F.H.W.A. REGION NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS		1978	6	143

PROJ. NO. (BC)96-87 K-044-1(28) PTS. I & II

GENERAL NOTES

Design conforms with A.A.S.H.T.O. Specifications for the Design and Construction of Structural Supports for Highway Signs 1975. Breakaway base and hinge design conforms with Breakaway Roadside Sign Support Structures, Texas Transportation Institute, Texas A&M University, July 1967. Foundation design conforms with Design Procedure Compared to Full-Scale Tests of Drilled Shaft Footings, Texas Transportation Institute Feb 1970.

Materials and Fabrication shall conform to the requirements of the Kansas Department of Transportation. Standard Specifications and Special Provisions.

All structural steel shall conform to A.S.T.M. A441 or A36. Alternates using A.S.T.M. A242, A588, and A572 Grade 50 steels will be allowed as substitutes for A.S.T.M. A441 steel. All structural steel shall be galvanized in accordance with A.S.T.M. A123 after fabrication. All holes shall be drilled. All plate cuts shall preferably be saw cuts; however, flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.

All high strength bolts, nuts and washers shall conform to A.S.T.M. A 325 and shall be coated in accordance with the coating requirements of 1006.14(b) or 1006.14(c) of the Standard Specifications, 1973.

FABRICATOR NOTE: All friction fuse bolts shall be tightened in the shop following a method approved by the engineer. Tightening shall be to such a degree as to obtain the following residual tension in each bolt:

Bolt Size	Min. Residual Tension
1/2" ϕ	12,000 Lbs.
5/8" ϕ	19,000 Lbs.
3/4" ϕ	28,000 Lbs.
7/8" ϕ	39,000 Lbs.
1" ϕ	51,000 Lbs.

PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble post to stub with bolts and with bolt retainer plate and one flat washer (on each bolt) between plates.
2. Plumb post by varying thickness of washers between base plates.
3. Tighten all bolts the maximum possible with 12 to 15 inch wrench to bed washers and shim and to clean bolt threads. Then loosen each bolt in turn and retighten in a systematic order to the prescribed torque (see table). DO NOT OVERTIGHTEN.
4. Burr threads at junction with nut using a center punch to prevent nut loosening.

*When rock is encountered while drilling the shaft for the concrete foundation, extend the shaft into the rock a distance 'Y'. The total depth need not exceed that given for the corresponding post size and steel type.

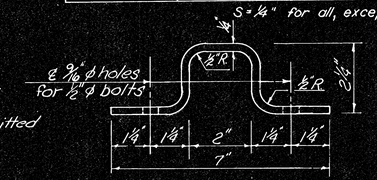
BASE CONNECTION DATA TABLE / FOUNDATION DATA TABLE

DIMENSION POST SIZE	BOLT SIZE & TORQUE (in lbs)	T1	T2	A	B	C	D	E	M	R	STUB LENGTH	STUB PROJ.	SHAFT DIA	SHAFT DEPTH A 441	SHAFT DEPTH A 36 Alt.	SHAFT DEPTH Y*	V Bar NO.	V Bar Size
S 3x5.7	1/2 ϕ x 2 1/2 -250	3/8"	5/8"	3	1 3/4	1	1 1/2	3/4	6 1/2	9/32	1'-6"	2 1/4	2'-0"	6'-0"	6'-0"	3'-6"	5	#4
W 6x8.5	5/8 ϕ x 3 -570	7/8"	7/8"	4 1/8	1 1/8	1 1/8	2 1/2	1 1/16	9 3/8	11/32	2'-0"	2 1/2	2'-0"	6'-0"	6'-0"	3'-6"	6	#4
W 10x11.5	5/8 ϕ x 3 1/4 - 570	1"	3/4"	4 5/8	1 1/8	1 1/8	2 1/2	1 1/16	1'-1 5/8	11/32	2'-6"	2 1/2	2'-0"	8'-0"	8'-0"	4'-0"	5	#6
W 10x21	7/8 ϕ x 3 3/4 - 905	1 1/8"	1"	6 5/8	2 7/8	1 1/8	3	1 3/16	1'-2 7/8	15/32	3'-0"	3	2'-6"	12'-0"	11'-0"	5'-6"	13	#6

