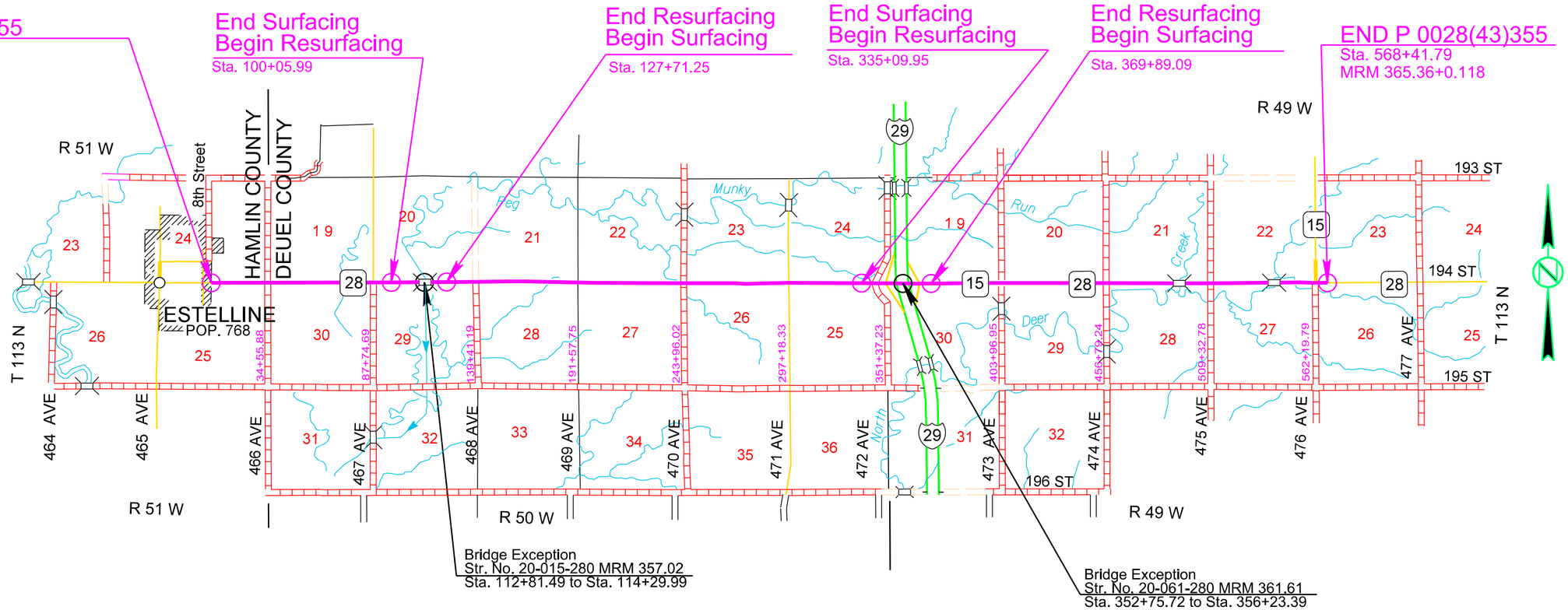
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F1	F38

Plotting Date: 08/22/2025

Section F: Surfacing Plans

INDEX OF SHEETS



PLOT NAME - 1

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SECTION F ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E1350	Restoration of Stockpile Site	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0730	Remove Beam Guardrail	450.0	Ft
110E0800	Remove W Beam Guardrail End Terminal	4	Each
110E1010	Remove Asphalt Concrete Pavement	81.7	SqYd
110E6410	Remove Type 1 MGS for Reset	350.0	Ft
110E6501	Remove Type 1 Retrofit Guardrail Transition for Reset	4	Each
110E6618	Remove MGS MASH Flared End Terminal for Reset	4	Each
110E7152	Remove Delineator for Reset	16	Each
120E0100	Unclassified Excavation, Digouts	523	CuYd
120E0600	Contractor Furnished Borrow	1,045	CuYd
120E6100	Water for Embankment	13.6	MGal
120E6200	Water for Granular Material	47.2	MGal
210E1005	Surface Preparation	2.400	Mile
260E1010	Base Course	3,255.1	Ton
260E1030	Base Course, Salvaged	600.0	Ton
270E0110	Salvage and Stockpile Granular Material	600.0	Ton
320E0005	PG 58-34 Asphalt Binder	2,820.8	Ton
320E1200	Asphalt Concrete Composite	27.2	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	60,590.9	Ton
320E4000	Hydrated Lime	602.6	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	20.6	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	6.8	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	3.2	Mile
330E0010	MC-70 Asphalt for Prime	83.8	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	140.4	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	62.6	Ton
330E1000	Blotting Sand for Prime	202.0	Ton
330E2000	Sand for Flush Seal	565.9	Ton
332E0010	Cold Milling Asphalt Concrete	26,382	SqYd
600E0300	Type III Field Laboratory	1	Each
630E0500	Type 1 MGS	250.0	Ft
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
630E5010	Reset Type 1 MGS	350.0	Ft
630E5203	Reset MGS MASH Flared End Terminal	4	Each
630E5301	Reset Type 1 Retrofit Guardrail Transition	4	Each
632E2100	Reset Delineator	16	Each
632E2220	Guardrail Delineator	16	Each
900E0022	Remove and Reset Mailbox	12	Each
900E1980	Storage Unit	1	Each

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

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 will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

TYPE III FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items will be incidental to the contract unit price per each for "Type III Field Laboratory".

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown on the plans.

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 26. This value was obtained from testing during construction of the in-place asphalt concrete.

Cold milling asphalt concrete will be done according to the typical section(s). In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".

Cold milling asphalt is estimated to produce 1,736.6 tons of cold milled asphalt concrete material. The salvaged asphalt produced from cold milling may be used as RAP in the Class Q2R Hot Mixed Asphalt Concrete mixture. The salvaged asphalt concrete material will meet the requirements of Section 884.2 C.1, prior to incorporating into the Class Q2R Hot Mixed Asphalt Concrete mixture.

The excess salvaged asphalt concrete material not used on the project will become the property of the Contractor for disposal.

COLD MILLING ASPHALT CONCRETE TABLE

Beginning Station	Ending Station	Area of Milling (SqYd)
Mainline AC	-	-
11+11.77	12+91.77	800
99+50.00	100+05.99	230
100+05.99	110+61.49	3987
110+61.49	111+01.49	151
111+01.49	112+81.49	680
114+29.99	115+79.99	567
115+79.99	116+19.99	151
116+19.99	128+60.00	5098
335+09.95	350+85.72	7003
350+85.72	351+25.72	178
351+25.72	352+75.72	667
356+23.39	357+73.39	667
357+73.39	358+13.39	178
358+13.39	369+89.09	5225
566+61.79	568+41.79	800
	Total:	26,382

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts per mile for the removal of unstable material for Section 6.

Included in the Estimate of Quantities are 100 tons of Base Course per mile for backfill of Unclassified Excavation, Digouts of Section 6.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement for the removal of asphalt and unstable material for Sections 7, 8 and 9.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite for backfill of Unclassified Excavation, Digouts for Sections 7, 8 and 9.

The digouts will be extended through the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

SURFACE PREPARATION

Prior to placement of the Class Q2R Hot Mixed Asphalt Concrete, the Contractor will be required to prepare the existing surface according to the Surface Preparation specifications provided in Section 210, at locations determined by the Engineer.

The locations provided on Section 6 of the typical sections for Asphalt Surface Treatment, In Place, represent the locations where an asphalt surface treatment is anticipated to be in place at the time of construction. The Contractor is advised that locations and dimensions of actual Asphalt Surface Treatment, In Place, may vary from that given on the typical sections. There will be no increase in the payment for Surface Preparation based on the actual surface treatment in place at the time of construction.

Quantities for Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime have been provided for 2.4 miles of the asphalt surfacing project. The rate for MC-70 Asphalt for Prime is 0.30 gallons per square yard and the rate for Blotting Sand is 10 pounds per square yard. Actual limits to receive Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime ahead of Class Q2R Hot Mixed Asphalt Concrete placement are variable and will be limited to particular project conditions and will be subject to approval by the Engineer. In no case will Surface Preparation operations ahead of Class Q2R Hot Mixed Asphalt Concrete placement operations exceed fourteen calendar days.

