-B



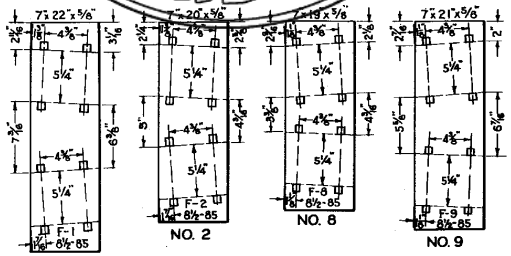
PLANING AT END OF WING RAIL



ELEVATION OF POINT



DETAIL OF BEVELED END OF WING RAIL



DETAIL OF LOOSE PLATES

Stamp no. of plate, no. of frog and wt. of rail on these plates.

OLD STANDARD

APPROVED: J. M. Williams, CHIEF ENGINEER

APPROVED: E. W. Mason, VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

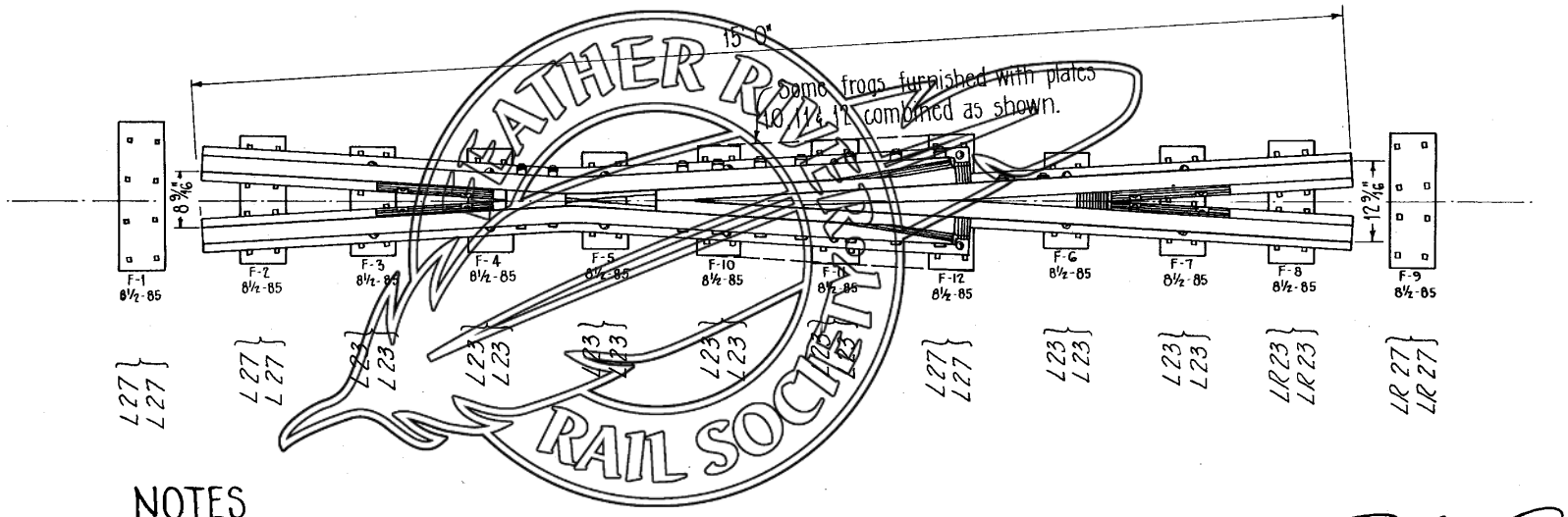
NO. 8 ½ BOLTED RIGID FROG

85 LB. RAIL

No Scale

Adopted July 1, 1940
Revised April 1, 1947.
Dec. 21, 1954

C. E.
S-150 A



NOTES

When original "F" plates are not available store will furnish Hook Twin Tie Plates as shown.

Approved: Frank R. Wood
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

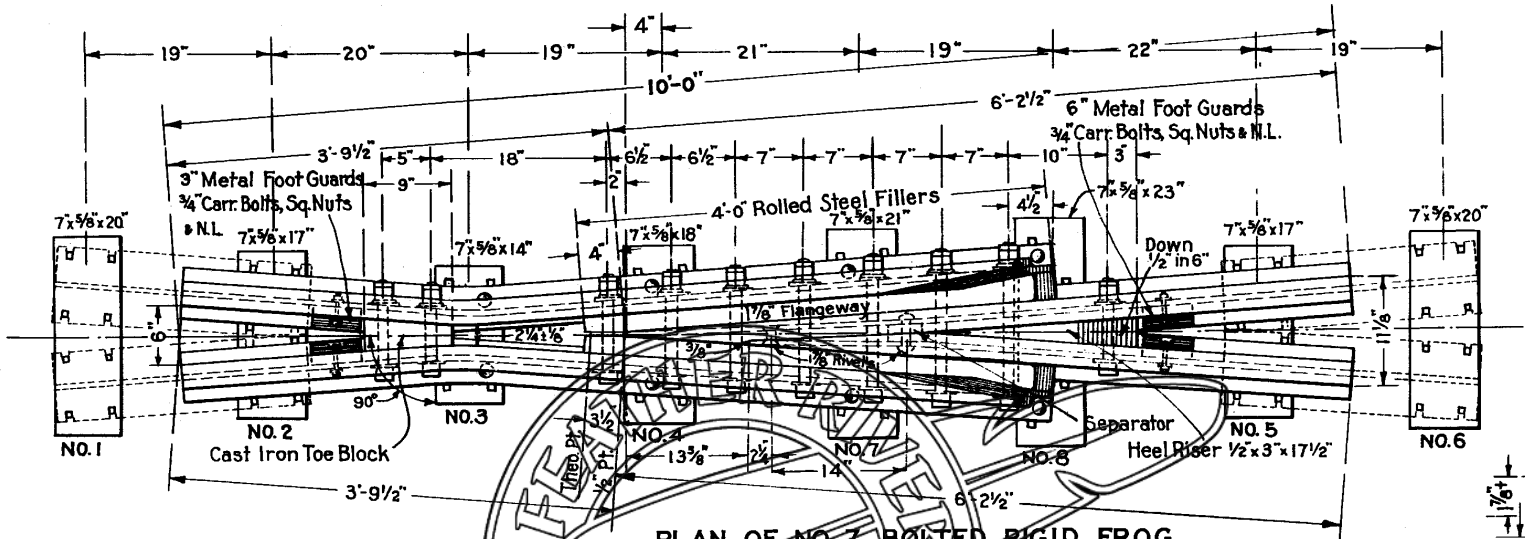
№ 8½ BOLTED RIGID FROG

PLATE REPLACEMENT
85 LB. RAIL

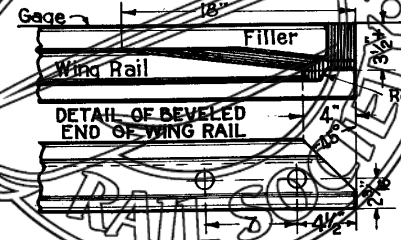
No Scale

Adopted: Nov. 15, 1959

C.E. S-151

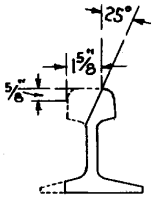


PLAN OF NO. 7 BOLTED RIGID FROG

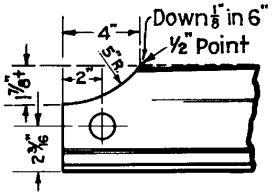


1⅛" H.T. Bolts, sq. hd, extra thick sq. nuts, super H.P. N.L. & Grip nuts, rolled beveled head locks and washers.

Remove sharp edge.



PLANING AT END OF WING RAIL



ELEVATION OF POINT

OLD STANDARD

Plates 3, 4, 7 & 8 to be riveted to flange of rail at 90° to ℄ Frog with ¾" rivets.

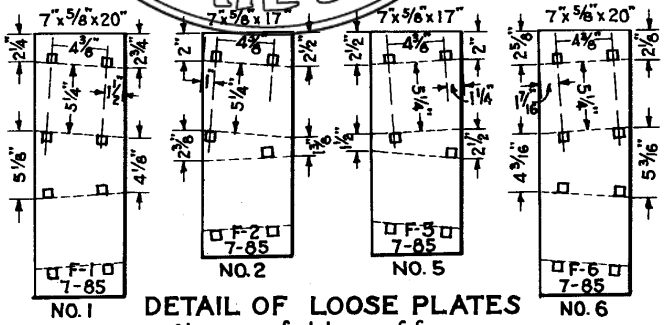
All spike holes are ¾" square and, except in plates 1, 2, 5 & 6, are 1/16" under flange.

For typical sections thru frog see Dwg. C.E.-S-150

Note:

~~Tie plates 1, 2, 5 & 6 may be ordered separately for use with old style No. 7 frogs now in track. When plates are shipped separately, stamp no. of plate, no. of frog and wt. of rail on each plate, thusly, F-4 7-85~~

Plates 1, 2, 5 & 6 will be furnished only if on hand. If plates are not available Hook Twin Tie Plates will be furnished as per C.E. S-151A.



DETAIL OF LOOSE PLATES

Stamp no. of plate, no. of frog and wt. of rail on these plates.

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

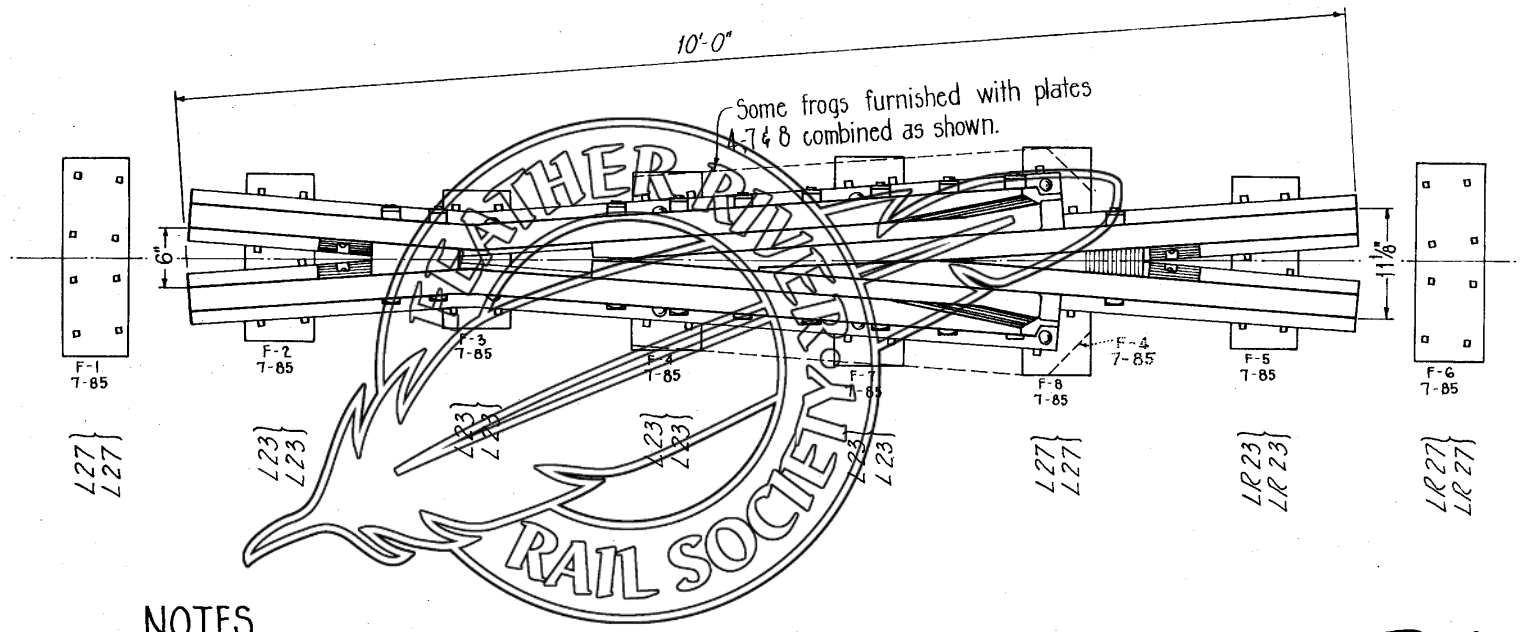
NO. 7 BOLTED RIGID FROG

85 LB. RAIL

No Scale

Adopted July 1, 1940
Revised April 1, 1947.
Dec. 21, 1954

C. E.
S-151 A



NOTES

When original "F" plates are not available store will furnish Hook Twin Tie Plates as shown.

Approved: Frank R. Woolpert
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

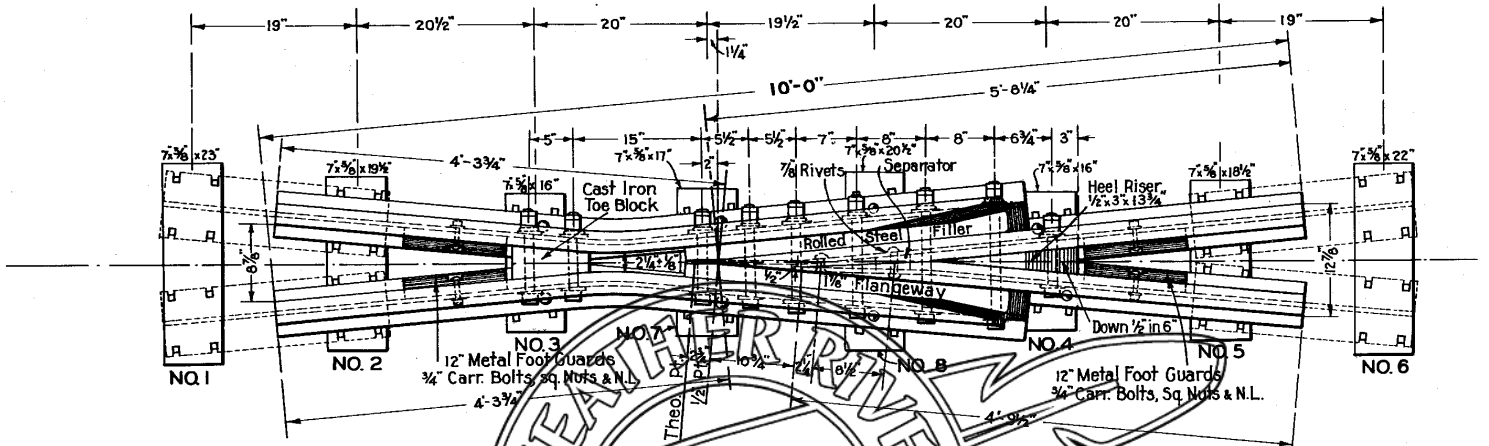
№ 7 BOLTED RIGID FROG

PLATE REPLACEMENT
85 LB. RAIL

No Scale

Adopted: Nov. 15, 1959

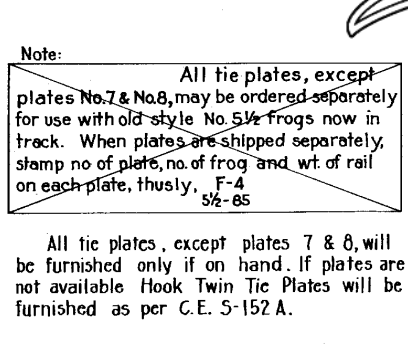
C. E.
S-152



PLAN OF NO. 5 1/2 BOLTED RIGID FROG

⅞" N.T. Bolts, sq. hd., extra thick sq. nuts, super. H.P.N.L. & grip nuts, rolled beveled hd. locks & washers.

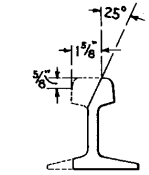
Note: Plates No. 3, 4, 7 & 8 to be riveted to flange of rail at 90° to ℄ of frog with ¾" rivets. All spike holes are ¾" square and, except in plates 1, 2, 5 & 6, are 1/16" under flange.
For typical sections thru frog see Dwg. C.E. S-150



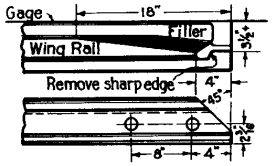
DETAIL OF LOOSE PLATES
Stamp no. of plate, no of frog and wt. of rail on these plates

Note:
~~All tie plates, except plates No. 7 & No. 8, may be ordered separately for use with old style No. 5½ frogs now in track. When plates are shipped separately, stamp no of plate, no. of frog and wt. of rail on each plate, thusly, F-4 5½-85~~

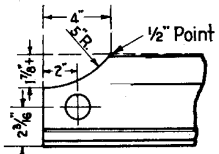
All tie plates, except plates 7 & 8, will be furnished only if on hand. If plates are not available Hook Twin Tie Plates will be furnished as per C.E. S-152 A.



PLANING AT END OF WING RAIL



DETAIL OF BEVELED END OF WING RAIL.



ELEVATION OF POINT

OLD STANDARD

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E W Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

NO. 5 1/2 BOLTED RIGID FROG

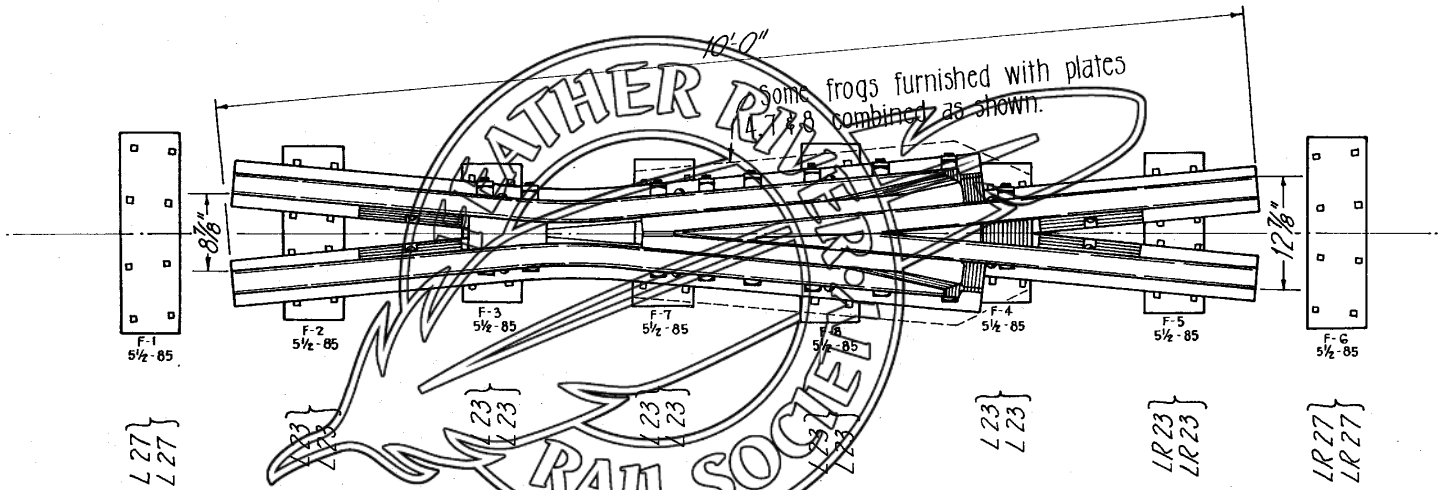
85 LB. RAIL

No Scale

Adopted July 1, 1940.
Revised April 1, 1947.
Dec. 21, 1954

Revised to agree with Racor Dwg. 44-880, Sheets 1&2, dated 6/15/44.

C. E.
S-152 A



NOTES

When original "F" plates are not available store will furnish Hook Twin Tie Plates as shown.

Approved: Frank R. Wadford
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY

STANDARD

№ 5½ BOLTED RIGID FROG

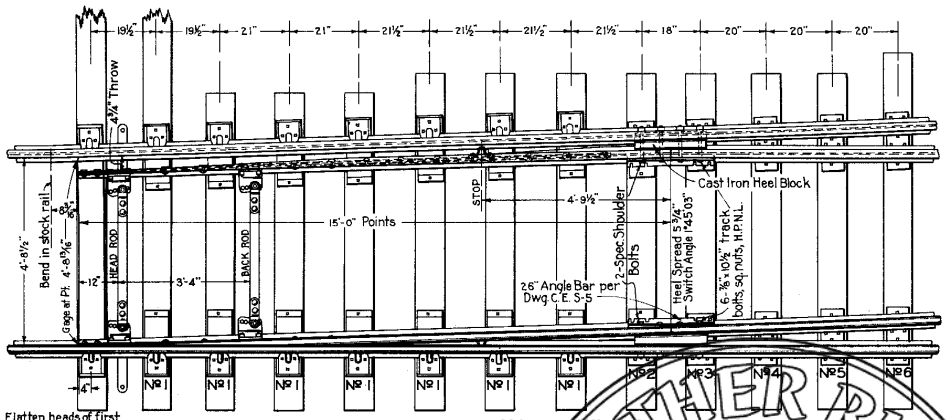
PLATE REPLACEMENT

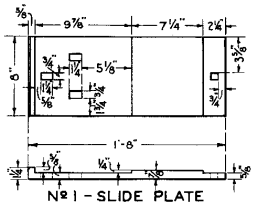
85 LB. RAIL

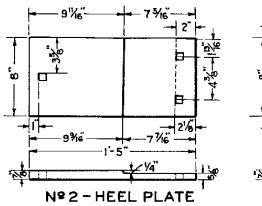
No Scale

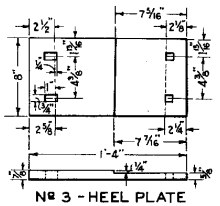
Adopted: Nov. 15, 1959

C.E.
S-153

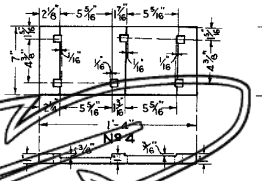


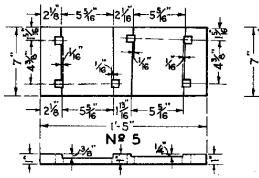


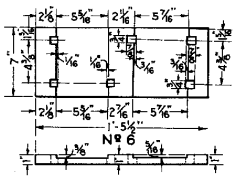




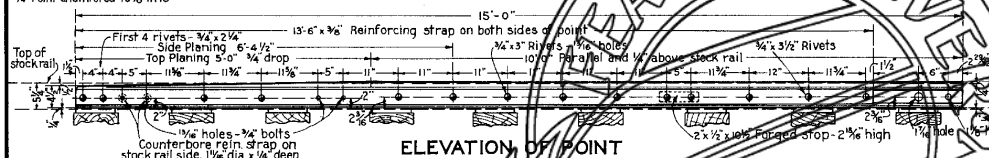
Note: All spike holes are ¾" square unless otherwise shown.

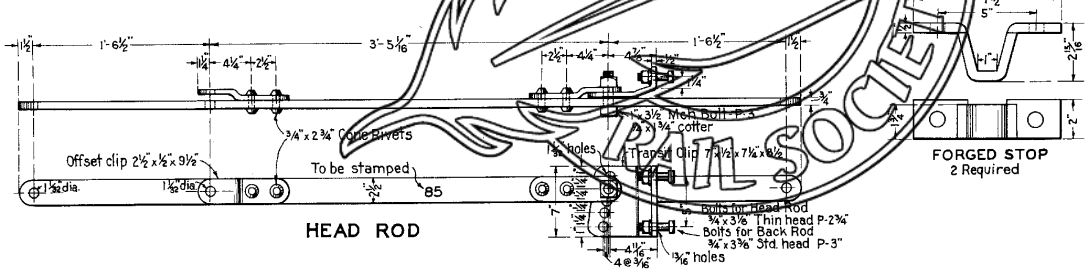


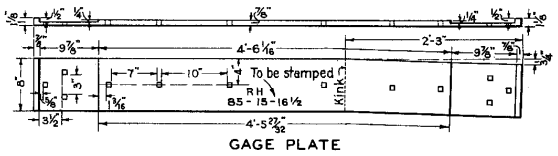


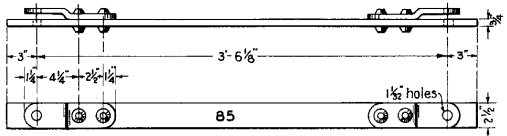


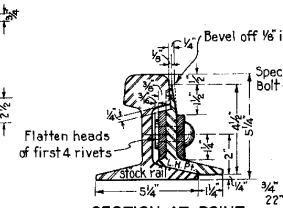
№4, 5 & 6 - RUNOFF PLATES
1 R.H. & 1 L.H. each Required

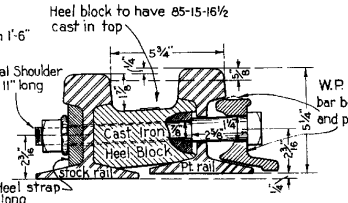












Notes:

Orders for switches should specify insulated or non-insulated. Insulation on gage plate, head rod and back rod should be the same as shown on Dwg. C.E. S-116.

Both rods to be stamped 85. Gage plate to be stamped 85-15-16½ and R.H. or L.H. Slide plates and Heel plates to be stamped with wt. of rail and no. of plate. Runoff plates to be stamped with wt. of rail, no. of plate and no. of switch, i.e., 85-5-15.

Rail braces to be pressed steel as shown on Dwg. C.E. S-116, and stamped with wt. of rail. 16 rail braces required. All rail braces to be punched with 3 spike holes ¾" square.

APPROVED:

CHIEF ENGINEER

OLD STANDARD

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

15 FOOT SPLIT SWITCH

85 LB. RAIL

No Scale

Adopted July 1, 1940

Note: All parts shown here are interchangeable with corresponding parts shown on S-153 A. When requisition refers to S-153, store will furnish "Old Standard" parts if available, otherwise will furnish parts in accordance with S-153 A.

PARTS LIST - SWITCH COMPLETE

Piece Mark	Name of Part	Stamped	Req'd	Remarks
1	Switch Point - Right Hand	–	1	Includes Transit Clips bolted in place except when requisition states "Without Transit Clips."
2	Switch Point - Left Hand	–	1	
3	Gage Plate - Complete	85-16½-15	1	Specify insulated or non-insulated.
4	Head Rod - Complete	85	1	Specify insulated or non-insulated; includes Transit Clip Rod Bolts except when requisition states "Without Transit Clip Rod Bolts."
5	Back Rod - Complete	85	1	
6	Slide Plate	SP-85	14	
7	Heel Plate	HP-85	4	
8	L.23 - Hook Twin Tie Plate	L-23	6	As per W.P. Dwg. No. C.E. S-219
9	L.R.23-Hook Twin Tie Plate	LR-23	6	
10	Run-off Shim	–	.2	To be wired to Pc. Mk. 12 for shipment
11	Rail Brace	85	16	
12	L.H. Heel Assembly Complete	–	1	Includes 1 Heel Block, 1 Heel Strap, 1 Bent Joint Bar, 1 Shoulder Bolt, & 3 Track Bolts each.
13	R.H. Heel Assembly Complete	–	1	

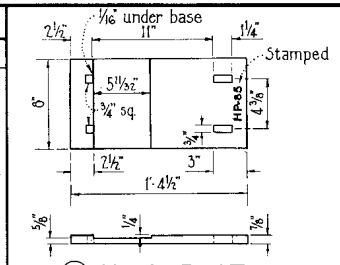
REPLACEMENT PARTS

	Insulated Gage Plate			
14	Gage Plate Half : R.H.	85-16½-15 RH	1	¾" x 4¼" Sq. Hd. Mach. Bolt — includes 1 Hex. Nut & 1 Spring lock washer each.
15	Gage Plate Half : L.H.	85-16½-15 LH	1	
16	Gage Plate Bolt	–	3	
17	Fibre Bushing	–	3	
18	Fibre Shim	–	2	
19	Fibre Angle	–	2	
20	Steel Strapwasher	–	2	
	Transit Clip			
21	Transit Clip : R.H. or L.H.	–	2 ea.	Bolts not included
22	Transit Clip Web Bolt	–	8	¾"x3¼" drilled 2 11/16 Sq. Hd. Mach. Bolt - includes 1 Hex. Nut, 1 Spring lock washer & 1-¼" x 1¼" Cotter Pin each.
23	Transit Clip Rod Bolt	–	4	1" x 3½" drilled 3" Sq. Hd. Mach. Bolt - includes 1 Sq. Nut & 1-¼" x 1½" Cotter Pin each.
	Heel Assembly			
24	Heel Block - Right Hand	85-16½-15	1	
25	Heel Block - Left Hand	85-16½-15	1	
26	Heel Strap	–	2	⅞" x 17⅝" Hd. Ht. - includes 4 Sq. nuts, 2 ⅞" Spring lock washers & 1-¼" x 1¼" Cotter Pin each.
27	Bent Joint Bar	–	2	
28	Shoulder Bolt	–	2	
29	Track Bolt	–	6	⅞" x 10½" Std. Track Bolt - includes 1 Sq. Nut & 1 Spring lock washer ea.
	Insulated Rod Assembly			
30	Head Rod Half	85	2	¾" x 3¾" drilled 3¼" - Square Head Machine Bolt - includes 1 Sq. Nut & 1 Ht. Chrome lock washer & 1-¼" x 1¼" Cotter Pin each.
31	Back Rod Half	85	2	
32	Rod Insulation Bolt	–	8	
33	Fibre Shims	–	2 pr.	
34	Fibre Bushing	–	8	
35	Steel Strap	–	4	2½" x ½" x 9½"

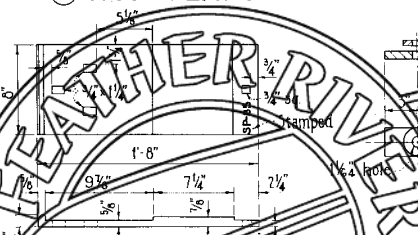
NOTES

When requisition states "Switch Complete" store will furnish Piece Marks 1 through 13 listed under Switch Complete. Requisition must state whether switch is to be insulated or non-insulated.

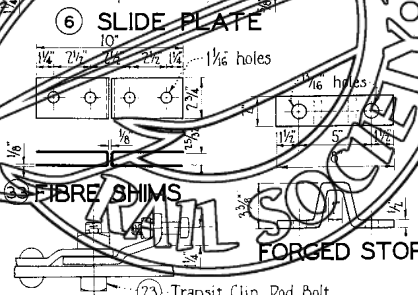
Piece Marks 1 through 13 include all material necessary to equip one complete switch. Piece Marks 14 through 35 are replacement parts only. Replacement Parts list to be used only when ordering individual replacement parts. When ordering, refer to Drawing Number and Piece Mark in addition to specifying name and size of part.



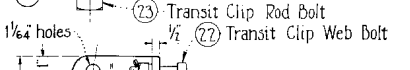
⑦ HEEL PLATE



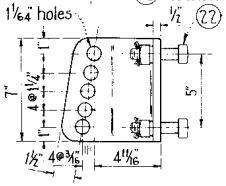
⑥ SLIDE PLATE



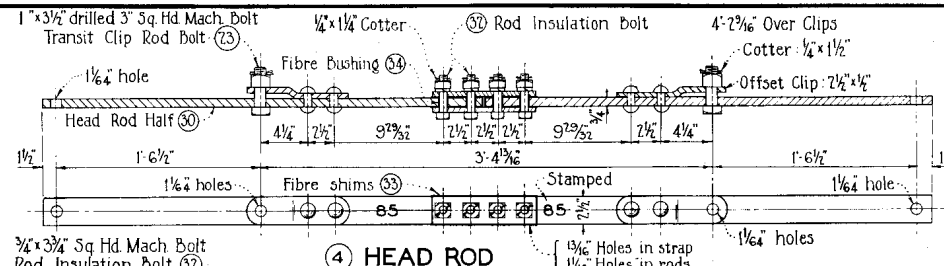
㉝ FIBRE SHIMS



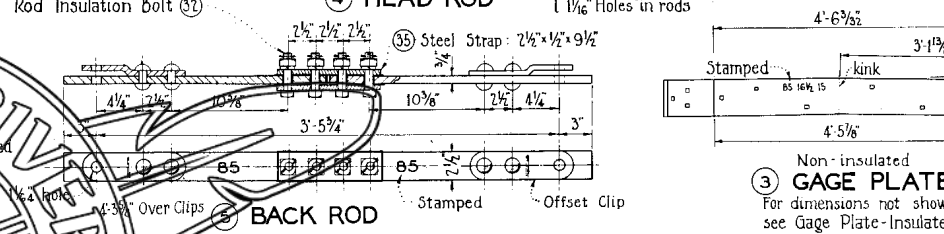
㉓ Transit Clip Rod Bolt
㉒ Transit Clip Web Bolt



㉑ TRANSIT CLIP
Right Hand Shown



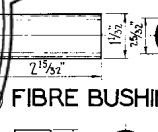
④ HEAD ROD

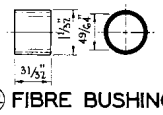


⑤ BACK ROD

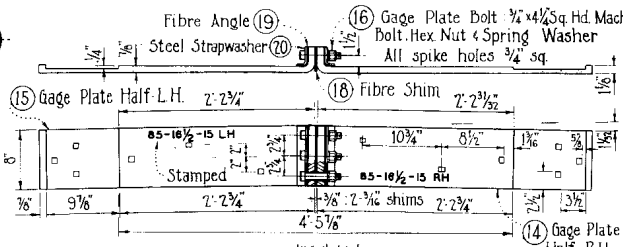
Non-insulated
③ GAGE PLATE
For dimensions not shown see Gage Plate-Insulated.

⑰ FIBRE BUSHING

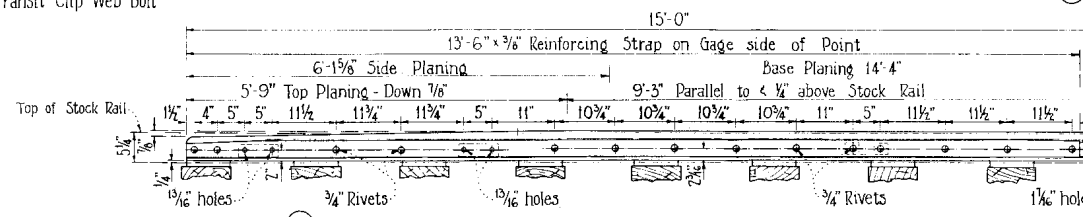




㉞ FIBRE BUSHING

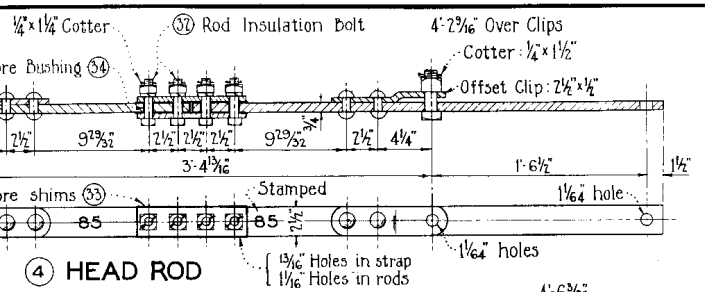


Insulated
③ GAGE PLATE

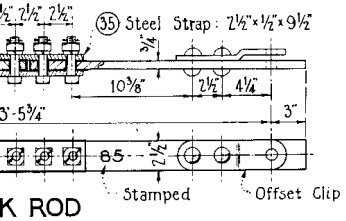


② ELEVATION OF LEFT HAND SWITCH POINT COMPLETE

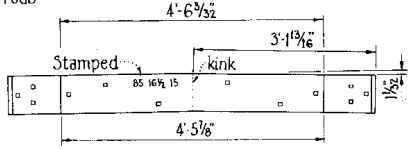
C.E.
S-153A



(4) HEAD ROD



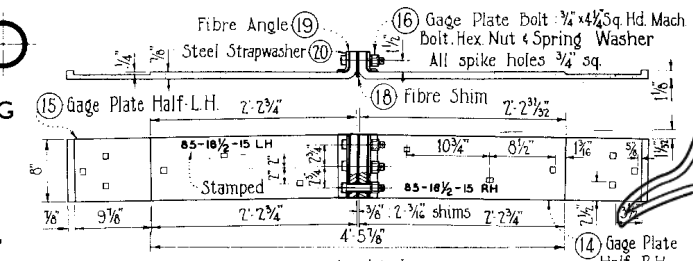
K ROD



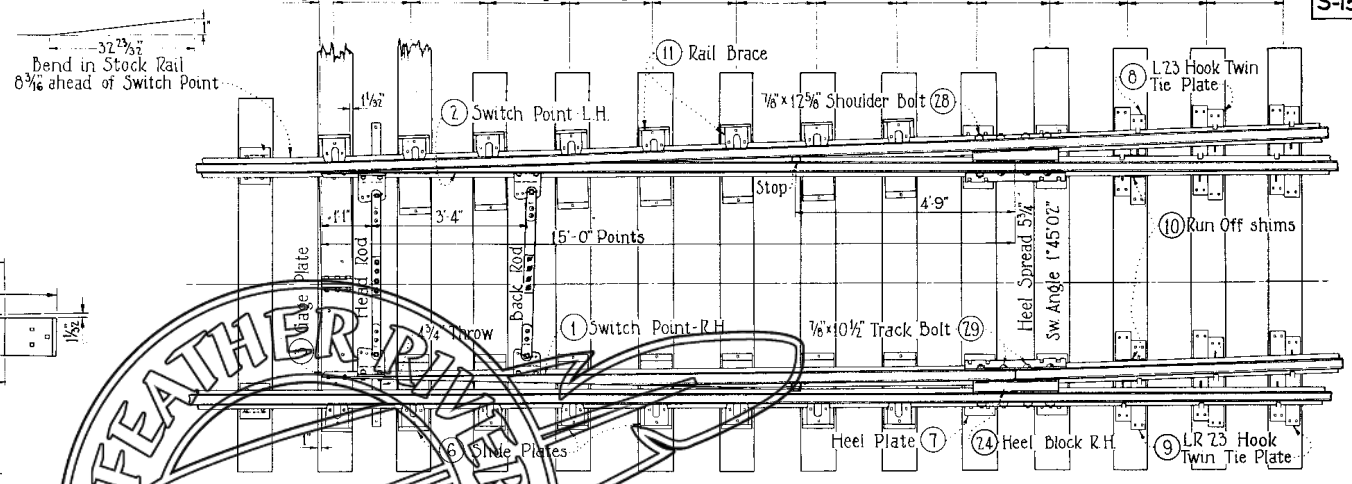
Non-insulated

(3) GAGE PLATE

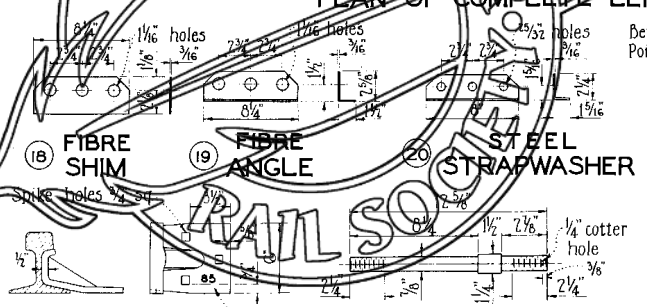
For dimensions not shown see Gage Plate-Insulated.



(3) GAGE PLATE



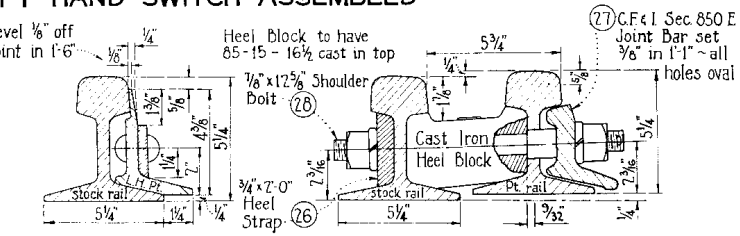
PLAN OF COMPLETE LEFT HAND SWITCH ASSEMBLED



(11) RAIL BRACE

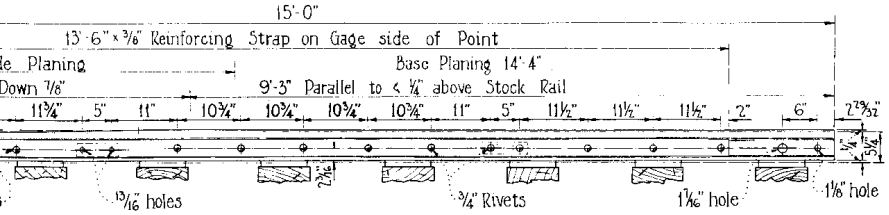
(28) SHOULDER BOLT

With 2-7/8" Hi-Chrome lock washers, 2 Nuts & 1-¼" x 1¼" Cotter

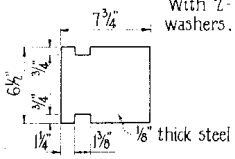


SECTION AT POINT

SECTION OF HEEL AT FIRST BOLT



VATION OF LEFT HAND SWITCH POINT COMPLETE



(10) RUN-OFF SHIM

○ Designates Piece Mark

Approved: Frank P. Wood
Chief Engineer

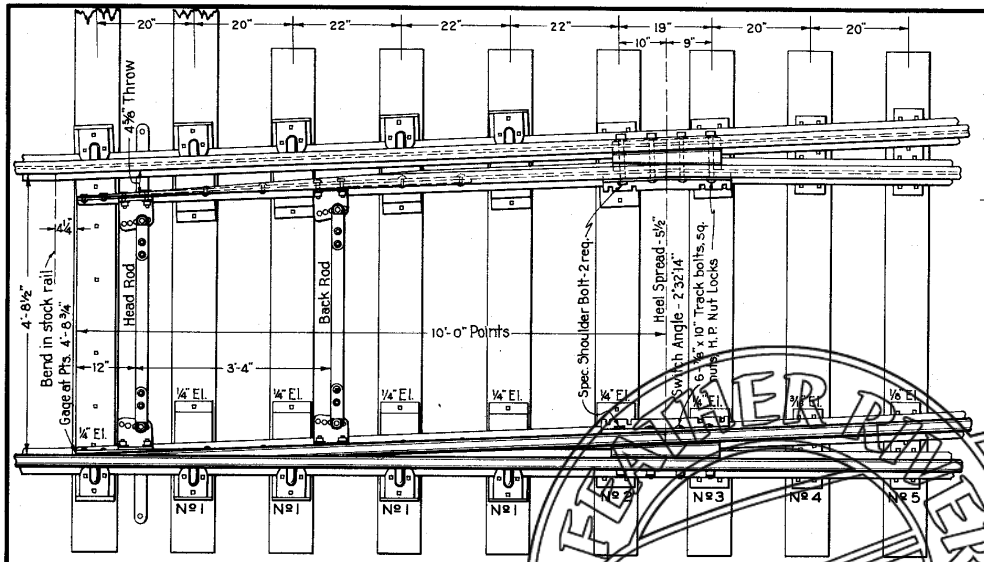
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

15 FOOT SPLIT SWITCH
85 LB. RAIL

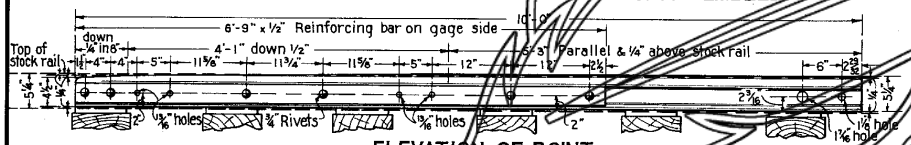
NO SCALE

ADOPTED Dec. 15, 1954

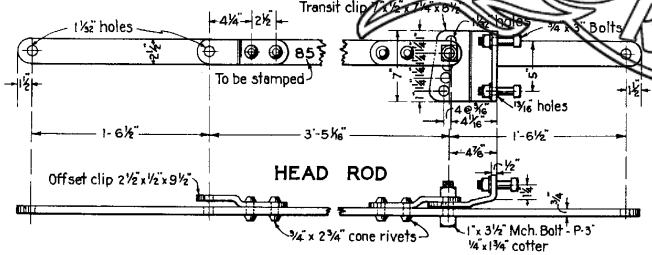
C.E.
S-154

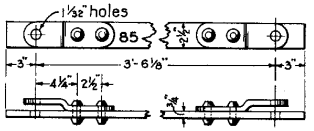


PLAN OF COMPLETE LEFT HAND SWITCH ASSEMBLED

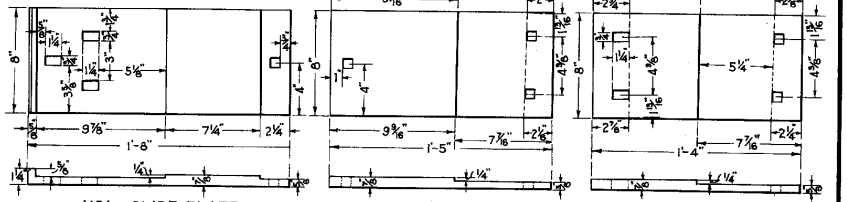


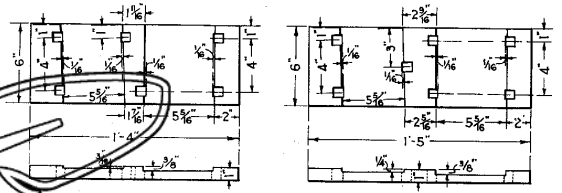
ELEVATION OF POINT

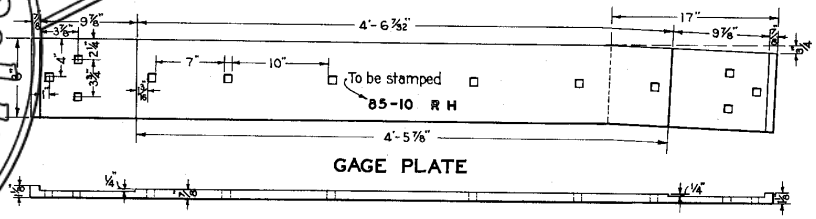




BACK ROD





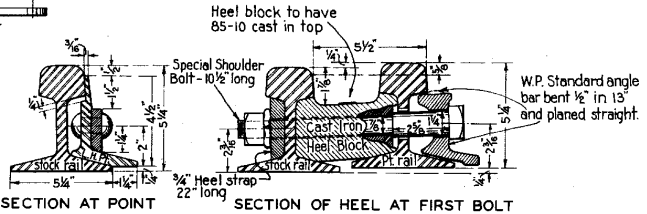


Notes: Gage plate to be stamped 85-10 and R.H. or L.H. Head rod and back rod to be stamped 85. Slide plates and Heel plates to be stamped with wt. of rail and no. of plate. Runoff plates to be stamped with wt. of rail, no. of plate and no. of switch, i.e., 85-4-10.

