

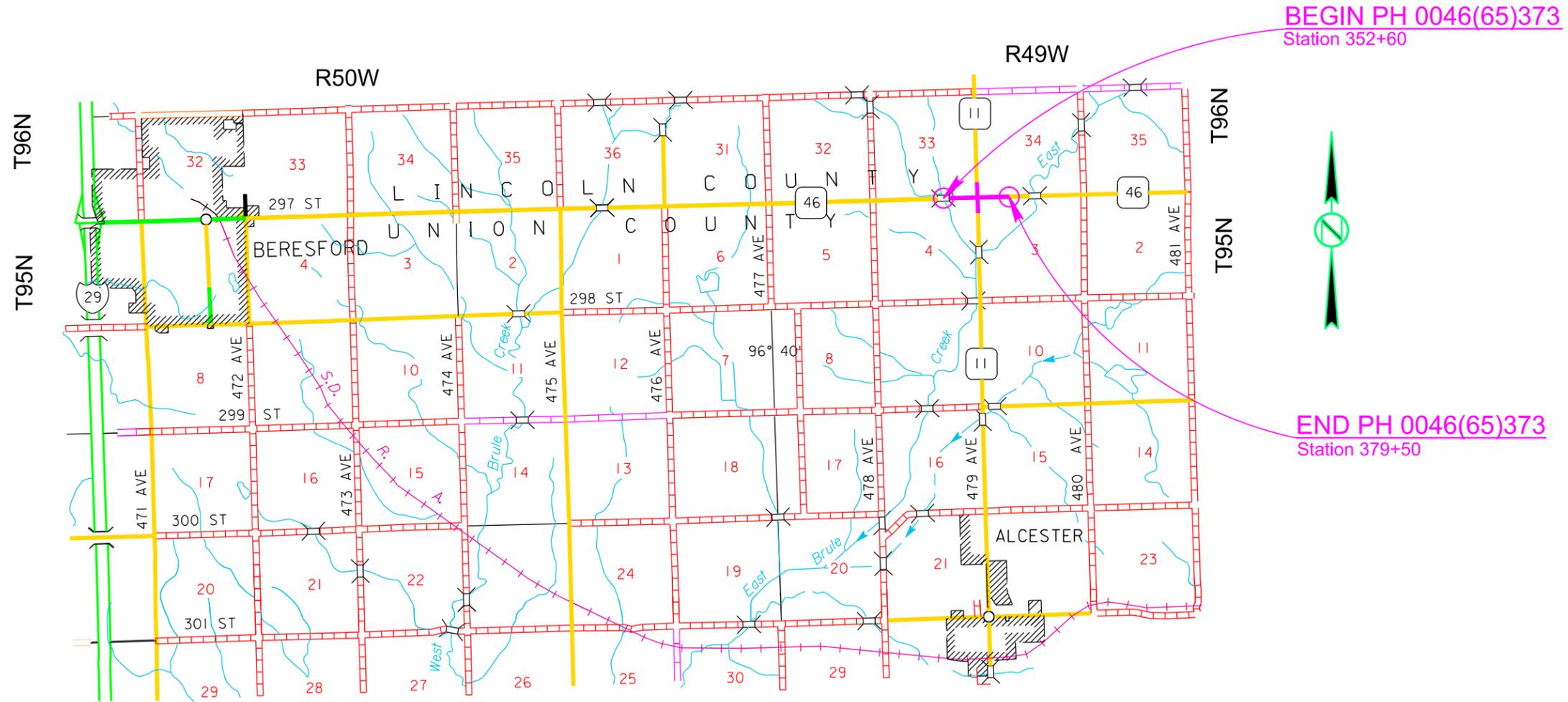
SECTION S: PERMANENT SIGNING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0046(65)373	S1	S13

Plotting Date: 08/10/2016

INDEX OF SECTIONS

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- S8 Wiring Diagram
- S9 Delineator Details
- S10 Sign Stiffener Details
- S11 Anchor Details
- S12 & S13 Standard Plates



Plot Scale - 1:200

Plotted From - Tm111119

File - ...lumin04HFSigningTitleB.dgn

SECTION S PERMANENT SIGNING ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
110E5020	Salvage Traffic Sign	19	Each
632E1320	2.0"x2.0" Perforated Tube Post	30.0	Ft
632E1330	2.25"x2.25" Perforated Tube Post	126.0	Ft
632E1340	2.5"x2.5" Perforated Tube Post	150.8	Ft
632E2022	4"x4" White Delineator Back to Back with 1.12 Lb/Ft Post	32	Each
632E2028	4" Tubular White Delineator with 1.12 Lb/Ft Post	16	Each
632E2520	Type 2 Object Marker	4	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	235.7	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	116.0	SqFt
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	3	Each
635E8015	1.5" Rigid Galvanized Steel Conduit	30	Ft

SCOPE OF PERMANENT SIGN WORK

The permanent sign work includes, but is not limited to, the following:

A. Items to be removed and salvaged by the Contractor:

1. Existing permanent signs.
2. Existing sign posts.

B. Items to be furnished and installed by the Contractor:

1. Breakaway sign posts as specified.
2. Flat sheet aluminum signs

C. Installations as listed in the SIGN INSTALLATION TABLE

SALVAGE TRAFFIC SIGN

All bolts, nuts, and washers shall be placed in individual five-gallon pails.

Signs, reusable posts, and hardware damaged or lost due to carelessness shall be replaced in kind at the Contractor's expense.

Signs shall be separated from supports prior to stockpiling. Salvaged signs shall be neatly stockpiled without damaging them.

Except as noted below, the Contractor shall neatly stockpile salvaged signs, posts, and related hardware [nuts, bolts, and miscellaneous mounting hardware] at the Beresford Department of Transportation Maintenance Yard located at I-29 Exit 47. Stockpiling of salvaged state material shall be coordinated with the Project Engineer.

The extruded aluminum signs consist of removable copy legend or a 0.063" aluminum overlay riveted to extruded aluminum panels. The Contractor shall securely support the sign and remove the clips holding the sign to the supports. The aluminum overlay and extruded aluminum panels shall then be removed and handled as one unit.

All salvaged signs that are not immediately relocated and reset shall be neatly stockpiled.

The Contractor shall remove, salvage, relocate, and reset existing or new signs as necessary for the Maintenance of Traffic during the differing sequence of operations phases.

SALVAGE TRAFFIC SIGN CONTINUED

The Contractor shall replace in kind any signs, supports, support bases or related hardware lost or damaged during the time the signs were removed, salvaged, stockpiled and reset. Any replacement materials shall be in kind and at the Contractor's expense.

Cost for salvaging shall be included in the contract unit price per each for Salvage Traffic Sign.

SIGN LEGEND, BORDER AND BACKGROUND

The signs listed on the Permanent Sign Table in the plans as new installations shall be provided for the locations specified.

Flat aluminum signs shall be 0.100" flat sheet aluminum.

All signs are to be installed in accordance with Sections 632 and 982 of the Specifications.

All sign legend, border and background sheeting material shall meet or exceed standards for ASTM D4956 classified Type IV high intensity sheeting or Type XI super/very high intensity sheeting, as indicated in the plans.

Sheeting material on warning signs shall be fluorescent yellow and meet or exceed standards for ASTM D4956 classified Type XI super/very high intensity sheeting.

All auxiliary signs used with South Dakota state route markers shall have green borders with black legend or symbol on a high intensity white background.

Post mounted street signs shall be single-faced with high intensity white border and text on high intensity green sheeting.

Final location of W14-3 No Passing Pennants shall be determined by the State.

SECTION C PERMANENT TRAFFIC CONTROL DETOUR ROUTE SIGN UPGRADE

Quantities for Section C Permanent Traffic Control Detour Route Sign Upgrade, sheet C4, have been included in the Section S Permanent Signing Estimate of Quantities.

FLASHING BEACON

Flashing beacons located above the Stop signs on SD 11 shall be removed, salvaged and reset above the new Stop signs as indicated in the plans. Cost for this work shall be included in the contract unit price per each for Remove, Salvage, Relocate, and Reset Traffic Sign.

SIGN POSTS

The plan post lengths shall be field verified by the Contractor.

Supports shall be cut to provide the proper sign height where necessary.

Post anchors shall be 48" long. Two-piece anchor post systems are required for 2" and 2 ¼" perforated tube post anchor stub posts. Heavy duty 7 gauge galvanized steel anchor stub posts that do not require stiffener sleeves are required for 2 ½" perforated tube post non slip base post installations.

Heavy gauge galvanized steel anchor stub posts that do not require stiffener sleeves may be required by the manufacturer for 2.5"x2.5" perforated tube direct drive anchor post installations. Winged anchors are required for all perforated tube post installations. Anchors shall be 48 inches in length.

All sign support bases shall conform to Standard Plate number 634.99.

DATE DECAL

Each date decal shall be 2" X 2" with black numerals on a white background (as typified below).



