

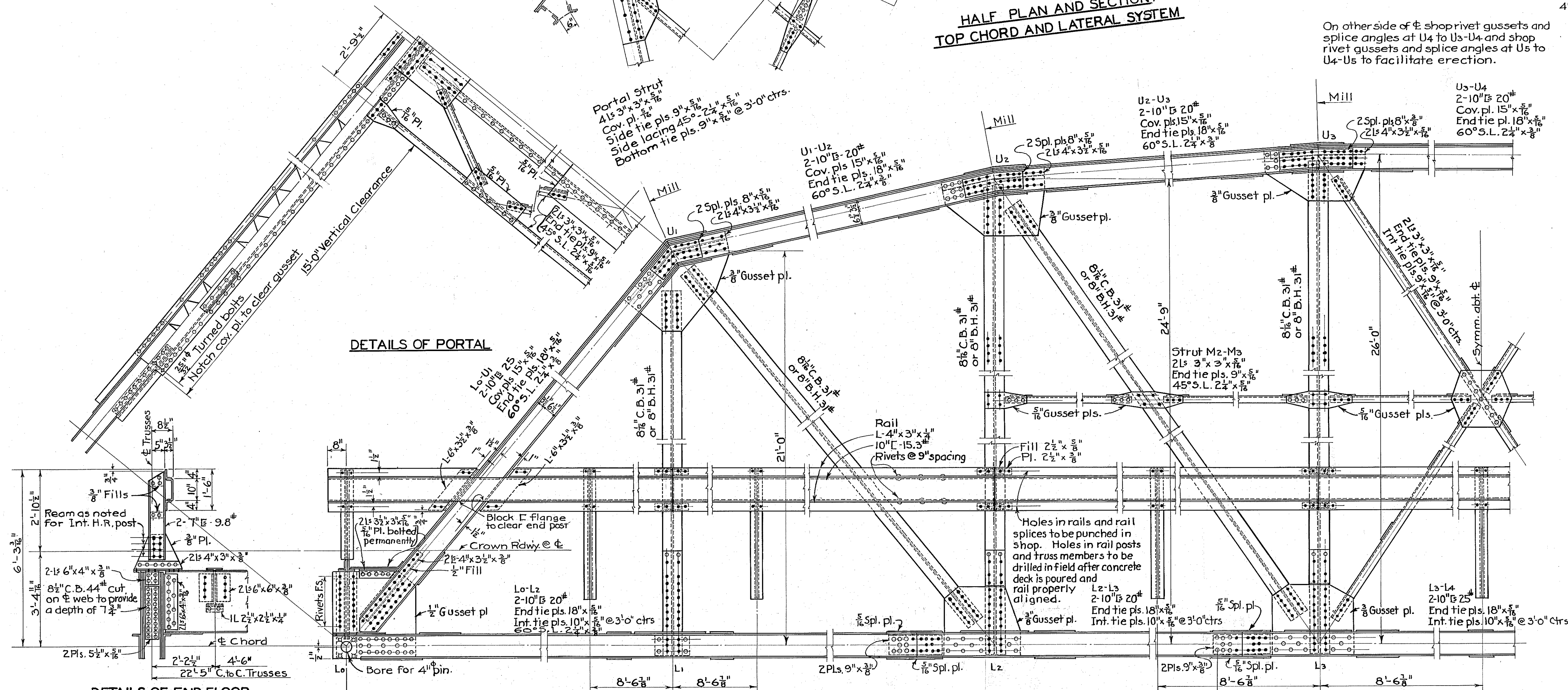
HALF PLAN AND SECTION,
TOP CHORD AND LATERAL SYSTEM

On other side of Φ shop rivet gussets and splice angles at U4 to U3-U4 and shop rivet gussets and splice angles at U5 to U4-U5 to facilitate erection.

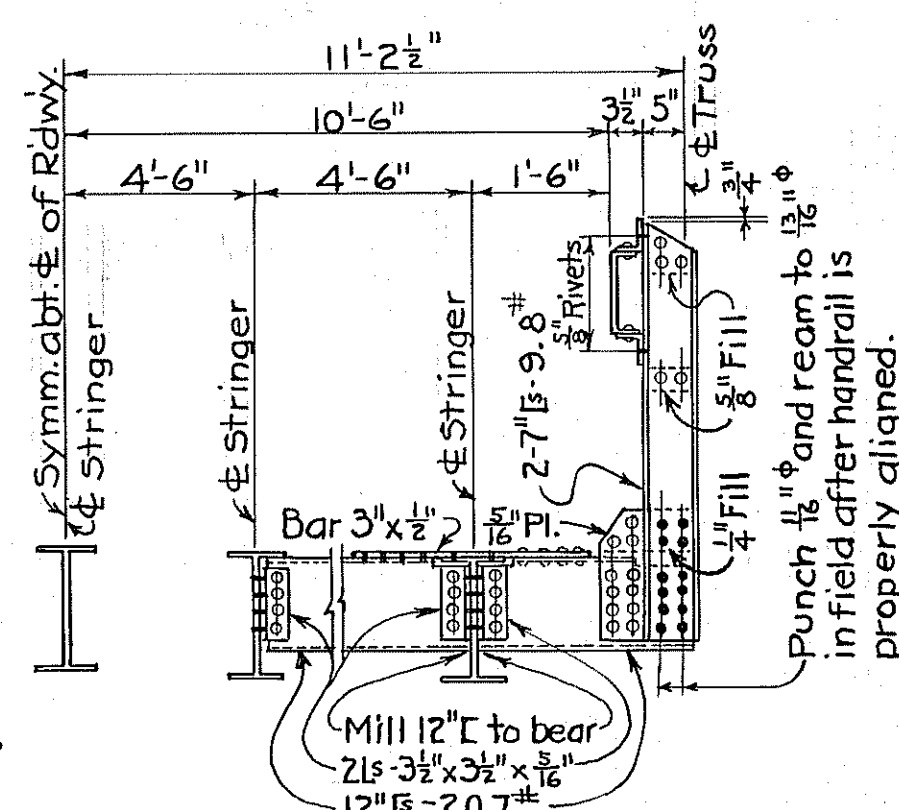
TOP CHORD BRACING

Struts
4 Ls 4"x3"x $\frac{5}{16}$ "
End tie pl. 10"x $\frac{5}{16}$ "
45° S.L. 2 $\frac{1}{4}$ "x $\frac{5}{16}$ "

Diagonals
 $21^s 3'' \times 3'' \times \frac{5}{16}''$
 End tie pls. $9'' \times \frac{5}{16}''$
 $45^\circ \text{ S.L. } 2\frac{1}{4}'' \times \frac{5}{16}''$



LONGITUDINAL ELEVATION OF TRUSS



INT. HANDRAIL POST
AT Φ OF TRUSS PANEL

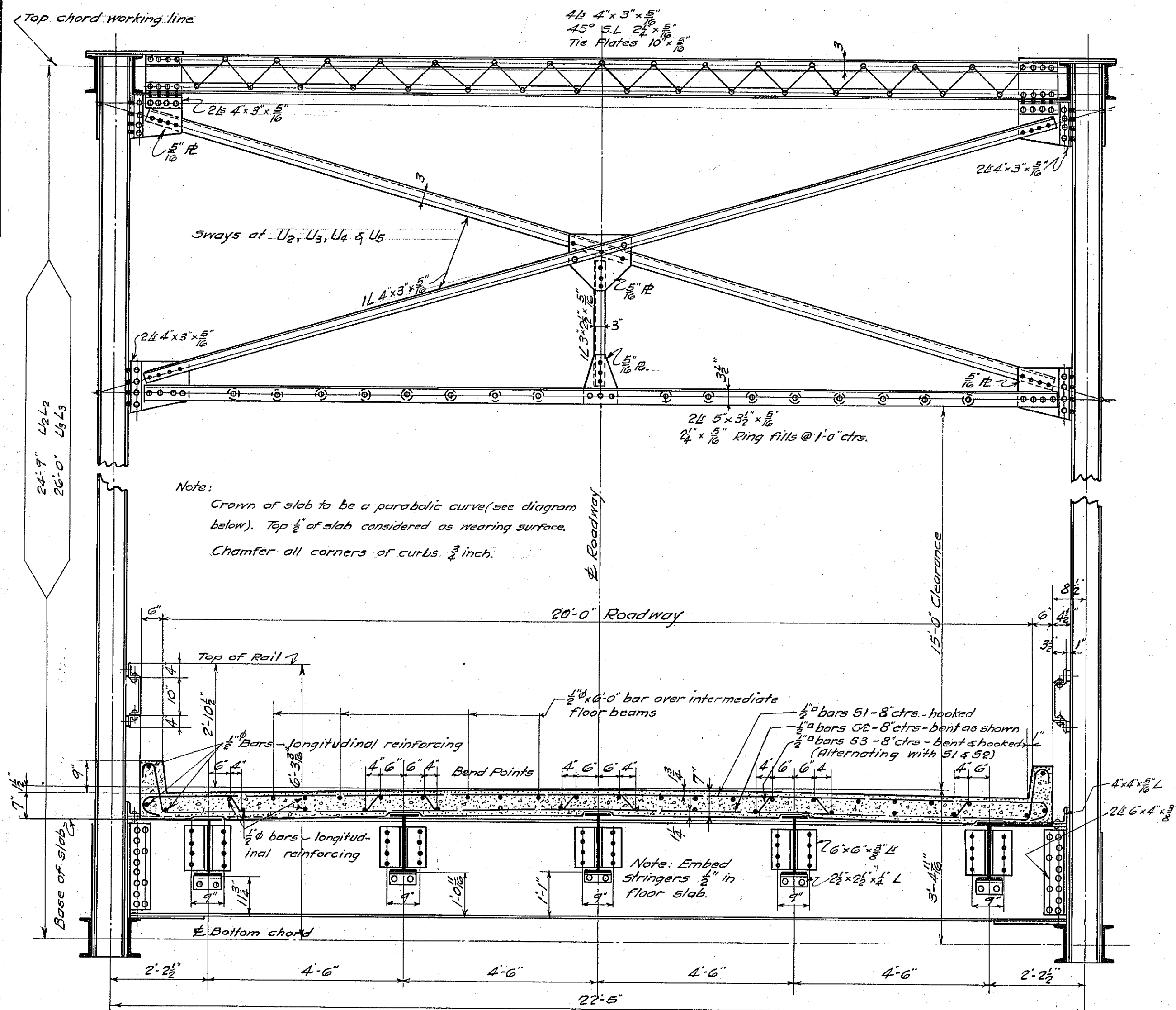
STATE OF MONTANA
STATE HIGHWAY COMMISSION
STANDARD 120'-0 $\frac{1}{4}$ " TRUSS SPAN
20 FT ROADWAY
DETAILS OF TRUSSES

