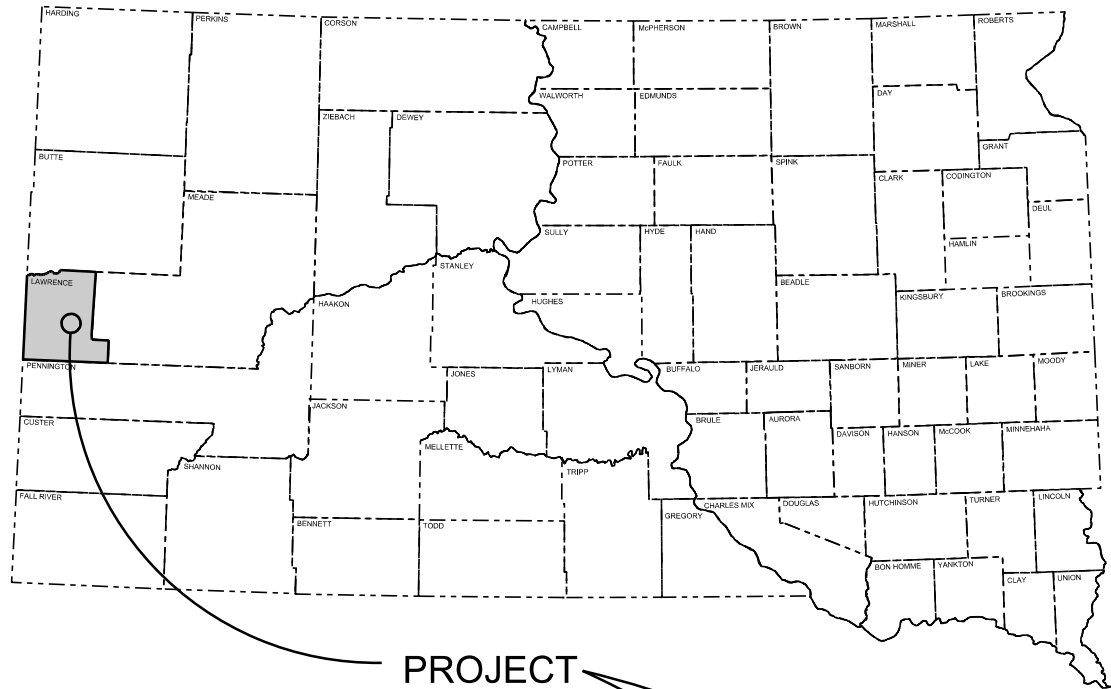


Plot Scale - 1:200



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

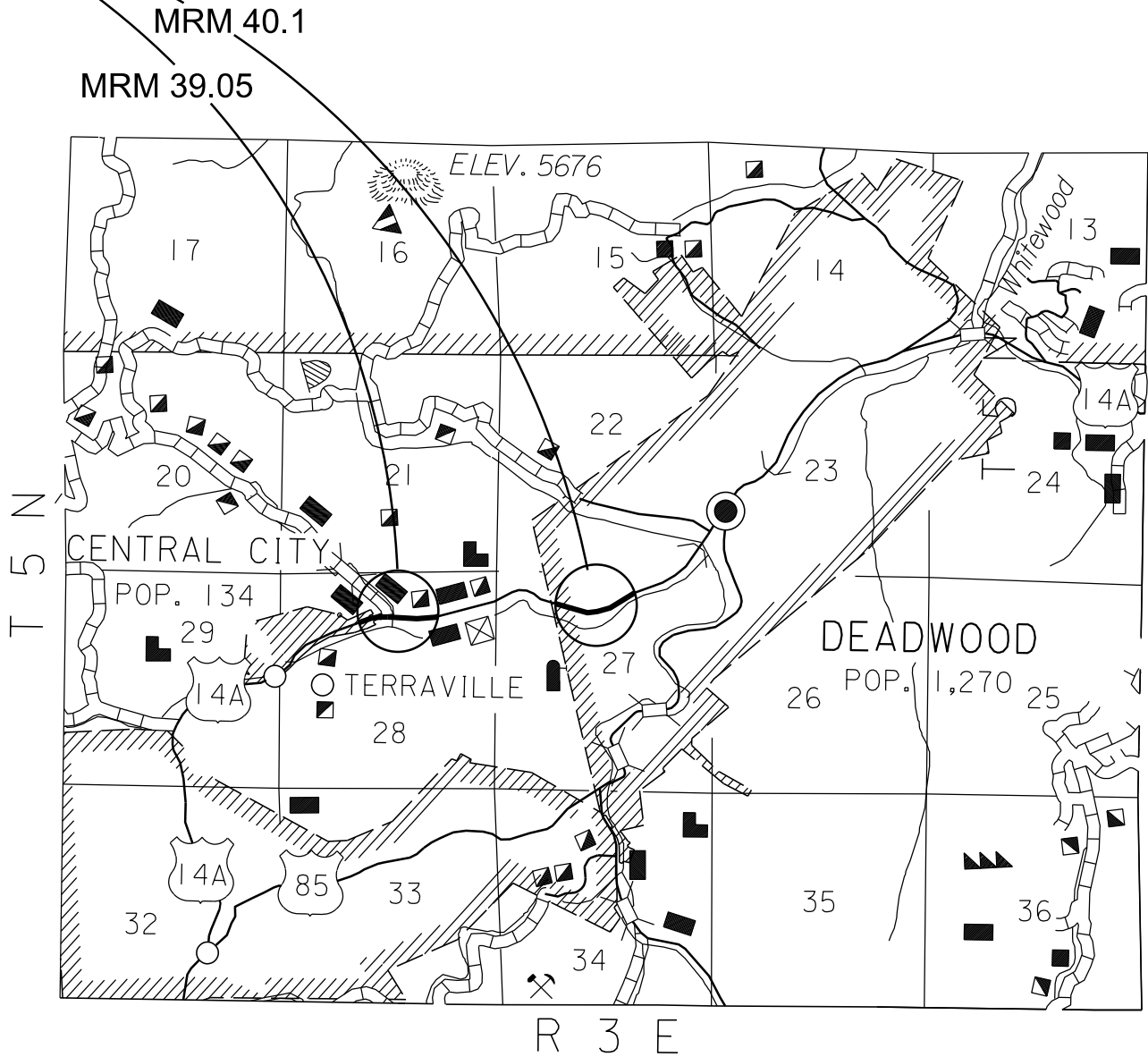
PLANS FOR PROPOSED
PROJECT 000P-451
US HIGHWAY 14A
LAWRENCE COUNTY
GUARDRAIL INSTALLATION
GUARDRAIL REMOVAL
PCN i3m3

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-451	1	18

Plotting Date: 03/16/2015

INDEX OF SHEETS

Sheet No.	1:	Title and Index
Sheets No.	2 - 4:	Estimate, Notes, & Tables
Sheets No.	5 - 6:	Guardrail Layout
Sheets No.	7 - 8:	Special Details
Sheets No.	9 - 18:	Standard Plates



STORM WATER PERMIT

None Required

DESIGN DESIGNATION

ADT (2013)	4715
ADT (2033)	6379
DHV	1442
D	51%
T DHV	3.3%
T ADT	7.2%
V	45 mph

trcs12808

File - ...title.dgn

ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E4330	Salvage W Beam Guardrail	112.5	Ft
110E4380	Salvage W Beam Guardrail Tangent End Terminal	1	Each
110E6280	Remove W Beam Guardrail Tangent End Terminal for Reset	1	Each
630E1015	Straight Class A W Beam Guardrail with CRT Posts	25.0	Ft
630E1025	Curved Class A W Beam Guardrail with CRT Posts	25.0	Ft
630E1200	Straight Class A W Beam Rail	75.0	Ft
630E2035	W Beam Guardrail Special Anchor Assembly	1	Each
630E2110	Beam Guardrail Post and Block	12	Each
630E5208	Reset W Beam Guardrail Tangent End Terminal	1	Each
632E2220	Guardrail Delineator	3	Each
634E0010	Flagging	100	Hour
634E0100	Traffic Control	1,457	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2004 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

UTILITIES

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the contractor shall contact the project engineer to determine modifications that will be necessary to avoid utility impacts.

Any damage to a utility will be the Contractor’s responsibility to repair.

Utilities, if identified within the limits of the proposed construction, shall be adjusted by the owner as addressed in SDCL 31-26-23 unless otherwise indicated in these plans.

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived 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. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

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 shall 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 State ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Highway, Road, and Railway 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) shall 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 Project Engineer.

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the State ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the State ROW through the use of 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 of time not to exceed the duration of the project. Prior to project completion, the waste shall 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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-451	2	18

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) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all designated option borrow sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: staging areas, borrow sites, waste disposal sites, and all material processing sites.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. 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; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on 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 shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). 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.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for staging areas, borrow sites, waste disposal sites, or material processing sites that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT R: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the confines of the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor shall adhere to the “Special Provision for Fire Plan”.

SEQUENCE OF OPERATIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-451	3	18

1. Set up Traffic Control.
2. Remove for Reset or Salvage W Beam Guardrail Tangent End Terminal.
3. Where required Salvage W Beam Guardrail or Install W Beam Guardrail.
4. Reset or Install W Beam Guardrail End Terminal.
5. Remove Traffic Control.

Table of Guardrail										
	Salvage W Beam Guardrail Tangent End Terminal	Straight Class A W Beam Rail	Curved Class A W Beam Guardrail with CRT Posts	Straight Class A W Beam Guardrail with CRT Posts	W Beam Guardrail Special Anchor Assembly	Beam Guardrail Post and Block	Remove W Beam Guardrail Tangent End Terminal for Reset	Salvage W Beam Guardrail	Reset W Beam Guardrail Tangent End Terminal	Guardrail Delineator
MRM	(Each)	(Ft)	(Ft)	(Ft)	(Each)	(Each)	(Each)	(Ft)	(Each)	(Each)
39.05	1	75	25	25	1	12				3
40.10							1	112.5	1	
Total	1	75	25	25	1	12	1	112.5	1	3

MIDWEST GUARDRAIL SYSTEM (MGS) END TERMINAL – PCN I2U1

The Contractor shall contact Bernie Clocksin in Office of Road Design at Bernie.Clocksin@state.sd.us for information regarding installation of the MGS end terminal. The MGS end terminal shall be reset in accordance with the manufacturer's installation recommendations using the existing posts and blocks. The drawing for the installed end terminal and installation instructions shall be provided to the Engineer prior to installation.

Resetting the MGS End Terminal will be paid for at the contract unit price per each for the respective item Reset W Beam Guardrail Tangent End Terminal.

Payment will be full compensation for labor, posts, blocks, materials, equipment, and incidentals required for resetting the end terminal.

SALVAGE BEAM GUARDRAIL

Steel beam rail and hardware items shall become the property of the State. Posts and blocks shall become the property of the Contractor and shall be removed from the project limits.

All salvaged items noted on the plans shall be salvaged for future highway use and hauled to the Department of Transportation's Deadwood Maintenance facility as directed by the Engineer. Care shall be taken not to damage the structural properties of the items during dismantling and transporting. All broken concrete and materials not salvaged shall be disposed of in accordance with the Standard Specifications. All costs for salvaging removing, hauling, stacking, and transporting the guardrail items shall be incidental to the contract price per each for Salvage W Beam Guardrail Tangent End Section or per foot for Salvage W Beam Guardrail. Before preparing his/her bid, the Contractor shall make a visual inspection of the project to verify the extent of the work and material involved.