Cost for furnishing and installing date decals on new signs shall be incidental to the contract unit price for the various signing bid items.

SIGN REMOVAL TABLE

SIGN DATA			
STATION	DESCRIPTION	SIGN SIZE (FT)	SALVAGE TRAFFIC SIGN *
SD11 SOUTH			
114+70	JCT	1.75 X 1.25	1
	SD 46 Route Marker	2 X 2	
112+67	↑ Alcester 4 Beresford 7 → ← Hawarden 13	7 X 3.5	1
110+50	Beacon	1 X 1	1
	STOP	3 X 3	
109+11	SD 46 Route Marker	2 X 2	1
	↔	1.75 X 1.25	
	SD 11 Route Marker	2 X 2	
	↑	1.75 X 1.25	
107+98	UNION COUNTY IS ZONED BUILDING PERMITS REQUIRED	2 X 2	1
SD11 NORTH			
104+21	↑ Canton 17 ← Beresford 7 Hawarden 13 →	5 X 3	1
109+06	Beacon	1 X 1	1
	STOP	3 X 3	
110+42	SD 46 Route Marker	2 X 2	1
	↔	1.75 X 1.25	
	SD 11 Route Marker	2 X 2	
	↑	1.75 X 1.25	
SD46 EAST			
353+33	NO PASSING ZONE	3 X 3 X 3	1
355+18	JCT	1.75 X 1.25	1
	SD 11 Route Marker	2 X 2	
359+51	Intersection Warning	3 X 3	1
364+22	↑ Hawarden IA 13 ← Canton 17 Alcester 4 →	8 X 3.5	1
368+93	SD 46 Route Marker	2 X 2	1
	↑	1.75 X 1.25	
	SD 11 Route Marker	2 X 2	
	↔	1.75 X 1.25	
371+47	EAST	2 X 1	1
	SD 46 Route Marker	2 X 2	
COLUMN TOTAL			14

SIGN DATA			
STATION	DESCRIPTION	SIGN SIZE (FT)	SALVAGE TRAFFIC SIGN *
SD46 WEST			
381+66	JCT	1.75 X 1.25	1
	SD 11 Route Marker	2 X 2	
377+58	NO PASSING ZONE	3 X 3 X 3	1
376+58	↑ Beresford 7 ← Alcester 4 Canton 17 →	5 X 3.5	1
371+49	SD 11 Route Marker	2 X 2	1
	↔	1.75 X 1.25	
	SD 46 Route Marker	2 X 2	
	↑	1.75 X 1.25	
368+82	WEST	2 X 1	1
	SD 46 Route Marker	2 X 2	
COLUMN TOTAL			5

* Number and type- {U}-Channel {W}ood {2W} 2 Wood {I}-Beam {P}ipe {PT} Perforated Tube {2PT} 2 Perforated Tube] of support(s)

PERMANENT SIGN INSTALLATION TABLE

SIGN DATA																	COMMENTS
LOCATION	DESCRIPTION	SIGN CODE	SIGN SIZE (FT)	SIGN AREA (SqFt)		OFFSET* (R)IGHT/ (L)EFT	DIR SIGN FACES	QUANTITY X/SIZE								BREAK-AWAY #	
				HI ♦	SVH †			2.0"X2.0" TUBE	2.25"X2.25" TUBE	2.5"X2.5" TUBE	1.12/lb CHANNEL	S3X5.7 STEEL	S5X10 STEEL	W6X12 STEEL	4" Dia X 0.237"		
SD 11				632E3203	632E3205			632E1320	632E1330	632E1340	632E1100	632E1210	632E1220	632E1225	632E1415		
104+21	↑ Canton 17 ← Beresford 7 Hawarden IA 13 →	D1-3	8.5 3.5	29.75			12' R	South		18.0						A	inside post is 8.5', outside post is 9.5'
106+00	UNION COUNTY IS ZONED BUILDING PERMITS REQUIRED	SPECIAL	2 X 2				12' L	North	9.0							A	Reset existing sign
108+00	SOUTH SD 11 Route Marker	M3-3 M1-5	2 X 1 2 X 2	2.0 4.0			12' L	North		10.75						A	
109+06	STOP	R1-1	4 X 4		13.3		12' R	South			11.75					A	Reset Existing Flashing Beacon
109+11	SD 46 Route Marker	M1-5	2 X 2	4.0			12' L	North			12.0					A	
	↔	M6-4	1.75 X 1.25	2.2													
	SOUTH SD 11 Route Marker	M3-3	2 X 1	2.0													
	↑	M1-5	2 X 2	4.0													
110+42	SD 46 Route Marker	M1-5	2 X 2	4.0			12' R	South			12.0					A	
	↔	M6-4	1.75 X 1.25	2.2													
	NORTH SD 11 Route Marker	M3-1	2 X 1	2.0													
	↑	M1-5	2 X 2	4.0													
110+50	STOP	R1-1	4 X 4		13.3		12' L	North			11.75					A	Reset Existing Flashing Beacon
112+42	NORTH SD 11 Route Marker	M3-1	2 X 1	2.0			12' R	South		10.75						A	
	↑	M1-5	2 X 2	4.0													
112+67	↑ Alcester 4 Beresford 7 → ← Hawarden IA 13	D1-3	8.5 3.5	29.75			12' L	North			22.75					A	inside post is 10.75', outside post is 12'
115+00	JCT SD 46 Route Marker	M2-1	1.75 X 1.25	2.2			12' L	North		11.0						A	
	↑	M1-5	2 X 2	4.0													
SD 46																	
353+33	NO PASSING ZONE	W14-3	4 X 4 X 3		5.6		12' L	West	10.25							A	
355+18	JCT SD 11 Route Marker	M2-1	1.75 X 1.25	2.2			12' R	West		11.0						A	
	↑	M1-5	2 X 2	4.0													
359+51	Crossroads Warning	W2-1	3 X 3		9.0		12' R	West		10.75						A	
364+22	↑ Hawarden IA 13 ← Canton 17 Alcester 4 →	D1-3	8.5 X 3.5	29.75			12' R	West			22.75					A	inside post is 10.75', outside post is 12'
	↔																
368+82	WEST SD 46 Route Marker	M3-4	2 X 1	2.0			12' L	East		10.75						A	
	↑	M1-5	2 X 2	4.0													
368+93	SD 11 Route Marker	M1-5	2 X 2	4.0			12' R	West			12.0					A	
	↔	M6-4	1.75 X 1.25	2.2													
	EAST SD 46 Route Marker	M3-2	2 X 1	2.0													
	↑	M1-5	2 X 2	4.0													
371+48	EAST SD 46 Route Marker	M3-2	2 X 1	2.0			12' R	West		10.75						A	
	↑	M1-5	2 X 2	4.0													
371+48	SD 11 Route Marker	M1-5	2 X 2	4.0			12' L	East			12.0					A	
	↔	M6-4	1.75 X 1.25	2.2													
	WEST SD 46 Route Marker	M3-4	2 X 1	2.0													
	↑	M1-5	2 X 2	4.0													
376+58	↑ Beresford 7 ← Alcester 4 Canton 17 →	D1-3	7.5 X 3.5	26.25			12' L	East			22.75					A	inside post is 10.75', outside post is 12'
	↔																
377+58	NO PASSING ZONE	W14-3	4 X 4 X 3		5.6		12' R	East	10.75							A	Final location to be determined by the State
381+66	JCT SD 11 Route Marker	M2-1	1.75 X 1.25	2.2			12' L	East		10.75						A	
	↑	M1-5	2 X 2	4.0													
TOTALS THIS SHEET				215.70	46.80				30.00	104.50	139.8	0.0	0.0	0.0	0.0	0.0	

* - Distance from White or Yellow Edgeline, or Edge of Shoulder if no Edgeline, to Edge of Sign. ♦ - High Intensity Sheeting † - Super/Very High Intensity Sheeting
- (S)lip Base, (A)nchor Stub Post, or (D)irect Drive X - Plan post lengths are estimates. The post lengths shall be field verified by the Contractor.