SUBMITTED BY R. J. Cumber.
BRIDGE ENGINEER

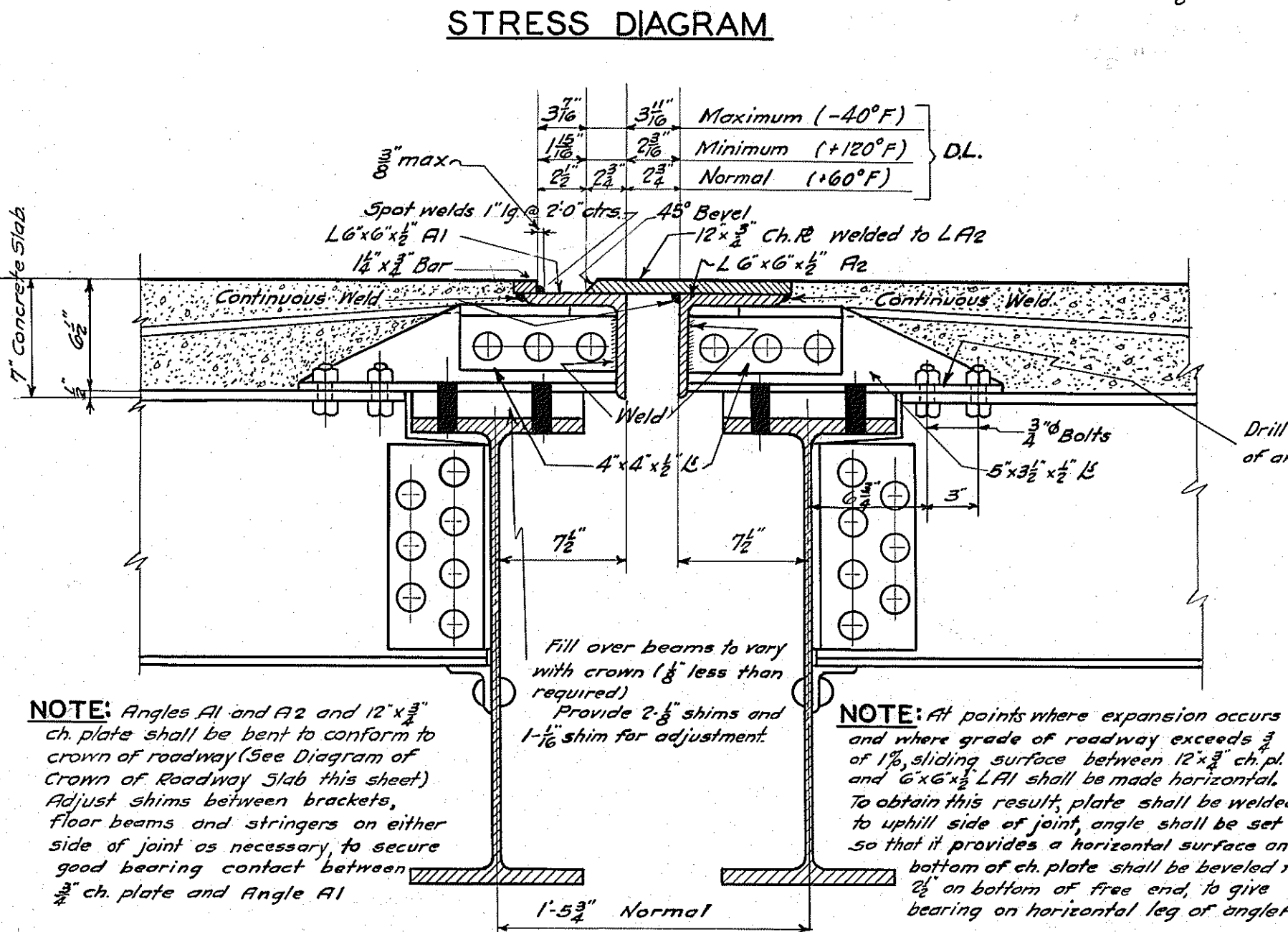
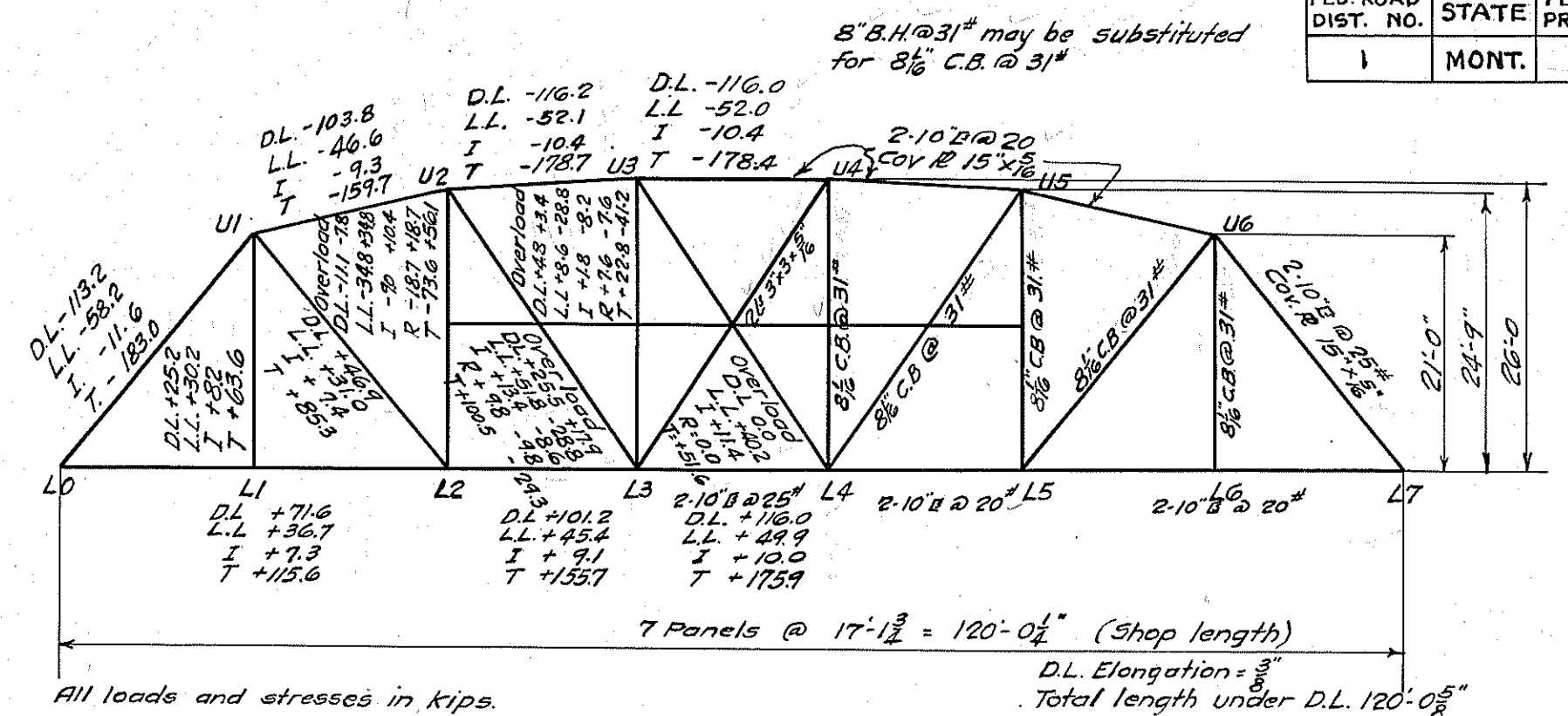
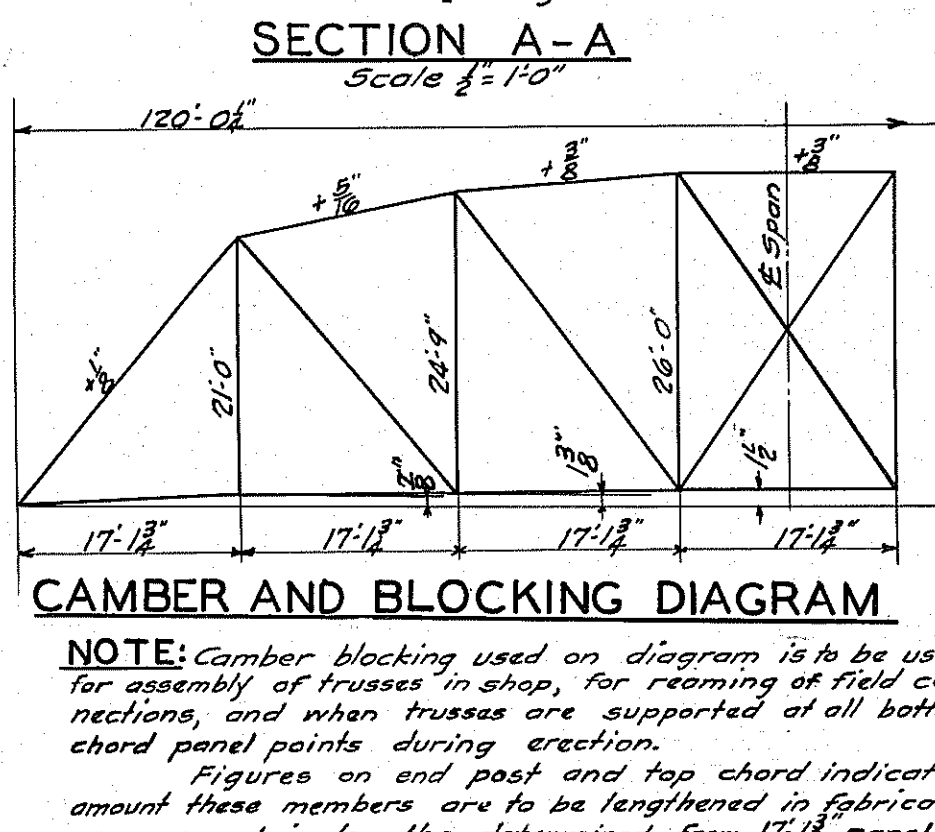
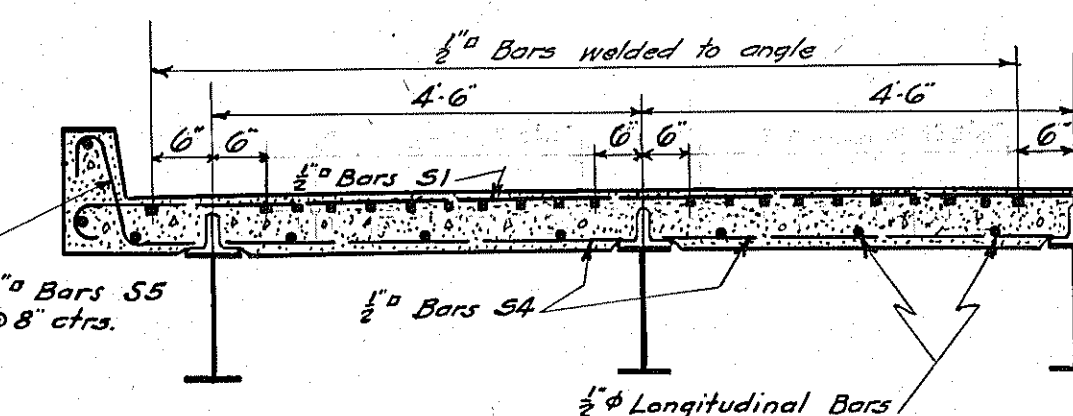
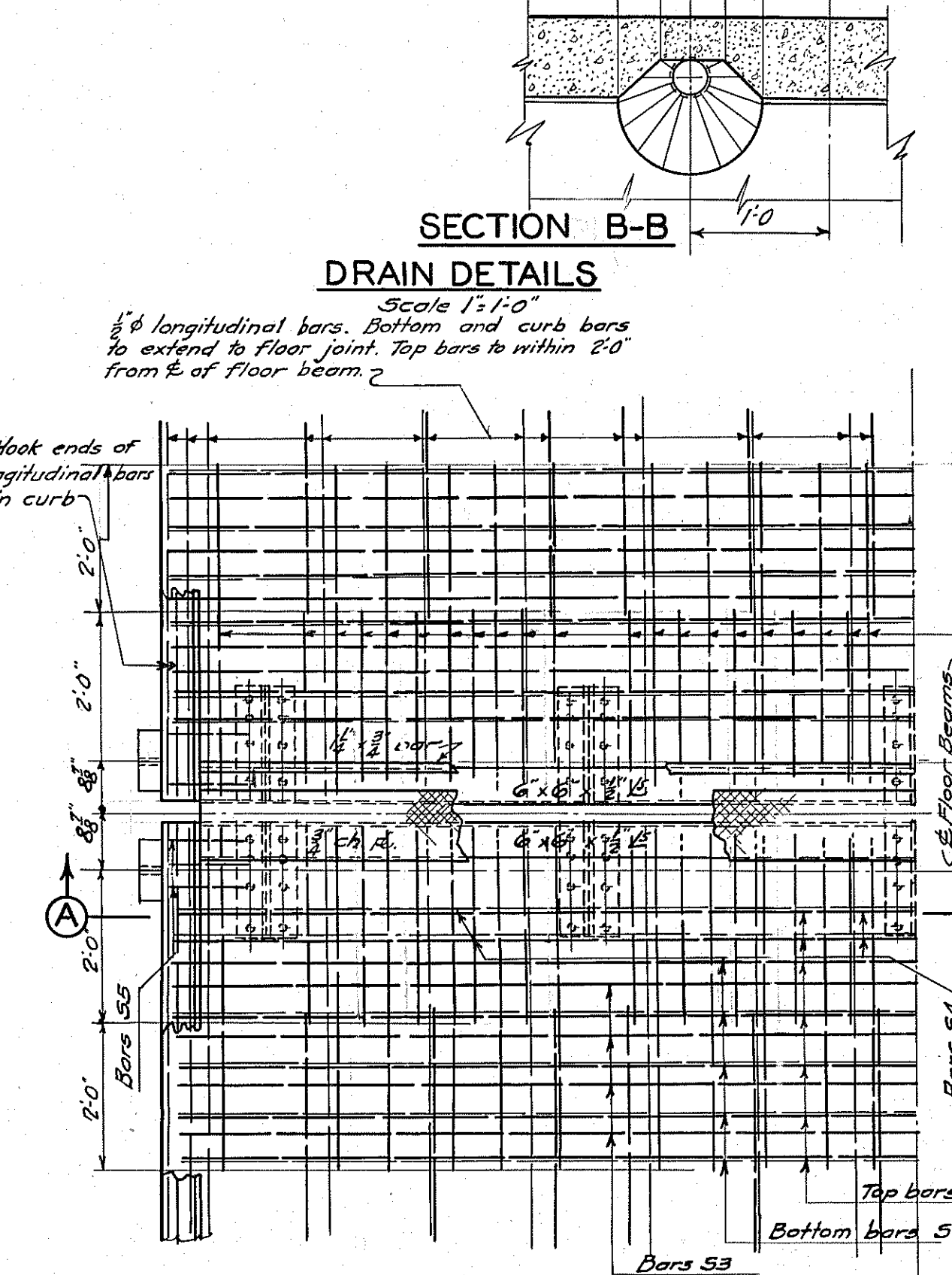
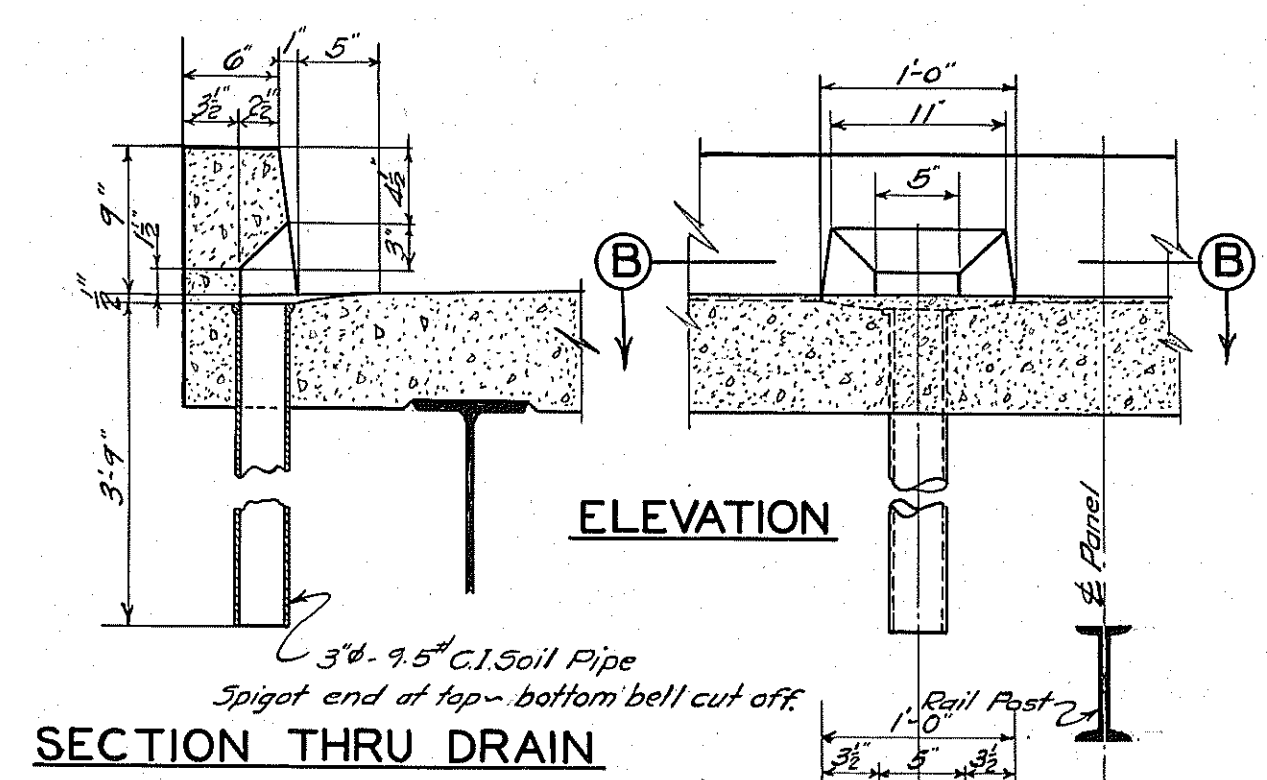
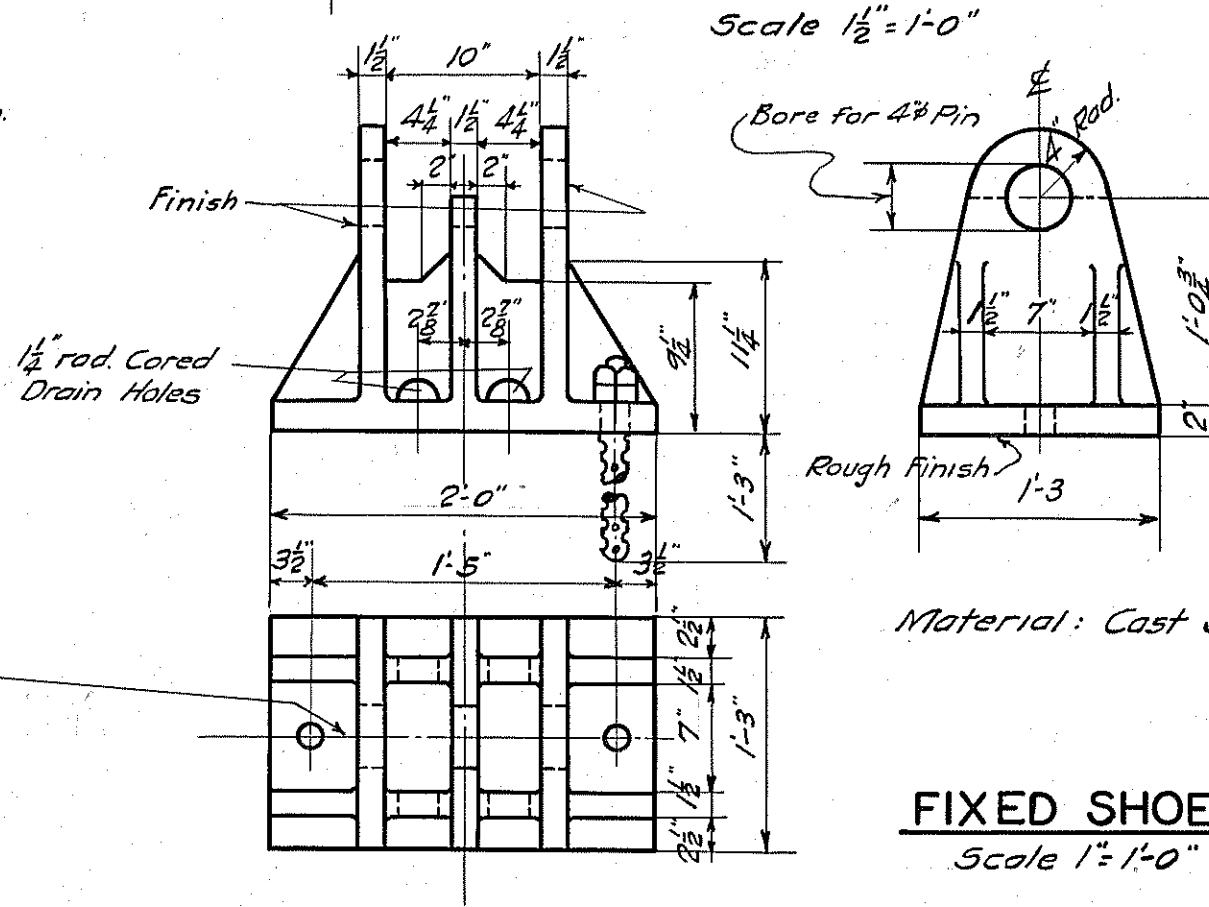
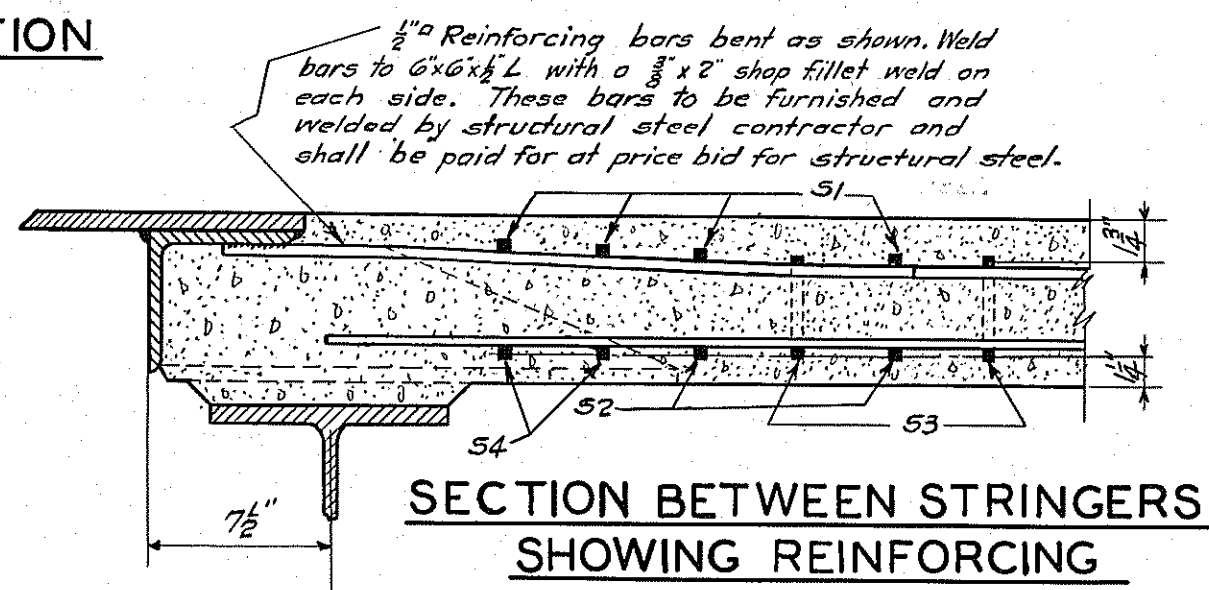
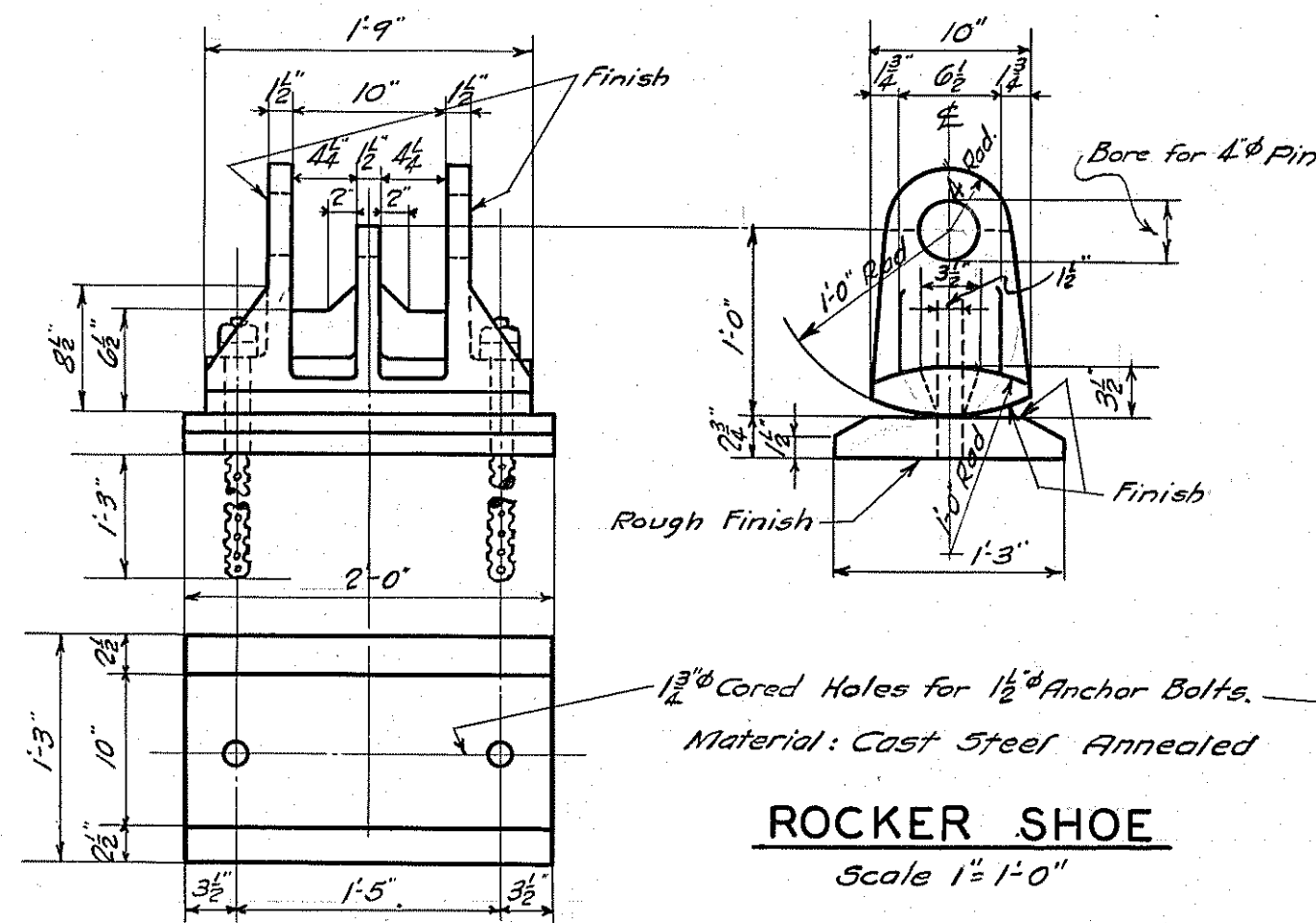
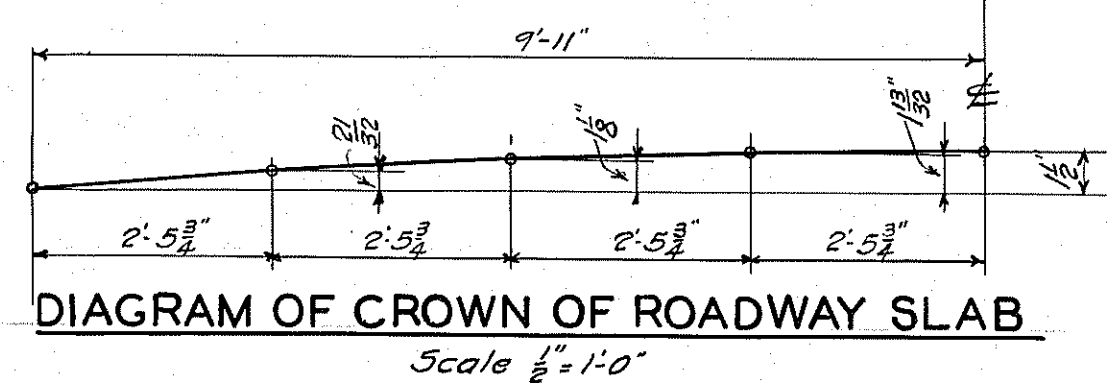
APPROVED BY K. A. T.

FILE NO. DRAWING NO. 5120 A

43



TYPICAL CROSS-SECTION
Scale $\frac{1}{2}'' = 1'-0''$



QUANTITIES	
Structural Steel	143,100 lbs. (Including 2% for paint and overrun)
Cast Steel	2,350 lbs. (Including 10% for fillers etc.)
Class D concrete	58.3 Cu. Yds.
Reinforcing Steel	13,500 lbs. (Including 2% for overrun)
3" C.I. Drains	14

NOTES

SPECIFICATIONS: Montana State Highway Commission Standard Specifications for Road and Bridge Construction, revised Oct. 1932, and Design Specifications for Highway Structures, revised Feb. 1932, shall govern unless otherwise noted.

LIVE LOAD: Standard H-15 Loading.

RIVETS: $\frac{3}{4}''$ unless otherwise noted.

OPEN HOLES: $\frac{1}{2}''$ unless otherwise noted.

REAMING: Holes for field connections in truss to be punched $\frac{1}{8}''$ and reamed $\frac{1}{8}''$ with truss completely assembled. Field joints to be match reamed. Floor connections to be reamed to metal templates $\frac{1}{16}''$ thick.

FLOOR MEMBERS: Floor beams shall be set with webs perpendicular to lower chord, and stringers with webs vertical. Stringer lengths back to back of connection angles shall correspond to shop lengths of lower chords with total allowance of $\frac{1}{8}''$ for paint.

CAMBER: Camber shall be provided by increasing top chord lengths as noted in Camber and Blocking Diagram.

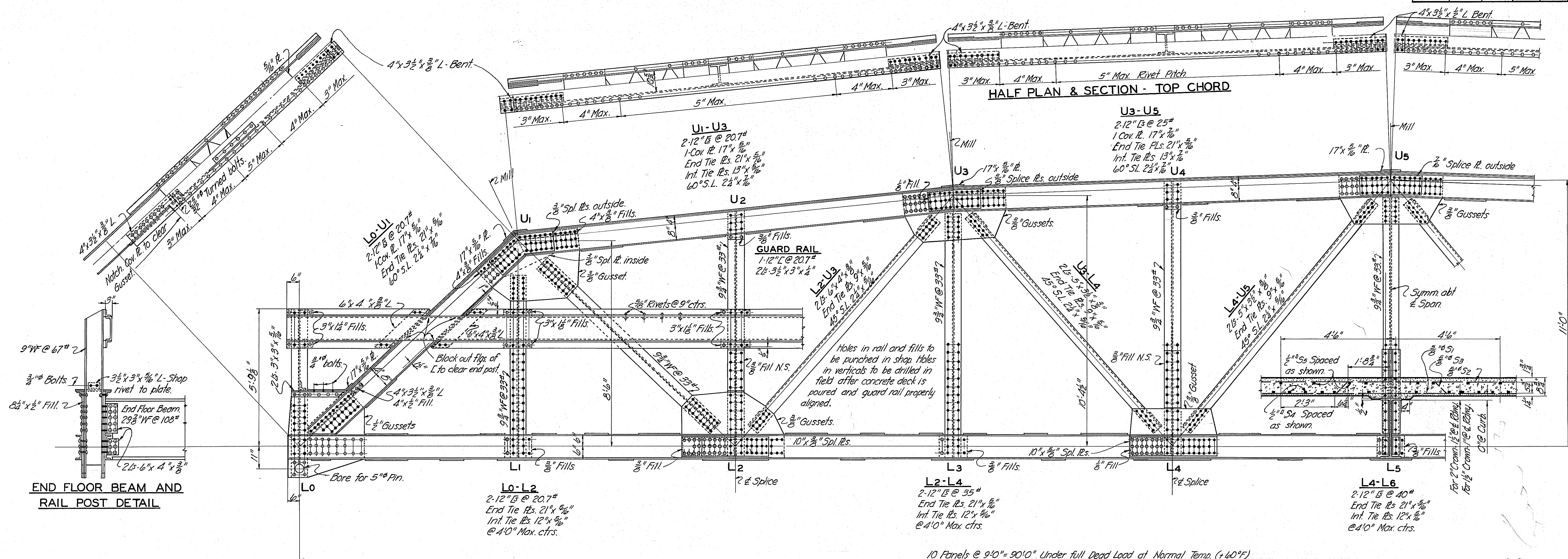
ALTERNATE SECTIONS: Alternate sections may be used when approved by the Montana State Highway Commission but payment shall be based on weights of sections shown on plans.

APPROVAL: Shop plans shall be approved by the Montana State Highway Commission before fabrication is begun.

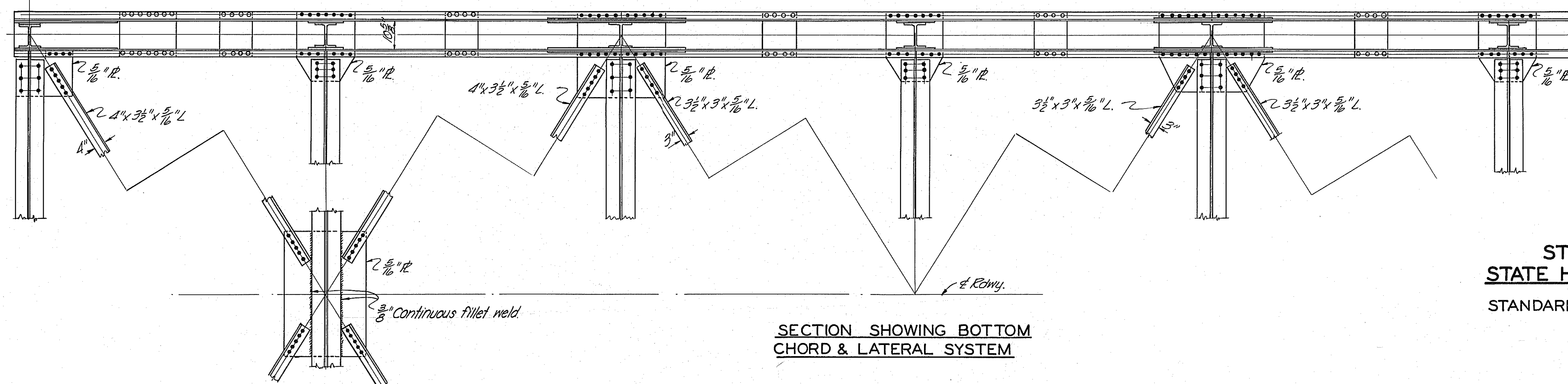
WELDS: All welds to be $\frac{3}{16}''$ fillet welds. All welds shall be continuous unless otherwise noted.

SETTING SHOES: Set rocker shoes vertical under full dead load at 60°F. (Normal Temp). Total dead load elongation of bottom chord of truss will be about $\frac{1}{8}''$ of which $\frac{1}{16}''$ will occur during pouring of concrete deck.

FED.ROAD DIST. NO.	STATE	PROJ.NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MONT.				



DESIGNED	BY	H.C.H.	Dec 33
DRAWN	BY	A.L.H.	12-6-38
TRACED	BY	T.C.R.	12-7-38
CHECKED	BY	H.C.H.	12-9-38
REVISED	BY		
REVISED	BY		



STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD 90 FT. PONY TRUSS SPAN

26 FT. ROADWAY

TRUSS DETAILS

Scale:- $\frac{1}{2}'' = 1'-0''$

APPROVED BY B. L. Osburn
BRIDGE DESIGNING ENGINEER

DRAWING NO. R26-PT90

Portal Strut
 4-4 3"x3"x $\frac{5}{16}$ "
 Cov. pl. $\frac{5}{16}$ "
 Side tie pl. 9"x $\frac{5}{16}$ "
 Side lacing 60° S.L. 2 $\frac{1}{4}$ "x $\frac{3}{8}$ "
 Bottom tie pls. 8"x $\frac{5}{16}$ " @ 3'-8" ctrs.

