

TABLE 1 - TRUSS TYPE SELECTION CANTILEVER STRUCTURE TYPE WITH CONVENTIONAL SIGNS															
SIGN AREA (SQ. FT.)	CANTILEVER LENGTH (FEET)														
	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44
350							A	A	A	A	B	B	B	B	B
330							A	A	A	A	B	B	B	B	B
310							A	A	A	A	B	B	B	B	B
290							A	A	A	A	A	B	B	B	B
270							A	A	A	A	A	A	A	B	B
250							A	A	A	A	A	A	B	B	B
230							A	A	A	A	A	A	A	B	B
210							A	A	A	A	A	A	A	A	B
190	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
170	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
150	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
130	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
110	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
90	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
70	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
50	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A

"A" INDICATES TRUSS TYPE A. "B" INDICATES TRUSS TYPE B.
SEE DRAWINGS ST-5 THROUGH ST-7 FOR TRUSS DETAILS.

TABLE 2 - TRUSS TYPE SELECTION SIMPLE SPAN STRUCTURE WITH CONVENTIONAL SIGNS																								
SIGN AREA (SQ. FT.)	SPAN LENGTH (FEET)																							
	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	146
1000											B	C	C	C	C	C	C	C	C	NA	NA	NA	NA	NA
900											B	B	C	C	C	C	C	C	C	NA	NA	NA	NA	NA
800											A	B	B	C	C	C	C	C	C	NA	NA	NA	NA	NA
700											A	A	B	B	C	C	C	C	C	NA	NA	NA	NA	NA
600											A	A	A	A	B	B	B	C	C	C	C	C	C	NA
500											A	A	A	A	A	B	B	B	C	C	C	C	C	NA
400											A	A	A	A	A	A	B	B	B	C	C	C	C	C
300											A	A	A	A	A	A	A	A	B	B	B	C	C	C
200											A	A	A	A	A	A	A	A	A	B	B	B	C	C
100											A	A	A	A	A	A	A	A	A	B	B	B	B	C

TABLE 3 - TRUSS TYPE SELECTION
SIMPLE SPAN STRUCTURE WITH CHANGEABLE MESSAGE SIGNS (DRUM)

NO. OF CMS SIGNS	SPAN LENGTH (FEET)																						
	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140
1	A	A	A	A	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
* 2					B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	NA

"A" INDICATES TRUSS TYPE A. "B" INDICATES TRUSS TYPE B.
"C" INDICATES TRUSS TYPE C.

* THIS ASSUMES THAT THE CMS'S ARE ON THE OPPOSITE SIDES OF THE TRUSS.

TABLE 4 - TRUSS TYPE SELECTION
SIMPLE SPAN STRUCTURE WITH CHANGEABLE MESSAGE SIGNS (LED)

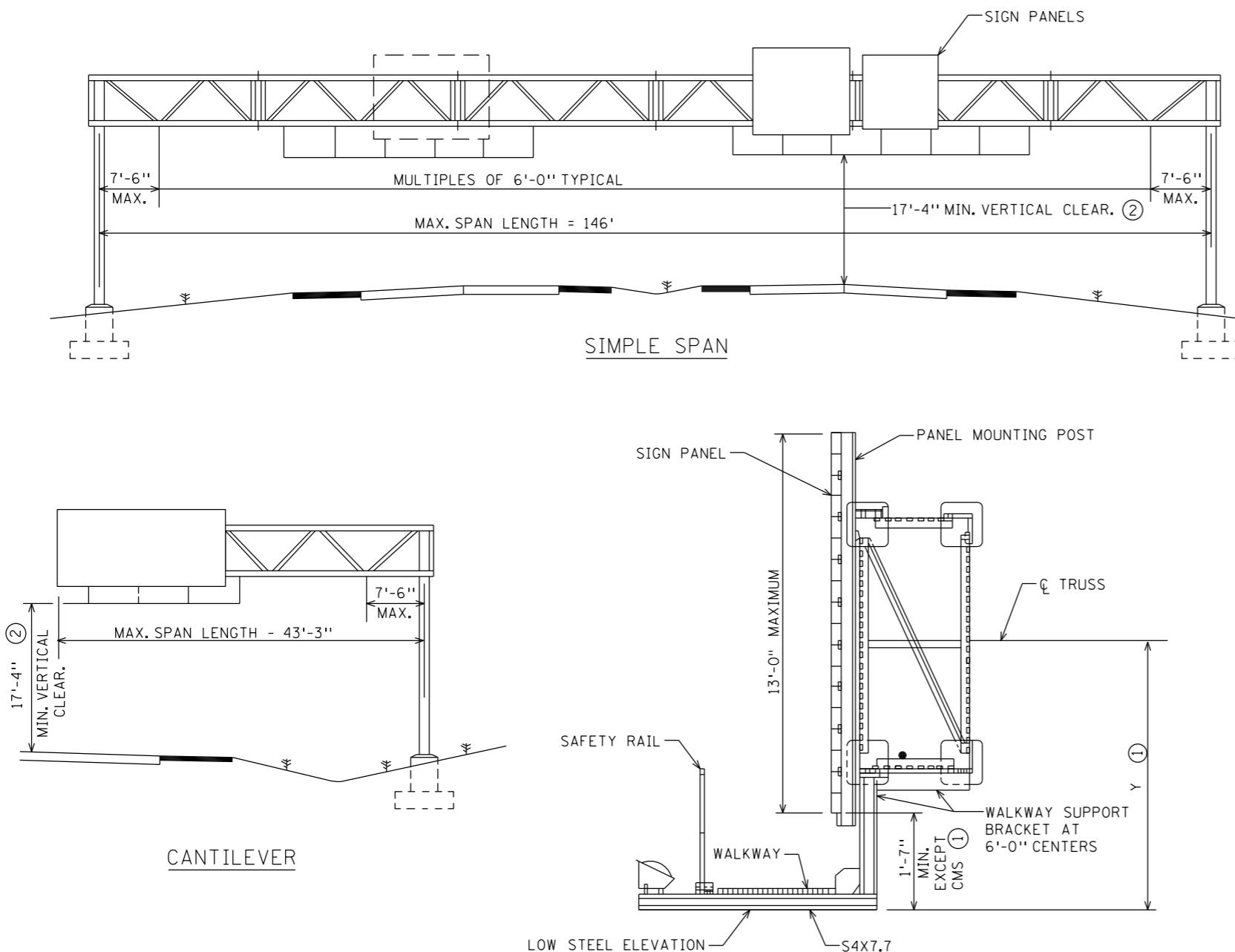
NO. OF CMS SIGNS	SPAN LENGTH (FEET)																					
	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135
1	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	B	B	C	C	C	C	C
* 2											A	A	A	A	B	B	B	C	C	C	C	NA

"A" INDICATES TRUSS TYPE A. "B" INDICATES TRUSS TYPE B.

"C" INDICATES TRUSS TYPE C. "NA" NOT ALLOWED.

* THIS ASSUMES THAT THE CMS'S ARE ON THE OPPOSITE SIDES OF THE TRUSS.

NO. OF CMS UNITS	CMS AREA (SQ. FT.)	POST HT. (FT.)	SPAN LENGTH (FEET)													
			40	45	50	55	60	65	70	75	80	85	90	95	100	105

INDEX OF STANDARD SIGN DRAWINGS

DRAWING	TITLE
ST-1	GENERAL ELEVATION AND NOTES
ST-2	CAMBER, POST IDENTIFICATION AND ESTIMATED QUANTITIES
ST-3	FOUNDATIONS AND ANCHOR RODS
ST-4	TRUSS/POST CONNECTION & BASEPLATE
ST-5	SIGN TRUSS DETAILS - TYPE A
ST-6	SIGN TRUSS DETAILS - TYPE B
ST-7	SIGN TRUSS DETAILS - TYPE C
ST-8	WALKWAY DETAILS
ST-9	FOLDING HANDRAIL
ST-10	SIGN PANEL AND PANEL MOUNTING POST DETAILS
ST-11	ELECTRICAL DETAILS
ST-12	ELECTRICAL DETAILS
ST-13	ELECTRICAL DETAILS (CMS SIGNS)

SIGN HEIGHT	Y ①
6'-6"	4'-4"
7'-0"	4'-7"
7'-6"	4'-10"
8'-0"	5'-1"
8'-6"	5'-4"
9'-0"	5'-7"
9'-6"	5'-10"
10'-0"	6'-1"
10'-6"	6'-4"
11'-0"	6'-7"
11'-6"	6'-10"
12'-0"	7'-1"
12'-6"	7'-4"
13'-0"	7'-7"

SPECIFIC NOTES:

- ① DIMENSION Y IS CONSTANT AND BASED ON THE DEEPEST SIGN PANEL ABOVE THAT WALKWAY. WHEN STANDARD SIGN PANEL(S) AND CMS ARE MOUNTED ON THE SAME SPAN, DIMENSION Y SHALL BE GOVERNED BY THE CMS.
- ② MINIMUM CLEARANCE WILL BE MEASURED FROM THE HIGHEST ELEVATION OF PAVEMENT, SHOULDERS, AND MOUNTABLE CURBS, OR IF INSURMOUNTABLE CURBS ARE USED, THE HIGHEST ELEVATION BETWEEN CURB LINES.

GENERAL NOTES:DESIGN SPECIFICATIONS:

TRUSS, POST, & HARDWARE:
AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS DATED 1999.

LOADING:

WIND LOAD 90 M.P.H. NORMAL TO SIGN FACE IN COMBINATION WITH OTHER LOADS OUTLINED IN THE DESIGN SPECIFICATIONS.

UNIT STRESSES:

CONCRETE----- $f_c = 1,600$ PSI
REINFORCEMENT STEEL----- $f_s = 24,000$ PSI
FOOTING SOIL PRESSURE----- 1-1/4 TONS PER SQ. FT.

MATERIALS:

STRUCTURAL STEEL (EXCEPT POST, TUBES)- MNDOT 3306
POST STEEL----- VARIES
HIGH STRENGTH BOLTS----- MNDOT 3391.2B
ANCHOR RODS----- MNDOT 3385
CASTINGS----- MNDOT 3322
REINFORCEMENT
 BARS----- MNDOT 3301
 SPIRAL----- MNDOT 3305 NO SPLICES
WALKWAY GRATING----- FEDERAL SPECIFICATIONS RR-G-661b,
 TYPE 1, STEEL
CONCRETE----- MNDOT 2461 (MIX 3Y43)

FINISH:

ALL COMPONENTS SHALL BE GALVANIZED AFTER FABRICATION EXCEPT REINFORCEMENT BARS, LOWER PORTION OF ANCHOR RODS, ALUMINUM, AND OTHER NON FERROUS INCIDENTALS. GALVANIZING SHALL CONFORM TO MNDOT 3392 OR MNDOT 3394 AS APPLICABLE. BEARING SURFACES MUST BE SMOOTH.

FABRICATION:

FABRICATION OF STRUCTURAL METALS SHALL BE IN ACCORDANCE WITH MNDOT 2471, MNDOT 2564 AND THE APPLICABLE SPECIAL PROVISIONS. ALL WELDING TO BE CONTINUOUS. ALL CONTACT SURFACES MUST BE COMPLETELY SEALED.

INSPECTION:

INSPECTION BEFORE AND AFTER GALVANIZING PER MNDOT 1511 AND MNDOT 2471.

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

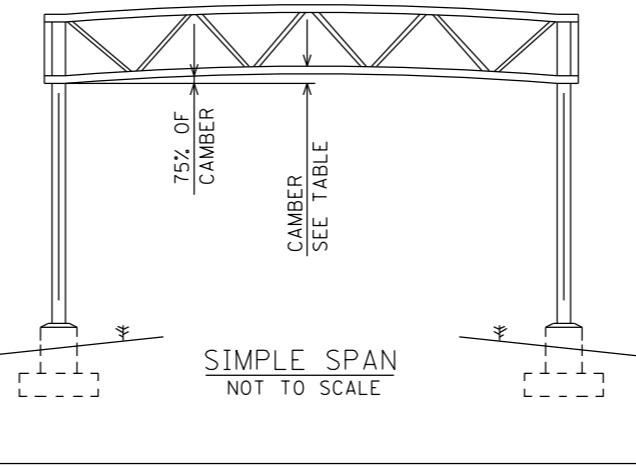
GENERAL ELEVATIONS
AND NOTES

DRAWING ST-1

SIMPLE SPAN

SIMPLE SPAN TRUSS CAMBER												
SPAN	40	50	60	70	80	90	100	110	120	130	140	150
CAMBER	1/4	7/16	5/8	13/16	1 1/16	1 3/8	1 11/16	2	2 3/8	2 13/16	3 1/4	3 3/4
DL DEFLECTION	0	1/16	1/16	1/8	1/4	3/8	9/16	13/16	1/8	1/2	2 1/16	2 11/16
RESIDUAL CAMBER	1/4	3/8	9/16	11/16	13/16	1	1 1/8	1 3/16	1 1/4	1 5/16	1 3/16	1 1/16

NOTE:
CAMBER AND DEFLECTIONS SHOWN ARE AT $\frac{1}{4}$ SPAN.
THE DEFLECTIONS AND CAMBER AT THE QUARTER
POINTS SHALL BE APPROXIMATELY 75% OF THESE
VALUES.



CANTILEVER SPAN

CANTILEVER SPAN TRUSS CAMBER				
SPAN	15'	20'	30'	40'
CAMBER	1/8	1/4	5/8	1 1/16
DL DEFLECTION	0	0	1/16	3/16
RESIDUAL CAMBER	1/8	1/4	9/16	7/8

NOTE:
CAMBER AND DEFLECTIONS SHOWN ARE SHOWN AT
END OF CANTILEVER.

WHEN ERECTING CANTILEVER TRUSSES, THE POSTS
SHALL BE SET $\frac{1}{8}$ " PER FOOT OUT OF PLUMB TO
COMPENSATE FOR THE BENDING OF THE POSTS.

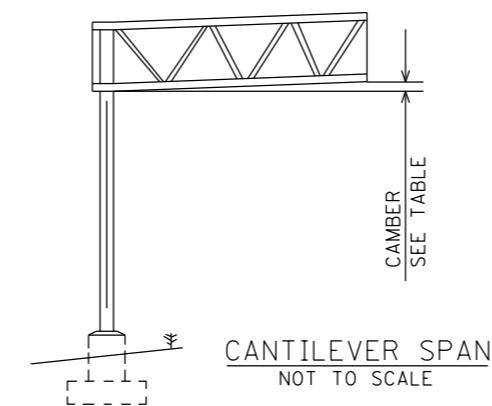


TABLE 1 - POST IDENTIFICATION					
POST IDENTIFICATION NUMBER	BASEPLATE DESIGN	PERMISSIBLE PIPE SECTIONS			
		MIN. YIELD=35 KSI OUTSIDE DIAMETER (INCH)	WALL THICKNESS (INCH)	MIN. YIELD=42 KSI OUTSIDE DIAMETER (INCH)	WALL THICKNESS (INCH)
1	A	N.A.	N.A.	18	0.250
2	A	18	0.375	18	0.312
3	A	18	0.500	18	0.375
4	A	18	0.562	18	0.500
5	B	18	0.938	18	0.750
6	B	20	0.594	20	0.500
7	B	N.A.	N.A.	20	0.812

WALL THICKNESS IS MINIMUM, THINNER WALLS WILL NOT BE APPROVED

POST IDENTIFICATION NOTES:

POST MATERIAL SHALL CONFORM TO ONE OF THE FOLLOWING SPECIFICATIONS:
ASTM A709, GRADE 36
ASTM A53, GRADE B
API 5L, GRADES B, X42, X46, X52, X56, X60, X65

CONTRACTOR SHALL DEMONSTRATE THAT THE POST MATERIAL MEETS THE REQUIREMENTS
OF ONE OF THE ABOVE CITED SPECIFICATIONS AND THE MINIMUM YIELD STRENGTH.

