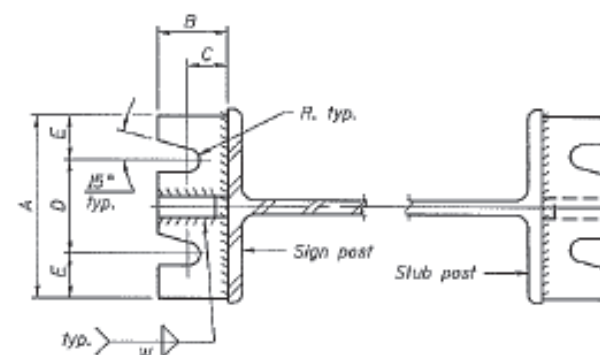


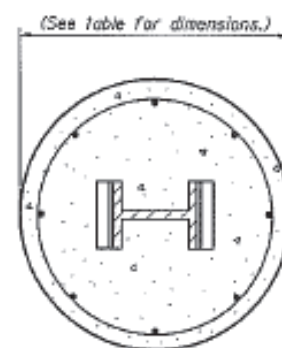
SHIM DETAIL

Furnish two 0.01" thick and two 0.03" thick stainless steel or brass (ASTM B36) shims per post.

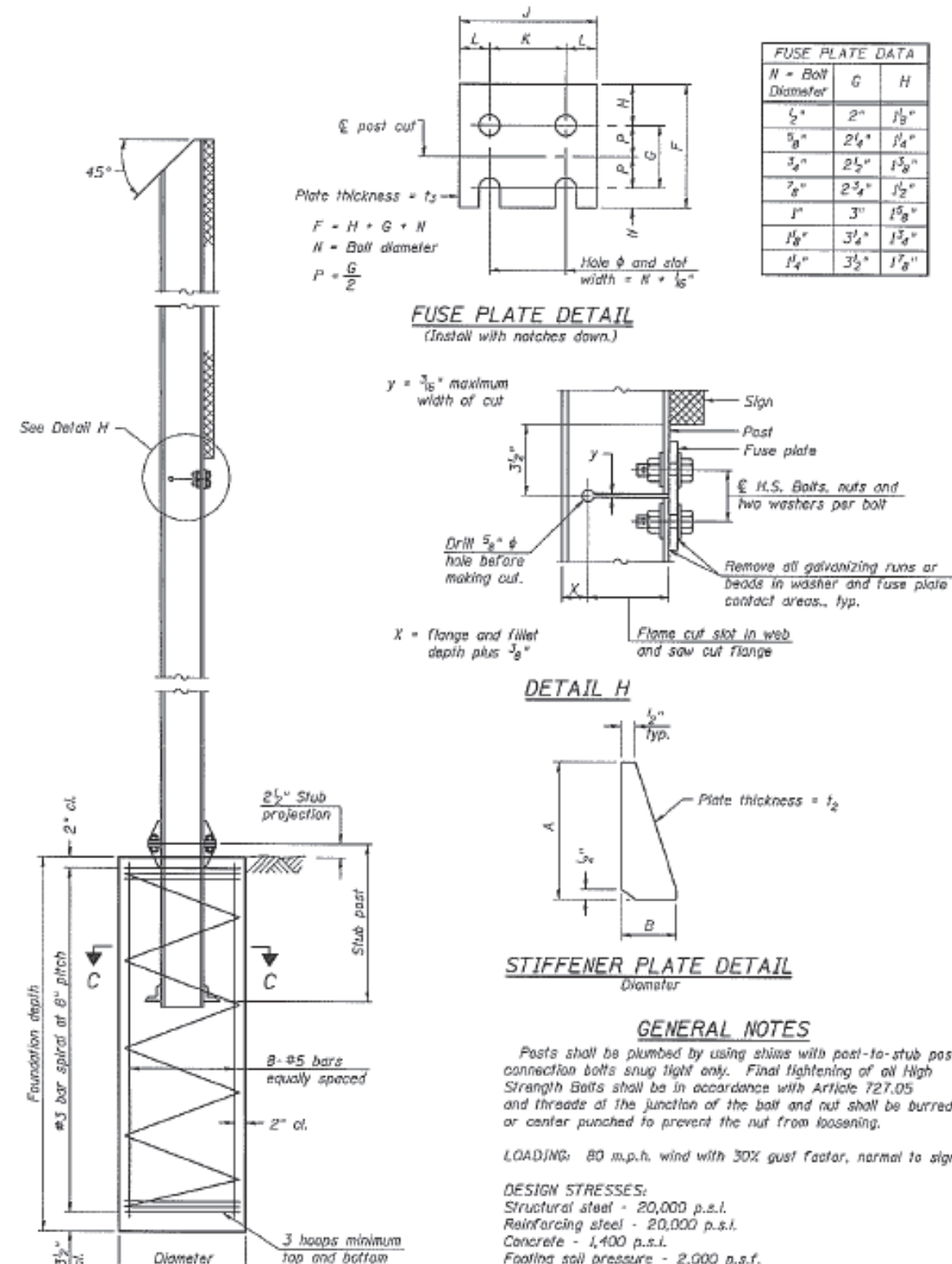


SECTION A-A

SECTION B-B



SECTION C-C



FUSE PLATE DETAIL
(Install with notches down.)