GUARDRAIL DELINEATORS

All guardrail delineation on the Tangent End Section shall be reset. Costs for resetting the delineators shall be incidental to the contract unit price per each for Reset W Beam Guardrail Tangent End Terminal.

New guardrail delineators shall be placed on all new guardrail as per Standard Plate 632.

The Contractor shall use aluminum delineators as per Standard Plate 632.

Guardrail delineators shall be fabricated from 0.080" aluminum.

Costs for installing the new delineators shall be incidental to the contract unit price per each for Guardrail Delineator.

TRAFFIC CONTROL

1. Requests to deviate from the sequence of operations shall be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence shall be submitted for review a minimum of one week prior to potential implementation.
2. Unless otherwise stated in these plans, no work will be allowed during hours of darkness. Hours of darkness are defined as ½ hour after sunset until ½ hour before sunrise.
3. Storage of vehicles and equipment shall be as near the right-of-way as possible. Contractor's employees should mobilize at a location off the right-of-way and arrive at the work sites in a minimum number of vehicles necessary to perform the work. Indiscriminate driving and parking of vehicles within the right-of-way will not be permitted. Any damage of the vegetation, surfacing, embankment, delineators, and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the State, and to the satisfaction of the Engineer.
4. Existing guide, route, informational logo, regulatory, and warning signs shall be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging and resetting of existing traffic control devices, including but not limited to, traffic signal heads, delineation, and signing shall be the responsibility of the Contractor. Non-applicable signing and all traffic control devices shall be covered or removed during periods of inactivity. Periods of inactivity shall be defined as no work taking place for a period of more than 48 hours. The cost of removing or covering non-applicable signs shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
5. Construction signing mounted on portable supports shall not be used for a duration of more than 3 days, unless approved by the Engineer. Construction signing that remains in the same location for more than 3 days shall be mounted on fixed location, ground mounted, breakaway supports.
6. The quantity of traffic control units paid for will be for the greatest number of installations per sign in place at any one time regardless of the number of set-ups on the project.
7. Any delineators and signs damaged or lost shall be replaced by the Contractor at no cost to the State.
8. All materials and equipment shall be stored a minimum distance of 30' from the traveled way during nonworking hours.
9. The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.
10. The Contractor shall be required to have a person available 24 hour/day, 7 days/week to maintain traffic control devices. The name and cellular telephone number of this individual shall be given to the Engineer at the preconstruction meeting.

11. The Contractor or designated traffic control subcontractor shall make night inspections at the initial set up of traffic control and every week thereafter to ensure the adequacy, legibility and reflectivity of each sign and device. A written summary of each inspection shall be given to the Engineer within 24 hours after completion of the inspection. The cost for the nighttime inspection work shall be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".
12. Vehicles working in traffic or alongside traffic shall be equipped with a flashing amber light visible from all directions. The amber light shall be mounted on the uppermost part of the Contractor's vehicle. Lights must have peak intensity within the range of 40 to 400 candelas and must flash at 75 ± 15 flashes per minute. Vehicle flasher/hazard lights are not acceptable. All haul trucks shall be equipped with a second flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights shall be incidental to the various related contract bid items.
13. All construction operations shall be conducted in the general direction of traffic movement.
14. If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD – whichever is more stringent shall be used, as determined by the Engineer.
15. Drums are required in all lane closure tapers.

INVENTORY OF TRAFFIC CONTROL DEVICES

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	5	17	85
R1-1	30" x 30"	STOP	2	21	42
R3-2	24" x 24"	NO LEFT TURN (SYMBOL)	2	16	32
W1-4	48" x 48"	REVERSE CURVE SIGN (LEFT)	2	34	68
W9-3	48" x 48"	CENTER LANE CLOSED AHEAD	2	34	68
W20-1	48" x 48"	ROAD WORK AHEAD	5	34	170
W20-4	48" x 48"	ONE LANE ROAD AHEAD	4	34	136
W20-7	48" x 48"	FLAGGER	6	34	204
W21-5	48" x 48"	SHOULDER WORK	6	34	204
*****		TYPE 3 BARRICADE - 8 FT. DOUBLE SIDE	8	56	448
TOTAL UNITS					1457

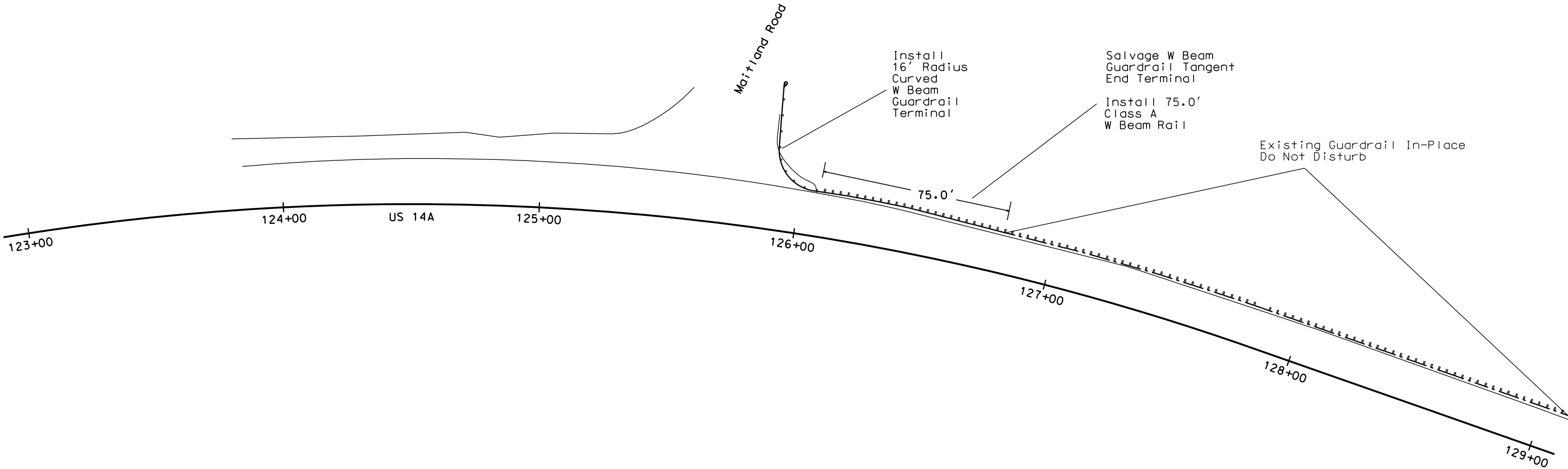
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-451	4	18

GUARDRAIL LAYOUT

US 14A
MRM 39.05

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	000P-451	5	18

Plotting Date: 03/16/2015



Plot Scale - 1:40

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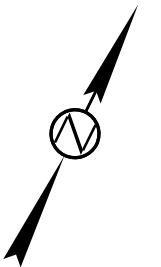
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GUARDRAIL LAYOUT

US 14A
MRM 40.1

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	000P-451	6	18

Plotting Date: 03/16/2015



181+87.5 39'L
Remove Midwest Guardrail
System W Beam Guardrail
Tangent End Terminal
for Reset
182+37.5 - 29.7'L to 183+50 - 29.7'L
Salvage 112.5' W Beam Guardrail

183+50 29.7' L
Reset Midwest Guardrail
System W Beam Guardrail
Tangent End Terminal

Upper Main Street

5' Face of Curb to Face of Rail

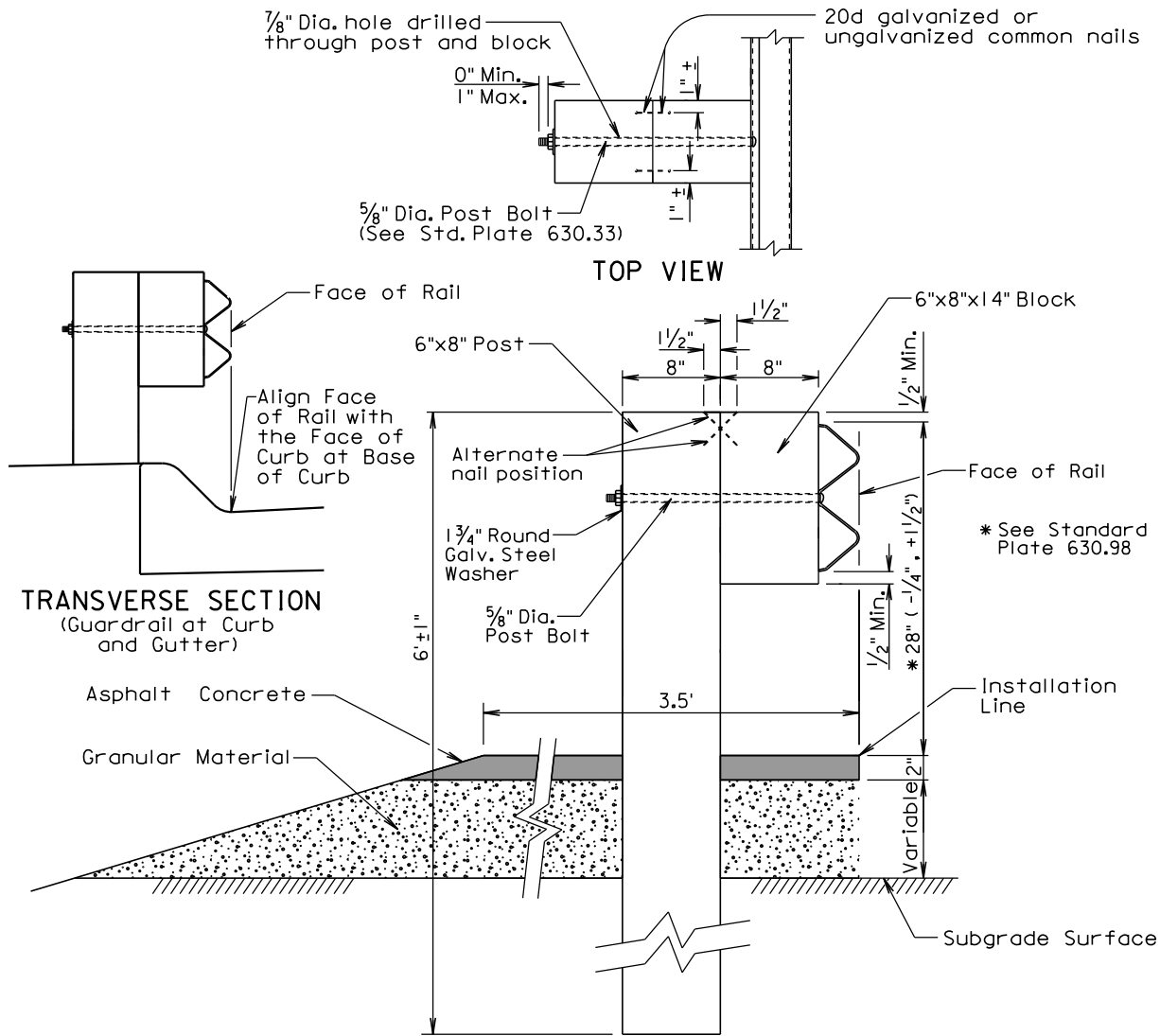
Equation
Sta. 184+69.5 Bk. =
Sta. 184+71.1 Ahd.

PLOT SCALE - 1"=40'

PLOT NAME - 3

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PLOTTED FROM - TRRC12608



GENERAL NOTES:

Asphalt concrete shall be the same type used elsewhere on the project or shall be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete shall conform to the SD Standard Specifications for "Asphalt Concrete Composite." For informational purposes, the Rate of Materials for the 3.5' wide section of asphalt concrete as shown above shall be 4.80 Tons per Station.

