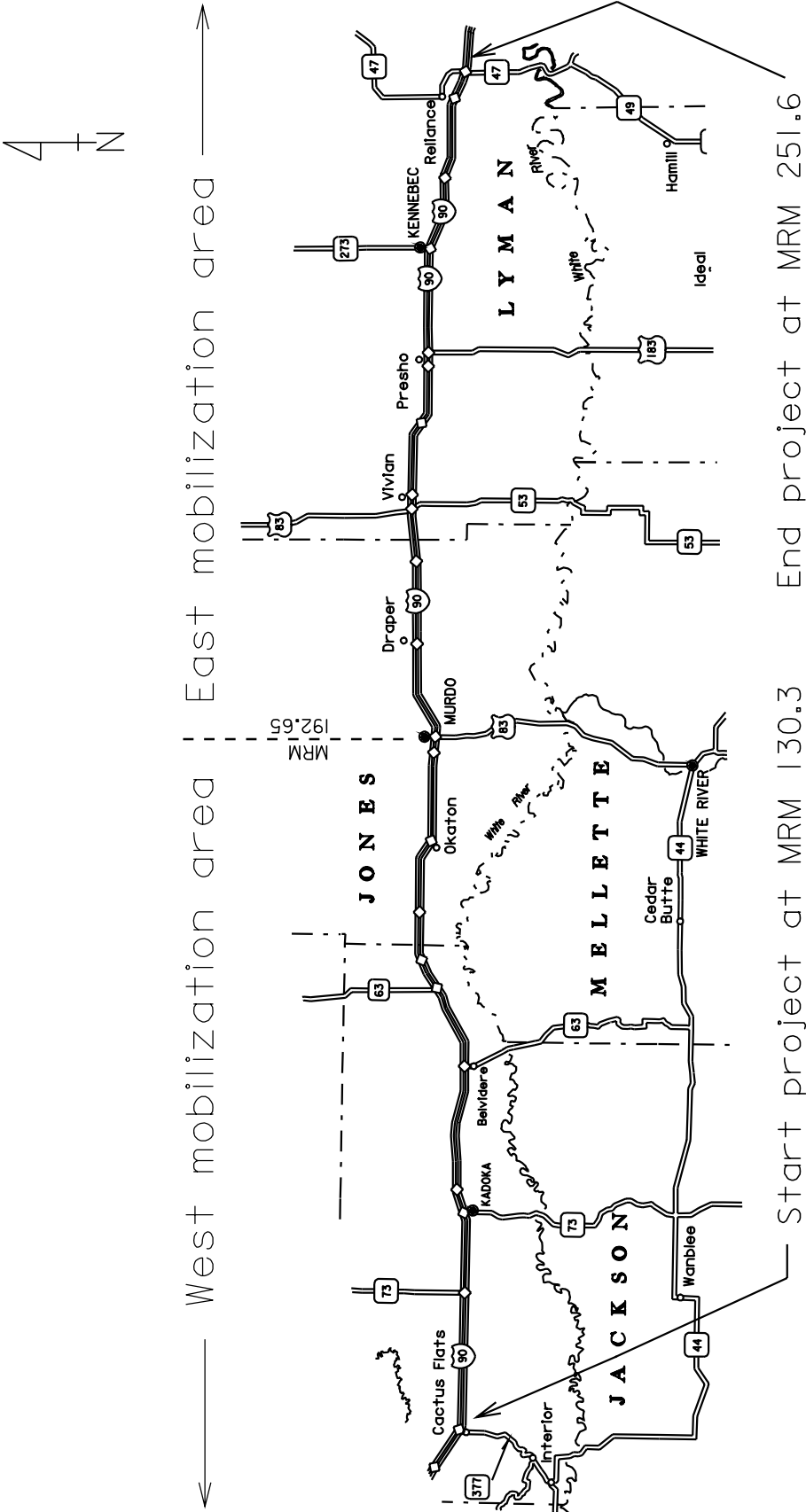




ESTIMATE OF QUANTITIES

Bid Item Number	Item	Quantity	Unit
009E0197	Mobilization 1	3	Each
009E0198	Mobilization 2	4	Each
110E0700	Remove 3 Cable Guardrail	500	Ft
110E0730	Remove Beam Guardrail	300.0	Ft
110E0770	Remove W Beam Guardrail Breakaway Cable Terminal	1	Each
110E0790	Remove W Beam Guardrail Deformed End	1	Each
110E0800	Remove W Beam Guardrail End Terminal	1	Each
110E6230	Remove W Beam Guardrail for Reset	25.0	Ft
120E0600	Contractor Furnished Borrow	25	CuYd
260E1100	Base Course, State Furnished	25.0	CuYd
320E1902	State Furnished Asphalt Concrete Cold Mix	25.0	CuYd
629E0100	3 Cable Guardrail	50	Ft
629E0300	3 Cable Guardrail Slip Base Anchor Assembly	1	Each
629E0400	3 Cable Guardrail Anchor Assembly	1	Each
629E1000	Repair 3 Cable Guardrail	3,000	Ft
629E1100	3 Cable Guardrail End Post	10	Each
629E1102	3 Cable Guardrail Intermediate Post	100	Each
629E1103	3 Cable Guardrail Slip Base Anchor Post	2	Each
629E1104	3 Cable Guardrail Post, Winter	60	Each
629E1106	Drive Down 3 Cable Guardrail Post	20	Each
629E1108	Reset 3 Cable Guardrail Post	35	Each
629E1110	Cable Anchor Bracket	1	Each
629E1112	Cable Splice	5	Each
629E1114	3 Cable Guardrail J Hook Bolt	350	Each
629E1116	Steel Turnbuckle Cable End Assembly	2	Each
629E1118	Spring Cable End Assembly with Turnbuckle	3	Each
629E1120	W Beam to 3 Cable Transition Bracket	2	Each
629E1122	3 Cable Guardrail End Post Cap	7	Each
630E0200	Straight Class A Thrie Beam Rail	75.0	Ft
630E0210	Straight Class B Thrie Beam Rail	25.0	Ft
630E1200	Straight Class A W Beam Rail	200.0	Ft
630E1210	Straight Class B W Beam Rail	125.0	Ft
630E2000	W Beam to Thrie Beam Guardrail Transition	1	Each
630E2010	W Beam Guardrail End Terminal	1	Each
630E2030	W Beam Guardrail Breakaway Cable Terminal	1	Each
630E2110	Beam Guardrail Post and Block	35	Each
630E2120	Beam Guardrail Post and Block, Winter	10	Each
630E2205	Breakaway Cable Terminal End Post	2	Each
630E2210	Breakaway Cable Terminal End Rail	1	Each
630E2215	W Beam Guardrail End Section Buffer	2	Each
630E5160	Reset W Beam Rail	25.0	Ft
630E5220	Reset Rubrail	25.0	Ft
630E5520	Drive Down Beam Guardrail Post	10	Each
630E5530	Remove and Reset Beam Guardrail Post and Block	15	Each
630E5550	Reset Beam Guardrail Post and Block	15	Each
634E0010	Flagging	5	Hour
634E0100	Traffic Control	1,888	Unit
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0420	Type C Advance Warning Arrow Panel	1	Each

SPECIFICATIONS

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

COMPLETION DATE

The contract will become effective on July 1, 2009 and will expire on June 30, 2010.

LOCATION

Guardrail repair will be limited to the section of Interstate 90 located in the South Dakota Department of Transportation Winner Area. This stretch of Interstate is located in Jackson, Jones, and Lyman Counties from MRM 130.3 to MRM 251.6. The Winner Area Engineer will inform the successful bidder of any areas that are to be exempted from guardrail repair due to active construction projects. This information will detail the exemption limits from Mile Reference Marker to Mile Reference Marker and date to date that guardrail repair will not be conducted.

MINIMUM WAGE RATES

The Special Provision regarding Minimum Wage on State Funded Projects shall be applicable if the amount of this contract, as awarded, is \$100,000 or more.

ESTIMATED QUANTITIES

The Contractor shall furnish and install guardrail material as per the Contract Proposal. The quantities for each item are estimated to establish a pay unit. The actual amount of work required may vary greatly from the Estimate of Quantities. There will be **NO** negotiation for overruns or underruns on this contract.

MOBILIZATION

Mobilization 1 is the cost of mobilization per each time the Contractor is called in by the Winner Area Engineer, or his designated representative, to perform guardrail repair within the Winner Area east of the bridge structure located on Highway 83 over Interstate 90 (Winner Area East of Murdo). This structure is located at MRM 192.65.

Mobilization 2 is the cost of mobilization per each time the Contractor is called in by the Winner Area Engineer, or his designated representative, to perform guardrail repair within the Winner Area, at or west of the bridge structure located on Highway 83 over Interstate 90 (Winner Area West of Murdo). This structure is located at MRM 192.65.

Mobilization will be paid once each time the Contractor is called to repair guardrail, regardless of the number of sites requiring repair within the project limits. Mobilization will be paid at the higher of the two Mobilization bid items if the contractor is required to repair guardrail at sites both east and west of the dividing line located at MRM 192.65.

GENERAL MAINTENANCE OF TRAFFIC

The Contractor will maintain traffic in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), Section 4.4 and Section 634 of the Standard Specifications, and the details in these plans.

The Contractor shall designate an employee whose responsibility is the maintenance of traffic, 24 hours a day, 7 days a week. The name and phone number of person(s) shall be provided to the SD Department of Transportation (842-0810), SD Highway Patrol (Pierre State Radio 773-3536), Jackson County Sheriff Department (837-2285), Jones County Sheriff Department (669-7111) and Lyman County Sheriff Department (869-2267).

The plan quantity for Traffic Control is the required number of traffic control devices to construct one work zone for each mobilization. Additional traffic control devices will be counted and paid if the contractor has a large enough crew to work at two work sites simultaneously. Signs that are reused at different sites during the same mobilization shall be paid for only once. Signs may have tabs or be hinged to expedite changing the message but they will be considered as one sign for payment. Traffic control devices will be counted and paid each time the Contractor is mobilized to repair guardrail. The Type C Advance Warning Arrow Panel bid item, if used, shall be paid for only once for the time duration of this project.

Equipment will be confined to the shoulder, a driving lane closed to traffic, or a passing lane closed to traffic. Closure of both driving and passing lanes simultaneously will not be permitted.

The Contractor shall not cross interstate medians to travel between work sites in opposite interstate lanes. Contractor employees will not be allowed to use the SDDOT maintenance crossovers.

Work activities shall be conducted during daylight hours only. Traffic shall be returned to the normal driving lanes during non-working hours. Storage of vehicles and equipment shall be outside the clear zone and as near as possible to the right-of-way line.

All equipment and vehicles entering or exiting the roadway, traveling on the shoulders, traveling at speeds less than 40 MPH between work sites, or working within the right-of-way shall be equipped with an activated high intensity flashing or revolving yellow light to warn the traveling public.

UTILITIES

The Contractor is required to comply with South Dakota Codified Law and Administrative Rule addressing excavation activities. Notification of Utility companies will be in accordance with Section 5.6 of the Standard Specifications. South Dakota One Call phone number is 1-800-781-7474.

BASE COURSE, STATE FURNISHED

The Contractor may be required to install Base Course, State Furnished on this project. This base course shall be compacted to the satisfaction of the Engineer.

Base Course, State Furnished will be available from the SDDOT maintenance unit sites located at Murdo (Exit 192) and Presho (Exit 226). This material can be used without testing.

The final quantity to be paid will be based on loose volume of cubic yards hauled in each truckload. All costs for placement of base material shall be incidental to the contract price per cubic yard for "Base Course, State Furnished".

All other requirements of the Standard Specifications for Base Course shall apply.

Furnish cost to the State for the Base Course, State Furnished is \$9.00 per ton.

STATE FURNISHED ASPHALT CONCRETE COLD MIX

The Contractor may be required to place State Furnished Asphalt Concrete Cold Mix on this project. This Asphalt Concrete Cold Mix shall be compacted to the satisfaction of the Engineer.

State Furnished Asphalt Concrete Cold Mix type material will be supplied by the SDDOT and will be available from the SDDOT maintenance unit site located at Murdo (Exit 192).

The final quantity to be paid will be based on loose volume of cubic yards hauled in each truckload. All costs for placement of asphalt cold mix shall be incidental to the contract price per cubic yard for "State Furnished Asphalt Concrete Cold Mix".

This material is royalty free to the Contractor.

Furnish cost to the State for the State Furnished Asphalt Concrete Cold Mix type material is \$77.00 per ton.

RESTORATION OF DISTURBED AREAS

Areas disturbed as a result of work necessary under this Contract shall be reshaped and/or restored to the satisfaction of the Engineer.

Slopes and berms disturbed shall be leveled and excess material removed. Area shall be tilled to the minimum depth of three inches and seeded with Intermediate Wheatgrass (Oahe) at the rate of one-half (1/2) pound "Pure Live Seed" per 1000 square feet. The seed shall be noxious weed free. Area shall be fertilized with a commercial fertilizer with a minimum guaranteed analysis of 18-46-0 applied at the rate of two and one-half (2 ½) pounds per 1000 square feet. Cost for reshaping, leveling, removal of excess material, tilling, seeding, and fertilizing disturbed areas on the slopes and berms shall be incidental to the contract unit price for the various items.

CONTRACTOR FURNISHED BORROW

The Contractor shall provide a suitable site for Contractor furnished borrow material. The borrow material shall be approved by the Engineer. The final quantity to be paid will be based on loose volume of cubic yards hauled in each truckload. All costs for placements of borrow material shall be incidental to the contract unit price per cubic yard for "Contractor Furnished Borrow". Compaction of borrow material shall be to the satisfaction of the Engineer. The Contractor is responsible for obtaining all required permits and clearances for the borrow site.

To obtain SHPO clearance, a cultural resources survey may need to be conducted by a qualified archaeologist. The Contractor shall arrange and pay for this survey. In lieu of a cultural resources survey, the Contractor could request a literature search on the site (contact Jim Donohue, State Archaeological Research Center (1-605-394-1937) for the literature search) and provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that no artifacts have been found on the site.

To facilitate prompt SHPO response, the Contractor should submit a cultural resources survey report or the results of the literature search, a legal description of the site, a topographical map with the site clearly marked, along with evidence of prior site disturbance to: Terry Keller, SDDOT Environmental Engineer Supervisor, 700 East Broadway Avenue, Pierre, SD 57501-2586 (1-605-773-3721). Allow 30 days from the date this information is submitted to the Environmental Engineer for SHPO approval.

Restoration of the Contractor furnished borrow site shall be the responsibility of the Contractor.

GUARDRAIL COMPLETION REQUIREMENTS

The Contractor will be notified telephonically by the Winner Area Engineer or his representative each time that guardrail repair is required. This telephonic notification will be confirmed in writing or by fax with notification date, contract completion date, and specific list of sites and repairs to be accomplished during the mobilization listed on this correspondence.

The Contractor shall mobilize a crew to start repair work within 5 working days of notification and will have a maximum of 10 working days, inclusive of the five days for mobilization, to complete the repairs. If additional sites exist, the Contractor will have an additional 5 working days per each additional site to complete the work required.

If the Contractor fails to complete the required work within the time allowed, the Contractor will install an approved safety treatment that complies with NCHRP 350 level 3 to protect the site. Failure to comply with this requirement will necessitate liquidated damages being assessed at a rate of \$500 for each calendar day that the guardrail work remains incomplete for the item of concern. This provision applies up to the contract completion date. After the contract completion date, liquidated damages will be assessed in accordance with Section 8.7 or \$500, whichever is greater.

Section 8.6.A (Working Day Contracts) of the Standard Specifications will be followed, with the following exception. A working day shall be defined as any calendar day between **January 1 and December 31**, inclusive, except Saturdays or legal holidays.

GUARDRAIL

1. When guardrail adjoining bridge ends is ordered to be repaired, the contractor will replace with the same size and type as existing type of guardrail. Post spacing will be in accordance with current specifications. See Standard Plates 630.15, 630.20, 630.21, and 630.50 for post spacing requirements.
2. When the SDDOT instructs the Contractor to replace a W Beam guardrail end terminal, the new W Beam guardrail end terminal shall be of the same type (flared or tangent) that was originally installed. The costs for furnishing and installing the tangent and flared W Beam guardrail end terminals shall be incidental to the contract unit price per each for "W Beam Guardrail End Terminal". All W Beam guardrail end terminals that are replaced shall meet the requirements of NCHRP Report Number 350 Test Level 3 and shall be listed on the South Dakota Department of Transportation Approved Product List.
3. If the ground condition at the site is frozen or has large snow amounts, the portion of embankment and surfacing modification that does not affect guardrail installation or performance will be completed as soon as conditions permit, prior to contract completion date.
4. "Beam Guardrail Post and Block, Winter" is the additional cost for removal and installation of guardrail posts when there is in excess of one foot of solid frozen ground at the work site. This contract unit price will be an additional payment for each post installed under these conditions.
5. "3 Cable Guardrail Post, Winter" is the additional cost for removal and installation of a 3 Cable Guardrail Post (I Beam or Flanged Channel) when there is in excess of one foot solid frozen ground at the work site. This contract unit price will be an additional payment for each post installed under these conditions.
6. "Remove and Reset Beam Guardrail Post & Block" includes removal of wood guardrail post and block and resetting it to proper alignment with the Beam Guardrail. Payment for this work will be the same in frozen or unfrozen ground.

GUARDRAIL (CONTINUED)

7. "Repair 3 Cable Guardrail" includes the cost for replacing and repairing damaged cable, realigning posts, and the tensioning of the entire run of three cable guardrail. Payment for this item is applicable only when broken cable is repaired or the existing cable rail requires realigning and retensioning.
8. "3 Cable Guardrail Intermediate Post" includes the cost for both I Beam and Flanged type of posts. The post for this item shall be furnished and installed consistent with the type of posts presently in place at the proposed repair site.
9. "Beam Guardrail Post and Block" shall include the appropriate size wood block. The Engineer shall designate the proper post length of six, six and one-half, or seven feet as needed to fit the repair situation.
10. The Contractor may be required to furnish some items that are not listed in the Contract Proposal. The Contractor shall furnish the invoice and will be paid invoice cost plus shipping, handling, taxes and 10 percent for profit. The Contractor is required to receive prior approval of the Engineer before making these purchases. Installation cost for these items shall be incidental to the contract unit prices for the various items.

Cost to remove and dispose of damaged guardrail items shall be incidental to the contract unit prices for the various items.
11. The Contractor shall place "State Furnished Asphalt Concrete Cold Mix" around the posts to fill and level any voids created by the driving of the posts through the asphalt. This material will be available at the SDDOT maintenance sites located at the Murdo DOT Maintenance Yard. The material shall be placed ½" high around the post to force the water to drain away from the post. Cost for this work shall be incidental to the contract unit prices for the various guardrail items.

