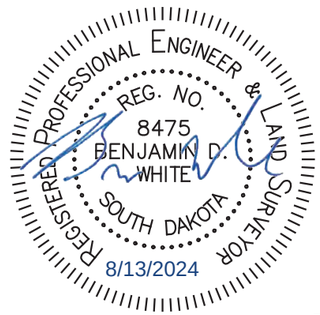
SECTION S: PERMANENT SIGNING PLANS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S1	S34

Plotting Date: 8/13/2024

INDEX OF SHEETS



HRGreen

Plot Scale - 1:200

Plotted From - bryce.steffen

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SECTION S – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E0130	Remove Traffic Sign	14	Each
110E0135	Remove Delineator	180	Each
110E0140	Remove Extruded Panel Sign	6	Each
632E0014	1.75' Diameter Breakaway Support Concrete Footing	56.0	Ft
632E1235	W6x20 Steel Post	128.4	Ft
632E1340	2.5"x2.5" Perforated Tube Post	230.7	Ft
632E2000	4"x4" Amber Delineator with 1.12 Lb/Ft Post	8	Each
632E2004	4"x8" Amber Delineator with 1.12 Lb/Ft Post	10	Each
632E2008	4" Tubular Amber Delineator with 1.12 Lb/Ft Post	16	Each
632E2020	4"x4" White Delineator with 1.12 Lb/Ft Post	10	Each
632E2024	4"x8" White Delineator with 1.12 Lb/Ft Post	62	Each
632E2028	4" Tubular White Delineator with 1.12 Lb/Ft Post	20	Each
632E2220	Guardrail Delineator	16	Each
632E2520	Type 2 Object Marker	21	Each
632E3113	Extruded Aluminum Sign, Nonremovable Copy High Intensity	280.0	SqFt
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	162.4	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	104.0	SqFt

GENERAL PERMANENT SIGNING

New sign installations will be staked in the field by the Contractor and checked by the Engineer. The Contractor will give the Engineer a minimum of one week to check staked locations prior to signpost installation. Lateral offset of signs will be as shown in the plans or as directed by the Engineer.

The Contractor will be responsible for contacting South Dakota One Call to locate the utilities at the staked sign installation locations.

When signs are mounted in an assembly, they will be 1-2 inches apart vertically and horizontally.

The height of the post must not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign will be cut off. No separate payment will be made for cutting the post or for that length cut off.

Aluminum U-Channel stiffeners will be used on all signs 36 inches or greater in width and will conform to ASTM B221 Alloy 6063-T6 or 6061-T6. The U-Channel will be 2 inches in width and free of holes. The U-Channel stiffeners will also be used to connect various signs together so that an entire sign assembly can be erected on a single installation. Stiffeners may be fastened to signs by use of 1/4-inch diameter drive rivets.

The Contractor will use 3/8-inch diameter rust proof machine sign bolts, flat metal washers, neoprene washers (against the sign sheeting), lock washers, and nuts to fasten the sign to the channel aluminum and posts. A minimum of two bolts will extend through each post.

Prior to ordering signs, the Contractor will verify dimensions, background, border, and legend of the signs.

Prior to use, the Contractor will provide documentation for the sign support devices showing they meet the applicable NCHRP 350 or MASH requirements.

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed in the Permanent Signing Table will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for “Remove Traffic Sign”. Quantities will be per assembly at the contract unit price per each.

NEW PERMANENT SIGNING

All signs will be manufactured in accordance with the sheeting manufacturer’s recommendations utilizing a matched component system, including inks, electronic cuttable films, and protective overlay films.

All Flat Aluminum Signs, Nonremovable Copy High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type IV. All Flat Aluminum Signs, Nonremovable Copy Super/Very High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type XI. All Extruded Aluminum Signs, Nonremovable Copy High Intensity will have sheeting in conformance with the requirements of ASTM D4956 Type IV.

All costs associated with furnishing and installing the new permanent signs, and with furnishing and installing stiffeners and hardware will be incidental to the contract unit price per square foot for “Flat Aluminum Sign, Nonremovable Copy High Intensity” or “Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity”.

DIGITALLY PRINTED SIGNS

Digitally printed signs will be allowed on this project. If the Contractor elects to provide digitally printed signs, such signs will adhere to the following specifications.

PROTECTIVE OVERLAY FILM

Permanent traffic signs printed with digital ink systems will be fabricated with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. The overlaminate will comply with the retroreflective sheeting manufacturer’s recommendations to ensure proper adhesion and transparency and will also meet the reflective film durability as identified in Table 1.

Table 1: Retroreflective Film Minimum Durability Requirements

ASTM D4956 Type	Full Sign Replacement Term (years)	Sheeting Replacement Term (years)
I	0	7
III	7	10
IV	7	10
VIII	7	10
IX	7	12
XI	7	12

FABRICATION

Retroreflective sheeting will be applied to a properly cleaned and prepared aluminum sign blank in accordance with the retroreflective sheeting manufacturer’s recommendations. Sign legend will be applied using digital print technologies and systems in accordance with the retroreflective sheeting manufacturer’s recommendations and the requirements of these plans.

Finished signs will be free of ragged edges and must be supplied clean and free of scratches, grease, oil, lubricants or other contaminants. Minor blemishes (dirt speck, dust, etc.) may settle on the fresh ink surface or become entrapped between the sheeting surface and transparent overlay film due to static charge within the sign shop environment. Any blemish must be minor and not interfere with the communication of the sign message to the motorist. The blemish must not be visible to the naked eye when viewed from 30 feet or greater.

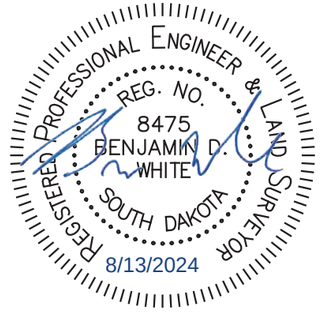
After application of the retroreflective sheeting, sign blanks will be stacked and packaged face to face, back to back, and protected in accordance with the sheeting manufacturer’s recommendations. Finished signs will be securely packaged to prevent damage during transit or storage according to the sheeting manufacturer’s recommendations.

TRAFFIC SIGN PERFORMANCE WARRANTY PROVISIONS

Based on the ASTM Type of sheeting specified, traffic control signs will be warranted for the duration shown in Table 1. Full product terms and conditions are as established by each sheeting manufacturer and may contain certain limitations based on sheeting and ink colors, and geographic exposure of the sign. A copy of the warranty document with complete details of terms and conditions will be supplied if requested by the Engineer.

CERTIFIED DIGITAL SIGN FABRICATOR

Sign fabricators using digital imaging methods to produce regulated traffic signs must be certified by the reflective sheeting manufacturer whose materials are used to produce the delivered signs.



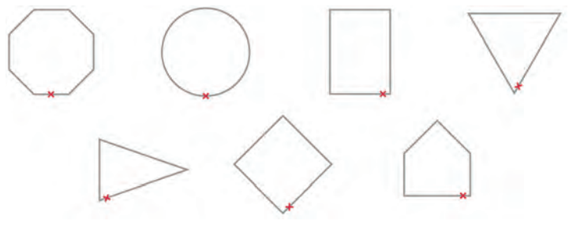
DIGITALLY PRINTED SIGNS (CONTINUED)

DATE TAGGING SIGNS WITH PERTINENT INFORMATION

All digitally printed signs are required to be date-tagged with the following 2 components:

1. Date tags on the back of signs
   Tags will have the following information and be fabricated with material and printing system that are as durable as the warranted sign.
   - Name of Sign Fabricator
   - Date the sign was fabricated (month and year)
   - Process that was used for sign fabrication (digitally printed)
   - Supplier of sheeting that was used for fabricating the sign.
2. Border date

The month and year (mm/yyyy) of sign fabrication will be printed in the border of the sign in 3/8" sans serif font. Border date will be printed with the same warranted printed system as the sign face. The date should be printed in the locations indicated below.



SQUARE TUBE POST SLEEVE

All 2.5" x 2.5", 12 Gauge perforated tube post will be sleeved with a 2-1/4" x 2-1/4" x 4', 12 Gauge perforated tube post.

WINGED SLIP BASE ANCHOR

The Contractor will furnish and install new winged slip base anchors for 2.5" x 2.5" perforated tube posts as required in the Permanent Signing Table. Winged slip base anchors will be installed using the direct drive method. Winged slip base anchors will consist of a slip base (upper), a 48-inch long winged anchor (lower), and a hardware kit.

LOGO SIGNS

The Contractor will remove and reset the existing logos to match the existing signs.

All costs associated with removing and resetting existing logos will be incidental to the contract unit price per square foot for "Extruded Aluminum Sign, Nonremovable Copy High Intensity".

SIGNPOST INSTALLATION IN CONCRETE

On concrete surfaces, a core will be drilled out (for installation in existing concrete) OR a block out will be used (for installation in new concrete) for sign installation. The core or block out diameter will be sized accordingly depending on post size. Concrete surrounding the core or block out must not be cracked or damaged.

All costs associated with installation in concrete will be incidental to the sign installation.

REMOVE CONCRETE FOOTING

Concrete footings that are to be removed will be removed by the Contractor to a minimum of 2' below the ground surface. Restoration of the disturbed area will be to the satisfaction of the Engineer.

The existing footings located at Exit 387 will be removed by the Contractor as per these plans.

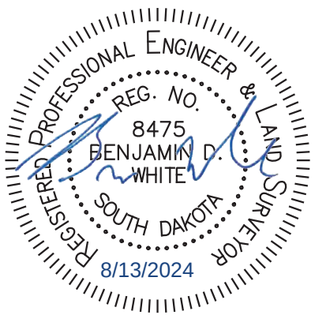
All costs for removing the concrete footings will be incidental to the contract lump sum price for "Remove Concrete Footing(s)".

CONCRETE FOOTING

New concrete footings will be installed a minimum of 10 ft from old footings greater than 4 ft in depth that have been completely removed, or 5 ft from old footings 4 ft or less in depth that have been completely removed or have been broken down approximately 1 ft below ground level. The Contractor may adjust new footing locations to comply with the indicated minimum distances if lateral plan offset is maintained, with the approval of the Engineer.
Extreme care should be used to make certain that the footings are constructed in accordance with the plan sheets, and the finished ground line at all footings are per the details shown on the plan sheets.

Extreme care should be used to make certain that the footings are constructed in accordance with the plans sheets, and the finished ground line at all footings are per the details shown on the plan sheets.

Disturbed areas outside the grading project limits will be seeded to the satisfaction of the Engineer. The cost of seeding outside the grading project limits will be incidental to the contract unit price per foot for the various Concrete Footing items.



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S4	S34

FOR BIDDING PURPOSES ONLY

TWO POST BREAKAWAY SIGN SUPPORT TABLE

SIGN NUMBER	SIGN DESCRIPTION	SITE LOCATION	POST SIZE	FOOTING DIMENSIONS		STUB POST LENGTH	LONGITUDINAL STEEL		SPRIAL STEEL	
				DIA.	DEPTH		QTY - SIZE	LENGTH	DIA.	LENGTH
RA – 103	GAS/FOOD LOGO	Exit 387 Ramp A	W6X20	1’ – 9”	7’ – 0”	2’ – 3”	8 - #6 Bars	6’ – 8”	1’ – 5”	42’ – 3”
RA – 104	LODGING ATTRACTION LOGO	Exit 387 Ramp A	W6X20	1’ – 9”	7’ – 0”	2’ – 3”	8 - #6 Bars	6’ – 8”	1’ – 5”	42’ – 3”
RC – 211	LODGING ATTRACTION LOGO	Exit 387 Ramp C	W6X20	1’ – 9”	7’ – 0”	2’ – 3”	8 - #6 Bars	6’ – 8”	1’ – 5”	42’ – 3”
RC – 212	GAS/FOOD LOGO	Exit 387 Ramp C	W6X20	1’ – 9”	7’ – 0”	2’ – 3”	8 - #6 Bars	6’ – 8”	1’ – 5”	42’ – 3”

OBJECT MARKER TABLES

Type 2 Object Markers at culvert, cattle pass end, or multiple pipes
With outside dimension or a combined width of less than 60”:

OBJECT MARKERS AT PIPE			
632E2520 Single Sided		**632E2520 Single Sided**	
Station	**QUANTITY**	**Station**	**QUANTITY**
Western		***Ramp A***	
4+88 R	1	10+03 R	1
5+88 L	1	10+10 L	1
12+29 R	1	***Ramp B***	
13+66 R	1	8+13 L	1
13+67 L	1	13+81 R	1
20+73 R	1	***Ramp D***	
20+75 L	1	31+01 R	1
26+66 L	1	32+06 L	1
26+70 L	1	***Frontage Road***	
		8+58 L	1
		8+58 R	1
		TOTAL	**17**

REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
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SOUTH DAKOTA
8/13/2024

DELINEATION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S5	S34

Exit 387 Station to Station	Spacing	Quantity (Each)							
		4" x 4"		4" x 8"		4" Tubular		Type 2	4" x 6" Guardrail
		White	Amber	White	Amber	White	Amber	Amber	White
		632E2020	632E2000	632E2024	632E2004	632E2028	632E2008	632E2520	632E2220
Western									
2+00 L to 15+77 L	528'	3							
2+00 R to 15+77 R	528'	3							
18+73 L to 28+85 L	528'	2							
18+73 R to 28+85 R	528'	2							
Western Guardrail									
14+01 R to 15+98 R									4
14+76 L to 15+98 L									4
18+52 R to 19+74 R									4
18+52 L to 20+48 L									4
Ramp A									
0+00 L to 1+05 L	15'					5			
0+50 R to 1+13 R	15'						4		
1+05 L to 13+35 L	100'			13					
12+11 R to 13+35 R	25'			5	5				
Gore								1	
Ramp B									
0+00 R to 1+00 R	15'					5			
0+50 L to 1+15 L	15'						4		
1+00 R to 13+91 R	100'			13					
9+90 L to 13+91 L	100'		4						
Gore								1	
Ramp C									
13+88 L to 15+13 L	25'			5	5				
13+88 R to 26+26 R	100'			13					
26+26 L to 26+90 L	15'						4		
26+26 R to 27+05 R	15'					5			
Gore								1	
Ramp D									
19+08 L to 31+94 L	100'			13					
19+08 R to 23+08 R	100'		4						
31+73 R to 32+38 R	15'						4		
31+94 L to 32+93 L	15'					5			
Gore	16							1	
Totals		10	8	62	10	20	16	4	16

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FOR BIDDING PURPOSES ONLY

State of South Dakota	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S6	S34

SIGN REMOVAL TABLE

Station & Offset	SIGNS: DESCRIPTION	SIGNS: Size (in)	SIGNS: REMOVAL FA 110E0130	SIGNS: REMOVAL RD 110E0135	SIGNS: REMOVAL EA 110E0140	POSTS: TYPE	POSTS: FIXED*	POSTS: BREAKAWAY*	REMOVE CONC FOOTING 110E0100	Remarks
RAMP A			Each	Each	Each		Each	Each	LS	
0+46 - 60' L	ONE WAY / ONE WAY / STOP / DO NOT ENTER	36 x 12 36 x 12 36 x 36 36 x 36	1			SQUARE STEEL		1	1	Remove
0+70 - 32' R	ONE WAY / ONE WAY / STOP / DO NOT ENTER	36 x 12 36 x 12 36 x 36 36 x 36	1			SQUARE STEEL		1	1	Remove
3+68 - 48' L	GAS FOOD 0.1 1.7 1.6 0.1 1.1	120 x 84			1	I-BEAM		2	2	Remove
5+18 - 42' L	LODGING ATTRACTION 0.1	120 x 84			1	WOOD		2		Remove
6+68 - 39' L	Hartford 1	84 x 24			1	I-BEAM		2	2	Remove
6+70 - 14' R	WRONG WAY	48 x 36	1			PIPE		1	1	Remove
SUBTOTALS			3		3			9	7	

Station & Offset	SIGNS: DESCRIPTION	SIGNS: Size (in)	SIGNS: REMOVAL FA 110E0130	SIGNS: REMOVAL RD 110E0135	SIGNS: REMOVAL EA 110E0140	POSTS: TYPE	POSTS: FIXED*	POSTS: BREAKAWAY*	REMOVE CONC FOOTING 110E0100	Remarks
RAMP C			Each	Each	Each		Each	Each	LS	
20+70 - 16' L	WRONG WAY	48 x 36	1			PIPE		1	1	Remove
20+70 - 41' R	Hartford 1	84 x 24			1	I-BEAM		2	2	Remove
22+20 - 40' R	LODGING ATTRACTION 0.3	120 x 84			1	WOOD		2		Remove
23+70 - 40' R	GAS FOOD 0.3 1.7 1.7 0.3 1.1	120 x 84			1	I-BEAM		2	2	Remove
26+72 - 35' L	ONE WAY / ONE WAY / STOP / DO NOT ENTER	36 x 12 36 x 12 36 x 36 36 x 36	1			WOOD		1		Remove
27+06 - 60' R	ONE WAY / ONE WAY / STOP / DO NOT ENTER	36 x 12 36 x 12 36 x 36 36 x 36	1			SQUARE STEEL		1	1	Remove
SUBTOTALS			3		3			9	6	

Station & Offset	SIGNS: DESCRIPTION	SIGNS: Size (in)	SIGNS: REMOVAL FA 110E0130	SIGNS: REMOVAL RD 110E0135	SIGNS: REMOVAL EA 110E0140	POSTS: TYPE	POSTS: FIXED*	POSTS: BREAKAWAY*	REMOVE CONC FOOTING 110E0100	Remarks
WESTERN			Each	Each	Each		Each	Each	LS	
5+69 - 51' L	NO PASSING ZONE	48 x 48 x 36	1			SQUARE STEEL		2	2	Remove
9+61 - 49' R	PASS WITH CARE	36 x 48	1			SQUARE STEEL		1	1	Remove
10+80 - 49' L	151	24 x 24	1			SQUARE STEEL		1	1	Remove
11+13 - 50' R	EAST INTERSTATE 90	24 x 12 24 x 24 21 x 15	1			PIPE		1	1	Remove
14+48 - 48' L	EAST INTERSTATE 90	24 x 12 24 x 24 21 x 15	1			PIPE		1	1	Remove
20+06 - 48' R	WEST INTERSTATE 90	24 x 12 24 x 24 21 x 15	1			PIPE		1	1	Remove
23+24 - 48' L	WEST INTERSTATE 90	24 x 12 24 x 24 21 x 15	1			PIPE		1	1	Remove
24+50 - 48' R	SPEED LIMIT 45	24 x 30	1			SQUARE STEEL		1	1	Remove
SUBTOTALS			8					9	9	
TOTALS THIS SHEET			14		6			27	22	
TOTALS ALL SHEET			14		6			27	22	

RD = Remove Delineator FA = Remove Flat Aluminum Signs EA = Remove Extruded Aluminum Panel Signs

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8/13/2024

TABLE 1 OF 1

State of South Dakota	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S7	S34

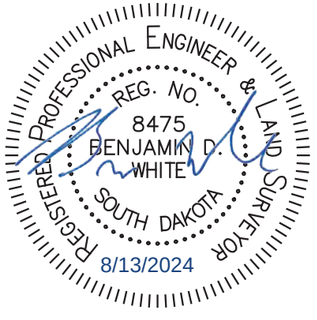
FOR BIDDING PURPOSES ONLY

SIGN INSTALLATION TABLE

SIGN DATA									POST DATA																	FOOTING DATA								
						SIGN AREA (SqFt)			POST LENGTHS (ABOVE GROUND)		FIXED OR BREAK-AWAY**	(N)EW OR (R)EUSE POST		POST SIZES AND QUANTITIES (FT)													FOOTING DIAMETER AND QUANTITIES (FT)								
SIGN #	STATION	OFFSET* RIGHT/LEFT	DESCRIPTION	SIGN CODE	SIGN SIZE (in)	EA	FA	DG						E1-5 S3X5.7	W6X12	W6X15	W6X20	W8X18	W8X21	W8X31						2" SQ. STEEL	2 1/2" SQ STEEL	BREAKAWAY				FIXED				FOOTING LENGTH(S)
																												1'-3"		1'-9"		2'-3"	2'-6"			
WESTERN						632E3103	632E3203	632E3205	INSIDE	OUTSIDE		IN	OUT	632E1210	632E1225	632E1230	632E1235	632E1240	632E1245	632E1260						632E1320	632E1340	632E0010		632E0014		632E0058	632E0060			
W - 316	10+90	1.33' L		M1-6	24 x 24		4.0		9'-00"		A	N															9.0								
W - 317	11+13	1.33' R		M3-4	24 x 12		2.0		11'-06"		S	N															11.5								
				M3-2	24 x 12		2.0																												
				M1-1	24 x 24		8.0																												
				M6-3	21 x 15		2.2																												
				M6-1	21 x 15		2.2																												
W - 318	14+48	1.33' L		M3-2	24 x 12		2.0		11'-06"		S	N															11.5								
				M1-1	24 x 24		4.0																												
				M6-1	21 x 15		2.2																												
W - 319	20+06	1.33' R		M3-4	24 x 12		2.0		11'-06"		S	N															11.5								
				M1-1	24 x 24		4.0																												
				M6-1	21 x 15		2.2																												
W - 320	23+24	1.33' L		M3-2	24 x 12		2.0		11'-06"		S	N															11.5								
				M3-4	24 x 12		2.0																												
				M1-1	24 x 24		8.0																												
				M6-3	21 x 15		2.2																												
				M6-1	21 x 15		2.2																												
W - 321	24+50	1.33' R		R2-1	24 x 30		5.0		9'-06"		A	N															9.5								
TOTALS THIS SHEET						0.0	58.2	0.0						0.0	0.0	0.0	0.0	0.0	0.0	0.0						0.0	64.5							