Top Chord Bracing Struts
 4-4 4"x3"x $\frac{5}{16}$ "
 End tie pls. 9"x $\frac{5}{16}$ "
 60° S.L. 2 $\frac{1}{4}$ "x $\frac{3}{8}$ "
Diagonals
 2-4 3"x3"x $\frac{5}{16}$ "
 End tie pls. 9"x $\frac{5}{16}$ "
 60° S.L. 2 $\frac{1}{4}$ "x $\frac{3}{8}$ "

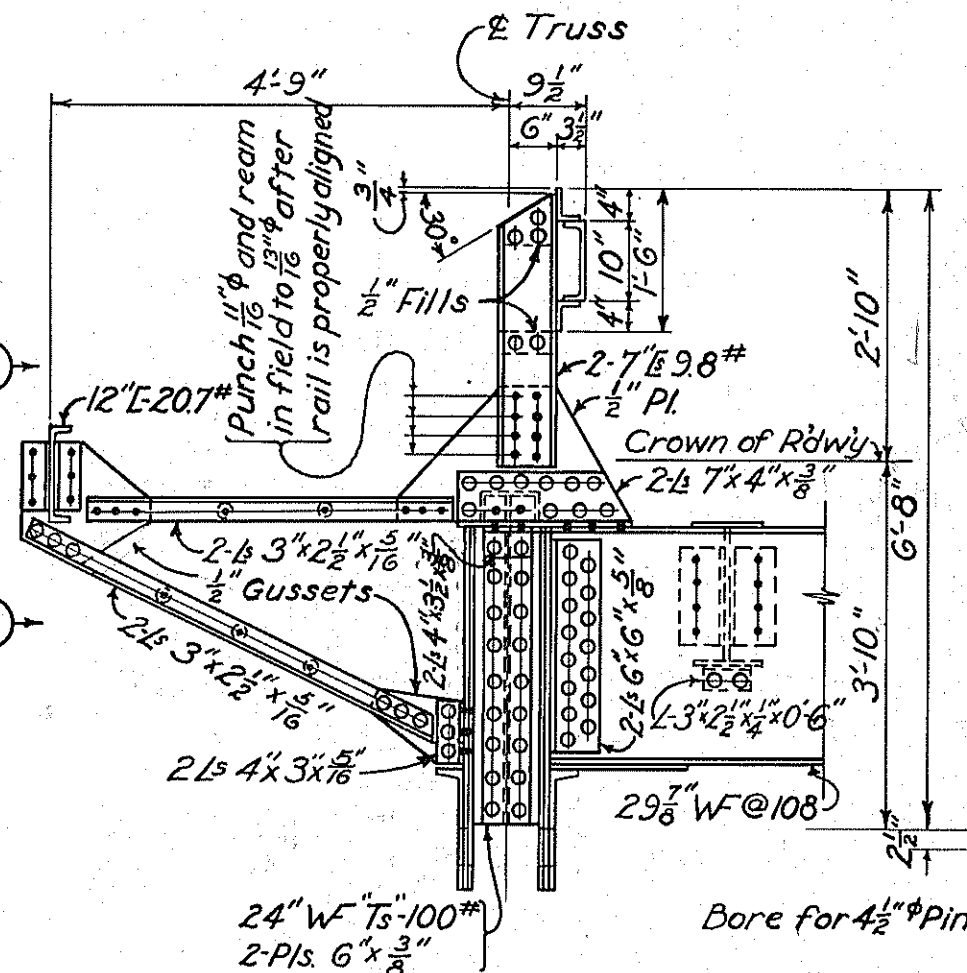
HALF PLAN AND SECTION TOP CHORD AND LATERAL SYSTEM

Note: Gusseters shall be shop riveted to chord members on the left at U₅ to facilitate erection.

U₃ U₅
 2-15"E 40#
 Cov. pl. 18"x $\frac{5}{16}$ "
 End tie pl. 22"x $\frac{5}{16}$ "
 Int. tie pl. 14"x $\frac{5}{16}$ "
 45° D.L. 2 $\frac{1}{4}$ "x $\frac{3}{8}$ "

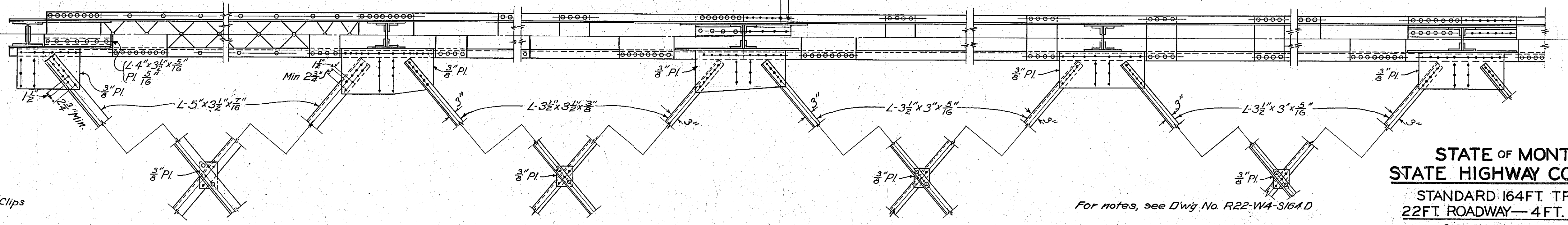
VIEW A-A

DETAILS OF PORTAL AT L₀-U₁



END FLOOR BEAM RAIL POST AND SIDEWALK BRACKET

LONGITUDINAL ELEVATION OF SIDEWALK TRUSS



HALF PLAN AND SECTION BOTTOM CHORD AND LATERAL SYSTEM
 All bottom laterals to be supported from Stringer See detail on this sheet.

LATERAL SUPPORT

**STATE OF MONTANA
 STATE HIGHWAY COMMISSION**

STANDARD 164 FT. TRUSS SPAN
 22 FT. ROADWAY—4 FT. SIDEWALK
 SIDEWALK TRUSS
 Scale $\frac{1}{2}$ " = 1'-0"

SUBMITTED BY *B. J. Amburn*
 BRIDGE ENGINEER
 APPROVED BY *R. D. Pader*
 STATE HIGHWAY ENGINEER

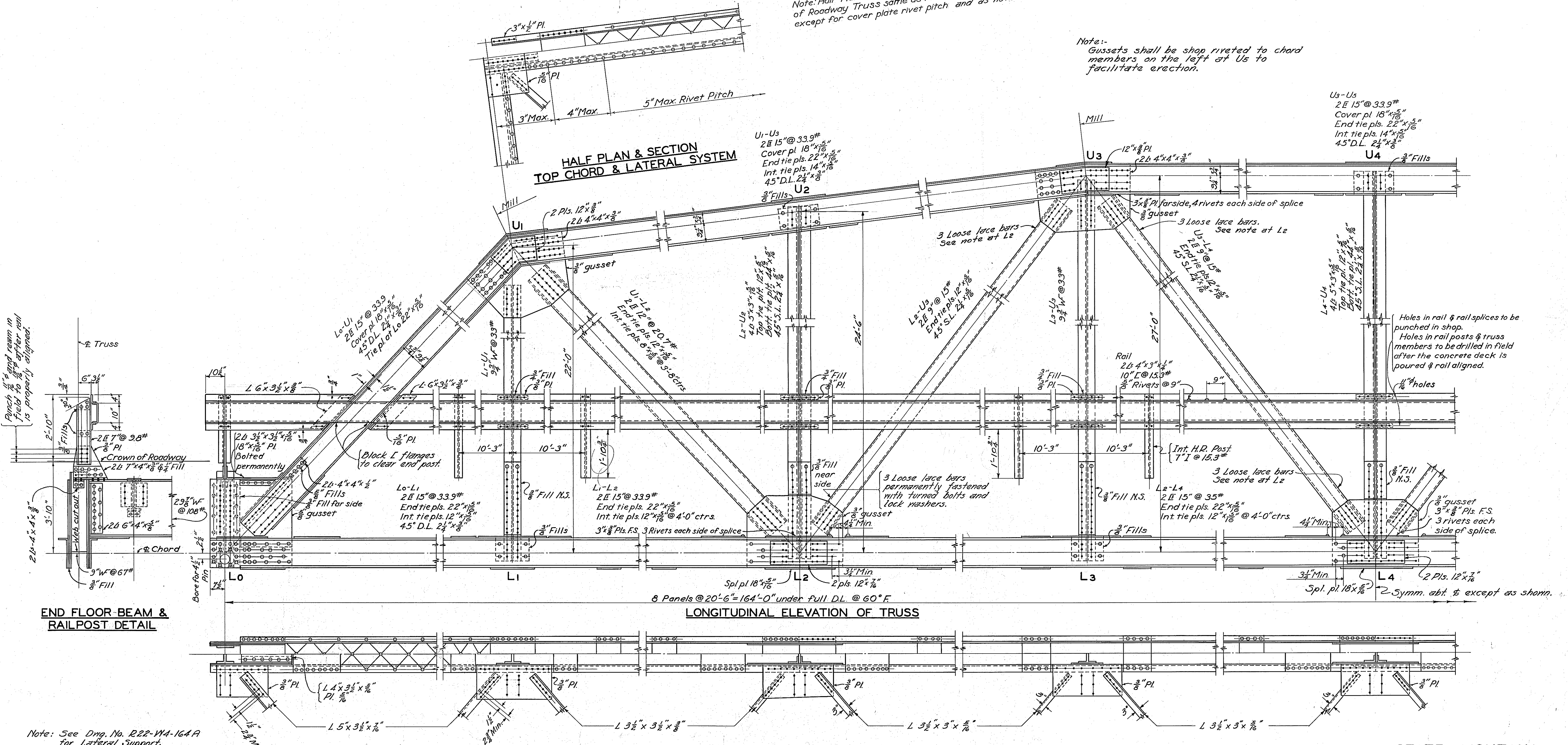
For notes, see Dwg No. R22-W4-SI64D

DWG. NO.	TITLE
R22-W4-SI64A	SIDEWALK TRUSS
R22-W4-SI64B	ROADWAY TRUSS
R22-W4-SI64C	CROSS SECTION-SHOES
R22-W4-SI64D	STRESS DIAGRAM

DESIGNED BY	BL & BAS	Jan. 35
DRAWN BY	B. R.	2-14-35
CHECKED BY	H. L.	2-26-35
REVISOR BY	H. L.	3-16-35
REVISOR BY	H. L.	5-16-35

Note: Half Plan and Section of Top Chord and Portal of Roadway Truss same as for Sidewalk Truss except for cover plate rivet pitch and as noted.

Note: Gussets shall be shop riveted to chord members on the left at U₃ to facilitate erection.



END FLOOR BEAM & RAILPOST DETAIL

LONGITUDINAL ELEVATION OF TRUSS

HALF PLAN & SECTION BOTTOM CHORD & LATERAL SYSTEM

STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD 164 FT. TRUSS SPAN
22 FT. ROADWAY - 4 FT. SIDEWALK

ROADWAY TRUSS
Scale 1/4" = 1'-0"

SUBMITTED BY: *R.J. Omburn*
BRIDGE ENGINEER

APPROVED BY: *R.D. Pader*
STATE HIGHWAY ENGINEER

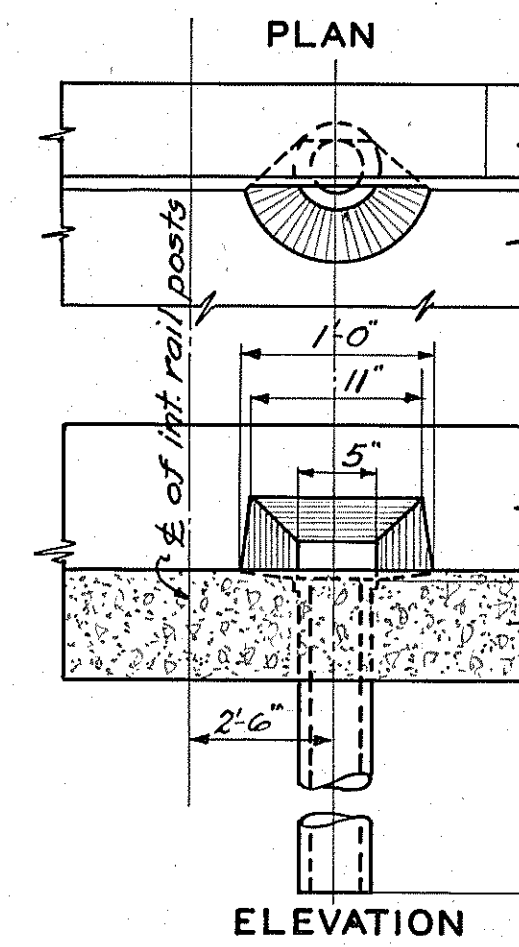
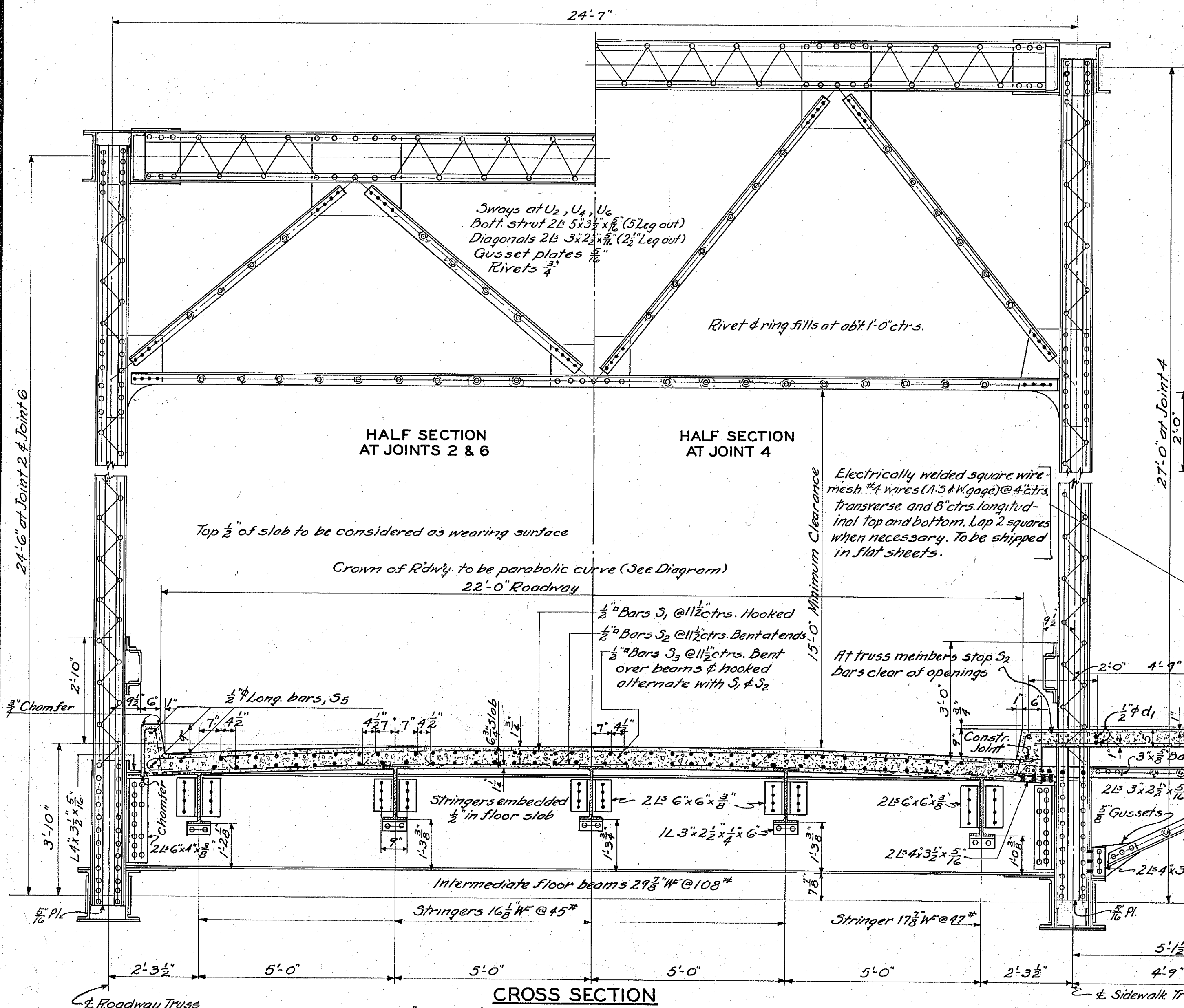
FILE NO. DRAWING NO. R22-W4-S164B

For notes, see Dwg. No. R22-W4-S164D.

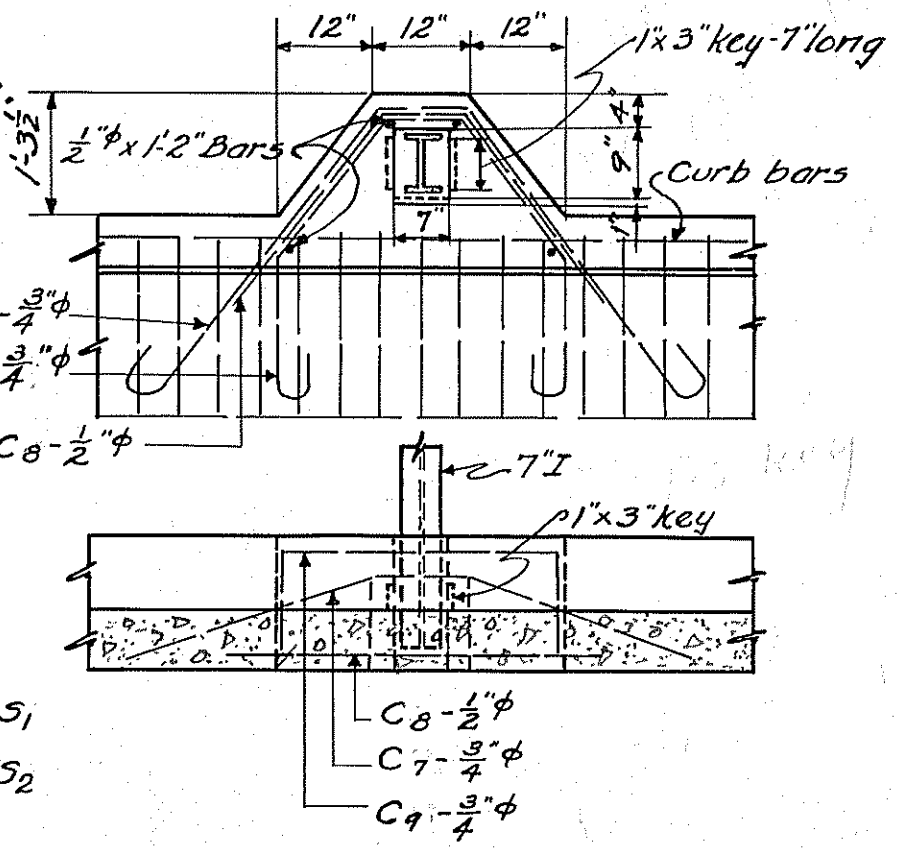
STANDARD DRAWINGS FOR 164 FT. TRUSS SPAN	
D'W'G. NO.	TITLE
R22-W4-S164A	SIDEWALK TRUSS
R22-W4-S164B	ROADWAY TRUSS
R22-W4-S164C	CROSS SECTION-SHOES
R22-W4-S164D	STRESS DIAGRAM

DESIGNED BY	RASBER JAN. 35
DRAWN BY	G.K.W. 1-30-35
TRACED BY	2-28-35
CHECKED BY	H.H.L. 3-19-35
REVISED BY	H.J.P. 5-16-35
REVISED BY	

Note: See Dwg. No. R22-W4-164A for Lateral Support. All bottom laterals to be supported from & stringer.