All spike holes to be ¾" square unless otherwise shown.

Rail braces to be pressed steel as shown on Dwg. C.E.S-116, and stamped with wt. of rail. 10 required. All rail braces to be punched with 3 spike holes ¾" square.

Orders for switches should specify insulated or non-insulated. Insulation on gage plate, head rod and back rod should be the same as shown on Dwg. C.E. S-116.



SECTION AT POINT

SECTION OF HEEL AT FIRST BOLT

OLD STANDARD

APPROVED: J. M. Williams
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

10 FOOT SPLIT SWITCH

85 LB. RAIL

No Scale

Adopted July 1, 1940

Note: All parts shown here are interchangeable with corresponding parts shown on S-154A. When requisition refers to S-154, store will furnish "Old Standard" parts if available, otherwise will furnish parts in accordance with S-154A.

PARTS LIST - SWITCH COMPLETE

Piece Mark	Name of Part	Stamped	Req'd	Remarks
1	Switch Point - Right Hand	–	1	Includes Transit Clips bolted in place except when requisition states "Without Transit Clips."
2	Switch Point - Left Hand	–	1	
3	Gage Plate - Complete	85-10	1	Specify insulated or non-insulated
4	Head Rod - Complete	85	1	Specify insulated or non-insulated ; includes Transit Clip Rod Bolts except when requisition states "Without Transit Clip Rod Bolts."
5	Back Rod - Complete	85	1	
6	Slide Plate	SP-85	8	
7	Heel Plate	HP-85	4	
8	L 23 - Hook Twin Tie Plate	L-23	6	As per WP Dwg. № CE 5-719
9	LR 23-Hook Twin Tie Plate	LR-23	6	
10	Run-off Shim	–	2	To be wired to Pc. Mk 12 for shipment
11	Rail Brace	85	10	
12	LH Heel Assembly Complete	–	1	Includes 1 Heel Block, 1 Heel Strap, 1 Bent Joint Bar, 1 Shoulder Bolt, & 3 Track Bolts each.
13	RH Heel Assembly Complete	–	1	

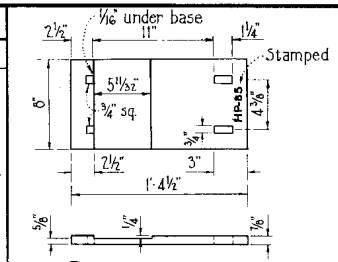
REPLACEMENT PARTS

	Insulated Gage Plate			
14	Gage Plate Half : R.H.	85-10 RH.	1	¾"x 4¼" Sq Hd. Mach. Bolt — includes 1 Hex. Nut & 1 Spring lock washer each.
15	Gage Plate Half : L.H.	85-10 LH.	1	
16	Gage Plate Bolt	–	3	
17	Fibre Bushing	–	3	
18	Fibre Shim	–	2	
19	Fibre Angle	–	2	
20	Steel Strapwasher	–	2	
	Transit Clip			
21	Transit Clip : R.H. or L.H.	–	2 ea.	Bolts not included
22	Transit Clip Web Bolt	–	8	¾"x3½" drilled 2⅛" Sq. Hd. Mach. bolt - includes 1 Hex Nut, 1 Spring lock washer & 1-⅛"x1¼" Cotter pin each.
23	Transit Clip Rod Bolt	–	4	1"x3½" drilled 3" Sq. Hd. Mach. Bolt - includes 1 Sq. Nut & 1-¼"x1½" Cotter Pin each.
	Heel Assembly			
24	Heel Block - Right Hand	85-10	1	
25	Heel Block - Left Hand	85-10	1	
26	Heel Strap	–	2	⅞"x12⅜" H.C. Hd. - includes 2 sq. nuts, 2-⅞" Spring lock washers & 1-¼"x1¼" Cotter Pin each.
27	Bent Joint Bar	–	2	
28	Shoulder Bolt	–	2	
29	Track Bolt	–	6	⅞"x10½" Std. Track Bolt - includes 1 Sq. Nut & 1 Spring lock washer ea.
	Insulated Rod Assembly			
30	Head Rod Half	85	2	
31	Back Rod Half	85	2	¾"x 3¾" drilled 3¼" - Square Head Machine Bolt - includes 1 Sq. Nut & 1 Hi. Chrome lock washer & 1-¼"x1¼" Cotter Pin each.
32	Rod Insulation Bolt	–	8	
33	Fibre Shims	–	2 pr.	
34	Fibre Bushing	–	8	
35	Steel Strap	–	4	2½"x ½"x 9½"

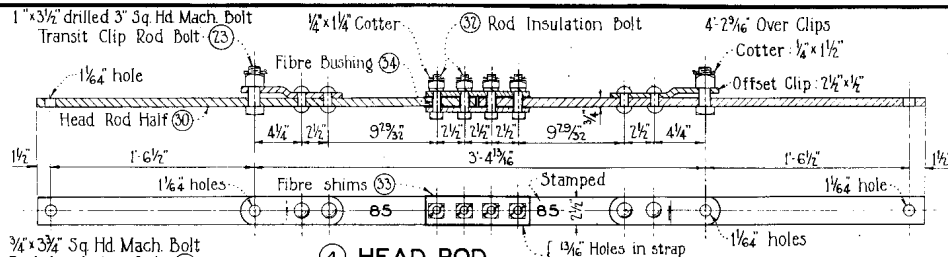
NOTES

When requisition states "Switch Complete" store will furnish Piece Marks 1 through 13 listed under Switch Complete. Requisition must state whether switch is to be insulated or non-insulated.

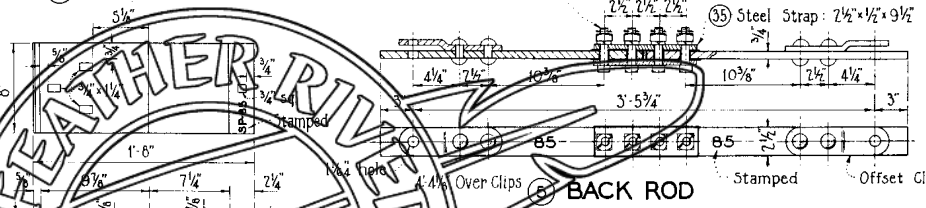
Piece Marks 1 through 13 include all material necessary to equip one complete switch. Piece Marks 14 through 35 are replacement parts only. Replacement Parts list to be used only when ordering individual replacement parts. When ordering, refer to Drawing Number and Piece Mark in addition to specifying name and size of part.



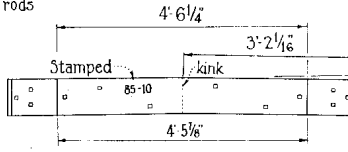
⑦ HEEL PLATE



④ HEAD ROD



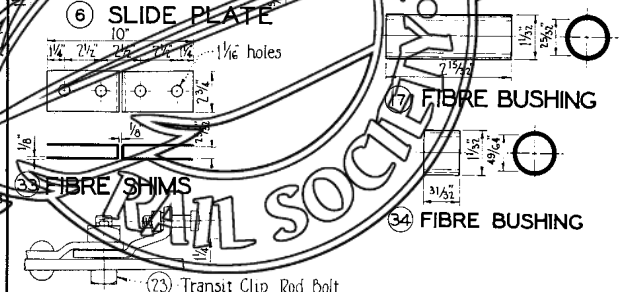
⑤ BACK REST



Non-insulated

③ GAGE PLATE

For dimensions not shown see Gage Plate - Insulated.

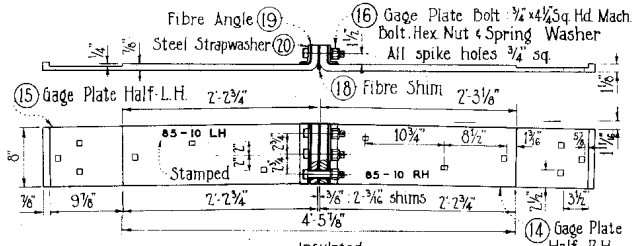


⑥ SLIDE PLATE

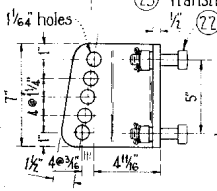
⑰ FIBRE BUSHING

㉝ FIBRE SHIMS

㉞ FIBRE BUSHING

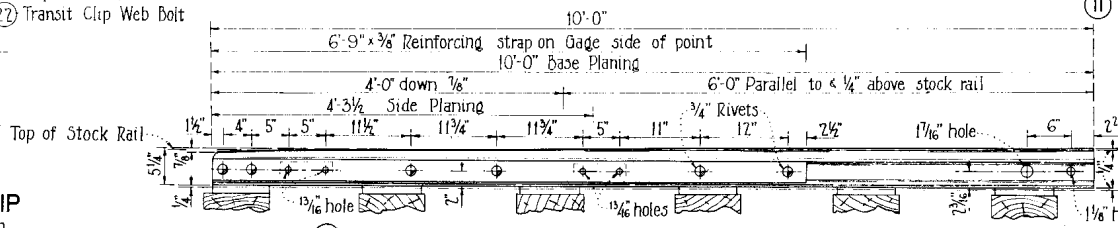


③ GAGE PLATE



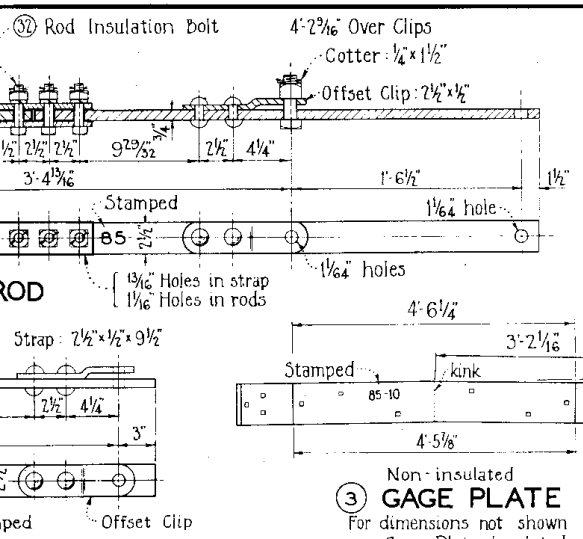
㉑ TRANSIT CLIP

Right Hand Shown



② ELEVATION OF LEFT HAND SWITCH POINT COMPLETE

C.E.
S-154A

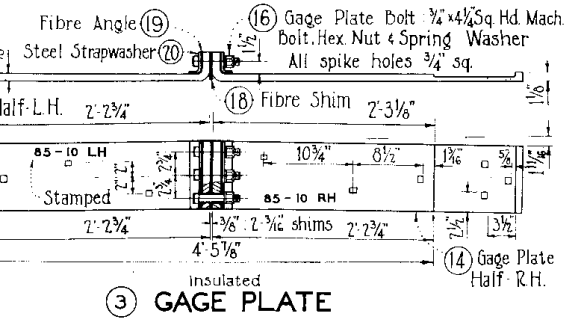


ROD

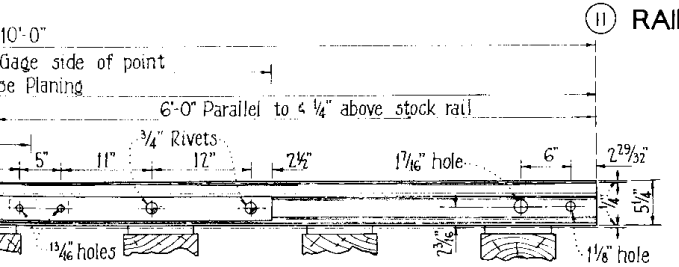
Non-insulated

(3) GAGE PLATE

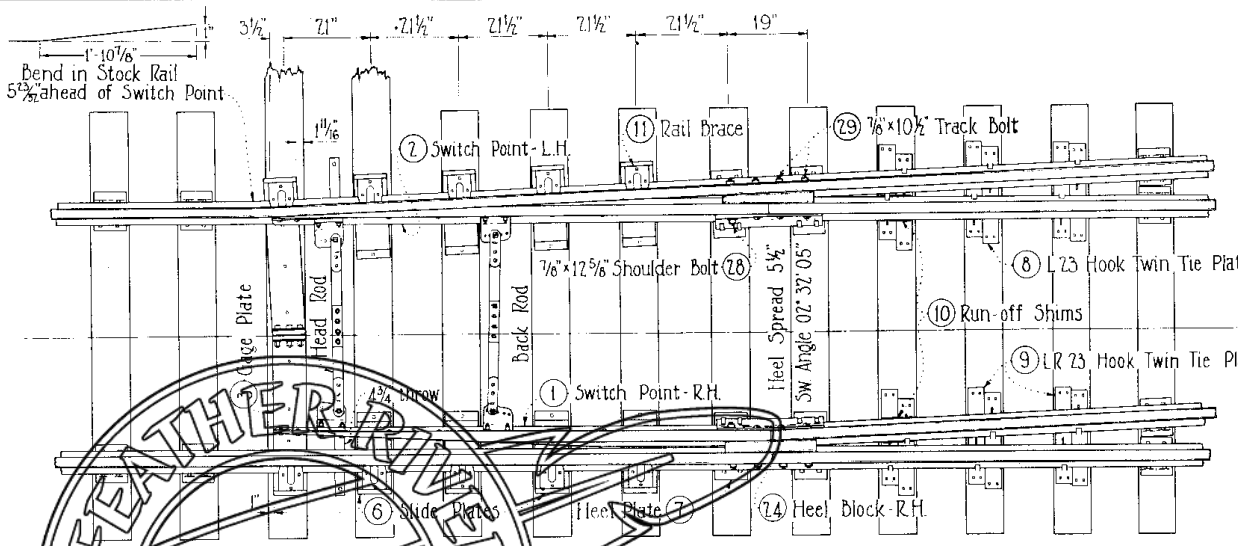
For dimensions not shown see Gage Plate-Insulated.



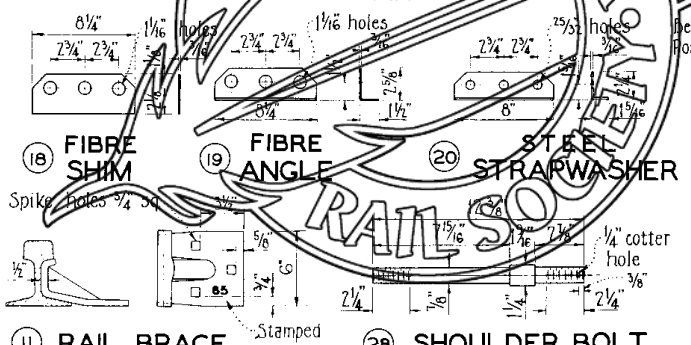
(3) GAGE PLATE



LEFT HAND SWITCH POINT COMPLETE



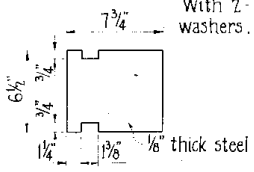
PLAN OF COMPLETE LEFT HAND SWITCH ASSEMBLED



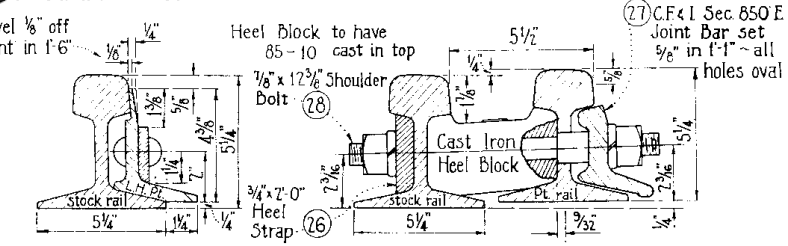
(11) RAIL BRACE

(28) SHOULDER BOLT

With 2-7/8" Ht. Chrome lock washers, 2 Nuts & 1-1/4" x 1 1/4" Cotter



(10) RUN-OFF SHIM



SECTION AT POINT

SECTION OF HEEL AT FIRST BOLT

○ Designates Piece Mark

Approved: Frank G. Woodford
Chief Engineer

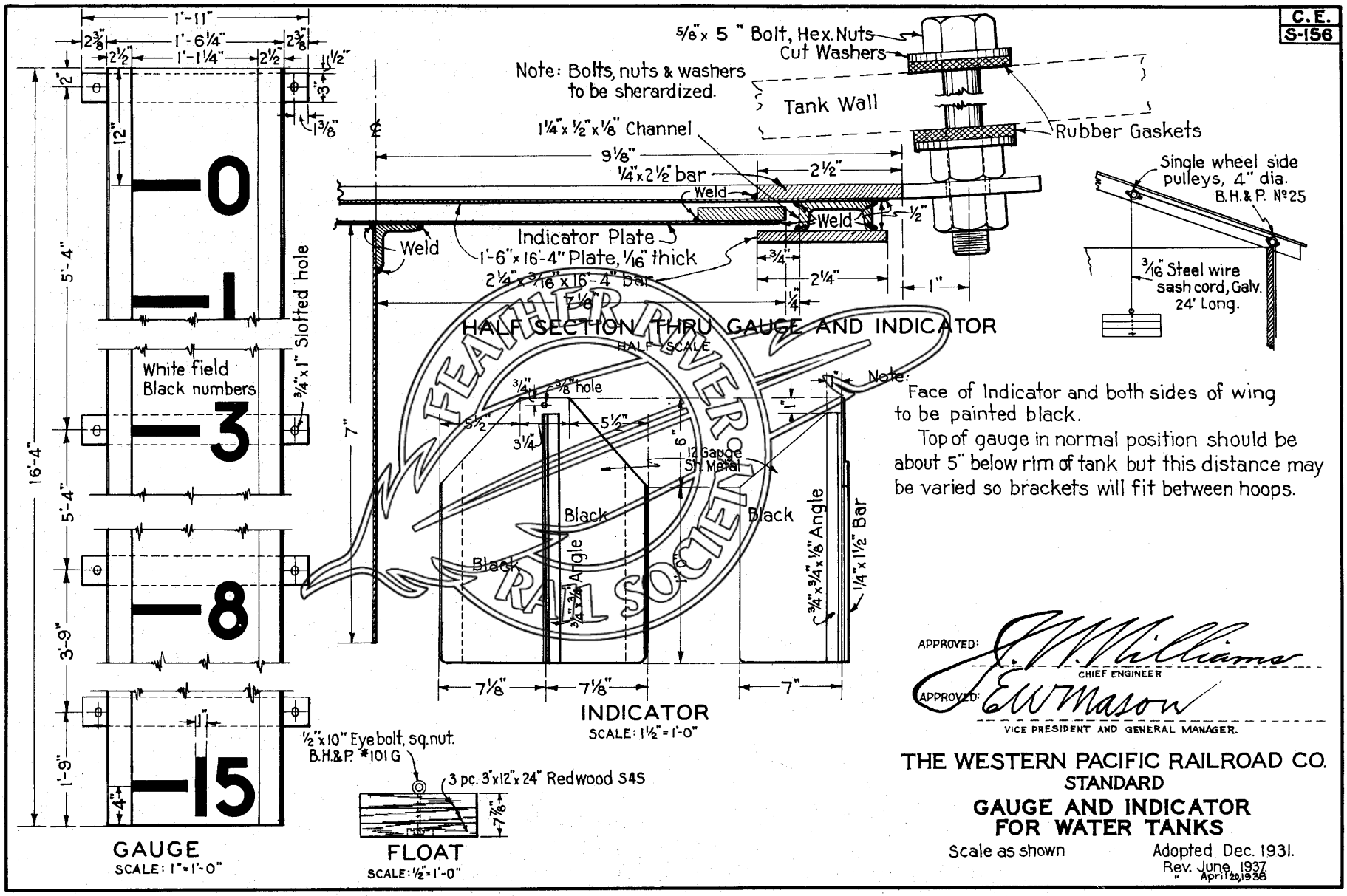
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

10 FOOT SPLIT SWITCH
85 LB. RAIL

NO SCALE

ADOPTED: Dec. 15, 1954

C.E.
S-156



Note:
Face of Indicator and both sides of wing to be painted black.

Top of gauge in normal position should be about 5" below rim of tank but this distance may be varied so brackets will fit between hoops.

APPROVED: J. M. Williams
CHIEF ENGINEER

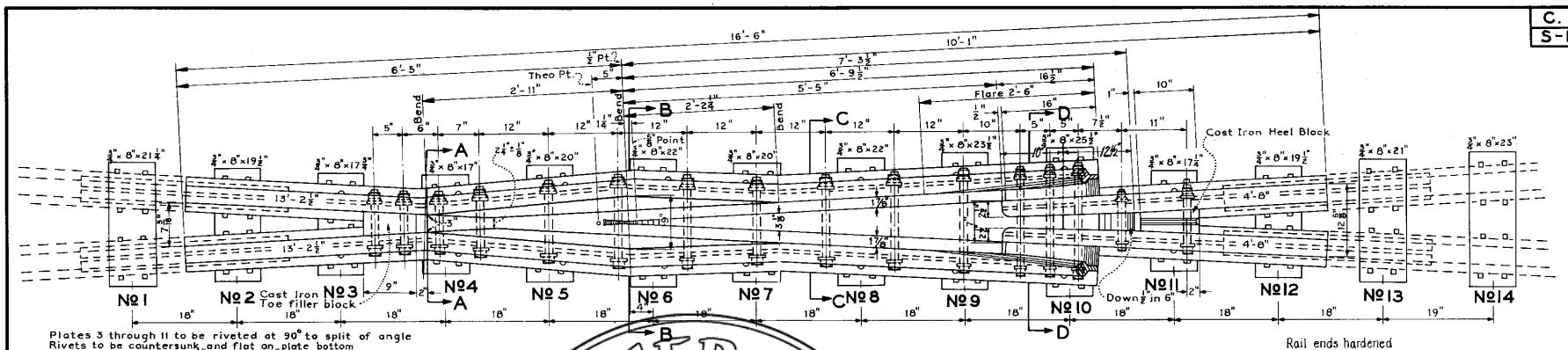
APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
GAUGE AND INDICATOR FOR WATER TANKS

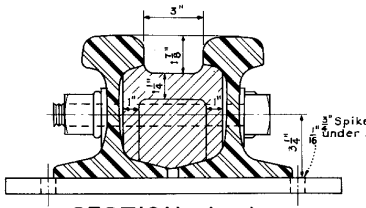
Scale as shown

Adopted Dec. 1931.
Rev. June, 1937
" April 20, 1938

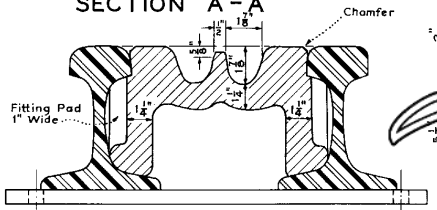
C. E.
S-157



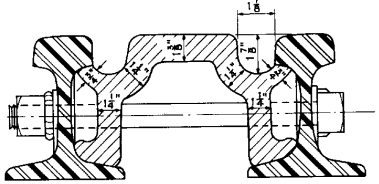
PLAN OF Nº 10 RAILBOUND MANGANESE FROG



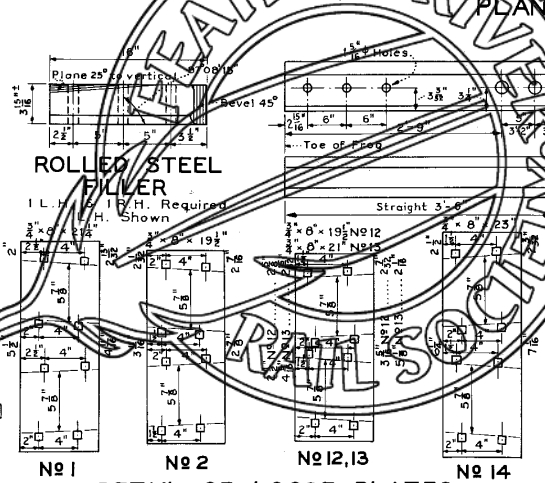
SECTION A-A



SECTION B-B

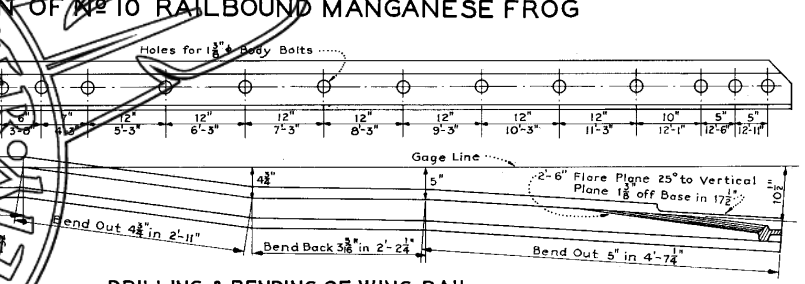


SECTION C-C

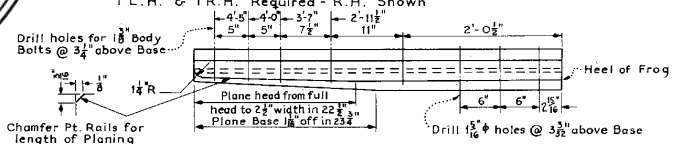


ROLLED STEEL FILLER
1 L.H. & 1 R.H. Required
L.H. Shown

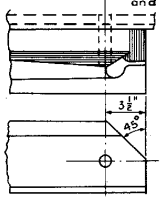
DETAIL OF LOOSE PLATES
Stamp weight of rail, Nº of plate and Nº of frog on plates



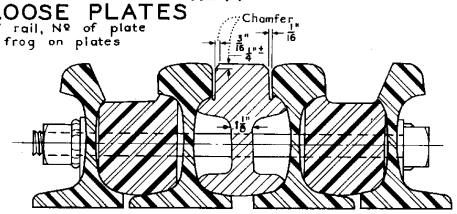
DRILLING & BENDING OF WING RAIL
1 L.H. & 1 R.H. Required - R.H. Shown



DRILLING OF POINT RAIL
1 L.H. & 1 R.H. Required
L.H. Shown



DETAIL OF BEVELED END OF WING RAIL



SECTION D-D

APPROVED Frank R. Woolford
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

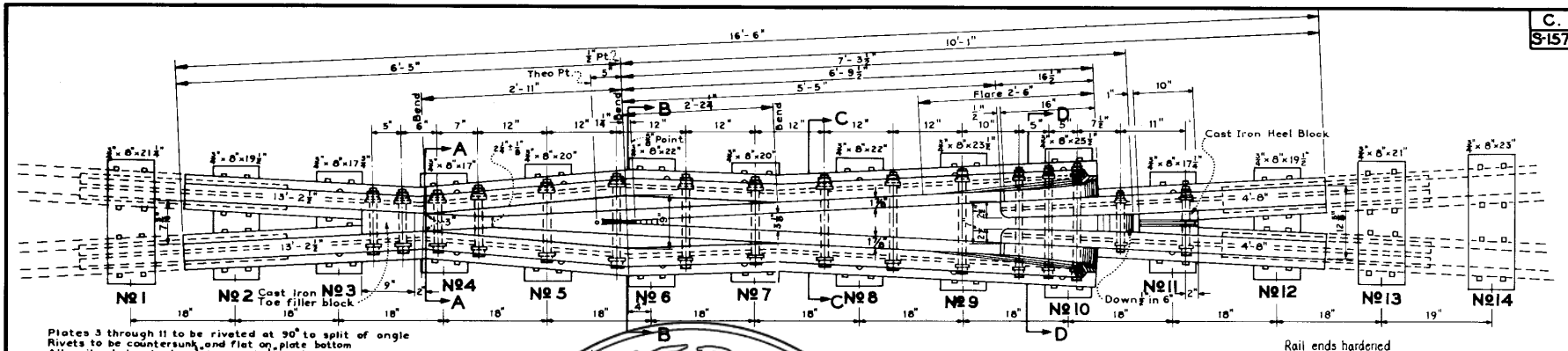
Nº 10 RAILBOUND MANGANESE FROG

132 LB. & 136 LB. RAIL

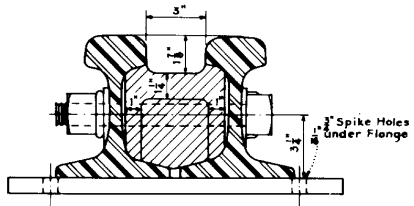
NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

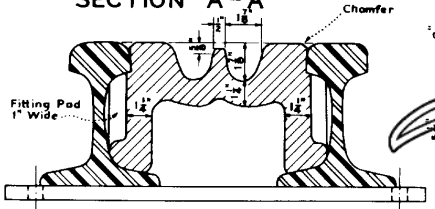
C. E.
S-157WS



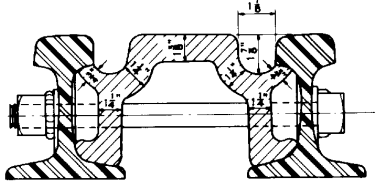
PLAN OF Nº 10 RAILBOUND MANGANESE FROG



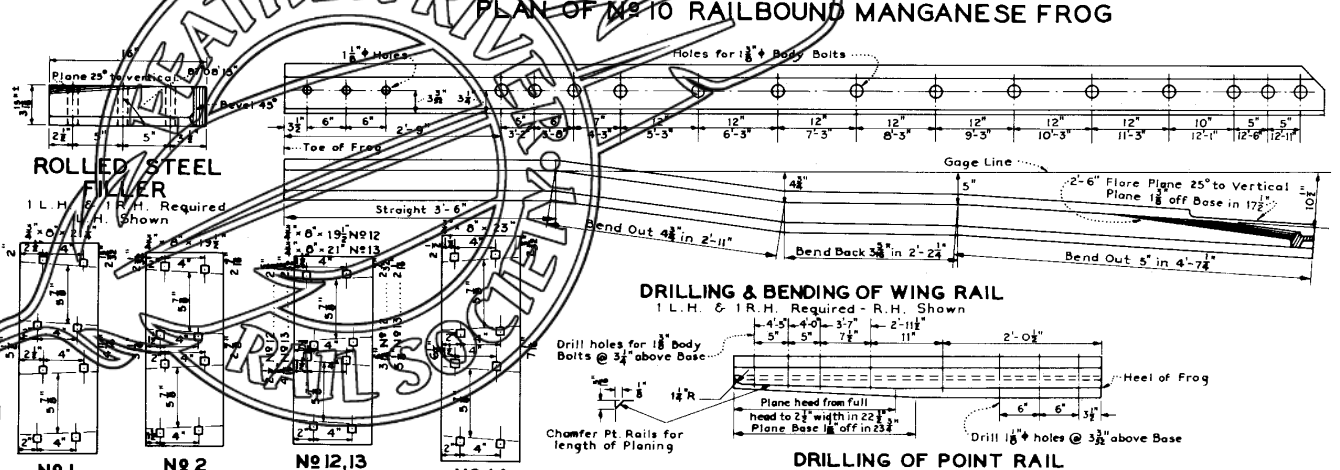
SECTION A-A



SECTION B-B

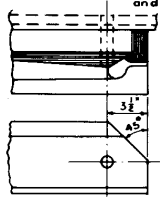


SECTION C-C

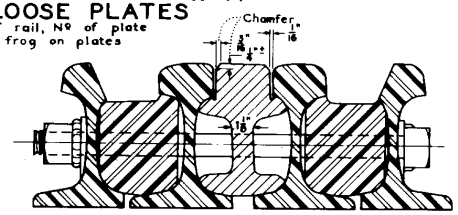


ROLLED STEEL FILLER
1 L.H. & 1 R.H. Required
L.H. Shown

DETAIL OF LOOSE PLATES
Stamp weight of rail, Nº of plate and Nº of frog on plates



DETAIL OF BEVELED END OF WING RAIL



SECTION D-D

DRILLING & BENDING OF WING RAIL
1 L.H. & 1 R.H. Required - R.H. Shown

DRILLING OF POINT RAIL
1 L.H. & 1 R.H. Required
L.H. Shown

APPROVED Frank A. Woolpert
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

Nº 10 RAILBOUND MANGANESE FROG

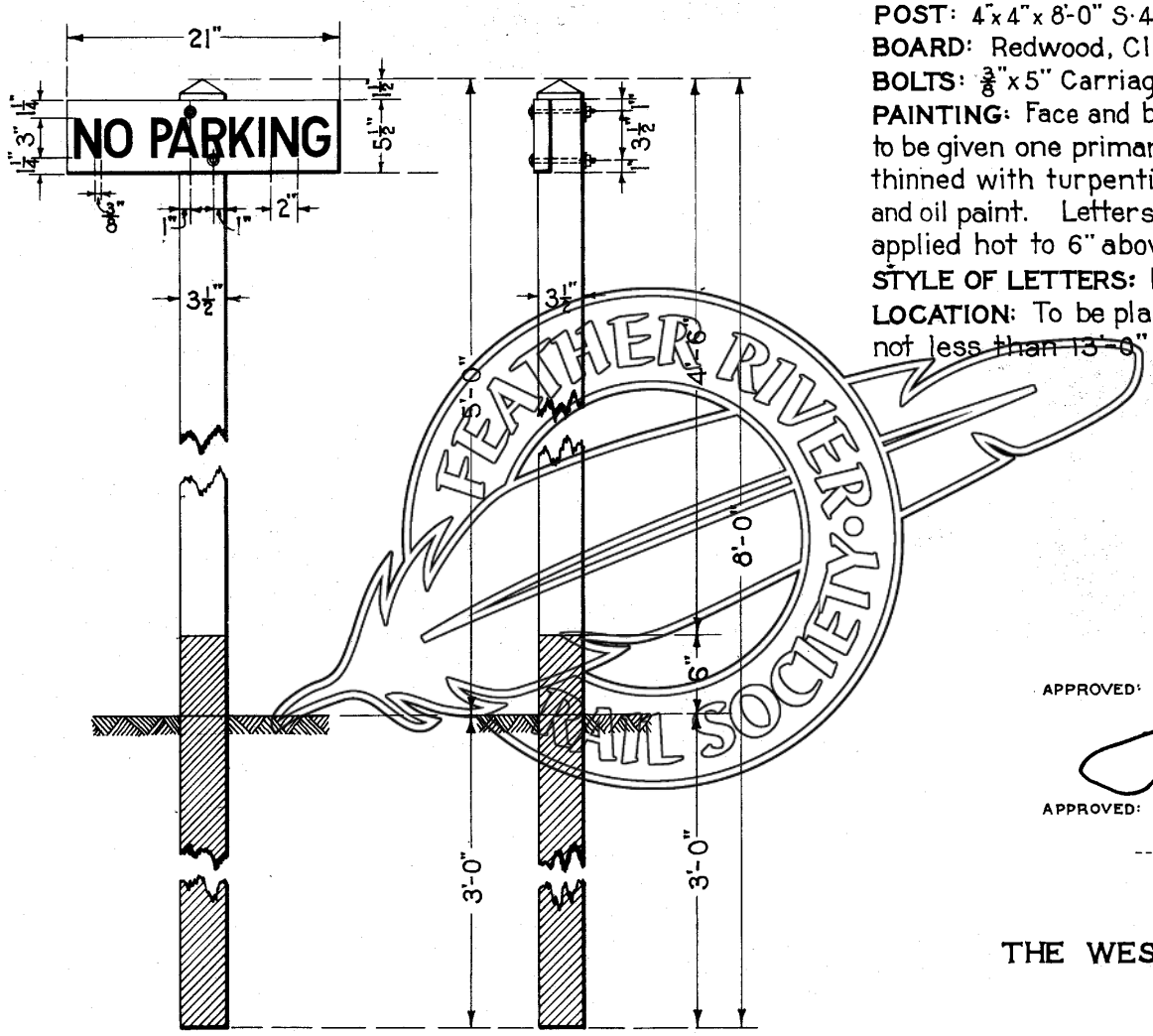
136 LB. C.F. & I. RAIL

NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

Western Standard Drilling

C.E.
S-158



POST: 4"x4"x 8'-0" S·4·S Redwood Extra Merch.
BOARD: Redwood, Clear.
BOLTS: ⅜"x 5" Carriage bolts with washers.
PAINTING: Face and back of board and upper 4'-6" of post to be given one primary coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. Letters black. Post to have a coat of tar applied hot to 6" above ground.
STYLE OF LETTERS: Egyptian, 3" high with ⅜" stroke.
LOCATION: To be placed at location designated but not less than 13'-0" from center line of any track.

APPROVED: J. M. Williams
CHIEF ENGINEER

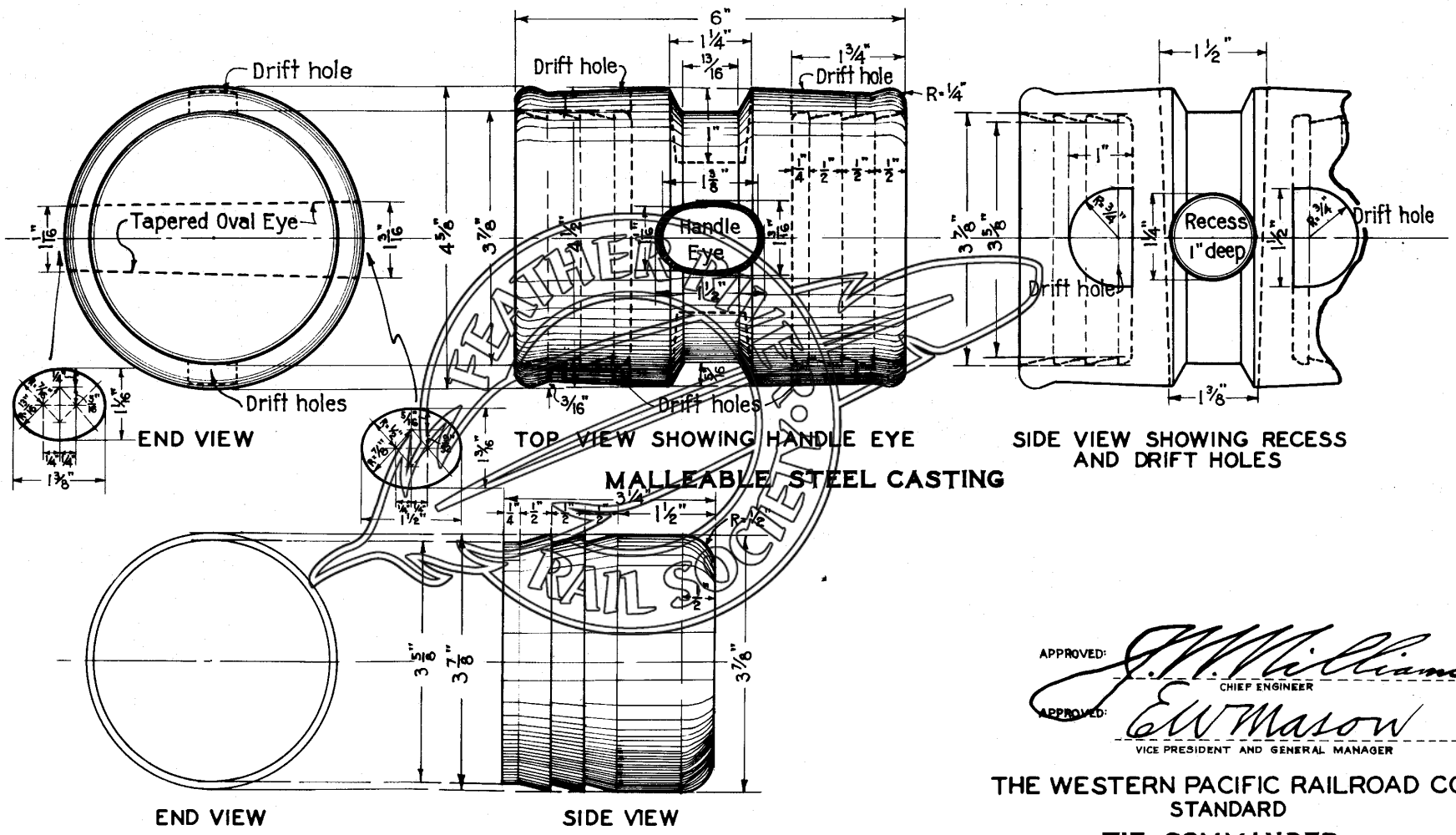
APPROVED: E W Mason
VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NO PARKING SIGN

SCALE: 1"=1'-0"

ADOPTED JAN. 3, 1938

C.E.
S-161



FILLER BLOCK

To be molded of Live Hard Rubber

APPROVED: J. M. Williams
CHIEF ENGINEER

APPROVED: E W Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

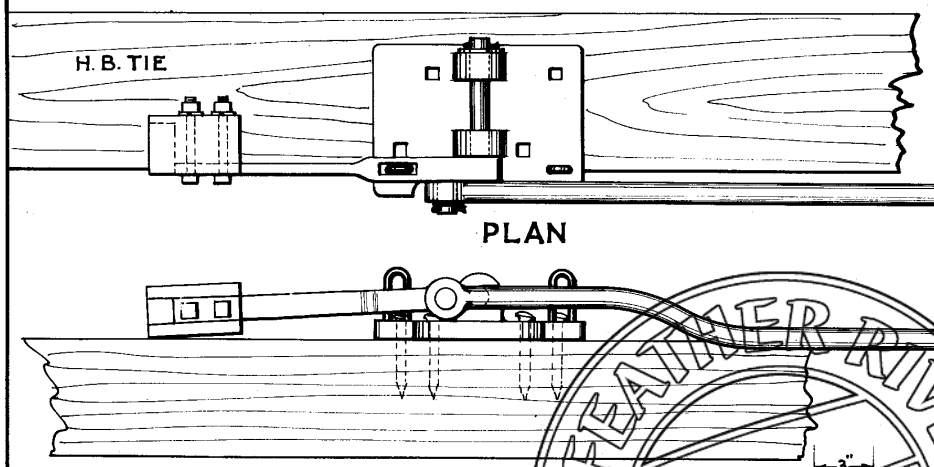
STANDARD

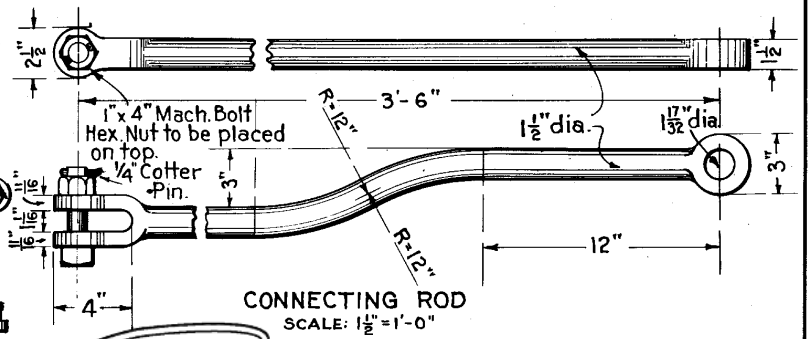
TIE COMMANDER

NO SCALE

ADOPTED AUG. 25, 1938
REV. MAR. 27, 1940
JULY 15, 1940

C.E.
S-167

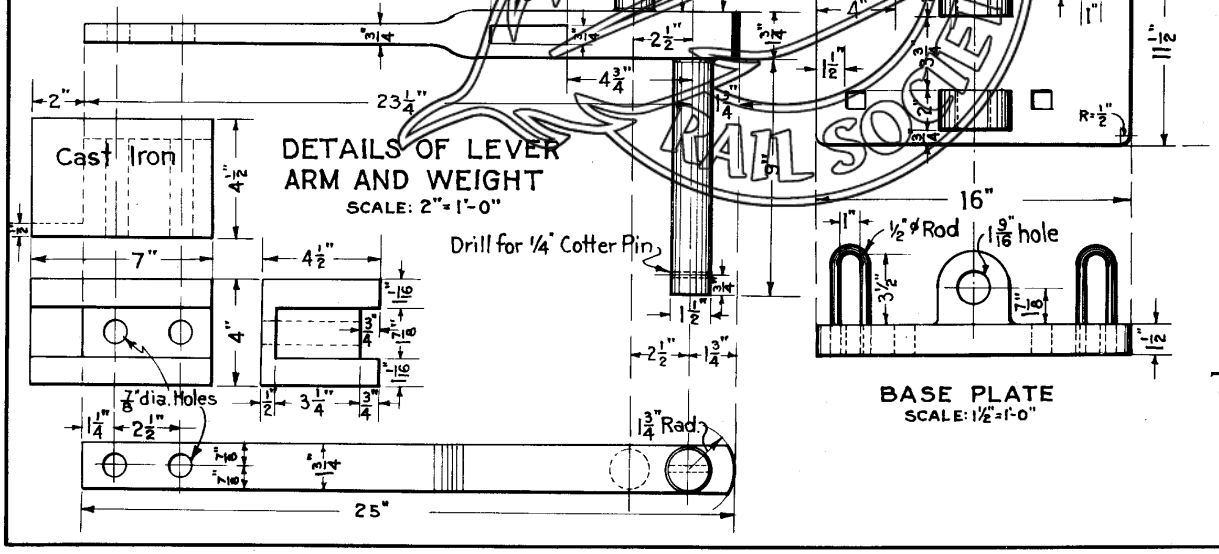




CONNECTING ROD
SCALE: 1½"=1'-0"

Note: This type of switch stand to be used with T-Rail switches in back tracks in paved streets or driveways where standard high switch stands or parallel Ground Throw switch stands can not be used.

See Dwg. C.E.-S-168 for standard street box and cover to be used where necessary.



