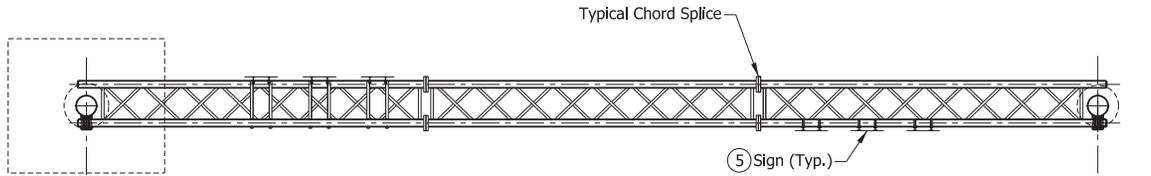


INDEX

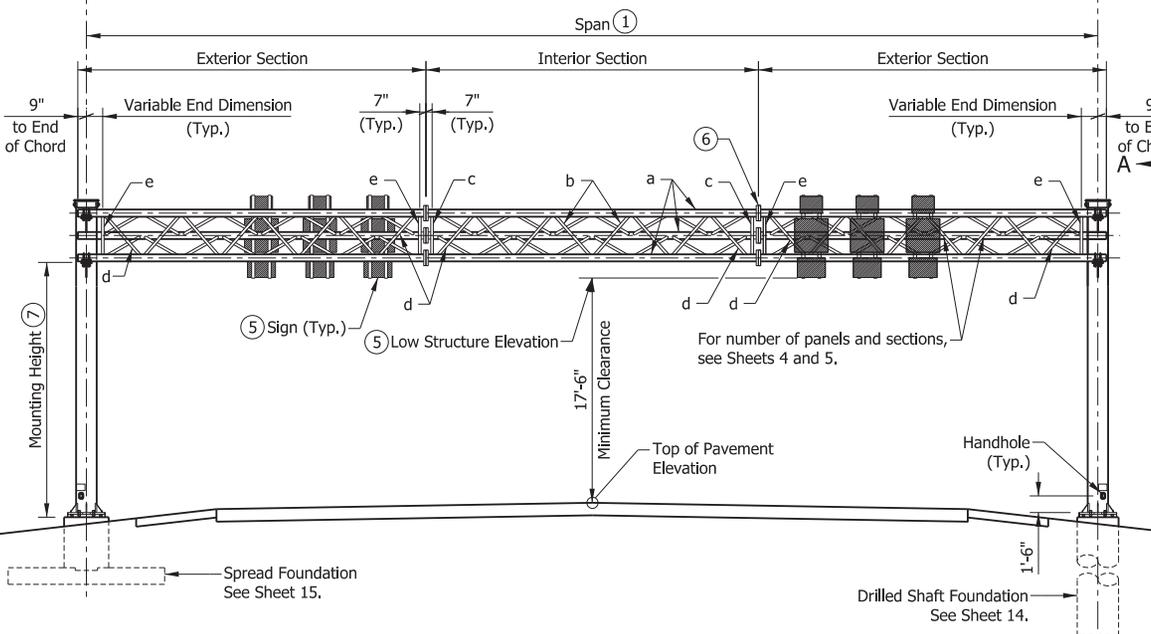
SHEET NO.	SUBJECT
1	Index
2	Plan & Elevation
3	Isometric Views
4	Panel Dimensions, Spans 36' thru 83'
5	Panel Dimensions, Spans 84' thru 130'
6	Member Sizes and Camber
7	Connection Details
8	Connection and Welding Details
9	Chord Flange Details
10	Top Cap and Chord End Plate Details
11	Sign Attachment Details
12	Base Plate, Anchor Bolt, and I.D. Tag Details
13	Handhole Details
14	Drilled Shaft Foundation
15	Spread Foundation

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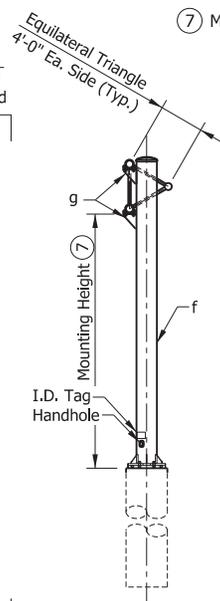
TRI-CHORD SIGN STRUCTURE
DRAWING INDEX



PLAN



ELEVATION



ELEVATION A-A

NOTES:

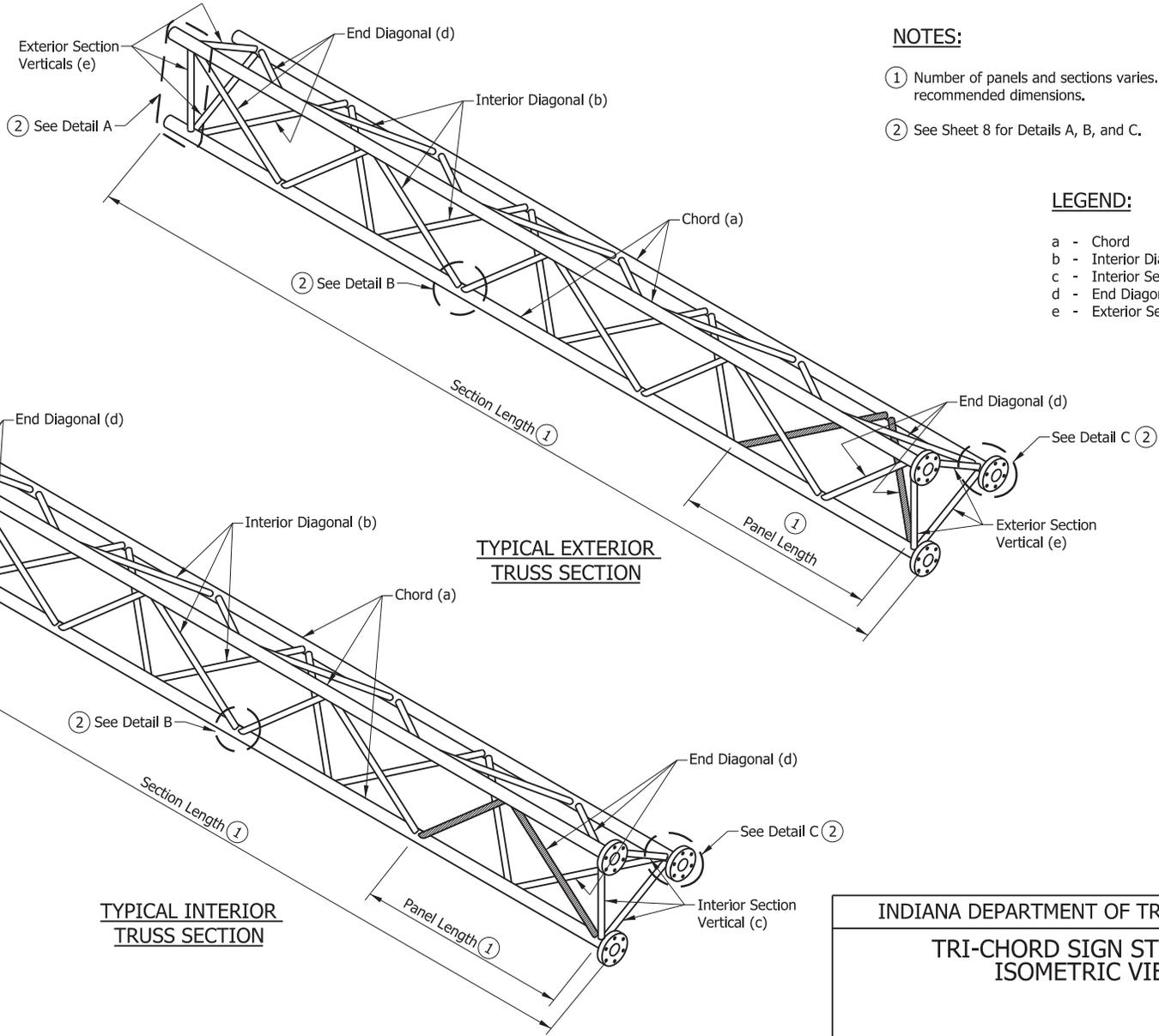
- ① Tri-chord truss structures are for various maximum sign areas and span lengths. See Sheets 4 through 6 for panel dimensions, member sizes, and camber.
2. Maximum deviation of any chord from a straight line in any section shall be less than 1/8". Maximum horizontal deviation over the entire length of the tri-chord truss shall be less than 3/8" from a straight line.
3. See Sheets 7 and 8 for connection and welding details.
4. See Sheet 12 for base plate, anchor bolt, and I.D. tag details.
- ⑤ See Sheet 11 for sign attachment details.
- ⑥ See Sheet 9 for chord flange details.
- ⑦ Maximum mounting height is 23'-0".