The Contractor will ensure excess in place granular material is removed at locations (end of project, bridges, intersecting roads and entrances) to achieve the required elevation for the placement of the asphalt concrete. Payment for the removal of excess in place granular material will be incidental to the contract unit price per mile for Surface Preparation. This material may be reused as Base Course, Salvaged at the discretion of the Engineer.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Asphalt Concrete and Base Course, Salvaged and Base Course spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer.

All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the "Checker". No allowances will be made to the contract lump sum price for "Checker" due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

CONTRACTOR FURNISHED BORROW

The Contractor will provide a suitable site for Contractor furnished borrow material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for "Contractor Furnished Borrow" as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

RESTORATION OF STOCKPILE SITE

The Contractor will be responsible for the removal of any remaining stockpiled material.

The Contractor will remove the entrance (including pipe) used for access and clean up the stockpile site. The Contractor will scarify, replace and blade smooth the upper six inches of topsoil in the stockpile site upon completion of the project. Stockpile site will be seeded and mulched as determined by the Engineer.

All costs associated with this work will be incidental to the lump sum unit price bid for "Restoration of Stockpile Site".

SALVAGE AND STOCKPILE GRANULAR MATERIAL

At the locations listed in the Table of Salvage and Stockpile Granular Base Material shown below, the existing granular material will be salvaged and stockpiled as directed by the Engineer.

The in-place base course will be salvaged and stockpiled. Salvaged material will be processed to meet the requirements of Section 884.2 D.2 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular base material.

The salvaged granular material, estimated at approximately (600 tons) 317.5 cubic yards, will be used as Base Course, Salvaged.

This work will be incidental to the contract unit price per ton for "Salvage and Stockpile Granular Material".

TABLE OF SALVAGE AND STOCKPILE GRANULAR BASE MATERIAL

Location of Removal Areas	Salvage and Stockpile Granular Base Material
	Tons
Beginning of Project Sta. 11+11.77	100
End Surfacing/Begin Resurfacing Sta. 100+05.99	100
End Resurfacing/Begin Surfacing Sta. 127+71.25	100
End Surfacing/Begin Resurfacing Sta. 335+09.95	100
End Resurfacing/Begin Surfacing Sta. 369+89.09	100
End of Project Sta. 568+41.79	100
Total	600

BASE COURSE, SALVAGED

Granular Material will be removed from locations where a vertical transition was necessary during the grading project to maintain traffic safely. This material will be salvaged and then used as Base Course, Salvaged. Base Course, Salvaged will be obtained from the stockpile site provided by the Contractor and may be used without further gradation testing. There is an estimated 600 tons of granular material to be salvaged.

All other requirements for Base Course, Salvaged will apply.

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q2R Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Plans specified locations for Asphalt Concrete Composite will be paid for at the contract unit price per ton for "Asphalt Concrete Composite" regardless of the class of asphalt concrete used at such locations.

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Asphalt concrete aggregates will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2.

The Class Q2R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture.

CLASS Q2R HOT MIXED ASPHALT CONCRETE - CONTINUED

RAP will be obtained from the stockpiled salvaged asphalt mix material produced from project PCN 04HM, estimated at 12,400 tons, located within 1 mile of the project. The RAP produced from PCN 04HM was planned to be removed and stockpiled the year prior to this project. The RAP was processed to meet the requirements of Section 884.2 C.1 prior to stockpiling. There is potential that some of the RAP has clumped or gummed together since the time it was processed and stockpiled. The Contractor may be required to re-process the material to meet the requirements of Section 884.2 C.1, prior to incorporating into the mixture. This determination will be made by the Engineer during construction. All costs to process the material will be incidental to "Class Q2R Hot Mixed Asphalt Concrete.

Mix Design Criteria:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2.

All remaining requirements for Class Q2 will apply.

SUMMARY OF CLASS Q2R HOT MIXED ASPHALT CONCRETE COMPACTION

Location	With Specified Density Compaction	Without Specified Density Compaction
	Ton	Ton
SD28 - Mainline		
Sta. 11+11.77 to Sta. 112+81.49	7,688.9	---
Sta. 114+29.99 to Sta. 352+75.72	18,107.5	---
Sta. 356+23.39 to Sta. 568+41.79	16,736.5	---
(See typical sections for information)		
SD28 - Shoulders		
Sta. 11+11.77 to Sta. 568+41.79	---	16,728.7
(Excluding Bridges)		
Intersecting Roads & Entrances	---	1,057.4
Spot Leveling - Section 7,8,9	---	108.9
Guardrail Surfacing - Structure #20-015-280		76.4
Guardrail Surfacing - Structure #20-061-280		86.6
Total:	60,590.9	

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 10 tons of Blotting Sand for Prime to be used where necessary for maintenance of traffic as directed by the Engineer. (Rate = 10 pounds per square yard)

GRIND RUMBLE STRIPES IN ASPHALT CONCRETE

Asphalt concrete rumble stripes will be constructed on the shoulders. Rumble stripes will be paid for at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete". It is estimated that 20.6 miles of asphalt concrete rumble stripes will be required.

Rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed 12" rumble stripes at a width of 18" and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

TABLE OF SHOULDER RUMBLE STRIPES

Sta	to	Sta.	Length (Mile)
23+30.00	to	100+05.99	1.5
100+05.99	to	112+81.49	0.2
114+29.99	to	127+71.25	0.3
127+71.25	to	335+09.95	3.9
335+09.95	to	352+75.72	0.3
356+23.39	to	369+89.09	0.3
369+89.09	to	568+41.79	3.8
		Total:	*10.3

*Single Shoulder length – Both Shoulders = 20.6 miles

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline, as detailed in the plans. Centerline rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. Rumble stripes will be paid for at the contract unit price per mile for "Grind Centerline Rumble Stripe in Asphalt Concrete". It is estimated that 6.8 miles of centerline rumble stripes will be required.

Centerline rumble stripes will be constructed according to the details of Standard Plate 320.18 outside the limits shown in the Table of Sinusoidal Centerline Rumble Stripes.

TABLE OF CENTERLINE RUMBLE STRIPES

Sta	to	Sta.	Length (Mile)
45+20.46	to	57+36.79	0.2
69+17.25	to	112+81.49	0.8
162+99.51	to	188+89.69	0.5
198+85.34	to	213+74.70	0.3
224+87.08	to	252+33.21	0.5
261+13.52	to	352+75.72	1.7
356+23.39	to	360+74.98	0.1
377+32.48	to	445+81.70	1.3
458+41.79	to	514+71.83	1.1
526+70.51	to	539+26.28	0.2
550+91.95	to	557+21.54	0.1
		Total:	6.8

GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the centerline, as detailed in the plan set. Sinusoidal rumble stripes will be paid for at the contract unit price per mile for "Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete". It is estimated that 3.2 miles of sinusoidal rumble stripes will be required.

Sinusoidal rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed sinusoidal rumble stripes at a width of 24" and a rate of 0.10 gal./SqYd No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

TABLE OF SINUSOIDAL CENTERLINE RUMBLE STRIPES

Sta	to	Sta.	Length (Mile)
23+30.00	to	45+20.46	0.4
57+36.79	to	69+17.25	0.2
114+29.99	to	162+99.51	0.9
188+89.69	to	198+85.34	0.2
213+74.70	to	224+87.08	0.2
252+33.21	to	261+13.52	0.2
360+74.98	to	377+32.48	0.3
445+81.70	to	458+41.79	0.2
514+71.83	to	526+70.51	0.2
539+26.28	to	550+91.95	0.2
557+21.54	to	568+41.79	0.2
		Total:	3.2

CENTERLINE RUMBLE STRIPES – ASPHALT FOR FLUSH SEAL

Asphalt for Flush Seal will be applied after the centerline rumble stripes have been installed and prior to the application of permanent pavement markings. The application width will extend 1 ft beyond the centerline of the roadway in each direction to create a total application rate of 0.10 Gal/SqYd on the centerline rumble stripes.

In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply asphalt for flush seal to the newly installed centerline rumble stripes at a width of 24" and a rate of 0.10 Gal/SqYd. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20’ x 8’ x 8.6’ std
More than 50,000 ton	2,360	40’ x 8’ x 8.6’ std
All Gyratory Controlled QC/QA Projects	2,360	40’ x 8’ x 8.6’ std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for “Storage Unit”.