BASE PLATE
SCALE: 1½"=1'-0"

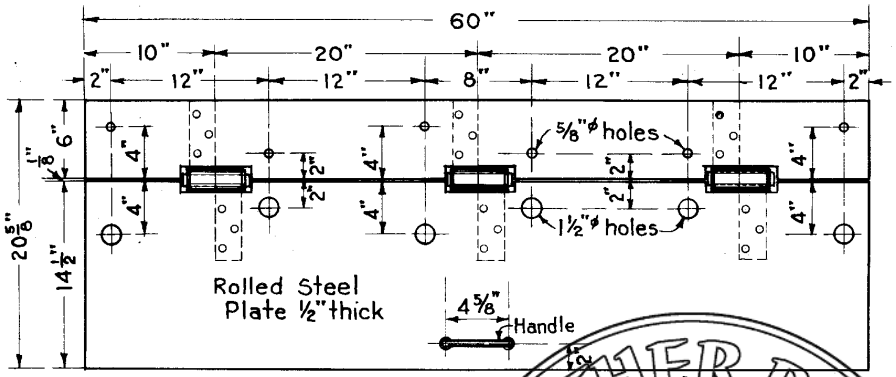
APPROVED: J. N. Phillips
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

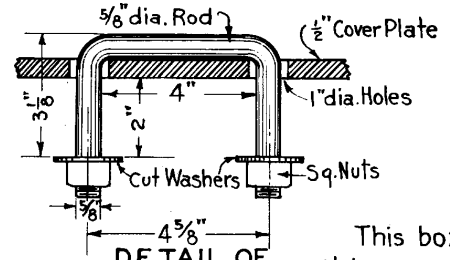
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
JACK-KNIFE SWITCH STAND

SCALE AS NOTED — ADOPTED FEB. 1941

C. E.
S-168



PLAN OF COVER
SCALE: 1" = 1'-0"

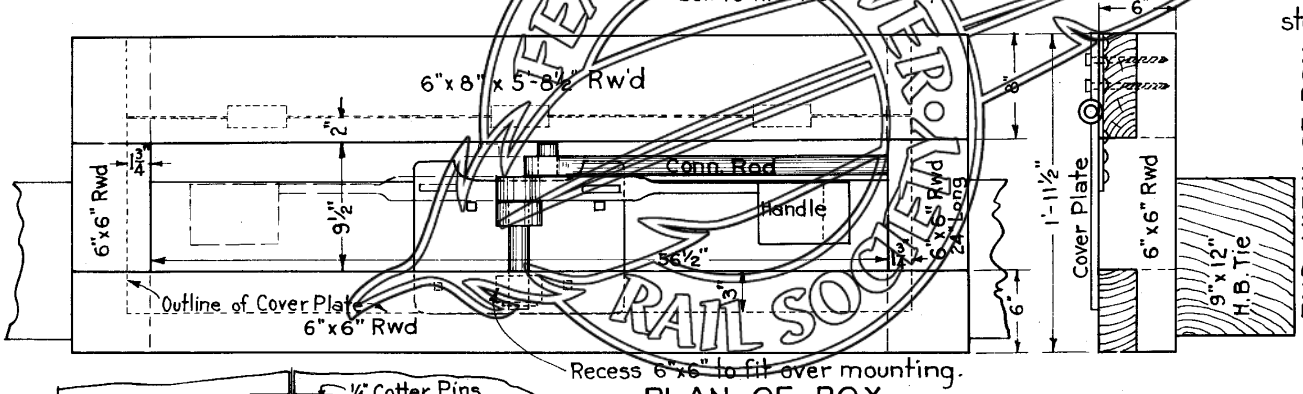


DETAIL OF HANDLE
SCALE: 3" = 1'-0"

This box and cover to be used when it is necessary to install a jack-knife stand. For details of jack-knife stand see Drawing Nº C.E.-S-167.

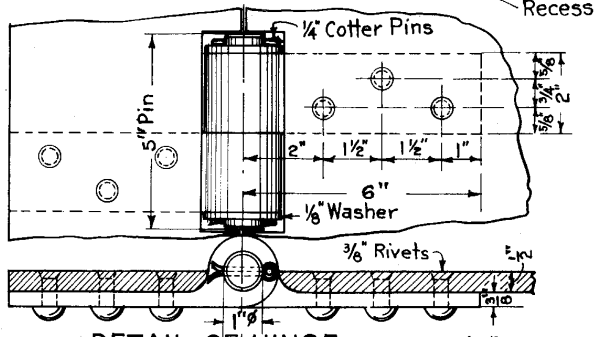
When stand is placed in sidewalk area and is not subject to heavy traffic, the cover plate may be made of ⅜" thick stock.

6-½"x8" Lag Screws required for cover plate.
10-½"x12" Galv. Boat Spikes required to spike Box to H.B. Tie.



END VIEW OF BOX

PLAN OF BOX
SCALE: 1" = 1'-0"



DETAIL OF HINGE SCALE: 3" = 1'-0"

BILL OF MATERIAL FOR ONE BOX	
NO.	ITEM
1 PC.	6"x 8" x 5'-8½" Redwood
1 PC.	6"x 6" x 5'-8½" Redwood
2 PC.	6"x 6" x 1'-11½" Redwood
12	60d Spikes

APPROVED: J. R. Phillips
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

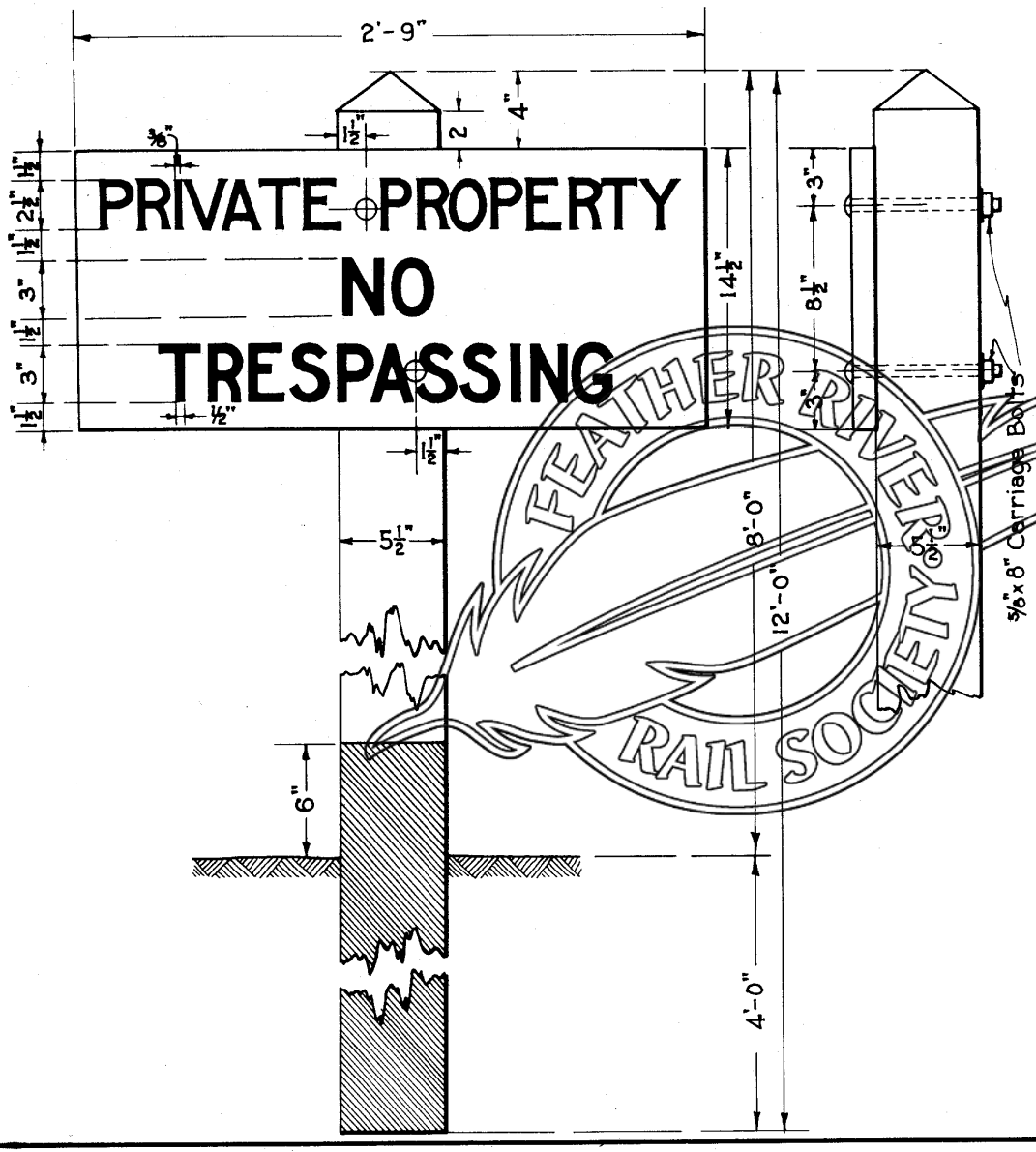
THE WESTERN PACIFIC RAILROAD CO.

STANDARD

BOX & COVER FOR JACK-KNIFE STAND IN PAVED STREETS

SCALE AS NOTED ADOPTED FEB. 1941

C.E.
S-169



POST: 6"x 6"x 12'-0" S4S Redwood Extra Merch.
BOARDS: Redwood Clear.
BOLTS: ⅝" Diameter with washers.
PAINTING: Post to have a coat of coal tar applied hot to 6" above ground. Balance of post and back of board to be painted with metallic and lamp black making a very dark brown. Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. Letters black.
STYLE OF LETTERS: Gothic, of height and weight as shown.
LOCATION: To be placed at location designated but not less than 13'-0" from center line of nearest track.

APPROVED: S. Phillips
CHIEF ENGINEER

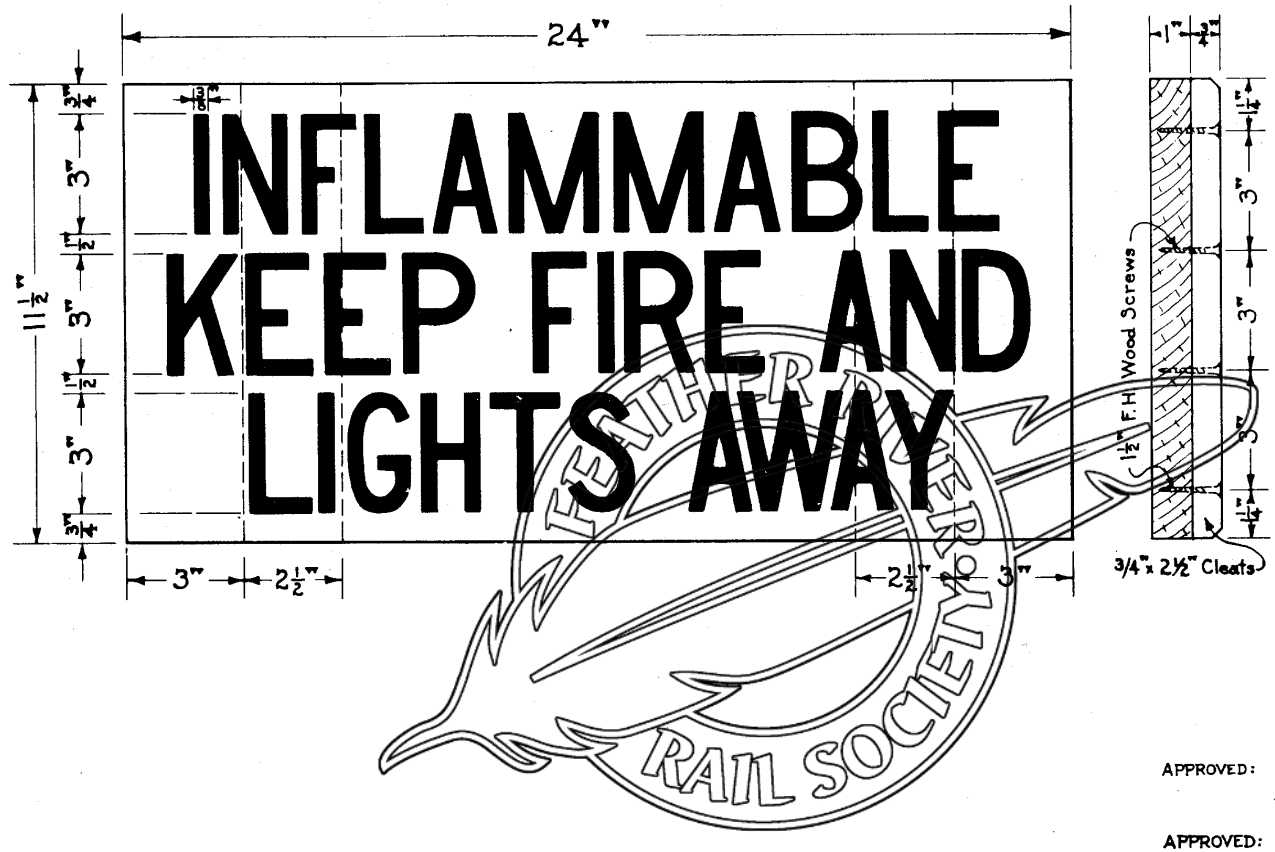
APPROVED: E.W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
PRIVATE PROPERTY SIGN

SCALE: 1½"= 1'-0"

ADOPTED MAY 1, 1941

C.E.
S-172



BOARDS: Redwood, clear.
PAINTING: Face of board white, Letters red. Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.
Back of board painted with metallic and lamp black making a very dark brown.
LETTERS: Gothic, 3" high with ⅜" stroke as indicated.
LOCATION: To be placed on buildings or structures where specified and approved by General Manager.

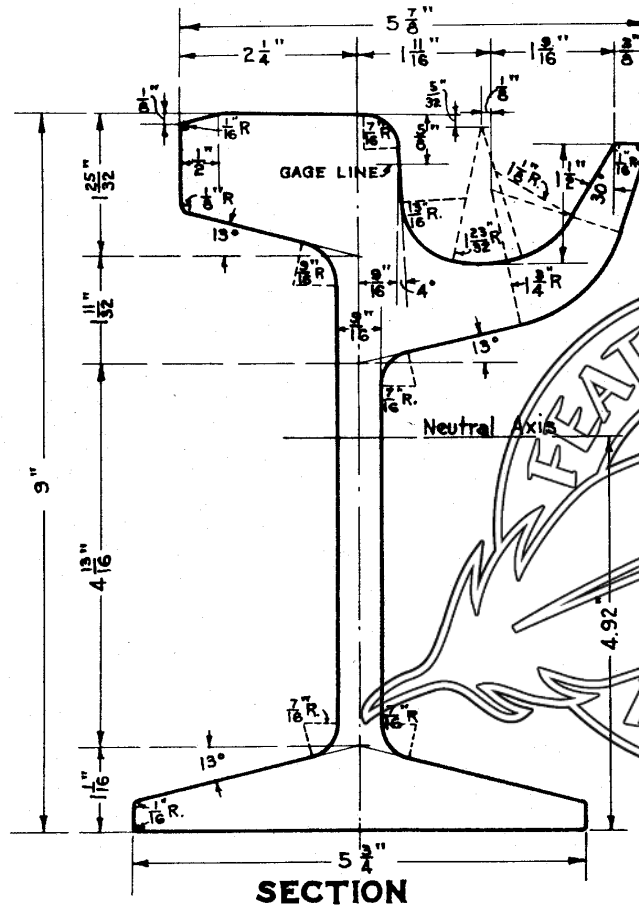
APPROVED: *A. Phillips*
CHIEF ENGINEER

APPROVED: *E.W. Mason*
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
FIRE WARNING SIGN

Scale: 3"=1' ADOPTED Jan. 2, 1943

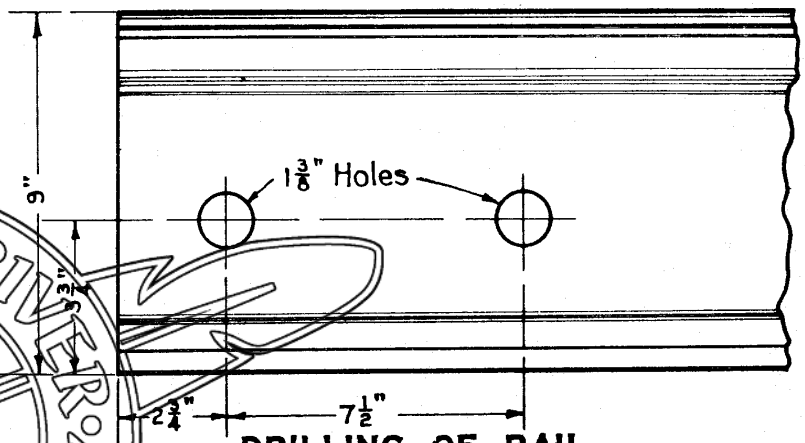
C.E.
S-173



SECTION
SCALE HALF SIZE
L.S.Co. Sec. 159-517

AREA	Square Inches	Per Cent
Head	8.61	55.09
Web	2.77	17.72
Base	4.25	27.19
Total	15.63	100.00
Mom. of Inertia		164.10
Sec. Mod. Head		40.20
" " Base		33.40

Comp. Wt. = 159.43 lb. per Yd.



DRILLING OF RAIL
SCALE: 3" = 1'-0"

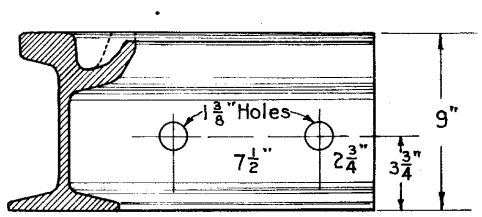
APPROVED: J. T. Phillips
CHIEF ENGINEER

APPROVED: E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER

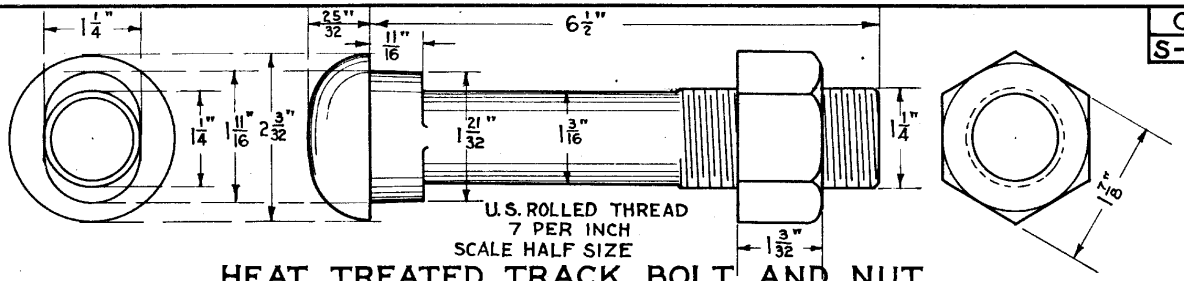
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
159 LB. GIRDER RAIL
A.R.E.A. NO. 159 LB. - RE - 9A

SCALE AS SHOWN ADOPTED AUG. 15, 1942

C.E.
S-174

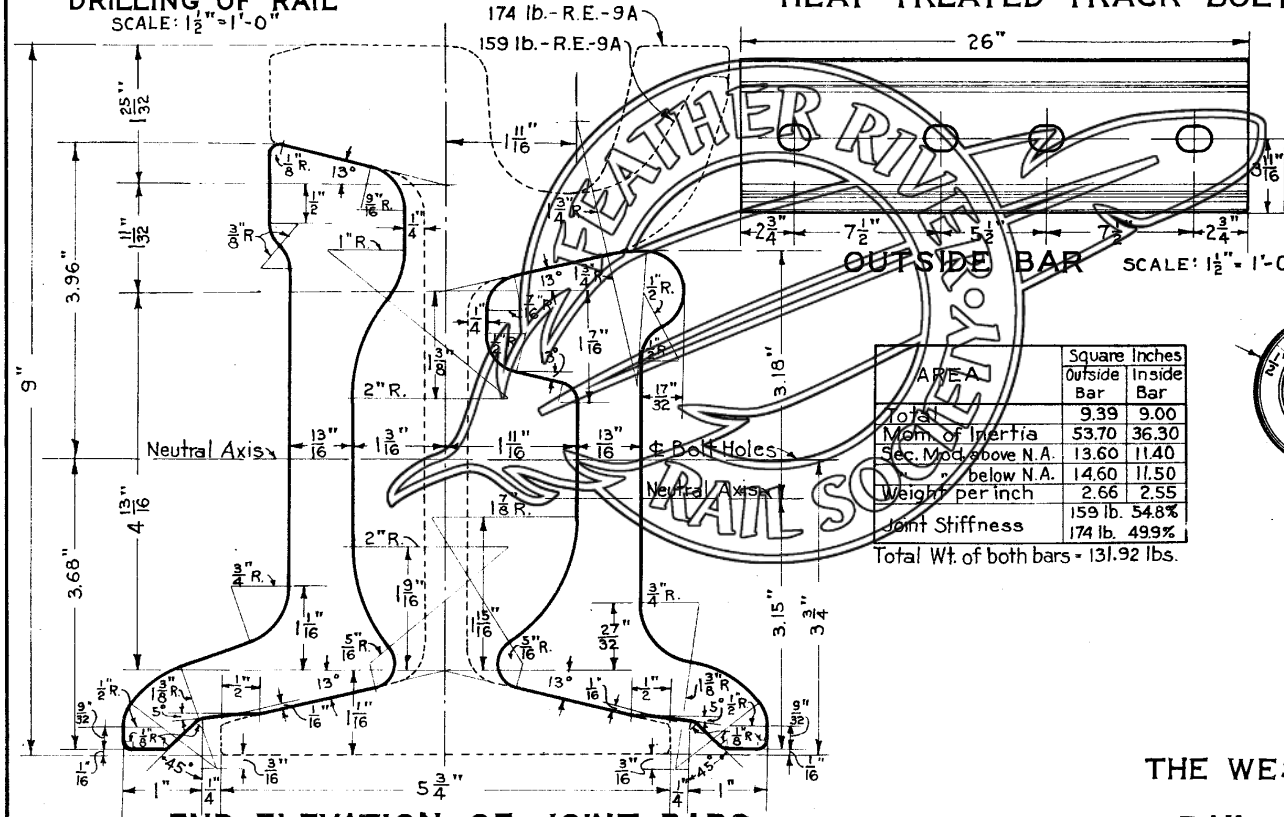


DRILLING OF RAIL
SCALE: 1½" = 1'-0"

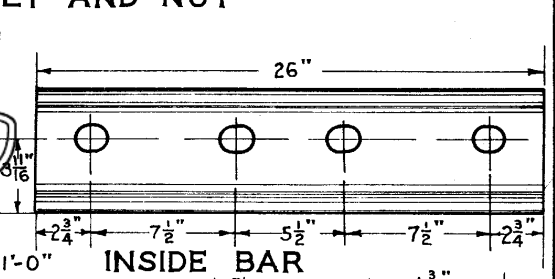


U.S. ROLLED THREAD
7 PER INCH
SCALE HALF SIZE

HEAT TREATED TRACK BOLT AND NUT



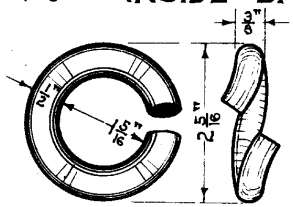
END ELEVATION OF JOINT BARS
SCALE HALF SIZE



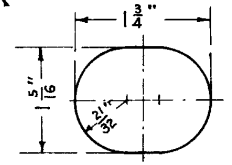
OUTSIDE BAR SCALE: 1½" = 1'-0" INSIDE BAR

AREA	Square Inches Outside Bar	Inside Bar
Total	9.39	9.00
Mom. of Inertia	53.70	36.30
Sec. Mod. above N.A.	13.60	11.40
" " below N.A.	14.60	11.50
Weight per inch	2.66	2.55
Joint Stiffness	159 lb. 54.8%	
	174 lb. 49.9%	

Total Wt. of both bars = 131.92 lbs.



IMP. HI POWER
SPRING WASHER



BOLT HOLES
ALL OVAL

APPROVED: F. Phillips
CHIEF ENGINEER

APPROVED: E W Mason
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.

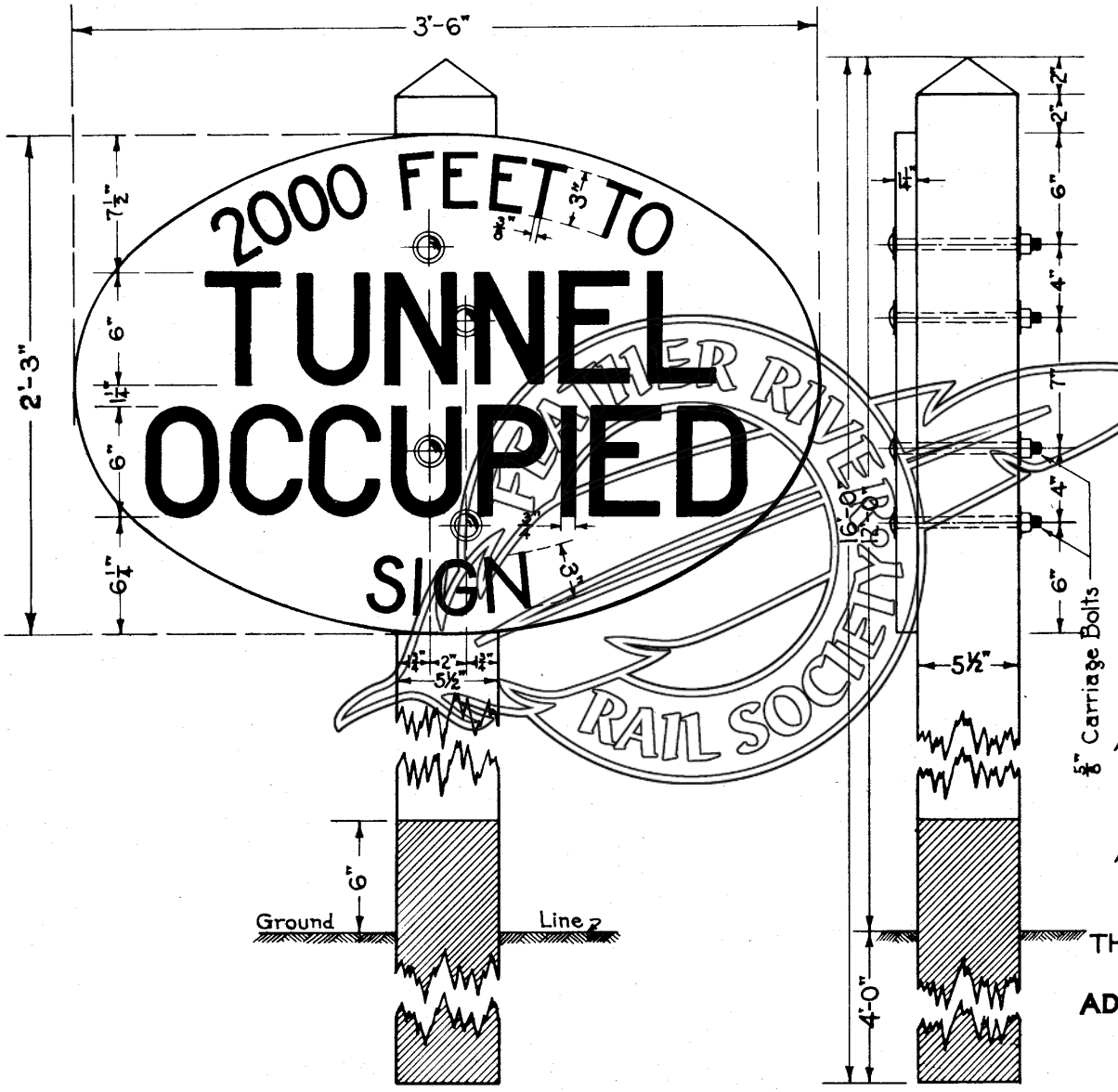
STANDARD

RAIL JOINT TO FIT 159 LB. AND 174 LB. GIRDER RAILS

SCALE AS SHOWN

ADOPTED AUG. 15, 1942
Rev. Mar. 13, 1944 Rev. Jan. 25, 1943

C. E.
S-175



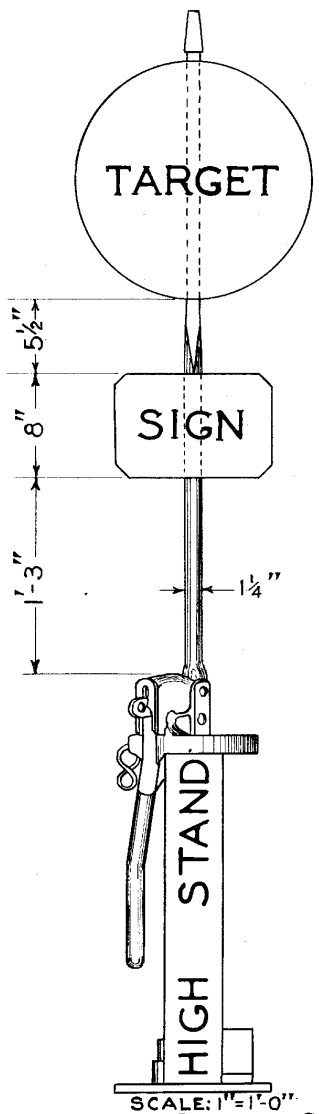
POST: 6"x6"x16'-0" S4S Redwood.
BOARD: Redwood clear.
BOLTS: ⅝" Diameter with cut washers.
PAINTING: Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint. Letters black. Post to have a coat of tar applied hot, to 6" above ground, ballance of post and back of board painted with metallic and lamp black making a very dark brown.
STYLE OF LETTERS: Gothic, 6" high with ¾" stroke and 3" high with ⅜" stroke, as indicated.
LOCATION: Place at right angles to track on Engineers side 13 feet from center of track, 2000 feet in advance of Tunnel Occupied Sign.

APPROVED: _____
CHIEF ENGINEER

APPROVED: _____
VICE-PRESIDENT AND GENERAL MANAGER

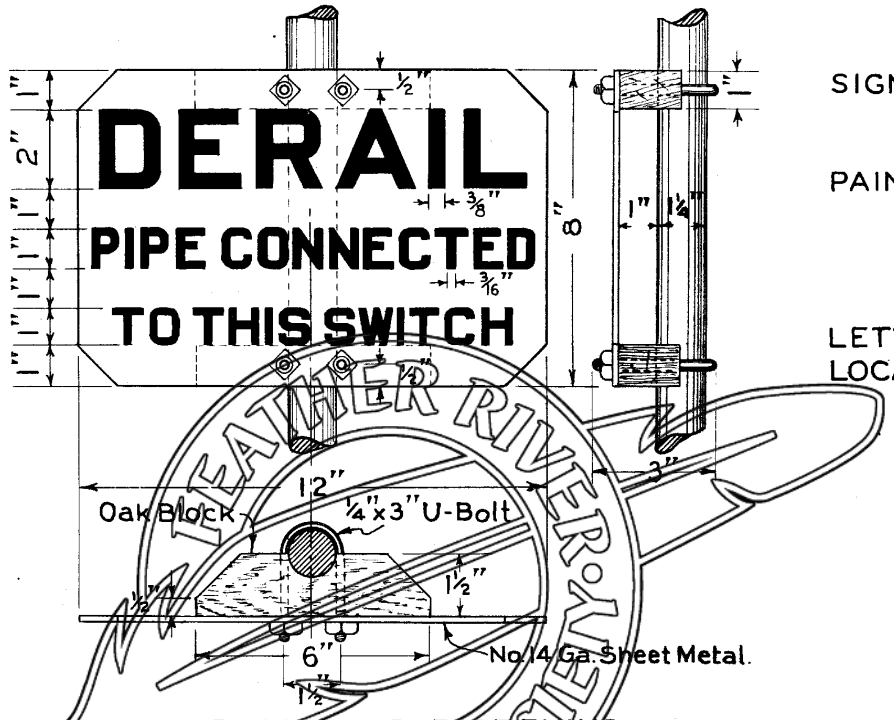
THE WESTERN PACIFIC RAILROAD CO.
STANDARD
ADVANCE TUNNEL OCCUPIED SIGN
SCALE: 1½"=1'-0" DEC. 16, 1942

C.E.
S-178



SCALE: 1"=1'-0"

LOCATION OF SIGN ON SW. STAND



DETAIL OF SIGN AND FASTENING

SCALE: 3"=1'0"

SIGN- No. 14 Ga. Sheet Metal or other available scrap sheet metal to ⅛" in thickness.

PAINTING- Face of sign shall be sand-blasted and a metal primer coat applied. Background to be White - 2 coats of white lead & oil.

LETTERS - Black-Egyptian style

LOCATION - Signs to be attached to switch stand staff on approach side at all locations where derail is pipe connected to switch.

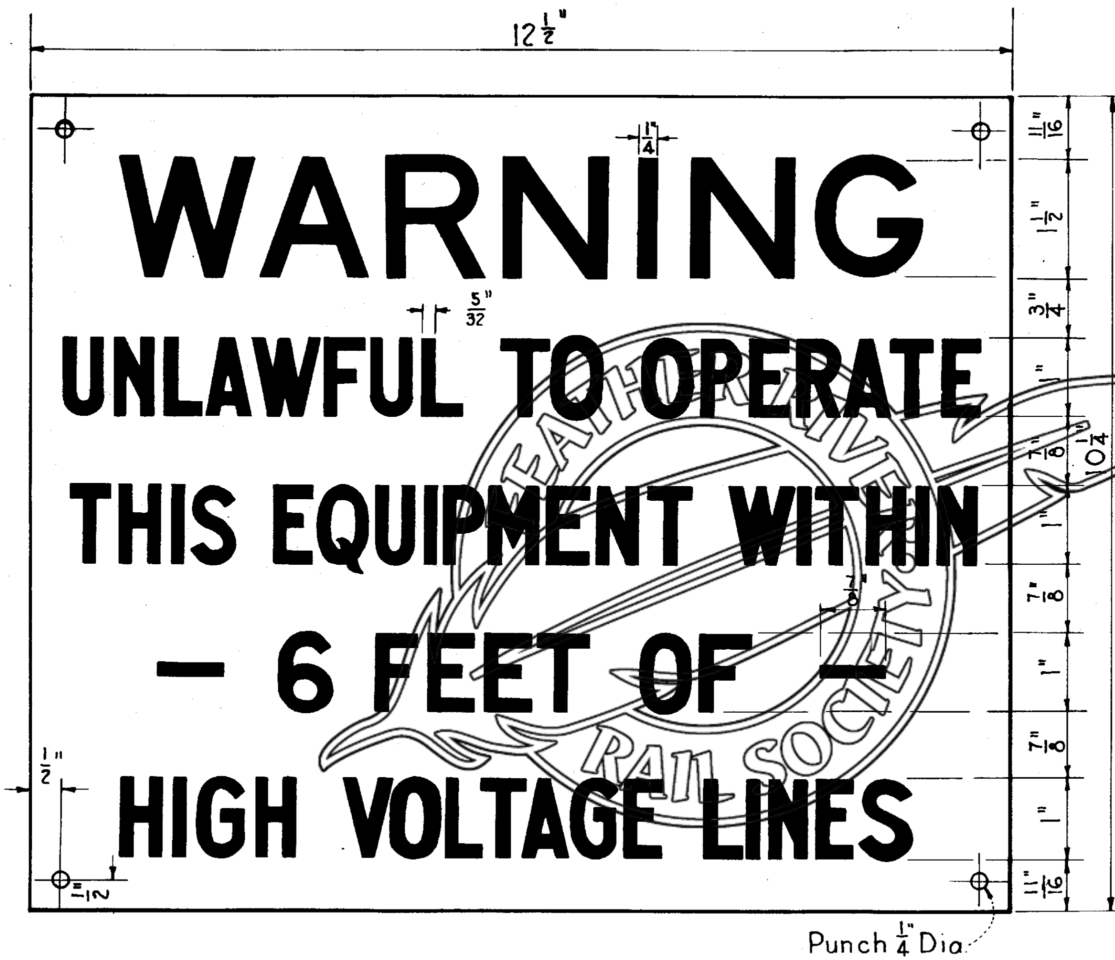
APPROVED J. L. Phillips
CHIEF ENGINEER.

APPROVED E. W. Mason
VICE PRESIDENT AND GENERAL MANAGER.

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
DERAIL SIGN
FOR PIPE CONNECTED DERAIL

SCALE AS SHOWN ADOPTED Aug 3, 1944.

C.E.
S-179



MATERIAL: 3/32" Black Iron - 10 1/4" Wide x 12 1/2" Long.
PAINTING: Red Field - Aluminum Letters
LOCATION: To be placed on all cranes, ditchers, derricks, pile drivers etc. and any other equipment designated by General Manager. Mount sign in prominent position within plain view of operator.
FASTENING: 3/16" Machine Screws 3/16" Wood Screws or Tack Weld.

APPROVED: [signature]
CHIEF ENGINEER

APPROVED: [signature]
VICE-PRESIDENT AND GENERAL MANAGER

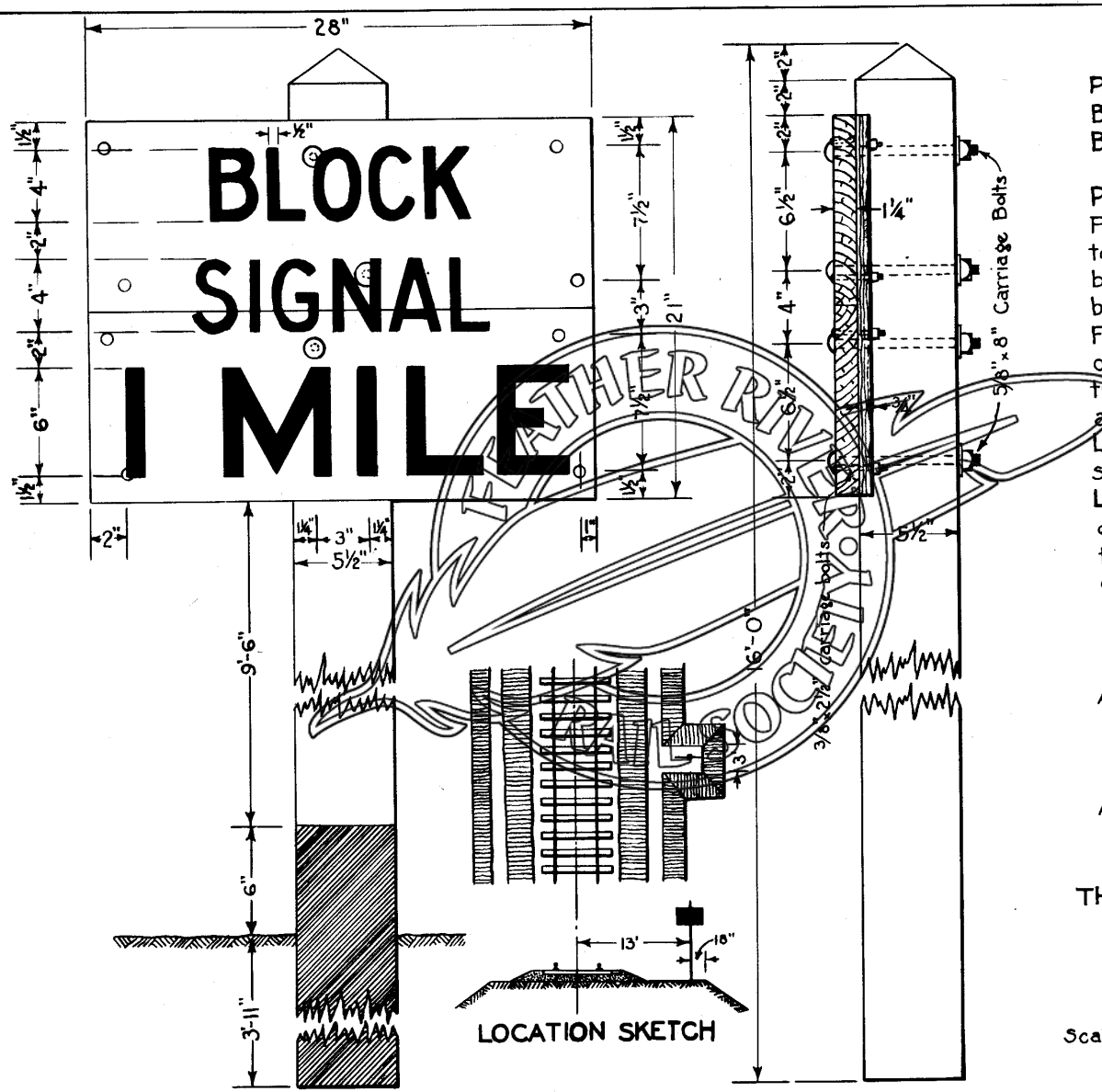
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

HIGH VOLTAGE WARNING SIGN

Scale - Half Size

Adopted Feb. 1, 1946
Rev. April 17, 1947

C. E.
S-181



POSTS: 6"x6"x16'-0" S4S Redwood Extra Merch
BOARDS: Redwood Clear.
BOLTS: 5/8"x 8" & 3/8"x2½" Carriage Bolts with cut washers.
PAINTING: Face of board white, letters black. Posts to have a coat of coal tar applied hot, to 6" above ground, balance of post and back of board painted with metallic and lamp black making a very dark brown.
Face of board to be given one priming coat of white lead and oil paint thinned with turpentine and two coats of white lead and oil paint.
LETTERING: Gothic of size and weight shown.
LOCATION: Place at right angles to track on engineer's side 13'-0" from center line of track. Sign to be placed one mile in advance of the first block signal of a block signal system.

APPROVED: J. O. Phillips
CHIEF ENGINEER

APPROVED: H. A. Mitchell
VICE-PRESIDENT AND GENERAL MANAGER.

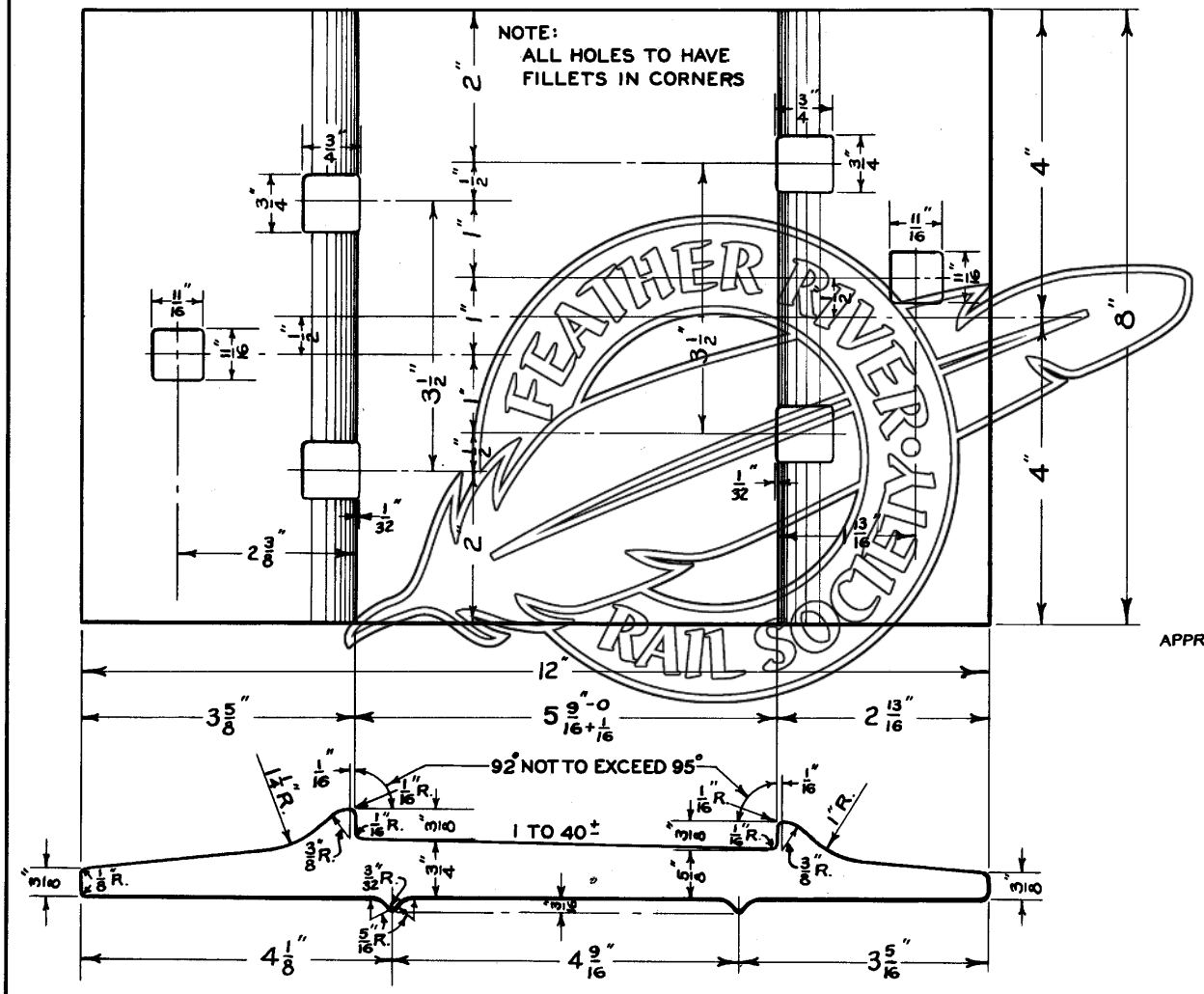
THE WESTERN PACIFIC RAILROAD CO.

STANDARD

BLOCK SIGNAL ADVANCE SIGN

Scale: 1½"=1'-0" ADOPTED. SEPT. 1, 1946.

C.E.
S-186



This tie plate is in accordance with AREA Plan No.6 adopted 1948 with punching in accordance with Western Pacific standard.

Estimated weight = 16.83 lb.