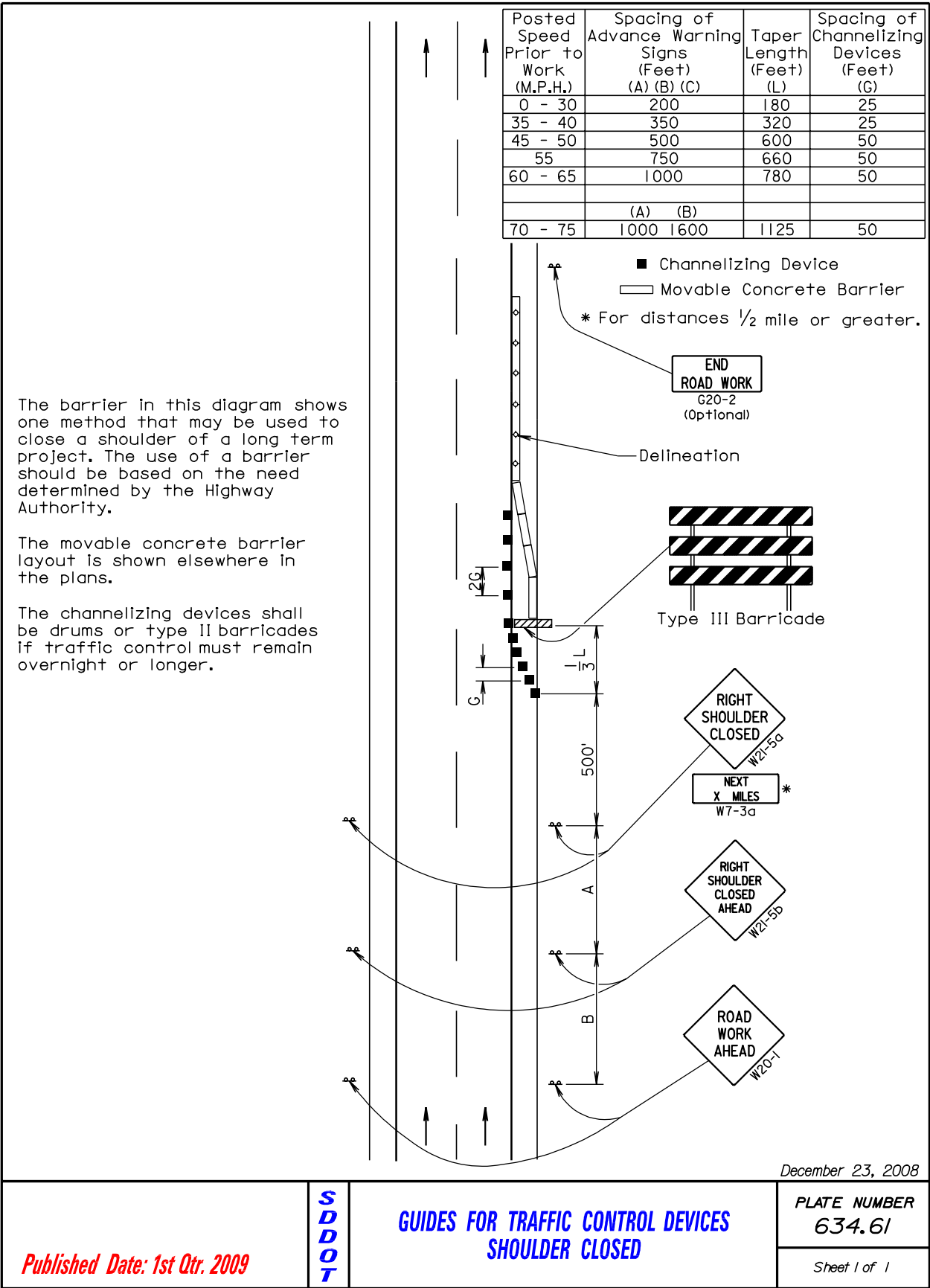
PROGRESS PAYMENTS

At the preconstruction meeting the contractor will be given a Billing Sheet to record the work done at the repair areas. This sheet shall be used by the contractor to record the location of each repair site and the materials required to make repairs.

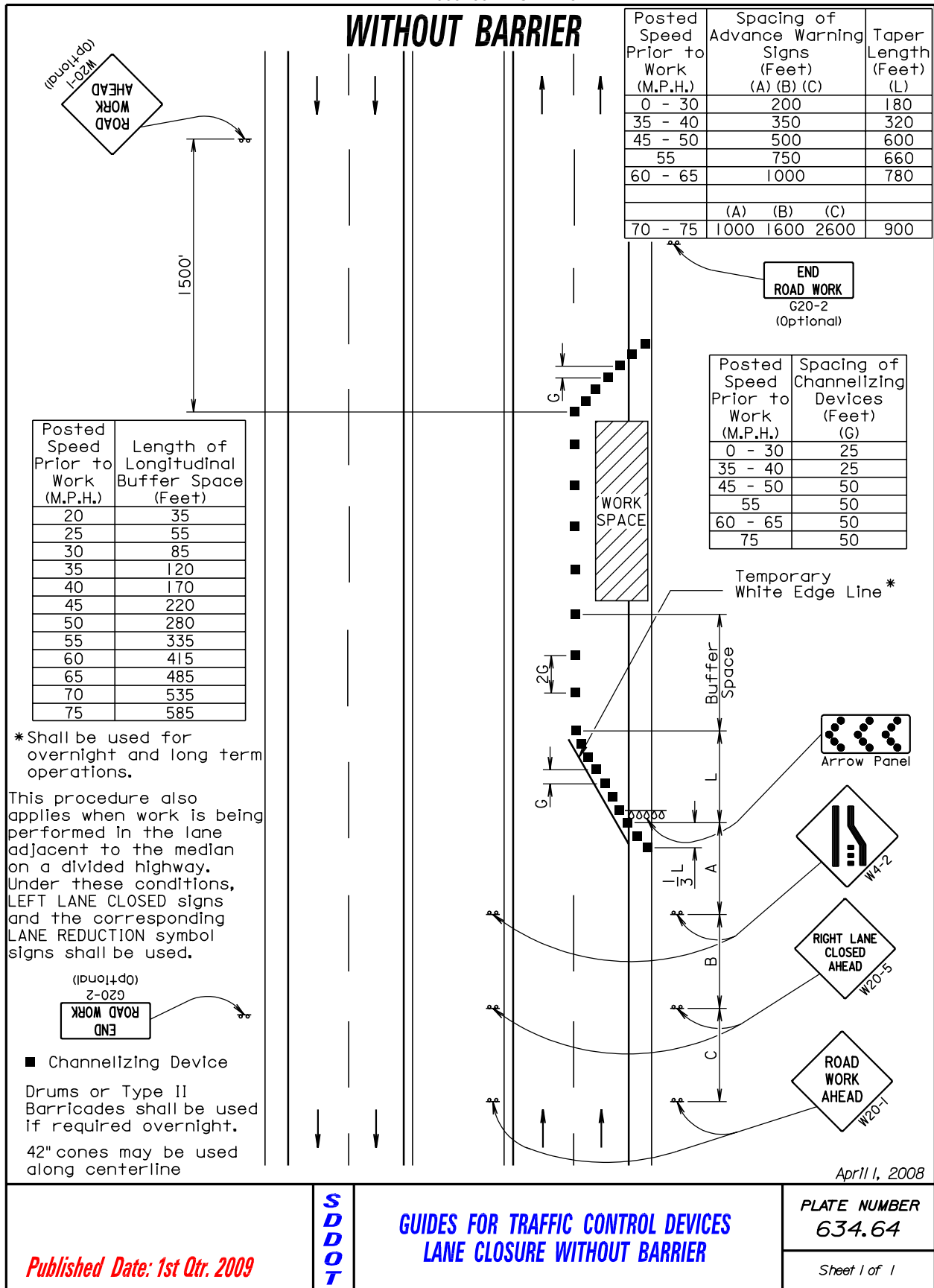
Progress payments will be prepared upon receipt of the Billing Sheet from the contractor for repairs completed.

ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER REQUIRED	UNITS PER SIGN	UNITS
G20-1	48" x 24"	ROAD WORK NEXT ## MILES	0	24	
G20-2A	48" x 24"	END ROAD WORK	1	24	24
R1-1	48" x 48"	STOP	0	34	
R1-2	48" x 48"	YIELD	0	34	
R1-2a	48" x 24"	TO ONCOMING TRAFFIC	0	24	
R2-1	30" x 36"	SPEED LIMIT ##	0	23	
R2-5C	30" x 36"	SPEED ZONE AHEAD	0	23	
R4-1	24" x 30"	DO NOT PASS	0	18	
R4-2	24" x 30"	PASS WITH CARE	0	18	
R4-7	24" x 30"	KEEP RIGHT (SYMBOL)	0	18	
R4-8	24" x 30"	KEEP LEFT (SYMBOL)	0	18	
R10-6	24" x 36"	STOP HERE ON RED	0	20	
R11-2	48" x 30"	ROAD CLOSED	0	27	
SW12-1B	120" x 60"	HIGHWAY WORKERS GIVE 'EM A BRAKE	0	80	
W1-6	48" x 24"	LARGE ARROW	0	24	
W1-7	48" x 24"	LARGE ARROW - HORZ. DOUBLE HEAD	0	24	
W3-1	48" x 48"	STOP AHEAD (SYMBOL)	0	34	
W3-2	48" x 48"	YIELD AHEAD (SYMBOL)	0	34	
W4-1	48" x 48"	MERGE (SYMBOL)	0	34	
W4-2	48" x 48"	LEFT OR RIGHT LANE ENDS (SYMBOL)	2	34	68
W6-3	48" x 48"	TWO WAY TRAFFIC (SYMBOL)	0	34	
W7-3a	30" x 24"	NEXT ## MILES	0	18	
W8-1	36" x 36"	BUMP	0	27	
W8-6	48" x 48"	TRUCK CROSSING	0	34	
W8-7	36" x 36"	LOOSE GRAVEL	0	27	
W8-7A	36" x 36"	WINDROW	0	27	
W8-9a	48" x 48"	SHOULDER DROP-OFF	0	34	
W8-11	48" x 48"	UNEVEN LANES	0	34	
W12-1	36" x 36"	DOUBLE ARROW	0	27	
W13-1	24" x 24"	ADVISORY SPEED PLATE	0	16	
W20-1	48" x 48"	ROAD WORK ##### FT. OR AHEAD	2	34	68
W20-2	48" x 48"	DETOUR ##### FT. OR AHEAD	0	34	
W20-3	48" x 48"	ROAD CLOSED ##### FT. OR AHEAD	0	34	
W20-4	48" x 48"	ONE LANE ROAD ##### FT. OR AHEAD	0	34	
W20-5	48" x 48"	LT. OR RT. LANE CLOSED ##### FT. OR AHEAD	2	34	68
W20-7a	48" x 48"	FLAGGER	2	34	68
W20-7b	48" x 48"	BE PREPARED TO STOP (also shown as W3-4)	0	34	
W21-1a	48" x 48"	WORKERS (SYMBOL)	0	34	
W21-2	36" x 36"	FRESH OIL	0	27	
W21-3	48" x 48"	ROAD MACHINERY AHEAD	0	34	
W21-5	48" x 48"	SHOULDER WORK	0	34	
W21-5a	48" x 48"	RIGHT SHOULDER CLOSED	2	34	68
W21-5b	48" x 48"	RIGHT SHOULDER CLOSED AHEAD	2	34	68
*****	12" x 36"	TYPE III OBJECT MARKER	0	14	
*****	*****	TYPE III BARRICADE - 6 FT. SINGLE SIDED	0	30	
*****	*****	TYPE III BARRICADE - 8 FT. SINGLE SIDED	1	40	40
*****	*****	TYPE III BARRICADE - 6 FT. DOUBLE SIDED	0	42	
*****	*****	TYPE III BARRICADE - 8 FT. DOUBLE SIDED	0	56	
TOTAL UNITS					472



Username - trwilnt26



Published Date: 1st Qtr. 2009

SDOT

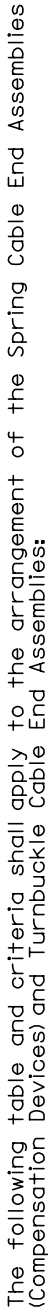
GUIDES FOR TRAFFIC CONTROL DEVICES

LANE CLOSURE WITHOUT BARRIER

PLATE NUMBER

634.64

Sheet 1 of 1



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 + 110	109 + 100	99 + 90	89 + 80	79 + 70	69 + 60	59 + 50	49 + 40	39 + 30	29 + 20	19 + 10	9 + 0	-1 + -10	-11 + -20
Spring Compression (lb.)	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