PERMANENT SIGNING

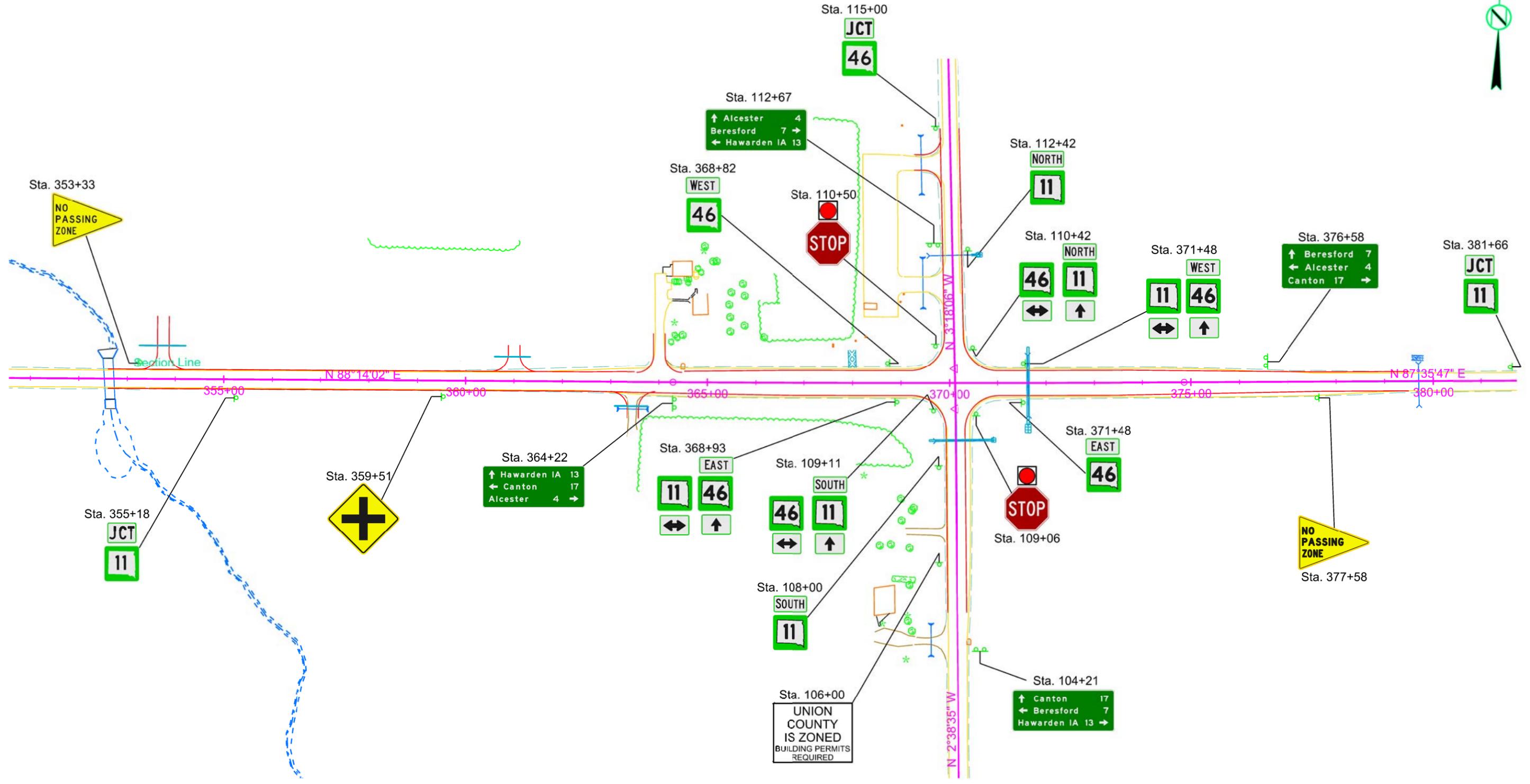
STATE OF SOUTH DAKOTA	PROJECT PH 0046(65)373	SHEET S5	TOTAL SHEETS S13
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Plotting Date: 08/10/2016



PLOT SCALE - 1:200

PLOT NAME - 2



PLOTTED FROM - TRM111119

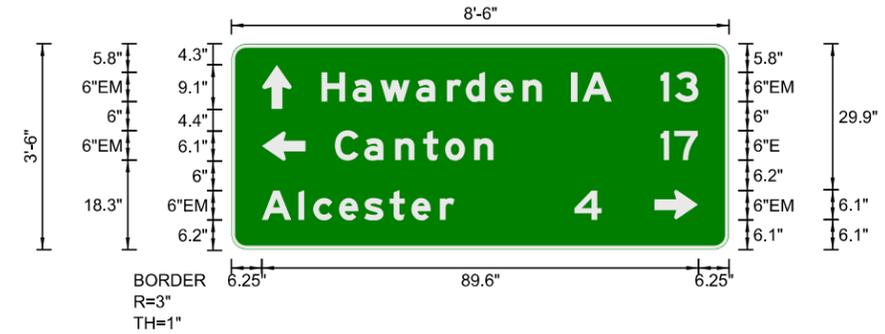
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SPECIAL SIGN DETAILS

Plotting Date: 08/10/2016



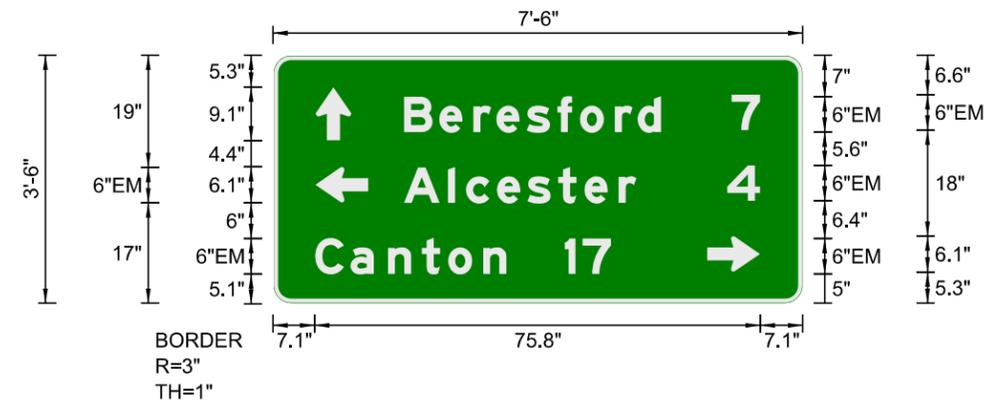
SIGN NUMBER	Canton
WIDTH x HGHT.	8'-6" x 3'-6"
BORDER WIDTH	1"
CORNER RADIUS	3"
MOUNTING	Ground Mounted
BACKGROUND	TYPE: Reflective COLOR: Green
LEGEND/BORDER	TYPE: Reflective COLOR: White/White



SIGN NUMBER	Hawarden
WIDTH x HGHT.	8'-6" x 3'-6"
BORDER WIDTH	1"
CORNER RADIUS	3"
MOUNTING	Ground Mounted
BACKGROUND	TYPE: Reflective COLOR: Green
LEGEND/BORDER	TYPE: Reflective COLOR: White/White



SIGN NUMBER	Alcester
WIDTH x HGHT.	8'-6" x 3'-6"
BORDER WIDTH	1"
CORNER RADIUS	3"
MOUNTING	Ground Mounted
BACKGROUND	TYPE: Reflective COLOR: Green
LEGEND/BORDER	TYPE: Reflective COLOR: White/White



SIGN NUMBER	Beresford
WIDTH x HGHT.	7'-6" x 3'-6"
BORDER WIDTH	1"
CORNER RADIUS	3"
MOUNTING	Ground Mounted
BACKGROUND	TYPE: Reflective COLOR: Green
LEGEND/BORDER	TYPE: Reflective COLOR: White/White

PLOT SCALE - 1:6.48

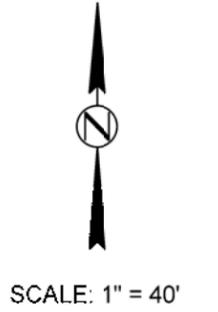
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PLOT NAME - 3