DETAIL H

STIFFENER PLATE DETAIL
Diameter

GENERAL NOTES

Posts shall be plumbed by using shims with post-to-stub post connection bolts snug tight only. Final tightening of all High Strength Bolts shall be in accordance with Article F27.05 and threads at the junction of the bolt and nut shall be burred or center punched to prevent the nut from loosening.

LOADING: 80 m.p.h. wind with 30% gust factor, normal to sign.

DESIGN STRESSES:
Structural steel - 20,000 p.s.i.
Reinforcing steel - 20,000 p.s.i.
Concrete - 4,400 p.s.i.
Footing soil pressure - 2,000 p.s.f.

After fabrication, the post, fuse plate and upper 6", min. of the stub post shall be hot-dip galvanized in accordance with AASHTO M311. All bolts, nuts and washers shall be hot-dip galvanized in accordance with AASHTO M232.

Work this sheet with Base Sheet BAW-A-2.

BAW-A-1

6-1-12

USER NAME = 0190mm	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 109.8946 * / 37.	CHECKED -	REVISED -
PLOT DATE = 5/19/2022	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

(Sheet 1 of 2)

**BREAK-AWAY WIDE FLANGE
STEEL SIGN POST TABLES**

SCALE: _____	SHEET NO. 1 OF 1 SHEET	STA. _____ TO STA. _____
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VARR	SECTION 4 & 5 SIGN MAINTENANCE 23-13	VARIDUS	11	7
CONTRACT NO. 46657				

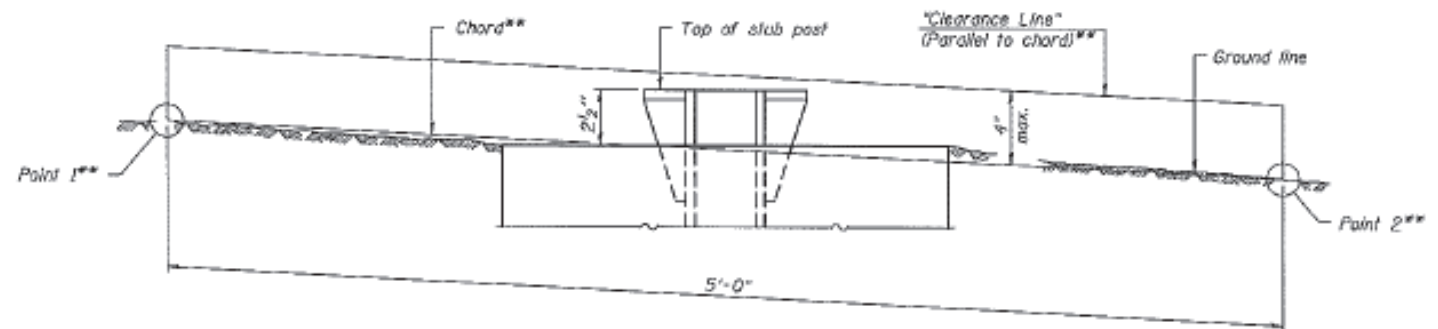
REVISIONS

NO.	DESCRIPTION	DATE
1	REVISED SHEET	4-10-2025

POST	CONCRETE FOUNDATION TABLE								POST TO STUB POST CONNECTION DATA										FUSE PLATE DATA			
	Foundation			Reinforcement				Stub Post Length	Bolt Size	A	B	C	D	E	f ₁	f ₂	R	W	J	K	L	f ₃
	Diameter	Minimum Depth	Concrete (cu. yds.) ①	Vertical Bars Length	Bar Diameter	Spirals Length	lbs. ②															
W6x9	2'-0"	6'-0"	0.70	5'-9"	1'-8½"	79'-0"	78	2'-3"	5/8" x 3¼"	6"	2¼"	1¼"	3½"	1¼"	¾"	½"	3/32"	¼"	4"	2¼"	7/8"	¼"
W6x15	2'-0"	6'-0"	0.70	5'-9"	1'-8½"	79'-0"	78	2'-6"	5/8" x 3¼"	6"	2¼"	1¼"	3½"	1¼"	¾"	½"	3/32"	¼"	6"	3½"	1¼"	3/8"
W8x18	2'-0"	6'-0"	0.70	5'-9"	1'-8½"	79'-0"	78	2'-6"	¾" x 3¾"	6"	2½"	1⅜"	3¼"	1⅜"	1"	½"	5/32"	5/16"	5¼"	2¾"	1½"	3/8"
W10x22	2'-6"	6'-6"	1.18	6'-3"	2'-2½"	105'-0"	92	3'-0"	¾" x 3¾"	6"	2½"	1⅜"	3¼"	1⅜"	1"	½"	5/32"	5/16"	5¾"	2¾"	1½"	½"
W10x26	2'-6"	7'-0"	1.27	6'-9"	2'-2½"	112'-0"	98	3'-0"	7/8" x 4"	7"	2¾"	1½"	4"	1½"	1"	¾"	5/32"	3/8"	5¾"	2¾"	1½"	5/8"
W12x26	2'-6"	7'-9"	1.41	7'-6"	2'-2½"	119'-0"	107	3'-0"	7/8" x 4"	7"	2¾"	1½"	4"	1½"	1"	¾"	5/32"	3/8"	6¾"	3½"	1½"	5/8"
W14x30	3'-0"	7'-3"	1.90	7'-0"	2'-8½"	145'-0"	113	3'-0"	7/8" x 4"	7"	2¾"	1½"	4"	1½"	1"	¾"	5/32"	3/8"	6¾"	3½"	1½"	5/8"
W14x38	3'-0"	8'-0"	2.09	7'-9"	2'-8½"	153'-0"	122	3'-6"	1" x 4½"	7½"	3"	1¾"	4"	1¾"	1¼"	¾"	7/32"	3/8"	6¾"	3½"	1½"	5/8"
W16x45	3'-0"	8'-6"	2.23	8'-3"	2'-8½"	162'-0"	130	3'-6"	1" x 4½"	7½"	3"	1¾"	4"	1¾"	1¼"	¾"	7/32"	3/8"	7"	3½"	1¾"	5/8"