LEGEND:

- a - Chord
- b - Interior Diagonal
- c - Interior Section Vertical
- d - End Diagonal
- e - Exterior Section Vertical
- f - Column
- g - W-Beam Supports

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**TRI-CHORD SIGN STRUCTURE
PLAN AND ELEVATION**



INDIANA DEPARTMENT OF TRANSPORTATION
 TRI-CHORD SIGN STRUCTURE
 ISOMETRIC VIEWS

RECOMMENDED PANEL DIMENSIONS FOR TRI-CHORD (36' THROUGH 83')

SPAN	EXTERIOR SECTIONS					INTERIOR SECTIONS			
	SPAN-TRUSS LENGTH (FT)	NO. OF EXT. SEC.	NO. OF EXT. PANELS PER SEC.	VARIABLE END DIMENSION	PANEL LENGTH	SECTION LENGTH	NO. OF INT. SEC.	NO. OF INT. PANELS PER SEC.	PANEL LENGTH
36	2	5	1'-2"	3'-3"	18'-9"				
37	2	5	1'-3"	3'-4"	19'-3"				
38	2	5	1'-4"	3'-5"	19'-9"				
39	2	5	1'-5"	3'-6"	20'-3"				
40	2	5	1'-6"	3'-7"	20'-9"				
41	2	5	1'-7"	3'-8"	21'-3"				
42	2	6	1'-5"	3'-2"	21'-9"				
43	2	6	1'-5"	3'-3"	22'-3"				
44	2	6	1'-5"	3'-4"	22'-9"				
45	2	6	1'-5"	3'-5"	23'-3"				
46	2	7	1'-5"	3'-0"	23'-9"				
47	2	7	1'-4"	3'-1"	24'-3"				
48	2	7	1'-6 1/2"	3'-1 1/2"	24'-9"				
49	2	7	1'-5 1/2"	3'-2 1/2"	25'-3"				
50	2	7	1'-4 1/2"	3'-3 1/2"	25'-9"				
51	2	7	1'-7"	3'-4"	26'-3"				
52	2	7	1'-6"	3'-5"	26'-9"				
53	2	7	1'-5"	3'-6"	27'-3"				
54	2	7	1'-4"	3'-7"	27'-9"				
55	2	7	1'-6 1/2"	3'-7 1/2"	28'-3"				
56	2	7	1'-5 1/2"	3'-8 1/2"	28'-9"				
57	2	7	1'-4 1/2"	3'-9 1/2"	29'-3"				
58	2	7	1'-7"	3'-10"	29'-9"				
59	2	6	1'-4"	3'-0"	20'-8"	1	6	3'-0"	19'-2"
60	2	6	1'-5 1/2"	3'-1 1/2"	21'-1 1/2"	1	6	3'-1 1/2"	19'-5"
61	2	6	1'-7"	3'-1"	21'-5"	1	6	3'-1"	19'-8"
62	2	6	1'-8 1/2"	3'-1 1/2"	21'-9 1/2"	1	6	3'-1 1/2"	19'-11"
63	2	6	1'-10"	3'-2"	22'-2"	1	6	3'-2"	20'-2"
64	2	6	1'-7"	3'-3"	22'-5"	1	6	3'-3"	20'-8"
65	2	6	1'-8 1/2"	3'-3 1/2"	22'-9 1/2"	1	6	3'-3 1/2"	20'-11"
66	2	6	1'-10"	3'-4"	23'-2"	1	6	3'-4"	21'-2"
67	2	6	1'-7"	3'-5"	23'-5"	1	6	3'-5"	21'-8"
68	2	6	1'-8 1/2"	3'-5 1/2"	23'-9 1/2"	1	6	3'-5 1/2"	21'-11"
69	2	6	1'-10"	3'-6"	24'-2"	1	6	3'-6"	22'-2"
70	2	6	1'-9"	3'-2 1/2"	22'-4"	1	8	3'-2 1/2"	26'-10"
71	2	6	1'-5"	3'-3 1/2"	22'-6"	1	8	3'-3 1/2"	27'-6"
72	2	6	1'-6"	3'-4"	22'-10"	1	8	3'-4"	27'-10"
73	2	6	1'-7"	3'-4 1/2"	23'-2"	1	8	3'-4 1/2"	28'-2"
74	2	6	1'-8"	3'-5"	23'-6"	1	8	3'-5"	28'-6"
75	2	6	1'-4"	3'-6"	23'-8"	1	8	3'-6"	29'-2"
76	2	6	1'-5"	3'-6 1/2"	24'-0"	1	8	3'-6 1/2"	29'-6"
77	2	6	1'-6"	3'-7"	24'-4"	1	8	3'-7"	29'-10"
78	2	6	1'-7"	3'-7 1/2"	24'-8"	1	8	3'-7 1/2"	30'-2"
79	2	6	1'-8"	3'-8"	25'-0"	1	8	3'-8"	30'-6"
80	2	6	1'-4"	3'-9"	25'-2"	1	8	3'-9"	31'-2"
81	2	6	1'-5"	3'-9 1/2"	25'-6"	1	8	3'-9 1/2"	31'-6"
82	2	6	1'-6"	3'-10"	25'-10"	1	8	3'-10"	31'-10"
83	2	6	1'-7"	3'-10 1/2"	26'-2"	1	8	3'-10 1/2"	32'-2"

NOTES:

1. All panels on a truss shall be the same length. The minimum panel length is 3'-0" and the maximum is 4'-0".
2. A single interior unit shall have an even number of panels to maintain the pattern of the diagonals.
3. Use minimum number of sections for each truss. Keep the maximum section length at 35'-0".
4. See Sheet 5 for required camber.

INDIANA DEPARTMENT OF TRANSPORTATION

**TRI-CHORD SIGN STRUCTURE
PANEL DIMENSIONS
SPANS 36' THRU 83'**

RECOMMENDED PANEL DIMENSIONS FOR TRI-CHORD (84' THROUGH 130')

