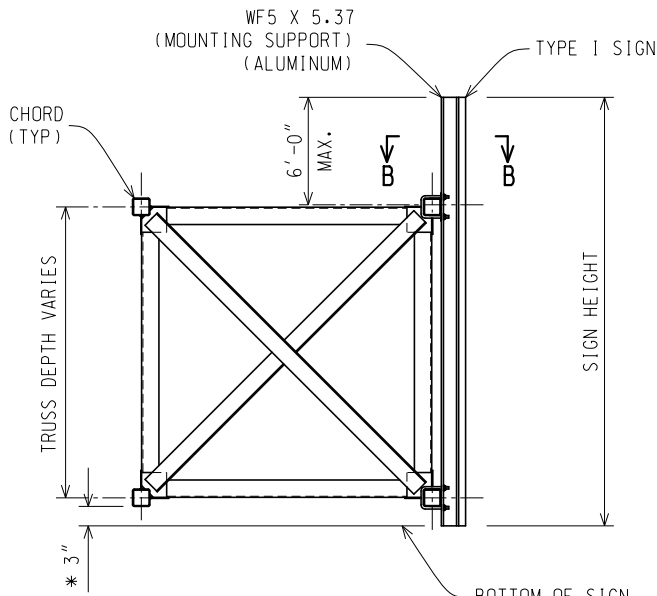


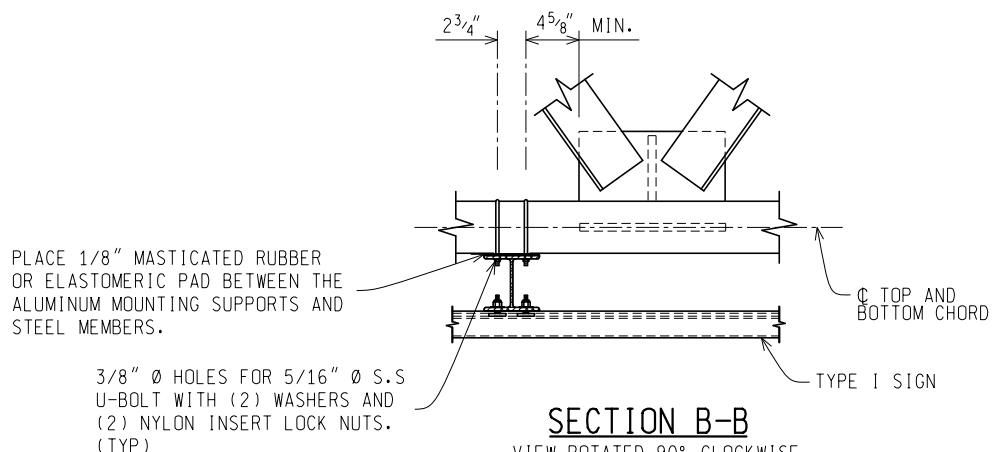
**TRUSS TYPE C AND D - ELEVATION**

\* SEE TABLE ON SHEET 5 FOR MOUNTING SUPPORT SPACING.



**SECTION A-A**

\* SEE TRUSS TYPE C, D, AND E NOTES ON SHEET 8.



**SECTION B-B**

VIEW ROTATED 90° CLOCKWISE  
SEE U-BOLT DETAIL ON SHEET 7.



PREPARED BY  
TSMO DIVISION

DRAWN BY: DHD

CHECKED BY: AJU

DEPARTMENT DIRECTOR  
Paul C. Ajegba

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: \_\_\_\_\_  
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

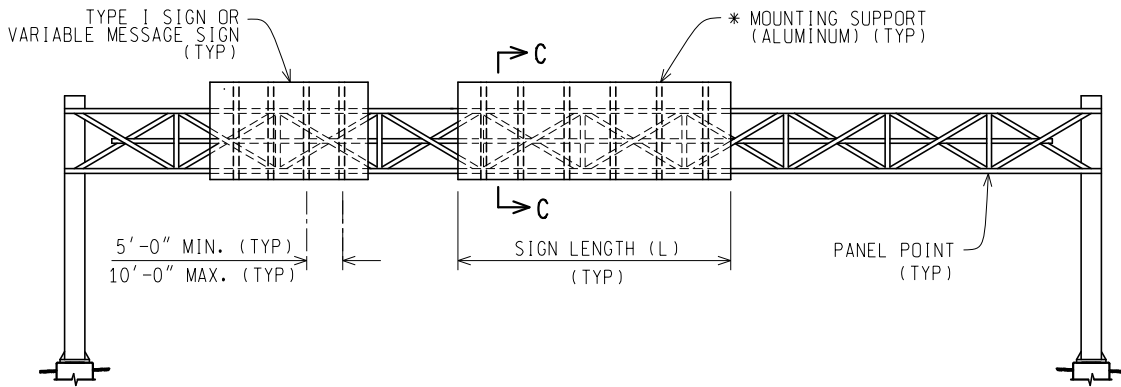
**TRUSS, CANTILEVER, COLUMN  
AND EXIT NUMBER  
CONNECTION DETAILS**