NO SPLICES OF ANY KIND WILL BE PERMITTED IN POSTS INTENDED FOR USE IN CANTILEVER
TYPE STRUCTURES (BRIDGE TYPE BC).

ONE OF TWO POSTS FOR SIMPLE SPAN STRUCTURES (BRIDGE TYPE S) MAY INCORPORATE ONE
WELDED CIRCUMFERENTIAL BUTT SPLICE CONFORMING TO AWS D1.1 DETAIL B-U2 IN THE
UPPER 1/3 OF ITS LENGTH. BACK UP RINGS FOR THESE WELDED SPLICES SHALL BE
COMMERCIAL PRODUCTS. BUTT WELDS REQUIRE RADIOGRAPHIC INSPECTION (MNDOT 2471.3).

ALL RADIOGRAPHIC INSPECTIONS AND MAGNETIC PARTICLE TESTING REPORTS AND
RADIOGRAPHIC FILMS SHALL BECOME THE PROPERTY OF THE DEPARTMENT.

SEE DRAWING ST-4 FOR BASEPLATE DETAILS.

FOR FOUNDATION QUANTITIES SEE DRAWING ST-3

CMS(NEW LED)
CMS(LED)
CMS(DRUM)

WALKWAY WEIGHTS:

1. USE 3'-4 3/4" WIDE GRATING @ 44 LBS/FT.
2. WEIGHT INCLUDES HANDRAIL (12 LBS/FT.) AND FIXTURE
MOUNTING CHANNELS (4 LBS/FT.).

TRUSS QUANTITIES		
USE LENGTH FROM Q POST WHEN CALCULATING TOTAL WEIGHTS.		
TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE C
123 LBS./FT.	168 LBS./FT.	196 LBS./FT.

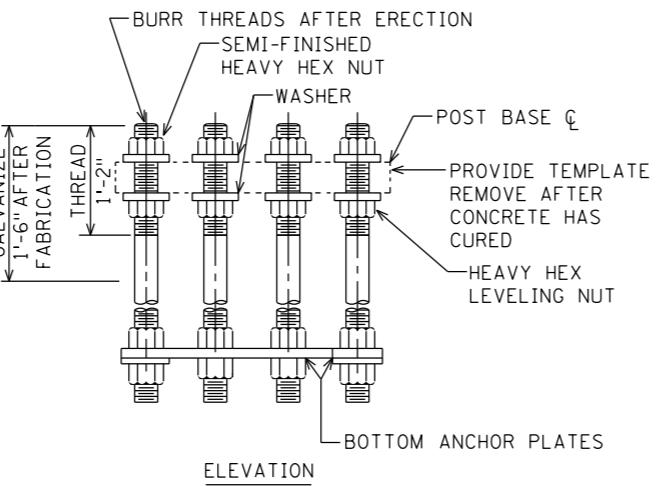
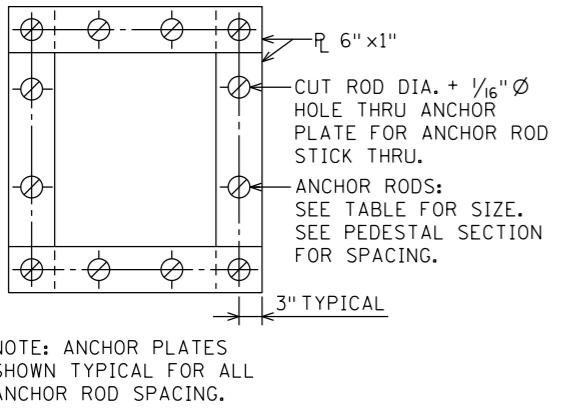
PANEL MOUNTING POST QUANTITIES INCLUDES MOUNTING ANGLES	
PANEL HEIGHT	WEIGHT/POST
6'-6"	70
7'-0"	74
7'-6"	78
8'-0"	82
8'-6"	86
9'-0"	90
9'-6"	93
10'-0"	97
10'-6"	101
11'-0"	105
11'-6"	160
12'-0"	166
12'-6"	172
13'-0"	178

WALKWAY SUPPORT QUANTITIES			
USE MAXIMUM PANEL HEIGHT ON SPAN TO CALCULATE QUANTITIES. WHEN CONVENTIONAL SIGN PANEL(S) AND CMS ARE MOUNTED ON THE SAME SPAN, QUANTITIES SHALL BE GOVERNED BY THE CMS.			
PANEL HEIGHT	TRUSS TYPE (WEIGHT/SUPPORT)		
6'-6"	A	B	C
7'-0"	99	105	113
7'-6"	101	107	115
8'-0"	103	109	117
8'-6"	105	111	119
9'-0"	107	113	121
9'-6"	109	115	123
10'-0"	111	117	125
10'-6"	113	119	127
11'-0"	115	121	129
11'-6"	135	142	151
12'-0"	138	144	153
12'-6"	141	147	156
13'-0"	143	150	159
13'-6"	146	153	162

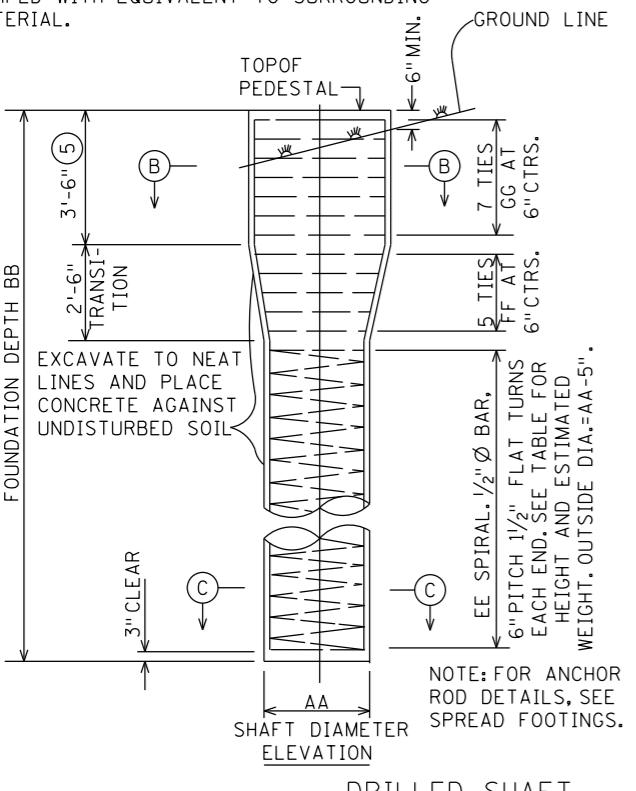
POST QUANTITIES					
QUANTITIES INCLUDE ANCHORAGE ASSEMBLY AND TRUSS CONNECTION PLATES. PAY LENGTH OF POSTS IS FROM THE BOTTOM OF THE BASE PLATE (ELEV. A) TO THE TOP OF THE TRUSS. POST QUANTITIES ARE BASED ON GRADE 42 STEEL. NO ADJUSTMENTS WILL BE MADE IN THE QUANTITIES FOR THE USE OF GRADE 35 STEEL POSTS.					
POST TYPE	CANTILEVER		SIMPLE SPAN		
	TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE A	TRUSS TYPE B	TRUSS TYPE C
1	1880+47 LBS/FT	1910+47 LBS/FT	1870+47 LBS/FT	1890+47 LBS/FT	1915+47 LBS/FT
2	1880+59 LBS/FT	1910+59 LBS/FT	1870+59 LBS/FT	1890+59 LBS/FT	1915+59 LBS/FT
3	1880+71 LBS/FT	1910+71 LBS/FT	1870+71 LBS/FT	1890+71 LBS/FT	1915+71 LBS/FT
4	1880+94 LBS/FT	1910+94 LBS/FT	1870+94 LBS/FT	1890+94 LBS/FT	1915+94 LBS/FT
5	2470+138 LBS/FT	2500+138 LBS/FT	2460+138 LBS/FT	2480+138 LBS/FT	2505+138 LBS/FT
6	N/A	2500+104 LBS/FT	N/A	2545+104 LBS/FT	2570+104 LBS/FT
7	N/A	2500+167 LBS/FT	N/A	2545+167 LBS/FT	2570+167 LBS/FT

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B
CAMBER, POST IDENTIFICATION
AND ESTIMATED QUANTITIES

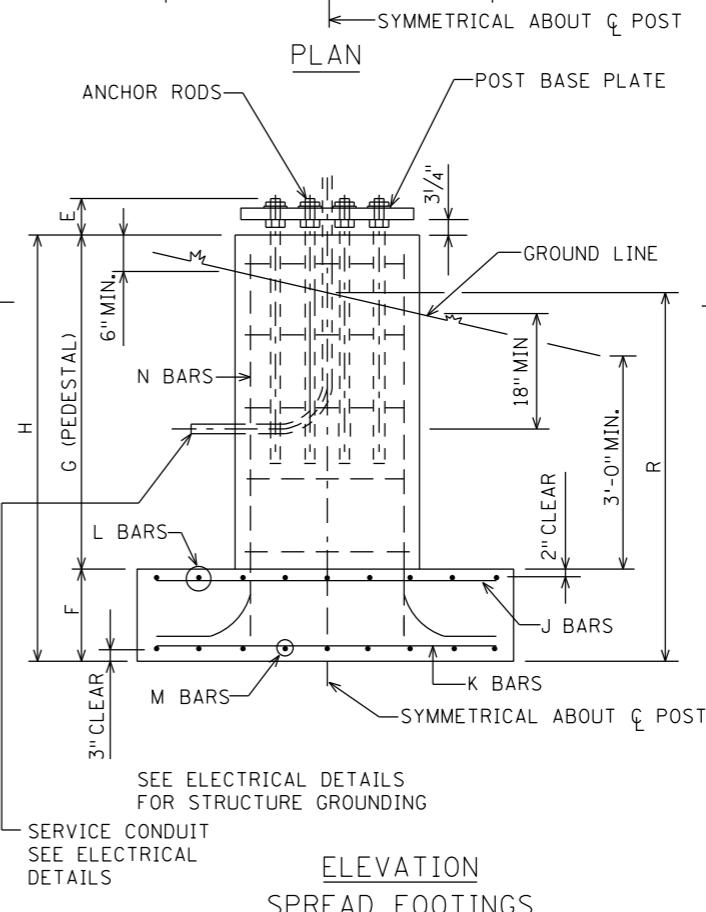
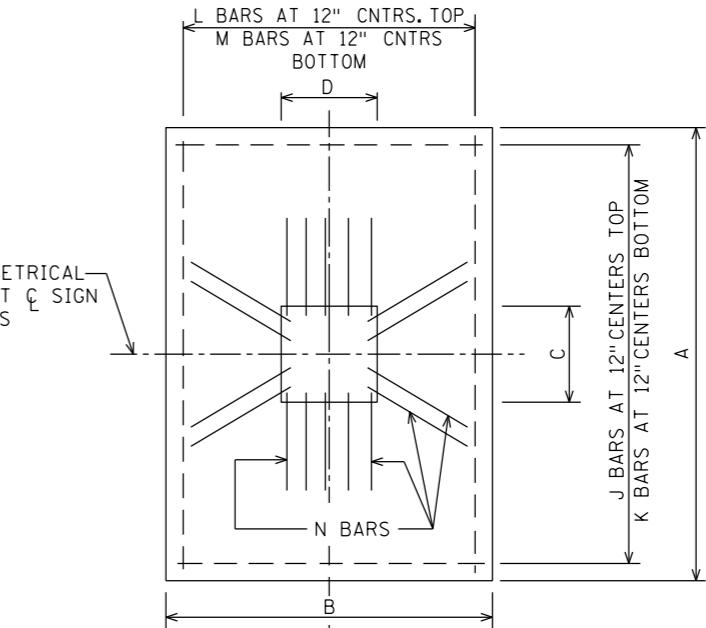
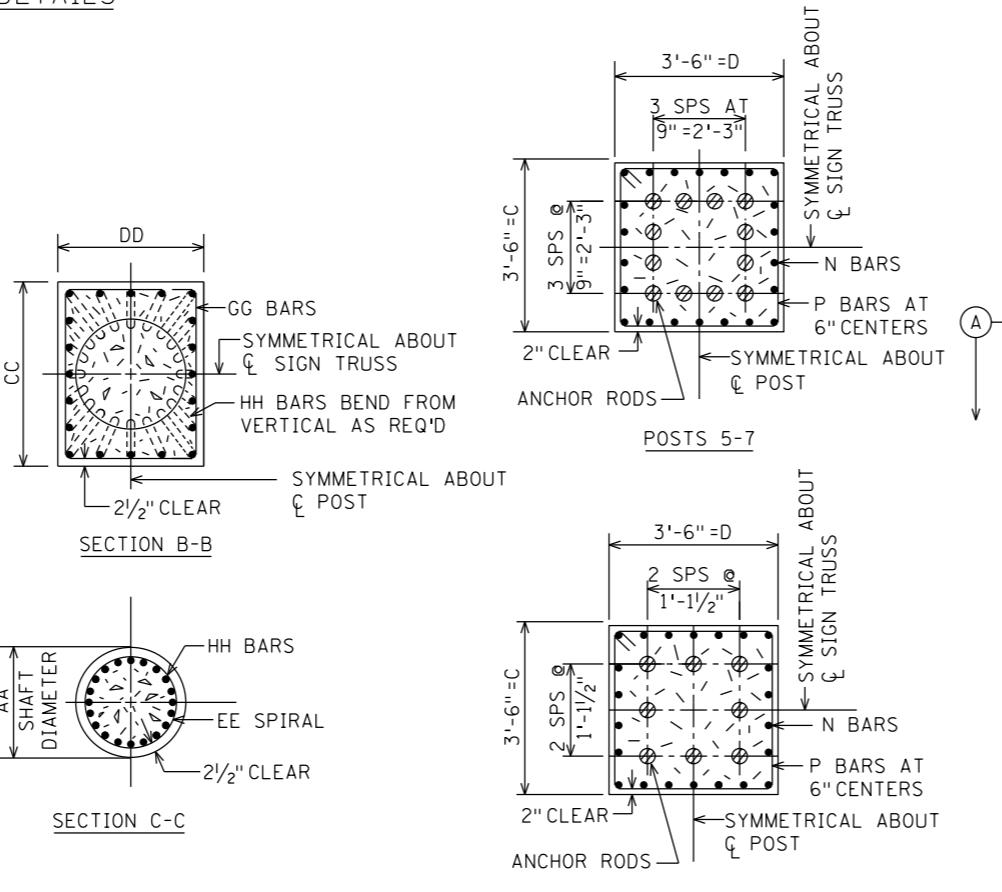
DRAWING ST-2



NOTE ⑤: MUST BE FORMED A MINIMUM OF 6" BELOW THE GROUND SURFACE. THE EXCAVATED AREA FOR FORMING SHALL BE BACKFILLED AND TAMPED WITH EQUIVALENT TO SURROUNDING MATERIAL.