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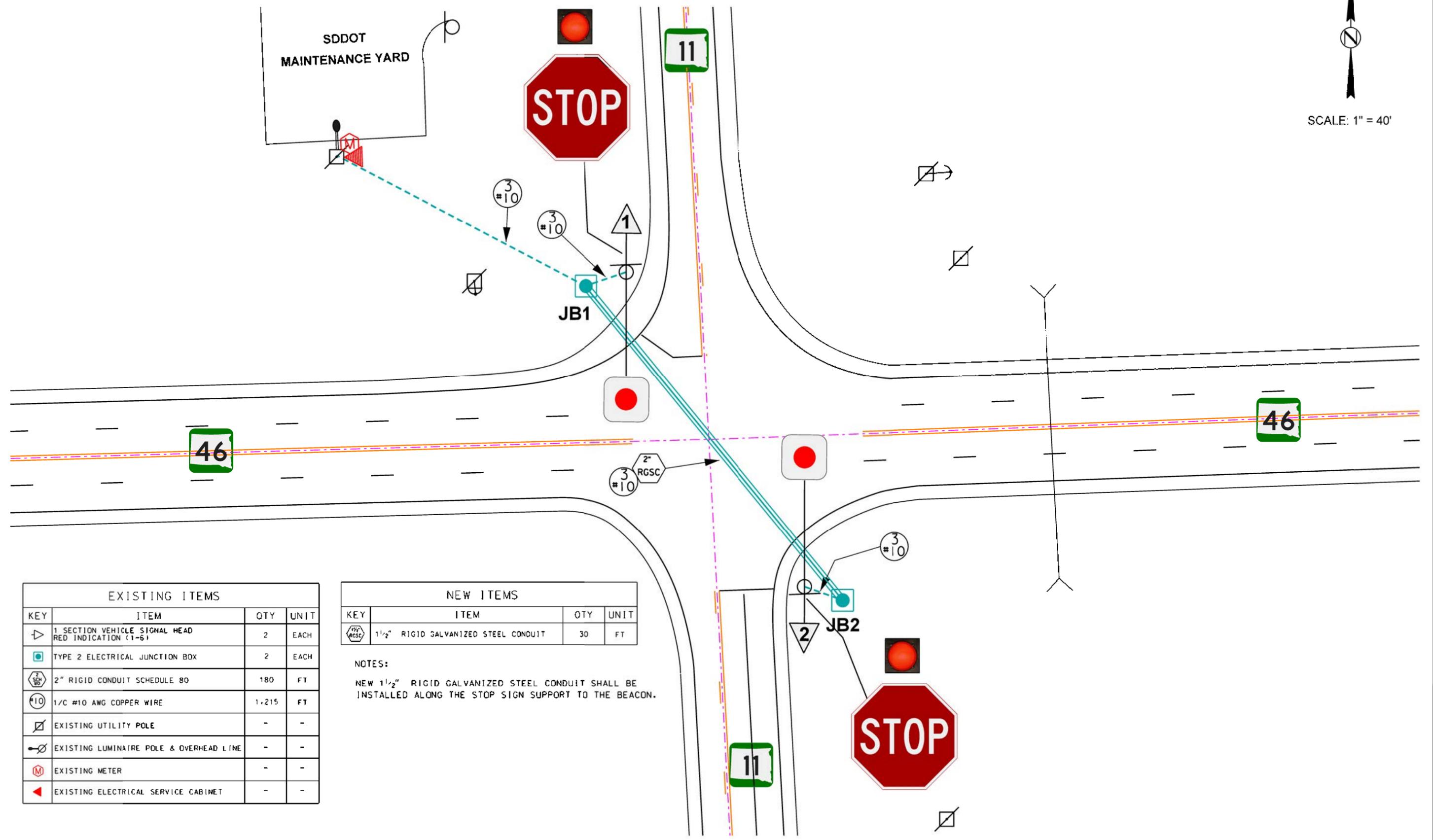
BEACONS LAYOUT

JUNCTION SD 11 AND SD 46



PLOT SCALE - 1:40

PLOT NAME - 4



EXISTING ITEMS			
KEY	ITEM	QTY	UNIT
▷	1 SECTION VEHICLE SIGNAL HEAD RED INDICATION (1-6)	2	EACH
□	TYPE 2 ELECTRICAL JUNCTION BOX	2	EACH
⬡	2" RIGID CONDUIT SCHEDULE 80	180	FT
⊙	1/C #10 AWG COPPER WIRE	1,215	FT
⊘	EXISTING UTILITY POLE	-	-
⊘	EXISTING LUMINAIRE POLE & OVERHEAD LINE	-	-
Ⓜ	EXISTING METER	-	-
◀	EXISTING ELECTRICAL SERVICE CABINET	-	-

NEW ITEMS			
KEY	ITEM	QTY	UNIT
⬡	1 1/2" RIGID GALVANIZED STEEL CONDUIT	30	FT

NOTES:
NEW 1 1/2" RIGID GALVANIZED STEEL CONDUIT SHALL BE INSTALLED ALONG THE STOP SIGN SUPPORT TO THE BEACON.

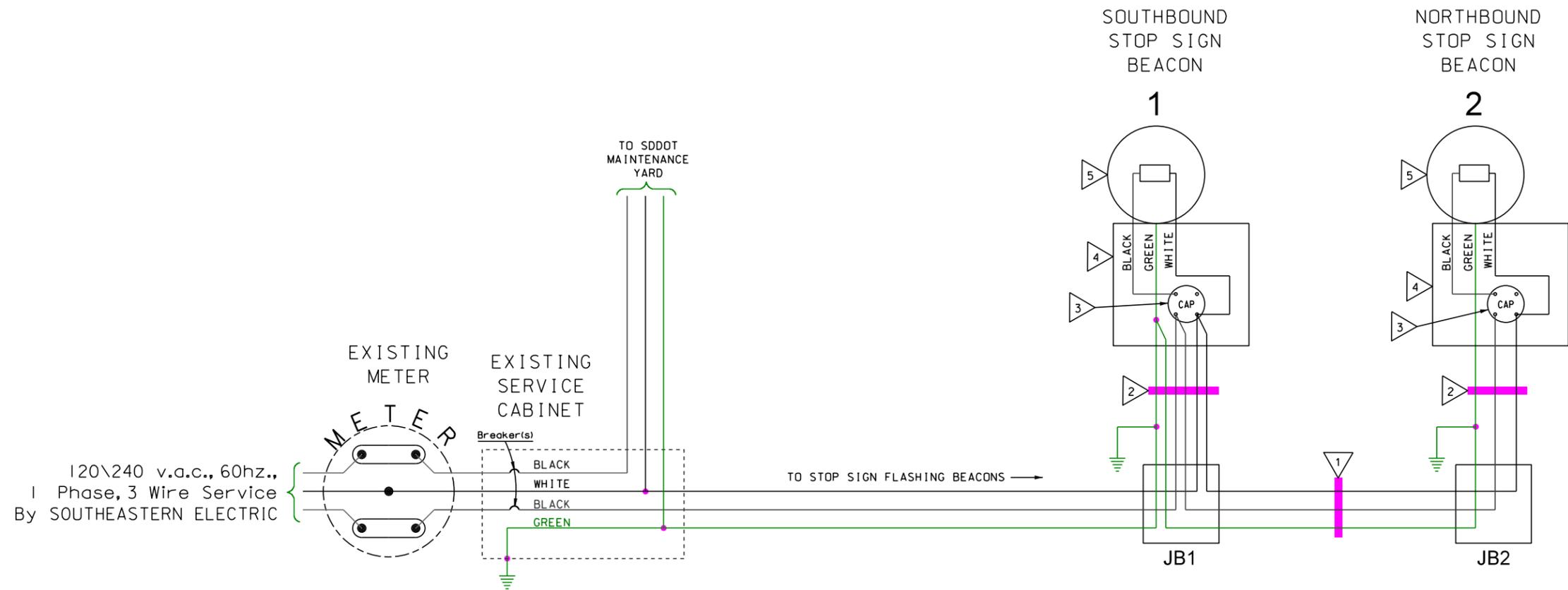
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STOP SIGN BEACON WIRING DIAGRAMS

JUNCTION SD 11 & SD 46

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0046(65)373	S8	S13



- 1 EXISTING 2" SCH 80 RIGID CONDUIT WITH CONDUCTORS, BORED UNDER THE HIGHWAY PAVEMENT.
- 2 EXISTING 1 1/2" RIGID STEEL CONDUIT WITH #10 AWG CONDUCTORS.
- 3 EXISTING CAP FLASHER MODEL CF-2F MANUFACTURED BY TSC, IN VEHICLE SIGNAL HEAD HOUSING.
- 4 EXISTING VEHICLE SIGNAL HEAD HOUSING WITH TUNNEL VISOR, 12 inch.
- 5 EXISTING 12 inch LED SIGNAL MODULE INDICATION IN VEHICLE SIGNAL HEAD HOUSING.

