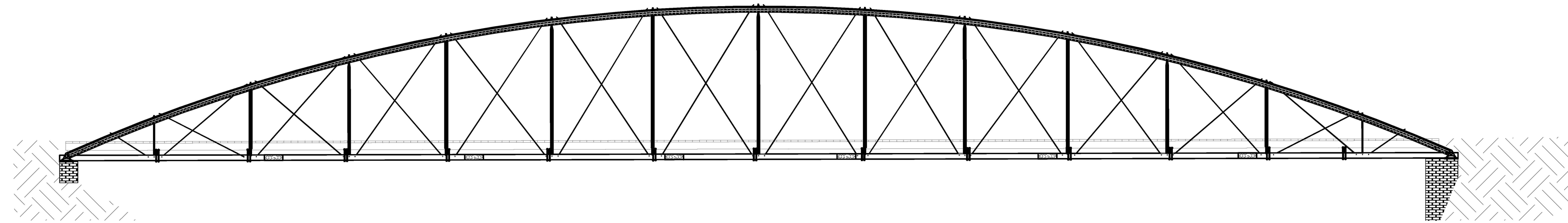


KERN TRUSS BRIDGE

SKYLINE VICINITY, MINNESOTA

BUILT BY WROUGHT IRON BRIDGE COMPANY 1873

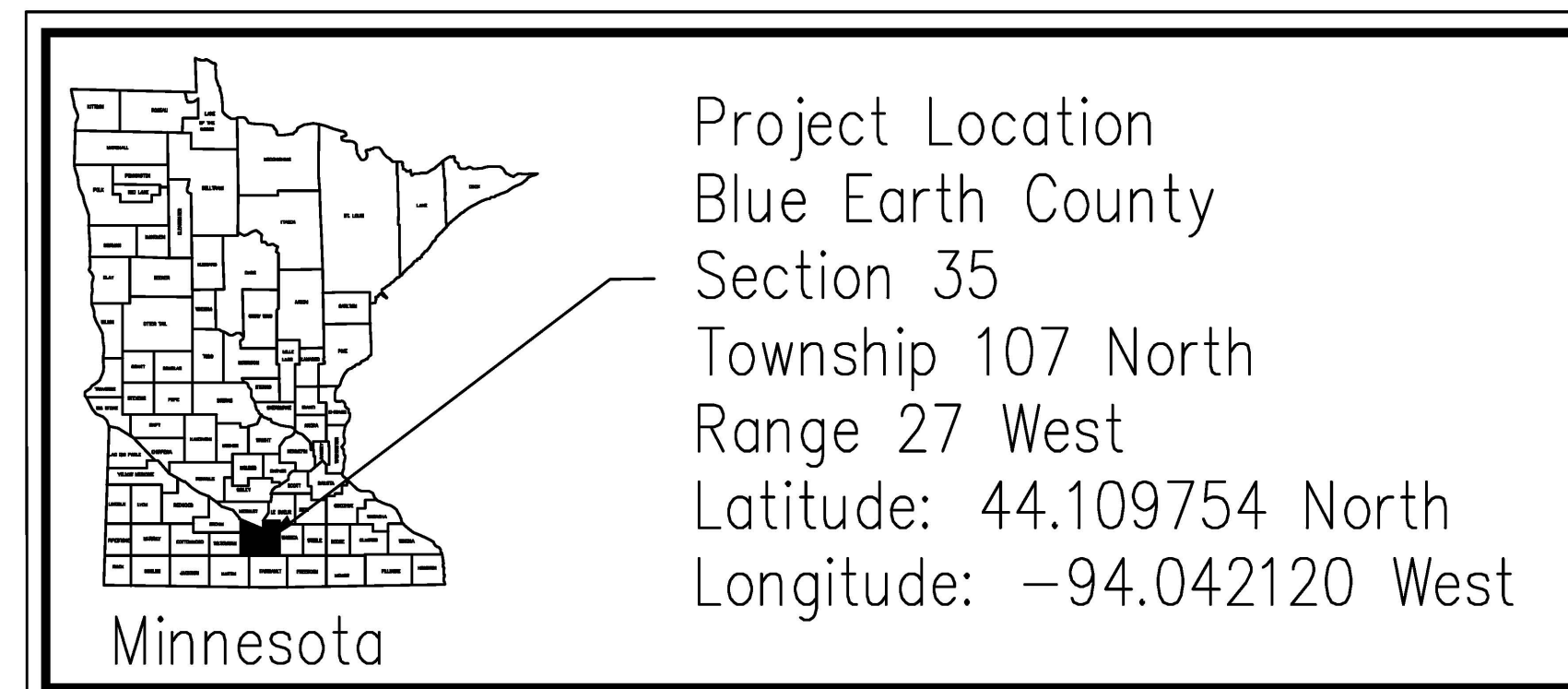


THE KERN BRIDGE (ALSO KNOWN AS THE YAEGER BRIDGE OR BRIDGE L5669) IS LOCATED IN THE SOUTHEAST CORNER OF SOUTH BEND TOWNSHIP, BLUE EARTH COUNTY, MINNESOTA. APPROXIMATELY 2 MILES SOUTH OF SKYLINE, MINNESOTA. THE BRIDGE HISTORICALLY CARRIED IVYWOOD LANE/TOWNSHIP ROAD 190 OVER THE LESUEUR RIVER.

THIS BRIDGE IS LISTED IN THE NATIONAL REGISTER OF HISTORIC PLACES (NATIONAL REGISTER) UNDER CRITERION C, IN THE AREA OF ENGINEERING, AS THE ONLY EXAMPLE OF A BOWSTRING ARCH THROUGH-TRUSS BRIDGE IN THE STATE OF MINNESOTA. THE BRIDGE IS ALSO NATIONALLY SIGNIFICANT UNDER NATIONAL REGISTER CRITERION C, IN THE AREA OF ENGINEERING, AS THE LONGEST EXAMPLE OF A BOWSTRING ARCH THROUGH-TRUSS BRIDGE IN THE UNITED STATES, AND THE SECOND LONGEST IN NORTH AMERICA.

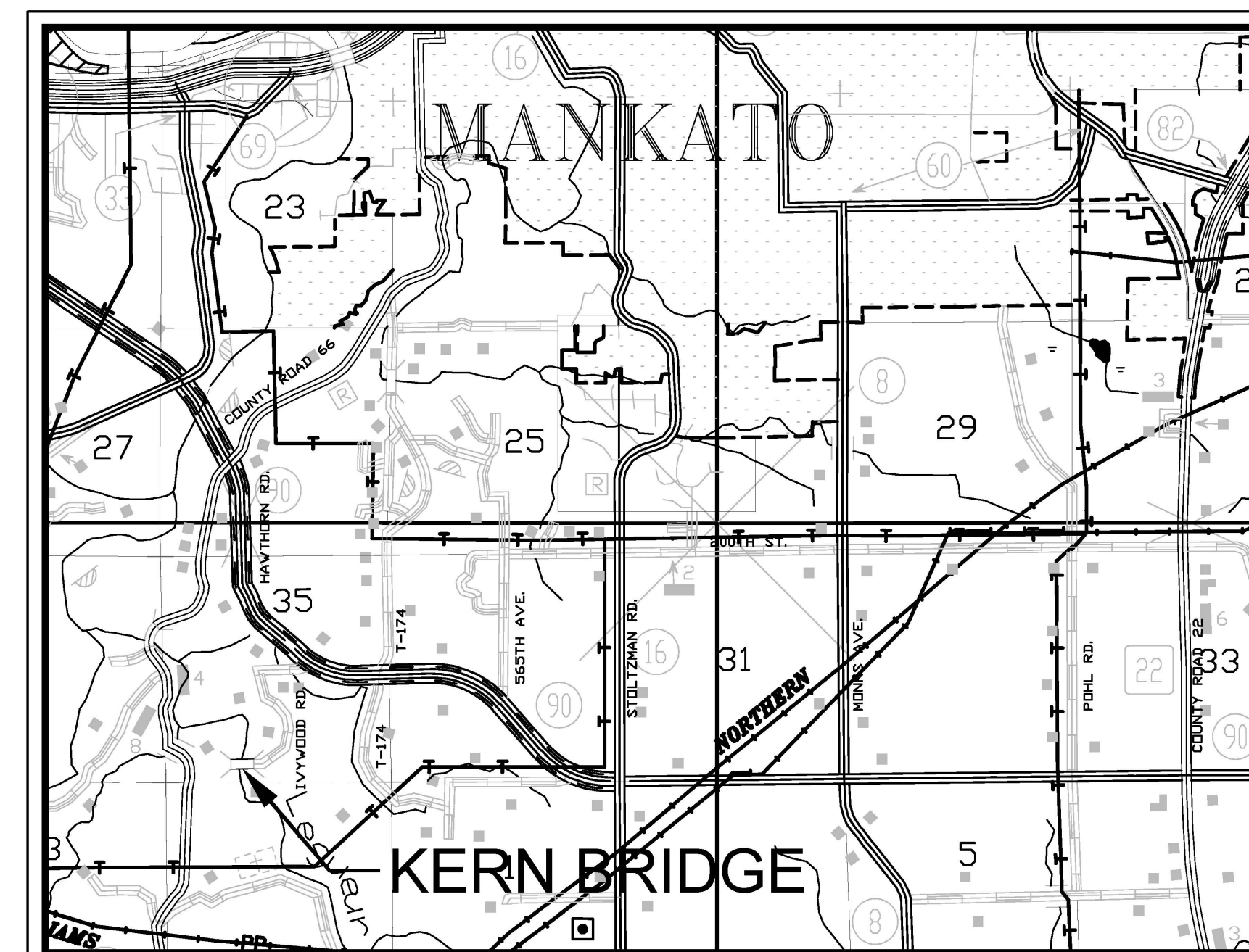
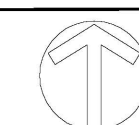
THIS DOCUMENTATION WAS PREPARED AS PART OF THE THIRD PHASE IN THE MINNESOTA DEPARTMENT OF TRANSPORTATION'S (MNDOT) MULTI-PHASED LOCAL HISTORIC BRIDGE STUDY. THE MNDOT LOCAL HISTORIC BRIDGE STUDY WAS DEVELOPED AND EXECUTED IN PARTNERSHIP WITH REPRESENTATIVES FROM THE MINNESOTA HISTORIC PRESERVATION OFFICE (MNHPO); FEDERAL HIGHWAY ADMINISTRATION (FHWA); MNDOT'S STATE AID FOR LOCAL TRANSPORTATION (SALT); THE U.S. ARMY CORPS OF ENGINEERS (CORPS); LOCAL PUBLIC WORKS AND HIGHWAY DEPARTMENTS; COUNTY AND TOWNSHIP BOARDS, AND CITY COUNCILS; THE PRESERVATION COMMUNITY; AND THE GENERAL PUBLIC. MNDOT'S SALT IS THE PROJECT LEAD AND IS JOINTLY ADMINISTERING THE PROGRAM WITH MNDOT'S CULTURAL RESOURCES UNIT (CRU) AND BRIDGE OFFICE. THIS STUDY PREPARED HISTORIC AMERICAN ENGINEERING RECORD (HAER) DOCUMENTATION FOR BRIDGES THAT ARE UNLIKELY TO BE REHABILITATED; ARE RARE, UNUSUAL, AND THE FIRST OR ONLY KNOWN EXAMPLE; OR THAT ARE CANDIDATES FOR RELOCATION. DOCUMENTATION IS BEING PRIORITIZED

FOR BRIDGES IN A STATE OF SEVERE DETERIORATION OR SUBJECT TO LOSS. THE MINNESOTA DEPARTMENT OF TRANSPORTATION RETAINED LHB INC, MEAD & HUNT AND THE 106 GROUP TO PREPARE THIS DOCUMENT. IT WAS PREPARED BY JOE LITMAN, REVIEWING ENGINEER AND TONY HANSON, DESIGN TECHNICIAN OF LHB INC. AND HISTORIANS REBECCA HOEHN AND SALEH MILLER OF THE 106 GROUP. DIETRICH FLOETER COMPLETED THE PHOTOGRAPHY.