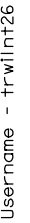
March 28, 2001

SDDOT

3 CABLE GUARDRAIL

PLATE NUMBER
629.01

Sheet 1 of 6



Sheet 2 of 6

SDDOT

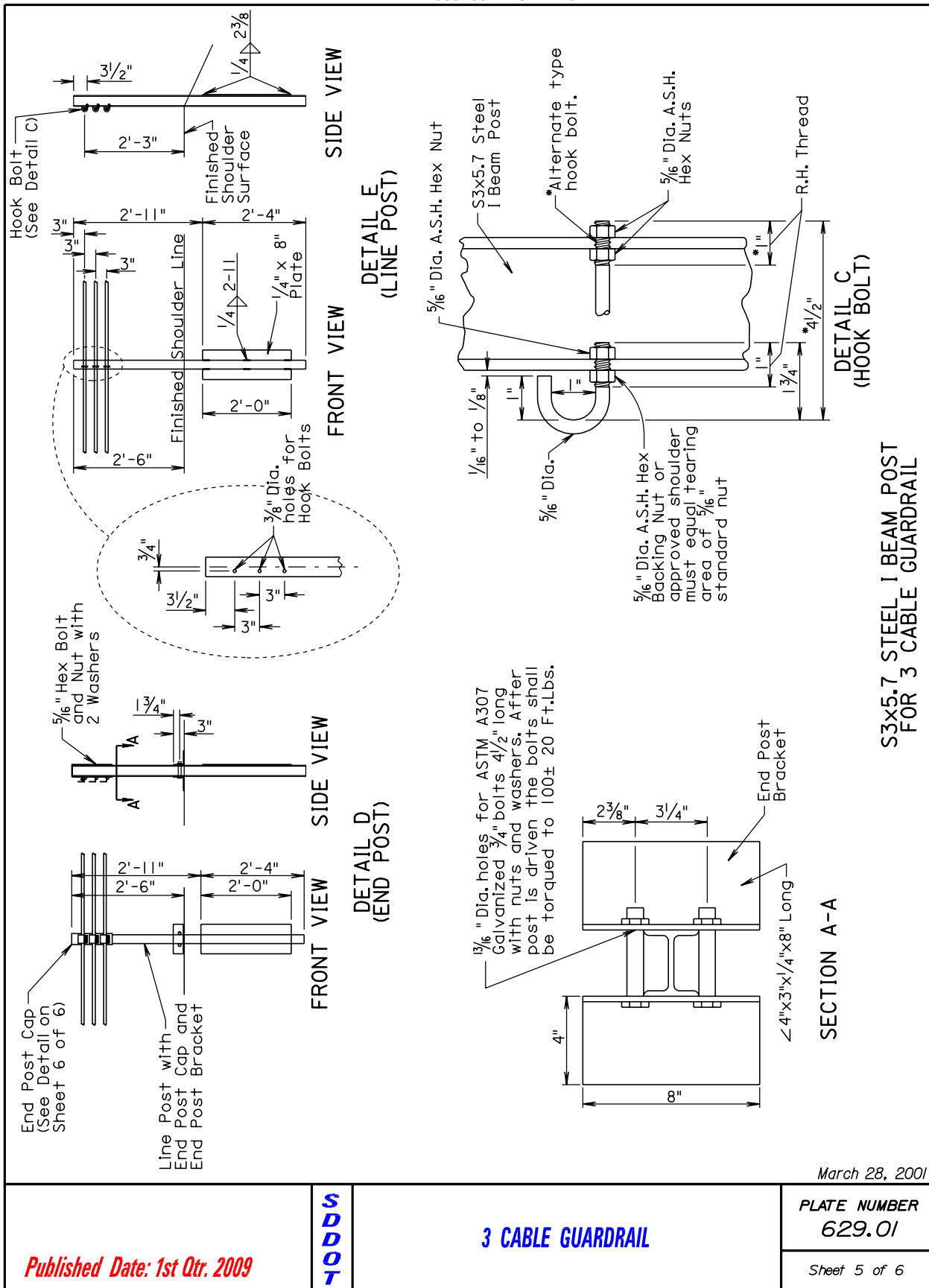
3 CABLE GUARDRAIL

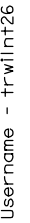


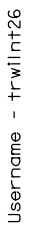
Sheet 3 of 6

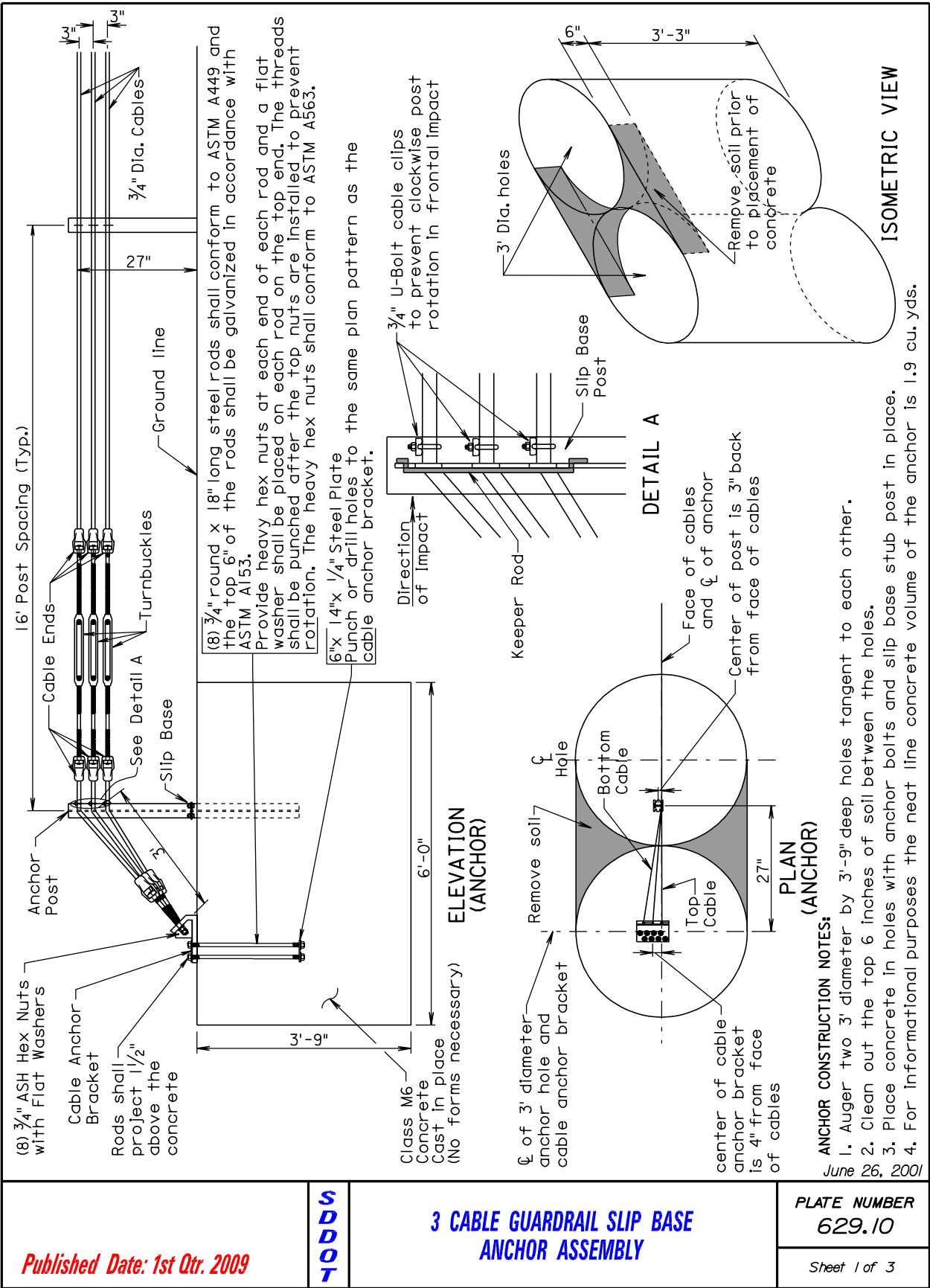


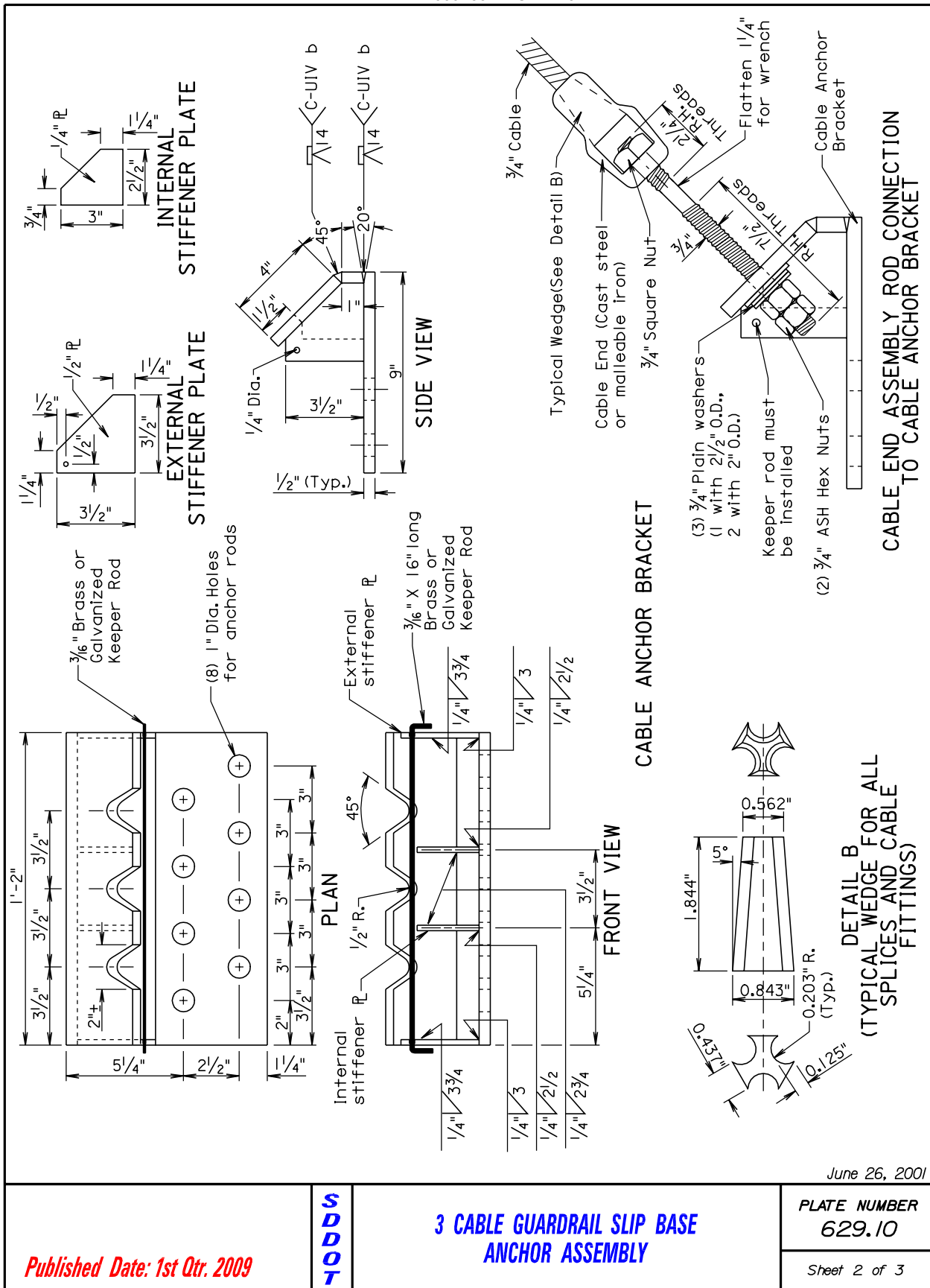
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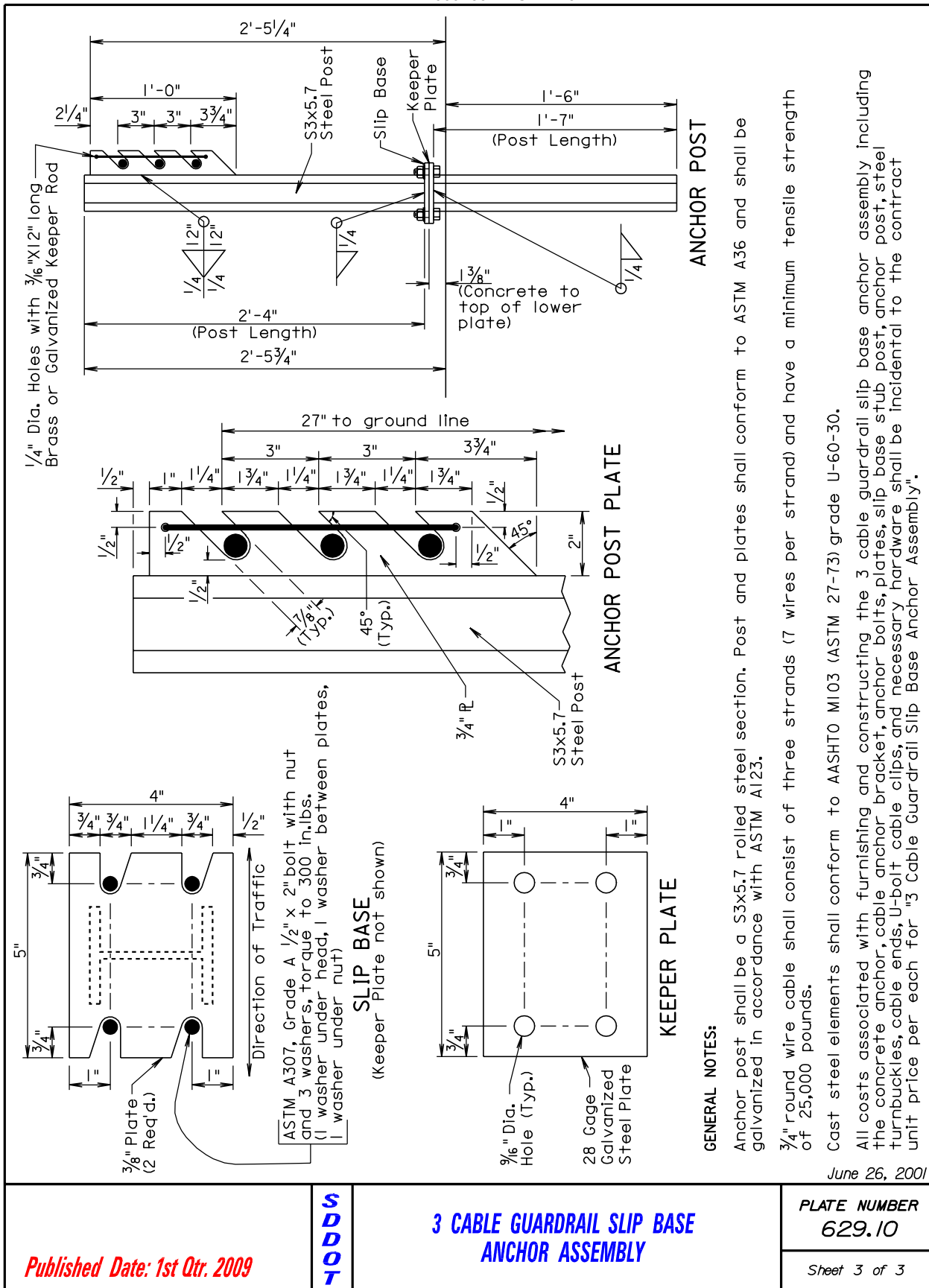


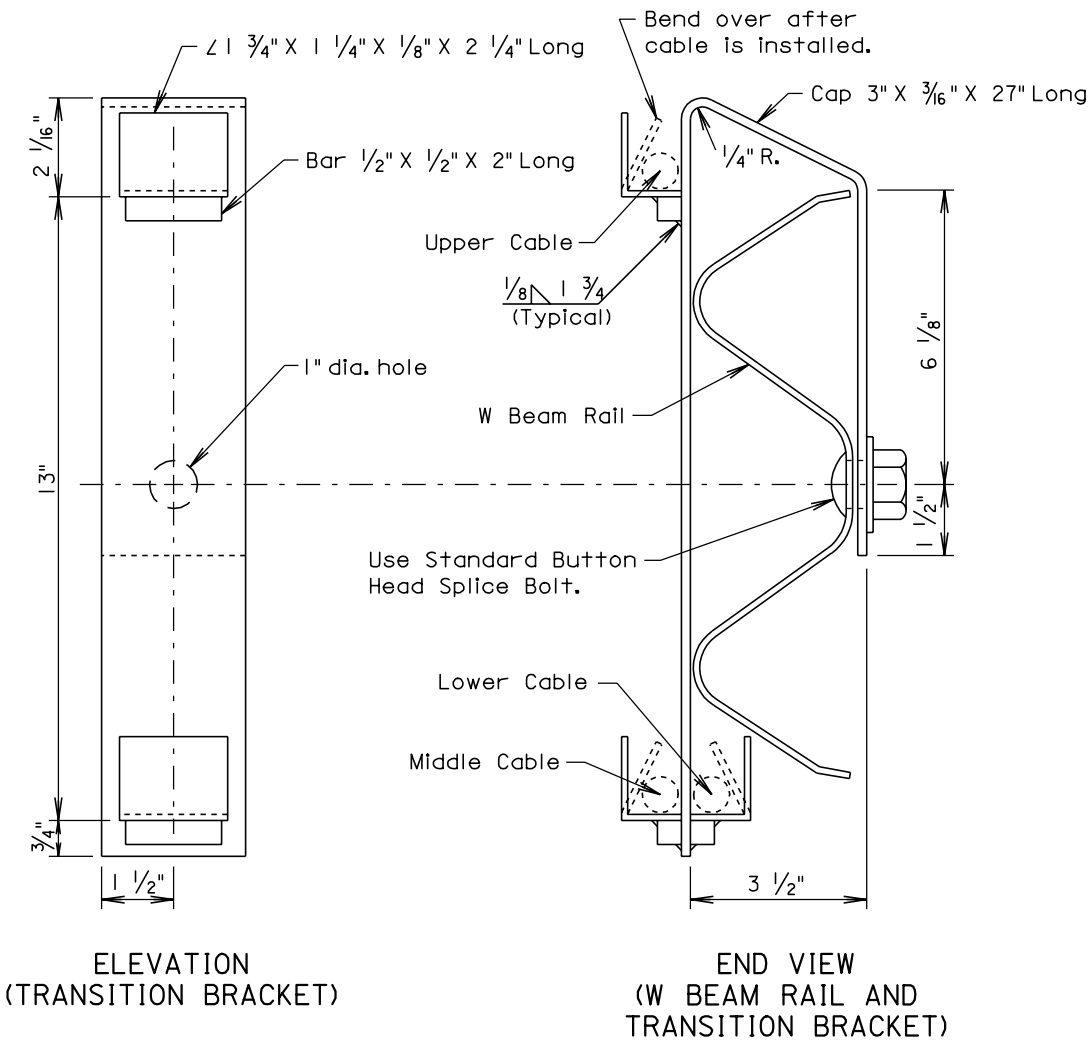










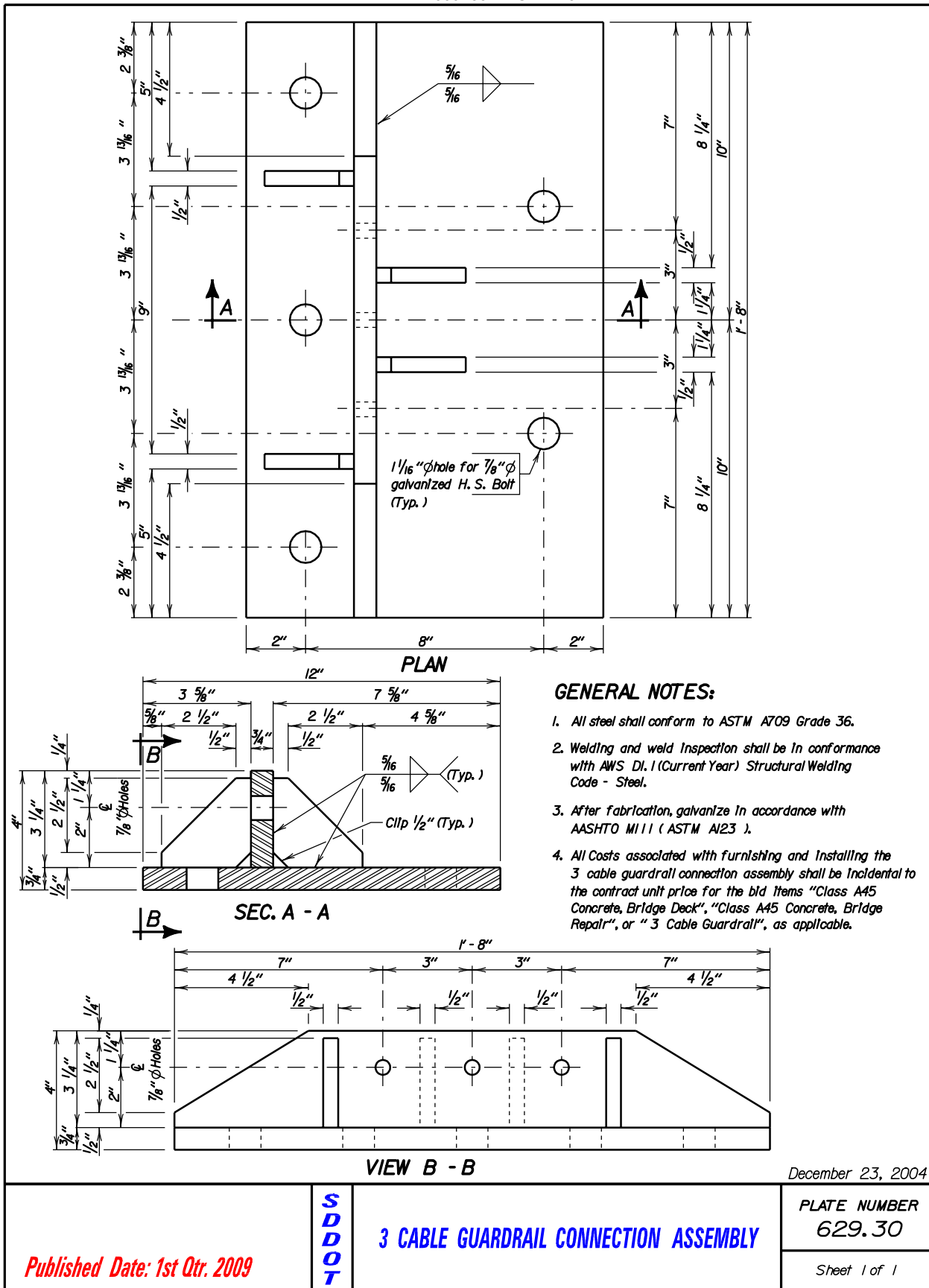


GENERAL NOTES:

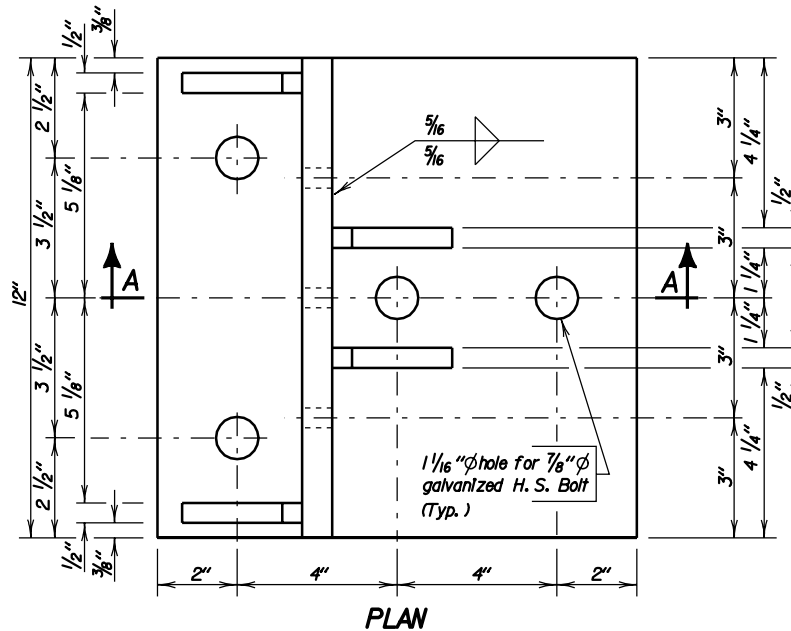
Steel used in the fabrication of the bracket shall conform to ASTM A36 and the bracket shall be galvanized after fabrication in accordance with ASTM A123.