* - Distance from White or Yellow Edgeline, or Back of Curb, to Edge of Sign
*** - Determined by Contractor
EA = Extruded Aluminum Panel Signs w/Non-Removable Copy
DG = Flat Aluminum Signs w/Nonremovable Copy - Fluorescent Very High Intensity Sheeting
** - (F)ixed Base, or Breakaway (S)lip Base, (A)nchor Stub Post, (M)ulti-directional Surface Mount, (D)irect drive, or (W)ood Post
FA = Flat Aluminum Signs w/Non-Removable Copy - High Intensity Sheeting

TABLE 1 OF 3



State of South Dakota	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S8	S34

FOR BIDDING PURPOSES ONLY

SIGN INSTALLATION TABLE

SIGN DATA									POST DATA															FOOTING DATA								
						SIGN AREA (SqFt)			POST LENGTHS (ABOVE GROUND)		FIXED OR BREAK-AWAY**	(N)EW OR (R)EUSE POST		POST SIZES AND QUANTITIES (FT)													FOOTING DIAMETER AND QUANTITIES (FT)								FOOTING LENGTH(S)
																										BREAKAWAY				FIXED				
SIGN #	STATION	OFFSET* RIGHT/LEFT	DESCRIPTION	SIGN CODE	SIGN SIZE (in)	EA	FA	DG						E1-5 S3X5.7	W6X12	W6X15	W6X20	W8X18	W8X21	W8X31				2" SQ. STEEL	2 1/2" SQ STEEL	1'-3"		1'-9"		2'-3"	2'-6"			
RAMP A						632E3103	632E3203	632E3205	INSIDE	OUTSIDE		IN	OUT	632E1210	632E1225	632E1230	632E1235	632E1240	632E1245	632E1260				632E1320	632E1340	632E0010		632E0014		632E0058	632E0060			
RA - 101	0+46	14' L		R6-1L	36 x 12		3.0		12'-06"		S	N													12.5								
				R6-1R	36 x 12		3.0																										
				R1-1	36 x 36			9.0																										
				R5-1	36 x 36			9.0																										
RA - 102	0+70	1.33' R		R6-1L	36 x 12		3.0		11'-08"		S	N													11.7								
				R6-1R	36 x 12		3.0																										
				R1-1	36 x 36			9.0																										
				R5-1	36 x 36			9.0																										
RA - 103	2+20	14' L		LOGO	120 x 84	70.0			15'-06"	16'-06"	S	N	N				32.1								14.0								7'-0"
RA - 104	3+70	14' L		LOGO	120 x 84	70.0			15'-06"	16'-06"	S	N	N				32.1								14.0								7'-0"
RA - 105	5+20	14' L		D1-1	108 x 30		22.5		11'-06"	12'-06"	S	N	N												24.1								
				R5-1a	42 x 30		8.8																										
RA - 106	5+20	8' R		R5-1a	42 x 30		8.8		10'-10"	11'-10"	S	N													22.7								
RA - 107	8+20	14' L		W3-1	48 x 48			16.0	12'-06"		S	N													12.5								
TOTALS THIS SHEET						140.0	52.1	52.0						0.0	0.0	0.0	64.2	0.0	0.0	0.0				0.0	83.5			28.0				

* - Distance from White or Yellow Edgeline, or Back of Curb, to Edge of Sign

*** - Determined by Contractor

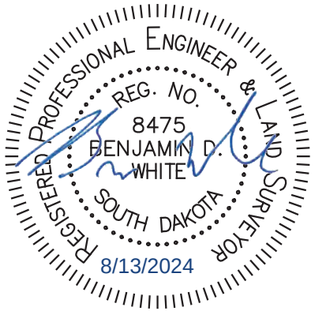
EA = Extruded Aluminum Panel Signs w/Non-Removable Copy

DG = Flat Aluminum Signs w/Nonremovable Copy - Fluorescent Very High Intensity Sheeting

** - (F)ixed Base, or Breakaway (S)lip Base, (A)nchor Stub Post, (M)ulti-directional Surface Mount, (D)irect drive, or (W)ood Post

FA = Flat Aluminum Signs w/Non-Removable Copy - High Intensity Sheeting

TABLE 2 OF 3



State of South Dakota	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S9	S34

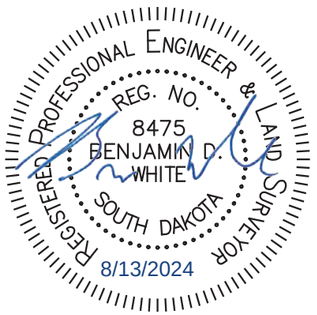
FOR BIDDING PURPOSES ONLY

SIGN INSTALLATION TABLE

SIGN DATA									POST DATA																		FOOTING DATA								
						SIGN AREA (SqFt)			POST LENGTHS (ABOVE GROUND)		FIXED OR BREAK-AWAY**	(N)EW OR (R)EUSE POST		POST SIZES AND QUANTITIES (FT)														FOOTING DIAMETER AND QUANTITIES (FT)								
SIGN #	STATION	OFFSET* RIGHT/LEFT	DESCRIPTION	SIGN CODE	SIGN SIZE (in)	EA	FA	DG	INSIDE	OUTSIDE		IN	OUT	E1-5 S3X5.7	W6X12	W6X15	W6X20	W8X18	W8X21	W8X31						2" SQ. STEEL	2 1/2" SQ STEEL	BREAKAWAY			FIXED				FOOTING LENGTH(S)
		RAMP C				632E3103	632E3203	632E3205						632E1210	632E1225	632E1230	632E1235	632E1240	632E1245	632E1260						632E1320	632E1340	1'-3"		1'-9"	2'-3"	2'-6"			
RC - 208	17+70	14' R		W3-1	48 x 48			16.0	12'-06"		S	N															12.5						632E0058	632E0060		
RC - 209	20+70	8' L		R5-1a	42 x 30		8.8		10'-10"	11'-10"	S	N															22.7								
RC - 210	20+70	14' R		D1-1	108 x 30		22.5		11'-06"	12'-06"	S	N	N														24.1								
				R5-1a	42 x30		8.8																												
RC - 211	22+20	14' R		LOGO	120 x 84	70.0			15'-06"	16'-06"	S	N	N				32.1														14.0					7'-0"
RC - 212	23+70	14' R		LOGO	120 x 84	70.0			15'-06"	16'-06"	S	N	N				32.1														14.0					7'-0"
RC - 213	26+72	1.33' L		R6-1L	36 x 12		3.0		11'-08"		S	N															11.7								
				R6-1R	36 x 12		3.0																												
				R1-1	36 x 36			9.0																												
				R5-1	36 x 36			9.0																												
RC - 214	27+06	1.33' R		R6-1L	36 x 12		3.0		11'-08"		S	N															11.7								
				R6-1R	36 x 12		3.0																												
				R1-1	36 x 36			9.0																												
				R5-1	36 x 36			9.0																												
TOTALS THIS SHEET						140.0	52.1	52.0						0.0	0.0	0.0	64.2	0.0	0.0	0.0						0.0	82.7			28.0				
TOTALS ALL SHEETS						280.0	162.4	104.0						0.0	0.0	0.0	128.4	0.0	0.0	0.0						0.0	230.7			56.0				

* - Distance from White or Yellow Edgeline, or Back of Curb, to Edge of Sign
*** - Determined by Contractor
EA = Extruded Aluminum Panel Signs w/Non-Removable Copy
DG = Flat Aluminum Signs w/Nonremovable Copy - Fluorescent Very High Intensity Sheeting
** - (F)ixed Base, or Breakaway (S)lip Base, (A)nchor Stub Post, (M)ulti-directional Surface Mount, (D)irect drive, or (W)ood Post
FA = Flat Aluminum Signs w/Non-Removable Copy - High Intensity Sheeting

TABLE 3 OF 3



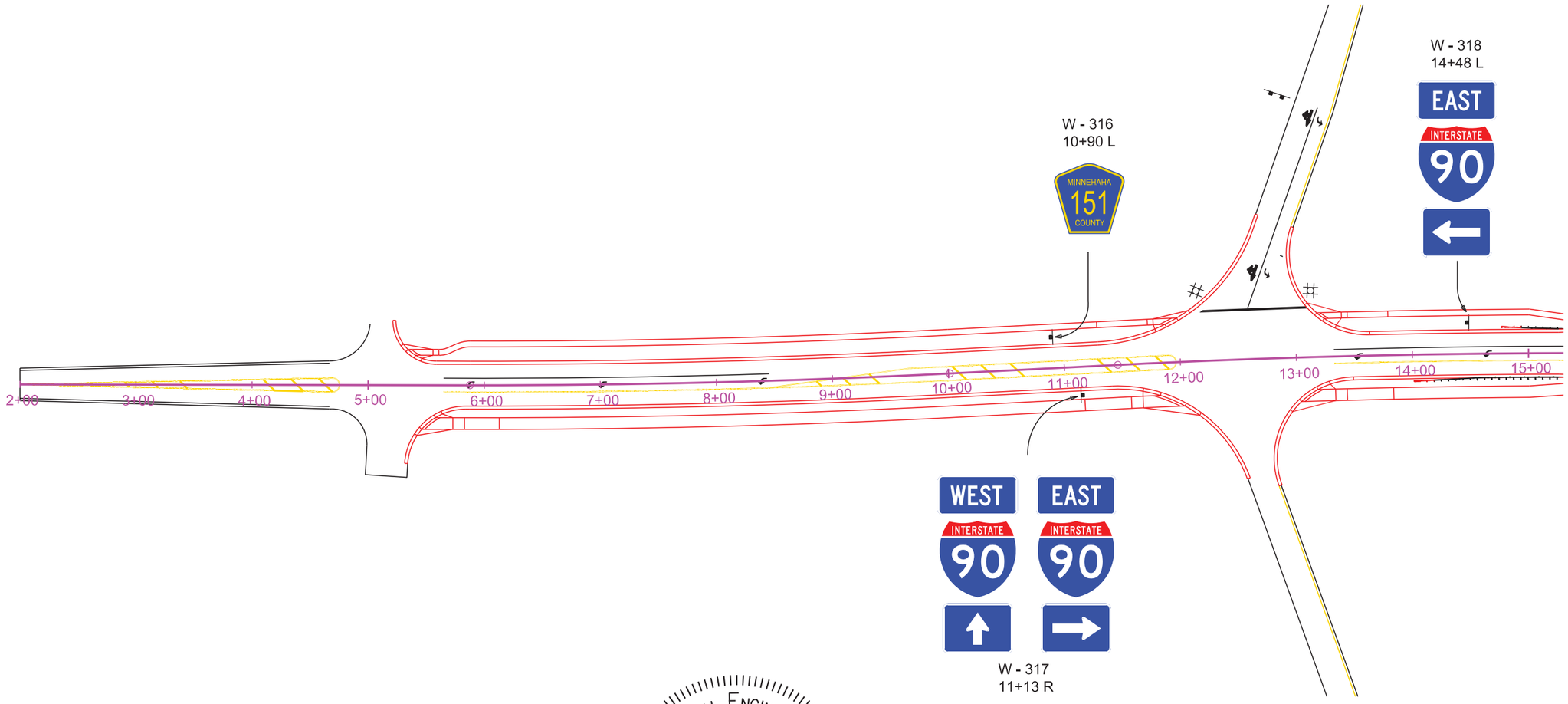
PERMANENT SIGNING

FOR BIDDING PURPOSES ONLY

WESTERN AVENUE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S10	S34

Plotting Date: 8/13/2024



PROFESSIONAL ENGINEER & LAND SURVEYOR
REG. NO. 8475
BENJAMIN D. WHITE
SOUTH DAKOTA
8/13/2024

HRGreen

Plot Scale - 1:100

Plotted From - bryce.steffen

File - ...\Design\0638_Signing.dgn

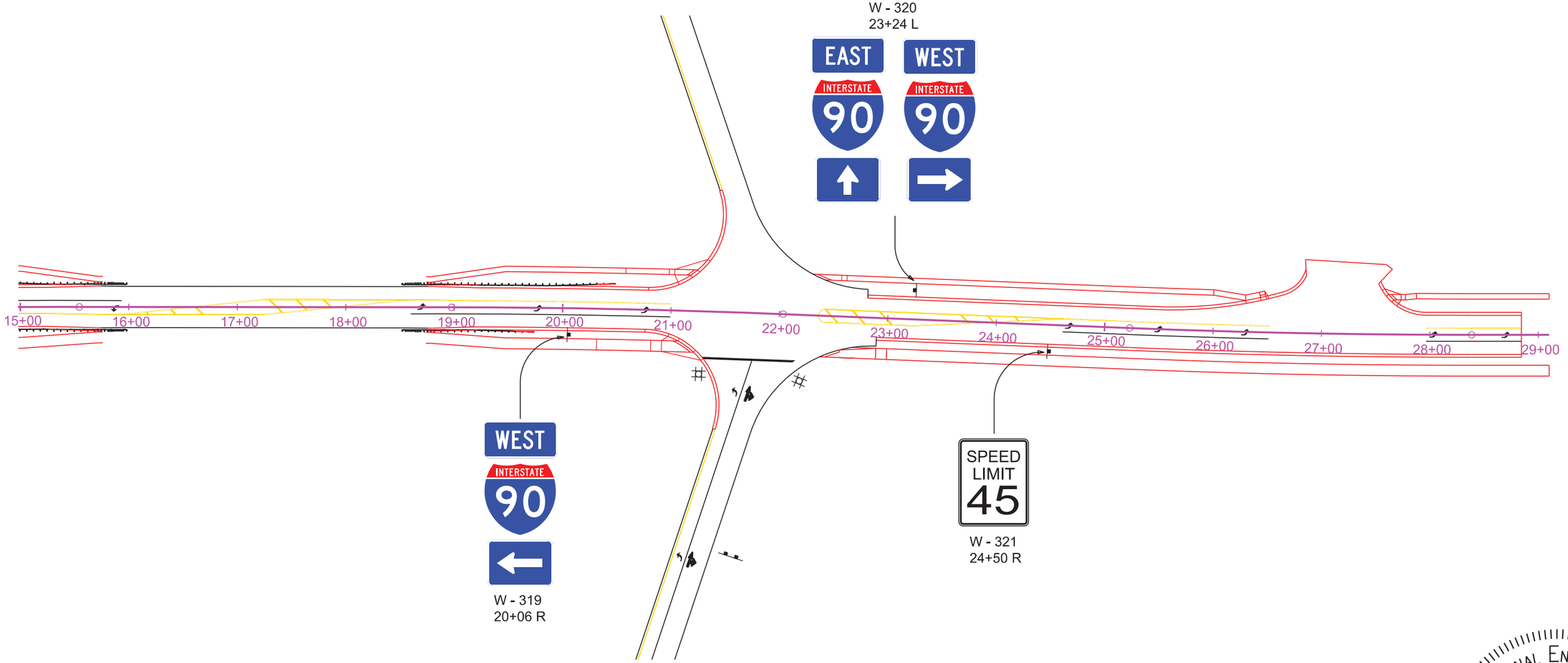
PERMANENT SIGNING

FOR BIDDING PURPOSES ONLY

WESTERN AVENUE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S11	S34

Plotting Date: 8/13/2024



REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
REG. NO. 8475
BENJAMIN D. WHITE
SOUTH DAKOTA
8/13/2024

HRGreen

Plot Scale - 1:100

Plotted From - bryce.steffen

File - ...\Design\06G8_Signing.dgn

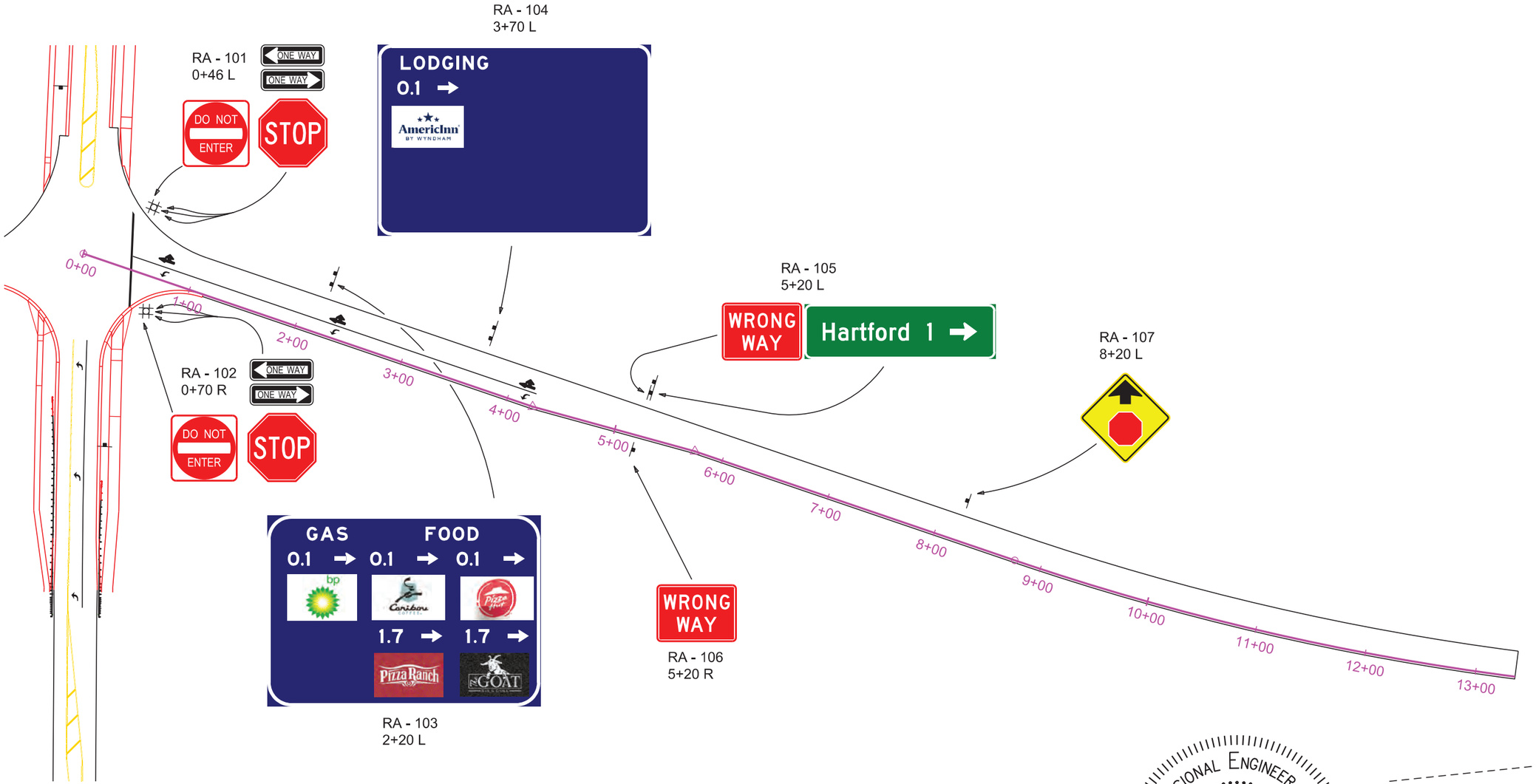
PERMANENT SIGNING

FOR BIDDING PURPOSES ONLY

RAMP A

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S12	S34

Plotting Date: 8/13/2024



REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
REG. NO. 8475
BENJAMIN D. WHITE
SOUTH DAKOTA
8/13/2024