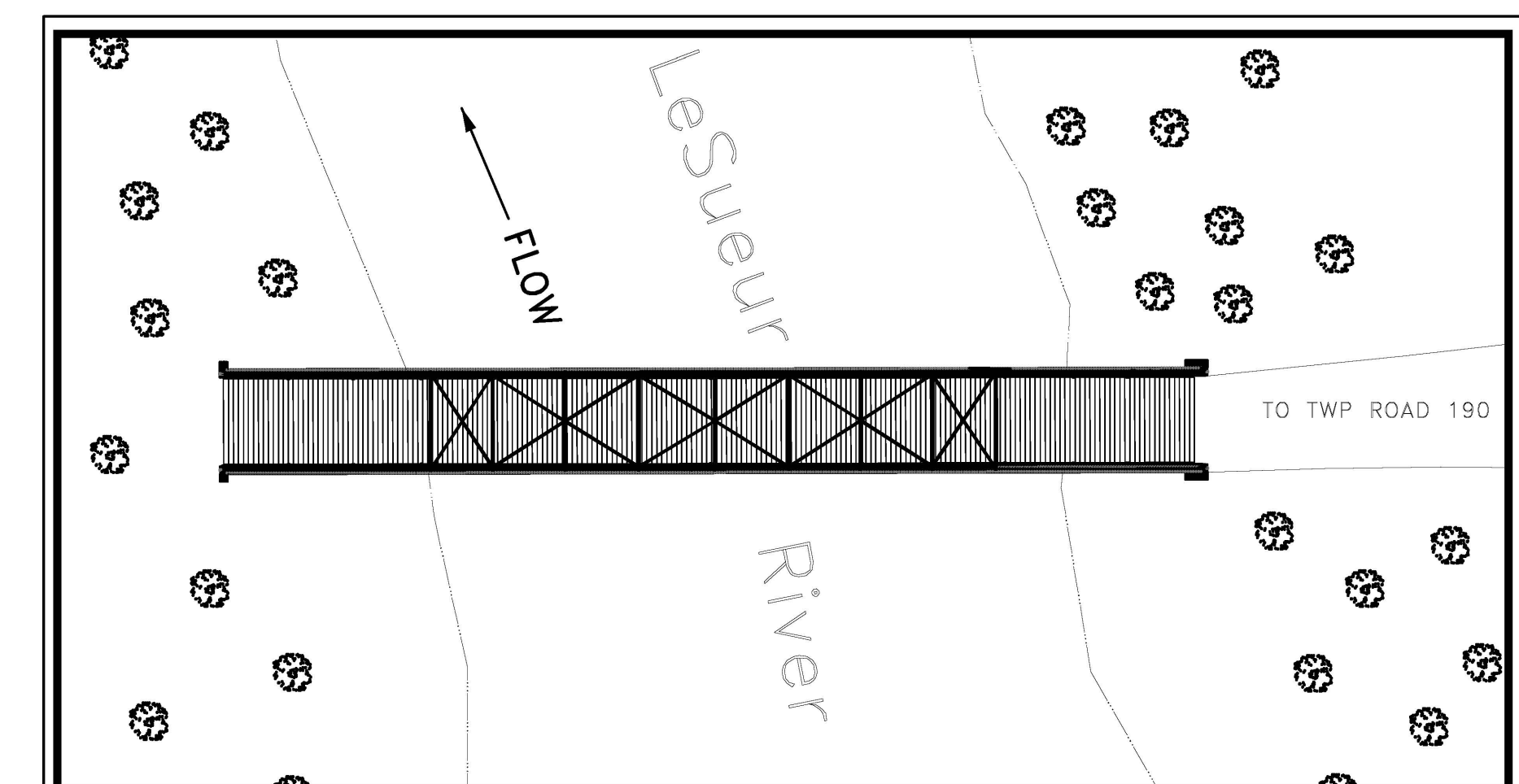
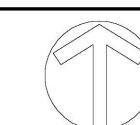
Region Map

No Scale



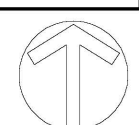
Location Map

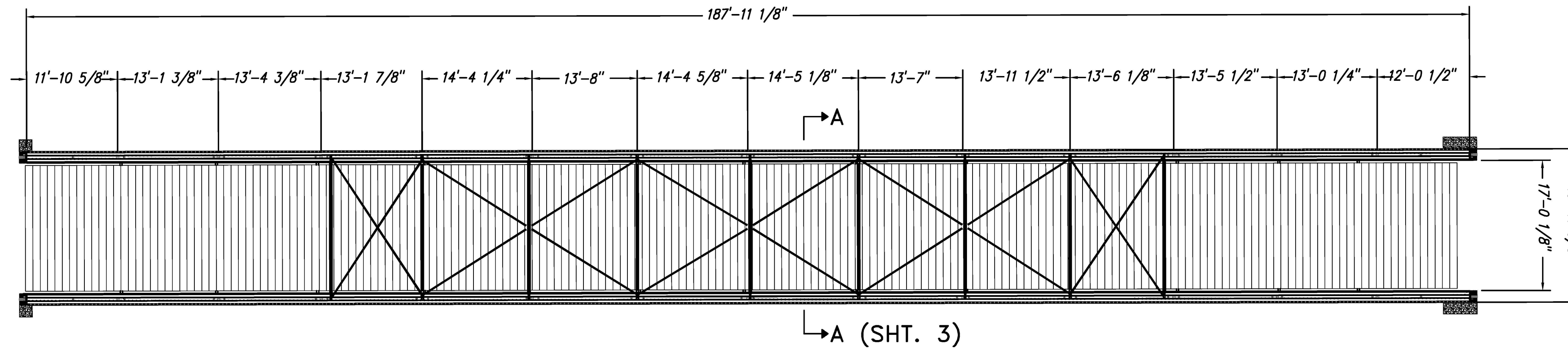
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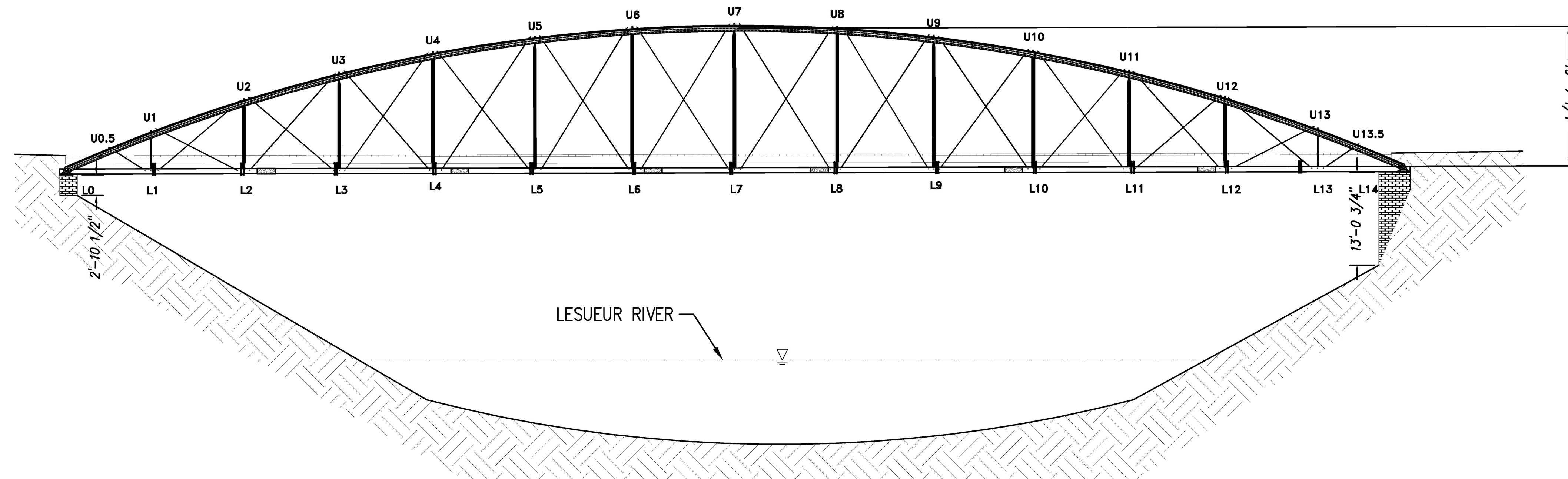
Site Map of Kern Bridge

Scale 1:30

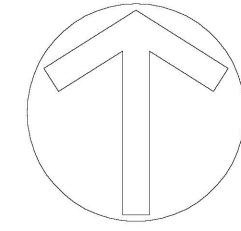
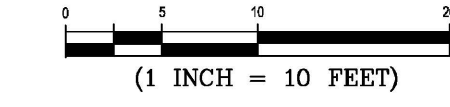