SPAN	EXTERIOR SECTIONS					INTERIOR SECTIONS			
	SPAN-TRUSS LENGTH (FT)	NO. OF EXT. SEC.	NO. OF EXT. PANELS PER SEC.	VARIABLE END DIMENSION	PANEL LENGTH	SECTION LENGTH	NO. OF INT. SEC.	NO. OF INT. PANELS PER SEC.	PANEL LENGTH
84	2	6	1'-8"	3'-11"	26'-6"	1	8	3'-11"	32'-6"
85	2	6	1'-9"	3'-11 1/2"	26'-10"	1	8	3'-11 1/2"	32'-10"
86	2	6	1'-10"	4'-0"	27'-2"	1	8	4'-0"	33'-2"
87	2	7	1'-6 1/2"	3'-8 1/2"	28'-10"	1	8	3'-8 1/2"	33'-10"
88	2	7	1'-7"	3'-9"	29'-2"	1	8	3'-9"	31'-2"
89	2	7	1'-7 1/2"	3'-9 1/2"	29'-6"	1	8	3'-9 1/2"	31'-6"
90	2	7	1'-8"	3'-10"	29'-10"	1	8	3'-10"	31'-10"
91	2	7	1'-8 1/2"	3'-10 1/2"	30'-2"	1	8	3'-10 1/2"	32'-2"
92	2	8	1'-8"	3'-8"	32'-4"	1	8	3'-5 1/2"	28'-10"
93	2	8	1'-8"	3'-8 1/2"	32'-8"	1	8	3'-6"	29'-2"
94	2	8	1'-8"	3'-9"	33'-0"	1	8	3'-6 1/2"	29'-6"
95	2	8	1'-8"	3'-9 1/2"	33'-4"	1	8	3'-7"	29'-10"
96	2	8	1'-8"	3'-10"	33'-8"	1	8	3'-7 1/2"	30'-2"
97	2	8	1'-8"	3'-10 1/2"	34'-0"	1	8	3'-8"	30'-6"
98	2	8	1'-8"	3'-11"	34'-4"	1	8	3'-8 1/2"	30'-10"
99	2	8	1'-8"	3'-11 1/2"	34'-8"	1	8	3'-9"	31'-2"
100	2	8	1'-8"	4'-0"	35'-0"	1	8	3'-9 1/2"	31'-6"
101	2	8	1'-10 1/2"	3'-1 1/2"	28'-2 1/2"	1	7	3'-1 1/2"	23'-1/2"
102	2	8	1'-9"	3'-2"	28'-5"	1	7	3'-2"	23'-4"
103	2	8	1'-7 1/2"	3'-2 1/2"	28'-7 1/2"	1	7	3'-2 1/2"	23'-7 1/2"
104	2	8	1'-6"	3'-3"	28'-10"	1	7	3'-3"	23'-11"
105	2	8	1'-4 1/2"	3'-3 1/2"	29'-0 1/2"	1	7	3'-3 1/2"	24'-2 1/2"
106	2	8	1'-10 1/2"	3'-3 1/2"	29'-6 1/2"	1	7	3'-3 1/2"	24'-2 1/2"
107	2	8	1'-9"	3'-3 1/2"	29'-9"	1	7	3'-4"	24'-6"
108	2	8	1'-7 1/2"	3'-4 1/2"	29'-11 1/2"	1	7	3'-4 1/2"	24'-9 1/2"
109	2	8	1'-6"	3'-5"	30'-2"	1	7	3'-5"	25'-1"
110	2	8	1'-8 1/4"	3'-5 1/4"	30'-6 1/4"	1	7	3'-5 1/4"	25'-2 3/4"
111	2	8	1'-10 1/2"	3'-5 1/2"	30'-5 1/4"	1	7	3'-5 1/2"	25'-4 1/2"
112	2	8	1'-9"	3'-6"	31'-1"	1	7	3'-6"	25'-8"
113	2	8	1'-7 1/2"	3'-6 1/2"	31'-3 1/2"	1	7	3'-6 1/2"	25'-11 1/2"
114	2	8	1'-6"	3'-7"	31'-6"	1	7	3'-7"	26'-3"
115	2	8	1'-8 1/4"	3'-7 1/4"	31'-10 1/4"	1	7	3'-7 1/4"	26'-4 3/4"
116	2	8	1'-10 1/2"	3'-7 1/2"	32'-2 1/2"	1	7	3'-7 1/2"	26'-6 1/2"
117	2	8	1'-9"	3'-8"	32'-5"	1	7	3'-8"	26'-10"
118	2	8	1'-7 1/2"	3'-8 1/2"	32'-7 1/2"	1	7	3'-8 1/2"	27'-1 1/2"
119	2	8	1'-6"	3'-9"	32'-10"	1	7	3'-9"	27'-5"
120	2	8	1'-8 1/4"	3'-9 1/4"	33'-2 1/4"	1	7	3'-9 1/4"	27'-6 3/4"
121	2	8	1'-10 1/2"	3'-9 1/2"	33'-6 1/2"	1	7	3'-9 1/2"	27'-8 1/2"
122	2	8	1'-9"	3'-10"	33'-9"	1	7	3'-10"	28'-0"
123	2	8	1'-9"	3'-5 1/2"	30'-9"	1	8	3'-9 1/2"	31'-6"
124	2	8	1'-11"	3'-5 1/2"	30'-11"	1	8	3'-10"	31'-10"
125	2	8	1'-9"	3'-6"	31'-1"	1	8	3'-10 1/2"	32'-2"
126	2	8	1'-7"	3'-6 1/2"	31'-3"	1	8	3'-11"	32'-6"
127	2	8	1'-9"	3'-7"	31'-9"	1	8	3'-11"	32'-6"
128	2	8	1'-11"	3'-7 1/2"	32'-3"	1	8	3'-11"	32'-6"
129	2	8	1'-9"	3'-8"	32'-5"	1	8	3'-11 1/2"	32'-10"
130	2	8	1'-7"	3'-8 1/2"	32'-7"	1	8	4'-0"	33'-2"

NOTES:

1. All panels on a truss shall be the same length. The minimum panel length is 3'-0" and the maximum is 4'-0".
2. A single interior unit shall have an even number of panels to maintain the pattern of the diagonals.
3. Use minimum number of sections for each truss. Keep the maximum section length at 35'-0".
4. See Sheet 5 for required camber.

INDIANA DEPARTMENT OF TRANSPORTATION

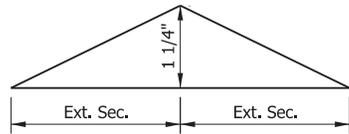
TRI-CHORD SIGN STRUCTURE
 PANEL DIMENSIONS
 SPANS 84' THRU 130'

TRI-CHORD SIGN STRUCTURE MEMBER SIZES

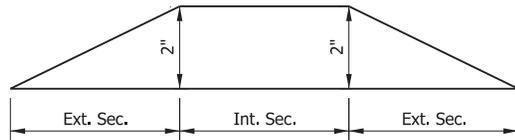
TRUSS TYPE	MAX SIGN AREA (SQ FT)	MAX MOUNTING HEIGHT, H	MAX SPAN (FT)	TRUSS MEMBERS										END SUPPORT MEMBERS		
				CHORD a		INT. DIAGONALS b		INT. SECTION VERT. c		END DIAGONALS d		EXT. SECTION VERT. e		COLUMN f		W-BEAM g
				DIAM. (IN.)	THICK (IN.)	DIAM. (IN.)	THICK (IN.)	DIAM. (IN.)	THICK (IN.)	DIAM. (IN.)	THICK (IN.)	DIAM. (IN.)	THICK (IN.)	DIAM. (IN.)	THICK (IN.)	
A	120	23'-0"	80	5.563	0.375	1.900	0.145	1.900	0.200	2.875	0.276	1.900	0.145	18.000	0.562	W 12 x 35
B			100	5.563	0.375	2.375	0.218	1.900	0.200	2.875	0.375	2.375	0.218	18.000	0.562	W 12 x 35
C			130	5.563	0.500	2.375	0.218	1.900	0.200	2.875	0.375	2.375	0.218	20.000	0.500	W 12 x 58
D	240	23'-0"	80	5.563	0.625	2.375	0.343	1.900	0.200	2.875	0.552	2.375	0.343	18.000	0.750	W 12 x 35
E			100	5.563	0.625	2.375	0.343	1.900	0.200	2.875	0.552	2.375	0.343	20.000	0.812	W 12 x 35
F			130	6.625	0.562	2.375	0.343	1.900	0.200	3.500	0.437	2.375	0.343	22.000	0.875	W 12 x 58

LEGEND:

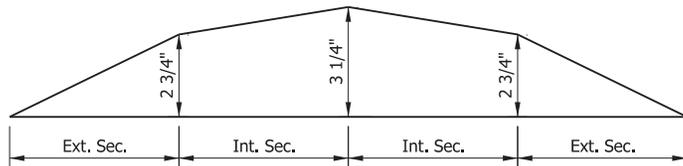
- a - Chord
- b - Interior Diagonal
- c - Interior Section Vertical
- d - End Diagonal
- e - Exterior Section Vertical
- f - Column
- g - W-Beam Support



CAMBER DIAGRAM (2-Section Truss)



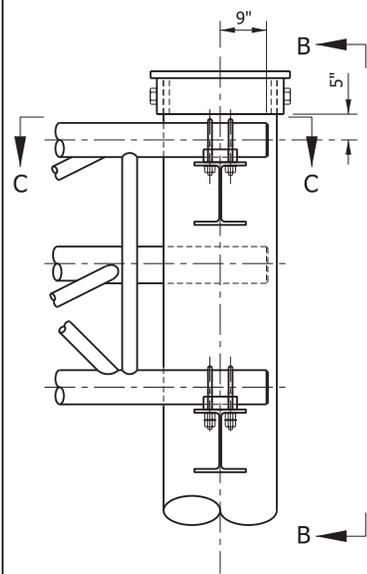
CAMBER DIAGRAM (3-Section Truss)



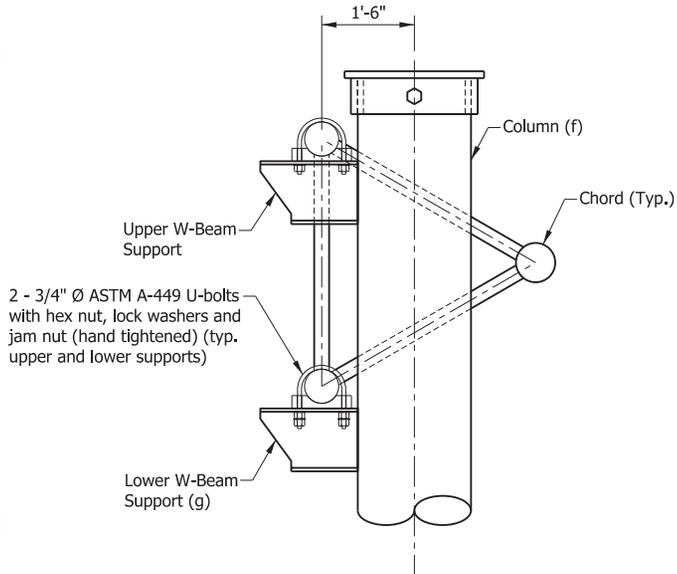
CAMBER DIAGRAM (4-Section Truss)

INDIANA DEPARTMENT OF TRANSPORTATION

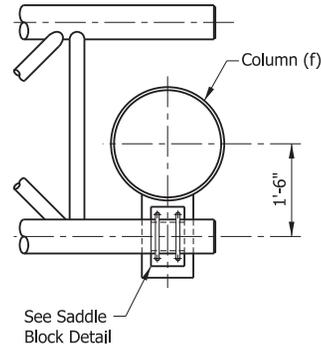
TRI-CHORD SIGN STRUCTURE
MEMBER SIZES AND CAMBER



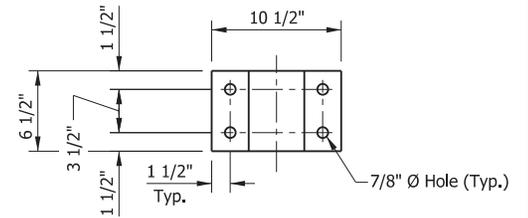
TRUSS SEAT DETAIL



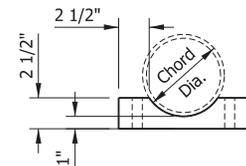
VIEW B-B



VIEW C-C



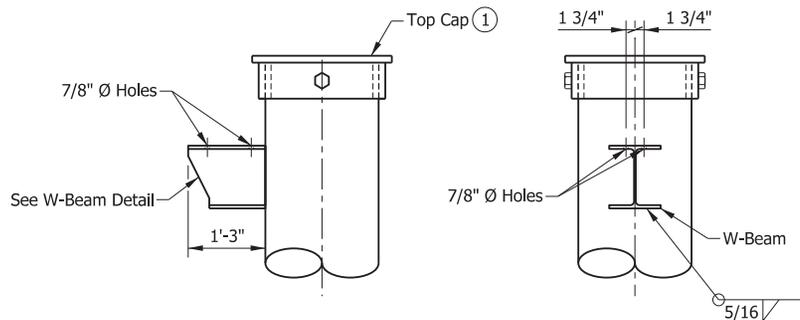
PLAN



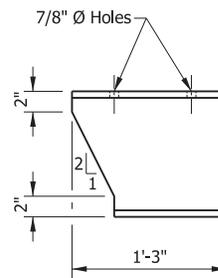
SADDLE BLOCK DETAIL

NOTE:

① See Sheet 10 for top cap detail.



TRUSS SEAT DETAIL

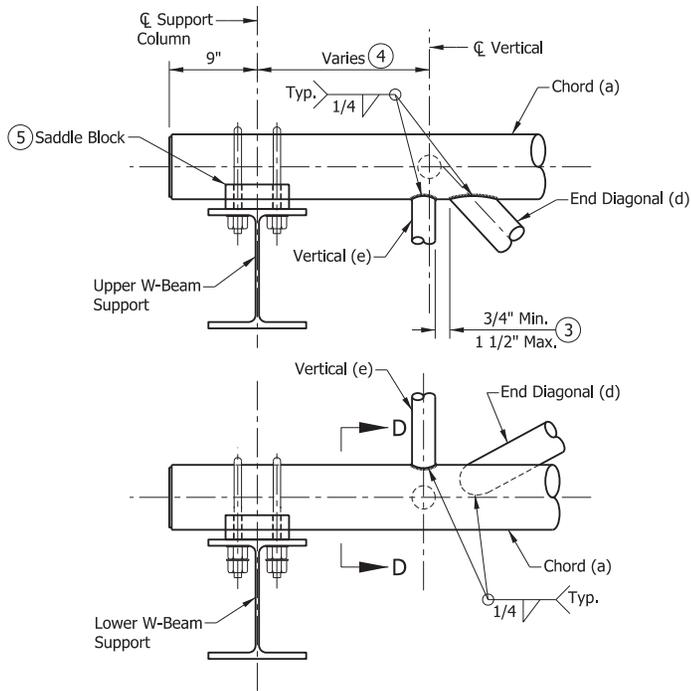


W-BEAM DETAIL

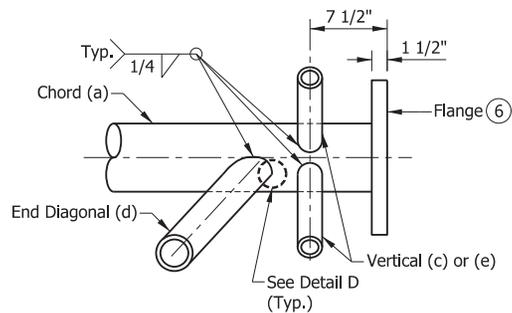
NOTE: Upper and lower W-beam details are the same.