INTERSECTING ROADS AND ENTRANCES

Intersecting roads and entrances will be satisfactorily cleared of vegetation, shaped and compacted prior to placement of mainline surfacing. This work will be considered incidental to other contract items. Separate measurement and payment will not be made.

MAILBOXES

Mailboxes will be moved and adjusted to the correct height and location by resetting the posts in accordance with Standard Plate 900.01 and 900.02. The local Postmaster will determine the recommended mounting height. The Contractor will coordinate with the Engineer on the proper postal representative to contact. The cost of removing and resetting existing mailboxes will be paid for at the contract unit price per each for Remove and Reset Mailbox.

TABLE OF REMOVE & RESET MAILBOX

Station	L/R	Single (Each)
11+28	L	1
26+09	R	1
28+43	R	1
62+92	L	1
120+76	R	1
168+70	L	1
193+71	L	1
218+93	R	1
256+28	R	1
431+81	L	1
456+80	L	1
520+59	L	1
Totals:		12

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 08/22/2025

RATES OF MATERIALS

Rates quantities are included in the Table of Materials Quantities

The Estimate of Surfacing Quantities is based on the following quantities of materials per **MILE.**

MAINLINE

Sta. 11+11.77 to Sta. 99+50.00
Sta. 128+60.00 to Sta. 160+60.00
Sta. 173+20.00 to Sta. 335+09.95
Sta. 369+89.09 to Sta. 552+97.79

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 4.3 tons applied 29 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – 1ST LIFT

Crushed Aggregate	1769 tons
Salvaged Asphalt Concrete	442 tons
PG 58-34 Asphalt Binder	109 tons
Total Mix without Hydrated Lime	2320 tons
Hydrated Lime	23 tons
Total Mix with Hydrated Lime	2343 tons

The exact proportions of these materials will be determined on construction.

MAINLINE

Sta. 11+11.77 to Sta. 99+50.00
Sta. 128+60.00 to Sta. 160+60.00
Sta. 173+20.00 to Sta. 335+09.95
Sta. 369+89.09 to Sta. 552+97.79

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 4 tons applied 29 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – TOP LIFT

Crushed Aggregate	1415 tons
Salvaged Asphalt Concrete	354 tons
PG 58-34 Asphalt Binder	87 tons
Total Mix without Hydrated Lime	1856 tons
Hydrated Lime	19 tons
Total Mix with Hydrated Lime	1875 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 3 tons/mile applied 28 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 52 ton/mile applied 22 feet wide (Rate = 8 lbs. per square yard).

MAINLINE SHOULDERS (each)

Sta. 11+11.77 to Sta. 99+50.00
Sta. 128+60.00 to Sta. 160+60.00
Sta. 173+20.00 to Sta. 335+09.95
Sta. 369+89.09 to Sta. 552+97.79

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 1 tons applied 8.5 feet wide (One Shoulder) (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – 1ST LIFT

Crushed Aggregate	320 tons
Salvaged Asphalt Concrete	80 tons
PG 58-34 Asphalt Binder	20 tons
Total Mix without Hydrated Lime	420 tons
Hydrated Lime	4 tons
Total Mix with Hydrated Lime	424 tons

The exact proportions of these materials will be determined on construction.

MAINLINE SHOULDERS (each)

Sta. 11+11.77 to Sta. 99+50.00
Sta. 128+60.00 to Sta. 160+60.00
Sta. 173+20.00 to Sta. 335+09.95
Sta. 369+89.09 to Sta. 552+97.79

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 1 tons applied 8.5 feet wide (One Shoulder) (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – TOP LIFT

Crushed Aggregate	335 tons
Salvaged Asphalt Concrete	84 tons
PG 58-34 Asphalt Binder	21 tons
Total Mix without Hydrated Lime	440 tons
Hydrated Lime	4 tons
Total Mix with Hydrated Lime	444 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 1 tons/mile applied 8 feet wide (Both Shoulders) (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 14 ton/mile applied 6 feet wide (Rate = 8 lbs. per square yard).

The Estimate of Surfacing Quantities is based on the following quantities of materials per **STATION.**

MAINLINE

Sta. 100+05.99 to Sta. 112+71.49
Sta. 114+39.99 to Sta. 127+71.25

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.11 tons applied 39 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – 1ST LIFT

Crushed Aggregate	33.48 tons
Salvaged Asphalt Concrete	8.37 tons
PG 58-34 Asphalt Binder	2.06 tons
Total Mix without Hydrated Lime	43.91 tons
Hydrated Lime	0.44 tons
Total Mix with Hydrated Lime	44.35 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.09 tons/station applied 38 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 0.98 ton/station applied 22 feet wide (Rate = 8 lbs. per square yard).

MAINLINE

Sta. 335+09.95 to Sta. 352+75.72
Sta. 356+23.39 to Sta. 369+89.09

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.08 tons applied 29 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – TOP LIFT

Crushed Aggregate	26.80 tons
Salvaged Asphalt Concrete	6.70 tons
PG 58-34 Asphalt Binder	1.65 tons
Total Mix without Hydrated Lime	35.15 tons
Hydrated Lime	0.35 tons
Total Mix with Hydrated Lime	35.50 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.07 tons/station applied 28 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 0.98 ton/station applied 22 feet wide (Rate = 8 lbs. per square yard).

MAINLINE SHOULDERS (each)

Sta. 335+09.95 to Sta. 352+75.72
Sta. 356+23.39 to Sta. 369+89.09

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.02 tons applied 8.5 feet wide (One Shoulder) (Rate = 0.06 gallon per square yard).

CLASS Q2R HOT MIXED ASPHALT CONCRETE – TOP LIFT

Crushed Aggregate	6.20 tons
Salvaged Asphalt Concrete	1.55 tons
PG 58-34 Asphalt Binder	0.38 tons
Total Mix without Hydrated Lime	8.13 tons
Hydrated Lime	0.08 tons
Total Mix with Hydrated Lime	8.21 tons

The exact proportions of these materials will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.02 tons/station applied 8 feet wide (One Shoulder) (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 0.27 ton/mile applied 6 feet wide (Rate = 8 lbs. per square yard).