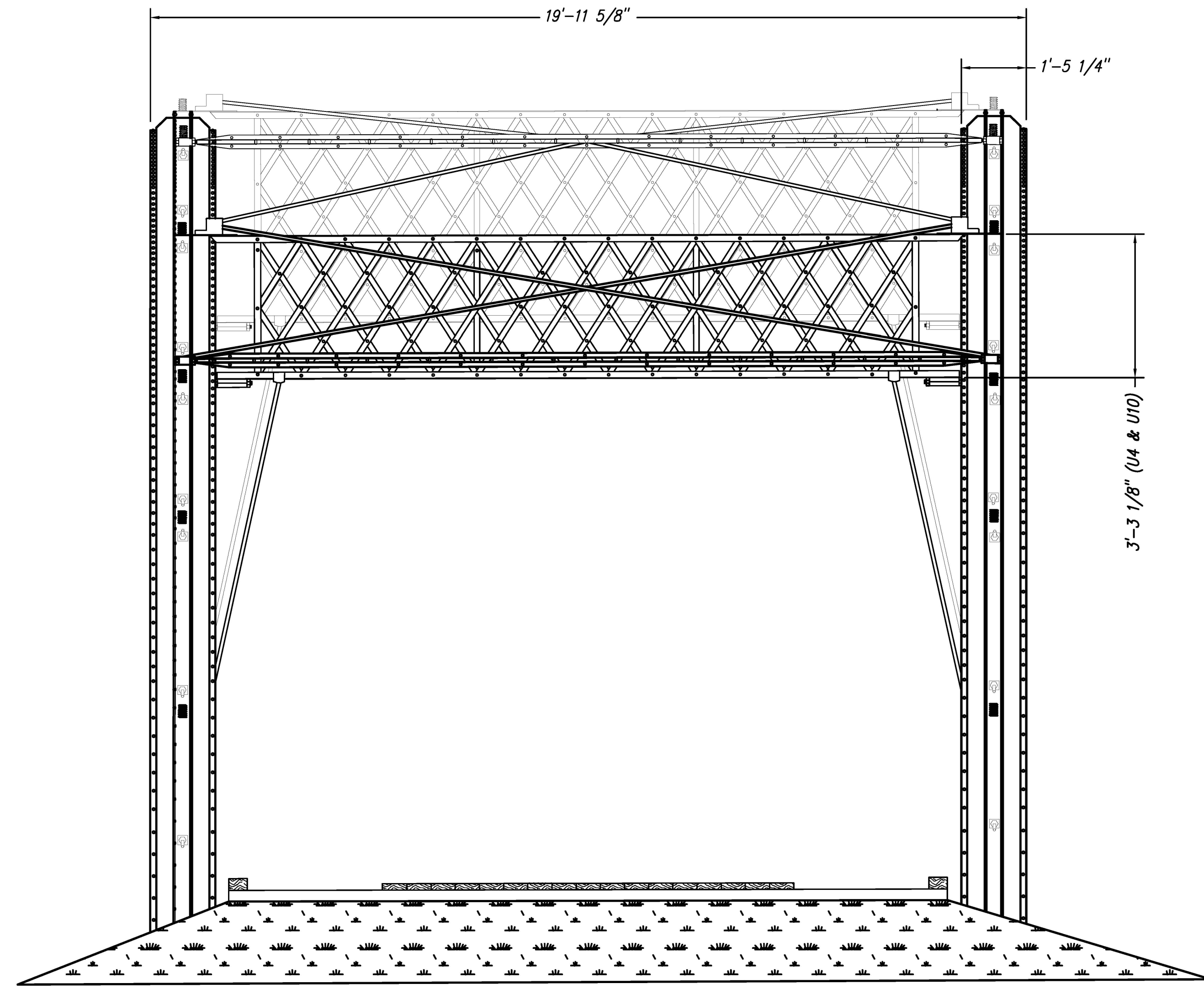


PLAN VIEW

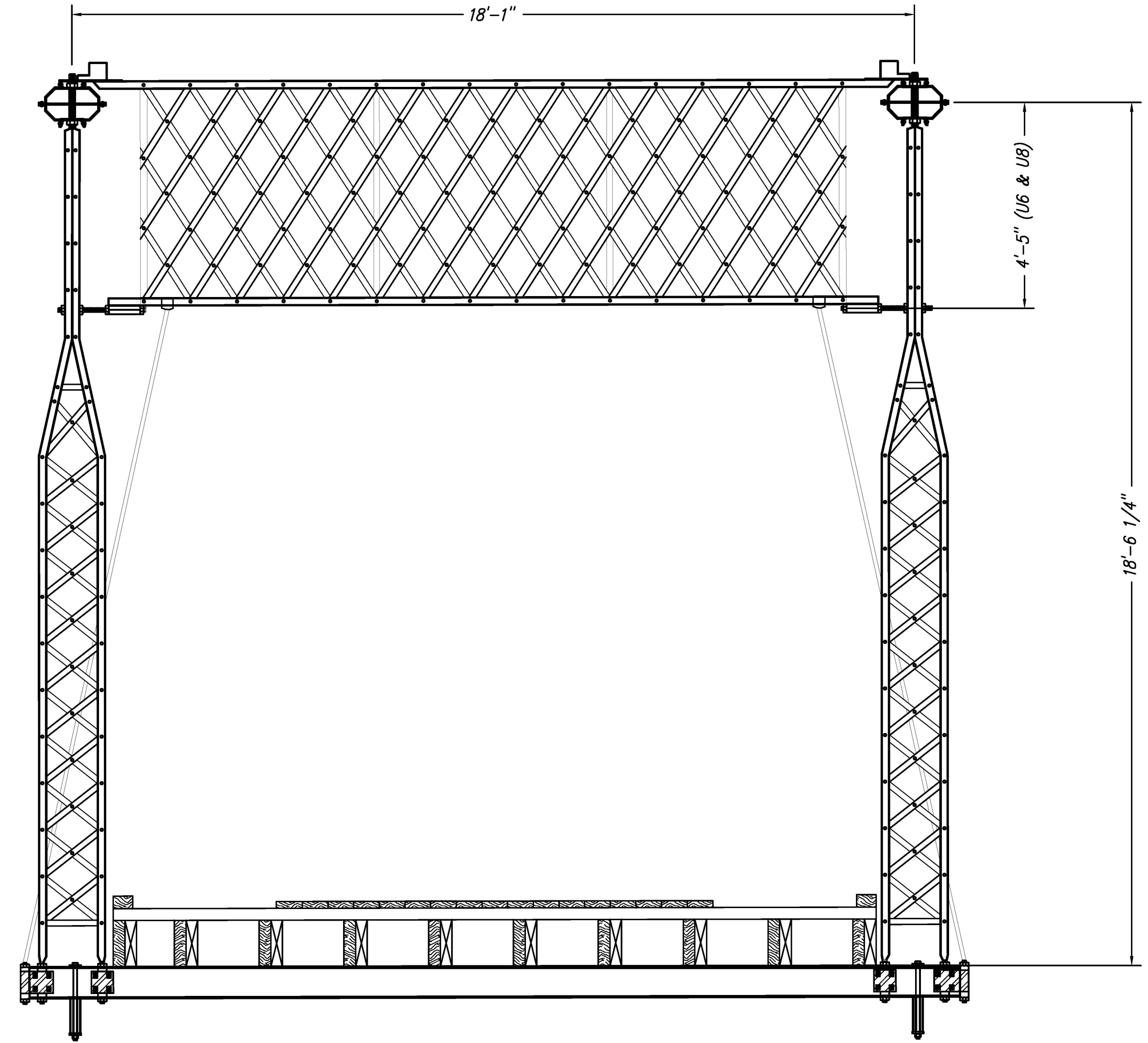


SOUTH ELEVATION

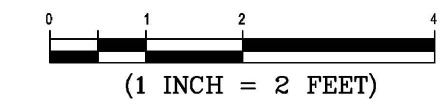


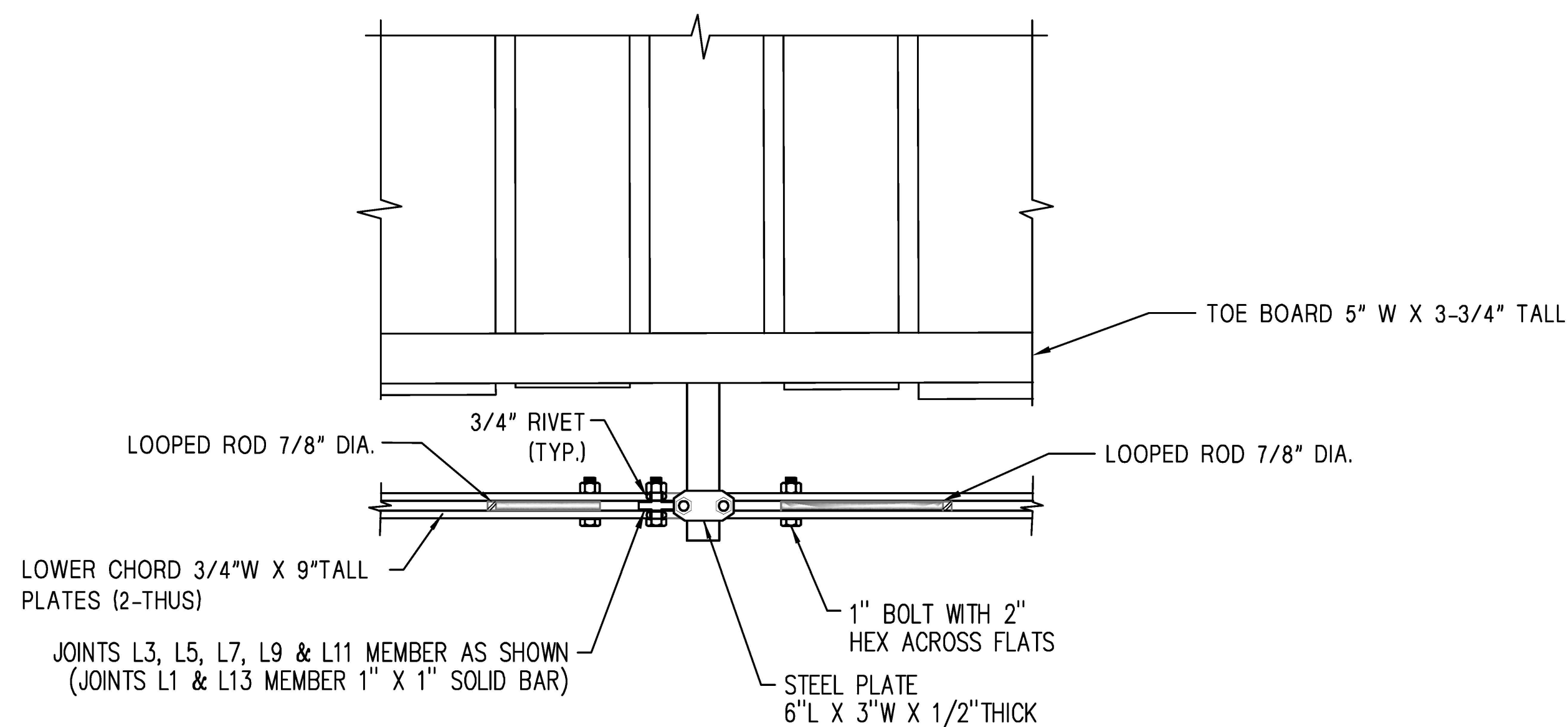


EAST APPROACH



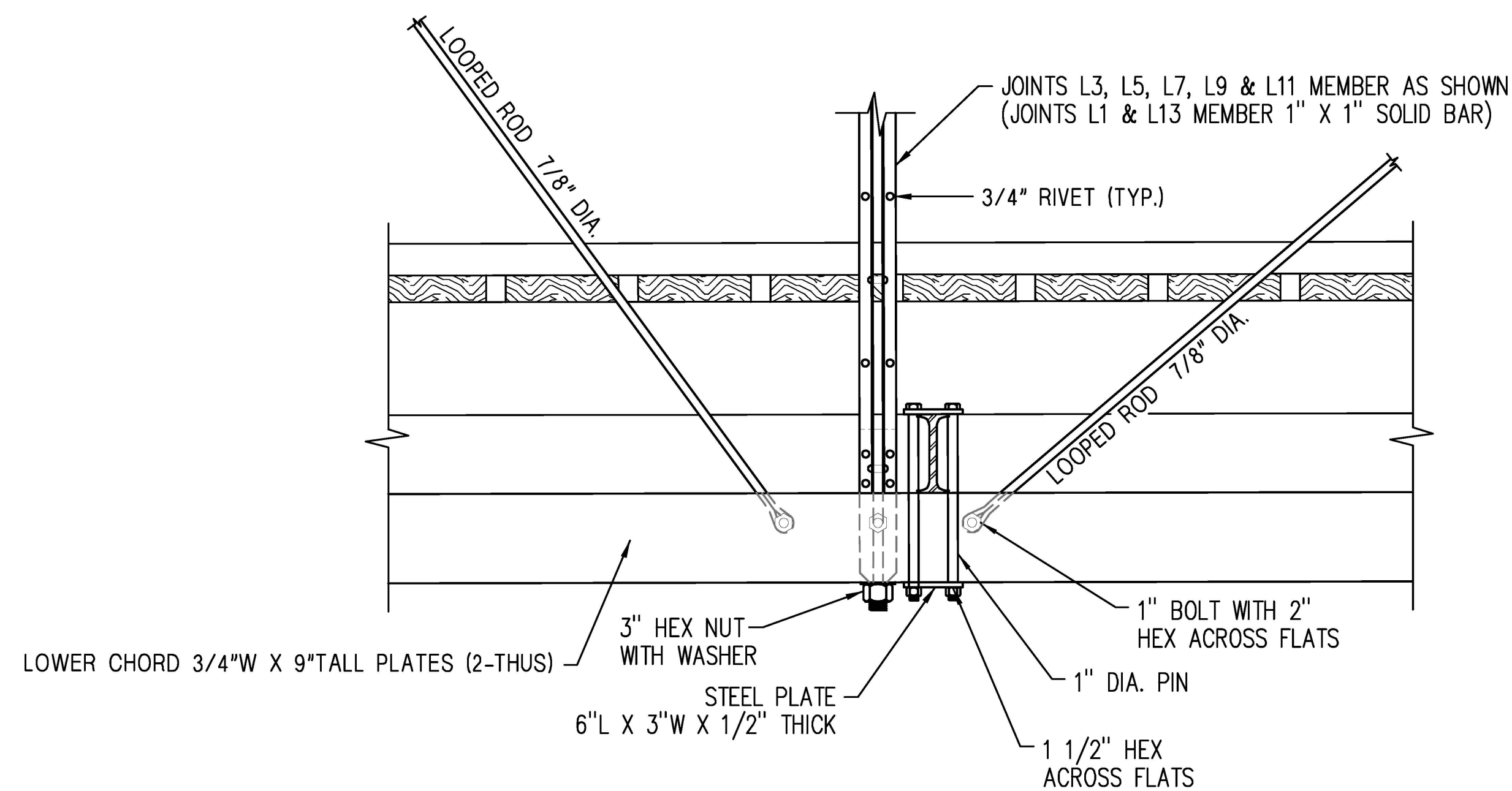
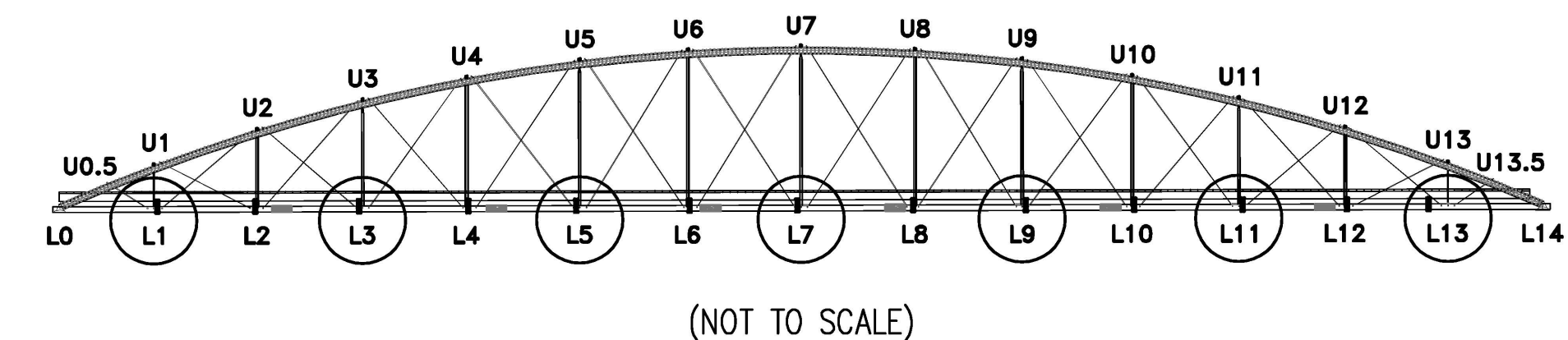
SECTION A-A