INDIANA DEPARTMENT OF TRANSPORTATION

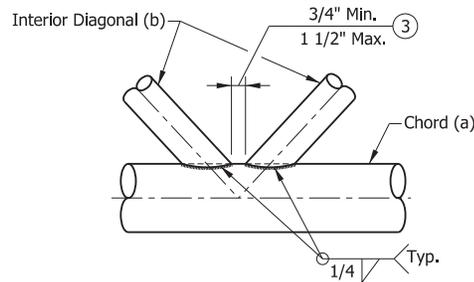
TRI-CHORD SIGN STRUCTURE
CONNECTION DETAILS



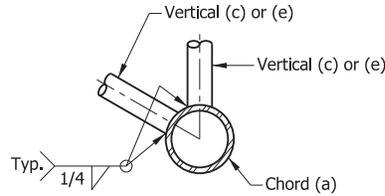
DETAIL A
SUPPORT END DETAIL FOR EXTERIOR SECTION



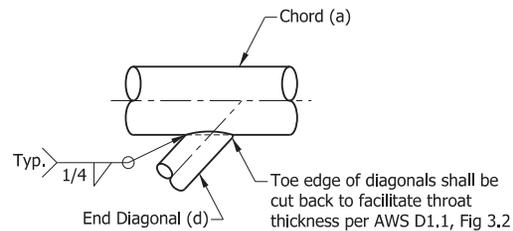
DETAIL C
TYPICAL PANEL CONNECTION



DETAIL B
TYPICAL PANEL CONNECTION



SECTION D-D
TYPICAL JOINT DETAILS



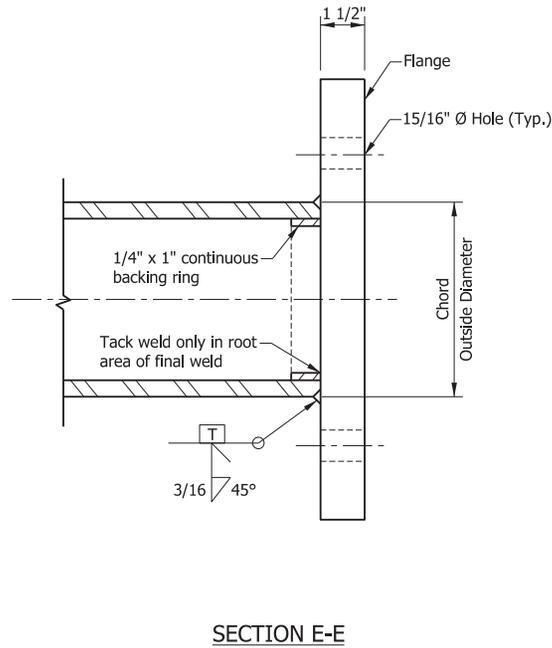
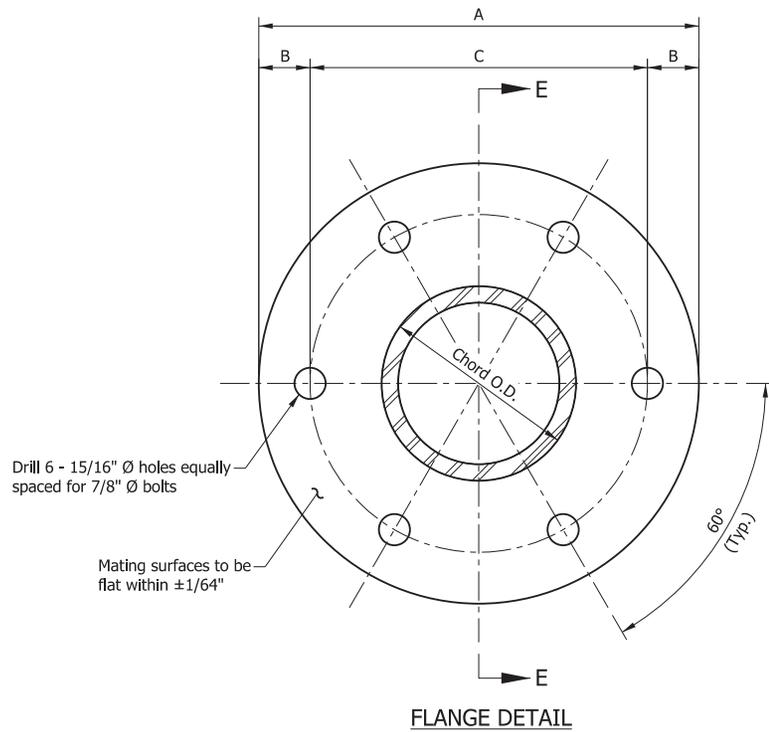
DETAIL D

NOTES:

1. All bracing members shall be machined to provide a snug fit to the chord members along the entire edge of bracing members before welding.
2. See Sheet 3 for member location and see Sheet 6 for member sizes.
3. Vertical and horizontal diagonals shall be detailed for minimum offset from the panel point based on the following: offset shall be such as to provide a 3/4" minimum to 1 1/2" maximum clearance between any diagonal and any horizontal or vertical member, and to provide clearance for U-bolt connections of signs.
4. Variable end dimension. See Sheets 4 and 5 for table of recommended dimensions.
5. See Sheet 7 for saddle block details.
6. See Sheet 9 for chord flange details.

INDIANA DEPARTMENT OF TRANSPORTATION

TRI-CHORD SIGN STRUCTURE
CONNECTION AND WELDING DETAILS



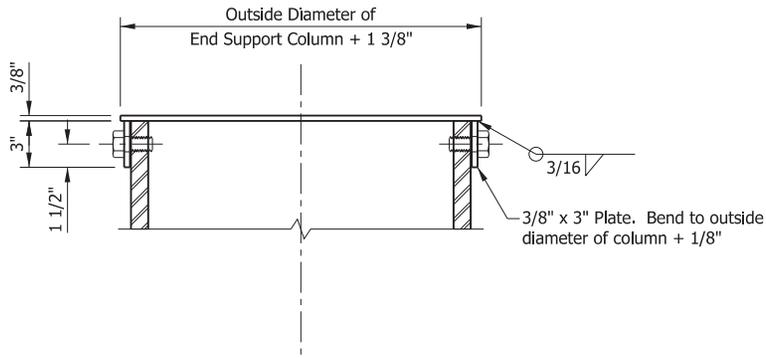
NOTES:

1. Mating surfaces to be flat within $\pm 1/64"$. Flange shall be given additional finish if necessary to ensure contact between plates.
2. Use Type I ASTM A325 bolts with matching lock nuts. Lock nuts should have steel inserts.
3. Bolts and lock nuts must be hot dip galvanized in accordance with AASHTO M 232.
4. Install high strength bolts in accordance with 711.65.

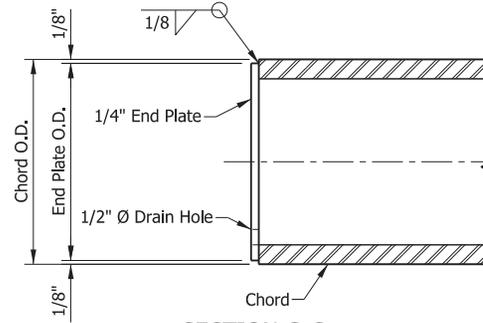
DIMENSION TABLE				
TRUSS CHORD O.D.	BOLT SIZE	A	B	C
6.625"	7/8"	14"	2"	10"
5.625"	7/8"	13"	2"	9"

INDIANA DEPARTMENT OF TRANSPORTATION

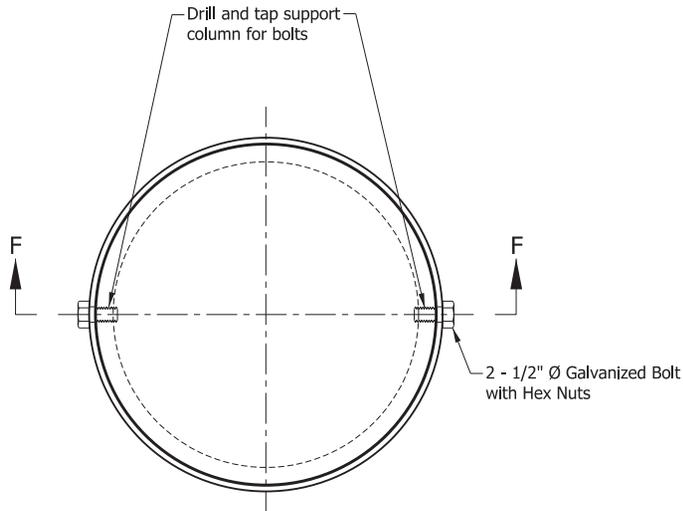
TRI-CHORD SIGN STRUCTURE
CHORD FLANGE DETAILS



