

**ISOMETRIC VIEW**

TRUSS DATA					
TRUSS SPAN (FT)	NUMBER OF PANELS	END PANEL LENGTH (FT)	TRUSS DEPTH (CHORD-TO-CHORD) (FT)	BASE PLATE DIAMETER (IN)	* CAMBER AT MIDPOINT (IN)
50	5	10.0	6.0	38	5/8
55	6	7.5			3/4
60	6	10.0			7/8
65	7	7.5			1
70	7	10.0			1 1/8
75	8	7.5			1 1/8
80	8	10.0			1 1/4
85	9	7.5			1 3/8
90	9	10.0			1 1/2
95	10	7.5			1 3/4
100	10	10.0	1 7/8		
105	11	7.5	8.0	42	2
110	11	10.0			2
115	12	7.5			2 1/8
120	12	10.0			2 1/4
125	13	7.5			2 1/2
130	13	10.0			2 5/8
135	14	7.5			2 7/8
140	14	10.0			3 1/8

\* SEE CAMBER DIAGRAM SHEET 3



PREPARED BY  
DESIGN DIVISION

DRAWN BY: DHD

CHECKED BY: AJU

DEPARTMENT DIRECTOR  
Kirk T. Stuedle

APPROVED BY: Kimberly Avery  
DIRECTOR, BUREAU OF FIELD SERVICES

Bradley C. Wiefierich  
May 9 2018 7:45 AM

APPROVED BY: Bradley C. Wiefierich  
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**STEEL TRUSS TYPE E  
(50 FT - 140 FT)**

05/24/18  
F.H.W.A. APPROVAL

12/17/13  
PLAN DATE

**SIGN-360-B**

SHEET  
1 OF 10

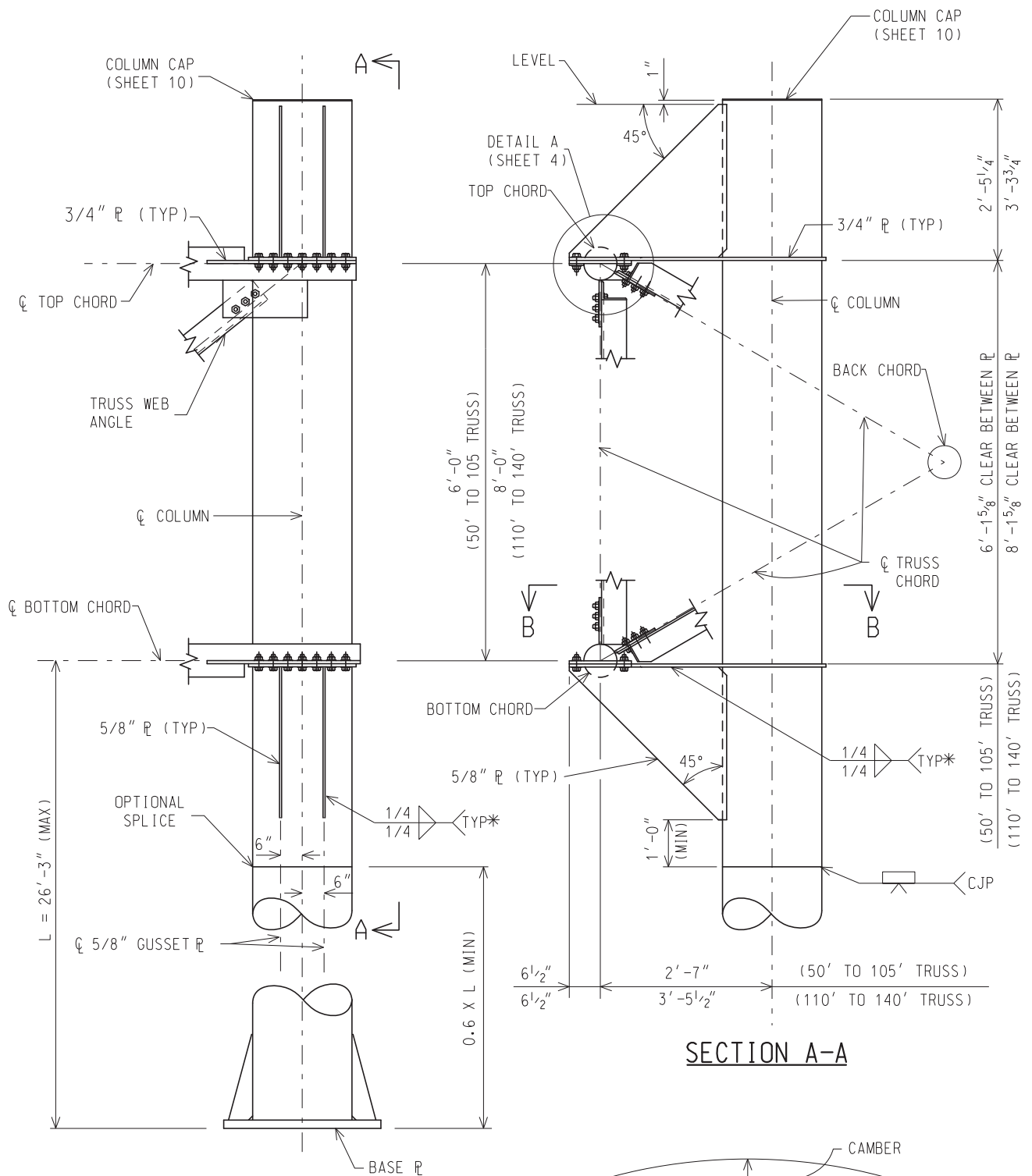
NOTES:

1. THE DESIGN OF THIS STRUCTURE IS BASED ON THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES AND TRAFFIC SIGNALS, CURRENT EDITION.
2. WELDING MUST BE IN CONFORMANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1:2010, STRUCTURAL WELDING CODE-STEEL (AS MODIFIED BY THE CURRENT 12SP-707A - STRUCTURAL STEEL AND ALUMINUM CONSTRUCTION), HEREAFTER CALLED AWS D1.1
3. MAXIMUM SIGN AREA IS 1200 SQUARE FEET. SIGNS MUST NOT PROJECT PAST THE ENDS OF THE TRUSS. MAXIMUM 6 FOOT SIGN PROJECTION ABOVE THE TOP CHORD.
4. FOR TRUSS LENGTHS 50 FEET TO 105 FEET, MINIMUM SIGN HEIGHT WITH ALUMINUM BEAM IS 7 FEET. FOR TRUSS LENGTHS 110 FEET TO 140 FEET, MINIMUM SIGN HEIGHT WITH ALUMINUM BEAM IS 9 FEET.
5. TYPE I SIGNS MUST NOT BE USED ON THE SAME TRUSS AS VARIABLE MESSAGE SIGNS.
6. HOT-DIP GALVANIZE (HDG) ALL TRUSS COMPONENTS PER ASTM A123 PRIOR TO BOLTED ASSEMBLY. HDG ALL FASTENER COMPONENTS PER ASTM A153. BLAST CLEAN BASE PLATES, STIFFENERS, AND ALL WELDMENTS PRIOR TO GALVANIZING.
7. PROVIDE 15/16" Ø HOLES FOR 7/8" Ø HIGH STRENGTH (HS) BOLTS FOR ALL CONNECTIONS UNLESS OTHERWISE STATED. PROVIDE HIGH STRENGTH BOLTS, NUTS, AND WASHERS IN ACCORDANCE WITH SUBSECTION 906.07 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. PROVIDE LOCK WASHERS THAT MEET ANSI B18.21.1.
8. TIGHTEN ALL HIGH STRENGTH (HS) BOLTS BY THE TURN OF NUT METHOD PER SUBSECTION 707.03.D OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, EXCEPT AT SPLICE CONNECTIONS. SPLICE CONNECTIONS MUST HAVE A FLAT WASHER AND LOCK WASHER UNDER EACH NUT AND TIGHTENED TO A SNUG TIGHT CONDITION PER SUBSECTION 707.03.D OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
9. DO NOT LIFT THE TRUSS BY THE WEB MEMBERS.
10. FIELD SPLICES MAY BE PLACED ALONG THE TRUSS CHORD TO FACILITATE FABRICATION. PLACE FIELD SPLICE  $\pm$  1'-6" MINIMUM TO THE GUSSET PLATE EDGE. ANY DEVIATION FROM THE DETAILS SHOWN ON THIS TYPICAL WILL REQUIRE APPROVAL BY THE ENGINEER IN WRITING BEFORE FABRICATION.
11. ALL WELDS MUST BE 100 PERCENT VISUAL TEST (VT) INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR (CWI). ALL FILLET WELDS (EXCEPT END CAP AND COLUMN CAP WELDS) MUST BE 25 PERCENT MAGNETIC PARTICLE TEST (MT) INSPECTED BY A TECHNICIAN QUALIFIED IN ACCORDANCE WITH AMERICAN SOCIETY OF NONDESTRUCTIVE TESTING (ASNT) LEVEL II. ALL COMPLETE JOINT PENETRATION (CJP) WELDS MUST BE 100 PERCENT ULTRASONIC TEST (UT) INSPECTED BY A TECHNICIAN QUALIFIED IN ACCORDANCE WITH ASNT LEVEL II.
12. SEE CURRENT MDOT SIGN SUPPORT TYPICAL PLAN SIGN-340-SERIES FOR SIGN FOUNDATION.
13. SEE CURRENT MDOT SIGN SUPPORT TYPICAL PLAN SIGN-700-SERIES FOR SIGN CONNECTION.
14. COLUMN SECTIONS MUST BE ASTM A53, GRADE B OR API-5L-X42. SECTIONS FOR 50 FEET TO 105 FEET TRUSSES MUST BE 24" Ø X 0.938" OR 24" Ø X 0.969". SECTIONS FOR 110 FEET TO 140 FEET TRUSSES MUST BE 24" Ø X 1.219". CHORD SECTIONS MUST BE ASTM A500, GRADE B 6" Ø X 0.500", ASTM A519-4140 ANNEALED 6" Ø X 0.375" OR ASTM A500, GRADE B 6 5/8" Ø X 0.432".
15. WEB ANGLES MUST BE ASTM A709, GRADE 36 OR ASTM A36 L5" X 5" X 7/16" OR L5" X 5" X 1/2". STEEL PLATES MUST BE ASTM A709, GRADE 36 OR ASTM A 36 STEEL.
16. THE ESTIMATED WEIGHT OF THE TRUSS IS 195 LBS/FT.
17. DURING THE ERECTION PROCESS THE MINIMUM NUMBER OF BOLTS REQUIRED TO BE INSTALLED PRIOR TO LETTING TRAFFIC RESUME UNDER THE ERECTED TRUSS MUST BE: 2 BOLTS MINIMUM PER CHORD-COLUMN CONNECTION PLATE FOR SPAN LENGTHS BETWEEN 50' AND 105', AND 4 BOLTS MINIMUM PER CHORD-COLUMN CONNECTION PLATE FOR SPAN LENGTHS BETWEEN 110' AND 140'. NO SIGNS SHALL BE ERECTED UNTIL ALL BOLTS ARE INSTALLED.
18. BASE PLATE (P) WARPAGE MUST NOT EXCEED 1/16 INCH PER FOOT.
19. BACKING BAR FOR OPTIONAL COLUMN SPLICE MUST BE MINIMUM 1/4 INCH X 2 INCH PLATE OR STANDARD CHILL RING. BACKING BAR FOR COLUMN TO BASE PLATE MUST BE MINIMUM 1/4 INCH X 1 INCH PLATE OR STANDARD CHILL RING.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	05/24/18 F.H.W.A. APPROVAL	12/17/13 PLAN DATE	SIGN-360-B	SHEET 2 OF 10
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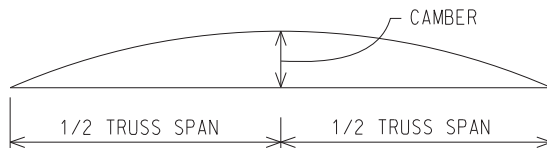
NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



**RIGHT COLUMN  
TRUSS CONNECTION DETAIL**

WEB MEMBERS AND CONNECTION PLATES OMITTED FOR CLARITY  
(LEFT COLUMN SIMILAR)

**SECTION A-A**



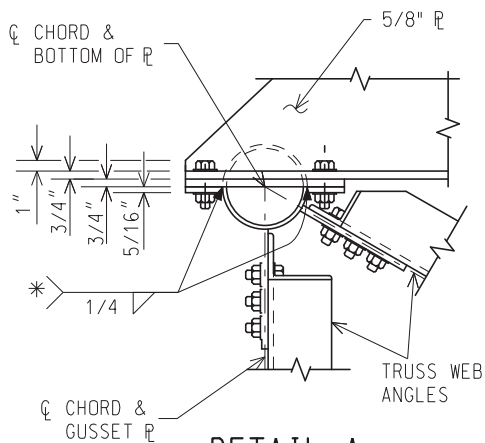
**CAMBER DIAGRAM**

\* WRAP WELD AROUND OUTSIDE EDGE, STOP 1/4" SHORT OF CORNER CLIP

NOT TO SCALE

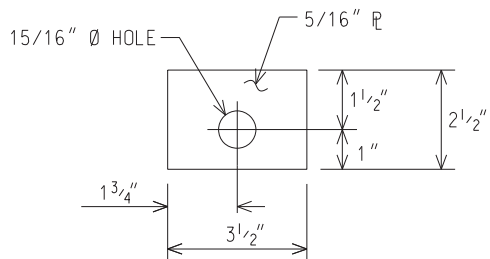
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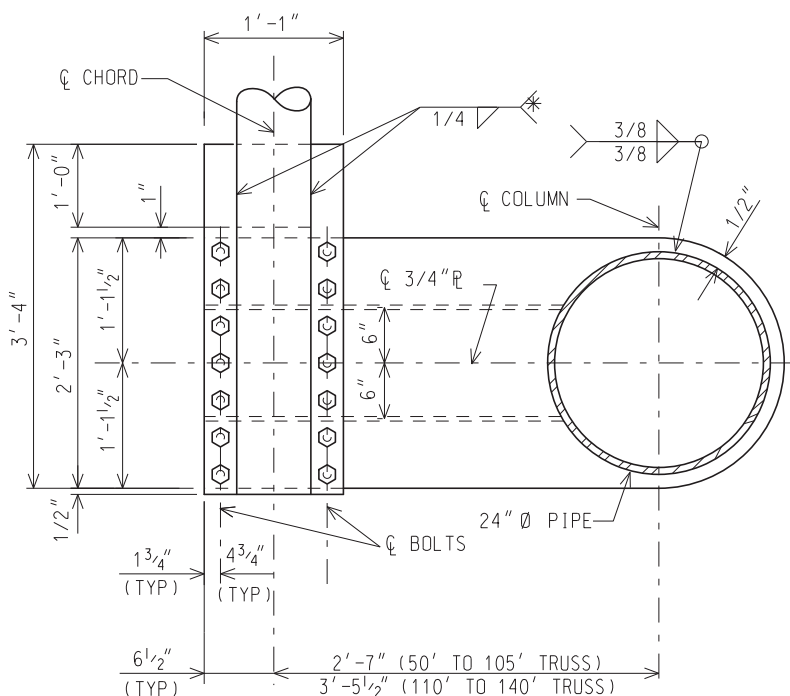