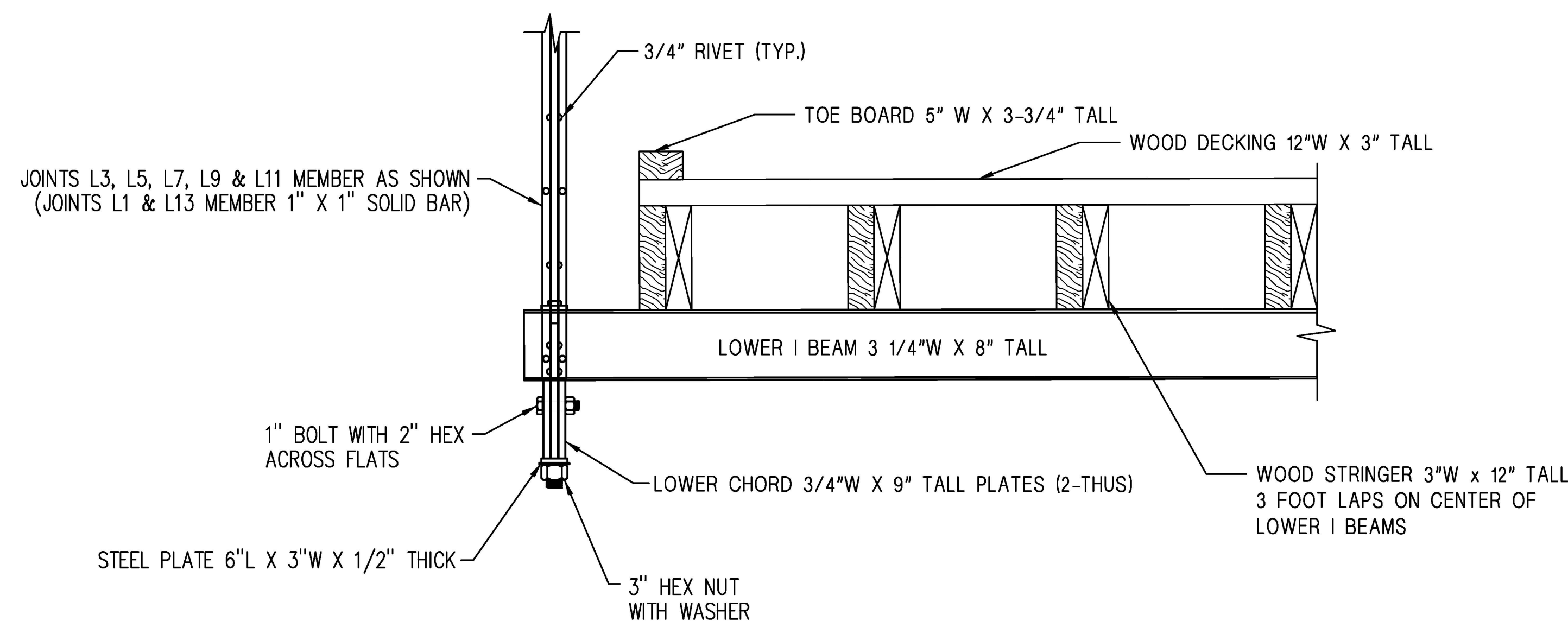


L11 - PLAN VIEW
(JOINTS L1, L3, L5, L7, L9 & L13 SIMILAR)

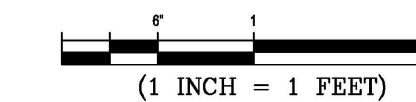
LOWER JOINT DETAILS
(L1, L3, L5, L7, L9, L11, L13)

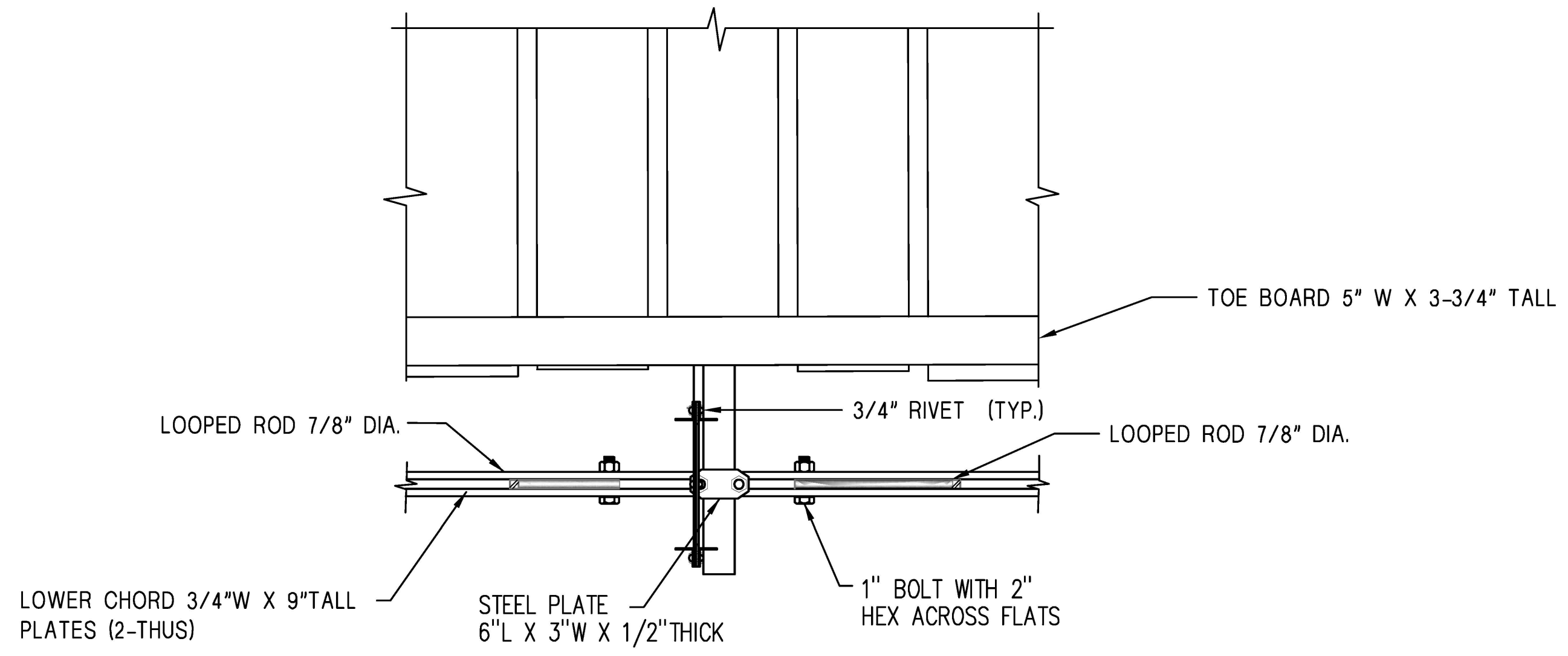


L11 - SOUTH ELEVATION
(JOINTS L1, L3, L5, L7, L9 & L13 SIMILAR)

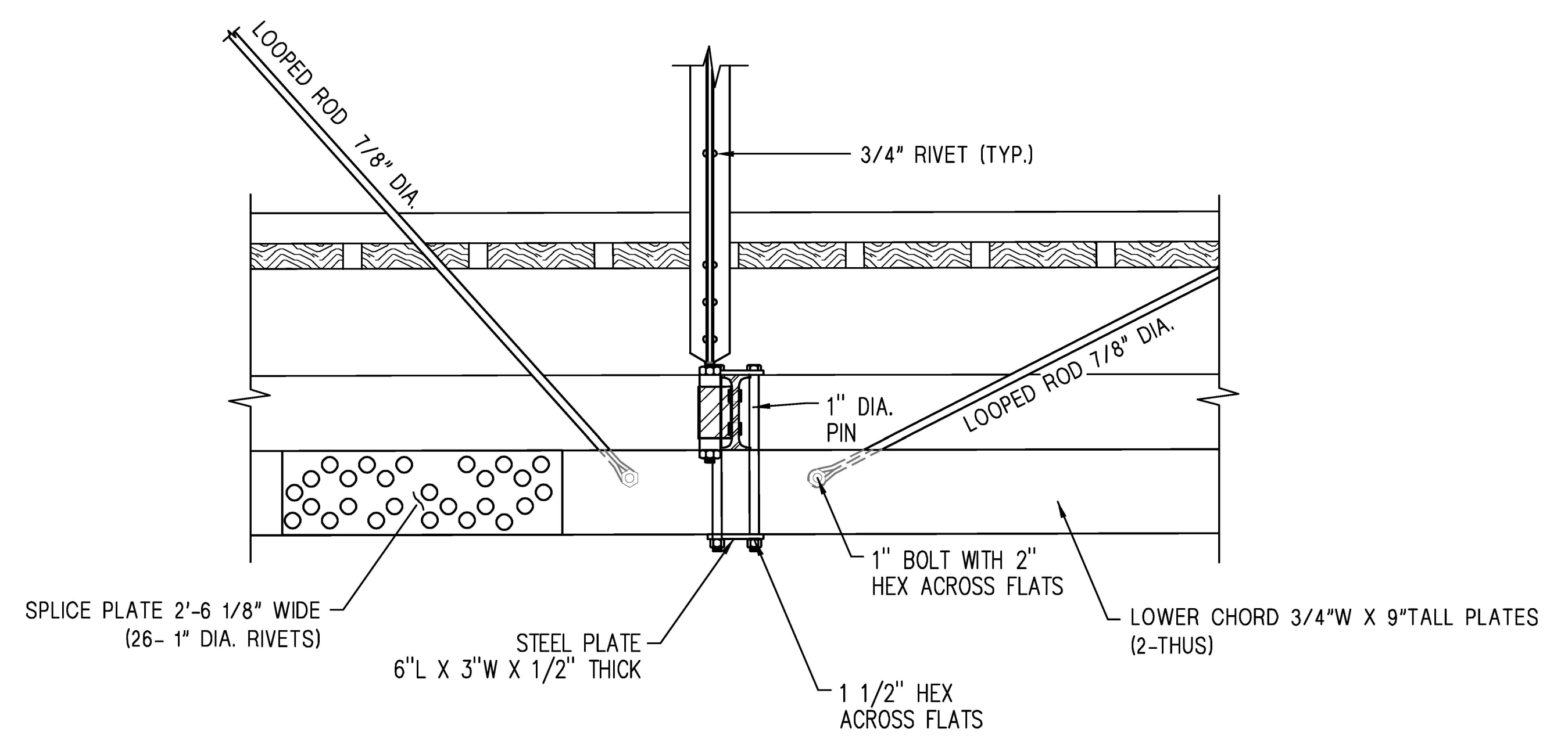


L11 - SECTION VIEW
(LOOKING EAST)
(JOINTS L1, L3, L5, L7, L9 & L13 SIMILAR)



