

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

PROJECT 000I-169
INTERSTATE 29
DEUEL &
ROBERTS COUNTIES

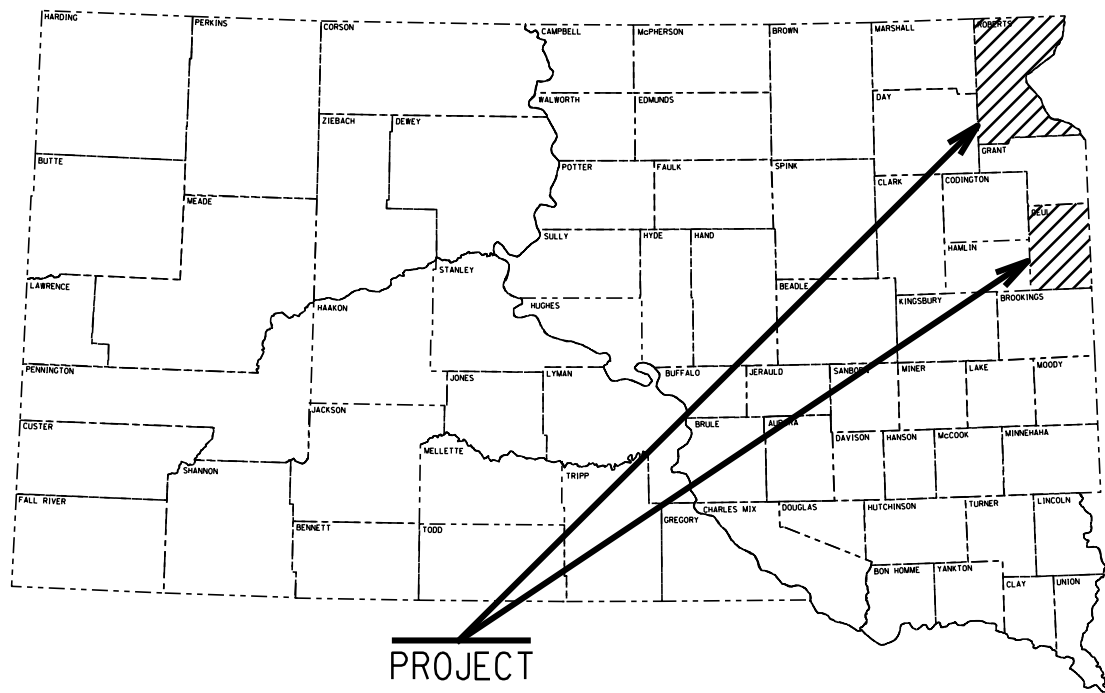
REPLACE SIGN POSTS
 PCN i6JM

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000I-169	1	11

Plotting Date: 08/30/2021

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PROJECT

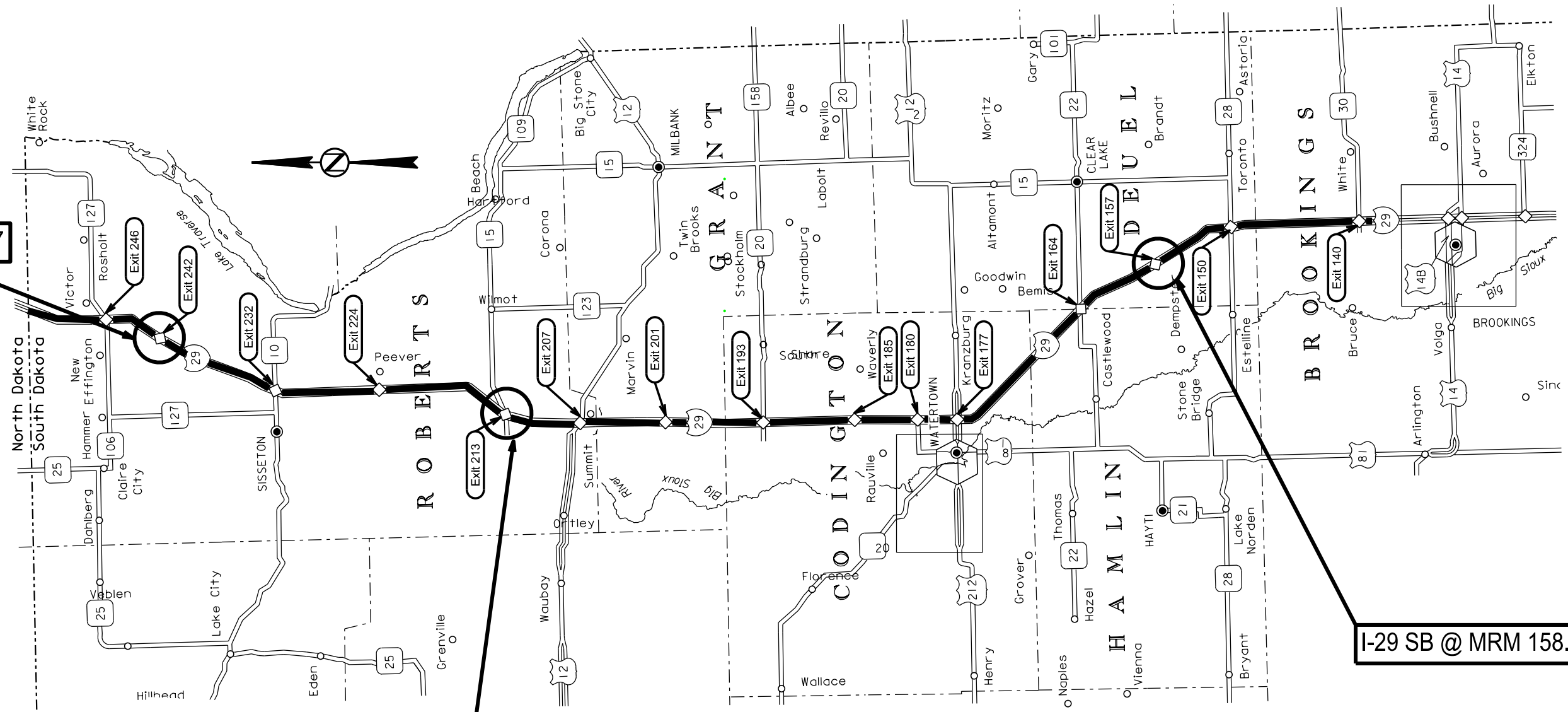
PLOT SCALE - 1:450000

PLOT NAME

I-29 SB @ MRM 242.57

I-29 SB @ MRM 158.03

I-29 SB @ MRM 213.10



DESIGN DESIGNATION

ADT (2020)	3108
ADT (2040)	3942
DHV	493
D	50%
T DHV	13.8%
T ADT	30.3%
V	80

STORM WATER PERMIT

None Required

PLOTTED FROM - TRAB10100

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ESTIMATE OF QUANTITIES

Non-Section Method

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0100	Remove Concrete Footing(s)	Lump Sum	LS
110E7150	Remove Sign for Reset	3	Each
632E0058	2.25' Diameter Fixed Support Concrete Footing	36.0	Ft
632E1235	W6x20 Steel Post	95.0	Ft
632E3500	Reset Sign	3	Each
634E0110	Traffic Control Signs	336.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf> >