APPROVED:

F. R. Woolford

CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

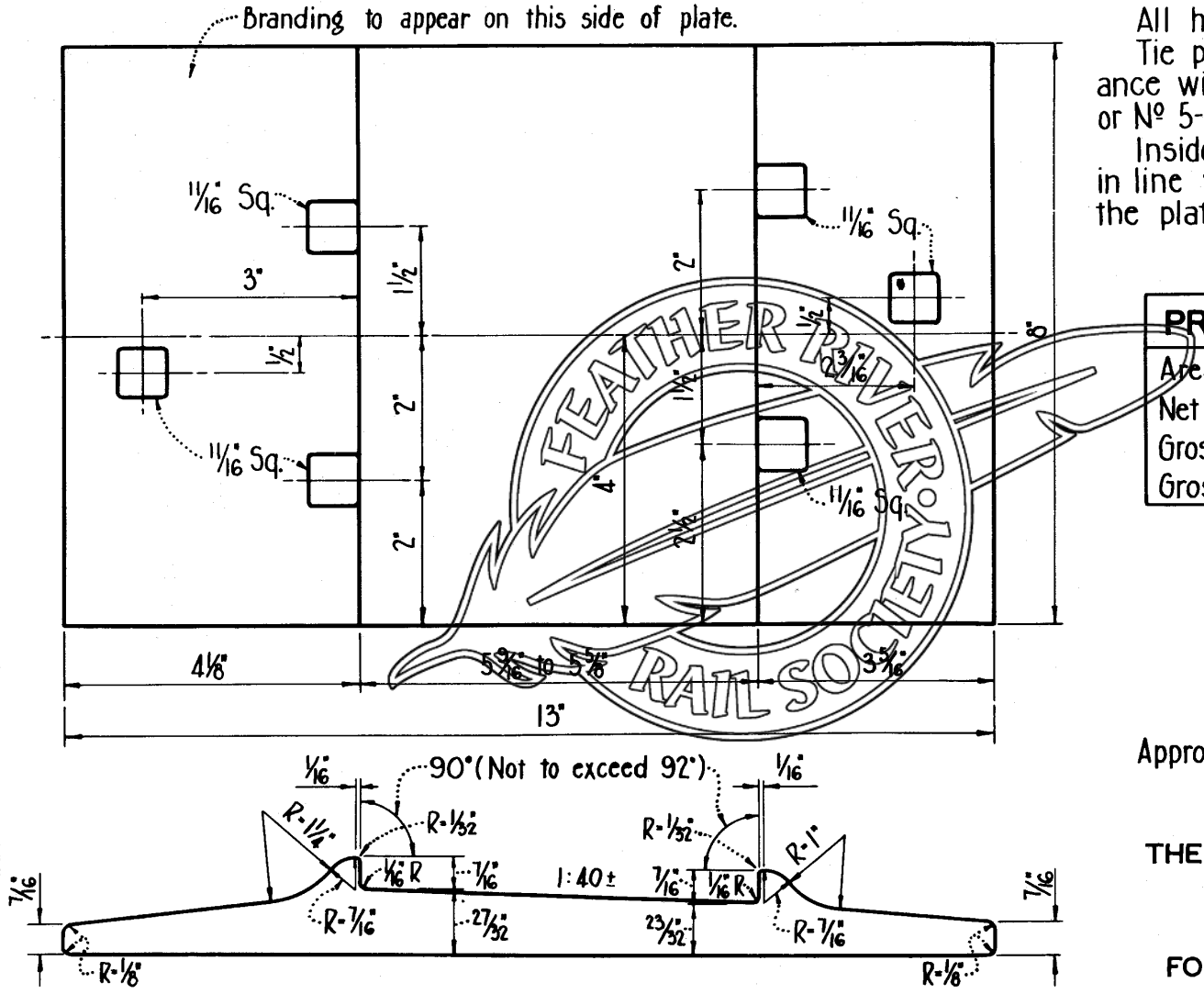
8"×12" DOUBLE SHOULDER TIE PLATE

112 LB. AND 115 LB. R.E. RAIL

Scale: Half Size

Adopted December 1, 1949

C. E.
S-187



NOTES

All holes to have 1/16" fillets in corners.

Tie plates to be manufactured in accordance with A.R.E.A. specifications Nº 5-14.1 or Nº 5-1.

Inside of shoulder spike holes to be in line with shoulders at the bottom of the plate.

PROPERTIES OF SECTION	
Area of Section	9.37 Sq. In.
Net wt. per plate	20.52 Lbs.
Gross wt. per in.	2.655 Lbs.
Gross wt. per ft.	31.86 Lbs.

Approved: Frank R. Woodford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

8" x 13" TIE PLATE

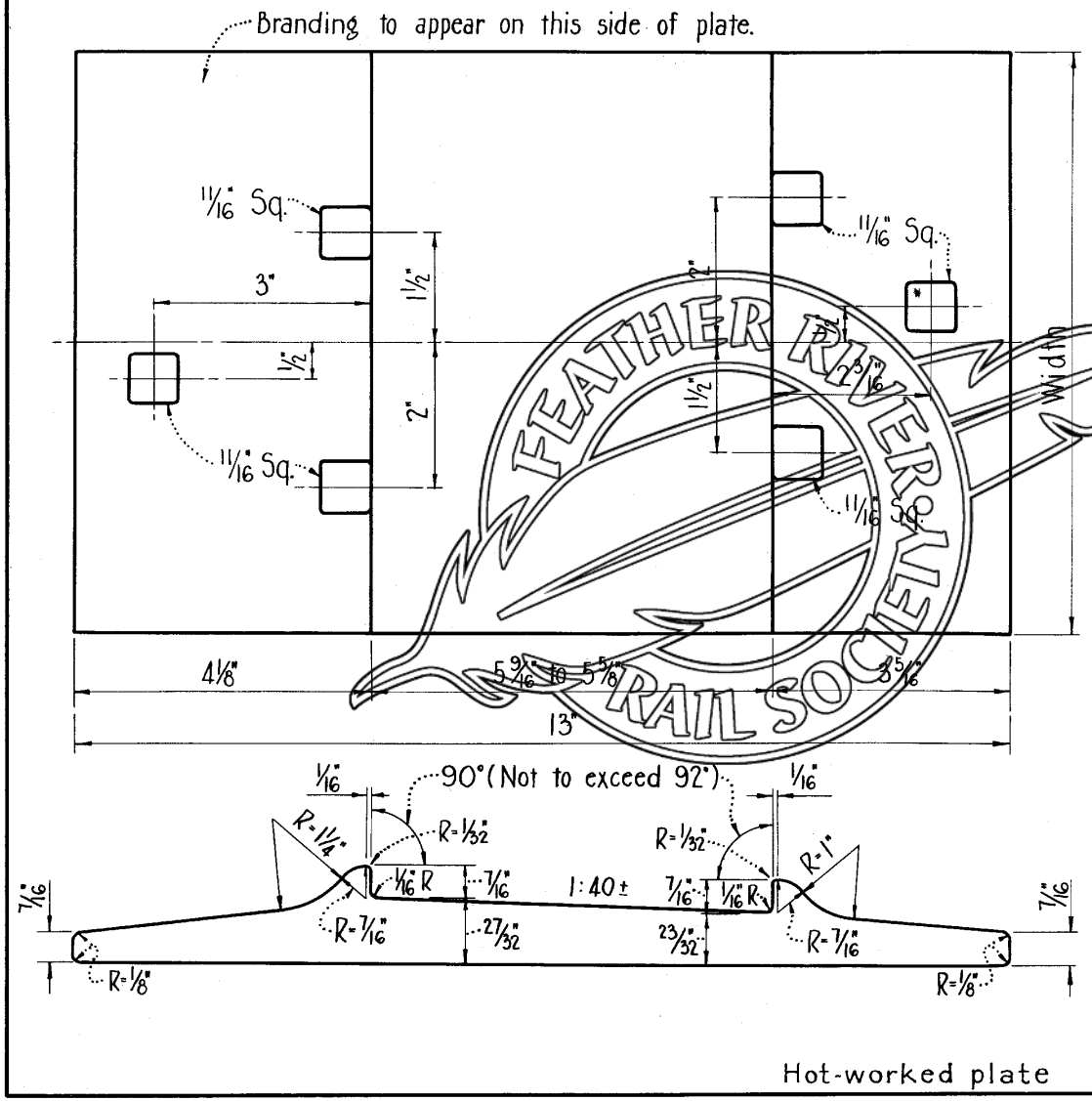
FOR USE WITH 112, 115 & 119 LB. RAIL

SCALE : HALF SIZE

ADOPTED : Jan. 25, 1955

Revisions
10-55: Note about A.R.E.A. Specs.

C. E.
S-187A



Hot-worked plate

NOTES

All holes to have 1/16" fillets in corners.

Tie plates to be manufactured in accordance with A.R.E.A. specifications Nº 5-1.

Inside of shoulder spike holes to be in line with shoulders at the bottom of the plate.

Properties of Section: Area = 9.37 Sq. In., Gross Wt. per inch = 2.655 lbs., Gross Wt. per foot = 31.86 lbs.

Standard plate is 8½" wide and weighs 21.85 lbs. Old standard widths of 7¾" (19.85 lbs.) and 8" (20.52 lbs.) may be furnished if available in store stock.

Approved: Frank R. Woodford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

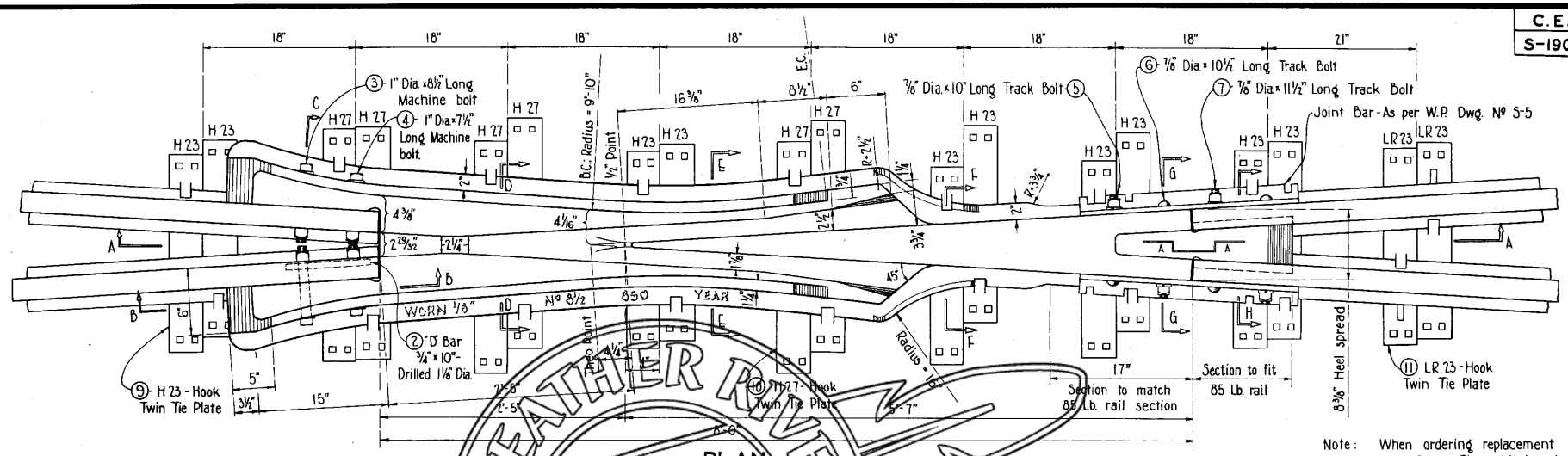
13 INCH TIE PLATE

FOR USE WITH 112, 115 & 119 LB. RAIL

No Scale

ADOPTED: Jan. 25, 1955
Revised: Dec. 1, 1968

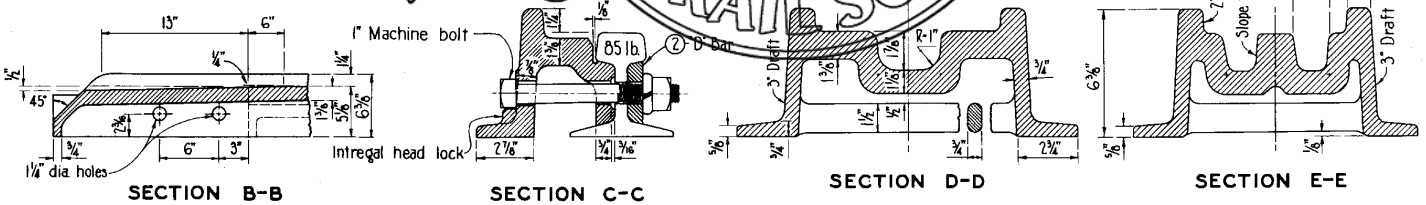
C.E.
S-190

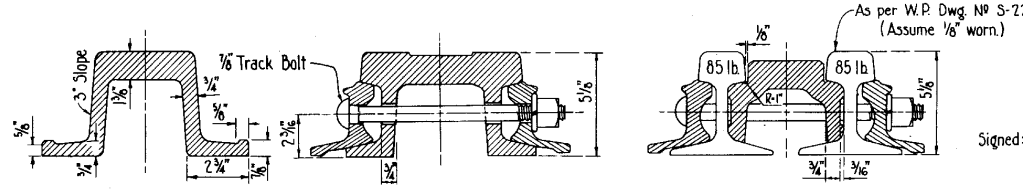


Note: When ordering replacement parts refer to Piece Mark and Drawing Number in addition to specifying name and size of part.
Store will furnish all parts listed below when requisition states "Frog Complete".

PARTS LIST

Pc. Mk.	Name of Part	Req'd.	Remarks
①	Body Casting	1	Solid Manganese
②	¾" x 10" "D" Bar	2	Drilled 1⅛" Dia.
③	1" x 8½" Machine Bolt	2	High Carbon, H.T.; Includes 1 Nut & 1 Hi-Chrome Lock Washer each.
④	1" x 7½" Machine Bolt	2	
⑤	⅞" x 10" Track Bolt	1	
⑥	⅞" x 10½" Track Bolt	1	
⑦	⅞" x 11½" Track Bolt	1	
⑧	⅞" x 12" Track Bolt	1	
⑨	H 23-Hook Twin Tie Plate	10	As per W.P. Dwg. Nº S-219
⑩	H 27-Hook Twin Tie Plate	6	
⑪	LR 23-Hook Twin Tie Plate	2	





Signed: Frank R. Mowgli
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

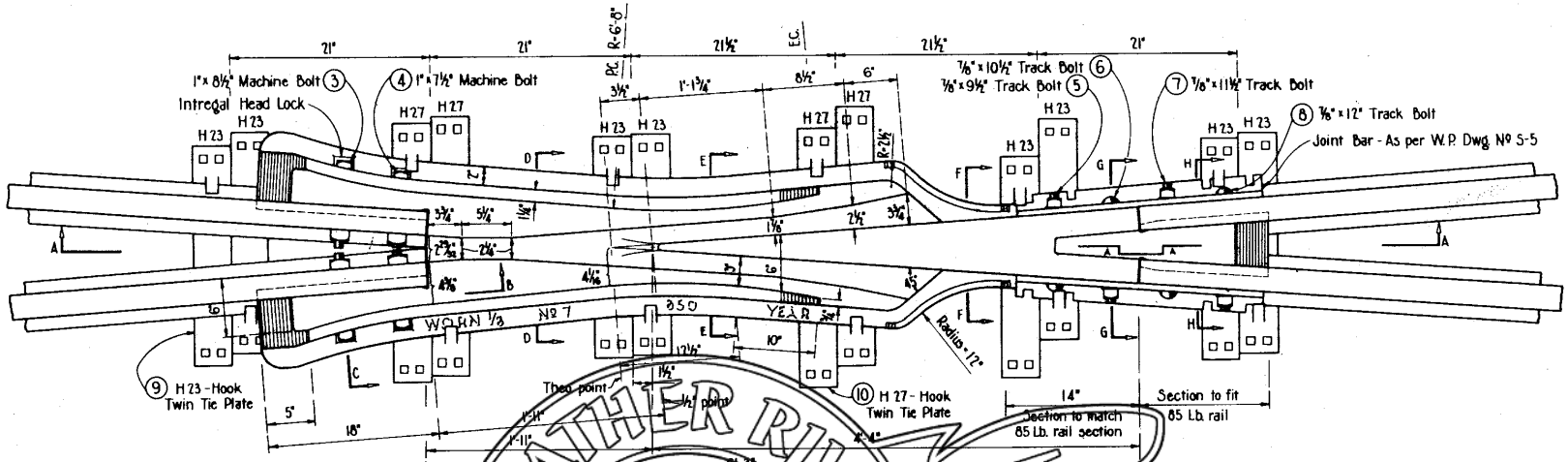
Nº 8½ SELF GUARDED FROG

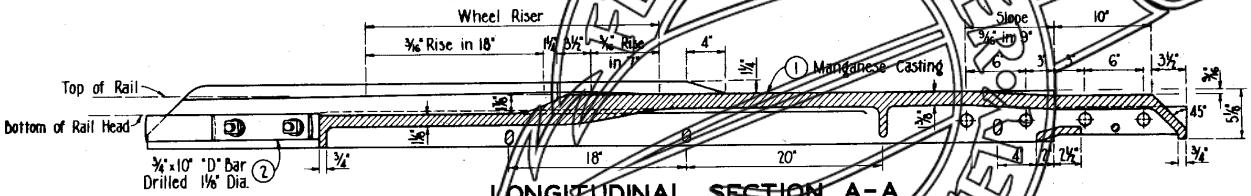
FOR 85 LB. RAIL

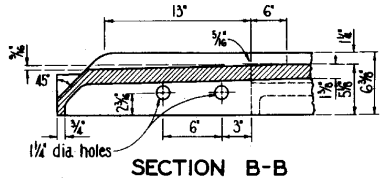
NO SCALE

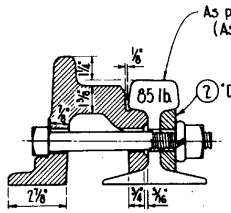
ADOPTED : Sept. 17, 1954
Revised : Sept. 20, 1955

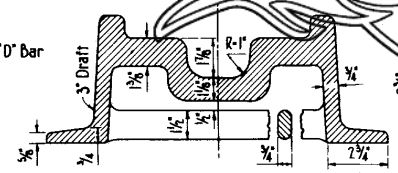
C.E.
S-191

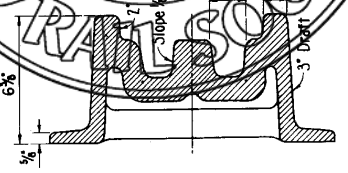












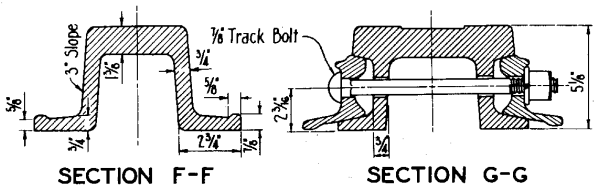
NOTES

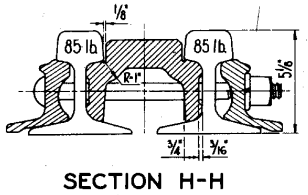
When ordering replacement parts refer to Piece Mark and Drawing Number in addition to specifying name and size of part.

Store will furnish all parts listed in Parts List when requisition states "Frog Complete."

PARTS LIST

Pc. Mk.	Name of Part	Reqd.	Remarks
1	Body Casting	1	Solid Manganese
2	3/4" x 10" "D" Bar	2	Drilled 1 1/8" Dia.
3	1" x 8½" Machine Bolt	2	High Carbon, H.T., Includes 1 Sq. Nut & 1 Hi-Chrome Lock Washer each.
4	1" x 7½" Machine Bolt	2	
5	7/8" x 9½" Track Bolt	1	
6	7/8" x 10½" Track Bolt	1	
7	7/8" x 11½" Track Bolt	1	
8	7/8" x 12" Track Bolt	1	
9	H 23 - Hook Twin Tie Plate	8	As per W.P. Dwg. Nº C.E. - S-219
10	H 27 - Hook Twin Tie Plate	4	





Signed: Frank R. Wolf
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

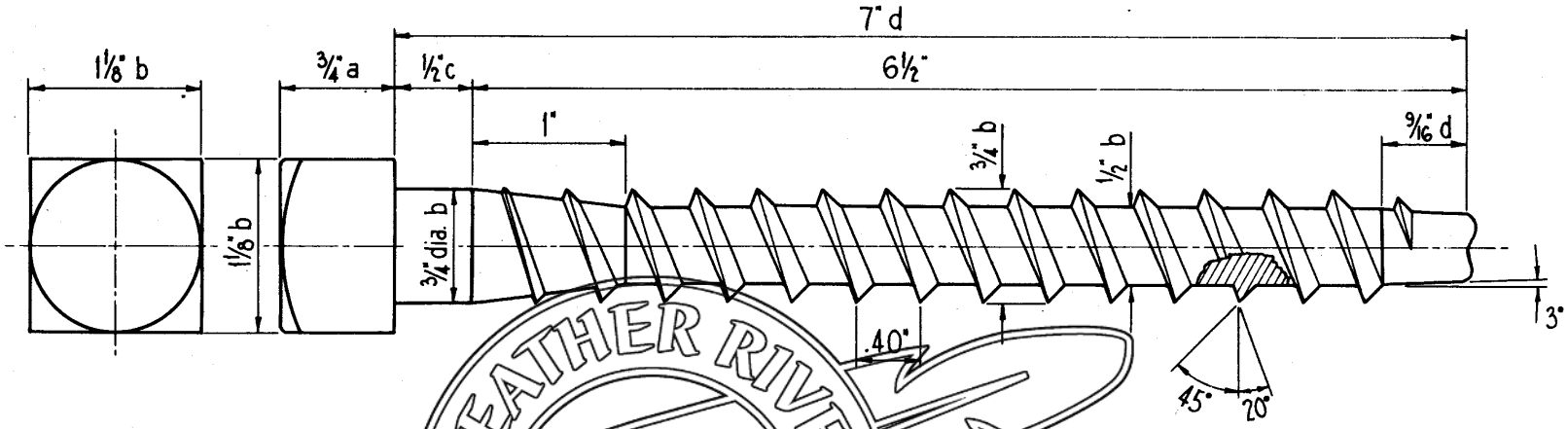
Nº 7 SELF GUARDED FROG

FOR 85 LB. RAIL

NO SCALE

ADOPTED : Sept. 17, 1954
Revised : Sept. 20, 1955

C. E.
S-192



NOTES

Screw spikes to conform to A.S.T.M. specifications A-66-33 except as shown.

Weight: Approximately 88 spikes per 100 pounds.

When ordering specify name of item and standard number as well as number required.

TOLERANCES		
a	+ 0"	- 1/16"
b	+ 1/32"	- 1/32"
c	+ 1/8"	- 1/16"
d	+ 3/16"	- 3/16"

Approved: Frank R. Wadsworth
Chief Engineer

Reference: Oliver Iron and Steel Corp. Drawing Nº 20-A-233-B.

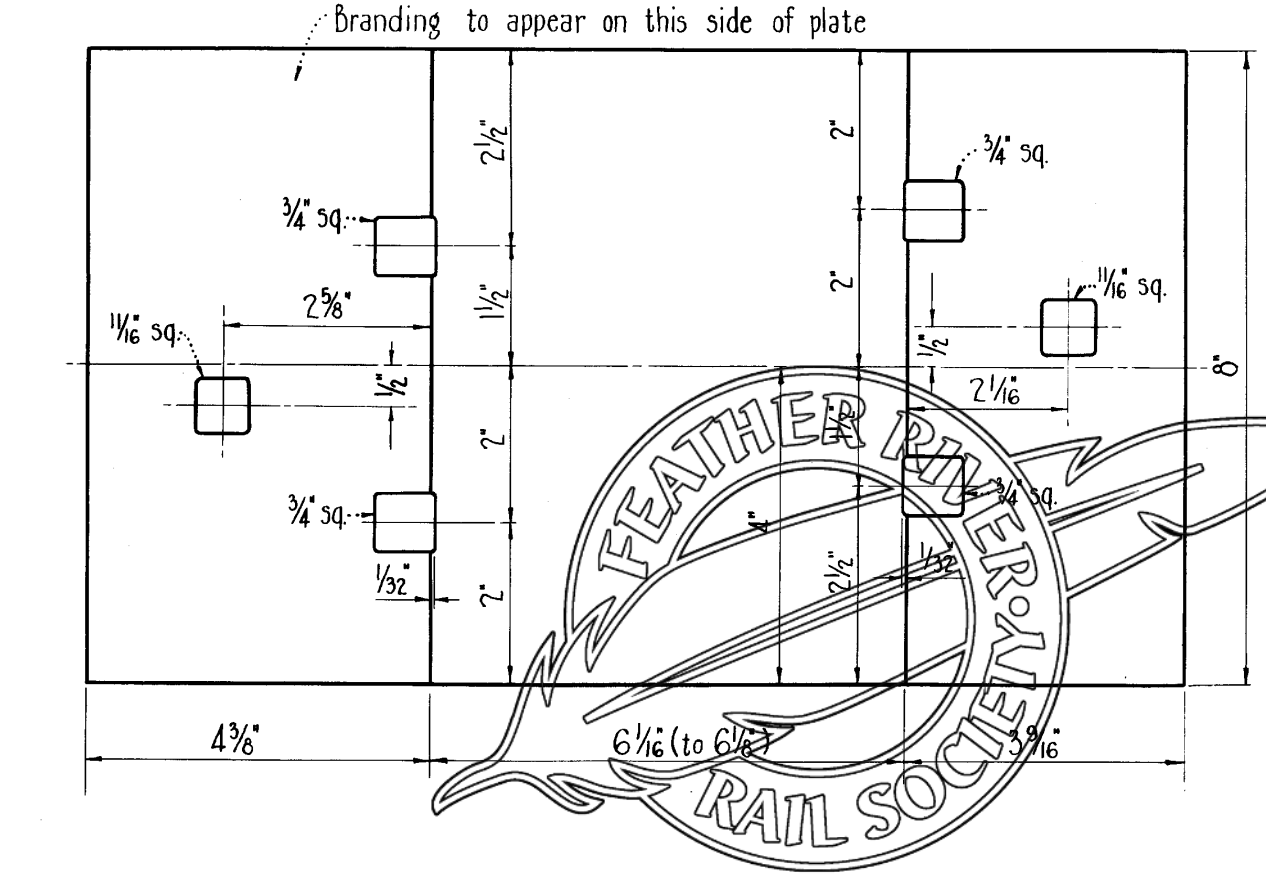
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

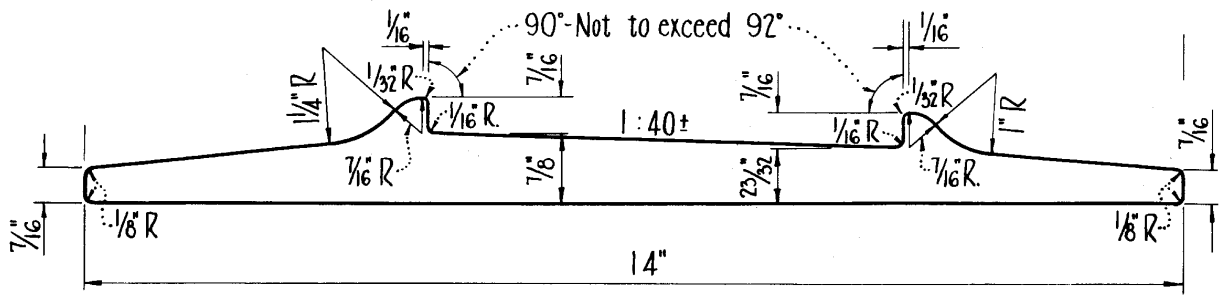
3/4" LAG SCREW SPIKE

NO SCALE

ADOPTED: June, 1949
Revised: Jan. 17, 1956

C. E.
S-196





NOTES

All holes to have 1/16" fillets in corners.

Tie plates to be manufactured in accordance with A.R.E.A. specifications Nº 5-14.1 or Nº 5-1.

PROPERTIES OF SECTION	
Area of Section	10.22 Sq. In.
Net wt. per plate	22.35 Lbs.
Gross wt. per in.	2.896 Lbs.
Gross wt. per ft.	34.75 Lbs.

Approved: Frank R. Mc[illegible]
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
8" x 14" TIE PLATE
FOR USE WITH 132, & 136 LB. RAIL

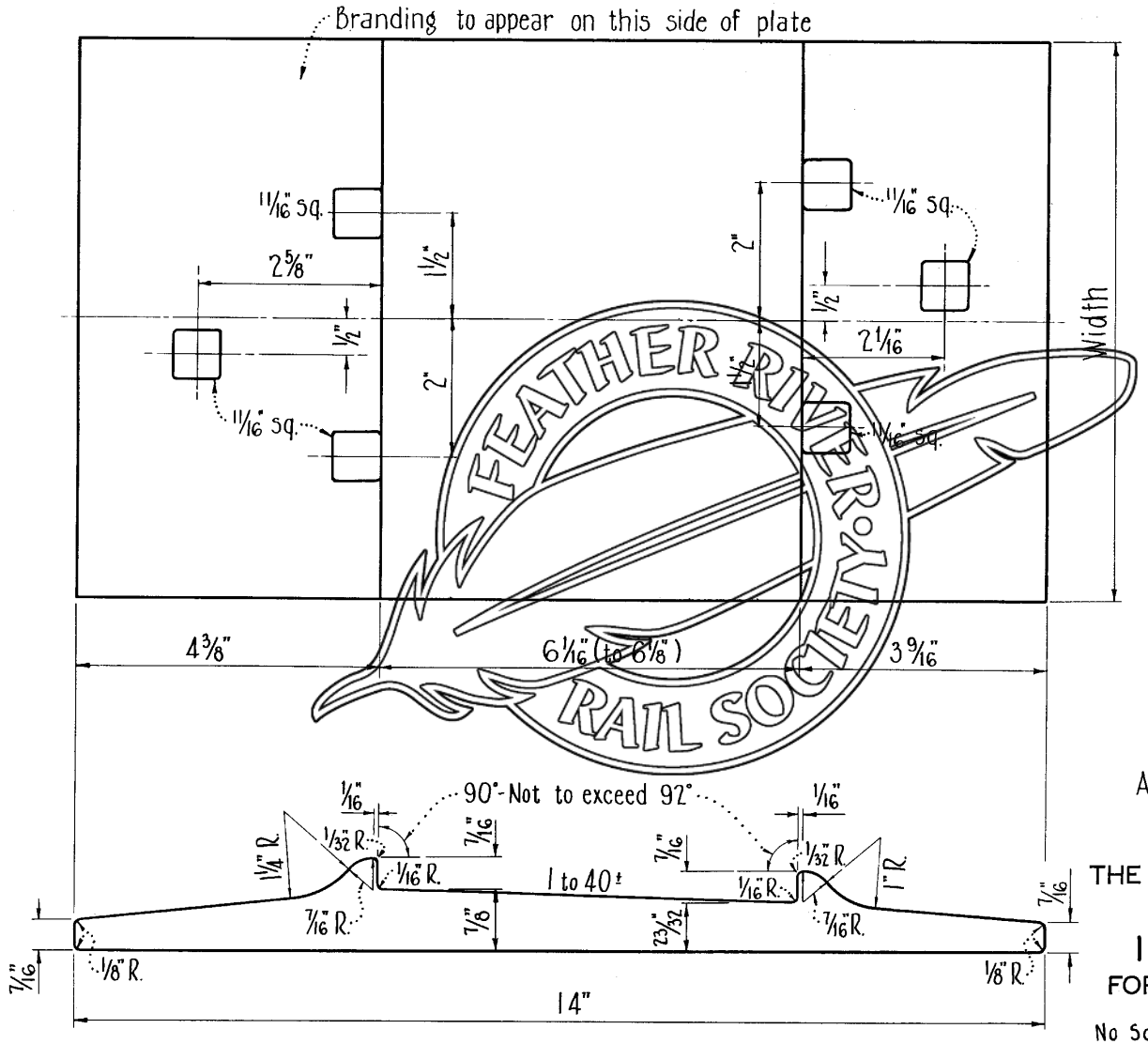
SCALE : HALF SIZE

ADOPTED : April 16, 1954
REVISED : Jan. 25, 1955

CF&I DWG T-1120 5-24-54

Revisions
10-55: Note about A.R.E.A. Specs.

C. E.
S-196A



Hot-worked plate

NOTES

All holes to have 1/16" fillets in corners.

Tie plates to be manufactured in accordance with A.R.E.A. specifications Nº 5-1.

Inside of shoulder spike holes to be in line with shoulders at the bottom of the plate.

Properties of Section: Area = 10.22 Sq. In., Gross wt. per. inch = 2.896 lbs., Gross wt. per ft. = 34.75 lbs.

Standard plate is 8½" wide and weighs 23.14 lbs. Old standard widths of 7¾" (21.69 lbs.) and 8" (22.42 lbs.) may be furnished if available in store stock.

Approved: Frank A. Mansfield
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

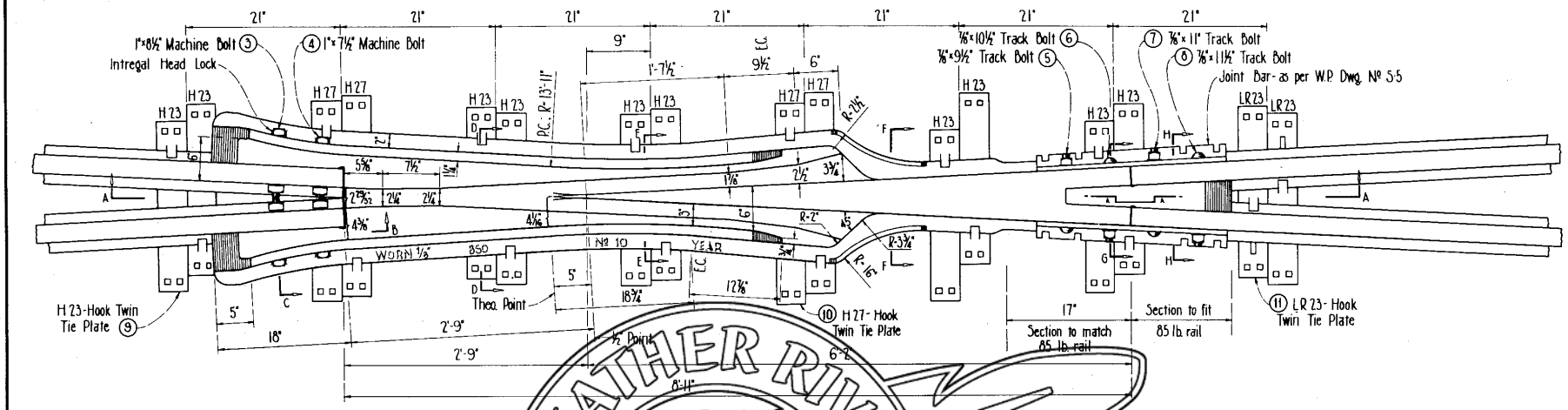
14 INCH TIE PLATE

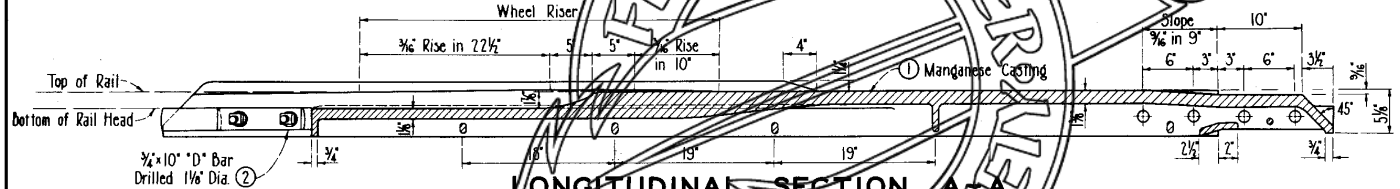
FOR USE WITH 132 & 136 LB. RAIL

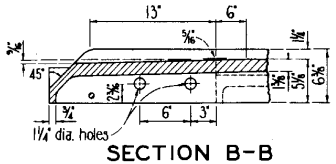
No Scale

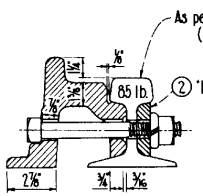
ADOPTED: June 1, 1954
REVISED: Dec. 1, 1968

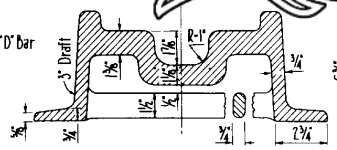
C.E.
S-198

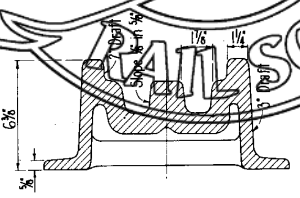












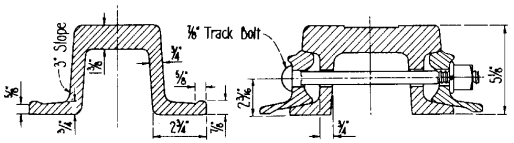
NOTES

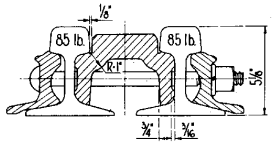
When ordering replacement parts refer to Piece Mark and Drawing Number in addition to specifying name and size of part.

Store will furnish all parts listed in Parts List when requisition states "Frog Complete".

PARTS LIST

Pc. Mk.	Name of Part	Reqd.	Remarks
①	Body Casting	1	Solid Manganese
②	¾" × 10" "D" Bar	2	Drilled 1⅛" Dia.
③	1" × 8½" Machine Bolt	2	High Carbon, H.T.; Includes 1 Sq. Nut & 1 Hi-Chrome Lock Washer each.
④	1" × 7½" Machine Bolt	2	
⑤	⅞" × 9½" Track Bolt	1	
⑥	⅞" × 10½" Track Bolt	1	
⑦	⅞" × 11" Track Bolt	1	
⑧	⅞" × 11½" Track Bolt	1	
⑨	H-23 Hook Twin Tie Plate	10	As per W.P. Dwg. Nº C.E. - 5-219
⑩	H-27 Hook Twin Tie Plate	4	
⑪	LR-23 Hook Twin Tie Plate	2	





Signed: Frank A. Mahoney
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

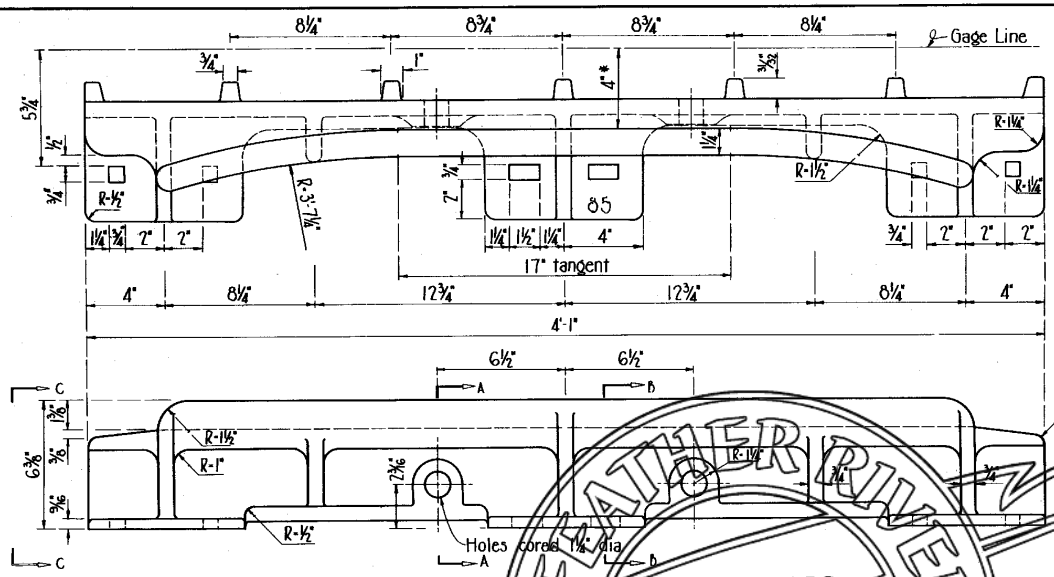
Nº 10 SELF GUARDED FROG

FOR 85 LB. RAIL

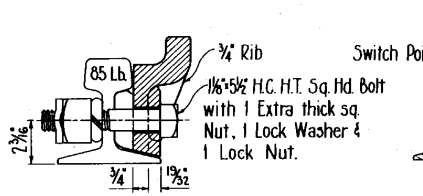
NO SCALE

Adopted: Sept. 17, 1954
Revised: Sept. 20, 1955

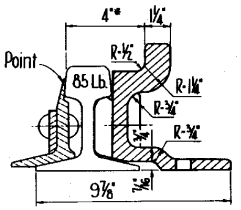
C.E.
S-199



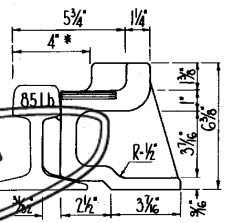
MANGANESE SWITCH POINT GUARD



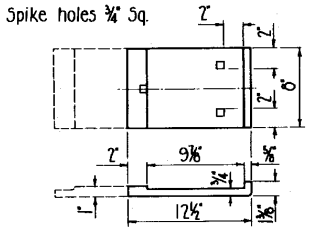
SECTION A-A



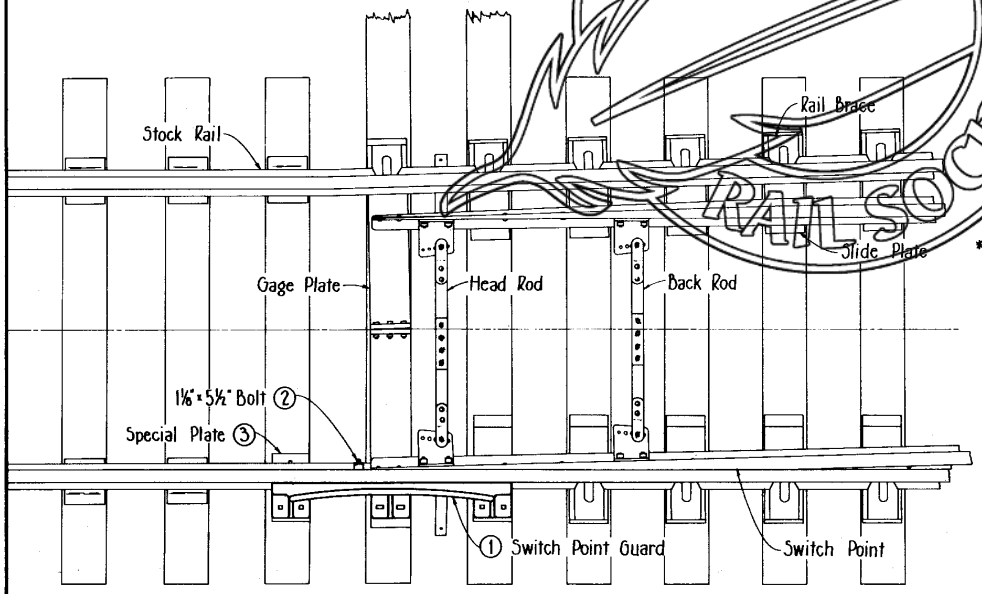
SECTION B-B



ELEVATION C-C



SPECIAL PLATE
(May be made from Standard Rolled Slide Plate Section.)



NOTES

When ordering replacement parts refer to Piece Mark and Drawing Number in addition to specifying name and size of part.

Store will furnish all parts listed in Parts List when requisition states "Switch Point Guard Complete."

* When distance from gage line of rail to rubbing surface of Point Guard reaches 4¼" guard must be built up by welding or replaced.

Point Guard to be installed on straight stock rail side to protect Turnout point.

Use only one bolt on Point Guard as shown in plan view at left.

PARTS LIST

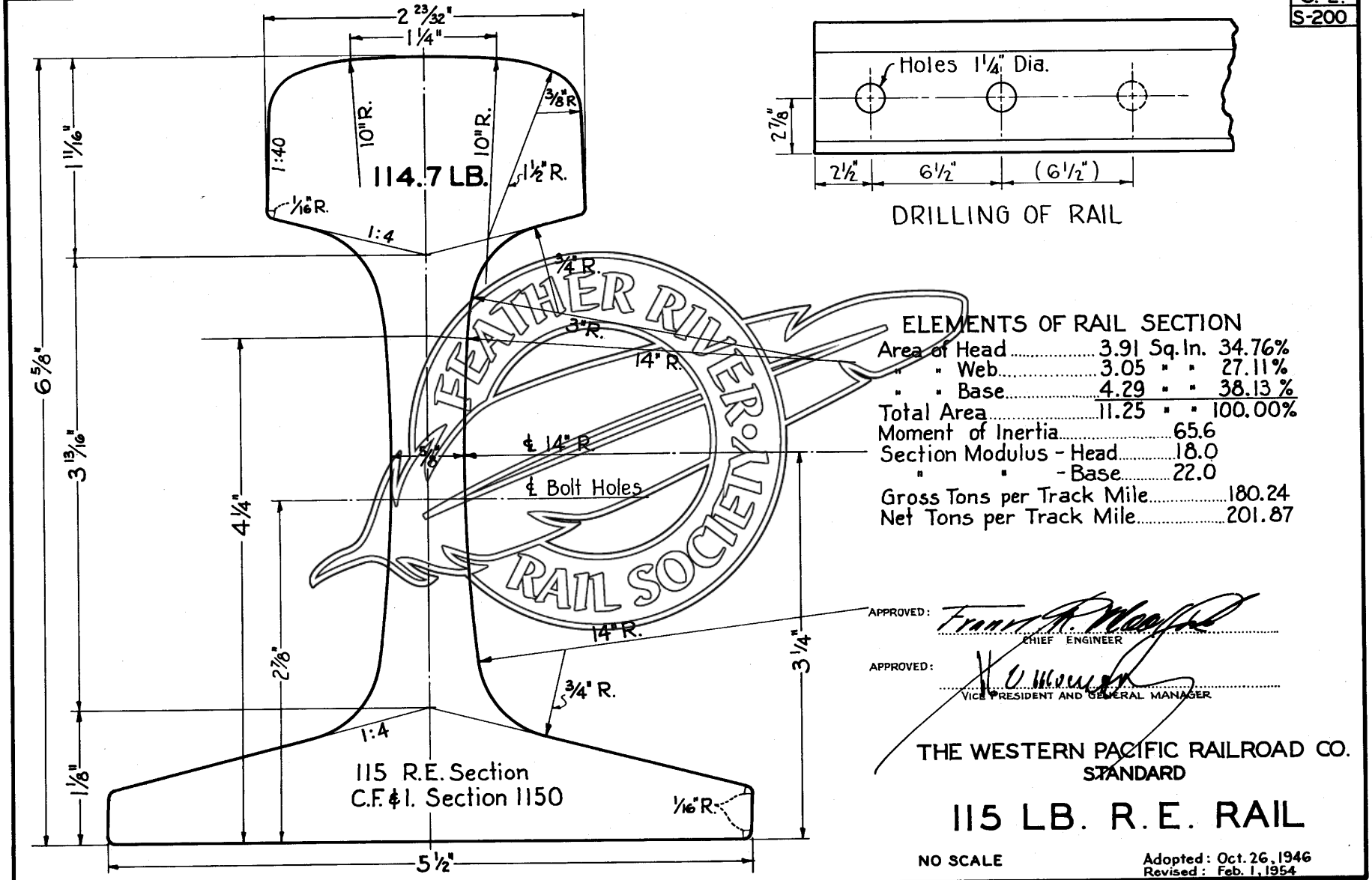
Pc. Mk.	Name of Part	Reqd.	Remarks
①	Switch Point Guard	1	Solid Manganese
②	1⅛"×5½" Machine Bolt	1	H.C. H.T. - Includes 1 Extra thick sq. nut, 1 Lock Washer & 1 Lock Nut.
③	Special Plate	1	Std. Slide Plate may be used.

