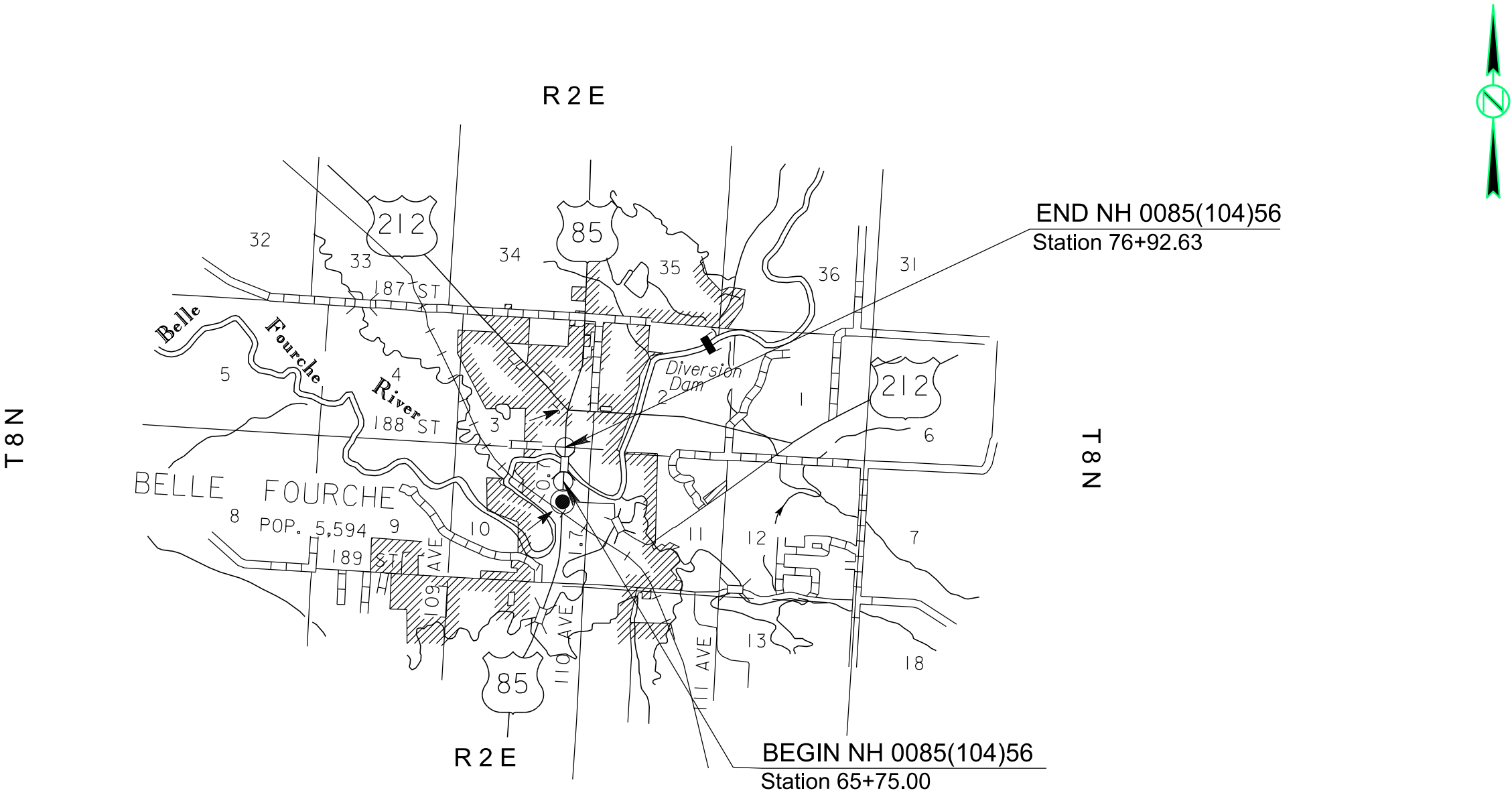


SECTION S: PERMANENT SIGNING PLANS

 Plotting Date: 2/17/2026	PROJECT	SECTION	SHEET
	EM 0085(104)56	S	1/10

INDEX OF SHEETS

S1	General Layout with Index
S2-S4	Estimate with General Notes & Tables
S5-S6	Signing Layouts
S7	Standard Details
S8-S10	Standard Plates



SECTION S – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E0130	Remove Traffic Sign	2	Each
110E7150	Remove Sign for Reset	3	Each
632E1340	2.5"x2.5" Perforated Tube Post	42.2	Ft
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	15.0	SqFt
632E3500	Reset Sign	3	Each

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.

