

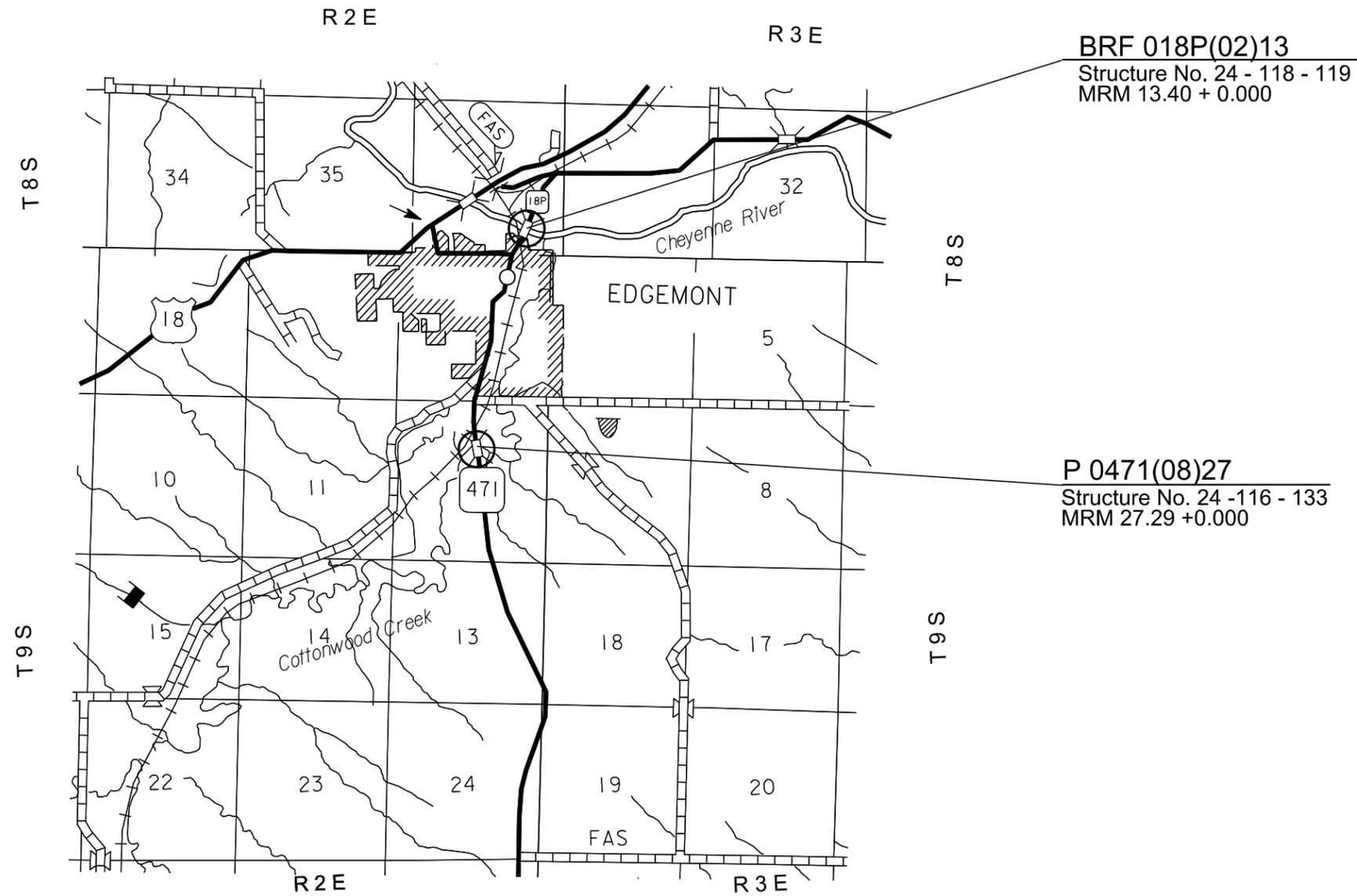
Section S: Permanent Signing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF 018P(02)13 P 0471(08)27	S1	S10

Plotting Date: 12/11/2014

INDEX OF SHEETS

- S1 General Layout W/Index
- S2-S4 Estimate With General Notes & Tables
- S5-S7 Typical Sign Layouts
- S8-S10 Standard Plates



Plot Scale - 1:200

Plotted From - trcs11628

File - ...Section S(02S8_title.dgn

ESTIMATE OF QUANTITIESHwy 018P

Bid Item Number	Item	Quantity	Unit
110E5020	Salvage Traffic Sign	4	Each
632E1320	2.0"x2.0" Perforated Tube Post	92.0	Ft
632E2220	Guardrail Delineator	4	Each
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	10	Each

Hwy 471

Bid Item Number	Item	Quantity	Unit
110E5010	Salvage Delineator	4	Each
110E5020	Salvage Traffic Sign	7	Each
632E1320	2.0"x2.0" Perforated Tube Post	56.0	Ft
632E2220	Guardrail Delineator	16	Each
632E3203	Flat Aluminum Sign, Nonremovable Copy High Intensity	1.0	SqFt
632E3205	Flat Aluminum Sign, Nonremovable Copy Super/Very High Intensity	9.0	SqFt
632E3520	Remove, Salvage, Relocate, and Reset Traffic Sign	4	Each

PERMANENT SIGNING

Contractor shall use the Railroad Crossing warning sign located at MRM 27.243 for the temporary detour around the bridge. Then place it back in place with a new post after traffic has been routed back on the mainline.

The Contractor shall furnish all signs, posts, stiffeners, bases, hardware, and labor for installation of permanent signs in size, type, and quantity as shown in these plans and/or as required by the Engineer.

The Contractor shall provide all labor and equipment necessary to install permanent signing, remove existing signs, and reset existing signs as detailed in these plans and/or as required by the Engineer. Payment for furnishing and installing permanent signs will be paid for the contract unit price for each type of sign based on sheeting requirements per square foot of sign. All signs shall have ASTM D4956 Type IV (High Intensity) or Type XI (Super/Very High Intensity) sheeting as noted on the sign detail sheets. Payment for new signposts, hardware, bases, and labor will be made at the contract unit price per foot for 2.0" x 2.0" perforated tube post. Breakaway post details regarding posts, hardware, and bases shall be followed as per the manufacturer's recommendations. The sign post contract items shall include post bases and all hardware. The lengths of the posts in the sign tables are approximate lengths only. The post lengths shall be verified by the Contractor. The Contractor is urged to cut posts to length on job site after site by site verification of post length.

The Contractor shall use Telespar brand (or equivalent) posts and bases on all new standard highway signs as approved by the Engineer. All post materials shall conform to Section 982 of the Specifications, and be in accordance with ASTM specifications. Signs designated as requiring a shear slip base shall have a 4 foot long base assembly with a shear breakaway base connecting the base to the signpost. The height of the post shall not exceed the minimum height needed by more than 0.5 feet. Any portion that extends above the sign shall be cut off. No separate payment will be made for cutting the post or for that length cut off. All posts and bases shall be accompanied by Certificates of Compliance and shall meet all safety standards as set forth in the current edition of the Manual on Uniform Traffic Control Devices (MUTCD).

PERMANENT SIGNING (Continued)

The Contractor shall stake the signs and the Engineer will verify the location prior to installation. The lateral distance from the roadway and the height of the sign shall be established by the Contractor according to the Permanent Signing Typical, as well as the Standard Plates in the plans and the MUTCD.

The Contractor shall coordinate the removal of signs with the Sequence of Operations and Traffic Control sections of these plans. Existing signing shall be replaced, left in place, or temporarily covered as needed to safely direct traffic through the project or as directed by the Engineer.

GUARDRAIL DELINEATORS

The Contractor shall place guardrail delineators on all portions of guardrail. Furnishing and placing these reflectors shall be per standard plate 632.40. Guardrail delineators shall be fabricated from 0.080" aluminum.

PERFORATED TUBE POST

Payment for 2.0" x 2.0" perforated tube post shall include all cost for labor, equipment, and materials necessary to complete the following work:

1. Furnish all posts, stiffeners, breakaway bases, soil stabilizers, and hardware.
2. Assembly and installation of breakaway base sign supports as per details shown in these plans.
3. Assembly of sign(s) to sign post as per erection details for Highway Signs as shown in these plans.
4. Installation of signpost and sign(s).