SECTION F-F

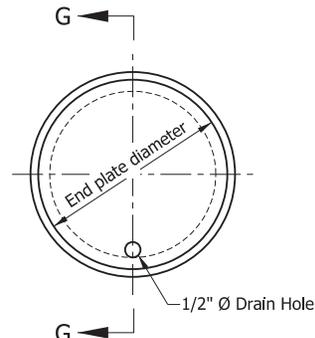


SECTION G-G



PLAN

COLUMN TOP CAP DETAIL



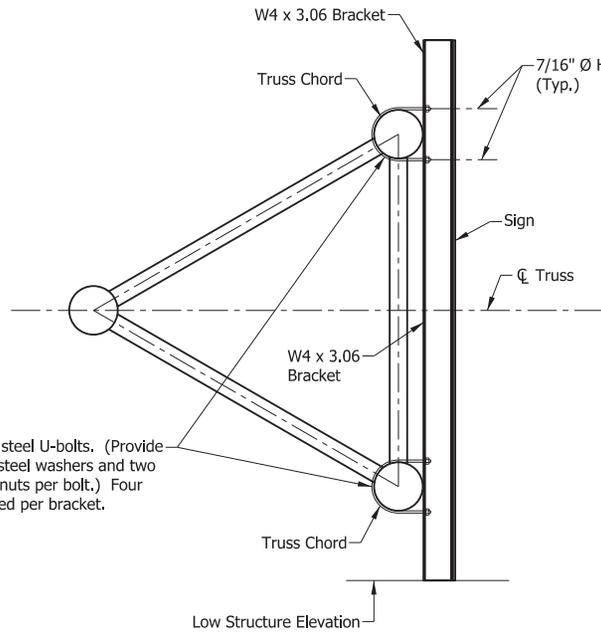
END VIEW

CHORD END PLATE DETAIL

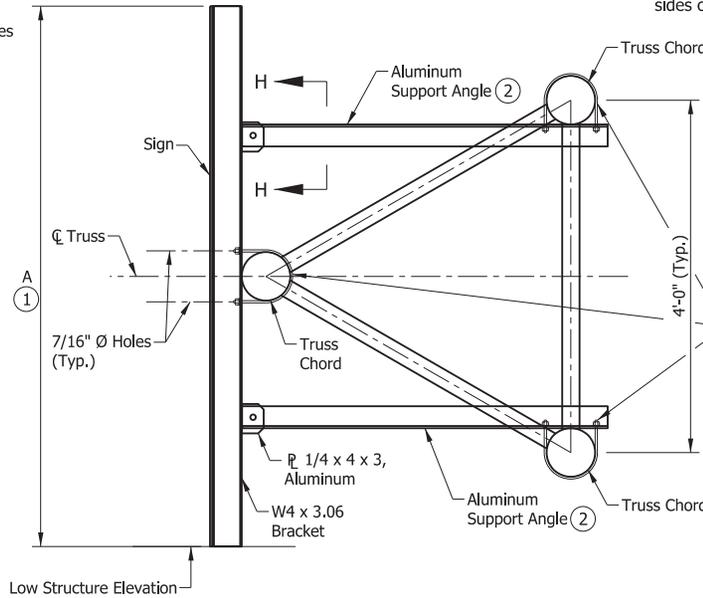
INDIANA DEPARTMENT OF TRANSPORTATION
TRI-CHORD SIGN STRUCTURE
TOP CAP AND CHORD END PLATE DETAILS

NOTES:

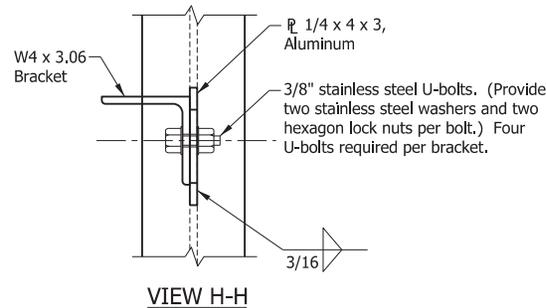
- ① Dimension A to be determined by Contractor to fit required signs.
- ② A minimum of two truss chord attachment points to be used for each bracket.
3. The chords shall be at the vertices of an equilateral triangle having sides of length 4'-0".