		March 31, 2000	
<i>Published Date: 1st Qtr. 2009</i>	S D D O T	W BEAM TO 3 CABLE TRANSITION BRACKET	PLATE NUMBER 629.15
			Sheet 1 of 1

Plotting Date: 03-FEB-2009

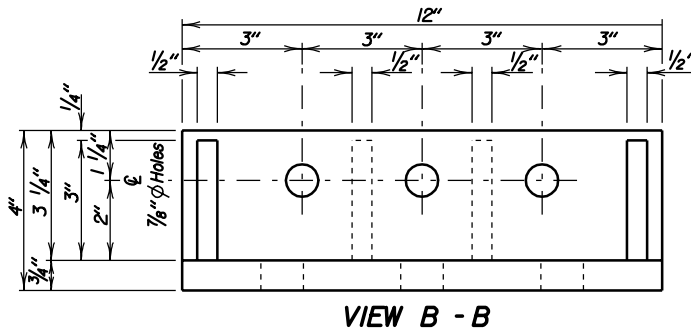
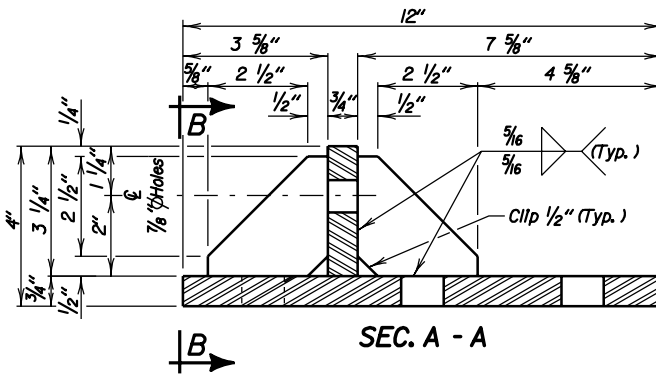


Plotting Date: 03-FEB-2009



GENERAL NOTES:

1. All steel shall conform to ASTM A709 Grade 36.
2. Welding and weld inspection shall be in conformance with AWS D1.1 (Current Year) Structural Welding Code - Steel.
3. After fabrication, galvanize in accordance with AASHTO M111 (ASTM A123).
4. When required, provide 7/8 inch diameter x 2 1/2 inch high strength cap screws with heavy hex heads and plate washers. Cap screws shall conform to the requirements of ASTM A325 or A449. Washers shall be made of steel and meet the dimensional requirements of ANSI B27.2 Type A Plain Washers. Bolts and washers shall be galvanized in accordance with ASTM A153.
5. All Costs associated with furnishing and installing the 3 cable guardrail connection assembly shall be incidental to the contract unit price for the bld items "Class A45 Concrete, Bridge Deck", "Class A45 Concrete, Bridge Repair", or "3 Cable Guardrail", as applicable.



December 23, 2004

Published Date: 1st Qtr. 2009

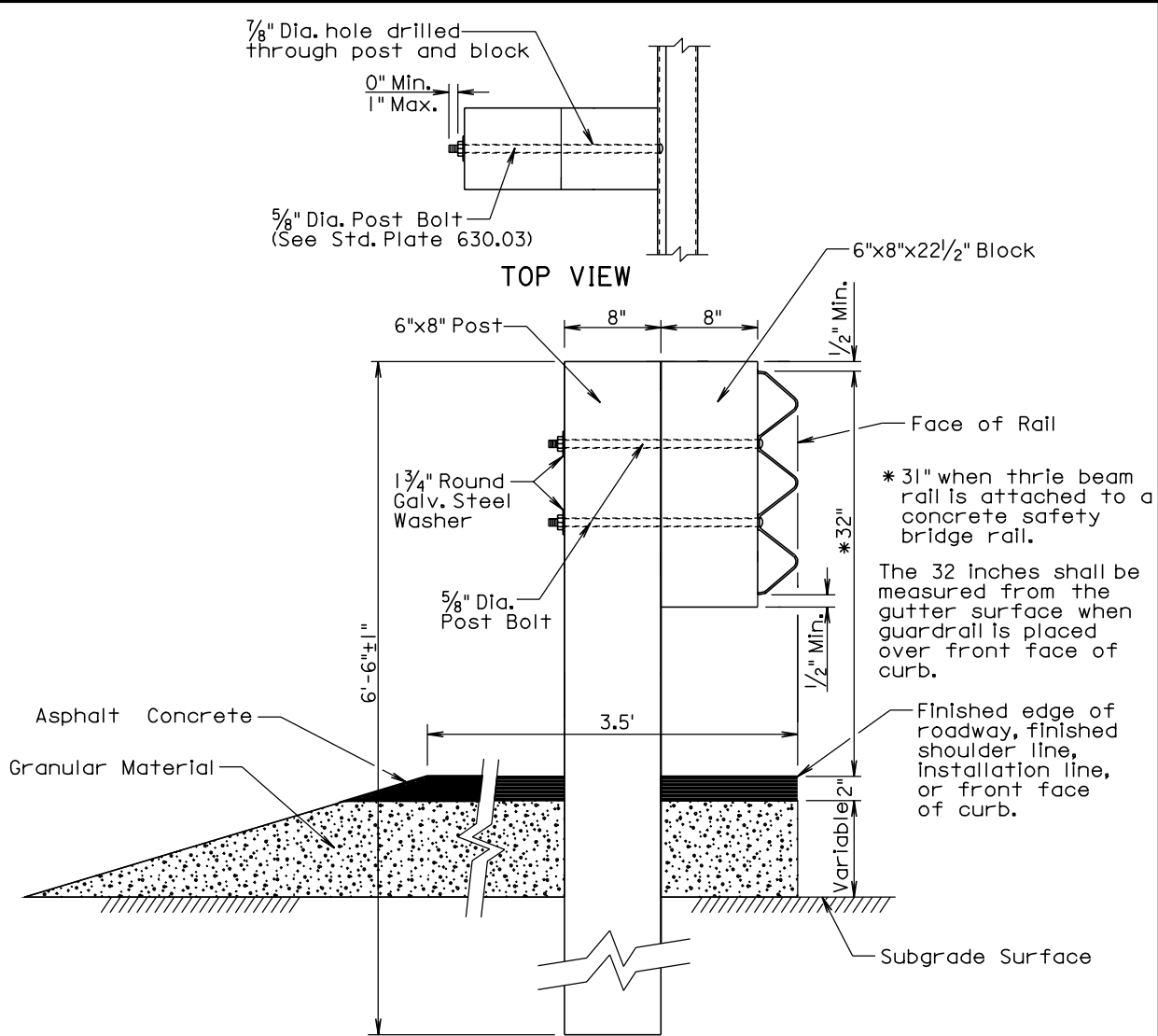
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3 CABLE GUARDRAIL CONNECTION ASSEMBLY

PLATE NUMBER
629.31

Sheet 1 of 1

Plotting Date: 03-FEB-2009



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 "Thrie Beam Guardrail" bid item.

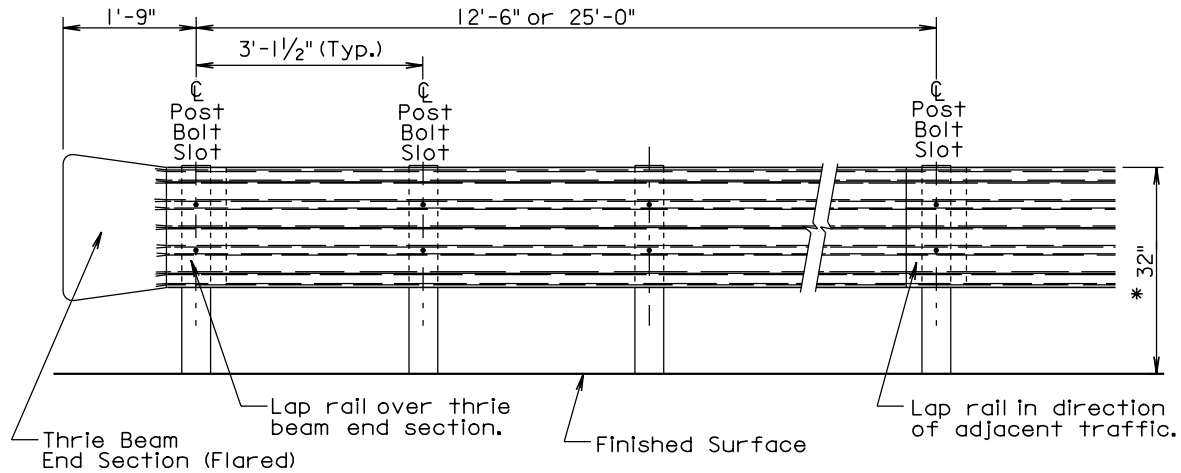
The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

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.

March 31, 2000

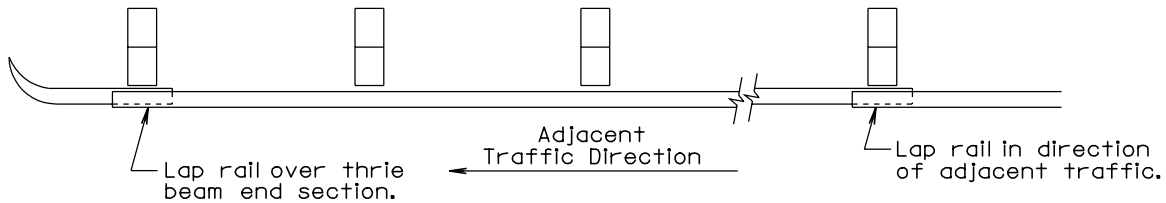
<i>Published Date: 1st Qtr. 2009</i>	SD DOT	THRIE BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.01
			Sheet 1 of 1

Plotting Date: 03-FEB-2009



* 31" when thrie beam is attached to a concrete safety bridge rail.

ELEVATION



PLAN

THRIE BEAM GUARDRAIL DEFLECTION CRITERIA	
POST SPACING	MAXIMUM DEFLECTION
6'-3"	2'-6"
3'-1 1/2"	1'-9"

For Informational Purposes Only

GENERAL NOTES:

All thrie beam rail shall be Type 1.

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

Thrie 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.

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

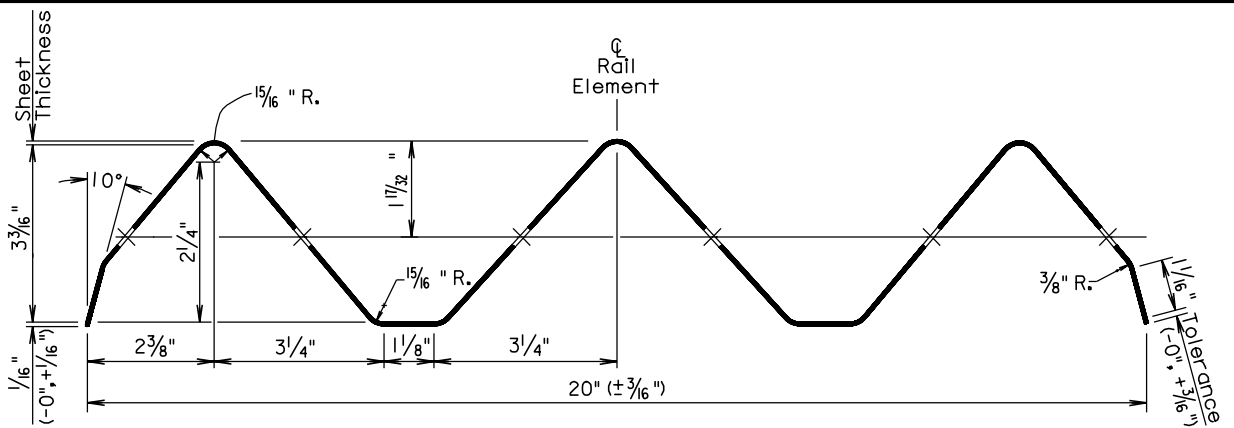
All costs for constructing thrie beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

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

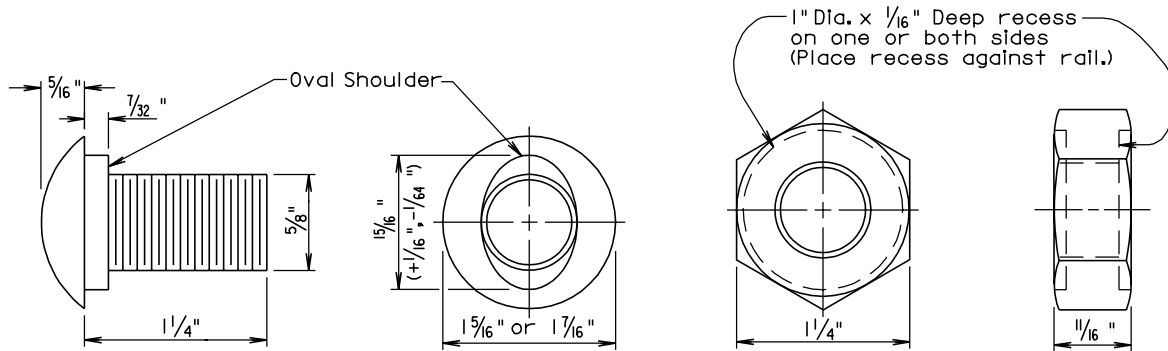
March 28, 2001

Published Date: 1st Qtr. 2009	S D D O T	THRIE BEAM GUARDRAIL INSTALLATION	PLATE NUMBER 630.02
			Sheet 1 of 1

Plotting Date: 03-FEB-2009

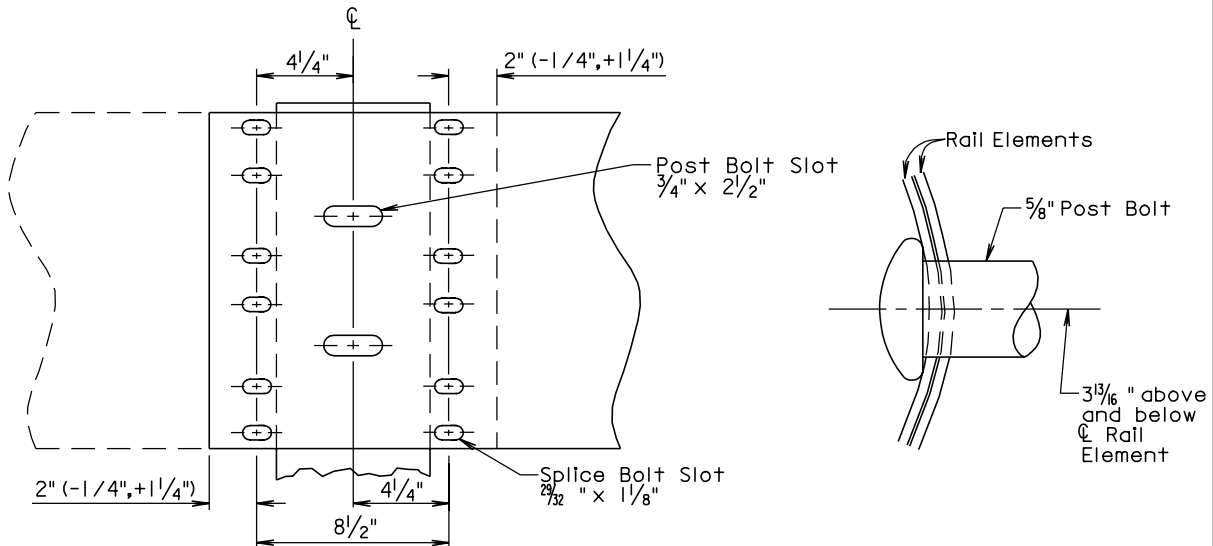


SECTION THROUGH THRIE BEAM RAIL ELEMENT



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

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



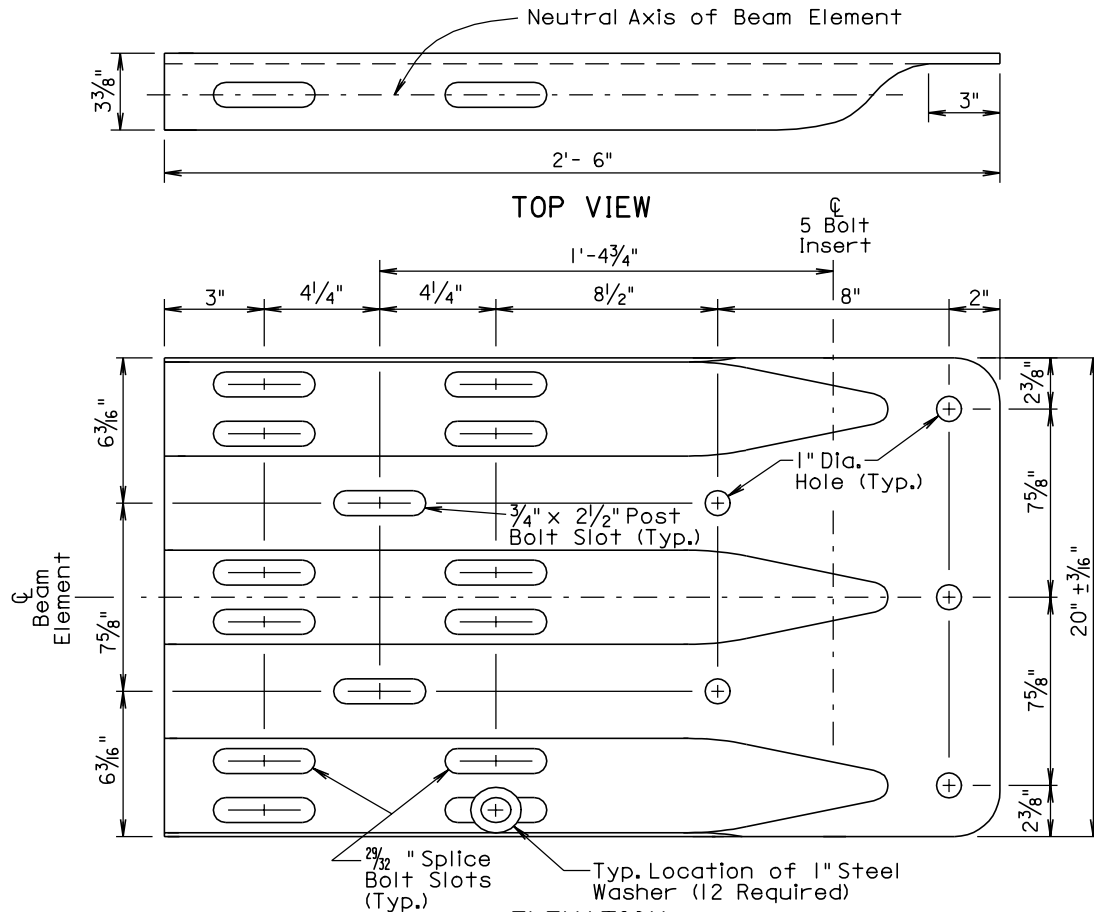
Lap in direction of traffic.