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown

and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0001-169	3	11

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	0001-169	4	11

SCOPE OF WORK

Work on the project consist of but is not limited to removing concrete footings and steel posts, reusing the current signs on new steel posts and concrete footings.

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.

EXISTING SIGNS

Signs are summarized in the Table of Signing. This table provides the approximate MRM location, and description for each sign.

All existing posts, footings, and hardware removed and not reset per the plans will become the property of the Contractor.

Holes (greater than 6 inches in diameter) remaining from the removal of sign posts and/or footings will be backfilled and compacted to the satisfaction of the Engineer.

REMOVE SIGN FOR RESET AND RESET SIGN

Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care. The Contractor will remove and dispose of any existing posts for all reset signs that require use of new posts as shown in the Table of Permanent Signing.

All costs for removing, dismantling, and disposing of any existing posts will be incidental to the contract unit price per each for "Remove Sign for Reset". All costs for resetting the existing signs will be incidental to the contract unit price per each for "Reset Sign". All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

Sign hardware is to be reused from existing signs. All costs for any clips, bolts, and other connecting pieces not able to be reused from existing signs will be incidental to the contract unit price per each for "Remove Sign for Reset".

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.

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

GENERAL TRAFFIC CONTROL

Work will be allowed only during daylight hours.

Vehicles used should be equipped with highly visible devices on the equipment such as; high intensity rotating, flashing, oscillating, or strobe lights. All other equipment will display high intensity rotating, flashing, oscillating, or strobe lights visible to traffic in all directions.

Cost of equipment and traffic control devices on equipment, including arrow panels and signs, will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

The Contractor's equipment will be required to enter and leave the project only at interchanges. Crossing of the median will not be allowed.

TRAFFIC CONTROL SIGNS

Traffic control signs have been included in a table for each site. Payment will only be for those signs used on each site.

TABLE OF SIGNING

Exit	Location/ MRM	Lane	Sign Description	W6X20 Steel Post	Posts for Sign	2.25' Diameter Fixed Support Concrete Footing	Remove Sign for Reset	Reset Sign	Comments
				(FT)	(Each)	(Ft)	(Each)	(Each)	
157	158.03	South Bound	Brandt (Arrow)	17, 17.5	2	12	1	1	Reset existing sign on new posts and new footing
			Exit 157 Plaque						
	213.10	South Bound	US 12-5/ Milbank-26/ Sioux Falls-132	16, 16.5	2	12	1	1	Reset existing sign on new posts and new footing 300' south of existing location
242	242.57	South Bound	(Arrow)	14, 14	2	12	1	1	Reset existing sign on new posts and new footing
			Exit 242 Plaque						
Totals				95	6	36	3	3	

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W21-5a	LEFT or RIGHT SHOULDER CLOSED	6	48" x 48"	16.0	96.0
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	6	48" x 48"	16.0	96.0
G20-2	END ROAD WORK	6	48" x 24"	8.0	48.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			336.0

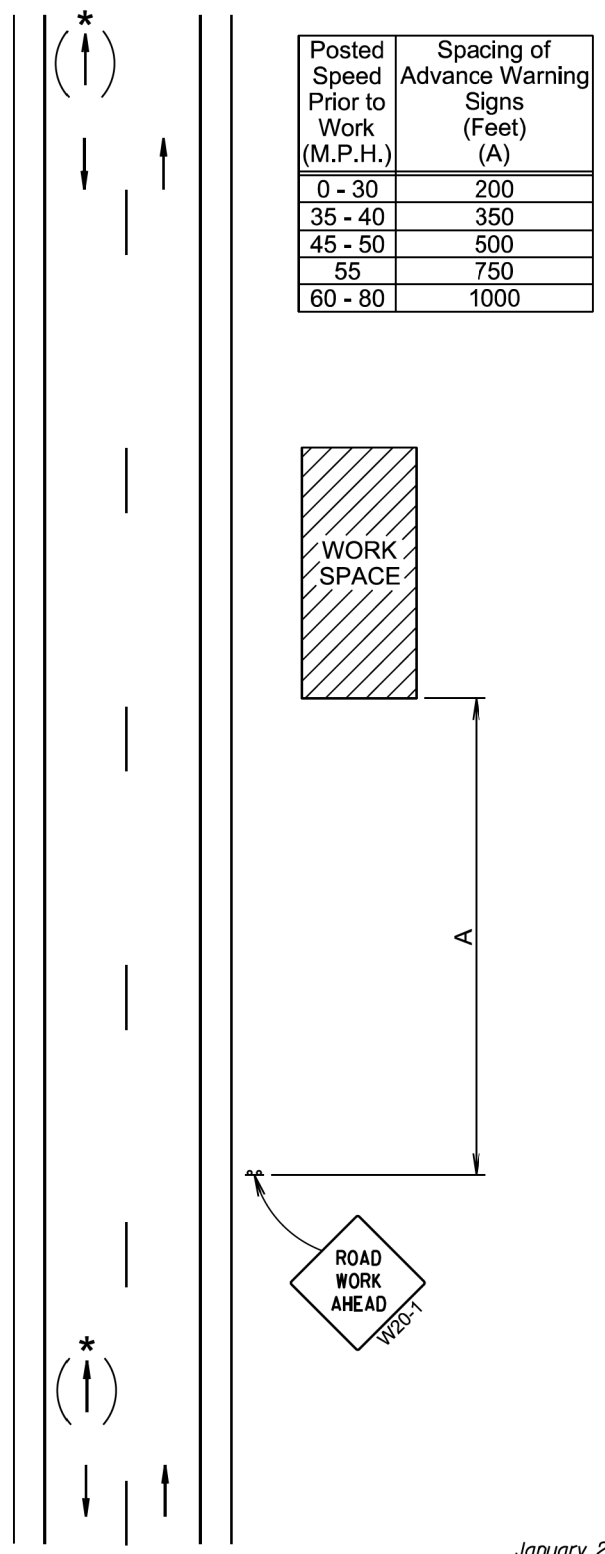
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