*Dimensional changes required for varying site conditions shall be approved by the Engineer.

POST	FUSE PLATE BOLT SIZE																				
	Sign Height																				
	4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18'-0"	19'-0"	20'-0"	21'-0"	22'-0"	23'-0"	24'-0"
W6x9	1/2" x 1 1/2"	1/2" x 1 1/2"	1/2" x 1 1/2"	1/2" x 1 1/2"	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
W6x15	1/2" x 1 3/4"	1/2" x 1 3/4"	1/2" x 1 3/4"	5/8" x 2"	5/8" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	—	—	—	—	—	—	—	—	—	—	—	—
W8x18	1/2" x 1 3/4"	1/2" x 1 3/4"	1/2" x 1 3/4"	1/2" x 1 3/4"	5/8" x 2"	5/8" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	3/4" x 2"	—	—	—	—	—	—	—	—	—	—	—
W10x22	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2"	5/8" x 2"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	—	—	—	—	—	—	—	—
W10x26	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	—	—	—	—	—	—	—	—
W12x26	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	—	—	—	—	—	—
W14x30	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2"	5/8" x 2"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	3/4" x 2 1/4"	—	—	—	—
W14x38	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"
W16x45	—	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	1/2" x 2"	5/8" x 2 1/4"	5/8" x 2 1/4"	5/8" x 2 1/4"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"	3/4" x 2 1/2"

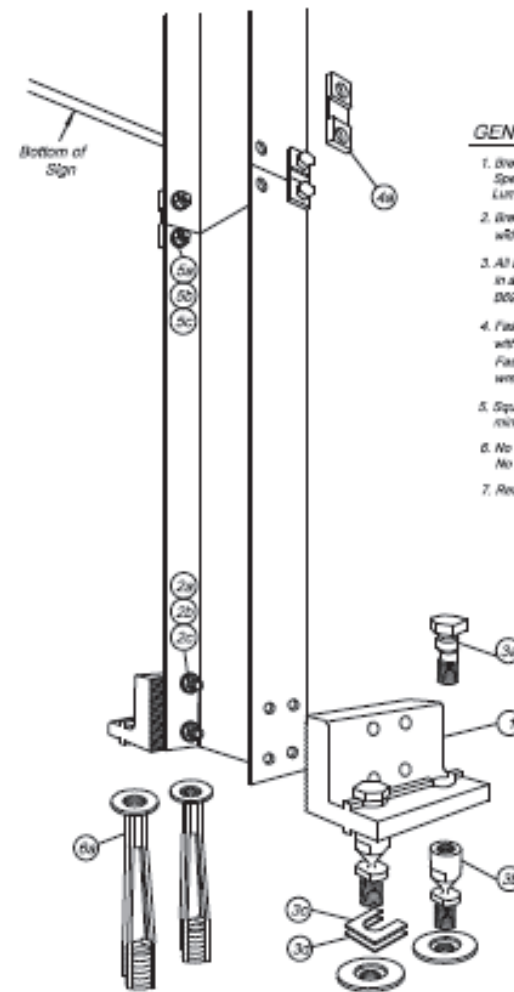


ELEVATION
GROUND LINE & STUB POST
 ** For all "Point 1" and "Point 2" locations, "Clearance Line" must be at or above top of stub post.

- (1) Quantity includes all concrete necessary for one foundation.
- (2) Includes reinforcement bars and spiral hooping for one foundation.

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
2a	Bolt	12.7mm(1/2")-13UNC, 2mm(1/16") Hex Head, ASTM A325, Galv. ASTM A153	8	
2b	Lock Washer	12.7mm(1/2"), ANSI B16-21-1, Galv. ASTM A153	8	
2c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. D1, Galv. ASTM A153	8	
3a	Special Bolt	15.8mm(5/8")-11UNC, ASTM A448, Galv. ASTM A153/BS555	4	
3b	Coupling	15.8mm(5/8")-11UNC, LP, AMS 6378D, Galv. ASTM A153, Polyester Coat	4	
3c	Shim	15.8mm(5/8") Homotex, 14 Gauge, Galv. Steel Sheet	2	
3d	Shim	15.8mm(5/8") Homotex, 15 Gauge, Galv. Steel Sheet	2	
4a	Hinge Plate	Type A, AISI 4130 Steel, Galv. ASTM A123	4	
5a	Bolt	12.7mm(1/2")-13UNC, 2mm(1/16") Hex Head, ASTM A325, Galv. ASTM A153	8	
5b	Lock Washer	12.7mm(1/2"), ANSI B16-21-1, Galv. ASTM A153	8	
5c	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. D1, Galv. ASTM A153	8	
6a	Anchor	15.8mm(5/8")-11UNC, 304 S.S. Female, AISI 1045 Rod, AISI 1058 Col	4	