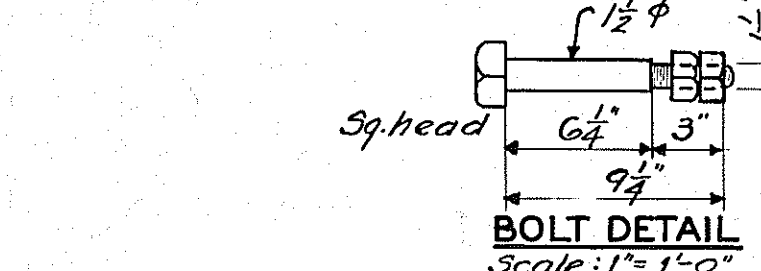
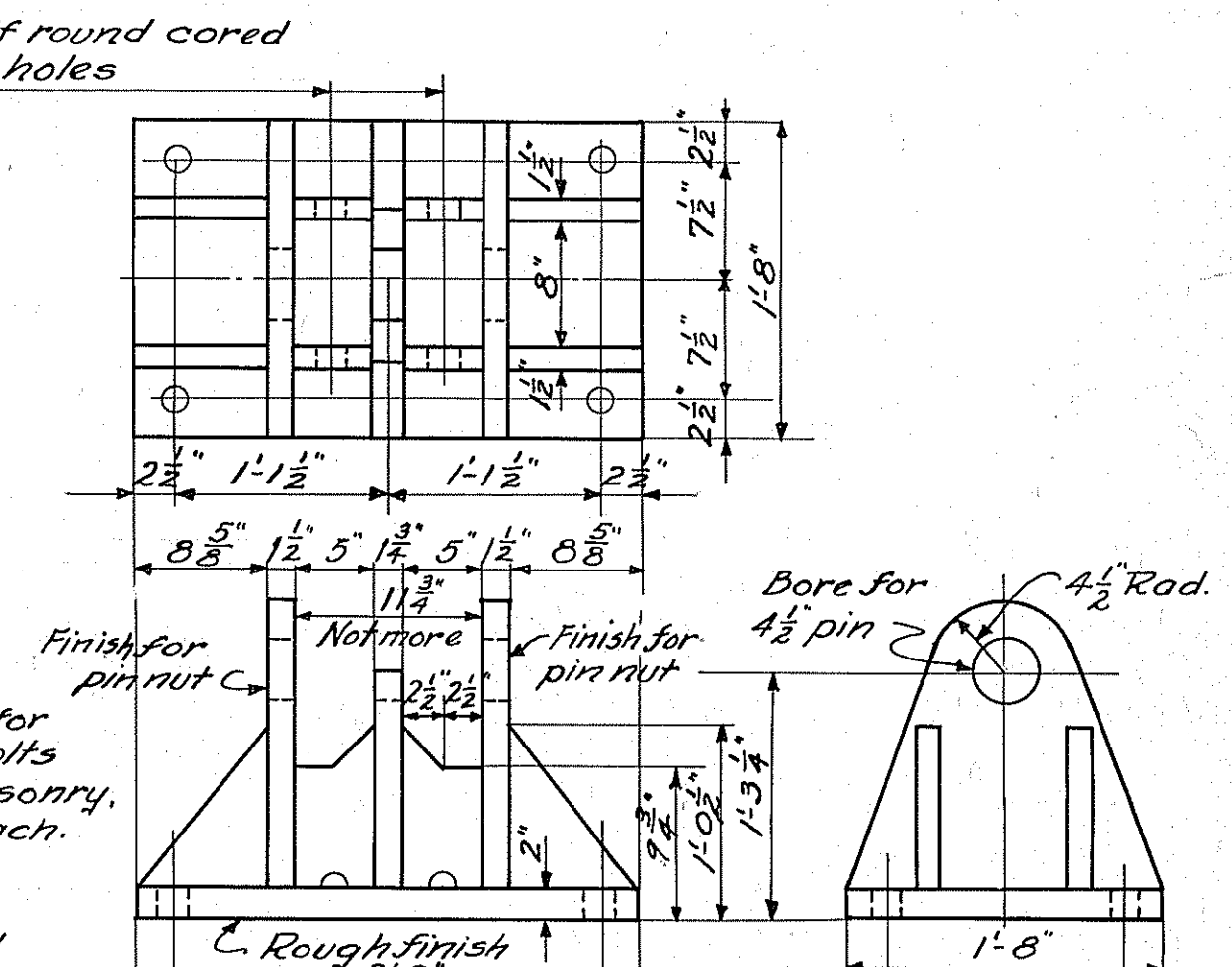
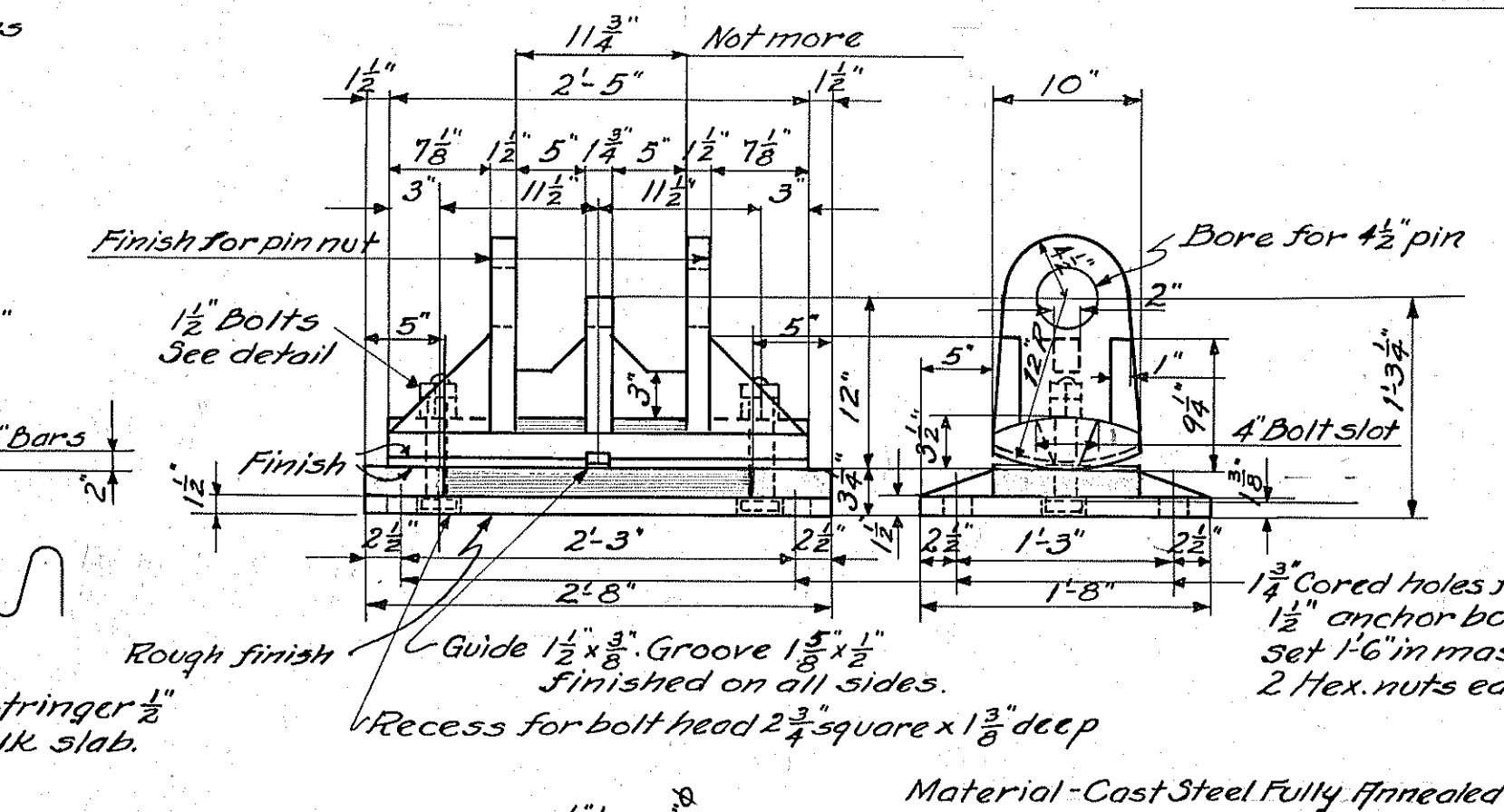


NOTE: After handrail for entire structure is in place and properly adjusted and aligned, fill with mortar the holes in the curbs in which the handrail posts are set, as follows: Prepare the concrete surfaces against which the mortar is to be placed as described in the specifications under Forming Joints. Then fill the cavity with a thick mortar mixed in the same proportion as that which was used in the body of the work and of the same temperature as the surface against which it is to be placed. Care shall be taken to see that the entire pocket in which each post is set is completely filled with well tamped mortar, finished at the top with a slight slope away from the steel post, to prevent formation of water pockets. The exposed surfaces of the mortar pocket shall be kept wet for a period of five days and thereafter cured as provided in the specifications.



DRAIN DETAIL
Scale: 1" = 1'-0"

DETAIL AT INT. RAIL POSTS
ROADWAY TRUSS SIDE



CROSS SECTION

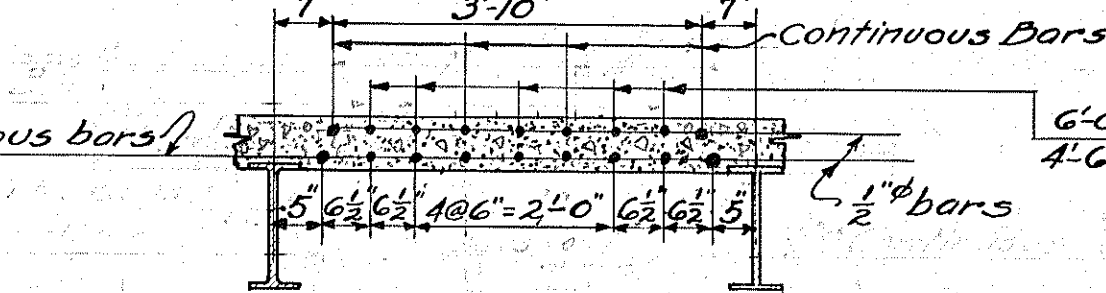
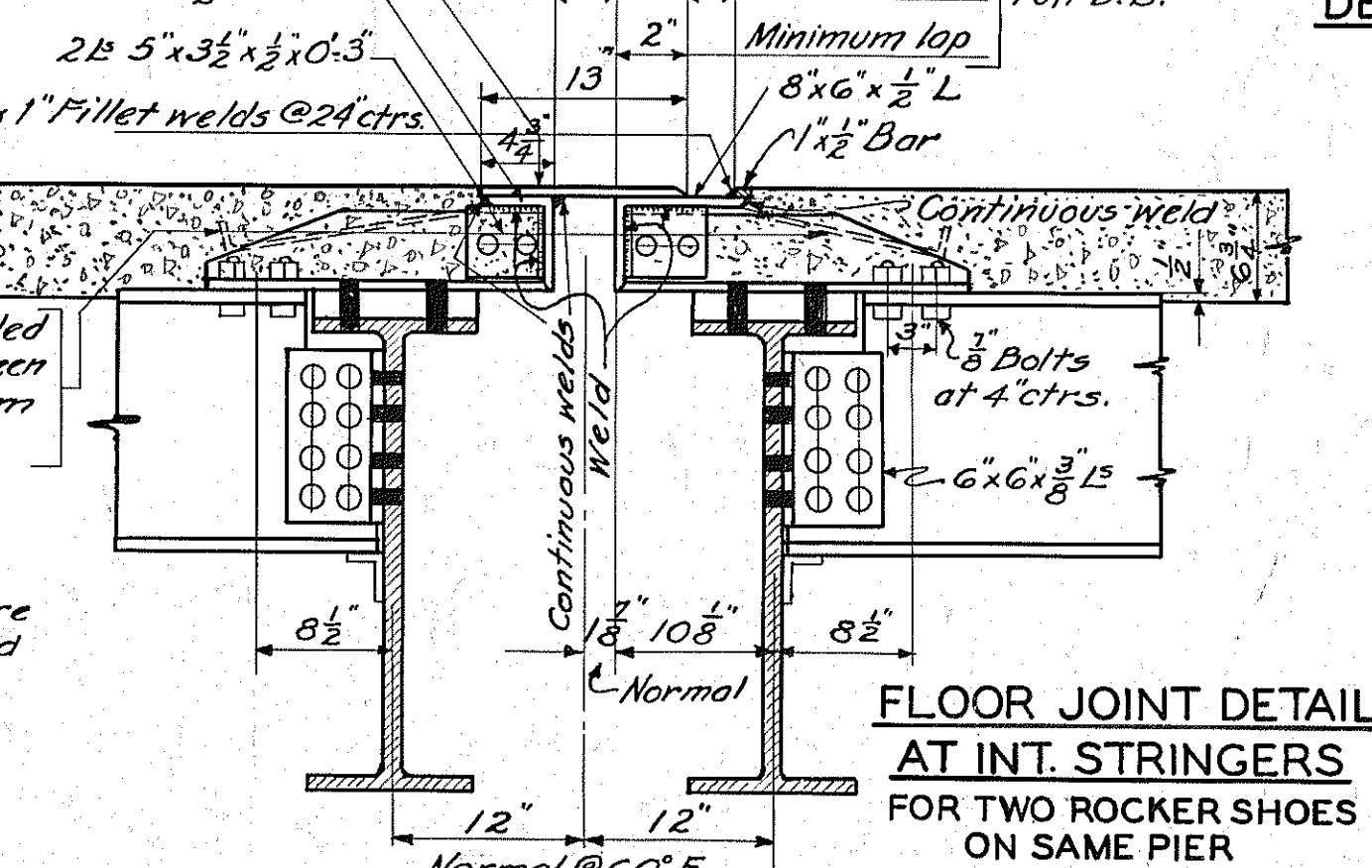
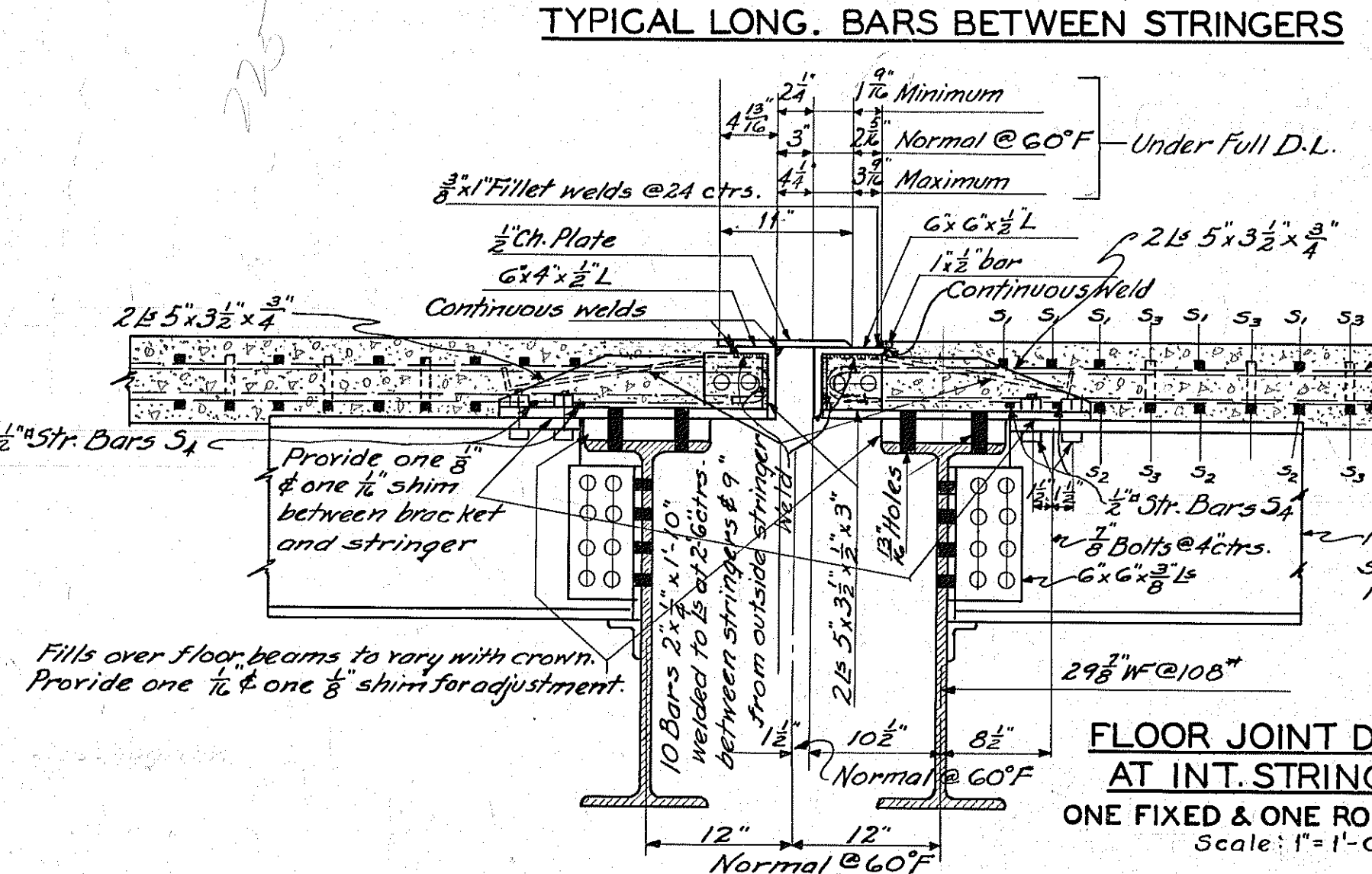
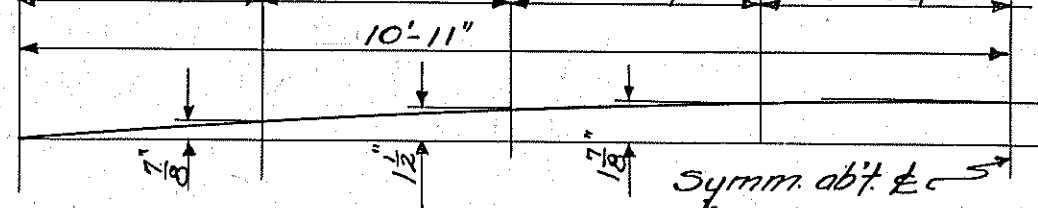
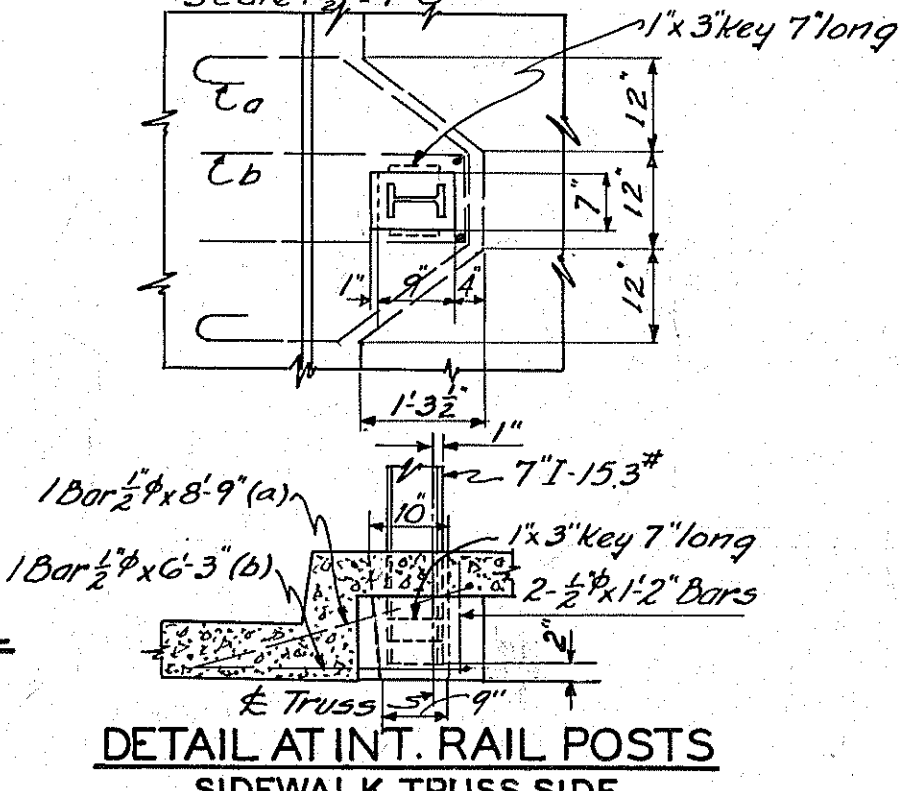


DIAGRAM OF CROWN OF RDWY SLAB



DETAIL OF CURB REINFORCING
RDWY TRUSS SIDE ONLY
Scale: 1" = 1'-0"



STANDARD DRAWINGS FOR 164 FT. TRUSS SPAN	
DWG. NO.	TITLE
R22-W4-SI64A	SIDEWALK TRUSS
R22-W4-SI64B	ROADWAY TRUSS
R22-W4-SI64C	CROSS SECTION-SHOES
R22-W4-SI64D	STRESS DIAGRAM

For notes, see Dwg. No. R22-W4-SI64D

STATE OF MONTANA
STATE HIGHWAY COMMISSION
STANDARD 164 FT. TRUSS SPAN
22 FT. ROADWAY-4 FT. SIDEWALK
CROSS SECTION-SHOES
Scale: 1/2" = 1'-0"
Unless otherwise noted

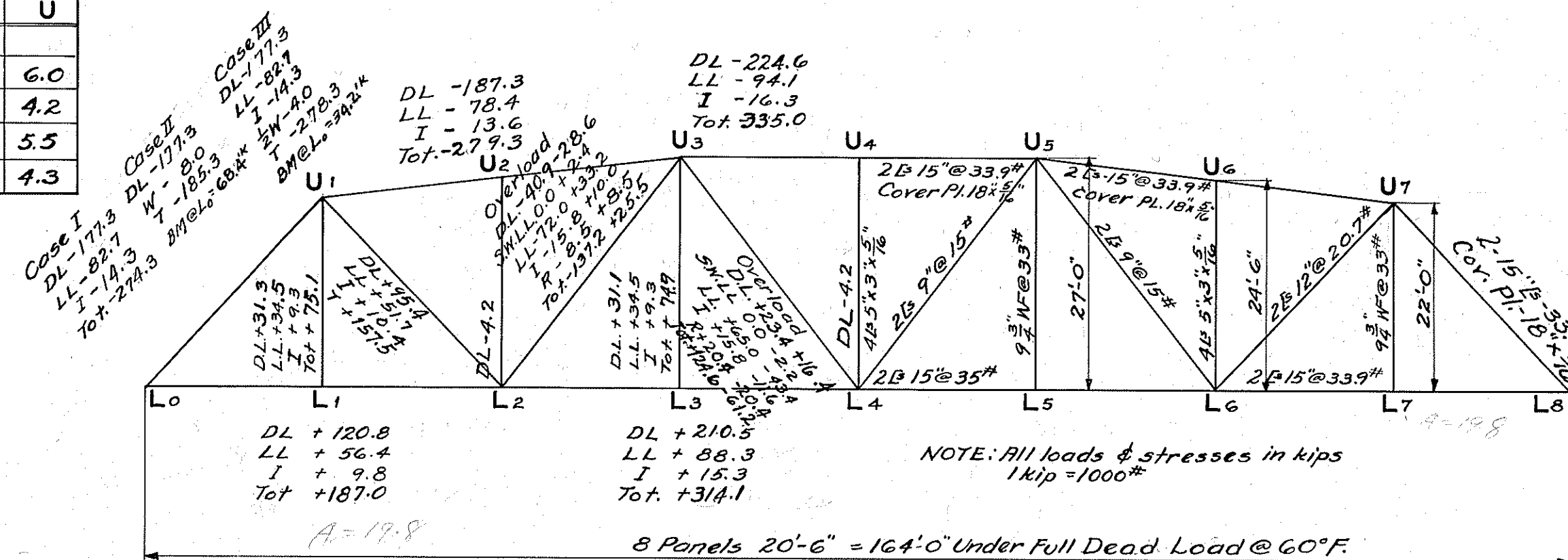
SUBMITTED BY *S. J. Omernick*
BRIDGE ENGINEER
APPROVED BY *R. D. Rader*
STATE HIGHWAY ENGINEER
FILE NO. DRAWING NO. R22-W4-SI64C

DESIGNED BY: RAS-BR	JAN.-35
DRAWN BY: G.K.W.	2-7-35
TRACED BY: H.J.P.	2-26-35
CHECKED BY: H.H.L.	3-19-35
REVISED BY: H.J.P.	5-17-35
REVISED BY:	

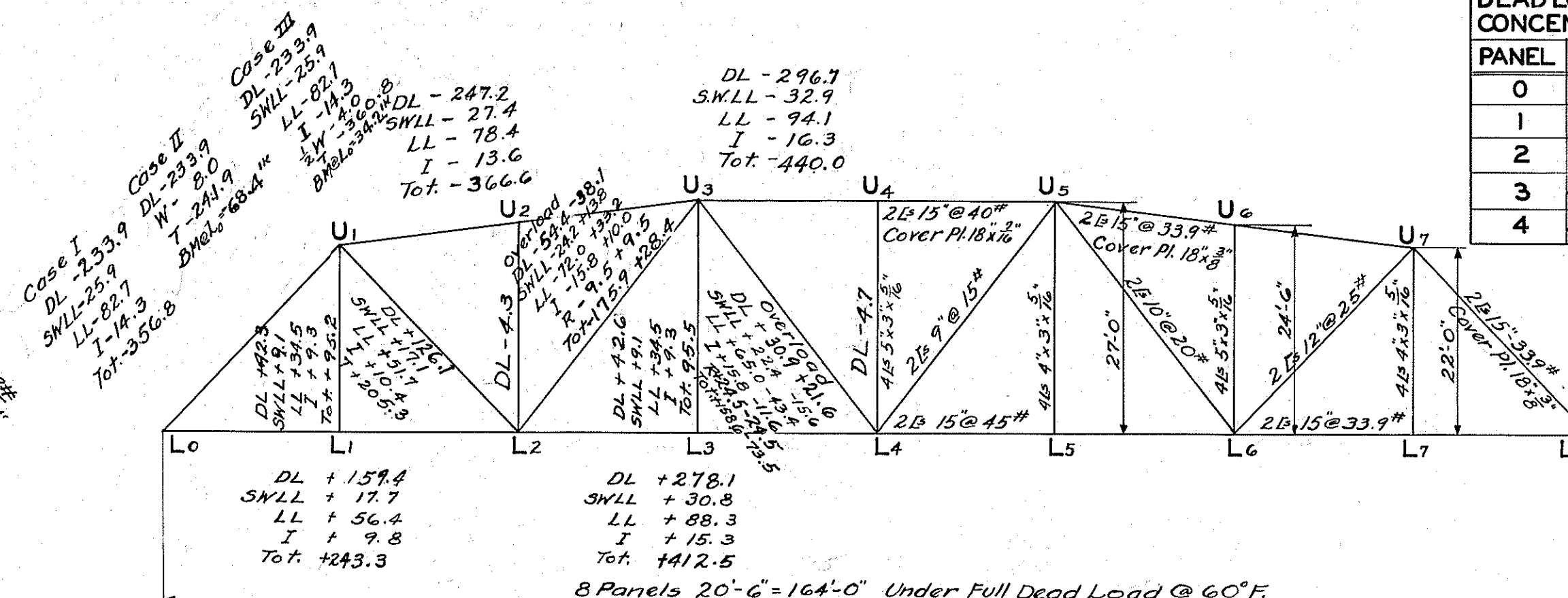
ROADWAY TRUSS		
DEAD LOAD PANEL CONCENTRATIONS		
PANEL	L	U
0	21.4	
1	31.3	6.0
2	33.0	4.2
3	31.1	5.5
4	33.0	4.3