RAIL SPLICE

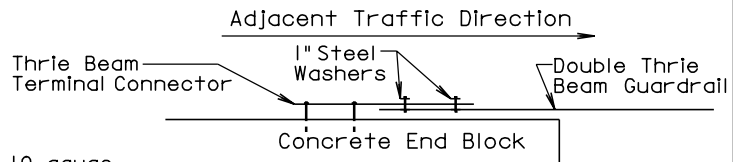
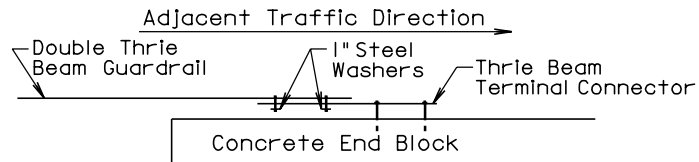
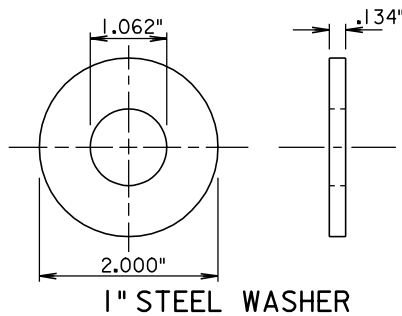
March 31, 2000

<i>Published Date: 1st Qtr. 2009</i>	S D D O T THRIE BEAM RAIL, RAIL SPLICE, AND HARDWARE	PLATE NUMBER 630.03
		Sheet 1 of 1

Plotting Date: 03-FEB-2009



THRIE BEAM TERMINAL CONNECTOR



GENERAL NOTES:

Thrie Beam Terminal Connectors shall be 10 gauge.

When the thrie beam terminal connector is used to connect the rail to the bridge, 1" steel washers shall be used at the lap splice and the washers shall be in direct contact with the 3" slots of the thrie beam terminal connector. See the drawings above for the typical locations of the 1" steel washers.

There will be no separate payment for furnishing and installing the Thrie Beam Terminal Connector. All costs for the Thrie Beam Terminal Connector shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" bid item.

September 14, 2001

Published Date: 1st Qtr. 2009

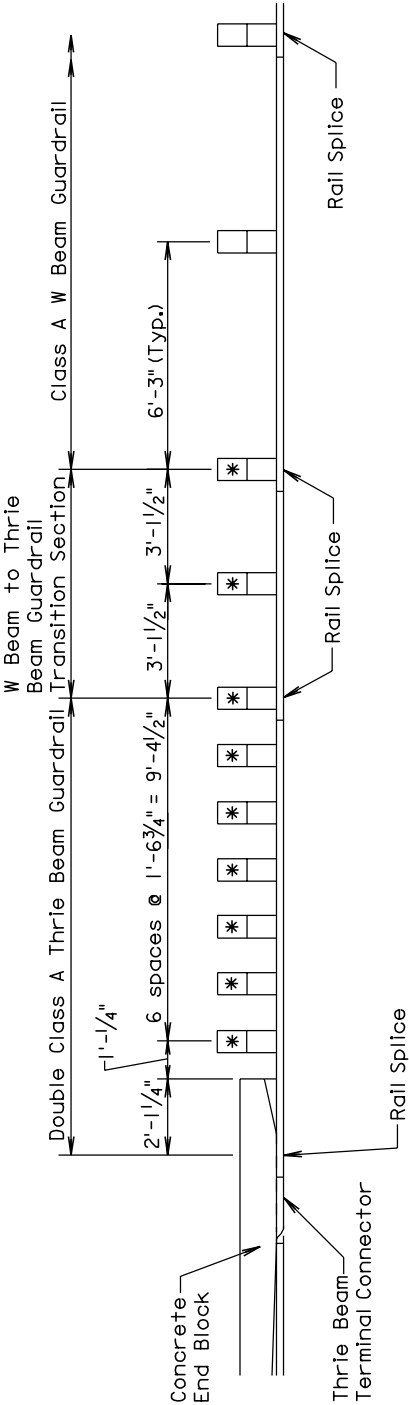
SDOT

THRIE BEAM TERMINAL CONNECTOR
AND 1" STEEL WASHER

PLATE NUMBER
630.05

Sheet 1 of 1

Plotting Date: 03-FEB-2009

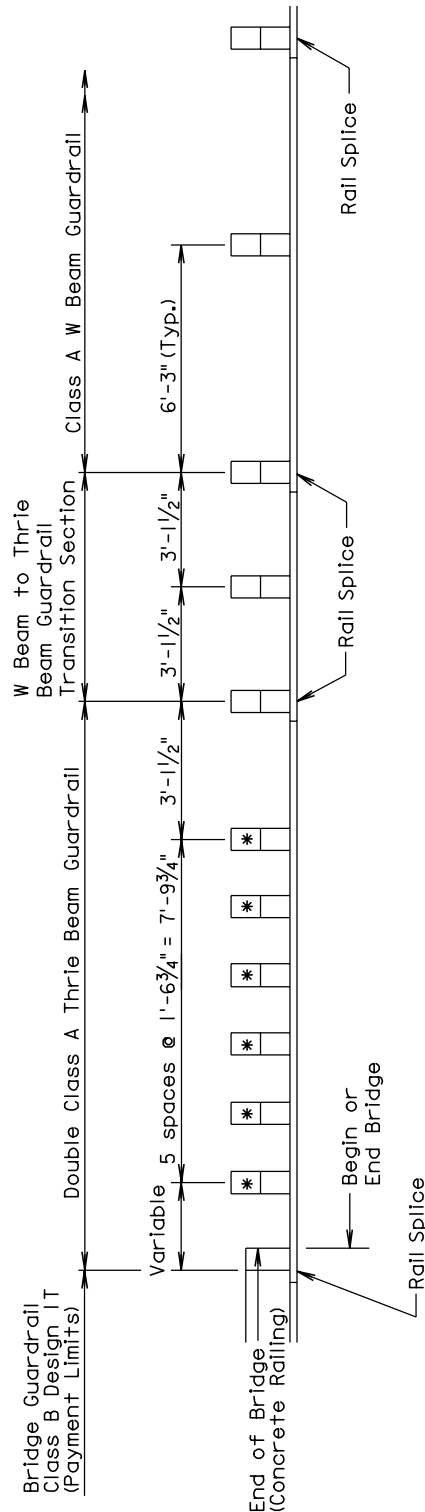


* 6" x 8" x 7' posts shall be used at these locations.

POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END

Published Date: 1st Qtr. 2009	SDOT	POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END	December 23, 2002
			PLATE NUMBER 630.15
			Sheet 1 of 1

Plotting Date: 03-FEB-2009



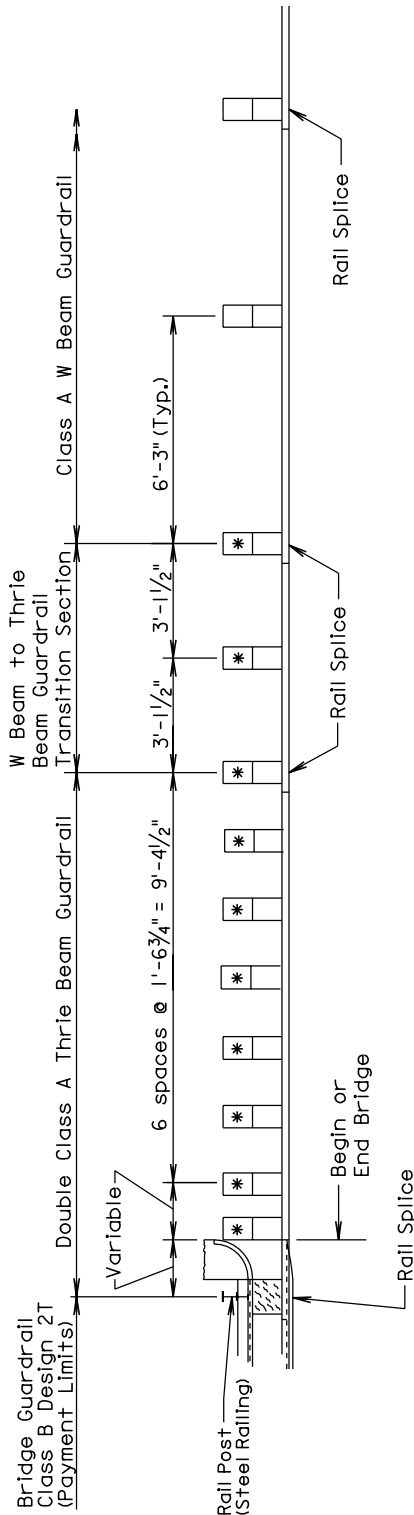
POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END

* 6" x 8" x 7' posts shall be used at these locations.

March 31, 2000

<i>Published Date: 1st Qtr. 2009</i>	S D D T	POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END (BRIDGE GUARDRAIL DESIGN 1T)	PLATE NUMBER 630.20
			Sheet 1 of 1

Plotting Date: 03-FEB-2009



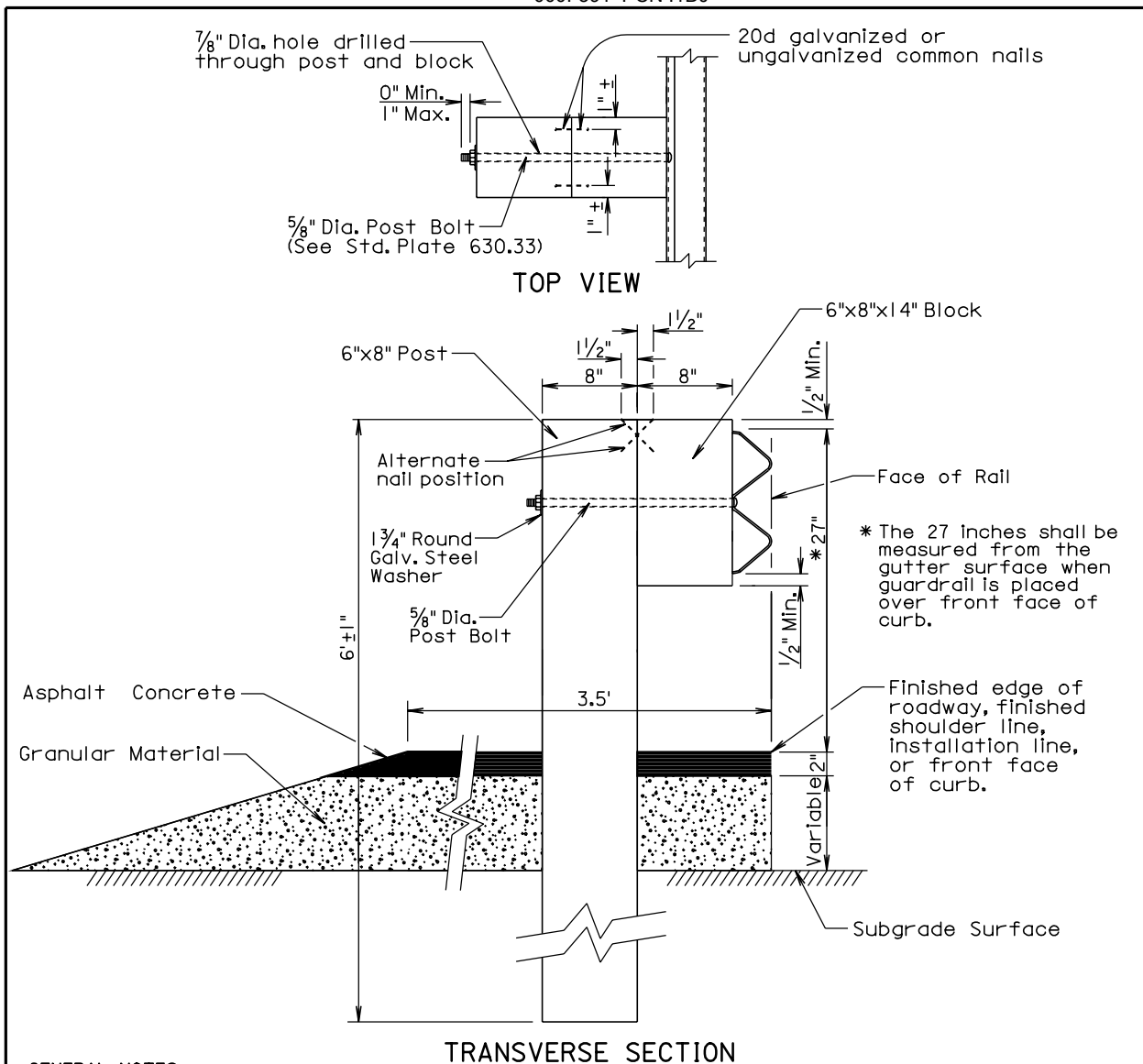
* 6" x 8" x 7' posts shall be used at these locations.

POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END

December 23, 2002

<i>Published Date: 1st Qtr. 2009</i>	S D D O T	POST SPACING ARRANGEMENT FOR THRIE BEAM GUARDRAIL AT BRIDGE END (BRIDGE GUARDRAIL DESIGN 2T)	PLATE NUMBER 630.21
			Sheet 1 of 1

Plotting Date: 03-FEB-2009



Username - trwilnt26

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.

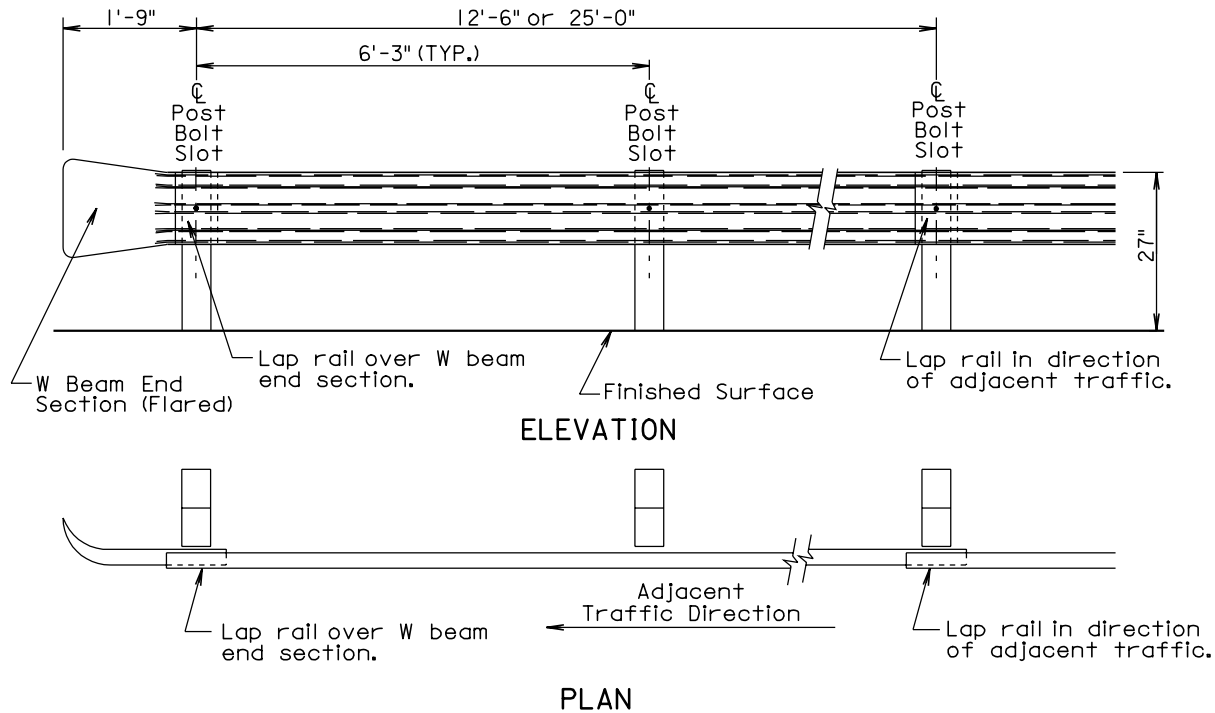
The cross slope for the surfacing and subgrade surface shall be as specified in the plans (See Typical Sections and/or Cross Sections).

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.

September 20, 2000

<i>Published Date: 1st Qtr. 2009</i>	SD DOT	W BEAM GUARDRAIL POST INSTALLATION	PLATE NUMBER 630.31 Sheet 1 of 1
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Plotting Date: 03-FEB-2009



W BEAM GUARDRAIL DEFLECTION CRITERIA	
POST SPACING	MAXIMUM DEFLECTION
6'-3"	3'-3"
3'-1½"	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.