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F8	F38

Plotting Date: 08/22/2025

Plot Scale - 1:200

TABLE OF MATERIALS QUANTIITES

LOCATION				WATER FOR GRANULAR MATERIAL	WATER FOR EMBANKMENT	CONTRACTOR FURNISHED BORROW	BASE COURSE/ BASE COURSE, SALVAGED	CLASS Q2R ASPHALT CONCRETE		ASPHALT CONCRETE COMPOSITE	PG 58-34 ASPHALT BINDER		ASPHALT FOR PRIME	BLOTTING SAND FOR PRIME	HYDRATED LIME		ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL	SAND FOR FLUSH SEAL
								1st Lift	Top Lift		1st Lift	Top Lift			1st Lift	Top Lift	1st Lift	Top Lift		
Station	to	Station		(MGal)	(MGal)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)
Mainline - Class Q2R AC																				
11+11.77	to	99+50.00	Rate					3,923.3	3,137.6		183.0	145.8			38.9	30.9	7.1	7.1	6.2	86.6
99+50.00	to	100+05.99						30.2	27.2		1.4	1.3			0.3	0.3	0.1	0.1	0.1	0.5
100+05.99	to	112+71.49							561.2			26.1				5.6		1.4	1.1	12.4
112+71.49	to	112+81.49						4.4	5.0		0.2	0.2				0.1				0.1
Structure #20-015-280																				
114+29.99	to	114+39.99						4.4	5.0		0.2	0.2				0.1				0.1
114+39.99	to	127+71.25							590.4			27.4				5.9		1.5	1.2	13.0
127+71.25	to	128+60.00						47.9	43.1		2.2	2.0			0.5	0.4	0.1	0.1	0.1	0.9
128+60	to	160+60.00	Rate					1,420.5	1,136.0		66.2	52.8			14.1	11.2	2.6	2.6	2.2	31.4
160+60.00	to	164+50.00						209.5	167.7		9.8	7.8			2.1	1.7	0.4	0.4	0.3	3.8
164+50.00	to	169+30.00						302.7	242.2		14.1	11.3			3.0	2.4	0.6	0.6	0.4	4.7
169+30.00	to	173+20.00						209.5	167.7		9.8	7.8			2.1	1.7	0.4	0.4	0.3	3.8
173+20.00	to	335+09.95	Rate					7,186.7	5,747.4		335.1	267.1			71.2	56.7	13.0	13.0	11.3	158.7
335+09.95	to	352+75.72							626.8			29.1				6.2		1.4	1.2	17.3
Structure #20-061-280																				
356+23.39	to	369+89.09							484.8			22.5				4.8		1.1	1.0	13.4
369+89.09	to	552+97.79	Rate					8,127.2	6,499.6		379.0	302.1			80.6	64.1	14.6	14.6	12.8	179.4
552+97.79	to	556+68.79						199.3	159.5		9.3	7.4			2.0	1.6	0.4	0.4	0.3	3.6
556+68.79	to	564+51.79						493.8	395.1		23.0	18.4			4.9	3.9	0.9	0.9	0.7	7.7
564+51.79	to	568+41.79						209.5	167.7		9.8	7.8			2.1	1.7	0.4	0.4	0.3	3.8
Shoulders (Both) - Class Q2R AC																				
11+11.77	to	99+50.00	Rate					1,418.5	1,486.6		66.3	68.9			14.1	15.0	4.4	4.4	3.5	
128+60.00	to	160+60.00	Rate					513.6	538.2		24.0	25.0			5.1	5.4	1.6	1.6	1.3	
160+60.00	to	164+50.00						62.6	65.6		2.9	3.0			0.6	0.7	0.2	0.2	0.2	
164+50.00	to	169+30.00						77.0	80.7		3.6	3.7			0.8	0.8	0.2	0.2	0.2	
169+30.00	to	173+20.00						62.6	65.6		2.9	3.0			0.6	0.7	0.2	0.2	0.2	
173+20.00	to	335+09.95	Rate					2,598.5	2,723.1		121.4	126.3			25.9	27.5	8.1	8.1	6.5	
335+09.95	to	352+65.72							288.1			13.3				2.8		0.9	0.7	
356+33.39	to	369+89.09							222.5			10.3				2.2		0.7	0.5	
369+89.09	to	562+97.79	Rate					2,938.5	3,079.5		137.3	142.8			29.3	31.1	9.2	9.2	7.3	
562+97.79	to	556+68.79						59.5	62.4		2.8	2.9			0.6	0.6	0.2	0.2	0.1	
556+68.79	to	564+51.79						125.7	131.7		5.9	6.1			1.3	1.3	0.4	0.4	0.3	
564+51.79	to	568+41.79						62.6	65.6		2.9	3.0			0.6	0.7	0.2	0.2	0.2	
Rates			Subtotals:	---	---	---	---	59,261.6		---	2,758.5		---	---	588.8		137.6		60.5	541.2

Plotted From - TRPR18387

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TABLE OF MATERIALS QUANTITIES – CONTINUED

LOCATION Station to Station	WATER FOR GRANULAR MATERIAL (MGal)	WATER FOR EMBANKMENT (MGal)	CONTRACTOR FURNISHED BORROW (Ton)	BASE COURSE/ BASE COURSE, SALVAGED (Ton)	CLASS Q2R ASPHALT CONCRETE 1st Lift (Ton)	CLASS Q2R ASPHALT CONCRETE Top Lift (Ton)	ASPHALT CONCRETE COMPOSITE (Ton)	PG 58-34 ASPHALT BINDER 1st Lift (Ton)	PG 58-34 ASPHALT BINDER Top Lift (Ton)	ASPHALT FOR PRIME (Ton)	BLOTTING SAND FOR PRIME (Ton)	HYDRATED LIME 1st Lift (Ton)	HYDRATED LIME Top Lift (Ton)	ASPHALT FOR TACK 1st Lift (Ton)	ASPHALT FOR TACK Top Lift (Ton)	ASPHALT FOR FLUSH SEAL (Ton)	SAND FOR FLUSH SEAL (Ton)
Surface Preparation										76.8	168.0						
Unclassified Excavation, Digouts - Section 6	11.2			937.2													
Unclassified Excavation, Digouts - Sections 7,8,9	1.3			108.9			27.2										
Spot Leveling, Strengthening, and Repair - Section 7,8,9					108.9			5.1				1.1		0.3			
Blotting Sand for Maintenance of Traffic per Engineer											10.0						
Guardrail Surfacing - Structure #20-015-280																	
Begin Bridge Left						16.3			0.8				0.2		0.1	0.1	
Begin Bridge Right						21.9			1.0				0.2		0.1	0.1	
End Bridge Left						21.9			1.0				0.2		0.1	0.1	
End Bridge Right						16.3			0.8				0.2		0.1	0.1	
Guardrail Surfacing - Structure #20-061-280																	
Begin Bridge Left	0.2	3.0	234.0	18.0		19.4			0.9				0.2		0.1	0.1	
Begin Bridge Right	0.3	3.8	291.0	23.0		24.1			1.1				0.2		0.1	0.1	
End Bridge Left	0.3	3.9	296.0	23.0		24.5			1.1				0.2		0.1	0.1	
End Bridge Right	0.2	2.9	224.0	17.0		18.6			0.9				0.2		0.1	0.1	
Intersecting Roads & Entrances																	
28' Int. Rds. - 22 each	6.6			594.0		945.3			44.0	6.6	22.0		9.5		1.5	1.1	22.4
40' Entrances - 17 each	6.8			595.0													
24' Entrances - 35 each	10.5			735.0		57.0			3.0				1.0		0.1	0.1	1.0
Sta. 128+26 Lt. - 24'	0.4			37.0													
Sta. 139+41 Lt. & 144' Ah - 24'	1.9			157.0													
Sta. 204+37 Lt. - 24'	0.4			32.0													
Sta. 230+86 Lt. & Rt. - 40'	0.8			67.0													
Sta. 243+96 Lt. &Rt. - 28'	1.3			105.0													
Sta. 297+18 Lt. & Rt. - 28'	0.7			61.0													
Sta. 403+97 Lt. & Rt. - 28'	0.5			38.0													
Sta. 409+09 Rt. - 24'	0.4			30.0													
Sta. 444+90 Rt. - 40'	0.8			64.0													
Sta. 456+79 Lt. & Rt. - 28'	0.5			45.0													
Sta. 509+33 Lt. & Rt. - 28'	0.5			38.0													
Sta. 520+63 Rt. - 24'	0.4			34.0	55.1			2.6		0.4	2.0	0.6		0.1		0.1	1.3
Sta. 535+79 Lt. & Rt. - 40'	0.8			66.0													
Sta. 562+20 Rt. - 28'	0.4			30.0													
Rates Totals:	47.2	13.6	1,045.0	3,855.1	60,590.9		27.2	2,820.8		83.8	202.0	602.6		140.4		62.6	565.9

Application Rates: PG 58-34 Asphalt Binder at 4.7%
MC-70 Asphalt for Prime rate = 0.30 gallon per square yard
SS-1h or CSS-1h Asphalt for Tack rate = 0.09 gallon per square yard- 1st lift, 0.06 gallon per square yard – Top lift
SS-1h or CSS-1h Asphalt for Flush Seal rate = 0.05 gallon per square yard
Water for Granular Material = 0.012 Mgal/ton