**DETAIL A**

\*TOP AND BOTTOM CHORD



**PLATE WASHER DETAIL**

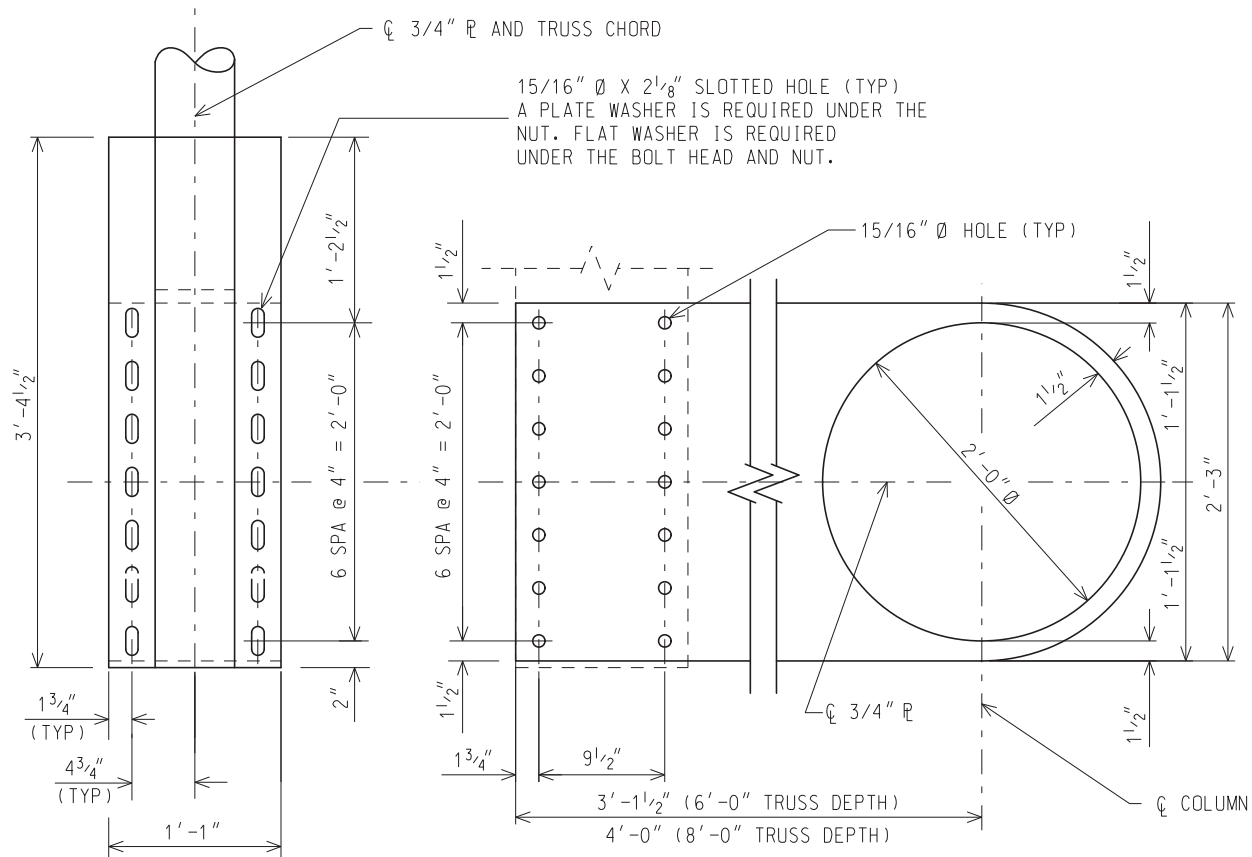


**SECTION B-B**

WEB MEMBERS AND CONNECTION PLATES OMITTED FOR CLARITY.

TOP CHORD SIMILAR

\*TOP AND BOTTOM CHORD



**CHORD-COLUMN CONNECTION PLATE DETAILS**

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

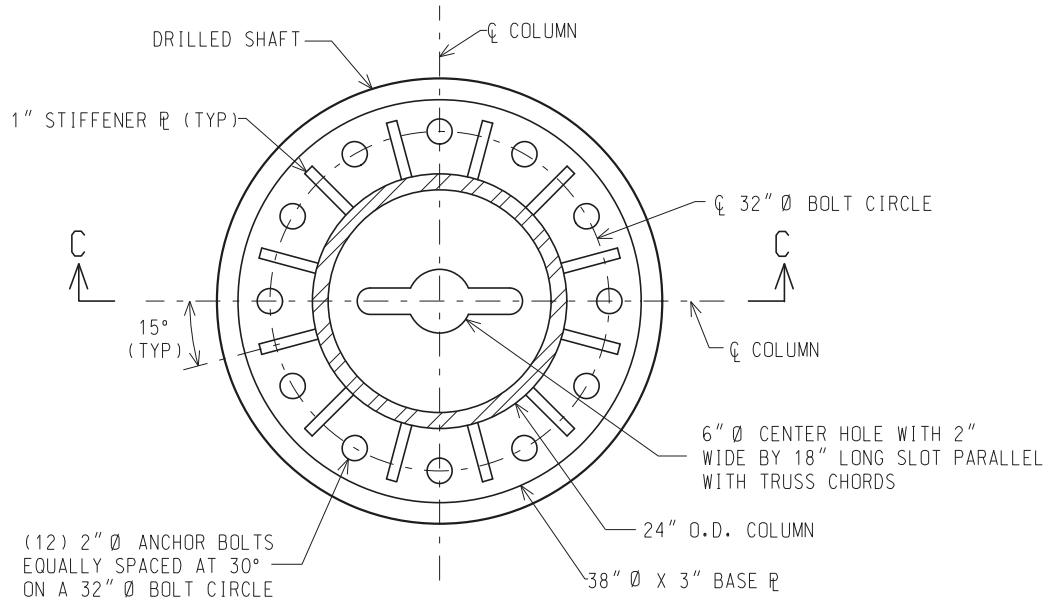
05/24/18  
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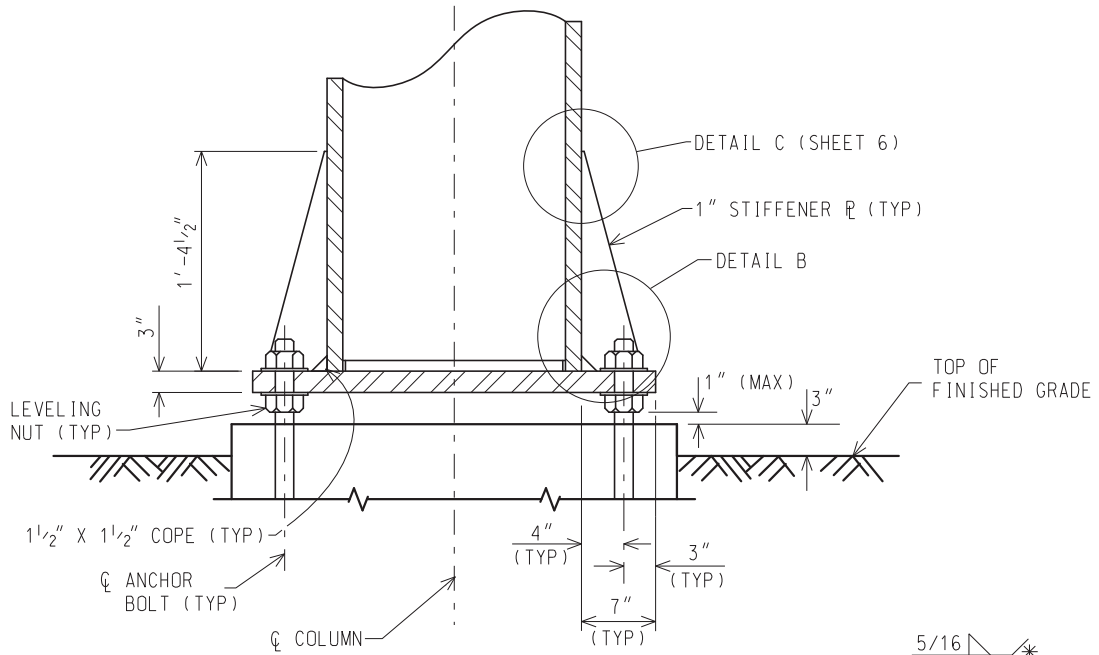
SIGN-360-B