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, posts, and bases 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.

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 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”.

SQUARE TUBE POST SLEEVE

All 2.5” x 2.5”, 10 Gauge perforated tube post will be sleeved with a 2-3/16” x 2-3/16” x 4’, 10 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.

 Plotting Date: 2/17/2026	PROJECT	SECTION	SHEET
	EM 0085(104)56	S	2/10

POLE MOUNTED SIGNS

Signs that are mounted on luminaire poles will be attached with high strength stainless steel bands or galvanized pole clamps. Signs will be attached as recommended by the manufacturer. All sign mounting hardware will be stainless steel or galvanized steel.

Pole mounted signs will be mounted a minimum of 7 ft above the ground. Mounting heights are measured to the bottom of the signs.

All costs for pole sign mounting hardware will be incidental to the contract unit price per square foot for “Flat Aluminum Sign, Nonremovable Copy High Intensity”.

MILEAGE REFERENCE MARKERS

Mileage Reference Markers (MRMs) are not to be disturbed. If an MRM is attached to a sign listed for replacement it will be salvaged and reattached to the new sign in the same location. Payment for this work will be incidental to the various signing contract items.

There is one MRM that will be disturbed with this project. The Contractor will document the location of the MRM, remove the MRM for reset, and reset the MRM in the corresponding location at the northeast corner of the new bridge.

- MRM 56.242

All costs for documenting the location, removing, resetting, hardware and labor will be included in the price per each for “Remove Sign for Reset” and “Reset Sign”.

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 overlamine 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.

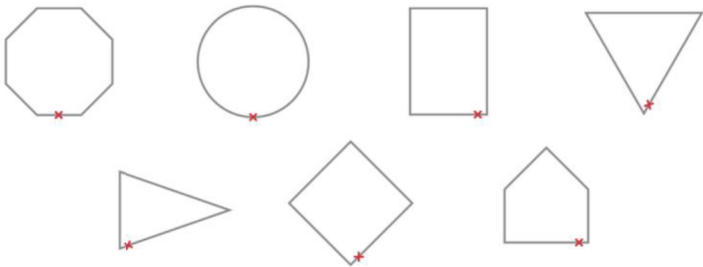
CERTIFIED DIGITAL SIGN FABRICATOR

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.

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.



PCN 04G4 - PERMANENT SIGNING US HWY 85																						LF of 2.5"	FLAT ALUMINUM SIGN	REMOVE SIGN	REMOVE SIGN FOR RESET & RESET SIGN
HWY	STA & OFFSET Existing	STA & OFFSET New	SIGN									POST									SIGN DESCRIPTION		WORK TO BE DONE		
			Side of Road	Width (in)	Height (in)	Direction Facing	Location	New Sign	Sign Type	Square Footage	Sheeting Type	New Post	Length Post #1 (ft)	Offset to center of Post #1 (ft)	Length Post #2 (ft)	Offset to center of Post #2 (ft)	Size (in)	# of Posts	Shear Slip Base						
US 85	67+15 37' L	67+10 33' L	Left	30	36	North	ROW	YES	FLAT ALUM	7.5	IV	NO								R2-1: Speed Limit 25	Remove existing sign from existing light pole. Install new sign on new light pole in new location above relocated VSFS (VSFS relocation specified in Section L).		7.5	1	
US 85	67+17 34' R	67+10 40' R	Right	30	36	South	ROW	YES	FLAT ALUM	7.5	IV	NO								R2-1: Speed Limit 35	Remove existing sign and posts. Install new sign on new light pole in new location.		7.5	1	
US 85	68+31 36' R	68+16 43' R	Right			South	ROW	NO		0.0		YES	10.1	43.0	11.0	46.9	2.5	2	YES	Memorial Bridge: SGT Lelund M Kahler, Memorial Bridge, Belle Fourche River	Remove existing sign for reset and remove existing posts. Reset existing sign on new posts in new location.	21.1			1
US 85	74+62 15' L	74+74 32' L	Left			North	ROW	NO		0.0		YES	10.1	32.0	11.0	35.9	2.5	2	YES	Memorial Bridge: SGT Lelund M Kahler, Memorial Bridge, Belle Fourche River	Remove existing sign for reset and remove existing posts. Reset existing sign on new posts in new location.	21.1			1
US 85			Right			North/South	ROW	NO				NO								MRM: 56.242	Remove existing sign for reset. Reset existing sign.				1
TOTALS:																						42.2	15.0	2	3