GENERAL NOTES:

- Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
- Break-Safe Model A16 is designed to fit W150x14 (H6x9) wide-flange steel I-beam signposts.
- All hardware items are American Standard sizes, galvanized in accordance with ASTM A153 (not dipped) or ASTM B695 (mechanically applied).
- Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
- Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
- No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
- Refer to other side of page for complete installation instructions.

W6 X 9

Break-Safe Model A16

Breakaway Support System for Sign Posts

Scale: Not To Scale Date: July 2000

Drawing No. BS-A16-1 Sheet: 1 of 2

Patent Nos. 4,528,785 and 5,596,845

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

- Fabricate a flat, rigid template with four (4) 16mm (5/8") diameter holes located to match the specified anchor pattern of the Break-Safe brackets attached to the signpost. See diagram below.
- Attach four (4) Transpo Type A Female Anchors to the template using four (4) 16mm (5/8") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
- Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
- Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY:

- Butt upper and lower post sections together on a flat surface.
- Drill eight (8) 14.3mm (9/16") holes in the flanges of the post sections as shown.
- Place Hinge Plates on outer surface of the post flanges and secure with bolts, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

- Drill eight (8) 14.3mm (9/16") diameter holes in the flange of the lower post section as shown.
- Place Brackets equally on outer surface of the post flanges, and secure with bolts, lock washers, and nuts. Then, tighten all 1/2 turn beyond snug.

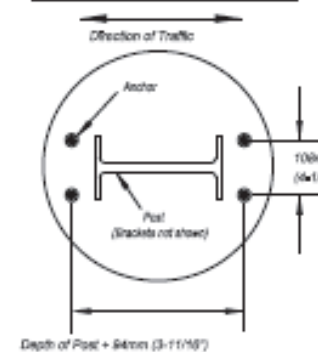
COUPLING ASSEMBLY:

- Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
- Suspend post assembly over foundation. Insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
- If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
- Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be sealed airtight.
- Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

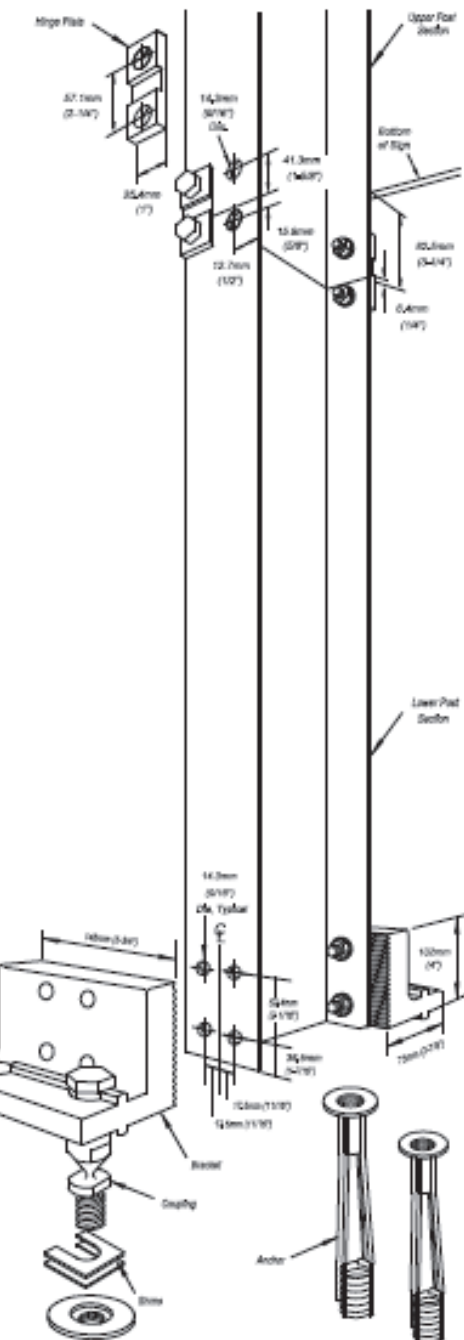
SIGN PANEL ASSEMBLY:

- After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.