LOCATION OF INTERSECTING ROADS AND FARM ENTRANCES

INTERSECTING ROADS		FARM ENTRANCES					
*28' Intersecting Roads (22 each)		24' Farm Entrance (35 each)				40' Farm Entrance (17 each)	
Sta. 34+56 Lt. & Rt.	Sta. 345+97 Lt. & Rt.	Sta. 11+46 Lt.	Sta. 71+61 Lt.	Sta. 285+35 Lt.	Sta. 488+44 Rt.	Sta. 165+61 Rt.	Sta. 417+14 Lt.
Sta. 87+74 Lt. & Rt.	Sta. 403+97 Lt. & Rt.	Sta. 12+52 Rt.	Sta. 128+26 Lt. & Rt.	Sta. 366+15 Rt.	Sta. 511+39 Lt.	Sta. 168+65 Lt.	Sta. 430+28 Lt.
Sta. 139+41 Lt. & Rt.	Sta. 456+79 Lt. & Rt.	Sta. 26+10 Lt.	Sta. 139+41 Lt. & 144' Ah	Sta. 367+52 Lt. & Rt.	Sta. 520+63 Rt.	Sta. 219+16 Rt.	Sta. 444+90 Rt.
Sta. 191+58 Lt.	Sta. 509+33 Lt. & Rt.	Sta. 28+60 Rt.	Sta. 175+32 Lt.	Sta. 369+06 Rt.	Sta. 544+73 Rt.	Sta. 230+86 Lt. & Rt.	Sta. 469+88 Lt.
* 40' - Sta. 191+58 Rt.	* 40' - Sta. 562+20 Lt.	Sta. 40+38 Rt.	Sta. 193+83 Lt.	Sta. 377+42 Rt.	Sta. 550+94 Rt.	Sta. 270+58 Lt. & Rt.	Sta. 482+96 Lt.
Sta. 243+96 Lt. &Rt.	Sta. 562+20 Rt.	Sta. 57+62 Lt.	Sta. 204+37 Lt.	Sta. 409+09 Rt.	Sta. 564+88 Lt.	Sta. 324+22 Lt.	Sta. 535+79 Lt. & Rt.
Sta. 297+18 Lt. & Rt.		Sta. 62+69 Lt.	Sta. 256+28 Lt.	Sta. 431+77 Rt.	Sta. 562+20 Lt. 282' Ah	Sta. 371+68 Lt.	
		Sta. 62+82 Rt.	Sta. 275+74 Rt.	Sta. 453+10 Lt.		Sta. 377+60 Lt.	

*Intersecting Roads larger than 28'

TABLE OF GUARDRAIL ITEMS

Location	Remove Beam Guardrail	# Remove W Beam Guardrail End Terminal	Remove Type 1 MGS for Reset	Remove Type 1 Retrofit Guardrail Transition for Reset	Remove MGS MASH Flared End Terminal for Reset	Remove Delineator for Reset	Type 1 MGS	Type 1 Retrofit Guardrail Transition	MGS MASH Flared End Terminal	Reset Type 1 MGS	Reset MGS MASH Flared End Terminal	Reset Type 1 Retrofit Guardrail Transition	Reset Delineator	Steel Beam Guardrail Delineator
	Feet	Each	Feet	Each	Each	Each	Feet	Each	Each	Feet	Each	Each	Each	Each
SD28														
Str. # 64-090-005														
Begin Bridge Left Sh.			37.5	1	1	4				37.5	1	1	4	
Begin Bridge Right Sh.			137.5	1	1	4				137.5	1	1	4	
End Bridge Left Sh.			137.5	1	1	4				137.5	1	1	4	
End Bridge Right Sh.			37.5	1	1	4				37.5	1	1	4	
Str. # 20-061-280														
Begin Bridge Left Sh.	81.25	1					25.0	1	1					4
Begin Bridge Right Sh.	143.75	1					100.0	1	1					4
End Bridge Left Sh.	143.75	1					100.0	1	1					4
End Bridge Right Sh.	81.25	1					25.0	1	1					4
TOTAL	450.0	4	350.0	4	4	16	250.0	4	4	350.0	4	4	16	16

For Informational Purposes Only: All cost to remove these items will be incidental to the contract unit price per foot for "Remove Beam Guardrail".

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking) All cost to perform the following items will be incidental to the contract lump sum price for Construction Staking.

Roadway and Description	Begin Station	End Station	Length (Ft)	Length (Mile)	Miscellaneous Staking Quantity (Mile)	Graded Centerline Staking Quantity (Mile)
SD 28 Mainline	11+11.77	100+05.99	8,894.22	1.685	1.685	1.685
	100+05.99	112+81.49	1,275.50	0.242	0.242	0.242
	114+29.99	127+71.25	1,341.26	0.254	0.254	0.254
	127+71.25	335+09.95	20,738.70	3.928	3.928	3.928
	335+09.95	352+75.72	1,765.77	0.334	0.334	0.334
	356+23.39	369+89.09	1,365.70	0.259	0.259	0.259
	369+89.09	568+41.79	19,852.70	3.760	3.760	3.760
					10.461	10.461

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F11	F38

Plotting Date: 08/22/2025

Mainline/ Shoulder Transitions:

Sta. 99+50 to Sta. 100+05.99
40' to 34'

Sta. 127+71.25 to Sta. 128+60
34' to 40'

Milling Transitions:

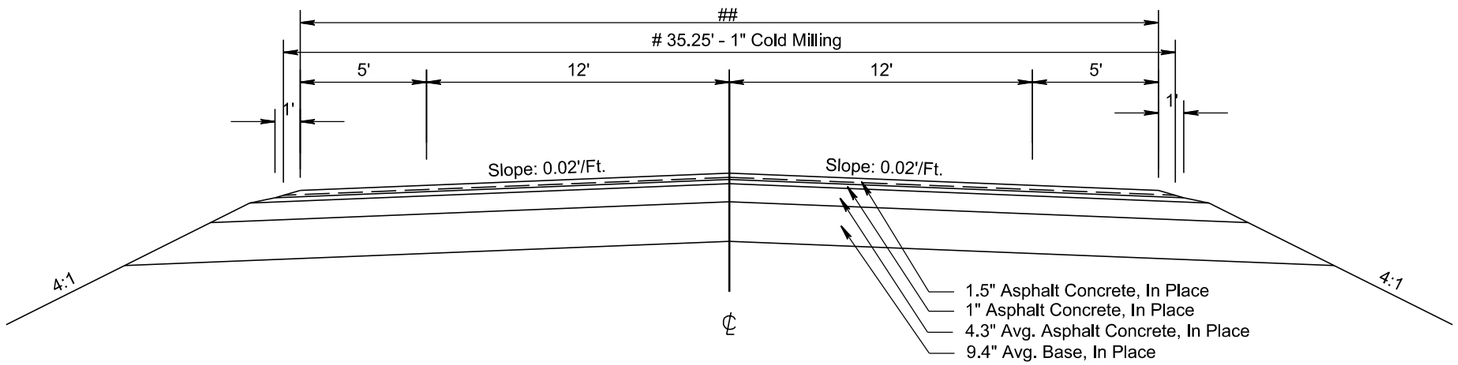
Sta. 110+61.49 to Sta. 111+01.49
1" to 2"

Sta. 115+79.99 to Sta. 116+19.99
2" to 1"

Section 1

SD HWY 28

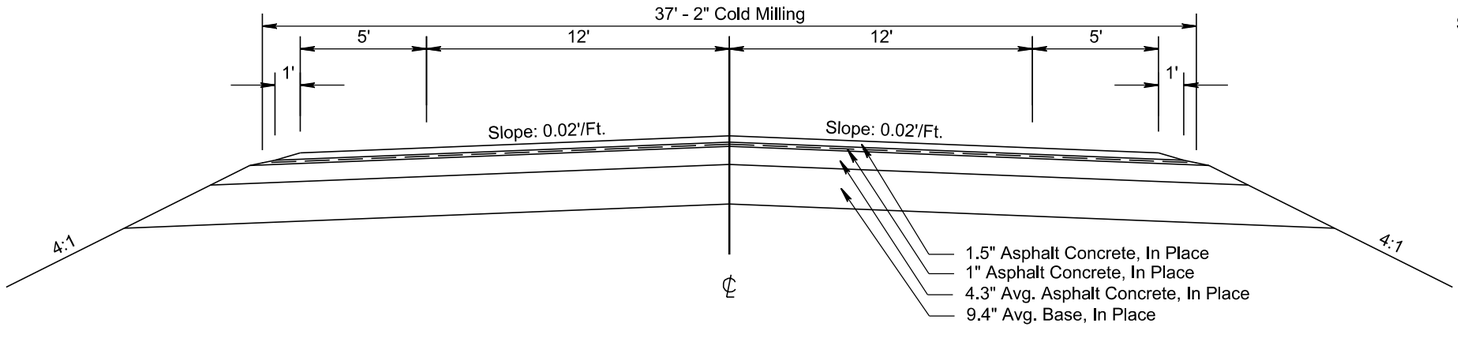
Sta. 100+05.99 to Sta. 111+01.49
Sta. 115+79.99 to Sta. 127+71.25



Section 2

SD HWY 28

Sta. 111+01.49 to Sta. 112+71.49
Sta. 114+39.99 to Sta. 115+79.99



Bridge Exceptions including Approach Slabs:

Sta. 112+81.49 to Sta. 114+29.99

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PLOTTED FROM - TRPR18387

PLOT NAME - 11

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IN PLACE TYPICAL SECTIONS

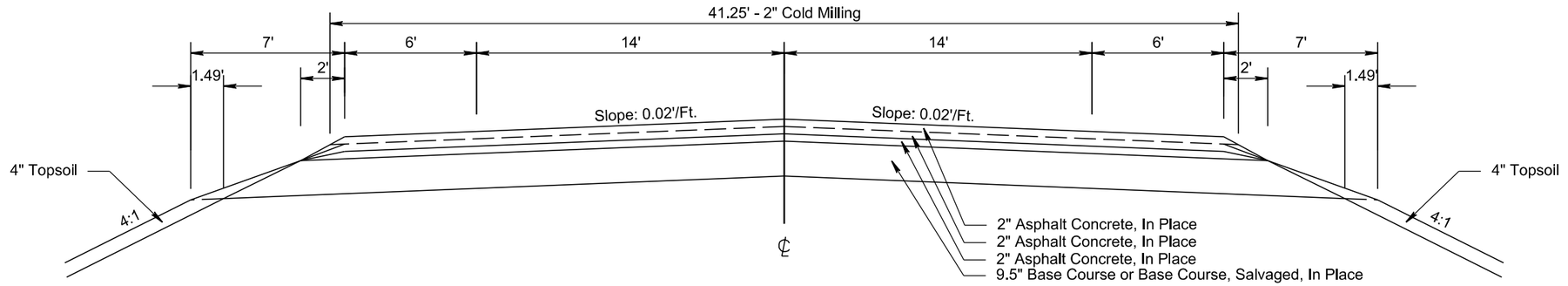
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F12	F38

Plotting Date: 08/22/2025

Section 3

SD HWY 28

Sta. 112+71.49 to Sta. 112+81.49
Sta. 114+29.99 to Sta. 114+39.99



Bridge Exceptions including Approach Slabs:

Sta. 112+81.49 to Sta. 114+29.99

Section 4

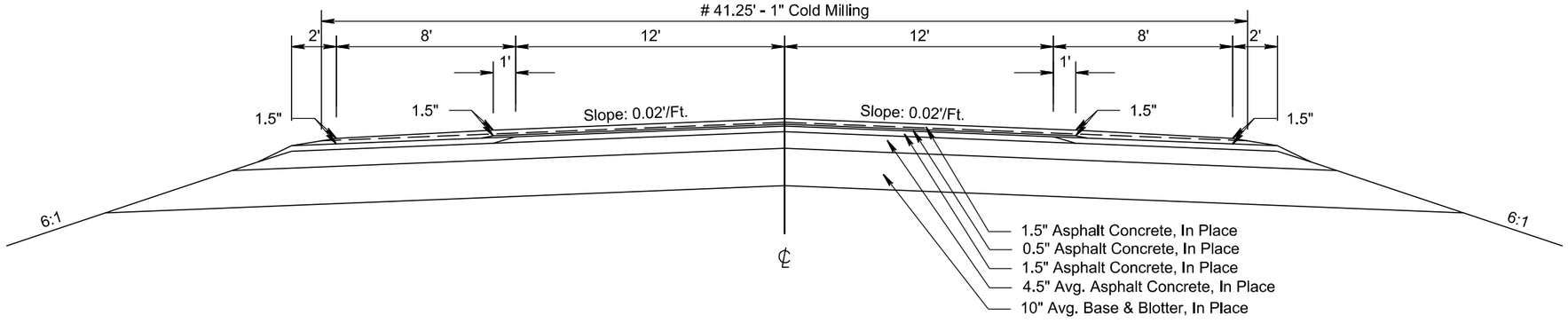
SD HWY 28

Sta. 335+09.95 to Sta. 351+25.72
Sta. 357+73.39 to Sta. 369+89.09
41.25' - 1" Cold Milling

Milling Transitions:

Sta. 350+85.72 to Sta. 351+25.72
1" to 2"

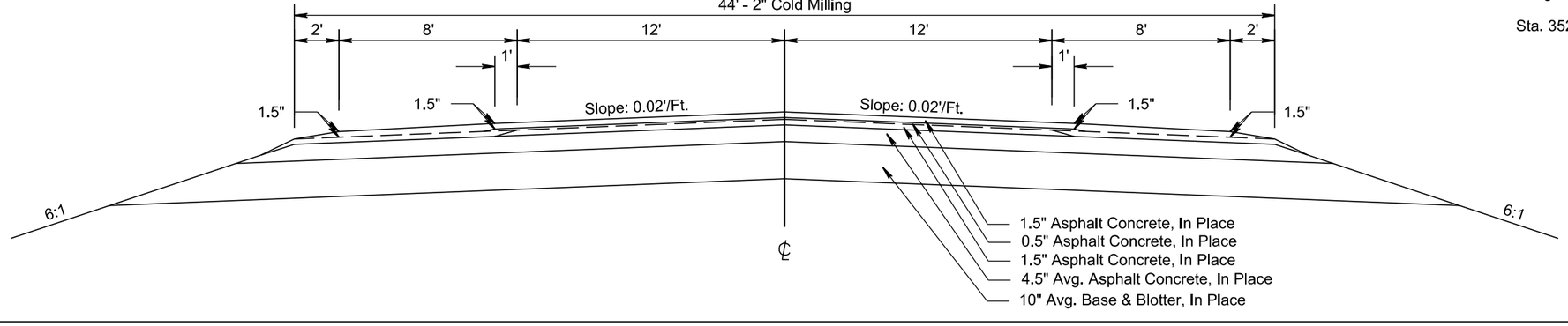
Sta. 357+73.39 to Sta. 358+13.39
2" to 1"



Section 5

SD HWY 28

Sta. 351+25.72 to Sta. 352+75.72
Sta. 356+23.39 to Sta. 357+73.39
44' - 2" Cold Milling



Bridge Exceptions including Approach Slabs:

Sta. 352+75.72 to Sta. 356+23.39

PLOT SCALE - 1:6.00001

PLOT NAME - 12

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PLOTTED FROM - TRPR18387

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TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F13	F38

Plotting Date: 08/22/2025

Section 6

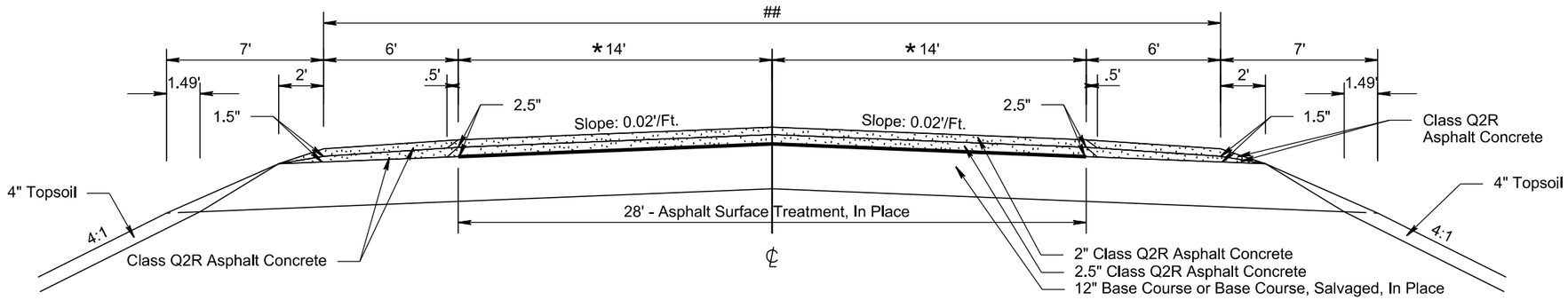
SD HWY28

Sta. 11+11.77 to Sta. 100+05.99
Sta. 127+71.25 to Sta. 335+09.95
Sta. 369+89.09 to Sta. 568+41.79

Mainline/ Shoulder Transitions:

Sta. 99+50 to Sta. 100+05.99
40' to 34'

Sta. 127+71.25 to Sta. 128+60
34' to 40'



Transitions:

Sta. 160+60 to Sta. 164+50
*14' to 20'

