

PLOT SCALE - 1"=33000'

PLOTTED FROM - TRAB17882

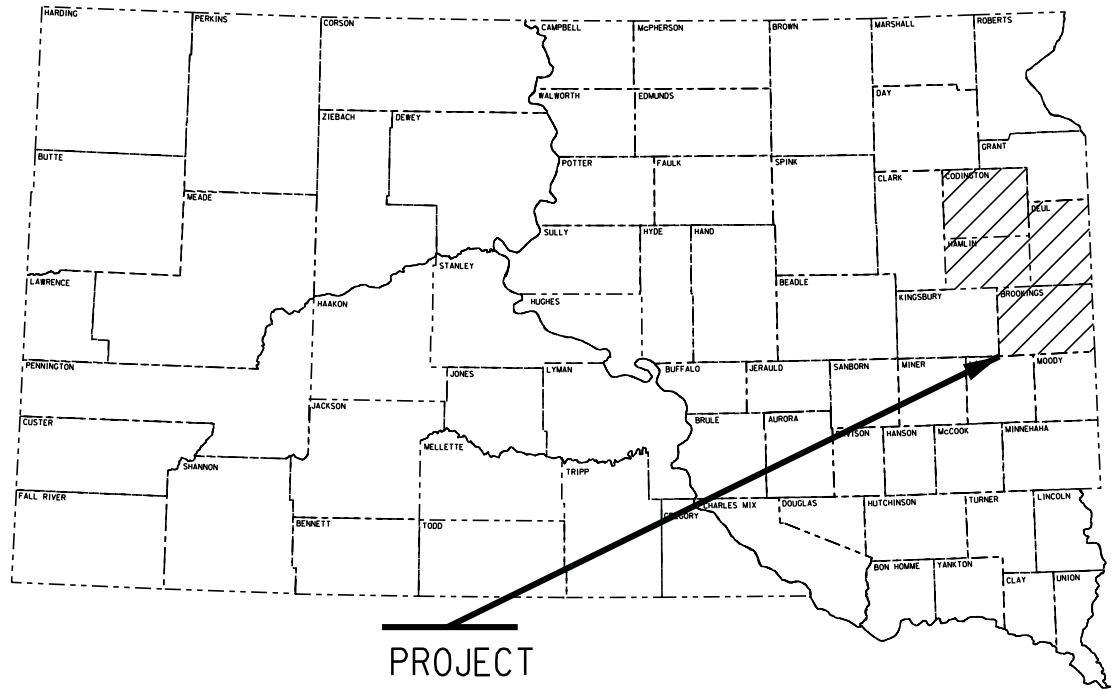
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT PH 0013(31)127,
000I-169 & 000P-169
INTERSTATE 29
US HIGHWAYS 14 & 212
SD HIGHWAYS 13 & 15
BROOKINGS, CODINGTON,
DEUEL & HAMLIN COUNTIES
GUARDRAIL REPLACEMENT AND REPAIR
PCN 052A, i3da, & i3dc

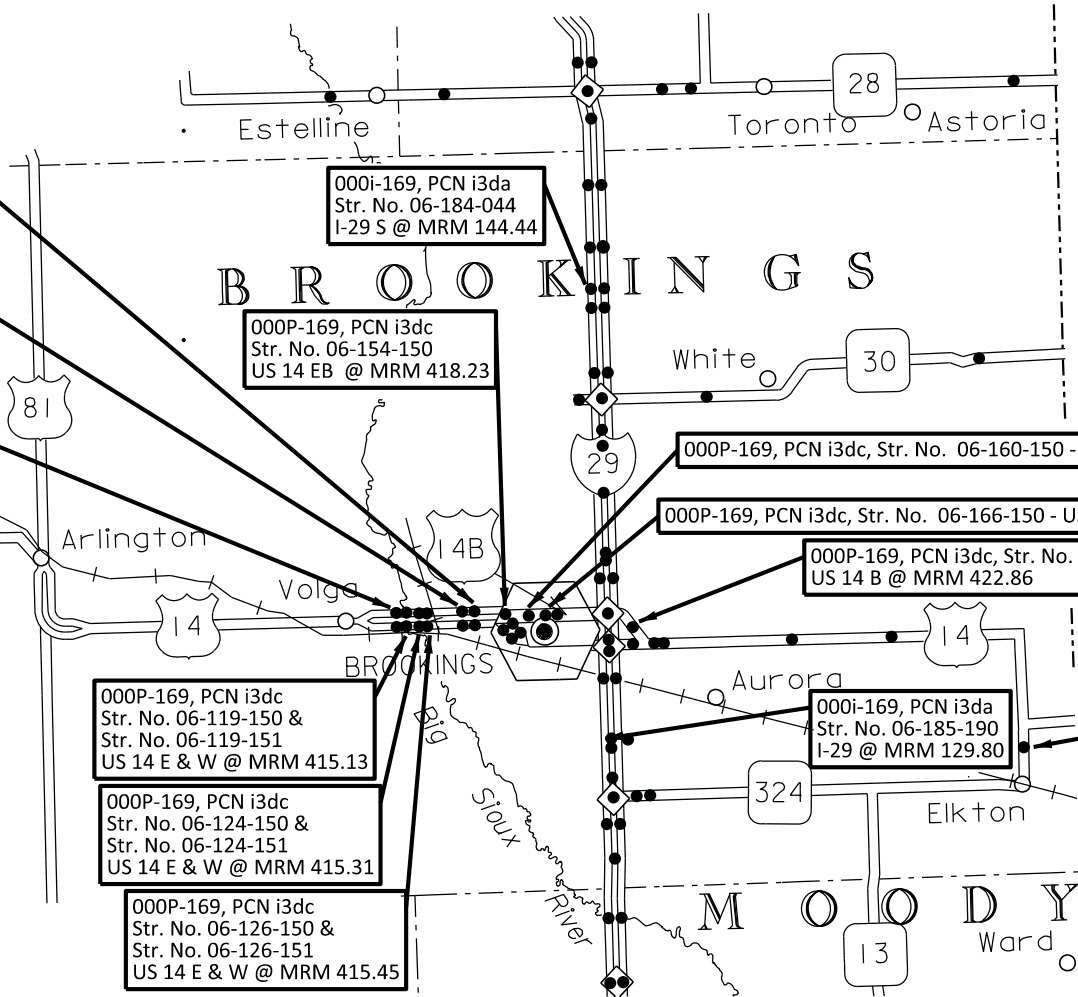
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0013(31)127, 000I-169, & 000P-169	1	32
Plotting Date: 07/21/2014			

INDEX OF SHEETS

Sheet 1-2:	Title Sheets
Sheet 3:	Estimate of Quantities
Sheet 4:	Environmental Commitments
Sheet 5:	Table of Quantities
Sheet 6:	Table of Guardrail Replacement
Sheet 7:	Table of Guardrail Surfacing, Embankment and Delineation
Sheet 8-11:	Table of Guardrail Repair
Sheet 12-13:	Plan Notes
Sheet 14-17:	Traffic Control
Sheet 18:	Guardrail Layout Detail
Sheet 19-20:	Original Details for Bridge Rail (Str. No. 06-320-198)
Sheet 21-32:	Standard Plates



PROJECT

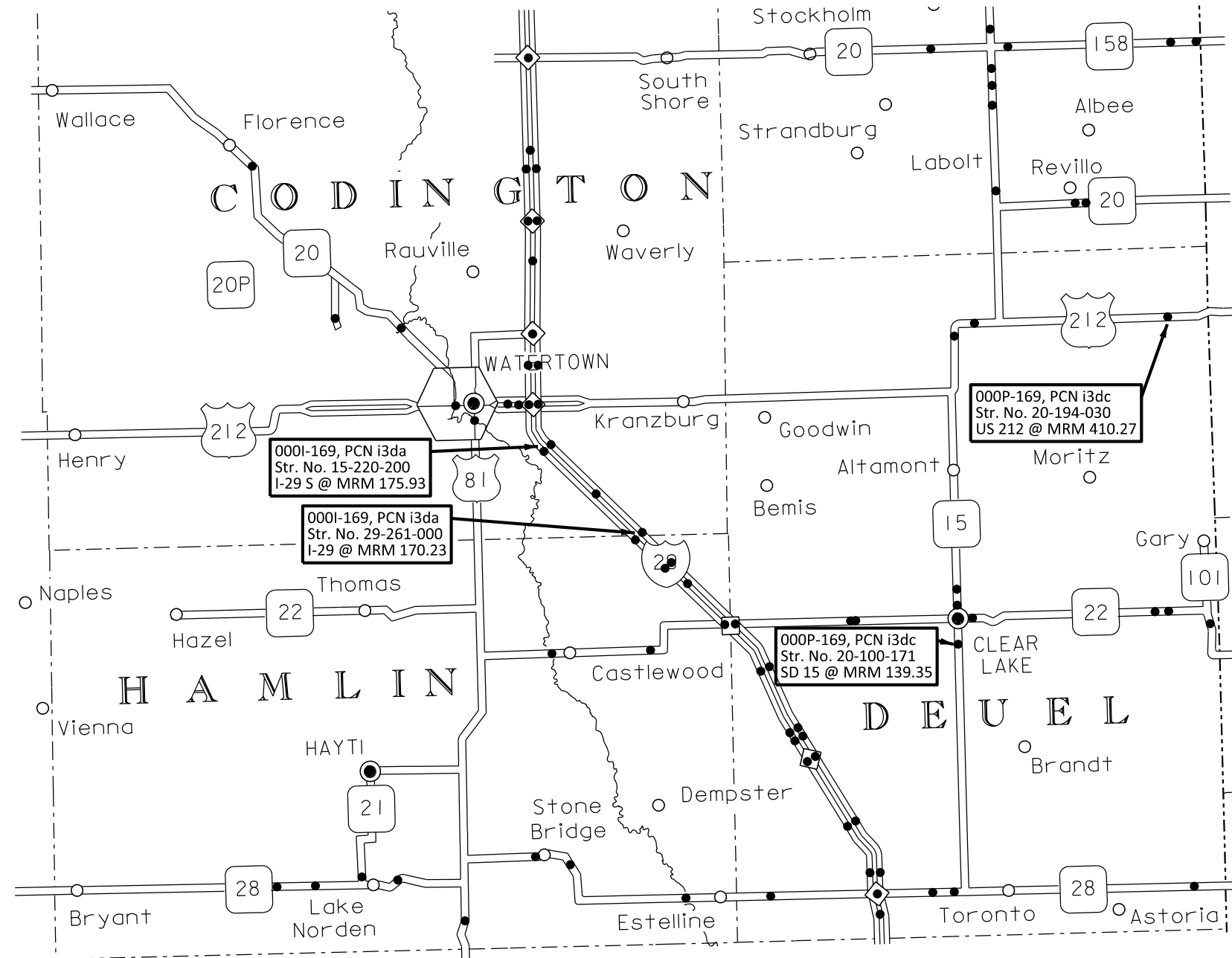


STORM WATER PERMIT
(None Required)

PLOT NAME - 1

FILE - ... \PRJ\BROK052A\TITLE-WAT.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0013(31)127, 0001-169, & 000P-169	2	32
Plotting Date: 07/18/2014			



ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0013(31)127, 000I-169, & 000P-169	3	32

GUARDRAIL & BRIDGE RAIL REPLACEMENT

PH 0013(31)127, PCN 052A

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0730	Remove Beam Guardrail	275.2	Ft
110E6000	Remove 3 Cable Guardrail for Reset	200	Ft
110E6010	Remove 3 Cable Guardrail Anchor Assembly for Reset	2	Each
110E6200	Remove Double Thrie Beam Guardrail for Reset	50.0	Ft
320E1200	Asphalt Concrete Composite	5.0	Ton
629E0220	Reset 3 Cable Guardrail, Cable Only	200	Ft
629E0410	Reset 3 Cable Guardrail Anchor Assembly	2	Each
629E1102	3 Cable Guardrail Intermediate Post	30	Each
630E1010	Straight Class A W Beam Guardrail with Wood Posts	175.0	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	4	Each
630E2015	W Beam Guardrail Flared End Terminal	2	Each
630E2030	W Beam Guardrail Breakaway Cable Terminal	2	Each
630E5110	Reset Double Thrie Beam Guardrail with Wood Posts	50.0	Ft
632E2220	Guardrail Delineator	18	Each
634E0010	Flagging	30	Hour
634E0100	Traffic Control	424	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

STR. NO. 06-320-198 (SD 13 @ MRM 127.08)
BRIDGE RAIL SPACER BLOCK REPLACEMENT

Bid Item Number	Item	Quantity	Unit
110E6210	Remove Thrie Beam Guardrail for Reset	150.0	Ft
630E5120	Reset Thrie Beam Rail	150.0	Ft

GUARDRAIL REPAIR

000I-169, PCN i3da

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
110E0730	Remove Beam Guardrail	150.0	Ft
250E0010	Incidental Work	Lump Sum	LS
629E0200	Reset 3 Cable Guardrail	170	Ft
629E0450	Retension 3 Cable Guardrail	9	Each
629E1100	3 Cable Guardrail End Post	2	Each
629E1102	3 Cable Guardrail Intermediate Post	8	Each
629E1114	3 Cable Guardrail J Hook Bolt	20	Each
629E1120	W Beam to 3 Cable Transition Bracket	15	Each
630E1200	Straight Class A W Beam Rail	150.0	Ft
630E2105	Beam Guardrail Block	5	Each
630E2110	Beam Guardrail Post and Block	5	Each
630E2155	End Terminal Hinged Breakaway Post	2	Each
630E2205	Breakaway Cable Terminal End Post	2	Each
630E5520	Drive Down Beam Guardrail Post	63	Each
634E0010	Flagging	25	Hour
634E0100	Traffic Control	430	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

000P-169, PCN i3dc

Bid Item Number	Item	Quantity	Unit
009E0010	Mobilization	Lump Sum	LS
629E0450	Retension 3 Cable Guardrail	25	Each
629E1102	3 Cable Guardrail Intermediate Post	10	Each
629E1114	3 Cable Guardrail J Hook Bolt	10	Each
629E1120	W Beam to 3 Cable Transition Bracket	5	Each
630E2105	Beam Guardrail Block	5	Each
630E2110	Beam Guardrail Post and Block	5	Each
634E0010	Flagging	50	Hour
634E0100	Traffic Control	442	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0013(31)127, 000I-169, & 000P-169	4	32

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 B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

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

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.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

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.

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0013(31)127, 0001-169, & 000P-169	5	32

TABLE OF QUANTITIES

(For Information Only)

Bid Item Number	Item	Unit	PH 0013(31)127, PCN 052A	000I-169, PCN i3da	000P-169, PCN i3dc	Total Quantity
009E0010	Mobilization	LS	Lump Sum	Lump Sum	Lump Sum	Lump Sum
110E0730	Remove Beam Guardrail	Ft	275.2	150		425.2
110E6000	Remove 3 Cable Guardrail for Reset	Ft	200			200
110E6010	Remove 3 Cable Guardrail Anchor Assembly for Reset	Each	2			2
110E6200	Remove Double Thrie Beam Guardrail for Reset	Ft	50			50
110E6210	Remove Thrie Beam Guardrail for Reset	Ft	150			150
250E0010	Incidental Work	LS		Lump Sum		Lump Sum
320E1200	Asphalt Concrete Composite	Ton	5			5
629E0200	Reset 3 Cable Guardrail	Ft		170		170
629E0220	Reset 3 Cable Guardrail, Cable Only	Ft	200			200
629E0410	Reset 3 Cable Guardrail Anchor Assembly	Each	2			2
629E0450	Retension 3 Cable Guardrail	Each		9	25	34
629E1100	3 Cable Guardrail End Post	Each		2		2
629E1102	3 Cable Guardrail Intermediate Post	Each	30	8	10	48
629E1114	3 Cable Guardrail J Hook Bolt	Each		20	10	30
629E1120	W Beam to 3 Cable Transition Bracket	Each		15	5	20
630E1010	Straight Class A W Beam Guardrail with Wood Posts	Ft	175			175
630E1200	Straight Class A W Beam Rail	Ft		150		150
630E2000	W Beam to Thrie Beam Guardrail Transition	Each	4			4
630E2015	W Beam Guardrail Flared End Terminal	Each	2			2
630E2030	W Beam Guardrail Breakaway Cable Terminal	Each	2			2
630E2105	Beam Guardrail Block	Each		5	5	10
630E2110	Beam Guardrail Post and Block	Each		5	5	10
630E2155	End Terminal Hinged Breakaway Post	Each		2		2
630E2205	Breakaway Cable Terminal End Post	Each		2		2
630E5110	Reset Double Thrie Beam Guardrail with Wood Posts	Ft	50			50
630E5120	Reset Thrie Beam Rail	Ft	150			150
630E5520	Drive Down Beam Guardrail Post	Each		63		63
632E2220	Guardrail Delineator	Each	18			18
634E0010	Flagging	Hour	30	25	50	105
634E0100	Traffic Control	Unit	424	430	442	1296
634E0120	Traffic Control, Miscellaneous	LS	Lump Sum	Lump Sum	Lump Sum	Lump Sum
634E0420	Type C Advance Warning Arrow Panel	Each		1	1	2

PH 0013(31)127, PCN 052A - TABLE OF GUARDRAIL REPLACEMENT																	STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
																		PH 0013(31)127, 0001-169, & 000P-169	6	32
Str. No.	Route	MRM	Corner of Bridge	Remove Beam Guardrail (FT)	Remove 3 Cable Guardrail for Reset (FT)	Remove 3 Cable Guardrail Anchor Assem. For Reset (Each)	Remove Double Thrie Beam Guardrail for Reset (FT)	Remove Thrie Beam Guardrail for Reset (FT)	Reset 3 Cable Guardrail Cable Only (FT)	Reset 3 Cable Guardrail Anchor Assembly (Each)	3 Cable Guardrail Intermediate Post (Each)	Straight Class A W Beam Guardrail W/ Wood Posts (FT)	W Beam to Thrie Beam Guardrail Transition (Each)	W Beam Guardrail Flared End Terminal (Each)	W Beam Guardrail Breakaway Cable Terminal (Each)	Reset Double Thrie Beam GR W/Wood Posts (FT)	Reset Thrie Beam Rail (FT)	Comments		
06-320-198	SD 13	127.08	SW	68.8			12.5					25.0	1	1		12.5		Replace all W beam approach guardrail. Remove and reset the 3 Cable guardrail with new posts. Remove and reset Thrie beam guardrail with new posts.		
			SE	68.8	100	1	12.5		100	1	15	62.5	1		1	12.5				
			NE	68.8			12.5					25.0	1	1		12.5				
			NW	68.8	100	1	12.5		100	1	15	62.5	1		1	12.5				
			East Bridge Rail					75.0									75.0	Replace all plywood spacer blocks. Total Quantity is 38.		
			West Bridge Rail					75.0									75.0			
			TOTAL	275.2	200	2	50.0	150.0	200	2	30	175.0	4	2	2	50.0	150.0			

Notes:

The above quantities are included in the Estimate of Quantities.