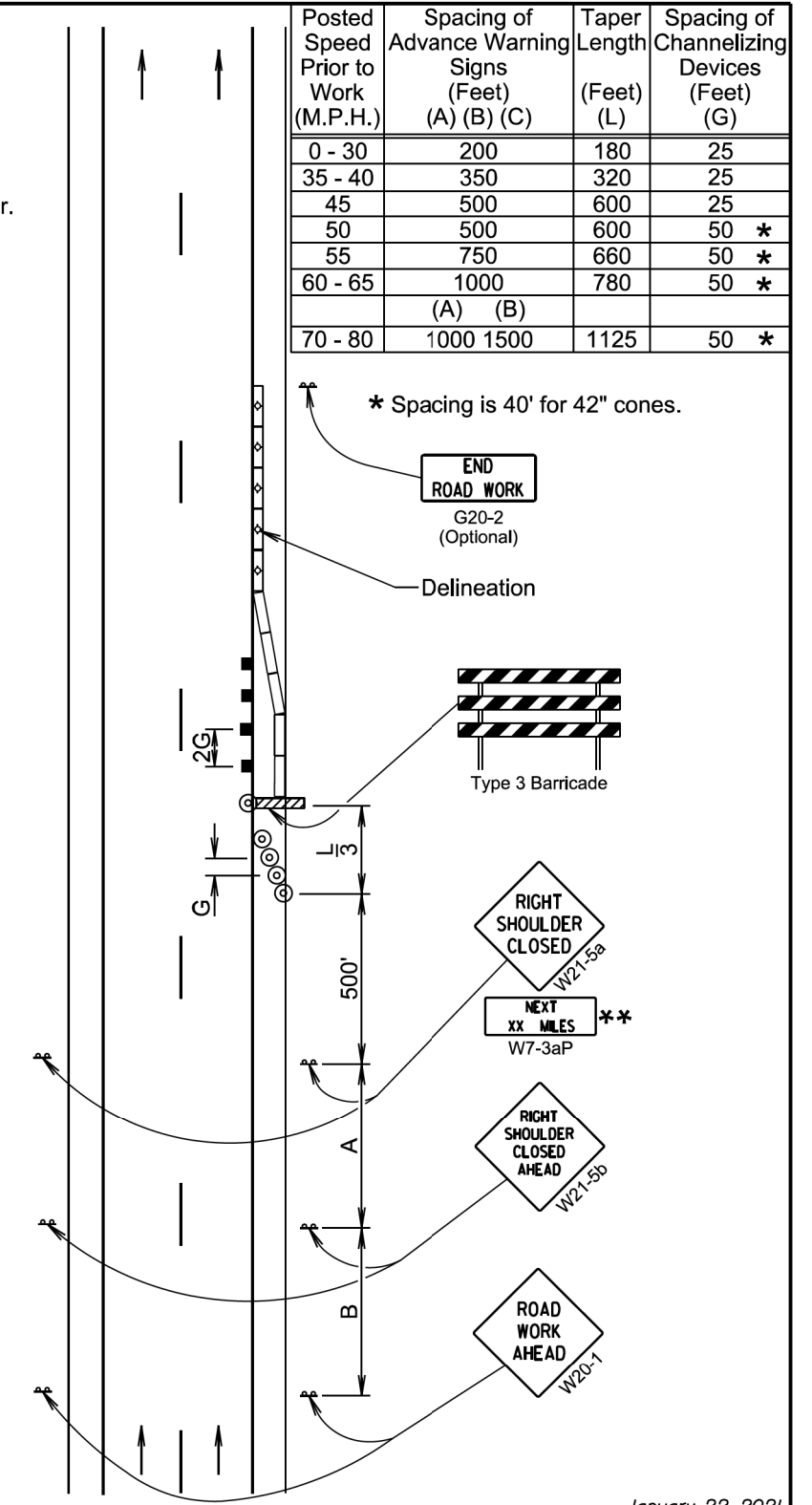
January 22, 2021

Published Date: 3rd Qtr. 2021	S D D O T	WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 of 1

- ⊙ Reflectorized Drum
- Channelizing Device
- ▭ Movable Concrete Barrier
- ** For distances 1/2 mile or greater.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

This standard plate shows one method which may be used to close a shoulder of a roadway for a long term project. The Engineer will determine if the use of barriers is required. If barriers are required, the layout details will be included elsewhere in the plans.



January 22, 2021

Published Date: 3rd Qtr. 2021	S D D O T	SHOULDER CLOSED	PLATE NUMBER 634.61
			Sheet 1 of 1

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
MRM 158.03 SB	W6 X 20	2.25	6	15	2.5	3/4	1	33	20	8	*8	5.6667	1.9167	51
MRM 213.10 SB	W6 X 20	2.25	6	15	2.5	3/4	1	33	20	8	*8	5.6667	1.9167	51
MRM 242.57 SB	W6 X 20	2.25	6	15	2.5	3/4	1	33	20	8	*8	5.6667	1.9167	51

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 1/2 extra turns at each end. Use 1 1/2 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.