J, K, L, M, FF AND HH ARE STRAIGHT BARS
 BAR BENDING DIAGRAMS



SPECIFIC NOTES:

- ① G IS IN FEET. ROUND UP TO WHOLE NUMBER. E.G. G=4.10/2G=8.2 NO. REQ'D=9.
- ② G AND R ARE IN FEET.
- ③ BEND AS REQUIRED TO FORM A CLOSED LOOP.
- ④ FOR STRUCTURE STEEL SEE SPREAD FOOTING.
- ⑤ MUST BE FORMED A MIN. OF 6" BELOW THE GROUND SURFACE. THE SOIL EXCAVATED FOR FORMING SHALL BE BACKFILLED AND TAMPED TO EQUIVALENT COMPACTION AS SURROUNDING MATERIAL.
- ⑥ SPECIAL LARGE RADIUS BENDS ARE REQUIRED. SEE "BAR BENDING DIAGRAMS" FOR SIZES OF RADII.

GENERAL NOTES:

1. SEE THE FORMAT SHEET FOR FOOTING LOCATIONS, POST DESIGNATIONS, TOP OF PEDESTAL ELEVATIONS AND BOTTOM OF FOOTING ELEVATIONS.
2. ALL CONCRETE SHALL CONFORM TO CONCRETE MIX 3Y43 (MNDOT 2461).
3. ALL BAR DIMENSIONS ARE OUT TO OUT OF BARS.
4. ALL SPREAD FOOTINGS HAVE AN ALLOWABLE DESIGN BEARING PRESSURE OF 1 1/4 T PER SQUARE FOOT.
5. DRILLED SHAFTS SHALL BE USED ONLY WHEN SPECIFIED IN THE CONTRACT PLANS.
6. THE DRILLED SHAFTS HAVE AN ALLOWABLE DESIGN LATERAL BEARING PRESSURE OF 250 LBS. PER SQ. FT. PER FOOT OF DEPTH.
7. UNLESS OTHERWISE NOTED, ALL REINFORCEMENT BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH MMNDOT3301. SPIRAL BARS AND J, K, L, & M BARS NEED NOT BE EPOXY COATED.
8. THE FOLLOWING TORQUE VALUES SHALL BE USED WHEN INSTALLING ALL ANCHOR NUTS FOR OVERHEAD SIGN STRUCTURES:

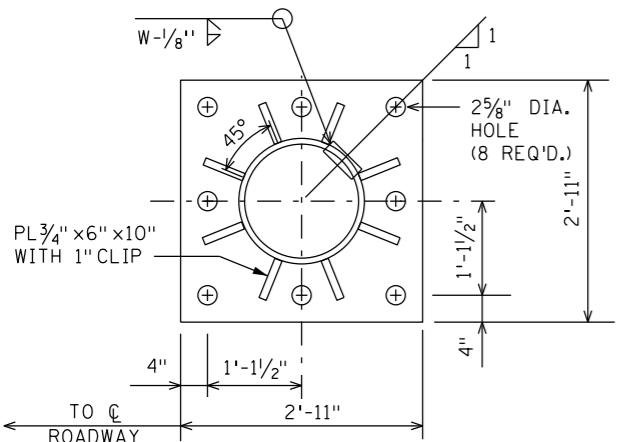
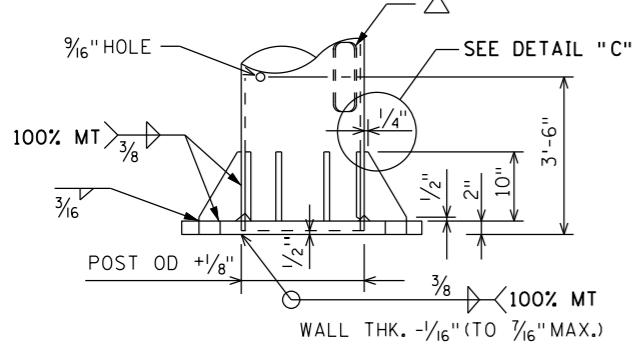
ANCHOR BOLT DIAMETER	TORQUE (FT./LBS.)
2 1/4"	375
2 1/2"	450

THE CONTRACTOR SHALL BURR THE THREADS OF THE ANCHOR BOLTS IN ACCORDANCE WITH MNDOT 2402.3H AFTER TORQUEING NUTS.

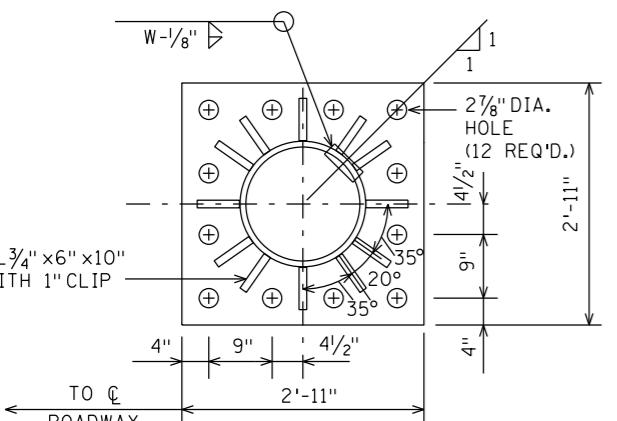
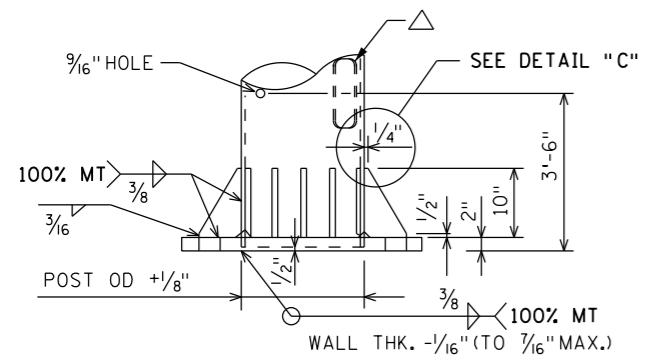
STANDARD OVERHEAD SIGN SUPPORTS
 INTERIM DESIGN B

FOUNDATIONS AND
 ANCHOR RODS

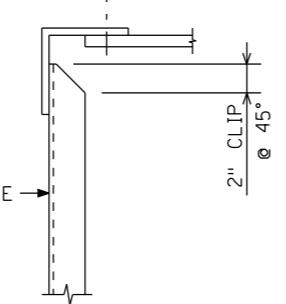
DRAWING ST-3



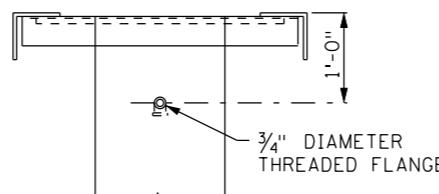
PLAN & ELEVATION - BASEPLATE TYPE A
POST NO.1 THRU 4



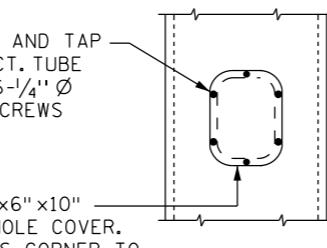
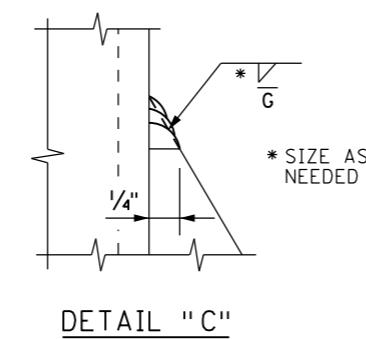
PLAN & ELEVATION - BASEPLATE TYPE B
POST NO.5 THRU 7



VIEW A-A

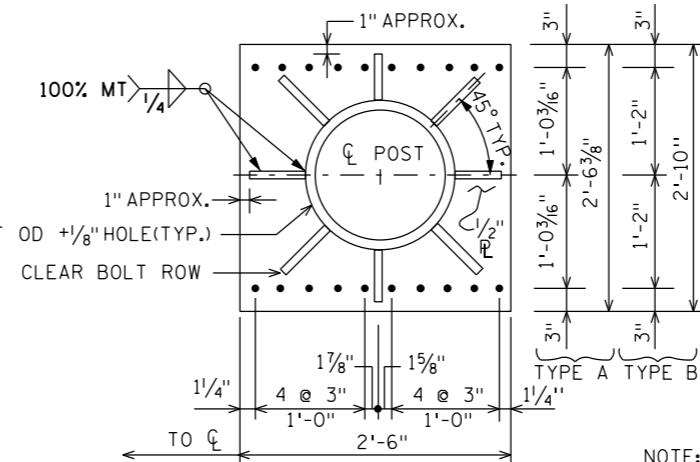
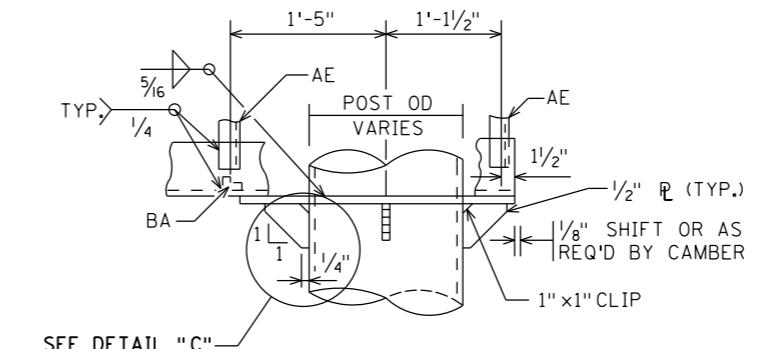
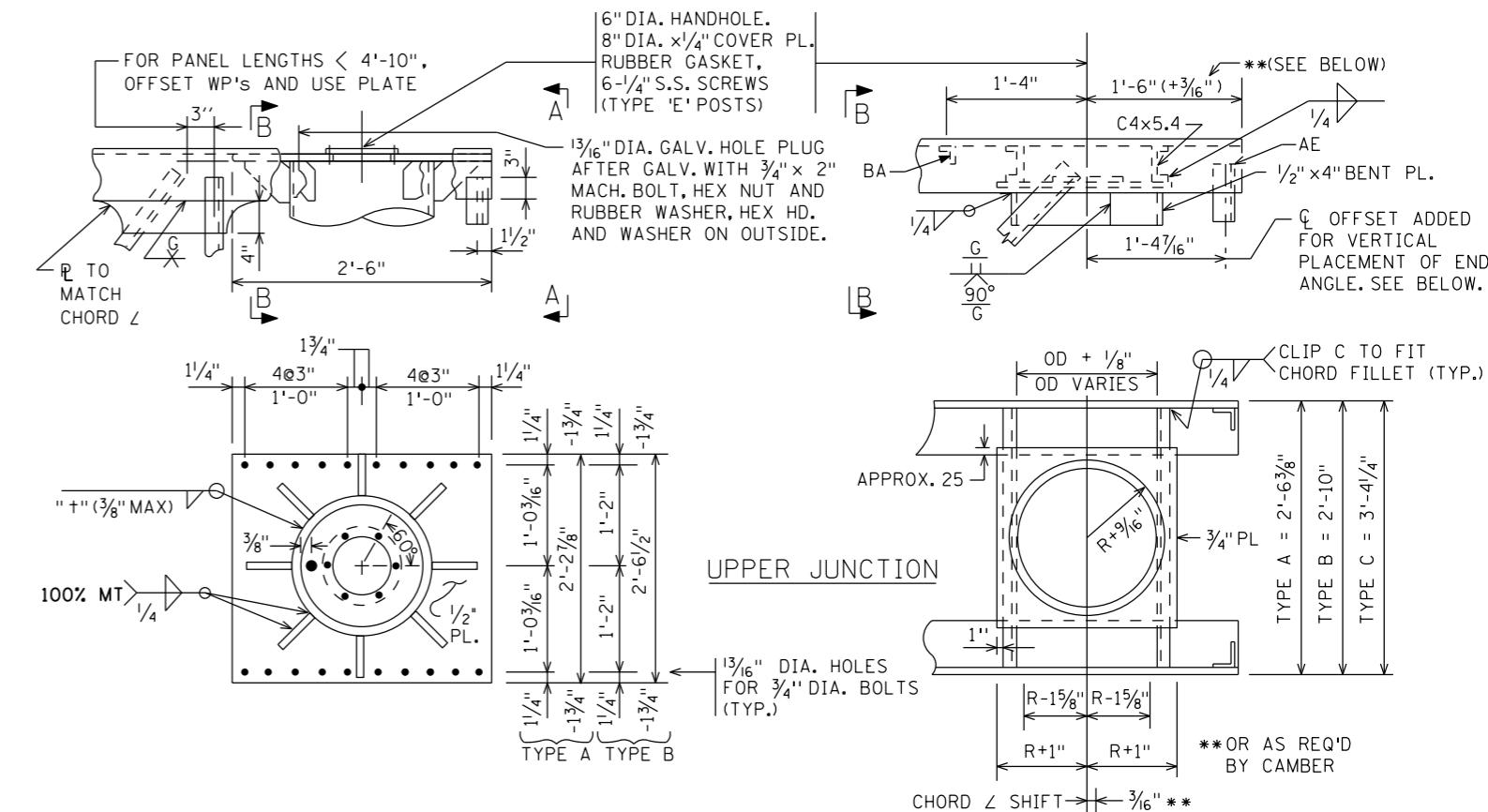


VIEW B-B
(TYPE 'E' POSTS)

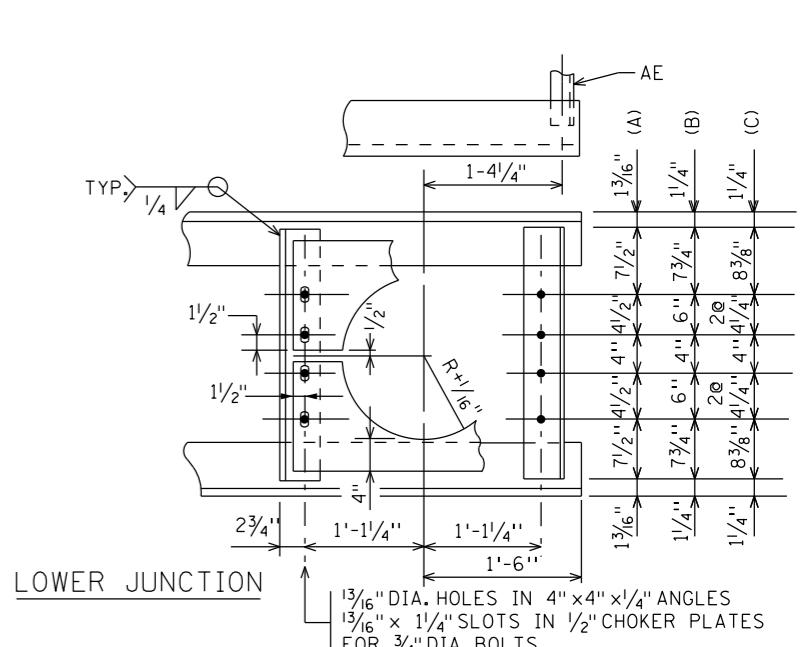


HANDHOLE & COVER PLATE DETAIL
(TYPE 'E' POSTS)

△ = FOR TYPE 'E' POST ONLY: LOCATE 45° AWAY FROM TRAFFIC. 10" x 6" x 1/2" x 0'-2" STRUCTURAL TUBE OR EQUAL W/ 1/4" RUBBER GASKET.