SHEET  
4 OF 10

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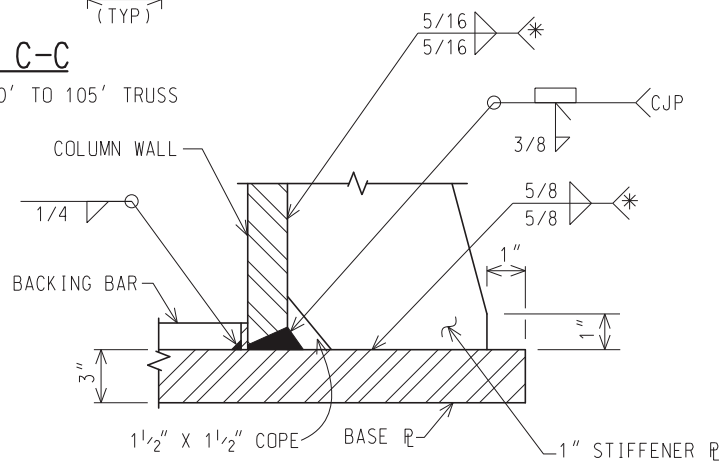


**PLAN VIEW 38" BASE PLATE DETAIL**



**SECTION C-C**

ELEVATION VIEW FOR 50' TO 105' TRUSS



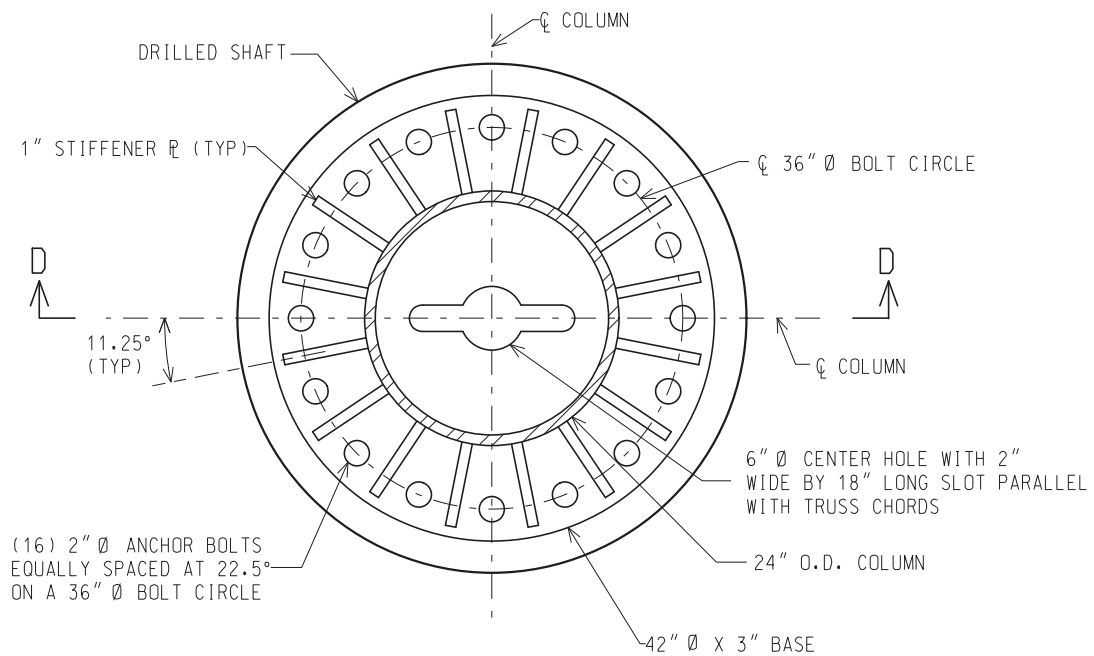
**DETAIL B**

\* WRAP WELD AROUND OUTSIDE EDGE STOP 1/4" SHORT OF CORNER CLIP

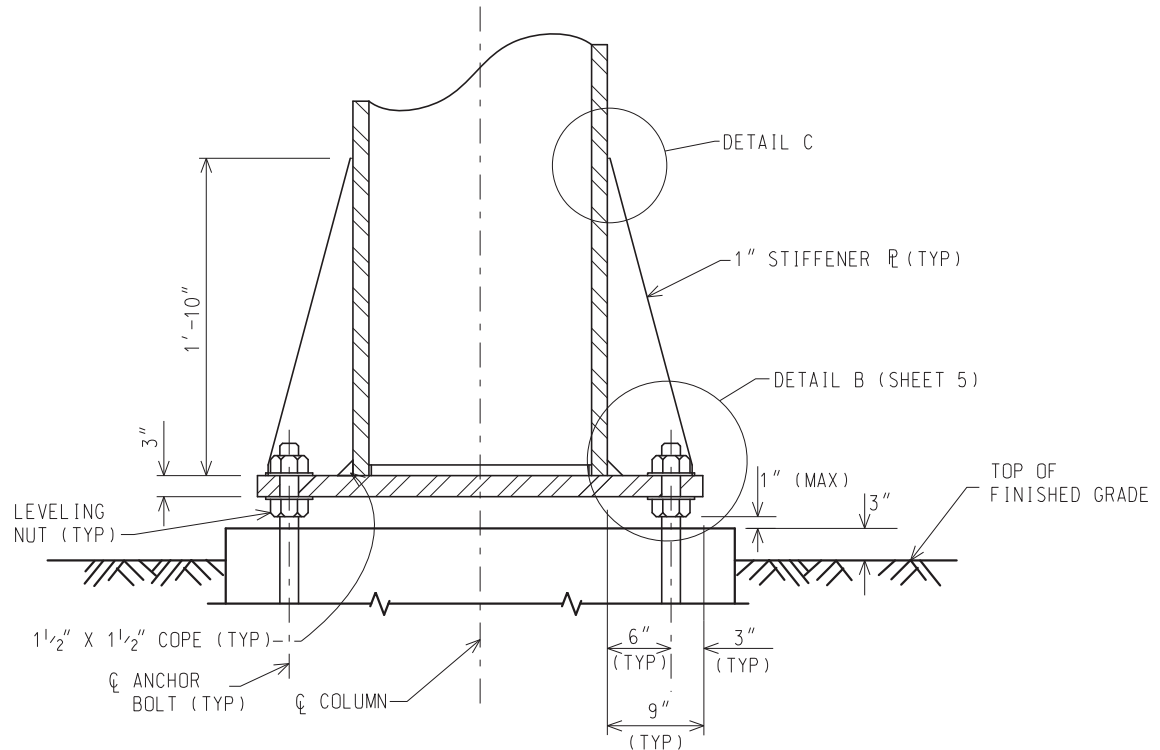
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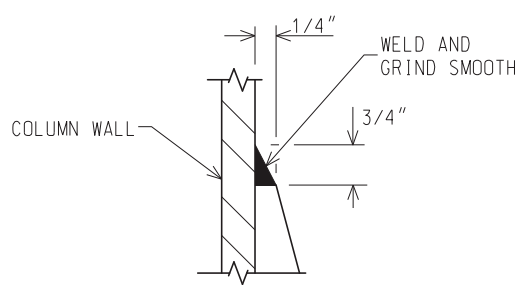
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**PLAN VIEW 42" BASE PLATE DETAIL**