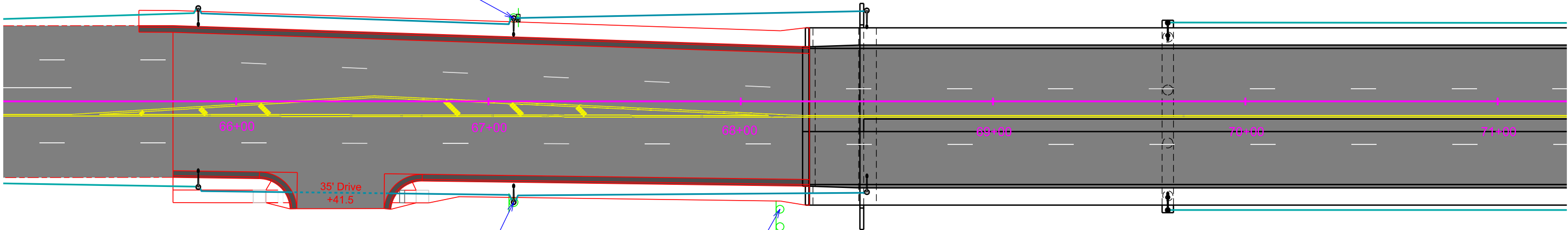
SIGNING LAYOUT



R2-1
(30\"/>

Remove existing sign from existing luminaire pole.
Install new sign on new luminaire pole in new location
above reset VSFS (VSFS relocation specified in Section L).

67+10-33' L



67+10-40' R

Remove existing sign and posts.
Install new sign on new luminaire
pole at new location.



R2-1
(30\"/>

68+16-43' R

Remove existing sign for reset.
Remove existing posts.
Reset existing sign on new posts
in new location