Approved: Frank R. Woolford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
SWITCH POINT GUARD
FOR USE WITH 85 LB. RAIL

NO SCALE — ADOPTED : Sept. 16, 1954

C. E.
S-200



ELEMENTS OF RAIL SECTION

Area of Head	3.91 Sq. In.	34.76%
" " Web	3.05 " "	27.11%
" " Base	4.29 " "	38.13 %
Total Area	11.25 " "	100.00%
Moment of Inertia	65.6	
Section Modulus - Head	18.0	
" " - Base	22.0	
Gross Tons per Track Mile	180.24	
Net Tons per Track Mile	201.87	

APPROVED: Francis R. Macfarlane
CHIEF ENGINEER

APPROVED: H. C. Wilcox
VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

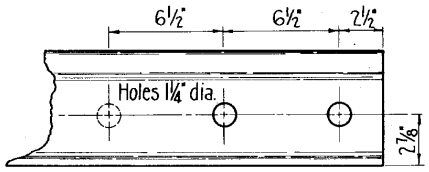
115 LB. R.E. RAIL

NO SCALE

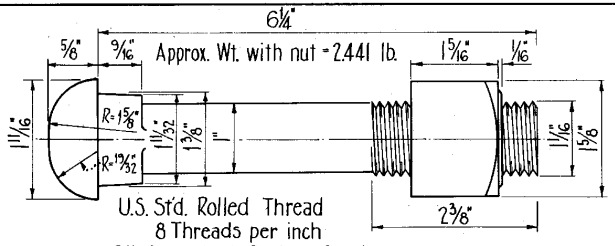
Adopted: Oct. 26, 1946
Revised: Feb. 1, 1954

Revisions
12-54: Add Patent Washer
5-57: Change Bolt Oval & Bolt Hole dimensions.
10-1-59: Change Bolt head

C.E.
S-201

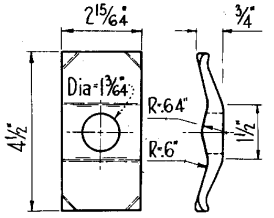


RAIL DRILLING

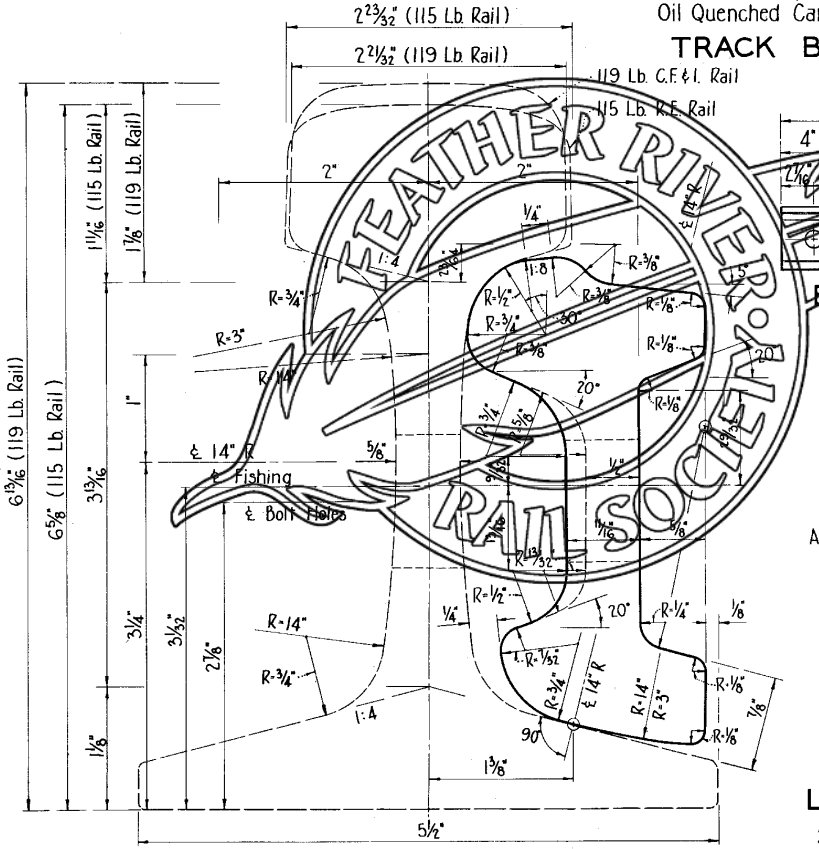


U.S. Std. Rolled Thread
8 Threads per inch
Oil Quenched Carbon Steel

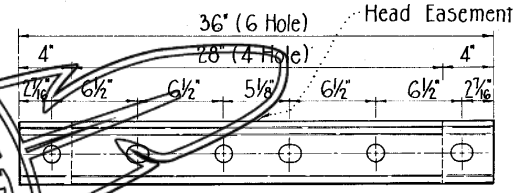
TRACK BOLT AND NUT



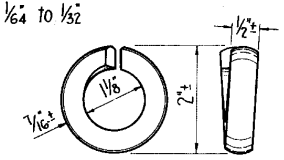
PATENT WASHER
(Alternate)



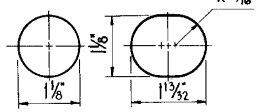
END ELEVATION OF RAIL AND JOINT BAR



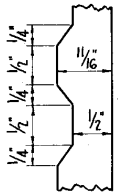
ELEVATION OF JOINT BAR



SPRING WASHER
(Alternate)



BOLT HOLES
Alternate Round and Oval



LONGITUDINAL
SEC. OF WEB

ELEMENTS OF ONE JOINT (2 BARS)	
Moment of Inertia	23.0
Section Modulus: Head	10.5
Section Modulus: Base	9.6
Area of Bar (Sq. In.) Average	5.26
Wt. of Bar per ft. - Gross	17.88 Lbs.
Wt. of 4 Hole Bars per pr. - Net	81.65 Lbs.
Wt. of 6 Hole Bars per pr. - Net	92.67 Lbs.

Approved: Frank R. Mackey
Chief Engineer

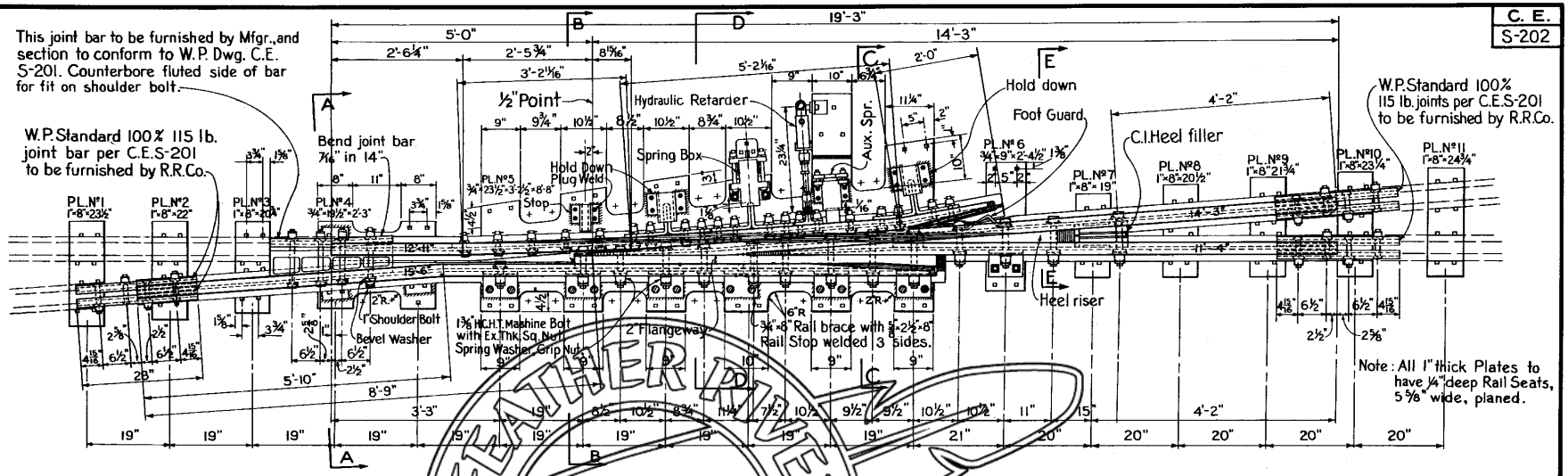
WESTERN PACIFIC RAILROAD CO.
STANDARD

HEADFREE 100% JOINT
FOR
115 LB. AND 119 LB. RAIL

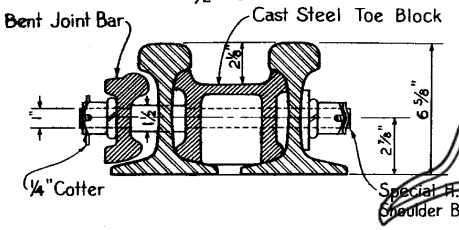
NO SCALE

ADOPTED: NOV. 1, 1946
REVISED: OCT. 1, 1959

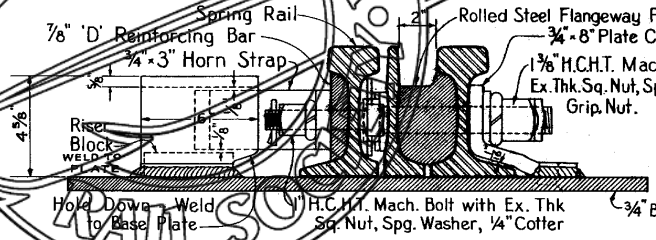
C. E.
S-202



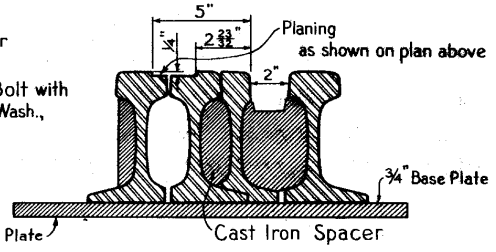
Note: Set Stop and Hold-Downs to allow 2" movement at ½" Point.



SECTION A-A



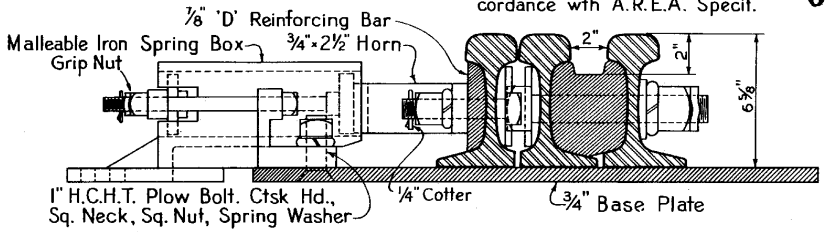
SECTION B-B



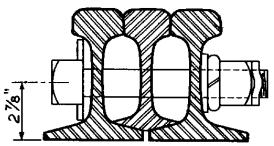
SECTION C-C

Note: All spring washers to be "Hi-Chrome", "National Collar Grooved", or "Hubbard", in accordance wth A.R.E.A. Specif.

OLD STANDARD



SECTION D-D



SECTION E-E

Approved _____ CHIEF ENGINEER

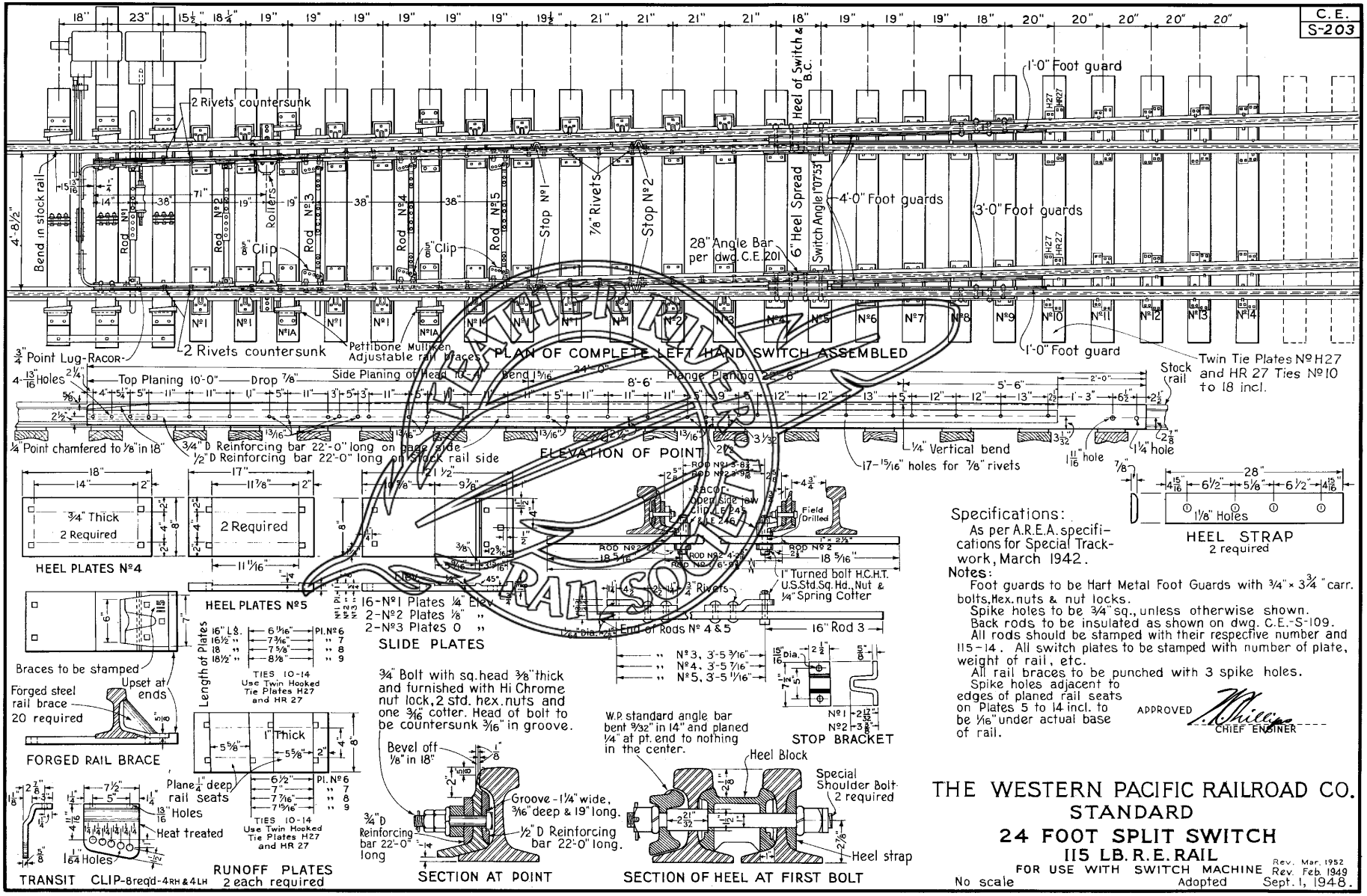
Approved _____ VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
Nº 14 SPRING RAIL FROG
115 LB. RE RAIL

No Scale

Adopted Sept. 1, 1948.
Revised Mar. 26, 1952

C.E. S-203



Specifications:

As per A.R.E.A. specifications for Special Trackwork, March 1942.

Notes:

Foot guards to be Hart Metal Foot Guards with 3/4" × 3 3/4" carr. bolts, Hex. nuts & nut locks.

Spike holes to be 3/4" sq., unless otherwise shown.

Back rods to be insulated as shown on dwg. C.E.-S-109.

All rods should be stamped with their respective number and 115-14. All switch plates to be stamped with number of plate, weight of rail, etc.

All rail braces to be punched with 3 spike holes.

Spike holes adjacent to edges of planed rail seats on Plates 5 to 14 incl. to be 1/16" under actual base of rail.

APPROVED
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

24 FOOT SPLIT SWITCH

115 LB. R.E. RAIL

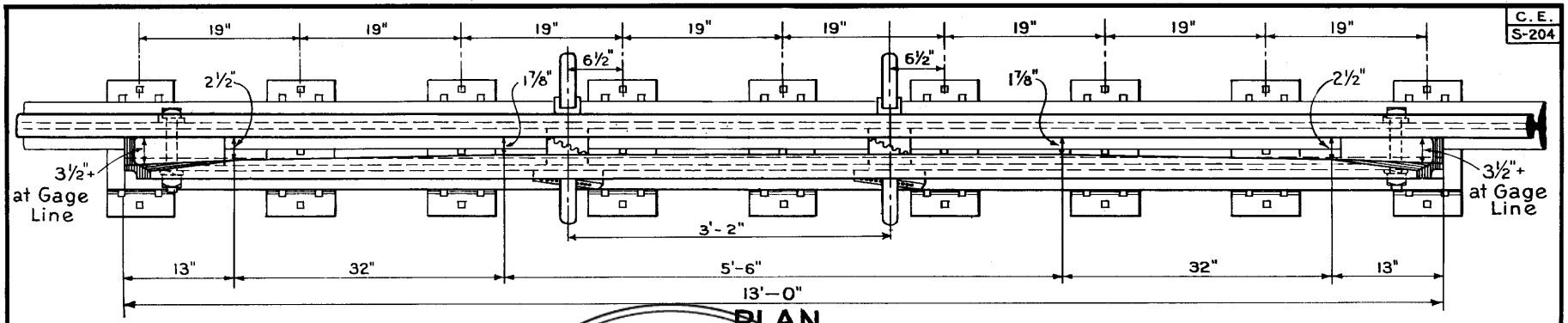
FOR USE WITH SWITCH MACHINE

Rev. Mar. 1952
Rev. Feb. 1949
Adopted Sept. 1, 1948.

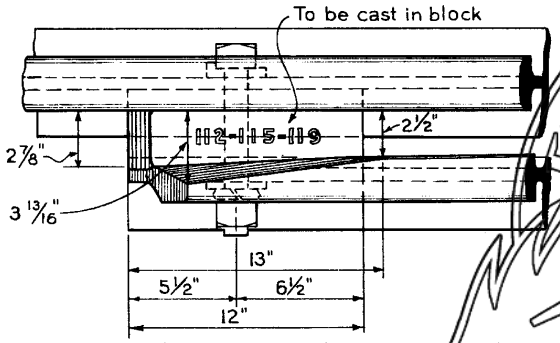
No scale

Old Standard, for current standard see S-370.

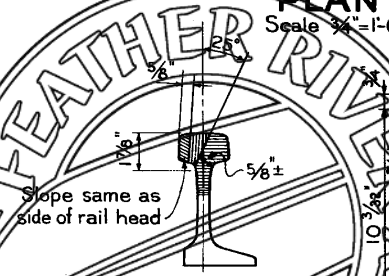
C.E. S-204



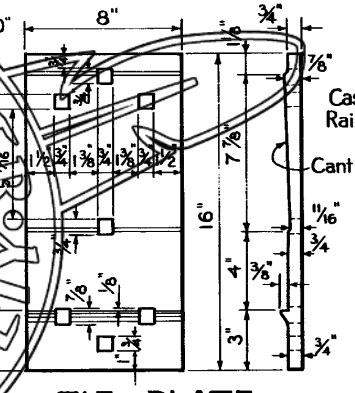
PLAN
Scale ¾"=1'-0"



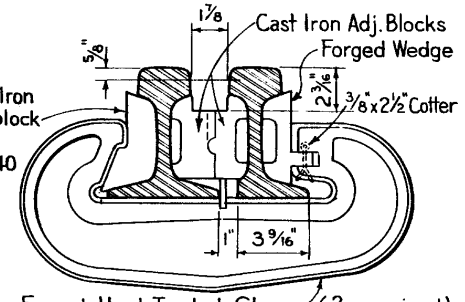
END BLOCK
Scale 1½"=1'-0"



PLANING DETAIL
End view of guard rail showing detail of double planing of flare
Scale 1½"=1'-0"

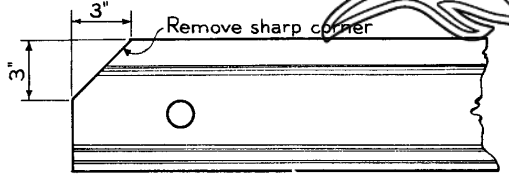


TIE PLATE
Scale 1½"=1'-0"

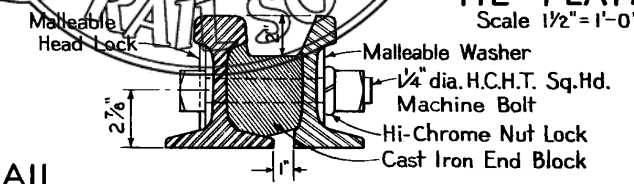


Forged Head Treated Clamp (2 required)

CLAMP ASSEMBLY
Scale 1½" = 1'-0"



BEVELED END OF GUARD RAIL
Scale 1½" = 1'-0"



SECTION THRU END BLOCK
Scale 1½"= 1'-0"

APPROVED: J. N. Phillips
CHIEF ENGINEER

NOTE: The distance from gage line at frog point to inside face of guard rail must always be maintained at 4'-6⅝". If gage of track is more than 4'-8½", the guard rail flangeway must be more than 1⅞" by the same amount.

SPECIFICATIONS: As per A.R.E.A. Specifications, Appendix A, adopted 1942
Plan 505 for guard rail clamps, adopted March 1940.

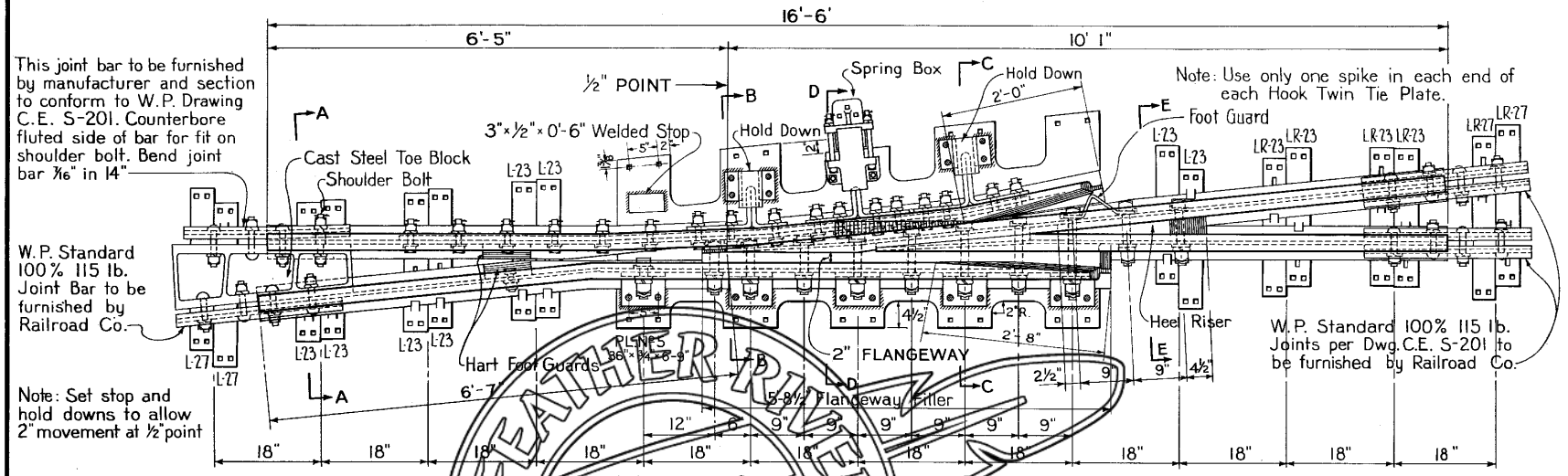
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

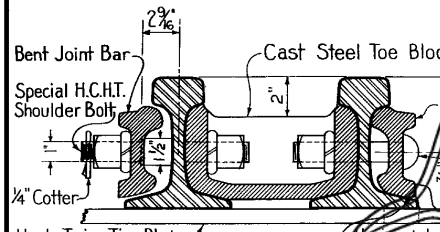
13 FOOT GUARD RAIL
112, 115, 119 LB. RAIL

Scale: As shown
Adopted: Sept. 1, 1948
Revised: Jan. 23, 1957

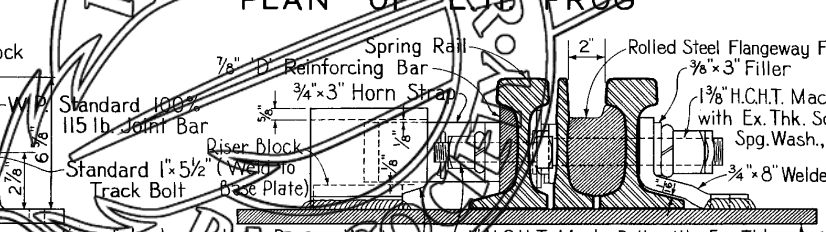
Revisions
March, 1952
July, 1954: Add H.T.P.
Nov., 1959: Add 119 lb. to title

C. E. S-205

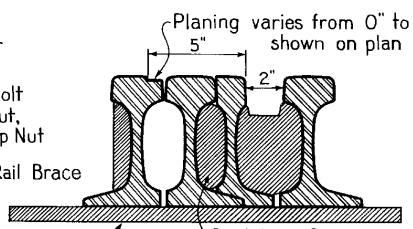




SECTION A-A



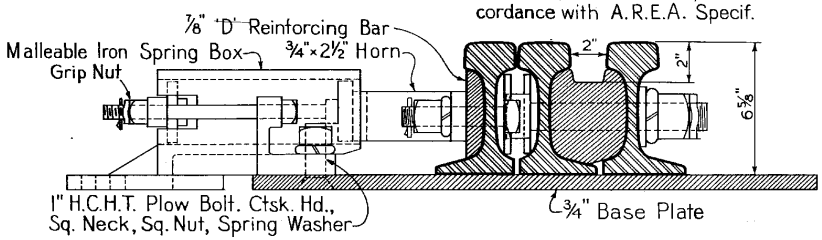
SECTION B-B



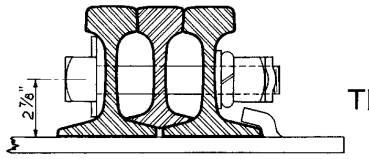
SECTION C-C

Note: All spring washers to be "Hi-Chrome", "National Collar-Grooved", or "Hubbard", in accordance with A.R.E.A. Specif.

Approved: ..... CHIEF ENGINEER



SECTION D-D



SECTION E-E

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
Nº 10 SPRING RAIL FROG
115 LB. AND 119 LB. RAIL

No Scale

Adopted: March 20, 1948.
Revised: November 10, 1959.

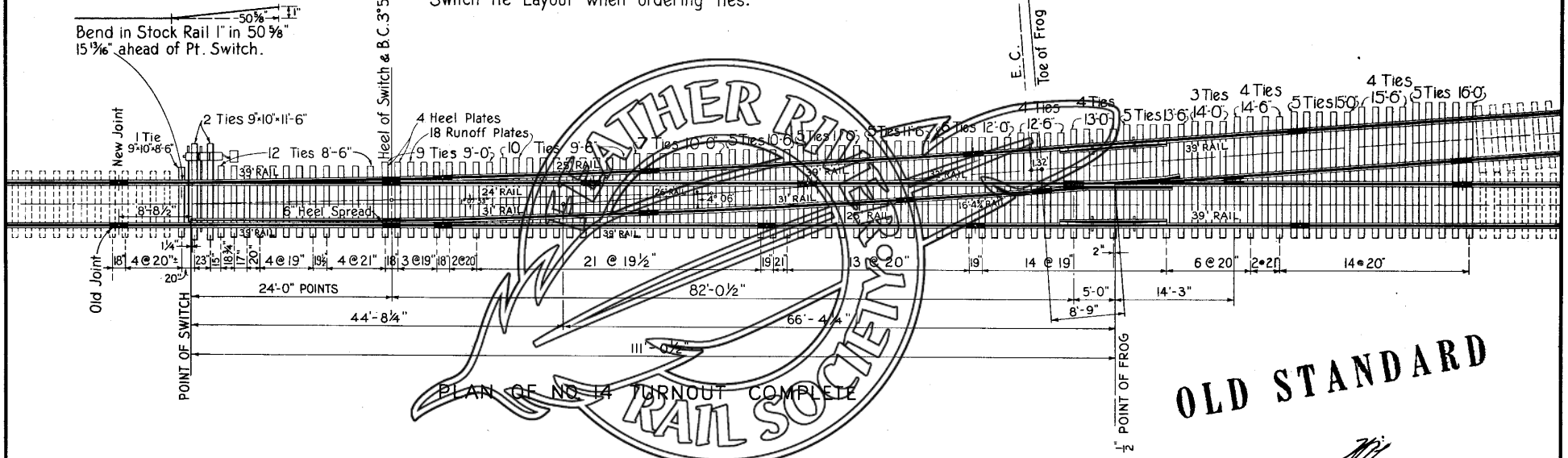
S-205

C.E.
5-206

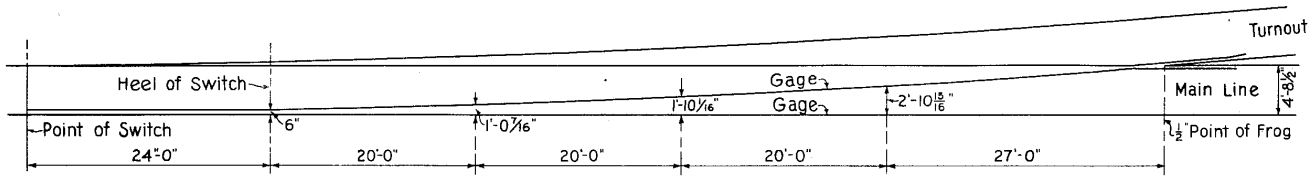
PIECES 7'x9'															TOTAL NUMBER PIECES	TOTAL BM FEET
8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	
12	9	10	7	5	5	5	6	4	4	5	3	4	5	4	5	93	5625.4

Note: In addition to the above List of Ties there will be 2 Ties 9"×10"×11'-6" and one Tie 9"×10"×8'-6" that will be furnished with Switch Machine and should not be included in this Switch Tie Layout when ordering ties.

FROG ANGLE ..... 4° 06'
DEGREE OF TURNOUT CURVE ... 3° 51' 23"
LEAD ..... 111'-0½"
CLOSURE RAILS 1-24', 1-26', 2-31', 1-32' & 1-16'-4¾"
Note: Closure Rails may be of various lengths, but minimum should be 15ft.



PLAN OF NO. 14 TURNOUT COMPLETE



OFFSET DIAGRAM

OLD STANDARD

Approved ..... CHIEF ENGINEER

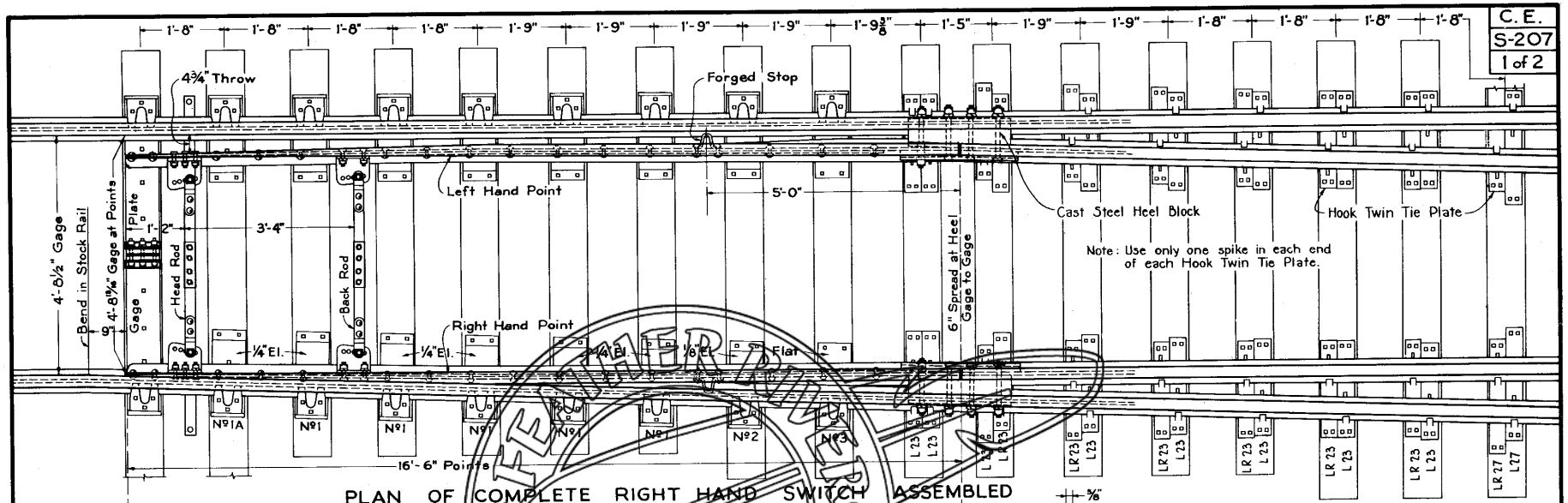
Approved ..... VICE-PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
NO. 14 TURNOUT COMPLETE
FOR USE WITH 115 L.B. R.E. RAIL

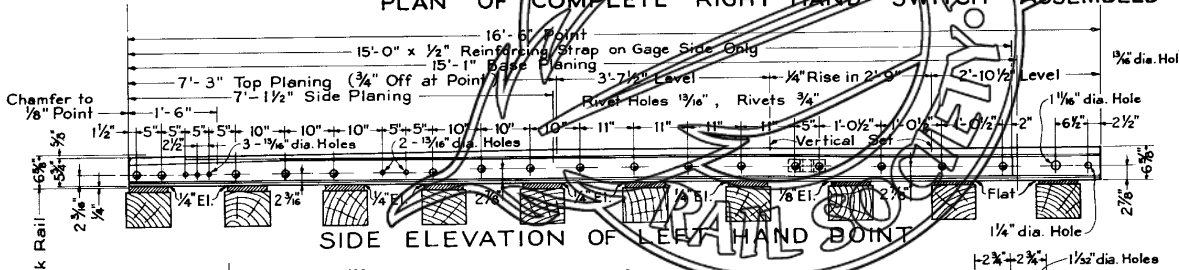
No Scale

Adopted Sept. 1, 1948
Revised Apr. 7, 1949

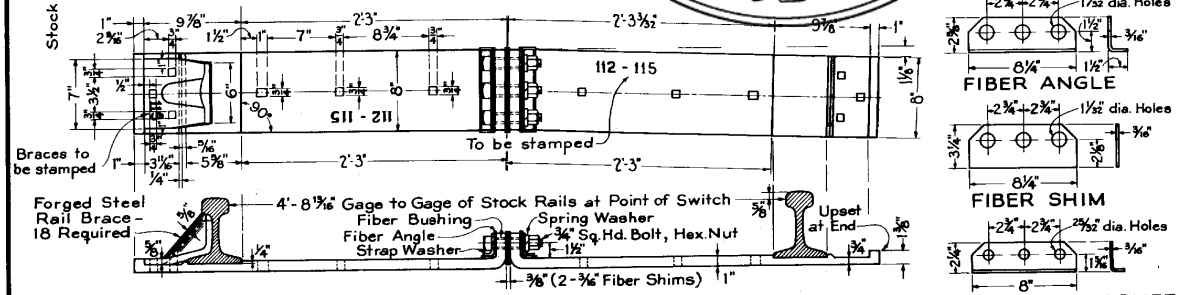
C.E. S-207 1 of 2



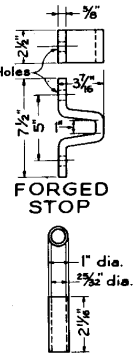
PLAN OF COMPLETE RIGHT HAND SWITCH ASSEMBLED



SIDE ELEVATION OF LEFT HAND POINT



GAGE PLATE - INSULATED



SPECIFICATIONS:
As per A.R.E.A. Specifications Appendix A-42

NOTES:
All rivets to be annealed steel, pressed hot under hydraulic pressure.
Gage plate, head rod, and back rod to be tested for insulation before shipment.

Rail braces to be stamped 115.
Switch plates to be stamped 112-115 and with number of plate as shown on Dwg. C.E. 60-32-F-7
All lock washers to be "Hi-Chrome".
All 1" Nuts to be extra thick (1⅛").

Approved: _____ CHIEF ENGINEER.

Approved: _____ VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
16 FOOT 6 INCH SPLIT SWITCH
115 LB. R.E. RAIL

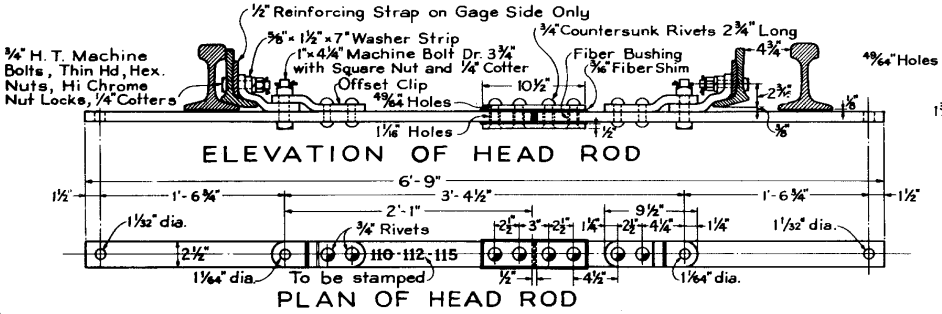
No Scale

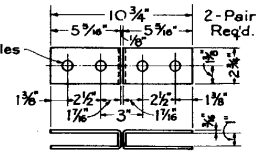
Adopted Jan. 4, 1949

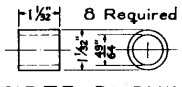
Revised March, 1952
Revised July, 1954

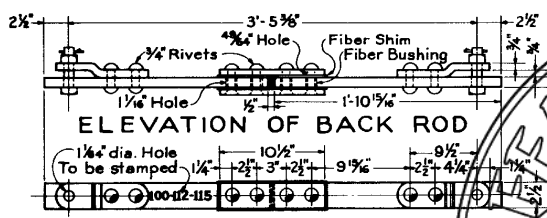
OLD STANDARD

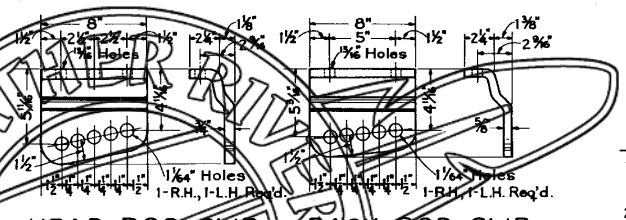
C. E.
S-207
2 of 2

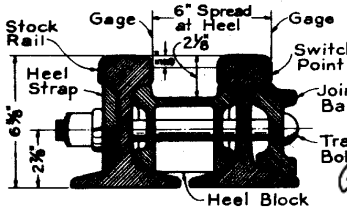


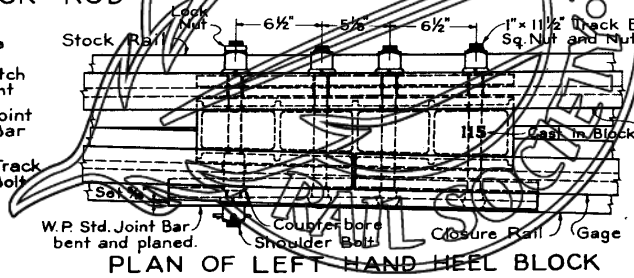


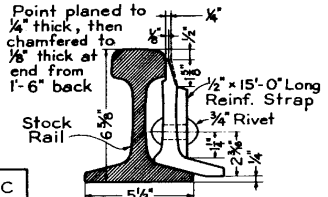


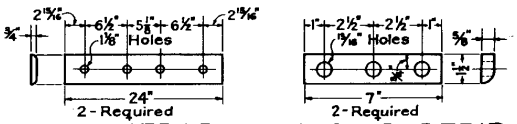


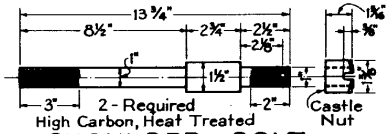












SHIPPING LIST
ONE SWITCH COMPLETE

2 - Switch Points (1-R.H. and 1-L.H.) 16'-6" Long reinforced one side only, with stop and transit clips in place.

1 - Bundle of 2 Pcs. (1-Head Rod and 1-Back Rod, each with bolts in place.)

1 - Gage Plate, insulated, ¼" Elevation, 1" × 8"

3 - Bundles of 4 Pcs. (№1 Slide Plates, 1"×8", ¼" Elevation)

1 - Bundle of 4 Pcs. (2-№2 Slide Plates, 1"×8", ⅛" Elevation, and 2-№3 Slide Plates, 1"×8", Flat)

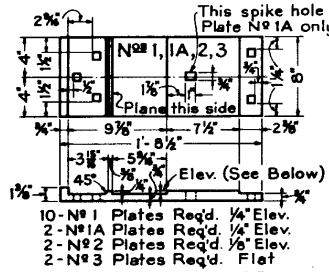
2 - Bundles of 4 Pcs. (1-№4 Heel Plate, 1-№5 Heel Plate, 1-№6 Runoff Plate, 1-№7 Runoff Plate)

2 - Bundles of 4 Pcs. (Flat Runoff Plates, ¾"×8", 1-№8, 1-№9, 1-№10, 1-№11)

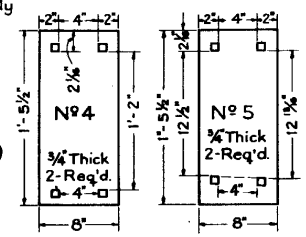
2 - Bundles of 9 Pcs. (Forged Rail Braces)

2 - Cast Steel Heel Blocks, each having 1-Bent Joint Bar, 1-Heel Strap, 3-Track Bolts and Nuts, 5-Hi Chrome Nut Locks, 1-Shoulder Bolt with 2-nuts and 1-locknut. (Make 1-R.H. and 1-L.H. Assembly)

16 Bundles Total



Note - Spike Holes ¾" Square except as noted.



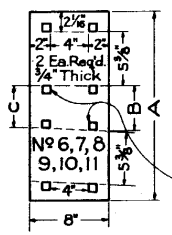


PLATE №	A	B	C
6	1'-4¾"	1⅝"	1⅜"
7	1'-5½"	2¼"	2"
8	1'-6¼"	2⅝"	2⅛"
9	1'-7"	3⅛"	3⅜"
10	1'-7⅞"	4⅜"	4⅛"
11	1'-8¾"	5⅜"	4⅞"

Approved: _____ CHIEF ENGINEER

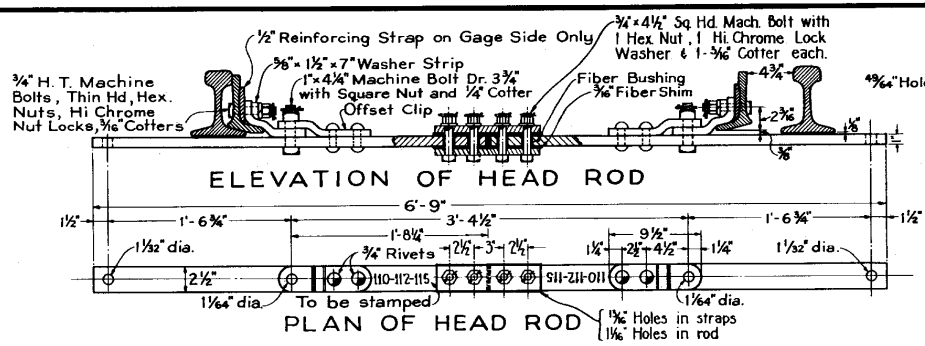
Approved: _____ VICE PRESIDENT AND GENERAL MANAGER

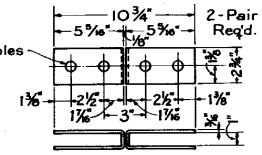
THE WESTERN PACIFIC RAILROAD CO
STANDARD
16 FOOT 6 INCH SPLIT SWITCH
115 LB. R.E. RAIL

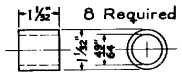
No Scale

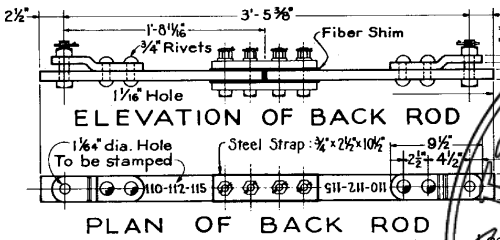
Adopted Jan. 4, 1949

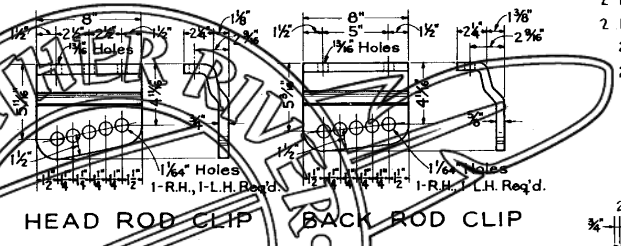
C.E.
S-207
2 of 2

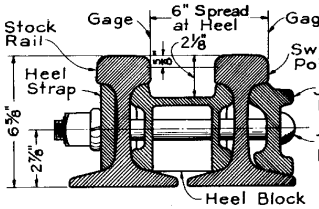


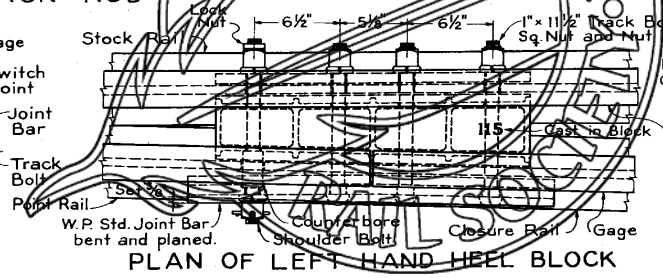


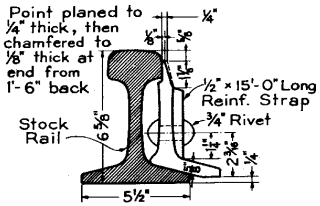


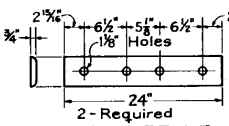


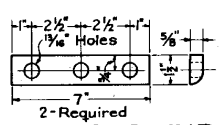


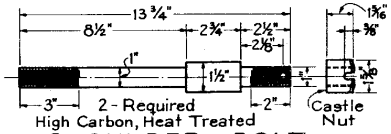


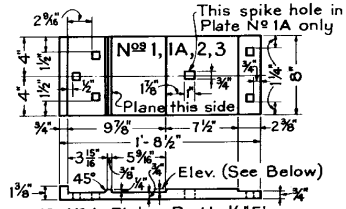












Note - Spike Holes ¾" Square except as noted.