**SECTION D-D**  
ELEVATION VIEW FOR 110' TO 140' TRUSS

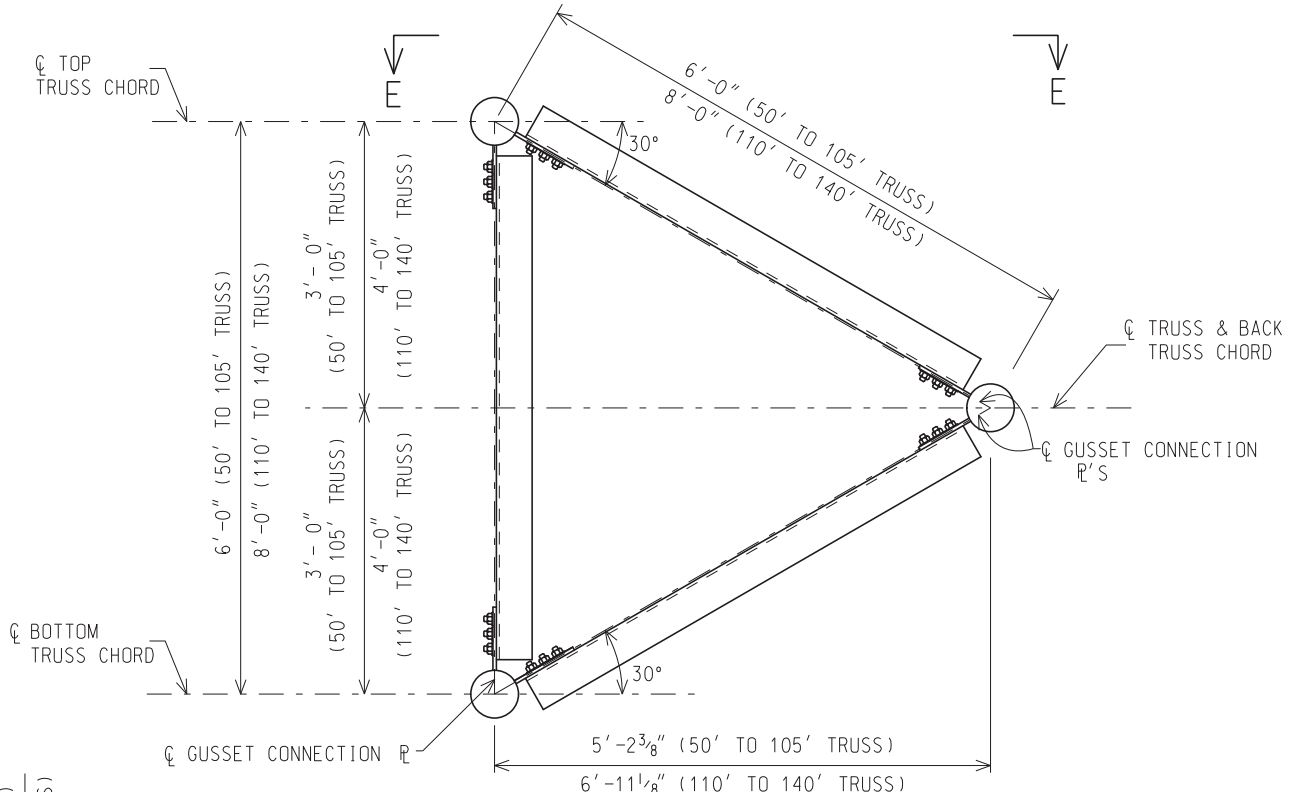


**DETAIL C**

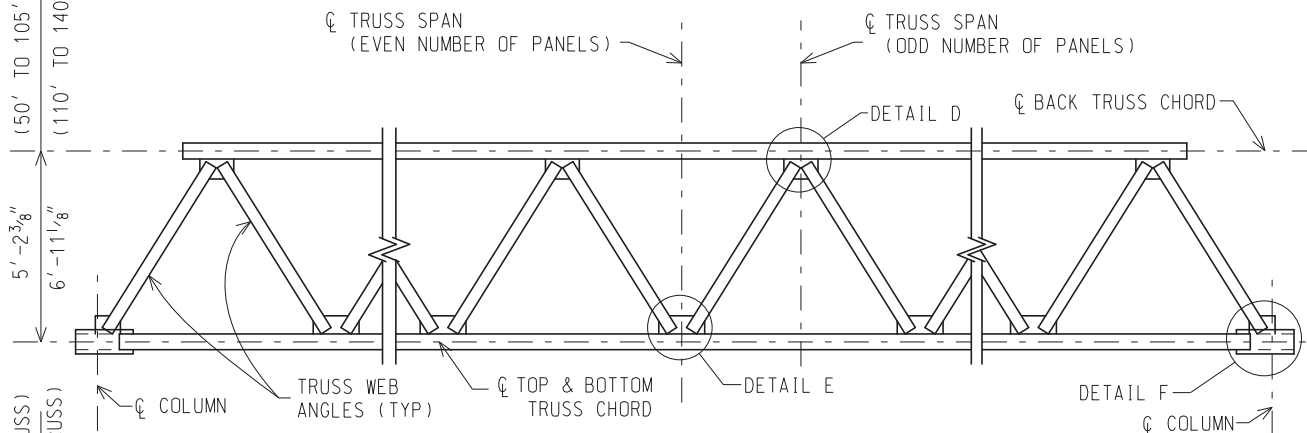
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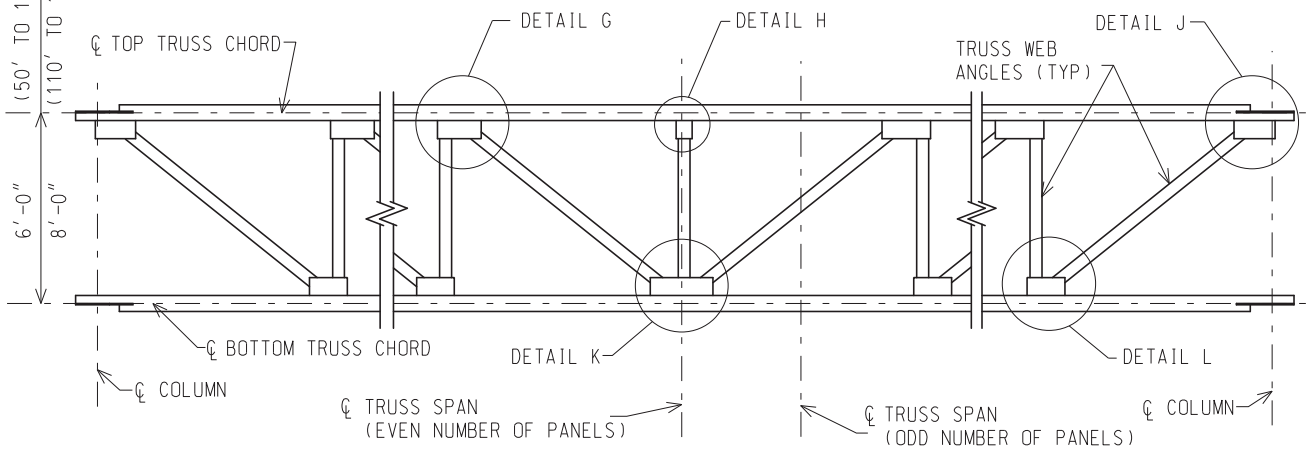
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**TYPICAL SECTION OF TRUSS**



**SECTION E-E**



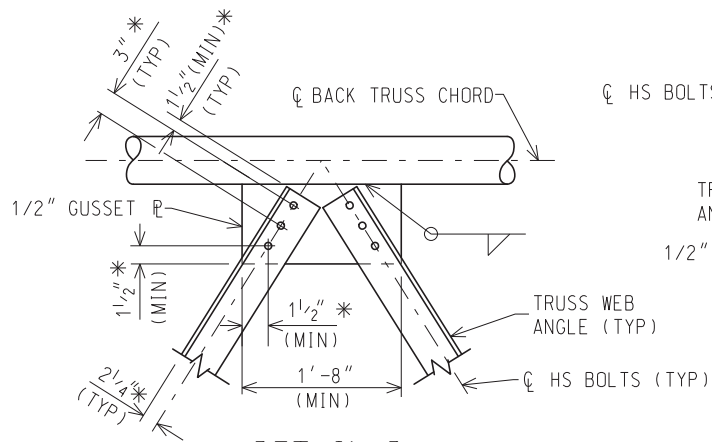
**FRONT OF TRUSS ELEVATION**

BACK TRUSS CHORD AND ATTACHED ANGLES NOT SHOWN FOR CLARITY  