01/16/20  
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11/20/19  
PLAN DATE

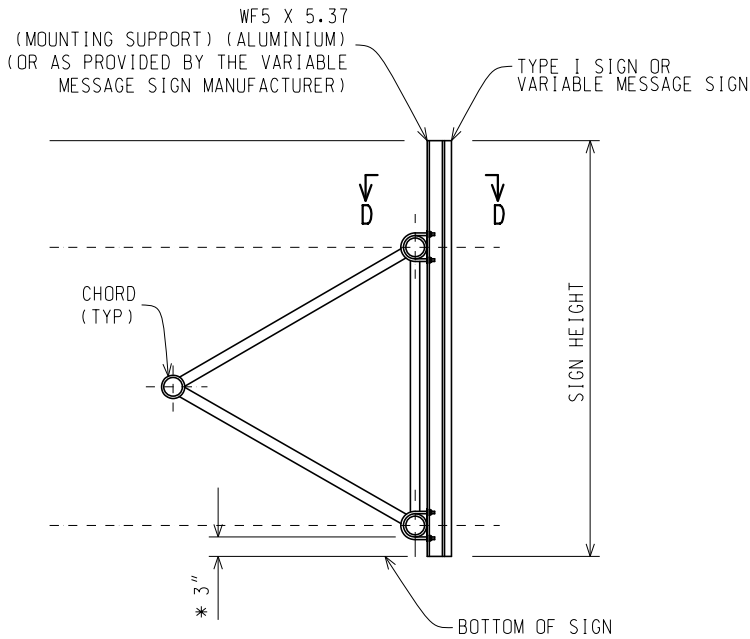
SIGN-700-E

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**TRUSS TYPE E - ELEVATION**

\* SEE TABLE ON SHEET 5 FOR MOUNTING SUPPORT SPACING. DETAILS APPLY TO TRUSS CANTILEVER TYPE J.

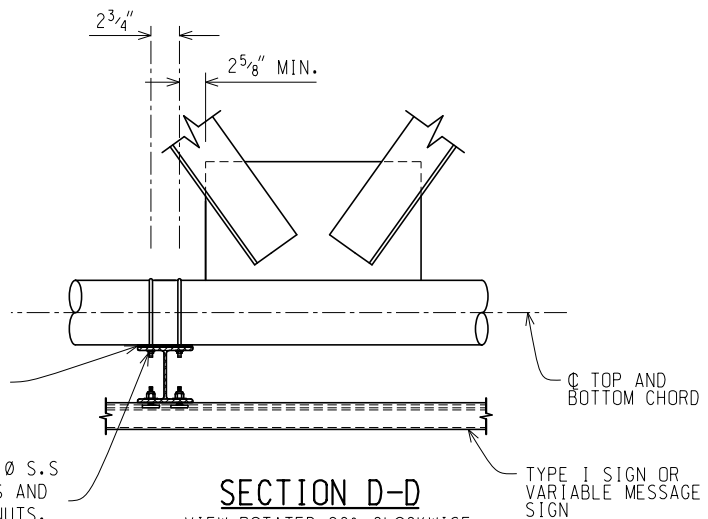


**SECTION C-C**

DETAILS APPLY TO TRUSS CANTILEVER TYPE J.  
\* SEE TRUSS TYPE C, D, AND E NOTES ON SHEET 8.

PLACE 1/8" MASTICATED RUBBER OR ELASTOMERIC PAD BETWEEN THE ALUMINIUM MOUNTING SUPPORTS AND STEEL MEMBERS.