Granular material shall be the same type used elsewhere on the project or shall be as specified in the plans. If granular material type is not specified in the plans, the material shall conform to the SD Standard Specifications for "Base Course". The granular material shall be placed the same thickness as the mainline surfacing or as specified in the plans.

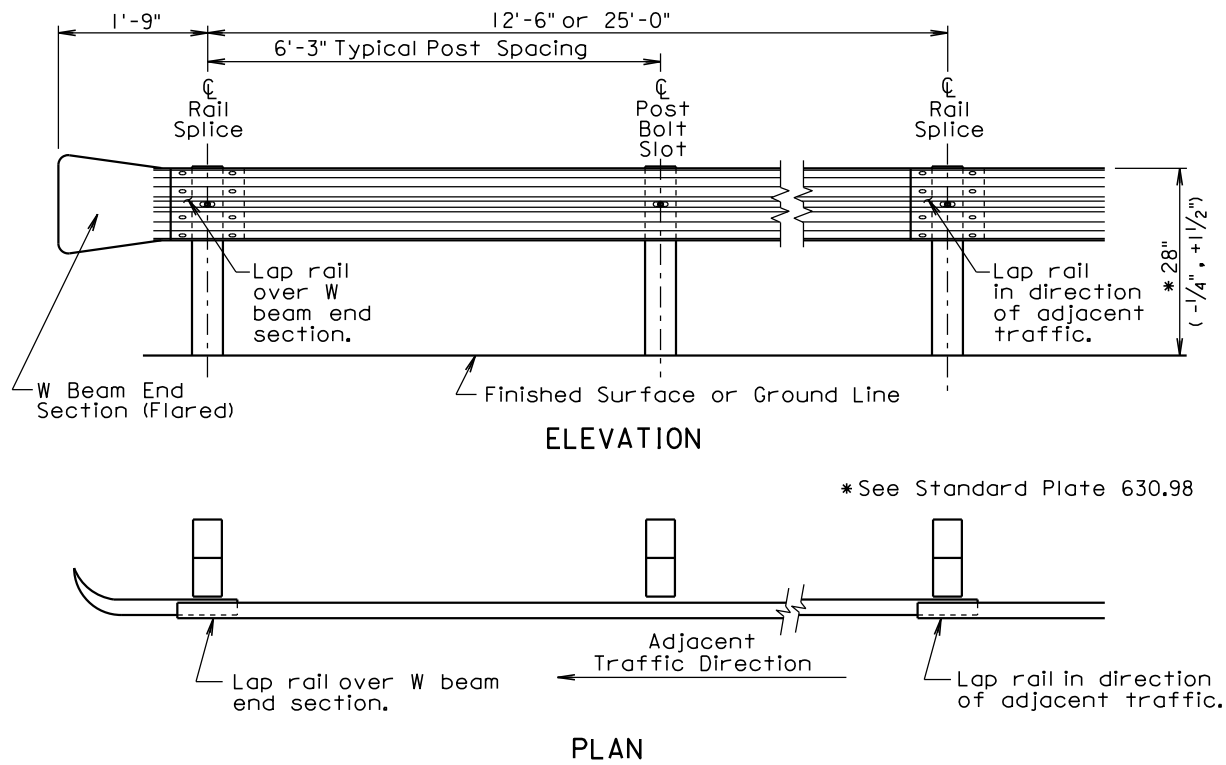
Surfacing and embankment quantities will be paid for separately and will NOT be incidental to the "W Beam Guardrail" bid item.

The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

The top of posts and top of block shall have a true square cut. The top of post and top of block shall be flush.

December 23, 2010

Published Date: 1st Qtr. 2015	S D D O T	W BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.31
			Sheet 1 of 1



For Informational Purposes Only

GENERAL NOTES:

All W beam rail shall be Type I.

There will be no separate payment for furnishing and installing W Beam End Sections (Flared) and W Beam Terminal Connectors. All costs for the W Beam End Sections (Flared) and W Beam Terminal Connectors shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used shall be compatible with the total length of rail per site as shown in the plans.

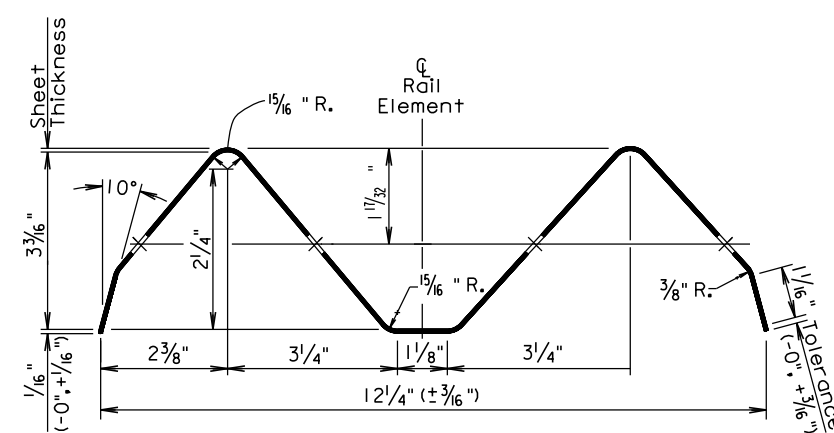
W Beam End Sections (Flared) shall only be used in a one way traffic situation. See Standard Plate 630.80 for W Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

All costs for constructing W beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

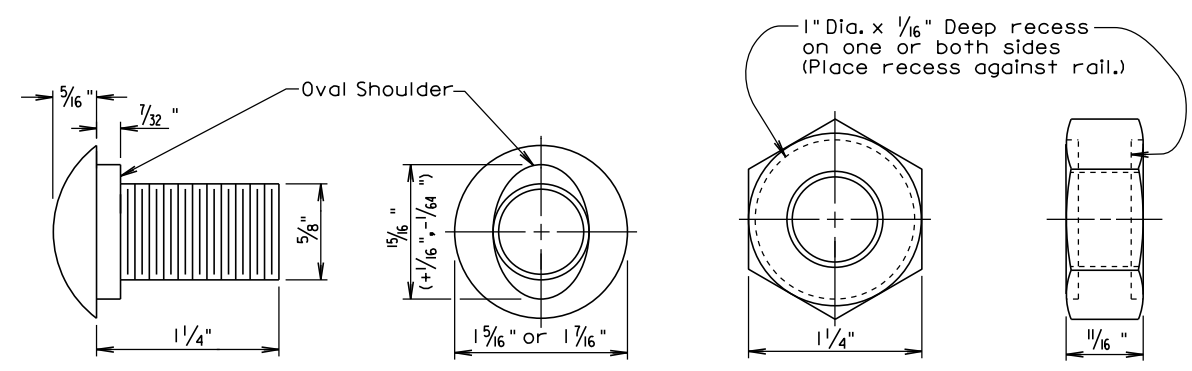
Surfacing and embankment quantities will be paid for separately and will NOT be incidental to the "W Beam Guardrail" bid item.

December 16, 2014

Published Date: 1st Qtr. 2015	S D D O T	W BEAM GUARDRAIL INSTALLATION	PLATE NUMBER 630.32
			Sheet 1 of 1

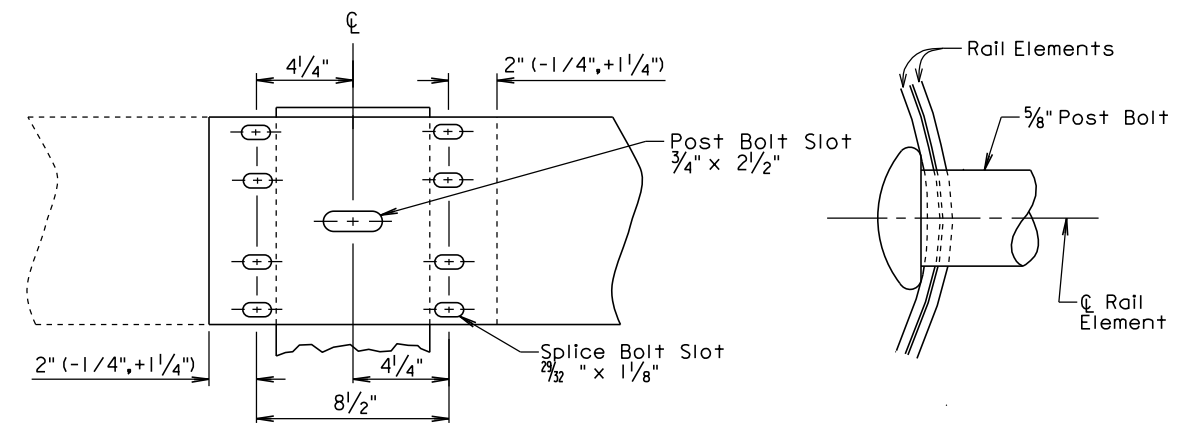


SECTION THROUGH W BEAM RAIL ELEMENT



The Post Bolt is similar except the post bolt is 18" long.

SPlice BOLT
(5/8" BUTTON HEAD BOLT AND RECESS NUT)



Lap in direction of traffic.

RAIL SPLICE

December 23, 2004

Published Date: 1st Qtr. 2015

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W BEAM RAIL, RAIL SPLICE, AND HARDWARE

PLATE NUMBER
630.33

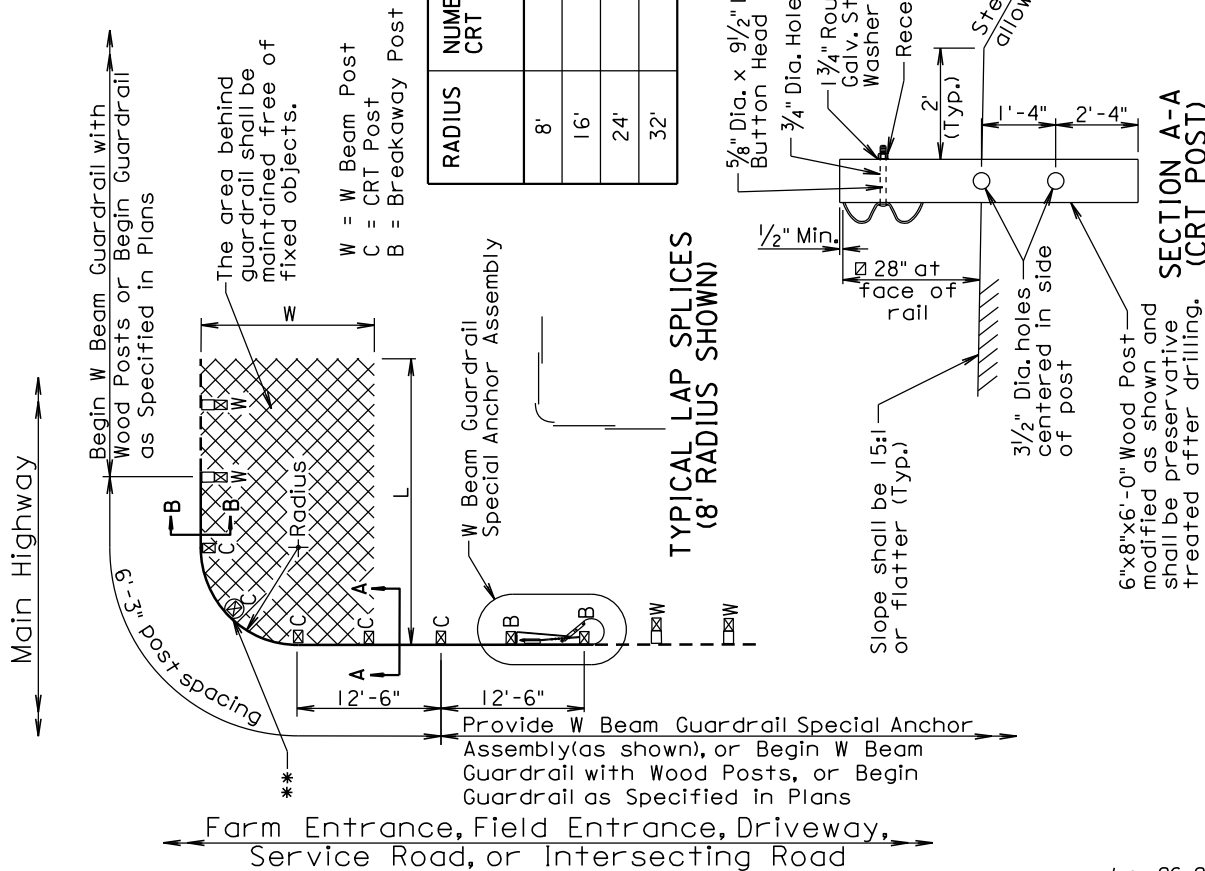
Sheet 1 of 1

GENERAL NOTES:

**The rail shall NOT be bolted to the CRT post at the center of the 8' radius nose only. Washers shall not be used on the face of the rail under the 5/8" button head bolts connecting the rail to the Controlled Releasing Terminal (CRT) posts.