PLAN VIEW OF TYPICAL FOUNDATION



Patent Nos. 4,528,785 and 5,596,845



W6 X 9

Break-Safe Model A16

Breakaway Support System for Sign Posts

Scale: Not To Scale Date: July 2000

Drawing No. BS-A16-2 Sheet: 2 of 2

FILE NAME :	USER NAME : elsonnw	DESIGNED : -	REVISED : -
		DRAWN : -	REVISED : -
	PLOT SCALE : 109.8946 " / in.	CHECKED : -	REVISED : -
	PLOT DATE : 5/19/2022	DATE : -	REVISED : -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAKAWAY COUPLING DEVICES

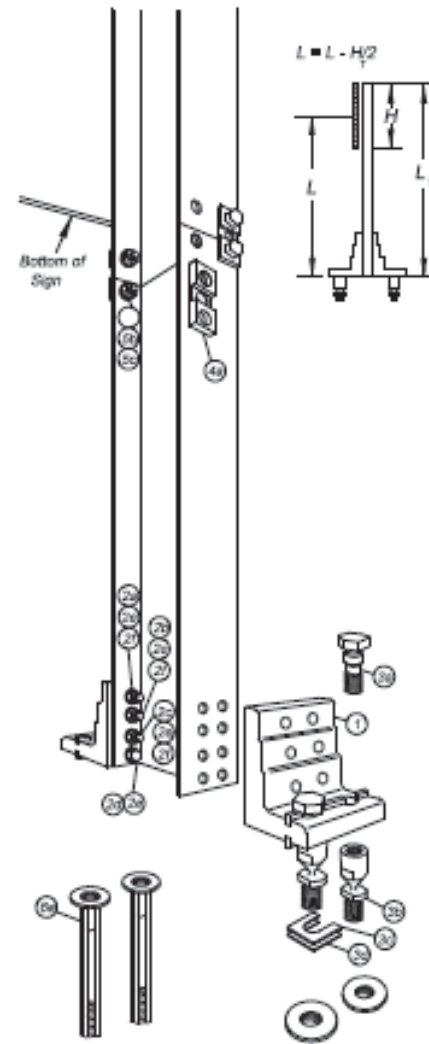
SCALE: SHEET NO. 1 OF 1 SHEET STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1-70	D7 SIGN MAINTENANCE 25-24	VARIOUS	11	9
CONTRACT NO. 46657				
ILLINOIS FED. AID PROJECT				

REVISD SHEET 4-10-2025

PARTS LIST

ITEM	DESCRIPTION	SIZES/SPECIFICATIONS	QTY/ POST	PART NUMBER
2a	Bolt	12.7mm(1/2")-13UNCx5.5mm(2-1/2"), Hex Head, ASTM A325, Galv, ASTM A153	4	
2b	Bolt	12.7mm(1/2")-13UNCx6.8mm(2-3/4"), Hex Head, ASTM A325, Galv, ASTM A153	4	
2c	Bolt	12.7mm(1/2")-13UNCx6.2mm(2"), Hex Head, ASTM A325, Galv, ASTM A153	4	
2d	Cap Screw	12.7mm(1/2")-13UNCx4.7mm(1-5/8"), Hex Head, ASTM A325, Galv, ASTM A153	4	
2e	Lock Washer	12.7mm(1/2"), ANSI B18-21-1, Galv, ASTM A153	16	
2f	Nut	12.7mm(1/2")-13UNC, Heavy Hex, ASTM A563 Gr. 5H, Galv, ASTM A153	12	
3a	Special Bolt	25.4mm(1")-6UNC, ASTM A499, Galv, ASTM A153/59005	4	
3b	Coupling	25.4mm(1")-6UNC, LP, AMS 6278D, Galv, ASTM A153, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv, Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 10 Gauge, Galv, Steel Sheet	2	
4a	Hinge Plate	Type B525, AISI 4130 Steel, Galv, ASTM A153	4	
5a	Bolt	19.0mm(3/4")-10UNCx5.7mm(2-1/4"), Hex Head, ASTM A325, Galv, ASTM A153	8	
5b	Lock Washer	19.0mm(3/4"), ANSI B18-21-1, Galv, ASTM A153	8	
5c	Nut	19.0mm(3/4")-10UNC, Heavy Hex, ASTM A563 Gr. 5H, Galv, ASTM A153	8	
6a	Anchor	25.4mm(1")-6UNC, 334 S.S. Female, AISI 1038 Rod, AISI 1020 Co.	4	



$$L = L - H/2$$

BRACKET SELECTION TABLE

Select correct Break-Safe bracket number from table, using 'L' value from the longest post. Use figure to the left to determine 'L'.

POST SIZE	BRACKET No. 1		BRACKET No. 2		BRACKET No. 3	
	Min. 'L'	Max. 'L'	Min. 'L'	Max. 'L'	Min. 'L'	Max. 'L'
152mm (6")	3.8m (12')	8.8m (29')	2.7m (9')	3.6m (12')	0	2.7m (9')
203mm (8")	4.3m (14')	8.8m (29')	3.0m (10')	4.3m (14')	0	3.0m (10')

GENERAL NOTES:

- Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
- Break-Safe Model B525 is designed to fit 152mm (6") and 203mm (8") Wide Flange I-Beams, and 127mm (5") and 152mm (6") Square Tube signposts.
- Select proper Bracket Number by referring to Bracket Selection Table.
- All hardware items are American Standard steel, galvanized in accordance with ASTM A153 (hot dipped) or ASTM B565 (mechanically applied).
- Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
- Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
- No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
- Refer to other side of page for complete installation instructions.