3/8" Ø HOLES FOR 5/16" Ø S.S U-BOLT WITH (2) WASHERS AND (2) NYLON INSERT LOCK NUTS. (TYP)



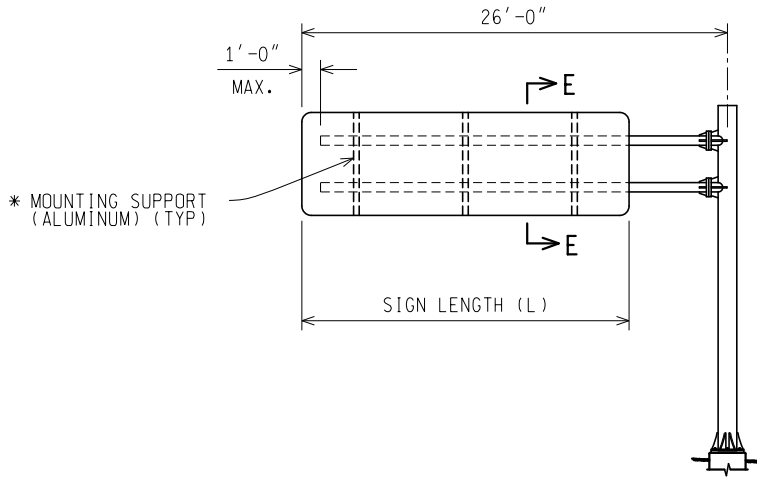
**SECTION D-D**

VIEW ROTATED 90° CLOCKWISE  
DETAILS APPLY TO TRUSS CANTILEVER TYPE J.  
SEE U-BOLT DETAIL ON SHEET 7.

NOT TO SCALE

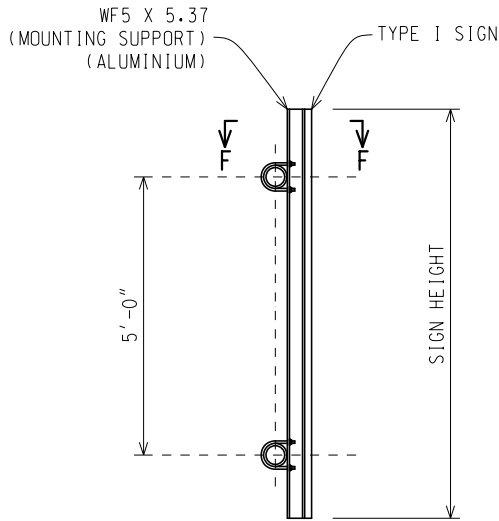
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	01/16/20 F.H.W.A. APPROVAL	11/20/19 PLAN DATE	SIGN-700-E	SHEET 2 OF 8
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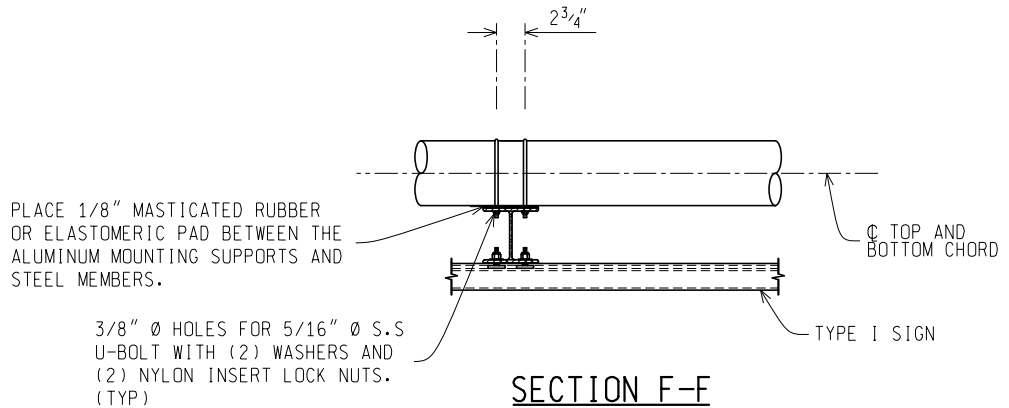
**CANTILEVER TYPE E - ELEVATION**

CENTER SUPPORT MAY BE OMITTED IF 7'-0" MAX. DISTANCE BETWEEN SUPPORTS IS MAINTAINED.  
 \* SEE TABLE ON SHEET 5 FOR MOUNTING SUPPORT SPACING.



**SECTION E-E**

COLUMN NOT SHOWN FOR CLARITY.  
 CENTER SIGN ABOUT CANTILEVER ARMS.