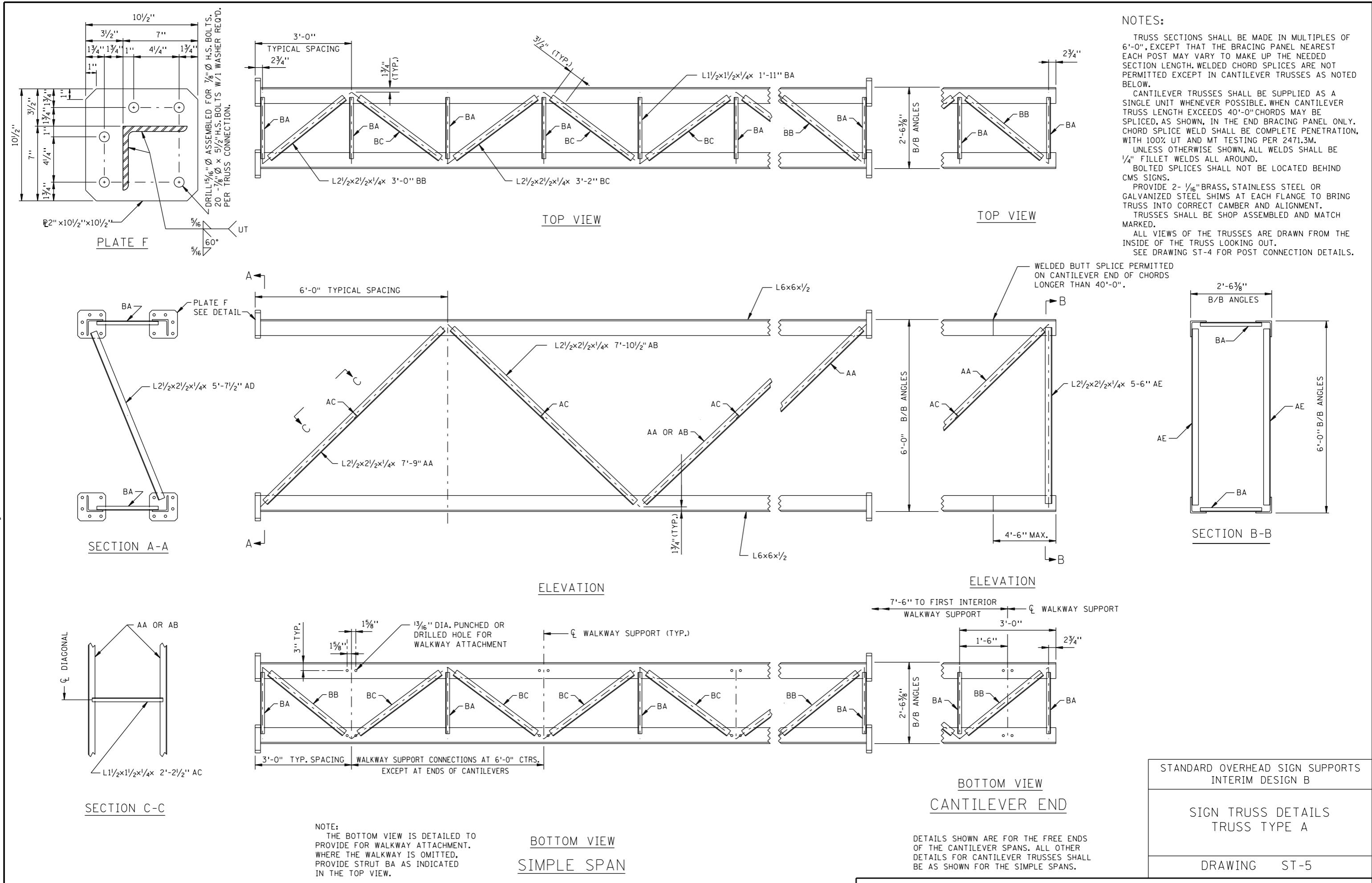
NOTE:
CHOKER PLATES AND HANDHOLE COVERS
SHALL BE GALVANIZED SEPARATELY.

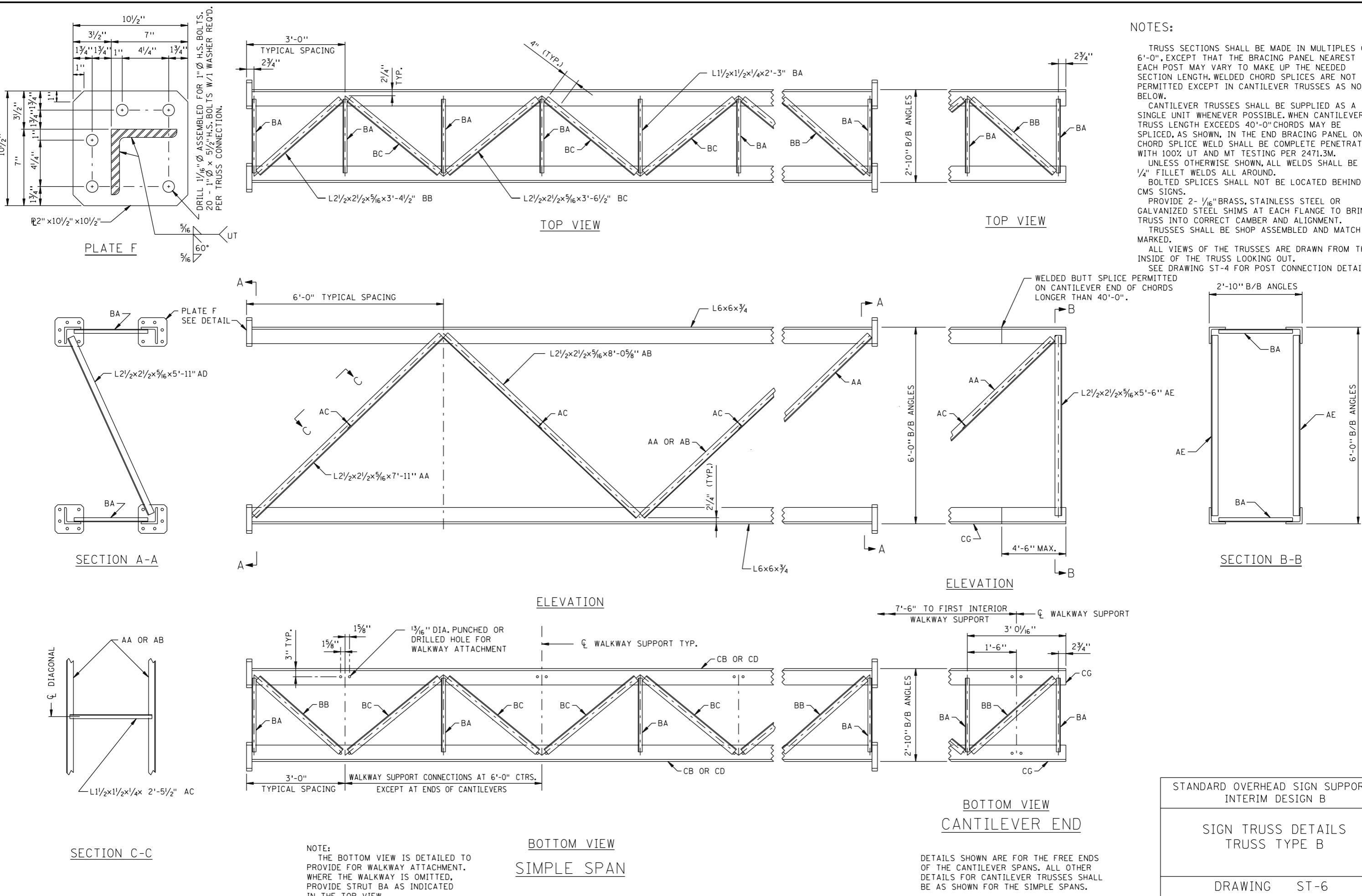


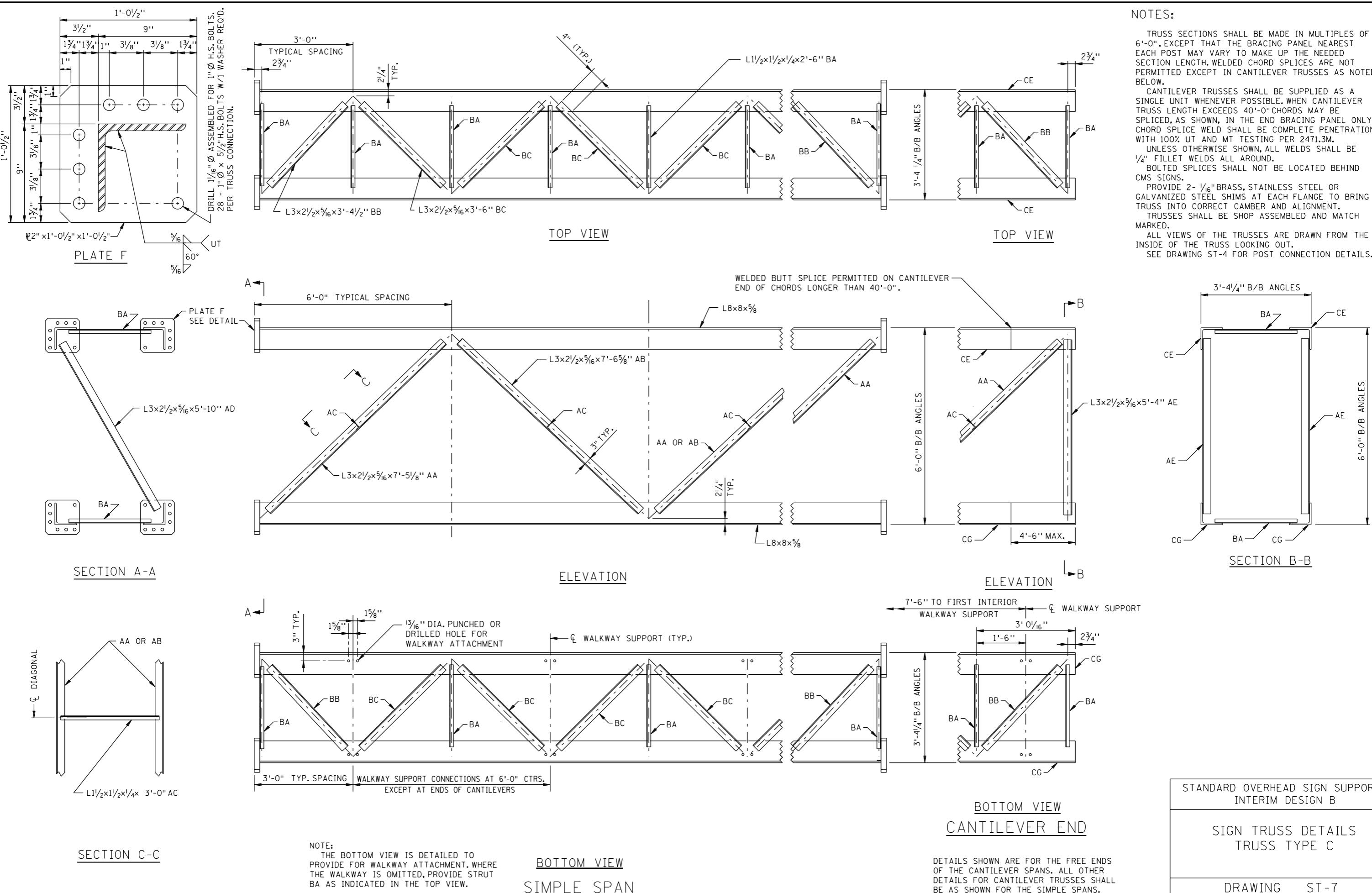
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

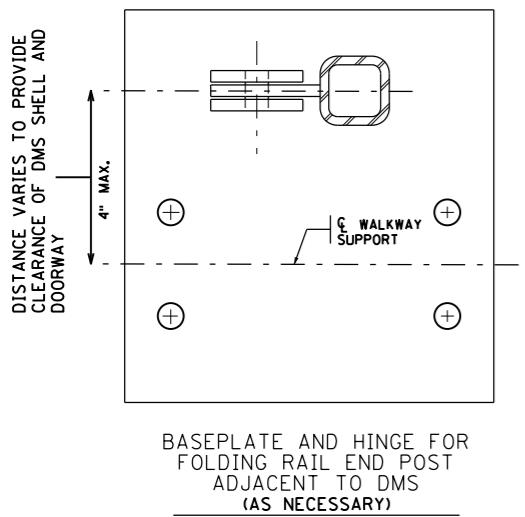
TRUSS/POST CONNECTION
&
BASEPLATES

DRAWING ST-4

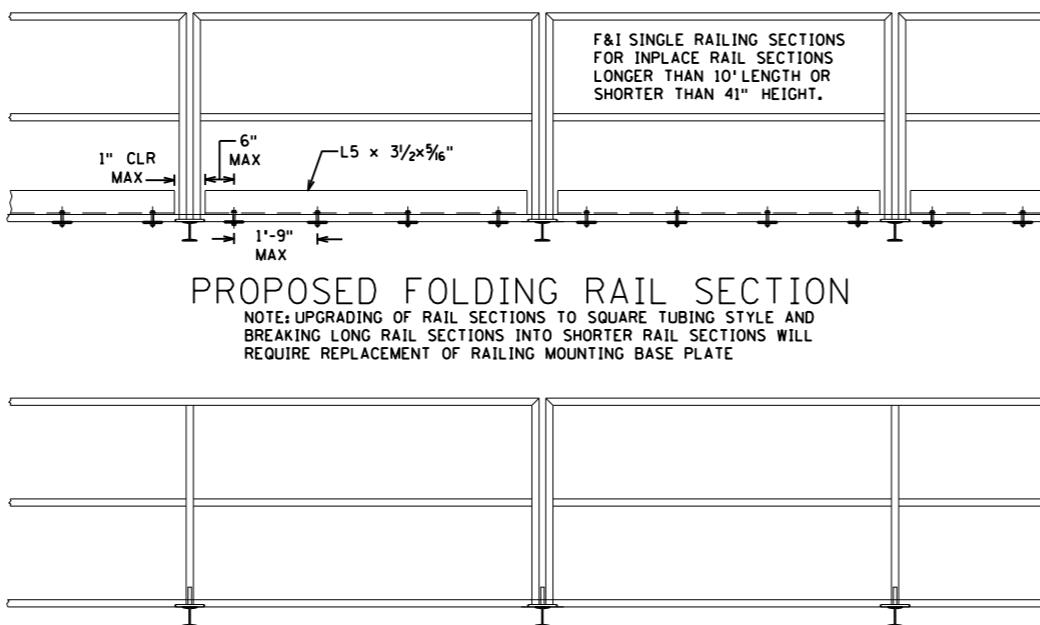








BASEPLATE AND HINGE FOR
FOLDING RAIL END POST
ADJACENT TO DMS
(AS NECESSARY)