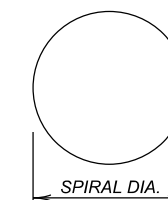
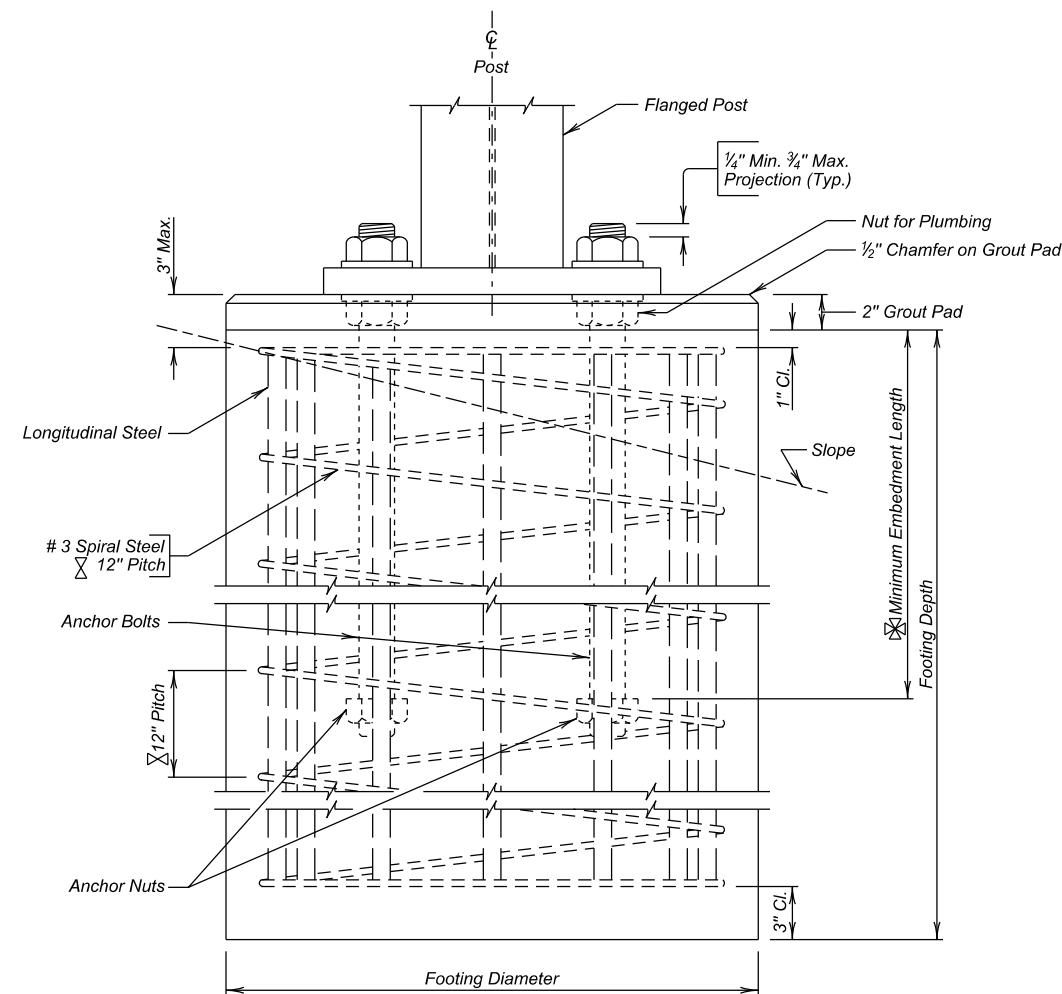
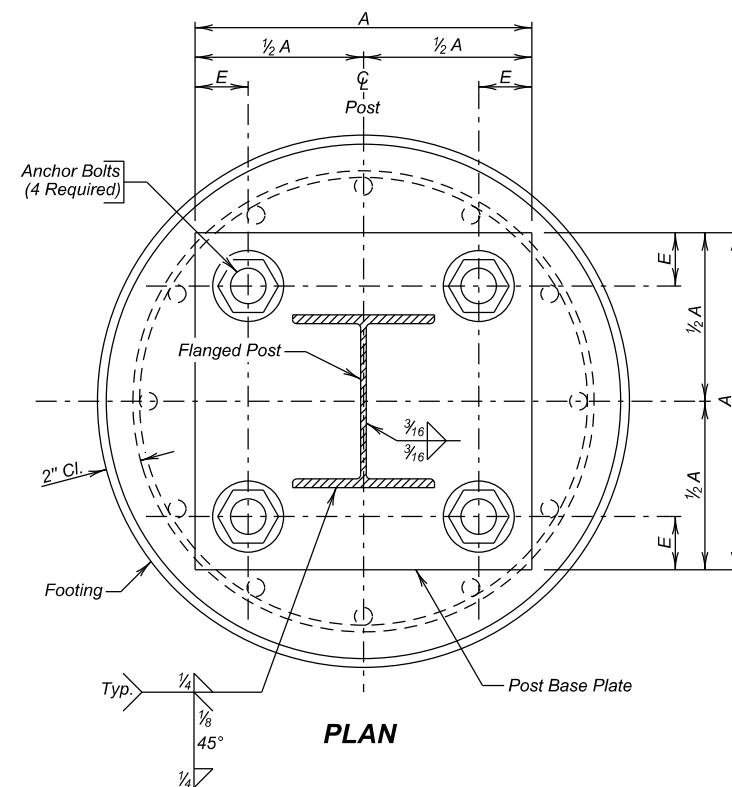
See Footing Detail

NOTES

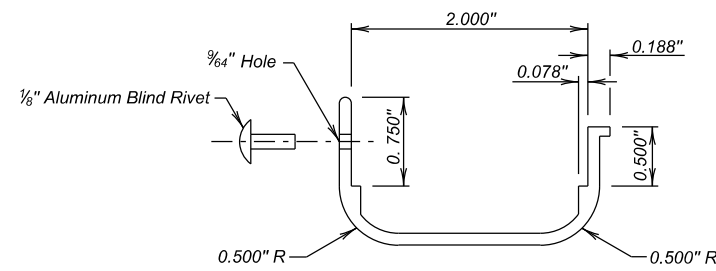
- Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 2001 Edition with 2003 Interims.
- Concrete Footings shall be Class M6 - $f_c = 4000$ p.s.i.
- Structural Steel shall conform to ASTM A36.
- All Reinforcing Steel, except spirals, shall conform to ASTM A615 Grade 60.
- 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.
- 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.
- Anchor Rods shall have 7" thread length on both ends.
- All nuts shall conform to ASTM A563, DH. All nuts shall be heavy hex. All washers shall conform to ASTM F436.
- 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.
- 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).
- 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