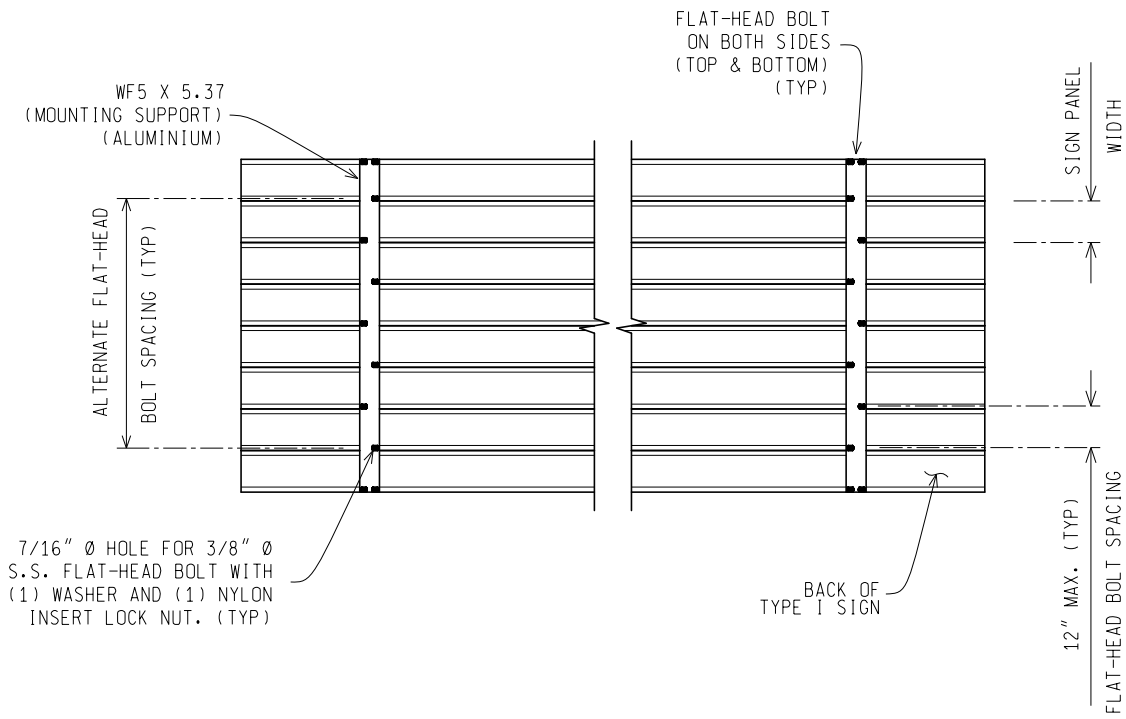
**SECTION F-F**

VIEW ROTATED 90° CLOCKWISE  
 SEE U-BOLT DETAIL ON SHEET 7.