HRGreen

Plot Scale - 1:100

Plotted From - bryce.steffen

File - ...\Design\06G8_Signing.dgn

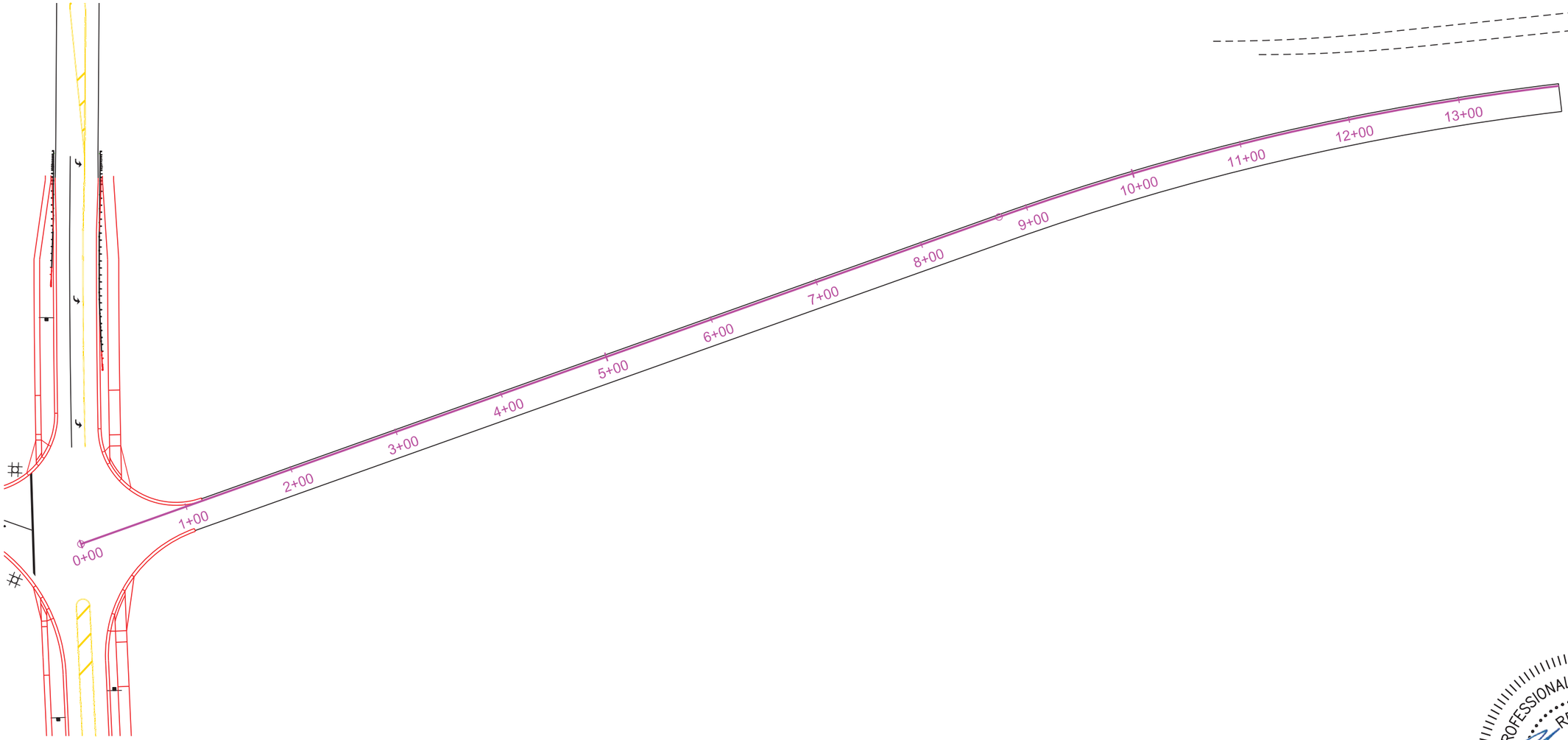
PERMANENT SIGNING

RAMP B

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S13	S34

Plotting Date: 8/13/2024



REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
REG. NO. 8475
BENJAMIN D. WHITE
SOUTH DAKOTA
8/13/2024

HRGreen

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S14	S34

Plotting Date: 8/13/2024

PERMANENT SIGNING

FOR BIDDING PURPOSES ONLY

RAMP C

REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
REG. NO. 8475
BENJAMIN D. WHITE
SOUTH DAKOTA
8/13/2024

HRGreen

Plot Scale - 1:100

Plotted From - bryce.steffen

File - ...\Design\06C8_Signing.dgn

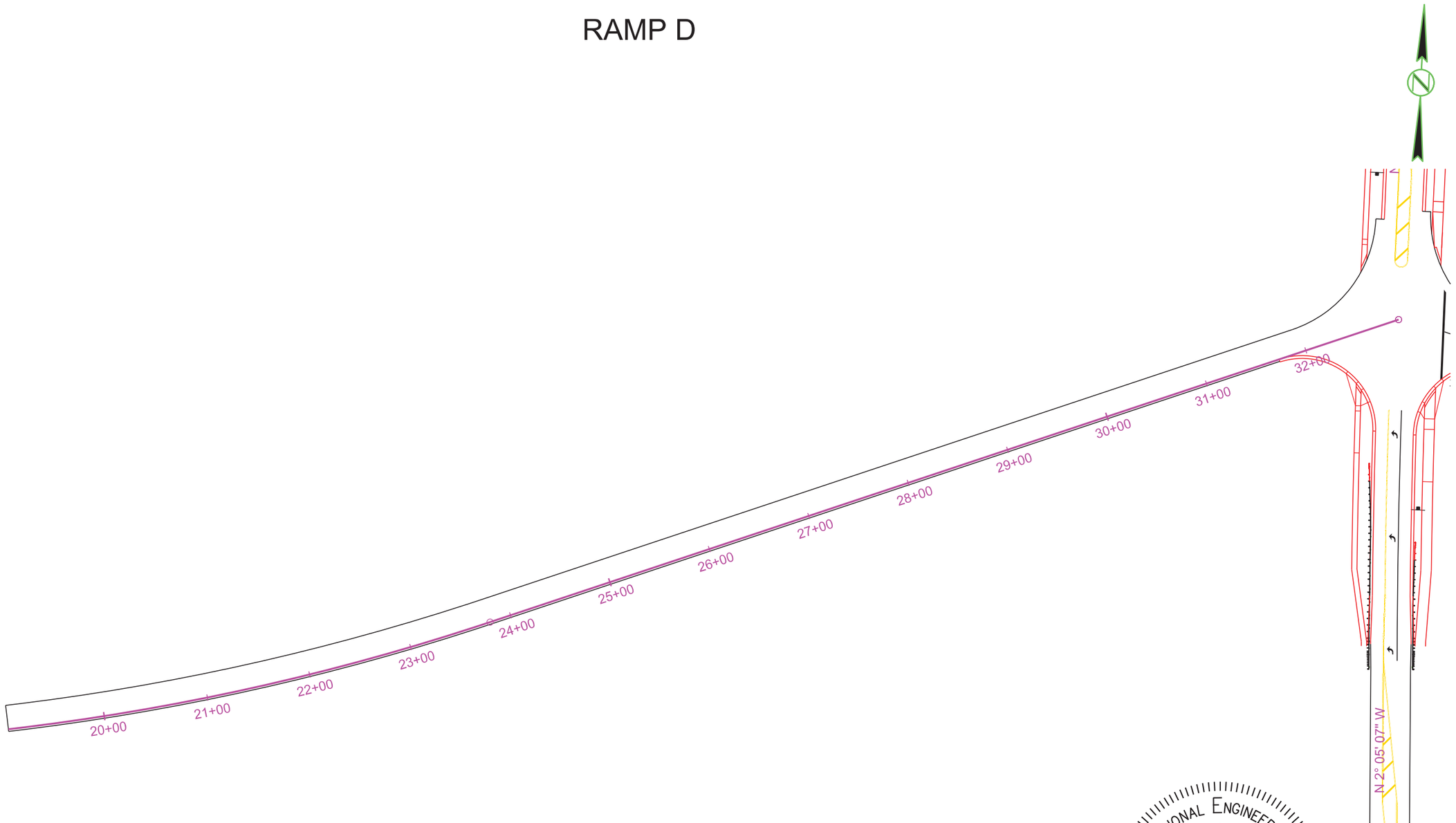
PERMANENT SIGNING

RAMP D

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S15	S34

Plotting Date: 8/13/2024



REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
REG. NO. 8475
BENJAMIN D. WHITE
SOUTH DAKOTA
8/13/2024

HRGreen

Plot Scale - 1:100

Plotted From - bryce.steffen

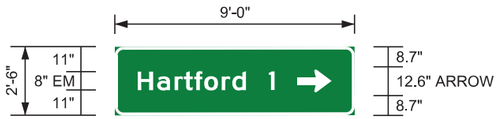
File - ...\Design\06G8_Signing.dgn

FLAT ALUMINUM SIGNS WITH NONREMOVABLE COPY HIGH INTENSITY

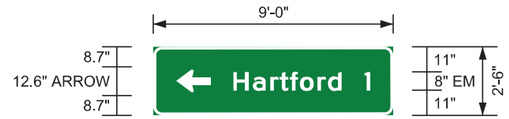
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S16	S34

Plotting Date: 8/13/2024

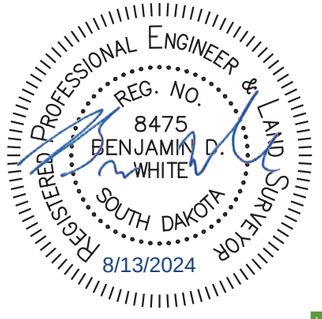
GUIDE SIGNS



SIGN NUMBER	RA - 105
WIDTH X HEIGHT	9'-0" X 2'-6"
BORDER WIDTH	1.5"
CORNER RADIUS	4.0"
ARROW	14.3" X 12.6" TYPE B
MOUNTING	GROUND
BACKGROUND	TYPE: IV HIGH INTENSITY
	COLOR: GREEN
LEGEND/BORDER	TYPE: IV HIGH INTENSITY
	COLOR: WHITE



SIGN NUMBER	RC - 210
WIDTH X HEIGHT	9'-0" X 2'-6"
BORDER WIDTH	1.5"
CORNER RADIUS	4.0"
ARROW	14.3" X 12.6" TYPE B
MOUNTING	GROUND
BACKGROUND	TYPE: IV HIGH INTENSITY
	COLOR: GREEN
LEGEND/BORDER	TYPE: IV HIGH INTENSITY
	COLOR: WHITE



HRGreen

Plot Scale - 1:200

Plotted From - bryce.steffen

File - ...\Design\0638_Signing.dgn

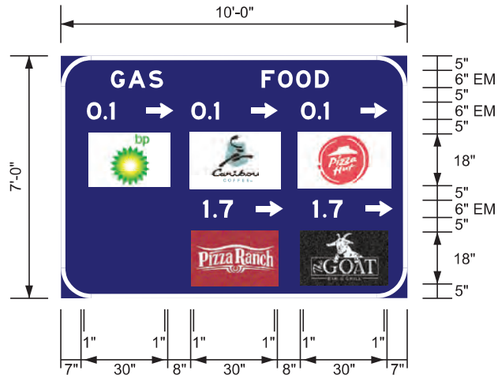
EXTRUDED ALUMINUM SIGNS WITH NONREMOVABLE COPY HIGH INTENSITY

FOR BIDDING PURPOSES ONLY

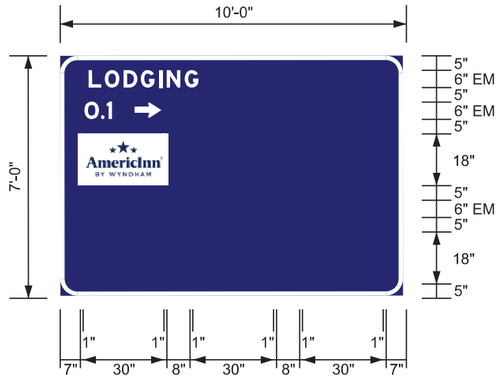
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S17	S34

Plotting Date: 8/13/2024

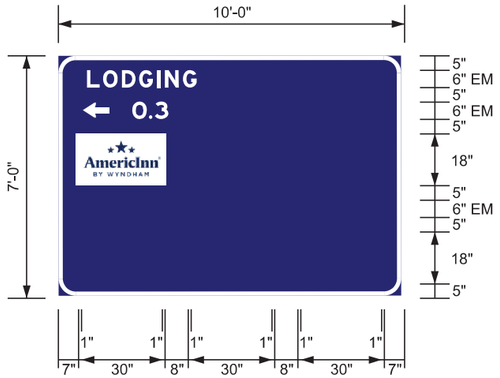
LOGO SIGNS



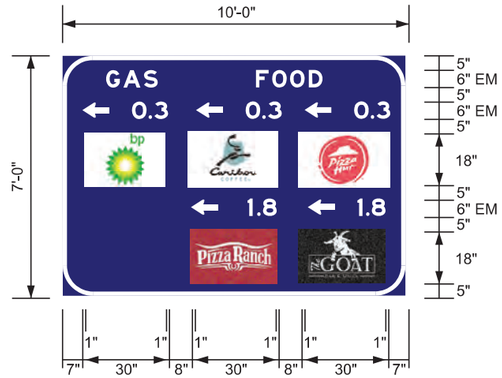
SIGN NUMBER	RA - 103
WIDTH X HEIGHT	10'-0" X 7'-0"
BORDER WIDTH	1.5"
CORNER RADIUS	10.5"
MOUNTING	GROUND
BACKGROUND	TYPE: IV HIGH INTENSITY
	COLOR: BLUE
LEGEND/BORDER	TYPE: IV HIGH INTENSITY
	COLOR: WHITE



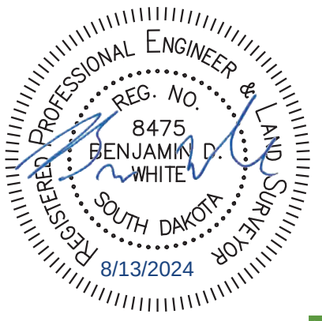
SIGN NUMBER	RA - 104
WIDTH X HEIGHT	10'-0" X 7'-0"
BORDER WIDTH	1.5"
CORNER RADIUS	10.5"
MOUNTING	GROUND
BACKGROUND	TYPE: IV HIGH INTENSITY
	COLOR: BLUE
LEGEND/BORDER	TYPE: IV HIGH INTENSITY
	COLOR: WHITE



SIGN NUMBER	RC - 211
WIDTH X HEIGHT	10'-0" X 7'-0"
BORDER WIDTH	1.5"
CORNER RADIUS	10.5"
MOUNTING	GROUND
BACKGROUND	TYPE: IV HIGH INTENSITY
	COLOR: BLUE
LEGEND/BORDER	TYPE: IV HIGH INTENSITY
	COLOR: WHITE



SIGN NUMBER	RC - 212
WIDTH X HEIGHT	10'-0" X 7'-0"
BORDER WIDTH	1.5"
CORNER RADIUS	10.5"
MOUNTING	GROUND
BACKGROUND	TYPE: IV HIGH INTENSITY
	COLOR: BLUE
LEGEND/BORDER	TYPE: IV HIGH INTENSITY
	COLOR: WHITE



HRGreen

Plot Scale - 1:200

Plotted From - bryce.steffen

File - ...\Design\06G8_Signing.dgn

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	S18	S34

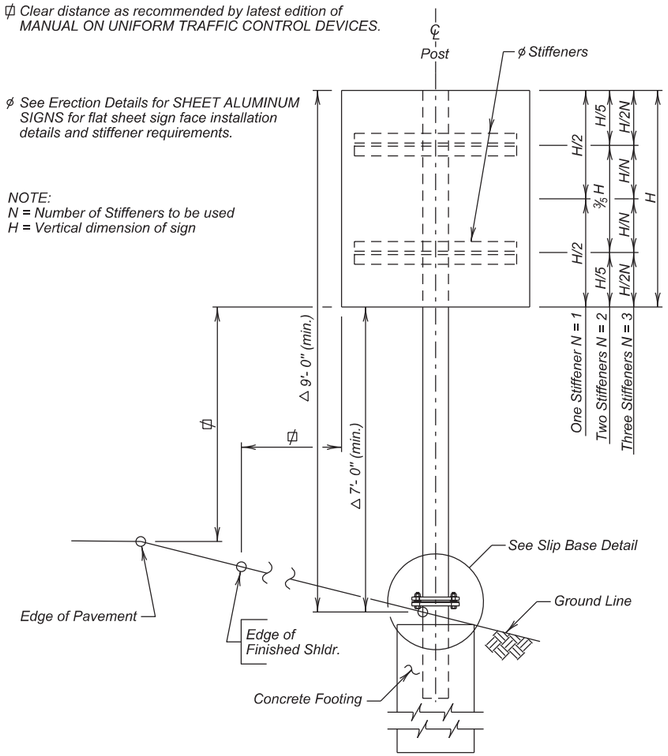
FOR BIDDING PURPOSES ONLY

△ *Mounting height as recommended by latest edition of AASHTO ROADSIDE DESIGN GUIDE.*

⌀ *Clear distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.*

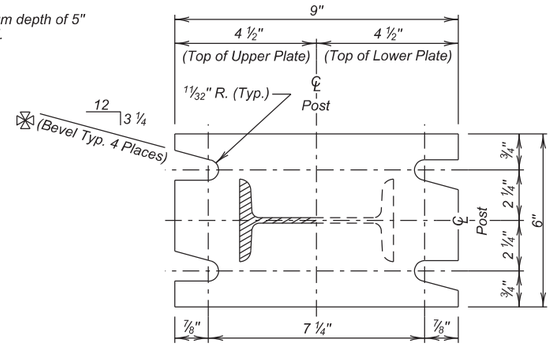
ø *See Erection Details for SHEET ALUMINUM SIGNS for flat sheet sign face installation details and stiffener requirements.*

NOTE:
N = Number of Stiffeners to be used
H = Vertical dimension of sign

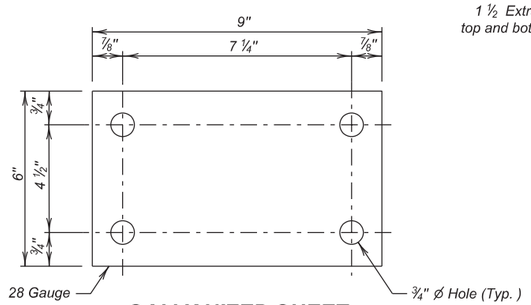


ELEVATION

★ *NOTE:*
Flanged Posts will have a maximum depth of 5" and a maximum flange width of 4".

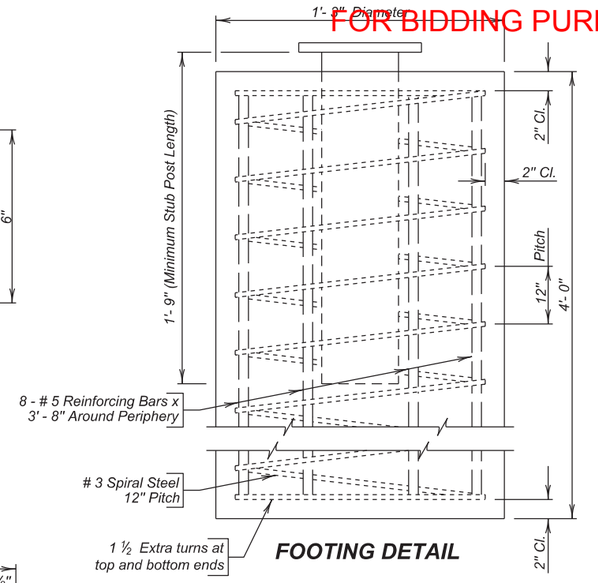


SEC. C - C
★ *(Flanged Post)*



GALVANIZED SHEET METAL DIAPHRAGM

NOTE:
Diaphragm need not be regalvanized after cutting to size and drilling of holes.