SHIPPING LIST
ONE SWITCH COMPLETE

- 2 - Switch Points (1-R.H. and 1-L.H.) 16'-6" Long reinforced one side only, with stop and transit clips in place.
- 1 - Bundle of 2 Pcs. (1-Head Rod and 1-Back Rod, each with bolts in place.)
- 1 - Gage Plate, insulated, ¼" Elevation, 1" x 8"
- 3 - Bundles of 4 Pcs. (No 1 Slide Plates, 1" x 8", ¼" Elevation)
- 1 - Bundle of 4 Pcs. (2-No 2 Slide Plates, 1" x 8", ⅛" Elevation, and 2-No 3 Slide Plates, 1" x 8", Flat)
- 16 Each - L 23 Hook Twin Tie Plates : See C.E. S-219
- 12 Each - LR 23 Hook Twin Tie Plates : See C.E. S-219
- 2 Each - L 27 Hook Twin Tie Plates : See C.E. S-219
- 2 Each - LR 27 Hook Twin Tie Plates : See C.E. S-219
- 2 - Bundles of 9 Pcs. (Forged Rail Braces)
- 2 - Cast Steel Heel Blocks, each having 1-Bent Joint Bar, 1-Heel Strap, 3-Track Bolts and Nuts, 5-Hi Chrome Nut Locks, 1-Shoulder Bolt with 2-nuts and 1-locknut. (Make 1-R.H. and 1-L.H. Assembly)

Approved: J. Shillito, CHIEF ENGINEER

Approved: H. Hallmann, VICE PRESIDENT AND GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO
STANDARD
16 FOOT 6 INCH SPLIT SWITCH
115 LB. R.E. RAIL

No Scale

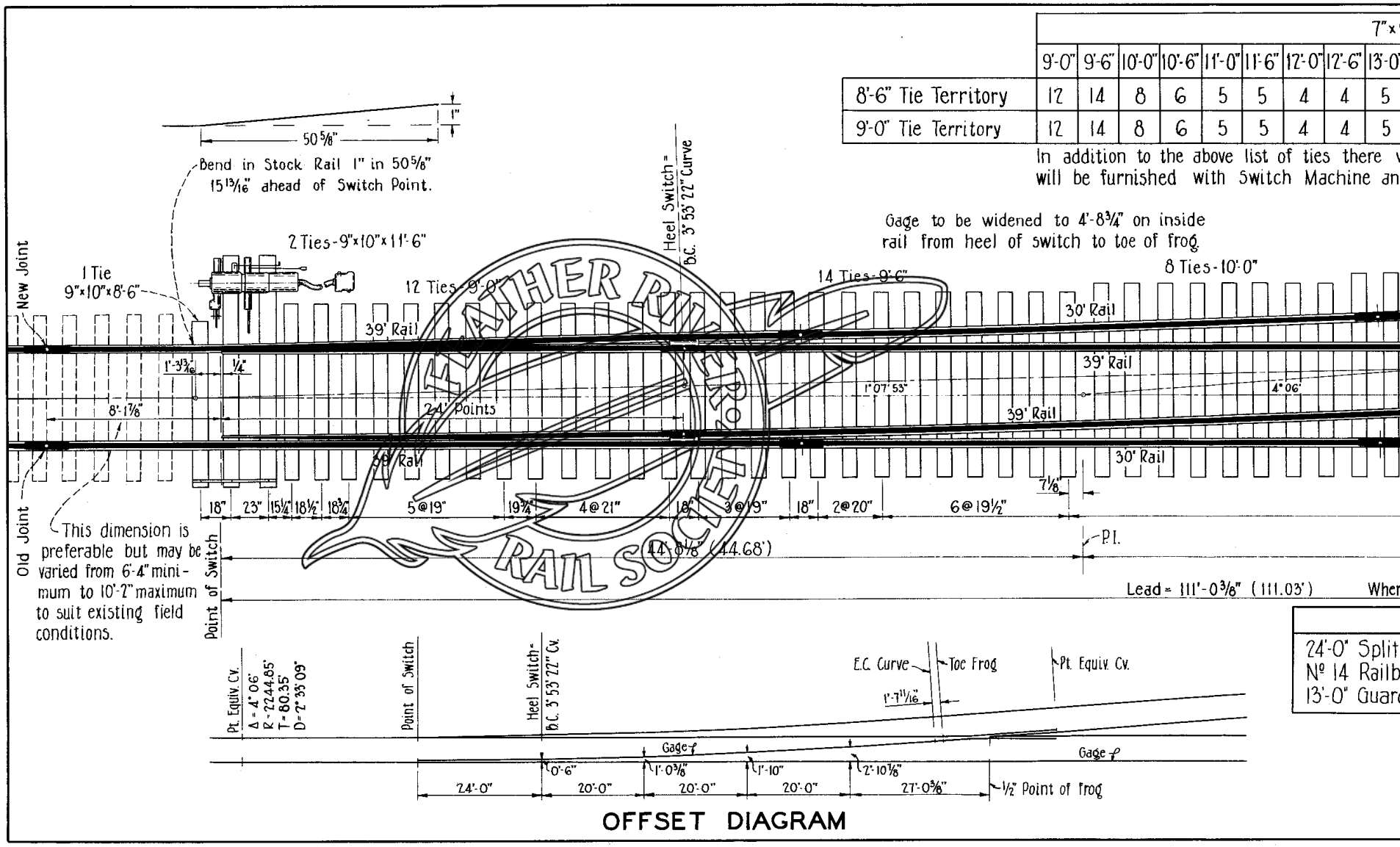
Adopted Jan. 4, 1949

Revised March, 1952
Revised July, 1954

5-56: Add welded rail note.*
7-56: Change Sw. Pt. Loc. 4 ties, correct rail lengths, ref's.
1-57: Change dates, title, Equiv. Cv., remove *above. Film. Lead note added.

	7"x								
	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0
8'-6" Tie Territory	12	14	8	6	5	5	4	4	5
9'-0" Tie Territory	12	14	8	6	5	5	4	4	5

In addition to the above list of ties there will be furnished with Switch Machine an

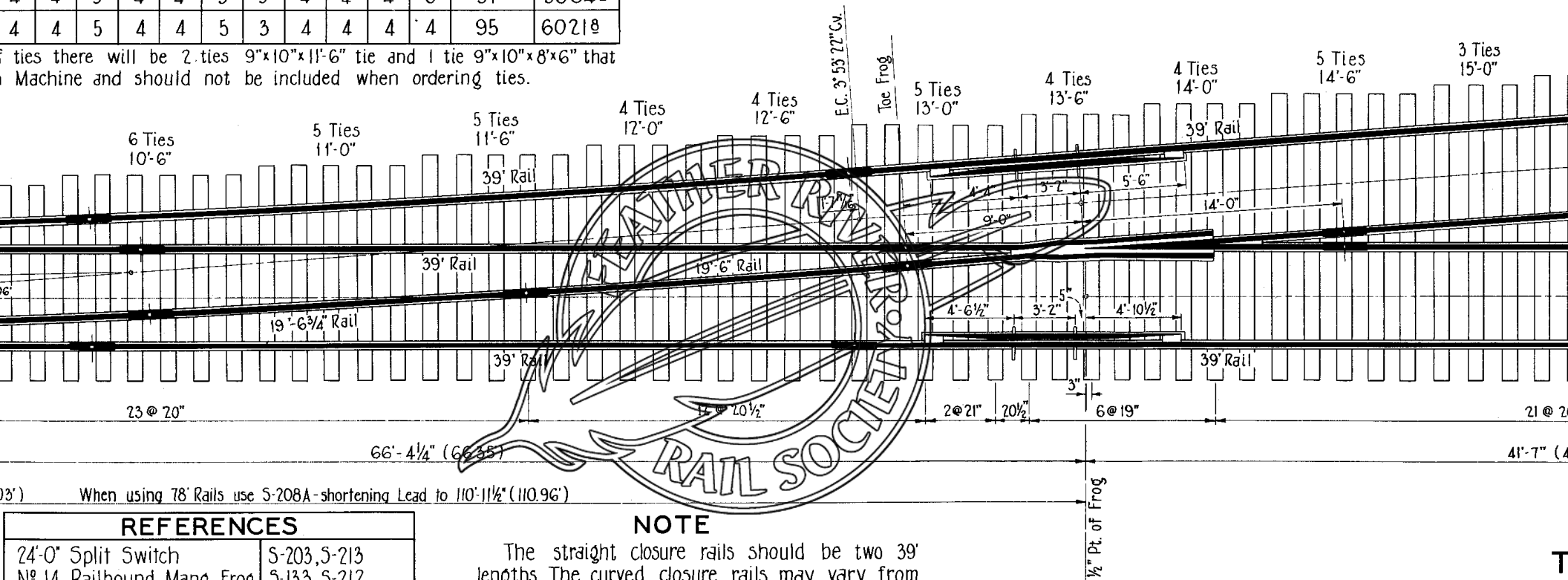


OFFSET DIAGRAM

24'-0" Split
№ 14 Railb
13'-0" Guar

7"x9"												Total Number Pieces	Total Feet B.M.
2'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"			
4	4	5	4	4	5	3	4	4	4	0		91	5664#
4	4	5	4	4	5	3	4	4	4	4		95	6021#

f ties there will be 2 ties 9"x10"x11'-6" tie and 1 tie 9"x10"x8'x6" that
Machine and should not be included when ordering ties.



REFERENCES	
24'-0" Split Switch	S-203, S-213
Nº 14 Railbound Mang. Frog	S-133, S-212
13'-0" Guard Rail	S-204, S-217

NOTE

The straight closure rails should be two 39' lengths. The curved closure rails may vary from lengths shown if necessary, but the minimum length should be 19'-6".

Approved: Frank A. Mansfield
Chief Engineer

T

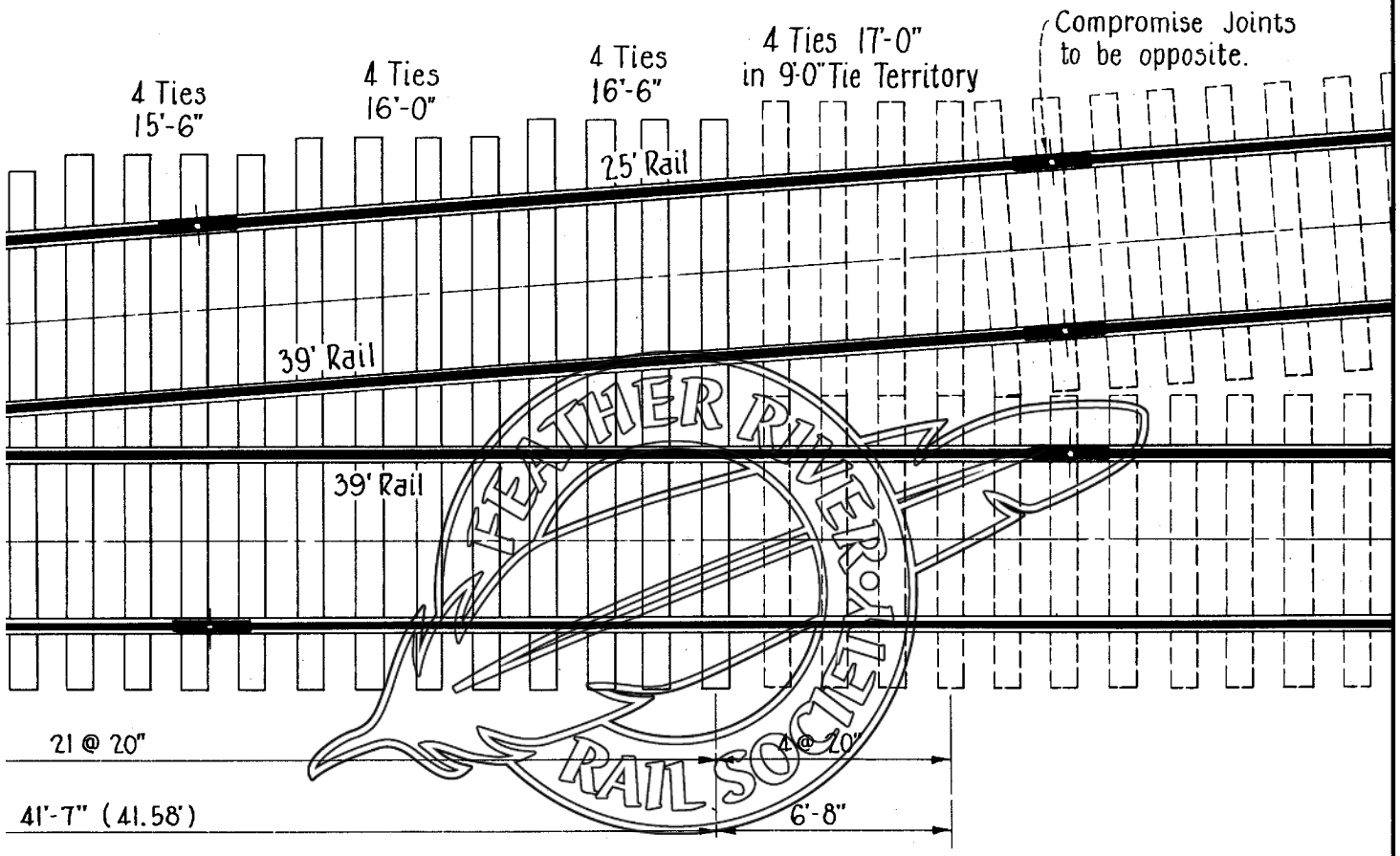
N

FOR US

NO SCALE

Frog Angle	4° 06'
Degree of Turnout Curve	3° 53' 22"
Lead	111'-0 3/8"

C.E.
S-208



THE WESTERN PACIFIC RAILROAD CO.

STANDARD

Nº 14 TURNOUT COMPLETE

R USE WITH RAILBOUND MANGANESE FROG AND 39 FOOT RAILS

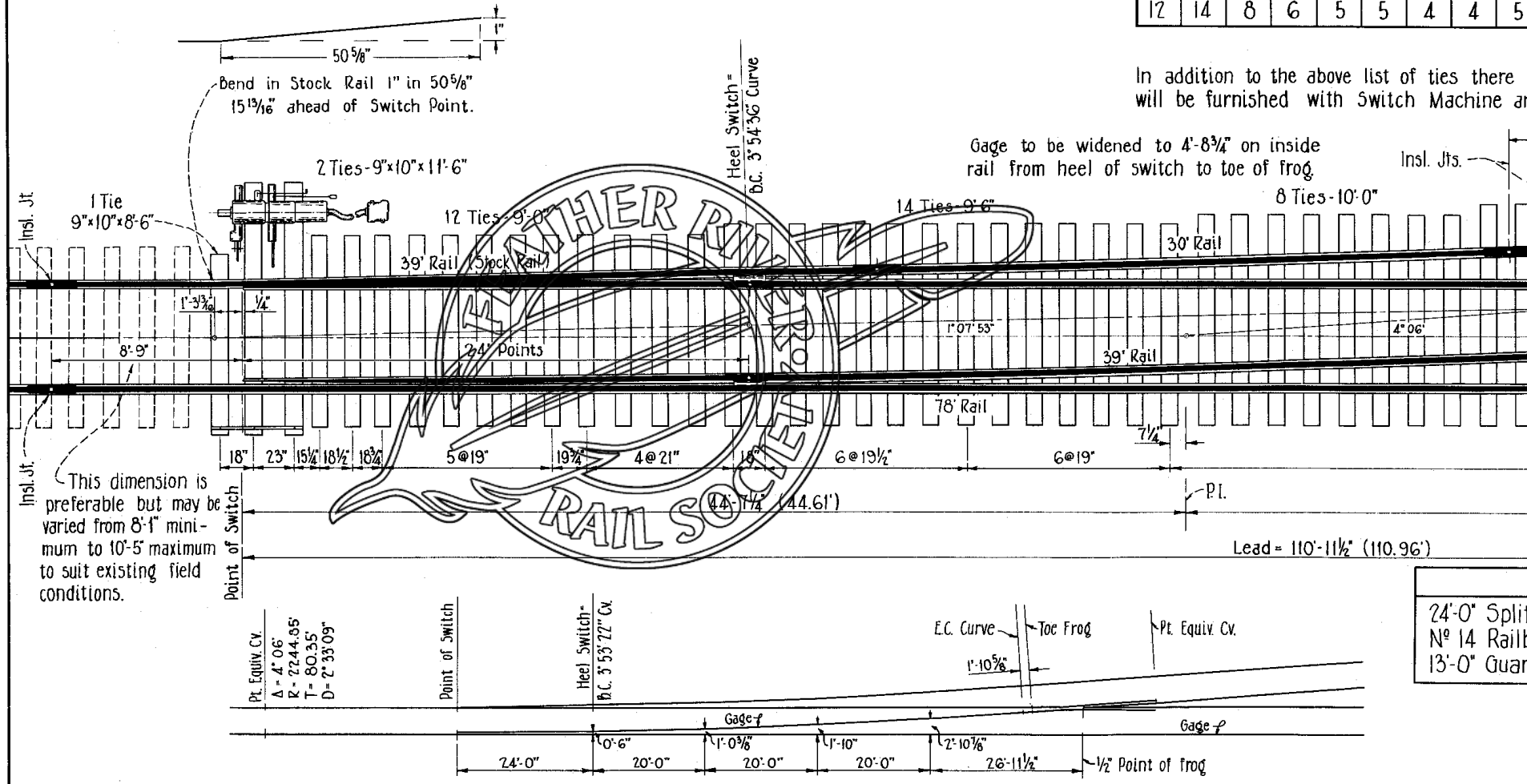
CALE

Adopted : Jan. 26, 1955
Revised : Jan. 18, 1957

Made film for 5-208. Corrected this to 78' rails and to 5-208A.

7"×								
9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0
12	14	8	6	5	5	4	4	5

In addition to the above list of ties there will be furnished with Switch Machine a

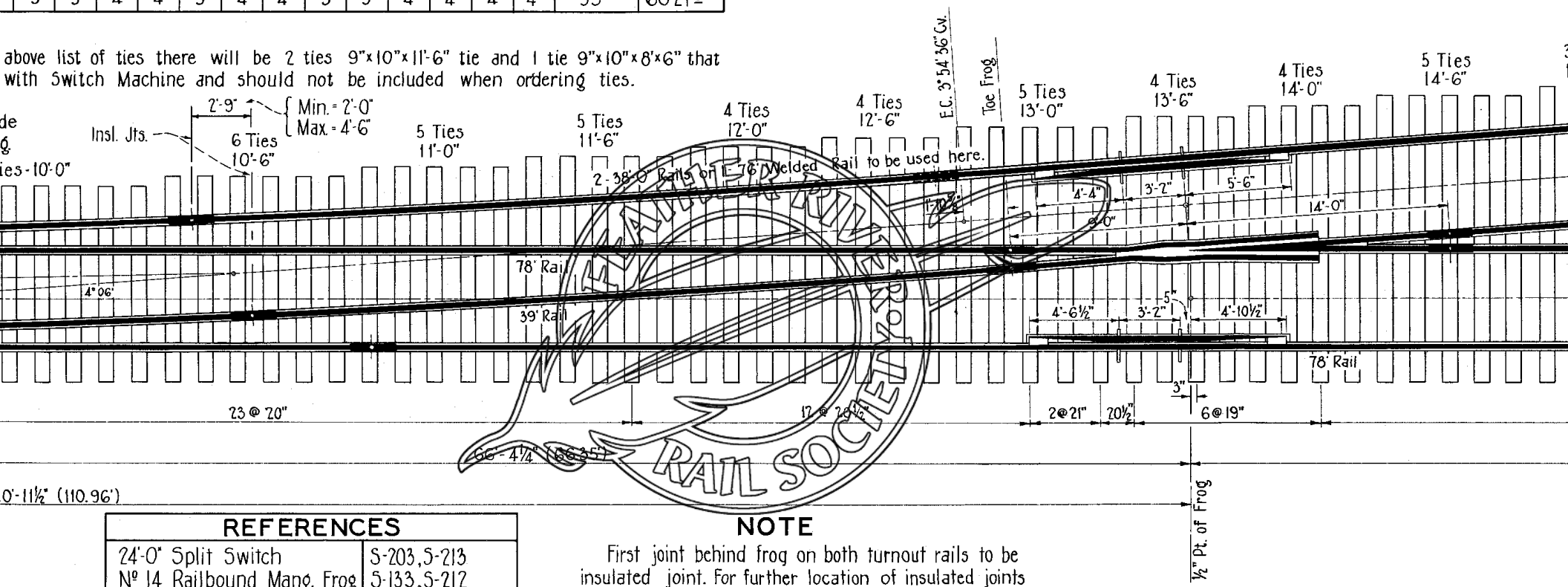


OFFSET DIAGRAM

24'-0" Split
№ 14 Rail
13'-0" Guar

7"x9"														Total Number Pieces	Total Feet B.M.
6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"	16'-6"	17'-0"		
	5	5	4	4	5	4	4	5	3	4	4	4	4	95	6021 8

above list of ties there will be 2 ties 9"x10"x11'-6" tie and 1 tie 9"x10"x8'x6" that with Switch Machine and should not be included when ordering ties.



REFERENCES	
24'-0" Split Switch	S-203, S-213
Nº 14 Railbound Mang. Frog	S-133, S-212
13'-0" Guard Rail	S-204, S-217

NOTE

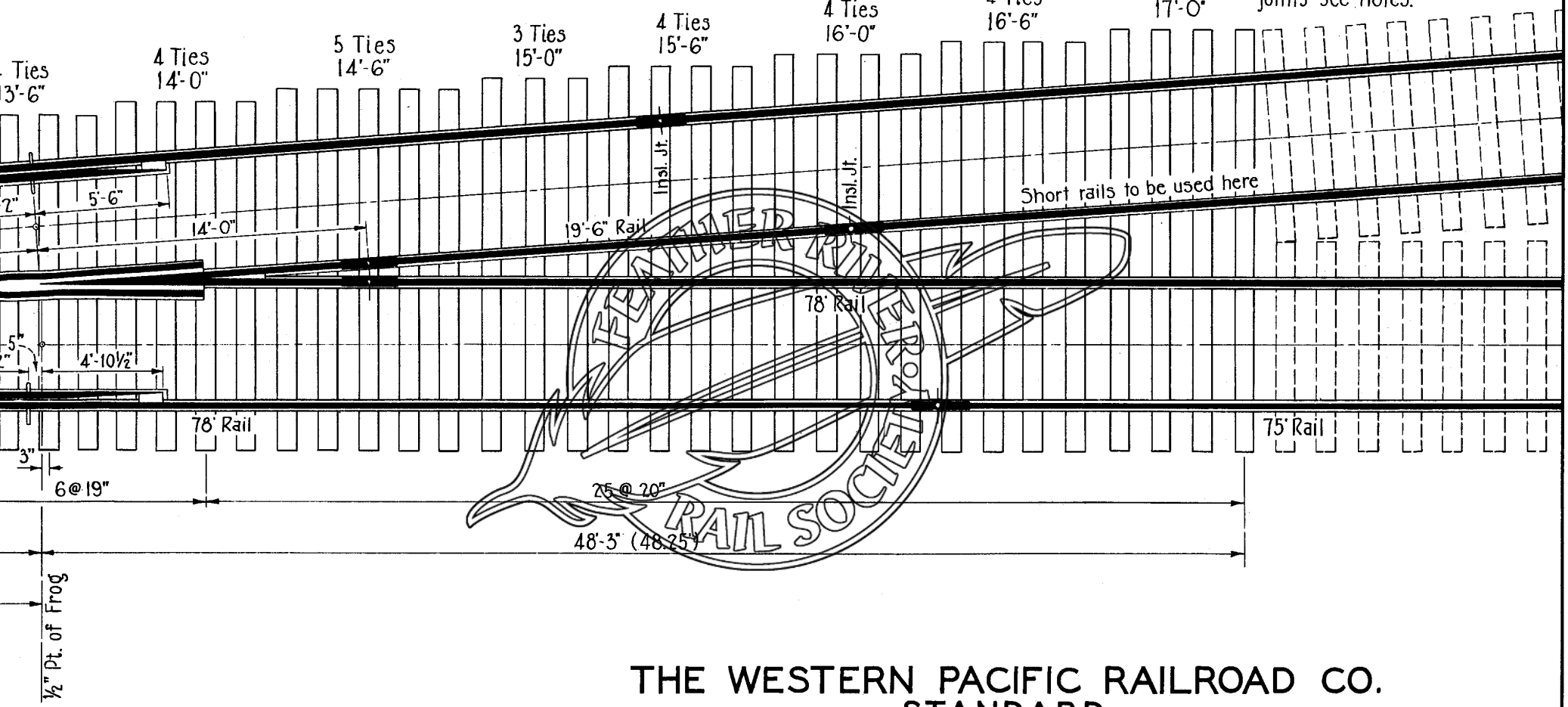
First joint behind frog on both turnout rails to be insulated joint. For further location of insulated joints see Dwg. Nº 8-2B or 8-2C.

Compromise joints need not be opposite on the turnout side joints.

Approved: Frank A. Macfarland
Chief Engineer

Frog Angle 4° 06'
Degree of Turnout Curve 3° 54'-36"
Lead 110'-11½"

C.E.
S-208A



THE WESTERN PACIFIC RAILROAD CO.

STANDARD

Nº 14 TURNOUT COMPLETE

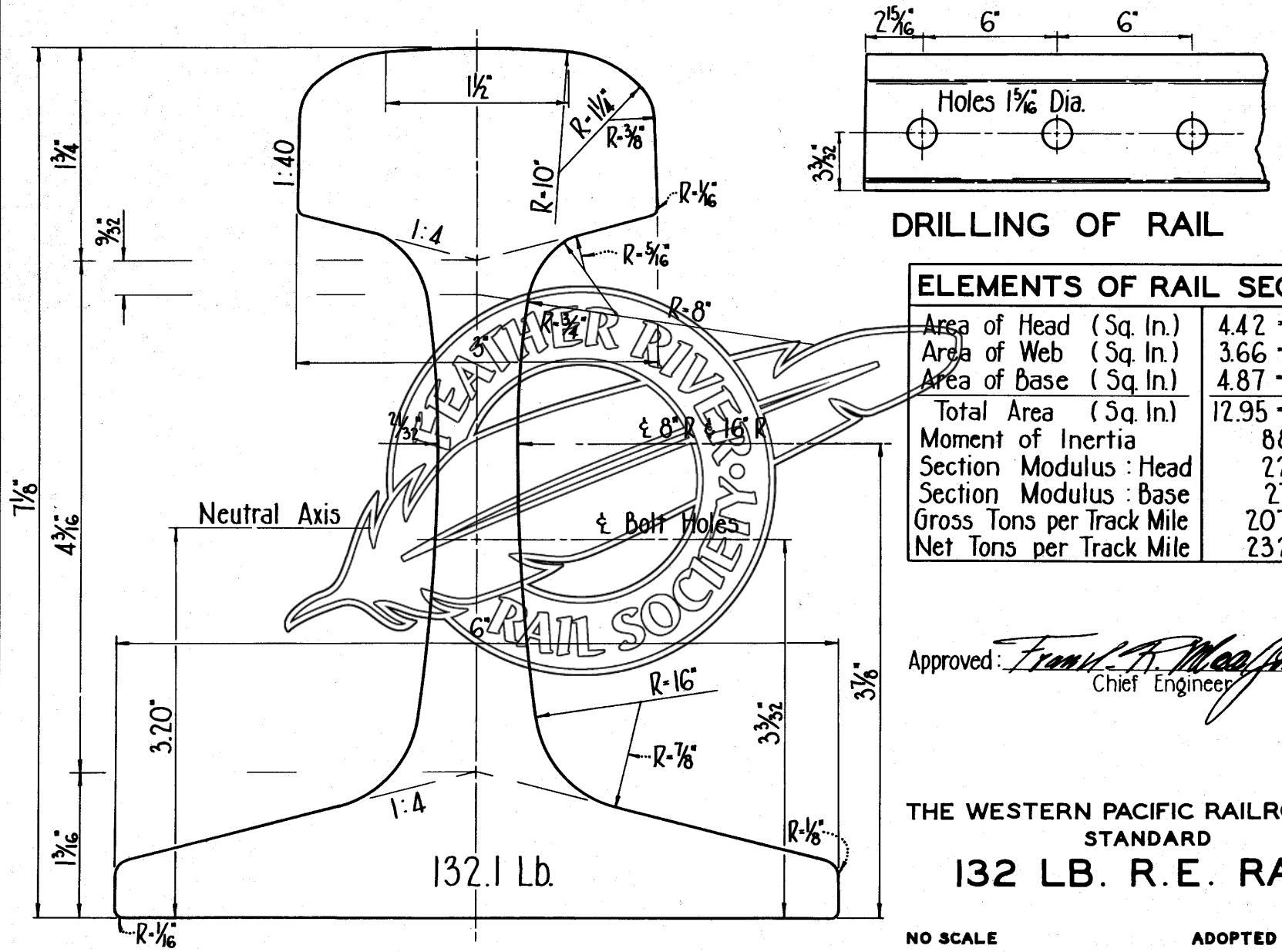
FOR USE WITH RAILBOUND MANGANESE FROG AND 78 FOOT RAILS

Adopted : Jan. 25, 1957

NO SCALE

Approved: Frank A. Macfarland
Chief Engineer

C.E.
S-210



DRILLING OF RAIL

ELEMENTS OF RAIL SECTION	
Area of Head (Sq. In.)	4.42 - 34.1 %
Area of Web (Sq. In.)	3.66 - 28.3 %
Area of Base (Sq. In.)	4.87 - 37.6 %
Total Area (Sq. In.)	12.95 - 100.0 %
Moment of Inertia	88.2
Section Modulus : Head	22.5
Section Modulus : Base	27.6
Gross Tons per Track Mile	207.58
Net Tons per Track Mile	232.50

Approved: Frank R. Woodford
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

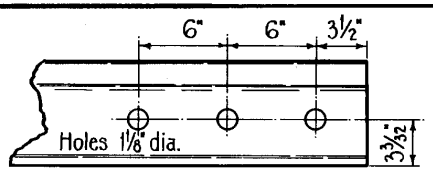
132 LB. R.E. RAIL

NO SCALE

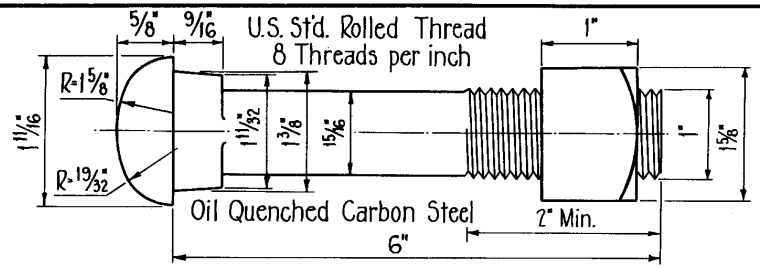
ADOPTED: Oct. 15, 1954

10-'59 : Redraw S-211, 12-15-'54, to 136 lb, change drilling, bolt, hole size, etc. 12-63 Change bolt length.

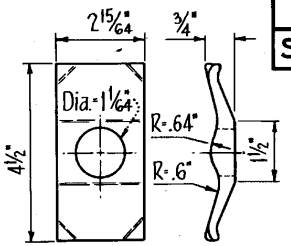
C.E.
S-211 WS



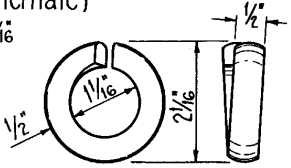
RAIL DRILLING



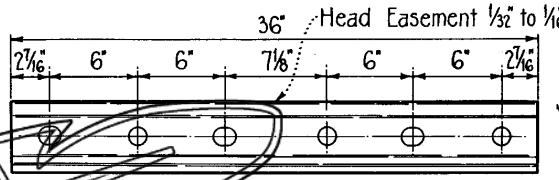
TRACK BOLT AND NUT



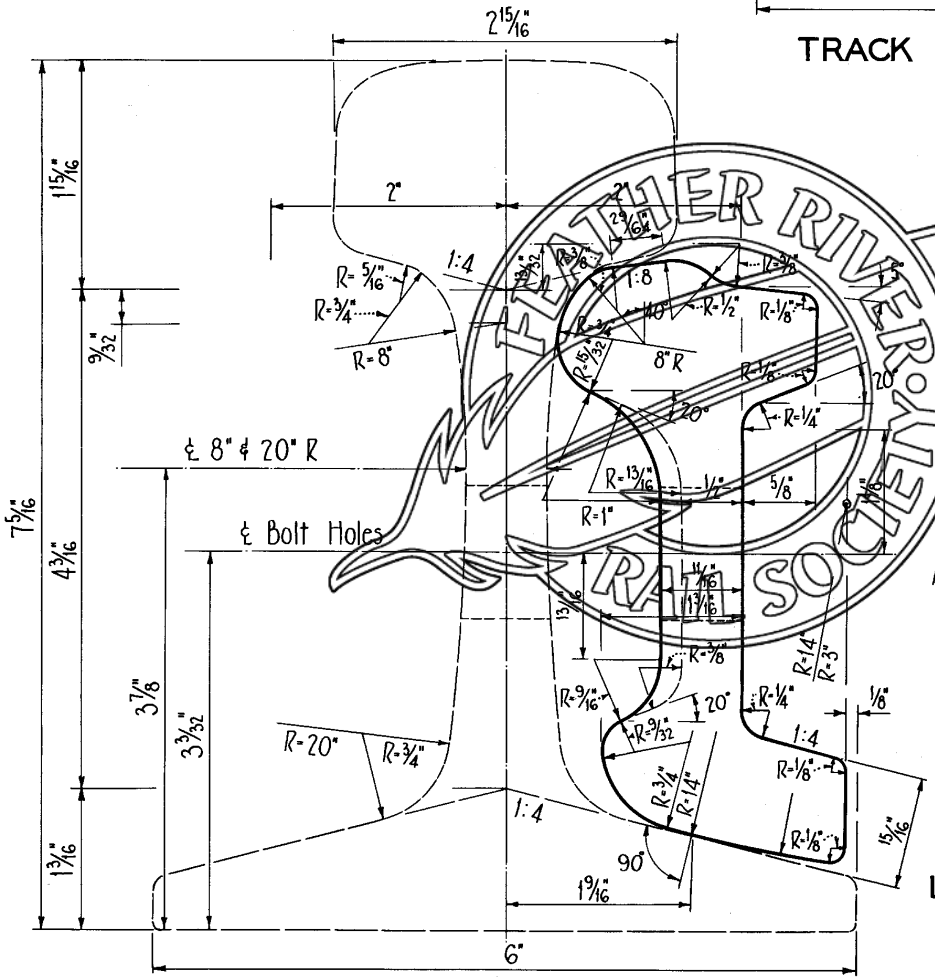
PATENT WASHER
(Alternate)



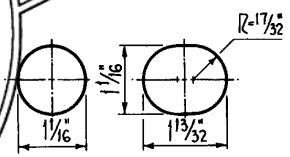
SPRING WASHER
(Alternate)



ELEVATION OF JOINT BAR

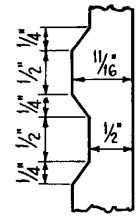


END ELEVATION OF RAIL AND JOINT BAR



BOLT HOLES
Alternate Round and Oval

ELEMENTS OF ONE JOINT (2 BARS)	
Moment of Inertia	31.8
Section Modulus: Head	13.2
Section Modulus: Base	12.0
Wt. of Bar per ft. - Gross	19.62 Lbs.
Wt. of Bars per pair - Net	115.4 Lbs.



LONGITUDINAL
SEC. OF WEB

Approved: Frank R. Westfall
Chief Engineer

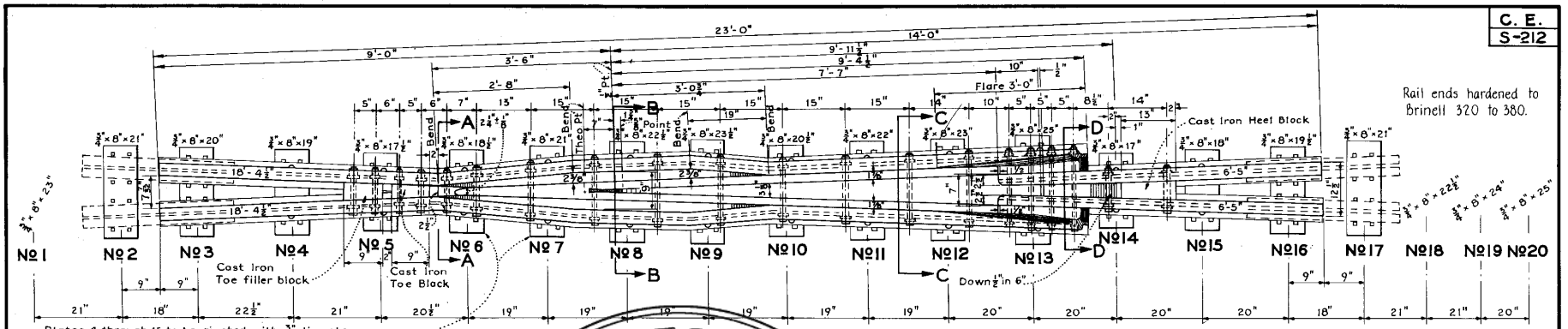
WESTERN PACIFIC RAILROAD CO.
STANDARD

HEADFREE 100% JOINT
FOR 136 LB. RAIL

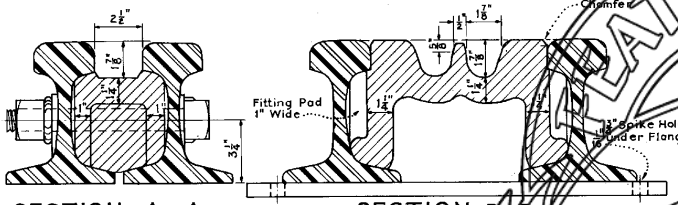
No Scale

Adopted: Oct. 1, 1959

C. E.
S-212

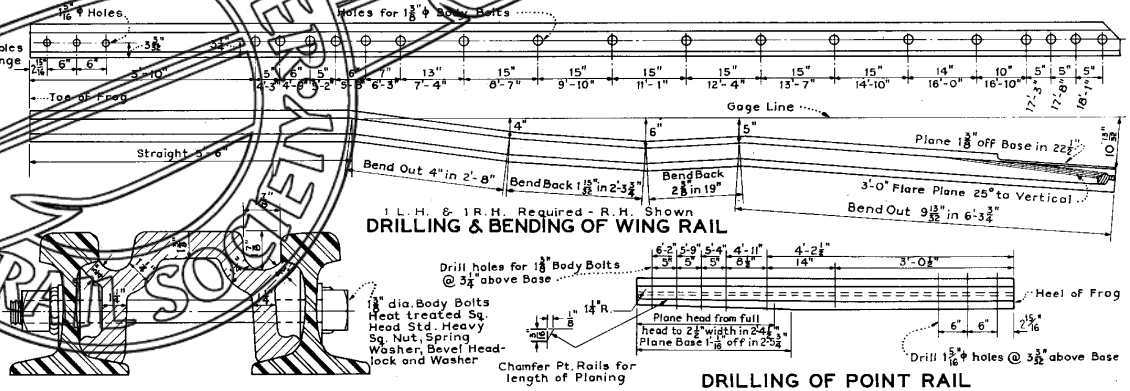


PLAN OF Nº 14 RAILBOUND MANGANESE FROG



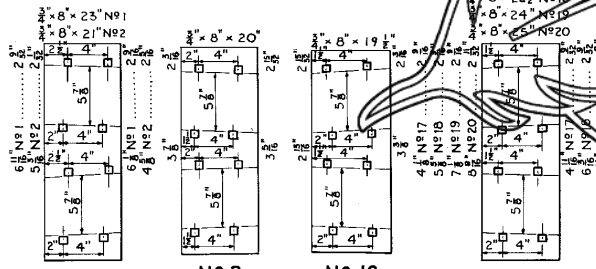
SECTION A-A

SECTION B-B



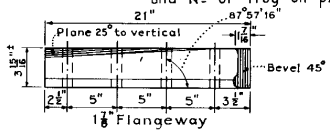
1 L.H. & 1 R.H. Required - R.H. Shown

DRILLING & BENDING OF WING RAIL



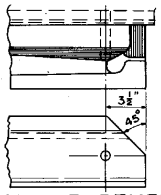
DETAIL OF LOOSE PLATES

Stamp weight of rail, Nº of plate and Nº of frog on plates

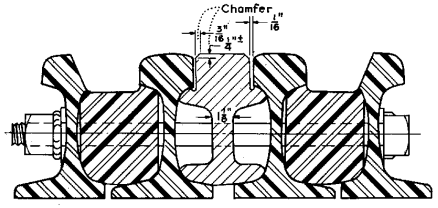


ROLLED STEEL FILLER

1 L.H. & 1 R.H. Required
L.H. Shown



DETAIL OF BEVELED END OF WING RAIL



SECTION D-D

DRILLING OF POINT RAIL

1 L.H. & 1 R.H. Required
L.H. Shown

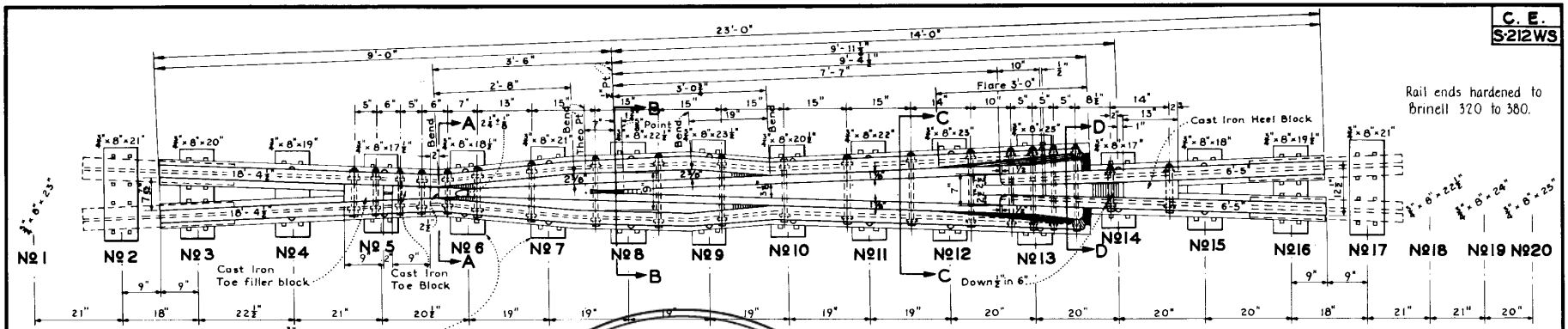
APPROVED Frank R. Wood
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
Nº 14 RAILBOUND MANGANESE FROG
132 LB. & 136 LB. RAIL