SIDE TRIM MOLDING

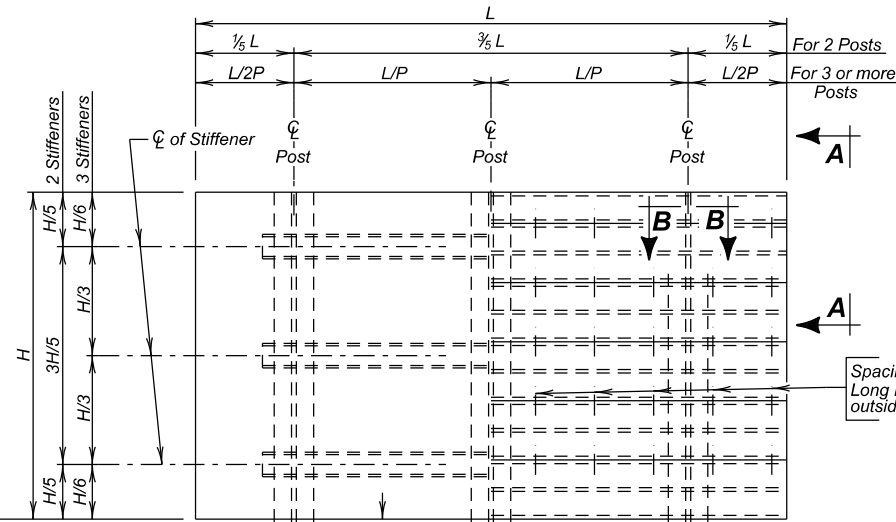
Side Trim Molding is required on all vertical edges of extruded panels. They shall be fastened at a minimum of one (1) rivet per panel.

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

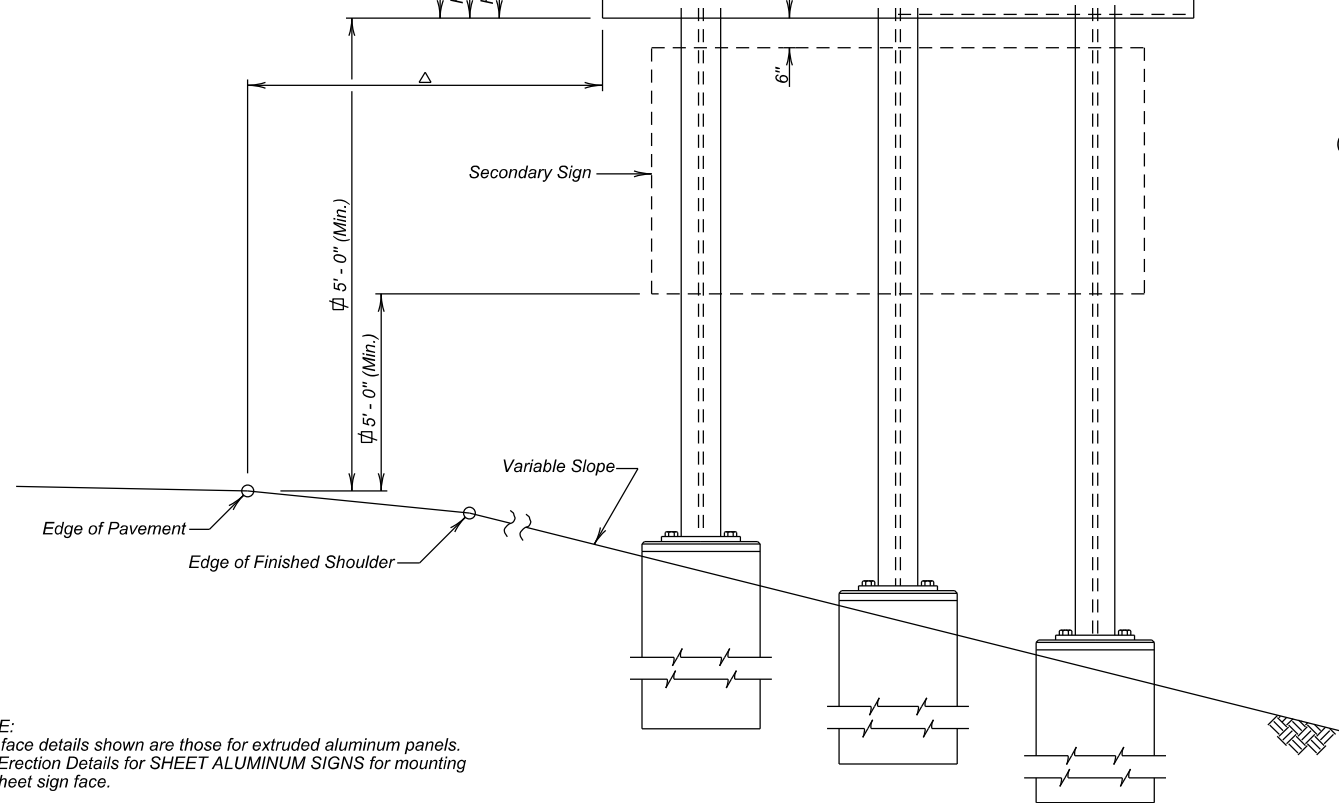
NOTE:
2 stiffeners are required when H is 8' - 0" or less
3 stiffeners are required when H is more than 8' - 0"

Δ 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.

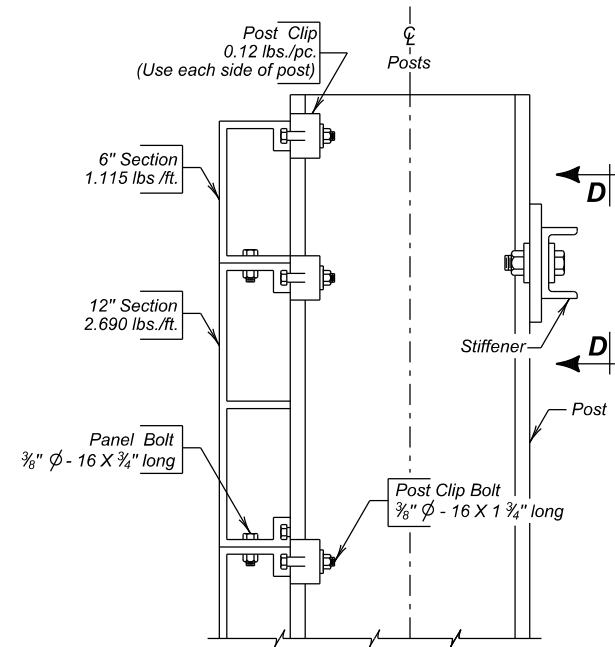


Spacing for 3/8" - φ 16 X 3/4" Long Panel Bolts (3" or 6" from outside edges and 1'- 0" apart.)