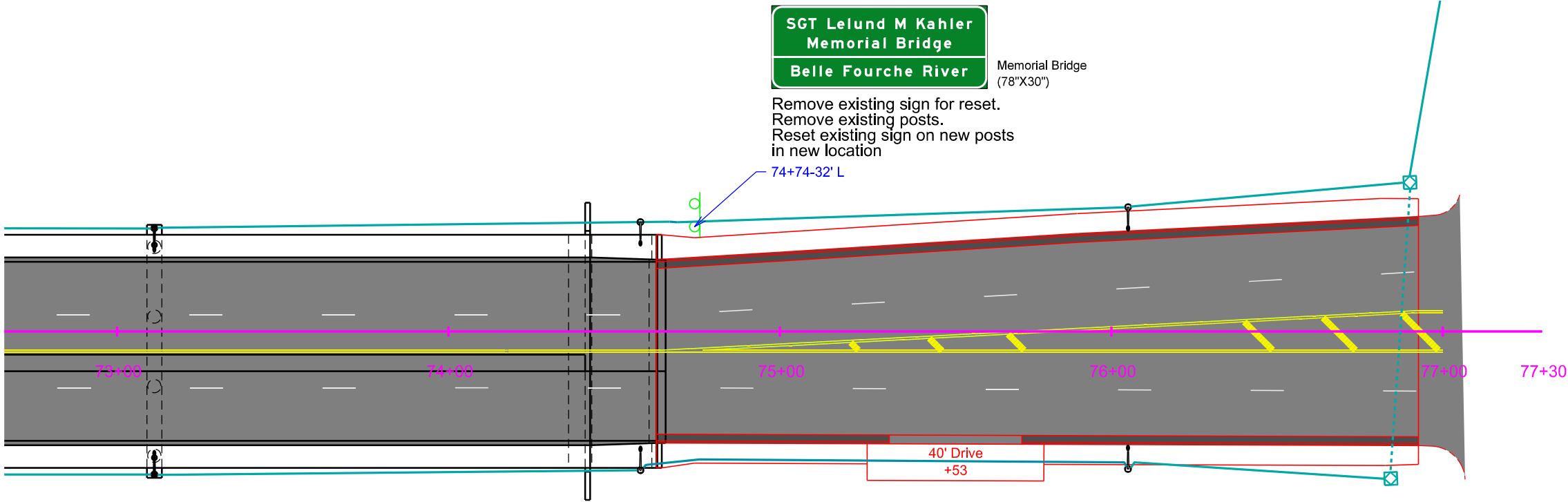
Memorial Bridge
(78\"/>

SIGNING LAYOUT



Plotting Date: 2/17/2026

PROJECT		SECTION	SHEET
EM 0085(104)56		S	6/10



SIGN BASE DETAILS



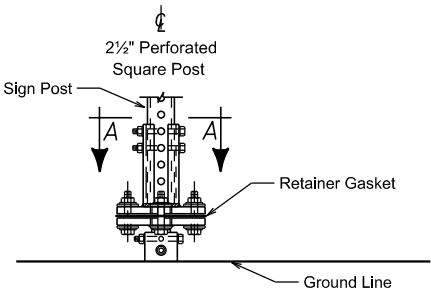
Plotting Date: 2/17/2026

PROJECT
EM 0085(104)56

SECTION SHEET
S 7/10