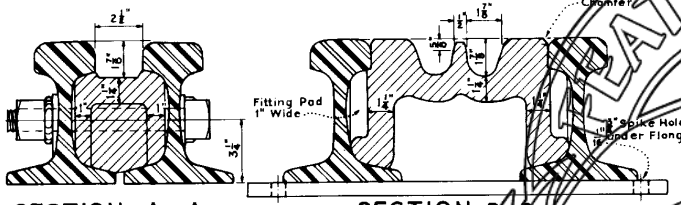
NO SCALE

ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

C. E.
S-212WS

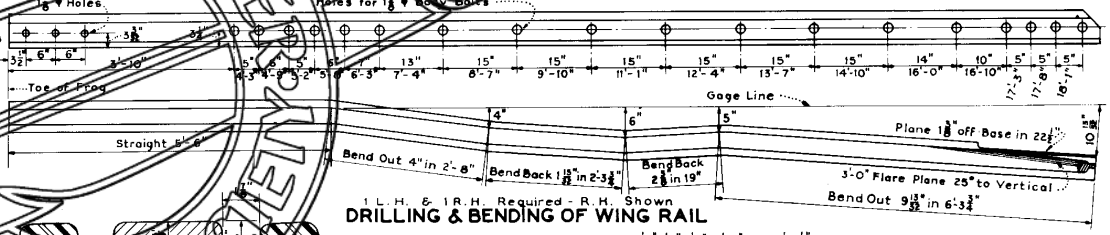


PLAN OF № 14 RAILBOUND MANGANESE FROG



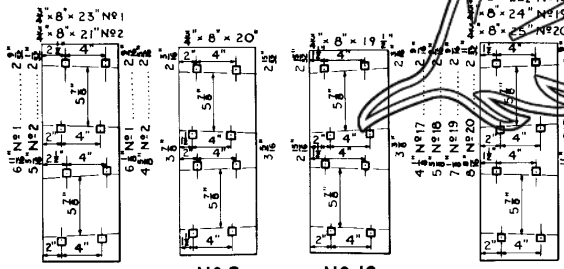
SECTION A-A

SECTION B-B



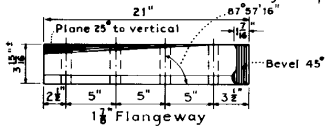
1 L.H. & 1 R.H. Required - R.H. Shown

DRILLING & BENDING OF WING RAIL



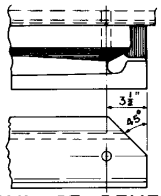
DETAIL OF LOOSE PLATES

Stamp weight of rail, № of plate and № of frog on plates

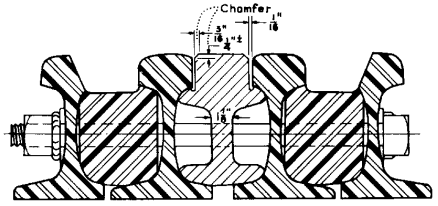


ROLLED STEEL FILLER

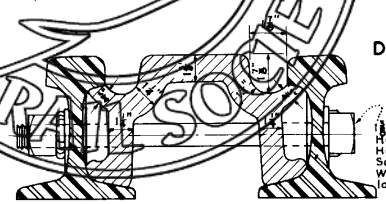
1 L.H. & 1 R.H. Required
L.H. Shown



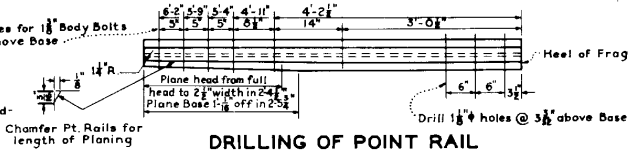
DETAIL OF BEVELED END OF WING RAIL



SECTION D-D



SECTION C-C



DRILLING OF POINT RAIL

1 L.H. & 1 R.H. Required
L.H. Shown

APPROVED _____
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

№ 14 RAILBOUND MANGANESE FROG

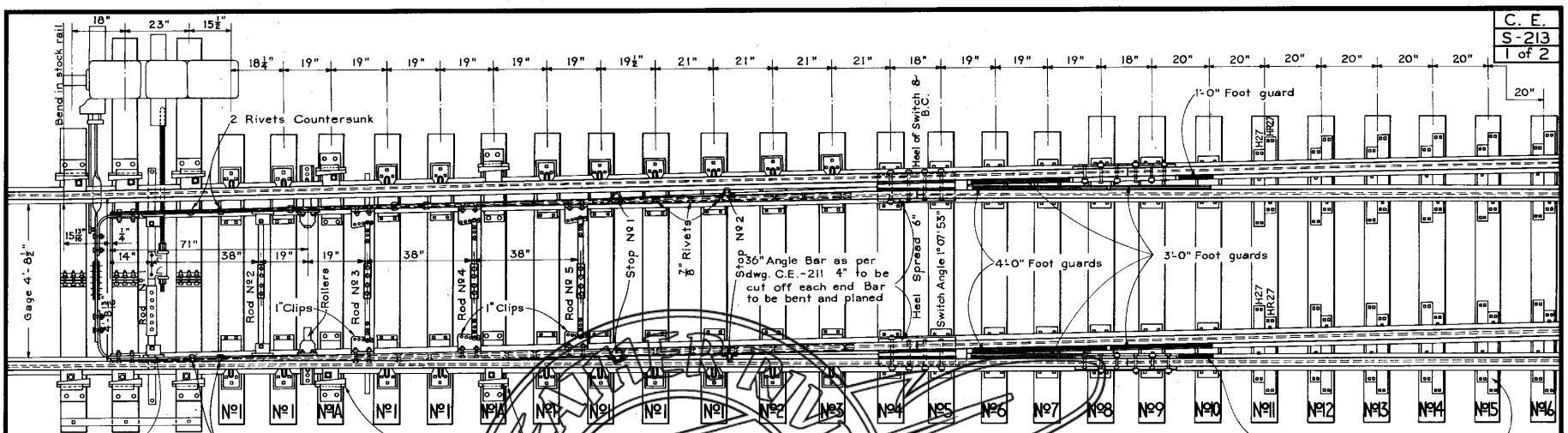
136 LB. C.F. & I. RAIL

NO SCALE

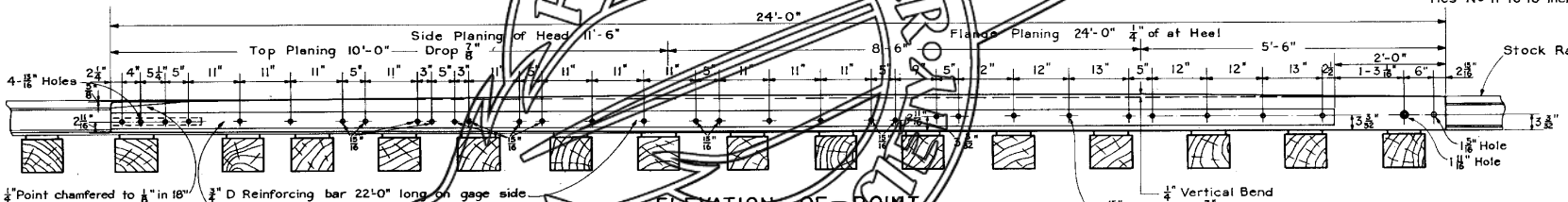
ADOPTED: Nov. 1, 1963
REVISED: Dec. 1, 1968

Western Standard Drilling

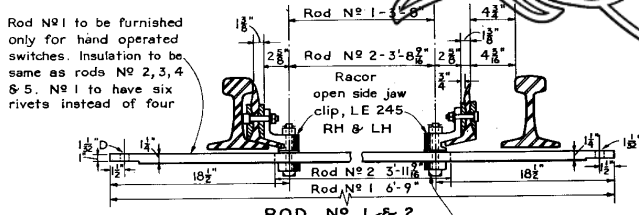
C. E.
S-213
1 of 2



PLAN OF COMPLETE LEFT HAND SWITCH ASSEMBLY

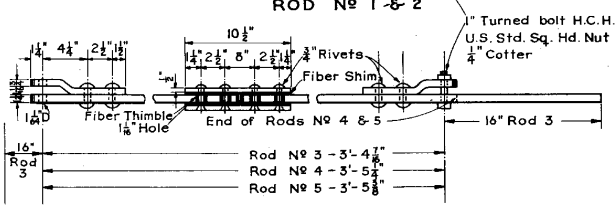


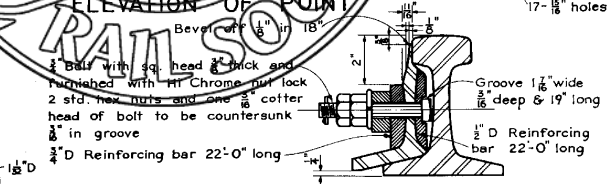
ELEVATION OF POINT



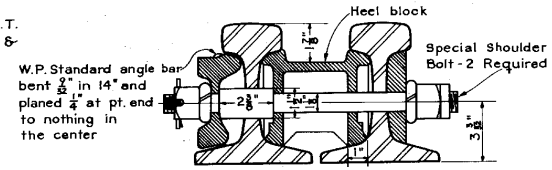
Rod Nº 1 to be furnished only for hand operated switches. Insulation to be same as rods Nº 2, 3, 4 & 5. Nº 1 to have six rivets instead of four

ROD Nº 1 & 2





SECTION AT POINT



SECTION OF HEEL AT SECOND BOLT

APPROVED A. W. Carlson
CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

STANDARD

24 FOOT SPLIT SWITCH

132 LB. R.E. RAIL

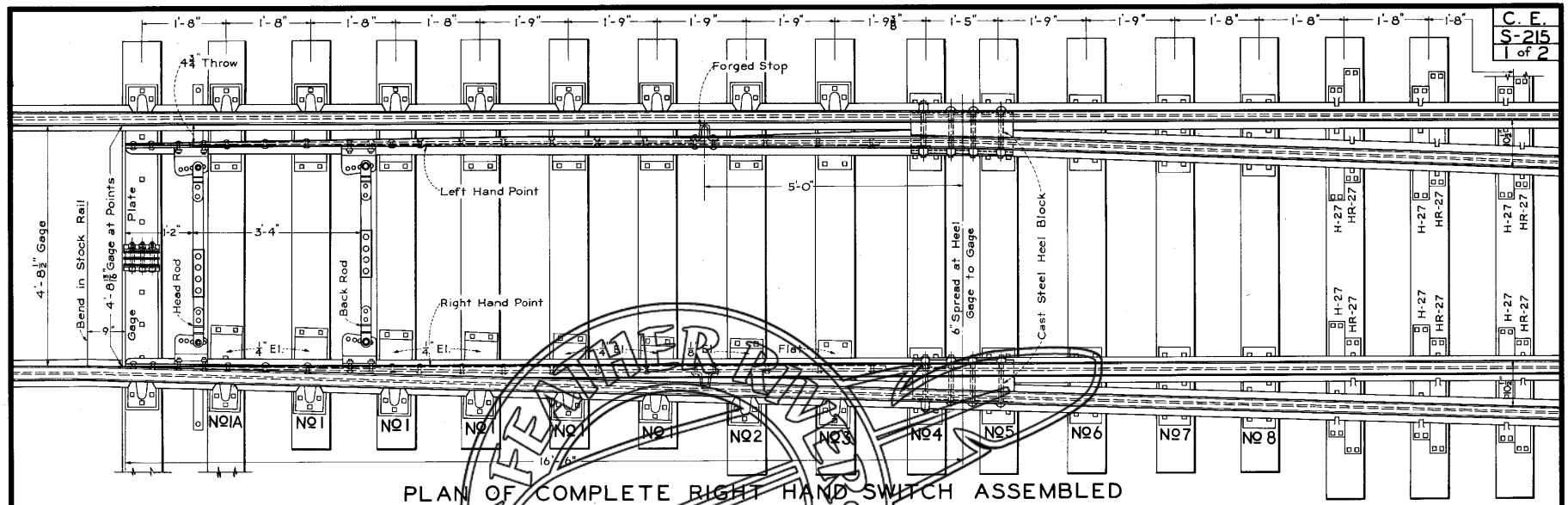
FOR USE WITH SWITCH MACHINE

No Scale

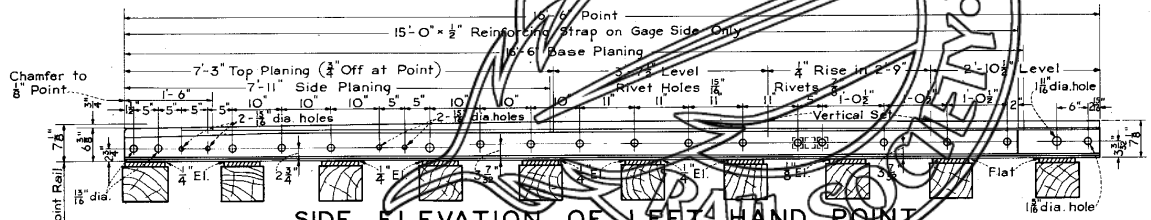
Adopted

Old Standard, for current standard see S-370.

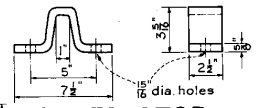
C. E.
S-215
1 of 2

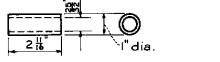


PLAN OF COMPLETE RIGHT HAND SWITCH ASSEMBLED



SIDE ELEVATION OF LEFT HAND POINT

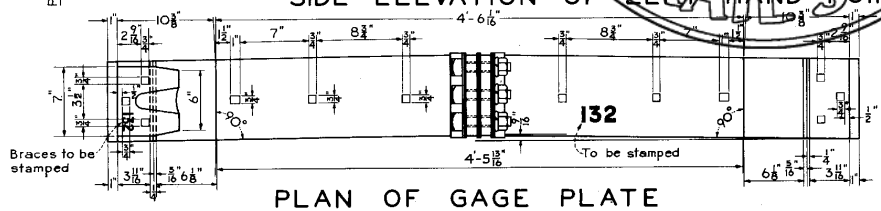




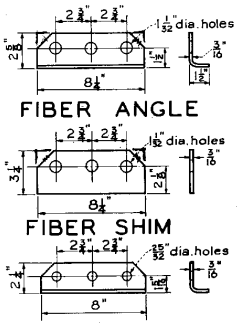
SPECIFICATIONS:
As per A.R.E.A. Specifications Appendix A-42

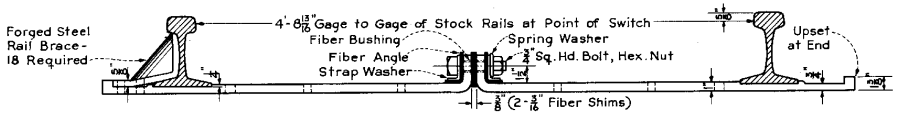
NOTES:
All rivets to be annealed steel, riveted cold under hydraulic pressure.
Gage plate, head rod and back rod to be tested for insulation before shipment.
Gage plate to be stamped 132
Rail braces to be stamped 132
Switch plate to be stamped 132 and with number of plate.
All lock washers to be "Hi-Chrome"
All 1" Nuts to be extra thick (1⅛")

APPROVED A. W. Carlson
CHIEF ENGINEER



PLAN OF GAGE PLATE





FRONT ELEVATION OF GAGE PLATE - INSULATED

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
16 FOOT 6 INCH SPLIT SWITCH
132 LB. R.E. RAIL

No Scale

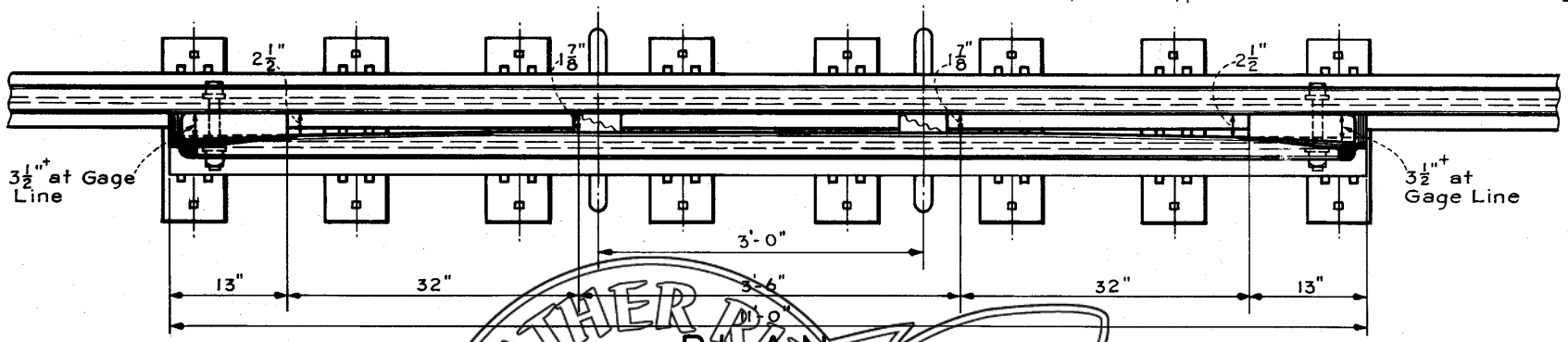
Adopted

Old Standard, for current standard See S-352

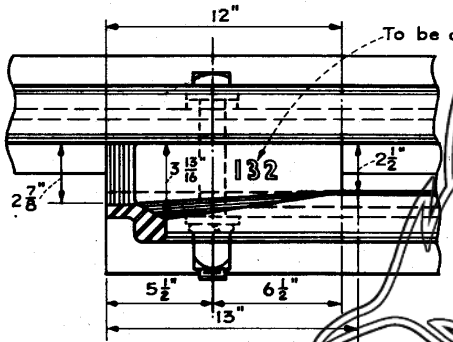
11-59 : Change Plate stamping, make 2 clamp

C.E.
S-216

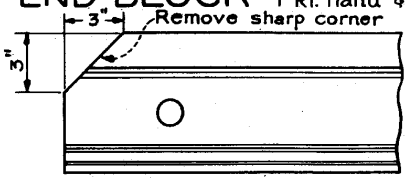
Ties spaced at approx. 18" centers



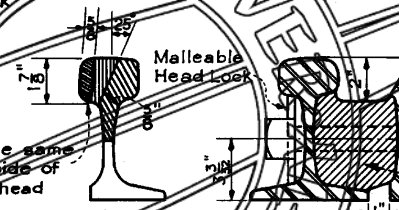
PLAN



END BLOCK 1 Rt. Hand & 1 Lt. Hand Reqd.

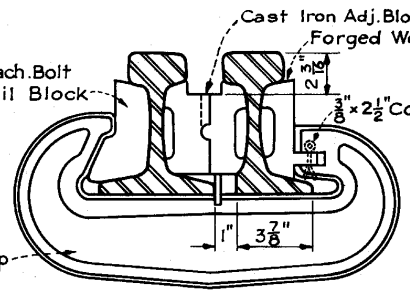


BEVELED END OF GUARD RAIL



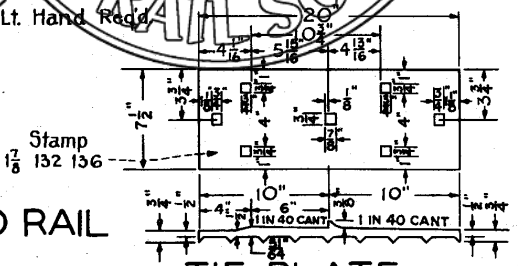
PLANING DETAIL SECTION THRU END BLOCK

End view of guard rail showing detail of double planing of flare



CLAMP ASSEMBLY

2 Complete Req'd.



TIE PLATE

8 Req'd.

APPROVED Frank R. Wood Jr.

CHIEF ENGINEER

THE WESTERN PACIFIC RAILROAD CO.

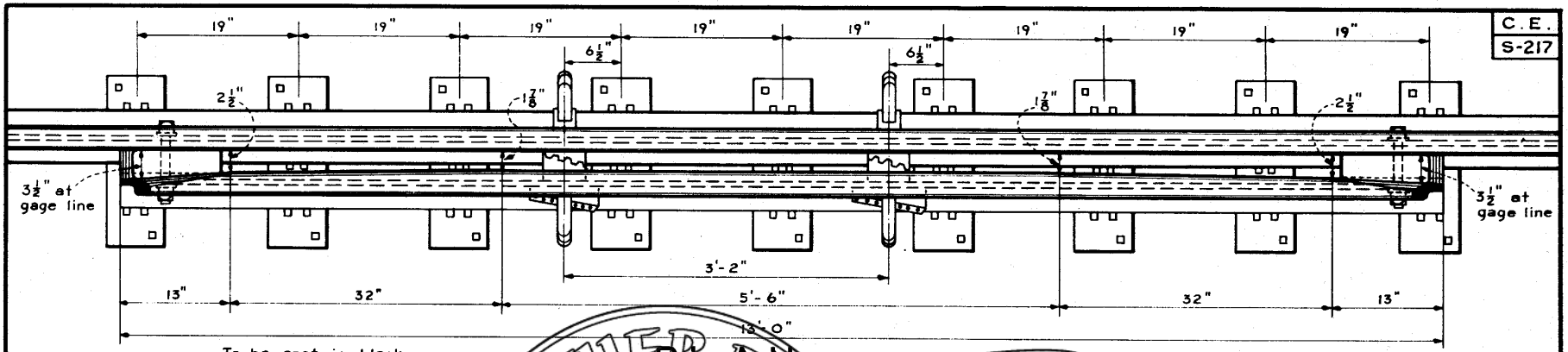
STANDARD

11 FT. 132 LB. GUARD RAIL

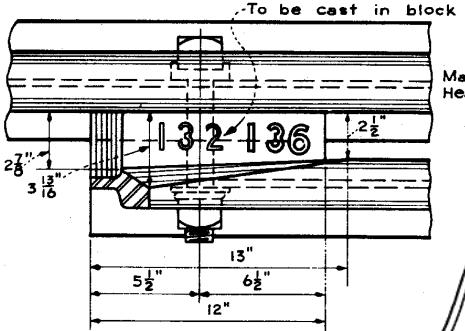
No Scale

Adopted : June 1, 1951

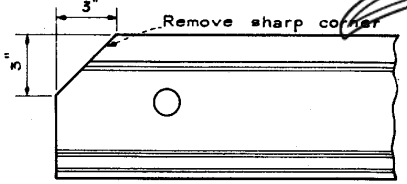
C.E.
S-217



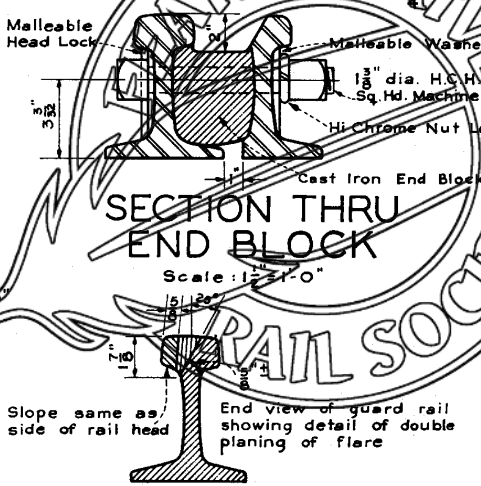
PLAN
Scale: 1½"=1'-0"



END BLOCK Scale: 1½"=1'-0"

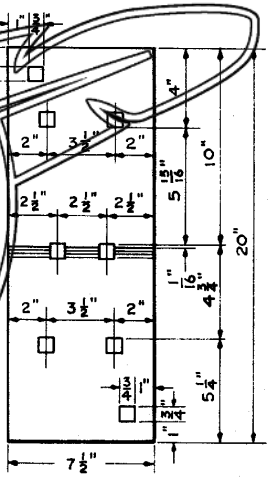


BEVELED END OF GUARD RAIL Scale: 1½"=1'-0"

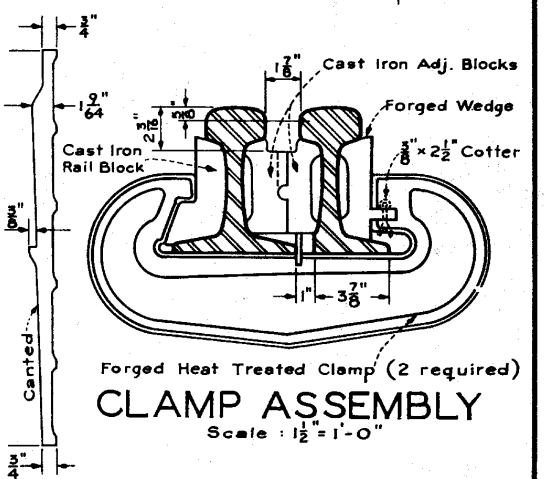


SECTION THRU END BLOCK
Scale: 1½"=1'-0"

PLANING DETAIL
Scale: 1½"=1'-0"



TIE PLATE
Scale: 1"=1'-0"



Forged Heat Treated Clamp (2 required)

CLAMP ASSEMBLY
Scale: 1½"=1'-0"

APPROVED Frank A. Woolford
CHIEF ENGINEER

NOTE :- The distance from gage line at frog point to inside face of guard rail must always be maintained at 4'-6⅝". If gage of track is more than 4'-8½", the guard rail flangeway must be more than 1⅞" by the same amount.

SPECIFICATIONS :-
As per A.R.E.A. Specifications, Appendix A, adopted 1942
Plan 505 for guard rail clamps, adopted March 1940

THE WESTERN PACIFIC RAILROAD CO.
STANDARD
13'-0" GUARD RAIL
132 LB. AND 136 LB. RAIL
Scale: As noted Adopted : Aug. 15, 1957

Revisions
1-55: Add Approval
9-56: Change notes.
1-59 Change Spacing
9-63: Change notes & Spacing

C. E.
S-218

		MAIN LINE		BRANCH LINE		YARD TRKS. & SPURS	
		Main Tr.	Sidings	Main Tr.	Sidings	Leads & Heavy Switch Tracks	Light Switch Yd., & Ind. Trks.
SAN FRANCISCO	Size Spacing	7"× 8" 20 - 39	7"× 8" 20 - 39			6" × 8" 20 - 39	6" × 8" 18 - 39
W. P. MOLE – M.P. 7.11 (OAK ST.)	Size Spacing	7"× 8" 21 - 39	7"× 8" 20 - 39			6" × 8" 20 - 39	6" × 8" 18 - 39
M.P. 7.11 – SALT LAKE CITY	Size Spacing	7"× 9" 23-39	7"× 9" 20-39	6" × 8" 20 - 39	6"× 8" 18-39	6"× 8" 20 - 39	6"× 8" 18-39
KEDDIE – BIEBER	Size Spacing	7"× 9" 23-39	7"× 8" 20-39			6"× 8" 20-39	6"× 8" 18-39
SAN JOSE BRANCH	Size Spacing			7"× 8" 20-39	7"× 8" 18-39	6"× 8" 20-39	6"× 8" 18-39
RENO BRANCH	Size Spacing			7"× 8" 20 - 39	7"× 8" 18-39	6"× 8" 20-39	6"× 8" 18-39

1. Primary Main Track - Oakland (M.P. 7.11) to Salt Lake City, and Keddie to Bieber, cross tie lengths to be 9'0" except through tunnels tie lengths to be 8'0".
2. All other tracks, including main track of branch lines, all sidings, yards, and other tracks, cross tie lengths shall be 8'0".
3. All curves over 10° on yard tracks and spurs shall have 20 ties per 39' rail length.
4. For number of ties for rail lengths other than 39' see S-218A
5. Exceptions to above : Main Track Oakland to Salt Lake City. In areas of unstable embankment where maximum ground bearing of cross ties is necessary to adequately spread the load imposed, such as from Stockton to Sacramento, Sano to Ronda, Jungo (M.P. 496) to Gaskell (M.P. 510) and similar areas where ground stabilization has not been progressed, a spacing of 24-7"×9"×9' cross ties per 39' rail length should be retained.

This standard is to be used on new track and/or reconstruction or rehabilitation of existing trackage, or when rail relay, reballast, or heavy tie renewal projects are carried out.

Number of ties used for rail lengths other than shown shall be proportional.

APPROVED: Francis R. Mansfield
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

SIZES AND SPACING FOR CROSS TIES

NO SCALE

ADOPTED: JUNE 13, 1952
REVISED: JAN. 1, 1963

11-56: 18-33' chg to 19-33 & Oakland chg to Layfette.
11-59: change most spacing & West Pittsburg to Montezuma
9-6[illegible]hange spacing & notes

C. E.
S-218A

		MAIN LINE		BRANCH LINE		YARD TRACKS & SPURS	
		Main Tr.	Sidings	Main Tr.	Sidings	Heavy Switch Trks. & Curves	Light Yard & Industrial Trks.
SACRAMENTO NORTHERN RY.							
LAFAYETTE to PORT CHICAGO	Size Spacing	6"x8" 16-33'	6"x8" 15-33'			6"x8" 17-33'	6"x8" 15-33'
PORT CHICAGO to PITTSBURG	Size Spacing	7"x8" 17-33'	7"x8" 16-33'	7"x8" 16-33'		6"x8" 17-33'	6"x8" 15-33'
MONTEZUMA to SACRAMENTO	Size Spacing	6"x8" 17-33'	6"x8" 16-33'	6"x8" 17-33'	6"x8" 15-33'	6"x8" 17-33'	6"x8" 15-33'
SACRAMENTO to CHICO	Size Spacing	6"x8" 17-33'	6"x8" 16-33'	6"x8" 17-33'	6"x8" 15-33'	6"x8" 17-33'	6"x8" 15-33'
TIDEWATER SOUTHERN RY.							
MAIN LINE AND BRANCHES	Size Spacing	6"x8" 17-33'	6"x8" 16-33'	6"x8" 17-33'	6"x8" 15-33'	6"x8" 17-33'	6"x8" 15-33'

All ties to be 8'-0" long.

This standard is to be used on new track and / or reconstruction or rehabilitation of existing trackage, or when rail relay, reballast, or heavy tie renewal projects are carried out.

Number of ties used for rail lengths other than shown shall be as noted below:

16-39' = 15-36' = 14-33' = 12-30' = 30-72' = 32-78'
18-39' = 17-36' = 15-33' = 14-30' = 33-72' = 36-78'
19-39' = 18-36' = 16-33' = 15-30' = 36-72' = 38-78'
20-39' = 18-36' = 17-33' = 15-30' = 37-72' = 40-78'
22-39' = 20-36' = 18-33' = 16-30' = 40-72' = 44-78'
23-39' = 21-36' = 19-33' = 18-30' = 42-72' = 46-78'

APPROVED: Frank R. Wayfield
Chief Engineer

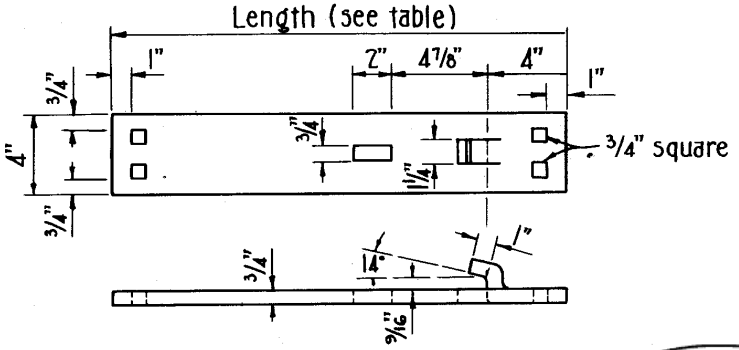
SACRAMENTO NORTHERN RAILWAY
TIDEWATER SOUTHERN RAILWAY

SIZES AND SPACING FOR CROSS TIES

NO SCALE

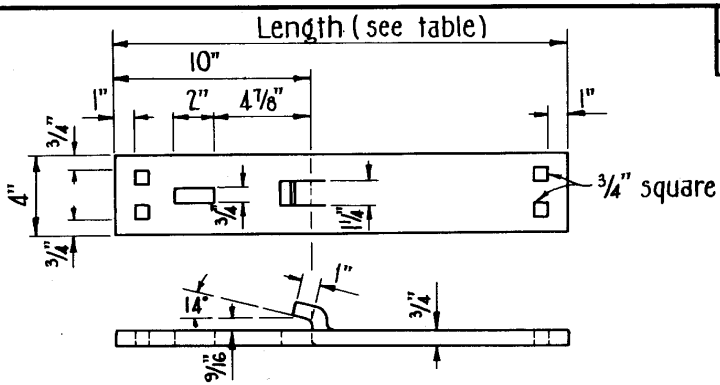
ADOPTED: May 3, 1954
Revised: Jan. 1, 1963

C.E.
S-219



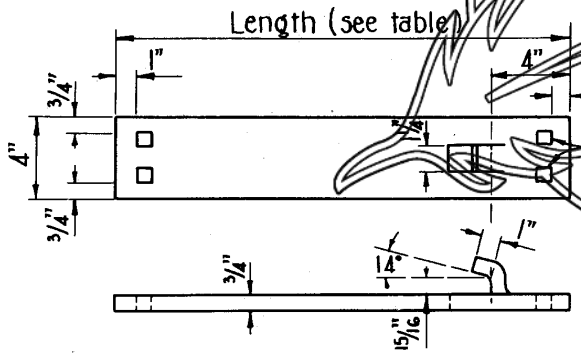
Length	Stamped
23"	L 23
27"	L 27
31"	L 31

"L" PLATES
(Low Hook)



Length	Stamped
23"	LR 23
27"	LR 27
31"	LR 31

"LR" PLATES
(Low Reverse Hook)



Length	Stamped
23"	H 23
27"	H 27
31"	H 31
35"	H 35

"H" PLATES
(High Hook)

Note:
1. Hook Twin Tie Plates shown here are in accordance with A.R.E.A. Plan № 241-51.
2. These plates are to be applied only as shown or noted on C.E. Standard Drawings.
3. Store Department will stock only those types and sizes of plates which are required for frogs, switches, ect. shown on Standard Drawings except on special instructions from Engineering Department.

Approved: Frank R. Wallace
CHIEF ENGINEER

Approved: H. C. Wilcox
VICE PRESIDENT & GENERAL MANAGER

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

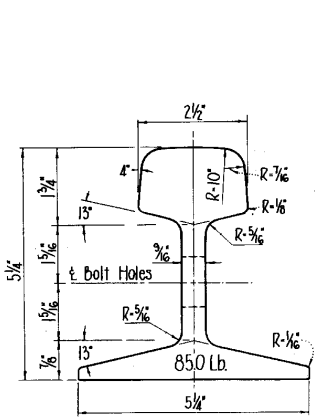
HOOK TWIN TIE PLATES

SCALE: 1 1/2" = 1'-0"

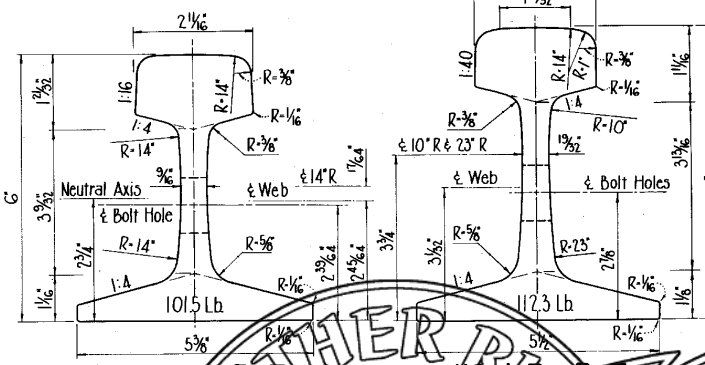
ADOPTED FEB. 1, 1954

10-1-59 : Add W.S. drilling.

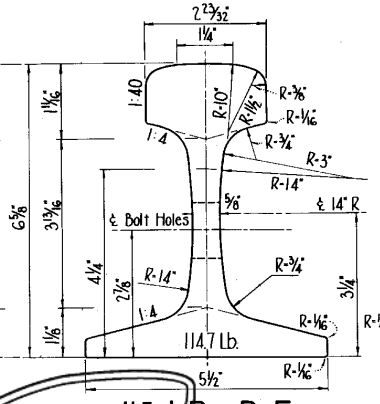
C. E.
S-220



85 LB. C.F. & I.

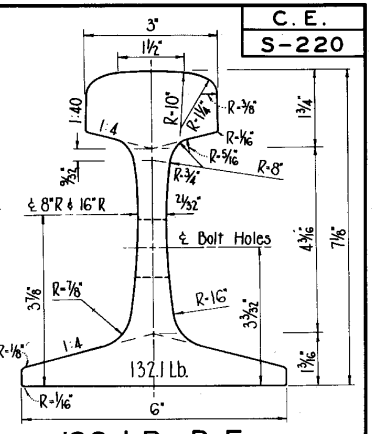


100 LB. R.E.



112 LB. R.E.

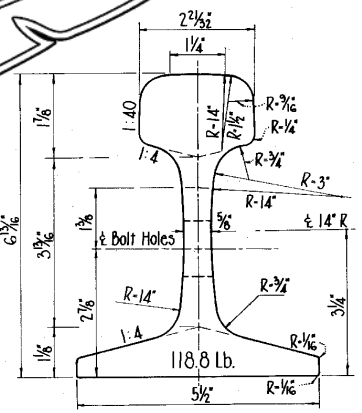
115 LB. R.E.



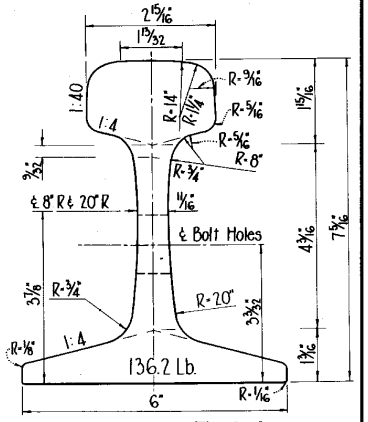
132 LB. R.E.

ELEMENTS OF RAIL SECTIONS

PROPERTIES	85 LB.	100 LB.	112 LB.	115 LB.	119 LB.	132 LB.	136 LB.
Area : Head (Sq. In.)	3.81 - 45.7%	3.80 - 38.2%	3.96 - 35.9%	3.91 - 34.8%	4.32 - 37.1%	4.42 - 34.1%	4.86 - 36.4%
Area : Web (Sq. In.)	1.51 - 18.0%	2.25 - 22.6%	2.77 - 25.1%	3.05 - 27.1%	3.04 - 26.1%	3.66 - 28.3%	3.62 - 27.1%
Area : Base (Sq. In.)	3.03 - 36.3%	3.90 - 39.2%	4.29 - 39.0%	4.29 - 38.1%	4.29 - 36.8%	4.87 - 37.6%	4.87 - 36.5%
Area : Total (Sq. In.)	8.35 - 100%	9.95 - 100%	11.01 - 100%	11.25 - 100%	11.65 - 100%	12.95 - 100%	13.35 - 100%
Moment of Inertia	29.80	49.00	65.5	65.6	71.4	86.2	94.9
Section Modulus : Head		15.10	18.1	18.0	19.4	22.5	23.9
Section Modulus : Base		17.80	21.6	22.0	22.9	27.6	28.3
Gross Tons per Track Mile	133.57	159.48	176.47	180.14	186.7	207.58	214.0
Net Tons per Track Mile	149.60	178.62	197.65	201.87	209.1	232.50	239.7



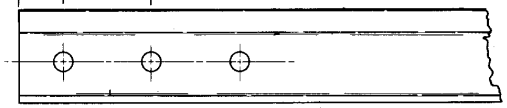
119 LB. C.F. & I.



136 LB. C.F. & I.

3½"	6"	6"
2½"	6½"	6½"
2 15/16"	6"	6"
2½"	6½"	
2 1/16"	5½"	
2 23/32"	6"	

119 lb. & 136 lb. : 1⅛" dia. hole Western Standard (Old Standard)
115 lb. & 119 lb. : 1¼" dia. hole Standard
132 lb. & 136 lb. : 1 5/16" dia. hole Standard
112 lb. , 115 lb. & 119 lb. : 1¼" dia. hole
100 lb. : 1¼" dia. hole
85 lb. : 1⅛" dia. hole



DRILLING OF RAIL

Approved: A. W. Carlson
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY

STANDARD RAIL SECTIONS

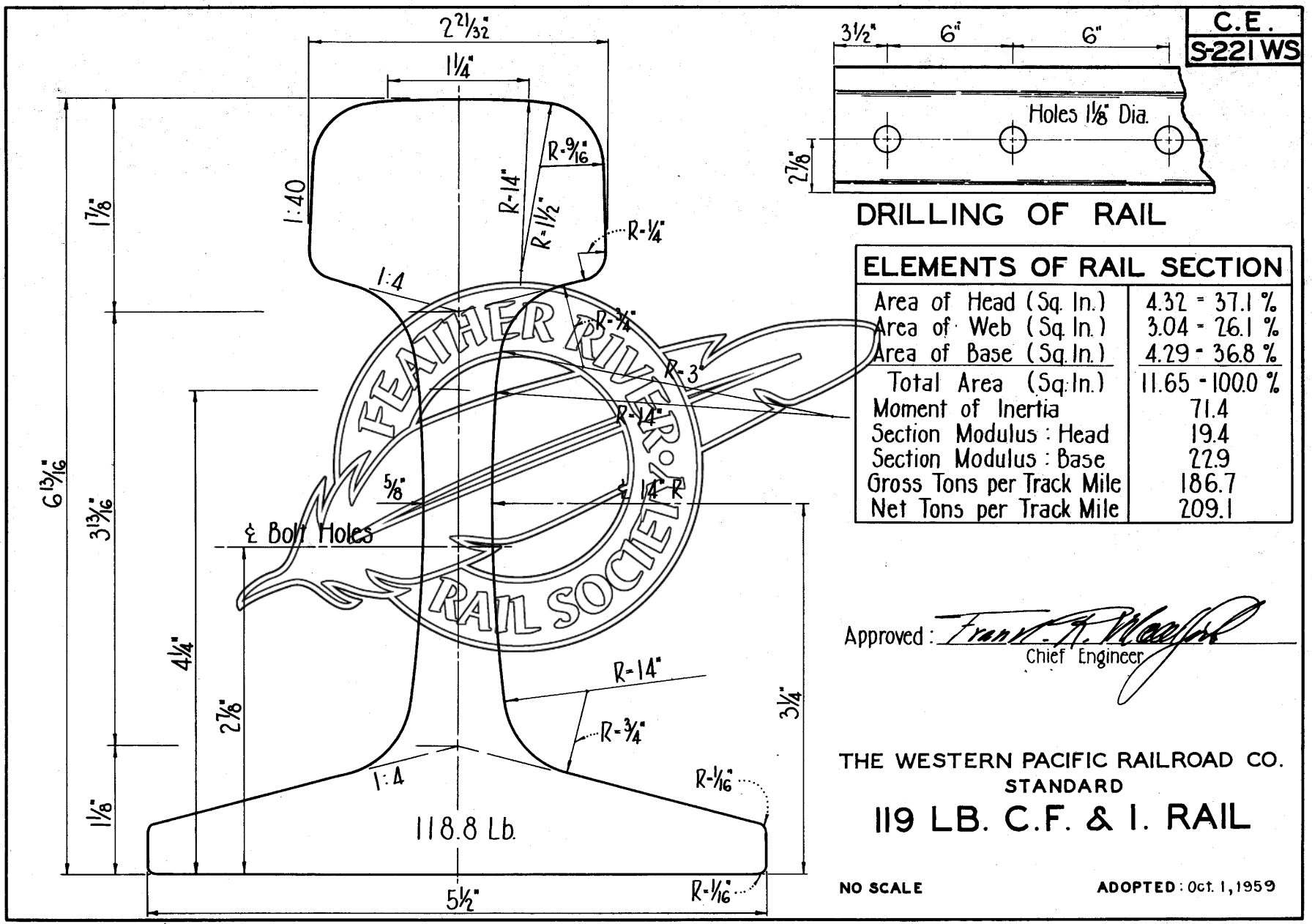
NO SCALE

Revised : Oct. 1, 1959
Dec. 1, 1968

Adopted : Oct. 15, 1954

Renumbered S-221 of Oct. 15, 54 & added W.S. drilling.