REMOVE, SALVAGE, RELOCATE & RESET TRAFFIC SIGN

The Contractor shall remove signs, posts, and bases for remove and stockpile as shown in the table for Permanent Signing. All existing signs, posts, and hardware removed as per these plans remain property of the State of South Dakota and shall be transported to the Edgemont maintenance yard by the Contractor. The Contractor shall notify the Engineer two days prior to time of delivery to the maintenance yard so correct placement for storage and inventory of materials can be made upon receipt.

All bolts, nuts, and washers shall be placed in individual 5-gallon pails. Backing materials shall be separated from the signs and may be reused at the Contractor's discretion. Non-threaded connections (rivets) shall be cut when necessary to reduce sign sections to a 4' x 6' maximum size.

Any post assembly including sign, post, or bases that call for being removed, relocated or reset in the remarks column in the Table of Permanent Signing shall be included in the contract unit price per each for "Remove, Salvage, Relocate & Reset Traffic sign". All other signs, posts, and bases that call for removal and stockpile shall be included in the contract unit price per each for "Salvage Traffic Sign". These payments shall include all costs for labor, materials, and equipment necessary to remove, dismantle, backfill holes and deliver signs to the Edgemont maintenance yard.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 018P(02)13 P.0471(08)27	S2	S10

HARDWARE**"REVISED: 12/15/14, DC"**

Aluminum U-Channel stiffeners shall be used on all standard highway signs greater than or equal to 36" in width and shall conform to Alloy 6063-T6 or 6061-T6. The U-Channel shall be 2 inches in width and free of holes. The U-Channel stiffeners shall also be used to connect various signs and perforated tube posts together so that an entire sign can be erected as a single installation. Stiffeners may be fastened to signs by use of 1/4" drive rivets with a minimum of one on each end and one centered between each post. Installation of the stiffeners shall be incidental to other contract items.

A 3/8" diameter straight bolt (Grade 8) shall be used in all breakaway shear bases for the 2.5" perforated tube posts. All other perforated tube signpost base material shall be fastened with 5/16" diameter corner bolts (Grade 2).

All 2.0" perforated tube signposts shall have a soil stabilizer attached to the base. Soil stabilizers shall be MPJ sign wedge style or equivalent.

SIGN LEGEND, BORDER, BACKGROUND, AND MOUNTING

All sign material shall comply with Section 982 of the Specifications. The sign colors shall be as stipulated in the MUTCD and as shown in the sign details and all W-series warning signs and plaques shall be fluorescent yellow. When signs are vertically mounted in succession, they shall be 1-2 inches apart. Lateral placement of signs shall be determined by the Engineer.

SALVAGE DELINEATOR

The Contractor shall provide all labor and equipment necessary to remove existing delineators and deliver them to the SDDOT Edgemont Maintenance yard. The Contractor shall separate the reflectors from the posts and place in a 5 gallon bucket. Payment for salvaging existing delineators will be paid for at the contract unit price per each for "Salvage Delineator."

Below is an estimate of existing delineators throughout the project limits:

Existing 4"x4" White Delineators – 4

FURNISH & INSTALL FLAT ALUMINUM SIGNS, NON-REMOVABLE COPY HIGH INTENSITY & SUPER/VERY HIGH INTENSITY

Measurement of sign areas will include payment for the entire sign blank before trimming for rounded corners. The square unit measurement for each sign shall be as shown in the table of permanent signing. The payment shall include all labor (including installing date decals), equipment, and materials to complete the work, and shall be paid for at the contract unit price per square foot for Flat Aluminum Sign, Non-Removable Copy High Intensity or Flat Aluminum Sign, Non-Removable Copy Super/Very High Intensity.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRF 018P(02)13 P.0471(08)27	S3	S10

SHEETING REQUIREMENTS

All legend and border utilizing the color black shall be vinyl or screen printed black, non-reflectorized material. All other legend and border shall be of same type of sheeting as the background of the same sign. All signs in the table for permanent signing that call for "Type IV" sheeting shall have High Intensity Prismatic retro-reflective background, Type IV as per AASHTO designation M 268 (ASTM D4956). All signs in the table for permanent signing that call for "Type XI" shall have micro-cube corner prismatic reflectorized background, Type XI as per AASHTO designation M 268 (ASTM D4956).

DATE DECAL

The Contractor shall affix a state furnished date decal to each new sign installed. Each decal is an approximately 2" X 2" self-adhesive sticker with removable paper backing and black numerals on a white background. The date decal displays the last two digits of the year the sign was manufactured (as illustrated).



One decal shall be placed in the extreme lower left corner of the back of flat aluminum signs.

Sign supports or other obstructions shall not block the view of the date decal upon completion of the sign installation.

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

PERMANENT SIGNING TABLES

STATE OF SOUTH DAKOTA	PROJECT BRF 018P(02)13 P 0471(08)27	SHEET S4	TOTAL SHEETS S10
Plotting Date: 11/20/2014			

SD18P - 11+01 - 21+00

EXISTING MRM (Approx.)	NEW MRM (Approx.)	SIGN								POST					DESCRIPTION	REMARKS
		Width (in)	Height (in)	Number	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	# of Posts	Shear Slip Base		
WESTBOUND																
13.450	SAME	30	30	R1-1	SOUTHBOUND	NO	YES	-	-	YES	12.0	2.0	1	NO	STOP	REMOVE EXISTING SIGN & RESET ON NEW POST
13.445	SAME	48	24	W1-6	WESTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	DIRECTIONAL ARROW	REMOVE EXISTING SIGN & RESET ON NEW POST
13.425	SAME	24	24	SPECIAL	EASTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	EDGEMONT TRAILHEAD	REMOVE EXISTING SIGN & RESET ON NEW POST
13.419	SAME	48	24	W1-6	EASTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	DIRECTIONAL ARROW	REMOVE EXISTING SIGN & RESET ON NEW POST
13.400	SAME	24	24	I-3	WESTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	CHEYENNE RIVER	REMOVE EXISTING SIGN & RESET ON NEW POST
13.395	SAME	12	36	OM3-R	WESTBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
13.395 LT	SAME	12	36	OM3-L	WESTBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
13.291	SAME	24	30	R2-1	WESTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	SPEED LIMIT 45	REMOVE EXISTING SIGN & RESET ON NEW POST
13.291	SAME	48	36	W14-3	EASTBOUND	NO	YES	-	-	NO	-	-	-	-	NO-PASS ZONE	REMOVE EXISTING SIGN & RESET ON BACK SIDE OF 45 MPH SIGN
EASTBOUND																
13.267	SAME	24	30	R2-1	WESTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	SPEED LIMIT 25	REMOVE EXISTING SIGN & RESET ON NEW POST
13.296	SAME	12	36	OM3-R	WESTBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
13.296 LT	SAME	12	36	OM3-L	WESTBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
13.230	SAME	24	24	I-3	WESTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	CHEYENNE RIVER	REMOVE EXISTING SIGN & RESET ON NEW POST
13.391	SAME	30	30	W10-1	EASTBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	RAILROAD CROSSING	REMOVE EXISTING SIGN & RESET ON NEW POST