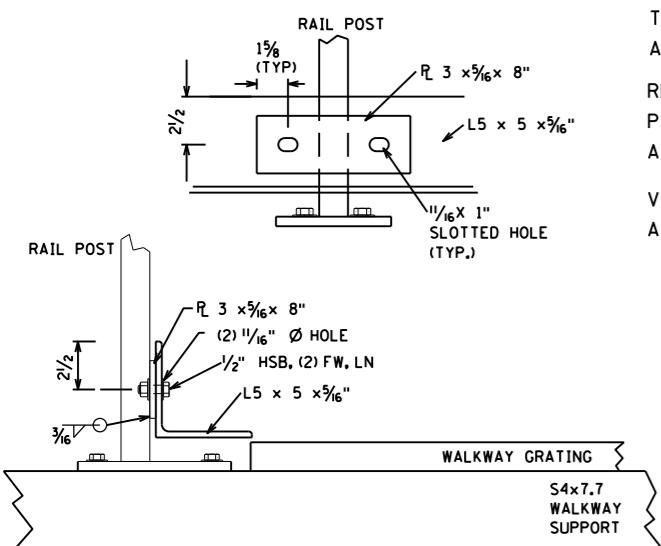
INPLACE RAIL SECTION

GENERAL NOTES:

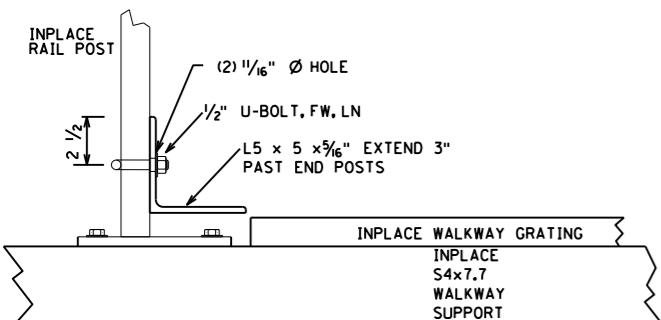
THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEASURING AND VERIFYING THE INDIVIDUAL RAIL, TOE ANGLE AND CURB ANGLE LENGTHS REQUIRED AT EACH SITE FOR INPLACE STRUCTURES PRIOR TO MANUFACTURE.

REAM F&I RAILING SUPPORT BOLT AND LOCKING PIN HOLES AFTER GALVANIZING TO ENSURE BOLT AND PIN FIT. VERIFY FIT AND REAM AS NECESSARY IN FIELD ALL RAILING SUPPORT BOLT AND LOCKING PIN HOLES ON INPLACE RAILING TO REMAIN TO ENSURE BOLT AND PIN FIT.

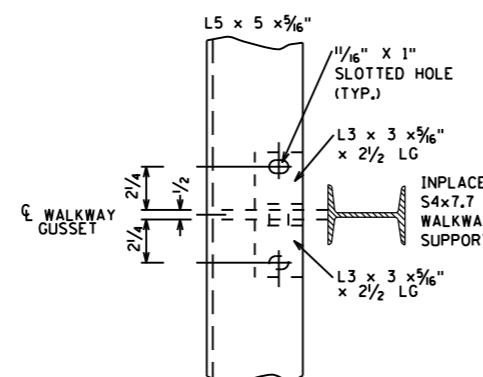
VERIFY & F&I AS NECESSARY $\frac{3}{4}$ " DIA. DROP-FORGED SHOULDER EYE BOLT W/LOCK WASHER & HEX NUT
AT SIGN TRUSS LOCATIONS. (HARNESS TIE OFF POINT)



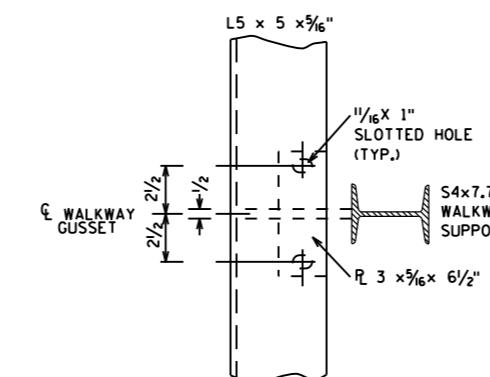
OH SIGN-FIXED RAILING TOE ANGLE-NEW CONSTRUCTION



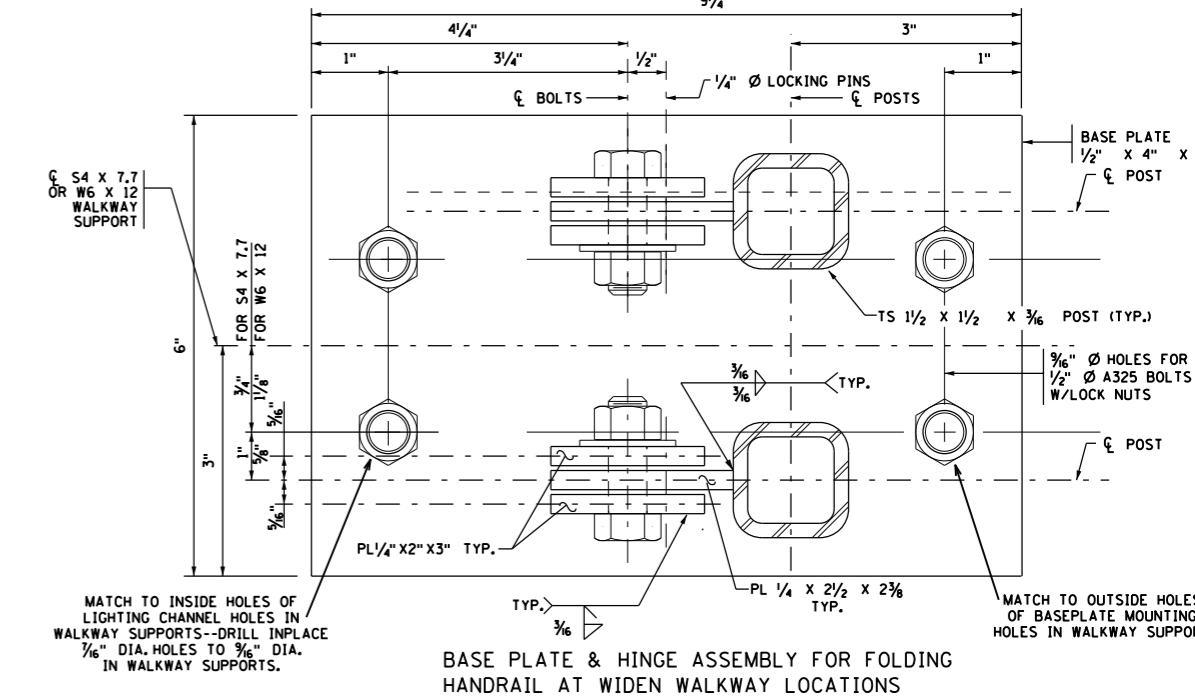
OH SIGN-FIXED RAILING TOE ANGLE-RETROFIT



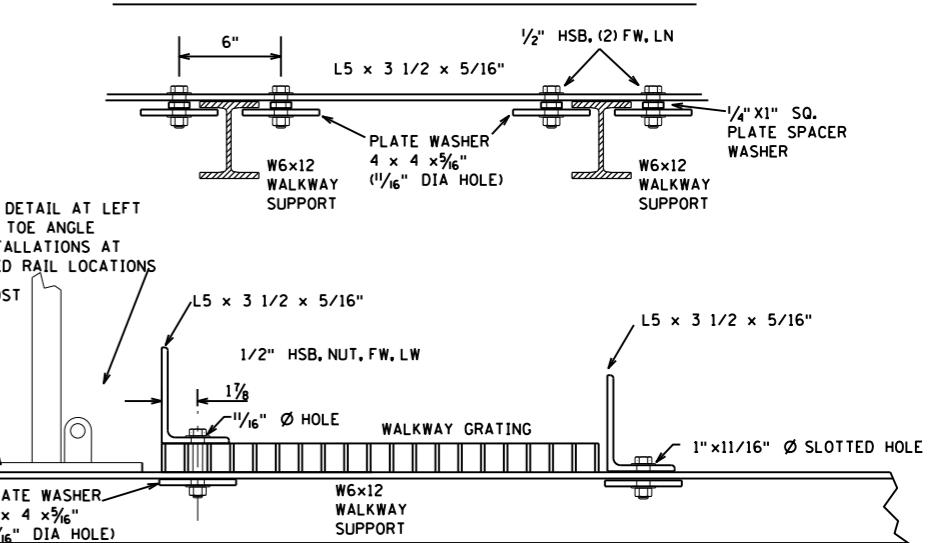
OH SIGN TRUSS SIDE
CURB ANGLE-RETROFIT



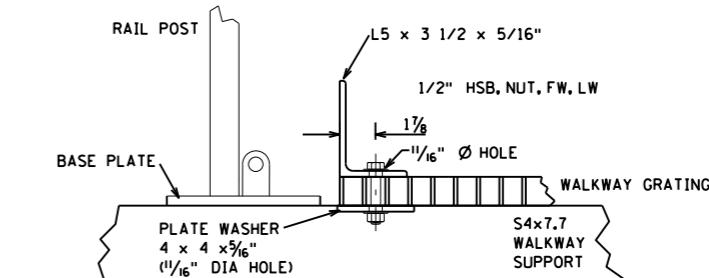
OH SIGN TRUSS SIDE
CURB ANGLE-NEW CONST.



BASE PLATE & HINGE ASSEMBLY FOR FOLDING
HANDRAIL AT WIDEN WALKWAY LOCATIONS



OH SIGN BRIDGE MOUNT-BRIDGE SIDE
TOE ANGLE (NEW CONST. OR RETROFIT)

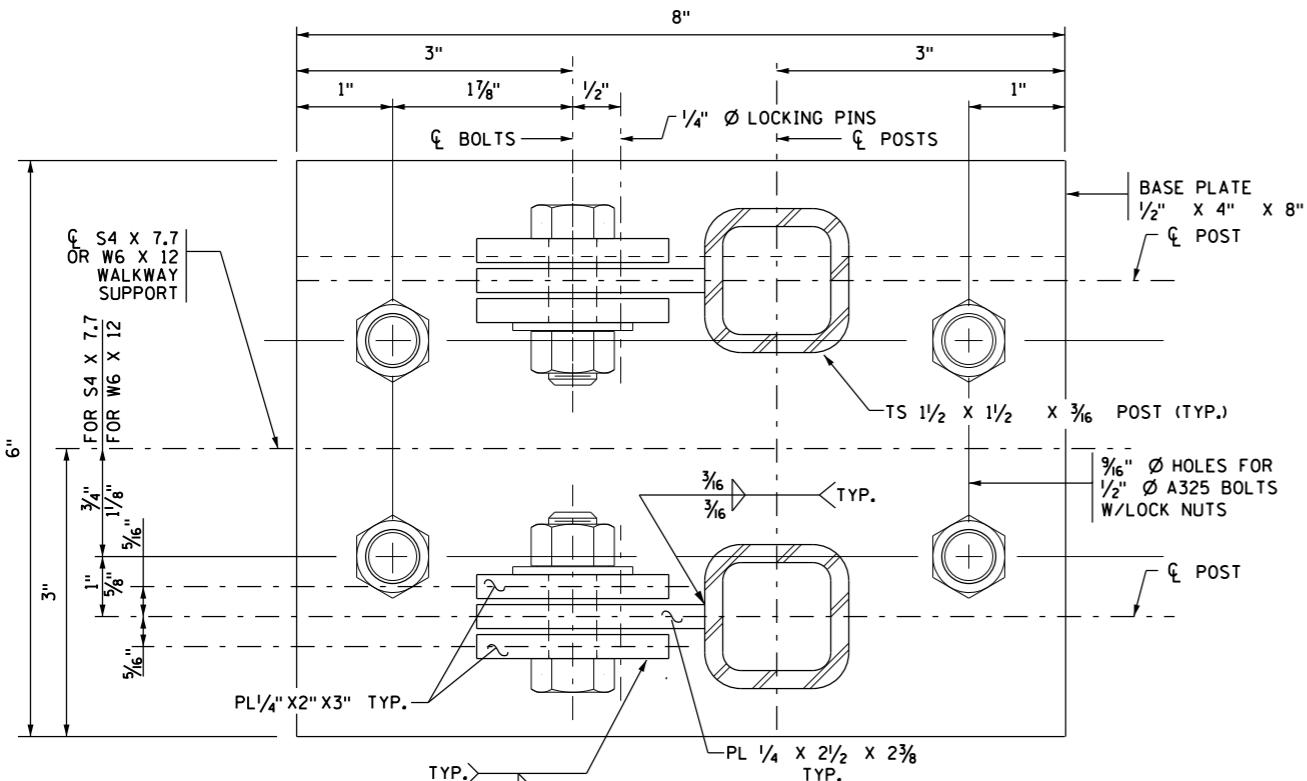


OH SIGN TRUSS-FOLDING
RAIL TOE ANGLE (NEW
CONST. OR RETROFIT)

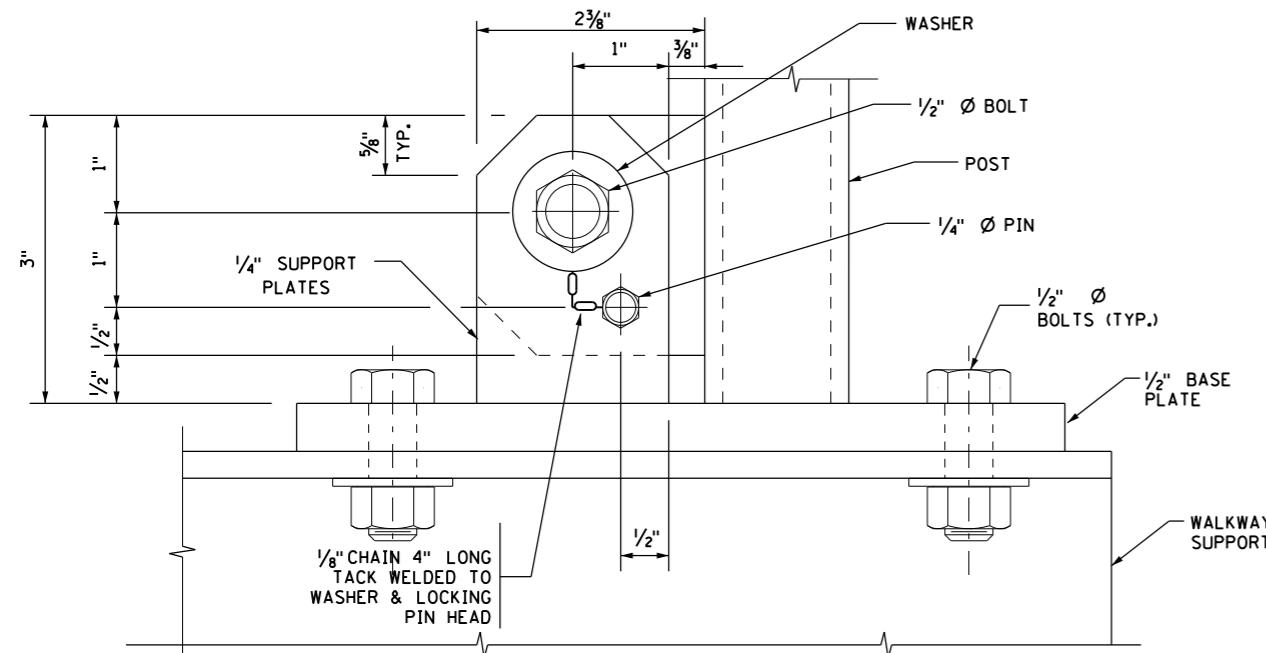
STANDARD OVERHEAD SIGN SUPPORT INTERIM DESIGN B