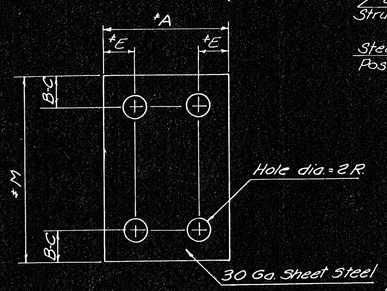
FUSE DATA TABLE

POST SIZE	BOLT SIZE	F	G	H	J	K	L	N	P	T3	X
S 3x5.7	1/2 ϕ x 1 3/4	3 1/8	2 1/2	1/8	2 3/8	1 3/8	1/2	1/2	3/16	3/16	1/16
W 6x8.5	5/8 ϕ x 1 3/4	4 3/8	2 3/4	1	4	2	1	5/8	9/16	1/4	1 1/8
W 10x11.5	3/4 ϕ x 2	4 7/8	2 3/4	1	4	2	1	7/8	13/16	3/8	1 1/8
W 10x21	1 ϕ x 2 1/2	5 7/8	3	1 1/2	5 3/4	2 3/4	1 1/2	7/8	17/16	7/16	1 3/8

S = 1/4" for all, except W 10x21 S = 3/8"

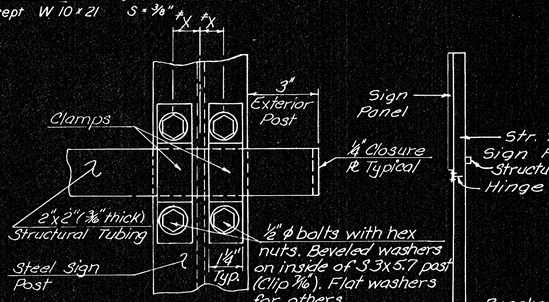


CLAMP (2 each post)

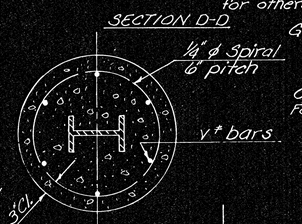


BOLT RETAINER PLATE DETAIL

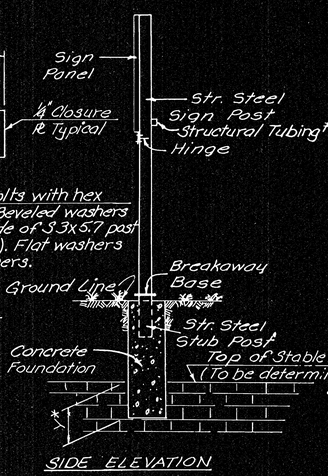
△Note: This plate need not be galvanized after fabrication if made from galvanized sheet steel.



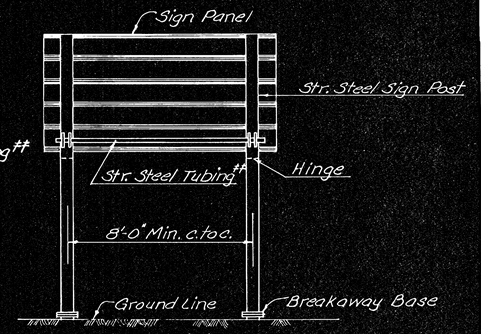
SECTION D-D



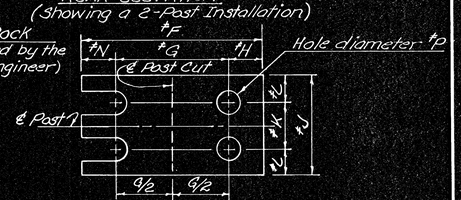
SECTION C-C



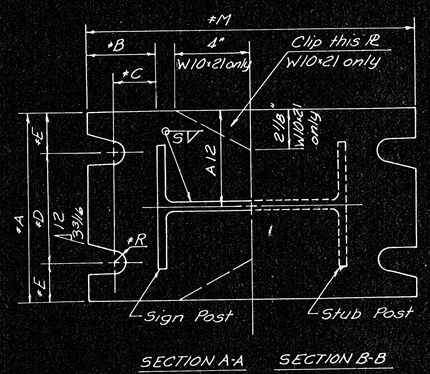
SIDE ELEVATION



REAR ELEVATION (Showing a 2-Post Installation)