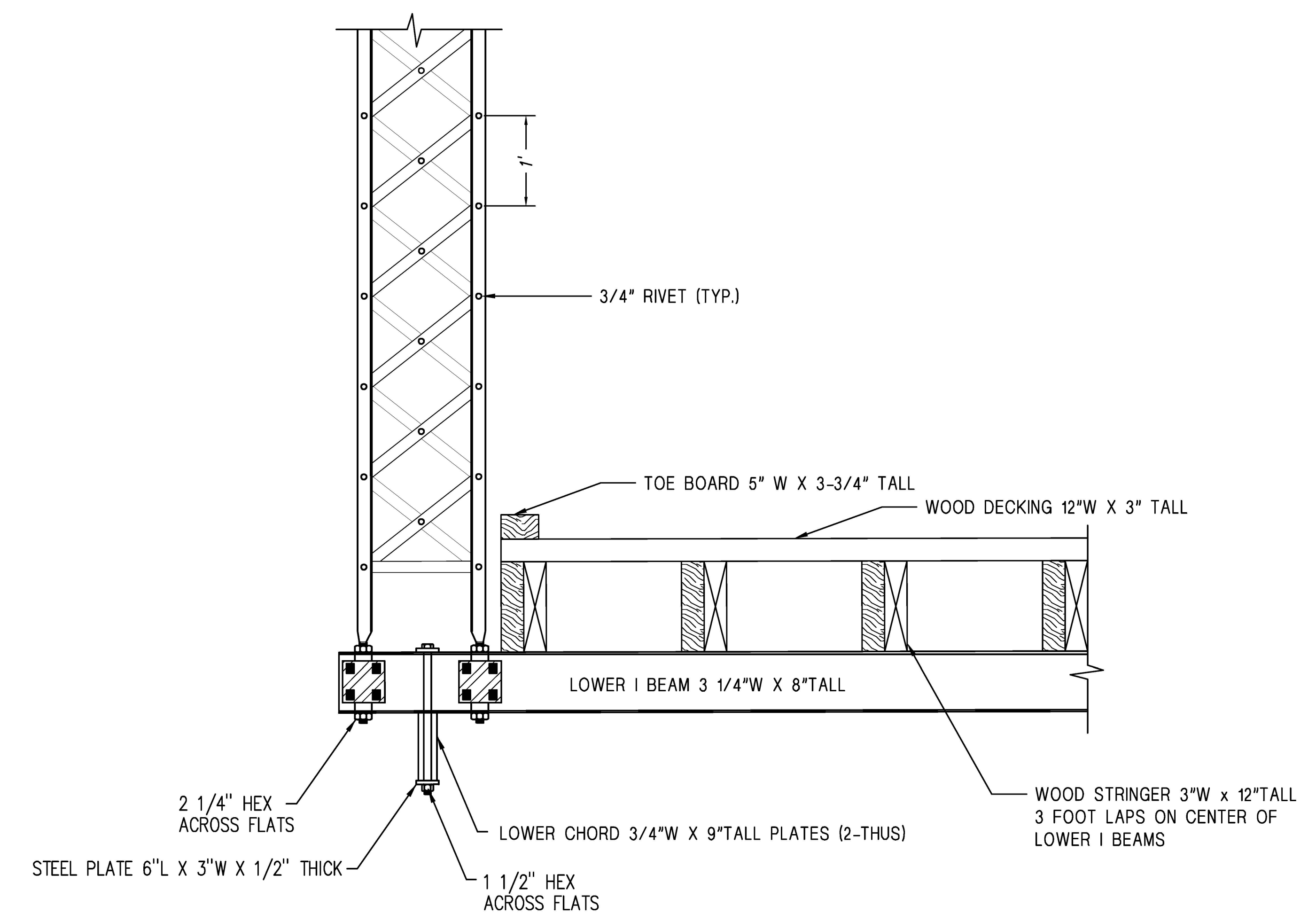
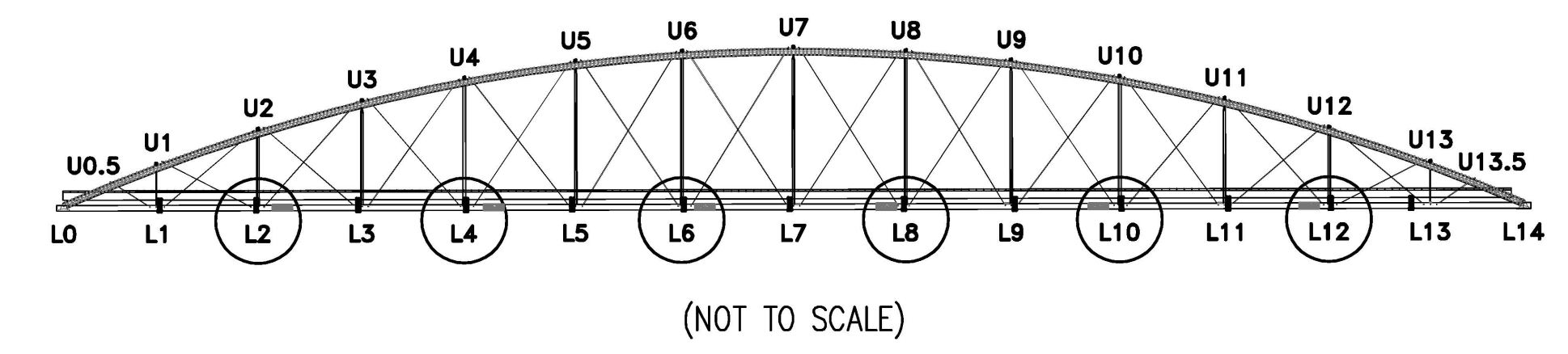


L12 - PLAN VIEW
(JOINTS L2, L4, L6, L8 & L10 SIMILAR)

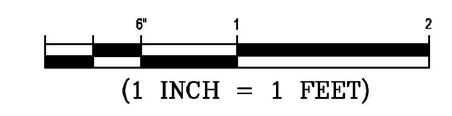


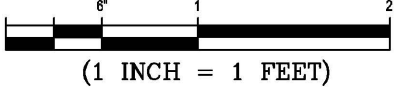
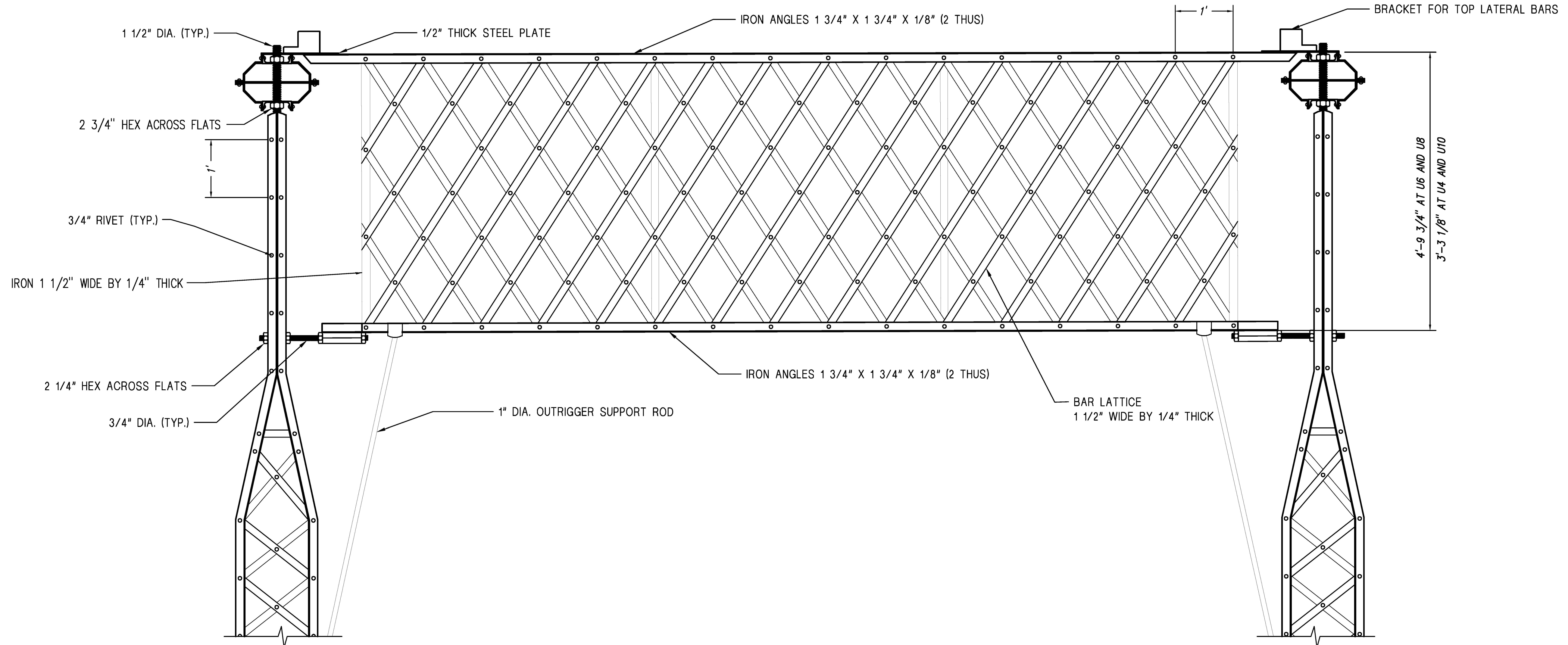
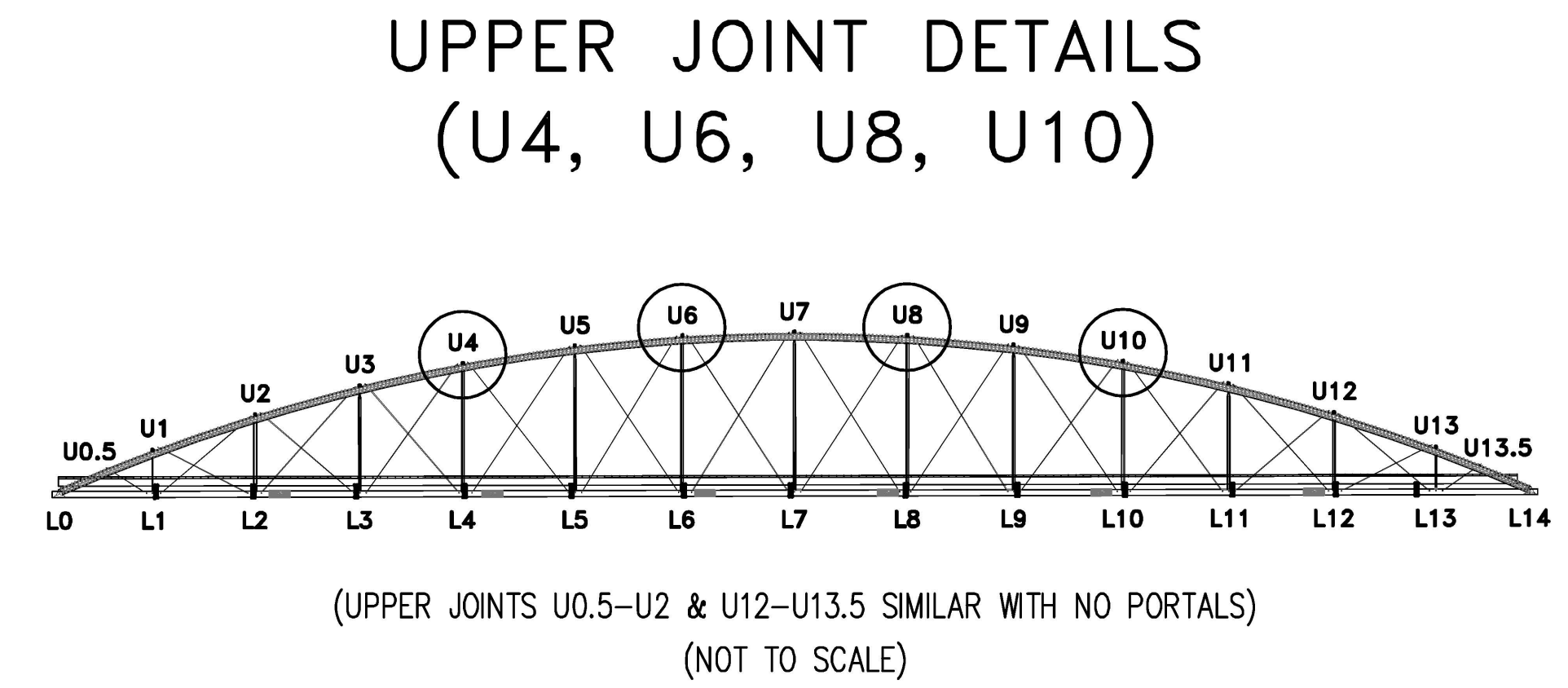
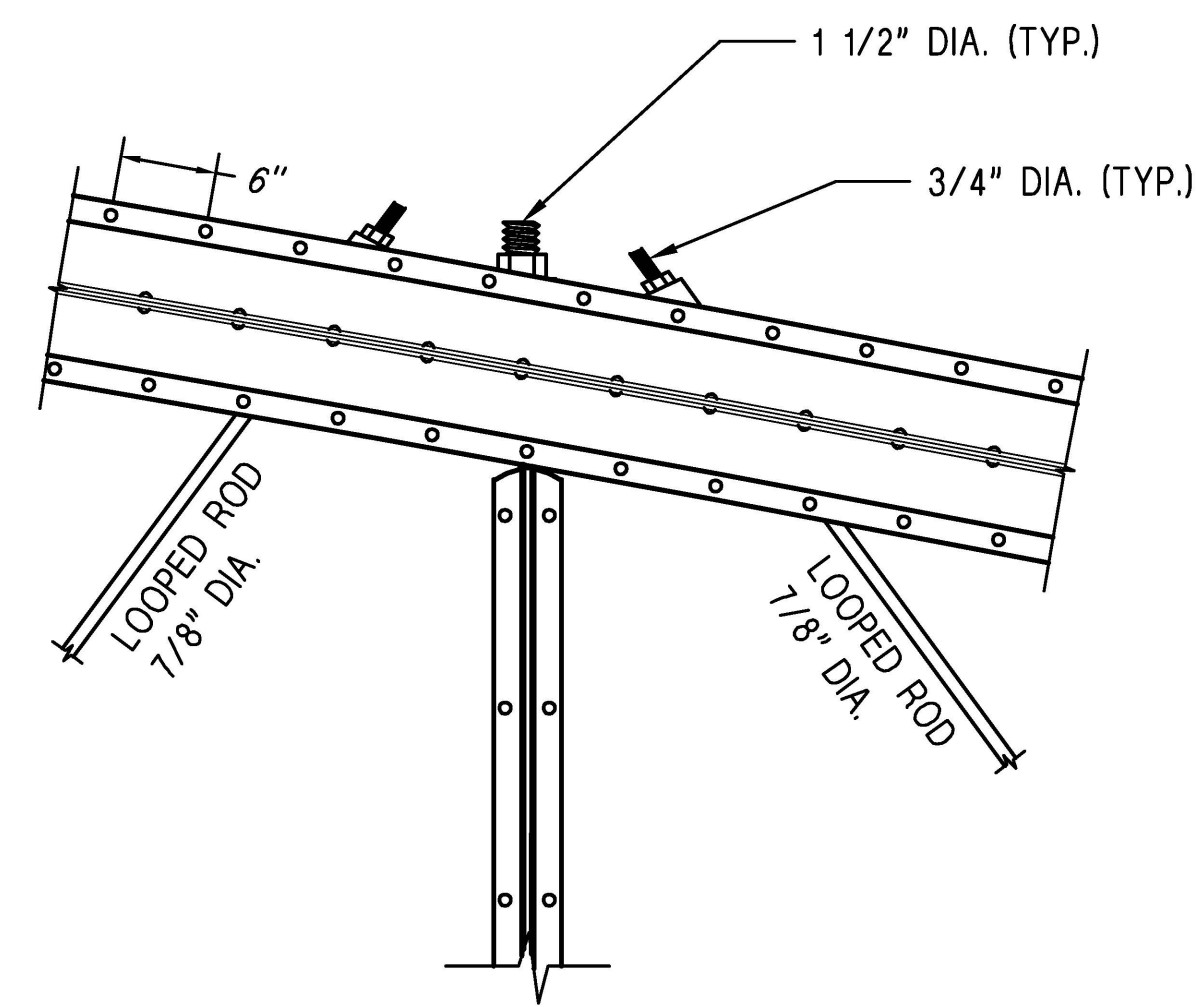
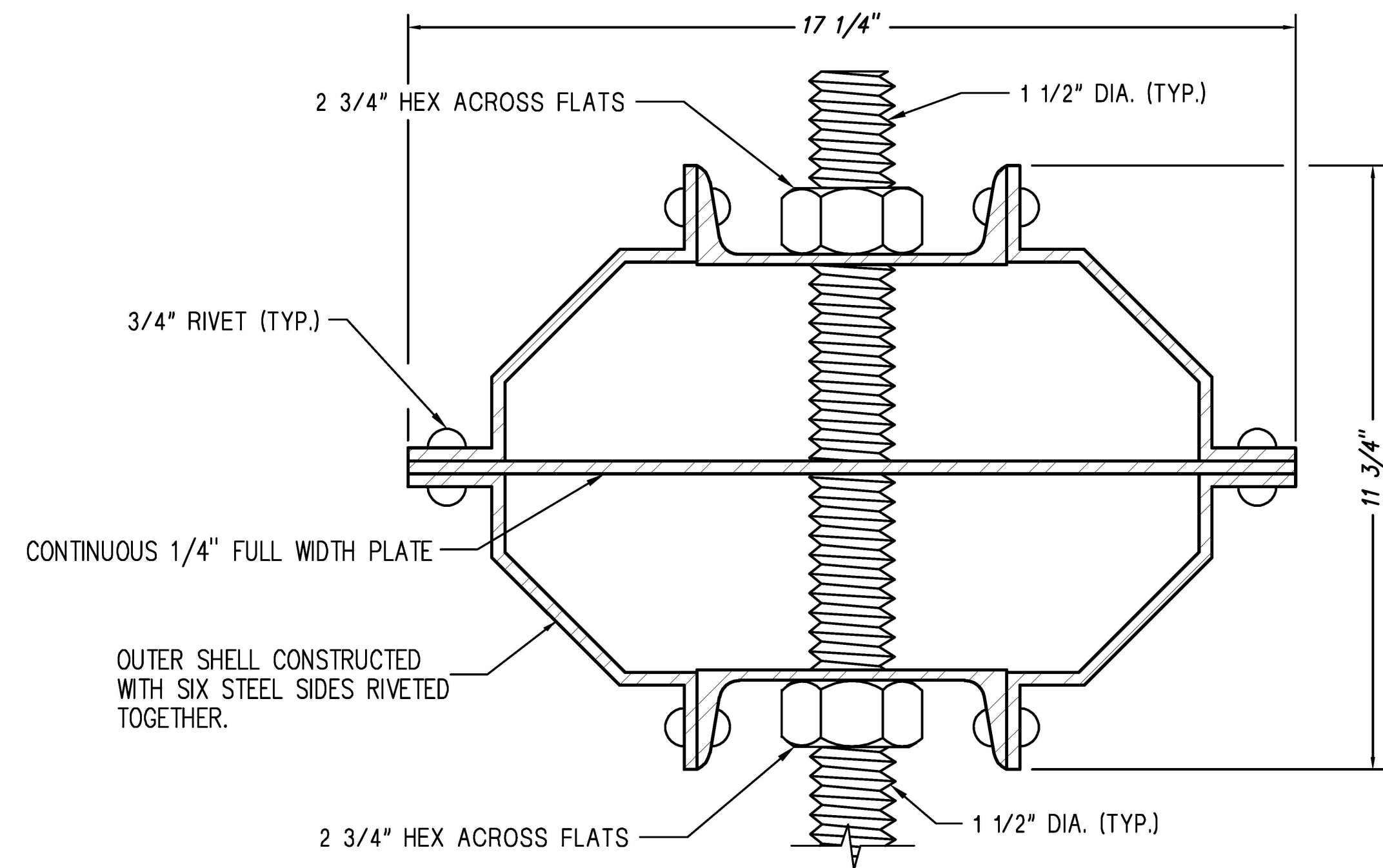
L12 - SOUTH ELEVATION
(JOINTS L2, L4, L6, L8 & L10 SIMILAR)