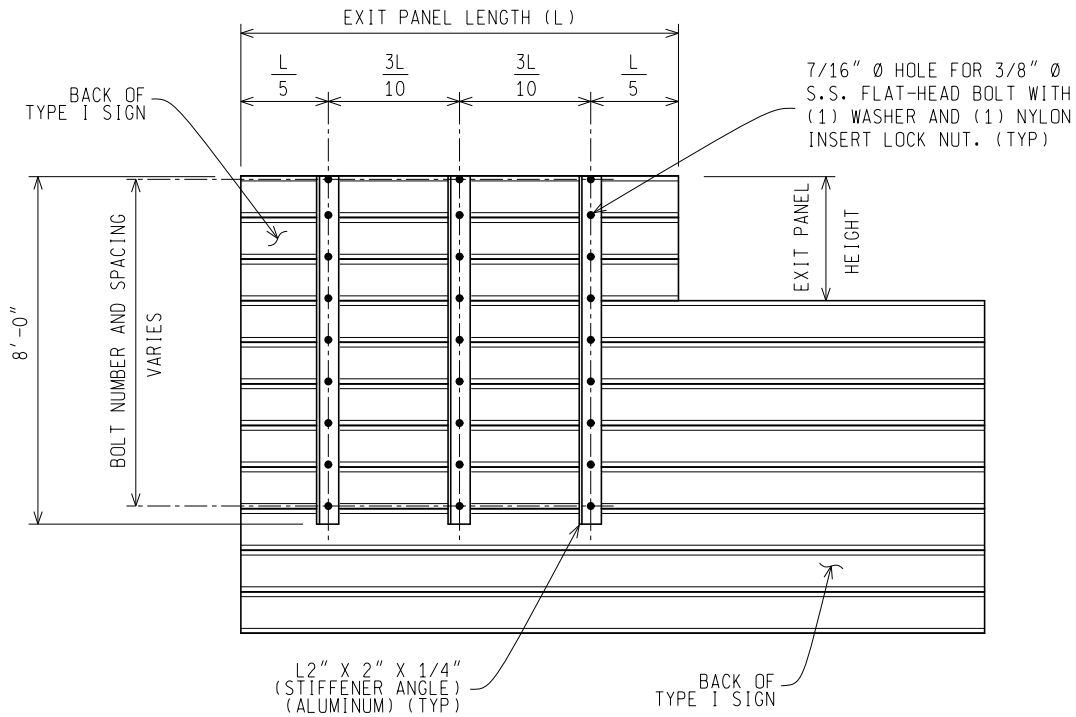
NOT TO SCALE

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**OVERHEAD SIGN PANEL BOLT ARRANGEMENT**



**EXIT NUMBER PANEL ERECTION BOLT ARRANGEMENT**

WF5 X 5.37 ALUMINIUM MOUNTING SUPPORTS NOT SHOWN FOR CLARITY.

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TRUSS TYPE C,D,E, AND J MOUNTING SUPPORT SPACING			
SIGN LENGTH (L) (FT)	NUMBER OF MOUNTING SUPPORTS	EDGE OF SIGN TO $\phi$ OF NEAREST SUPPORT (FT)	DISTANCE BETWEEN $\phi$ OF SUPPORTS (FT)
$L \leq 8.0$	2	$\frac{L-5}{2}$	5.0
$8.5 \leq L \leq 16.5$	2	0.2L	0.6L
$17.0 \leq L \leq 28.5$	3	0.15L	0.35L
$29.0 \leq L \leq 43.0$	4	0.15L	$\frac{L - 0.3L}{3}$

TABLE ABOVE SERVES AS AN INITIAL STARTING POINT TO DETERMINE MOUNTING SUPPORT LOCATIONS. THE FABRICATOR MAY ADJUST MOUNTING SUPPORT LOCATIONS SLIGHTLY TO AVOID PANEL POINTS WITH A MINIMUM OF 5'-0" AND MAXIMUM OF 10'-0" SPACING.

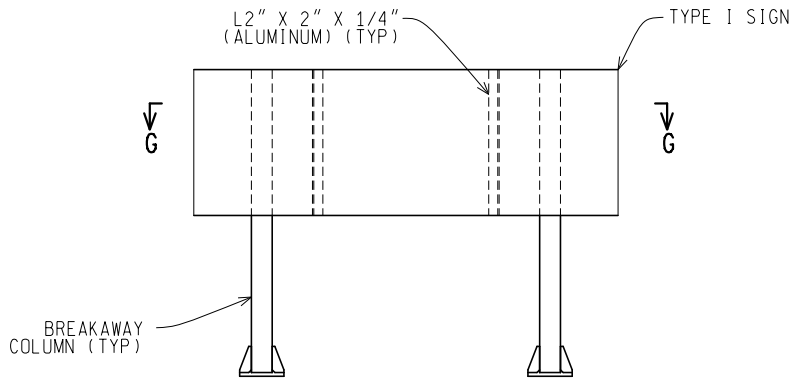
CANTILEVER TYPE E MOUNTING SUPPORT SPACING			
SIGN LENGTH (L) (FT)	NUMBER OF MOUNTING SUPPORTS	EDGE OF SIGN TO $\phi$ OF NEAREST SUPPORT (FT)	DISTANCE BETWEEN $\phi$ OF SUPPORTS (FT)
$L \leq 10.5$	2	$\frac{L}{6}$	$\frac{2L}{3}$
$10.5 < L \leq 21.0$	3	$\frac{L}{6}$	$\frac{L}{3}$

MAXIMUM  $\phi$  TO  $\phi$  SPACING OF MOUNTING SUPPORTS IS 7'-0".