W6 & W8

Break-Safe Model B525

Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: July 2000

Drawing No. BS-B525-1, -2, -3

Sheet: 1 of 2

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

- Determine proper Break-Safe Bracket Number from the Bracket Selection Table. All posts within a sign structure shall use the same Bracket Number, determined by the length of the longest post.
- Fabricate a flat, rigid template with four (4) 25mm (1") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
- Attach four (4) Transpo Type B Female Anchors to the template using four (4) 25mm (1") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
- Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the tops of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
- Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY:

- Butt upper and lower post sections together on a flat surface.
- Drill eight (8) 20.0mm (3/4") holes in the flanges of the post sections as shown.
- Place Hinge Plates on outer surface of the post flanges and secure with bolts, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

- Drill sixteen (16) 14.3mm (9/16") diameter holes in the flanges of the lower post section as shown.
- Place Brackets squarely on outer surface of the post flanges, and secure with bolts, lock washers, nuts, and cap screws. Then, tighten all 1/2 turn beyond snug.

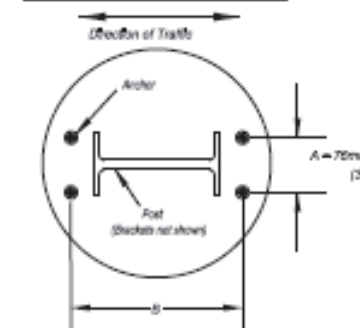
COUPLING ASSEMBLY:

- Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
- Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
- If post is not plumb, insert Shims (14g and/or 10g) between the Couplings and Anchors, where needed.
- Use lower wrench flange to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
- Tighten Special Bolts while holding Couplings by the upper wrench flange with an additional wrench to prevent an induced torque stress across the necked portion of the Coupling. All Special Bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

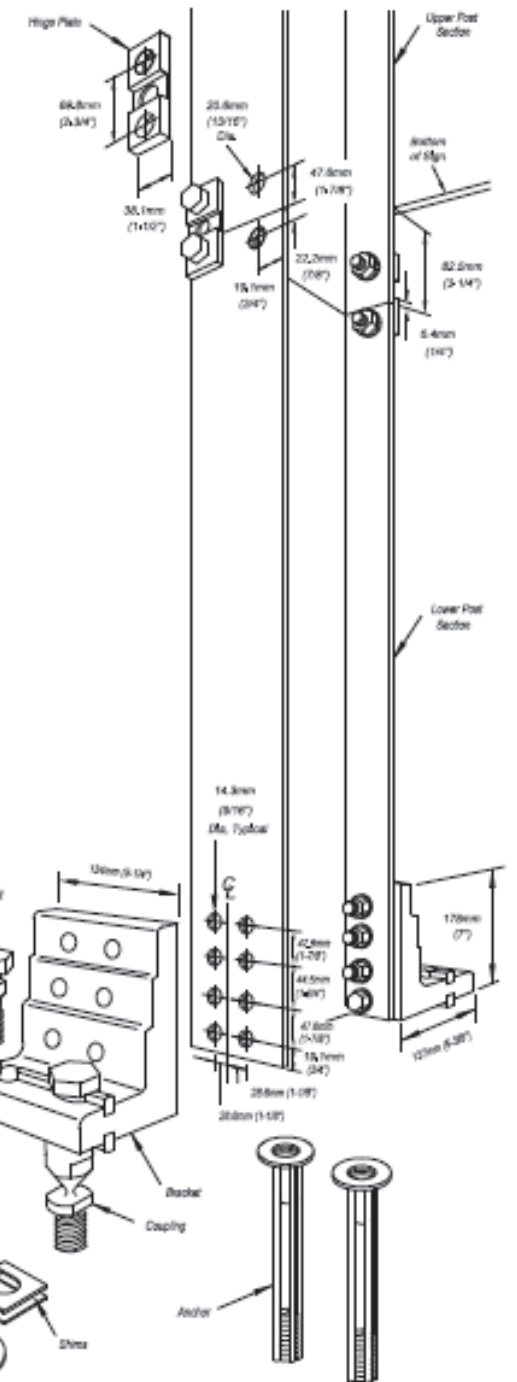
- After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.

PLAN VIEW OF TYPICAL FOUNDATION



- B (Bracket No. 1) = Depth of Post = 203mm (8-1/8")
 B (Bracket No. 2) = Depth of Post = 203mm (8-1/8")
 B (Bracket No. 3) = Depth of Post = 203mm (8-1/8")

Patent Nos. 4,528,796 and 5,595,845



W6 & W8

Break-Safe Model B525

Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: July 2000

Drawing No. BS-B525-1, -2, -3

Sheet: 2 of 2

FILE NAME =

USER NAME = alsonnu

DESIGNED -

DRAWN -

CHECKED -

DATE -

REVISED -

REVISED -

REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAKAWAY COUPLING DEVICES

SCALE:

SHEET NO. 1 OF 1 SHEET

STA.

TO STA.

F.A.
RTE.

SECTION

COUNTY

TOTAL
SHEETSSHEET
NO.