SIDEWALK TRUSS		
DEAD LOAD PANEL CONCENTRATIONS		
PANEL	L	U
0	27.8	
1	42.3	6.6
2	44.6	4.3
3	42.6	6.0
4	44.5	4.7

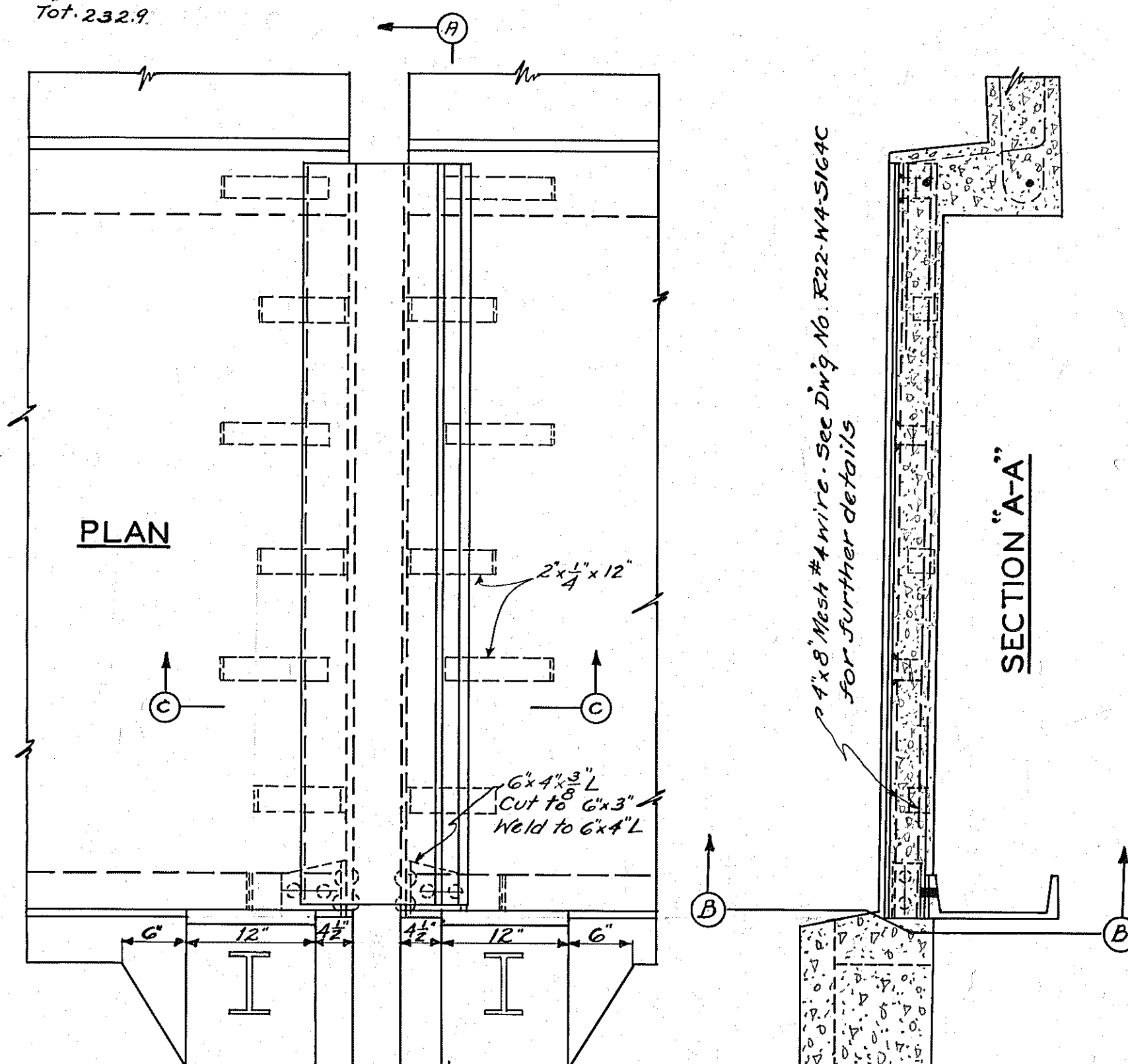
FED. ROAD DIST. NO.	STATE	U.S. P.W.H. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.				



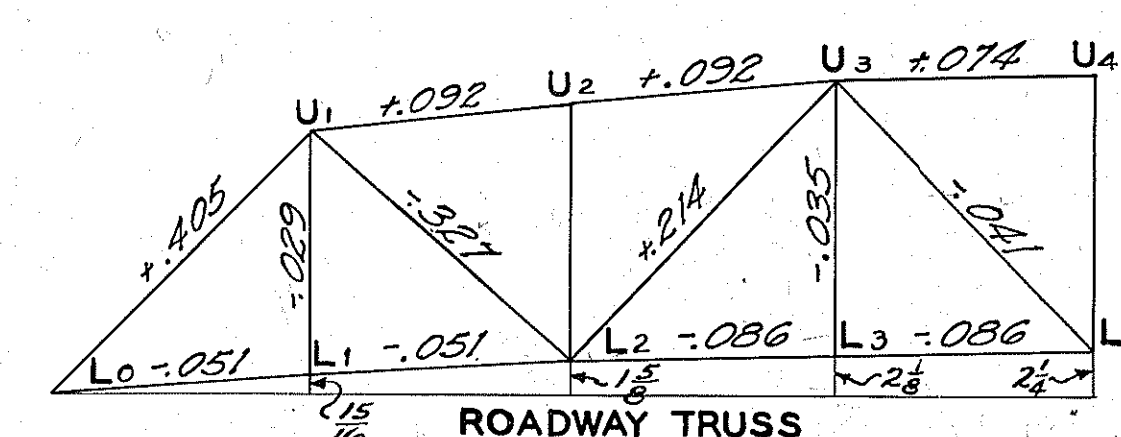
STRESS DIAGRAM FOR ROADWAY TRUSS



STRESS DIAGRAM FOR SIDEWALK TRUSS

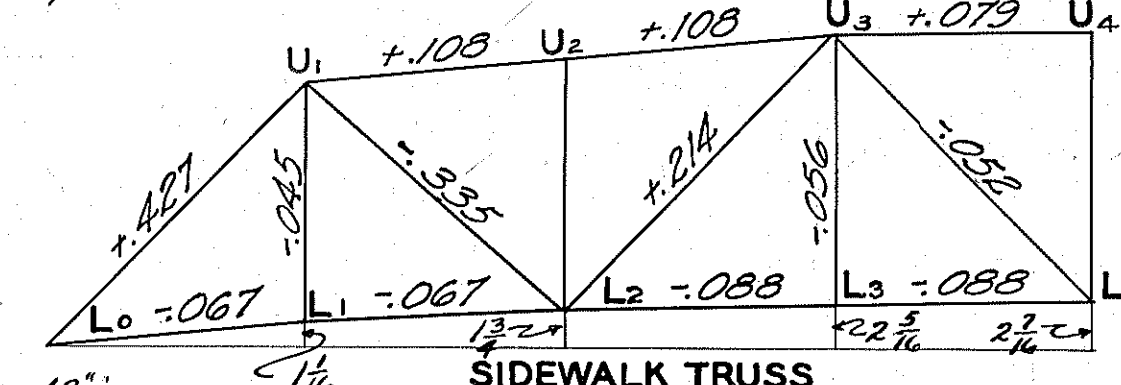


PERMANENT CAMBER: Permanent camber, which is included with dead load deflection in the blocking shown, is to be as above.

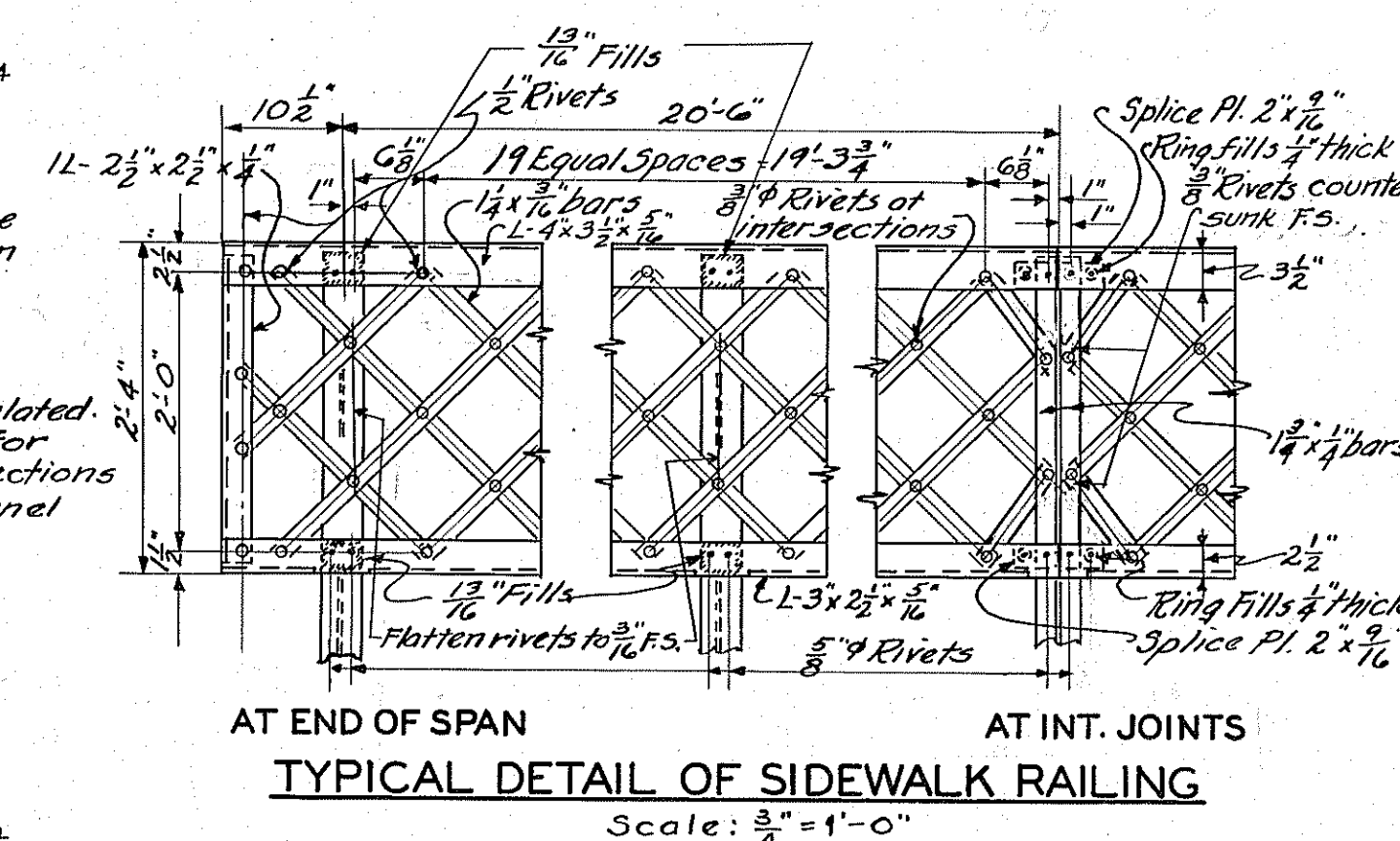


CAMBER: The camber diagrams show in inches the amount each member is to be lengthened or shortened from the theoretical length to provide for dead load deformation and permanent camber.

+ indicates correction to be added to length calculated.
- indicates correction to be subtracted from length calculated.
Blocking shown in the camber diagram is to be used for assembly of trusses in shop, for reaming of field connections and when trusses are supported at all bottom chord panel points for erection.



QUANTITIES	
STRUCTURAL STEEL	227500# including 10% for paint and over run
CAST STEEL	3620# including 10% for rivets, over run etc.
REINFORCING STEEL	21700# including 2% for over run
CLASS "D" CONC.	1023 cu yds.
3" C.I. FLOOR DRAINS	16



TYPICAL DETAIL OF SIDEWALK RAILING

NOTES

SPECIFICATIONS: Montana State Highway Commission Standard Specifications for Road and Bridge Construction, revised Apr., 1935; Design Specifications for Highway Structures, revised Feb., 1932; and Special Provisions shall govern unless otherwise noted.

LIVE LOAD: Standard H-15 Loading.

UNIT STRESSES: Unit stresses used in design are as given in the Design Specifications for Highway Structures, revised Feb., 1932 except that permissible unit stresses for Carbon Structural and Rivet Steel are increased 12 1/2%, and compression due to bending in class D concrete is increased to 800 #/sq. in. unless otherwise noted.

RIVETS: 3/4" unless otherwise noted.

REAMING: Holes for field connections of main truss members shall be punched 1/8" and reamed 1/16" in the shop, with trusses assembled, and joints match marked. Floor connections shall be reamed to a metal template not less than 1 inch thick.

WELDS: All welds shall be continuous 3/8" fillet shop welds unless otherwise noted. See Special Provisions for requirements governing welding.

FLOOR MEMBERS: Floor beams shall be set with webs perpendicular to lower chord and stringers with webs vertical. Stringer lengths back to back of angles shall correspond to shop lengths of lower chords with no allowance for clearance. End connection angles of stringers shall be riveted to the web with the stringer assembled in an iron frame so as to give the correct length of the stringer and the correct position of the angles.

ROLLED BEAMS: Rolled beam sections marked "W" shall be either Carnegie or Bethlehem standard wide flange sections of the weights and depths specified.

ALTERNATE SECTIONS: Alternate sections may be used when approved by the Montana State Highway Commission, but payments shall be based on weights of sections shown on plans.

APPROVAL: Shop plans shall be approved by the Montana State Highway Commission before fabrication is begun.

SETTING OF SHOES: Rocker shoes shall be set vertical under full dead load at 60°F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.

STEEL CASTINGS: Steel castings shall conform to the requirements of the Standard Specifications for class B, regular grade fully annealed steel castings, serial designation A154-33T of the American Society for Testing Materials.

SEQUENCE OF POURING SLAB: The floor slab shall be poured in 3 units as shown above and in the order as shown by the numbers I to III.

The construction joint between the Roadway slab and the Sidewalk slab shall be as shown by the sketch above. The Sidewalk slab shall be poured in the same units as the Roadway slab.

FLOOR SLAB: Particular attention shall be paid to paragraph 25.5-m-2 of the Standard Specifications for finishing. Slab is designed in accordance with the theoretical methods for concentrated live loads developed by H.M. Westergaard in "Public Roads" for March, 1930.

STANDARD DRAWINGS FOR 164 FT. TRUSS SPAN	
DWG. NO.	TITLE
R22-W4-S164A	SIDEWALK TRUSS
R22-W4-S164B	ROADWAY TRUSS
R22-W4-S164C	CROSS SECTION - SHOES
R22-W4-S164D	STRESS DIAGRAMS

STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD 164 FT. TRUSS SPAN
22 FT. ROADWAY—4 FT. SIDEWALK
STRESS DIAGRAMS
Scale 1" = 10"
Unless otherwise noted

SUBMITTED BY *B. J. Omburn*
BRIDGE ENGINEER

APPROVED BY *R. D. Pader*
STATE HIGHWAY ENGINEER

FILE NO. DRAWING NO. R22-W4-S164D

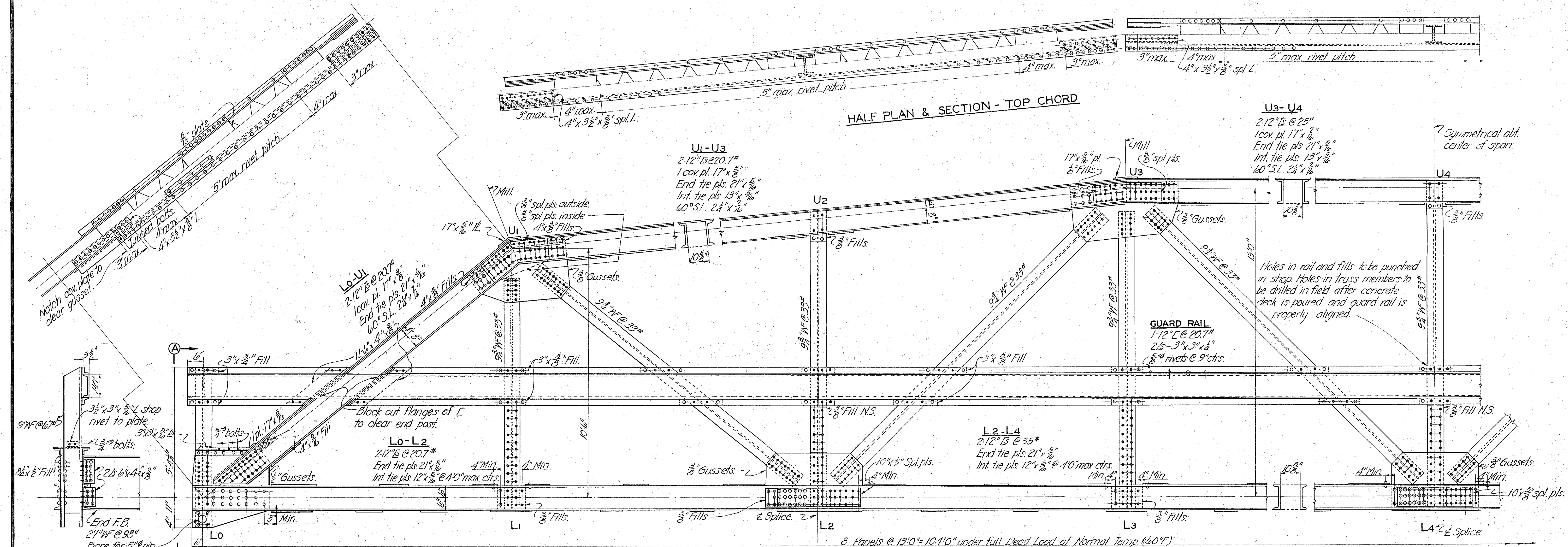
SIDEWALK JOINT DETAIL FOR ONE FIXED AND ONE ROCKER SHOE
Scale: 1" = 1'-0"

SECTION B-B

SIDEWALK JOINT DETAIL FOR TWO ROCKER SHOES
Scale: 1" = 1'-0"

TYPICAL DETAILS OF OPENINGS IN SIDEWALK FOR TRUSS
Scale: 1" = 1'-0"

HALF PLAN & SECTION - TOP CHORD



STATE OF MONTANA
 STATE HIGHWAY COMMISSION
 STANDARD 104 FT. PONY TRUSS SPAN

24 FT. ROADWAY
 TRUSS DETAILS
 Scale: $\frac{1}{2}" = 1'0"$

APPROVED BY *B. J. Osburn*
 BRIDGE DESIGNING ENGINEER
 DRAWING NO. R24-PT 104

DESIGNED BY	MB	Oct 35
DRAWN BY	T.C.E.	6-21-39
CHECKED BY	H.C.H.	6-27-39
REVISED BY		
REVISED BY		



LONGITUDINAL ELEVATION OF TRUSS



TYPICAL LATERAL INTERSECTION
ON FLOOR BEAMS AT L1 & L3

PLAN OF BOTTOM CHORD
AND LATERAL SYSTEM

STATE OF MONTANA
STATE HIGHWAY COMMISSION
STANDARD 104 FT. PONY TRUSS SPAN

24 FT. ROADWAY
TRUSS DETAILS
Scale:- $\frac{1}{2}" = 1'-0"$

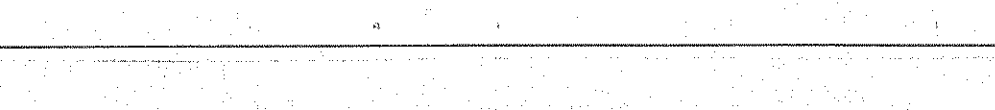
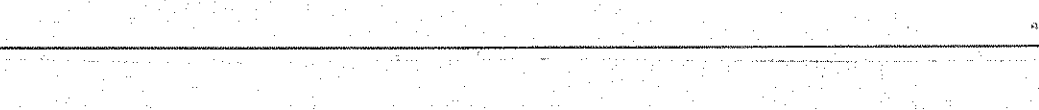
APPROVED BY R. J. Emburn
BRIDGE DESIGNING ENGINEER

DRAWING NO. R24-PT 104

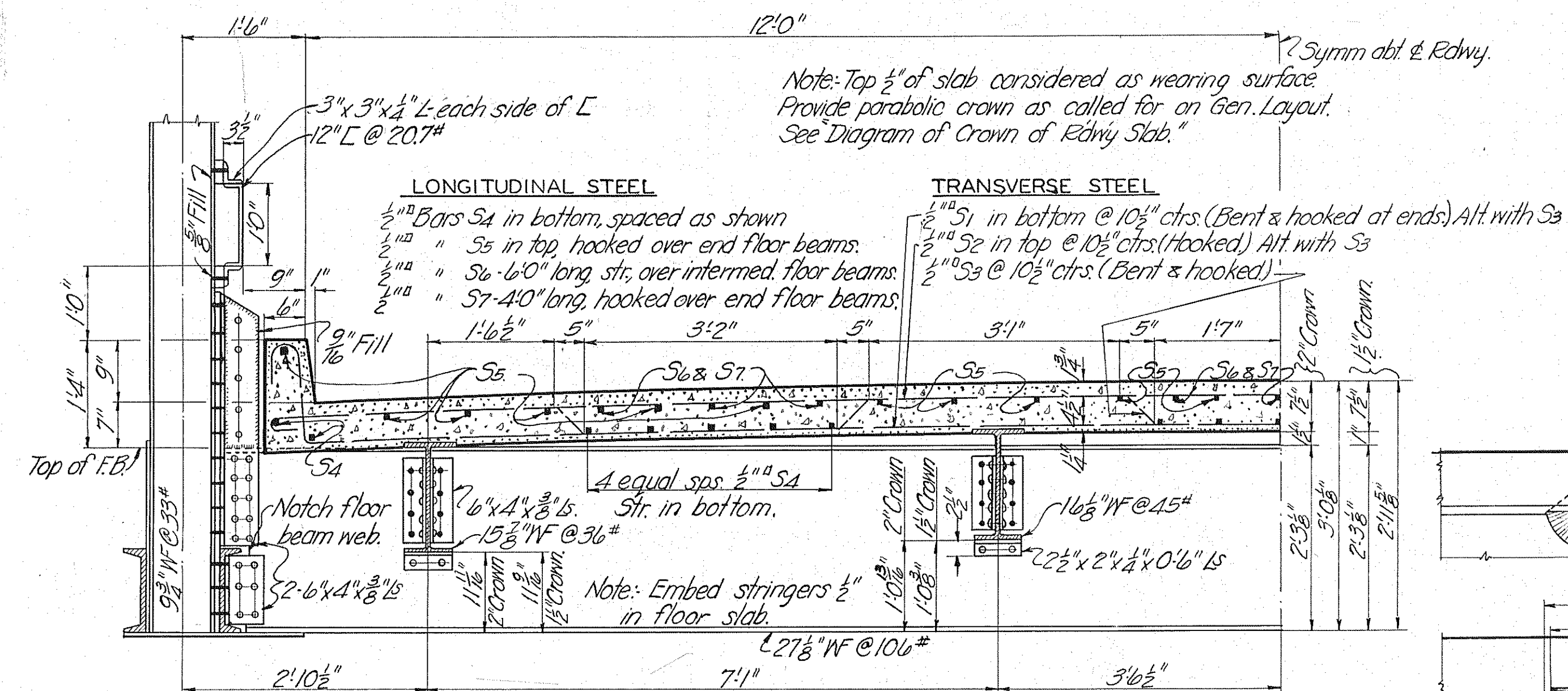
DESIGNED	BY	
DRAWN	BY	M.B.
TRACED	BY	T.C.E.
CHECKED	BY	6-21-59
REVISED	BY	1-27-59
REVISED	BY	H.C.H.