FRONT SIGN MOUNTING DETAIL



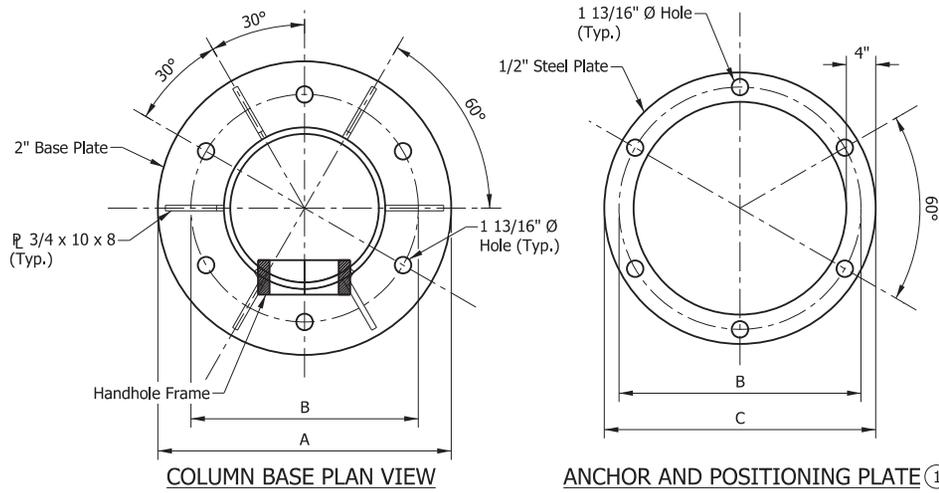
REAR SIGN MOUNTING DETAIL



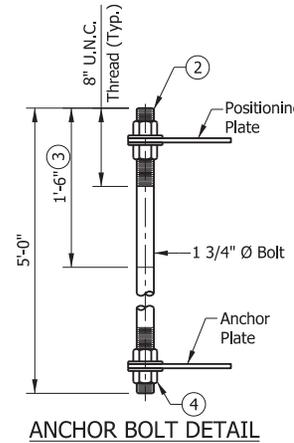
VIEW H-H

INDIANA DEPARTMENT OF TRANSPORTATION

TRI-CHORD SIGN STRUCTURE
SIGN ATTACHMENT DETAILS



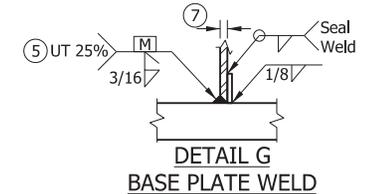
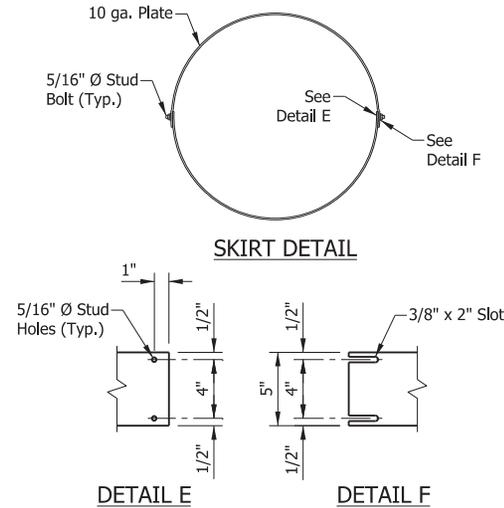
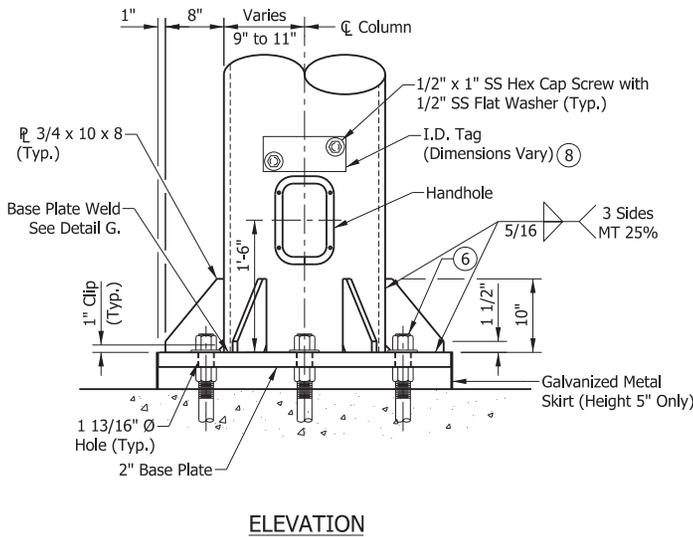
BASE PLATE DIMENSIONS			
COLUMN DIAMETER	A	B	C
18"	3'-0"	2'-3"	2'-7"
20"	3'-2"	2'-5"	2'-9"
22"	3'-4"	2'-7"	2'-11"



NOTES:

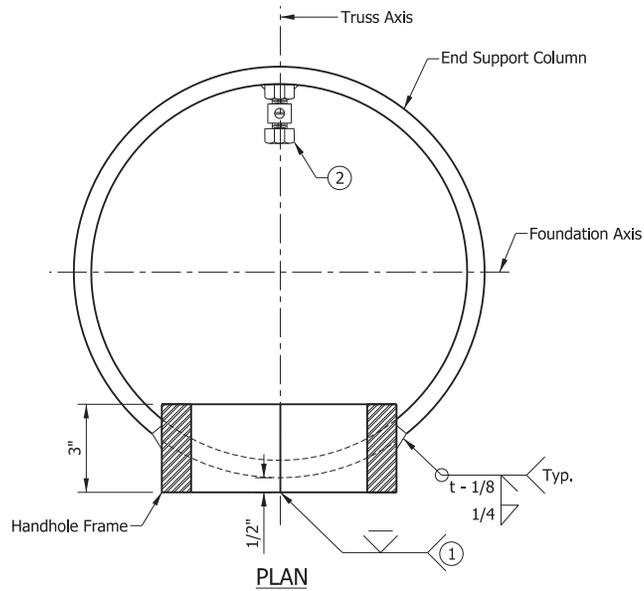
- ① Utilize temporary positioning plate and leveling nuts or other engineer approved methods to maintain anchor bolt alignment during concrete placement. Positioning plate and associated nuts shall be removed upon completion of the foundation.
- ② Protect threads during concreting with tape, sleeves, or other means.
- ③ 1'-6" is minimum to be galvanized. Entire bolt may be galvanized at Contractor's option.
- ④ Provide uncoated nut at bottom of anchor plate. Deform thread or use chemical thread lock to secure.
- ⑤ Use 1/4" x 1" minimum continuous backer ring. Tack weld only in root area of final weld. See Detail G this page for base plate weld detail.
- ⑥ Anchor bolt nuts shall be tightened against the base plate by turning the nut 1/6 turn (minimum) from snug tight condition.
- ⑦ See Sheet 6 for column wall thickness.
- ⑧ I.D. tag is a 1/8" stainless steel plate with the following information stamped in 1/2" black letters:

Manufacturer _____, Drawing/Order # _____
 Contract # _____, Structure Type _____
 Fabrication Date _____, Structure Length _____
 Column Mounting Height _____



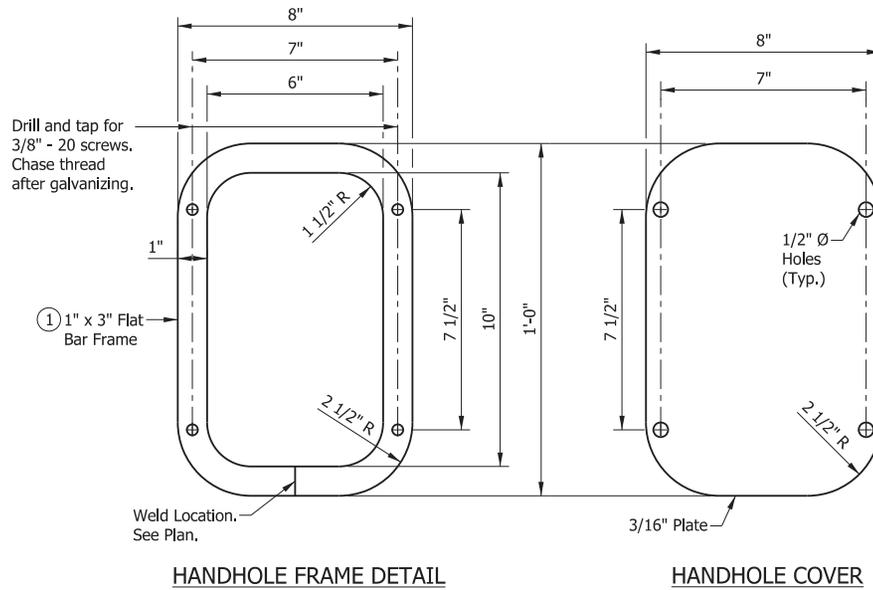
INDIANA DEPARTMENT OF TRANSPORTATION

**TRI-CHORD SIGN STRUCTURE
BASE PLATE, ANCHOR BOLT,
AND I.D. TAG DETAILS**



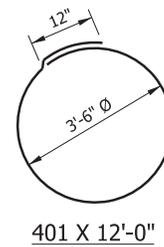
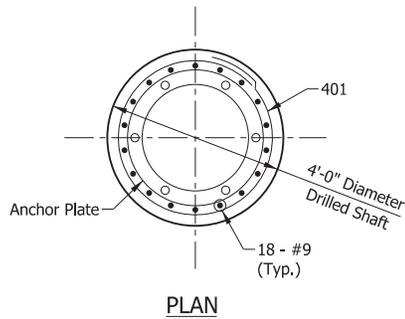
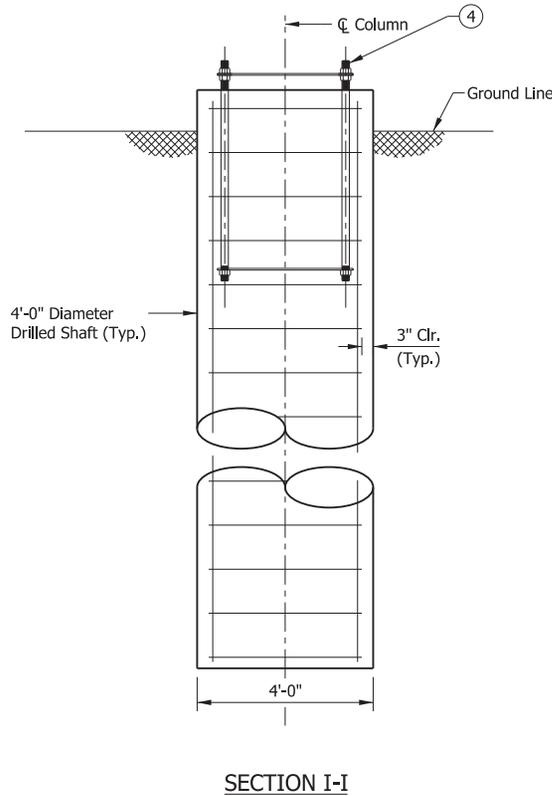
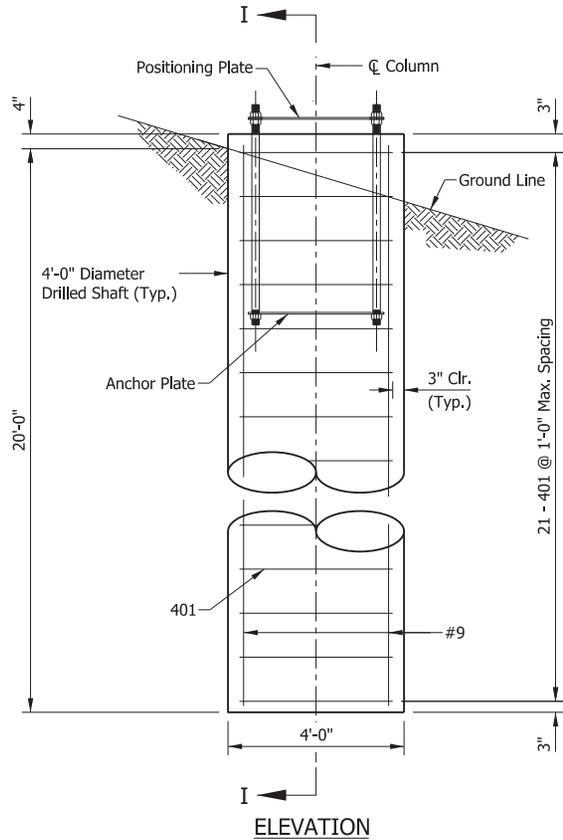
NOTES:

- ① In lieu of fabricated handhole frame as shown, frame may be cut from 3" plate (rolling direction vertical).
- ② Grounding clamp to be placed on far side of support directly opposite center of handhole.
- 3. See Sheet 12 for handhole locations.



INDIANA DEPARTMENT OF TRANSPORTATION

TRI-CHORD SIGN STRUCTURE
HANDHOLE DETAILS



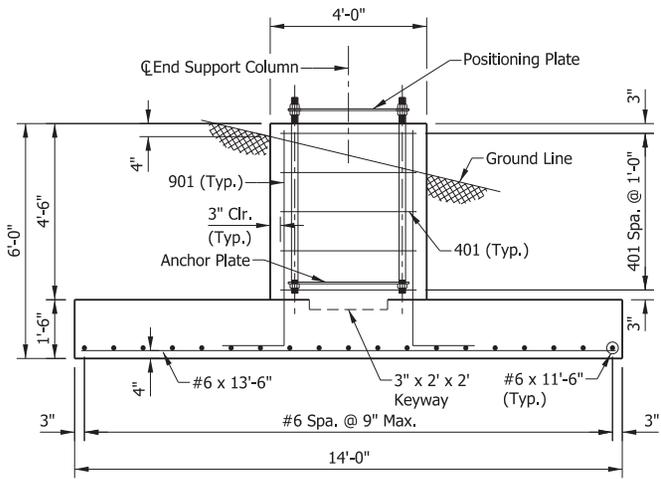
NOTES:

1. This standard foundation design is applicable for all tri-chord sign structures.
2. The design is based on clay soil with minimum unconfined shear strength of 750 psf or sandy soil with minimum friction angle of 30°.
3. All reinforcing bars to be epoxy coated.
- ④ See Sheet 12 for anchor bolts.

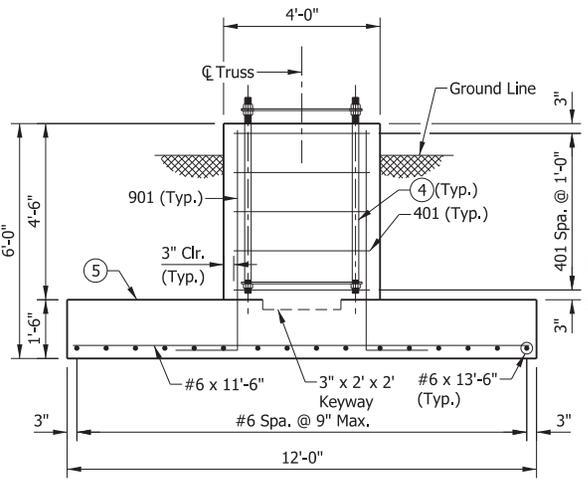
BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
901	18	20'-0"	
Total #9			1224 LBS
#4	21	12'-0"	
Total #4			168 LBS
Total Epoxy-Coated Reinforcing Bars			1392 LBS
MISCELLANEOUS			
Concrete, Class A			9.5 CYS
Surface Seal			0.5 SYS

INDIANA DEPARTMENT OF TRANSPORTATION

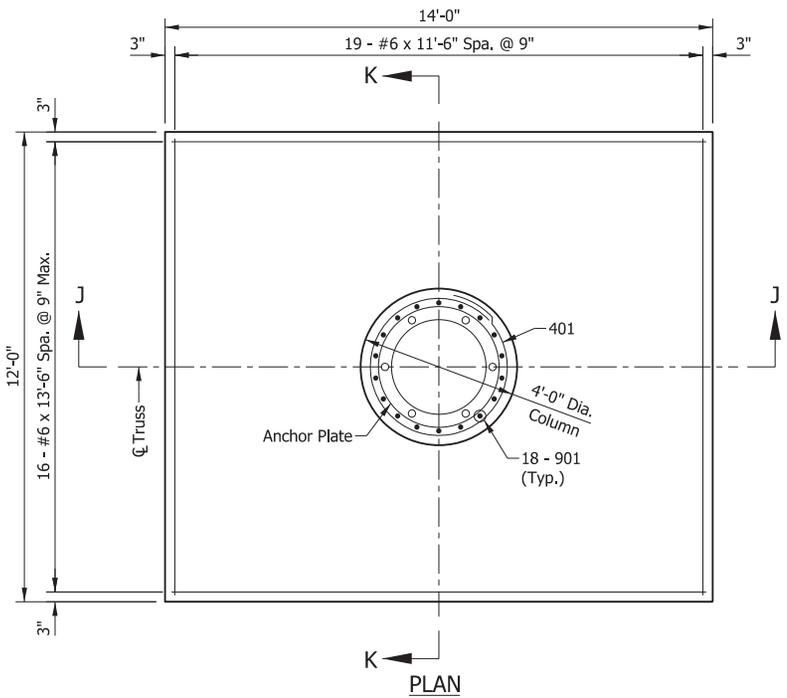
TRI-CHORD SIGN STRUCTURE
DRILLED SHAFT FOUNDATION



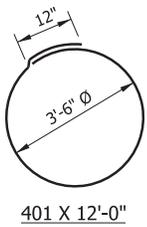
SECTION J-J



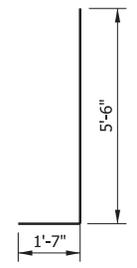
SECTION K-K



PLAN



401 X 12'-0"



901 X 7'-1"

NOTES:

1. This standard foundation design is applicable for all tri-chord sign structures.
2. The design is based on allowable gross soil bearing pressure of 1500 psf.
3. All reinforcing bars to be epoxy coated.
- ④ See Sheet 12 for anchor bolts.
- ⑤ Top of the footing shall be a minimum of 4'-0" below the pavement or ground line.

BILL OF MATERIALS			
EPOXY-COATED REINFORCING BARS			
MARK OR SIZE	NO. OF BARS	LENGTH	WEIGHT
901	18	7'-1"	
Total #9			434 LBS
#6	19	11'-6"	
#6	16	13'-6"	
Total #6			652 LBS
401	5	12'-0"	
Total #4			40 LBS
Total Epoxy-Coated Reinforcing Bars			1126 LBS
MISCELLANEOUS			
Concrete, Class A			11.4 CYS
Surface Seal			0.5 SYS

INDIANA DEPARTMENT OF TRANSPORTATION
**TRI-CHORD SIGN STRUCTURE
 SPREAD FOUNDATION**