(SEE SHEET 8 FOR DETAILS)

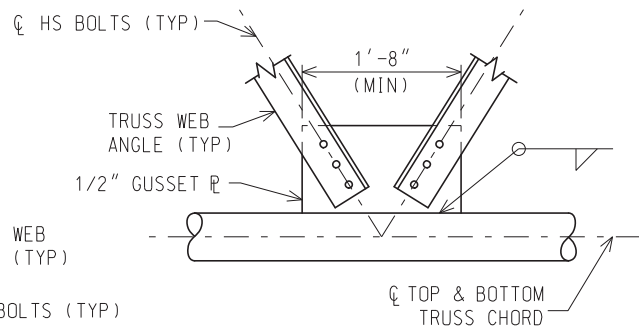
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MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	05/24/18 F.H.W.A. APPROVAL	12/17/13 PLAN DATE	SIGN-360-B	SHEET 7 OF 10
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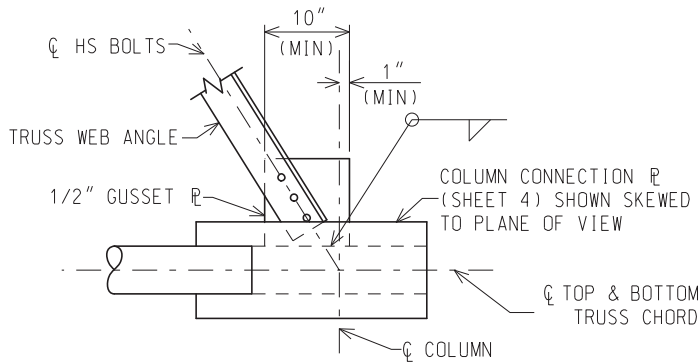
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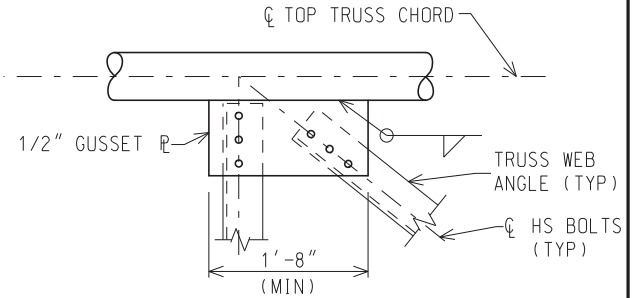
**DETAIL D**