FOOTING DETAIL

✠ *NOTE:*
Above Bevel is for sign on right shoulder. Plate Bevels are opposite hand for sign on left shoulder.

NOTES

1. *Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2013 Edition with Interims through 2022.*
2. *Concrete Footings will be Class M6 - fc = 4000 p. s. i.*
3. *Structural Steel, will comform to ASTM A36.*
4. *All Reinforcing Steel, except spirals, will conform to ASTM 615 Grade 60.*
5. *Spiral Reinforcing Steel may be fabricated from cold drawn wire ASTM A82, or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.*
6. *All Bolts and Nuts will conform to ASTM F3125 Grade A325. Washers will comfrom to ASTM F436. All hardware will be galvanized in accordance with ASTM F2329.*
7. *All steel including Posts and Post Stubs will be galvanized in accordance with ASTM A123.*
8. *All Bolt Holes will be drilled. All plate cuts will preferably be saw cuts. However, Flame Cutting will be permitted providing all edges are ground smooth (metal projecting beyond the plane of the plate face will NOT be allowed).*
9. *All welding and weld inspection will be in accordance with the latest edition of AWS D 1.5 Structural Welding Code.*

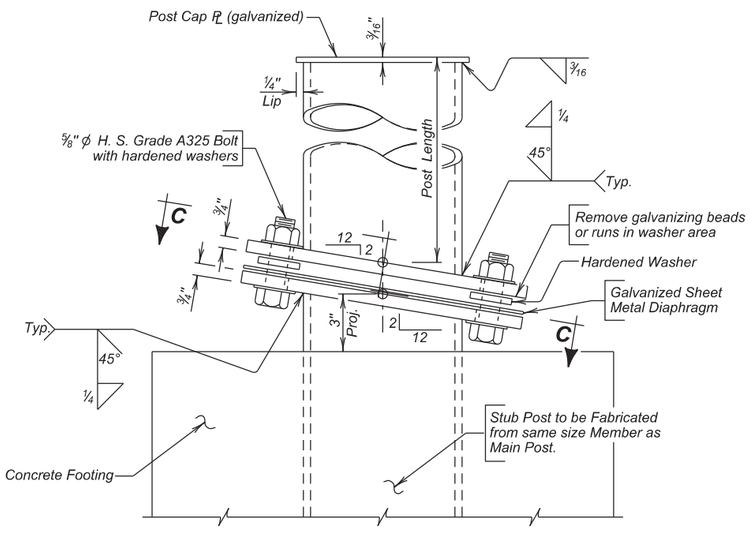
PROCEDURE FOR ASSEMBLING SLIP BASE

1. *Place galvanized Sheet Metal Diaphragms on top of the lower slip plate.*
2. *Connect main post to Stub Post with clean unlubricated bolts and nuts with one Hardened Washer on each bolt between slip plates.*
3. *Plumb post by adding shims between slip plates.*
4. *Tighten bolts to a practical maximum, using a 12" - 15" wrench in order to bed surfaces and clean threads. DO NOT TIGHTEN TO PROOF LOAD.*
5. *Loosen all bolts and retighten in increments, using a systematic order, until each bolt has been tightened to a torque not exceeding 345 in-lb. DO NOT OVERTIGHTEN. Check torque on each bolt after entire sign has been erected.*

SHOP PLANS

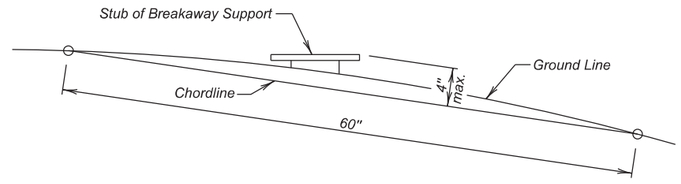
The fabricator will submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals will be sent to the Office of Bridge Design. Include design and check design, if applicable, with initial submittal.

TRAFFIC DIRECTION



SLIP BASE DETAIL
(Flanged Post)

TRAFFIC DIRECTION



BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

NOTE:
The stub post and lower slip plate will NOT extend more than 4" max. above the chordline within a 60" chord.

ESTIMATED QUANTITIES
(For informational purposes only)

ITEM	UNIT	QUANTITY
Class M6 Concrete	Cu. Yd.	0.182
Reinforcing Steel	Lb.	41
Structure Excavation	Cu. Yd.	0.182

ERECTION DETAILS
FOR
SINGLE POST BREAKAWAY SIGN SUPPORTS
(FLANGED AND PIPE POSTS)
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

1 OF 1

DESIGNED BY	DRAWN BY	CHECKED BY	
RH/DM	RH/TB/MDG	RH/DM/PW	Steve A Johnson
CNTYPCNX	PCNXDSPG	BSTDBSI	BRIDGE ENGINEER

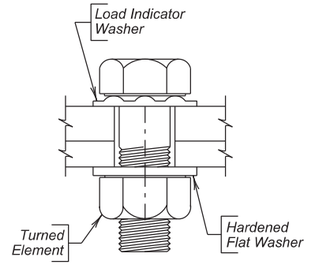
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	S19	S34

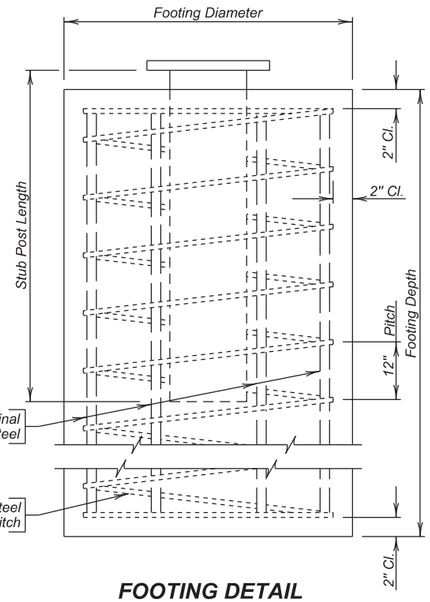
SITE LOCATION	POST SIZE	FOOTING DIMENSIONS		STUB POST LENGTH	LONGITUDINAL STEEL QUANTITIES			# SPIRAL STEEL QUANTITIES	
		DIA.	DEPTH		NO.	SIZE	LENGTH	DIA.	LENGTH

⧖ # Spirals - Use 12" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design, Spirals may be smooth bars, Bar length shown does not include Splices. Dimensions are out to out of bars.

NOTE:
The above is a Site Specific data entry table and the inserted information is the responsibility of the Region Traffic Engineer.

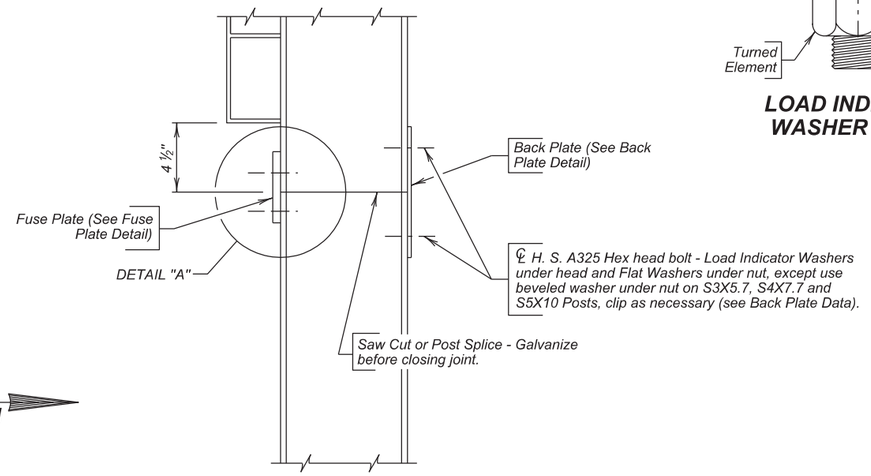


LOAD INDICATOR WASHER DETAIL

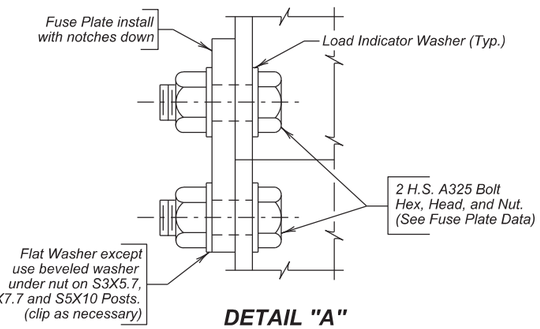


FOOTING DETAIL

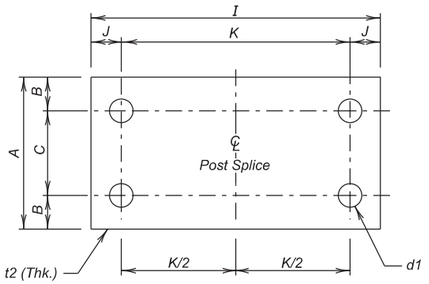
TRAFFIC DIRECTION



FUSE & BACK PLATE INSTALLATION



DETAIL "A"



BACK PLATE DETAIL

NOTES

1. Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2013 Edition with Interims through 2022.
2. Concrete Footings will be Class M6 - fc = 4000 p. s. i.
3. Structural Steel will comform to ASTM A36.
4. All Reinforcing Steel, except spirals, will conform to ASTM 615 Grade 60.
5. Spiral Reinforcing Steel may be fabricated from cold drawn wire ASTM A1064, or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.
6. All Bolts and Nuts will conform to ASTM A325 except that ½" diameter bolts may conform to either ASTM A325 or ASTM A449. Washers will conform to ASTM F436. All hardware will be galvanized in accordance with ASTM F2329.
7. All structural steel including Posts and Post Stubs will be galvanized in accordance with ASTM A123.
8. All Bolt Holes will be drilled. All plate cuts will preferably be saw cuts. However, Flame Cutting will be permitted providing all edges are ground smooth (metal projecting beyond the plane of the plate face will NOT be allowed).
9. All welding and weld inspection will be in accordance with the latest edition of AWS D 1.5 Structural Welding Code.

PROCEDURE FOR ASSEMBLING SLIP BASE

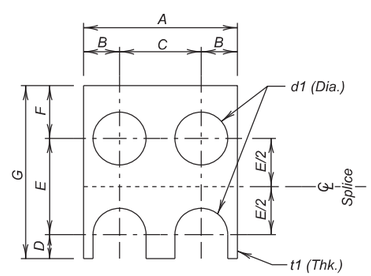
1. Place galvanized Sheet Metal Diaphrams on top of the lower slip plate.
2. Connect main post to Stub Post with clean unlubricated bolts and nuts with one Hardened Washer on each bolt between slip plates.
3. Plumb post by adding shims between slip plates.
4. Tighten bolts to a practical maximum, using a 12" - 15" wrench in order to bed surfaces and clean threads. DO NOT TIGHTEN TO PROOF LOAD.
5. Loosen all bolts and retighten in increments, using a systematic order, until each bolt has been tightened to the specified torque corresponding to the post size used (See Slip Base Plate Data). Tighten bolts only to the torque specified. DO NOT OVERTIGHTEN. Check torque on each bolt after entire sign has been erected.

ASSEMBLY OF FRICTION FUSE PLATES, BACK PLATES AND STIFFENERS

High strength bolts will be tightened so as to obtain a residual tension by the use of load indicator washers.

SHOP PLANS

The fabricator will submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals will be sent to the Office of Bridge Design. Include design and check design, if applicable, with initial submittal.



FUSE PLATE DETAIL

TABLE 1 - FUSE PLATE DATA

Post Size	A	B	C	D	E	F	G	d1	t1	Bolt Size
S3X5.7	2 5/8"	9/16"	1 ½"	½"	1 ½"	1 1/8"	3 1/8"	5/8" Ø	¼"	½" Ø
S4X7.7	2 5/8"	9/16"	1 ½"	½"	1 ½"	1 1/8"	3 1/8"	5/8" Ø	¼"	½" Ø
S5X10	3"	11/16"	1 5/8"	5/8"	2 ¼"	1 1/8"	4"	¾" Ø	3/8"	5/8" Ø
W6X12	4"	11/16"	2 1/8"	5/8"	2 ½"	1 3/8"	4 ½"	¾" Ø	3/8"	5/8" Ø
W6X15	6"	1 3/8"	3 ¼"	5/8"	2 ½"	1 3/8"	4 ½"	¾" Ø	3/8"	5/8" Ø
W6X20	6"	1 3/8"	3 ¼"	5/8"	2 ½"	1 3/8"	4 ½"	¾" Ø	3/8"	5/8" Ø
W8X18	5 ¼"	1 11/16"	2 5/8"	¾"	2 ½"	1 3/8"	4 5/8"	7/8" Ø	½"	¾" Ø
W8X21	5 ¼"	1 11/16"	2 5/8"	¾"	2 ½"	1 3/8"	4 5/8"	7/8" Ø	½"	¾" Ø
W8X24	6 ½"	1 ½"	3 ½"	7/8"	3"	1 5/8"	5 ½"	1"Ø	9/16"	7/8" Ø
W8X28	6 ½"	1 9/16"	3 3/8"	7/8"	3"	1 ¾"	5 5/8"	1"Ø	½"	7/8" Ø
W8X31	8"	1 5/8"	4 ¾"	1"	3 ½"	2"	6 ½"	1 1/8" Ø	5/8"	1" Ø
W10X33	8"	1 7/8"	4 ¼"	1 1/8"	4 ½"	2 ¼"	7 7/8"	1 ¼" Ø	¾"	1 1/8" Ø

TABLE 5 - BACK PLATE DATA

Post Size	A	B	C	J	K	I	d1	t2	Bolt Size
S3X5.7	2 5/8"	9/16"	1 ½"	1 ¼"	4 ½"	7"	5/8" Ø	¼"	½" Ø
S4X7.7	2 5/8"	9/16"	1 ½"	1 ¼"	4 ½"	7"	5/8" Ø	¼"	½" Ø
S5X10	3"	11/16"	1 5/8"	1 ¼"	4 ¾"	7 ¼"	¾" Ø	¼"	5/8" Ø
W6X12	4"	11/16"	2 1/8"	1 ¼"	4 ¾"	7 ¼"	¾" Ø	¼"	5/8" Ø
W6X15	6"	1 3/8"	3 ¼"	1 ¼"	5 ¼"	7 ¾"	¾" Ø	¼"	5/8" Ø
W6X20	6"	1 3/8"	3 ¼"	1 ¼"	5 ¼"	7 ¾"	¾" Ø	¼"	5/8" Ø
W8X18	5 ¼"	1 9/16"	2 5/8"	1 3/8"	5 ¾"	8 ½"	7/8" Ø	½"	¾" Ø
W8X21	5 ¼"	1 9/16"	2 5/8"	1 3/8"	5 ¾"	8 ½"	7/8" Ø	½"	¾" Ø
W8X24	6 ½"	1 ½"	3 ½"	1 5/8"	6"	9 ¼"	1"Ø	5/16"	7/8" Ø
W8X28	6 ½"	1 9/16"	3 3/8"	1 ¾"	6"	9 ½"	1"Ø	3/8"	7/8" Ø
W8X31	8"	1 5/8"	4 ¾"	2"	6 ½"	10 ½"	1 1/8" Ø	3/8"	1" Ø
W10X33	8"	1 7/8"	4 ¼"	2 ½"	7"	1'- 0"	1 ¼" Ø	7/16"	1 1/8" Ø

ERECTION DETAILS
FOR
TWO-POST ONE-DIRECTION
BREAKAWAY SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

1 OF 2

DESIGNED BY	DRAWN BY	CHECKED BY	
RH/DM	TB/MDG	RH/DM/PW	Steve A Johnson BRIDGE ENGINEER
CNTYPCNX	PCNXDSPG	BSTDBS2A	

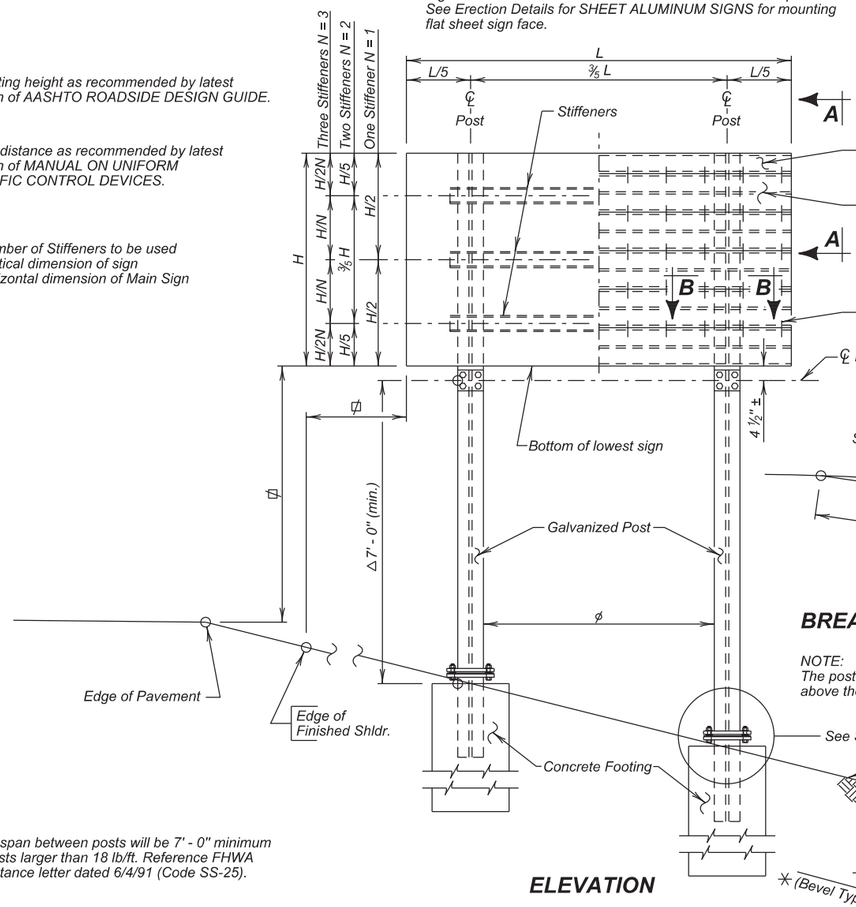
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	S20	S34

△ *Mounting height as recommended by latest edition of AASHTO ROADSIDE DESIGN GUIDE.*

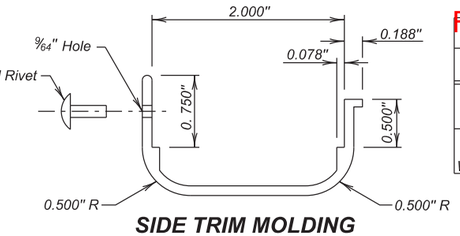
⏍ *Clear distance as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.*

NOTE:
N = Number of Stiffeners to be used
H = Vertical dimension of sign
L = Horizontal dimension of Main Sign

NOTE:
Sign face details shown are those for extruded aluminum panels. See Erection Details for SHEET ALUMINUM SIGNS for mounting flat sheet sign face.

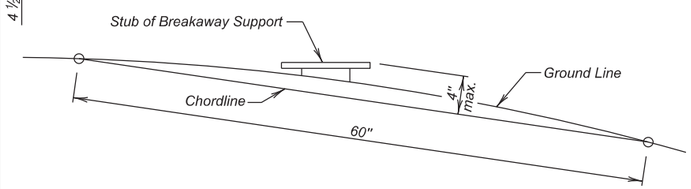


ELEVATION



SIDE TRIM MOLDING

Side Trim Molding is required on all vertical edges of extruded panels. They will be fastened at a minimum of one (1) rivet per panel.



BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

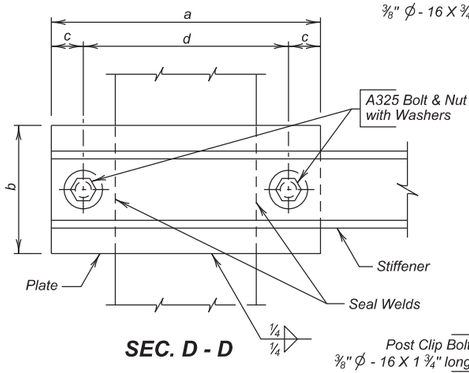
NOTE:
The post stub and lower slip plate will NOT extend more than 4" max. above the chordline within 60" chord.