NOT TO SCALE

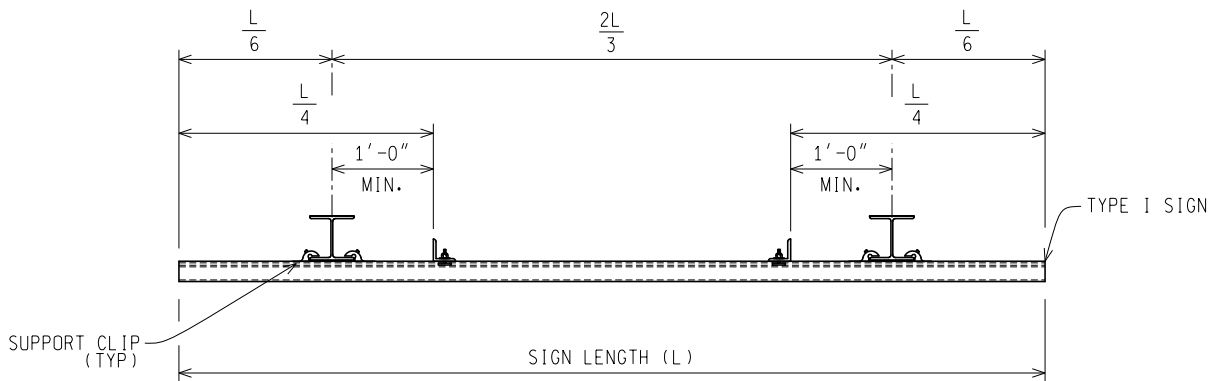
MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN	01/16/20 F.H.W.A. APPROVAL	11/20/19 PLAN DATE	SIGN-700-E	SHEET 5 OF 8
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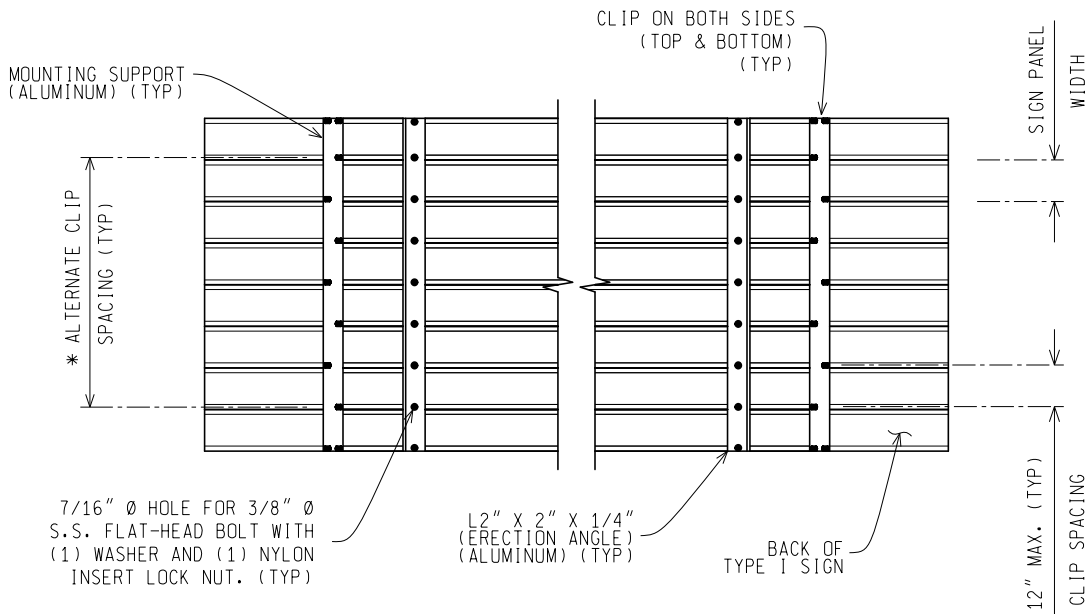
**COLUMN BREAKAWAY - ELEVATION**

SEE CURRENT SIGN-220 STEEL COLUMN BREAK-AWAY.



**SECTION G-G**

FIELD CONNECT COLUMN TO TYPE I SIGN USING SUPPORT CLIPS.



**SIGN PANEL CLIP ARRANGEMENT**

APPLICABLE FOR COLUMN BREAKAWAY ONLY

- \* FOR SIGNS OVER 22'-0" LONG, USE CLIPS ON BOTH SIDES OF EACH EACH MOUNTING SUPPORT FROM TOP TO BOTTOM.
- \*\* SHOP CONNECT BY BOLTING TO EACH PANEL. 2 ERECTION ANGLES REQUIRED FOR ALL INSTALLATIONS.