C.E.
S-221 WS



DRILLING OF RAIL

ELEMENTS OF RAIL SECTION	
Area of Head (Sq. In.)	4.32 = 37.1 %
Area of Web (Sq. In.)	3.04 = 26.1 %
Area of Base (Sq. In.)	4.29 = 36.8 %
Total Area (Sq. In.)	11.65 = 100.0 %
Moment of Inertia	71.4
Section Modulus : Head	19.4
Section Modulus : Base	22.9
Gross Tons per Track Mile	186.7
Net Tons per Track Mile	209.1

Approved: Frank A. Wadsworth
Chief Engineer

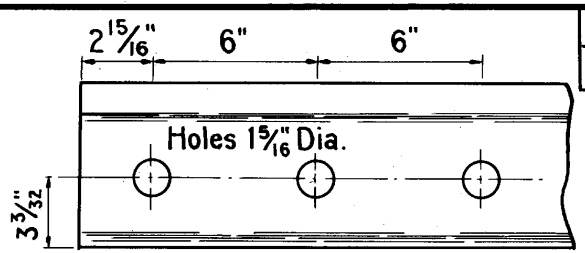
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

119 LB. C.F. & I. RAIL

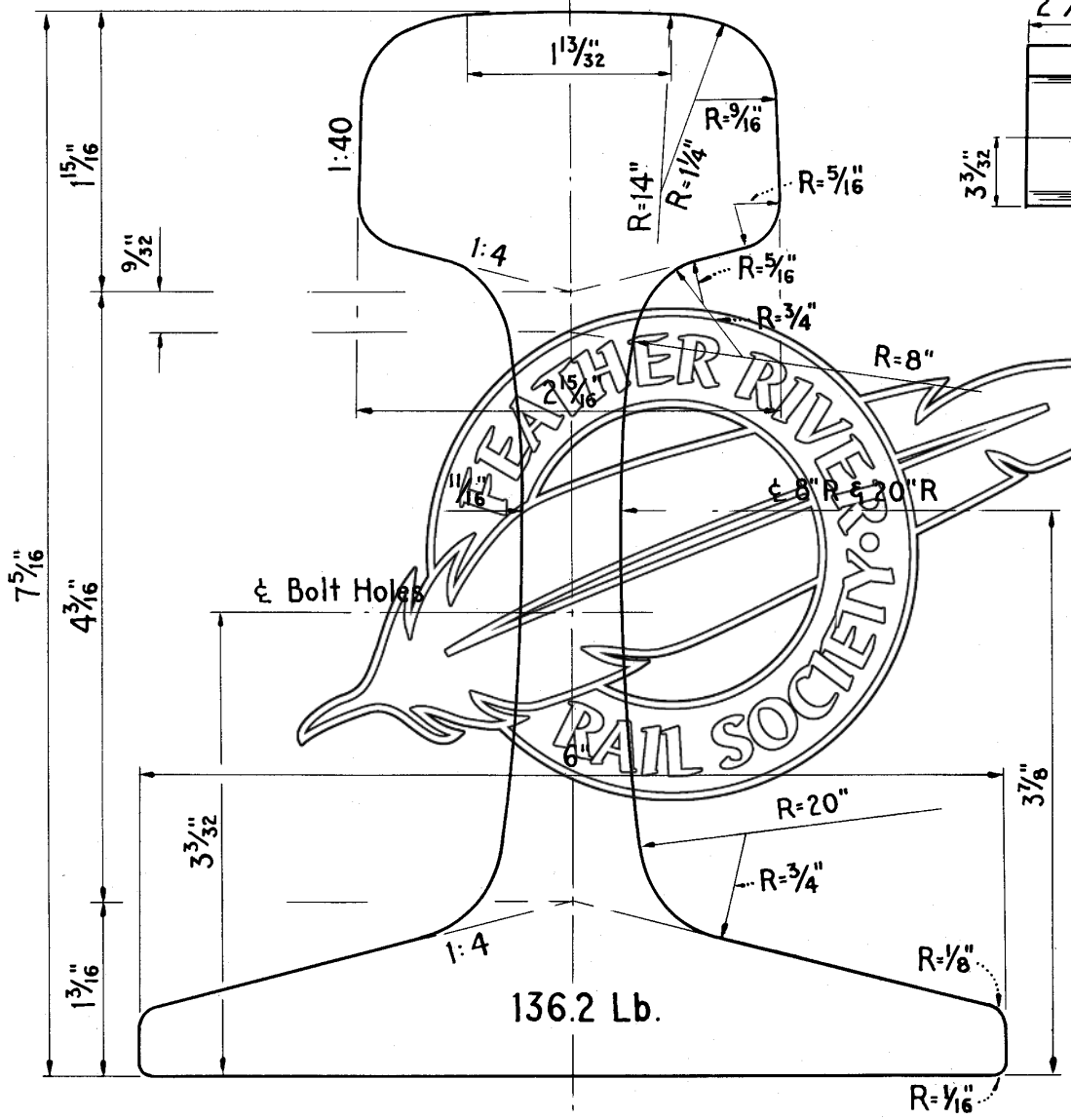
NO SCALE

ADOPTED: Oct. 1, 1959

C.E.
S-222



DRILLING OF RAIL



ELEMENTS OF RAIL SECTION	
Area of Head (Sq. In.)	4.86 = 36.4%
Area of Web (Sq. In.)	3.62 = 27.1%
Area of Base (Sq. In.)	4.87 = 36.5%
Total Area (Sq. In.)	13.35 = 100.0%
Moment of Inertia	94.9
Section Modulus Head	23.9
Section Modulus Base	28.3
Gross Tons per Track Mile	214.0
Net Tons per Track Mile	239.7

Approved: _____
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

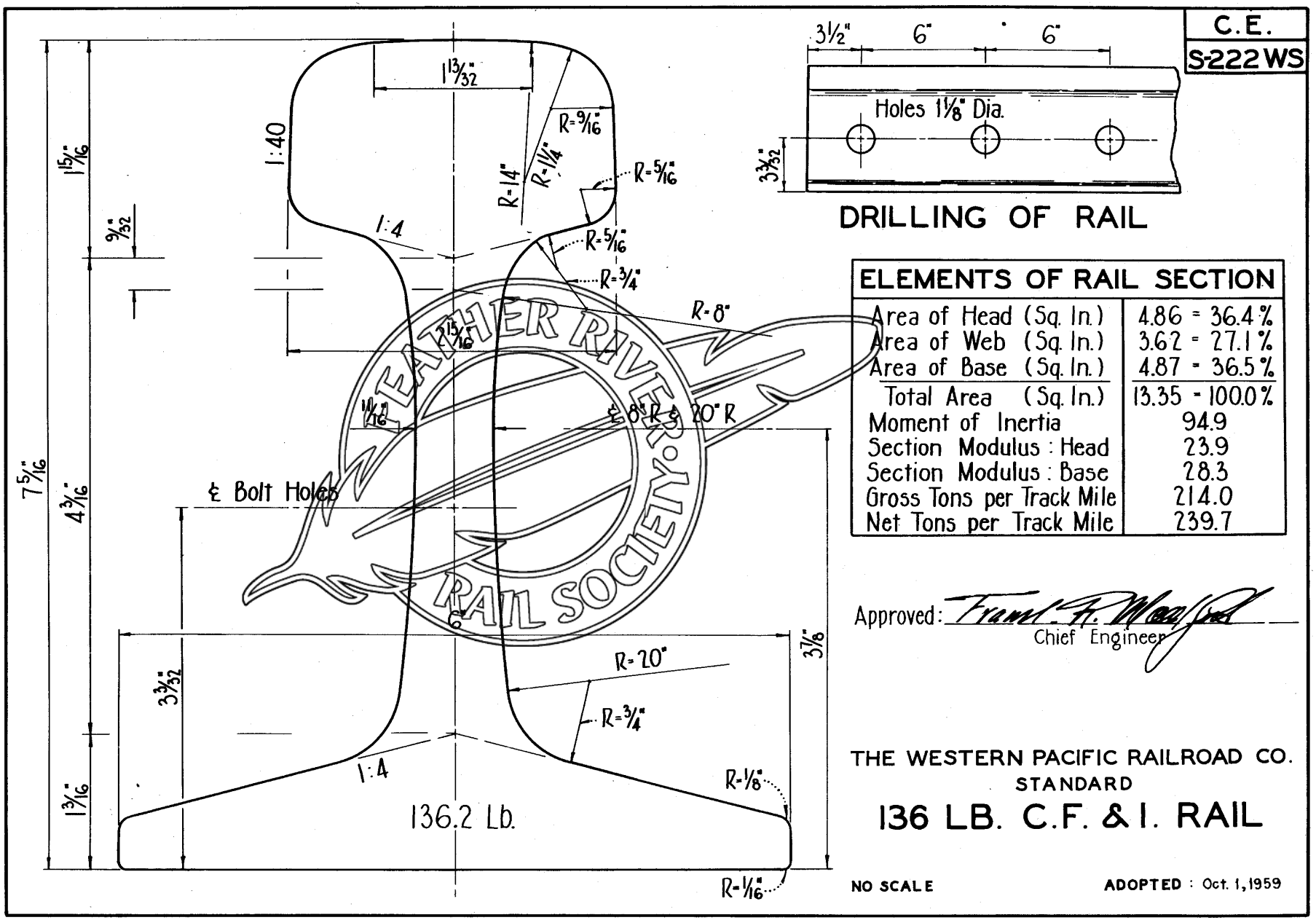
136 LB. C.F. & I. RAIL

NO SCALE

ADOPTED: OCT. 15, 1954
REDRAWN: NOV. 25, 1969

Renumbered S-222 of Oct. 1, 1954 & added W.S. drilling.

C.E.
S-222 WS



DRILLING OF RAIL

ELEMENTS OF RAIL SECTION

Area of Head (Sq. In.)	4.86 = 36.4 %
Area of Web (Sq. In.)	3.62 = 27.1 %
Area of Base (Sq. In.)	4.87 = 36.5 %
Total Area (Sq. In.)	13.35 = 100.0 %
Moment of Inertia	94.9
Section Modulus : Head	23.9
Section Modulus : Base	28.3
Gross Tons per Track Mile	214.0
Net Tons per Track Mile	239.7

Approved: Frank F. Mansfield
Chief Engineer

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

136 LB. C.F. & I. RAIL

NO SCALE

ADOPTED : Oct. 1, 1959

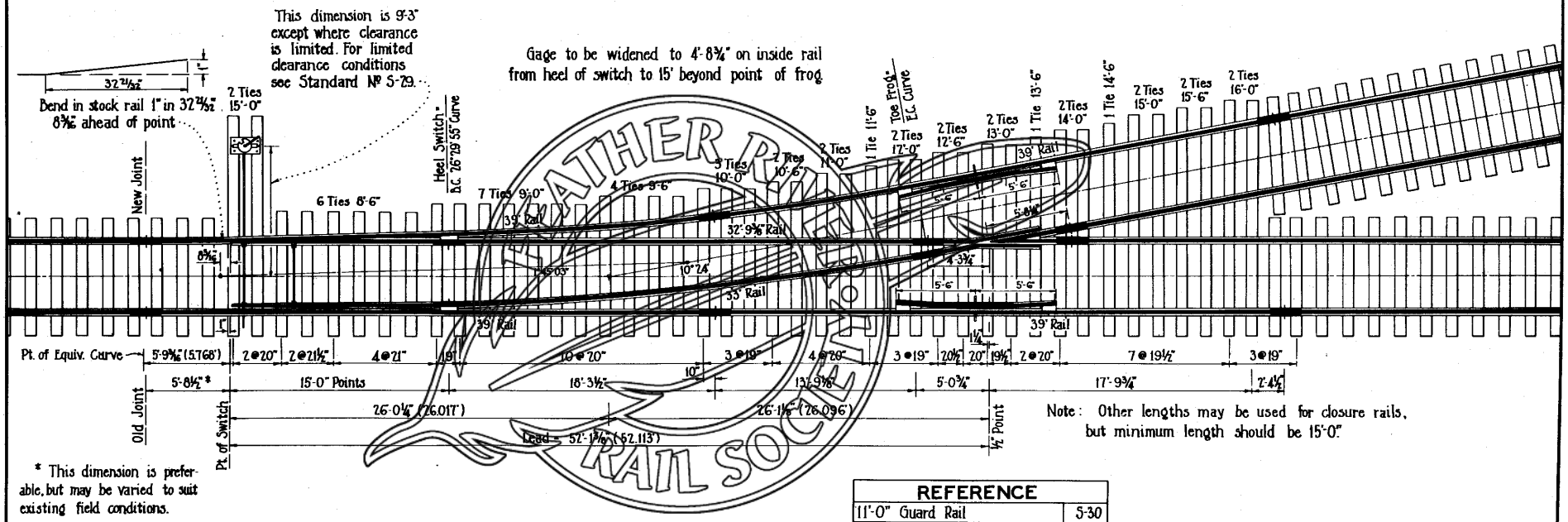
C.E.
S-223

FROG ANGLE ..... 10° 24'
DEGREE OF TURNOUT CURVE ... 26° 29' 55"
LEAD ..... 52'-1⅜"

SWITCH TIE LIST

	9"x12"	Pieces 7"x 9"															Total Number Pieces	Total Feet B.M.
	16'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
Double Headblock	0	6	7	4	3	2	2	1	2	2	2	1	2	1	4	2	2	43	2575.1
Single Headblock	1	7	7	4	3	2	2	1	2	2	2	1	2	1	2	2	2	43	2606.2

When single headblock is used place the 9"x12"x16'-0" tie under end of switch points.

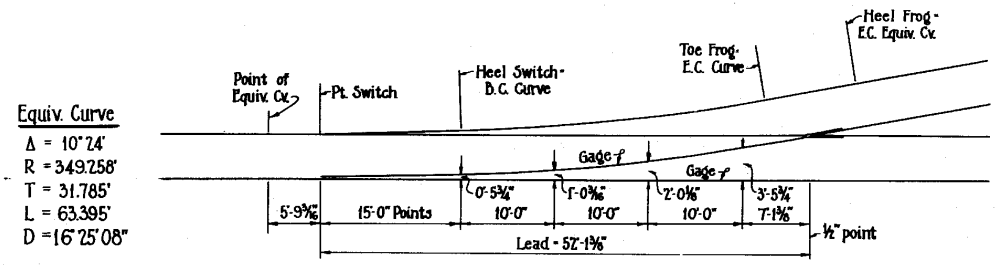


Note: Other lengths may be used for closure rails, but minimum length should be 15'-0".

* This dimension is preferable, but may be varied to suit existing field conditions.

REFERENCE	
11'-0" Guard Rail	S-30
№ 5½ Bolted Rigid Frog	S-152A
15'-0" Split Switch	S-153A
Connecting Rods	S-141
Application of Switch Stands	S-29

Approved: Frank R. Wood
Chief Engineer



Equiv. Curve
Δ = 10°24'
R = 349.258'
T = 31.785'
L = 63.395'
D = 16°25'08"

OFFSET DIAGRAM

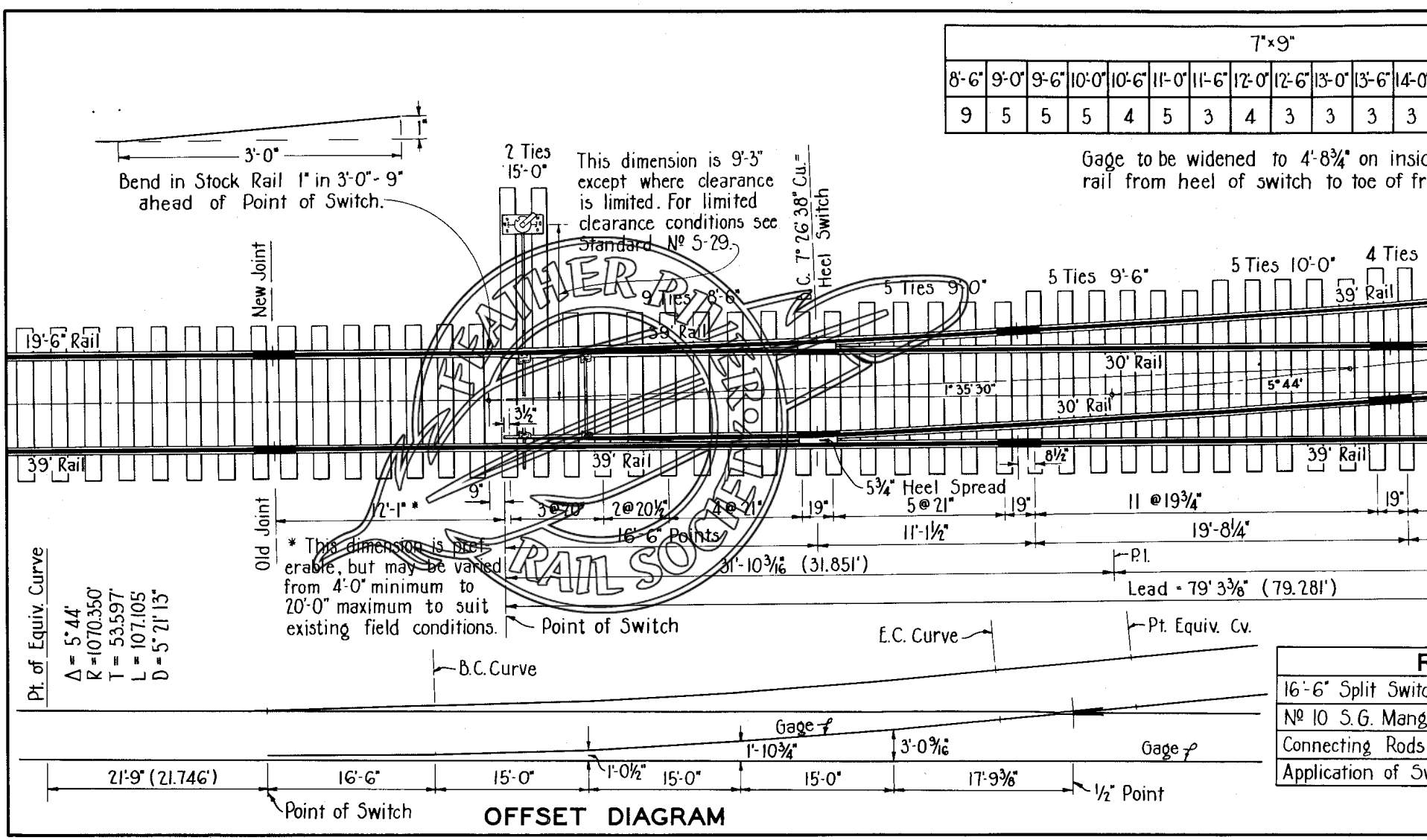
THE WESTERN PACIFIC RAILROAD CO.
STANDARD

№ 5½ TURNOUT COMPLETE

FOR USE WITH 85 LB. 39 FT. RAIL
15'-0" POINTS

NO SCALE

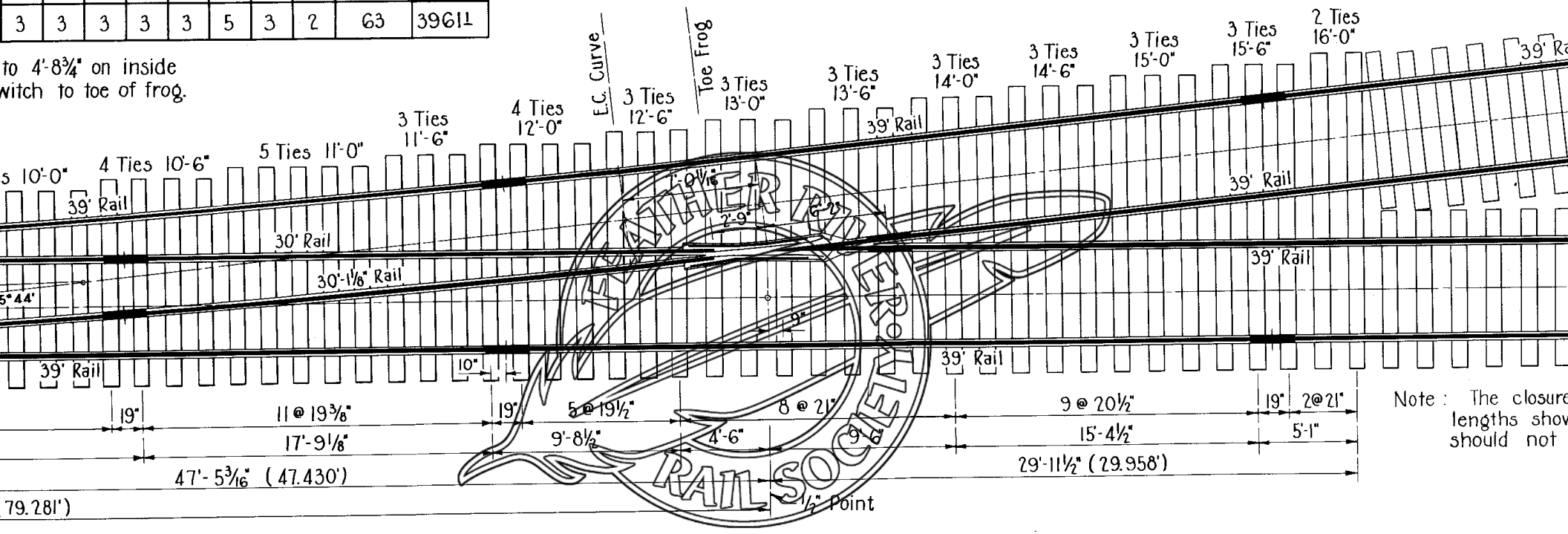
ADOPTED : January 21, 1955


7"×9"
8'-6" 9'-0" 9'-6" 10'-0" 10'-6" 11'-0" 11'-6" 12'-0" 12'-6" 13'-0" 13'-6" 14'-0
9 5 5 5 4 5 3 4 3 3 3 3
Gage to be widened to 4'-8¾" on insid
rail from heel of switch to toe of fr
3'-0"
1"
Bend in Stock Rail 1" in 3'-0"- 9" ahead of Point of Switch.
2 Ties 15'-0"
This dimension is 9'-3" except where clearance is limited. For limited clearance conditions see Standard Nº 5-29.
C. 7° 26' 38" Cu.= Heel Switch
New Joint
9 Ties 8'-6"
39' Rail
5 Ties 9'-0"
5 Ties 9'-6"
5 Ties 10'-0"
4 Ties
39' Rail
19'-6" Rail
30' Rail
1° 35' 30"
5° 44'
30' Rail
3½"
39' Rail
39' Rail
8½"
39' Rail
5¾" Heel Spread
Old Joint
12'-1" *
9"
3@20"
2@20½"
4@21"
19"
5@21"
19"
11@19¾"
19"
11'-1½"
19'-8¼"
16'-6" Points
31'-10³⁄₁₆" (31.851')
P.I.
Lead = 79' 3⅜" (79.281')
* This dimension is preferable, but may be varied from 4'-0" minimum to 20'-0" maximum to suit existing field conditions.
Point of Switch
Pt. of Equiv. Curve
Δ = 5° 44'
R = 1070.350'
T = 53.597'
L = 107.105'
D = 5° 21' 13"
B.C. Curve
E.C. Curve
Pt. Equiv. Cv.
Gage
1'-10¾"
3'-0⁹⁄₁₆"
Gage
21'-9" (21.746')
16'-6"
15'-0"
1'-0½"
15'-0"
15'-0"
17'-9⅜"
½" Point
Point of Switch
OFFSET DIAGRAM
F
16'-6" Split Switc
Nº 10 S.G. Mang
Connecting Rods
Application of Sw

×9"								Total Number Pieces	Total Feet B. M.
12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	15'-6"	16'-0"		
3	3	3	3	3	5	3	2	63	39611

to 4'-8¾" on inside
witch to toe of frog.

Frog Angle 5
Degree of Turnou
Lead 79'-3⅜"



Note: The closure
lengths show
should not

REFERENCES	
16'-6" Split Switch	S-116 A
№ 10 S.G. Mang. Frog	S-198
Connecting Rods	S-141
Application of Switch Stands	S-29

Approved: Chief Engineer

THE WESTERN PACIFIC RAILR
STANDARD

№ 10 TURNOUT COM

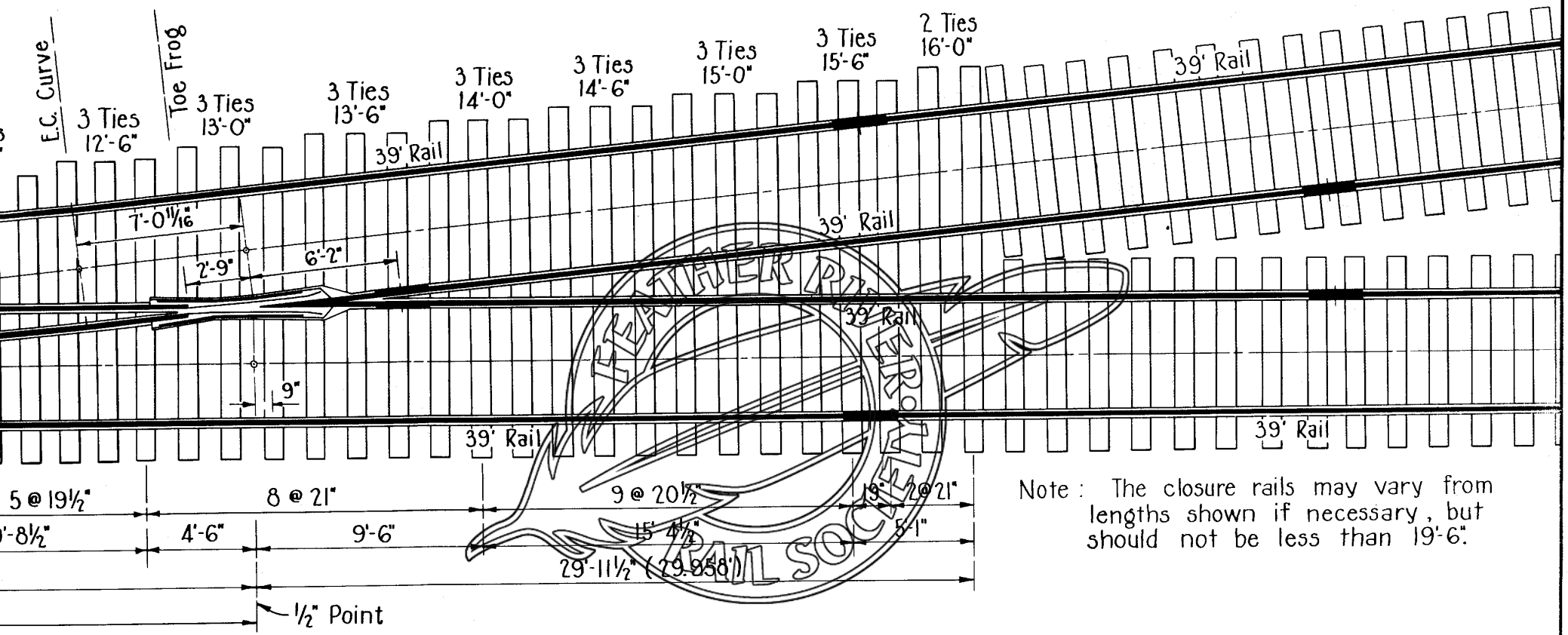
FOR USE WITH 85 LB., 39 FO
16 FOOT – 6 INCH POINTS – SELF GU

NO SCALE

ADO

Frog Angle 5° 44'
Degree of Turnout Curve 7° 26' 38"
Lead 79'-3⅜"

C.E.
S-224



Note : The closure rails may vary from lengths shown if necessary, but should not be less than 19'-6".

THE WESTERN PACIFIC RAILROAD CO.
STANDARD

№ 10 TURNOUT COMPLETE

FOR USE WITH 85 LB., 39 FOOT RAIL
16 FOOT – 6 INCH POINTS – SELF GUARDED FROG

oved: Chief Engineer

NO SCALE

ADOPTED : January 21, 1955

76010
20
30
th
76160

Drawn 8-9-66
Revised 9-22-66 Field side of S-2 & S-3 was ¾" above seat

C.E.
S-300

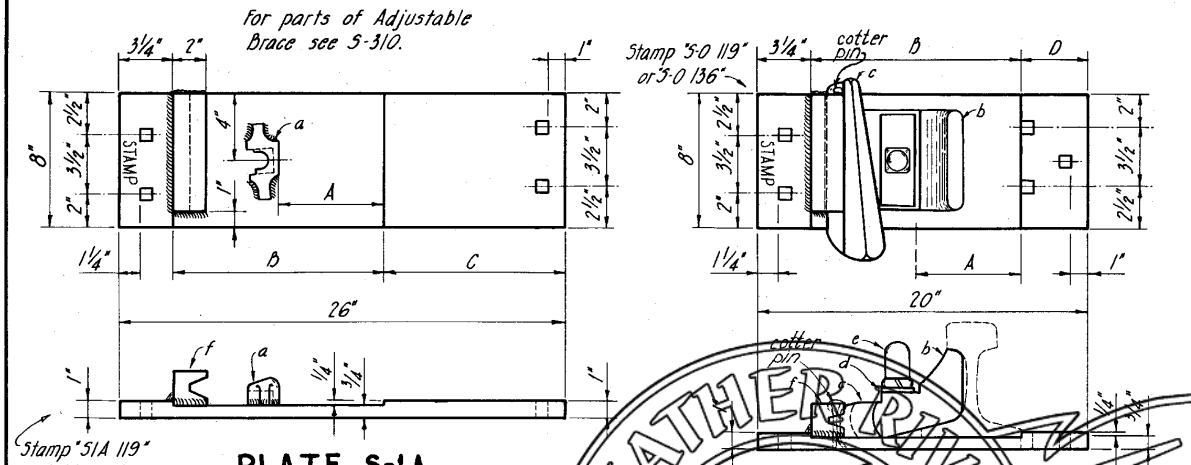
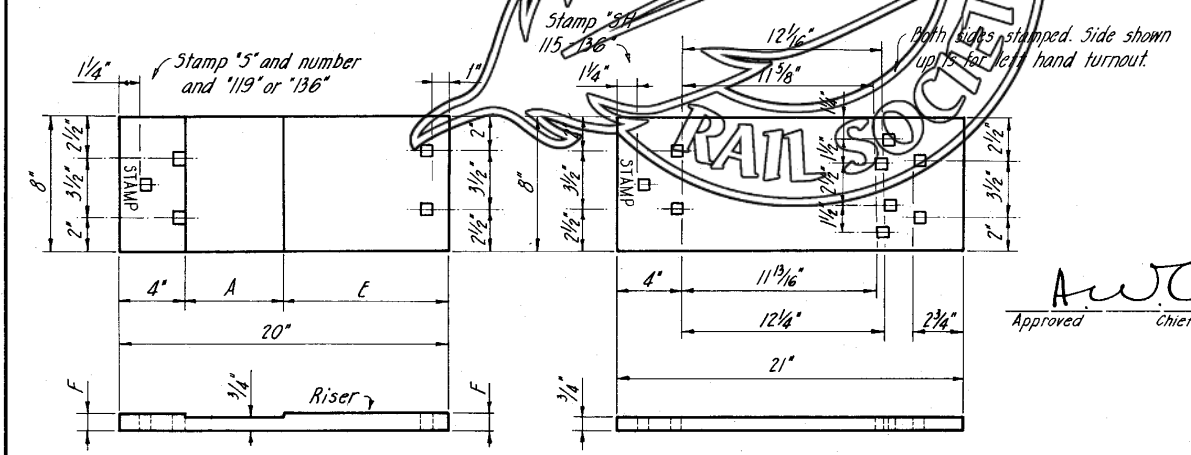


PLATE S-1A

C/I 01-76070 115 & 119 lb. } With brace complete
-76080 132 & 136 lb. }
-76030 115 & 119 lb. } Plate only (with a
-76040 132 & 136 lb. } f welded in place)

PLATE S-0

C/I 01-76050 115 & 119 lb. } With brace comp.
76060 132 & 136 lb. }
76010 115 & 119 lb. } Plate only (with a
76020 132 & 136 lb. } f welded in place)



PLATES S-1, S-2, S-3

C/I 01-76090, 01-76011, 01-76013 for 115 & 119 lb.
C/I 01-76010, 01-76012, 01-76014 for 132 & 136 lb.

PLATE S-H

C/I 01-76015 for 115 th 136 lb.

NOTES

1. All spike holes to be ¾" square.
2. Dimensions shown without tolerances shall be ± 3/32".
3. Figures stamped on plates shall be legible and a minimum of ½" in height.
4. Adjustable rail brace shown is P-M Corp. standard, their drawing № B-94136 A. Parts are as follows: a.) forged bolt lug (welded to plate by mfgr.), b.) forged brace, c.) wedge & ¼" x 2" cotter, d.) cover plate, e.) cap nut, f.) stop (welded on 3 sides to plate by mfgr., and g.) 1" x 3½" HCHT Sq. Hd. bolt (no nut) & 1 Imp. H.P. spring washer. For additional details see S-310. See Note 8.
5. Plates 0 and 1A shall be furnished by manufacturer with brace complete unless order specifys "without brace" or given C/I numbers 01-76010, 01-76020, 01-76030, 01-76040.
6. When requisitioned by field forces plates 0 & 1A will always be furnished with brace complete.
7. Field forces should not requisition plates using this drawing, switch drawings should be used (and given as a reference) when ordering switch material.
8. Abex Corporation's Single Bolt Security Brace may be furnished instead of P-M Corp. adjustable brace.

Dimension	Rail Weight 115 & 119 Lb.	132 & 136 Lb.
A	5 3/16" -0,+1/32"	6 1/16" -0,+1/32"
B	11 7/8"	12 3/4"
C	10 7/8"	10"
D	4 1/8"	4"
E	10 7/16"	9 15/16"
F	1" on plate 1, 7/8" on plate 2 3/4" on plate 3 (1/4", 1/8", 0" riser)	

A. W. Carlson
Approved Chief Engineer

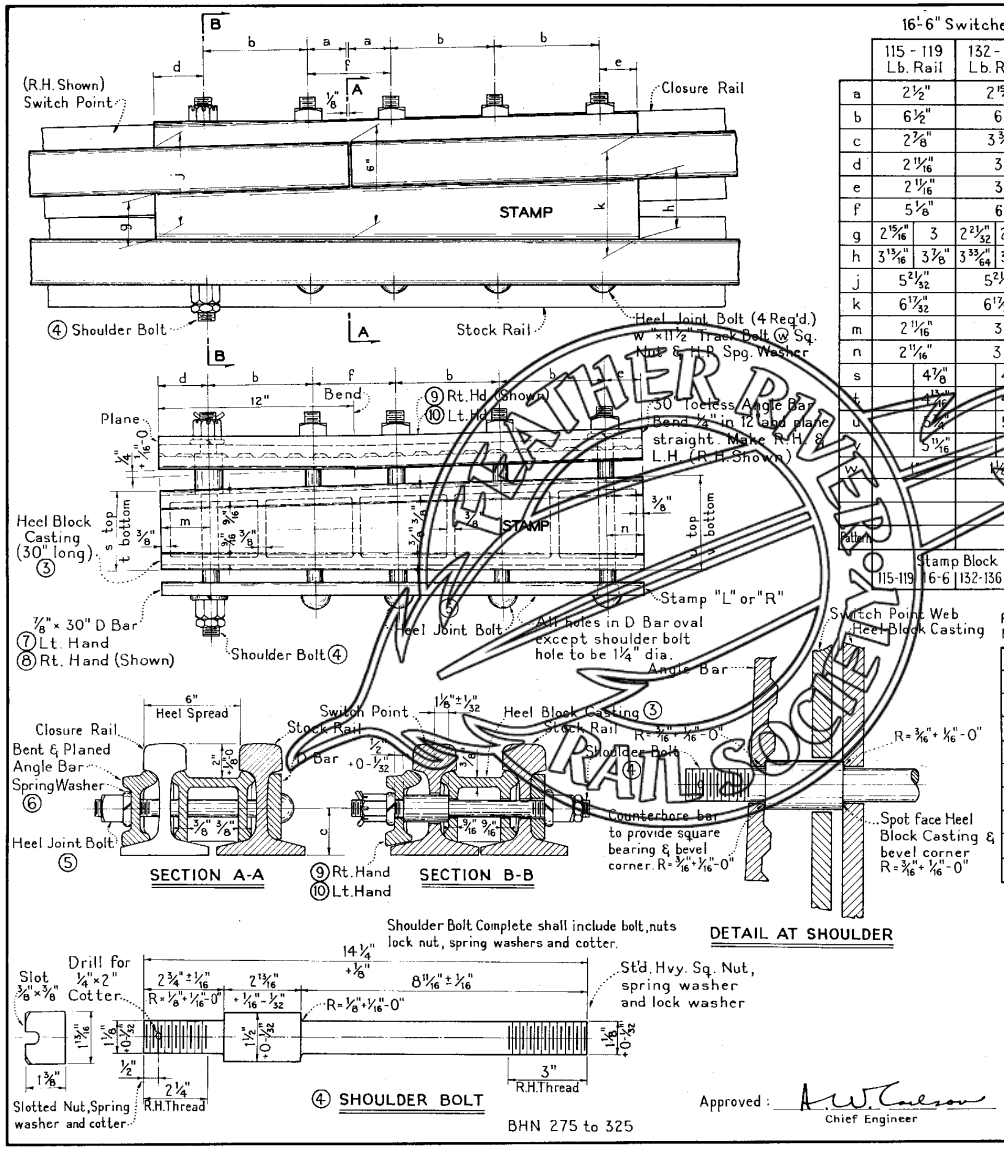
THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

SWITCH SLIDE & HEEL PLATES

115, 119, 132 & 136 LB. SWITCHES

No Scale Adopted: Dec. 1, 1968

C.E.
S-330



	16'-6" Switches				24'-0" Switches				
	115 - 119 Lb. Rail		132 - 136 Lb. Rail		115 - 119 Lb. Rail		132 - 136 Lb. Rail		
a	2½"		2 15/16"		2½"		2 15/16"		a
b	6½"		6		6½"		6		b
c	2 7/8"		3 3/32"		2 7/8"		3 3/32"		c
d	2 11/16"		3		2 11/16"		3		d
e	2 11/16"		3		2 11/16"		3		e
f	5⅛"		6		5⅛"		6		f
g	2 15/16"	3	2 21/32"	2 23/32"	3 3/64"	3 7/64"	2 49/64"	2 53/64"	g
h	3 13/16"	3 7/8"	3 33/64"	3 37/64"	3 41/64"	3 45/64"	2 25/64"	3 27/64"	h
j	5 21/32"		5 21/32"		5 49/64"		5 49/64"		j
k	6 17/32"		6 17/32"		6 23/64"		6 23/64"		k
m	2 11/16"		3		2 11/16"		3		m
n	2 11/16"		3		2 11/16"		3		n
s		4⅞"		4 13/16"	5	4 31/32"		4 13/16"	s
t		4 13/16"		4 23/32"	4 29/32"	4 29/32"		4 29/32"	t
u		5⅛"		5 11/16"	5 13/16"	5 9/16"		5½"	u
v		5 11/16"		5 19/32"	5½"	5½"		5 13/32"	v
w		1"		1⅛"		1"		1⅛"	w
Pattern	Stamp Block 115-119 16-6		Stamp Block 132-136 16-6		Stamp Block 115-119 24-0		Stamp Block 132-136 24-0		

NOTES

1. All parts shall conform to current A.R.E.A. Specifications for Special Trackwork.
2. Shoulder bolt threads to be American Standard Screw Threads, Coarse Thread Series, Class 2 Fit.
3. Nuts shall be medium carbon steel.
4. Indentification numerals on heel block casting may be either stamped or cast on block. Numerals shall be legible and a minimum of ½" high.
5. Parts shown for 115 and 119 lb. switches may be used on 112 lb. switches.
6. None of the parts shown here may be used on 119 or 136 lb. "Western Standard" Switches due to bolt spacing and bolt diameter.
7. Parts shown may be used as repair or replacement parts on older switches of 115 or 132 lb. rail or 119 and 136 lb. rail with "Old Standard" drilling.
8. Five-hole heel joint shown may be used on older rail having two-hole drilling.

Piece Mark	Description of Part	Required for 1 Joint Complete	Class & Item Numbers for ordering 16'-6" Switches 115 & 119 Lb.	16'-6" Switches 132 & 136 Lb.	24'-0" Switches 115 & 119 Lb.	24'-0" Switches 132 & 136 Lb.	
1	Heel Jt. Assembly Complete-Rt. Hand	1	01-94000	01-94010	01-94020	01-94030	1
2	" " " " Lt. Hand	1	01-94040	01-94050	01-94060	01-94070	2
3	Heel Block Casting (C.S.)	1	01-94080	01-94090	01-94100	01-94110	3
4	Shoulder Bolt Complete	1	01-07090	01-07090	01-07090	01-07090	4
5	Heel Joint Bolt with nut	4	01-00447	01-00468	01-00447	01-00468	5
6	Spg. Washer	4	01-09060	01-09060	01-09060	01-09060	6
7	Heel Joint D Bar, Lt. Hand	1 only ⑦ or ⑧	01-94120	01-94130	01-94120	01-94130	7
8	" " " " Rt. Hand		01-94140	01-94150	01-94140	01-94150	8
9	Heel Jt. Bent Angle Bar Rt. Hand	1 only ⑨ or ⑩	01-94160	01-94170	01-94160	01-94170	9
10	" " " " " Lt. Hand		01-94180	01-94190	01-94180	01-94190	10

See Note 6 re Western Standard Drilling

THE WESTERN PACIFIC RAILROAD COMPANY

STANDARD

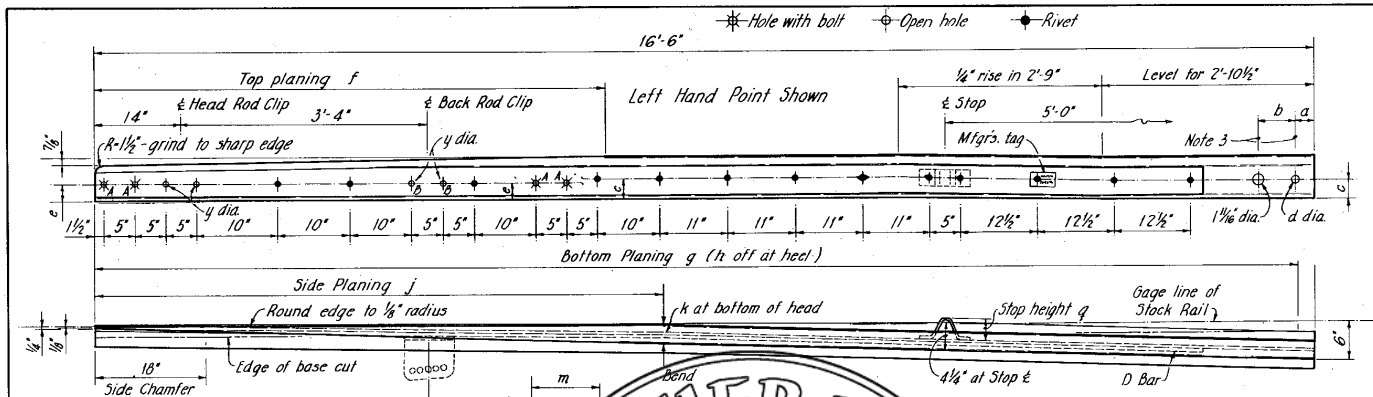
SWITCH HEEL JOINTS

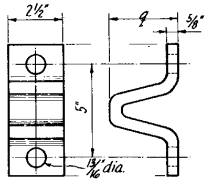
FOR 16'-6" & 24'-0" SWITCHES 115, 119, 132 & 136 LB. RAIL

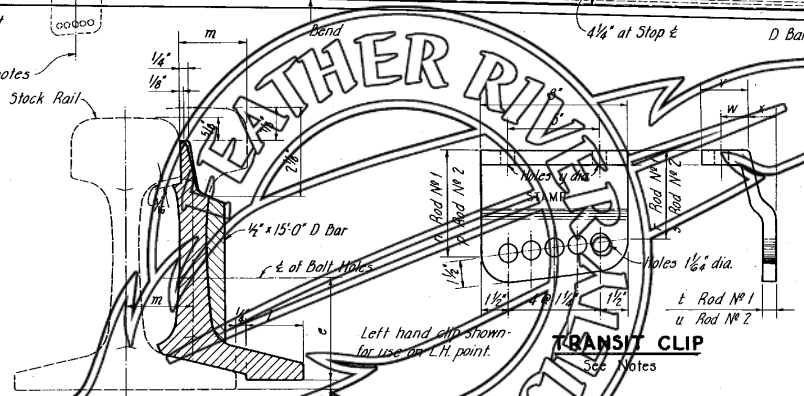
No Scale 11-15-'68 Adopted: Dec. 1, 1968

Approved: A. W. Carlson
Chief Engineer

C.E.
S-335







NOTES

1. All parts, workmanship and tolerances shall conform to current A.R.E.A. specifications for Special Trackwork.
2. Front rod clip (№ 1) will generally be cast steel type for M.J. rod.
3. Switch points and transit clips shown may be used as repair or replacement parts on all similiar old switches except on Western Standard switches.
4. All holes shall be 13/16" (for ¾" B.H. rivets) unless otherwise shown.
5. Switch point heel shall be end-hardened (if necessary) by Mfgr. per current instructions.

BOLT LIST

Bolt A All Wts.	¾" x 3¾" drilled 3⅛" H.C.H.T. Sq. Hd. Mach. Bolt @ 2 Hex. Nuts, 1 Spg. Washer and ¼" x 2" cotter. C/I 01-64170
Bolt B 115, 119 lb.	¾" x 3¾" drilled 3⅛" H.C.H.T. Sq. Hd. Mach. Bolt @ 1 Hex. Nut, 1 Spg. Washer and ¼" x 2" cotter. C/I 01-64180
Bolt B 132, 136 lb.	¾" x 4⅛" drilled 3⅜" H.C.H.T. Sq. Hd. Mach. Bolt @ 1 Hex. Nut, 1 Spg. Washer and ¼" x 2" cotter. C/I 01-64190

	115 & 119 Lb. Rail		132 & 136 Lb. Rail	
a	2½"		2 15/16"	
b	6½"		6"	
c	2⅞"		3 3/32"	
d	1¼"		1 5/16"	
e	2½"		2¾"	
f	6'-11"		7'-3"	
g	15'-9½"		16'-6"	
h	0		¼"	
j	7'-1"	6'-10 27/32"	7'-10 11/16"	7'-8 17/32"
k	2 23/32"	2 23/32"	3"	2 15/16"
l	1 3/64"	1 29/64"	1 39/64"	1 3/16"
m	1 47/64"	1 45/64"	1 55/64"	1 13/16"
n	5 11/16"		5 15/16"	

	115 & 119 Lb. Rail	132 & 136 Lb. Rail
p	5 11/16"	5 15/16"
q	3 7/16"	3 3/8"
r	4 11/16"	4 15/16"
s	4 11/16"	4 15/16"
t	¾"	1"
u	⅝"	1"
v	2½"	2¾"
w	1 19/32"	1 25/32"
x	1 13/32"	1 15/32"
y	13/16"	15/16"
Stamp Clips	119-1 or 119-2	136-1

Description	115 Lb.	119 Lb.	132 Lb.	136 Lb.
Left Hand Point complete with № 1 and № 2 transit clips	01-64010	01-64020	01-64030	01-64040
Right Hand " " " " " "	01-64050	01-64060	01-64070	01-64080
Left Hand Point complete with № 2 (back) clip only	01-64090	01-64100	01-64110	01-64120
Right Hand " " " " " "	01-64130	01-64140	01-64150	01-64160
Front rod bracket bolt (Bolt A) complete with 2 nuts, spring washer and cotter	01-64170	01-64170	01-64170	01-64170
Switch roller bolt (Bolt A) complete with 2 nuts, spring washer and cotter	01-64170	01-64170	01-64170	01-64170
Transit clip bolt (Bolt B) complete with nut, spg. washer and cotter	01-64180	01-64180	01-64190	01-64190
Head Rod (№ 1) Transit Clip - Left Hand	01-64200	01-64200	01-64210	01-64210
Back Rod (№ 2) " " " "	01-64220	01-64220	01-64210	01-64210
Head Rod (№ 1) " " " "	01-64230	01-64230	01-64240	01-64240
Back Rod (№ 2) " " " "	01-64250	01-64250	01-64240	01-64240

(See Note 3)

To Requisition: Requisition should state enough information to identify part as well as Class and Item number. For example; "One 16'-6" left hand 119 lb. point with back transit clip, C/I 01-64100" or "L.H. 132 lb № 1 transit clip (C/I 01-64210) & two bolts (C/I 01-64190)."

Approved: A. W. Anderson
Chief Engineer

THE WESTERN PACIFIC RAILROAD COMPANY
STANDARD

16'-6" SWITCH POINTS

STANDARD DESIGN

115, 119, 132 & 136 LB. POINTS

No Scale

Adopted: Dec. 1, 1968