PLOT SCALE - 1:80.6299

PLOTTED FROM - TRM111119

PLOT NAME - 5

FILE - ... \SIGNING\04HF_SIGNING.DGN

DELINEATOR LOCATION DETAILS

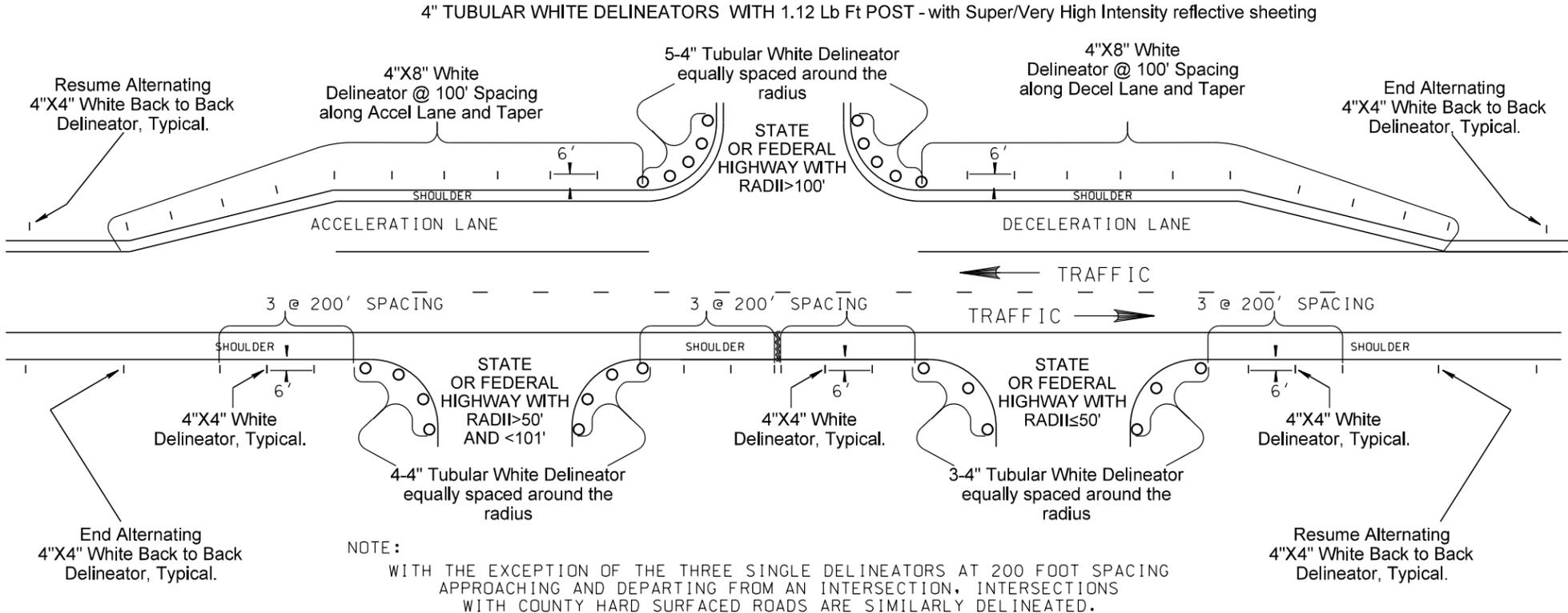
STATE OF SOUTH DAKOTA	PROJECT PH 0046(65)373	SHEET S9	TOTAL SHEETS S13
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Plotting Date: 08/10/2016

PLOT SCALE - 1:200

PLOT NAME - 6

4" Tubular White Delineator with 1.12 Lb/Ft Post 632E2028			
ROUTE	STATION	INTERSECTING ROUTE	QUANTITY
SD 46	369+70 L	SD 11	4
SD 46	369+70 R	SD 11	4
SD 46	370+50 L	SD 11	4
SD 46	370+50 R	SD 11	4
TOTAL			16



PLOTTED FROM - TRM111119

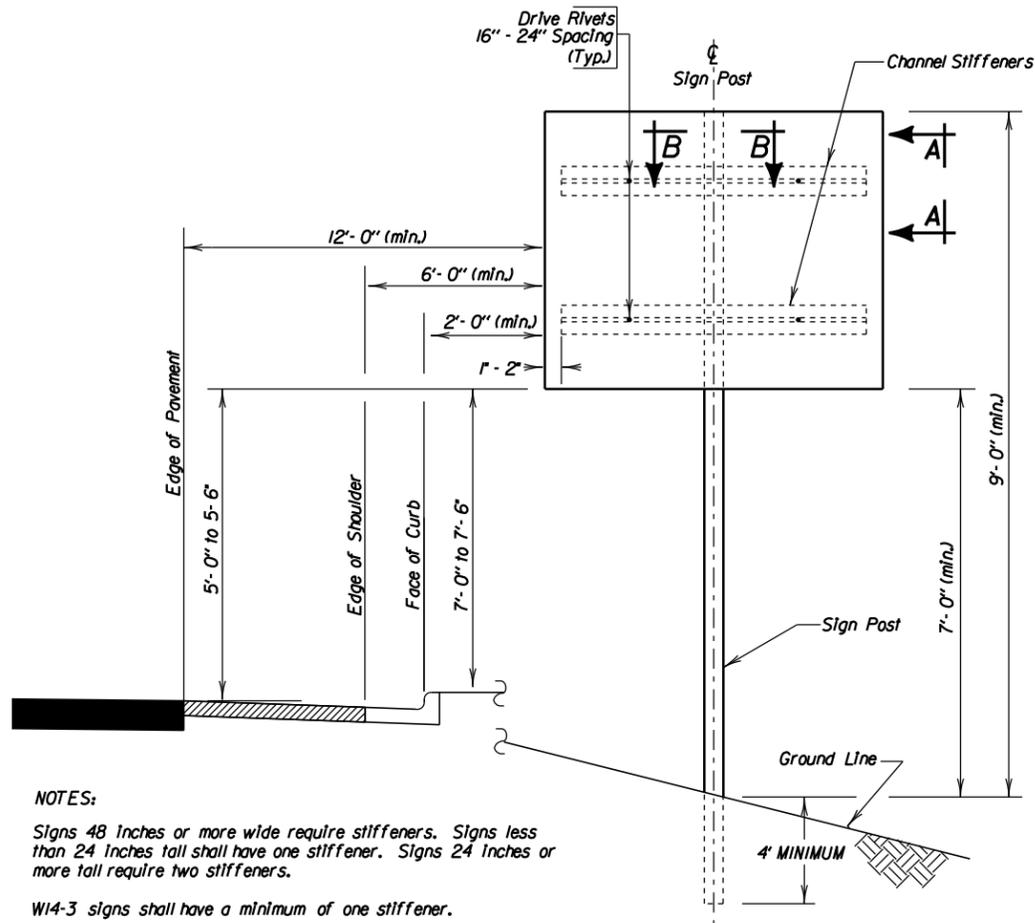
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TYPICAL SIGN AND STIFFENER DETAILS

STATE OF SOUTH DAKOTA	PROJECT PH 0046(65)373	SHEET S10	TOTAL SHEETS S13
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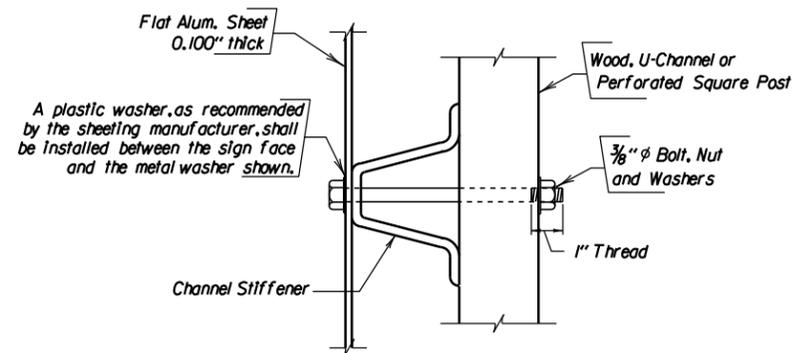
Plotting Date: 08/10/2016

SINGLE POST BREAKAWAY SIGN SUPPORT

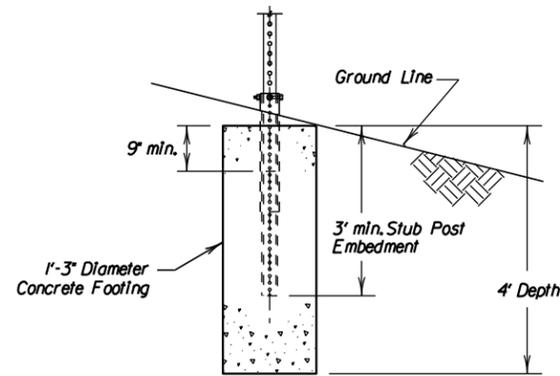


NOTES:
Signs 48 inches or more wide require stiffeners. Signs less than 24 inches tall shall have one stiffener. Signs 24 inches or more tall require two stiffeners.
W14-3 signs shall have a minimum of one stiffener.

DIRECT DRIVE OR ANCHOR STUB POST

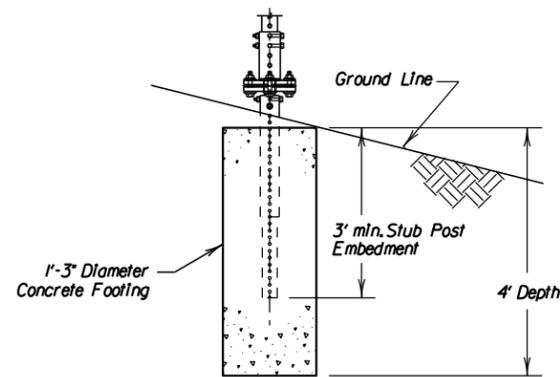


SEC. A-A



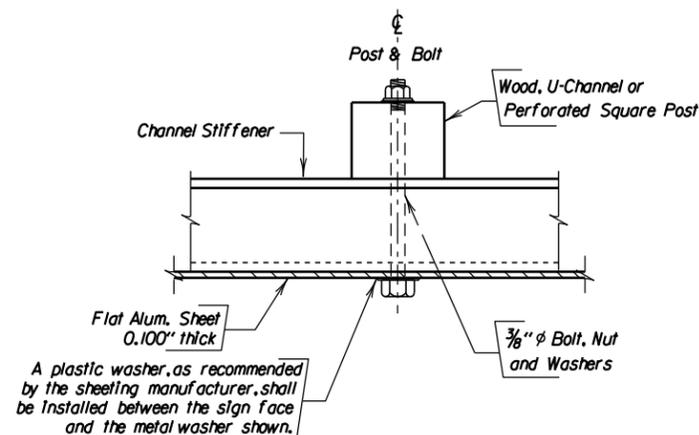
BREAKAWAY ANCHOR STUB POST BASE WITH CONCRETE FOOTING

NOTE: Square steel perforated tube post with breakaway anchor stub post base, as per Manufacturer.