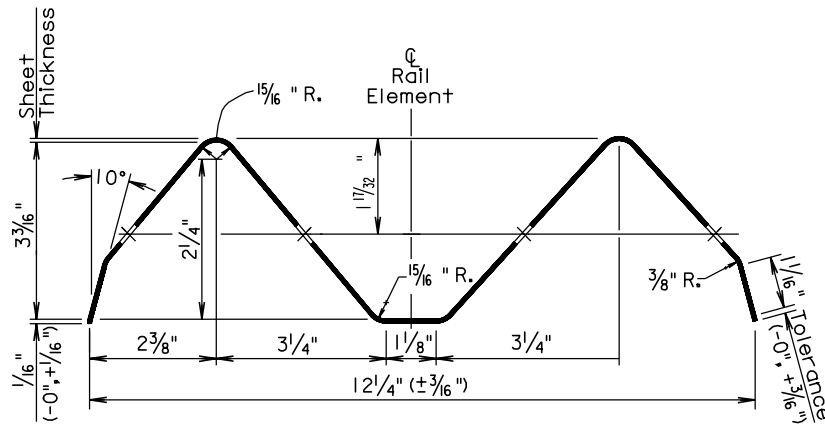
All costs for constructing W beam guardrail including labor, equipment, and materials including all posts, blocks, steel beam rail, and hardware shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

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

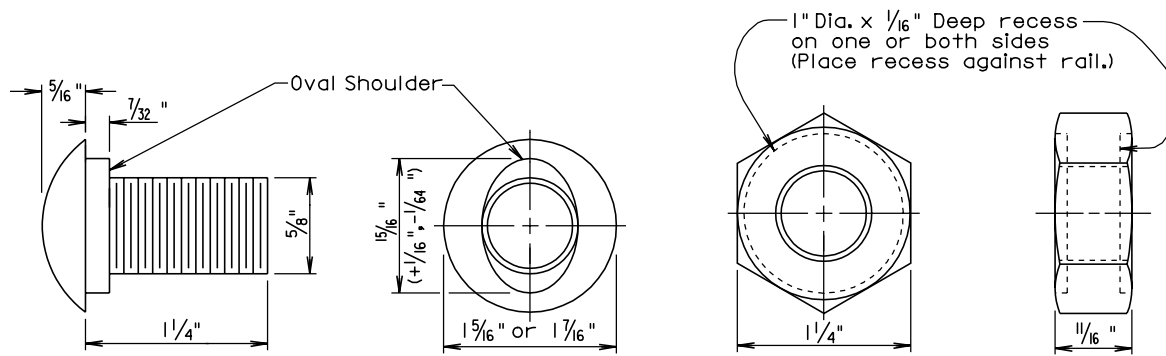
March 28, 2001

Published Date: 1st Qtr. 2009	S D D O T	W BEAM GUARDRAIL INSTALLATION	PLATE NUMBER 630.32
			Sheet 1 of 1

Plotting Date: 03-FEB-2009

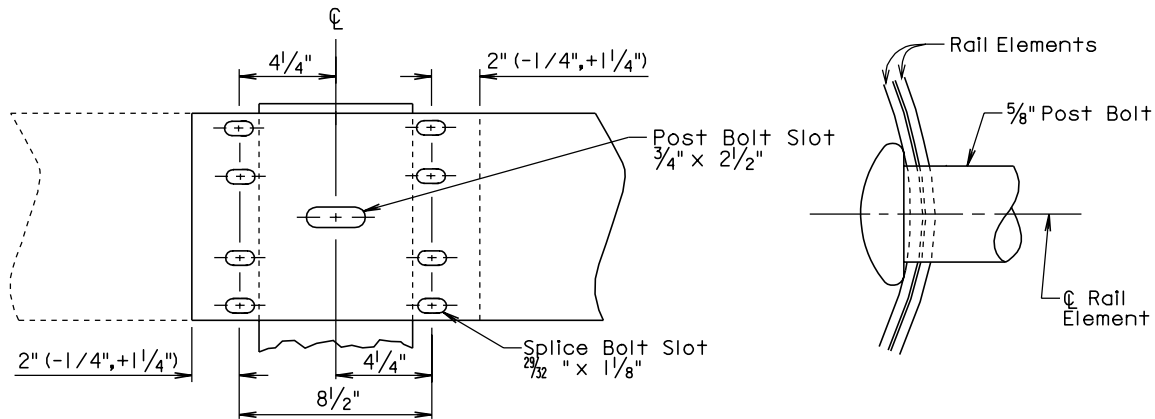


SECTION THROUGH W BEAM RAIL ELEMENT



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

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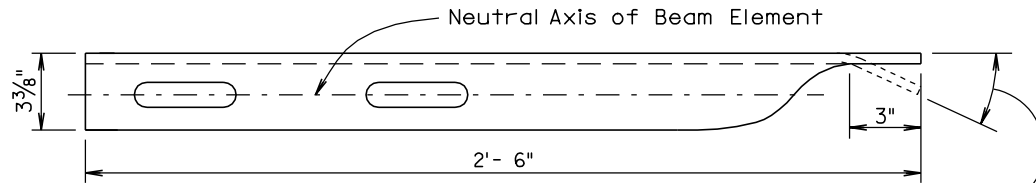
W BEAM RAIL, RAIL SPLICE, AND HARDWARE

**PLATE NUMBER
630.33**

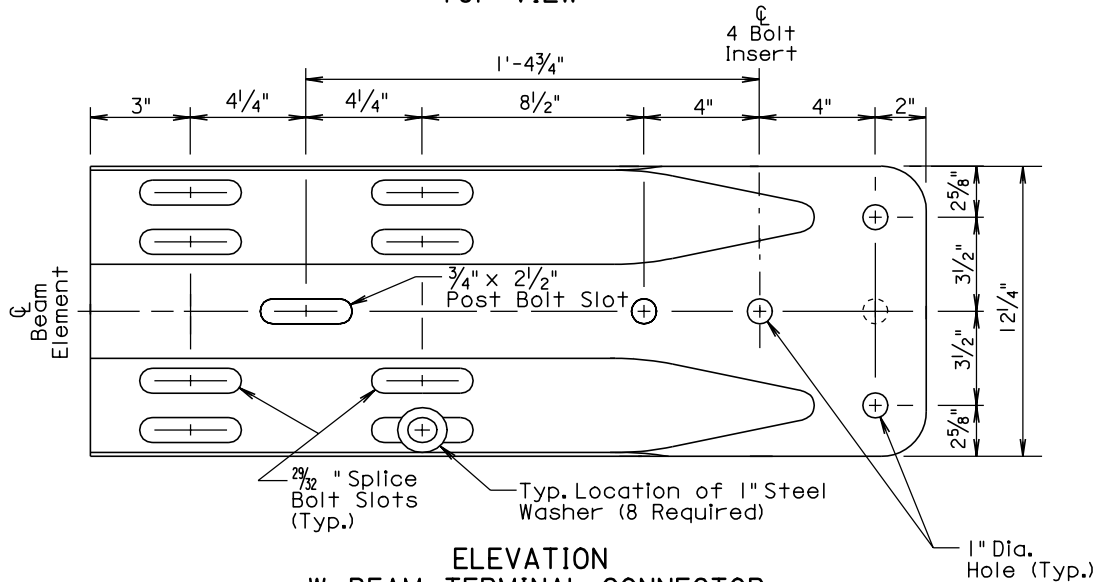
Sheet 1 of 1

Published Date: 1st Qtr. 2009

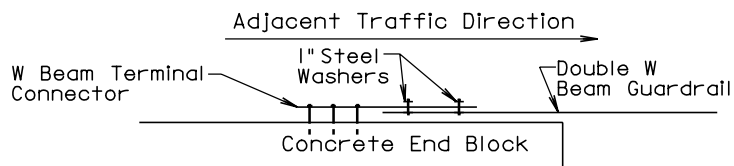
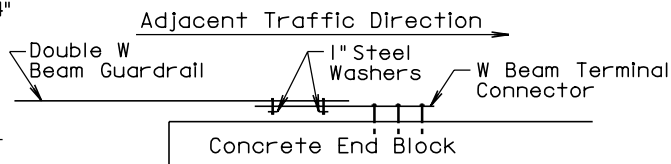
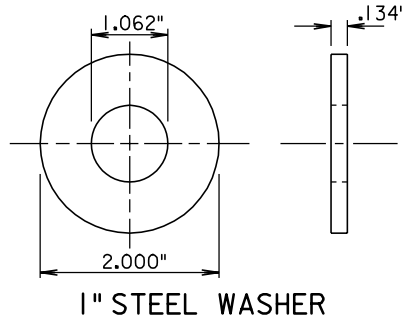
Plotting Date: 03-FEB-2009



TOP VIEW



ELEVATION
W BEAM TERMINAL CONNECTOR



GENERAL NOTES:

W Beam Terminal Connectors shall be 10 gauge.

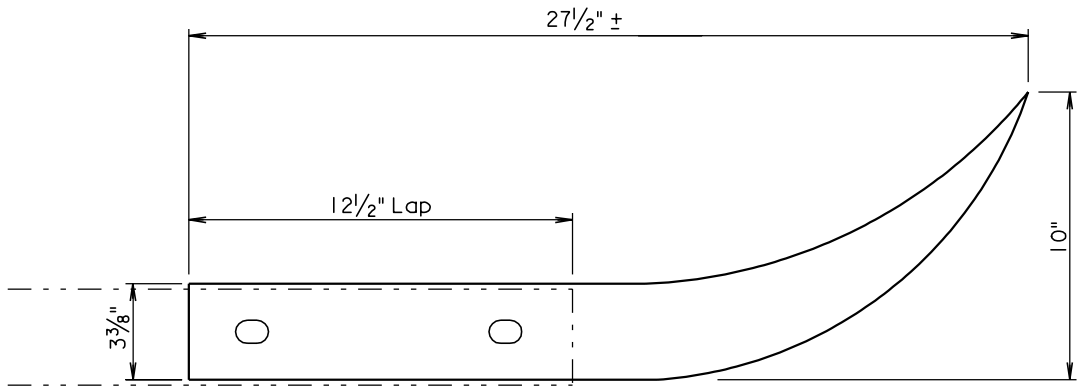
When the W beam terminal connector is used to connect the rail to the bridge, 1" steel washers shall be used at the lap splice and the washers shall be in direct contact with the 3" slots of the W beam terminal connector. See the drawings above for the typical locations of the 1" steel washers.

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

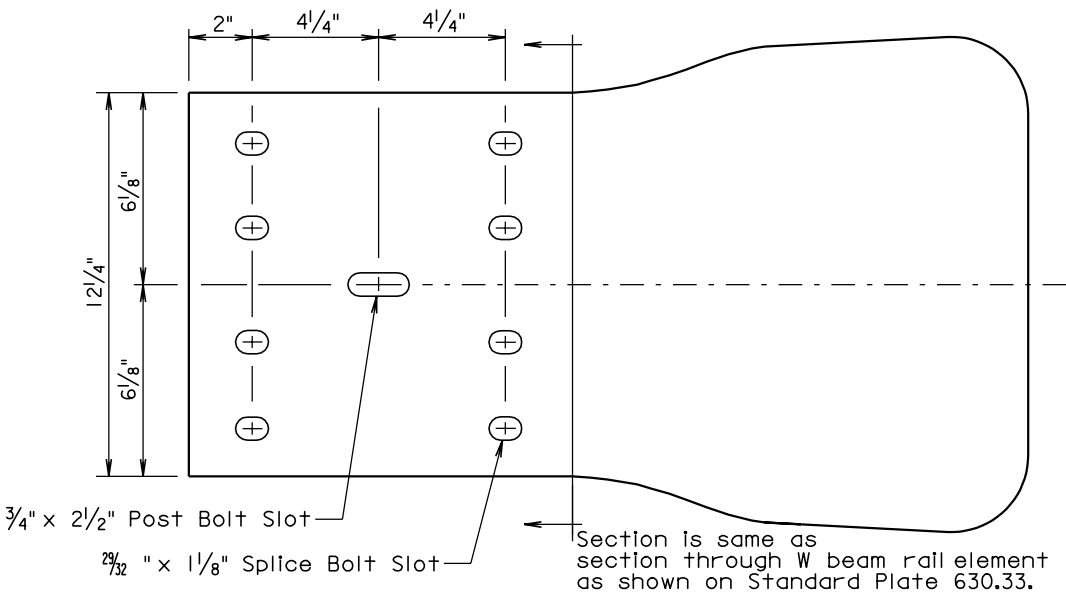
September 14, 2001

<i>Published Date: 1st Qtr. 2009</i>	S D D O T	W BEAM TERMINAL CONNECTOR AND 1" STEEL WASHER	PLATE NUMBER 630.35
			Sheet 1 of 1

Plotting Date: 03-FEB-2009



TOP VIEW



ELEVATION

GENERAL NOTES:

W Beam End Sections (Flared) shall be 12 gage.

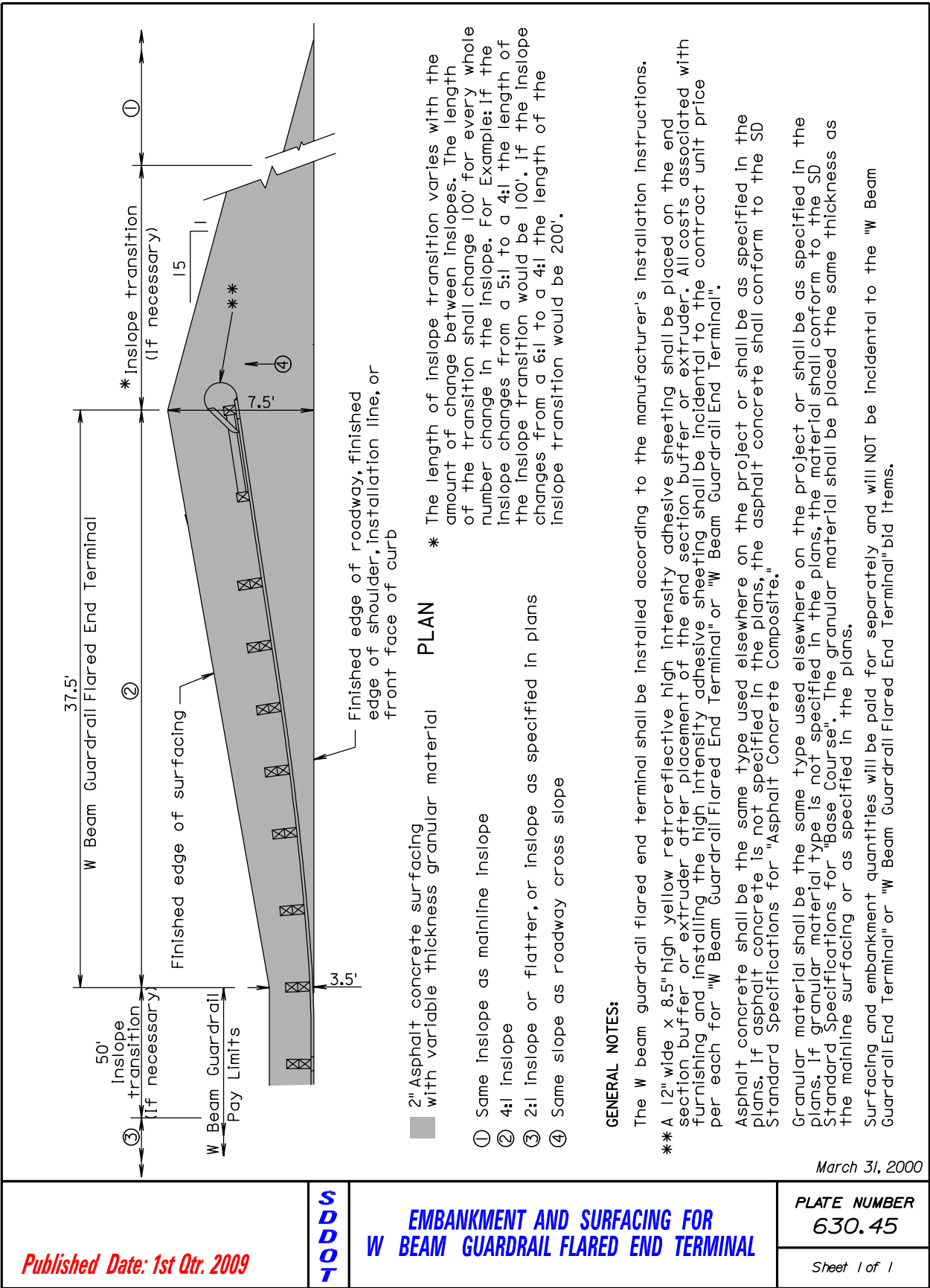
There will be no separate payment for furnishing and installing W Beam End Sections (Flared). All costs for the W Beam End Sections (Flared) shall be incidental to the contract unit price per foot for the respective "W Beam Guardrail" bid item.

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.

March 31, 2000

<i>Published Date: 1st Qtr. 2009</i>	S D D T	W BEAM END SECTION (FLARED)	PLATE NUMBER 630.40 Sheet 1 of 1
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Plotting Date: 03-FEB-2009





* The length of inslope transition varies with the amount of change between inslopes. The length of the transition shall change 100' for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

PLAN

- ① Same inslope as mainline inslope
- ② 4:1 inslope
- ③ 2:1 inslope or flatter, or inslope
- ④ Same slope as roadway cross slope

GENERAL NOTES:

The W beam guardrail tangent end terminal shall be installed according to the manufacturer's installation instructions.

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."

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 End Terminal" or "W Beam Guardrail Tangent End Terminal" bid items.