STIFFENER DATA

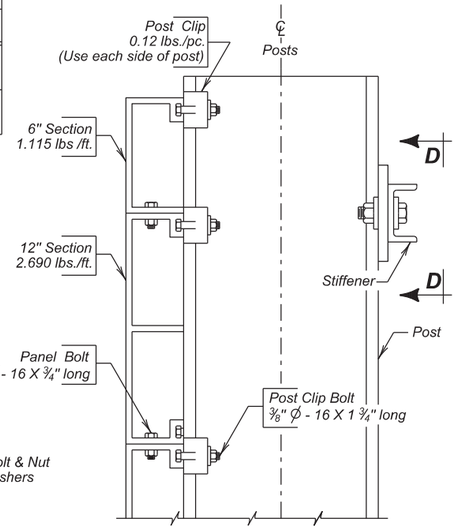
Post	Stiffener	a	b	c	d	Bolt (A325)	Plate Thk.
S3X5.7 thru W8X21	C3X5	10 ½"	5"	1 ¼"	8"	⅝" ø	9/16"
W8X24 thru W10X45	C5X6.7	13 ½"	6"	1 ½"	10 ½"	⅞" ø	⅜"

STIFFENER NOTES

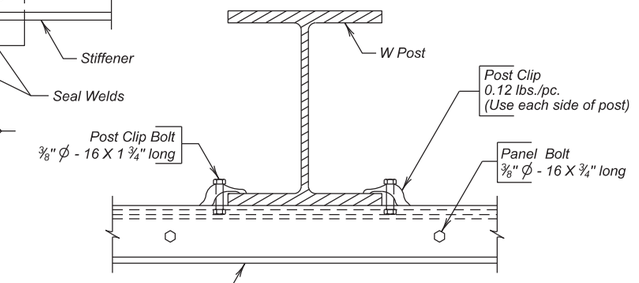
1. *Stiffeners must always be used on Two Post Breakaway signs regardless of type of sign face employed.*
2. *Number of stiffeners used, N, will be as follows:*
   if H < = 2' - 0" then N = 1
   if 2' - 0" < H < = 8' - 0" then N = 2
   if 8' - 0" < H < = 15' - 0" then N = 3



SEC. D - D



SEC. A - A

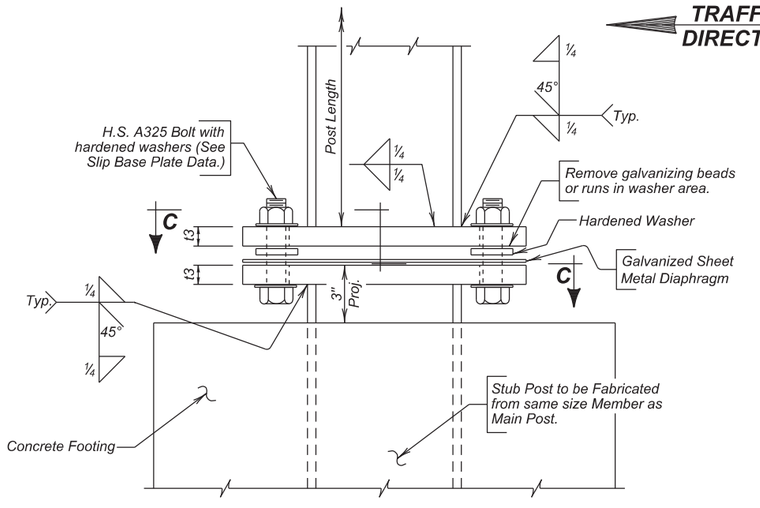


SEC. B - B

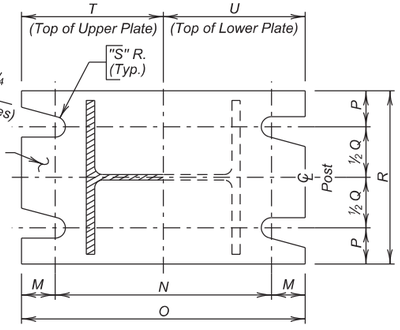
(Stiffener not shown)

ø *Clear span between posts will be 7' - 0" minimum for posts larger than 18 lb/ft. Reference FHWA acceptance letter dated 6/4/91 (Code SS-25).*

TRAFFIC DIRECTION

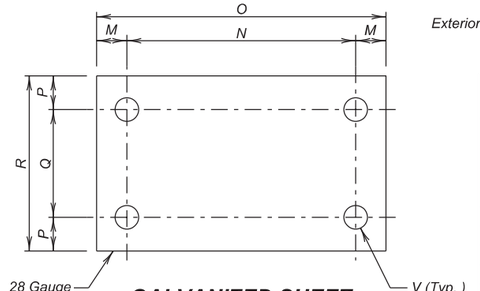


SLIP BASE DETAIL



SEC. C - C

✳ *NOTE:*
Above Bevel is for Sign on Right Shoulder. Plate Bevels are Opposite hand for Sign on Left Shoulder.



GALVANIZED SHEET METAL DIAPHRAGM

TABLE 3 - SHEET METAL DIAPHRAGM DATA

Post Size	M	N	O	P	Q	R	V
S3X5.7	¾"	6"	7 ½"	¾"	1 ½"	3"	5/8"
S4X7.7	¾"	6"	7 ½"	¾"	1 ½"	3"	5/8"
S5X10	⅞"	7 ¼"	9"	¾"	2"	3 ½"	¾"
W6X12	⅞"	8 ¼"	10"	⅞"	2 ¾"	4 ½"	¾"
W6X15	1 ⅛"	8 ½"	10 ¾"	1 ¼"	4"	6 ½"	⅞"
W6X20	1 ⅛"	10"	1'- 0 ¼"	1 ¼"	4"	6 ½"	⅞"
W8X18	1 ⅛"	10 ½"	1' - 0 ¾"	1 ¼"	3 ½"	6"	⅞"
W8X21	1 ¼"	11 ¼"	1' - 1 ¾"	1 ¼"	3 ½"	6"	1"
W8X24	1 ½"	11"	1' - 2"	1 ⅝"	4 ¼"	7 ½"	1"
W8X28	1 ⅝"	11 ¼"	1' - 2 ½"	1 ⅝"	4 ¼"	7 ½"	1 ⅛"
W8X31	1 ¾"	11 ¼"	1' - 2 ¾"	1 ⅞"	5 ¼"	9"	1 ⅛"
W10X33	1 ¾"	1' - 2"	1' - 5 ½"	1 ⅞"	5 ¼"	9"	1 ⅛"

TABLE 4 - SLIP BASE PLATE DATA

Post Size	M	N	O	P	Q	R	S	T	U	t3	Bolt Size	Bolt Torque
S3X5.7	¾"	6"	7 ½"	¾"	1 ½"	3"	9/32"	3 ¾"	3 ¾"	5/8"	½" ø	142" - #
S4X7.7	¾"	6"	7 ½"	¾"	1 ½"	3"	9/32"	3 ¾"	3 ¾"	5/8"	½" ø	142" - #
S5X10	⅞"	7 ¼"	9"	¾"	2"	3 ½"	11/32"	4 ½"	4 ½"	⅞"	5/8" ø	345" - #
W6X12	⅞"	8 ¼"	10"	⅞"	2 ¾"	4 ½"	11/32"	5"	5"	⅞"	5/8" ø	345" - #
W6X15	1 ⅛"	8 ½"	10 ¾"	1 ¼"	4"	6 ½"	13/32"	5 ⅜"	5 ⅜"	1"	¾" ø	554" - #
W6X20	1 ⅛"	10"	1' - 0 ¼"	1 ¼"	4"	6 ½"	13/32"	6 ⅛"	6 ⅛"	1"	¾" ø	554" - #
W8X18	1 ⅛"	10 ½"	1' - 0 ¾"	1 ¼"	3 ½"	6"	13/32"	6 ⅜"	6 ⅜"	1"	¾" ø	554" - #
W8X21	1 ¼"	11 ¼"	1' - 1 ¾"	1 ¼"	3 ½"	6"	15/32"	6 ⅞"	6 ⅞"	1"	⅞" ø	645" - #
W8X24	1 ½"	11"	1' - 2"	1 ⅝"	4 ¼"	7 ½"	15/32"	7"	7"	1"	⅞" ø	645" - #
W8X28	1 ⅝"	11 ¼"	1' - 2 ½"	1 ⅝"	4 ¼"	7 ½"	17/32"	7 ¼"	7 ¼"	1 ⅛"	1" ø	735" - #
W8X31	1 ¾"	11 ¼"	1' - 2 ¾"	1 ⅞"	5 ¼"	9"	17/32"	7 ⅜"	7 ⅜"	1 ⅛"	1" ø	735" - #
W10X33	1 ¾"	1' - 2"	1' - 5 ½"	1 ⅞"	5 ¼"	9"	17/32"	8 ¾"	8 ¾"	1 ¼"	1" ø	735" - #

NOTE:
Diaphragm need not be regalvanized after cutting to size and drilling of holes.

ERECTION DETAILS
FOR
TWO-POST ONE-DIRECTION BREAKAWAY SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

(2) OF (2)

DESIGNED BY	DRAWN BY	CHECKED BY	
RH/DM	TB/MDG	RH/DM/PW	Steve A. Johnson
CNTYPCNX	PCNXDSPG	BSTDBS2B	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	S21	S34

SITE LOCATION	POST SIZE	FOOTING DIMENSIONS		POST BASE PLATE DIMENSIONS			ANCHOR BOLT SIZE			LONGITUDINAL STEEL QUANTITIES			# SPIRAL STEEL QUANTITIES	
		DIA.	DEPTH	"A"	"E"	THICK.	DIA.	LENGTH	⊠ MINIMUM EMBEDMENT	NO.	SIZE	LENGTH	DIA.	LENGTH

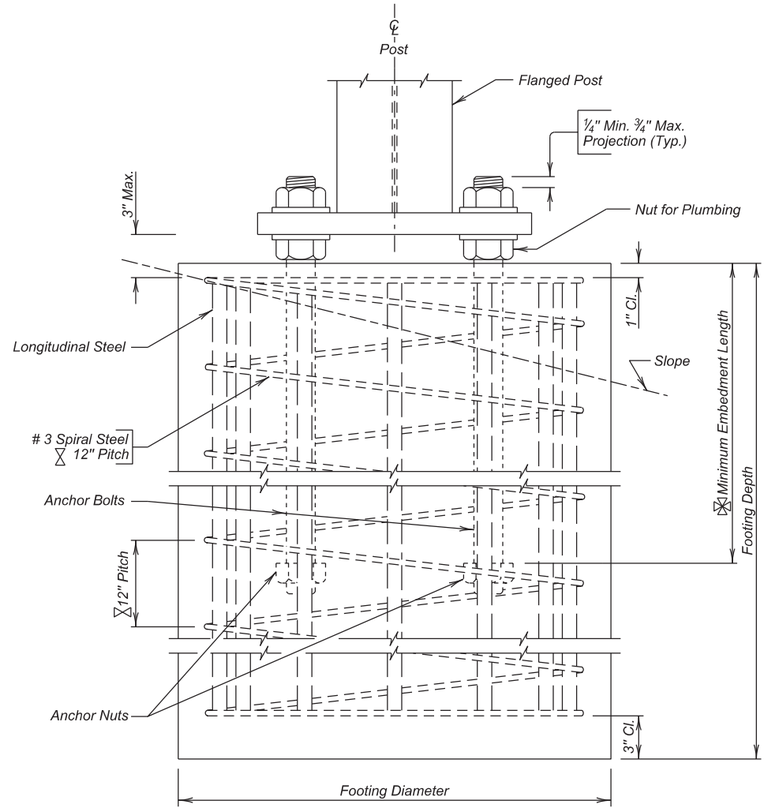
NOTE:
The above is a Site Specific data entry table and the inserted information is the responsibility of the Region Traffic Engineer.

⧖ # Spirals - Use 12" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design, Spirals may be smooth bars, Bar length shown does not include Splices.

Dimensions are out to out of bars.

⊠ See Footing Detail

PLAN



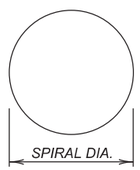
FOOTING DETAIL

NOTES

1. Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2001 Edition with 2003 Interims.
2. Concrete Footings shall be Class M6 - fc = 4000 p.s.i.
3. Structural Steel shall comform to ASTM A36.
4. All Reinforcing Steel, except spirals, shall conform to ASTM A615 Grade 60.
5. Spiral Reinforcing Steel may be fabricated from cold drawn wire ASTM A1064, or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.
6. All Anchor Rods shall conform to ASTM F1554, Grade 36 having a minimum yield stress of 36000 p.s.i. Anchor Bolts shall be cleaned to remove any oil from the threading process before galvanizing.
7. Anchor Rods shall have 7" thread length on both ends.
8. All nuts shall conform to ASTM A563, DH. All nuts shall be heavy hex. All washers shall conform to ASTM F436.
9. All structural steel including the Steel Posts shall be galvanized according to ASTM A123. The Nuts, Washers and 10" of one end of the Anchor Rods shall be galvanized according to ASTM F2329.
10. All Rod Holes shall be drilled. All plate cuts shall preferably be Saw Cuts, however, Flame Cutting will be permitted providing all edges are ground smooth (metal projecting beyond the plane of the plate face will NOT be allowed).
11. All welding and weld inspection shall be in accordance with the latest edition of AWS D 1.5 Structural Welding Code.

SHOP PLANS

The fabricator shall submit shop plans in accordance with the Specifications or in Adobe PDF format. Shop plan submittals shall be sent to the Office of Bridge Design. Include design and check design, if applicable, with initial submittal.



ERECTION DETAILS
FOR
FIXED SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

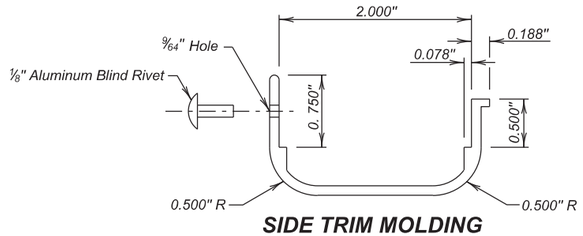
DESIGNED BY	DRAWN BY	CHECKED BY	
RH/DM	RH/TB/MDG	RH/DM/PW	Steve A Johnson
CNTYPCNX	PCNXDSPG	BSTDFSSA	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0909(92)387	S22	S34

FOR BIDDING PURPOSES ONLY

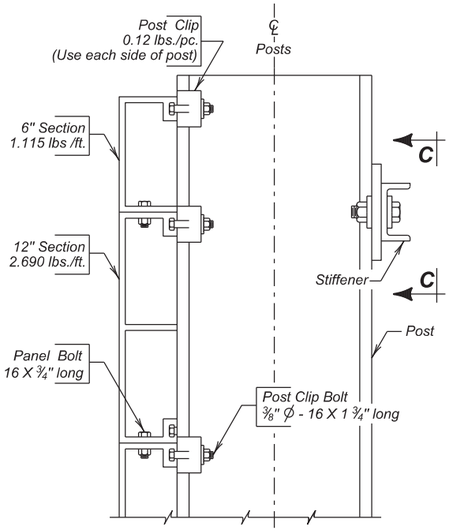
NOTE:
P = Number of Posts to be used
H = Vertical dimension of sign
L = Horizontal dimension of Main Sign

NOTE:
2 stiffeners are required when H is 8' - 0" or less
3 stiffeners are required when H is more than 8' - 0"

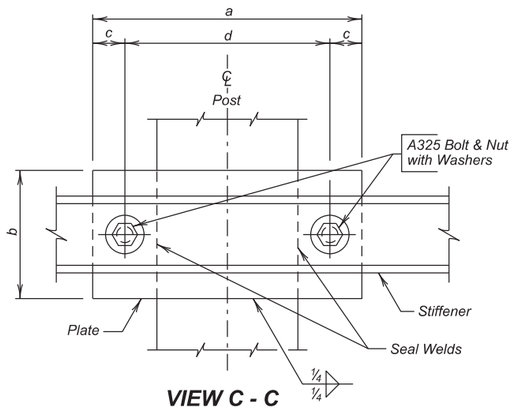


SIDE TRIM MOLDING

SideTrim Molding is required on all vertical edges of extruded panels. They will be fastened at a minimum of one (1) rivet per panel.



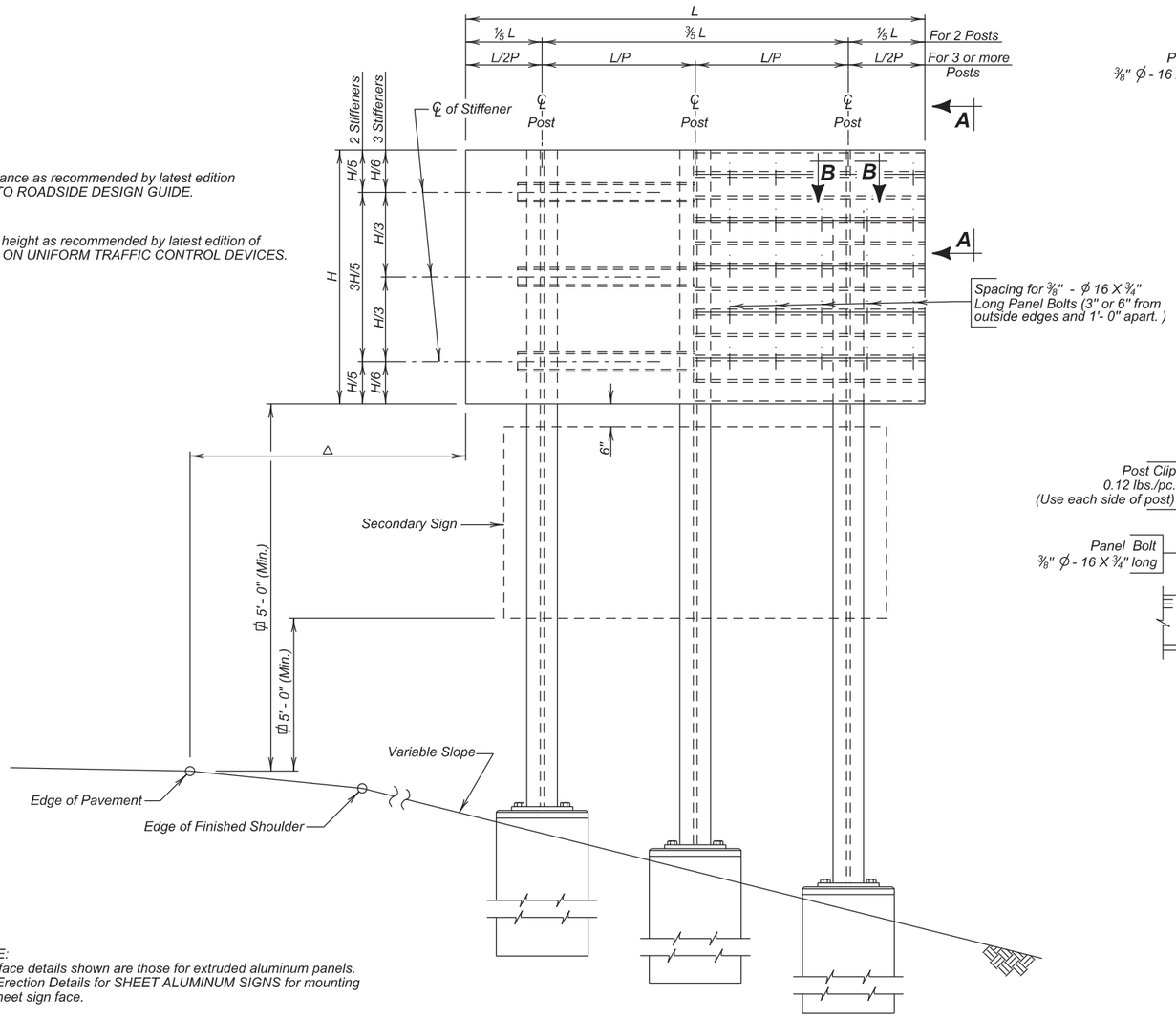
VIEW A - A



VIEW C - C

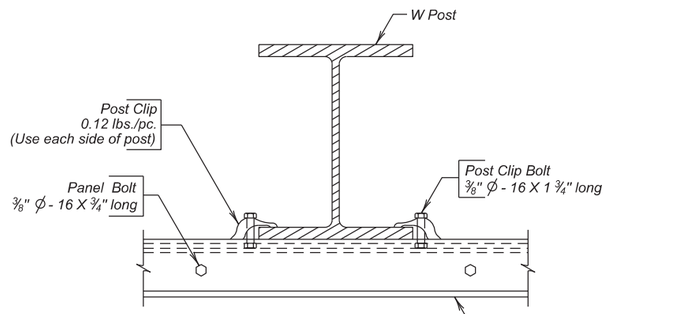
△ Clear distance as recommended by latest edition of AASHTO ROADSIDE DESIGN GUIDE.