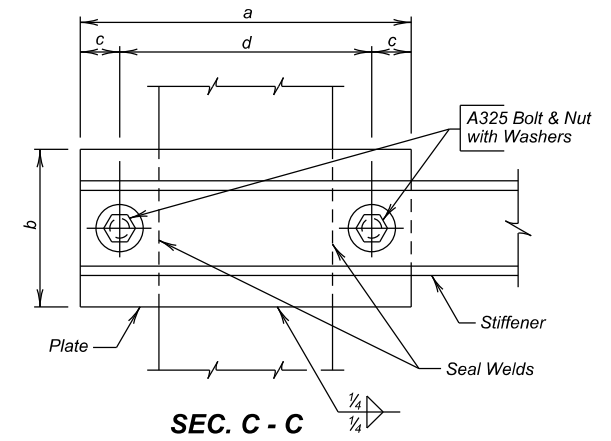


ELEVATION

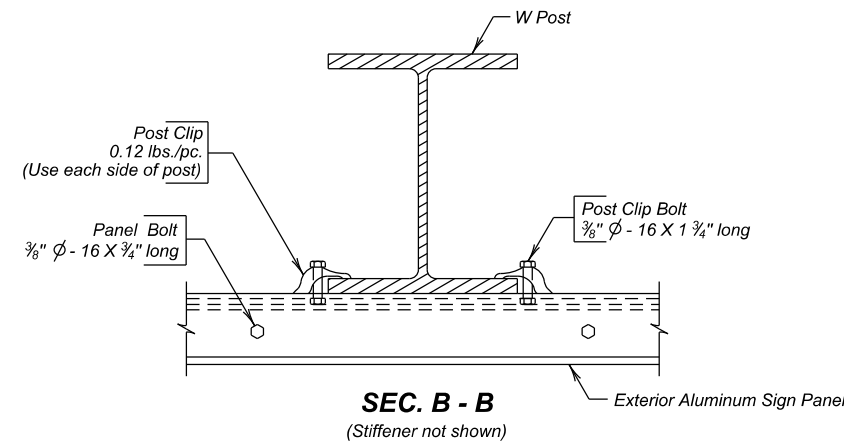
NOTE:
Sign face details shown are those for extruded aluminum panels. See Erection Details for SHEET ALUMINUM SIGNS for mounting flat sheet sign face.



SEC. A - A

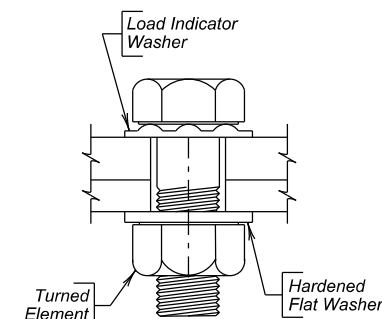


SEC. C - C



SEC. B - B

(Stiffener not shown)



LOAD INDICATOR WASHER DETAIL

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"	3/8" φ	3/16"
W8X24 thru W10X45	C5X6.7	13 1/2"	6"	1 1/2"	10 1/2"	7/8" φ	3/8"

STIFFENER BOLTING PROCEDURE

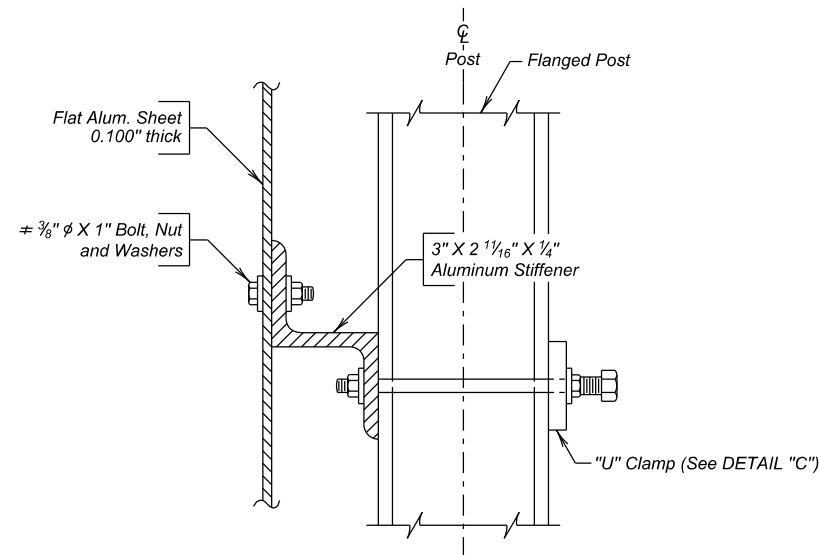
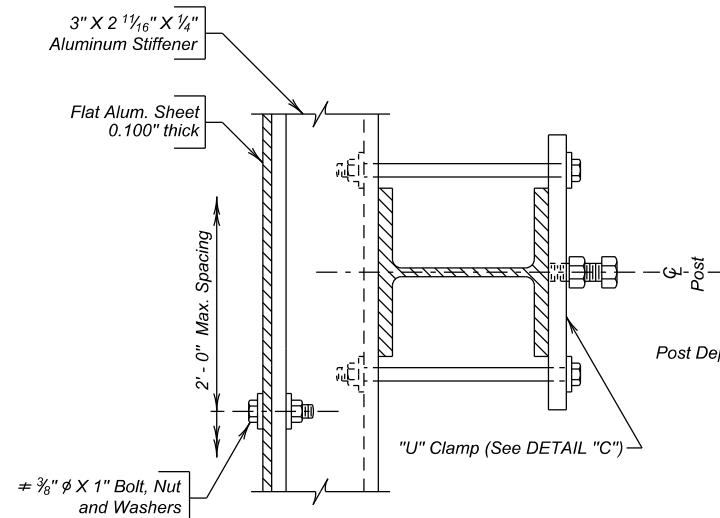
High strength bolts shall be tightened so as to obtain a minimum residual tension by the use of load indicator washers.