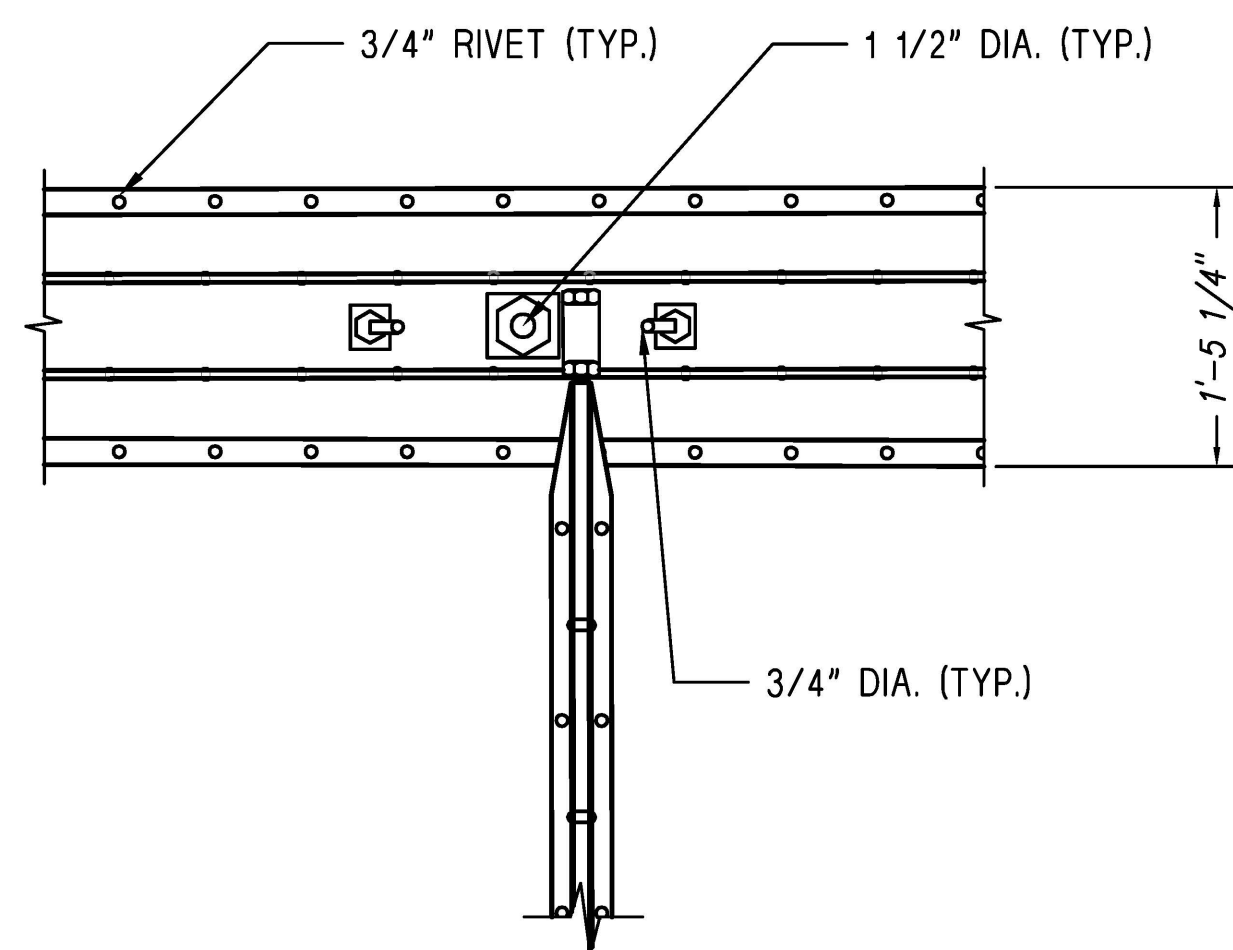
LOWER JOINT DETAILS
(L2, L4, L6, L8, L10, L12)



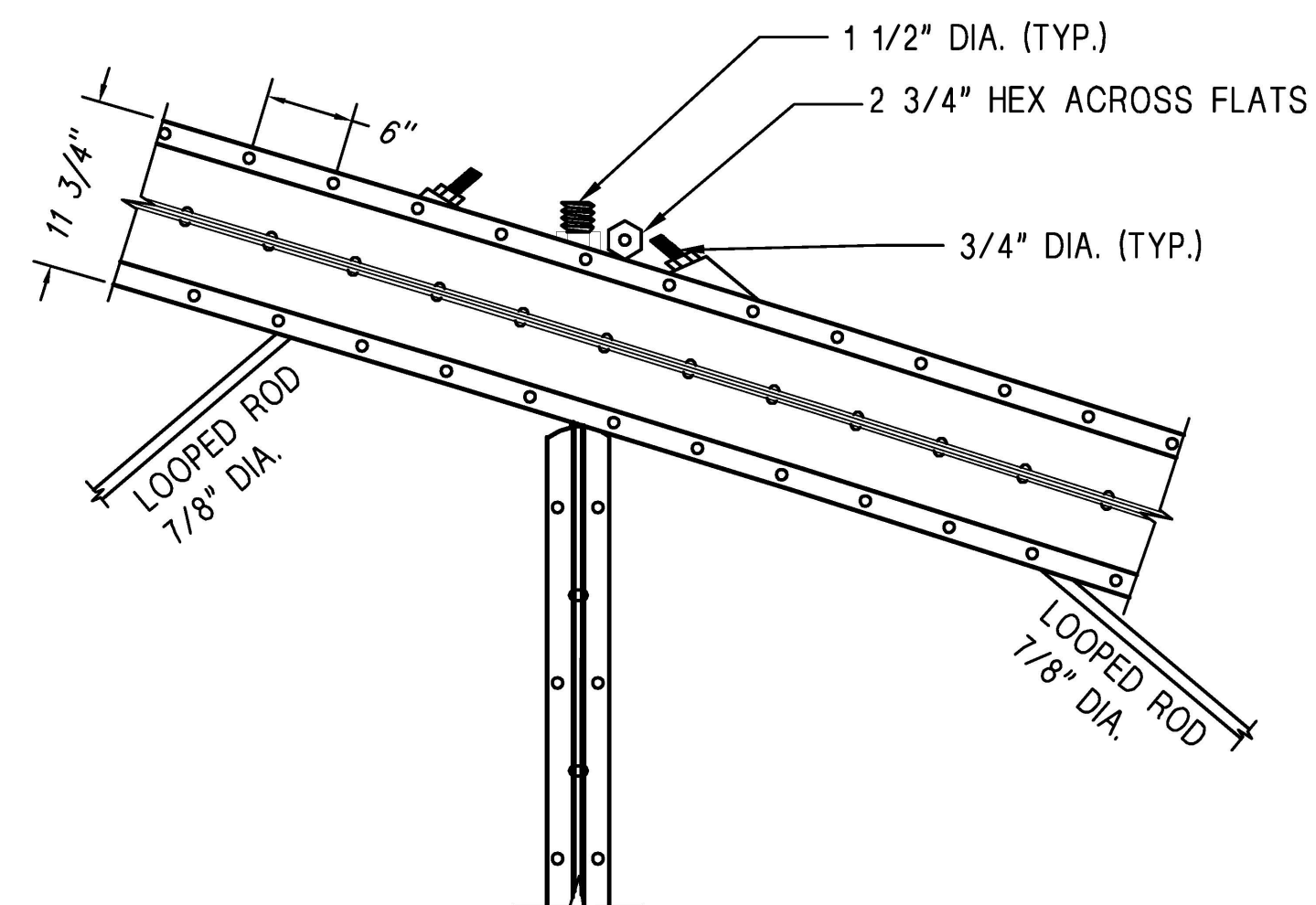
L12 - SECTION VIEW
(LOOKING EAST)
(JOINTS L2, L4, L6, L8 & L10 SIMILAR)