Indicates items of work that are included in the Estimate of Quantities for Str. No. 06-320-198 (SD13 @ MRM 127.08)

PH 0013(31)127, PCN 052A - TABLE OF GUARDRAIL EMBANKMENT, SURFACING AND DELINEATION FOR GUARDRAIL REPLACEMENT LOCATIONS

Str. No.	Route	MRM	Corner of Bridge	Asphalt Concrete Composite	Guardrail Delineator	Comments
				(Ton)	(Each)	
06-320-198	SD 13	127.08	SW	5	4	A quantity of 5 tons of Asphalt Concrete Composite has been included at this bridge site to patch the surfacing, should the surfacing be damaged by the removal and installation of the wood posts.
			SE		5	
			NE		4	
			NW		5	
			TOTAL	5	18	

Notes:
The above quantities are included in the Estimate of Quantities.

000I-169, PCN i3da - TABLE OF GUARDRAIL REPAIR

(Sorted by route and then MRM)

Str. No.	Route	MRM	Corner of Bridge	Remove Beam Guardrail (Ft)	Reset 3 Cable Guardrail (Ft)	Retension 3 Cable Guardrail (Each)	3 Cable Guardrail End Post (Each)	3 Cable Guardrail Intermediate Post (Each)	3 Cable Guardrail J Hook Bolt (Each)	W Beam to 3 Cable Transition Bracket (Each)	Straight Class A W Beam Rail (Ft)	Beam Guardrail Block (Each)	Beam Guardrail Post and Block (Each)	End Terminal Hinged Break-away Post (Each)	Break-away Cable Terminal End Post (Each)	Drive Down Beam Guard-rail Post (Each)	Comments		
06-185-190	Over I-29	129.80	NE			1		2									Replace 2 broken or bent posts		
															Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 300'.)				
															Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)				
			SE			1	1												Replace the post nearest the concrete anchor
						1													Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 300'.)
																			Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)
			NW			1					2								Replace both of the brackets
																			Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 300'.)
																			Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)
			SW			1													Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 300'.)
																			Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)
06-184-044	I-29 SB	144.44	NW				1										Replace 2nd post in from the concrete anchor		
										2							Replace both of the brackets		
						1											Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 255'.)		
																	Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)		
			NE								2								Replace both of the brackets
						1													Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 183'.)
																			Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)
29-261-000	I-29 NB	170.23	SE											2		Replace both wood posts in the steel tube footings.			
										2					Replace both of the brackets				
						1										Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 256'.)			
																Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)			
			SW				1												Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 202'.)
																Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)			

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0013(31)127, 0001-169, & 000P-169	9	32

000I-169, PCN i3da - TABLE OF GUARDRAIL REPAIR

(Sorted by route and then MRM)

Str. No.	Route	MRM	Corner of Bridge	Remove Beam Guardrail (Ft)	Reset 3 Cable Guardrail (Ft)	Retension 3 Cable Guardrail (Each)	3 Cable Guardrail End Post (Each)	3 Cable Guardrail Inter- mediate Post (Each)	3 Cable Guardrail J Hook Bolt (Each)	W Beam to 3 Cable Transition Bracket (Each)	Straight Class A W Beam Rail (Ft)	Beam Guardrail Block (Each)	Beam Guardrail Post and Block (Each)	End Terminal Hinged Break- away Post (Each)	Break- away Cable Terminal End Post (Each)	Drive Down Beam Guard- rail Post (Each)	Comments
NA	I-29	170.23	NW	25							25						Replace 25' Section of W-beam rail on the Trinity Tangent End Terminal. Tangent End Terminal consists of two 25' sections and the section to replace contains the Extruder Head. (ET 2000 Plus 8 post system Tangent End Terminal with 2 HBA Posts.)
			NW											1			Replace hinged post. This is the hinged post that does not contain the Extruder Head. (ET 2000 Plus 8 post system Tangent End Terminal with 2 HBA Posts.)
			NE														Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)
			N Side													38	Drive down posts under both bridges as railing has heaved considerably.
			SW	50							50						Replace all 50' of W-beam rail on the Trinity Tangent End Terminal. (ET 2000 Plus 8 post system Tangent End Terminal with 2 HBA Posts.)
			SE	25							25						Replace 25' Section of W-beam rail on the Trinity Tangent End Terminal. Tangent End Terminal consists of two 25' sections and the section to replace contains the Extruder Head. (ET 2000 Plus 8 post system Tangent End Terminal with 2 HBA Posts.)
			SE											1			Replace hinged post. This is the hinged post that contains the Extruder Head. (ET 2000 Plus 8 post system Tangent End Terminal with 2 HBA Posts.)
			S Side													25	Drive down posts under both bridges as railing has heaved considerably.
			S Side														Straighten wood spacer blocks and nail the blocks. Approx 20 blocks to straighten. (Incidental Work)
15-220-200	I-29 SB	175.93	NE					1									Replace post closest to the bridge
										2							Replace both of the brackets
				50							50						Replace 50' of railing starting at the end of the Thrie Beam to W Beam Transition
						1											Retension 3 Cable Guardrail. (Approximate 3 Cable Guardrail total length is 162'.)
																	Tighten the cable on the Breakaway Cable Terminal. (Incidental Work)
			NW		170												Existing 3 Cable Guardrail needs to be raised.
Additional Quantity - See Notes below								5	20	5		5	5				
TOTAL				150.0	170	9	2	8	20	15	150.0	5	5	2	2	63	

Notes:

The above quantities are included in the Estimate of Quantities.

The quantity of 3 Cable Guardrail Intermediate Posts has been increased by a quantity of 5 to account for any missing or damaged posts on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 20 3 Cable Guardrail J Hook Bolts has been included in the Estimate of Quantities to replace any damaged or missing J hook bolts on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

The quantity of W Beam to 3 Cable Transition Brackets has been increased by a quantity of 5 to account for any missing or damaged brackets on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 5 Beam Guardrail Blocks has been included in the Estimate of Quantities to account for any missing or damaged blocks on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 5 Beam Guardrail Post and Blocks has been included in the Estimate of Quantities to account for any missing or damaged posts on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

000P-169, PCN i3dc - TABLE OF GUARDRAIL REPAIR

(Sorted by route and then MRM)

Str. No.	Route	MRM	Corner of Bridge	Retension 3 Cable Guardrail	3 Cable Guardrail Intermediate Post	3 Cable Guardrail J Hook Bolt	W Beam to 3 Cable Transition Bracket	Beam Guardrail Block	Beam Guardrail Post and Block	Comments
				(Each)	(Each)	(Each)	(Each)	(Each)	(Each)	
Additional Quantity - See Notes below					10	10	5	5	5	
TOTAL				25	10	10	5	5	5	

Notes:

The above quantities are included in the Estimate of Quantities.

A quantity of 10 3 Cable Guardrail Intermediate Posts has been included in the Estimate of Quantities to account for any missing or damaged posts on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 10 3 Cable Guardrail J Hook Bolts has been included in the Estimate of Quantities to replace any damaged or missing J hook bolts on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 5 W Beam to 3 Cable Transition Brackets has been included in the Estimate of Quantities to account for any missing or damaged brackets on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 5 Beam Guardrail Blocks has been included in the Estimate of Quantities to account for any missing or damaged blocks on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

A quantity of 5 Beam Guardrail Post and Blocks has been included in the Estimate of Quantities to account for any missing or damaged posts on guardrail sites that are being repaired. Actual quantity is likely to vary significantly.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0013(31)127, 000I-169, & 000P-169	12	32

SCOPE OF WORK

Work on this project involves replacement of guardrail at one bridge site in addition to repairing guardrail at several sites.

SEQUENCE OF OPERATIONS

Once work starts at a guardrail repair or replacement location the work shall be vigorously pursued to complete the work in the shortest amount of time necessary. Work shall be coordinated so as to cause the least amount of traffic interruption at each work site.

One lane of traffic in each direction shall be maintained at all times. On 2 way traffic roadways where only guardrail repairs are required, the use of Flaggers shall be required any time the work space extends into a lane of travel.

When performing guardrail repairs, guardrail repairs shall be conducted such that the guardrail installation is fully functioning before leaving the work site each day. Leaving guardrail partially disassembled overnight will not be allowed.

When performing guardrail replacement, guardrail replacement shall be limited to one side of the roadway at a time. All guardrail work shall be completed on one side of the roadway prior to starting work on the other side of the roadway. On Str. No. 06-320-198 (SD13 @ MRM 127.08) work shall be staged such that the guardrail replacement does not involve the situation where guardrail is not fully functional over a weekend or legal holiday.

The Contractor shall be responsible for maintaining over width vehicles up to 16 feet in width through all the work sites.

REPLACEMENT PARTS

All proprietary replacement parts for the guardrail end terminals on this contract shall be obtained from the company that furnished the original guardrail components.

Replacement parts shall have the same protective coating as the original components.

Replacement W Beam Guardrail that is part of a proprietary end terminal will be measured and paid for at the contract unit price per foot for Straight Class A W Beam Rail.

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.

TRAFFIC CONTROL

Traffic control shall be per the standard plates included in this set of plans. Flaggers shall be utilized as necessary.

At the guardrail replacement site Standard Plate 634.25 shall be used as the traffic control plan.

A maximum of 1 set of work zone signing and Type C Advance Warning Arrow Panel (where applicable) will be measured and paid for on each project.

On Interstate 29 the Contractor's equipment will be required to enter and leave the project only at interchanges. Crossing of the median will not be allowed.

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

Storage of vehicles and equipment shall be as near the right-of-way line 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 to 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.

Work activities during non-daylight hours are subject to prior approval.

Traffic approaching the project from intersecting roadways, streets, and approaches must be adequately accommodated. Major intersections or large commercial entrances may require additional signing, flaggers, and channelizing devices on a temporary basis until work activities pass these areas.

The bottom of signs on portable or temporary supports shall not be less than seven feet above the pavement in urban areas and one foot above the pavement in rural areas. Portable sign supports may be used as long as the duration is less than 3 days. If the duration is more than 3 days the signs shall be on fixed location, ground mounted, breakaway supports.

The Contractor shall provide documentation that all breakaway sign supports comply with FHWA NCHRP Report 350 or MASH crash-worthy requirements. The Contractor shall provide installation details at the preconstruction meeting for all breakaway sign support assemblies.

Equipment and vehicles entering or exiting the roadway, traveling on the shoulders or driving lanes at low speeds or working within the right-of-way shall display a flashing amber light visible for a minimum distance of 1/4 mile in all directions.

Traffic Control units, as shown in the Estimate of Quantities, are estimates. Contractor's operation may require adjustments in quantities, either more or less. Payment will be for those signs actually ordered by the Engineer and used.

REMOVE AND RESET THRIE BEAM GUARDRAIL STR. NO. 06-320-198 (BRIDGE RAIL) PH 0013(31)127, PCN 052A

The existing wood spacer blocks will be removed and replaced. It will be necessary to disassemble the in place Thrie Beam guardrail in order to complete the work required by these plans.

Wood spacer blocks shall be in conformance with Section 630.2.A of the Specifications. The preservative treatment of the wood spacer blocks shall be in conformance with Section 950 of the Specifications. Wood spacer blocks that are trimmed, notched or cut in the field will have the cut surfaces retreated in accordance with AWPAs Standard M-4. Refer to the Original Construction Plans for Str. No. 06-320-198 for sizing details on the spacer blocks.

All of the existing hardware used to attach the wood spacers to the concrete bridge rail and Thrie Beam shall be salvaged for use in the new construction. If any of the existing hardware cannot be salvaged for use in the new construction, the Contractor shall be responsible for providing new replacement hardware. Replacement hardware shall be the same hardware as installed during original construction. Refer to the Original Construction Plans for Str. No. 06-320-198 for details on original hardware.

Removed wood spacer blocks shall become the property of the Contractor and properly disposed of in accordance with the plans.

Reassembled guardrail shall have all guardrail splices lapped in the direction of traffic.

All costs associated with disassembling the existing rail, removing existing wood spacer blocks, disposing of existing wood spacer blocks including all labor, equipment and incidentals shall be incidental to the contract unit price per foot for REMOVE THRIE BEAM GUARDRAIL FOR RESET.

All costs associated with furnishing new wood spacers, including all equipment and labor, and shall be incidental to the contract unit price per foot for RESET THRIE BEAM RAIL.

Basis of Payment shall be plans quantity for the contract items REMOVE THRIE BEAM GUARDRAIL FOR RESET and RESET THRIE BEAM RAIL.

The Thrie beam rail at the ends of the bridge may be nested (doubled). There will be no additional payment for removing and resetting of the nested beam rail.

CLEAN DEBRIS FROM 3 CABLE GUARDRAIL ANCHOR

Debris shall be cleaned from the 3 cable guardrail anchors. The Contractor shall remove all visible debris from the top of the concrete anchor and also all debris from the metal components such as the anchor bracket, rods, turnbuckle end assembly and the spring cable end assembly.

If there is a buildup of debris around the 3 cable guardrail concrete anchor such that water may pond on the concrete footing then the area around the concrete anchor shall be shaped such that there is a means of positive drainage from the concrete anchor into the roadway ditch.

All costs associated with cleaning debris from the 3 cable guardrail anchors shall be incidental to the contract unit price per each for RETENSION 3 CABLE GUARDRAIL.

RETENSION 3 CABLE GUARDRAIL

Retension 3 Cable Guardrail shall include all costs to adjust the tension in a length of 3 Cable Guardrail. The tension shall be as shown on Standard Plate 629.01 (1 of 6). Measurement for payment will be per each run of 3 Cable Guardrail and shall include all 3 cables and both anchor ends that make up a run of 3 Cable Guardrail. Retension 3 Cable Guardrail may include cutting and shortening of cables at the anchors to allow for the proper retensioning.

RESET 3 CABLE GUARDRAIL

The contract item Reset 3 Cable Guardrail will be utilized on this contract at locations where the height of the 3 Cable Guardrail needs to be raised. All costs associated with raising a section of 3 Cable Guardrail shall be incidental to the contract unit price per foot for RESET 3 CABLE GUARDRAIL.

DRIVE DOWN BEAM GUARDRAIL POST

Drive Down Beam Guardrail Post shall include all costs for adjusting the height of a steel beam guardrail post. All costs to disassemble the steel beam guardrail shall be incidental to this contract item.

TIGHTEN CABLE ASSEMBLY ON BEAM GUARDRAIL END TERMINALS

The Tables of Guardrail Repair indicates several locations where the cable assembly needs to be properly tensioned. The tensioning for Breakaway Cable Terminals (BCT) shall be as shown on Standard Plate 630.47. For Flared and Tangent End Terminals that tensioning shall be as recommended by the product manufacture installation drawing and instructions. The SDDOT uses the following Flared and Tangent End Terminals:

End Terminal Type	Product Name	Manufacturer
W Beam Guardrail Flared End Terminal	Fleat 350	Road System, Inc. Big SpringTX (432)263-2435 http://www.roadsystems.com
W Beam Guardrail Flared End Terminal	SRT-350 (6-Post System)	Trinity Industries Co. (SYRO Inc.) DallasTX (800)644-7976 http://www.trinitycpg.com
W Beam Guardrail Tangent End Terminal	ET-2000 Plus	Trinity Industries Co. (SYRO Inc.) DallasTX (800)644-7976 http://www.trinitycpg.com
W Beam Guardrail Tangent End Terminal	SKT 350	Road System, Inc. Big SpringTX (432)263-2435 http://www.roadsystems.com

Prior to tightening the cable the bearing plate shall be properly aligned based upon the previously indicated noted plates or product drawings and installation details.

All costs associated with tightening the cable assembly on the end terminals shall be incidental to the contract lump sum price for INCIDENTAL WORK.

INCIDENTAL WORK

The Table of Guardrail Repair indicates several items of work that shall be part of the contract item Incidental Work. In the Table of Guardrail Repair the incidental work is identified in the Comments column and the item of work is indicated in a gray shaded box. Items considered Incidental Work are as follows:

- Tighten the cable assembly on the beam guardrail end terminals. See plan notes for this item of work located immediately prior.
- Straighten wood beam guardrail block and nail blocks as per Standard Plate 630.31.
- Shape gravel that is located under the guardrail installation to allow water to drain down the inslope. This may involve removal of excess material which has accumulated under the guardrail.
- Resetting or realigning of the “End Post Cap” on the 3 Cable Guardrail Anchor. Refer to Sheet 6 of 6 on Standard Plates 629.01.

SAWING IN EXISTING SURFACING

Where new Asphalt Concrete Pavement is placed adjacent to existing asphalt concrete the existing asphalt concrete shall be sawed full depth to a true line with a vertical face. No separate payment shall be made for sawing.

ASPHALT CONCRETE COMPOSITE

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Specifications for Class E, Type 1.

All other requirements in the Specifications for Asphalt Concrete Composite shall apply.

The asphalt binder used in the mixture shall be a PG 58-28, PG 58-34, PG 64-22, PG 64-28, or PG 64-34 Asphalt Binder.