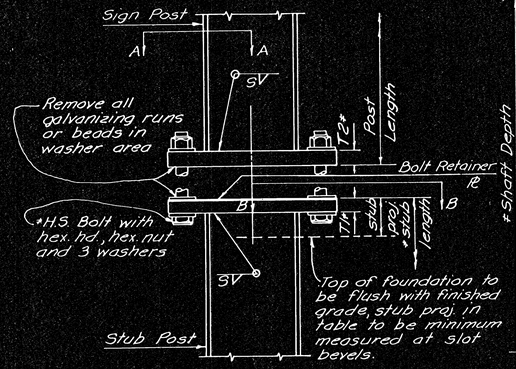
FRICTION FUSE PLATE DETAILS



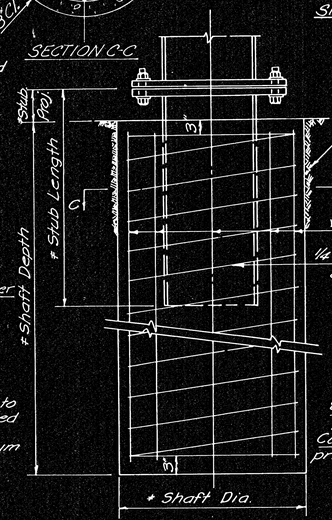
SECTION A-A SECTION B-B

Sections shown are for installations on the right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

BREAKAWAY BASE CONNECTION DETAILS

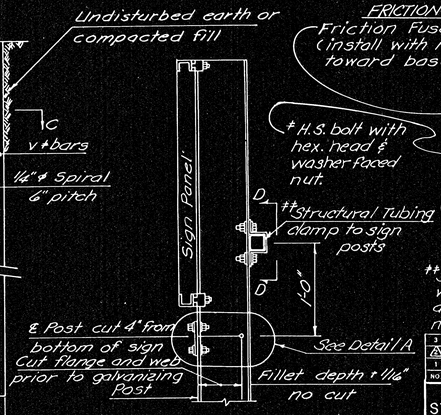


ELEVATION

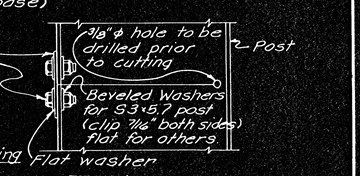


ELEVATION

FOUNDATION DETAILS



TYPICAL SIDE ELEVATION



DETAIL A

HINGE DETAILS

**Structural tubing is not to be used when the sign panels are extruded aluminum panels with a panel thickness of at least .125" (Tolerance = -.01")

NO.	DATE	REVISIONS	BY	APP'D
3	1-17-75	Revise to 1973 AASHTO. Spec.	DRS	RLA
2	8-8-72	Bolt Ret PL - Additional Note	LGS	RLA
1	3-14-72	Bolt Ret PL - Tin Pl Ch. to Sheet Steel	RH	APT

DEPARTMENT OF TRANSPORTATION - KANSAS
STANDARD STRUCTURAL SIGN SUPPORTS
ROADSIDE MOUNTING
STEEL SUPPORT DETAILS

SHEET NO. 6 OF 143	SCALE Varies	APP'D	
DESIGNED BEM	DETAILED BEM	QUANTITIES	TRACED RBA
DESIGN CK. NLW	DETAIL CK. NLW	QUAN. CK.	TRACE CK. BEM

* See table