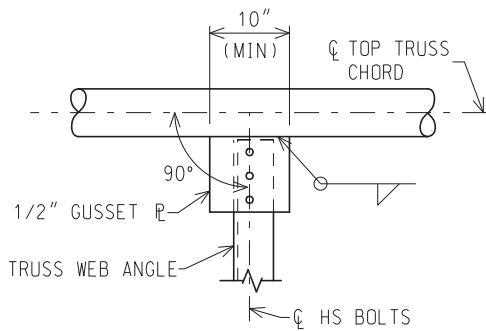
**DETAIL E**



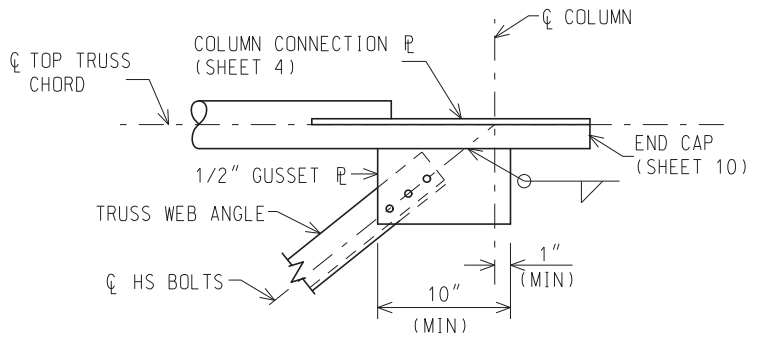
**DETAIL F**



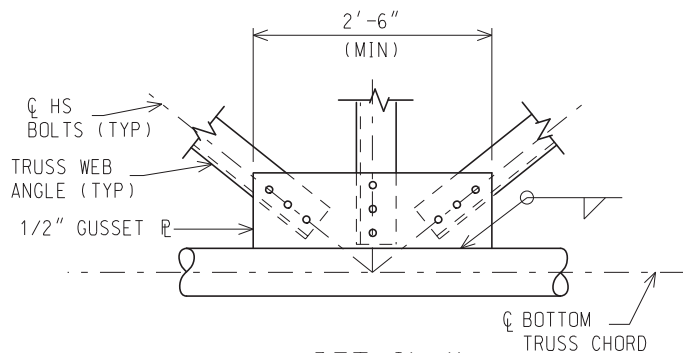
**DETAIL G**



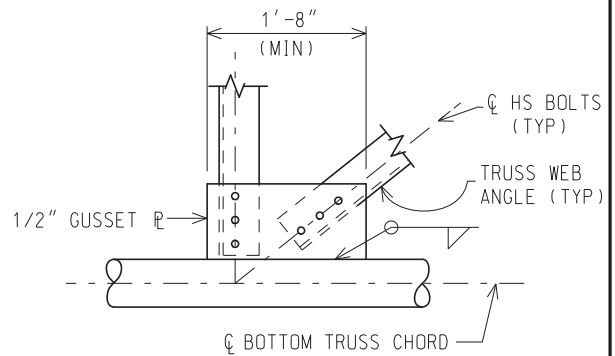
**DETAIL H**



**DETAIL J**



**DETAIL K**



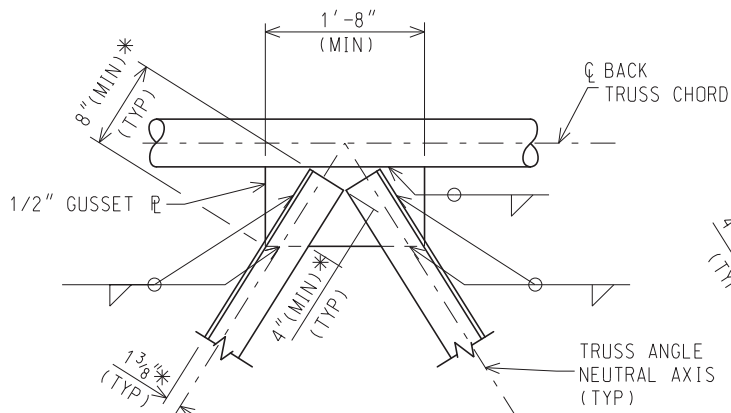
**DETAIL L**

SEE SHEET 9 FOR ALTERNATE CONNECTION DETAILS.

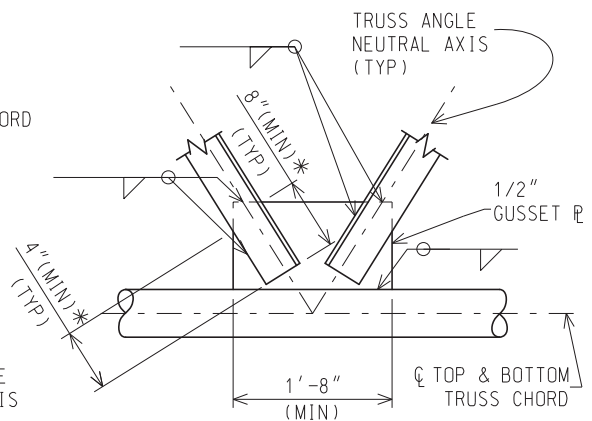
\* DIMENSION TYPICAL FOR ALL CONNECTION DETAILS.