WALKWAY TOE ANGLES— NEW CONST. & RETROFIT

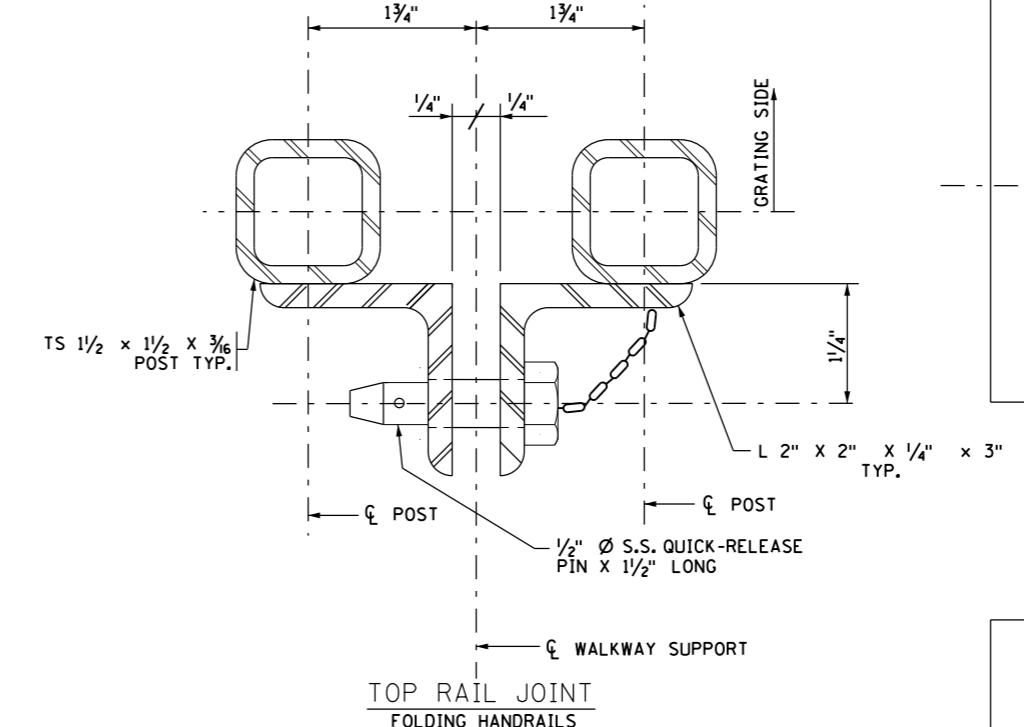
DRAWING ST-8A



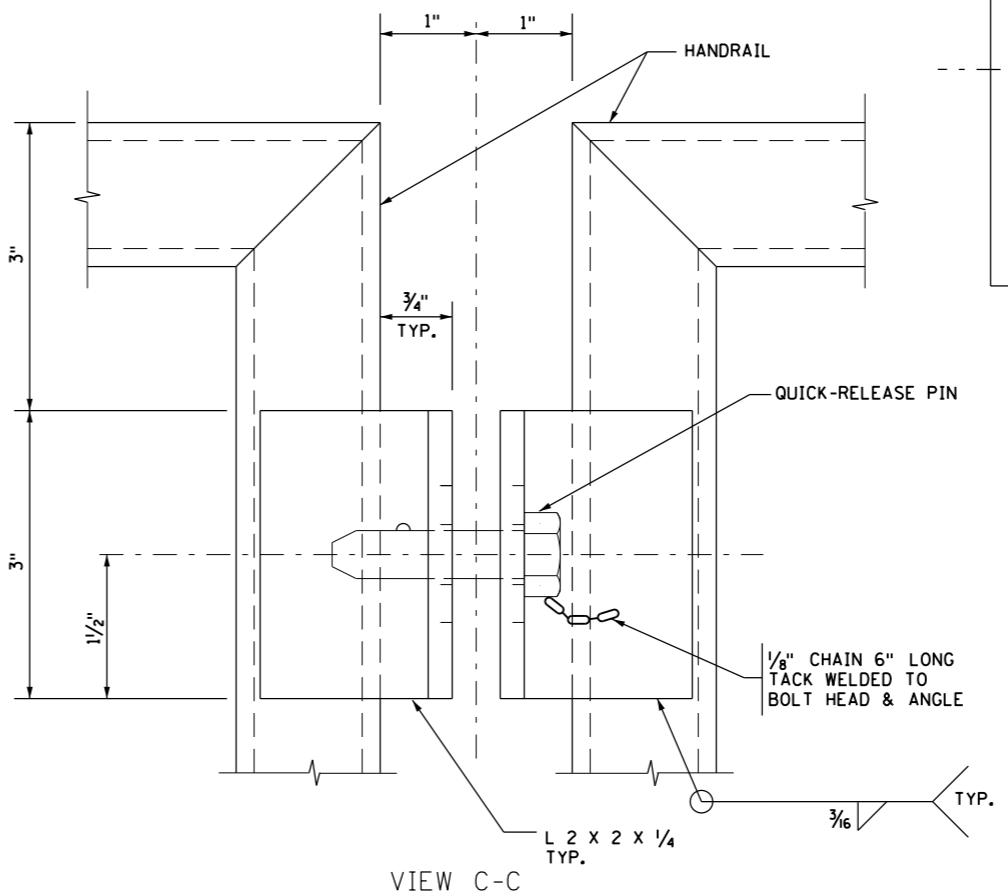
DETAIL 1
BASE PLATE & HINGE ASSEMBLY
FOR FOLDING HANDRAIL



VIEW A-A



TOP RAIL JOINT
FOLDING HANDRAILS

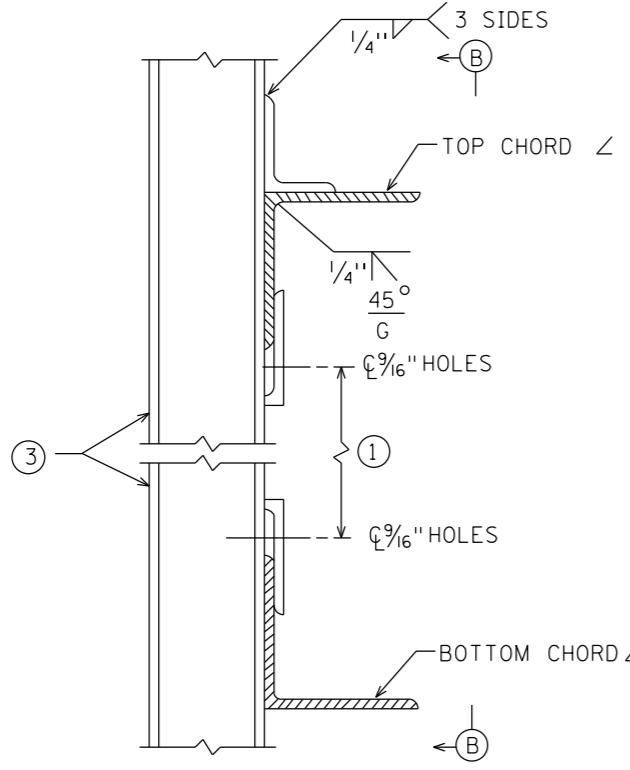
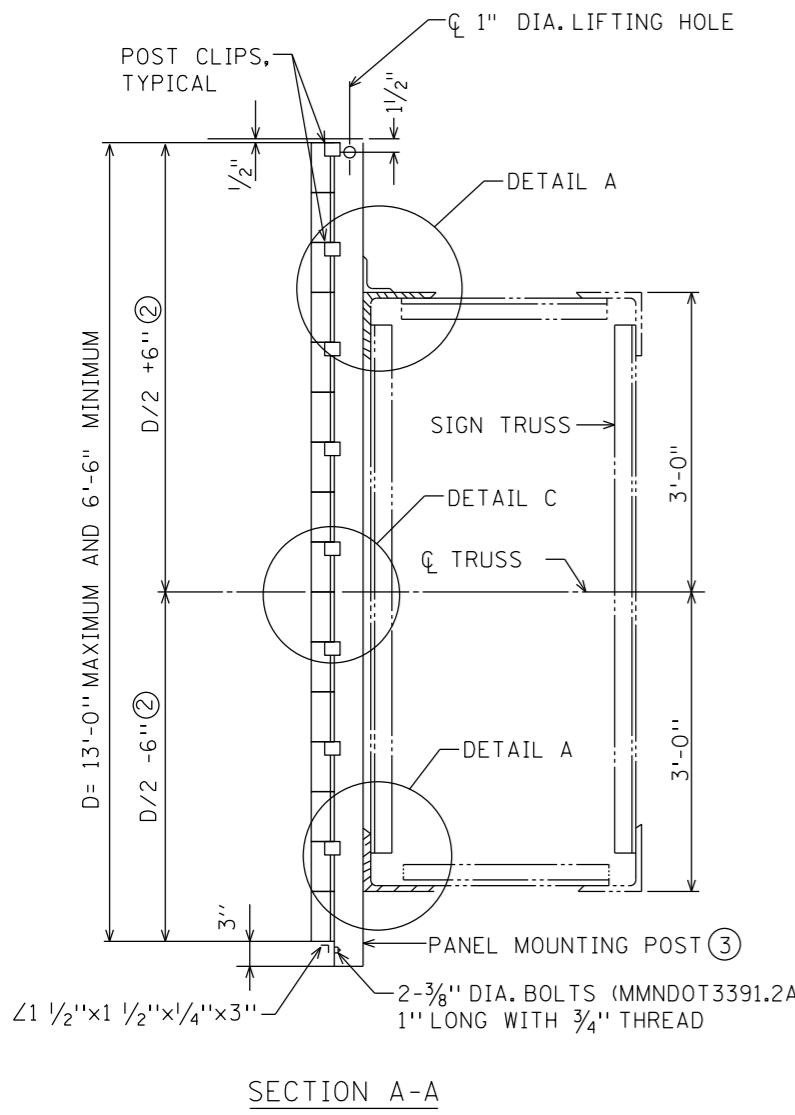


BASEPLATE AND HINGE FOR
FIXED TO FOLDING TRANSITION
(MAY BE OPPOSITE HAND)

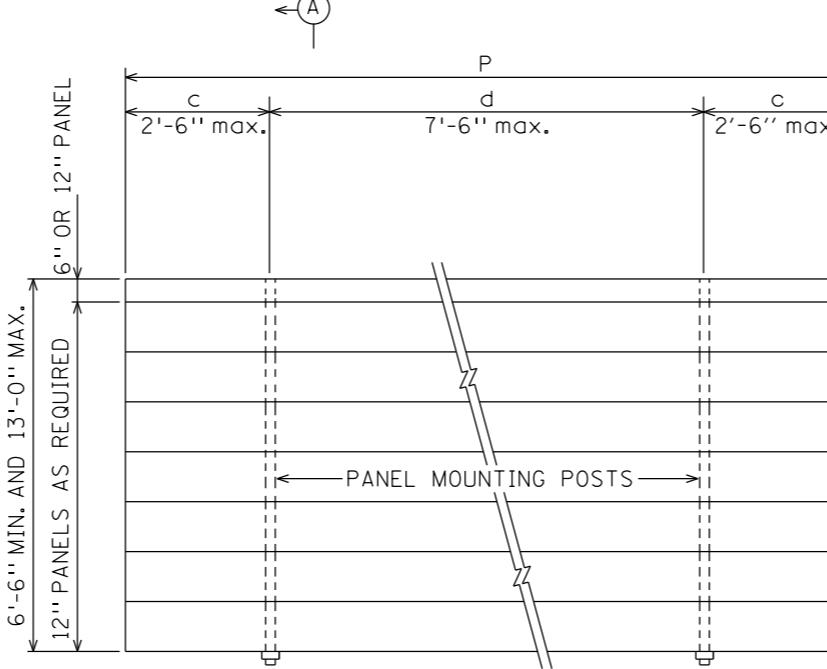
STANDARD OVERHEAD SIGN SUPPORTS INTERIM DESIGN B

FOLDING HANDRAIL

DRAWING ST-9

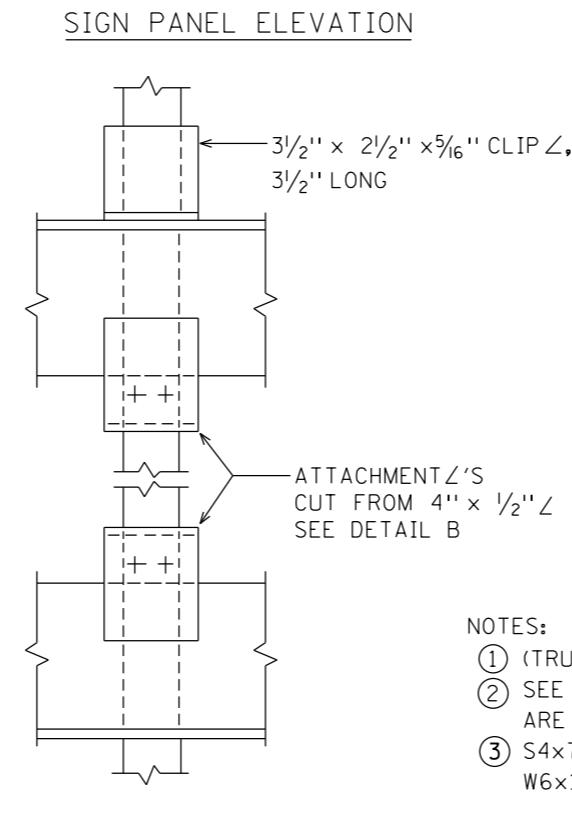


DETAIL A

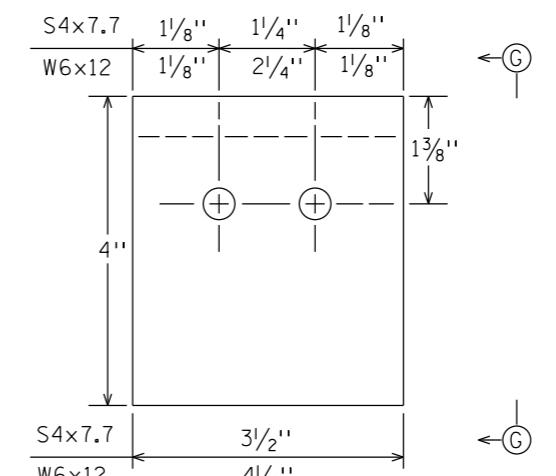


PANEL MOUNTING POST	
NO. OF POSTS	
2	P=144" OR LESS, c=.207P, d=.586P
3	P=150" THRU 204", c=.145P, d=.355P
4	P=210" THRU 276", c=.107P, d=.262P
5	P=282" THRU 348", c=.084P, d=.208P
6	P=354" THRU 420", c=.070P, d=.172P
7	P=426" THRU 492", c=.059P, d=.147P