The curved guardrail sections shall be shop bent.

The W Beam Guardrail Special Anchor has not been tested as a crashworthy end treatment for approaching traffic on the intersecting roadway. Therefore, its use shall be limited to farm and field entrances, driveways, or service roads.



June 26, 2012

Published Date: 1st Qtr. 2015

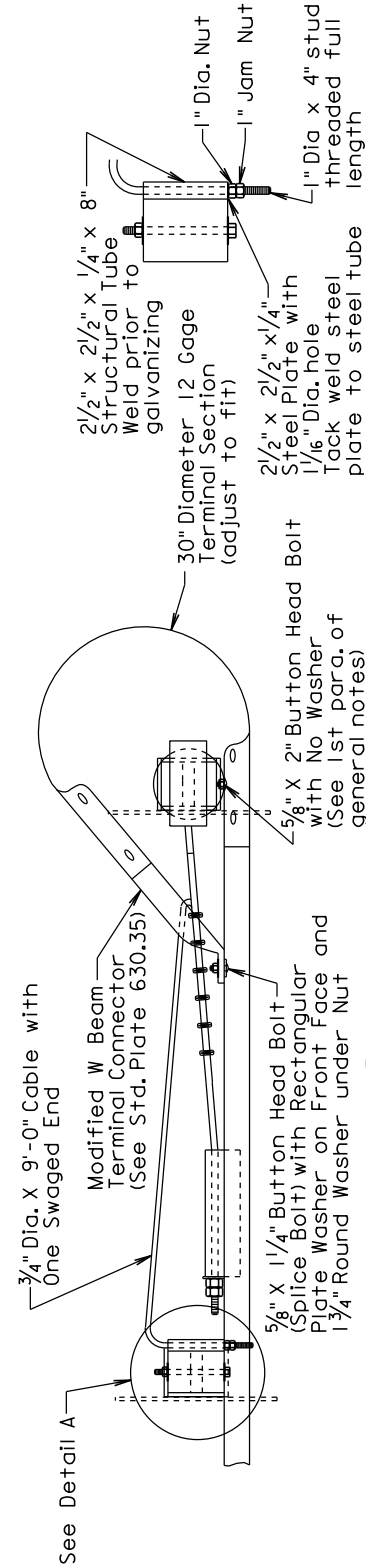
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CURVED W BEAM GUARDRAIL TERMINAL

PLATE NUMBER
630.70

Sheet 1 of 4

DETAIL A



PLAN (W BEAM GUARDRAIL SPECIAL ANCHOR ASSEMBLY)

Published Date: 1st Qtr. 2015

SDOT

CURVED W BEAM GUARDRAIL TERMINAL

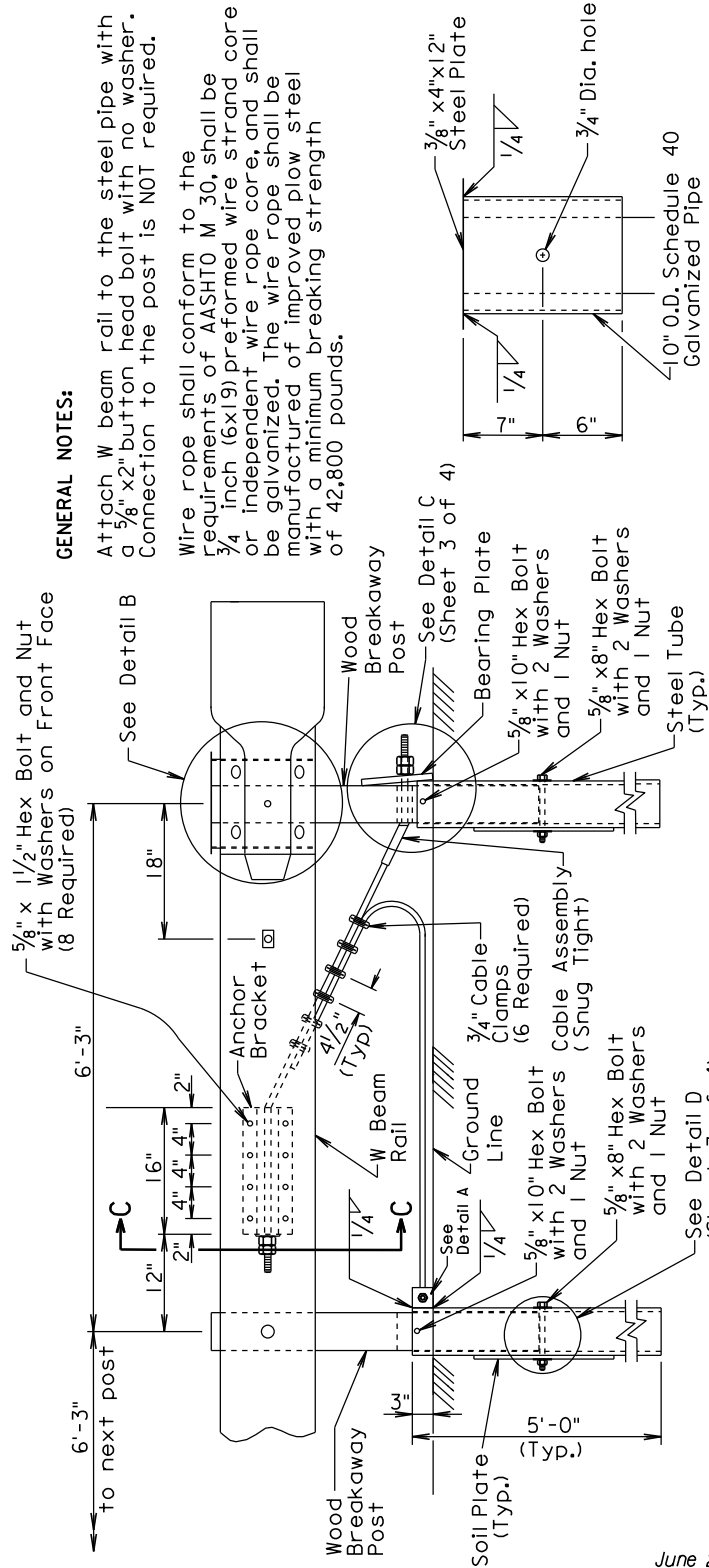
PLATE NUMBER
630.70

Sheet 2 of 4

GENERAL NOTES:

Attach W beam rail to the steel pipe with a 5/8" x 2" button head bolt with no washer. Connection to the post is NOT required.

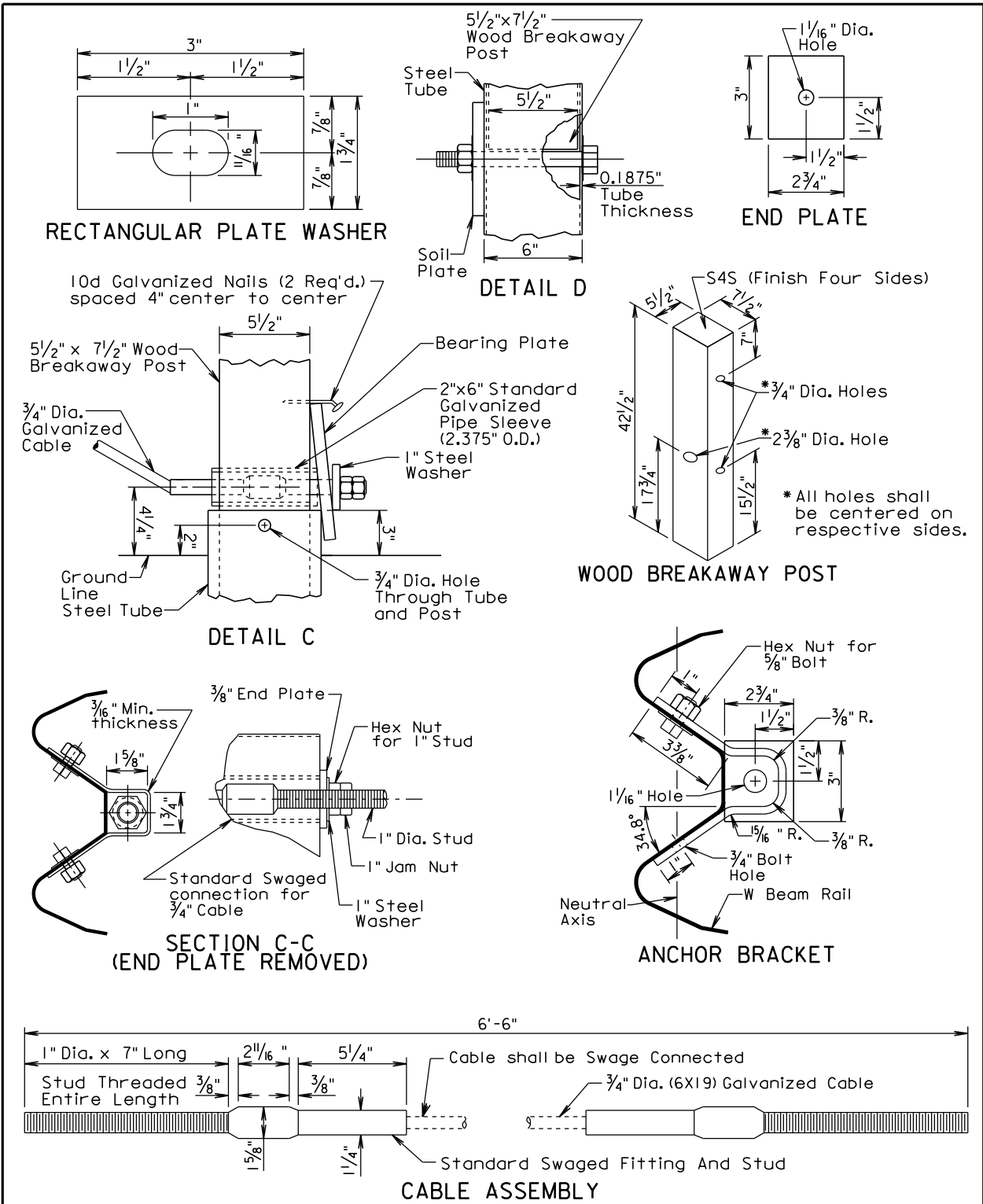
Wire rope shall conform to the requirements of AASHTO M 30, shall be 3/4 inch (6x19) preformed wire strand core or independent wire rope core, and shall be galvanized. The wire rope shall be manufactured of improved plow steel with a minimum breaking strength of 42,800 pounds.