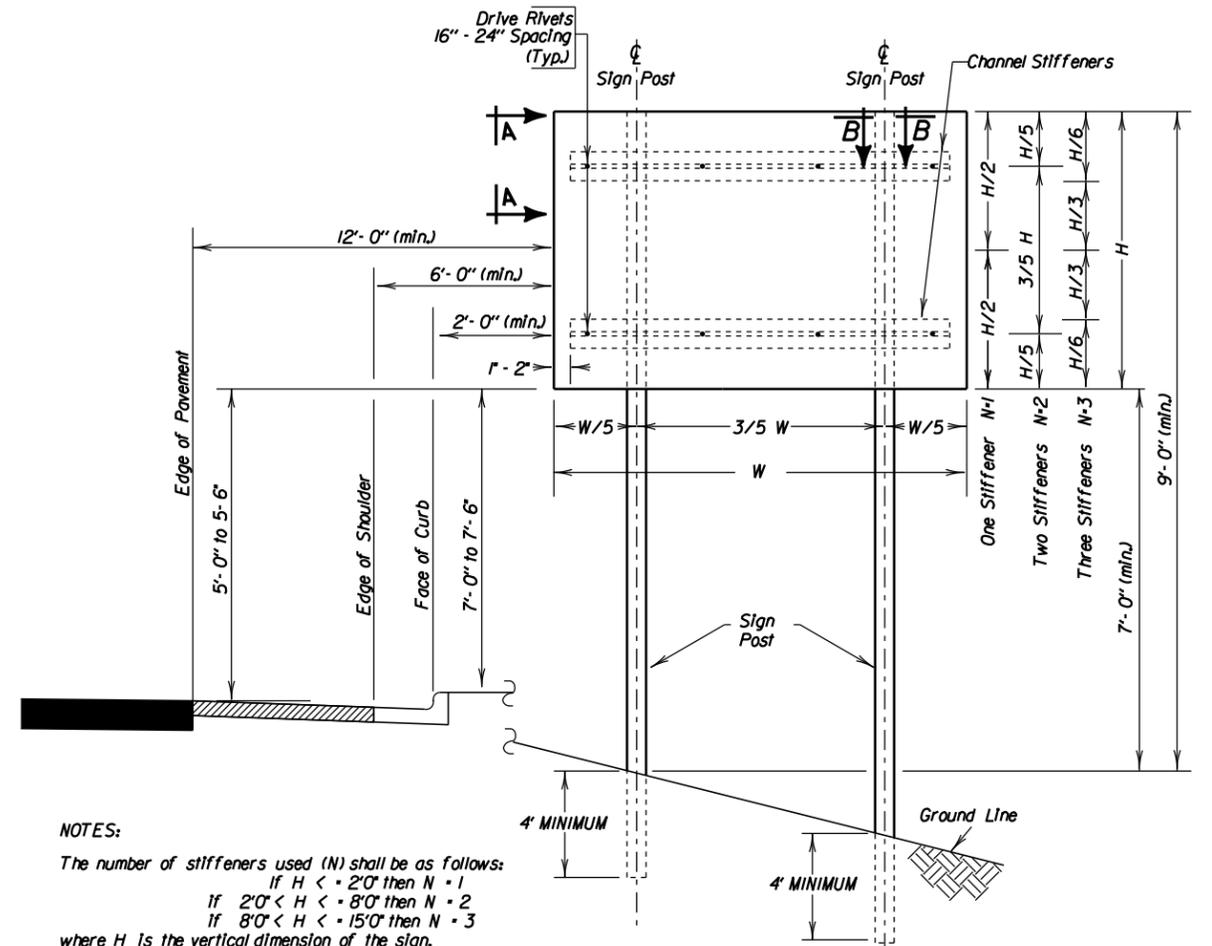
BREAKAWAY SLIP BASE WITH CONCRETE FOOTING

NOTE: Square steel perforated tube post with breakaway slip base, as per Manufacturer.



SEC. B-B

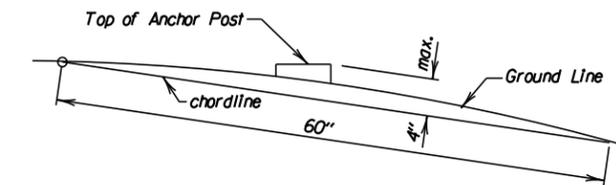
TWO POST BREAKAWAY SIGN SUPPORTS



NOTES:
The number of stiffeners used (N) shall 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 shall be required to fasten the sign to each post.

DIRECT DRIVE OR ANCHOR STUB POST



BREAKAWAY SUPPORT STUB CLEARANCE DIAGRAM

NOTE: The top of anchor post shall NOT extend more than 4" max. above the chordline within a 60" chord.