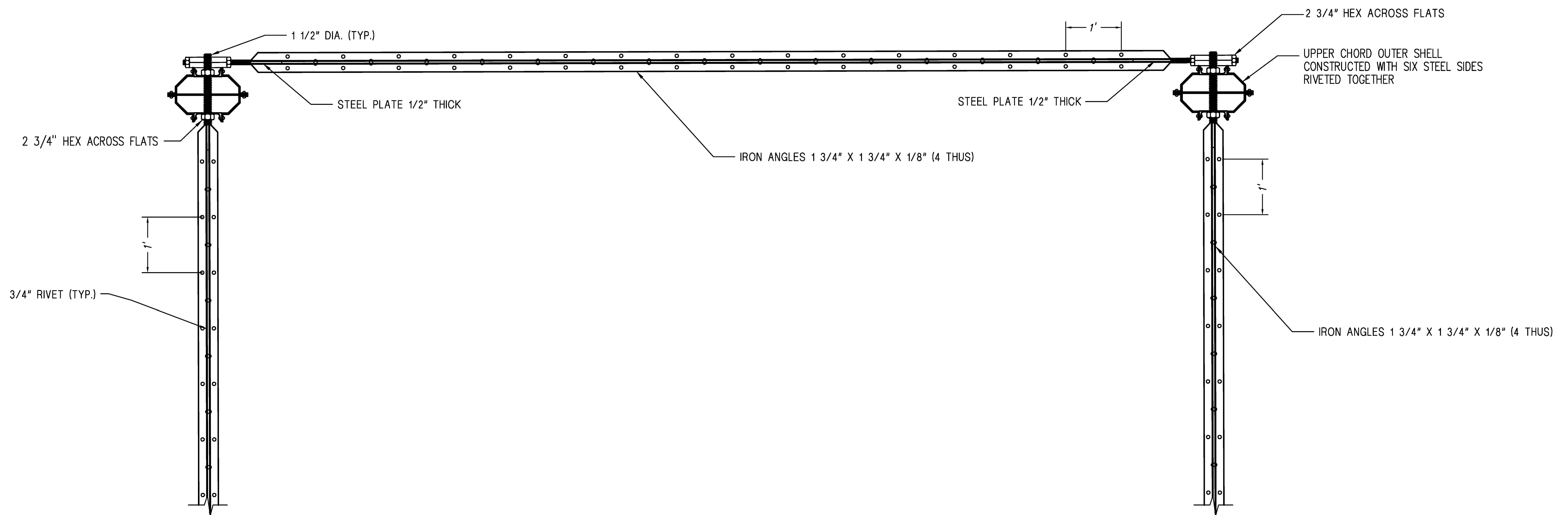
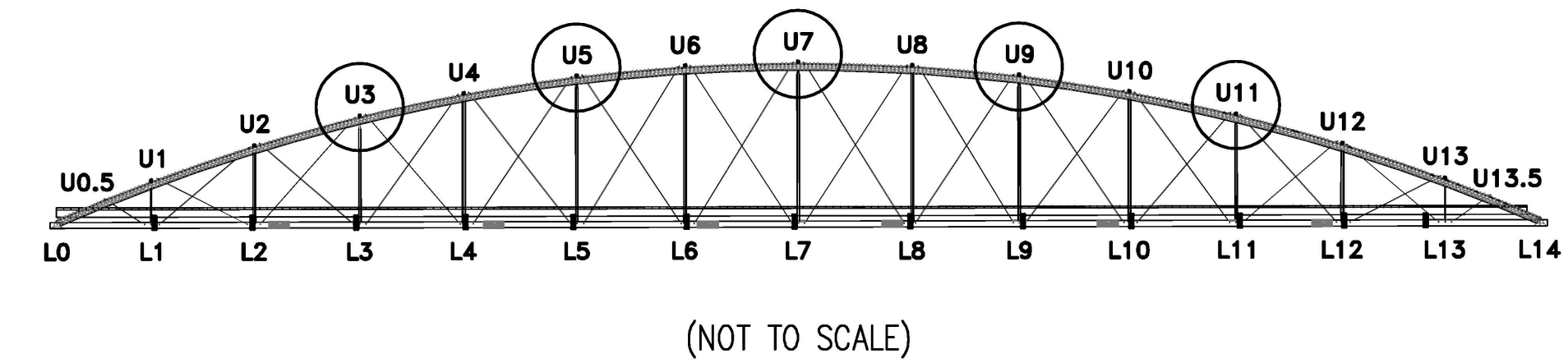


U11 - PLAN VIEW

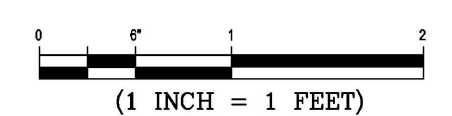


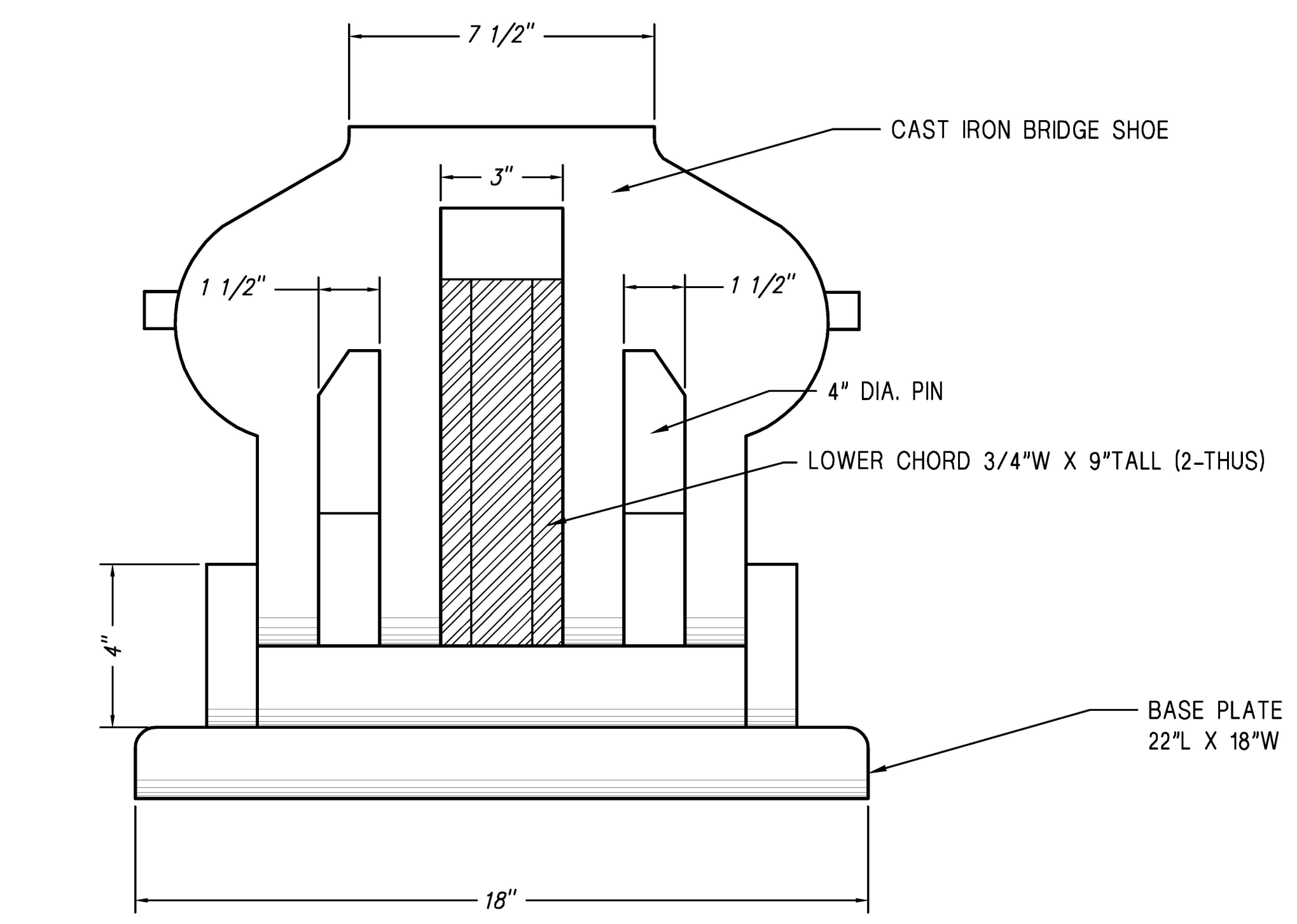
U11 - ELEVATION VIEW
(JOINT U3 SYMMETRICAL, JOINTS U5, U7 & U9 SIMILAR)

UPPER JOINT DETAILS
(U3, U5, U7, U9, U11)

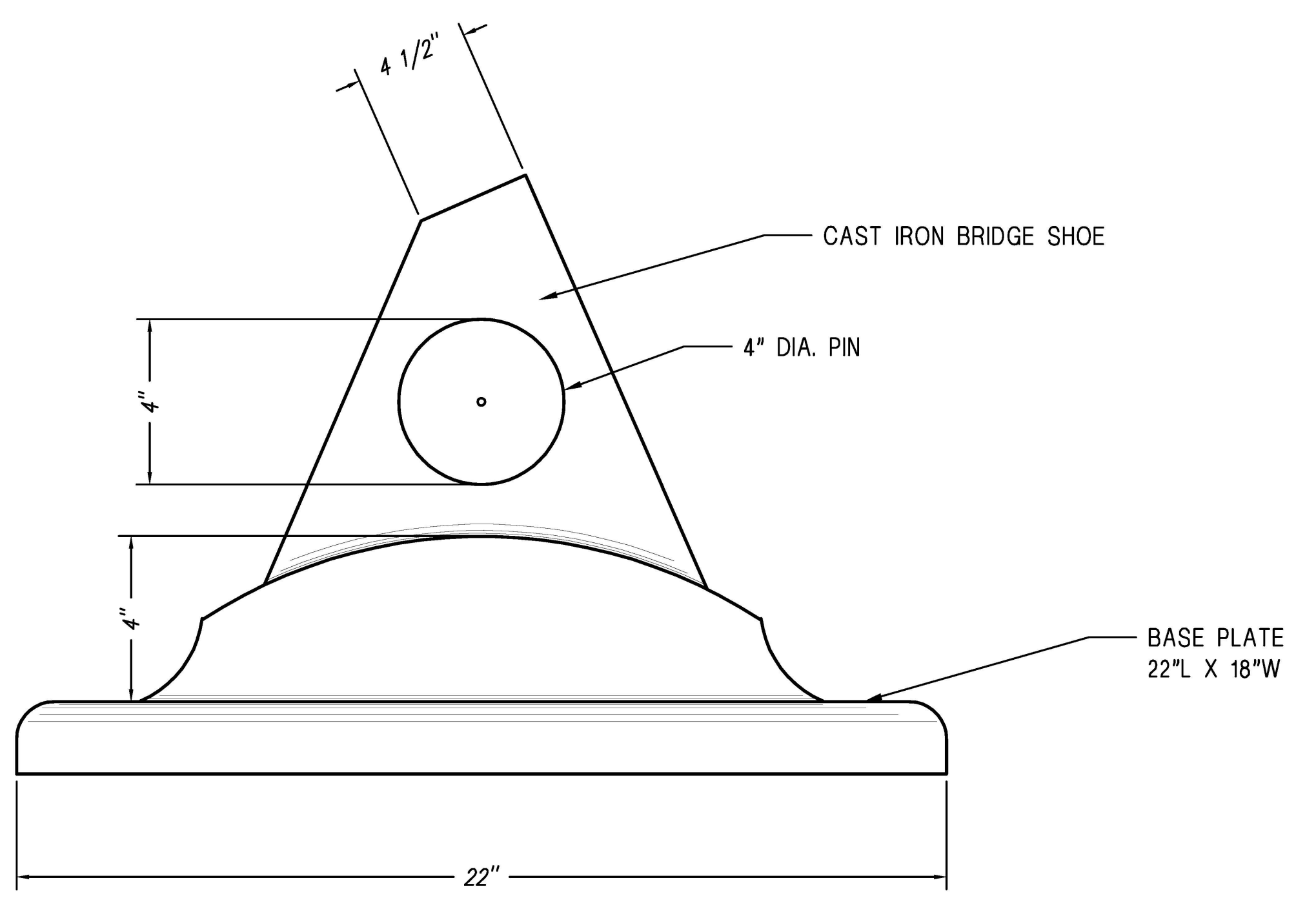


U11 - SECTION VIEW
(LOOKING EAST)
(JOINTS U3, U5, U7 & U9 SIMILAR)