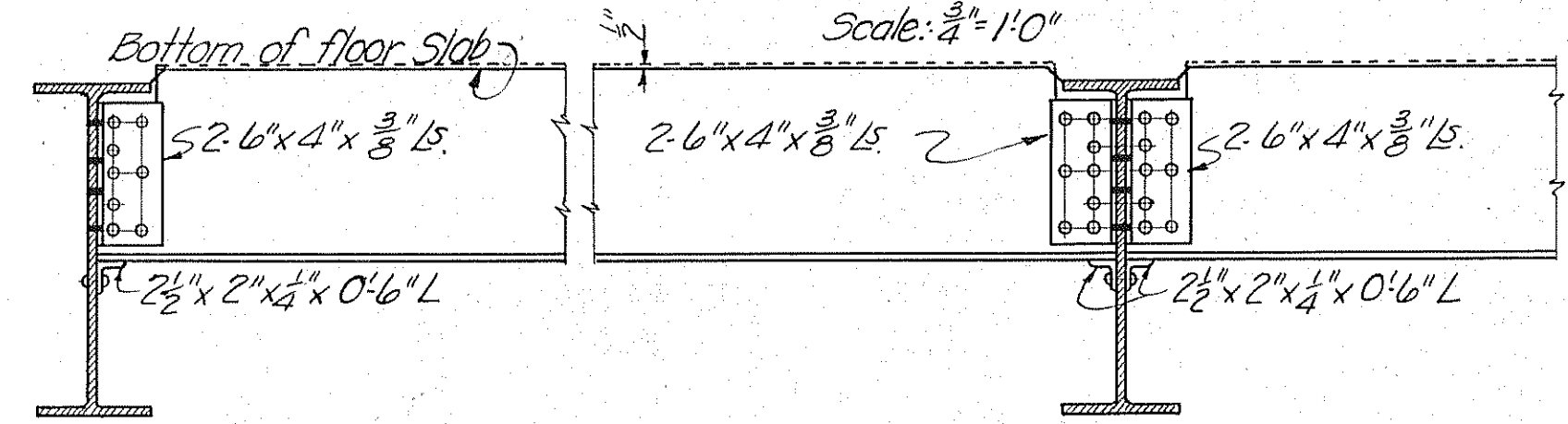
The computed weight of each shipping unit shall be shown on the shop drawings. This weight may or may not be checked at the time the details are checked.



DRAWING NO. R24 PT104 DETAILS



HALF SECTION AT INTERMEDIATE FLOOR BEAM
 Scale: $\frac{3}{4}$ " = 1'-0"



Note: Drains to be located midway between panel points alternate sides of roadway.

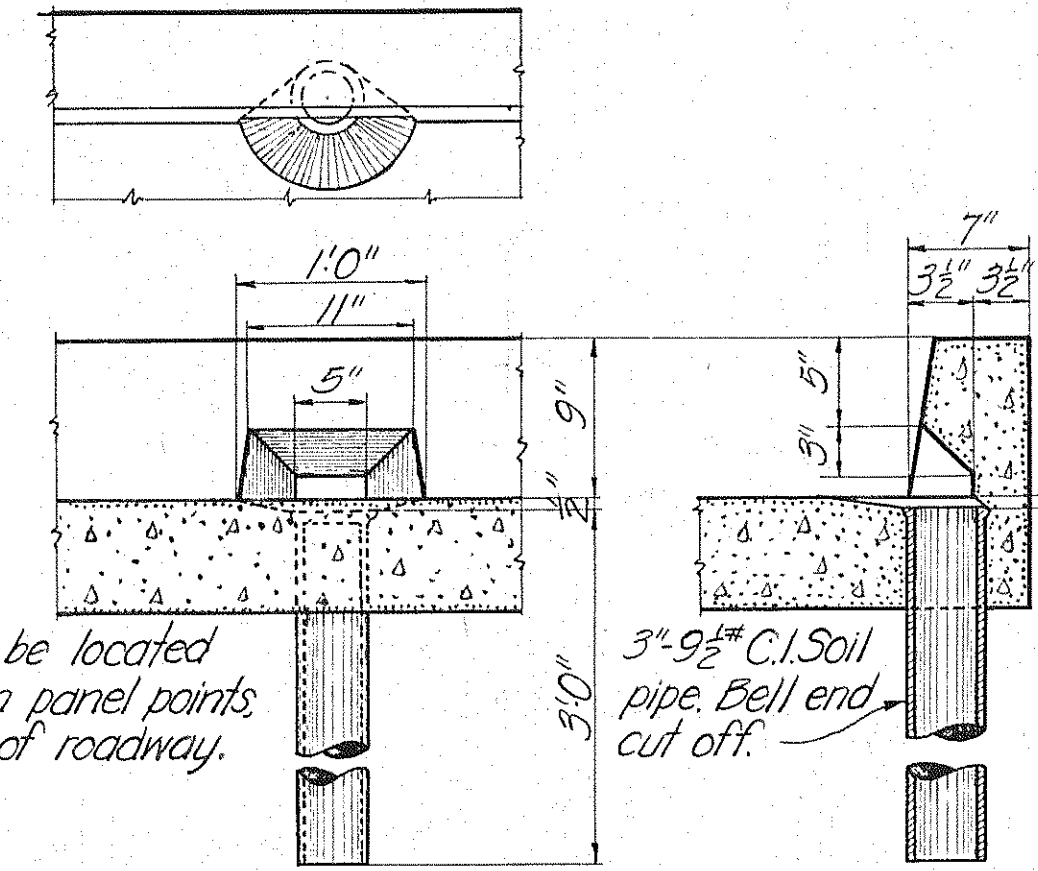
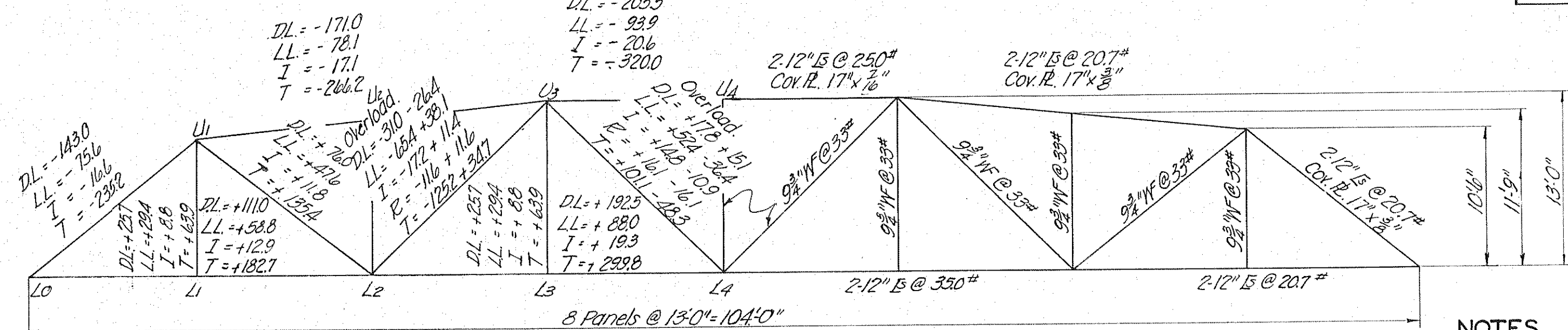
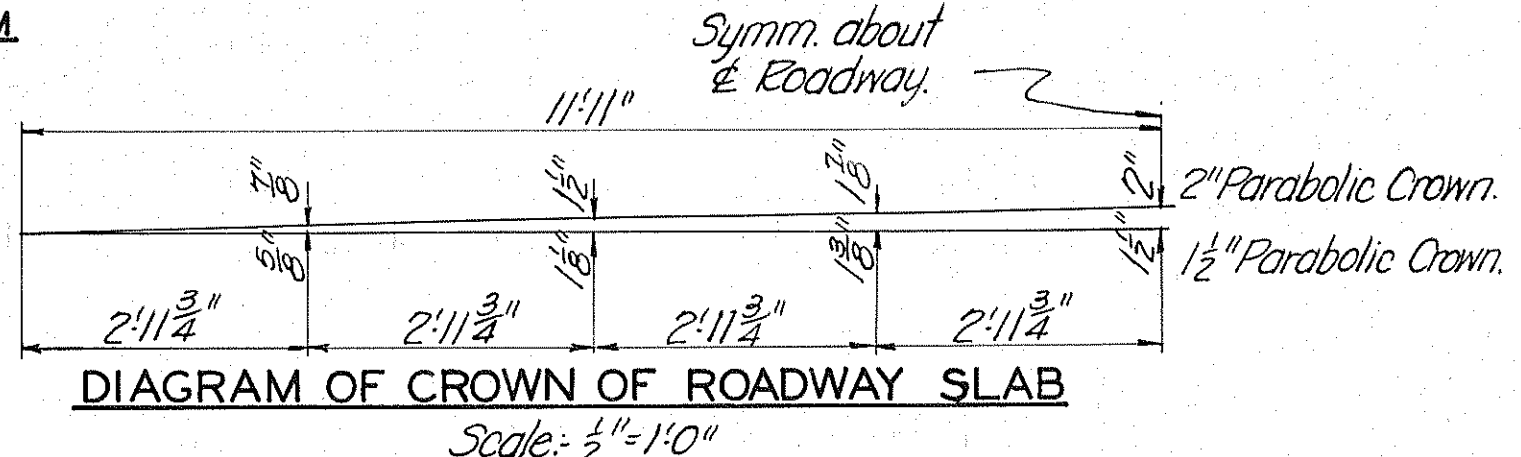


DIAGRAM OF CROWN OF ROADWAY SLAB
 Scale: $\frac{1}{2}$ " = 1'-0"



NOTES

SPECIFICATIONS: Montana State Highway Commission Standard Specifications for Road and Bridge Construction, revised April, 1935; Design Specifications for Highway Structures, revised July, 1935; and Special Provisions shall govern unless otherwise noted.

LIVE LOAD: Standard H-15 Loading.

RIVETS: $\frac{3}{4}$ " Unless otherwise noted.

OPEN HOLES: $\frac{1}{2}$ " Unless otherwise noted.

REAMING: Holes for field connections in trusses to be punched $\frac{1}{16}$ " and reamed $\frac{3}{16}$ " with truss completely assembled and joints matchmarked. Floor beam and stringer connections shall be reamed to a metal template not less than 1" thick.

FLOOR MEMBERS: Floorbeams shall be set with webs perpendicular to lower chord. Stringers shall be set with webs vertical. Stringer lengths back to back of connection angles shall correspond to shop lengths of lower chords with no allowance for clearance.

CAMBER: The permanent camber which is included with the dead load deflection in the blocking shown on this sheet is $\frac{3}{8}$ " at L2 and $\frac{1}{2}$ " at L4.

ALTERNATE SECTIONS: Alternate sections may be used when approved by the Montana State Highway Department but payment shall be based on weights of sections shown on the plans.

APPROVAL: Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.

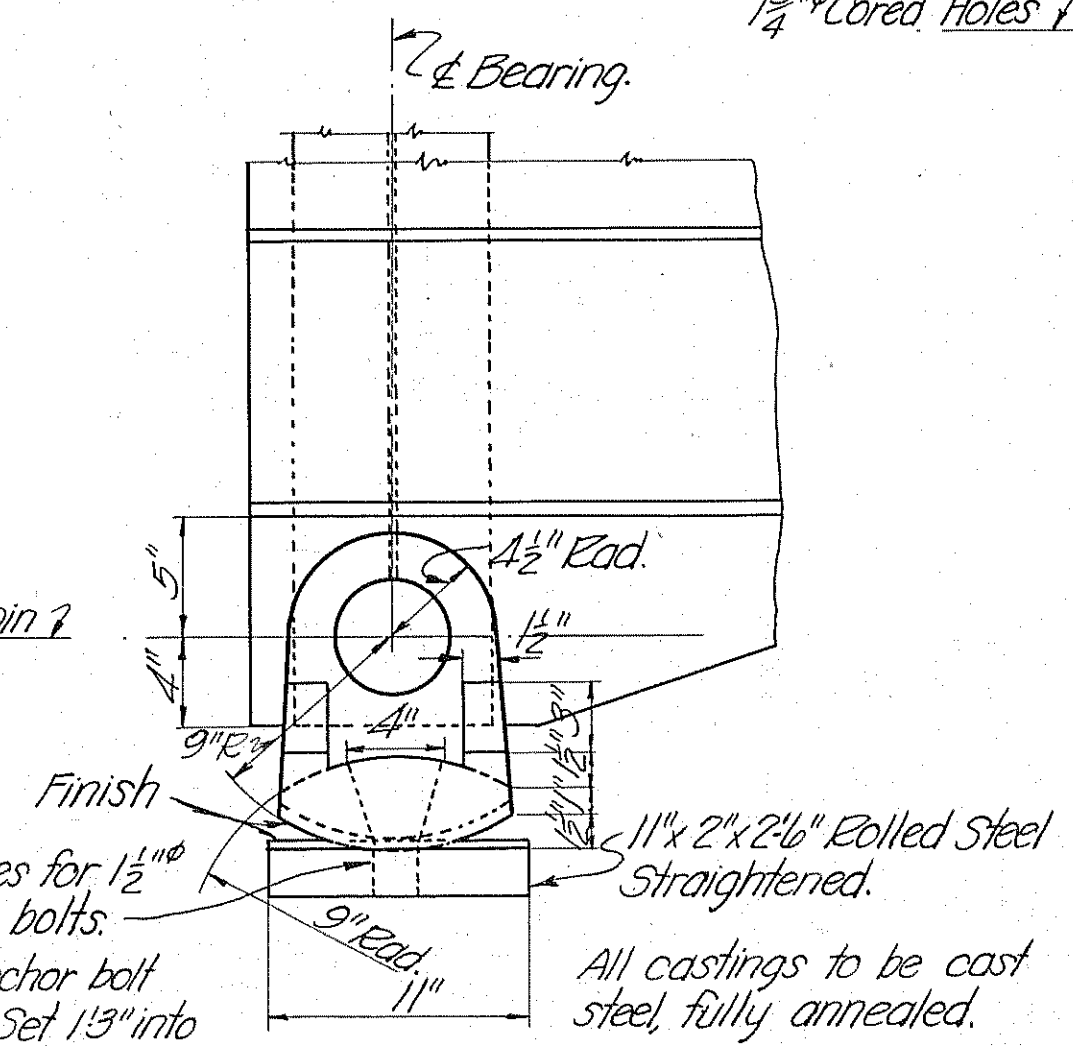
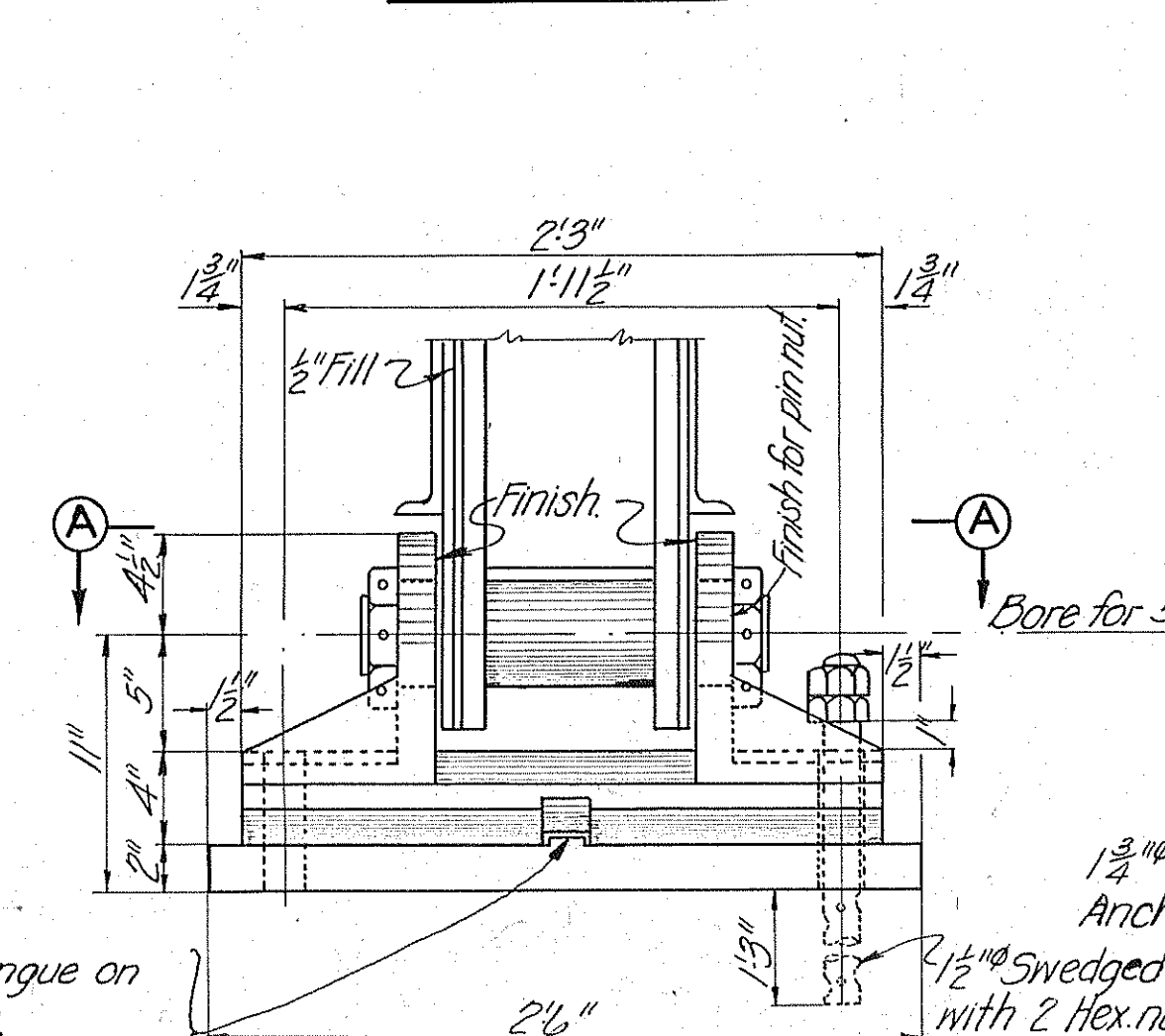
STEEL CASTINGS: Steel castings shall conform to the requirements of the Standard Specifications for class "B" regular grade, fully annealed castings, serial designation A27-36T of the American Society for Testing Materials.

SETTING OF SHOES: Rocker shoes shall be set vertical under full dead load at 60°F. If rockers are not in correct position with final dead load on spans spans shall be jacked and adjustments made.
 Total dead load elongation of bottom chord in each span will be about $\frac{3}{8}$ " in, of which $\frac{1}{4}$ " in. will occur during pouring of floor slab.

WELDS: All welds shall be $\frac{3}{8}$ " in. continuous fillet shop welds unless otherwise noted. See Special Provisions for requirements governing welding.

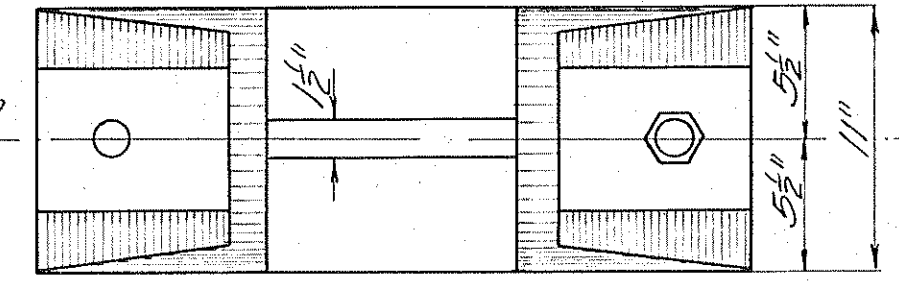
STRUCTURAL STEEL (METHOD OF MEASUREMENT & PAYMENT): The structural steel shall be paid for at the unit price bid for structural steel and the weight paid for shall be the computed weight as obtained in accordance with the rules and assumptions specified in the Standard Specifications. The computed weight of each shipping unit shall be shown on the shop drawings. This weight may or may not be checked at the time the details are checked.