ELEVATION (W BEAM GUARDRAIL SPECIAL ANCHOR ASSEMBLY)

DETAIL B
(Guardrail and Terminal
Section not shown)

June 26, 2012



June 26, 2012

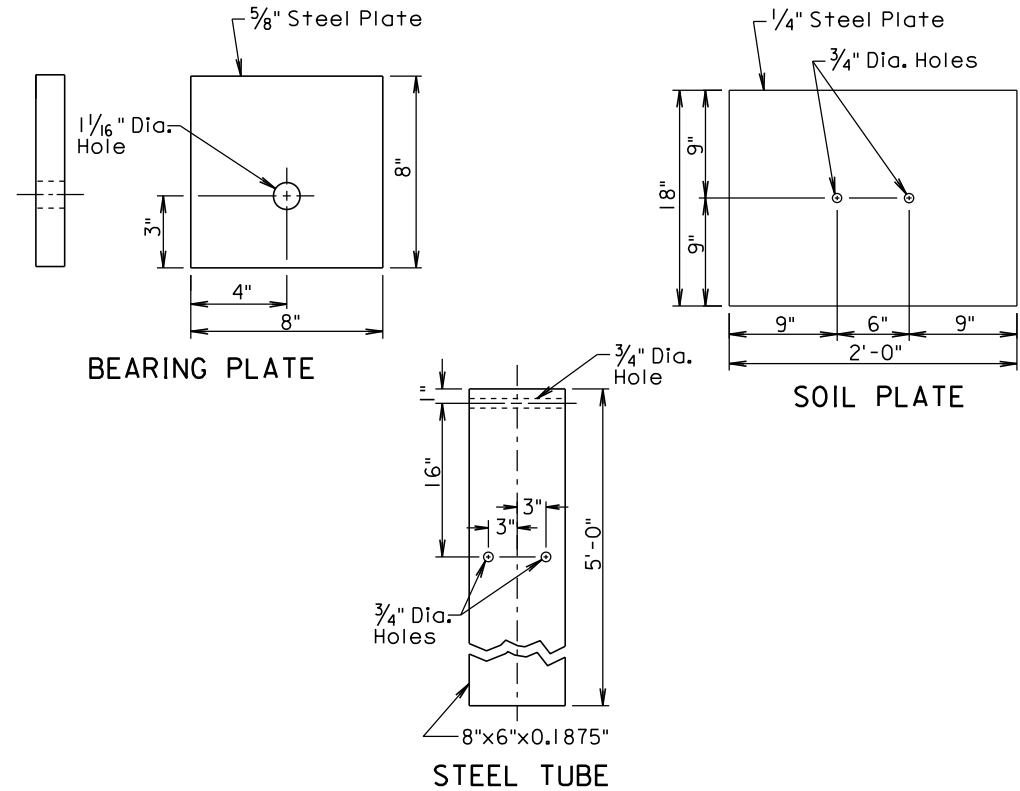
Published Date: 1st Qtr. 2015

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CURVED W BEAM GUARDRAIL TERMINAL

PLATE NUMBER
630.70

Sheet 3 of 4



GENERAL NOTES:

The wood breakaway post shall be S4S timber with a stress grade of 1200 psi and shall be grade marked or certified by a recognized association or agency which is certified by the Board of Review, American Lumber Standard Committee, to grade the species. It shall receive a preservative treatment in accordance with AASHTO designation M 133.

The bolts shall be in conformance with ASTM A 307 and the nuts shall be in conformance with ASTM A 563, Grade A or better. The bolts and nuts shall be galvanized in accordance with ASTM A 153.

All angles, channels, and plates shall conform to the requirements of ASTM A36 and the structural tubing shall conform to ASTM A 500. Welding shall meet the current requirements of the Structural Welding Code AWS D1.1. All structural steel shall be galvanized in accordance with ASTM A 123. Punching, drilling, cutting, or welding will NOT be permitted after galvanizing.

All costs for constructing the straight W beam guardrail portion of the curved W beam guardrail terminal including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for "Straight Class A W Beam Guardrail with CRT Posts".

All costs for constructing the curved W beam guardrail portion of the curved W beam guardrail terminal including labor, equipment, and materials including all CRT posts, steel beam rail, and hardware shall be incidental to the contract unit price per foot for "Curved Class A W Beam Guardrail with CRT Posts".

All costs for constructing the W beam guardrail special anchor assembly including labor, equipment, hardware, and all components of the W beam guardrail special anchor assembly except the W beam rail shall be incidental to the contract unit price per each for "W Beam Guardrail Special Anchor Assembly". The 12'-6" length of W beam rail located within the W beam guardrail special anchor assembly shall be paid for per foot with the bid item "Straight Class A W Beam Guardrail with Wood Posts".

June 26, 2012

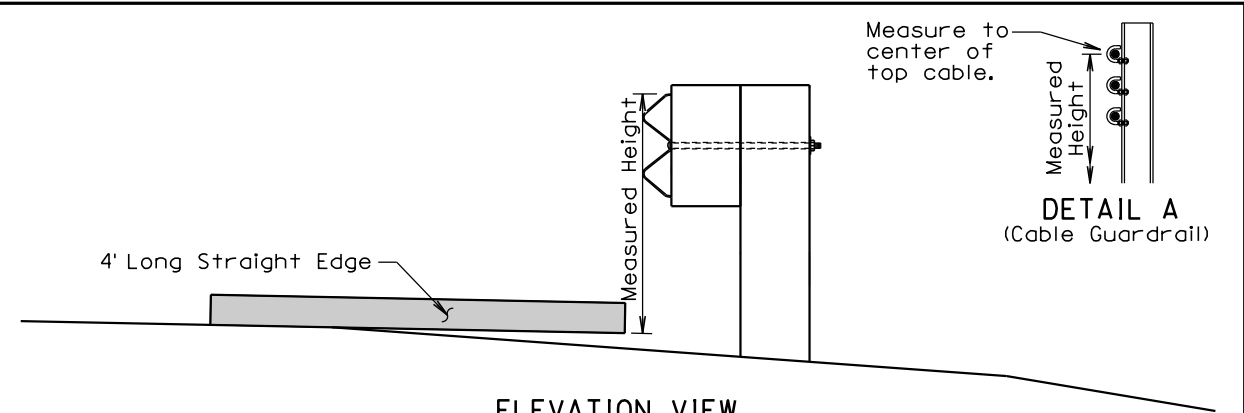
Published Date: 1st Qtr. 2015

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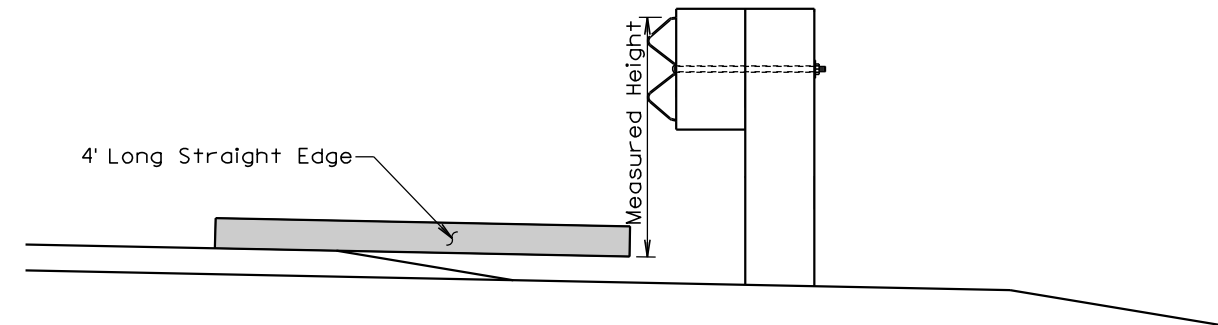
CURVED W BEAM GUARDRAIL TERMINAL

PLATE NUMBER
630.70

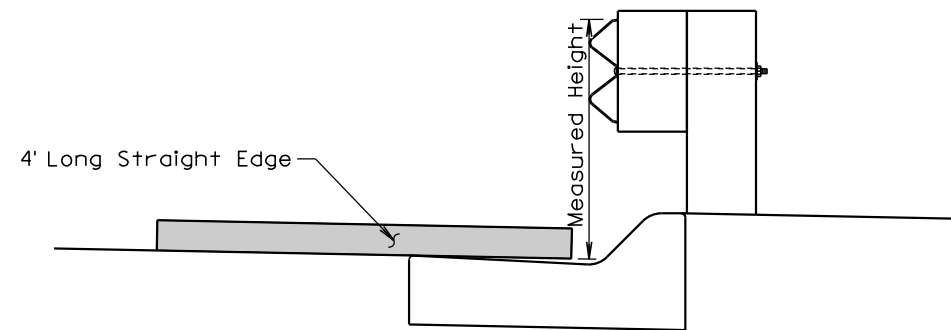
Sheet 4 of 4



ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)



ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

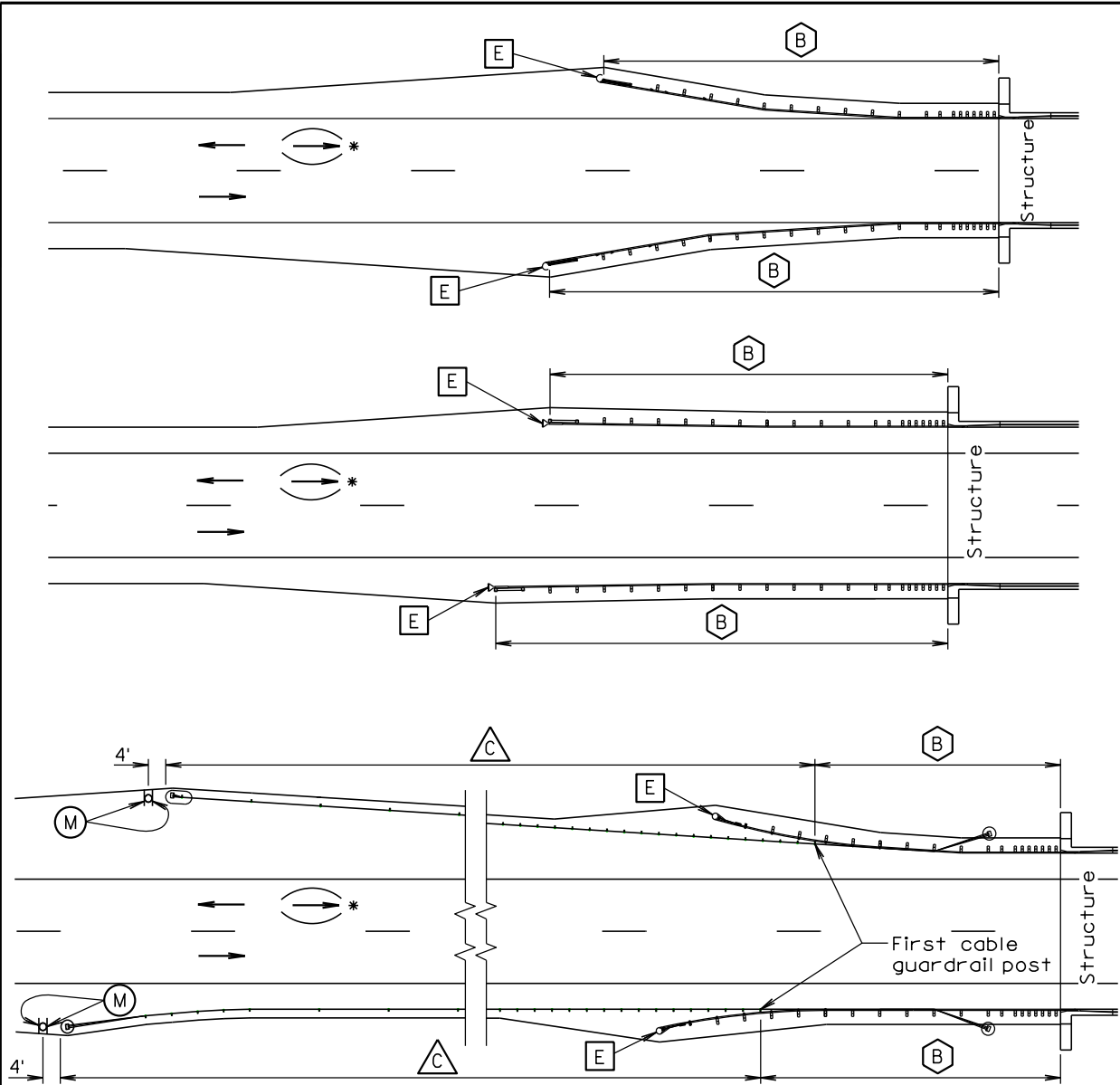
GENERAL NOTES:

The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems shall be measured in accordance with this standard plate.