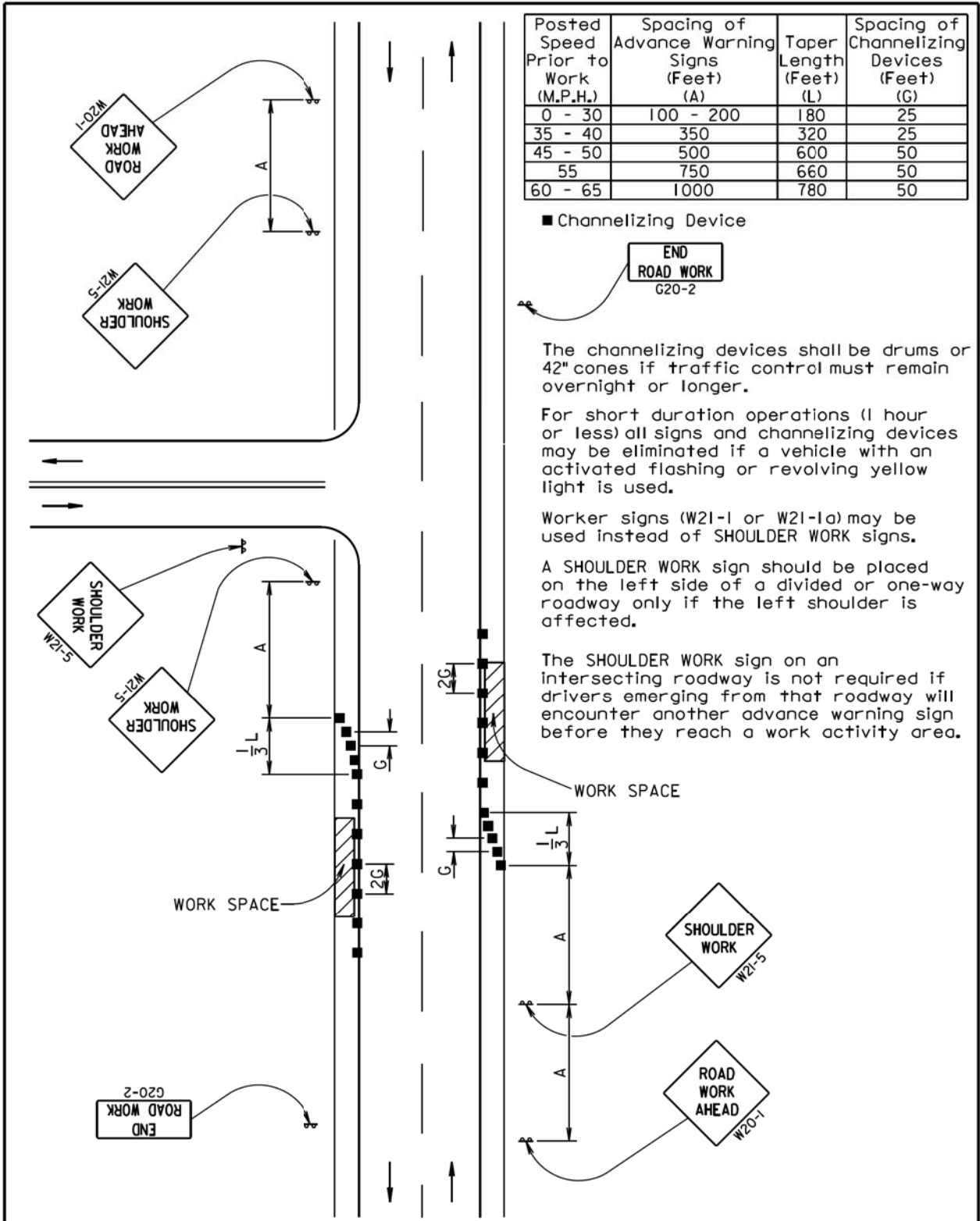
Asphalt Concrete Composite shall be paver laid in lifts not exceeding 2” in depth. Asphalt Concrete Composite placed on the guardrail embankment shall be placed with a paver.

It can be anticipated that hand work will be required to shape the asphalt concrete for the guardrail installation.

Asphalt Concrete composite has been included at some guardrail replacement locations to repair the guardrail embankment surfacing should the surfacing be damaged.

STANDARD PLATES (3 CABLE AND BEAM GUARDRAIL)

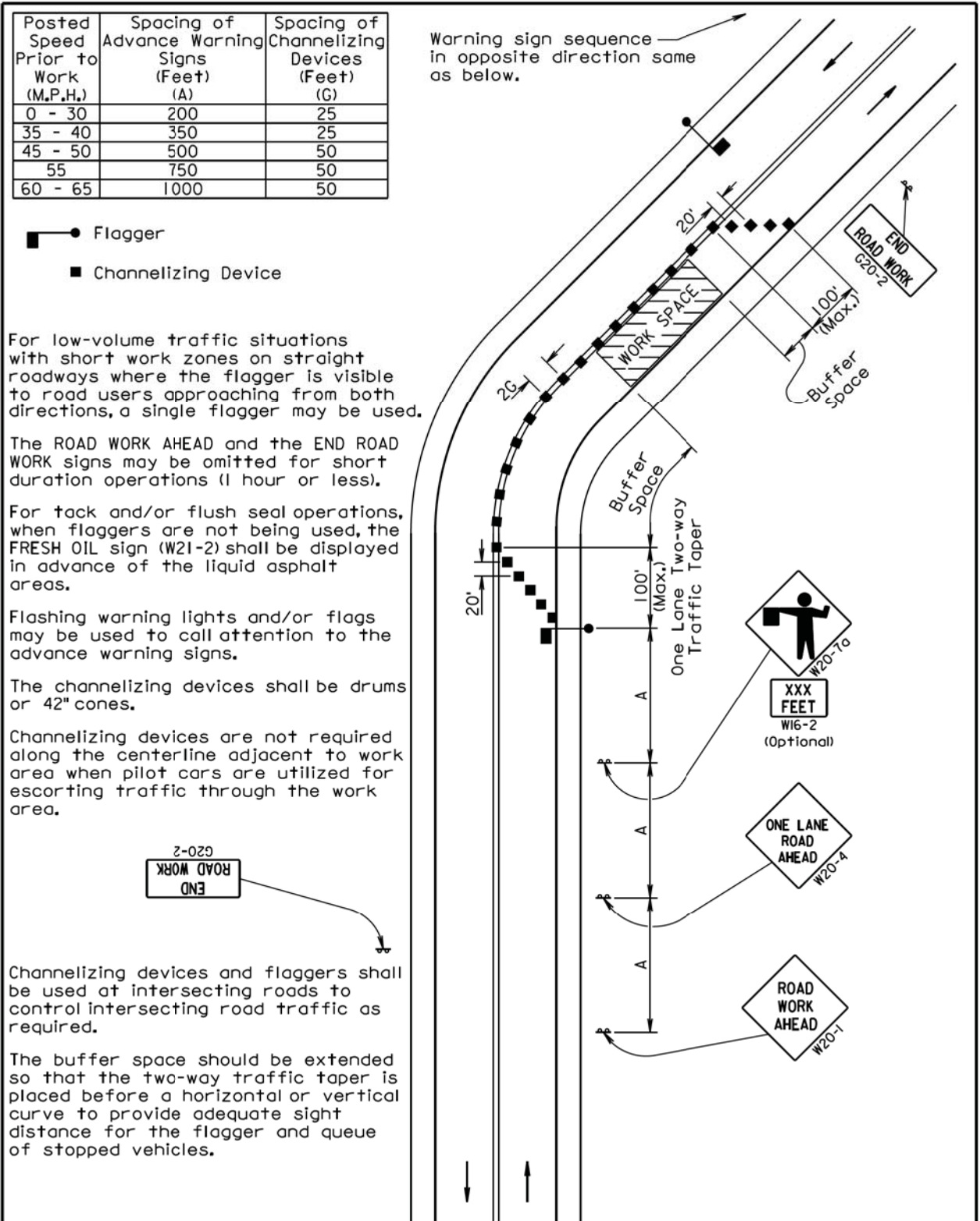
Various Standard Plates for 3 cable and beam guardrail are included in these plans to provided information on how the various guardrail items are to be constructed and the materials required for construction. The inclusion of these Standard Plates in the plans does not necessary indicate all these items are to be furnished under this contract.



February 14, 2011

S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES WORK ON SHOULDERS	PLATE NUMBER 634.03
		Sheet 1 of 1

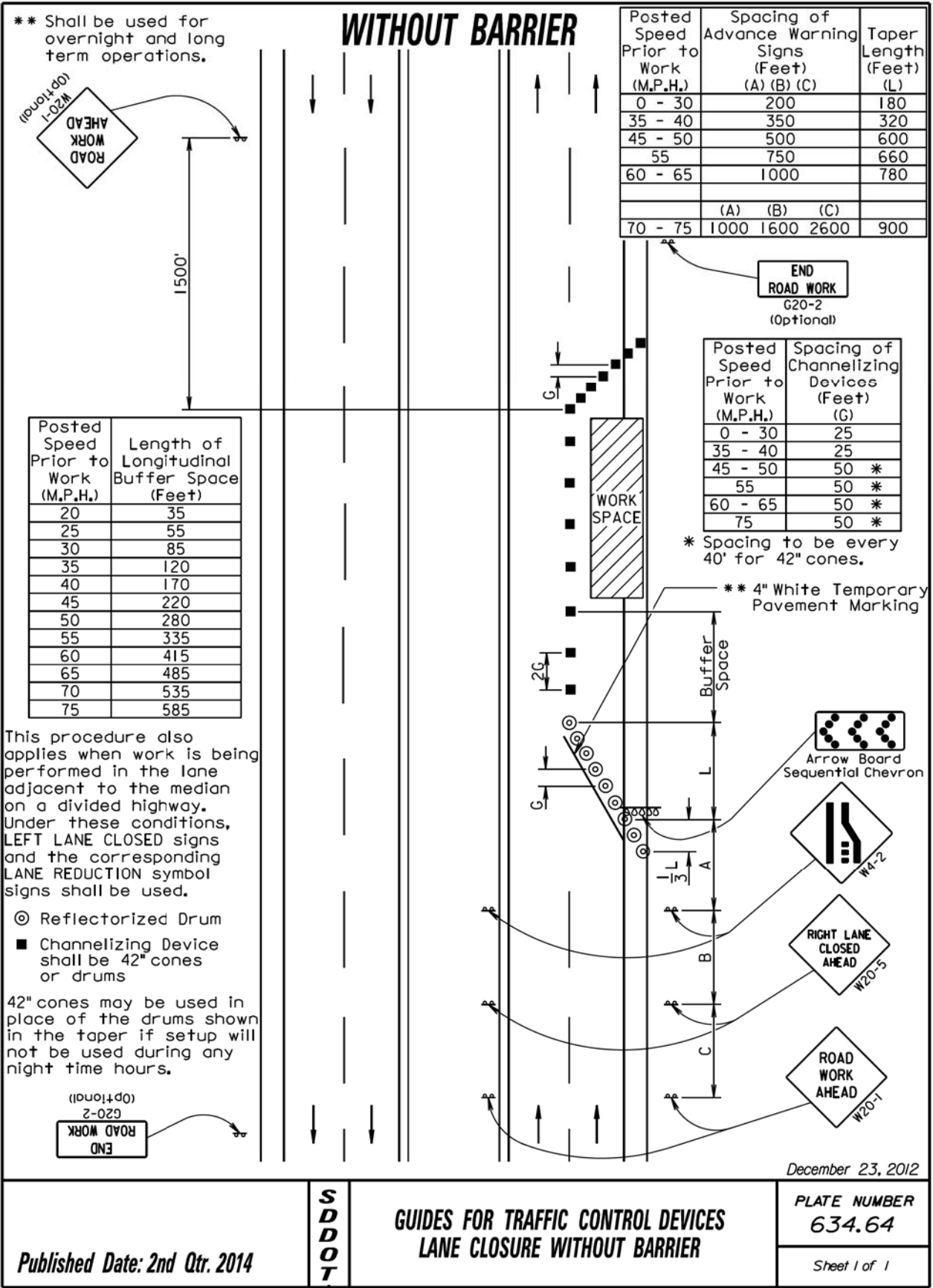
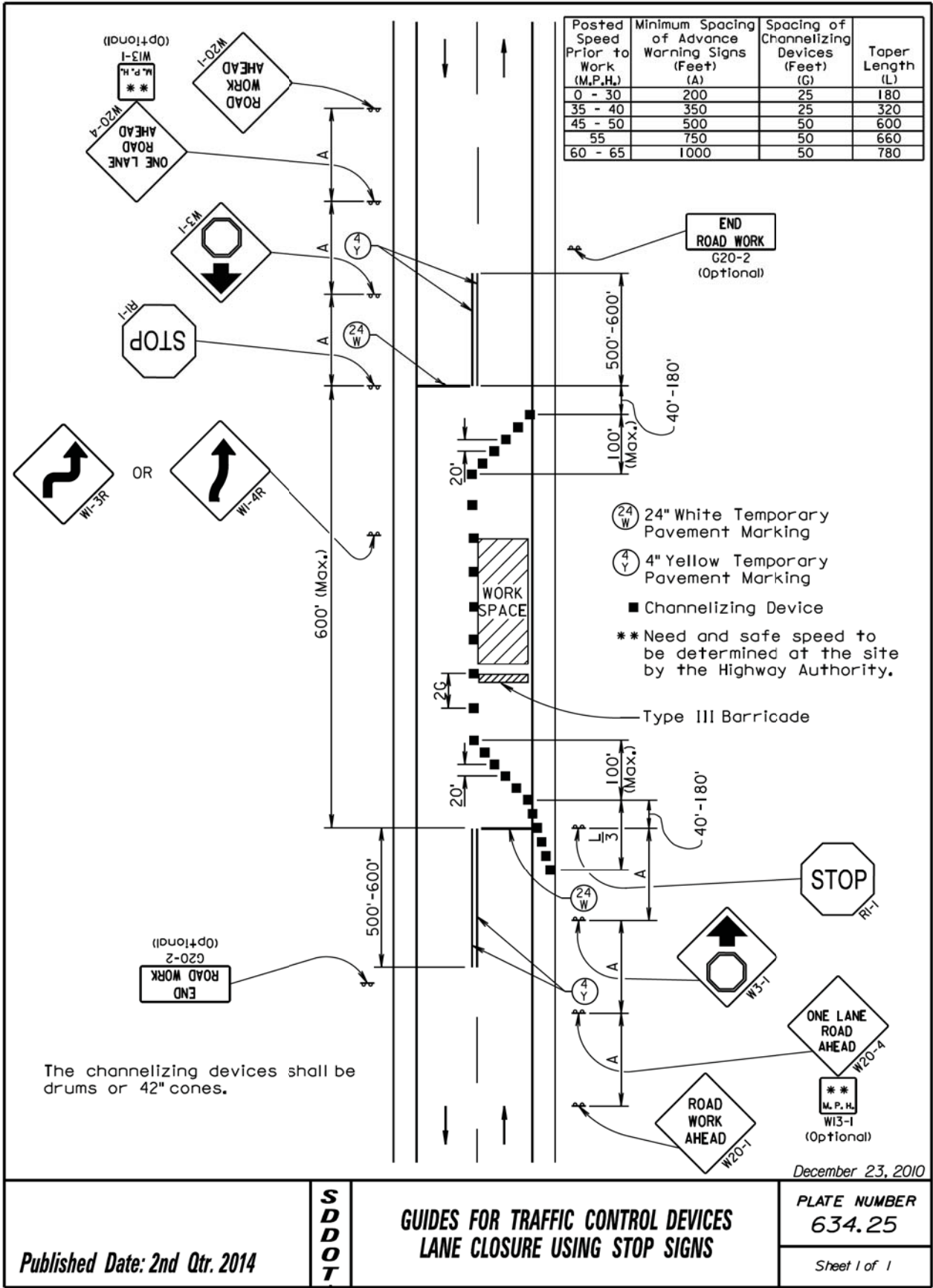
Published Date: 2nd Qtr. 2014