March 28, 2001

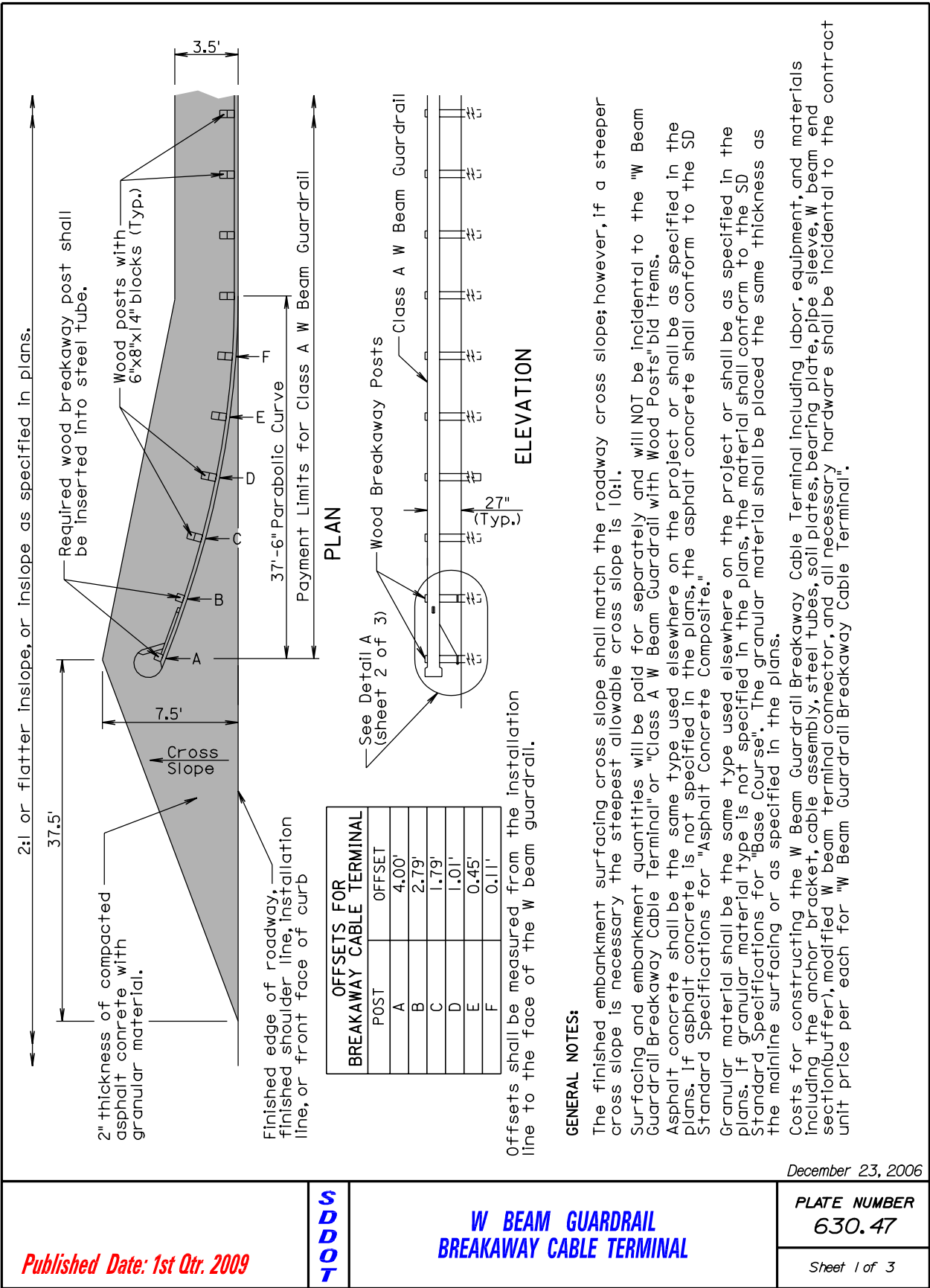
PLATE NUMBER
630.46

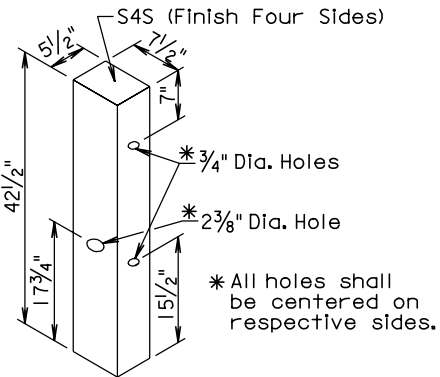
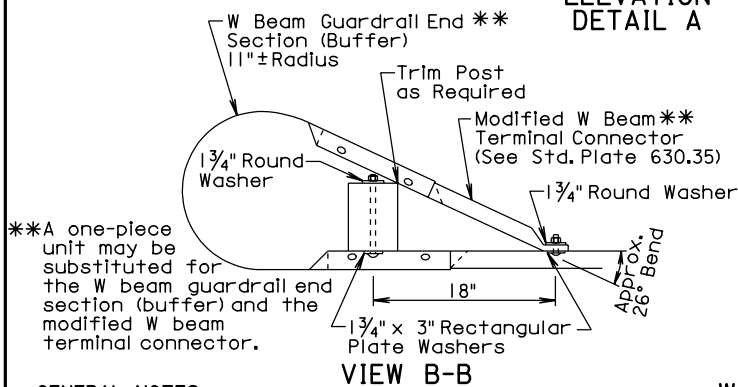
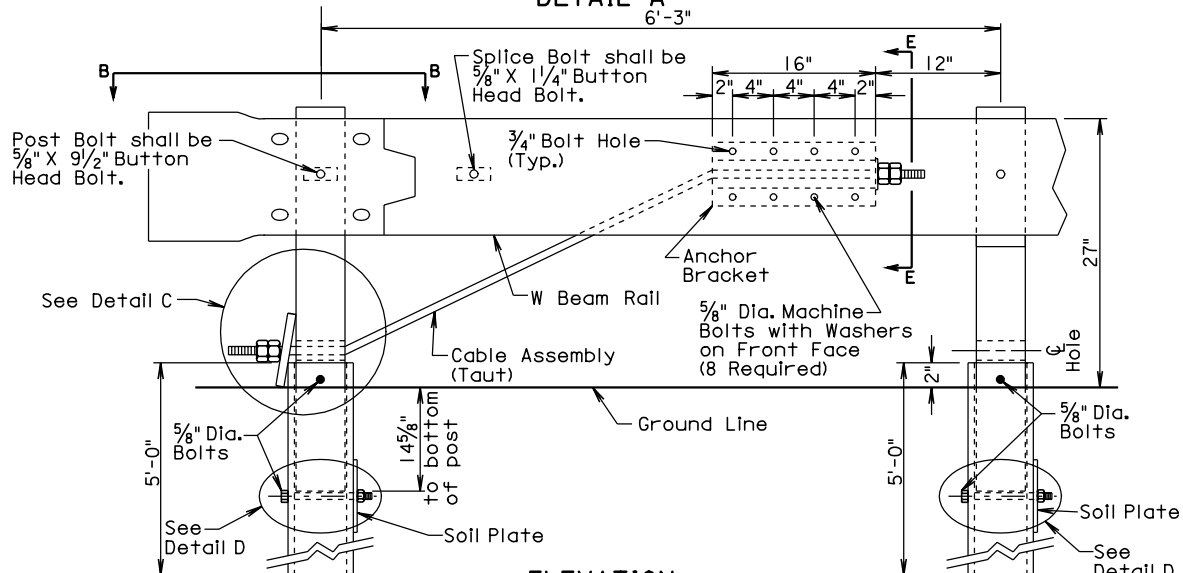
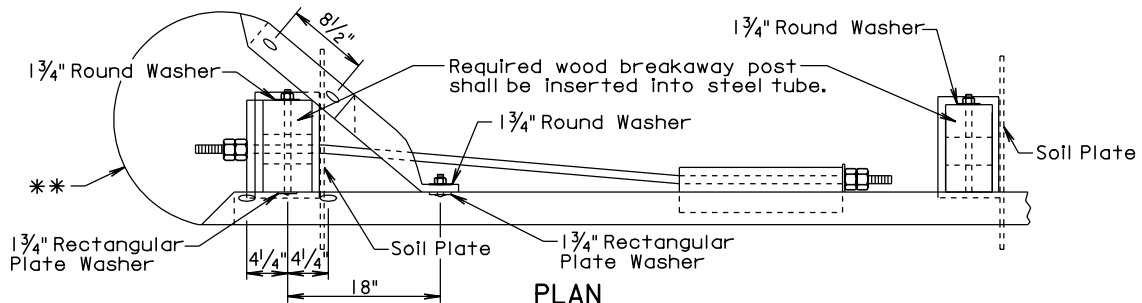
Sheet 1 of 1

Published Date: 1st Qtr. 2009

SDDOT

**EMBANKMENT AND SURFACING FOR
W BEAM GUARDRAIL TANGENT END TERMINAL**





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 M111.

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.

December 23, 2006

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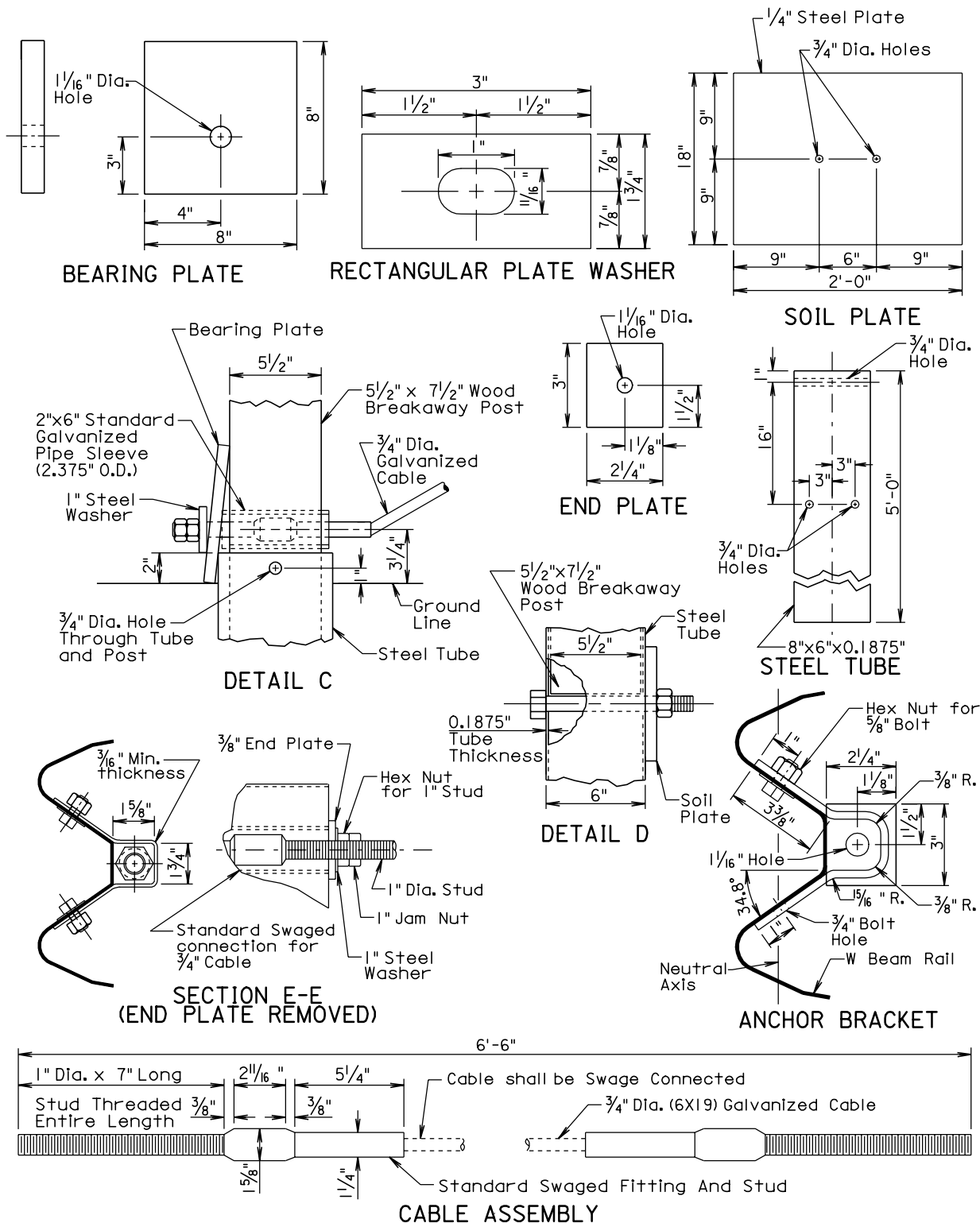
**W BEAM GUARDRAIL
BREAKAWAY CABLE TERMINAL**

**PLATE NUMBER
630.47**

Sheet 2 of 3

Published Date: 1st Qtr. 2009

Plotting Date: 03-FEB-2009



December 23, 2006

Published Date: 1st Qtr. 2009

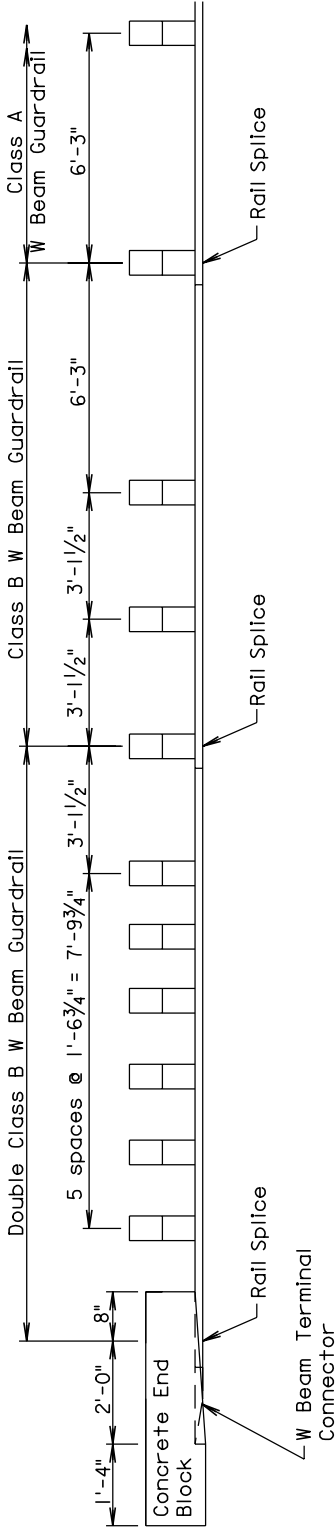
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**W BEAM GUARDRAIL
BREAKAWAY CABLE TERMINAL**

**PLATE NUMBER
630.47**

Sheet 3 of 3

Plotting Date: 03-FEB-2009

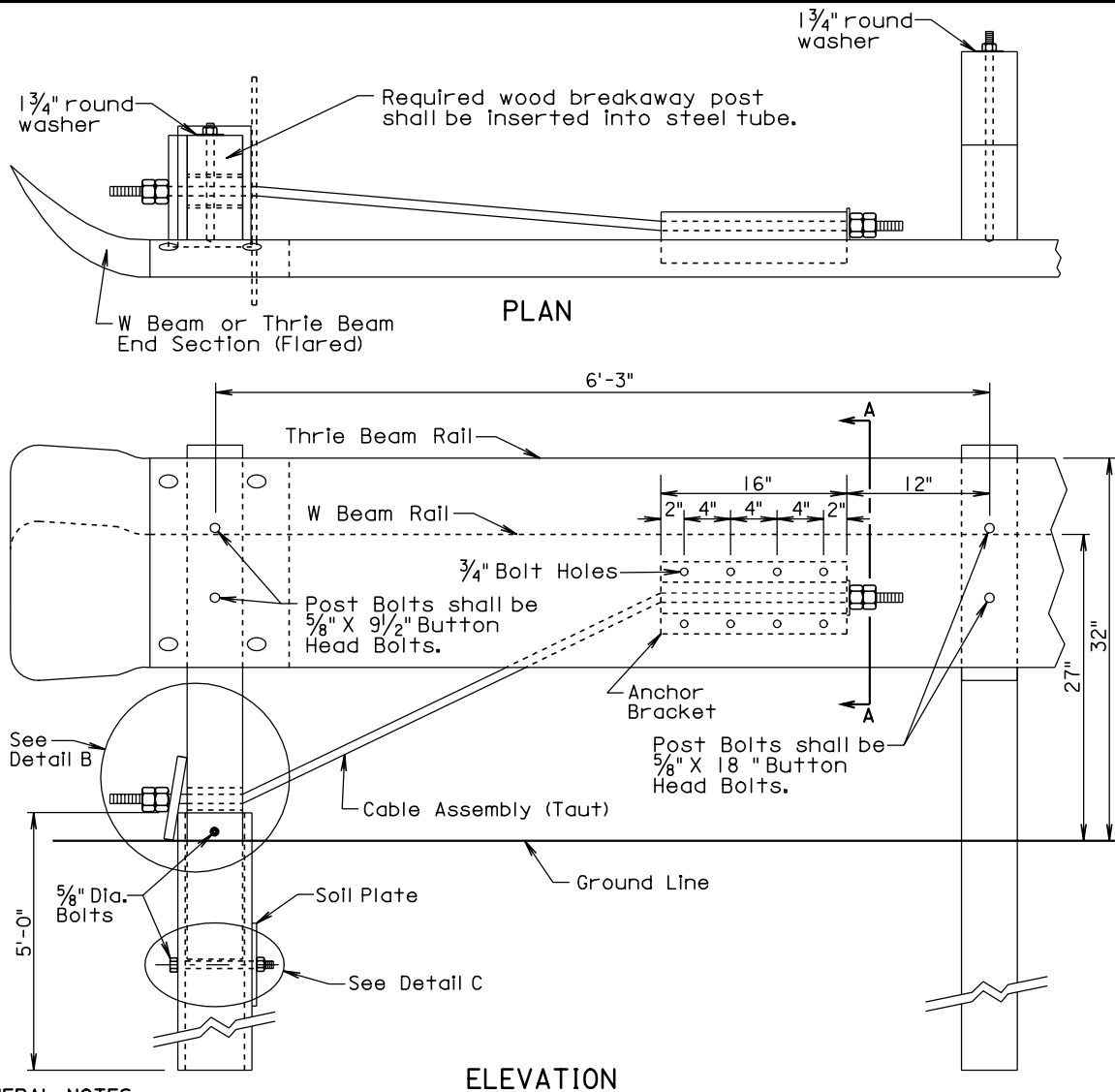


POST SPACING ARRANGEMENT FOR W BEAM GUARDRAIL AT BRIDGE END

March 31, 2000

<i>Published Date: 1st Qtr. 2009</i>	S D D O T	POST SPACING ARRANGEMENT FOR W BEAM GUARDRAIL AT BRIDGE END	PLATE NUMBER 630.50 Sheet 1 of 1
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Plotting Date: 03-FEB-2009



GENERAL NOTES:

All hardware shall be galvanized in accordance with ASTM A153.

The cable shall be 3/4", Type II, with Class A coating in conformance with AASHTO M30.

The steel tube shall meet the requirements of ASTM Specification A500, Grade B, and shall be galvanized after fabrication in accordance with the requirements of AASHTO Specification M111.

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.

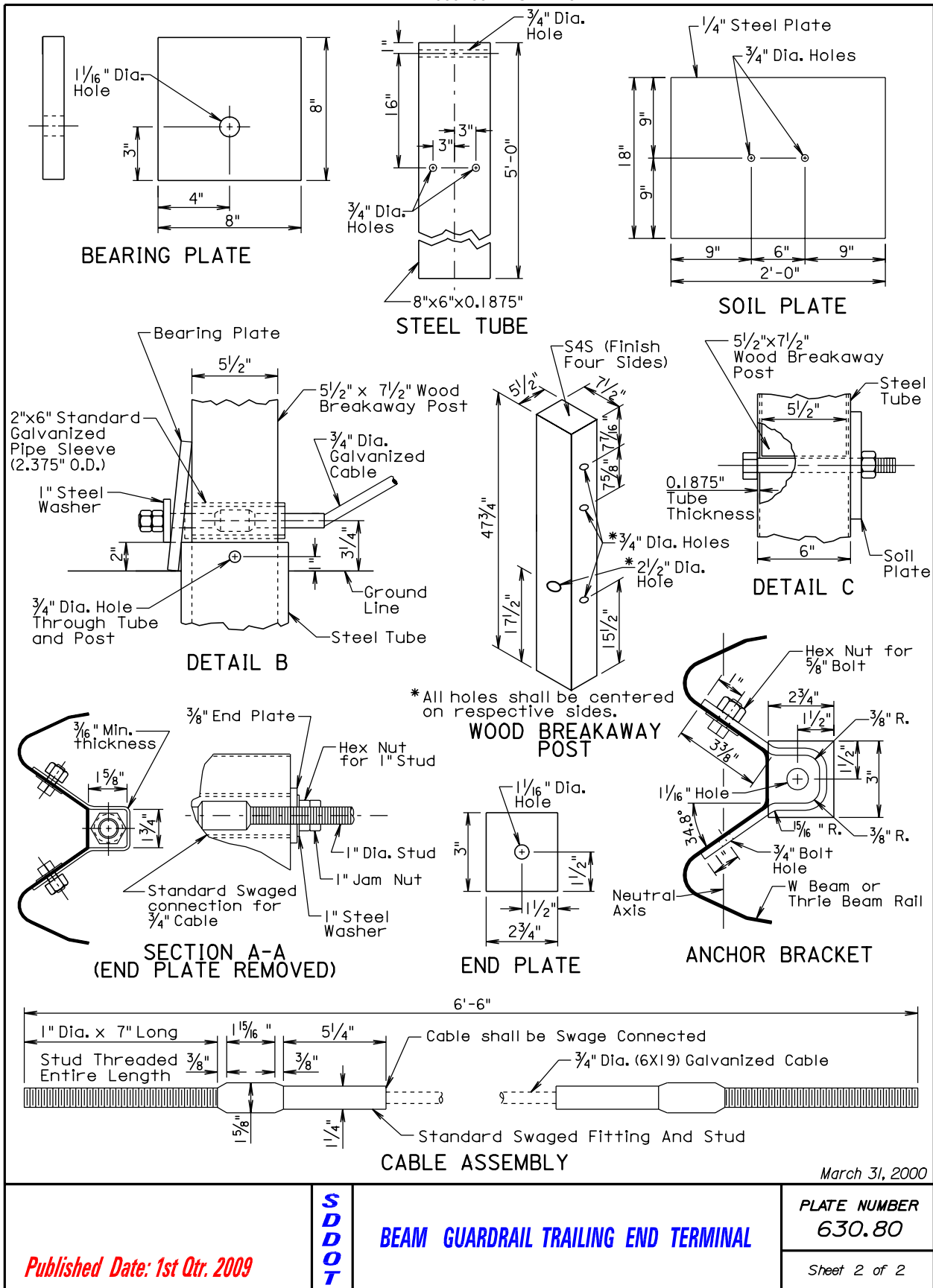
Costs for constructing the beam guardrail trailing end terminal and furnishing the anchor bracket, cable assembly, steel tube, soil plate, bearing plate, pipe sleeve, wood breakaway post, and all hardware necessary to attach anchor bracket, cable assembly, steel tube, soil plate, bearing plate, pipe sleeve, and wood breakaway post shall be incidental to the contract unit price per each for "Beam Guardrail Trailing End Terminal".