⏀ Mounting height as recommended by latest edition of MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.



ELEVATION

NOTE:
Sign face details shown are those for extruded aluminum panels. See Erection Details for SHEET ALUMINUM SIGNS for mounting flat sheet sign face.

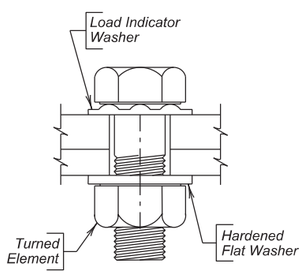


SEC. B - B
(Stiffener not shown)

STIFFENER DATA							
Post	Stiffener	a	b	c	d	Bolt (A325)	Plate Thk.
S3X5.7 thru W8X21	C3X5	10 1/2"	5"	1 1/4"	8"	5/8" ∅	5/16"
W8X24 thru W10X45	C5X6.7	13 1/2"	6"	1 1/2"	10 1/2"	7/8" ∅	3/8"

STIFFENER BOLTING PROCEDURE

High strength bolts will be tightened so as to obtain a minimum residual tension by the use of load indicator washers.



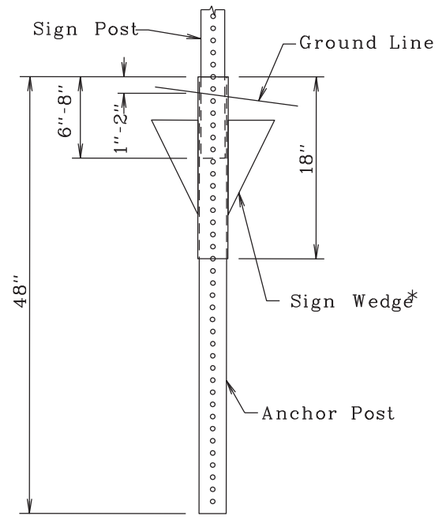
LOAD INDICATOR WASHER DETAIL

ERECTION DETAILS
FOR
FIXED SIGN SUPPORTS
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2016

2 OF 2

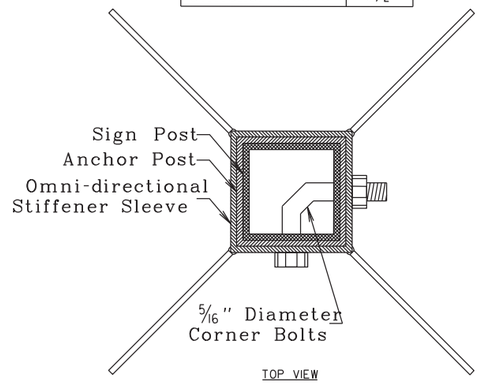
DESIGNED BY	DRAWN BY	CHECKED BY	
RH/DM	RH/TB/MDG	RH/DM/PW	Steve A Johnson BRIDGE ENGINEER
CNTYPCNX	PCNXDSPG	BSTDFSSB	

2" SQUARE STEEL PERFORATED TUBE POST WINGED SLEEVE ANCHOR BASE DETAILS (Typical)

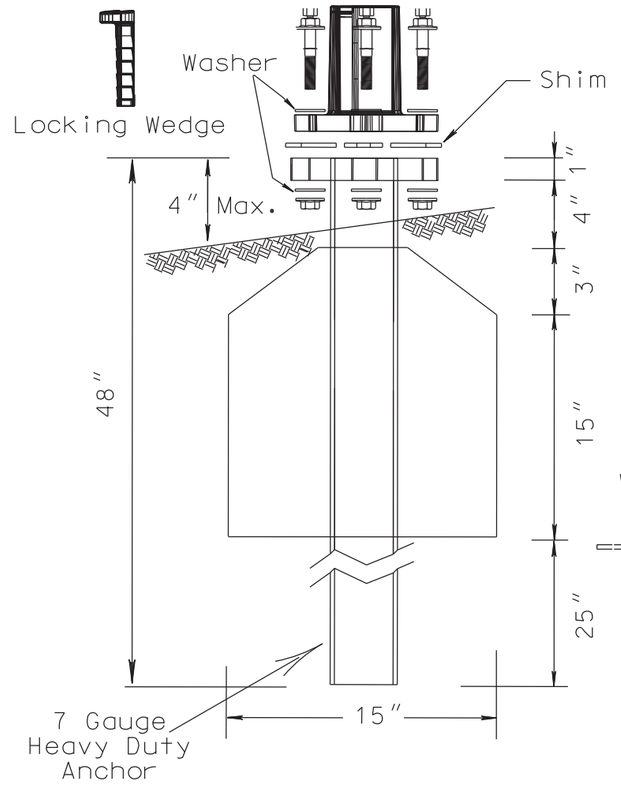


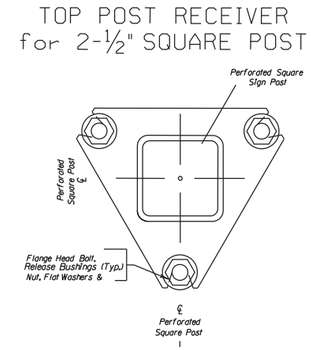
∗ - 18" Multi-directional Sleeve w/4 Blades, or Equivalent. Manufacturer Recommended Dimensions and Installation.

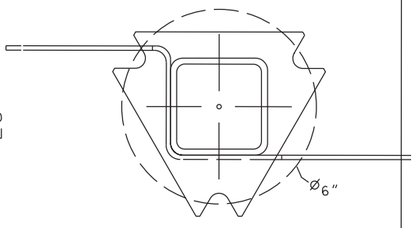
POST SIZE	
Sign Post	2"
Anchor Post	2¼"
Stiffener Sleeve	2½"



2 1/2" SQUARE STEEL PERFORATED TUBE POST WINGED BREAKAWAY ANCHOR DETAILS FOR SOIL INSTALLATIONS (Typical)







TRAFFIC FLOW

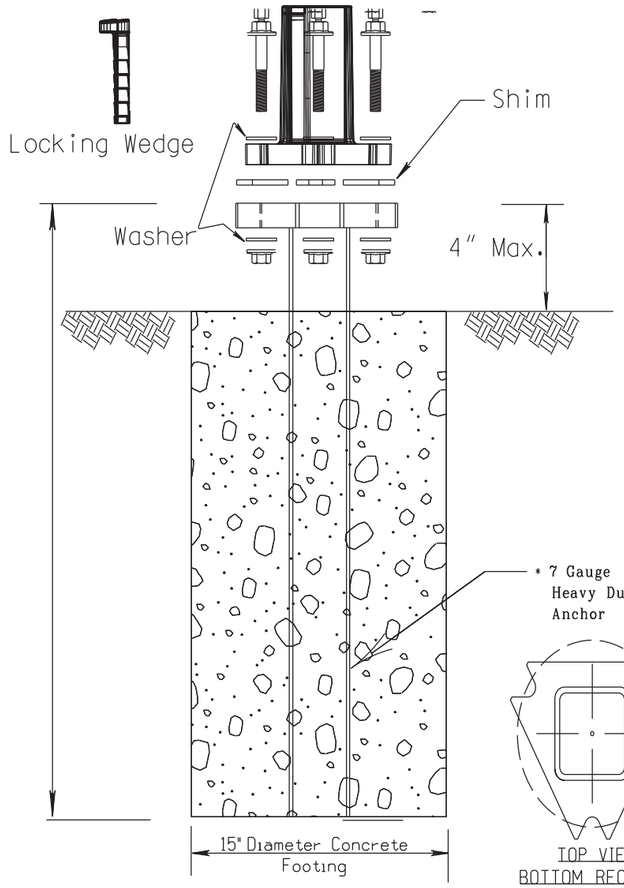
GENERAL NOTES:

1. Dimensions shown may vary by Manufacturer.
2. The Contractor will use Manufacturer recommended assembly parts and procedures.
3. Sign installations must meet NCHRP350 or MASH crashworthy criteria.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S24	S34

Plotting Date: 5/23/2024

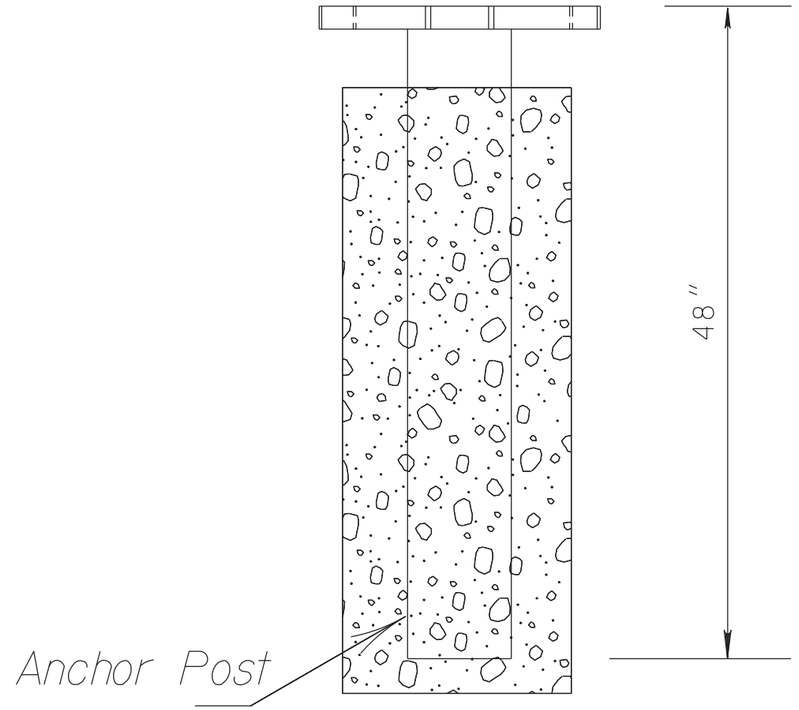
SLIP BASE BOTTOM ANCHOR 7 GUAGE FOR 2 1/2" PERFORATED TUBE POST - CONCRETE (Typical)

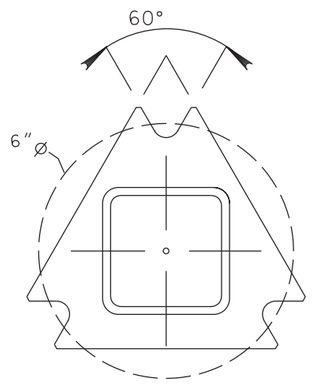


GENERAL NOTES:

1. Dimensions shown may vary by Manufacturer.
2. The Contractor will use Manufacturer recommended assembly parts and procedures.
3. Sign installations must meet NCHRP350 or MASH crashworthy criteria.

SLIP BASE BOTTOM ANCHOR 7 GUAGE FOR 2 1/2" PERFORATED TUBE POST - CONCRETE (Typical)



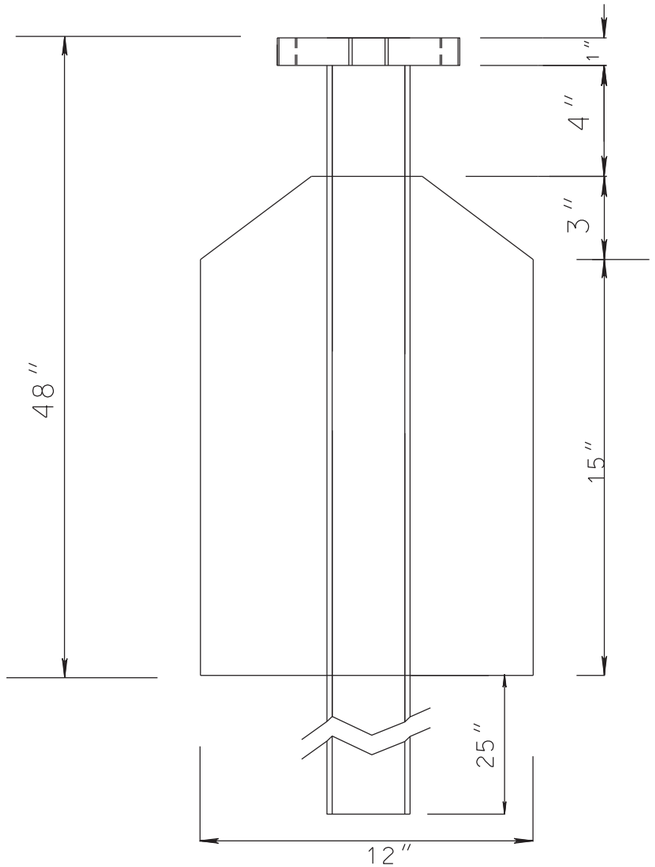


BOTTOM SOIL STUB
TOP VIEW

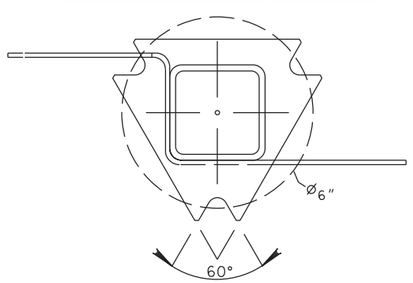
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S25	S34

Plotting Date: 5/23/2024

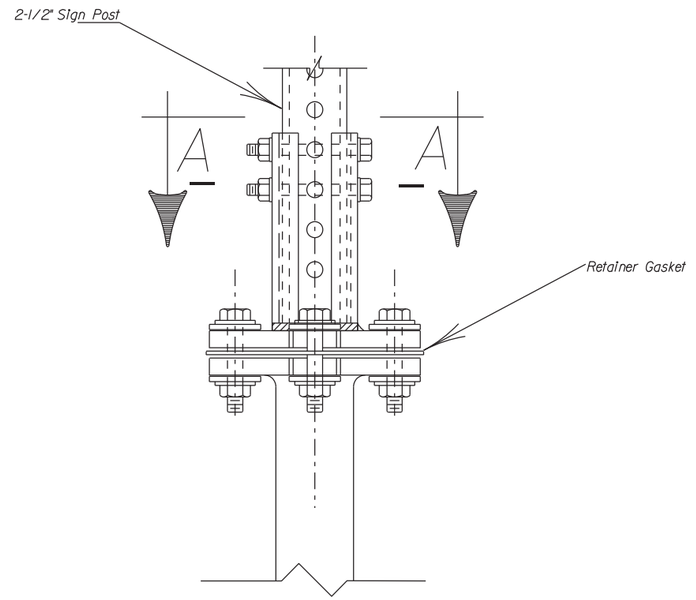
SLIP BASE BOTTOM WINGED ANCHOR FOR 2 1/2" PERFORATED TUBE POST - SOIL (Typical)

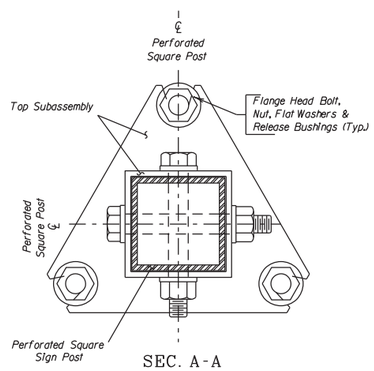


WINGED BOTTOM SOIL STUB



BREAKAWAY SLIP BASE DETAILS FOR 2 1/2" SQUARE STEEL PERFORATED TUBE POST CONCRETE FOOTING INSTALLATIONS (Typical)





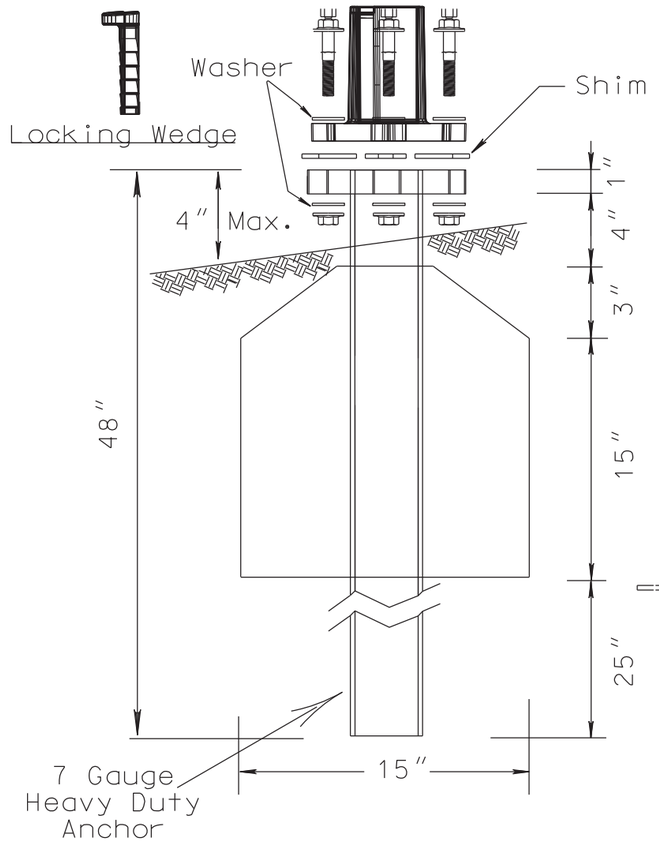
SEC. A-A

TOP POST RECEIVER for 2-½" SQUARE POST

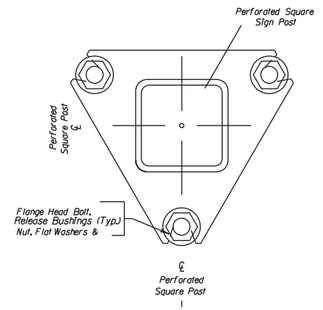
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S26	S34

Plotting Date: 5/28/2024

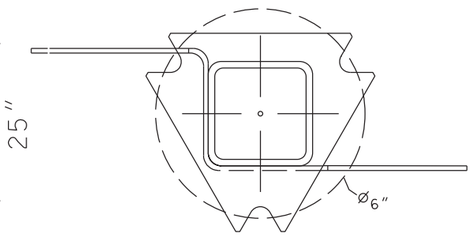
2 1/2" SQUARE STEEL PERFORATED TUBE POST WINGED BREAKAWAY ANCHOR DETAILS FOR SOIL INSTALLATIONS (Typical)



TOP POST RECEIVER
for 2-½" SQUARE POST

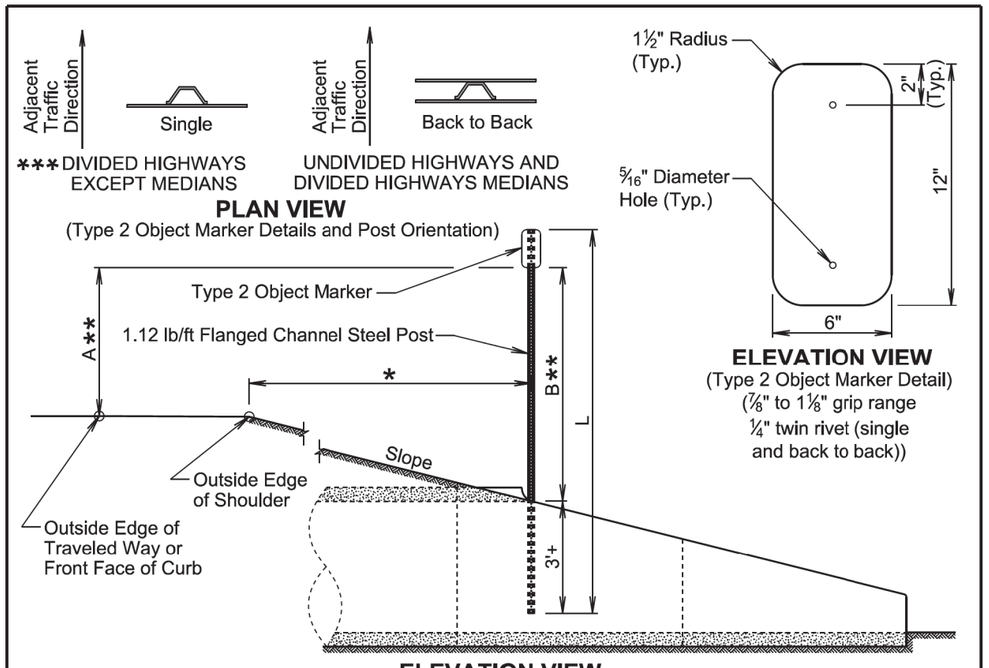


WINGED BOTTOM SOIL STUB



GENERAL NOTES:

1. Dimensions shown may vary by Manufacturer.
2. The Contractor shall use Manufacturer recommended assembly parts and procedures.
3. Sign installations must meet MASH breakaway requirements and be FHWA approved.
4. All posts shall be galvanized in accordance with ASTM A653
5. All hardware shall be galvanized in accordance with ASTM A153



TYPE 2 OBJECT MARKER POST LENGTHS									
OFFSET (*)		1'	2'	3'	4'	5'	6'	7'	8'	Greater Than 8'
		POST LENGTH (L)								
SLOPE	3:1	8'-6"	8'-9"	9'-3"	9'-6"	9'-9"	10'-3"	10'-6"	10'-9"	8'-0"
	4:1	8'-6"	8'-9"	9'-0"	9'-3"	9'-9"	9'-9"	10'-0"	10'-3"	8'-0"
	5:1	8'-3"	8'-6"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	9'-9"	8'-0"
	6:1	8'-3"	8'-6"	8'-9"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	8'-0"

GENERAL NOTES:

*** The type 2 object marker may be installed back to back when specified in the plans.

Post Length L was calculated based on a shoulder width of 6 feet at a crosslope of 4 percent and L was rounded up to the nearest 3 inches.