SD471 - 6+50 - 16.85

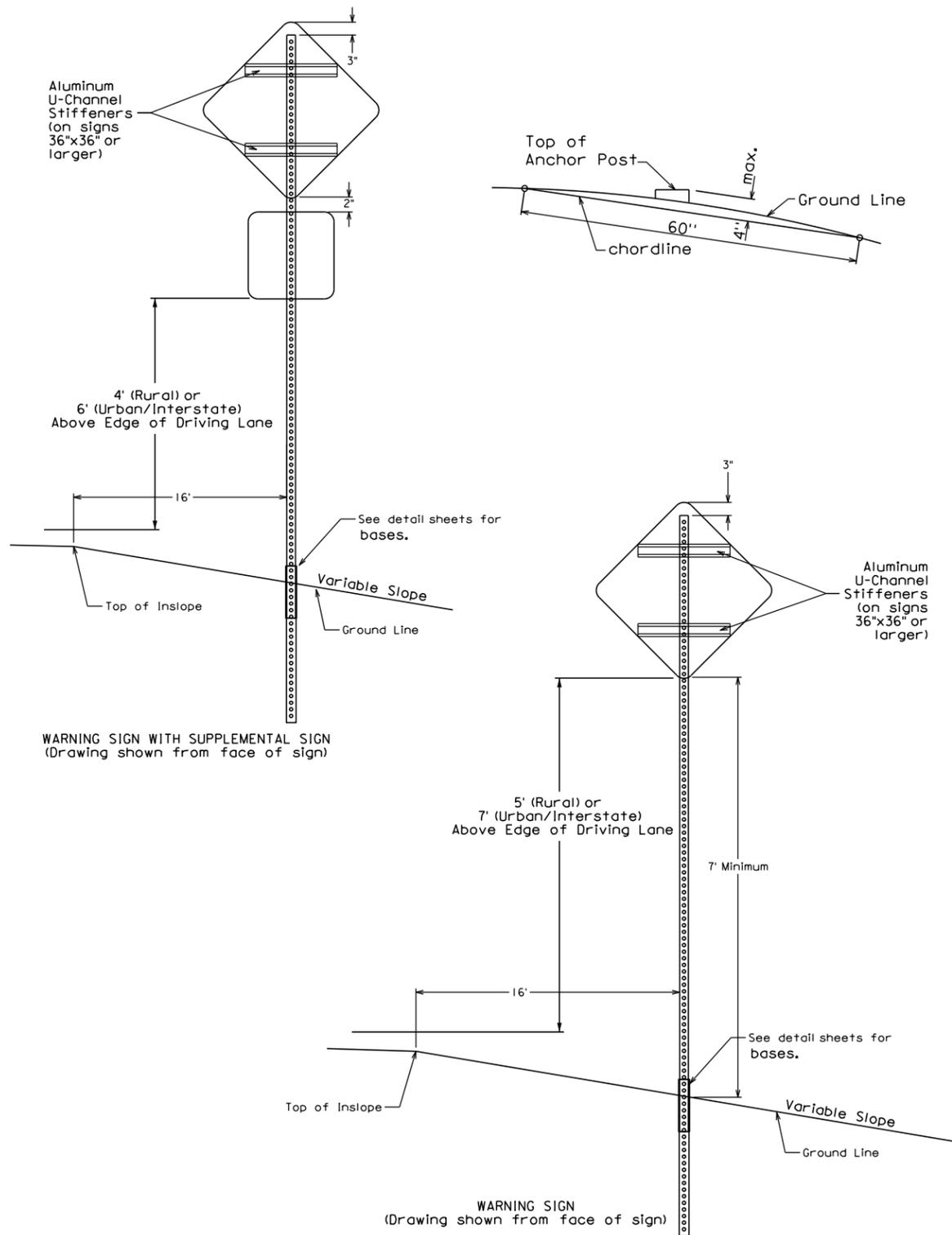
EXISTING MRM (Approx.)	NEW MRM (Approx.)	SIGN								POST					DESCRIPTION	REMARKS
		Width (in)	Height (in)	Number	Facing Traffic	New Sign	Remove Existing	Square Footage	Sheeting Type	New Post	Length (ft)	Size (in)	# of Posts	Shear Slip Base		
NORTHBOUND																
27.223	SAME	36	36	W3-5	NORTHBOUND	YES	YES	9.0	XI	YES	10.0	2.0	1	NO	SPEED ZONE AHEAD	SALVAGE EXISTING SIGN & REPLACE WITH NEW REDUCE SPEED LIMIT 35 AHEAD SIGN ON NEW POST
27.243	SAME	30	30	W10-1	NORTHBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	RAILROAD CROSSING	REMOVE EXISTING SIGN & RESET ON NEW POST
27.263	SAME	12	36	OM3-R	NORTHBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
27.263	SAME	4.5	15	D10-5A	NORTHBOUND	YES	-	0.5	IV	YES	6.0	2.0	1	NO	MRM 27.290	INSTALL NEW SIGN ON NEW POST
27.263	SAME	4.5	15	D10-5A	SOUTHBOUND	YES	YES	0.5	IV	NO	-	-	-	-	MRM 27.290	SALVAGE EXISTING SIGN AND INSTALL NEW SIGN ON BACKSIDE OF MRM 27.29
27.263LT	SAME	12	36	OM3-L	NORTHBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
27.308	SAME	30	30	W8-1	NORTHBOUND	NO	YES	-	-	NO	-	-	-	-	BUMP	SALVAGE EXISTING SIGN & POST
27.348	SAME	30	30	R2-1	NORTHBOUND	NO	YES	-	-	YES	10.0	2.00	1	NO	SPEED LIMIT 35	REMOVE EXISTING SIGN & RESET ON NEW POST
SOUTHBOUND																
27.282	SAME	30	30	R2-1	SOUTHBOUND	NO	YES	-	-	YES	10.0	2.00	1	NO	SPEED LIMIT 55	REMOVE EXISTING SIGN & RESET ON NEW POST
27.227	SAME	12	36	OM3-R	SOUTHBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
27.227LT	SAME	12	36	OM3-L	SOUTHBOUND	NO	YES	-	-	NO	-	-	-	-	TYPE III OBJECT MARKER	SALVAGE EXISTING SIGN & POST
27.133	SAME	48	36	W14-3	NORTHBOUND	NO	YES	-	-	YES	10.0	2.0	1	NO	NO-PASS ZONE	REMOVE EXISTING SIGN & RESET ON NEW POST

Plot Scale - 1:200

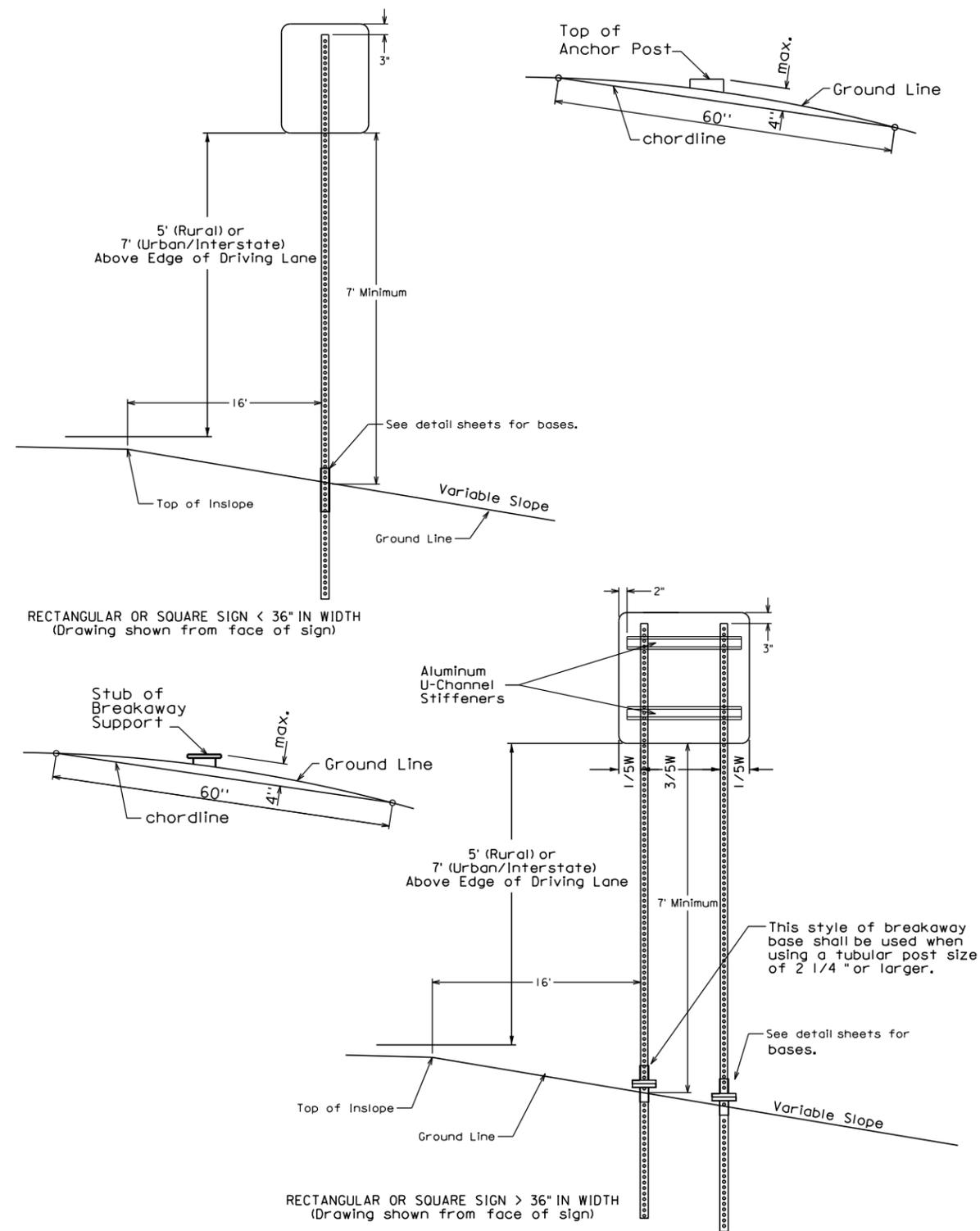
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Plot Scale - 1:200