When measuring height of cable guardrail or cable barrier the height shall be measured to the center of the top cable. See Detail A.

June 26, 2010

Published Date: 1st Qtr. 2015	S D D O T	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.98
			Sheet 1 of 1



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

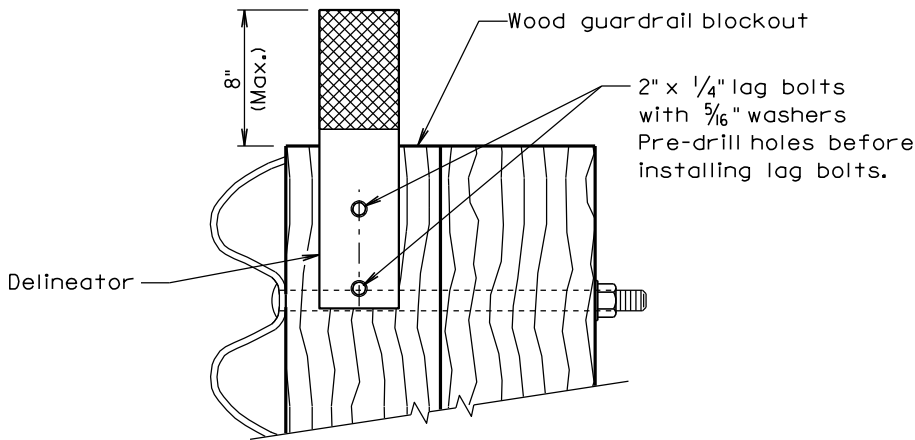
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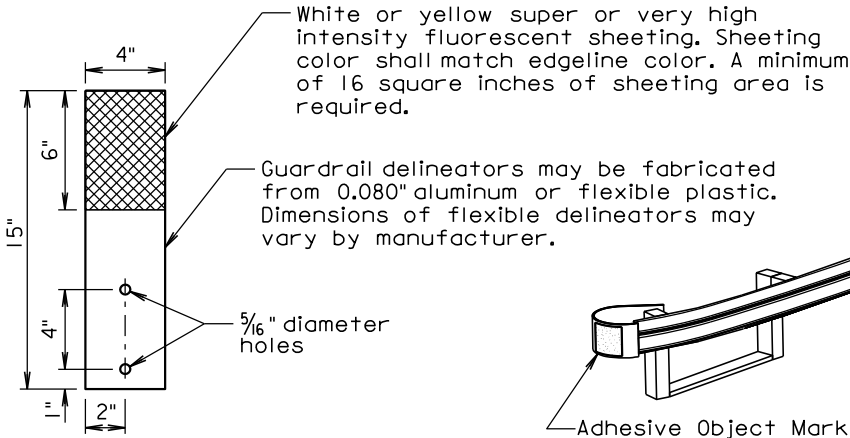
DELINEATION OF GUARDRAIL AT BRIDGES

PLATE NUMBER
632.40

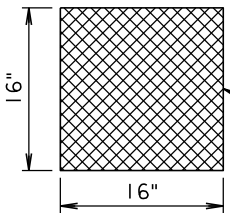
Sheet 1 of 4



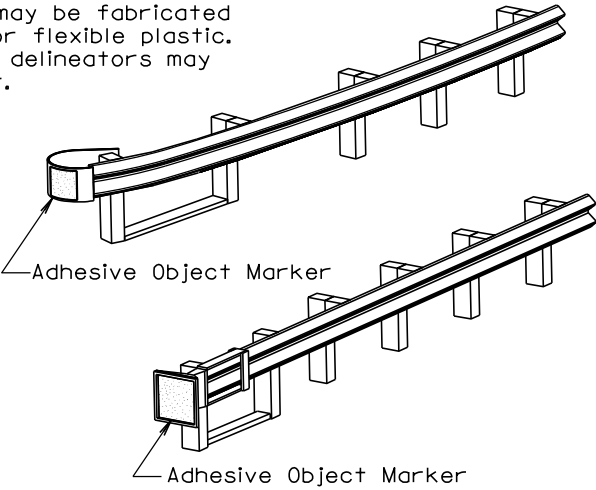
(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



ADHESIVE OBJECT MARKER



(E) GUARDRAIL TERMINAL END
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

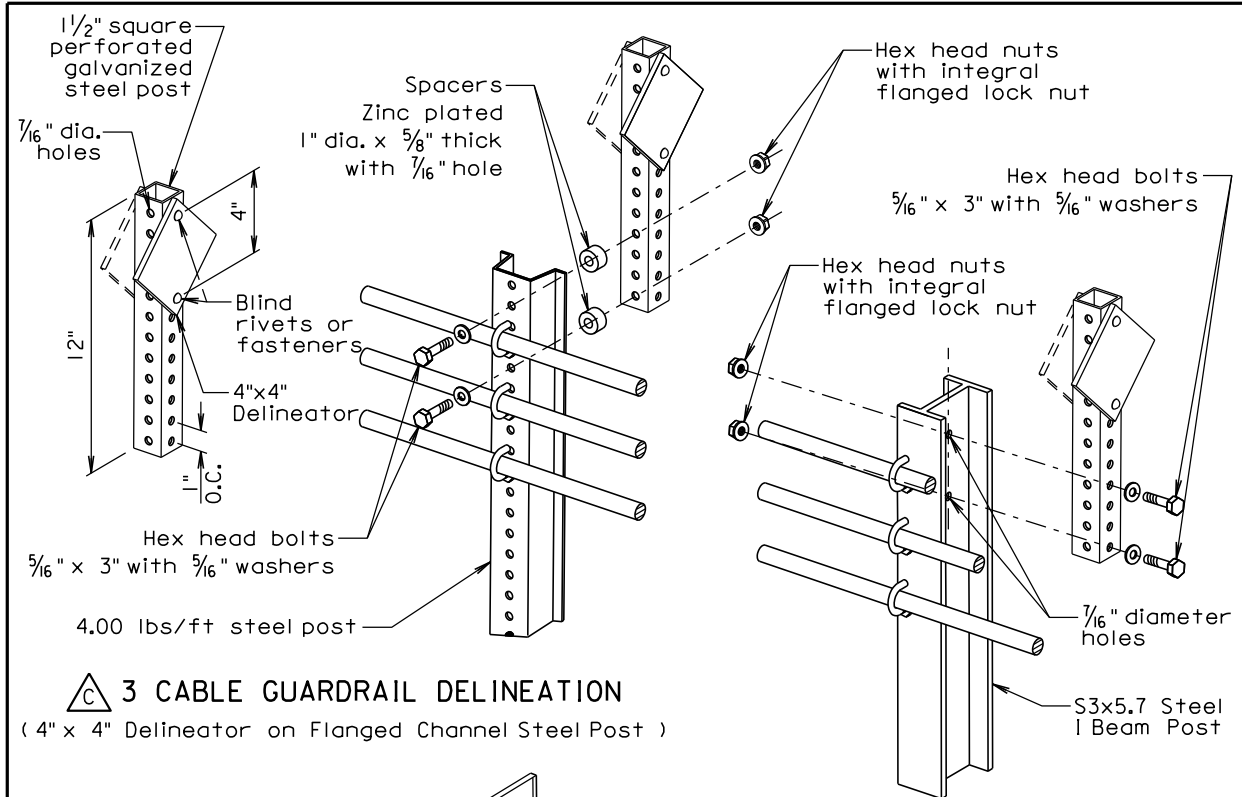
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DELINEATION OF GUARDRAIL AT BRIDGES

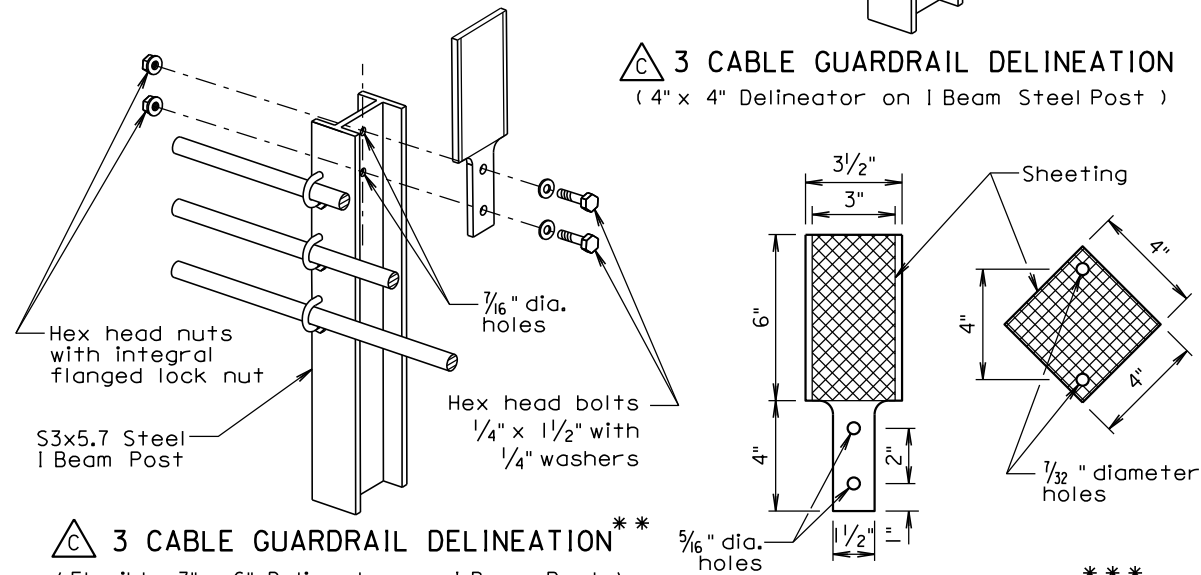
PLATE NUMBER
632.40

Sheet 2 of 4



3 CABLE GUARDRAIL DELINEATION

(4" x 4" Delineator on Flanged Channel Steel Post)