February 14, 2011

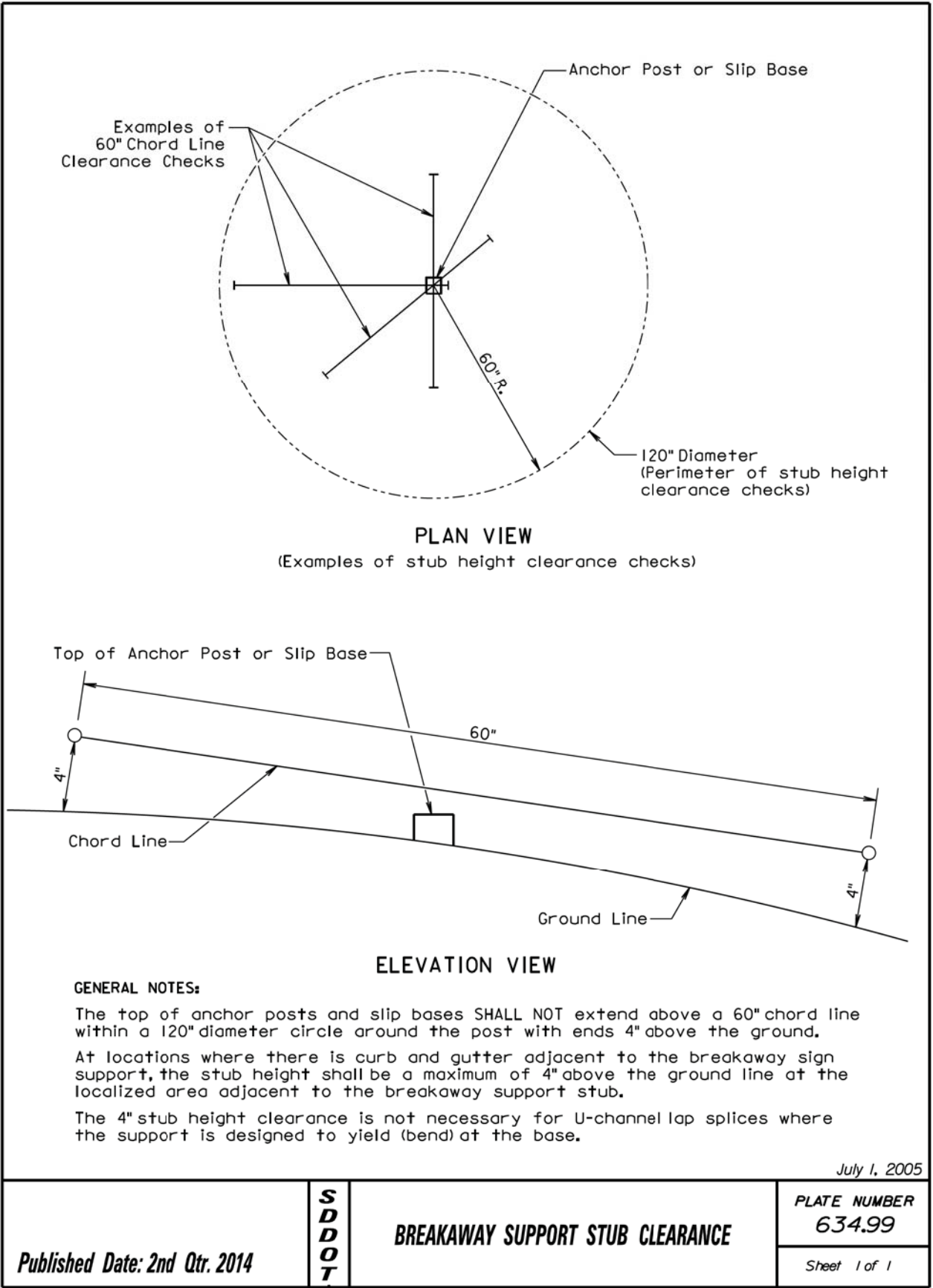
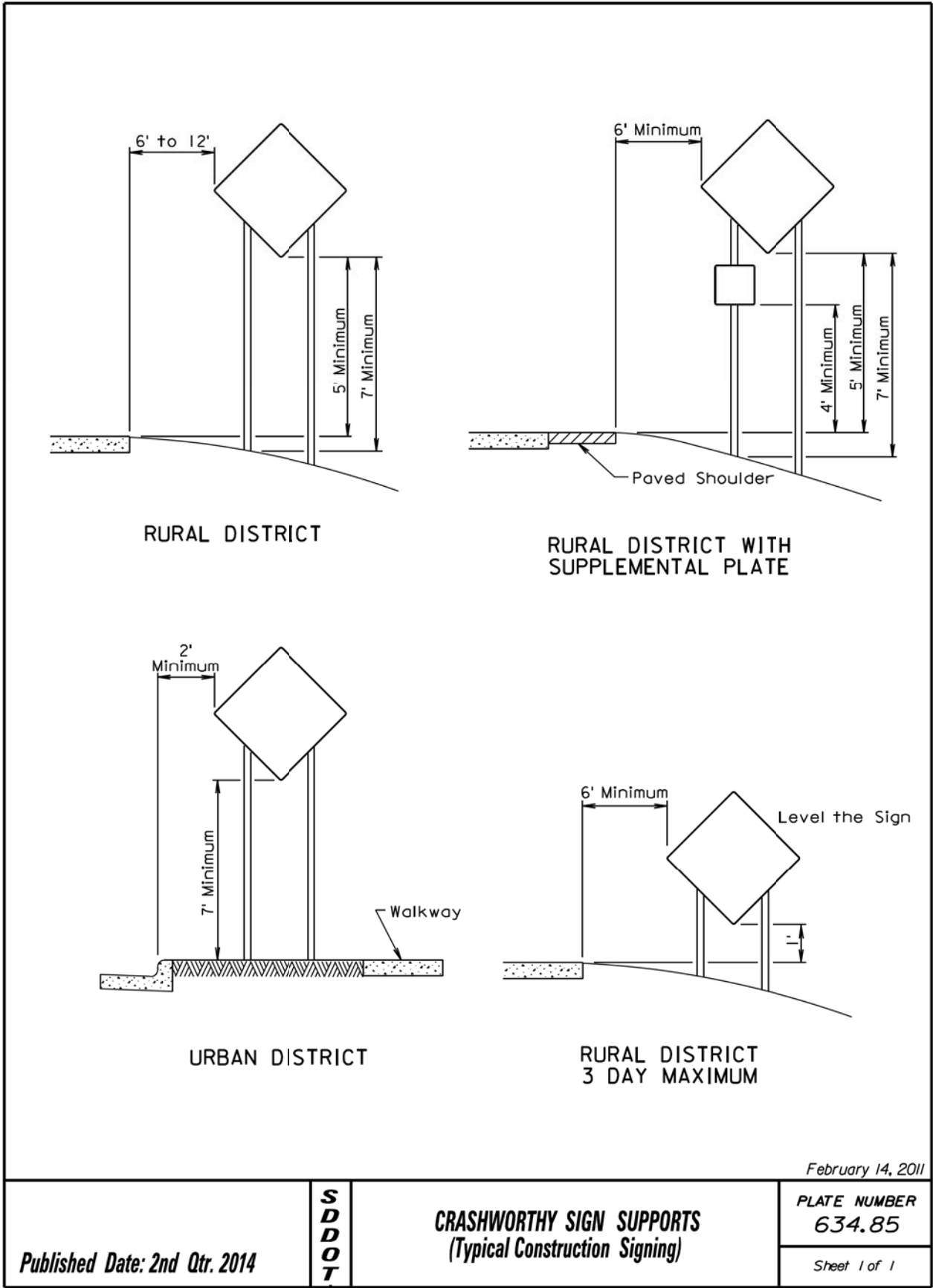
S D D O T	GUIDES FOR TRAFFIC CONTROL DEVICES LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
		Sheet 1 of 1

Published Date: 2nd Qtr. 2014



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0013(31)127, 0001-169. & 000P-169		
		16	32

Plotting Date: 07/17/2014



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0013(31)127,		
	0001-169, & 000P-169	17	32

ITEMIZED LIST FOR TRAFFIC CONTROL - PH 0013(31)127, PCN 052A

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
R1-1	30" x 30"	STOP	2	21	42
W1-3	48" x 48"	REVERSE TURN SIGN (LEFT OR RIGHT)	1	34	34
W3-1	48" x 48"	STOP AHEAD (SYMBOL)	2	34	68
W13-1P	30" x 30"	ADVISORY SPEED PLATE	2	21	42
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER (SYMBOL)	2	34	68
TOTAL UNITS					424

ITEMIZED LIST FOR TRAFFIC CONTROL - 000I-169, PCN i3da

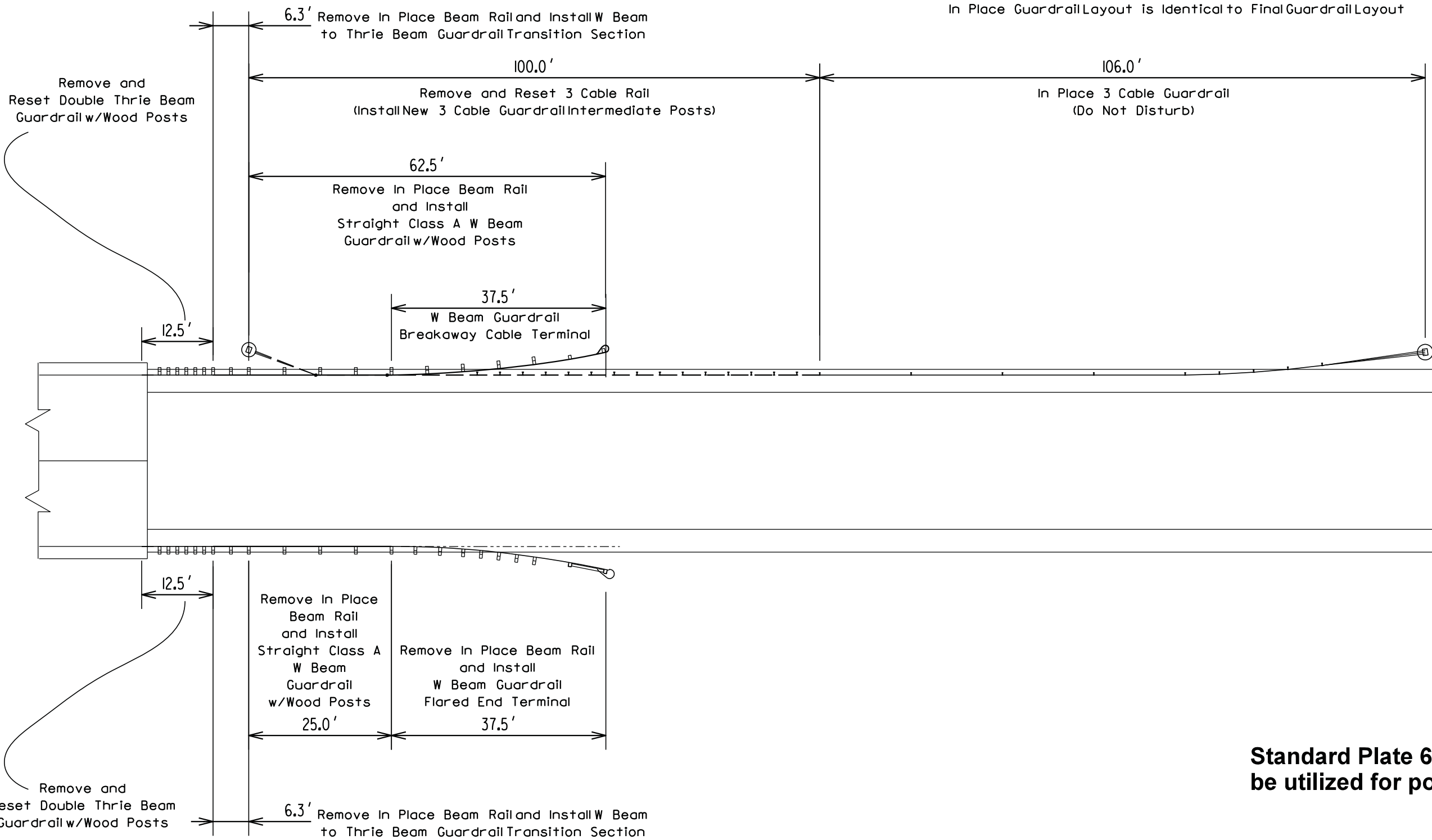
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	48" x 24"	END ROAD WORK	2	24	48
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W13-1P	30" x 30"	ADVISORY SPEED PLATE	2	21	42
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER (SYMBOL)	2	34	68
TOTAL UNITS					430

ITEMIZED LIST FOR TRAFFIC CONTROL - 000P-169, PCN i3dc

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-2	36" x 18"	END ROAD WORK	2	17	34
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	2	34	68
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7	48" x 48"	FLAGGER (SYMBOL)	2	34	68
W21-5	48" x 48"	SHOULDER WORK	2	34	68
TOTAL UNITS					442

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	PH 0013(31)127, 0001-169, & 000P-169	18	32
Plotting Date: 07/17/2014			

GUARDRAIL REPLACEMENT LAYOUT
STR. NO. 06-320-198
SD 13 @ MRM 127.08
Guardrail Identical at Both Ends of the Bridge



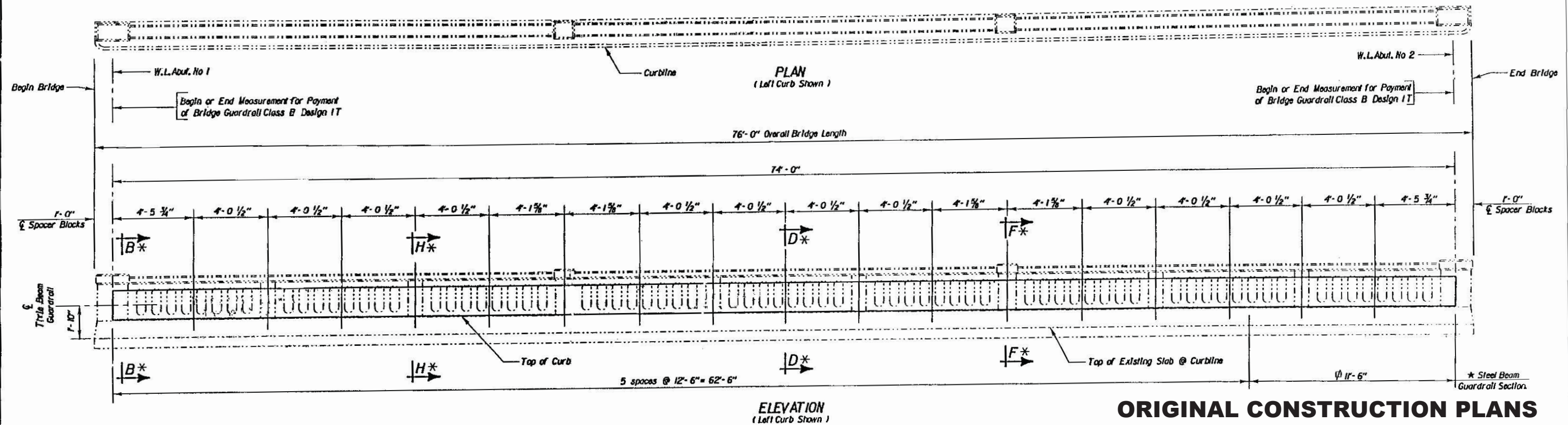
Standard Plate 630.20 shall be utilized for post spacing