TYPICAL ERECTION DETAILS FOR WARNING SIGNS

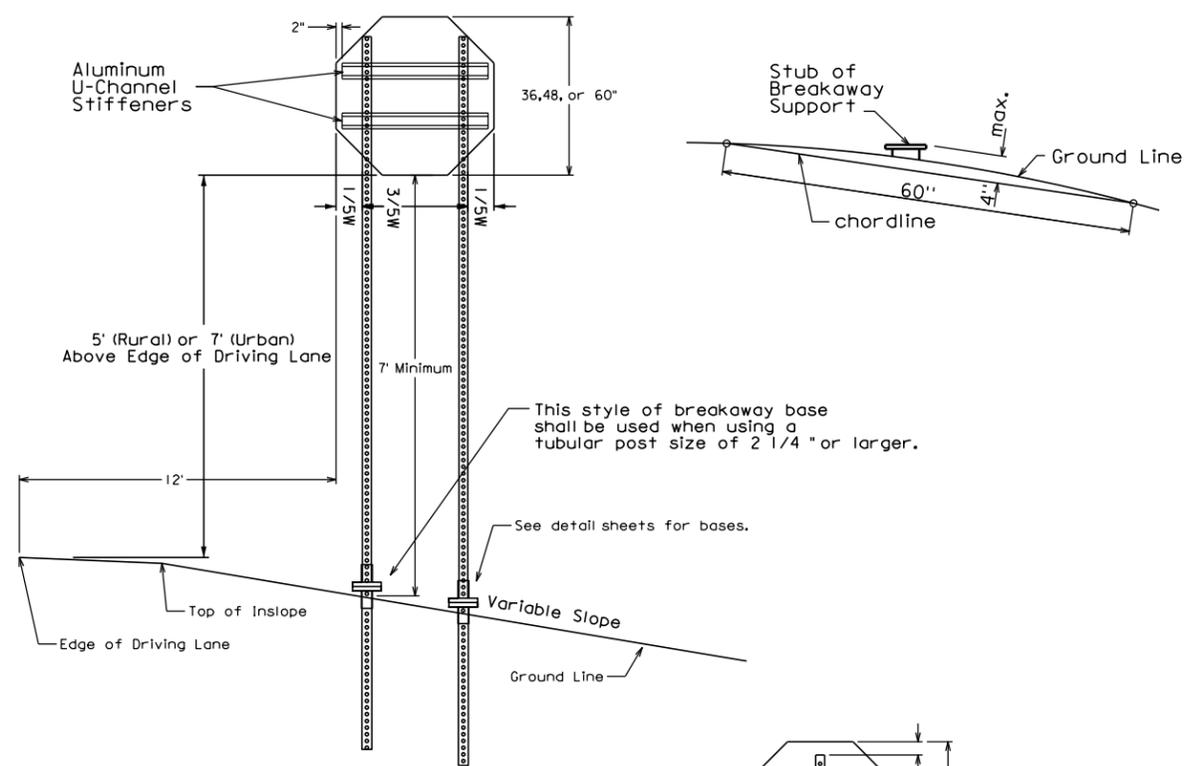


TYPICAL ERECTION DETAILS FOR SQUARE OR RECTANGULAR SIGNS

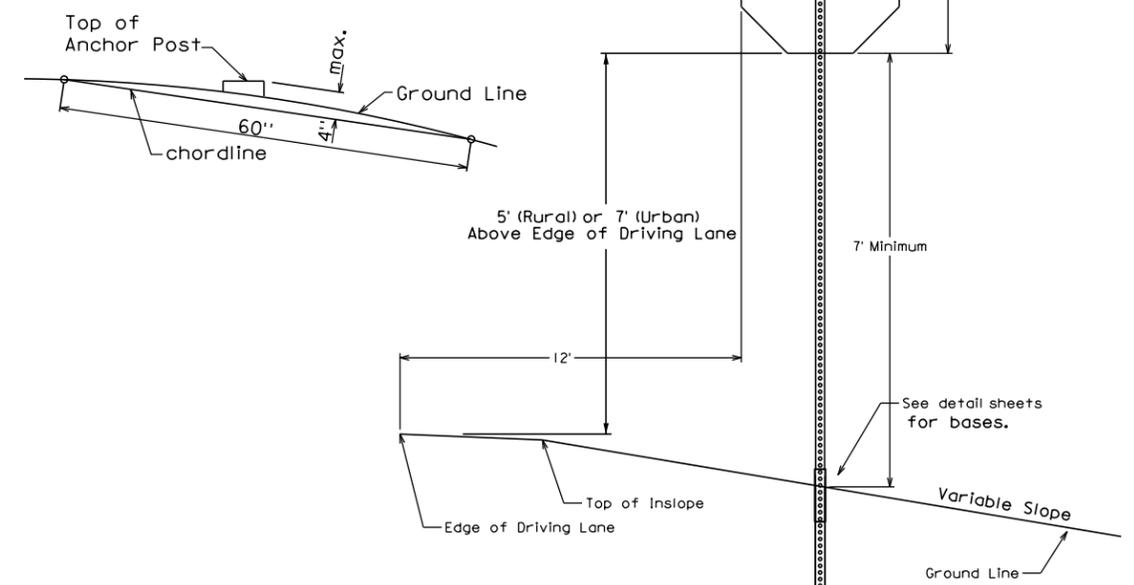
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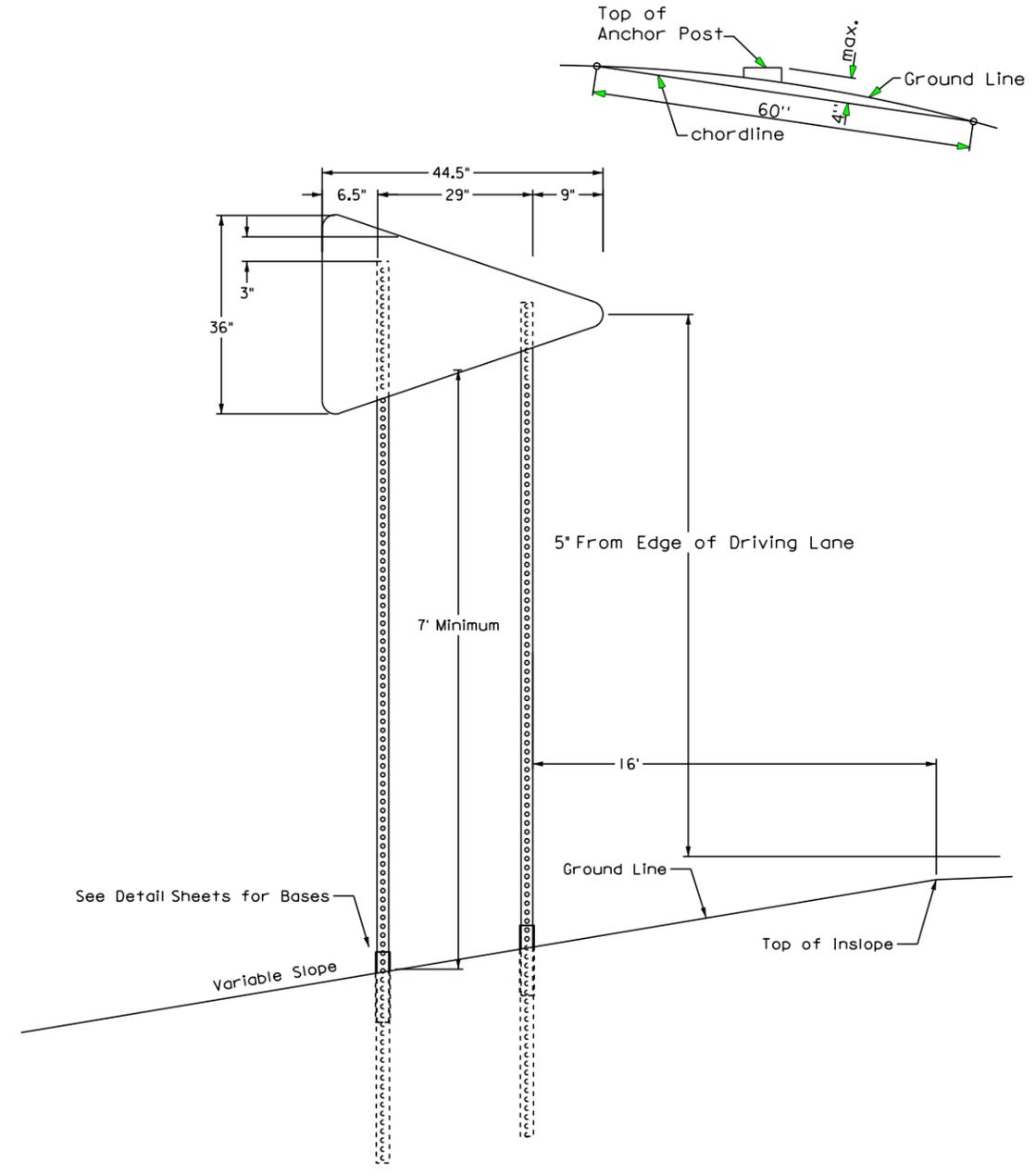