I-76

D7 SIGN MAINTENANCE 25-14

VARIOUS

11

10

CONTRACT NO. 46657

ILLINOIS FED. AID PROJECT

REVISED SHEET 4-10-2025

PARTS LIST

ITEM	DESCRIPTION	SIZE/SPECIFICATIONS	QTY/ POST	PART NUMBER
2a	Bolt	15.0mm(5/8") UNC x 3.0mm(1/8") Hex Head, ASTM A325, Galv, ASTM A193	4	
2b	Bolt	15.0mm(5/8") UNC x 3.0mm(1/8") Hex Head, ASTM A325, Galv, ASTM A193	4	
2c	Bolt	15.0mm(5/8") UNC x 3.0mm(1/8") Hex Head, ASTM A325, Galv, ASTM A193	4	
2d	Cap Screw	15.0mm(5/8") UNC x 3.0mm(1/8") Hex Head, ASTM A325, Galv, ASTM A193	4	
2e	Lock Washer	15.0mm(5/8") ANSI B16-21-1, Galv, ASTM A193	16	
2f	Nut	15.0mm(5/8") UNC, Heavy Hex, ASTM A563 Gr. D1, Galv, ASTM A193	12	
3a	Special Bolt	25.4mm(1") UNC, ASTM A449, Galv, ASTM A193/B655	4	
3b	Coupling	25.4mm(1") UNC, L/R, AMS 82760, Galv, ASTM A193, Polyester Coat	4	
3c	Shim	25.4mm(1") Horseshoe, 14 Gauge, Galv, Steel Sheet	2	
3d	Shim	25.4mm(1") Horseshoe, 18 Gauge, Galv, Steel Sheet	2	
4a	Hinge Plate	Type D350, A193 A193 Steel, Galv, ASTM A122	4	
5a	Bolt	15.0mm(5/8") UNC x 3.0mm(1/8") Hex Head, ASTM A325, Galv, ASTM A193	8	
5b	Lock Washer	15.0mm(5/8") ANSI B16-21-1, Galv, ASTM A193	8	
5c	Nut	15.0mm(5/8") UNC, Heavy Hex, ASTM A563 Gr. D1, Galv, ASTM A193	8	
6a	Anchor	25.4mm(1") UNC, 304 S.S. Female, AISI 304 Std, AISI 1028 Std	4	

BRACKET SELECTION TABLE

Select correct Break-Safe bracket number from table, using 'L' value from the longest post. Use figure to the left to determine 'L'.

WIDE FLANGE I-BEAM POST SIZE	BRACKET No. 1		BRACKET No. 2		BRACKET No. 3	
	Min. 'L'	Max. 'L'	Min. 'L'	Max. 'L'	Min. 'L'	Max. 'L'
250mm(10")	4.9m(16')	5.8m(19')	3.3m(11')	4.9m(16')	0	3.3m(11')
315mm(12")	5.8m(19')	6.8m(22')	4.3m(14')	5.8m(19')	0	4.3m(14')
380mm(14")	5.8m(19')	6.8m(22')	4.3m(14')	5.8m(19')	0	4.3m(14')
410mm(16")	6.4m(21')	6.8m(22')	4.3m(14')	6.4m(21')	0	4.3m(14')
480mm(18")	7.0m(23')	6.8m(22')	4.3m(14')	7.0m(23')	0	4.3m(14')
530mm(21")	7.6m(25')	6.8m(22')	5.5m(18')	7.6m(25')	0	5.5m(18')

GENERAL NOTES:

- Break-Safe meets all requirements of "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals."
- Break-Safe Model B650 is designed to fit 250mm (10") through 530mm (21") Wide Flange I-Beam, and 170mm (7") and 333mm (13") Square Tube signposts.
- Select proper Bracket Number by referring to Bracket Selection Table.
- All hardware items are American Standard sizes, galvanized in accordance with ASTM A193 (hot dipped) or ASTM B655 (mechanically applied).
- Fasteners, except for special bolt and coupling, are installed with lockwashers, and do not have specific torque requirements. Fasteners should be secured as tight as possible with conventional wrenches, unless noted otherwise.
- Square-up and level individual components, particularly Anchors to minimize the need for shimming between the Couplings and Anchors.
- No more than two shims shall be placed under any one coupling. No more than three shims underneath any pair of couplings.
- Refer to other side of page for complete Installation Instructions.

W10 through W21

Break-Safe Model B650

Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: July 2000

Drawing No. BS-B650-1, -2, -3

Sheet: 1 of 2

INSTALLATION INSTRUCTIONS

ANCHOR ASSEMBLY:

Note: Precise positioning of the anchors is critical to proper assembly of the system. It is recommended that actual posts be used to locate the correct position of the anchors.

- Determine proper Break-Safe Bracket Number from the Bracket Selection Table. All posts within a sign structure shall use the same Bracket Number, determined by the length of the longest post.
- Fabricate a flat, rigid template with four (4) 25mm (1") diameter holes located to match the specified anchor pattern of the Break-Safe Brackets attached to the signpost. See diagram below.
- Attach four (4) Tronapo Type B Female Anchors to the template using four (4) 25mm (1") diameter bolts. Ensure that each Anchor Washer is snug against the bottom of the template.
- Lower Anchor Assembly into fresh concrete foundation, and vibrate into position such that the top of the Anchor Washers are flush with the finished top surface of the foundation. Support the template such that all Anchors are level and in their proper locations.
- Allow concrete to cure, and then remove the bolts and template from the top of the foundation.

HINGE ASSEMBLY:

- Butt upper and lower post sections together on a flat surface.
- Drill eight (8) 20.0mm (3/4") holes in the flanges of the post sections as shown.
- Place Hinge Plates on outer surface of the post flanges and secure with bolts, lock washers, and nuts. Ensure that upper and lower post sections are in alignment, and then tighten all nuts 1/2 turn beyond snug.