PLOT SCALE - 1:18.9

PLOTTED FROM - TRAB17882

PLOT NAME - 3

FILE - ... \06-320-198 GUARDRAIL LAYOUTS.DGN



ORIGINAL CONSTRUCTION PLANS
STR. NO. 06-320-198

LAYOUT FOR BRIDGE GUARDRAIL
CLASS B DESIGN IT
FOR
76' - 0" I - BEAM BRIDGE

30' - 0" ROADWAY SEC. 8/9-T109N-R47W
OVER CREEK 0° SKEW
STA. 328 + 99 TO 329 + 75 P 0013(11) 127
STR. NO. 06-320-198

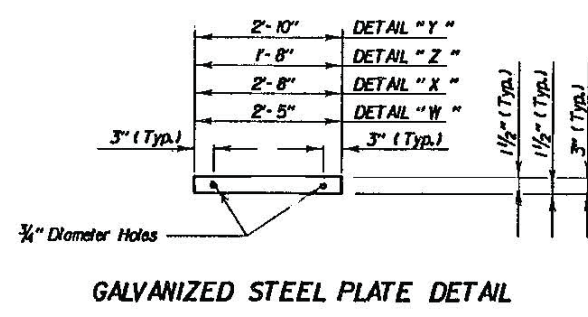
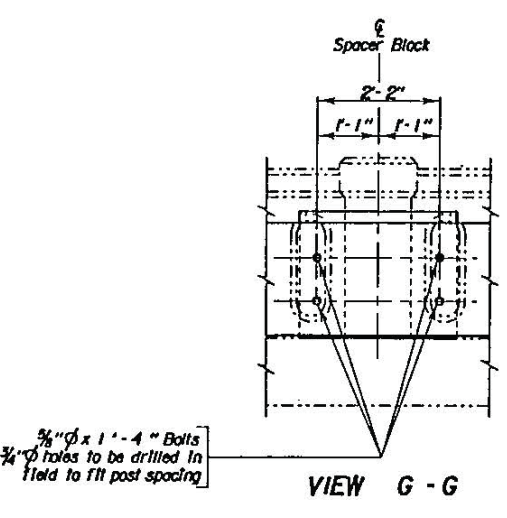
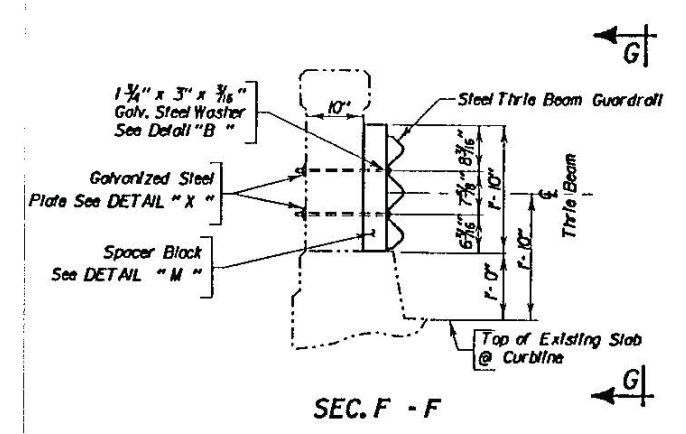
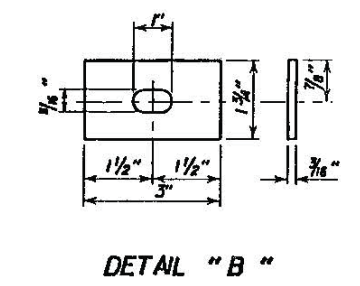
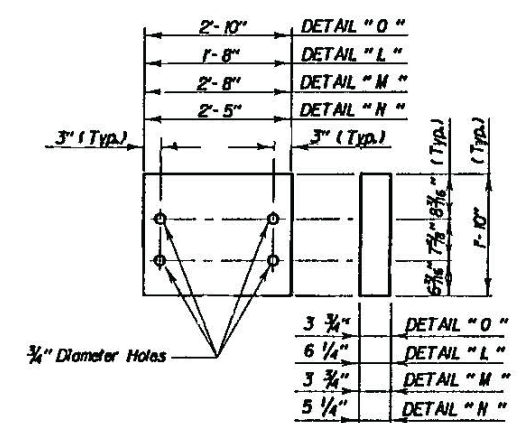
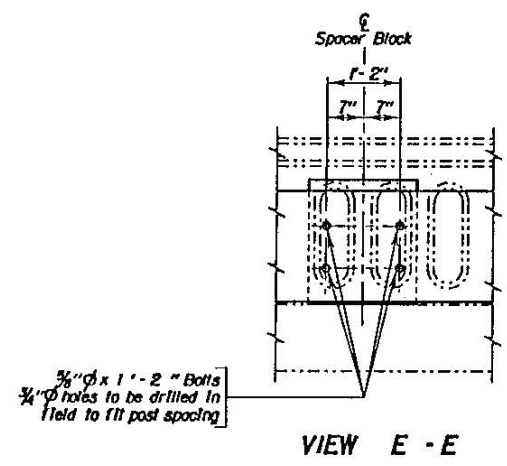
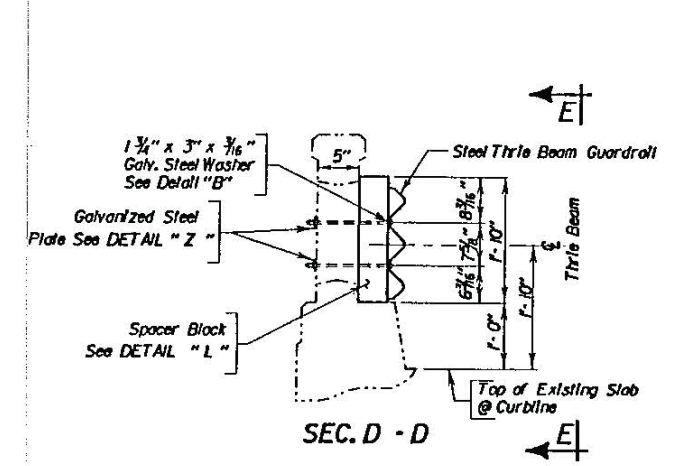
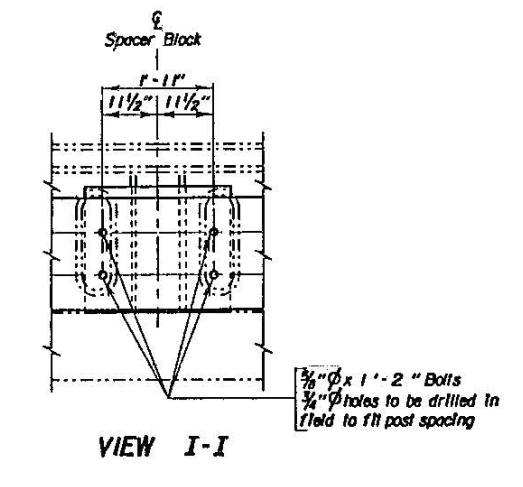
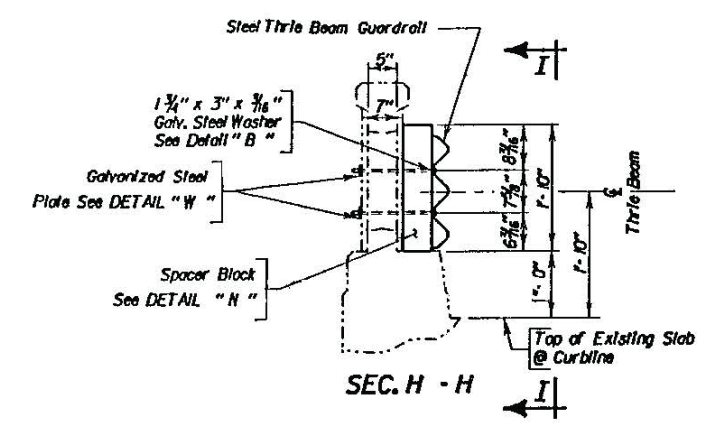
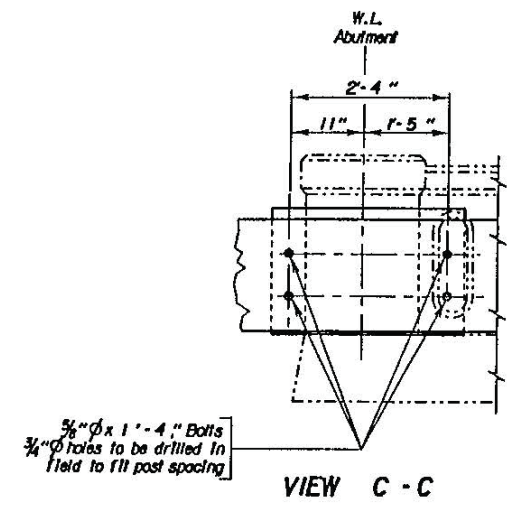
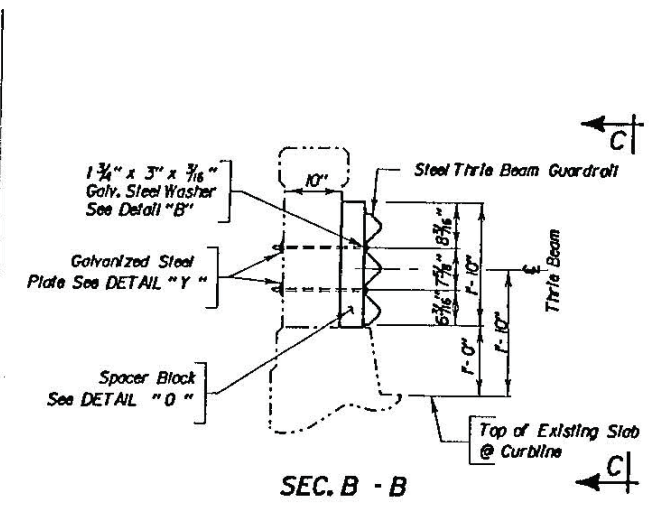
BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION

APRIL 1992 4 OF 9

- NOTES-
- 1. Cut T-Beam to fit in this area.
 - 2. Provide 6 - 12' - 6" Steel T-Beam Sections Each Roll.
 - 3. See BRIDGE GUARDRAIL Notes, Note No. 5 on Sheet No. 4 of 26.
 - 4. See Sheet Nos. 11 of 26 for Sections B - B, D - D, F - F, H - H and Details.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Bridge Guardrail Class B Design IT	Ln. Ft.	148
Reinforced Beam Guardrail	Ln. Ft.	148

DESIGNED BY BLK BBROK581H	DRAWN BY BLK 583HKA04	CHECKED BY PDW	APPROVED BRIDGE ENGINEER
---------------------------------	-----------------------------	-------------------	-----------------------------



ORIGINAL CONSTRUCTION PLANS STR. NO. 06-320-198

DETAILS OF CLASS B DESIGN IT
BRIDGE GUARDRAIL FOR
76'- 0" I- BEAM BRIDGE
30' - 0" ROADWAY SEC. 8/9-T109N-R47W
OVER CREEK 0° SKEW
STA. 328 + 99 TO STA. 329 + 75 P 0013(11)127
STR. NO. 06-320-198

BROOKINGS COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 1993

DESIGNED BY BLK	DRAWN BY EJA	CHECKED BY PDR	APPROVED <i>[Signature]</i> BRIDGE ENGINEER
STANDARDS	BSTOPLA8		

SDDOT

Published Date: 2nd Qtr. 2014

3 CABLE GUARDRAIL

PLATE NUMBER
629.01

Sheet 1 of 6

3 Cable Guardrail Anchor Section
42'-0"

3 Cable Guardrail Anchor Assembly (Typ.)

Measure along face of posts

Payment line for 3 Cable Guardrail

1000' Maximum

42'-0"

42'-0"

Intermediate 3 Cable Guardrail Anchorage Section

42'-0"

Intermediate 3 Cable Guardrail Anchorage Section

42'-0"

Payment line for 3 Cable Guardrail

Installation Line

PLAN

2 Typical Wedges (See Detail G)

2 - 1/2" Thread (Typ.)

3 1/2"

3 1/2"

CABLE SPLICE

POST SPACING FOR HORIZONTAL CURVES

ROADWAY CURVATURE	MAX. POST SPACING
8° and Less	16'
Greater than 8° to 13°	12'
Greater than 13°	NOT ALLOWED

GENERAL NOTES:
Either flanged channel steel posts or S3x5.7 steel I beam posts shall be used, but post type shall be consistent throughout the project. The S3x5.7 Steel I Beam post shall be used for the end posts when the flanged channel steel post is used as line posts. All costs associated with furnishing and constructing the 3 cable guardrail anchor assembly including the concrete anchor, cable anchor bracket, compensating device, steel turnbuckle cable assembly, and necessary hardware shall be incidental to the contract unit price per Each for "3 Cable Guardrail Anchor Assembly". All costs associated with furnishing and constructing the 3 cable guardrail including posts, cable, cable splices, and hardware shall be incidental to the contract unit price per Ft for "3 Cable Guardrail".

The following table and criteria shall apply to the arrangement of the Spring Cable End Assemblies (Compensation Devices) and Turnbuckle Cable End Assemblies:

LENGTH OF CABLE RUN	CRITERIA FOR ARRANGEMENT OF THE SPRING CABLE END ASSEMBLIES (COMPENSATION DEVICES) AND TURNBUCKLE CABLE END ASSEMBLIES											
To 500'	Use turnbuckle on the approaching traffic end and compensating device on the other end of each individual cable, except in the W Beam to 3 Cable Transition where all compensating devices shall be provided at the bridge ends.											
Greater than 500' to 1000'	Use compensating device on each end of each individual cable.											
Greater than 1000'	Start new run by interlacing at last parallel post as shown above.											

All Compensating Devices shall be attached to the cable anchor bracket when one end of the run is attached to a bridge.
Compensating Devices must have a spring rate of 450 ± 50 Lbs. per inch and shall have a total available travel of 6" minimum.
The cable shall be retensioned after the initial 2 week pretension period in accordance with the following table:

Temperature Range (Deg.)	120 to 110	109 to 100	99 to 90	89 to 80	79 to 70	69 to 60	59 to 50	49 to 40	39 to 30	29 to 20	19 to 10	9 to 0	-1 to -10	-11 to -20
Spring Compression (In.)	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4

December 23, 2010

SDDOT

Published Date: 2nd Qtr. 2014

3 CABLE GUARDRAIL

PLATE NUMBER
629.01

Sheet 2 of 6

3 Cable Guardrail Anchor Assembly (Typ.)

Payment Limits for 3 Cable Guardrail

See Detail F

*16'-0"

*16'-0"

*16'-0"

3/4" Dia. Cables

Ground Line

End Posts (See Detail D)

Installation Line

See Detail A & B and General Notes

PLAN

See Detail H for typical connection to cable anchor bracket

End Posts (See Detail D)

ELEVATION

Lower Cable

Upper Cable

1'-6"

1'-0"

0'-6"

0'-2"

4 spaces @ 6'-0" = 24'-0"

*16'-0" Typical on Tangent

Installation Line

PLAN (FLARED ANCHOR SECTION)

Lower Cable

Upper Cable

0'-10"

0'-6"

0'-3"

0'-1"

4 spaces @ 6'-0" = 24'-0"

*16'-0" Typical on Tangent

Installation Line

PLAN (DOWNSTREAM ONE WAY ROADWAY ANCHOR SECTION)

Lower Cable

Upper Cable

18'-0"

4 spaces @ 6'-0" = 24'-0"

*16'-0" Typical on Tangent

Installation Line

PLAN (TANGENT ANCHOR SECTION)

Concrete Anchor (See Detail F)

Ground Line

End Posts (See Detail D)

*16'-0" Typical on Tangent

*16'-0" Typical on Tangent

*16'-0" Typical on Tangent

Line Post (See Detail E)

Ground Line

*** See Standard Plate 630.98

(-1/4" ± 1/2")

28"

ELEVATION (3 CABLE GUARDRAIL ANCHOR SECTION)

* See Table on Sheet 1 for post spacing on horizontal curves.

December 23, 2010

STATE OF SOUTH DAKOTA

PROJECT
PH 0013(31)127.
0001-169. & 000P-169

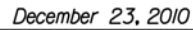
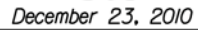
Plotting Date: 07/17/2014

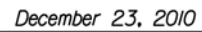
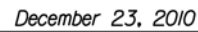
SHEET
21

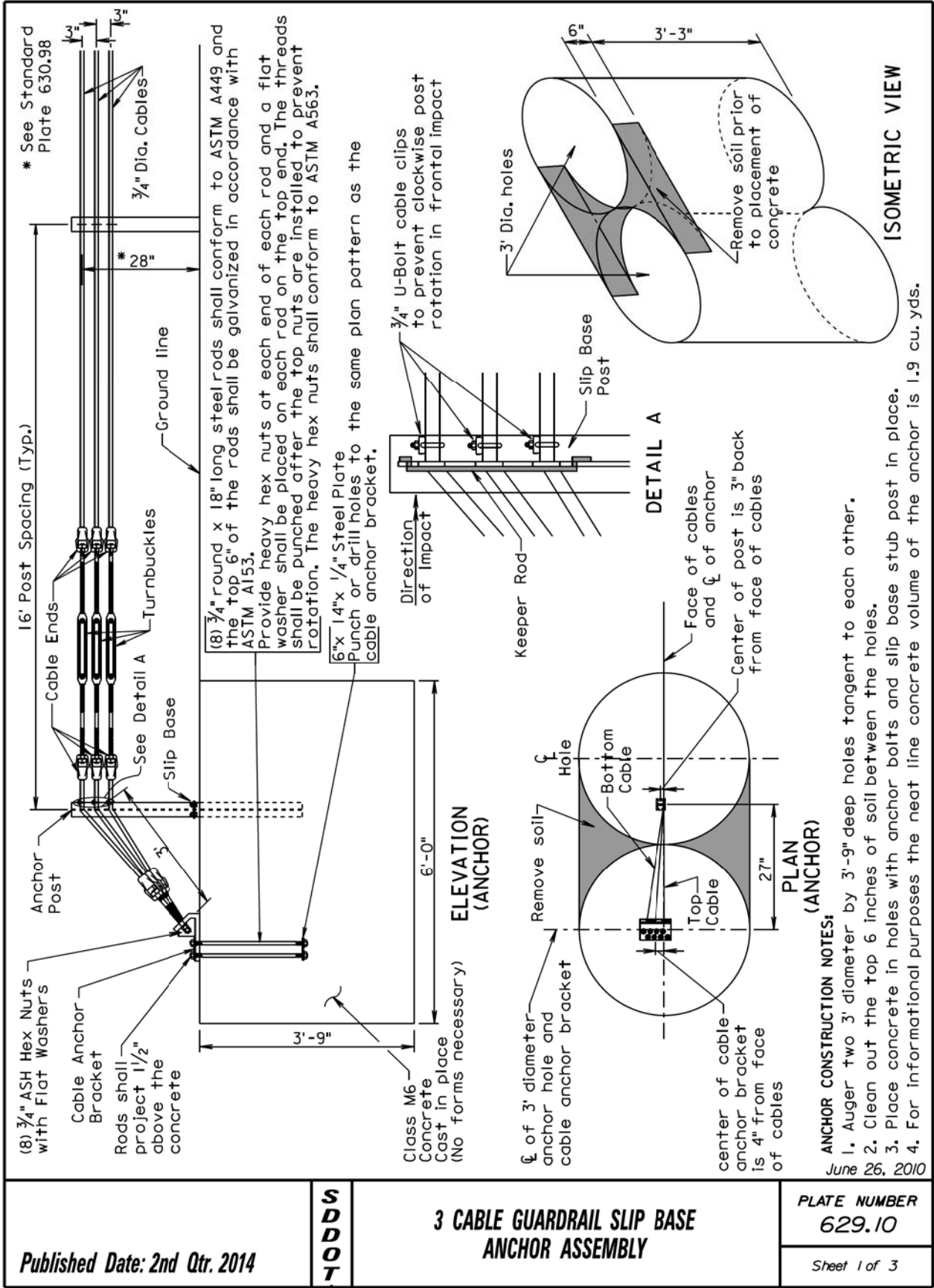
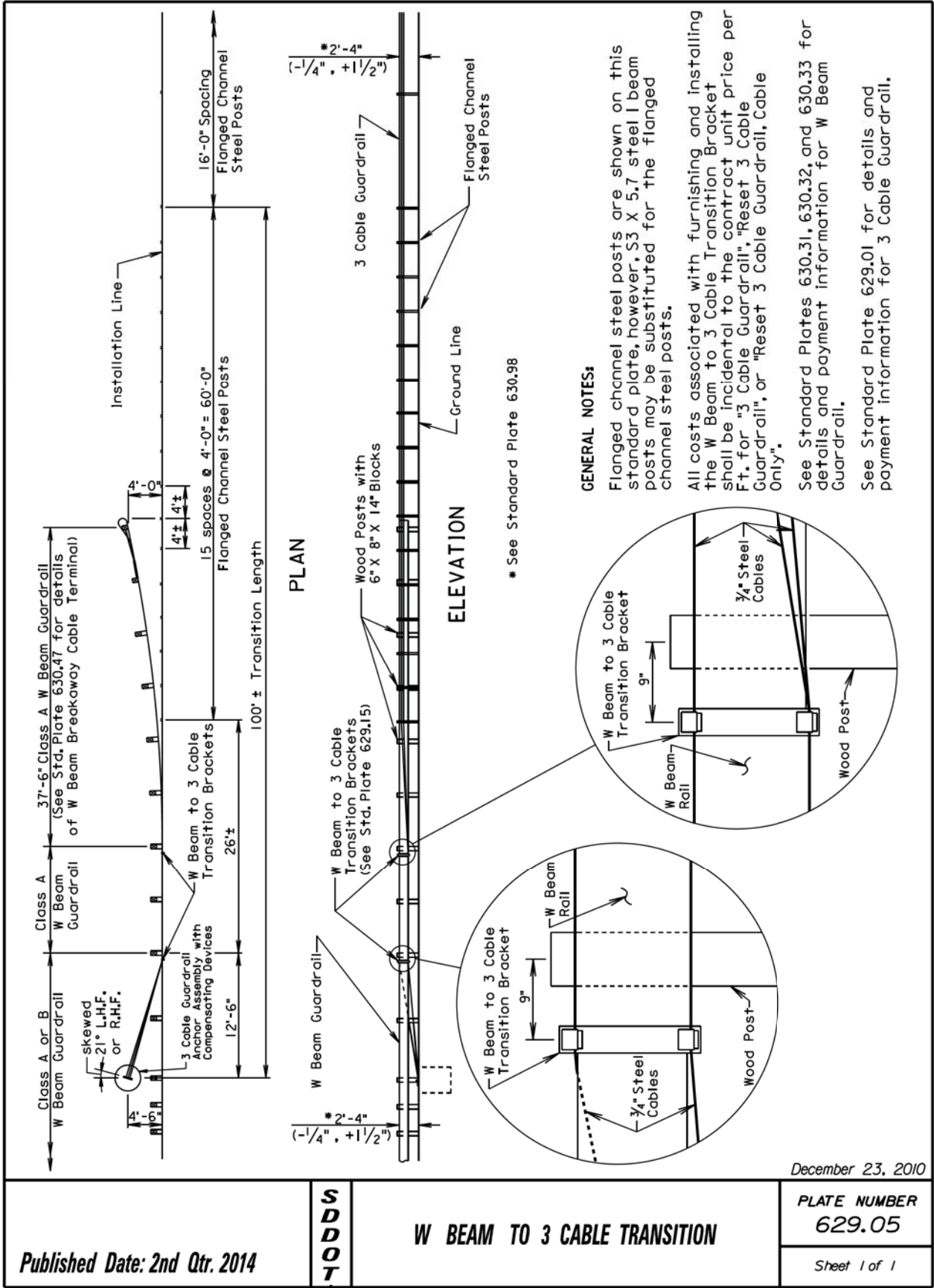
TOTAL SHEETS
32