SECTION A-A



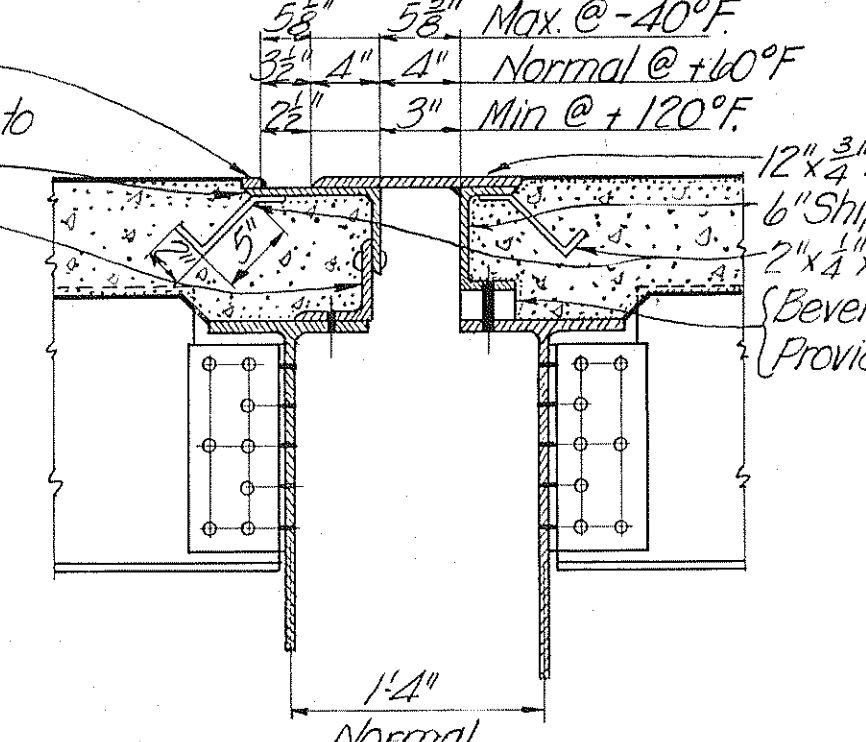
**ONE FIXED SHOE & ONE EXPANSION SHOE
 DETAIL OF FLOOR JOINT**

For details not shown see Detail of Floor Joint below.
 Scale: 1" = 1'-0"



**TWO EXPANSION SHOES
 DETAIL OF FLOOR JOINT**

For details not shown see Detail of Floor Joint above.
 Scale: 1" = 1'-0"



**STATE OF MONTANA
 STATE HIGHWAY COMMISSION**
 STANDARD 104 FT. PONY TRUSS SPAN

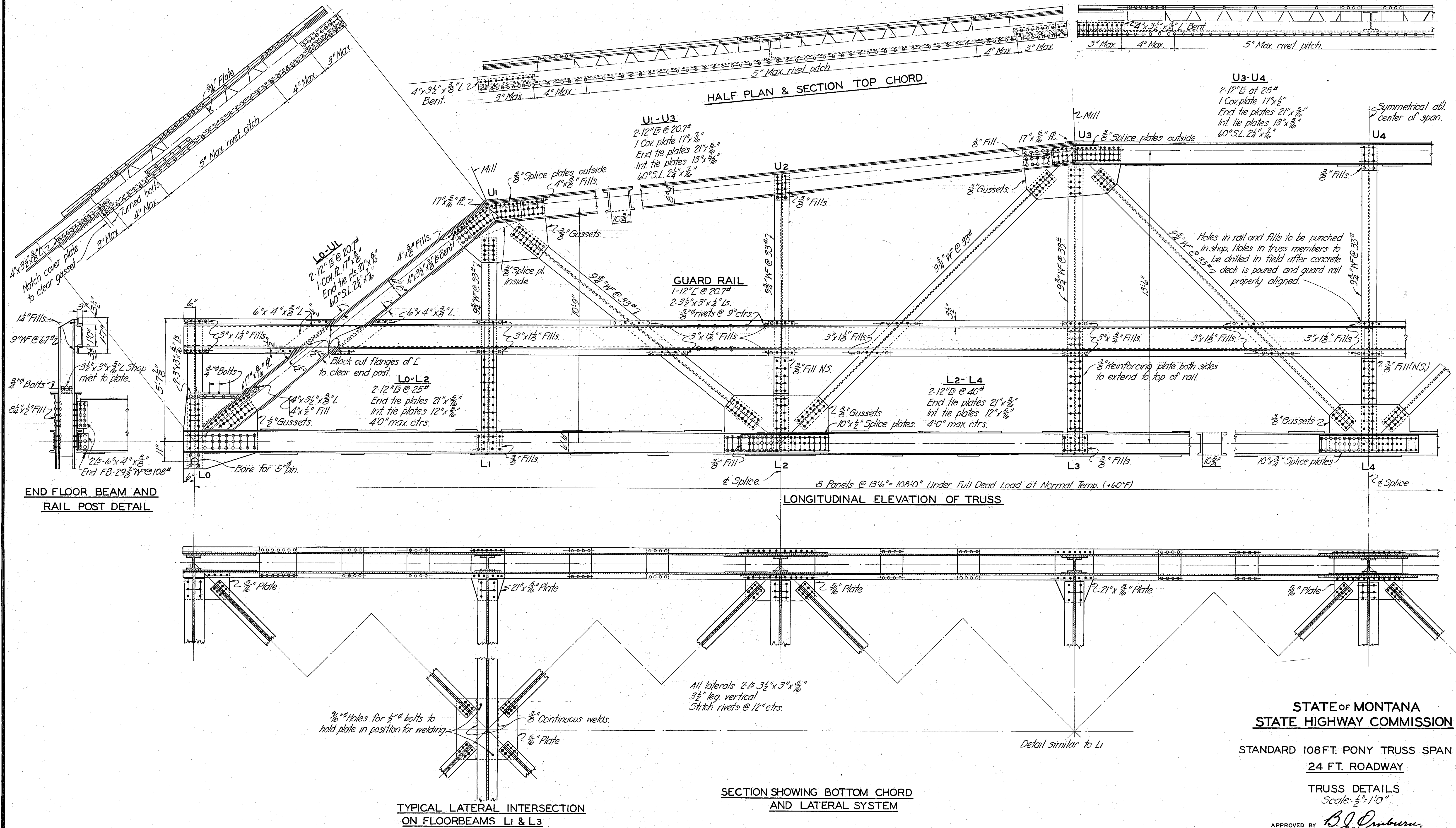
24 FT. ROADWAY

DETAILS
 Scale as noted

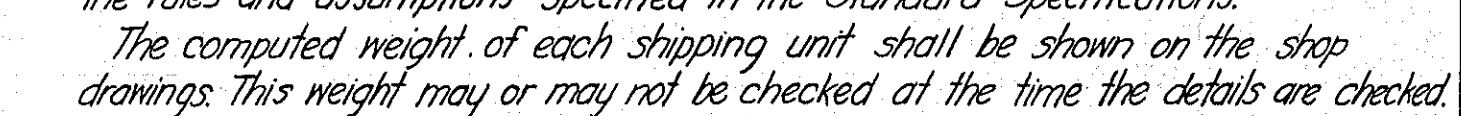
APPROVED BY: *B. J. Omberson*
 BRIDGE DESIGNING ENGINEER

DRAWING NO. R24 PT104 DETAILS

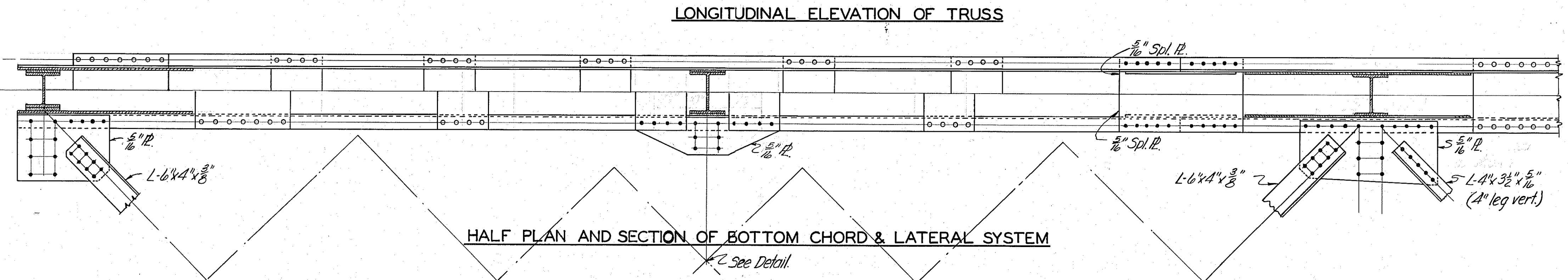
DESIGNED BY	MB	NO. 36
DRAWN BY	J.C.E.	6-23-39
TRACED BY	J.C.E.	6-23-39
CHECKED BY	J.C.H.	6-23-39
REVISED BY		
REVISED BY		



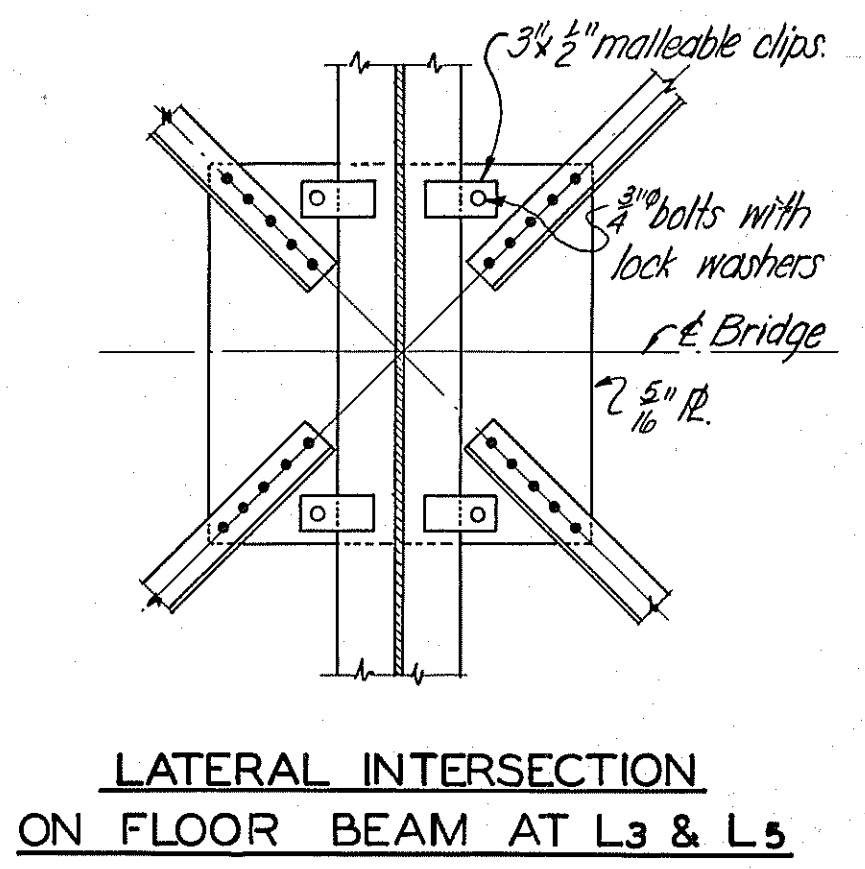
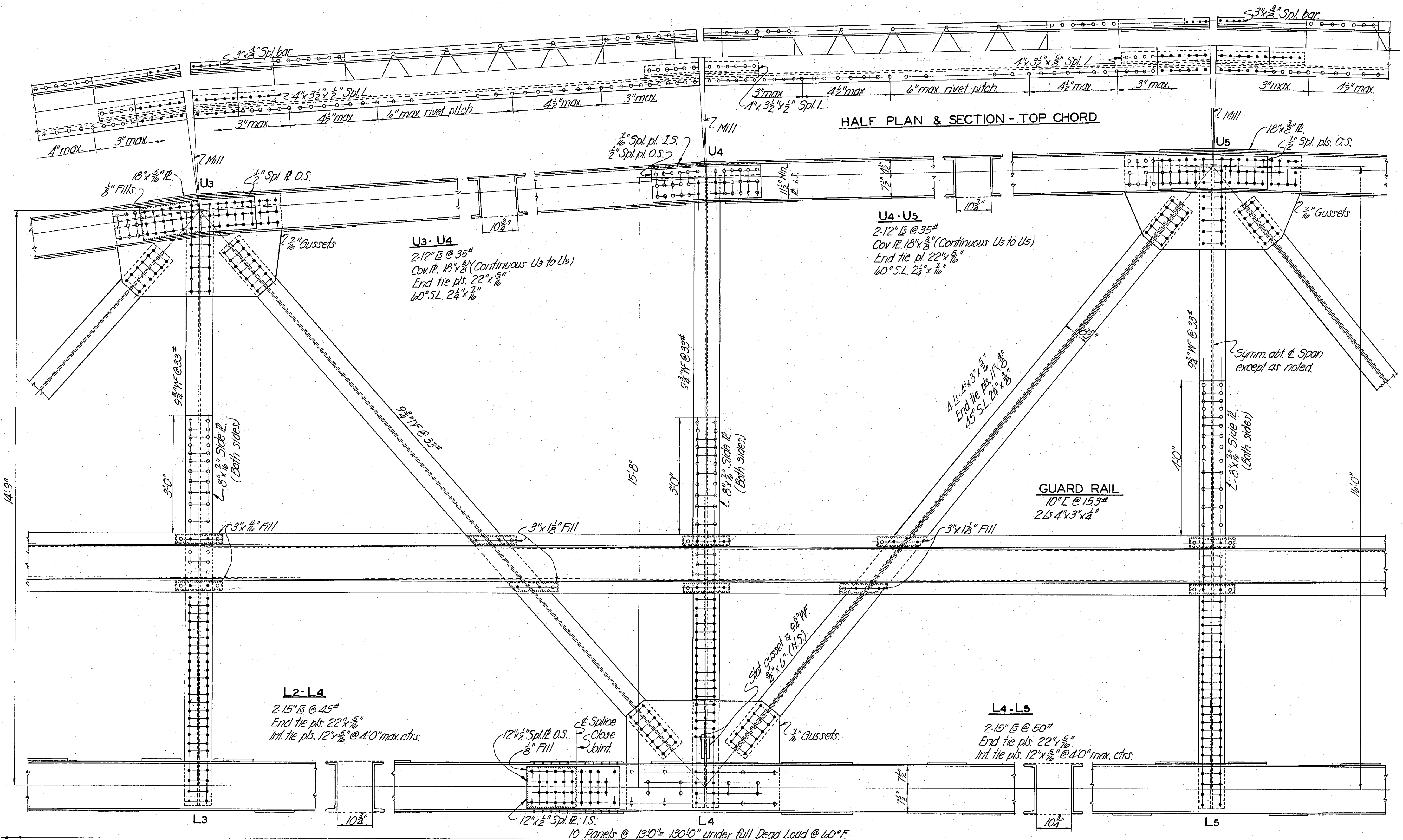
DESIGNED BY	DATE	BY	DATE	BY	DATE
DRAWN BY	DATE	BY	DATE	BY	DATE
CHECKED BY	DATE	BY	DATE	BY	DATE
REVIEWED BY	DATE	BY	DATE	BY	DATE



Scale: $1\frac{1}{2}'' = 1'0''$



FED. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.			



STATE OF MONTANA
STATE HIGHWAY COMMISSION

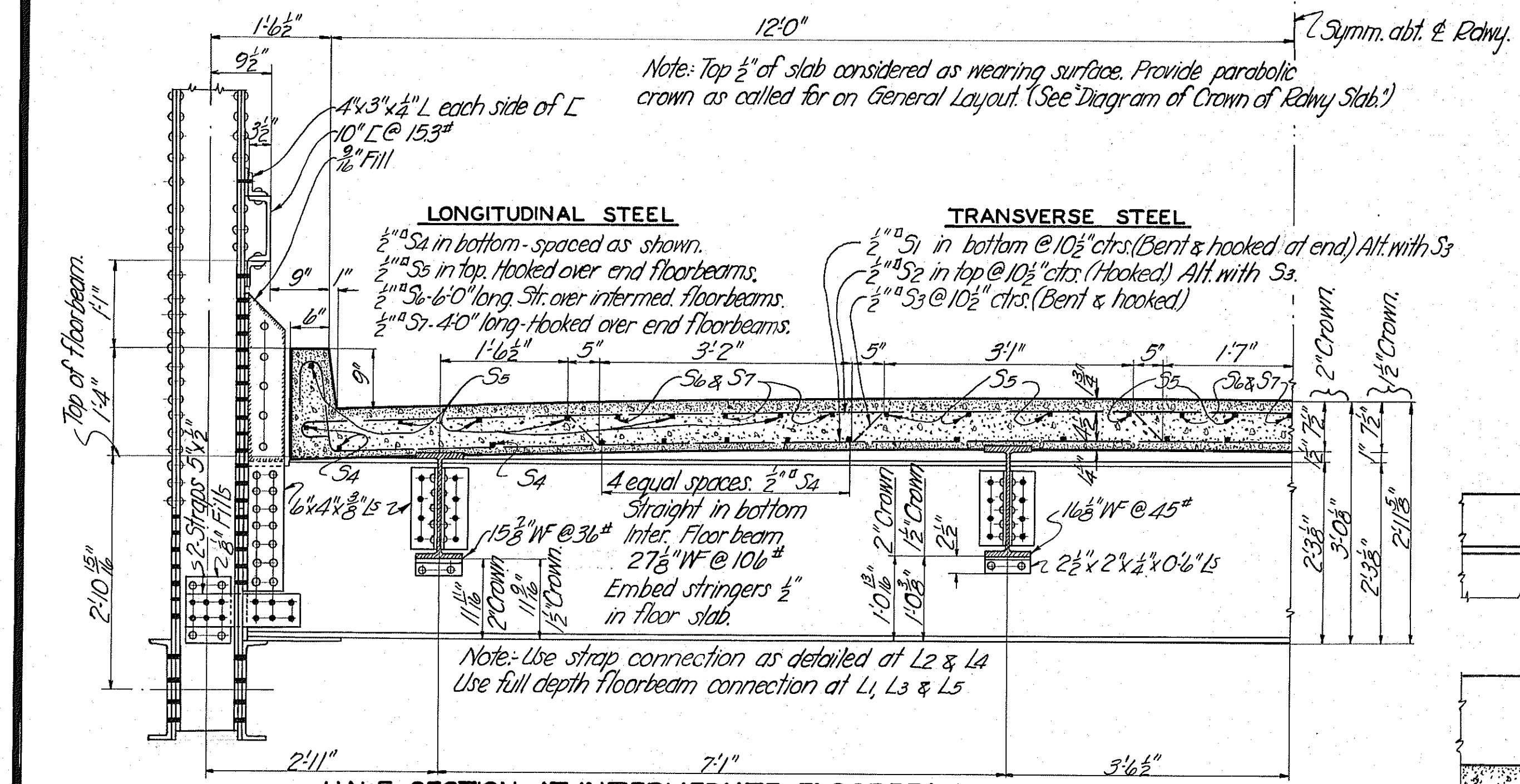
STANDARD 130 FT. PONY TRUSS SPAN

24 FT. ROADWAY
TRUSS L3-L5
Scale: 3/4" = 1'-0"

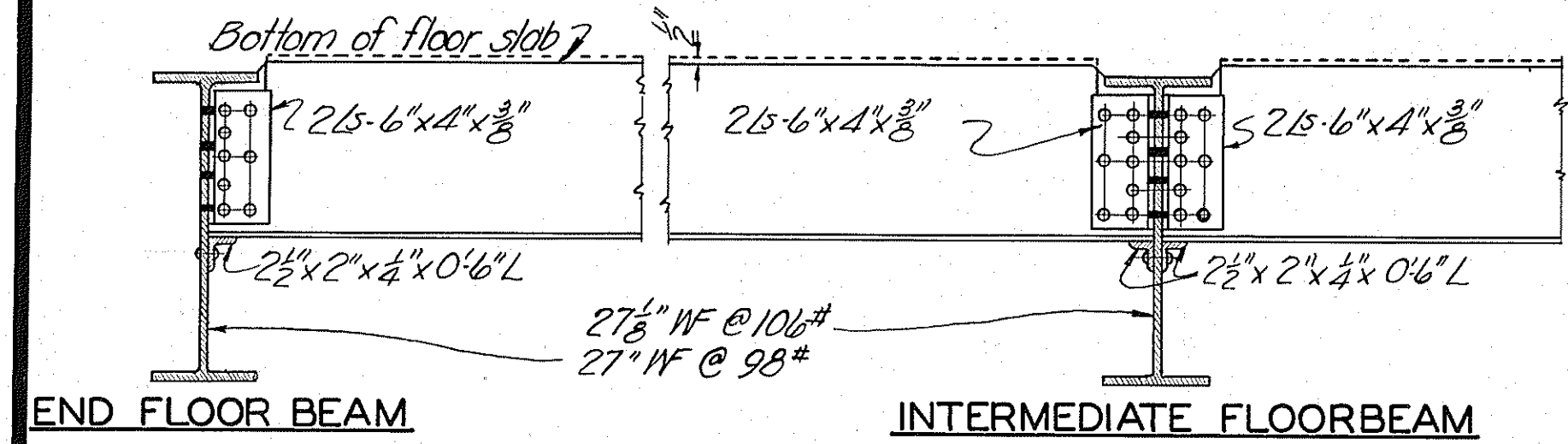
APPROVED BY: *B. J. Omburn*
BRIDGE DESIGNING ENGINEER

DRAWING NO. R24-PT 130 B

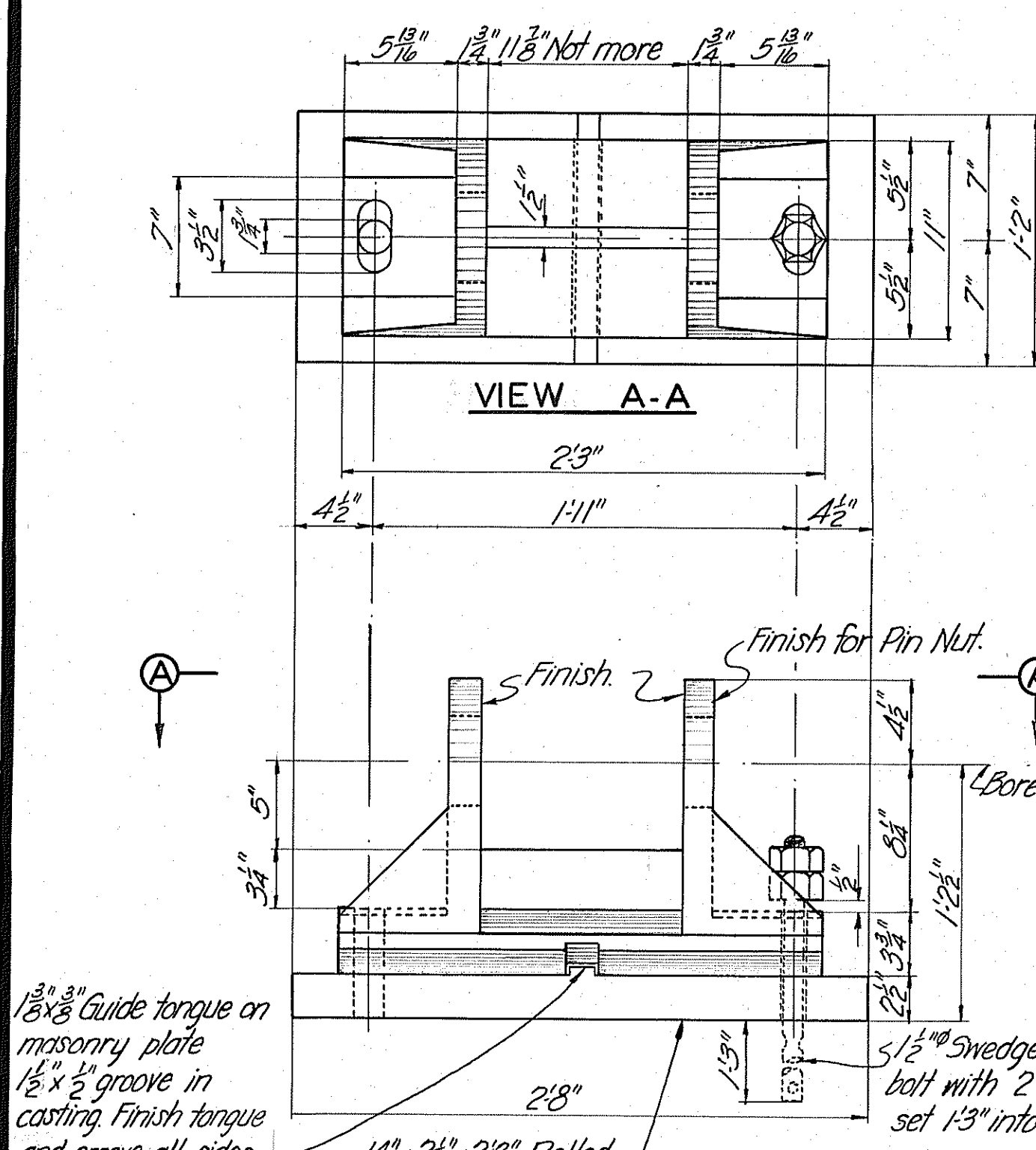
DESIGNED BY	ALH-HCH	Jan. 40
DRAWN BY	AMK	1-22-40
TRACED BY	TCR	1-23-40
CHECKED BY	R.L.H.	2-16-40
REVISED BY		
REVISED BY		



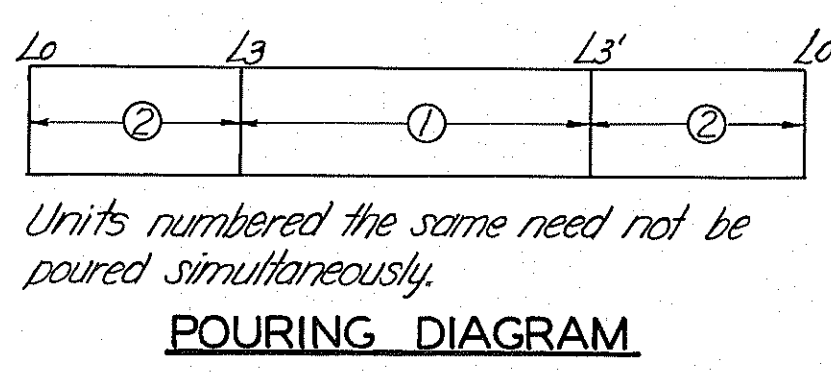
HALF SECTION AT INTERMEDIATE FLOORBEAM
Scale: 3/4" = 1'-0"