BRACKET ASSEMBLY:

- Drill sixteen (16) 17.5mm (11/16") diameter holes in the flanges of the lower post section as shown.
- Place Brackets squarely on outer surface of the post flanges, and secure with bolts, lock washers, nuts, and cap screws. Then, tighten all 1/2 turn beyond snug.

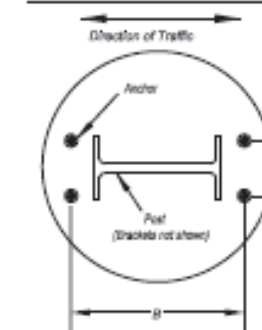
COUPLING ASSEMBLY:

- Thread four (4) Break-Safe Couplings into Anchors. Do not tighten.
- Suspend post assembly over foundation, insert Special Bolts through holes in the Brackets, and thread them snug into the Couplings.
- If post is not plumb, insert Shims (14g and/or 18g) between the Couplings and Anchors, where needed.
- Use lower wrench flats to tighten Couplings into Anchors as tight as possible using a conventional wrench. Do not use a pipe wrench. Couplings must be seated squarely.
- Tighten Special Bolts while holding Couplings by the upper wrench flats with an additional wrench to prevent an induced torque stress across the necked portion of the Couplings. All Special bolts shall also be tightened as tight as possible using conventional wrenches.

SIGN PANEL ASSEMBLY:

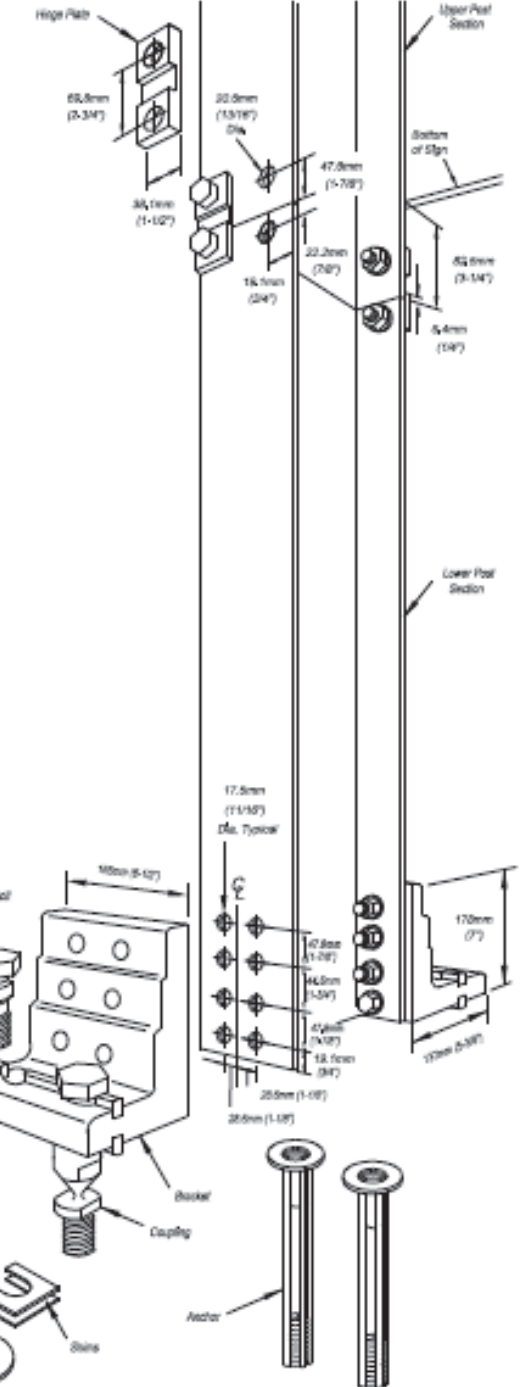
- After all signposts are secured in place, attach sign panel assembly to posts in accordance with the sign manufacturer's recommendations.

PLAN VIEW OF TYPICAL FOUNDATION



- B (Bracket No. 1) = Depth of Post = 252mm (7-15/16")
 B (Bracket No. 2) = Depth of Post = 252mm (9-11/16")
 B (Bracket No. 3) = Depth of Post = 257mm (9-15/16")

Patent Nos. 4,526,796 and 5,596,845



W10 through W21

Break-Safe Model B650

Breakaway Support System for Sign Posts

Scale: Not To Scale

Date: October 2004

Drawing No. BS-B650-1, -2, -3

Sheet: 2 of 2

FILE NAME :

USER NAME : ojaonnu

DESIGNED : -

REVISED : -

PLOT SCALE : 1/8" = 1'-0"

DRAWN : -

REVISED : -

PLOT DATE : 5/19/2022

CHECKED : -

REVISED : -

DATE : -

REVISED : -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BREAKAWAY COUPLING DEVICES

SCALE:

SHEET NO. 1 OF 1 SHEET

STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
I-70	D7 SIGN MAINTENANCE 25-14	VARIOUS	11	11
CONTRACT NO. 46657				
ILLINOIS FED. AID PROJECT				

REVISD SHEET 4-10-2025