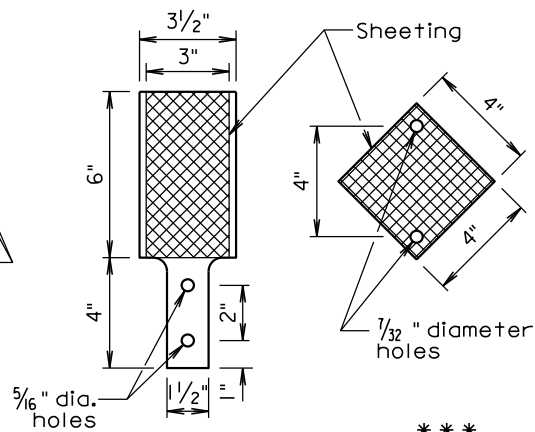


3 CABLE GUARDRAIL DELINEATION

(4" x 4" Delineator on I Beam Steel Post)

3 CABLE GUARDRAIL DELINEATION**

(Flexible 3" x 6" Delineator on I Beam Post)



DELINEATORS***

(For 3 Cable Guardrail)

** 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

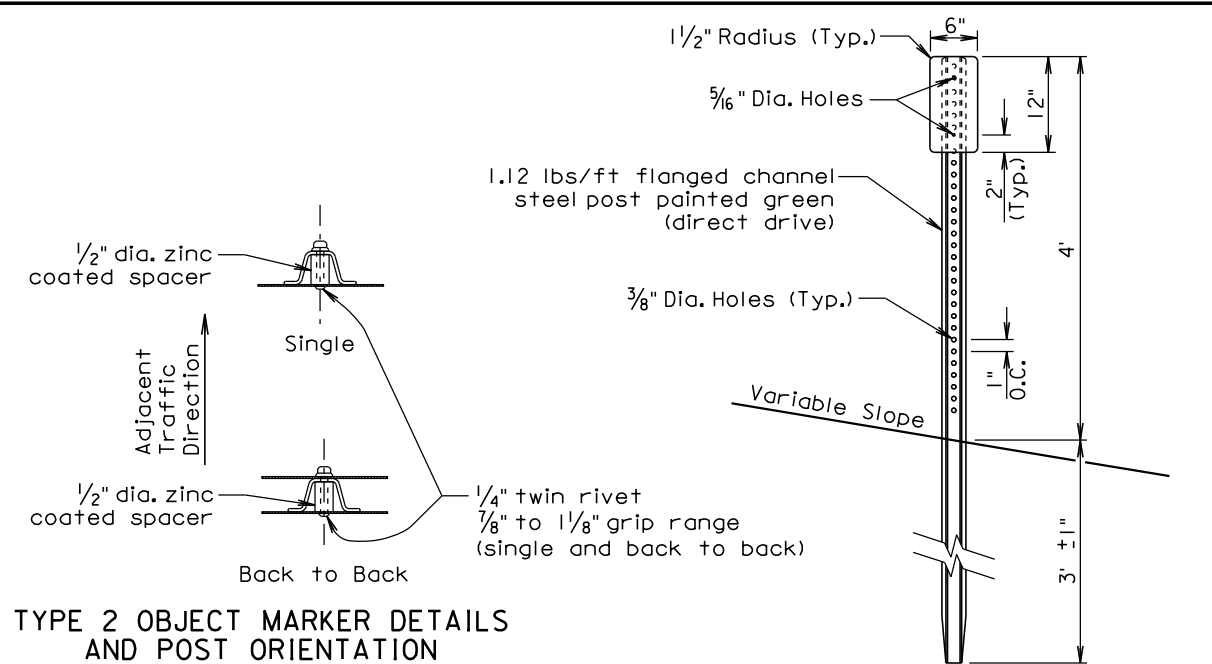
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DELINEATION OF GUARDRAIL AT BRIDGES

PLATE NUMBER
632.40

Sheet 3 of 4



TYPE 2 OBJECT MARKER DETAILS AND POST ORIENTATION

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

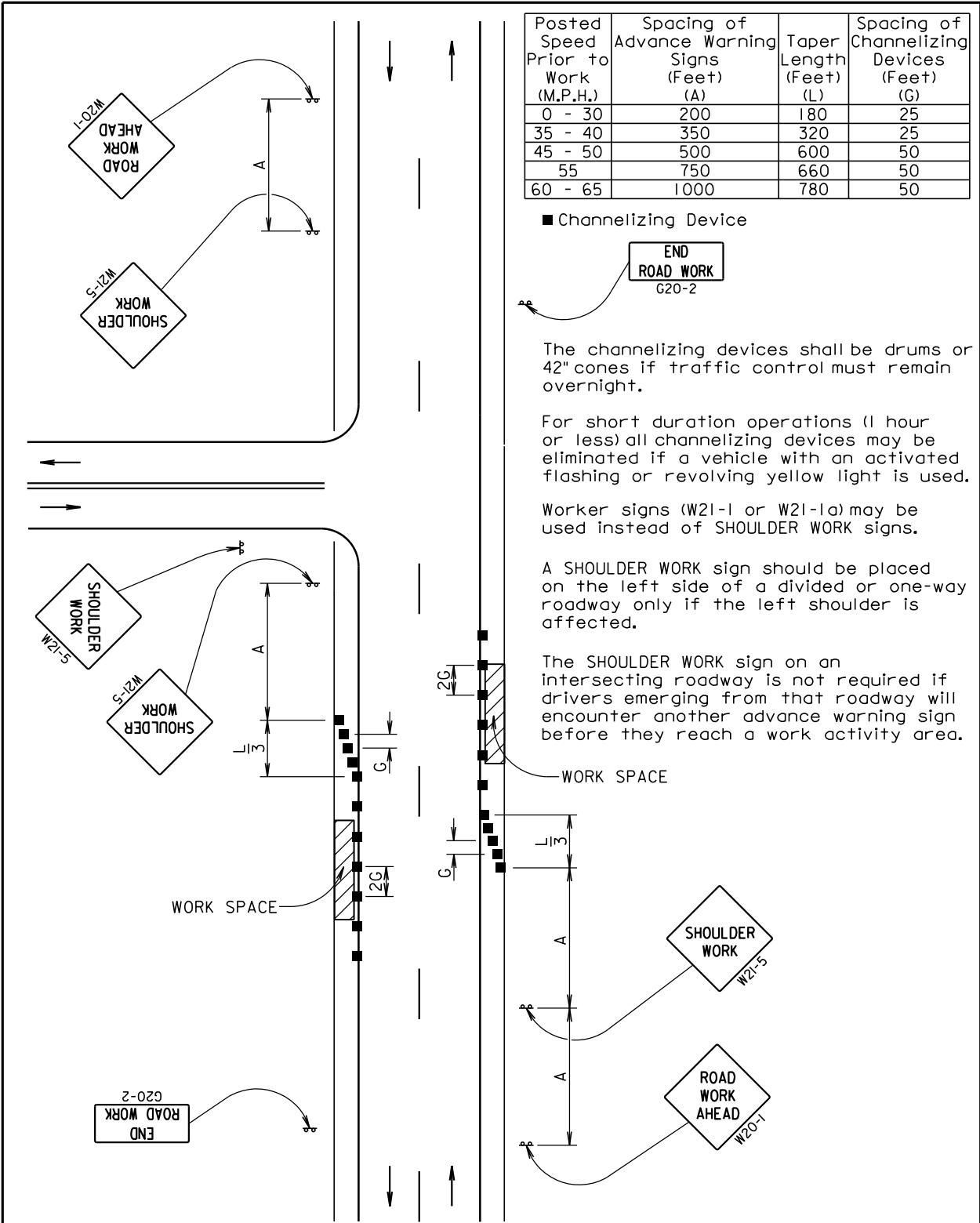
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DELINEATION OF GUARDRAIL AT BRIDGES

PLATE NUMBER
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Sheet 4 of 4



September 22, 2014

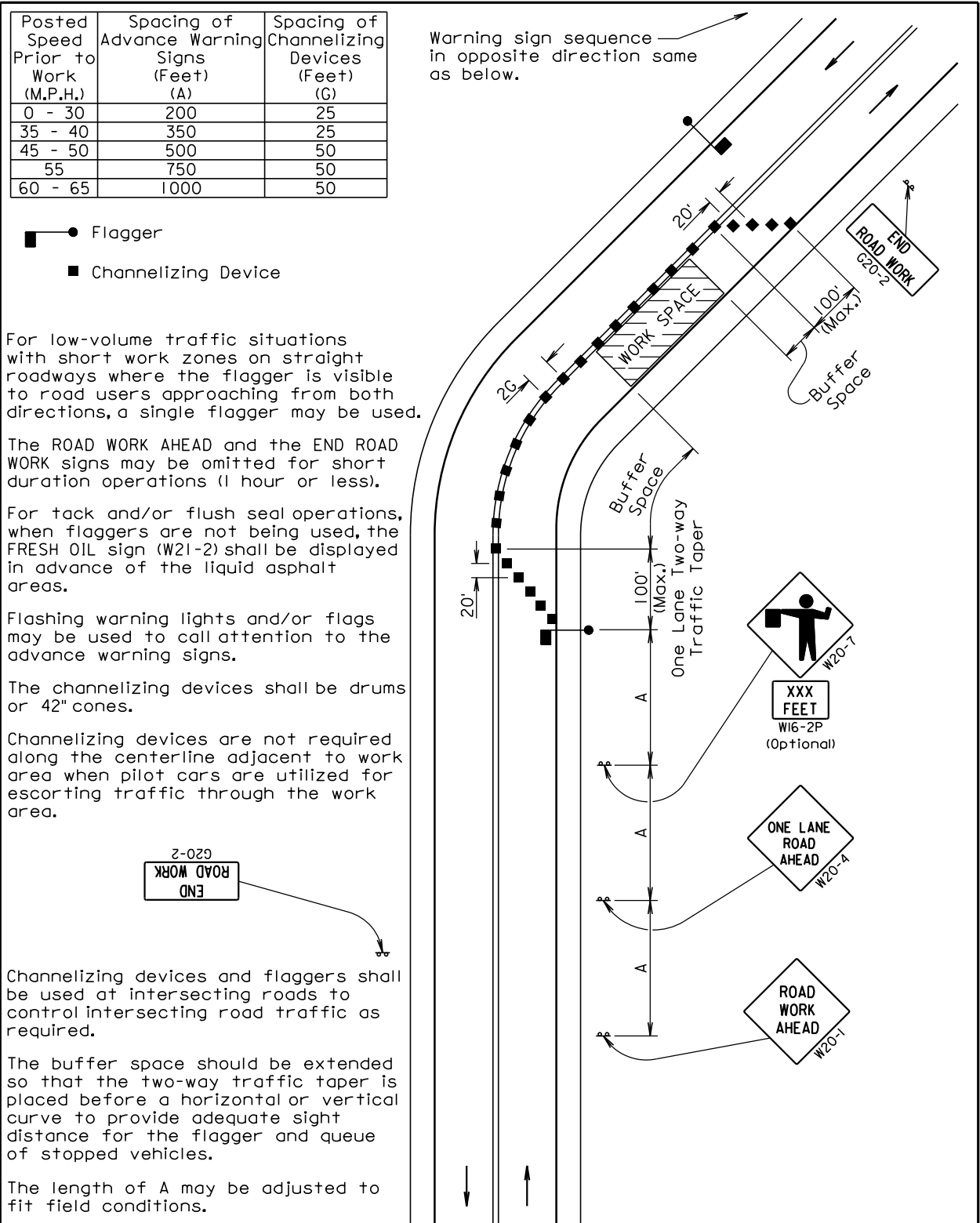
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GUIDES FOR TRAFFIC CONTROL DEVICES
WORK ON SHOULDERS