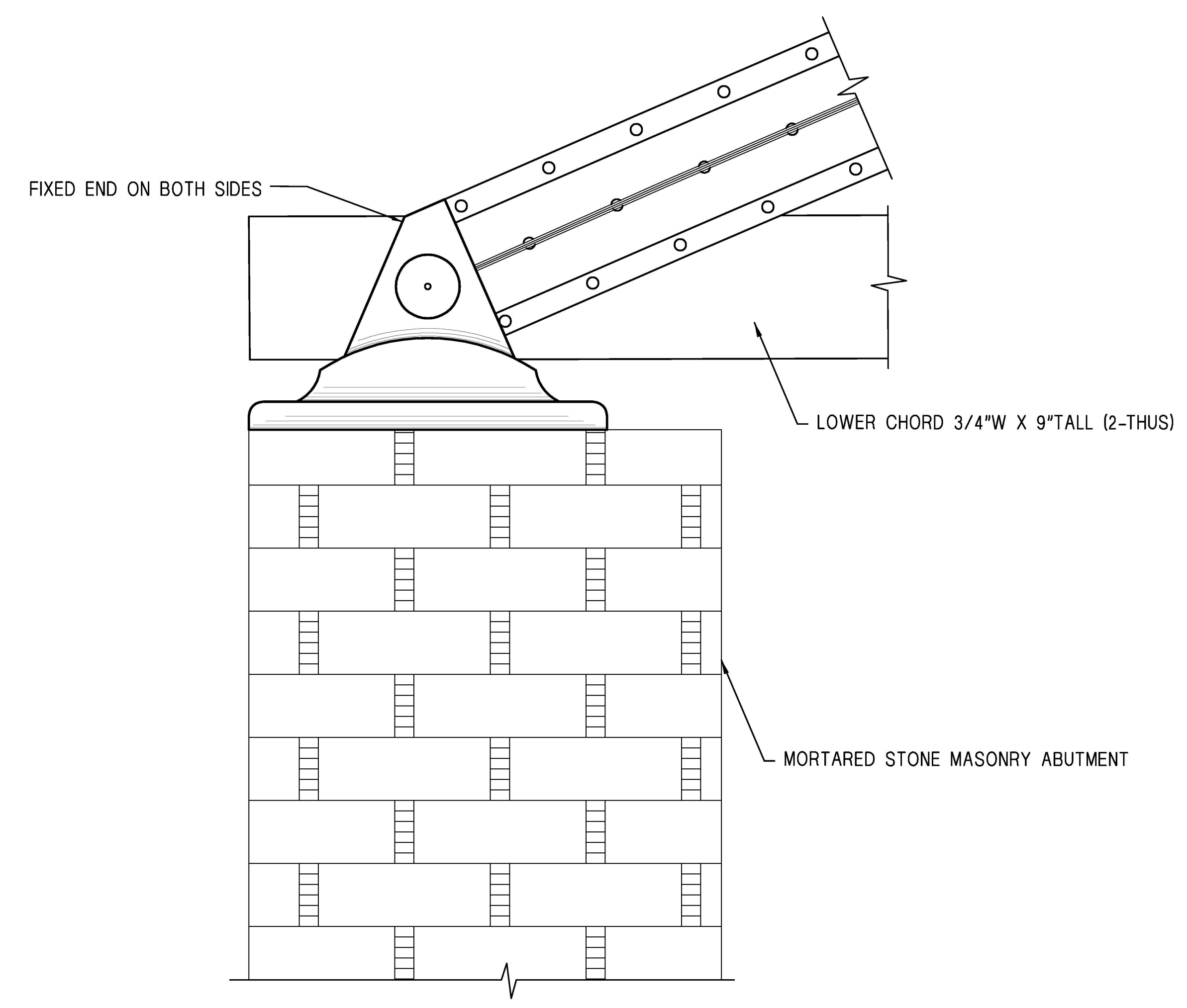
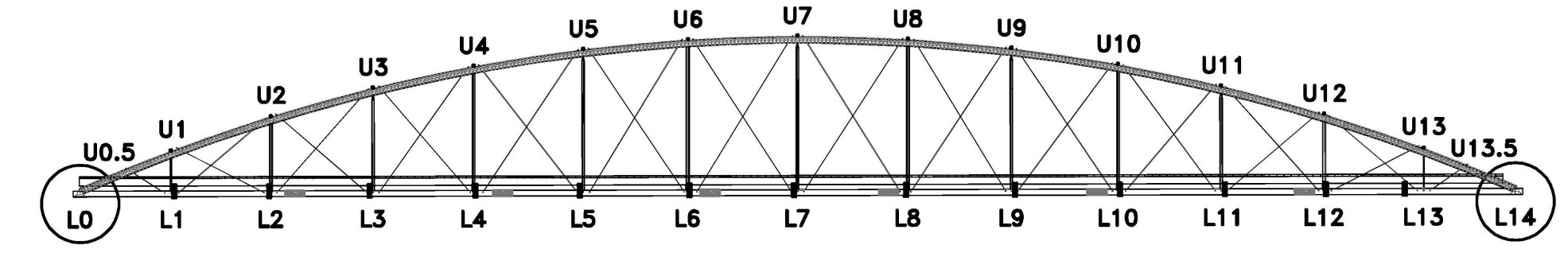


L0
(BRIDGE SHOE & LOWER CHORD SHOWN)

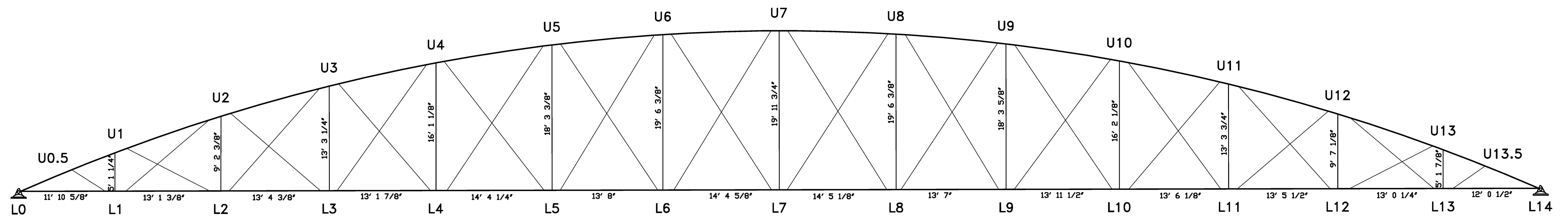


L0
(BRIDGE SHOE ONLY SHOWN)

CAST IRON SHOE DETAIL
(TYPICAL)
L0 & L14



L0
(ELEVATION VIEW)



SOUTH ELEVATION

(1) HORIZONTAL DIMENSION LISTED IS LENGTH BETWEEN PANEL POINTS
 (2) VERTICAL DIMENSION LISTED IS HEIGHT FROM CENTERLINE LOWER CHORD TO CENTERLINE OF TOP CHORD

MEMBER SCHEDULE

ELEMENT	DESCRIPTION	DIMENSION	ELEMENT	DESCRIPTION	DIMENSION	ELEMENT	DESCRIPTION	DIMENSION	ELEMENT	DESCRIPTION	DIMENSION
L0	CAST IRON BRIDGE SHOE	22" X 18" X 14 1/2"	U0.5-L1	LOOPEL ROD ONE END UPSET AND THREADED	7/8" DIA.	U4	1 HEX NUT	2 3/4" ACROSS FLAT	L2-U2	VERTICAL IRON ANGLES	1 3/4" X 1 3/4" X 1/8"
L1	1 FLOOR I BEAM	3 1/4" X 8"	U13.5-L13	1 HEX NUT	1 3/4" ACROSS FLAT	U6	1 HEX NUT	3" ACROSS FLAT	L12-U12	BAR LATTICE	1 1/2" X 1/4"
L3	TOP PLATE	6" X 3" X 1/2"	U1	1 HEX NUT	2 3/4" ACROSS FLAT	U8	UPPER CHORD PLATE	4 1/4" X 4" X 1 3/4"	L4-U4	VERTICAL IRON ANGLES	1 3/4" X 1 3/4" X 1/8"
L5	BOTTOM PLATE	6" X 3" X 1/2"	U2	1 HEX NUT	3" ACROSS FLAT	U10	LATERAL BRACKET	7 1/2" X 4 1/2"	L6-U6	BAR LATTICE	1 1/2" X 1/4"
L7	2 HEX NUTS	1 1/2" ACROSS FLAT	U12	UPPER CHORD PLATE	4 1/4" X 4" X 1 3/4"		2 LATERAL BARS	7/8" DIA.	L8-U8	BAR LATTICE	1 1/2" X 1/4"
L9	1 HEX NUTS	2 1/4" ACROSS FLAT	U13				TOP PLATE	1'-2 5/8" X 4" X 1/2"	L10-U10		
L11	2 PINS	1" DIA.	U3	1 HEX NUT	2 3/4" ACROSS FLAT		1 TRANSOM WITH LATTICE	IRON ANGLES 1 3/4" X 1 3/4" X 1/8" (4 THUS)	L3-U3	VERTICAL IRON ANGLES	1 3/4" X 1 3/4" X 1/8"
L13			U5	1 HEX NUT	3" ACROSS FLAT	L0-U0.5	UPPER CHORD	17 1/4" X 11 3/4"	L5-U5	VERTICAL IRON ANGLES	1 3/4" X 1 3/4" X 1/8"
L2	1 FLOOR I BEAM	3 1/4" X 8"	U7	UPPER CHORD PLATE	4 1/4" X 4" X 1 3/4"	U0.5-U13.5	UPPER CHORD SPLICE PLATE	6" X 4 3/4"	L7-U7		
L4	TOP PLATE	6" X 3" X 1/2"	U9	TURNBUCKLE TRANSOM CONNECTION	2 1/4" DIA.	U13.5-L14			L9-U9		
L6	BOTTOM PLATE	6" X 3" X 1/2"	U11	LATERAL BAR	7/8" DIA.	L0-L14	LOWER CHORD	9" X 3/4"	L11-U11		
L8	2 HEX NUTS	1 1/2" ACROSS FLAT		1 TRANSOM	4 IRON ANGLES 1 3/4" X 1 3/4" X 1/8" (4 THUS)		LOWER CHORD SPLICE PLATES	(2) 30 1/8" X 9" X 1/8" (1) 30 1/8" X 9" X 7/8"		STRINGER DECKING	3" X 12" WITH APPROXIMATE 2" SPACING
L10	2 PINS	1" DIA.				L1-U1	VERTICAL POST (CONCAVE WITH THREADED ENDS)	1" X 1"		TOE BOARD RIVETS	5" X 3/4" ALONG EDGE OF DECK ON BOTH SIDES 3/4" SHANK (TYP.)
L12	TURNBUCKLE CONNECTION	2 1/4" DIA.				L13-U13					
L14	CAST IRON BRIDGE SHOE	22" X 18" X 14 1/2"									

① ELEMENT INCLUDES DIAGONAL MEMBERS BETWEEN UPPER & LOWER PANEL POINTS:
 U1-L2, U2-L3, U3-L4, U4-L5, U5-L6, U6-L7, U7-L8, U8-L9, U9-L10, U10-L11, U11-L12, U12-L13,
 U13-L12, U12-L11, U11-L10, U10-L9, U9-L8, U8-L7, U7-L6, U6-L5, U5-L4, U4-L3, U3-L2, U2-L1