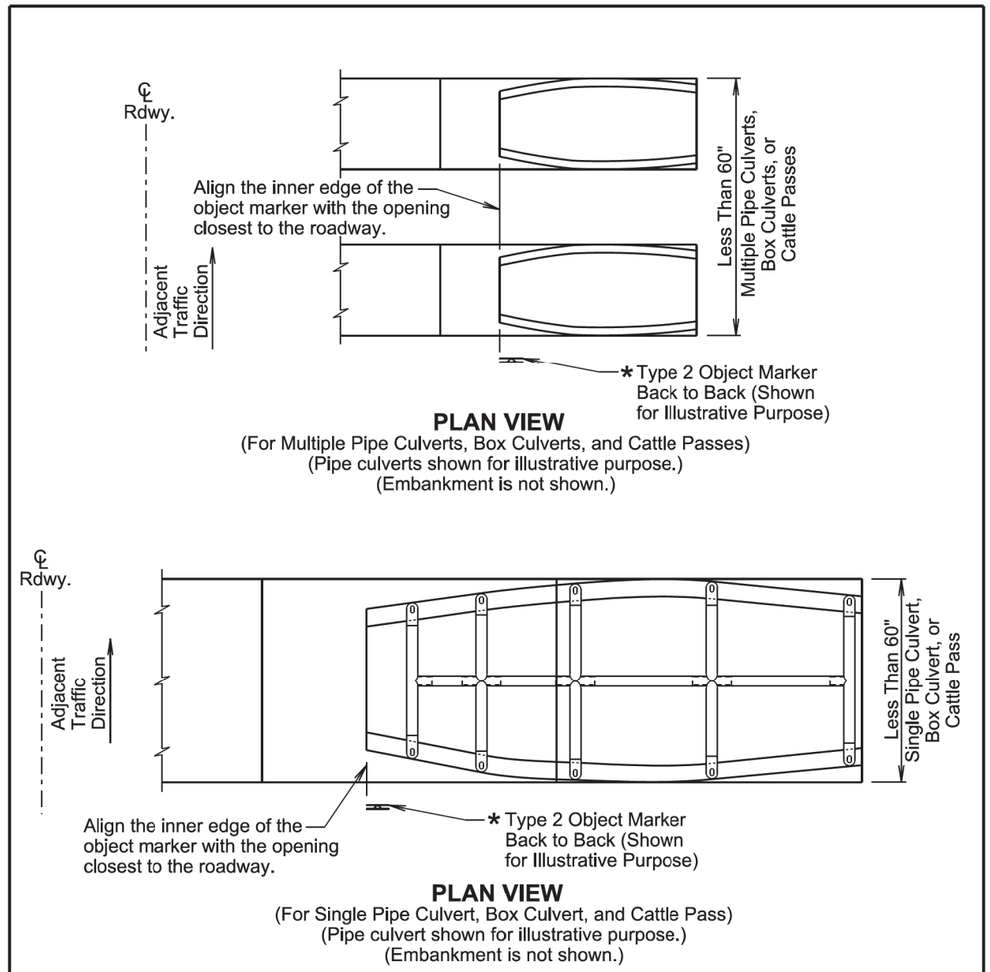
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.

Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

Published Date: 2025	SDDOT	TYPE 2 OBJECT MARKER (DIRECT DRIVE)	PLATE NUMBER 632.01 Sheet 1 of 1



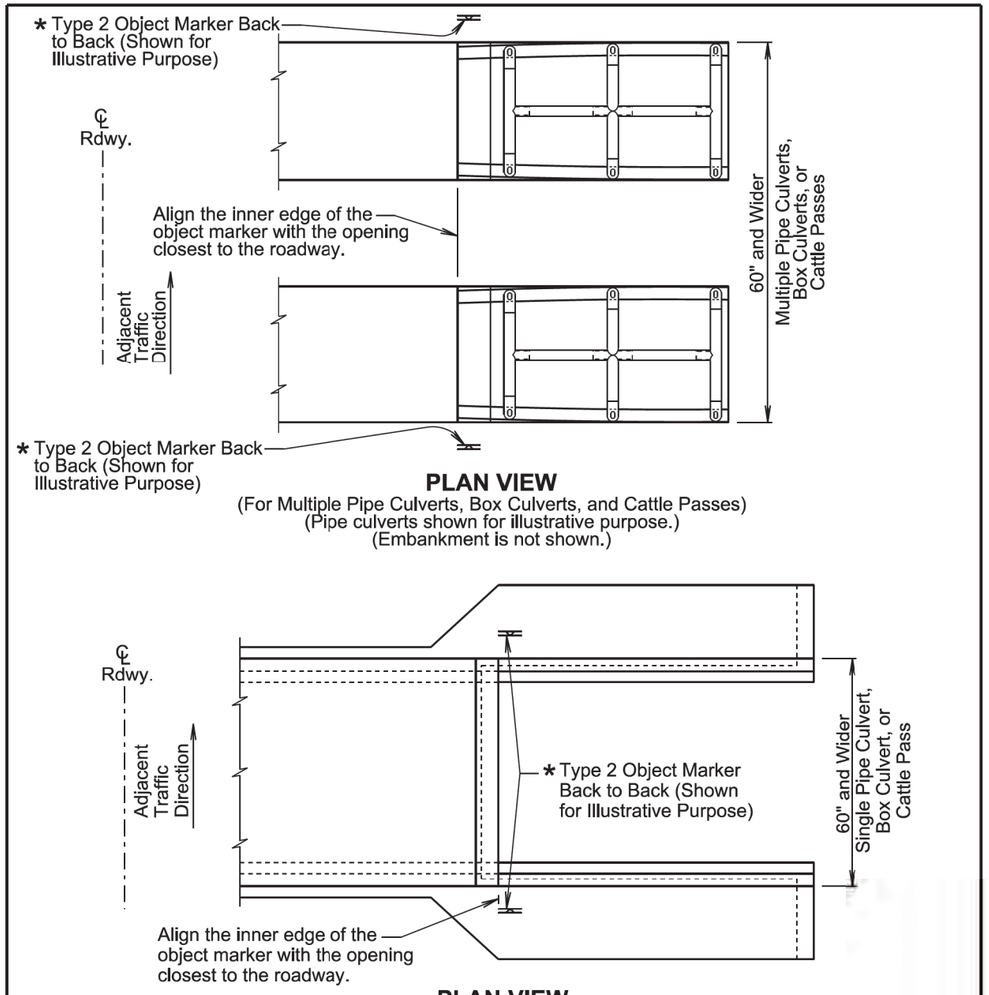
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2025	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (Less than 60" Overall Width)	PLATE NUMBER 632.03 Sheet 1 of 1



PLAN VIEW
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)
(Pipe culverts shown for illustrative purpose.)
(Embankment is not shown.)

PLAN VIEW
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)
(Box culvert shown for illustrative purpose.)
(Embankment is not shown.)

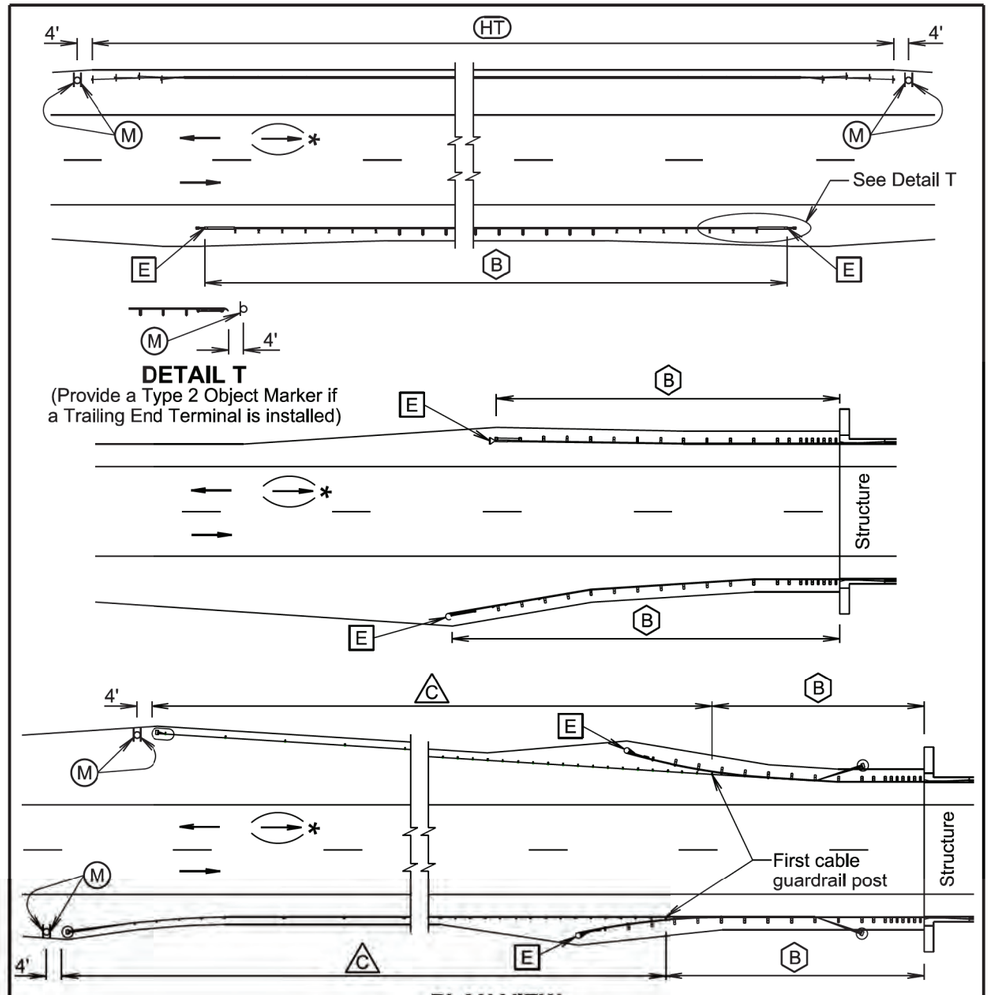
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2025	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (60" and Greater Overall Width)	PLATE NUMBER 632.04 Sheet 1 of 1



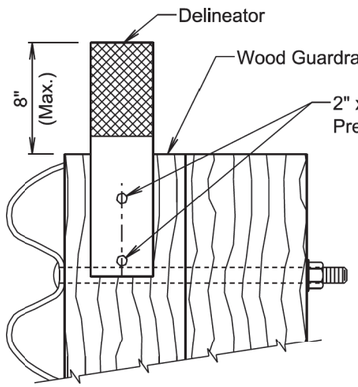
PLAN VIEW
(Typical Guardrail Layouts)

(B) Steel Beam Guardrail Delineation
(E) Guardrail End Terminal Object Marker
(C) 3 Cable Guardrail (Low Tension) Delineation
(HT) High Tension Cable Guardrail Delineation
(M) Type 2 Object Marker

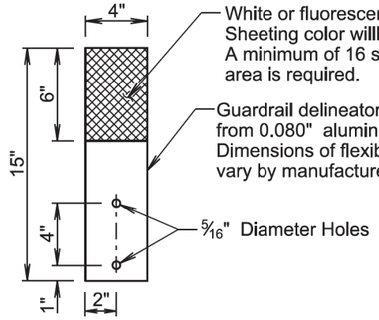
* For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

March 31, 2024

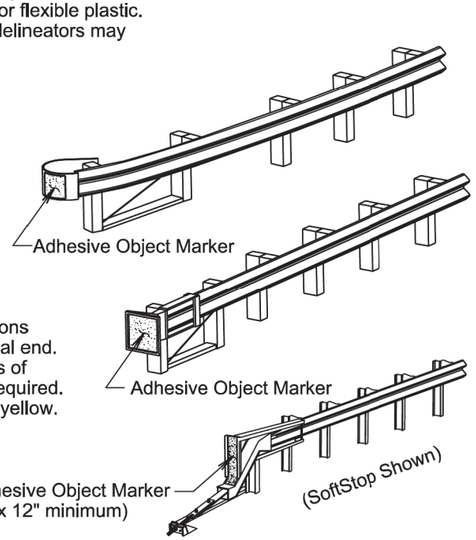
Published Date: 2025	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40 Sheet 1 of 4

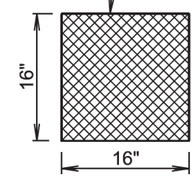


(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



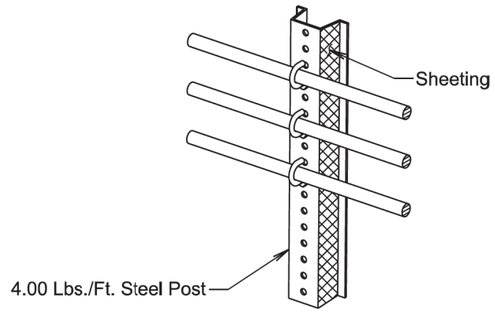


ADHESIVE OBJECT MARKER

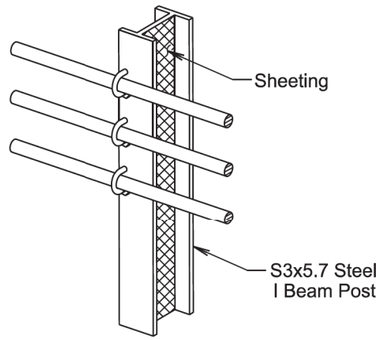
(E) GUARDRAIL END TERMINAL OBJECT MARKER

March 31, 2024

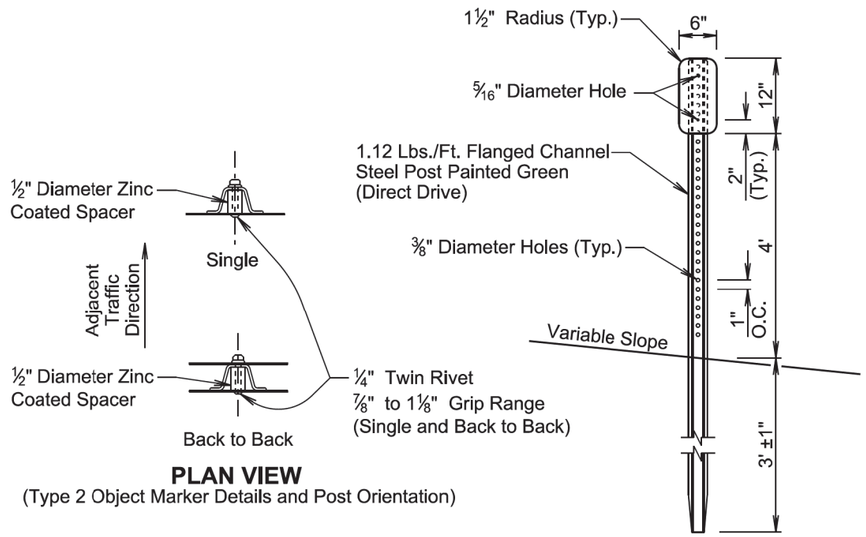
Published Date: 2025	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)

ELEVATION VIEW
(M) (Type 2 Object Marker)
(For Marking 3 Cable Guardrail (Low Tension) Anchor, High Tension Cable Guardrail Anchor, and Trailing End Terminal)

March 31, 2024

Published Date: 2025	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 3 of 4

GENERAL NOTES:

The delineation of high tension cable guardrail will be reflective sheeting placed back to back on every third post cap or cable spacer. Maximum spacing of delineation will not exceed 35 feet. The sheeting will be type XI in conformance with ASTM D4956. The color of the reflective sheeting will be the same as the nearest pavement marking.

The delineators for steel beam guardrail and sheeting on 3 cable guardrail (low tension) posts will be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting will be type XI in conformance with ASTM D4956. Along two-way roadways the sheeting will be on both sides of the delineators and guardrail posts and will be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

When steel beam guardrail is attached to a bridge the first delineator will be attached to the post nearest the bridge.

At bridges with guardrail less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object marker. The spacing between the delineators will be approximately one third of the length of the guardrail.

At bridges with guardrail 200 feet and greater in length, including bridges that have steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

Steel beam guardrail that is not attached to a bridge and is less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object markers. The spacing between the delineators will be approximately one third of the length of the guardrail.

Steel beam guardrail that is not attached to a bridge and is 200 feet and greater in length, including steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation on 3 cable guardrail and steel beam guardrail will be included in the contract unit price per each for "Guardrail Delineator".

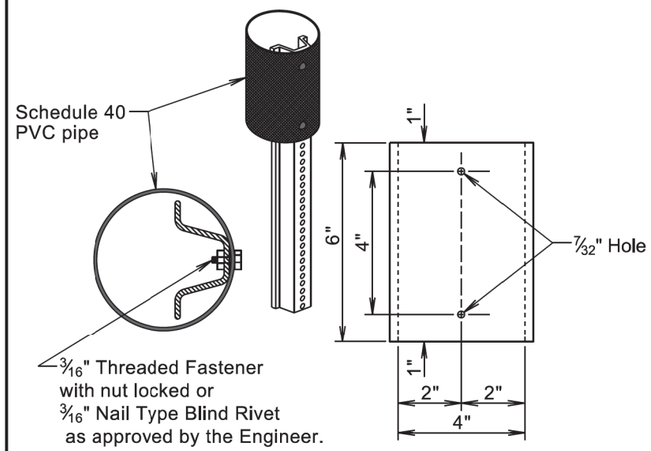
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface area. Other end terminals (SoftStop) will require an adhesive object marker with a minimum size of 6" x 12". The reflective sheeting will be fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the adhesive object marker will be incidental to various contract items.