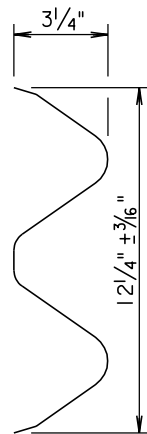
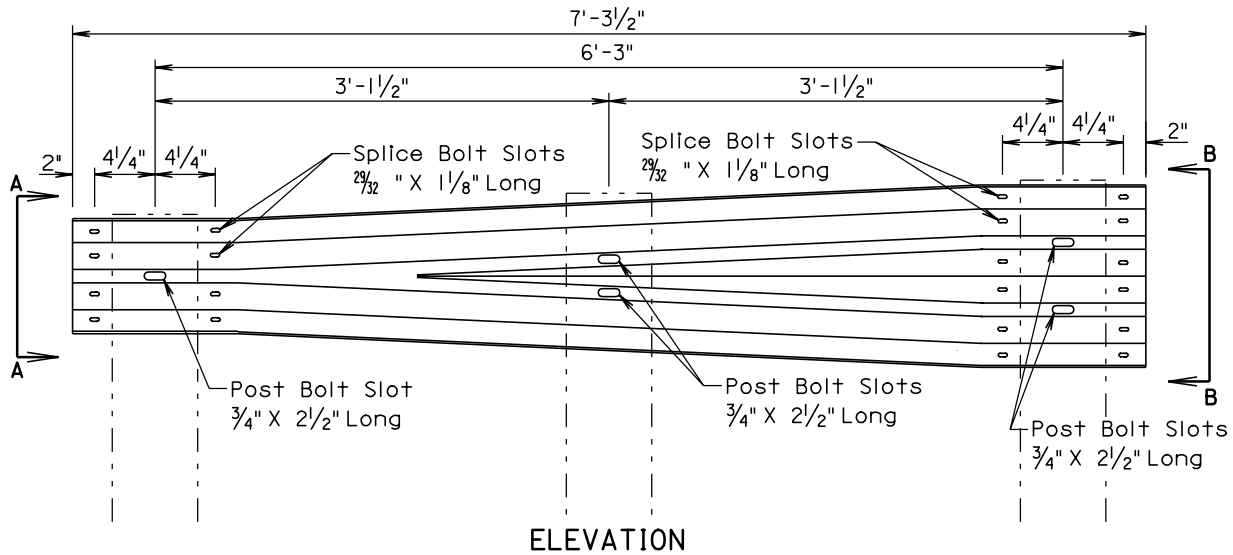
Costs for the thrie beam or W beam guardrail and the thrie beam or W beam end sections (Flared) shall be incidental to the contract unit price per foot for the respective "Thrie Beam Guardrail" or "W Beam Guardrail" bid items.

March 31, 2000

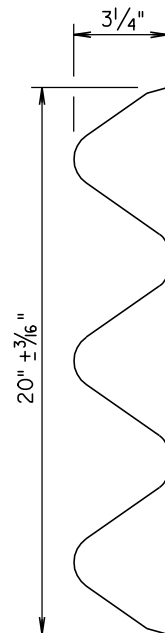
<i>Published Date: 1st Qtr. 2009</i>	S D D O T	BEAM GUARDRAIL TRAILING END TERMINAL	PLATE NUMBER 630.80
			Sheet 1 of 2

Plotting Date: 03-FEB-2009





VIEW A-A



VIEW B-B

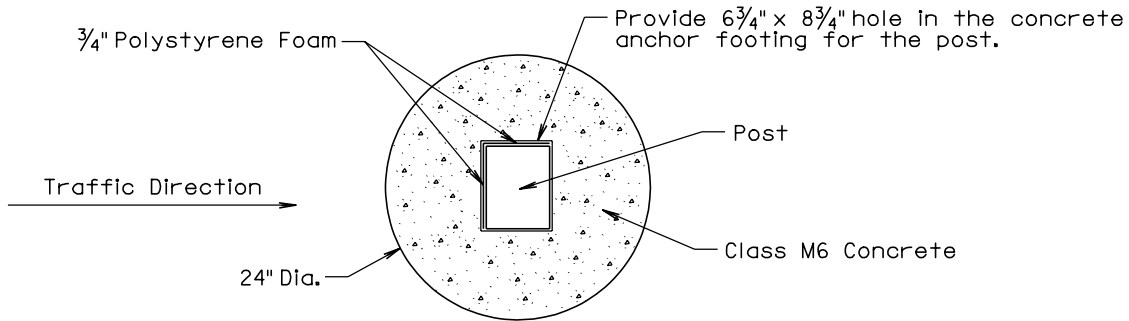
GENERAL NOTE:

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".

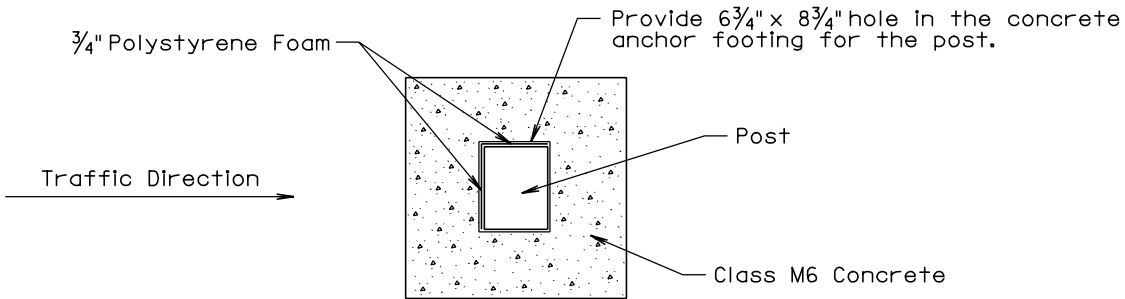
March 31, 2000

<i>Published Date: 1st Qtr. 2009</i>	S D D O T	W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.82 Sheet 1 of 1
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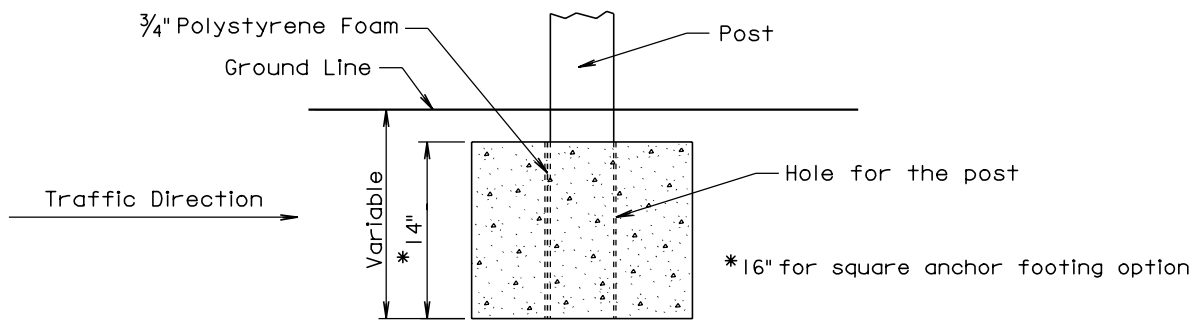
Plotting Date: 03-FEB-2009



PLAN
(PREFERRED 24" DIA. ROUND
CONCRETE ANCHOR FOOTING)



PLAN
(20" x 20" SQUARE
CONCRETE ANCHOR FOOTING)



ELEVATION

GENERAL NOTES:

In areas where the required guardrail wood post depth is not obtainable, shorter posts may be used and shall be anchored in concrete in accordance with the details shown on this standard plate.

A 20" x 20" square concrete anchor footing may be used in lieu of the 24" diameter round anchor footing.

Forms for the concrete anchor footing hole is not required.

Concrete for the concrete anchor footing shall be Class M6.

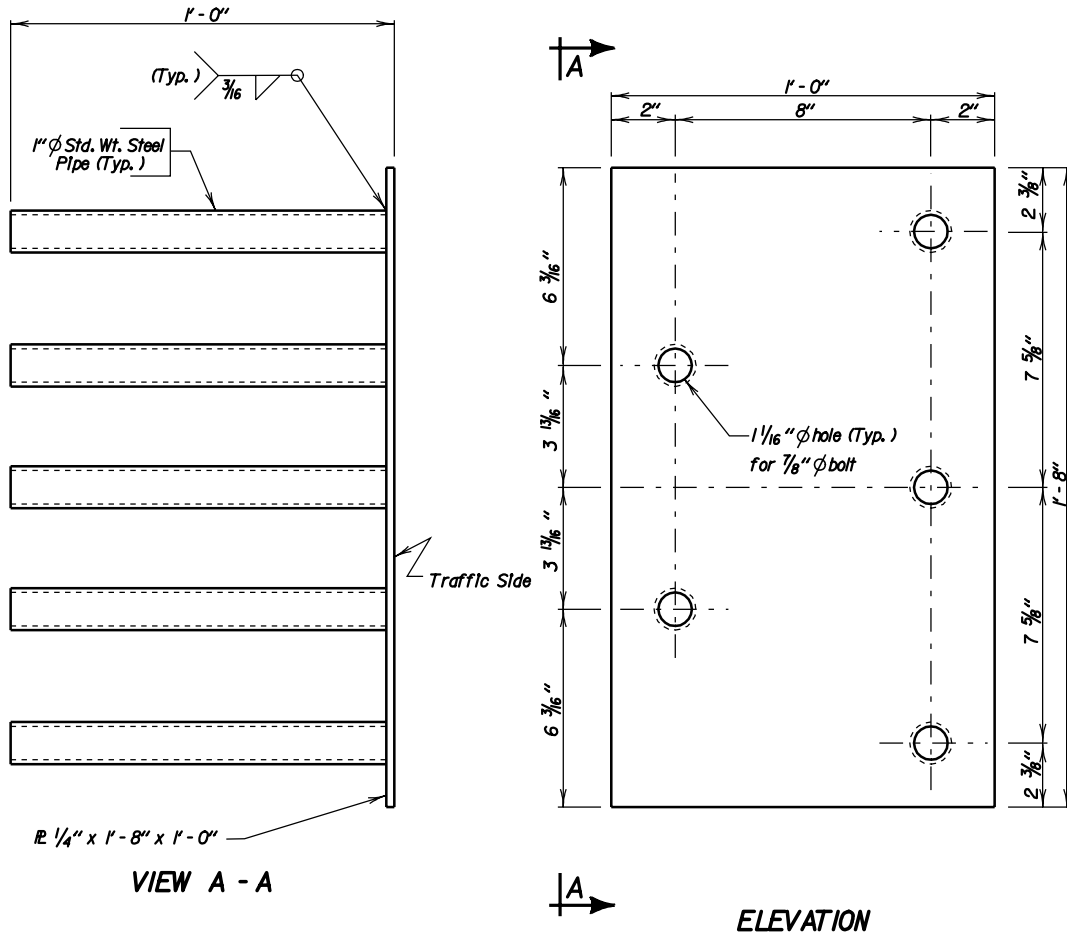
Three quarter inch polystyrene foam shall be attached to two sides of the posts. See details above for placement position of the polystyrene foam.

There will be no separate payment for furnishing and installing the concrete anchor footing for short guardrail post. All costs for concrete anchor footings shall be incidental to the contract unit price per foot for the respective "Thrie Beam or W Beam Guardrail" bid item.

March 31, 2000

<i>Published Date: 1st Qtr. 2009</i>	S D D T	CONCRETE ANCHOR FOOTING FOR SHORT GUARDRAIL POST	PLATE NUMBER 630.84 <i>Sheet 1 of 1</i>
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Plotting Date: 03-FEB-2009



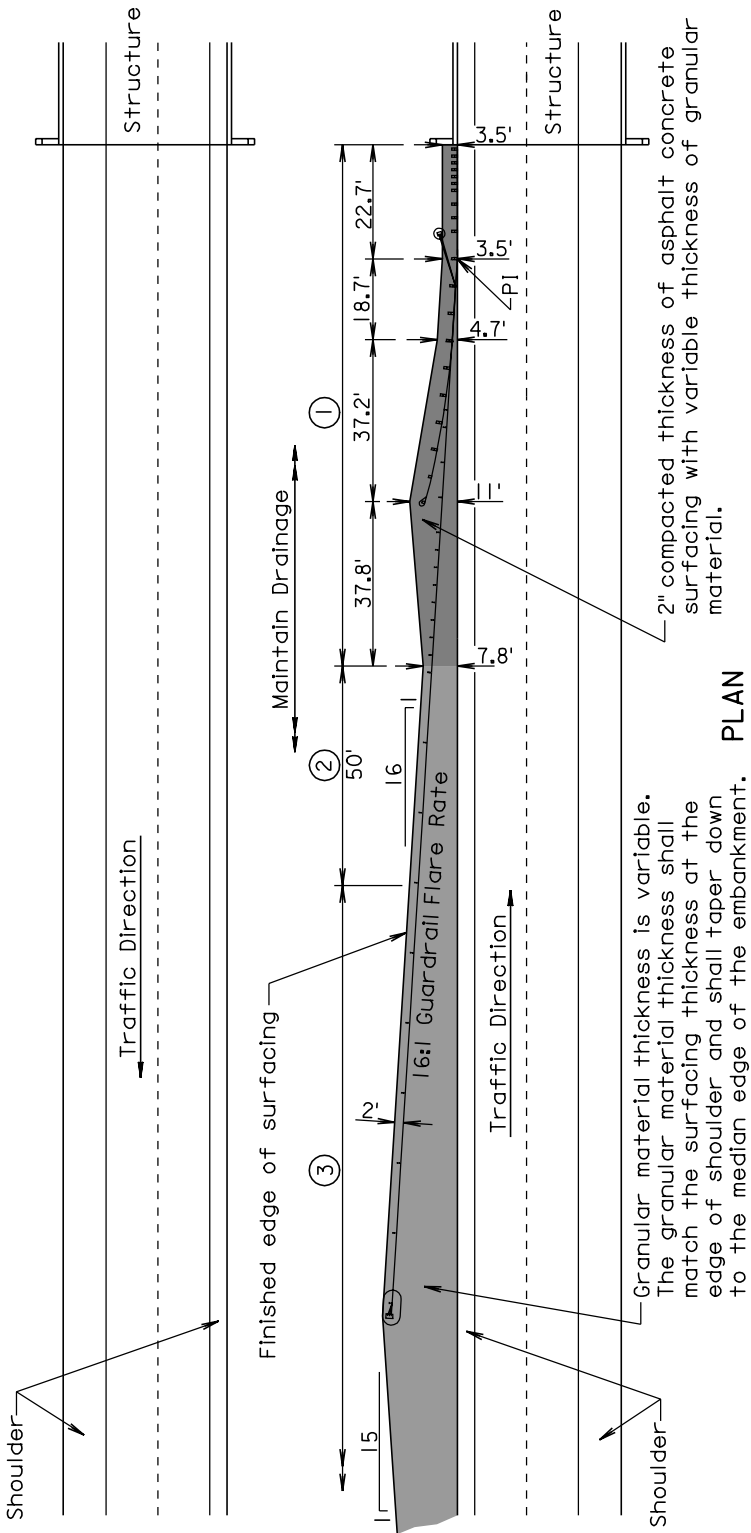
GENERAL NOTES:

1. Steel plate for the Insert assembly shall conform to ASTM A709 Grade 36. The steel pipes shall conform to ASTM A53 or ASTM A500 Grade B.
2. Welding and weld inspection shall be in conformance with AWS D1.1 (Current Year) Structural Welding Code - Steel.
3. After fabrication, galvanize in accordance with AASHTO M111 (ASTM A123).
4. Bolts, nuts, and washers shall be provided with each assembly. Bolts shall conform to the requirements of ASTM A325 or A449. Washers shall be made of steel and meet the dimensional requirements of ANSI B27.2 Type A Plain Washers. Bolts, nuts, and washers shall be galvanized in accordance with ASTM A153.
5. Bolt heads shall be placed on the traffic side of the endblock. Bolt projection at the back side of the Insert shall not exceed 1" beyond the nut.
6. The cost of the 5 bolt Insert plate assembly complete in place including welding and galvanizing shall be incidental to the contract unit price per cubic yard for "Class A45 Concrete, Miscellaneous ", "Class A45 Concrete, Bridge Deck ", or "Class A45 Concrete, Bridge Repair ", as applicable.

November 7, 2005

Published Date: 1st Qtr. 2009	S D D O T	5 BOLT INSERT PLATE ASSEMBLY	PLATE NUMBER 630.92 Sheet 1 of 1
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Plotting Date: 03-FEB-2009



PLAN

- ① Finished embankment surfacing cross slope shall be the same as the roadway cross slope.
- ② Finished embankment surfacing cross slope transition.
- ③ Finished embankment surfacing cross slope shall be 10:1, however, a cross slope flatter than 10:1 may be used to obtain the 6" minimum thickness of granular material.

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." 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".

March 31, 2000

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