ERECTION DETAILS

FOR
FIXED SIGN SUPPORTS

S. D. DEPT. OF TRANSPORTATION

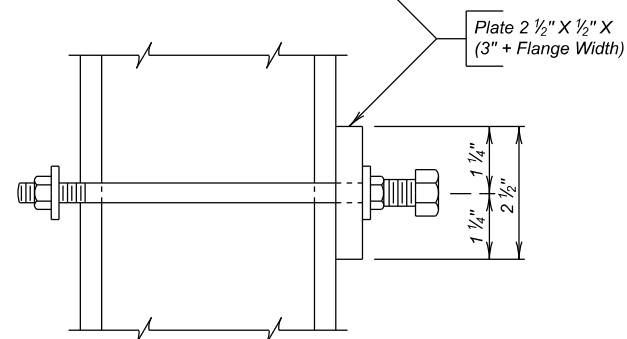
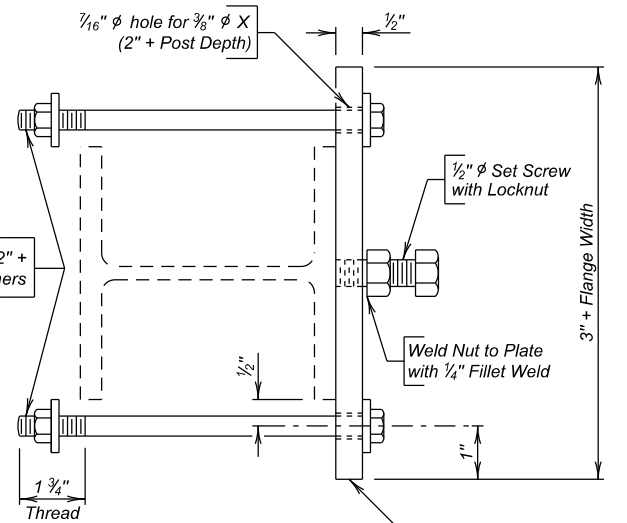
DECEMBER 2016



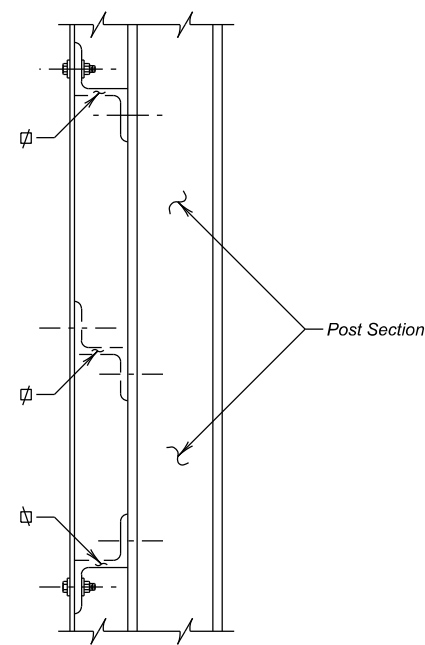
DETAILS FOR MOUNTING SHEET ALUMINUM SIGNS ON STEEL FLANGED POSTS

STIFFENER NOTES

- Stiffeners must always be used on multiple post breakaway signs regardless of type of sign face employed.
- Number of stiffeners used, N, shall be as follows:
 If $H \leq 2' - 0''$ then $N = 1$
 If $2' - 0'' < H \leq 8' - 0''$ then $N = 2$
 If $8' - 0'' < H \leq 15' - 0''$ then $N = 3$
 where H equals the vertical dimension of the sign panel of sign cluster.
- All stiffener Bolts and Nuts shall conform to ASTM A307. Washers shall conform to ASTM F436. All hardware shall be galvanized in accordance with ASTM F2329.

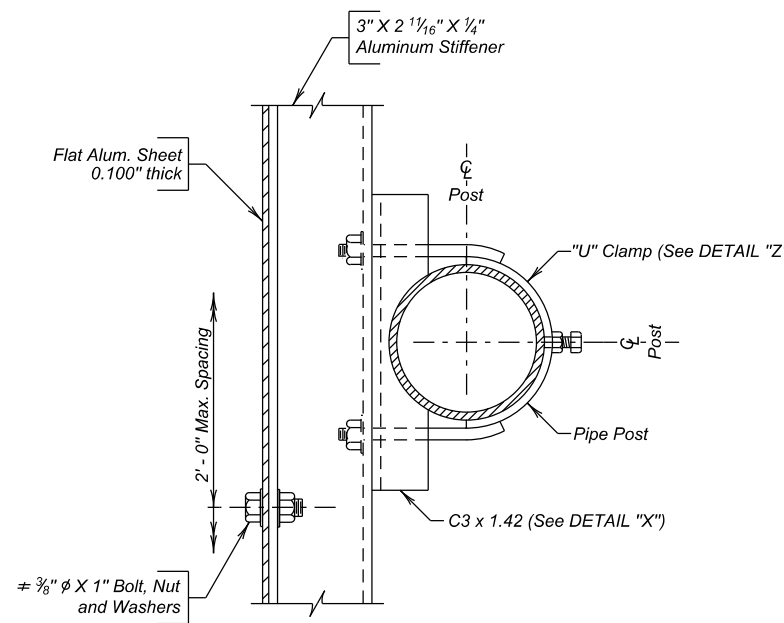


DETAIL "C"