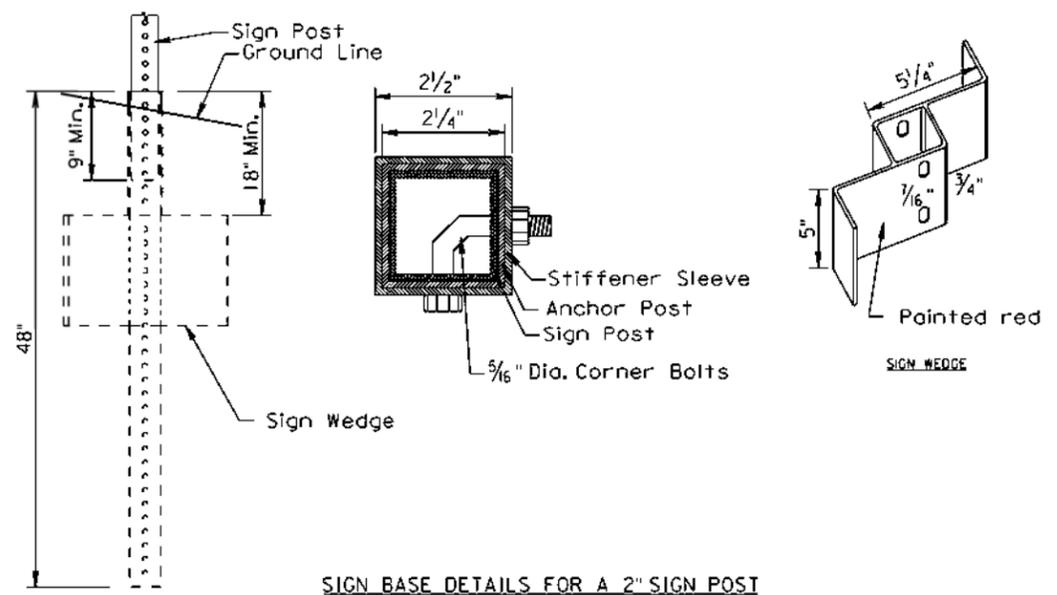
PLOT SCALE - 1:5.2

PLOTTED FROM - TRM111119

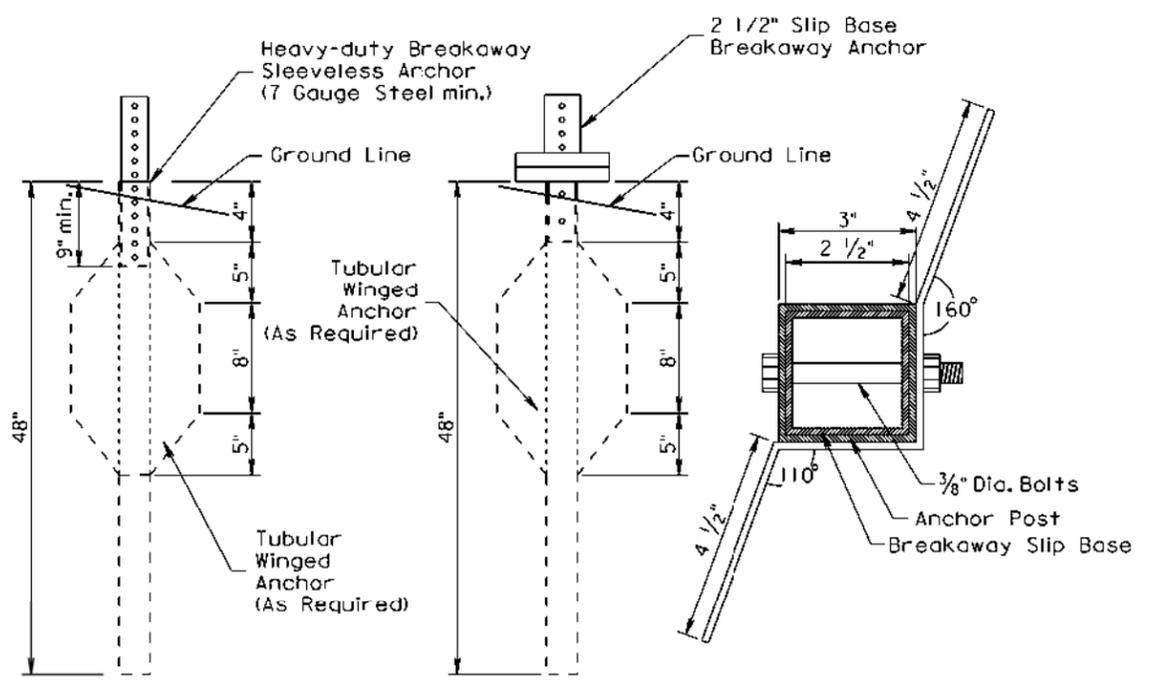
PLOT NAME - 7

FILE - ... \SIGNING\6666POSTBKWY.DGN

**2" and 2 1/2" SQUARE STEEL PERFORATED TUBE POST
BREAKAWAY WINGED ANCHOR BASE DETAILS
(Typical)**

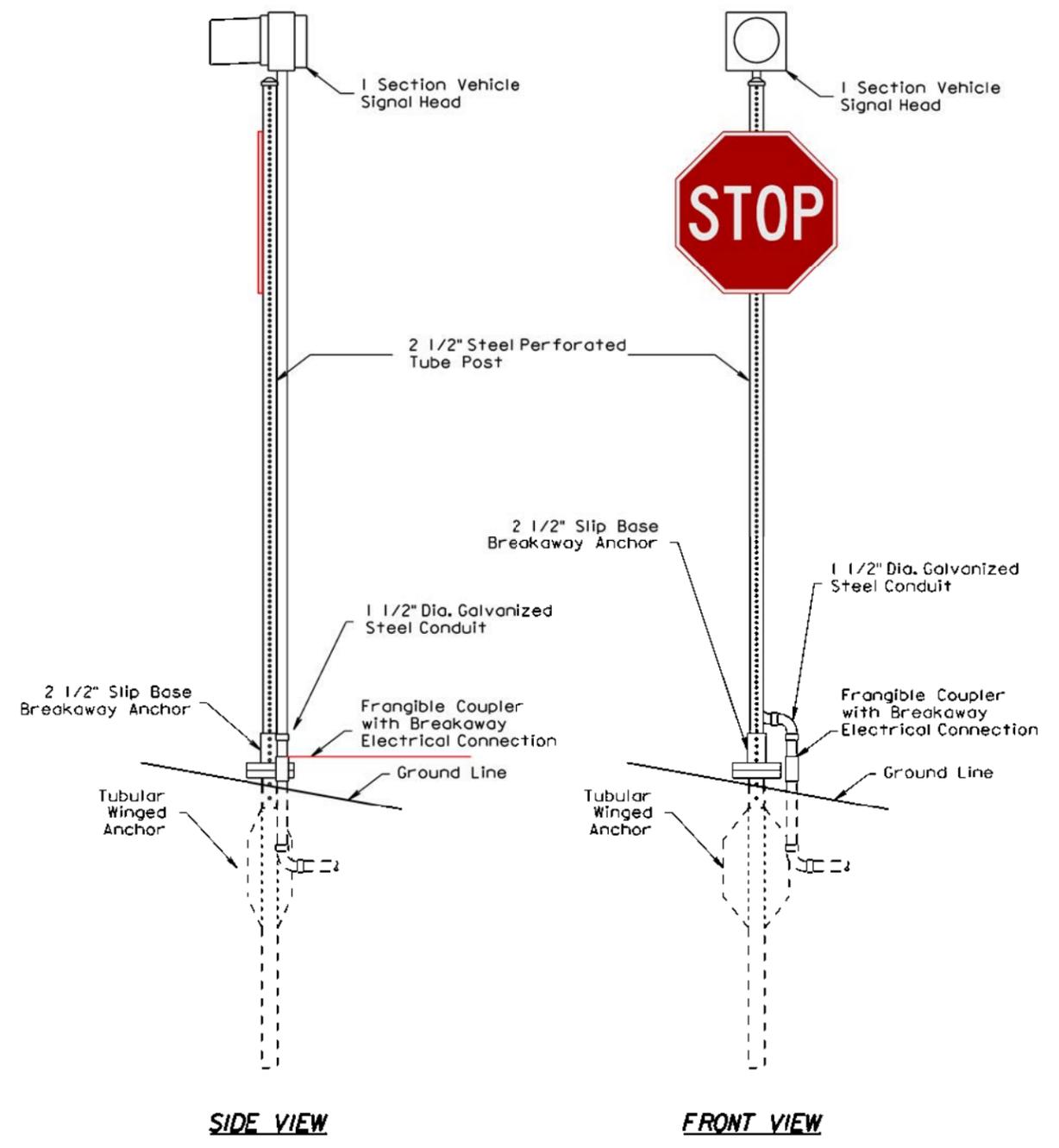


SIGN BASE DETAILS FOR A 2" SIGN POST



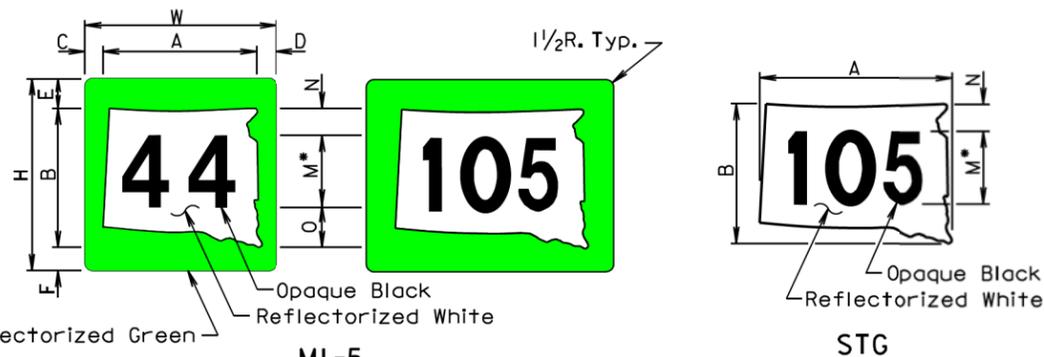
SIGN BASE DETAILS FOR A 2 1/2" SIGN POST

**STOP SIGN BEACON INSTALLATION
ON STEEL PERFORATED TUBE POST**



SIDE VIEW

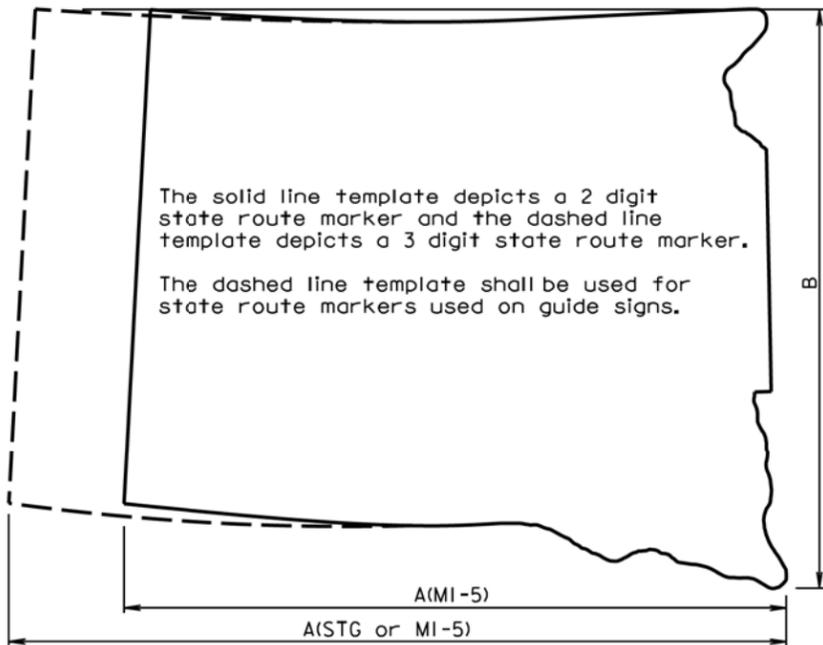
FRONT VIEW



SIGN CODE	WxH	A	B	C	D	E	F	M*	N	O
MI-5	24x24	20 1/2	18	2	1 1/2	3 1/2	2 1/2	12D	2	4
MI-5**	30x24	24	18	2 1/4	1 3/4	3 1/2	2 1/2	12D	2	4
MI-5	30x30	25 5/8	22 1/2	2 1/2	1 7/8	4 3/8	3 1/8	15D	2 1/2	5
MI-5	36x36	30 3/4	27	3	2 1/4	5 1/4	3 3/4	18D	3	6