PLATE NUMBER
634.03

Sheet 1 of 1



September 22, 2014

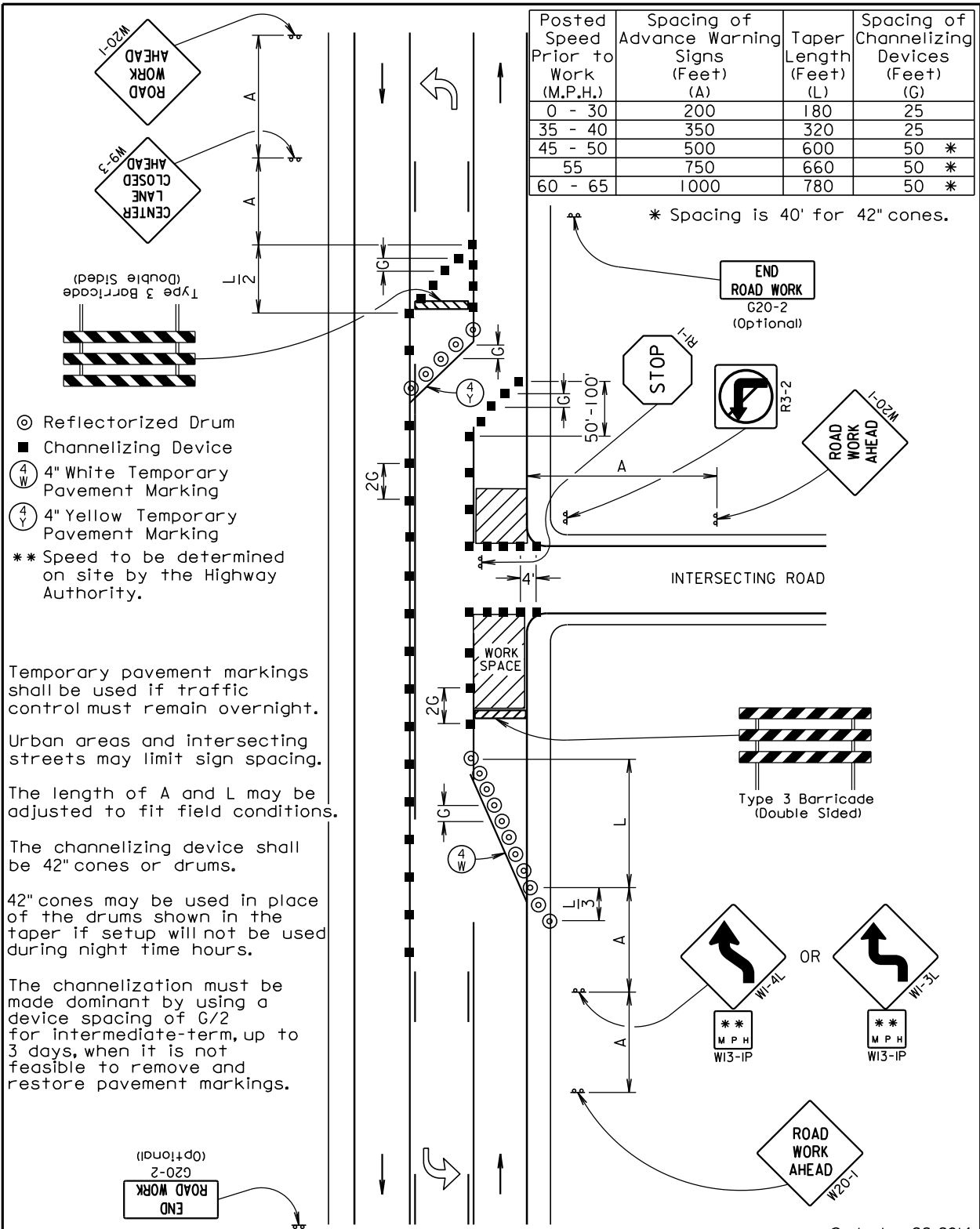
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GUIDES FOR TRAFFIC CONTROL DEVICES
LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER
634.23

Sheet 1 of 1



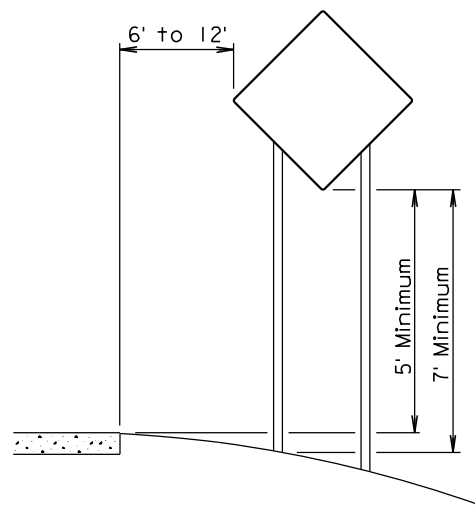
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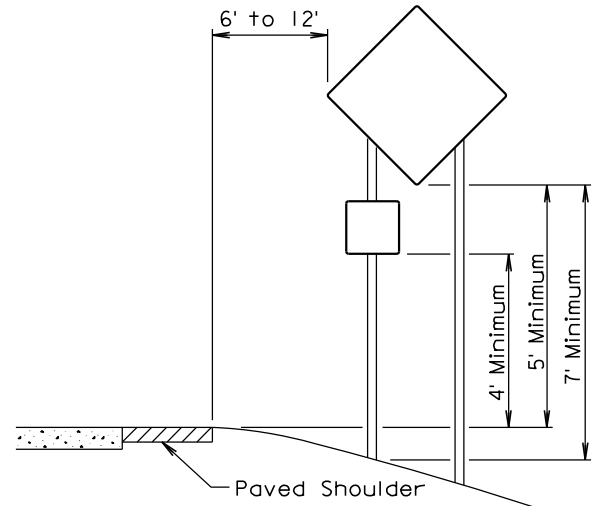
GUIDES FOR TRAFFIC CONTROL DEVICES
3-LANE, OUTSIDE LANE CLOSED

PLATE NUMBER
634.53

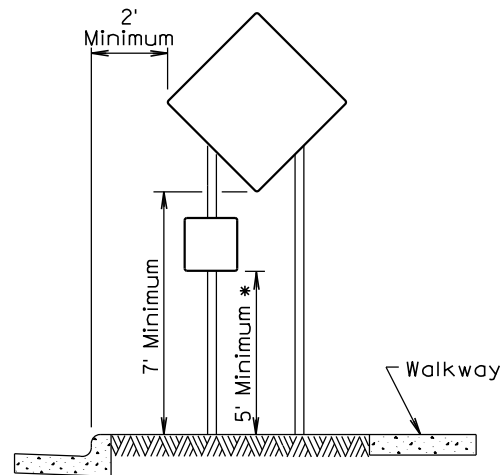
Sheet 1 of 1



RURAL DISTRICT

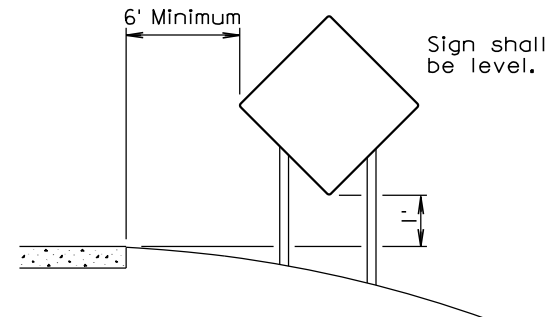


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

* 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.



RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

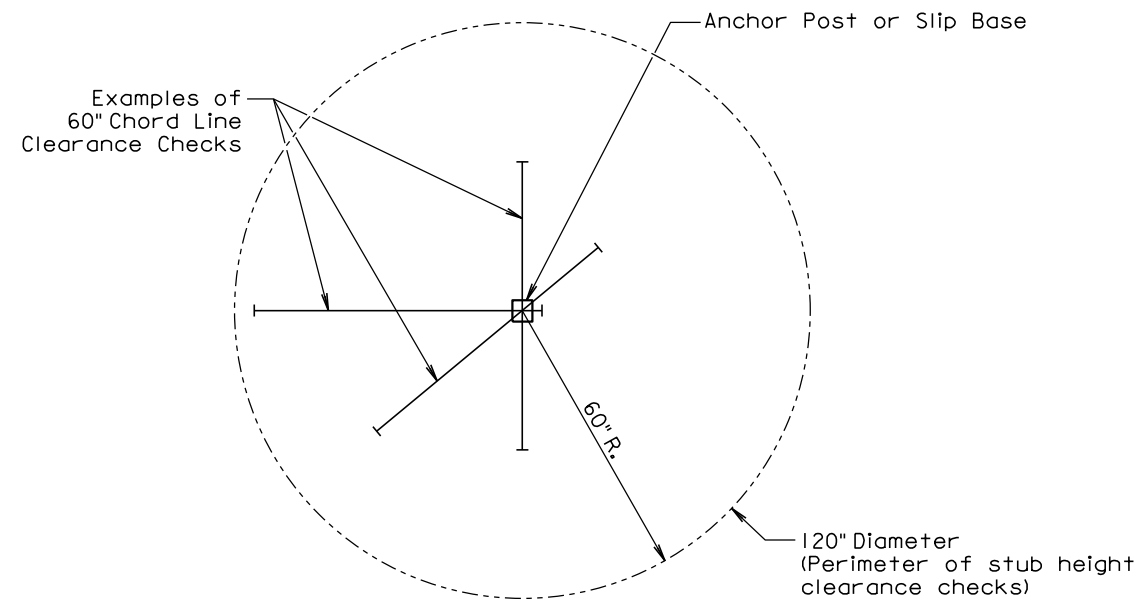
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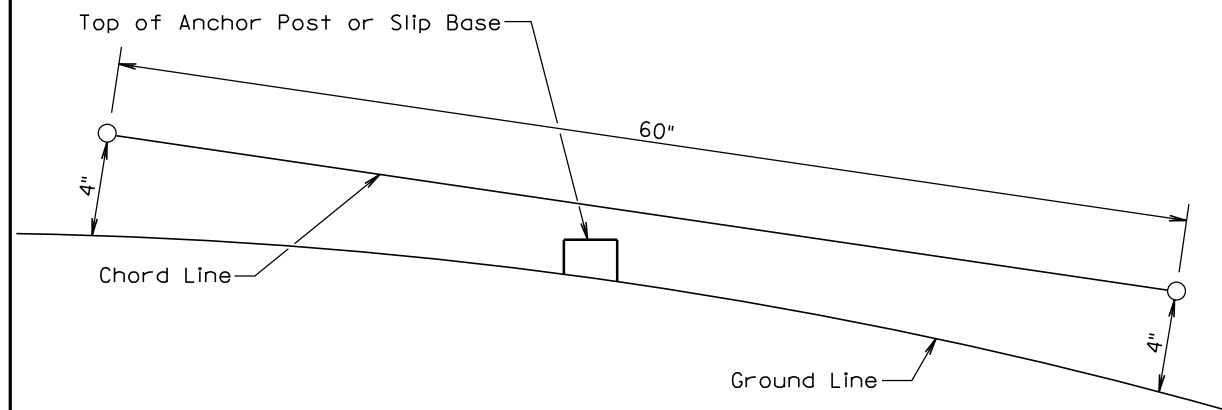
CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER
634.85

Sheet 1 of 1



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

Published Date: 1st Qtr. 2015

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

Sheet 1 of 1