(Drawing shown from face of sign)
TWO-POST ASSEMBLY



(Drawing shown from face of sign)
SINGLE-POST ASSEMBLY

TYPICAL ERECTION DETAILS FOR STOP SIGNS

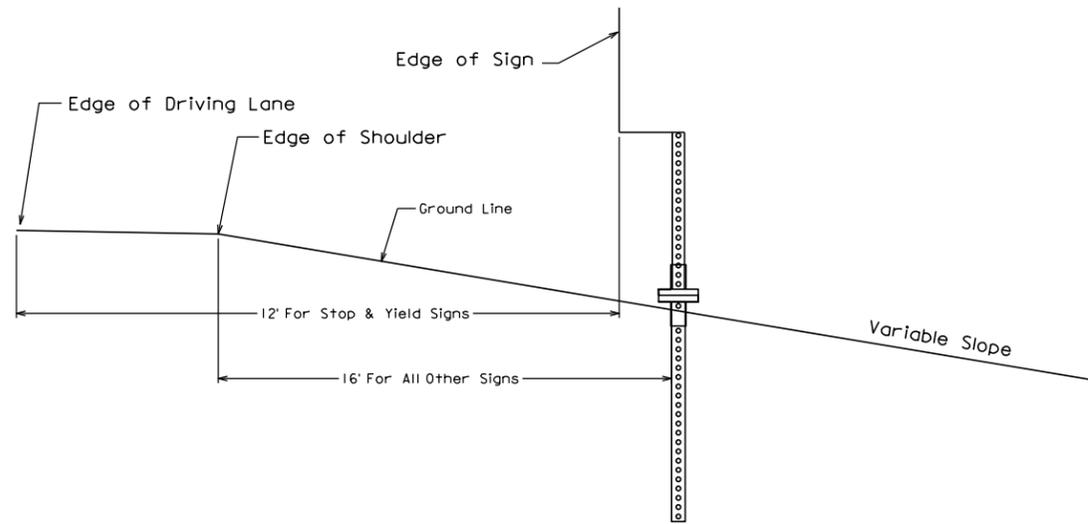


(Drawing shown from face of sign)

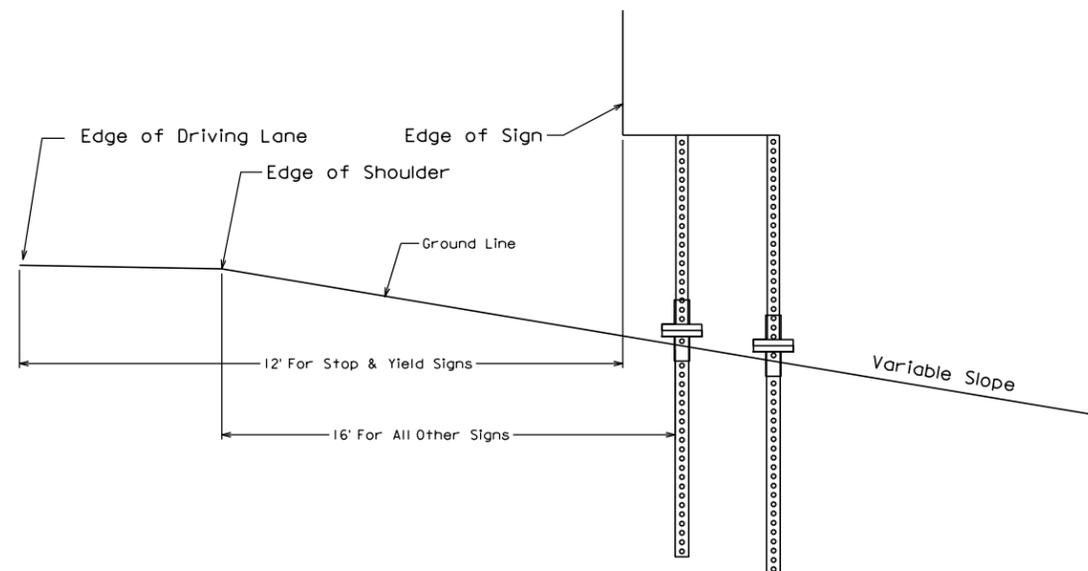
TYPICAL ERECTION DETAILS FOR NO PASSING ZONE PENNANT

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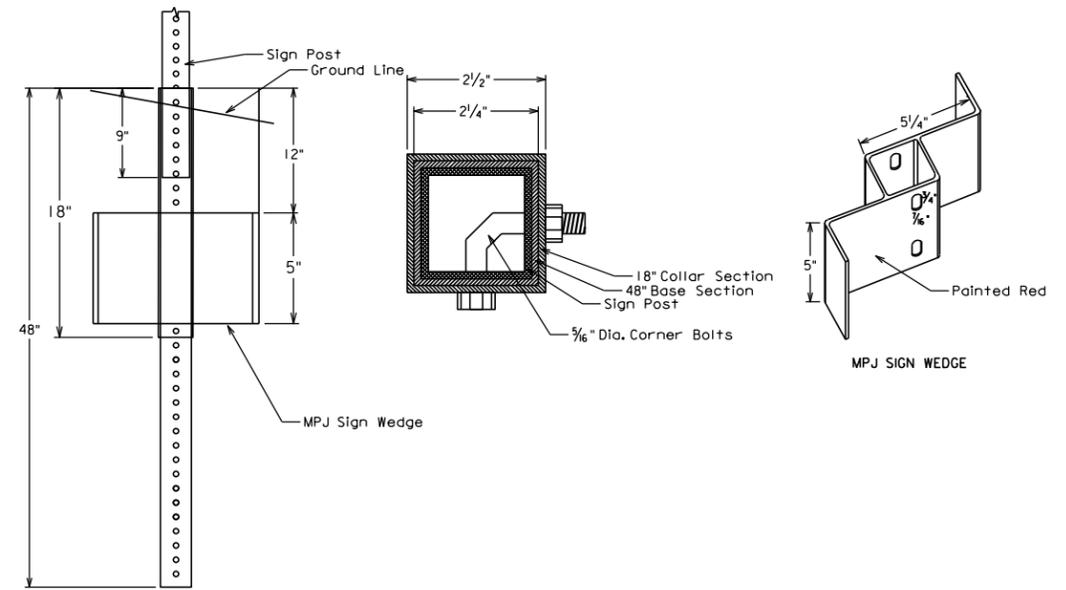
RURAL LOCATION WITH 1 POST
(Drawing shown from face of sign)