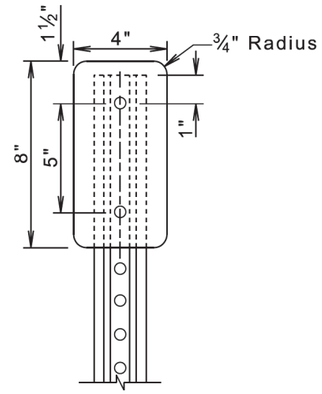
A type 2 object marker will be placed adjacent to the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, and trailing end terminal at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") will have fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware will be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

March 31, 2024

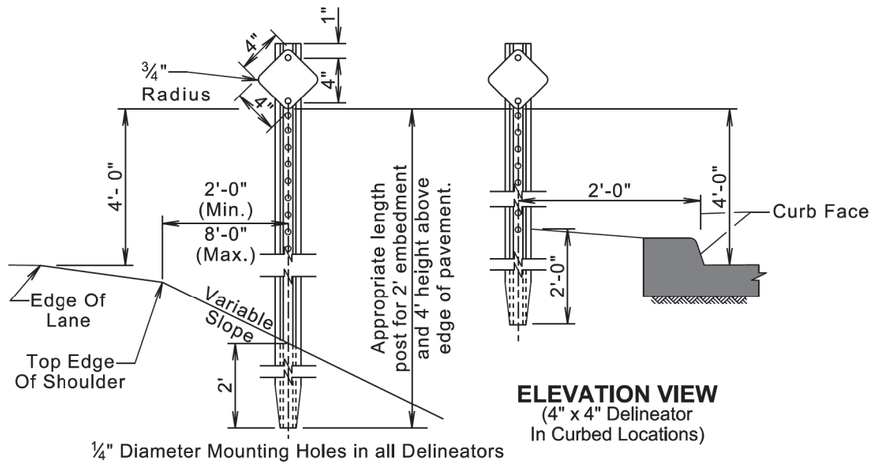
Published Date: 2025	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4



ELEVATION VIEW
(4" Tubular delineator mounted on post)



ELEVATION VIEW
(4" x 8" Delineator)



¼" Diameter Mounting Holes in all Delineators

ELEVATION VIEW
(4" x 4" Delineator In Curbed Locations)

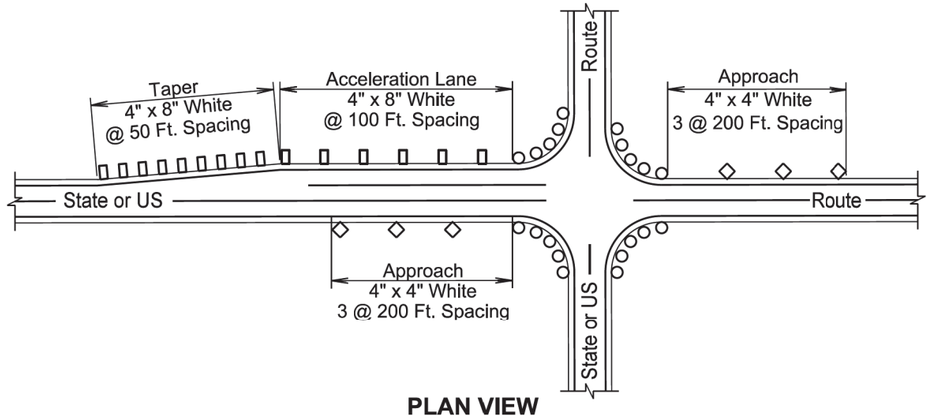
ELEVATION VIEW
(4" x 4" Delineators)

GENERAL NOTES:

Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

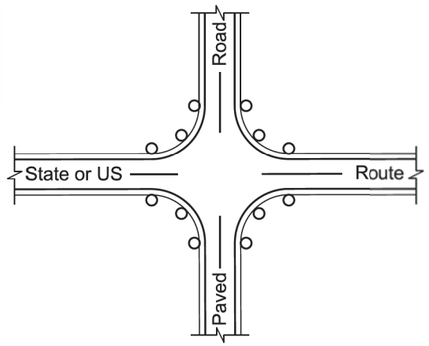
March 31, 2024

Published Date: 2025	SDDOT	DELINEATOR INSTALLATION DETAIL	PLATE NUMBER 632.42
			Sheet 1 of 1



PLAN VIEW
(State or US Highway Intersection)

LEGEND
◇ 4" x 4" White Delineator
▯ 4" x 8" White Delineator
○ 4" x 6" White Tubular Delineator



PLAN VIEW
(Paved County Crossroad)

GENERAL NOTES:

At all intersections with State or US highways and paved county roads:

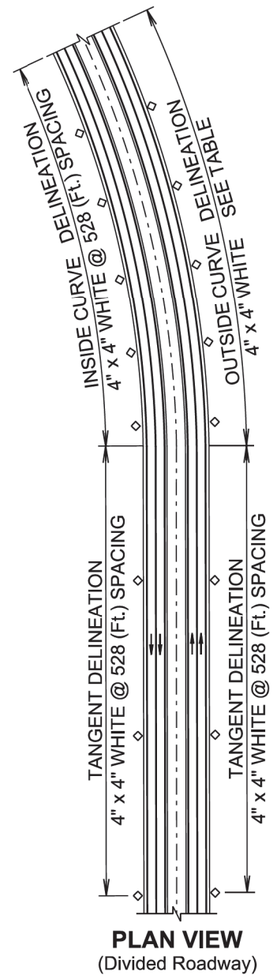
For radii greater than 100 feet, place 5 tubular white delineators on equally spaced posts around the turning radius.

For radii greater than 50 feet up to 100 feet, place 4 tubular white delineators on equally spaced posts around the turning radius.

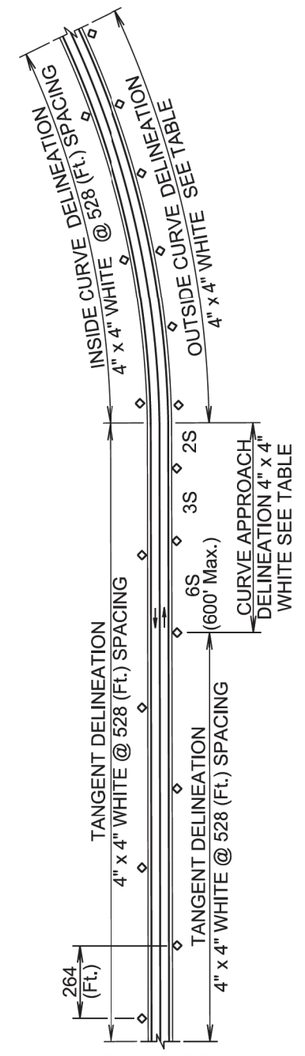
For radii of 50 feet or less, place 3 tubular white delineators on equally spaced posts around the turning radius.

November 19, 2020

Published Date: 2025	SDDOT	DELINEATOR AT INTERSECTIONS	PLATE NUMBER 632.44 Sheet 1 of 1



PLAN VIEW
(Divided Roadway)



PLAN VIEW
(Undivided Roadway)

March 31, 2024

Published Date: 2025	SDDOT	DELINEATOR INSTALLATION SPACING	PLATE NUMBER 632.46 Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0909(92)387	S32	S34

Plotting Date: 8/13/2024

GENERAL NOTES:

Delineators will be located from 2 to 8 feet outside of the outer edge of shoulder. When a roadside barrier or other obstruction intrudes into the space between the pavement edge and the extension of the line of delineators, the delineators should be in line with the barrier or in line with the innermost edge of the obstruction.

When normal spacing is interrupted by driveways, crossroads, or approaches, delineators falling within such areas may be moved in either direction a distance not exceeding one-quarter of the standard spacing. Delineators still falling within such areas should be eliminated.

The spacing for specific radii may be interpolated from the table. The minimum spacing should be 20 feet. The spacing on curves should not exceed 300 feet. In advance of or beyond a curve, and proceeding away form the end of the curve, the spacing of the first delineator is 2S, the second 3S, and the third 6S, but not to exceed 300 feet. S refers to the delineator spacing for specific radii computed from the formula $S = 3\sqrt{R - 50}$. The distances for S shown in the table were rounded to the nearest 5 feet.

Curve approach delineation is not required if curve delineation spacing exceeds 100 ft.

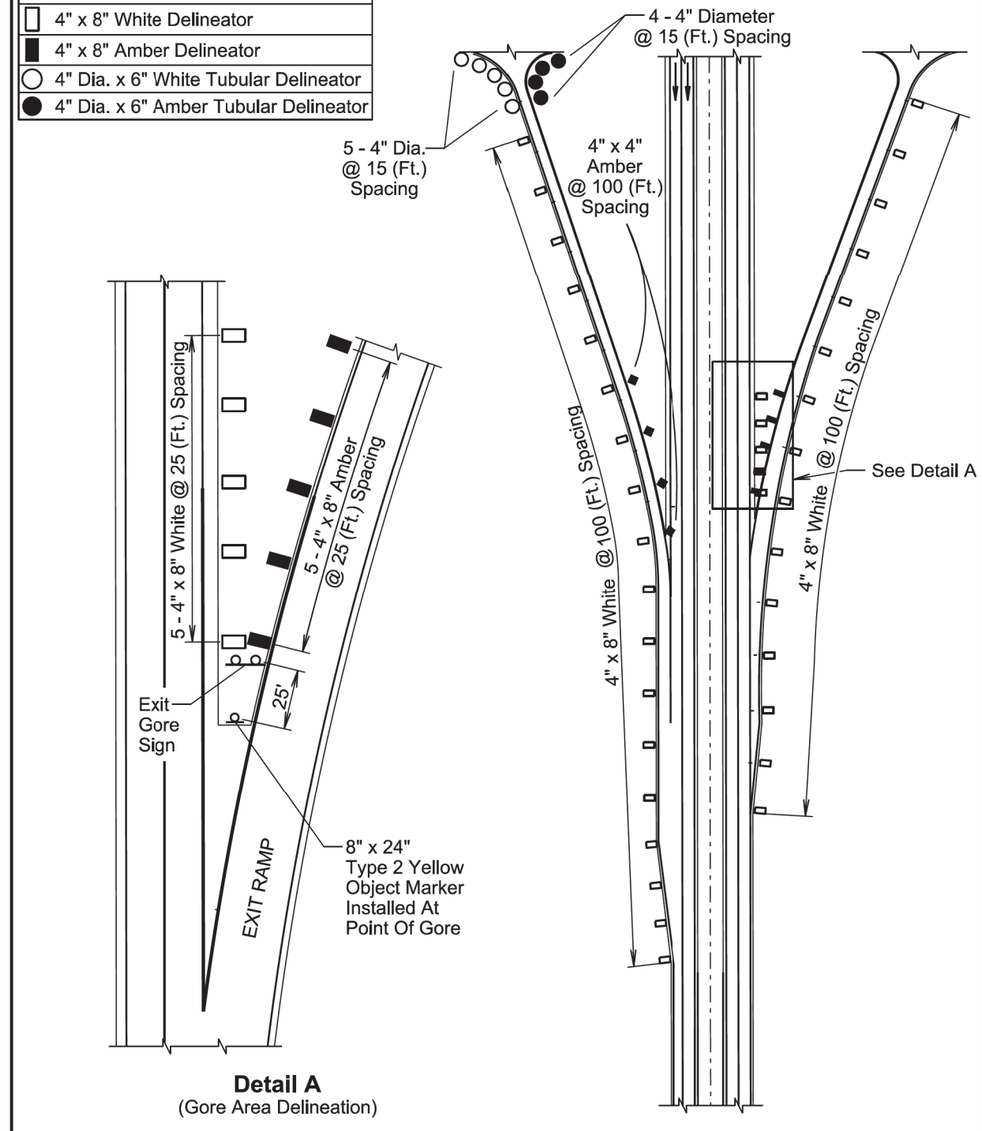
Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

DELINEATOR SPACING OUTSIDE CURVE				
Radius of Curve (Ft.)	Curve Delineator Spacing (Ft.)	Curve Approach Spacing (Ft.)		
		A	B	C
50	20	40	65	125
115	25	50	75	150
150	30	60	90	180
180	35	70	110	215
250	40	85	125	250
300	45	95	140	285
400	55	110	170	300
500	65	125	190	300
600	70	140	210	300
700	75	150	230	300
800	80	165	245	300
900	85	175	260	300
1000	90	185	275	300

March 31, 2024

Published Date: 2025	SDDOT	DELINEATOR INSTALLATION SPACING	PLATE NUMBER 632.46
			Sheet 2 of 2

LEGEND
4" x 4" White Delineator
4" x 4" Amber Delineator
4" x 8" White Delineator
4" x 8" Amber Delineator
4" Dia. x 6" White Tubular Delineator
4" Dia. x 6" Amber Tubular Delineator



Detail A
(Gore Area Delineation)

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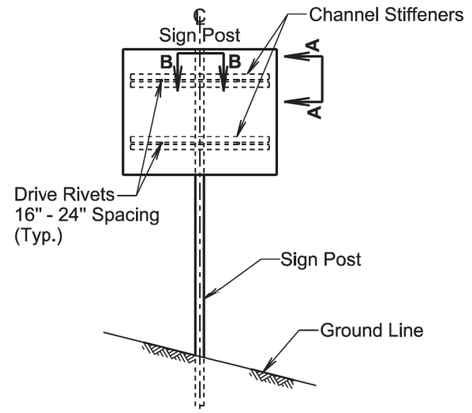
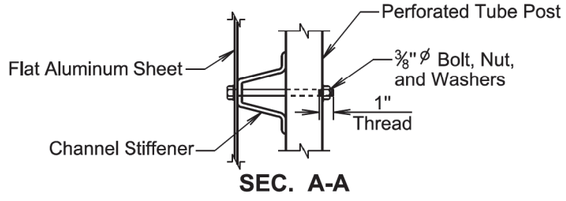
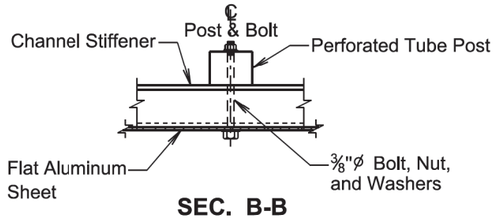
HRGreen



ELEVATION VIEW
(One post breakaway sign supports.)



SEC. A-A



SEC. B-B
(Typical sign and stiffener details.)

ø A plastic washer, as recommended by the sheeting manufacturer, will be installed between the sign face and the metal washer shown.

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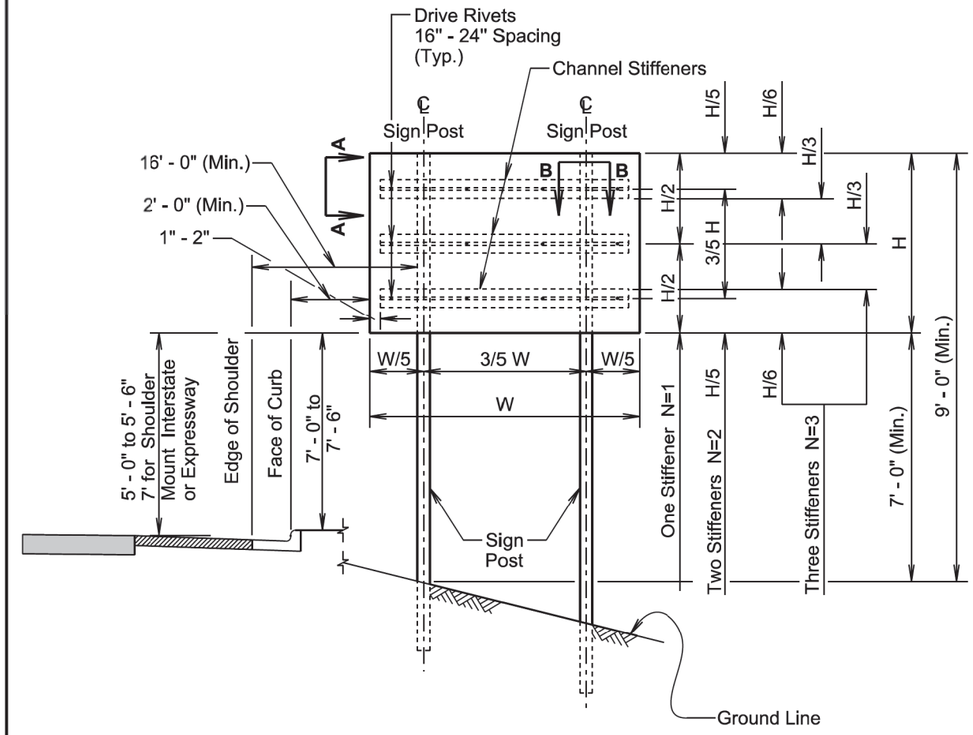

TWO POST BREAKAWAY SIGN SUPPORTS

GENERAL NOTES:

The number of stiffeners used (N) will be as follows:
If H < = 2' - 0" then N = 1
if 2' - 0" < H < = 8' - 0" then N = 2
if 8' - 0" < H < = 15' - 0" then N = 3
where H is the vertical dimension of the sign.

A minimum of two bolts will be required to fasten the sign to each post.

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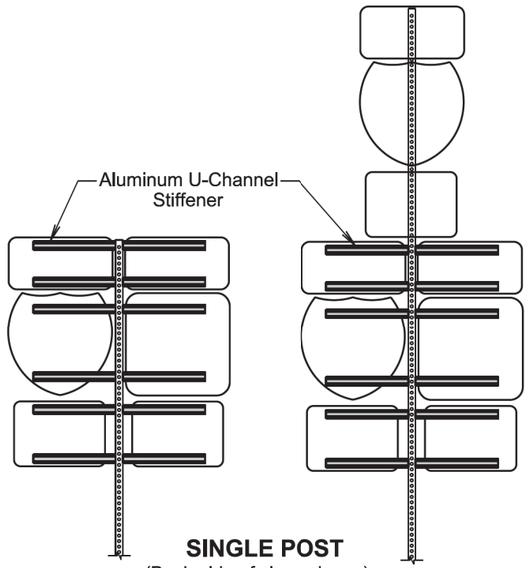
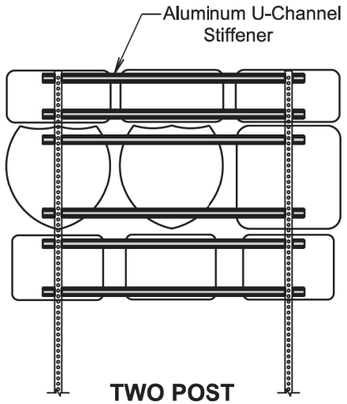
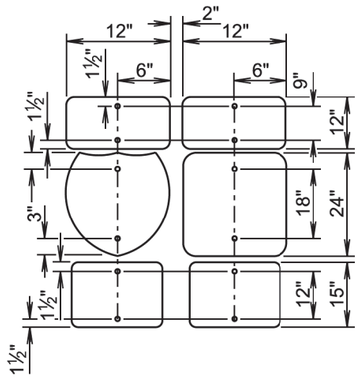


SINGLE POST
(Back-side of signs shown)



TWO POST
(Back-side of signs shown)



TYPICAL ROUTE MARKER BOLT HOLE LOCATIONS

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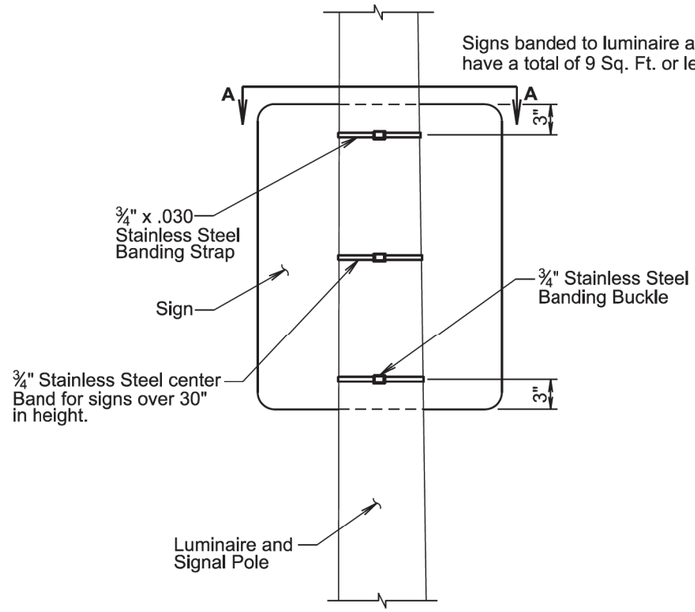
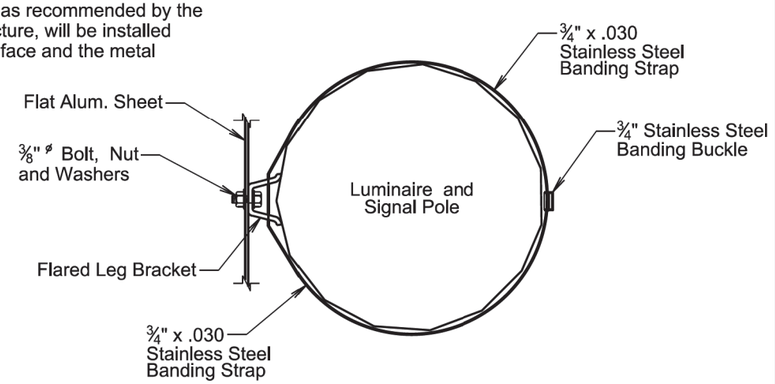


Back View

ø A plastic washer, as recommended by the sheeting manufacture, will be installed between the sign face and the metal washer shown.



View A - A

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Published Date: 2025	SDDOT	BANDING SIGN TO LUMINAIRE AND SIGNAL POLE	PLATE NUMBER 632.80
			Sheet 1 of 1