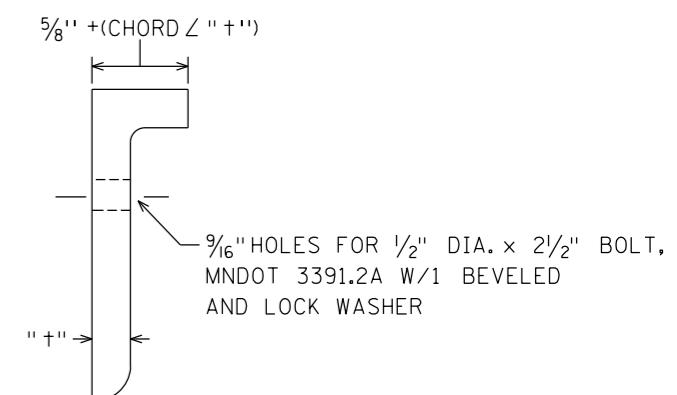
POST SPACING MAY BE ADJUSTED AS REQUIRED
CONFLICT WITH TRUSS DETAILS IS ENCOUNTERED



VIEW B-B



DETAIL



VIEW G-G

NOTE

NOTES:

- ① (TRUSS DEPTH)-(TOP & BOTTOM CHORD∠ LEGS)-1 $\frac{1}{4}$ "
- ② SEE NOTE 1 ON ST-1 WHEN STANDARD PANELS AND CMS ARE MOUNTED ON THE SAME SPAN
- ③ S4x7.7 FOR SIGN HEIGHTS \leq 11'-0" W6x12 FOR SIGN HEIGHTS OVER 11'-0"

STANDARD OVERHEAD SIGN SUPPORTS INTERIM DESIGN B

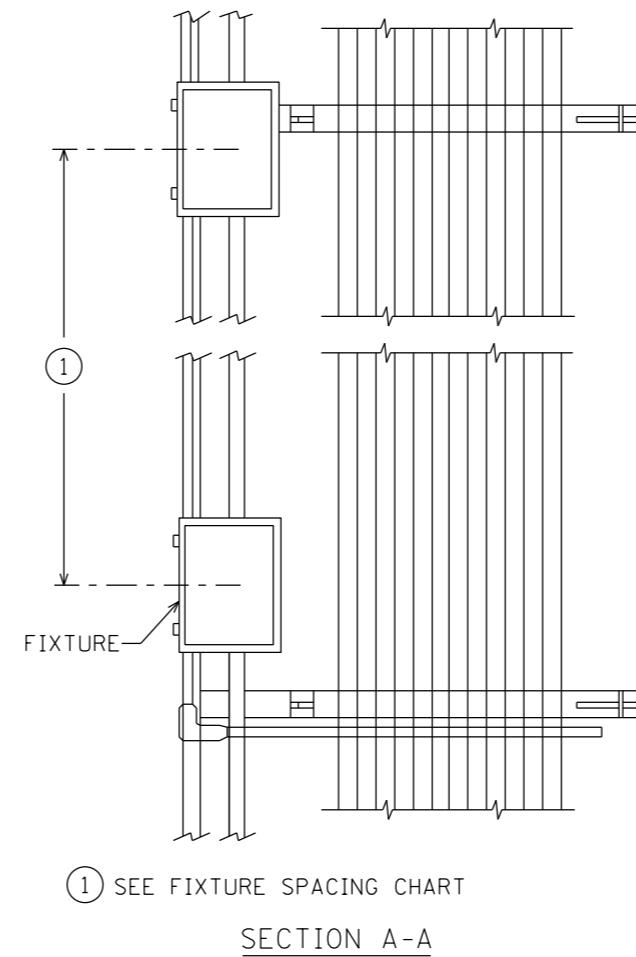
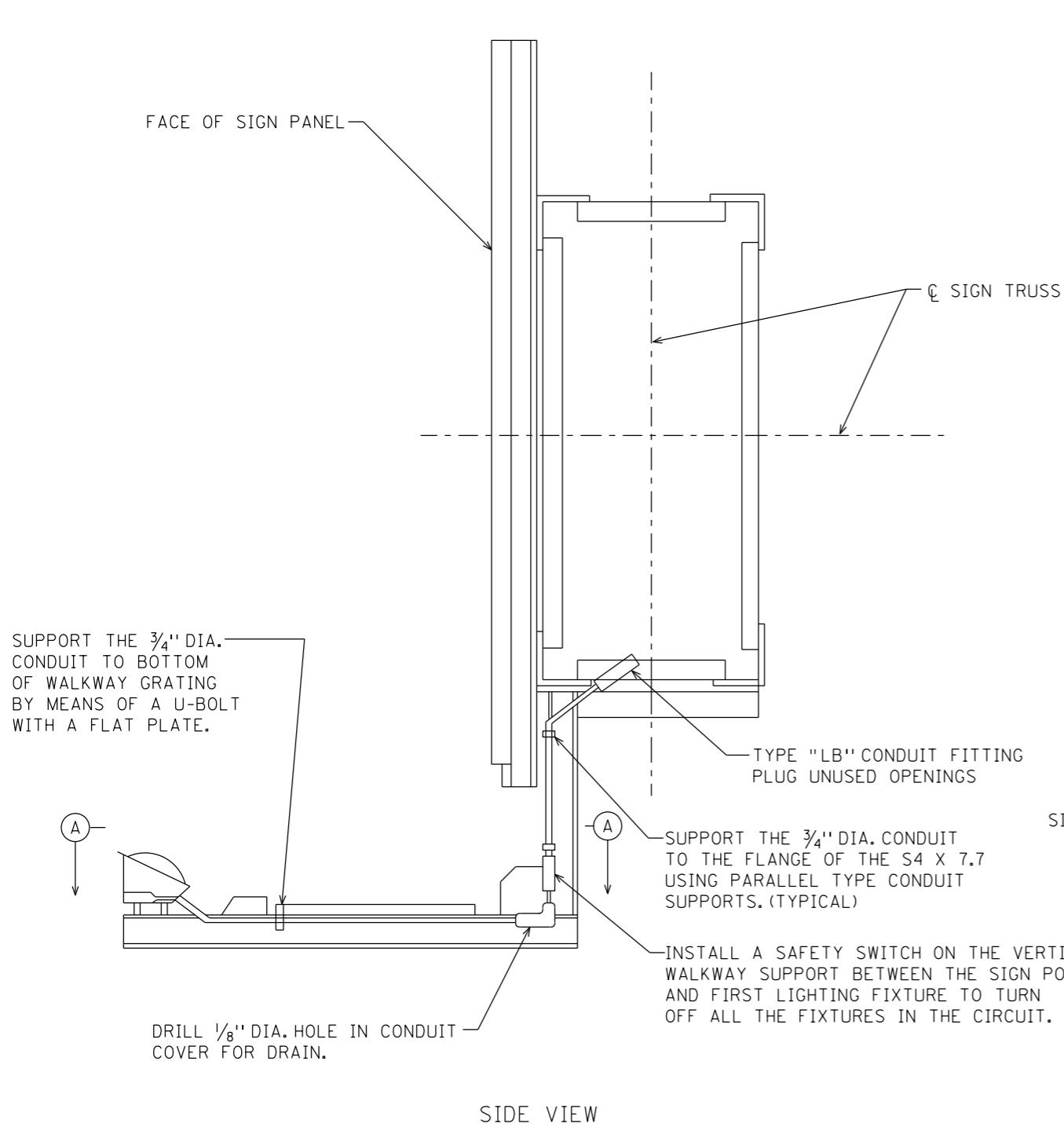
SIGN PANEL AND PANEL MOUNTING POST DETAILS

DRAWING ST-10

MOUNTING DETAILS FOR SIGN LIGHTING

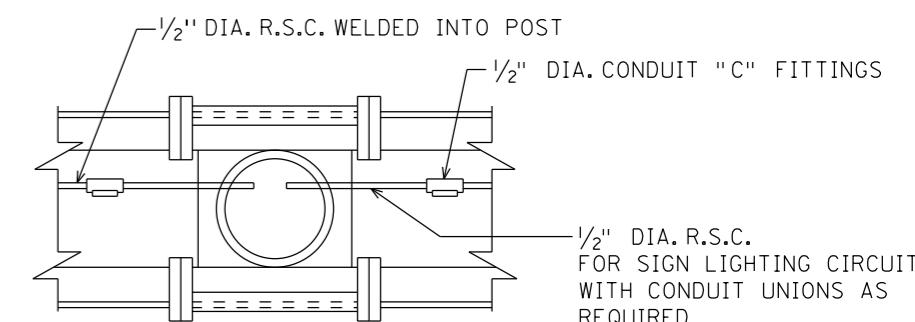
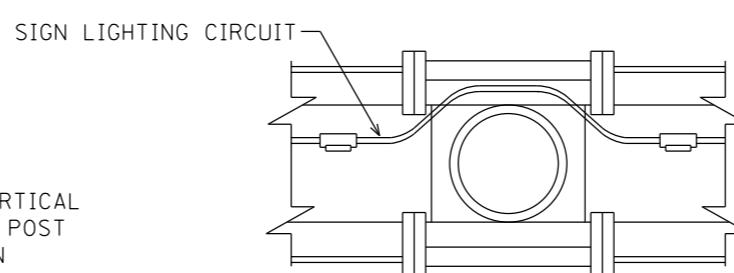
PLOTTED/REVISED: 5/9/2012

DISTRICT #: METRO ST DRAWINGS-STD#12
PLOT NAME: IP_PWP-dl339380ST DRAWINGS-STD#dgn
PATH & FILENAME: IP_PWP-dl339380ST DRAWINGS-STD#dgn



Fixture Spacing Chart		
W (Panel Width)	Number of Fixtures	Fixture Spacing
9.5' OR LESS	1	
10.0' TO 16.5'	2	W/2
17.0' TO 24.5'	3	W/3
25.0' TO 32.5'	4	W/4
33.0' TO 40.5'	5	W/5
41.0' TO 48.5'	6	W/6
49.0' TO 56.5'	7	W/7
57.0' TO 64.5'	8	W/8
65.0' TO 72.5'	9	W/9
73.0' TO 80.0'	10	W/10

FIXTURES SHALL BE SYMMETRICALLY PLACED WITH RESPECT TO THE SIGN PANEL. SIGN PANELS WHICH ABUT EACH OTHER SHALL BE TREATED AS A SINGLE SIGN PANEL FOR LIGHTING FIXTURE SPACING.



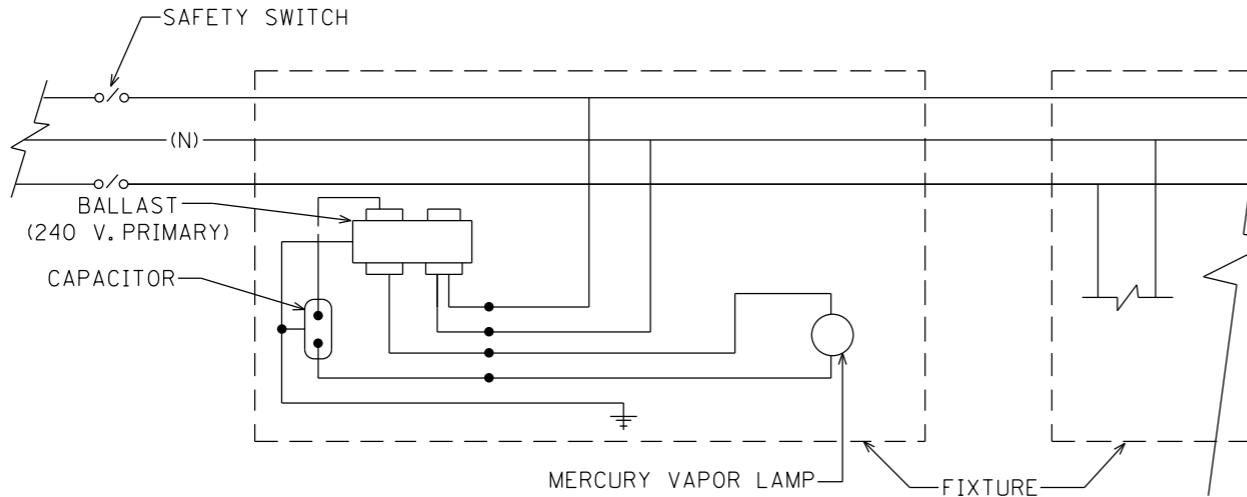
NOTES:

1. SEE SPECIAL PROVISIONS FOR SIGN LIGHTING FIXTURE REQUIREMENTS.
2. HIGH IMPACT RESISTANT POLYCARBONATE SHIELD SHALL BE PROVIDED FOR ALL SIGN LIGHTING FIXTURES INSTALLED ON TYPE OH SIGNS (BRIDGE MOUNTED).
3. WIRING BETWEEN THE SIGN POST AND THE SAFETY SWITCH SHALL BE RUN IN $\frac{3}{4}$ " R.S.C.

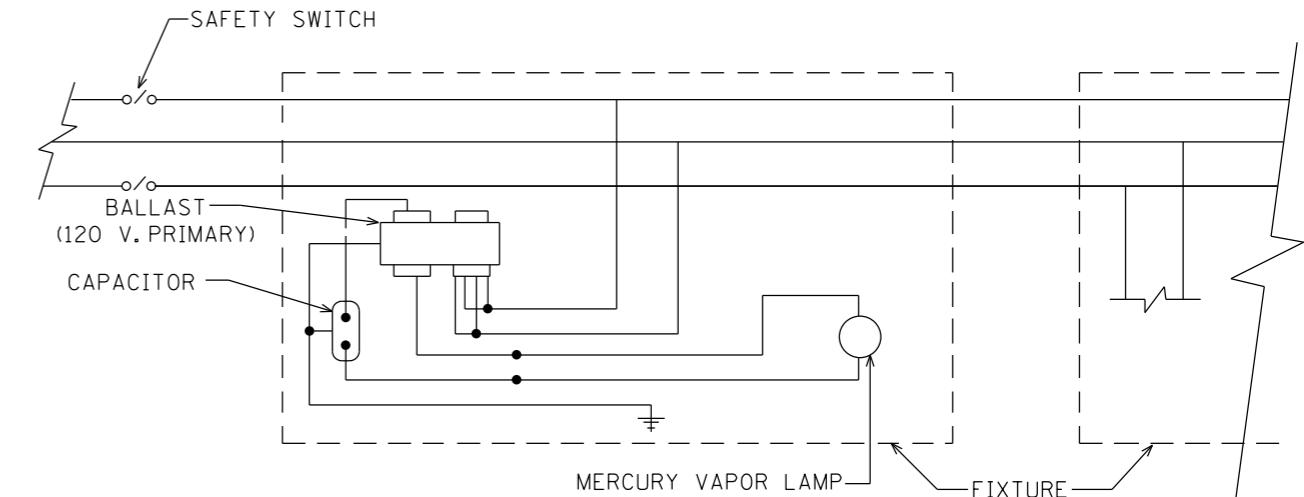
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

ELECTRICAL DETAILS

DRAWING ST-11

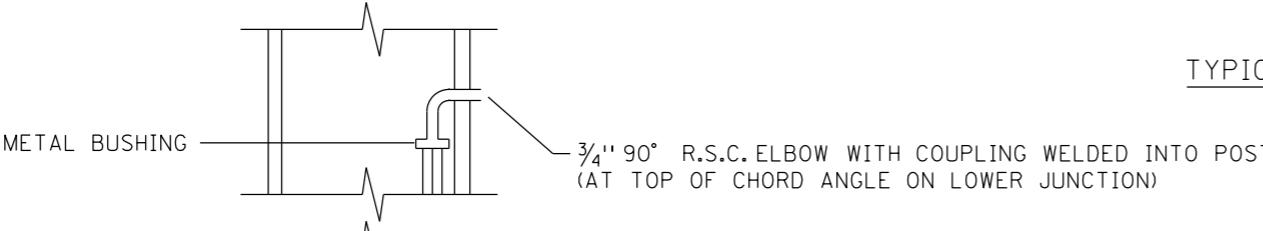


240/480 V. CIRCUIT



120/240 V. CIRCUIT

TYPICAL CIRCUIT DIAGRAMS



3 - 1/C NO. 12AWG. 600 VAC.. TYPE T.H.W.
T.H.W.N. OR X.H.H.W. INSULATION.
STRANDED COPPER CONDUCTORS TO
SAFETY SWITCH.