RURAL LOCATION WITH 2 POSTS
(Drawing shown from face of sign)

**LATERAL LOCATION FOR
URBAN & RURAL SIGNS**

SIGN BASE DETAILS FOR A 2" SIGN POST

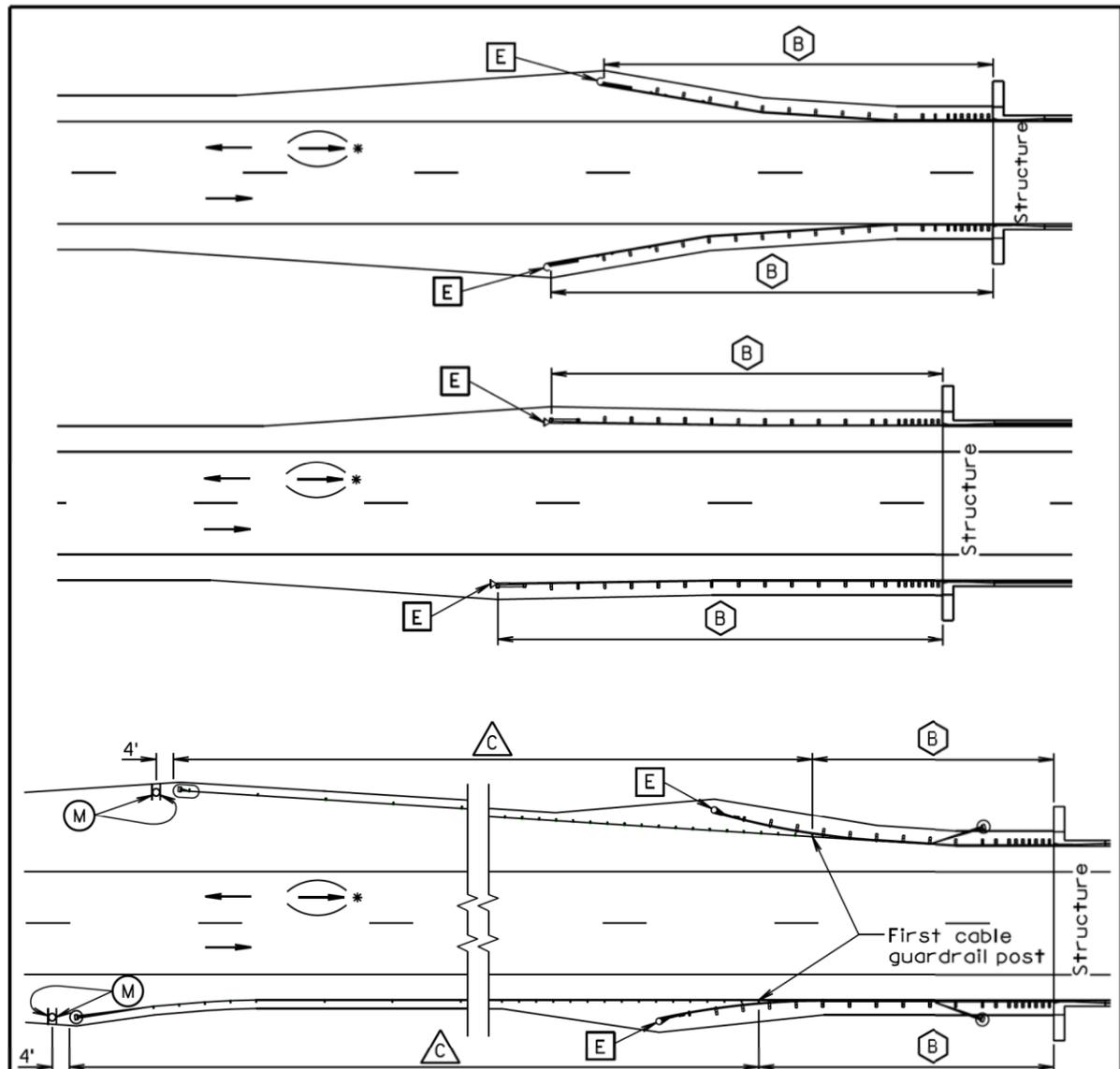


TUBULAR POST BASE DETAILS

Plot Scale - 1:200

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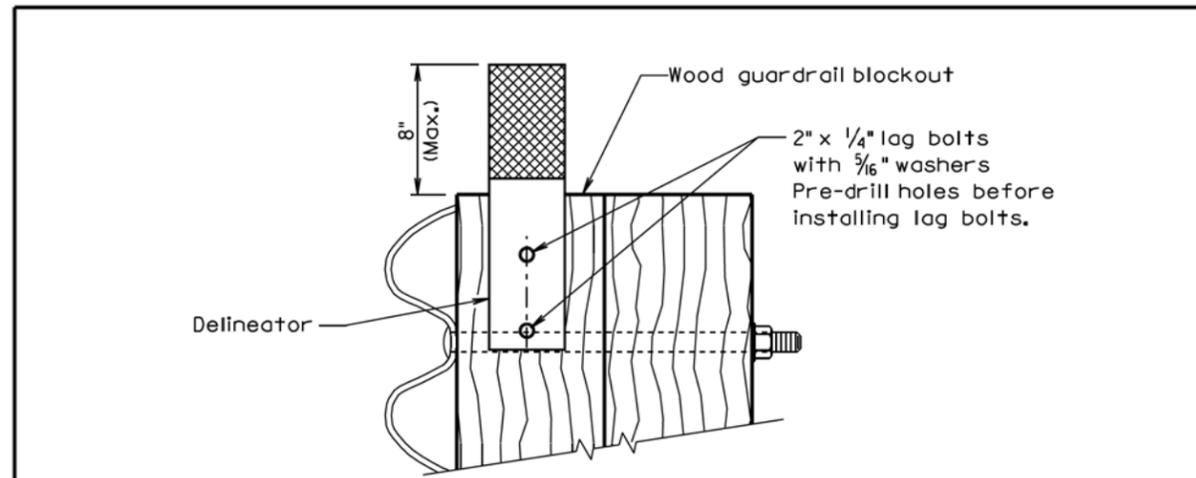
TYPICAL GUARDRAIL LAYOUTS

- B** Steel Beam Guardrail Delineation
- E** Guardrail Terminal End Object Marker
- C** 3 Cable Guardrail Delineation
- M** Type 2 Object Marker

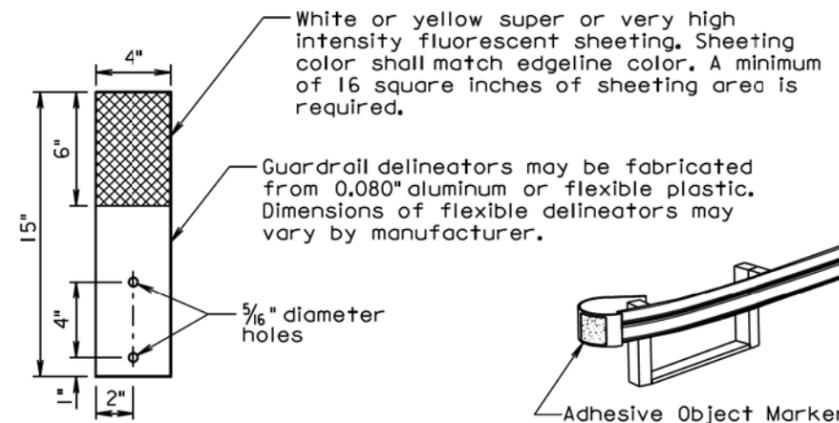
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

June 26, 2011

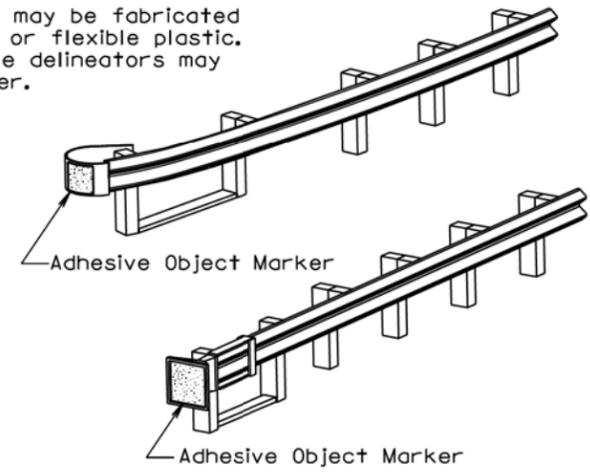
S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
	Published Date: 4th Qtr. 2014	Sheet 1 of 4



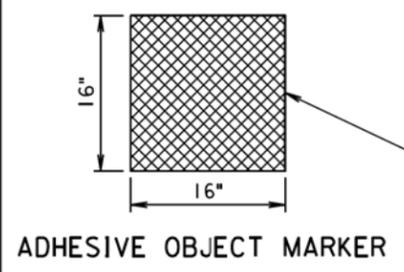
B STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



E GUARDRAIL TERMINAL END OBJECT MARKER



ADHESIVE OBJECT MARKER

Adhesive object marker dimensions may vary due to shape of terminal end. A minimum of 256 square inches of object marker sheeting area is required. The sheeting shall be fluorescent yellow super or very high intensity.