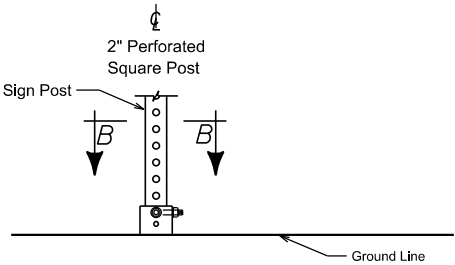
BREAKAWAY SIGN SUPPORTS

SLIP BASE DESIGN

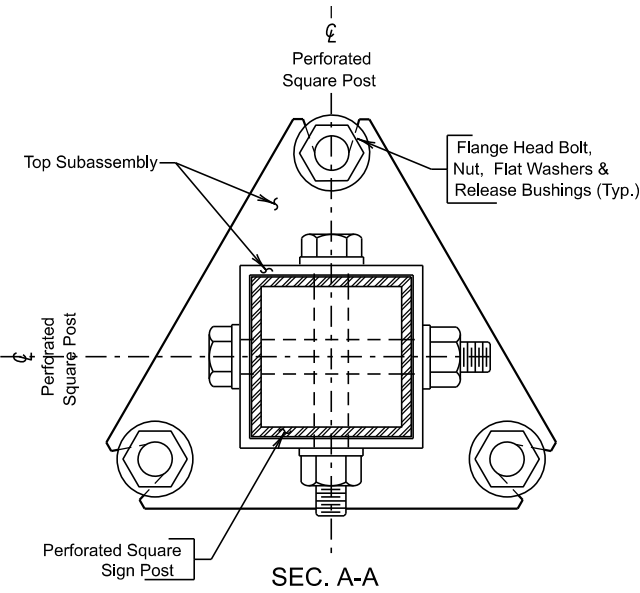


ELEVATION

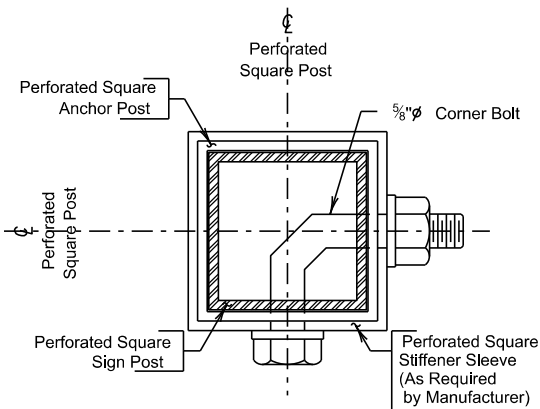
STUB POST DESIGN



ELEVATION



SEC. A-A

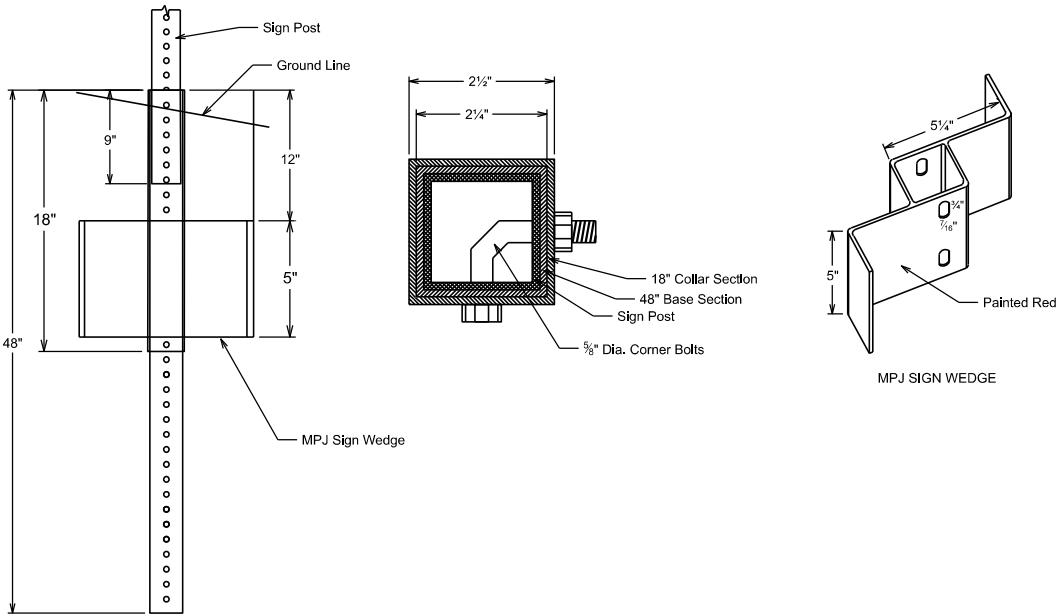


SEC. B-B

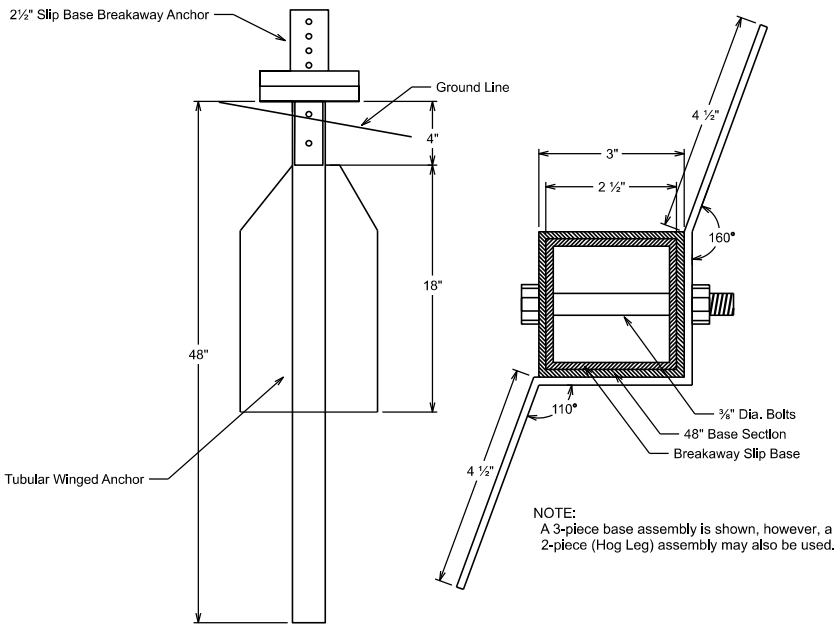
General Notes:

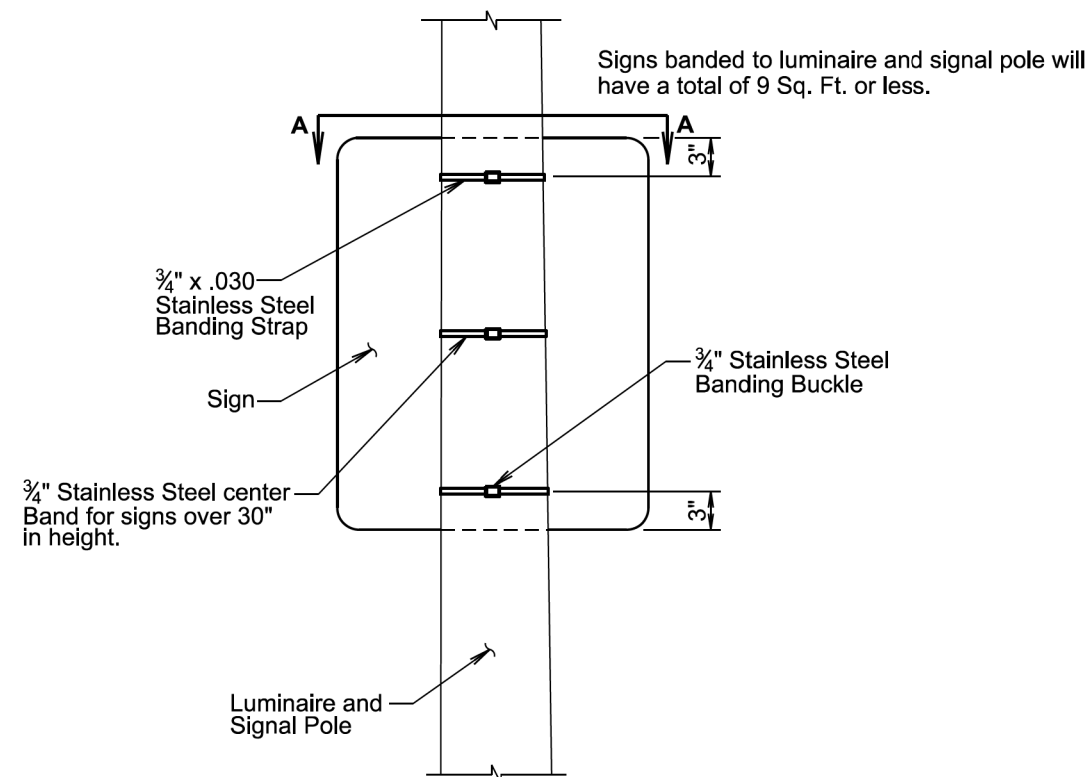
1. Design Specification: AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, Latest Edition.
2. The manufacturer will provide certification that the posts and hardware furnished have essentially the same chemistry, mechanical properties and geometry as that used in the FHWA tests, and that it will meet the FHWA change in velocity requirements.
3. The manufacturer will also provide certification that the breakaway system furnished will develop the full shear and bending yield strength of the sign post section being spliced.
4. All posts will be galvanized in accordance with ASTM A653, Des. G-90.
5. All hardware will be galvanized in accordance with ASTM A153.

SIGN BASE DETAILS FOR A 2" SIGN POST



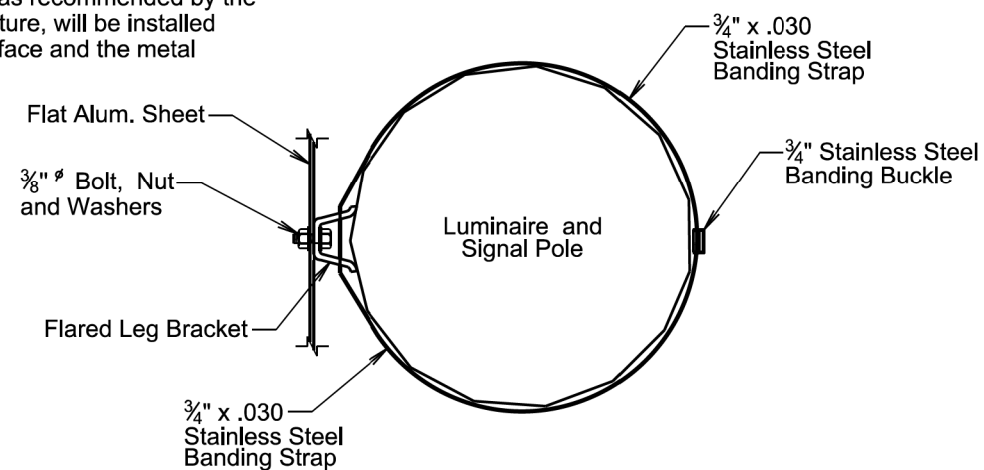
SIGN BASE DETAILS FOR A 2 1/2" SIGN POST