NOT TO SCALE

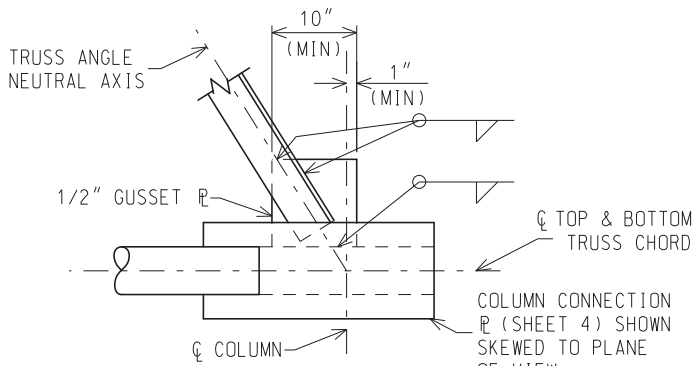




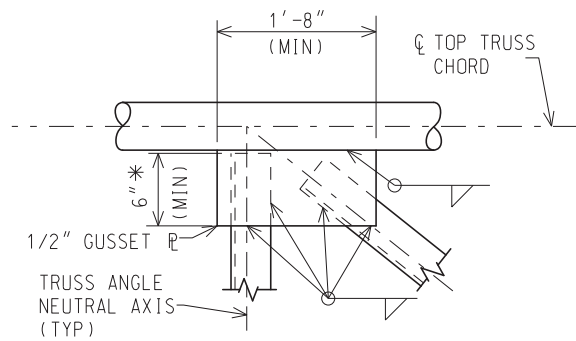
**ALTERNATE DETAIL D**



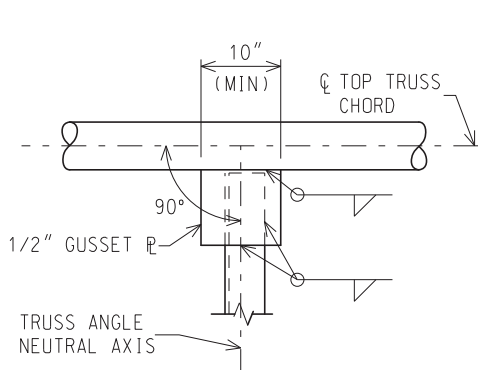
**ALTERNATE DETAIL E**



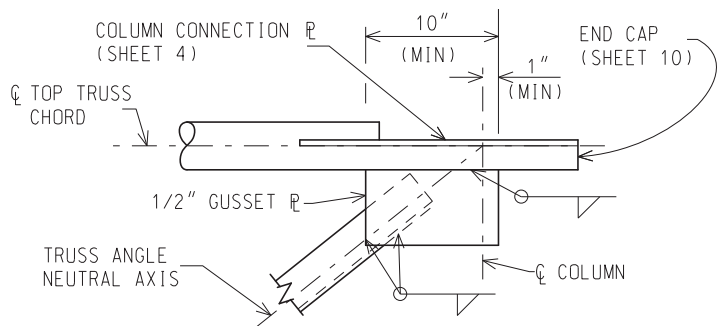
**ALTERNATE DETAIL F**



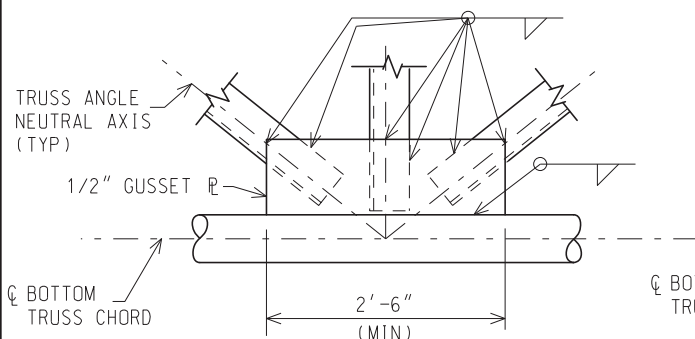
**ALTERNATE DETAIL G**



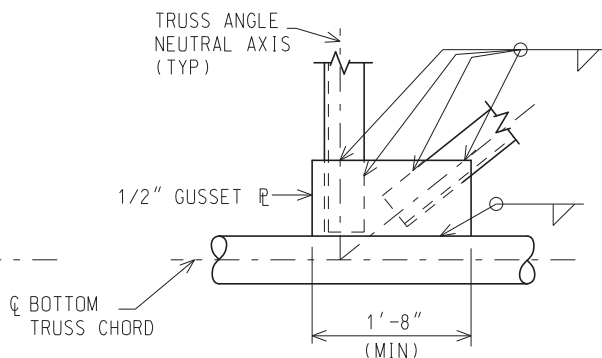
**ALTERNATE DETAIL H**



**ALTERNATE DETAIL J**



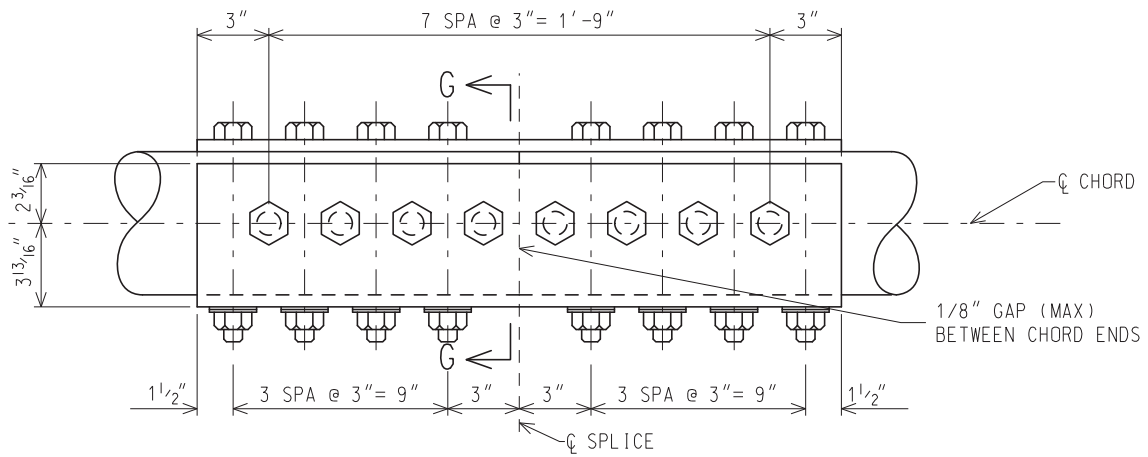
**ALTERNATE DETAIL K**



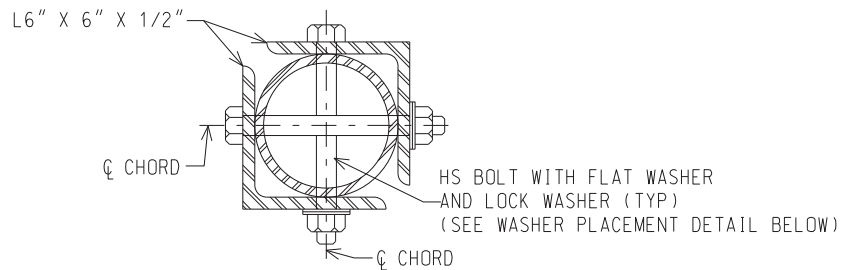
**ALTERNATE DETAIL L**

\* DIMENSION TYPICAL FOR ALL CONNECTION DETAILS.

NOT TO SCALE

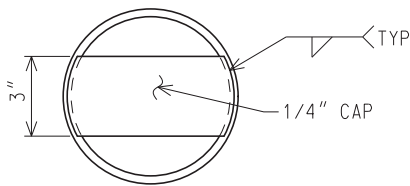


**ELEVATION**



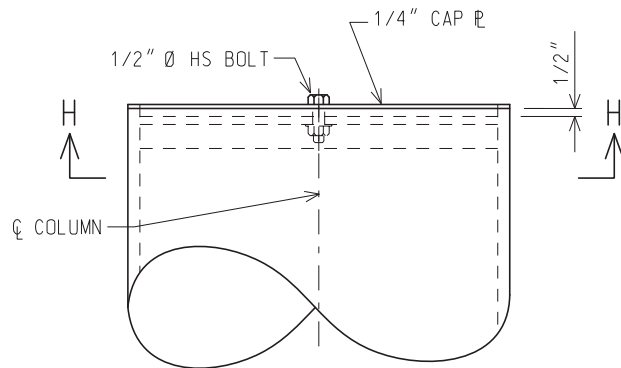
**SECTION G-G**

**CHORD SPLICE CONNECTION DETAILS**

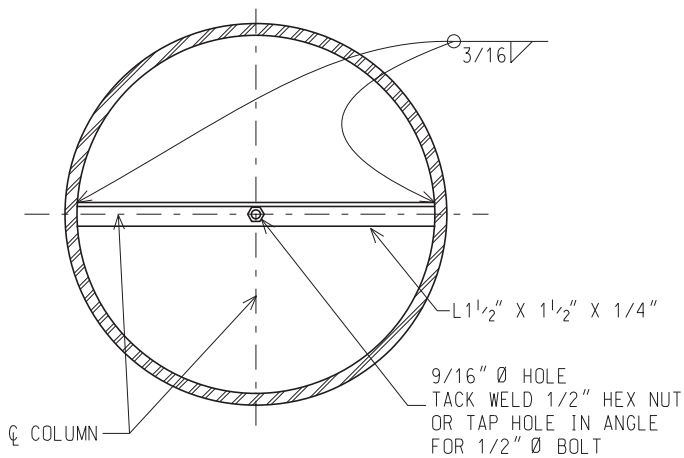


**END CAP DETAIL**

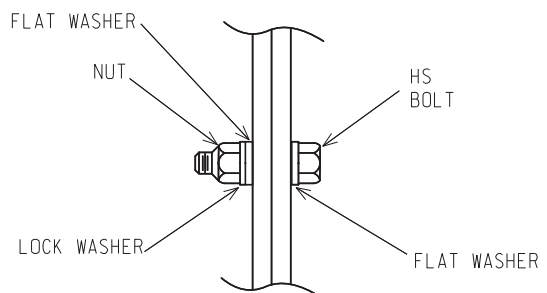
(USE AT EACH END OF BACK TRUSS CHORD)



**COLUMN CAP DETAIL**



**SECTION H-H**



**DETAIL OF WASHER PLACEMENT**

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN

05/24/18  
F.H.W.A. APPROVAL

12/17/13  
PLAN DATE

SIGN-360-B

SHEET  
10 OF 10

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