SIGN CODE	AxB	M*	N
STG-24	24x18	10D	4
STG-32	32x24	12D	4 3/4
STG-48	48x36	18D	7
STG-64	64x48	24D	9 1/2

*In the few cases where there is not enough space for the numerals, the standard "D" series font may be replaced with "C" series font if approved by the Engineer.
 ** 3 Digits



TEMPLATE FOR STATE ROUTE MARKER

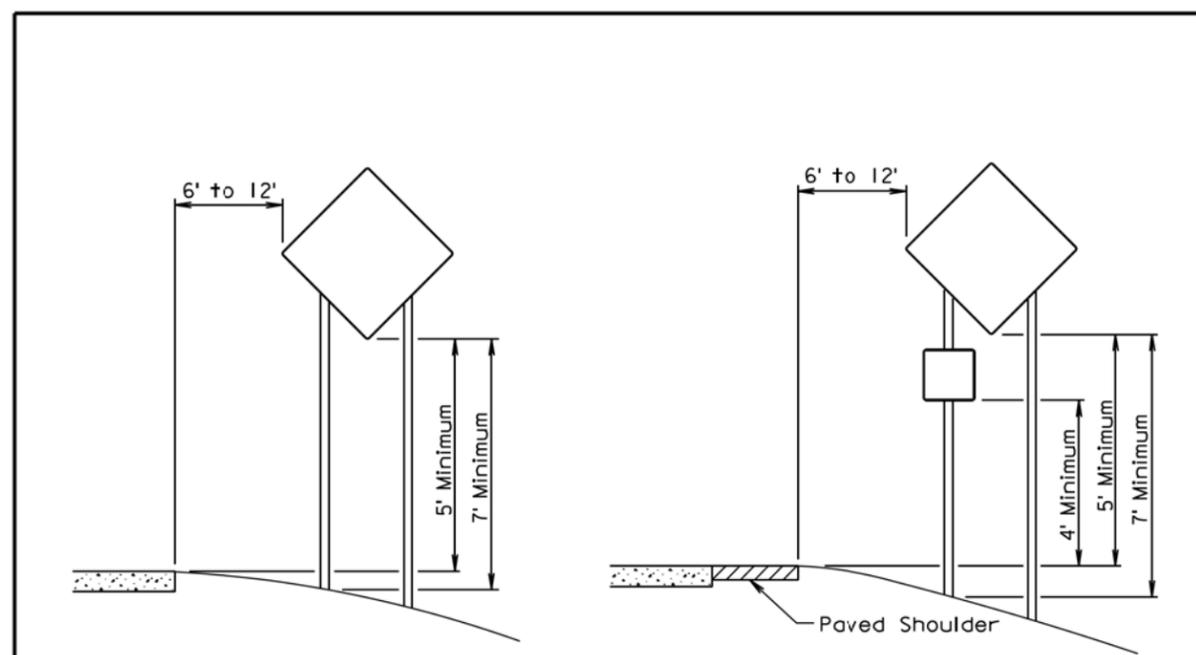
GENERAL NOTES:

The unit for all dimensions shown is inches.
 Numerals shall be "D" series font for all state route markers except as noted above.

December 23, 2003

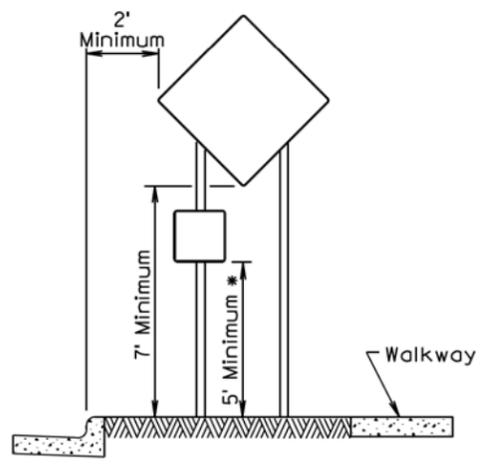
S D D O T	STATE ROUTE MARKERS	PLATE NUMBER 632.20
		Sheet 1 of 1

Published Date: 3rd Qtr. 2016

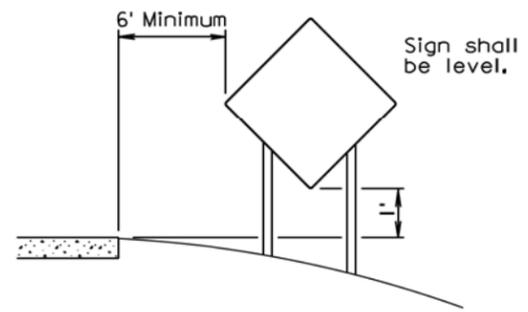


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT



RURAL DISTRICT 3 DAY MAXIMUM

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

(Not applicable to regulatory signs)

September 22, 2014

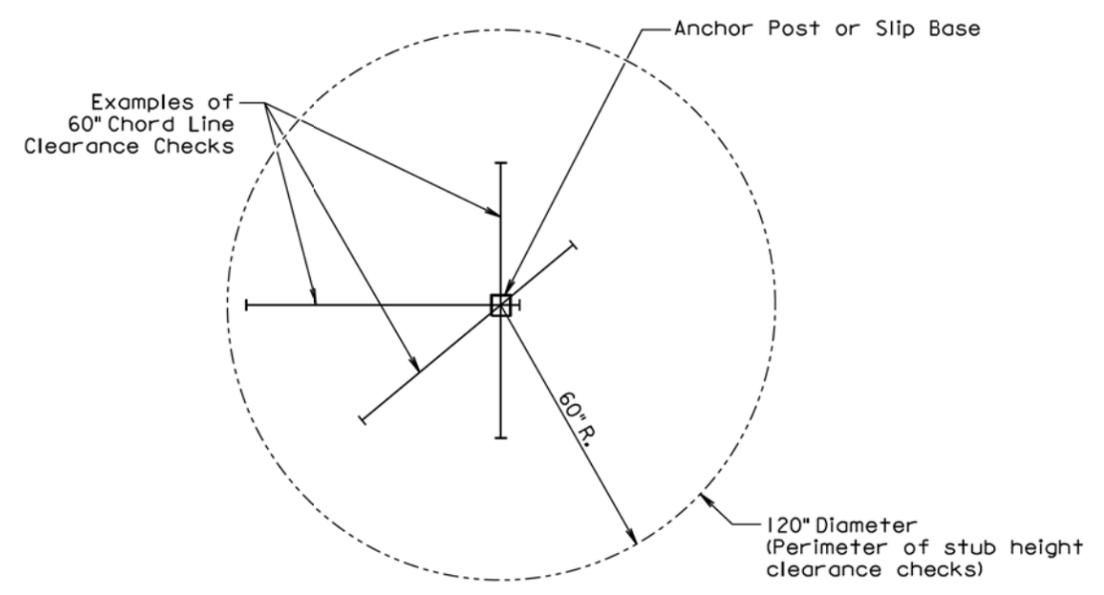
S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
		Sheet 1 of 1

Published Date: 3rd Qtr. 2016

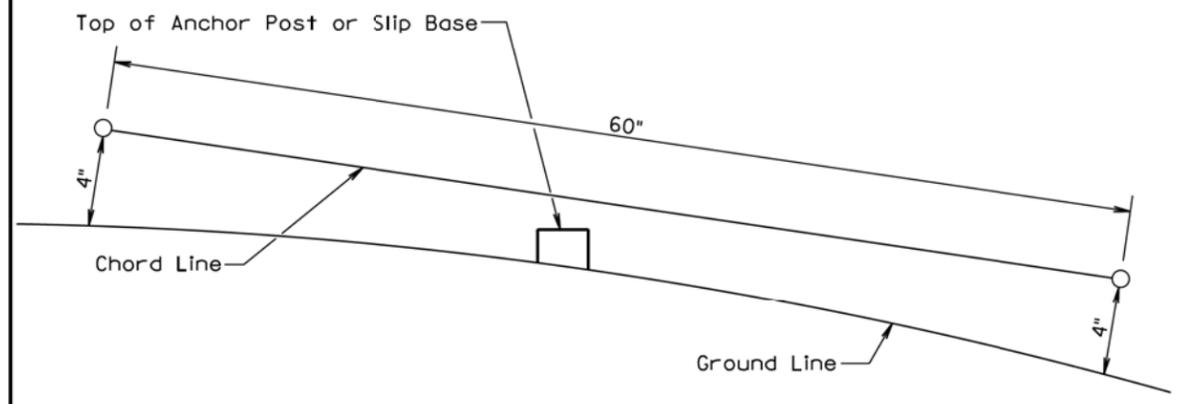
Plot Scale - 1:200

Plotted From - T:\m11119

File - ...Signing\04GY_StatePlates.dgn



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases SHALL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height shall be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

July 1, 2005

S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
	Published Date: 3rd Qtr. 2016	Sheet 1 of 1

Plot Scale - 1:200

Plotted From - T:\m11119

File - ...Signing\04GY_StatPlate.dgn