June 26, 2011

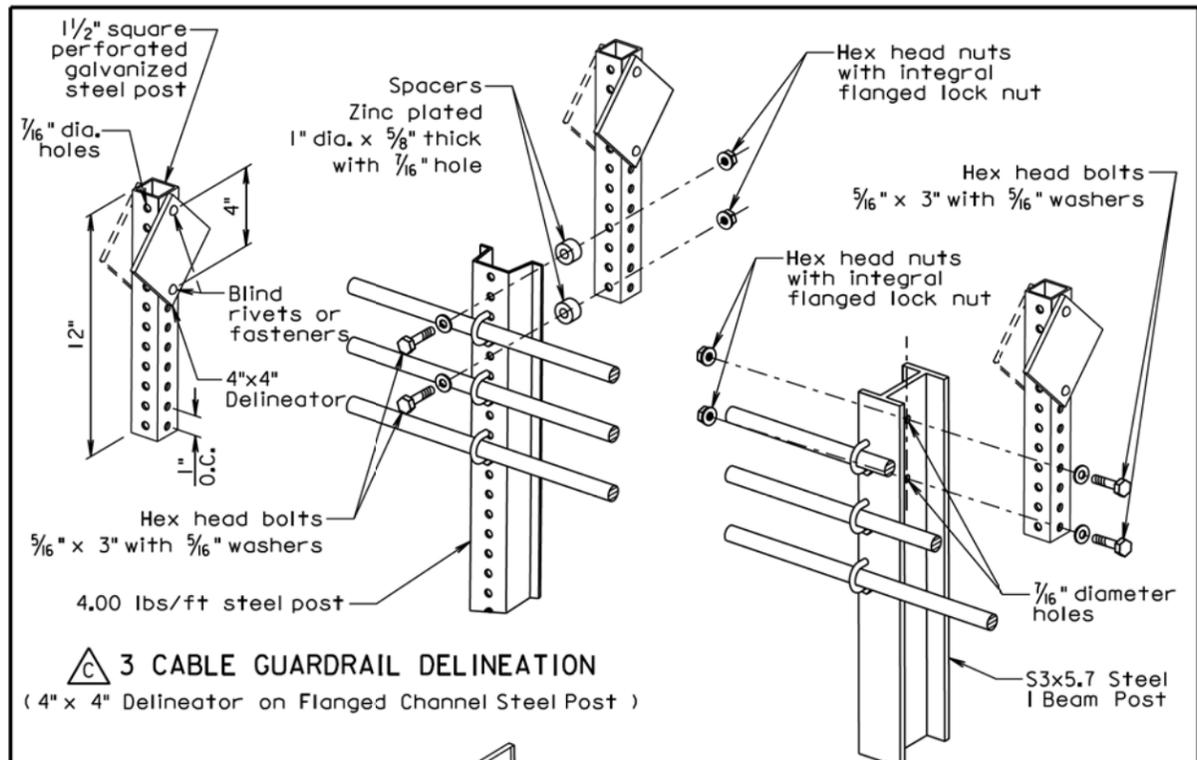
S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
	Published Date: 4th Qtr. 2014	Sheet 2 of 4

PLOT SCALE - 1:200

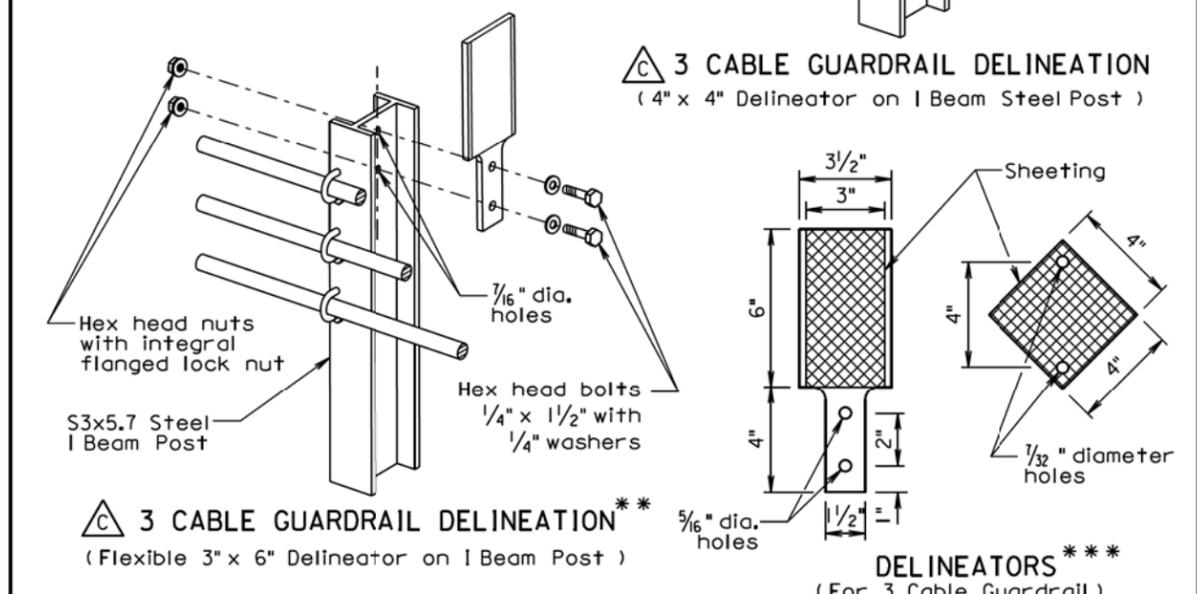
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PLOT NAME - 5

FILE - ... \0258_SECTIONS\PLATES\1.DGN

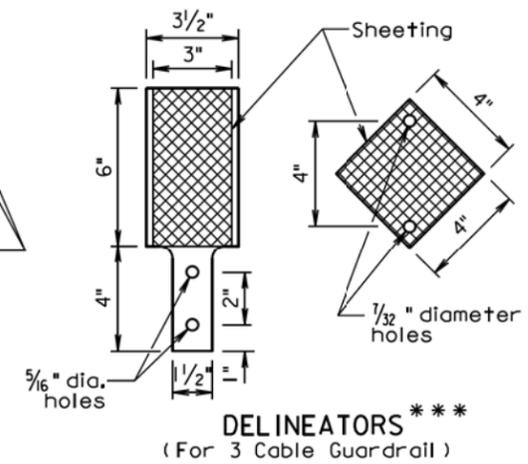


C 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on Flanged Channel Steel Post)



C 3 CABLE GUARDRAIL DELINEATION
(4" x 4" Delineator on I Beam Steel Post)

C 3 CABLE GUARDRAIL DELINEATION**
(Flexible 3" x 6" Delineator on I Beam Post)