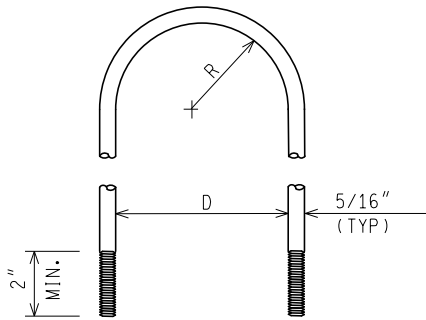
NOT TO SCALE

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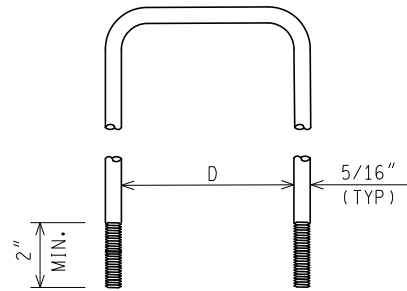
## U-BOLT DIMENSIONS

SIGN STRUCTURE TYPE	INSIDE BEND DIAMETER (D)	INSIDE BEND RADIUS (R)	U-BOLT LENGTH (L)
TRUSS TYPE C (50'-0" TO 70'-0")	4"	N/A	1'-5 <sup>1</sup> / <sub>4</sub> "
TRUSS TYPE C (75'-0" TO 100'-0")	5"	N/A	1'-8 <sup>1</sup> / <sub>4</sub> "
TRUSS TYPE D (105'-0" TO 125'-0")	5"	N/A	1'-8 <sup>1</sup> / <sub>2</sub> "
TRUSS TYPE E (50'-0" TO 125'-0")	6"	3"	1'-8 <sup>1</sup> / <sub>4</sub> "
CANTILEVER TYPE J	6"	3"	1'-8 <sup>1</sup> / <sub>4</sub> "
CANTILEVER TYPE E	11"	5 <sup>3</sup> / <sub>8</sub> "	2'-8"



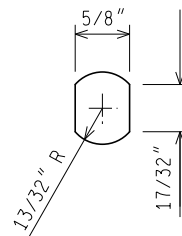
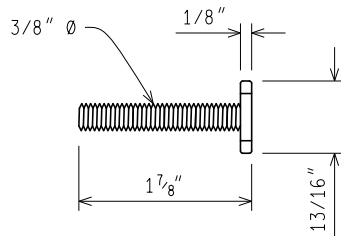
### ROUND U-BOLT DETAIL

APPLICABLE FOR TYPE E TRUSS AND TYPE E AND J CANTILEVER SIGN STRUCTURES.



### SQUARE U-BOLT DETAIL

APPLICABLE FOR TYPE C AND D TRUSS SIGN STRUCTURES.



### RECTANGULAR FLAT-HEAD BOLT DETAIL

NOT TO SCALE

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### NOTES FOR EXIT NUMBER PANEL ERECTION:

1. ALL STIFFENER ANGLES AND CONNECTIONS ARE INCLUDED IN THE PAY ITEM "SIGN, TYPE I".
2. SHIFT STIFFENER ANGLES A MINIMUM DISTANCE TO AVOID CONFLICT WITH GUIDE SIGN SUPPORTS.
3. SHORTEN STIFFENER ANGLES TO MATCH BOTTOM OF GUIDE SIGN WHEN SIGN HEIGHT IS LESS THAN FIVE FEET.
4. EXIT NUMBER PANEL MUST BE DIRECT BOLTED AT TOP, MIDDLE AND BOTTOM TO MOUNTING ANGLE (3 BOLTS REQUIRED PER MOUNTING ANGLE). USE STAINLESS STEEL 3/8 DIAMETER RECTANGULAR FLAT HEAD BOLTS, FLAT WASHERS AND NYLON INSERT LOCKNUTS. SLOTTED BOLT HOLES (1/2" X 3/4") MAY BE USED TO FACILITATE ALIGNMENT OF MOUNTING SUPPORTS.
5. REFER TO PLAN SHEET FOR PLACEMENT OF RIGHT OR LEFT EXIT SIGN PANEL.
6. GUIDE SIGN MOUNTING SUPPORTS MUST NOT BE EXTENDED TO SERVE AS EXIT NUMBER PANEL STIFFENER ANGLES.