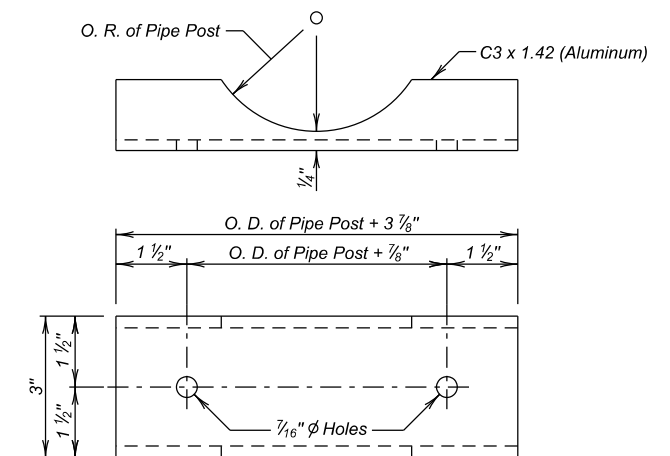


POSITIONING OF TOP AND BOTTOM STIFFENERS

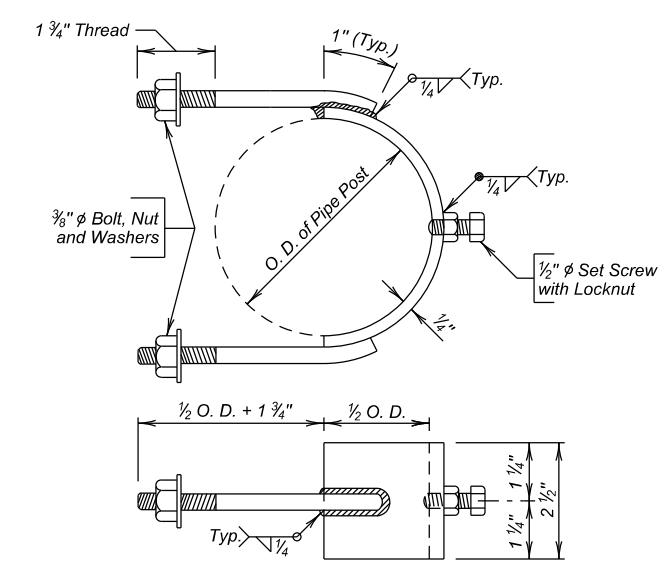
* A plastic washer, as recommended by the sheeting manufacturer, shall be installed between the sign face and the metal washer shown.



DETAILS FOR MOUNTING SHEET ALUMINUM SIGNS ON STEEL PIPE POSTS



DETAIL "X"



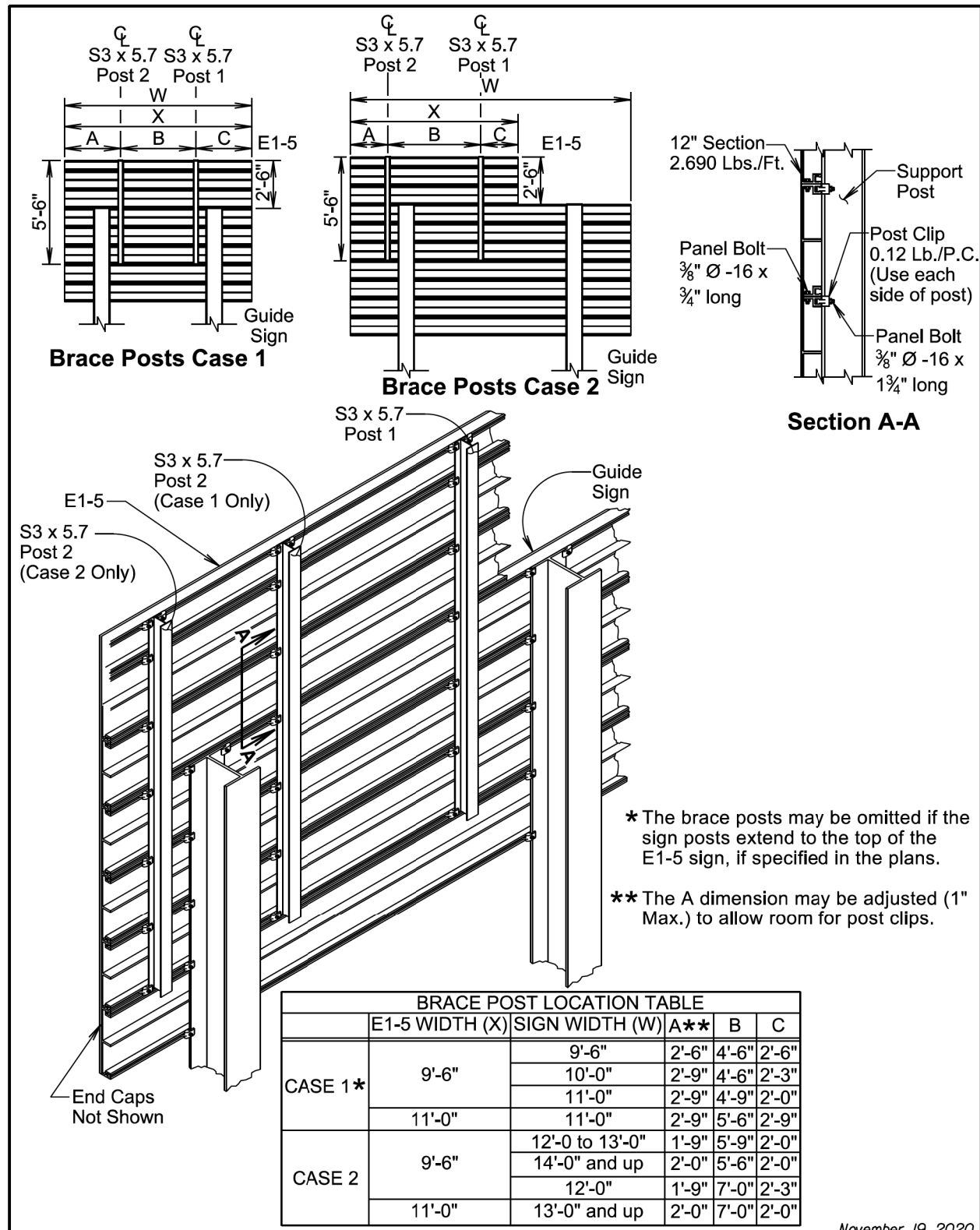
DETAIL "Z"

ERECTION DETAILS FOR SHEET ALUMINUM SIGNS

(ON FLANGED AND PIPE POSTS)
 S. D. DEPT. OF TRANSPORTATION
 DECEMBER 2016

PLOT SCALE - 1:200

PLOT NAME - 1



- * The brace posts may be omitted if the sign posts extend to the top of the E1-5 sign, if specified in the plans.
- ** The A dimension may be adjusted (1" Max.) to allow room for post clips.

	E1-5 WIDTH (X)	SIGN WIDTH (W)	A**	B	C
CASE 1*	9'-6"	9'-6"	2'-6"	4'-6"	2'-6"
		10'-0"	2'-9"	4'-6"	2'-3"
		11'-0"	2'-9"	4'-9"	2'-0"
CASE 2	9'-6"	12'-0" to 13'-0"	1'-9"	5'-9"	2'-0"
		14'-0" and up	2'-0"	5'-6"	2'-0"
	11'-0"	12'-0"	1'-9"	7'-0"	2'-3"
		13'-0" and up	2'-0"	7'-0"	2'-0"

November 19, 2020

S D D O T	ERECTING E1-5P EXIT NUMBER PLAQUES ABOVE GUIDE SIGNS	PLATE NUMBER 632.35
	Published Date: 3rd Qtr. 2021	Sheet 1 of 1

PLOTTED FROM - TRAB10100

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