SPlice the armored cable conductors
to the conductors from the safety switch
with split bolt type connectors at the
level of the handhole. The splices
shall be insulated to the level of
insulation of the power conductors and
shall be waterproofed. The splices
shall be dressed in the center of the
post and up from the base plate with
sufficient excess conductor length
provided to permit withdrawal of the
splices through the handhole for
maintenance purposes.

GROUNDING BOLT,
WASHER AND
WING NUT

FASTEN THE ARMORED
CABLE SHEATH TO THE
GROUND CONNECTION

SIGN GROUNDING CABLE

3" 90° GALV. CONDUIT ELBOW
(MUST EXTEND AT LEAST 6" ABOVE ELEV.A)

18" MIN.

5/8" DIA. X 15' COPPER CLAD STEEL GROUND
ROD. ATTACH A BARE NO. 6 AWG GROUND
CONDUCTOR TO THE GROUND ROD WITH A
BRONZE GROUNDING CLAMP.

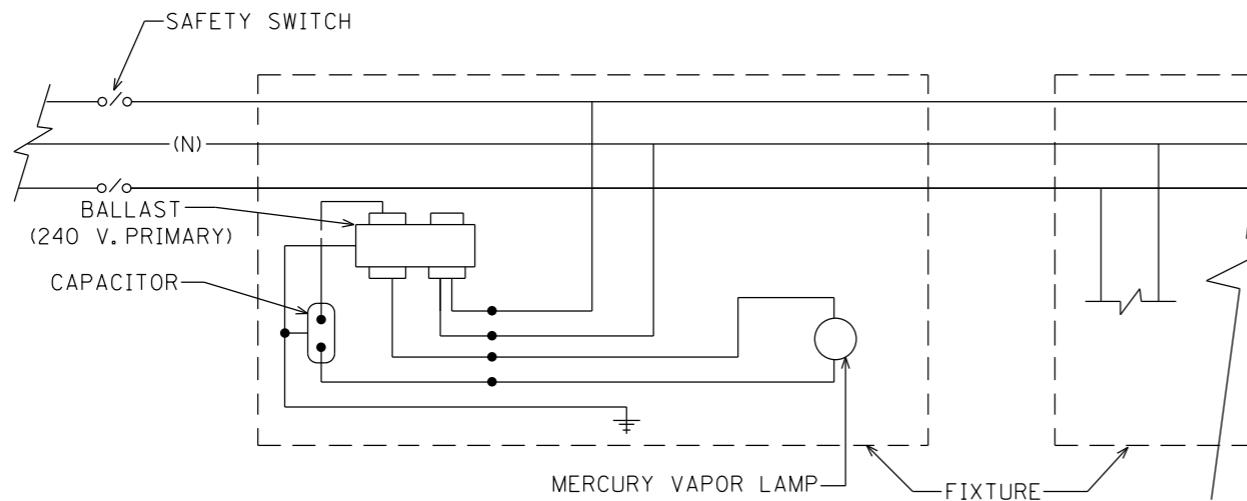
ELECTRICAL NOTES:

1. WHEN SIGN LIGHTING SYSTEMS HAVE BEEN COMPLETED, THE CONTRACTOR SHALL, WITHOUT FURTHER COMPENSATION, CONDUCT BURNING AND RESISTANCE TESTS FOR FINAL ACCEPTANCE. THE RESISTANCE TO GROUND OF EACH UNGROUNDED CONDUCTOR SHALL BE NOT LESS THAN 8 MEGOHMS.
2. ALL FITTINGS, HUBS, UNIONS, BUSHINGS, ETC. SHALL BE SUPPLIED AS PART OF CONDUIT, CONDUIT ENTERING SIGN POSTS SHALL HAVE INSULATED GROUNDING BUSHINGS INSTALLED BEFORE PULLING WIRE.
3. CONDUIT ON STRUCTURE SHALL BE SURFACED MOUNTED, STRAPPED AT EVERY ANGLE BRACE WITH U-BOLT TYPE CLAMPS.
4. SUCCESSIVE LIGHTING FIXTURES SHALL BE CONNECTED ON ALTERNATE SIDES OF THE 3-WIRE CIRCUIT.
5. THE CABLE SHEATH SHALL EXTEND AT LEAST 4" ABOVE THE TOP OF THE CONDUIT END AND THE TAPE ARMOR OF ARMORED CABLE SHALL BE CONNECTED TO THE GROUNDING BOLT IN THE SIGN POSTS.
6. WIRING FROM THE SAFETY SWITCH TO LIGHTING FIXTURES SHALL BE 1/C NO. 12 AWG AND SHALL BE RUN IN 3/4" R.S.C. ALL SPLICING SHALL BE ACCOMPLISHED WITH A WIRE NUT AND WATERPROOF COATING. ALL CONDUIT CONNECTIONS SHALL BE RAIN TIGHT.

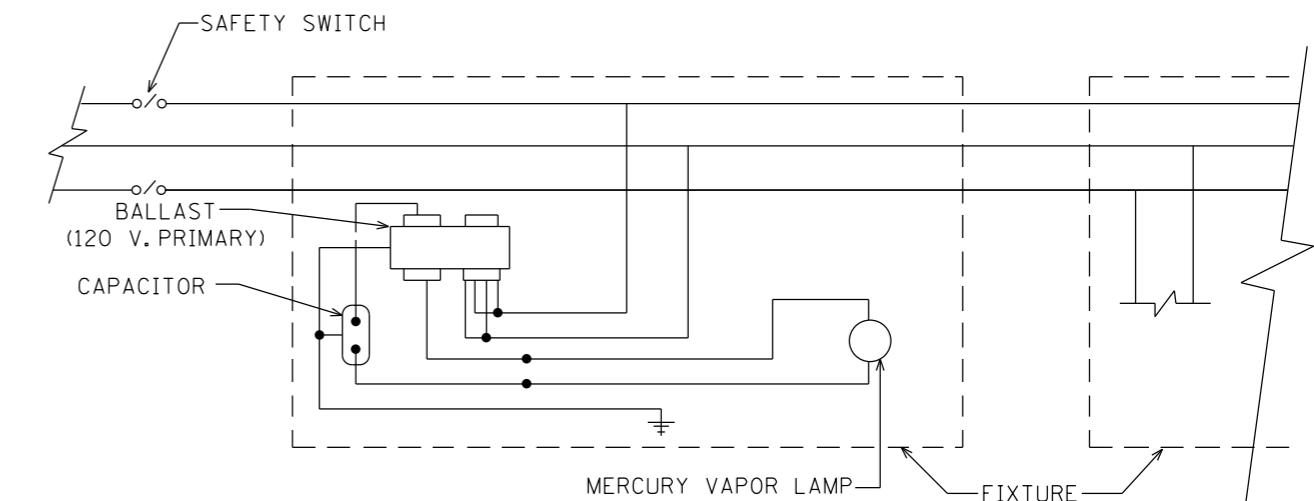
STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN B

ELECTRICAL DETAILS

DRAWING ST-12

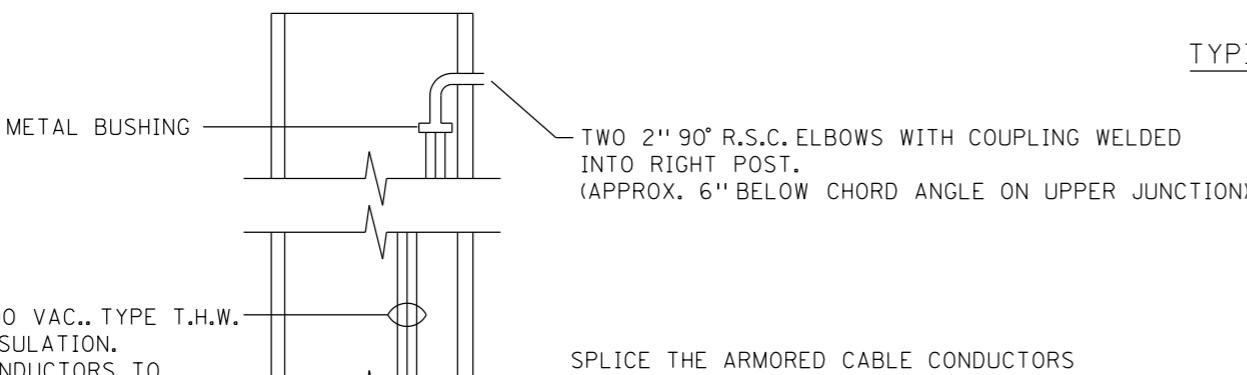


240/480 V. CIRCUIT



120/240 V. CIRCUIT

TYPICAL CIRCUIT DIAGRAMS



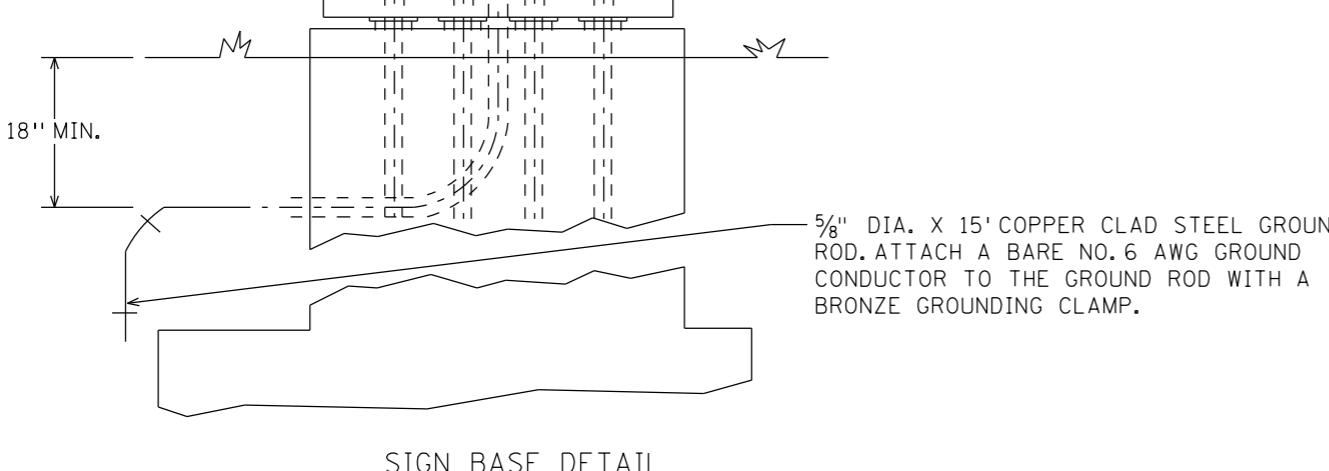
SPLICE THE ARMORED CABLE CONDUCTORS TO THE CONDUCTORS FROM THE SAFETY SWITCH WITH SPLIT BOLT TYPE CONNECTORS AT THE LEVEL OF THE HANDHOLE. THE SPLICES SHALL BE INSULATED TO THE LEVEL OF INSULATION OF THE POWER CONDUCTORS AND SHALL BE WATERPROOFED. THE SPLICES SHALL BE DRESSED IN THE CENTER OF THE POST AND UP FROM THE BASE PLATE WITH SUFFICIENT EXCESS CONDUCTOR LENGTH PROVIDED TO PERMIT WITHDRAWAL OF THE SPLICES THROUGH THE HANDHOLE FOR MAINTENANCE PURPOSES.

GROUNDING BOLT, WASHER AND WING NUT

FASTEN THE ARMORED CABLE SHEATH TO THE GROUND CONNECTION

SIGN GROUNDING CABLE

3" 90° GALV. CONDUIT ELBOW (MUST EXTEND AT LEAST 6" ABOVE ELEV.A)



ELECTRICAL NOTES:

1. WHEN SIGN LIGHTING SYSTEMS HAVE BEEN COMPLETED, THE CONTRACTOR SHALL, WITHOUT FURTHER COMPENSATION, CONDUCT BURNING AND RESISTANCE TESTS FOR FINAL ACCEPTANCE. THE RESISTANCE TO GROUND OF EACH UNGROUNDED CONDUCTOR SHALL BE NOT LESS THAN 8 MEGOHMS.
2. ALL FITTINGS, HUBS, UNIONS, BUSHINGS, ETC. SHALL BE SUPPLIED AS PART OF CONDUIT, CONDUIT ENTERING SIGN POSTS SHALL HAVE INSULATED GROUNDING BUSHINGS INSTALLED BEFORE PULLING WIRE.
3. CONDUIT ON STRUCTURE SHALL BE SURFACED MOUNTED, STRAPPED AT EVERY ANGLE BRACE WITH U-BOLT TYPE CLAMPS.
4. SUCCESSIVE LIGHTING FIXTURES SHALL BE CONNECTED ON ALTERNATE SIDES OF THE 3-WIRE CIRCUIT.
5. THE CABLE SHEATH SHALL EXTEND AT LEAST 4" ABOVE THE TOP OF THE CONDUIT END AND THE TAPE ARMOR OF ARMORED CABLE SHALL BE CONNECTED TO THE GROUNDING BOLT IN THE SIGN POSTS.
6. WIRING FROM THE SAFETY SWITCH TO LIGHTING FIXTURES SHALL BE 1/C NO. 12 AWG AND SHALL BE RUN IN 3/4" R.S.C. ALL SPLICING SHALL BE ACCOMPLISHED WITH A WIRE NUT AND WATERPROOF COATING. ALL CONDUIT CONNECTIONS SHALL BE RAIN TIGHT.

STANDARD OVERHEAD SIGN SUPPORTS
INTERIM DESIGN BMODIFIED
ELECTRICAL DETAILS

DRAWING ST-13