DETAIL OF STRINGER CONNECTIONS
Scale: 3/4" = 1'-0"



EXPANSION SHOE
Scale: 1 1/2" = 1'-0"



POURING DIAGRAM

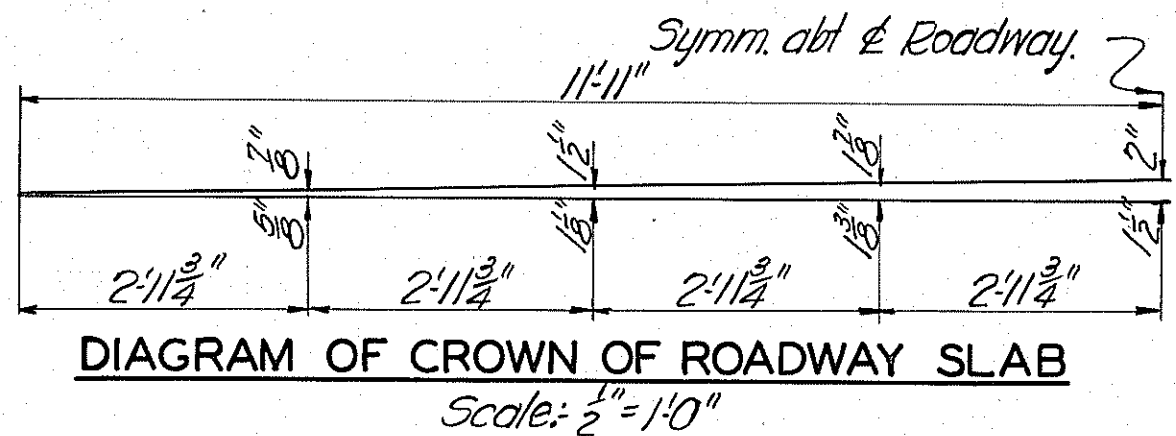
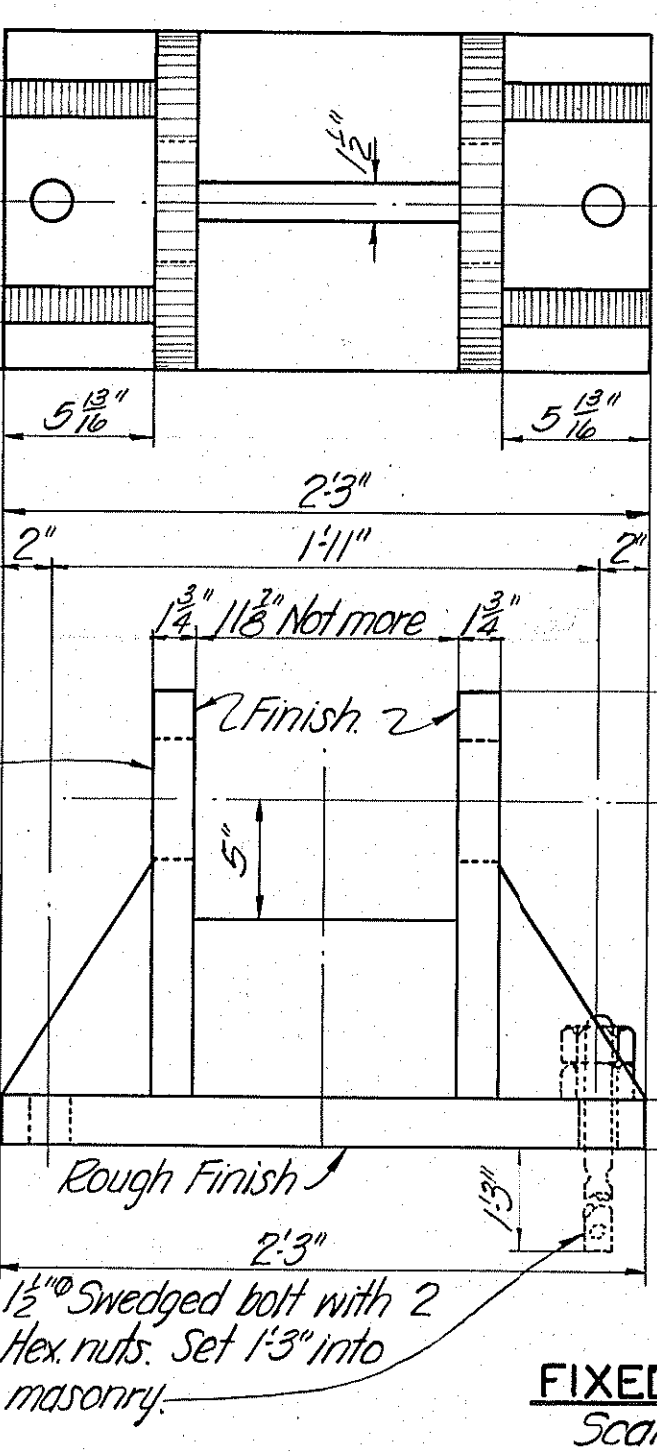
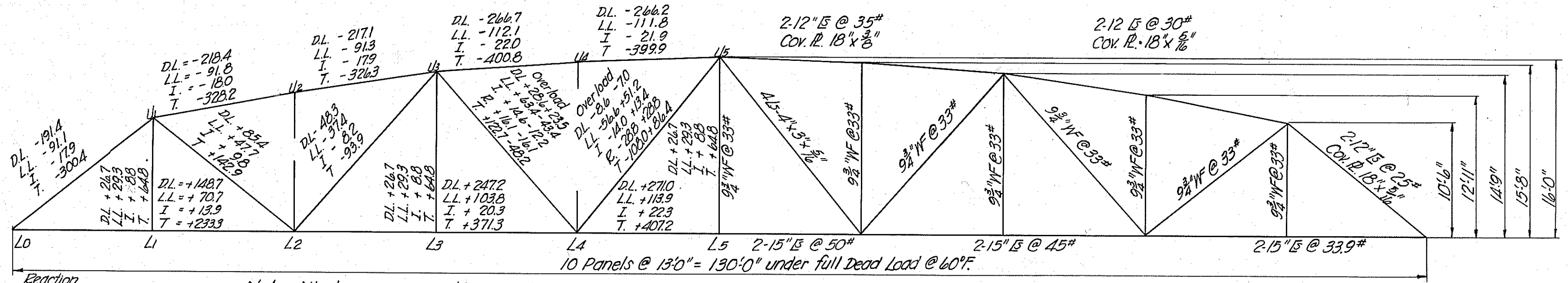


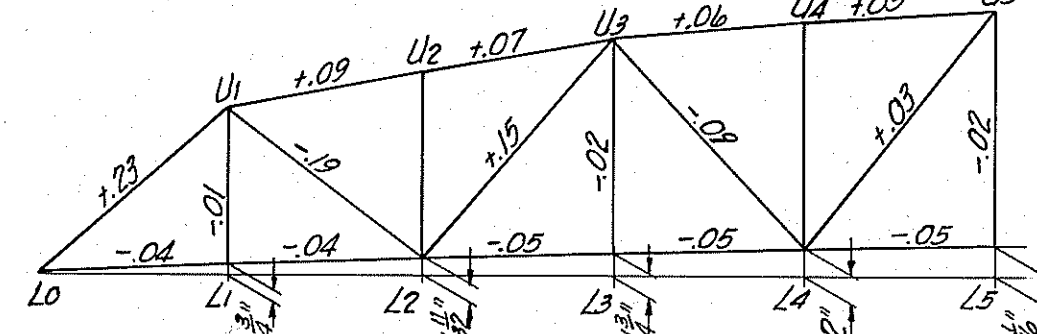
DIAGRAM OF CROWN OF ROADWAY SLAB
Scale: 1/2" = 1'-0"



DETAIL OF FLOOR PLATE AT CURB
Scale: 1" = 1'-0"



STRESS DIAGRAM



CAMBER & BLOCKING DIAGRAM

Note: The camber diagram shows in inches the amount each member is to be lengthened or shortened from the nominal length to compensate for dead load deformation and provide permanent camber.
+ Indicates correction to be added to nominal length.
- Indicates correction to be subtracted from nominal length.
Blocking shown in camber diagram is to be used for assembly of trusses in shop for reaming of field connections and when trusses are supported at all bottom chord panel points for erection.
The permanent camber, which is included with the dead load deflection in the blocking shown, is 3/4" at 1/2 span.

DRAIN DETAILS
Scale: 1" = 1'-0"

NOTES

SPECIFICATIONS: Montana State Highway Commission Standard Specifications for Road and Bridge Construction, adopted January 1, 1940, and Design Specifications for Highway Structures, revised July, 1935 shall govern unless otherwise noted.

LIVE LOAD: Standard H-15 Loading.

RIVETS: 3/4" unless otherwise noted.

REAMING: Holes for field connections of main truss members shall be sub-punched and reamed in the shop with trusses assembled and joints match-marked, as called for in the Standard Specifications. End connections of floorbeams and stringers shall be reamed to a metal template not less than 1 inch thick. Where turned bolts are used, holes shall be sub-punched and reamed.

FLOOR MEMBERS: Floorbeams shall be set with webs normal to lower chord. Stringers shall be set with webs vertical. Stringer lengths shall correspond to shop lengths of lower chords with no allowance for clearance.
End connection angles of stringers shall be riveted to the web with the stringer assembled in an iron frame so as to give the correct length of the stringer and the correct position of the angles.

ALTERNATE SECTIONS: Alternate sections may be used when approved by the Montana State Highway Department, but payment shall be based on the weights of sections shown on the plans.

APPROVAL: Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.

WELDS: All welds shall be continuous fillet shop welds unless otherwise noted. Welds shall be paid for at the unit price bid for structural steel and the weights shall be computed in accordance with the following: 1/4" @ .125 lbs per ft., 3/8" @ .257 lbs per ft.

SETTING OF SHOES: Rocker shoes shall be set vertical under full dead load at 60°F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.
Total dead load elongation of bottom chord in each span will be about 1/2 inch, of which 3/8 inch will occur during pouring of floor slab.

ROLLED BEAMS: Rolled beam sections marked "W" shall be either Carnegie or Bethlehem standard wide flange sections of the weights and depths specified.

STRUCTURAL STEEL (METHOD OF MEASUREMENT & PAYMENT): The structural steel shall be paid for at the contract price bid for structural steel and the weight paid for shall be the computed weight as obtained in accordance with the rules and assumptions specified in the Standard Specifications. The computed weight of each shipping unit shall be shown on the shop drawings. This weight may or may not be checked at the time the details are checked.

**STATE OF MONTANA
STATE HIGHWAY COMMISSION**

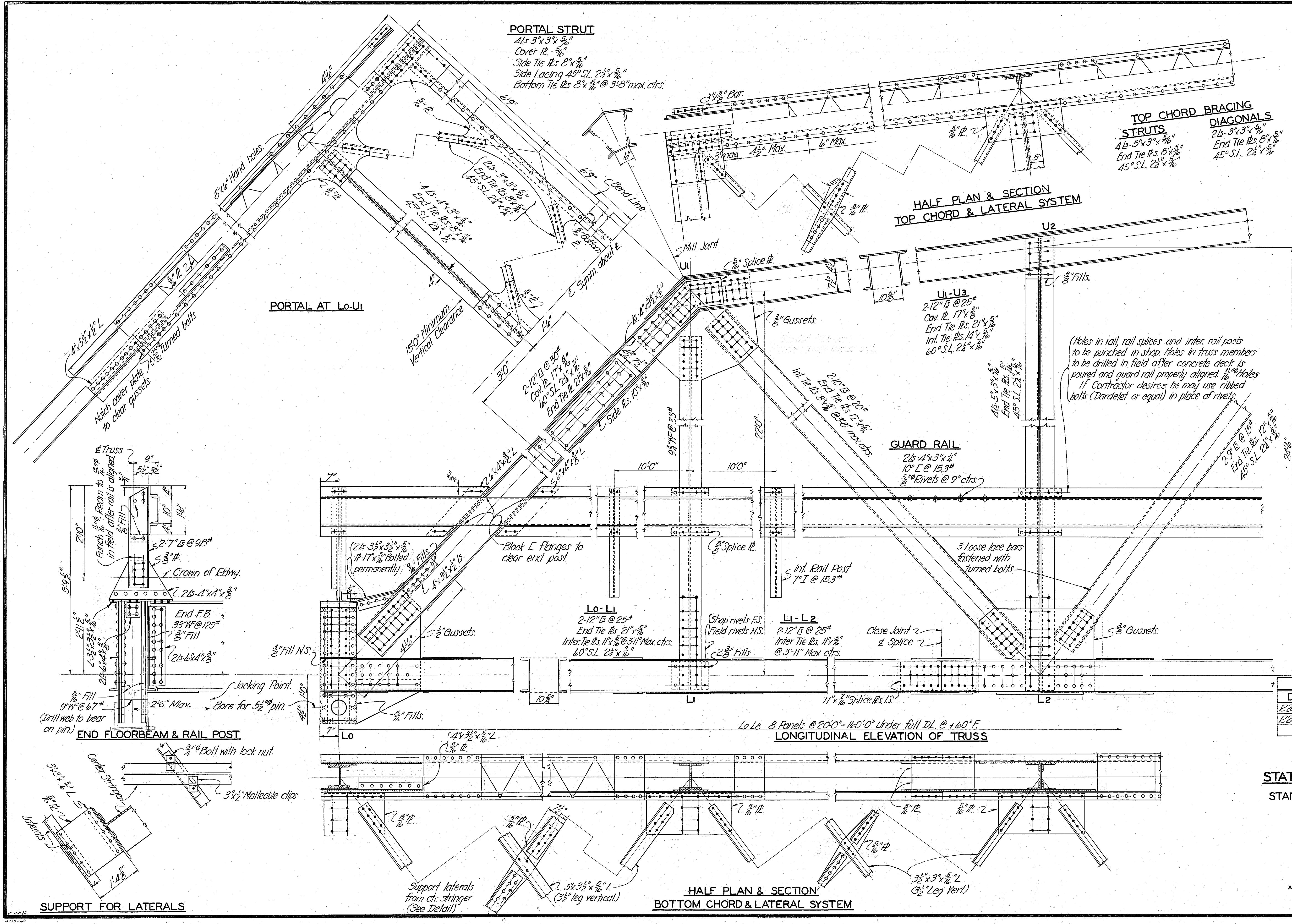
STANDARD 130 FT. PONY TRUSS SPAN

24 FT. ROADWAY

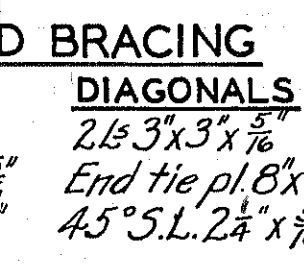
DETAILS
Scale as noted.

APPROVED BY *R. L. Amburn*
BRIDGE DESIGNING ENGINEER

DRAWING NO. R 24-PT130 DETAILS



DESIGNED BY	ALH/HCH	JAN 40
DRAWN BY	JAM	2-3-40
TRACED BY	T.C.P.	2-7-40
CHECKED BY	H.C.H.	3-15-40
REVISED BY		
REVISED BY		



Technical drawing of a pin nut assembly, showing side and end views with dimensions and material specifications.

Side View Dimensions:

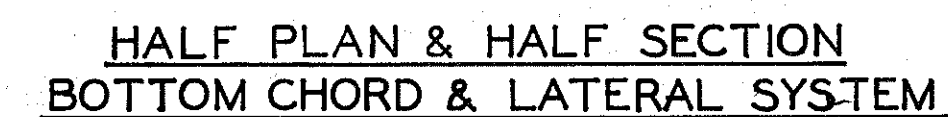
- Overall width: $2'-4"$
- Top flange widths (from left to right): $7\frac{1}{16}"$, $1\frac{1}{8}"$, $4\frac{1}{8}"$, $1\frac{1}{8}"$, $4\frac{1}{8}"$, $1\frac{1}{8}"$, $7\frac{1}{16}"$
- Central hole diameter: $10\frac{3}{8}"$
- Central hole depth: $5"$
- Bottom flange width: $3"$
- Overall height: $2'-6"$
- Internal vertical dimensions (from top to bottom): $3\frac{1}{2}"$, $4"$, $5\frac{1}{2}"$, $3\frac{1}{2}"$, $4\frac{3}{4}"$
- Internal horizontal dimensions (from center to edges): $3"$, $2'-0"$, $3"$

End View Dimensions:

- Overall width: $11"$
- Top flange widths (from left to right): $1\frac{1}{8}"$, $3\frac{1}{8}"$, $1\frac{1}{8}"$, $3\frac{1}{8}"$, $1\frac{1}{8}"$
- Central hole diameter: $4"$
- Overall height: $1'-1"$
- Internal vertical dimensions (from top to bottom): $1\frac{1}{2}"$, $2\frac{3}{4}"$, $1\frac{1}{2}"$
- Internal horizontal dimensions (from center to edges): $2"$, $1'-3"$, $2"$
- Overall width at base: $1'-7"$

Annotations and Notes:

- Finish for pin nut
- Finish
- $1\frac{1}{2}" \phi$ bolt with sq. head and 2 Hex. nuts (See Detail)
- Groove $1\frac{5}{8}" \times \frac{1}{2}"$ finish sides
- $1\frac{3}{8}" \phi$ holes for $1\frac{1}{2}" \phi$ swaged anchor bolts. (Set 18" into concrete) 2 Hex. nuts each bolt.
- Bore for $5\frac{1}{2}" \phi$ pin
- $1'-1"$
- $1'-1"$ Rad
- Guide, $1\frac{1}{2}" \times \frac{3}{8}"$ finish sides
- Material:
 - Plate: Rolled Steel, straightened.
 - Casting: Cast Steel fully annealed.



APPROVED BY: B. J. Omburn.
BRIDGE DESIGNING ENGINEER
DRAWING NO. R24 T160 B

NOTES

SPECIFICATIONS: Montana State Highway Commission Standard Specifications for Road and Bridge Construction, adopted Jan. 1, 1940; Design Specifications for Highway Structures, revised July, 1935, and Special Provision shall govern unless otherwise noted.

REAMING: Holes for field connections of main truss members shall be sub-punched and reamed in the shop, with trusses assembled and joints match marked, as called for in the Standard Specifications. End connections of floorbeams and stringers shall be reamed to a metal templet not less than 1/4 inch thick. Where turned bolts are used holes shall be sub-punched and reamed.

ALTERNATE SECTIONS: Alternate sections may be used when approved by the Montana State Highway Department, but payments shall be based on weight of sections shown on plans.

FLOOR MEMBERS: Floorbeams shall be set with webs normal to bottom chord of trusses. Stringers shall be set with webs vertical. Stringer lengths shall correspond to shop lengths of lower chords with no allowance for clearance.

End connection angles of stringers shall be riveted to the web with the stringer assembled in an iron frame so as to give the correct length of the stringer and the correct position of the angles.

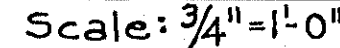
WELDS: All welds shall be continuous fillet shop welds unless otherwise noted. Welds shall be paid for at the unit price bid for structural steel and the weights shall be computed in accordance with the following: 1/4" @ .128# per ft. ; 3/8" @ .287# per ft.

APPROVAL: Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.

SETTING OF SHOES: Rocker shoes shall be set vertical under full dead load at 60°F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.

Total dead load elongation of bottom chord in each span will be about $\frac{9}{16}$ inch, of which $\frac{5}{16}$ inch will occur during pouring of floor slab.

STRUCTURAL STEEL (METHOD OF MEASUREMENT AND PAYMENT): The structural steel shall be paid for at the unit price bid for structural steel and the weight paid for shall be the computed weight as obtained in accordance with the rules and assumptions specified in the Standard Specifications. The computed weight of each shipping unit shall be shown on the shop drawings. This weight may or may not be checked at the time the details are checked.



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

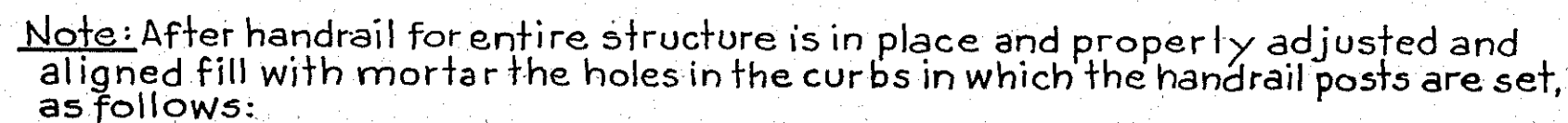
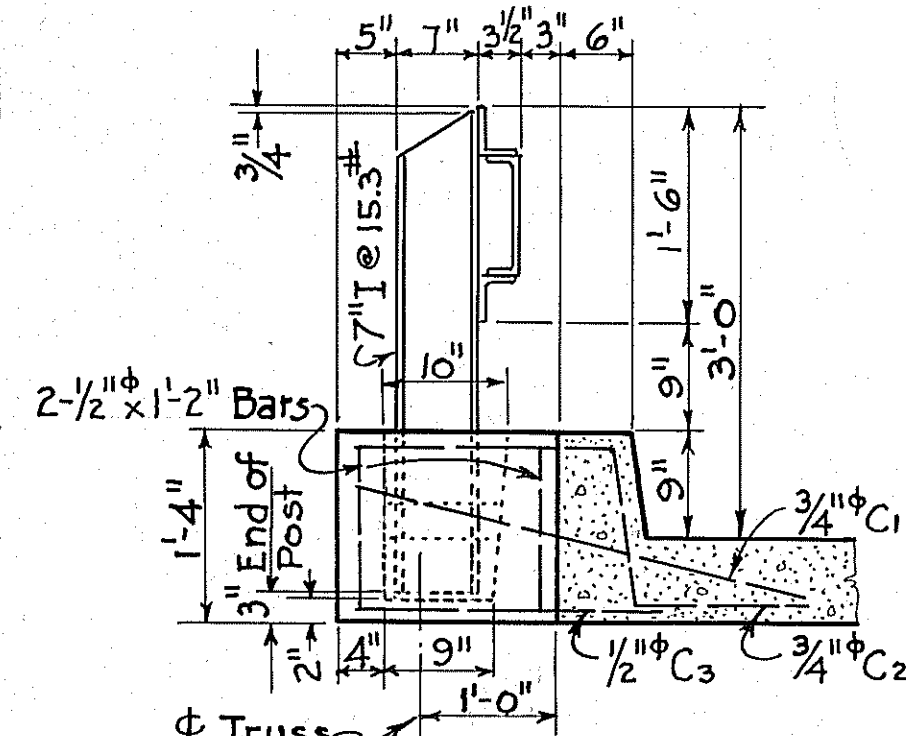


Scale: $\frac{3}{4}'' = 1'-0''$



Scale: 1"=1'-0"

NOTE: FOR FLOOR JOINTS AT BENTS OR



Prepare the concrete surfaces against which the mortar is to be placed as described in the Specifications under "Forming Joints". Then fill the cavity with a thick mortar mixed in the same proportion as that which was used in the body of the work and of the same temperature as the surface against which it is to be placed. Care shall be taken to see that the entire pocket in which each post is set is completely filled with well tamped mortar finished at the top with a slight slope away from the steel post to prevent formation of water pockets. The exposed surface of the mortar pocket shall be kept wet for a period of five days and then after cured as provided in the Specifications.

DETAILS OF BRACKET & POST

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

STANDARD 160 FT. TRUSS SPAN

24 FT. ROADWAY

CROSS SECTION & DETAILS

Scale: As Noted.

APPROVED BY B. L. Omburn,
BRIDGE DESIGNING ENGINEER

DRAWING NO R 24-T160C