FILE - ... \62901 & 62901-1.DGN

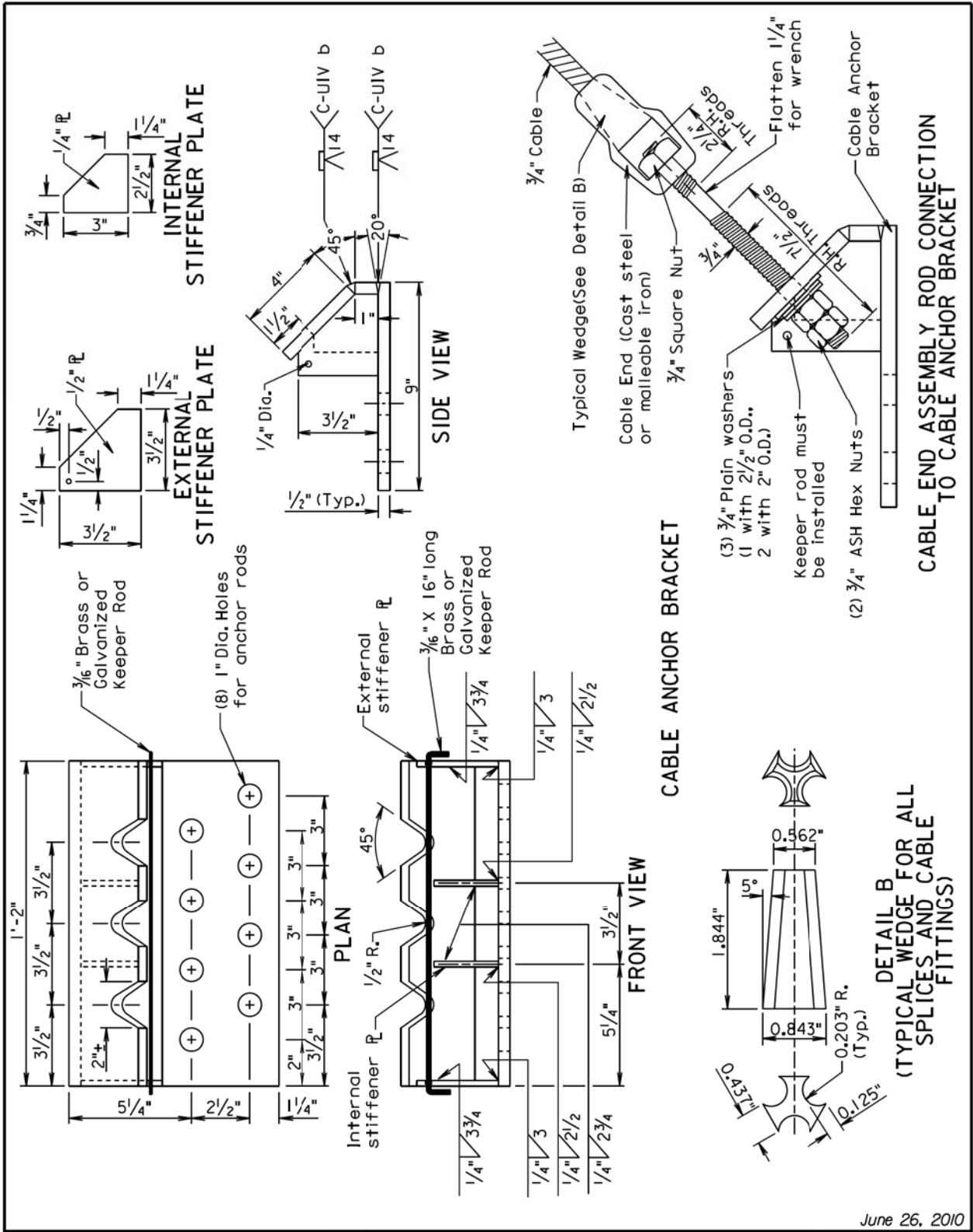
PLOT NAME - 1

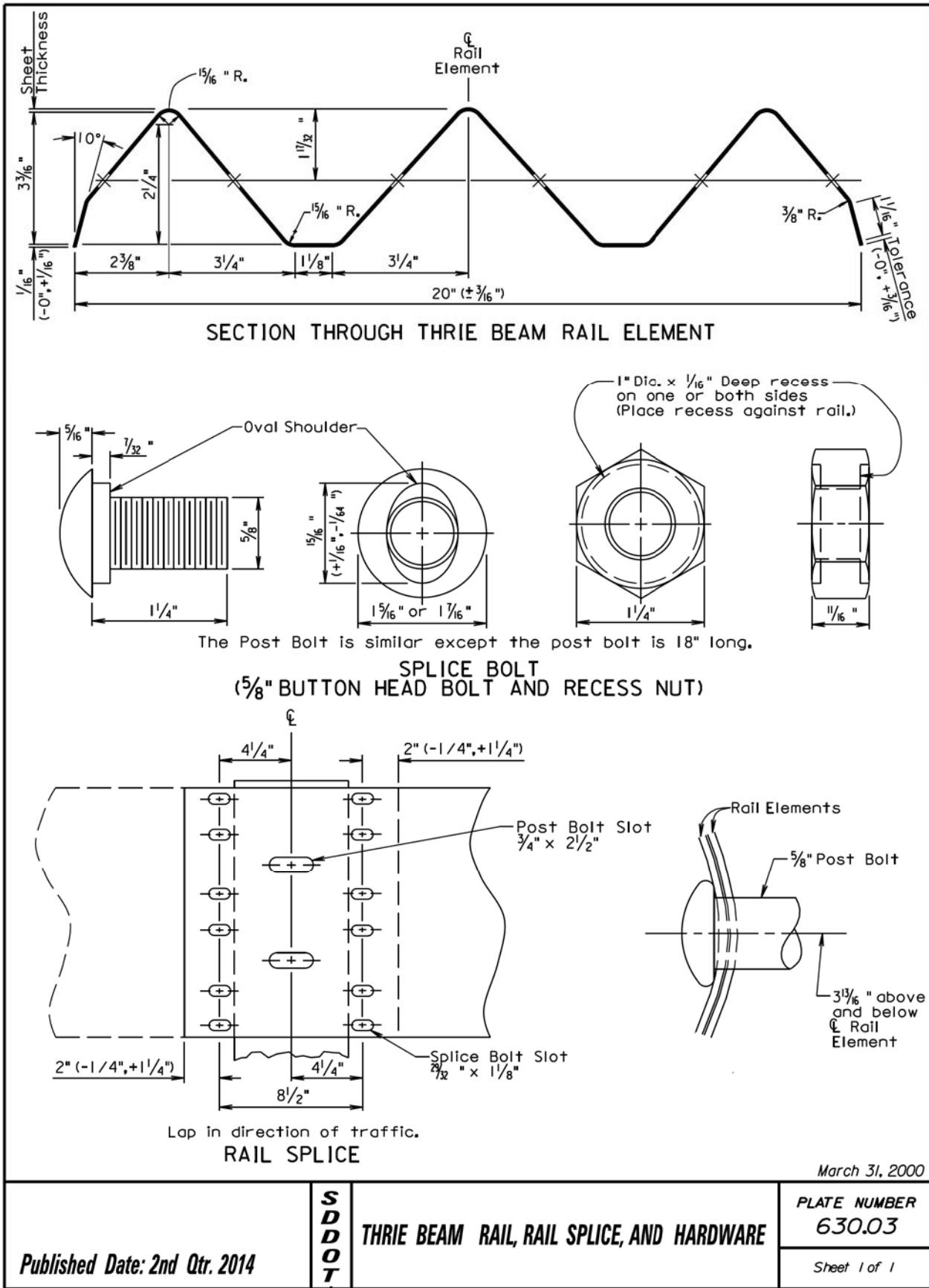
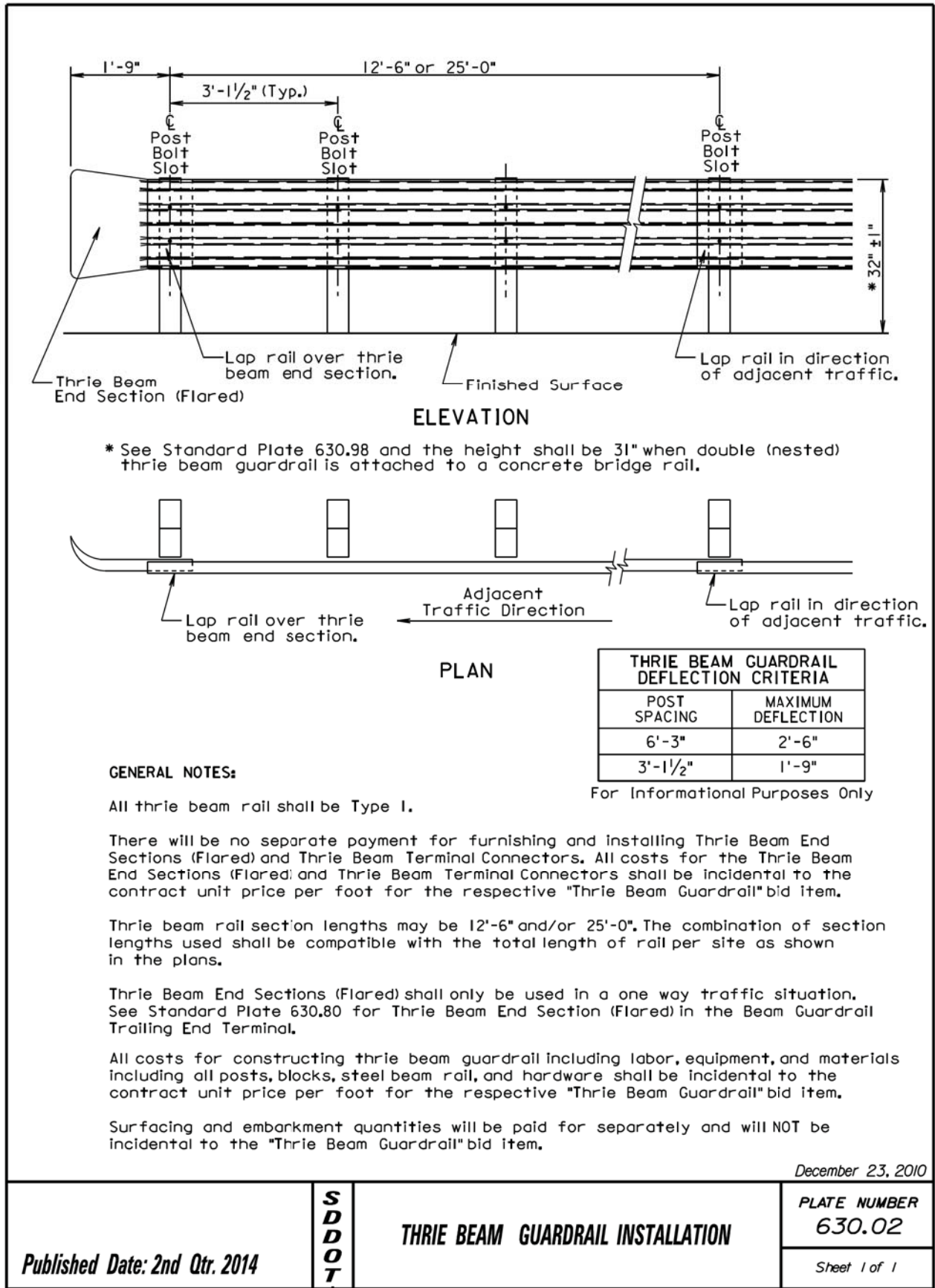






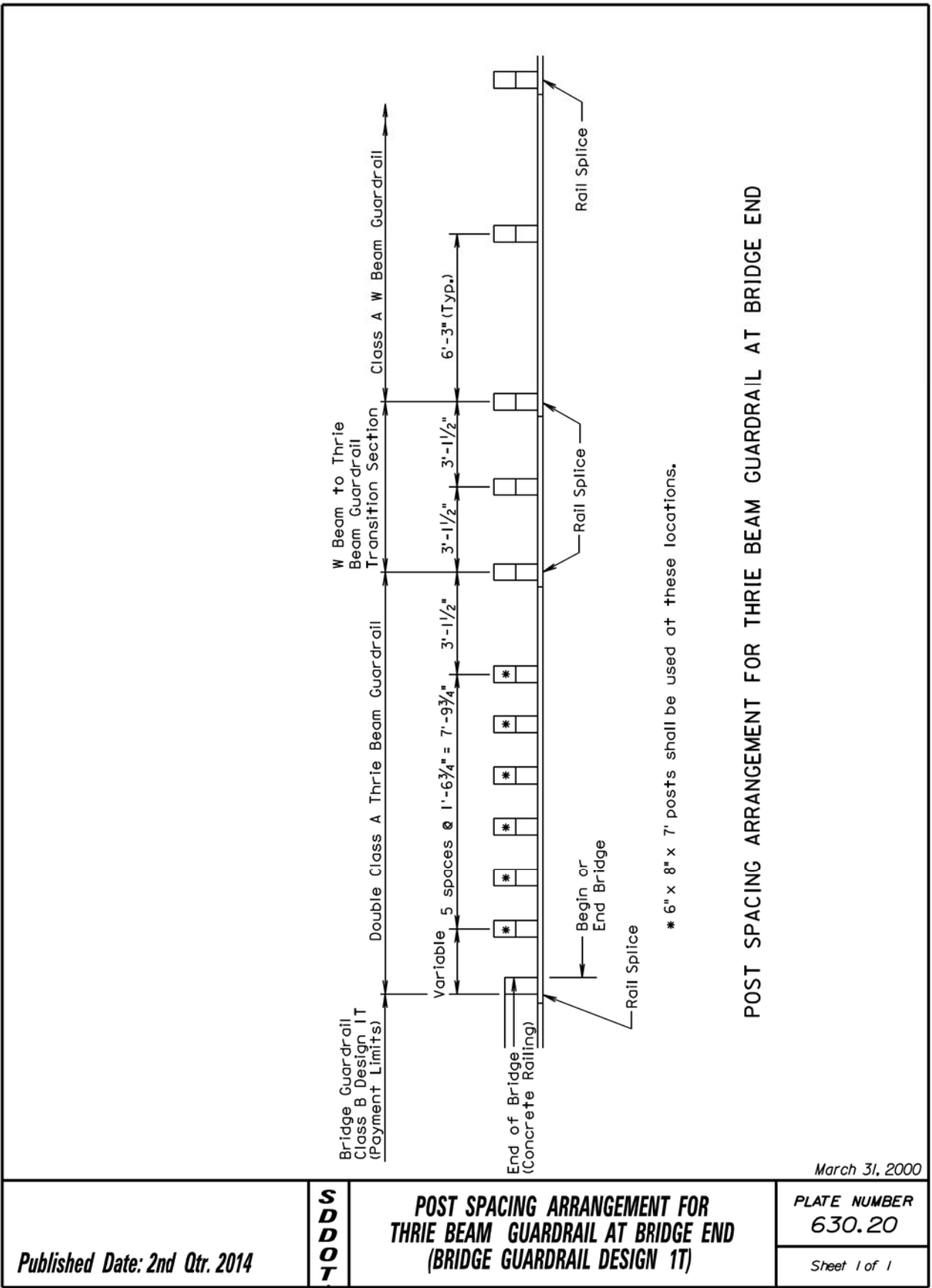
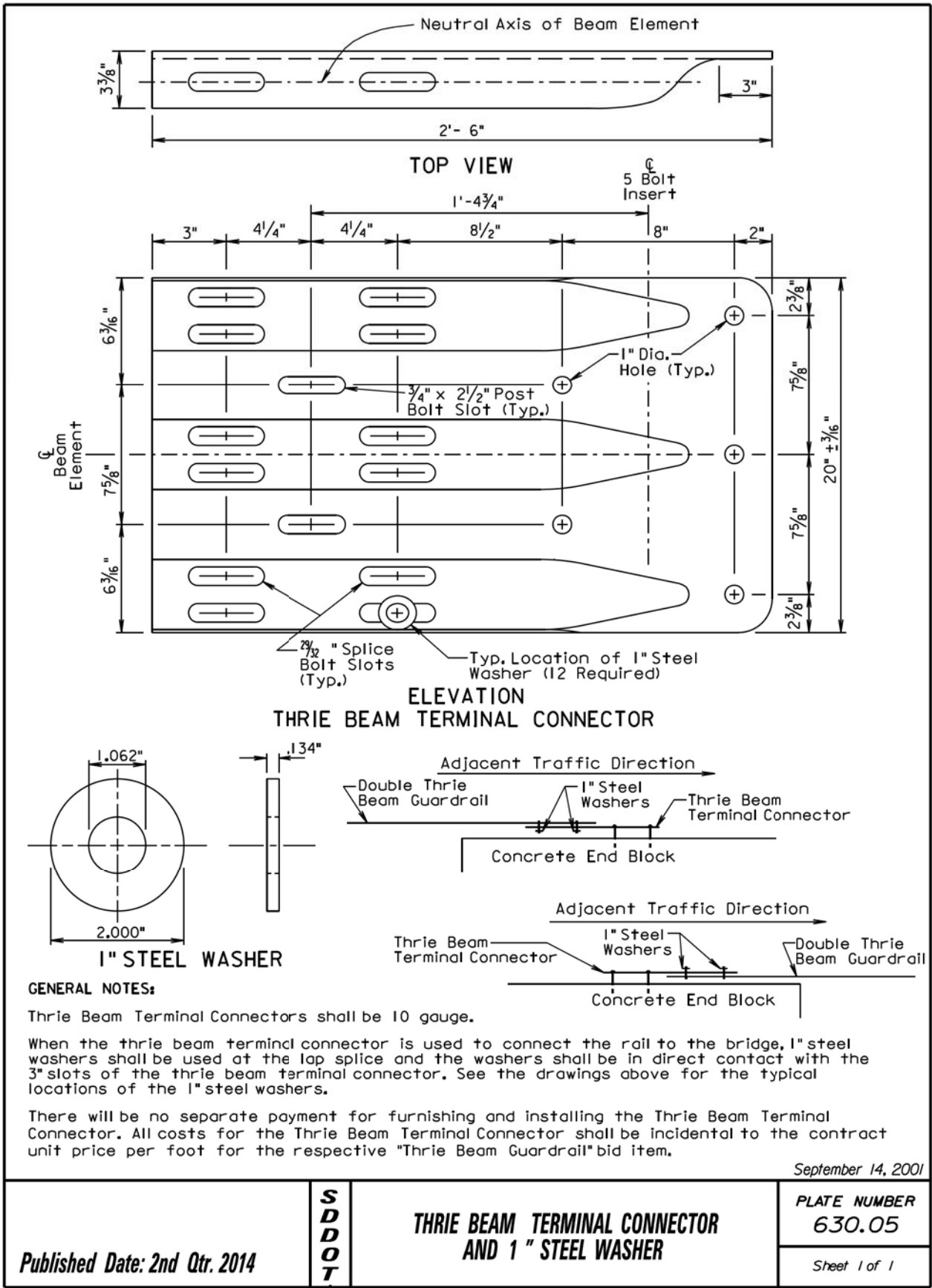
<i>Published Date: 2nd Qtr. 2014</i>	S D D O T	3 CABLE GUARDRAIL SLIP BASE ANCHOR ASSEMBLY	PLATE NUMBER 629.10
			Sheet 2 of 3