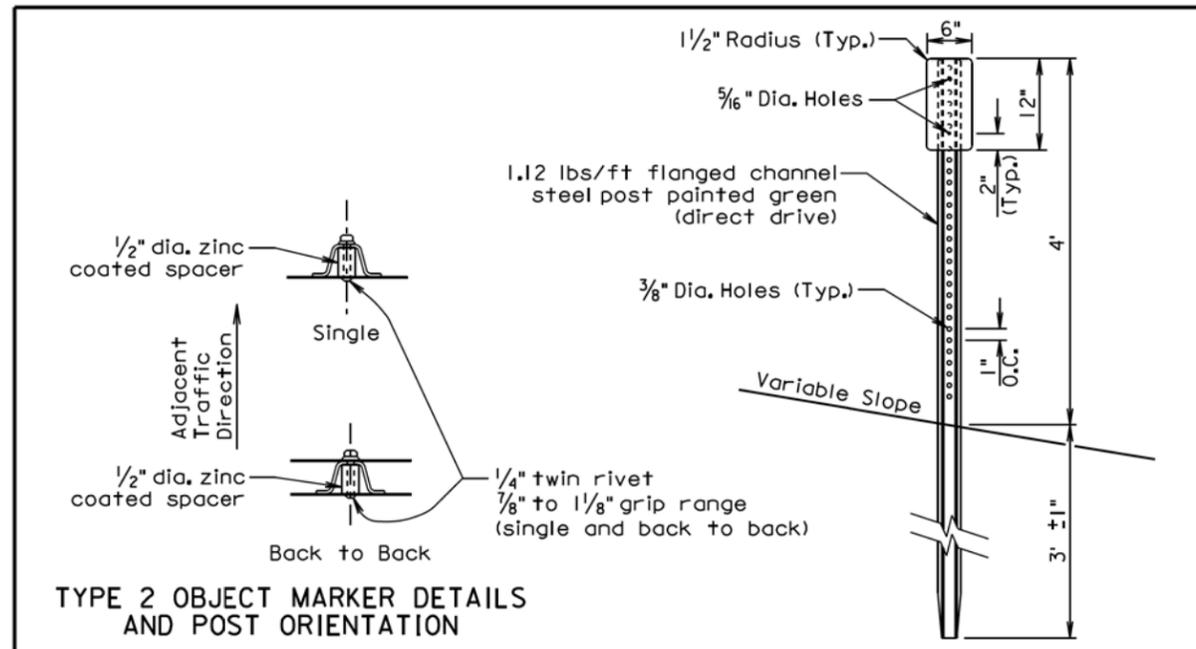
** Flexible delineators may be attached to post with manufacturer approved adhesive instead of bolts.

*** Dimensions of flexible delineators may vary by manufacturer. A minimum of 16 square inches of sheeting area is required. The sheeting shall be white or yellow super or very high intensity fluorescent sheeting. The sheeting color shall match the edgeline color.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 3 of 4

Published Date: 4th Qtr. 2014



M TYPE 2 OBJECT MARKER
(For Marking 3 Cable Guardrail Anchor)

GENERAL NOTES:

The delineators shall be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting shall be of either very high intensity or super high intensity material. For bridges along two-way roadways the sheeting shall be on both sides of the delineator and shall 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.

The first delineator shall be attached to the post nearest the bridge with additional delineators spaced in advance of the bridge at approximately 50 foot intervals. At bridges with short lengths of guardrail, less than 200 feet, a minimum of 4 delineators shall be placed in addition to the yellow object marker. The spacing between the delineators shall be approximately one third of the length of the guardrail. This will provide for a shorter spacing. At bridges with longer lengths of guardrail, greater than 200 feet, including bridges that have cable guardrail transitioning into the steel beam guardrail, the delineators will be placed at a spacing of approximately 50 feet. Delineation shall extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation shall be included in the contract unit price per each for "Guardrail Delineator".

An adhesive object marker shall be placed on the end of the W beam guardrail 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. The reflective sheeting shall be fluorescent yellow super or very high intensity. All costs for furnishing and installing the adhesive object marker shall be incidental to various contract items.

A type 2 object marker shall be placed adjacent to the 3 cable guardrail anchor at the location noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") shall have a fluorescent yellow very high or super high intensity reflective sheeting. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware shall 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.

June 26, 2011

S D D O T	DELINEATION OF GUARDRAIL AT BRIDGES	PLATE NUMBER 632.40
		Sheet 4 of 4

Published Date: 4th Qtr. 2014

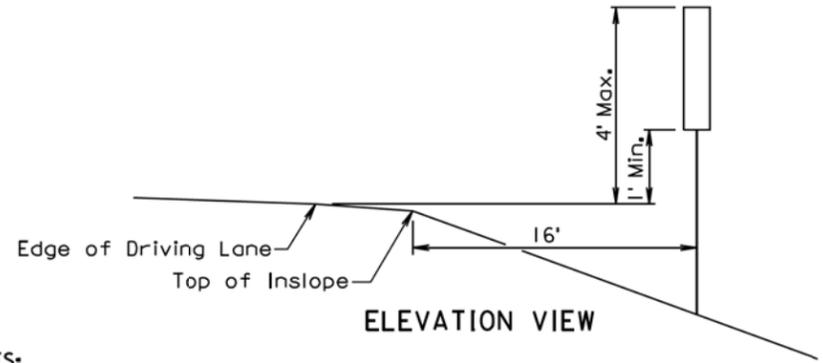
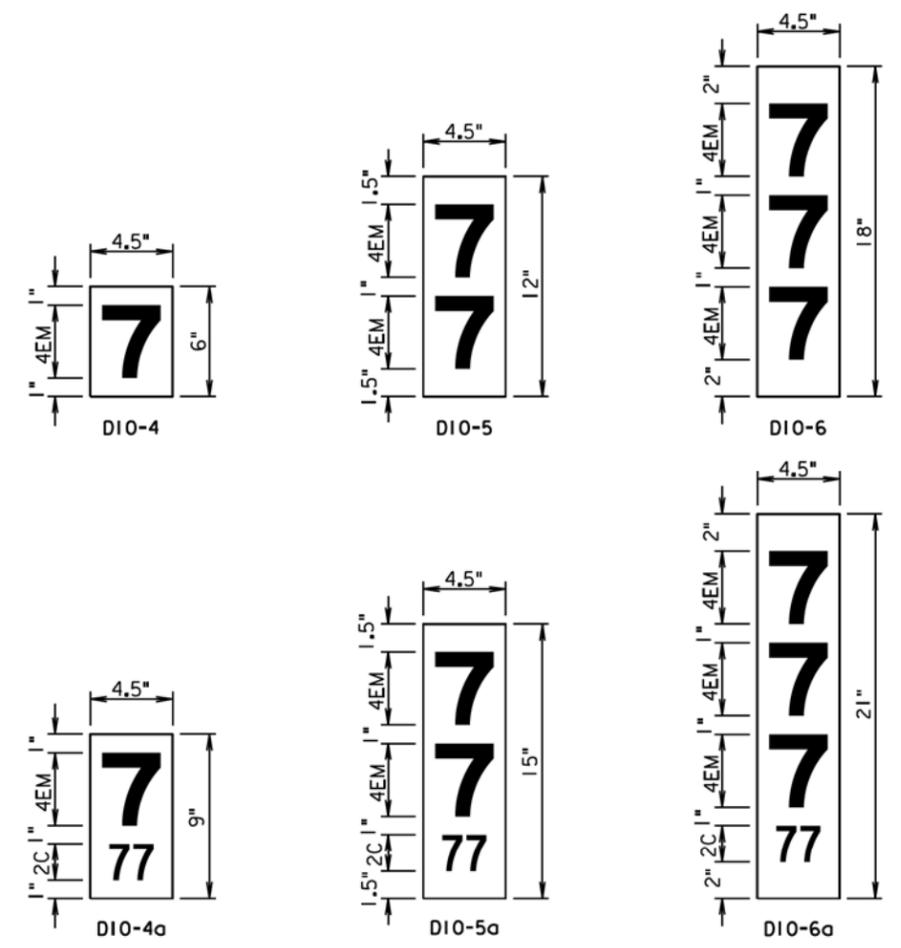
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PLOTTED FROM - TRRC11628

PLOT NAME - 6

FILE - ... \0258-SECT10NSDTPATES1.DGN

Plotting Date: 11/20/2014



GENERAL NOTES:

- Background shall be high intensity green.
- Legend shall be high intensity white.
- Signs shall have squared corners with no border.
- Sign locations shall be staked by the Engineer.

December 23, 2003

S D D O T	NON-INTERSTATE MILEAGE REFERENCE MARKERS	PLATE NUMBER 632.30
		Sheet 1 of 1

Published Date: 4th Qtr. 2014

PLOT SCALE - 1:200

-PLOTTED FROM - TRRC11628

PLOT NAME - 4

FILE - ... \0258_SECTIONS\PLATES1.DGN