### NOTES FOR OVERHEAD SIGN SUPPORT:

7. NEW WIDE FLANGE MOUNTING SUPPORTS MUST BE SHOP CONNECTED TO ALL SIGNS BEFORE HANDLING FINISHED SIGN.
8. SIGNS TOO TALL TO BE SHIPPED IN ONE PIECE MUST HAVE TEMPORARY SUPPORT ANGLES ATTACHED TO EACH PIECE PRIOR TO HANDLING. THE TEMPORARY SUPPORT ANGLES MUST REMAIN ON THE SIGN UNTIL THE PERMANENT WIDE FLANGE MOUNTING SUPPORTS ARE ATTACHED. TEMPORARY SUPPORTS MUST BE STEEL OR ALUMINUM ANGLES.
9. USE STAINLESS STEEL 3/8" DIAMETER RECTANGULAR FLAT-HEAD BOLTS, FLAT WASHERS, AND NYLON INSERT LOCKNUTS TO ATTACH TYPE I SIGN TO OVERHEAD SIGN SUPPORT. SLOTTED BOLT HOLES (1/2" X 3/4") MAY BE USED TO FACILITATE ALIGNMENT OF MOUNTING ONLY.
10. ALL U-BOLTS, BOLTS, AND NYLON INSERT LOCKNUTS MUST BE IN ACCORDANCE WITH THE CURRENT MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

### TRUSS TYPE C,D,E NOTES:

11. TYPE C AND D 7'-0" TRUSS DEPTH:  
SIGN HEIGHT < 14'-0": 3" MAXIMUM PROJECTION BELOW BOTTOM TRUSS CHORD.  
SIGN HEIGHT ≥ 14'-0": CENTER SIGN ON THE TRUSS.
12. TYPE E 6'-0" TRUSS DEPTH:  
SIGN HEIGHT < 13'-0": 3" MAXIMUM PROJECTION BELOW BOTTOM TRUSS CHORD.  
SIGN HEIGHT ≥ 13'-0": CENTER SIGN ON THE TRUSS.
13. TYPE E 8'-0" TRUSS DEPTH:  
SIGN HEIGHT < 15'-0": 3" MAXIMUM PROJECTION BELOW BOTTOM TRUSS CHORD.  
SIGN HEIGHT ≥ 15'-0": CENTER SIGN ON THE TRUSS.
14. MINIMUM/MAXIMUM UNDERCLEARANCE APPLIES TO LOWEST HANGING SIGN ON TRUSS.
15. MINIMUM SIGN HEIGHT IS 1'-0" LARGER THAN THE SPECIFIED TRUSS DEPTH.

### NOTES FOR VARIABLE MESSAGE SIGNS:

16. TYPE I SIGNS MUST NOT BE USED ON THE SAME TYPE E TRUSS AS VARIABLE MESSAGE SIGNS.
17. ATTACH VARIABLE MESSAGE SIGNS ON THE TYPE E TRUSS PER THE MANUFACTURERS RECOMMENDATIONS.

### NOTES FOR COLUMN BREAKAWAY:

18. ERECTION ANGLES MUST REMAIN IN PLACE. SLOTTED BOLT HOLES (1/2" X 3/4") MAY BE USED TO FACILITATE ALIGNMENT OF ERECTION ANGLES.
19. USE SIGN SUPPORT CLIPS TO ATTACH TYPE I SIGNS TO ROADSIDE STEEL COLUMN BREAKAWAY.

### GENERAL NOTES:

20. NEW ALUMINUM ANGLES MUST BE SHOP CONNECTED TO ALL SIGNS BEFORE HANDLING FINISHED SIGN. THEY ARE INCLUDED IN THE PAY ITEM "SIGN, TYPE \_".
21. ALL STIFFENER ANGLES, MOUNTING SUPPORTS AND CONNECTIONS ARE INCLUDED IN THE PAY ITEM "SIGN, TYPE \_".
22. ALUMINUM MOUNTING SUPPORTS SHALL BE WF5 X 5 X 5.37 POUNDS PER FOOT, ARMY/NAVY SERIES.
23. TIGHTEN NUTS ON U-BOLTS AND FLAT-HEAD BOLTS UNTIL ALL MATING SURFACES ARE IN FIRM CONTACT. DO NOT OVER TIGHTEN.
24. S.S. DENOTES STAINLESS STEEL.

NOT TO SCALE

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