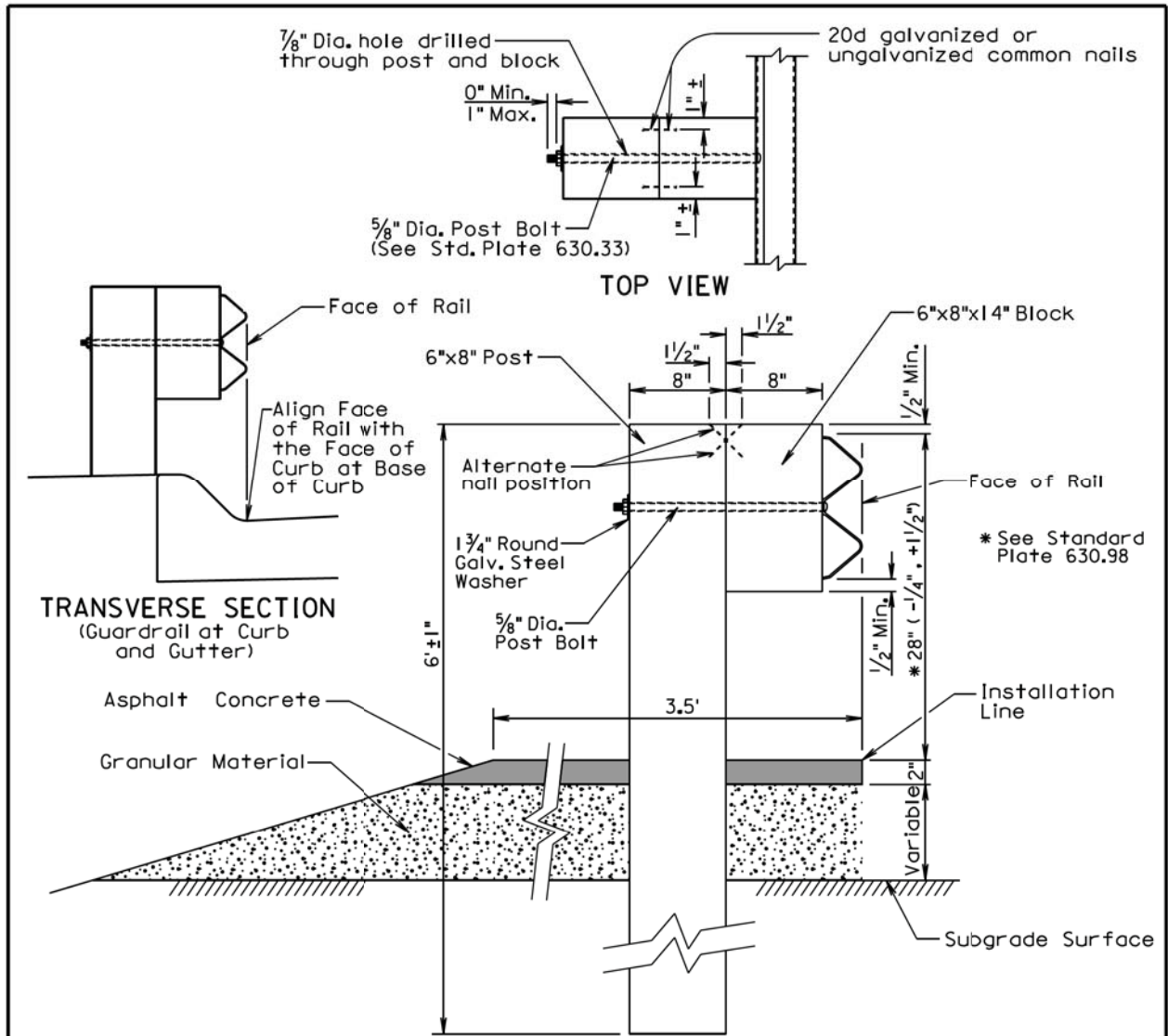




STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0013(31)127, 0001-169, & 000P-169		
		28	32

Plotting Date: 07/17/2014





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.

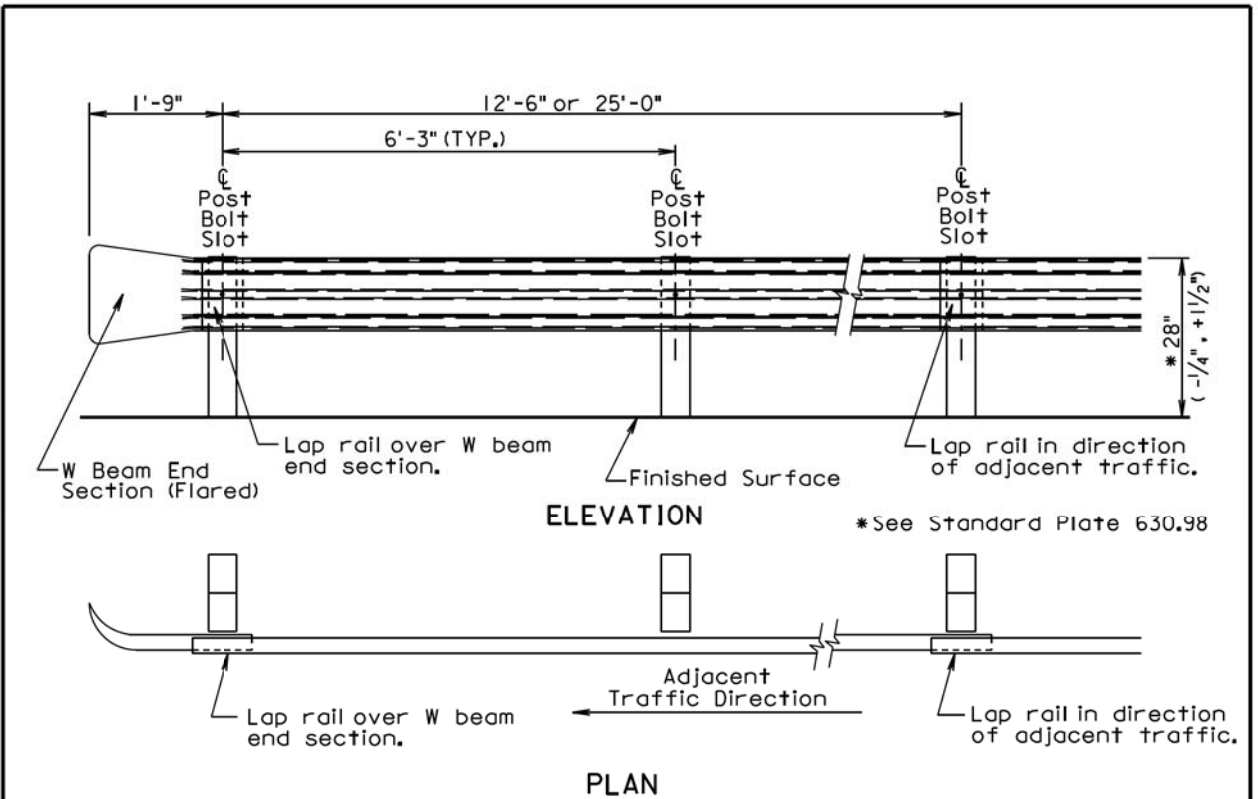
Surfacing and embankment quantities will be paid for separately and will NOT be incidental to the "W Beam Guardrail" bid item.

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: 2nd Qtr. 2014	S D D O T	W BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.31
			Sheet 1 of 1



W BEAM GUARDRAIL DEFLECTION CRITERIA	
POST SPACING	MAXIMUM DEFLECTION
6'-3"	3'-3"
3'-1 1/2"	2'-0"

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.

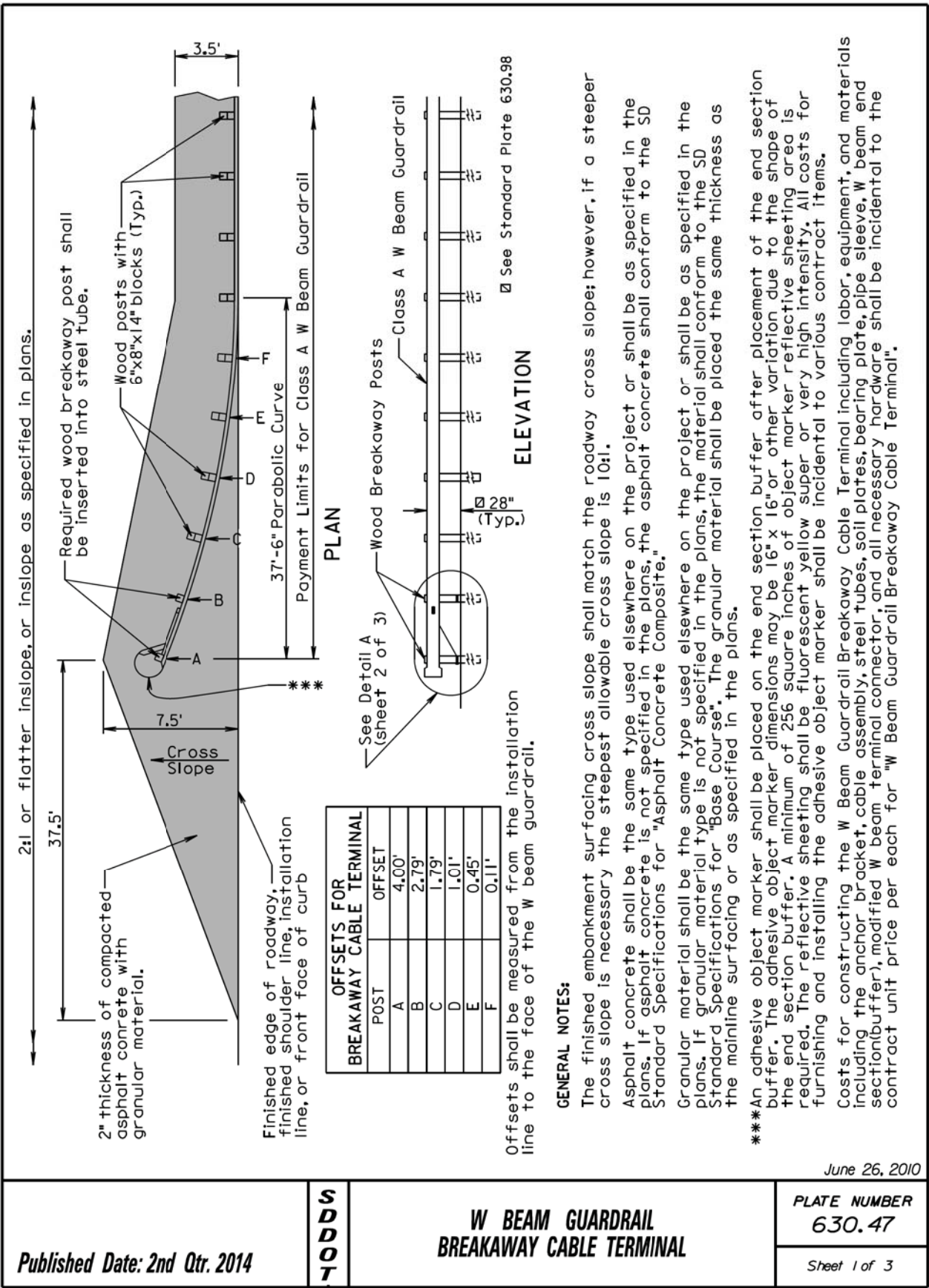
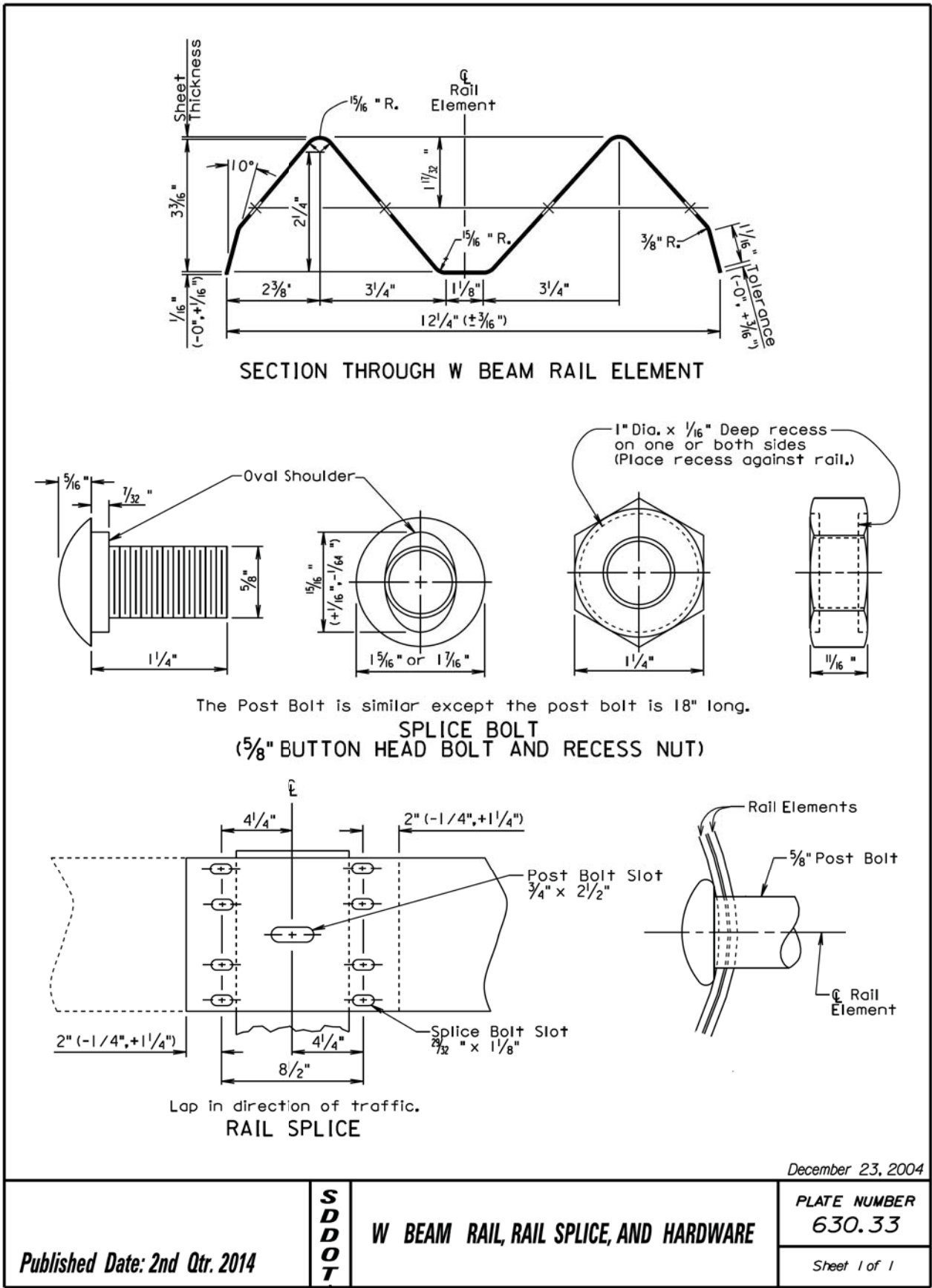
W Beam End Sections (Flared) shall only be used in a one way traffic situation. See Standard Plate 630.80 for W Beam End Section (Flared) in the Beam Guardrail Trailing End Terminal.