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

November 19, 2020

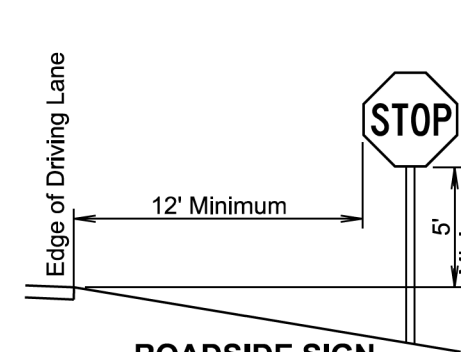
Published Date: 2027

SD
DOT

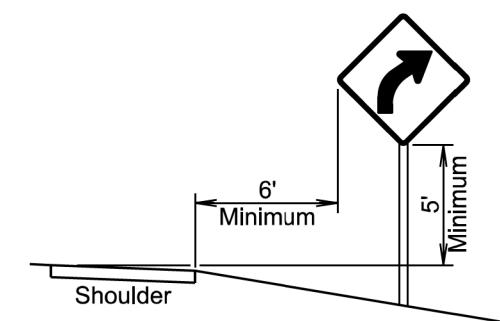
BANDING SIGN TO
LUMINAIRE AND SIGNAL POLE

PLATE NUMBER
632.80

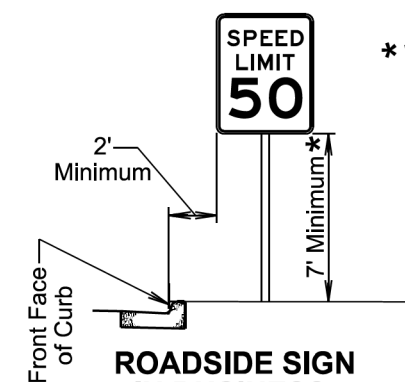
Sheet 1 of 1



ROADSIDE SIGN
IN RURAL AREA

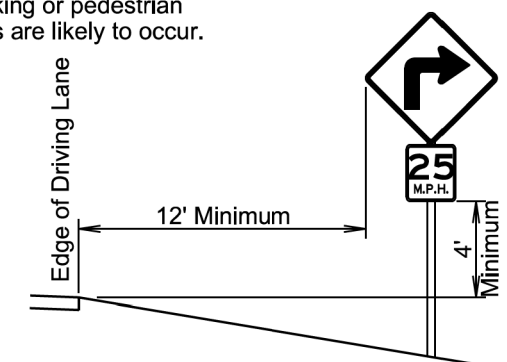


ROADSIDE SIGN
IN RURAL AREA
(If shoulder width is greater than 6 foot)

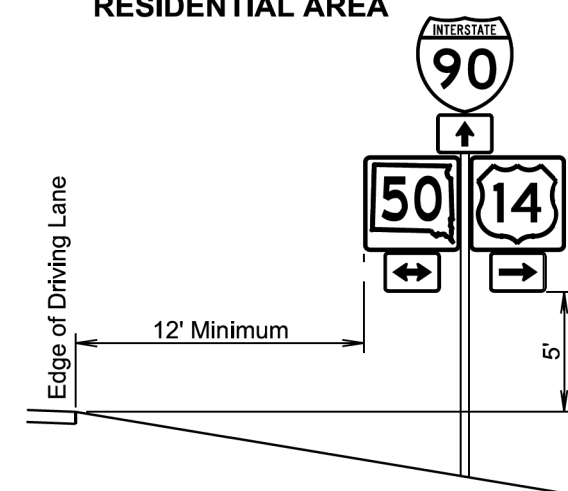


ROADSIDE SIGN
IN BUSINESS,
COMMERCIAL, OR
RESIDENTIAL AREA

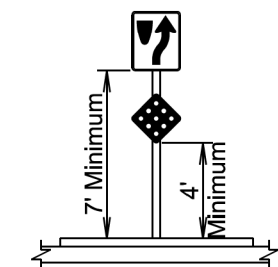
* Where parking or pedestrian movements are likely to occur.



WARNING SIGN ADVISORY
SPEED PLAQUE IN RURAL AREA



ROADSIDE SIGN
IN RURAL AREA



SIGN ON NOSE
OF MEDIAN

April 8, 2025

Published Date: 2027

SD
DOT

OFFSETS FOR SIGN INSTALLATION

PLATE NUMBER
632.90

Sheet 1 of 1