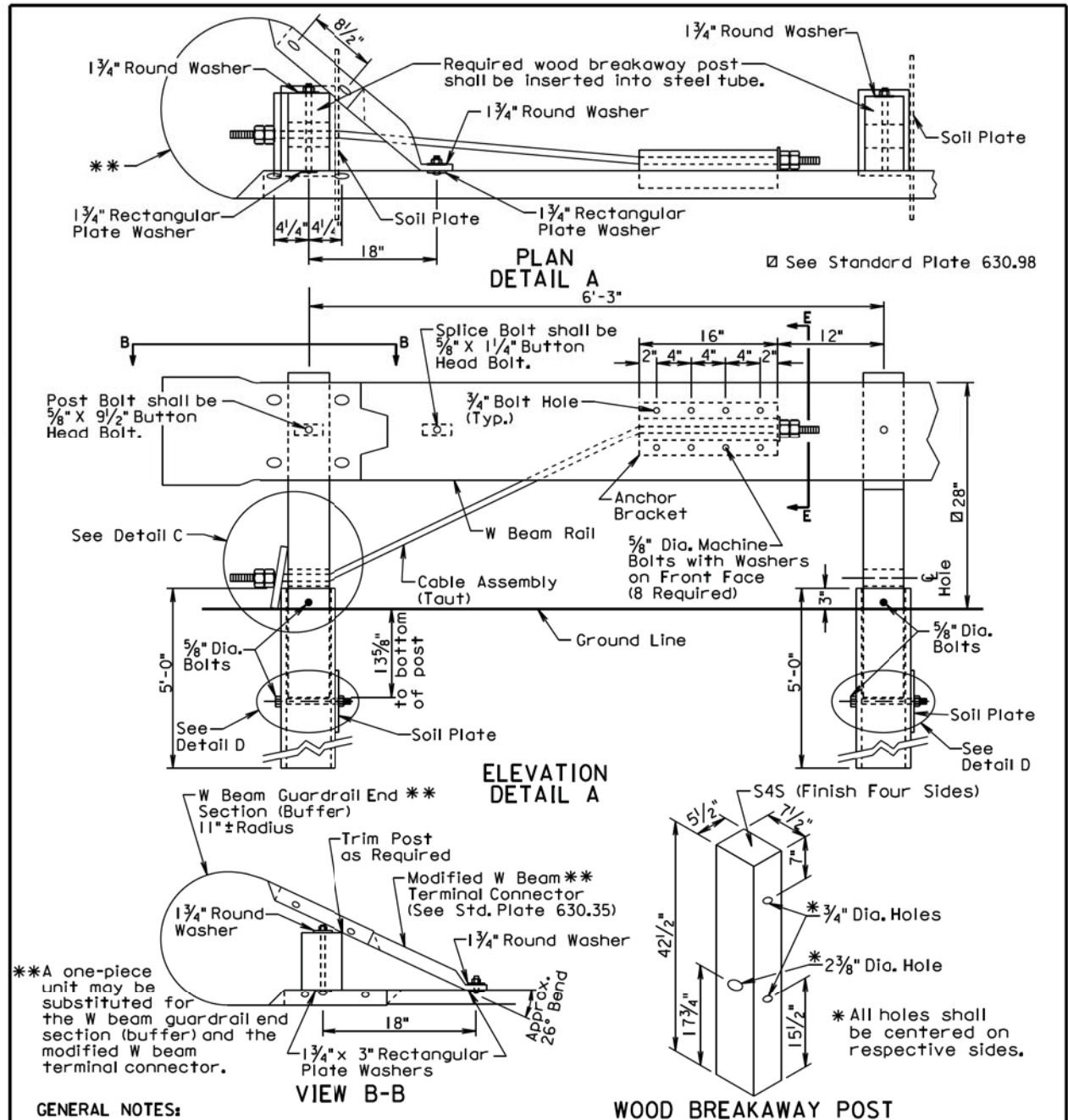
All costs for constructing W beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

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

December 23, 2010

Published Date: 2nd Qtr. 2014	S D D O T	W BEAM GUARDRAIL INSTALLATION	PLATE NUMBER 630.32
			Sheet 1 of 1



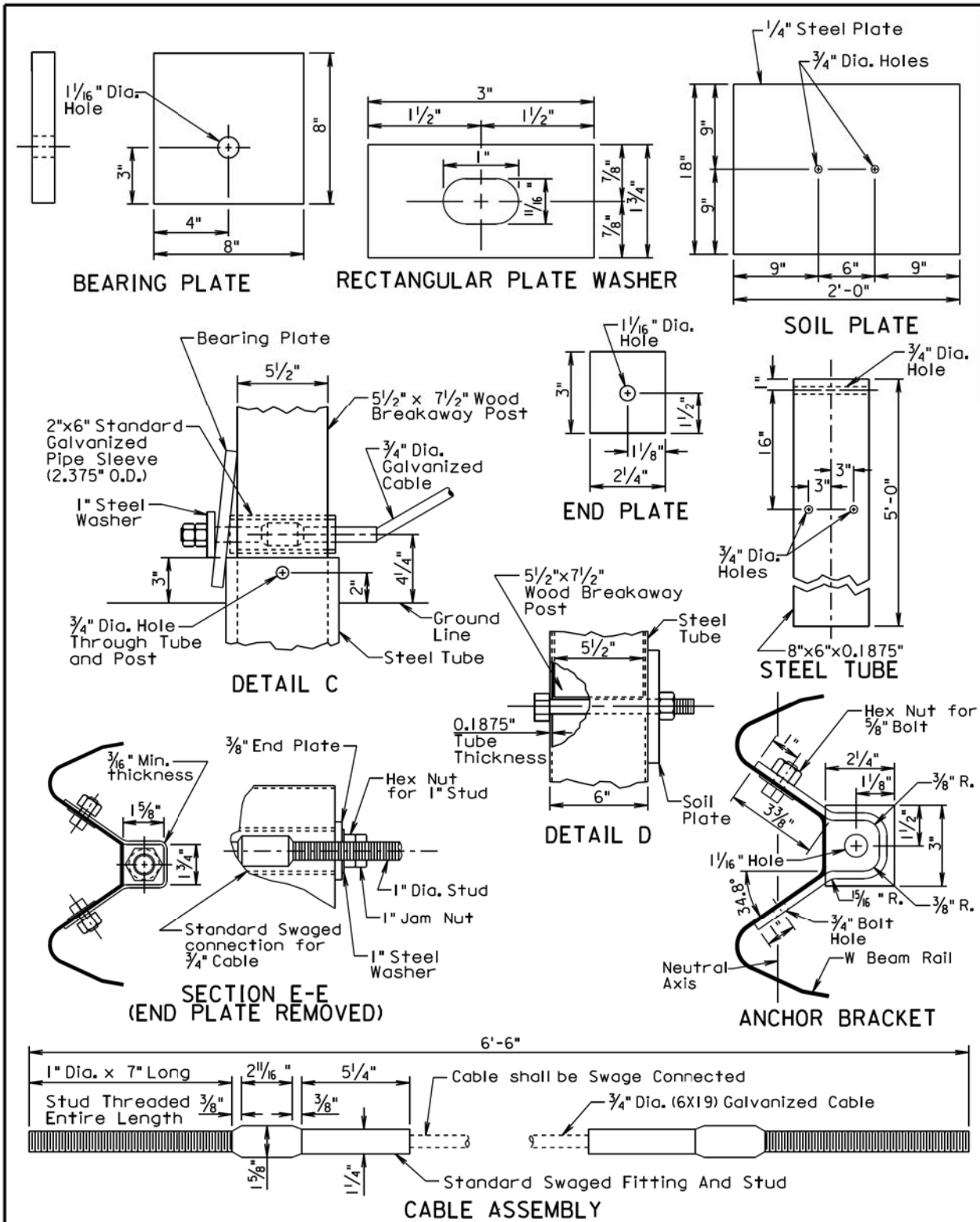


GENERAL NOTES:
 All hardware shall be galvanized in accordance with ASTM A153.
 The steel tubes shall meet the requirements of ASTM Specification A500, Grade B, and shall be galvanized after fabrication in accordance with the requirements of AASHTO Specification M11.
 The anchor bracket, soil plate, and bearing plate shall be fabricated from steel that meets ASTM A36 Specifications. They shall be galvanized after fabrication in accordance with ASTM A123.
 The W Beam End Section (Buffer) shall be 12 gage galvanized steel.
 The cable shall be 3/4", Type II, with Class A coating in conformance with AASHTO M30.

June 26, 2010

S D D O T	W BEAM GUARDRAIL BREAKAWAY CABLE TERMINAL	PLATE NUMBER 630.47
		Sheet 2 of 3

Published Date: 2nd Qtr. 2014



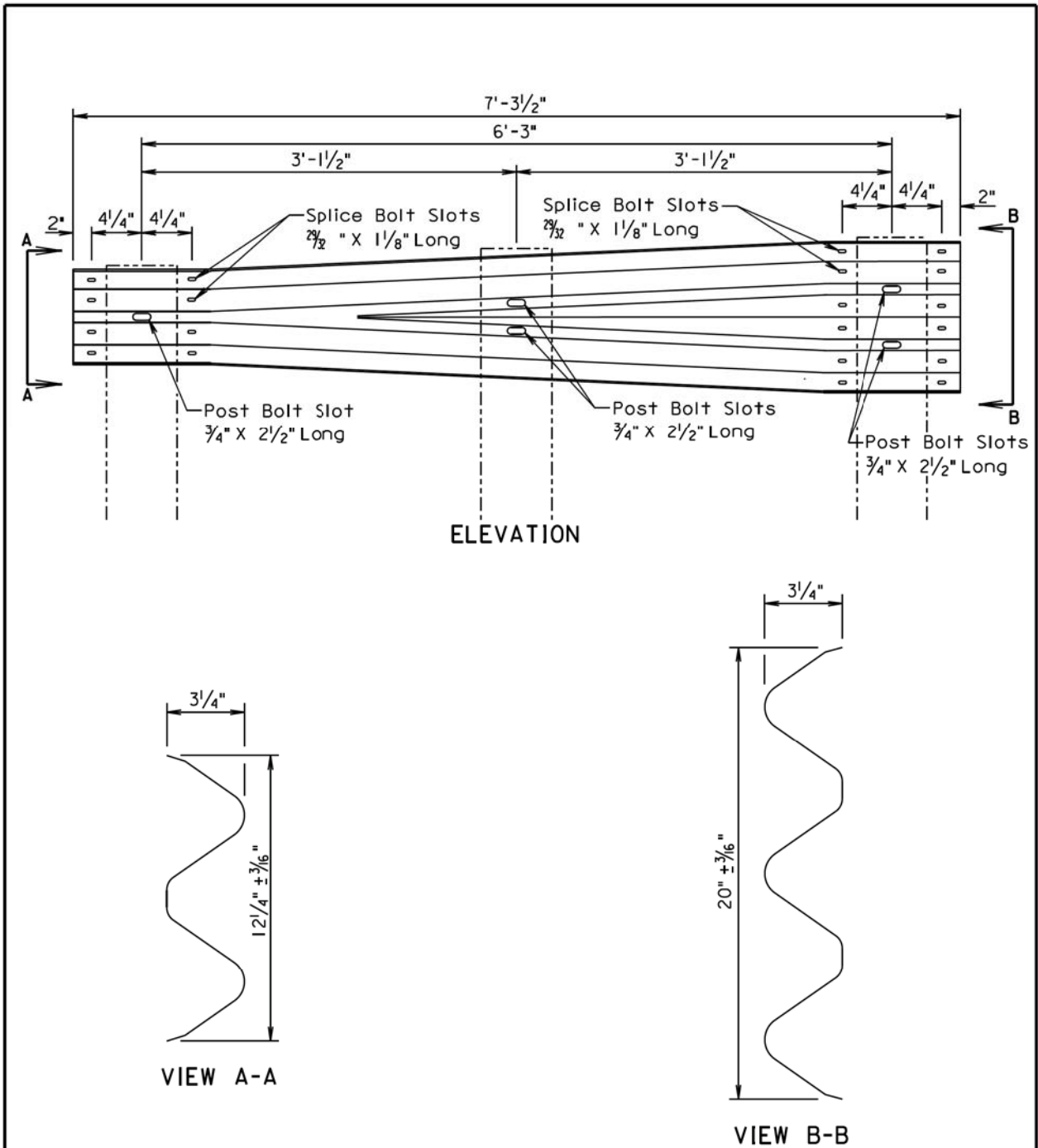
S D D O T	W BEAM GUARDRAIL BREAKAWAY CABLE TERMINAL	PLATE NUMBER 630.47
		Sheet 3 of 3

Published Date: 2nd Qtr. 2014

June 26, 2010

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0013(31)127, 0001-169, & 000P-169		
		32	32

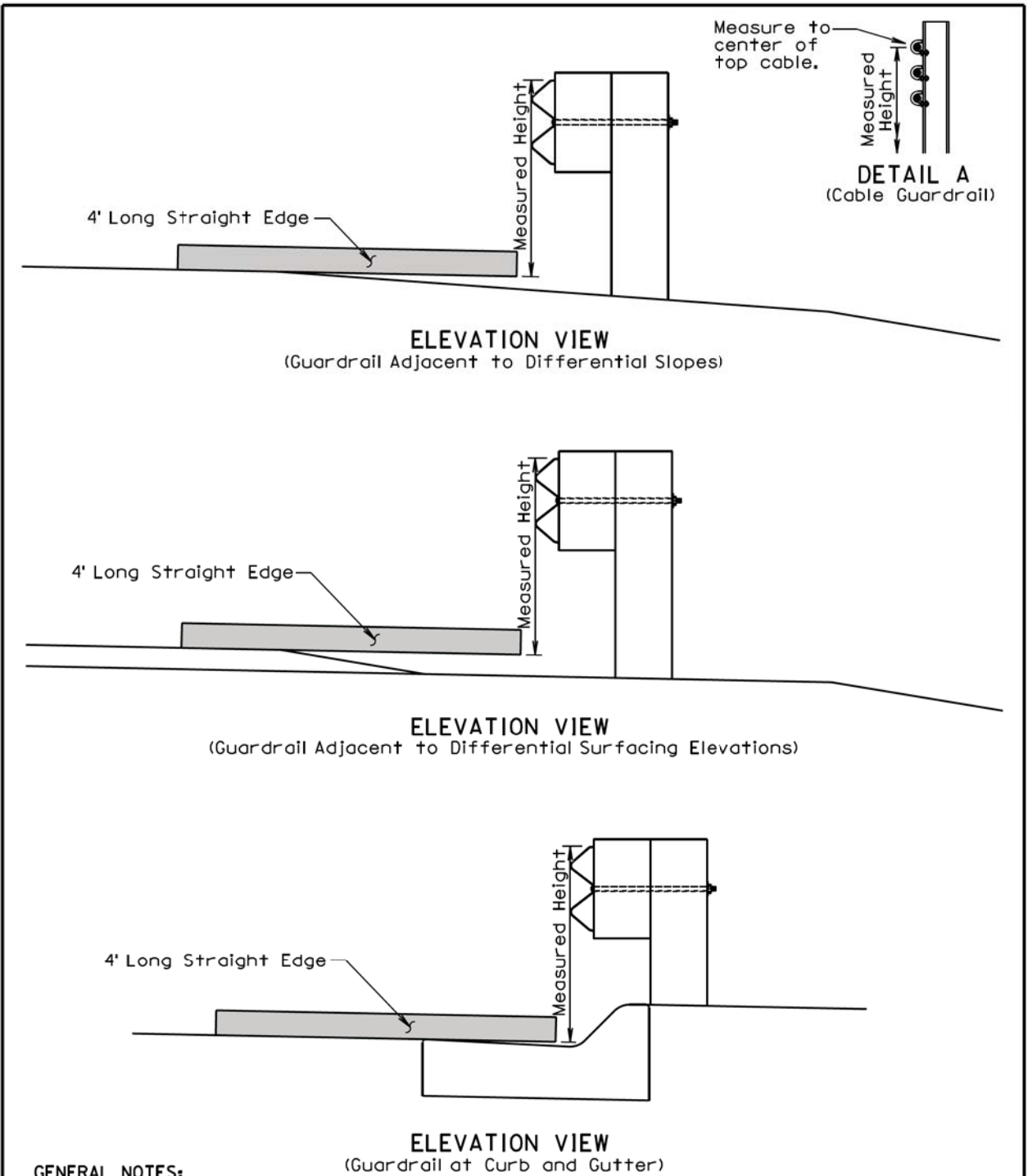
Plotting Date: 07/17/2014



GENERAL NOTE:
All costs for constructing the W Beam to Thrie Beam Guardrail Transition including labor, equipment, and materials including two posts, two blocks, W beam to thrie beam transition section, and hardware shall be incidental to the contract unit price per each for "W Beam to Thrie Beam Guardrail Transition".

March 31, 2000

<i>Published Date: 2nd Qtr. 2014</i>	S D D O T	W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.82
			Sheet 1 of 1



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

<i>Published Date: 2nd Qtr. 2014</i>	S D D O T	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.98
			Sheet 1 of 1