Sta. 164+50 to Sta. 169+30
*20'

Sta. 169+30 to Sta. 173+20
* 20' to 14'

Sta. 552+97.79 to Sta. 556+68.79
*14' to 20'

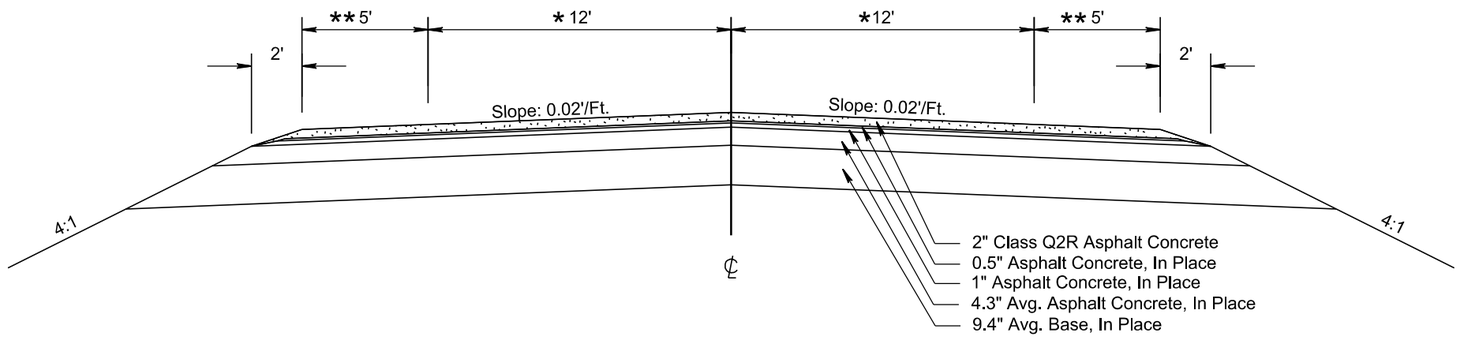
Sta. 556+68.79 to Sta. 564+51.79
* 20'

Sta. 564+51.79 to Sta. 568+41.79
* 20' to 14'

Section 7

SD HWY 28

Sta. 100+05.99 to Sta. 112+71.49
Sta. 114+39.99 to Sta. 127+71.25



Transitions:

Sta. 98+10.99 to Sta. 100+05.99
* 14' to 12'
** 6' to 5'

Sta. 111+18.99 to Sta. 112+81.49
* 12' to 14'
** 5' to 5.5'

Sta. 114+29.99 to Sta. 115+92.49
* 14' to 12'
** 5.5' to 5'

Sta. 127+71.25 to Sta. 129+66.25
* 12' to 14'
** 5' to 6'

PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18387

PLOT NAME - 13

FILE - ...\0507_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F14	F38

Plotting Date: 08/22/2025

Transitions:

Sta. 98+10.99 to Sta. 100+05.99
* 14' to 12'
** 6' to 5'

Sta. 111+18.99 to Sta. 112+81.49
* 12' to 14'
** 5' to 5.5'

Sta. 114+29.99 to Sta. 115+92.49
* 14' to 12'
** 5.5' to 5'

Sta. 127+71.25 to Sta. 129+66.25
* 12' to 14'
** 5' to 6'

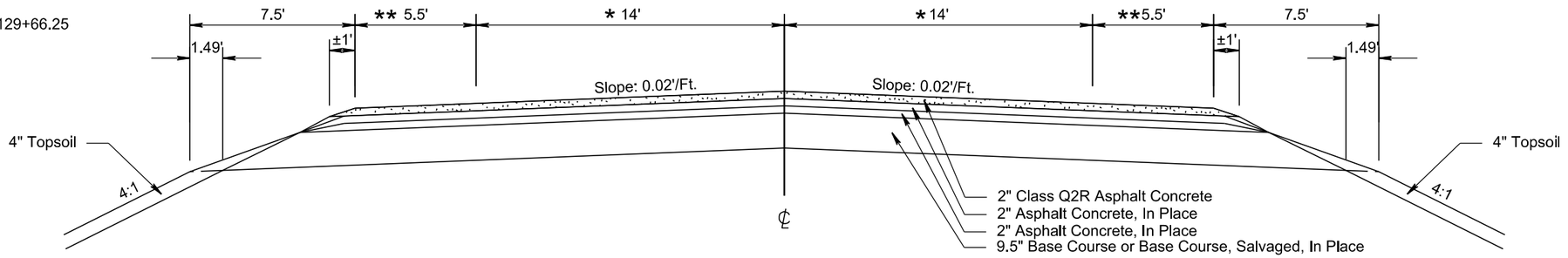
Section 8

SD HWY 28

Sta. 112+71.49 to Sta. 112+81.49
Sta. 114+29.99 to Sta. 114+39.99

Bridge Exceptions including Approach Slabs:

Sta. 112+81.49 to Sta. 114+29.99



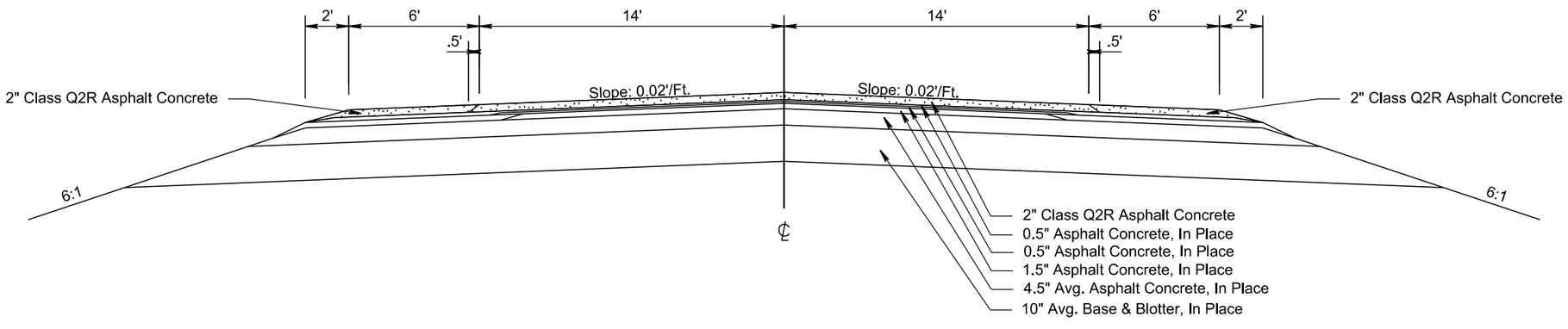
Section 9

SD HWY 28

Sta. 335+09.95 to Sta. 352+75.72
Sta. 356+23.39 to Sta. 369+89.09

Bridge Exceptions including Approach Slabs:

Sta. 352+75.72 to Sta. 356+23.39



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18387

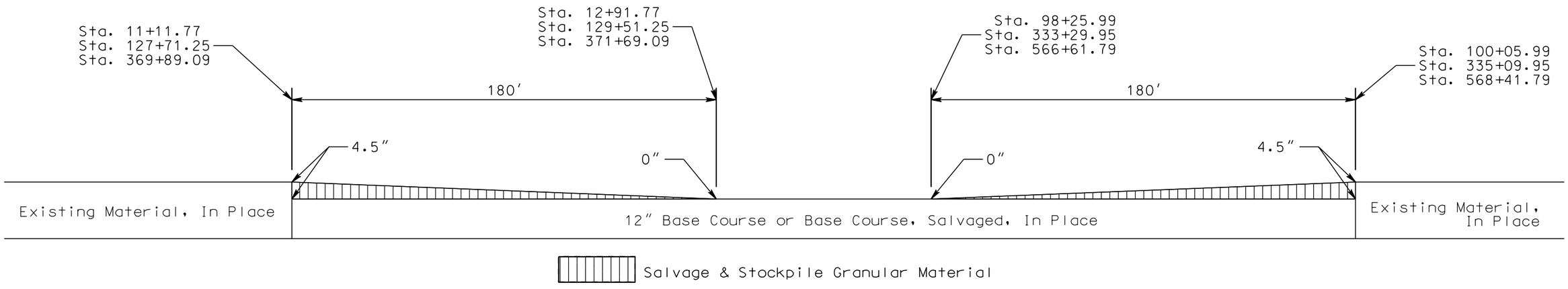
PLOT NAME - 14

FILE - ...\0507_TYPICAL SECTIONS.DGN

VERTICAL TRANSITION LAYOUTS

NOT TO SCALE
SHEET 1 OF 1 SHEETS

Details of Material Salvage at Begin/ End of Grading Sections



Not to Scale

PLOT SCALE - 1:24

PLOTTED FROM - TRPR18387

PLOT NAME - 15

FILE - ...\COLD MILLING TRANSITION.DGN

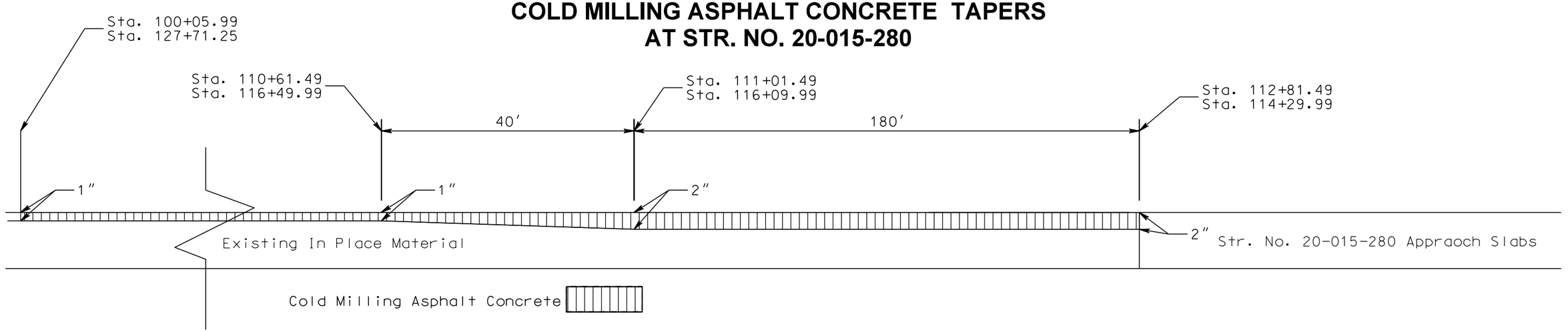
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F16	F38

Plotting Date: 08/22/2025

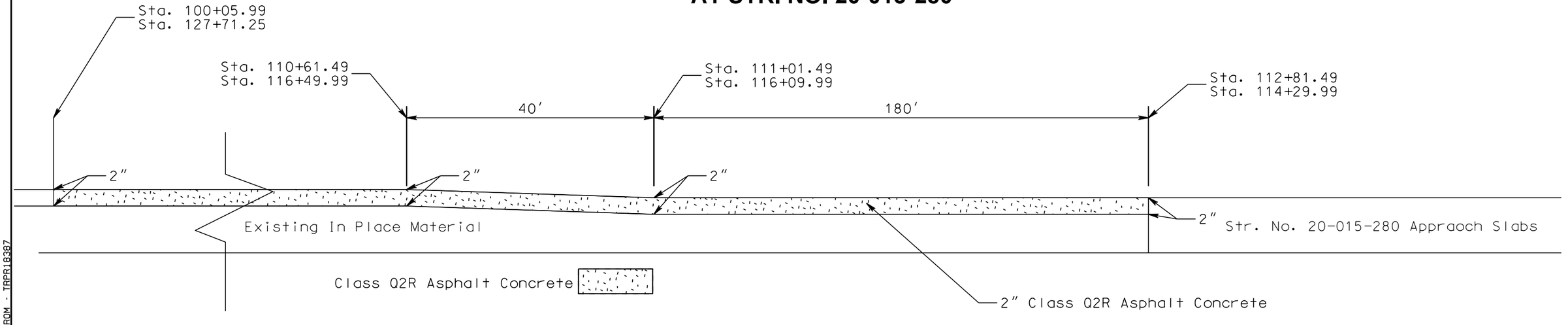
DETAILS FOR DRIVING SURFACE TAPERS

NOT TO SCALE
SHEET 1 OF 2 SHEETS

COLD MILLING ASPHALT CONCRETE TAPERS AT STR. NO. 20-015-280



RESURFACING ASPHALT CONCRETE TAPERS AT STR. NO. 20-015-280



Not to Scale

PLOT SCALE - 1:24

PLOTTED FROM - TRPR18387

PLOT NAME - 16

FILE - ...\COLD MILLING TRANSITION.DGN

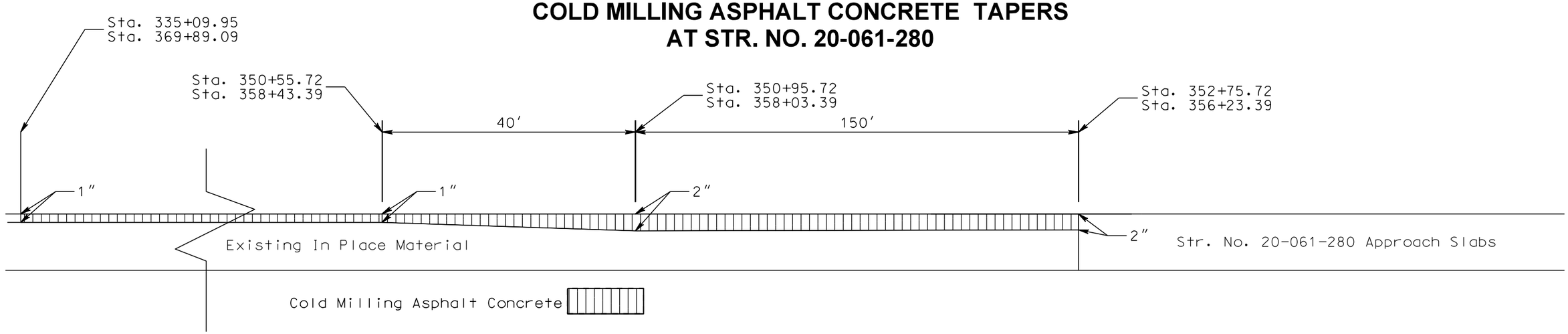
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F17	F38

Plotting Date: 08/22/2025

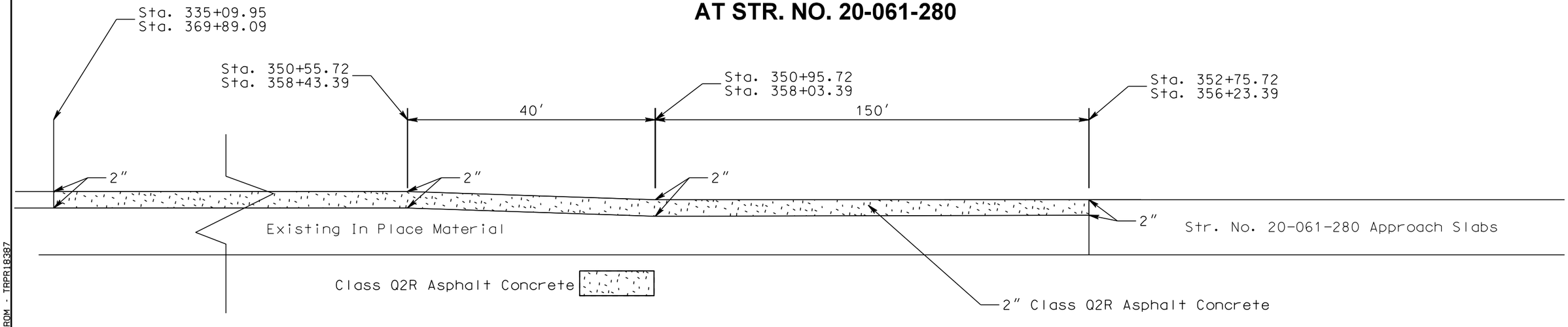
DETAILS FOR DRIVING SURFACE TAPERS

NOT TO SCALE
SHEET 2 OF 2 SHEETS

COLD MILLING ASPHALT CONCRETE TAPERS AT STR. NO. 20-061-280



RESURFACING ASPHALT CONCRETE TAPERS AT STR. NO. 20-061-280



Not to Scale

PLOT SCALE - 1:24

PLOT NAME - 17

FILE - ...\COLD MILLING TRANSITION.DGN

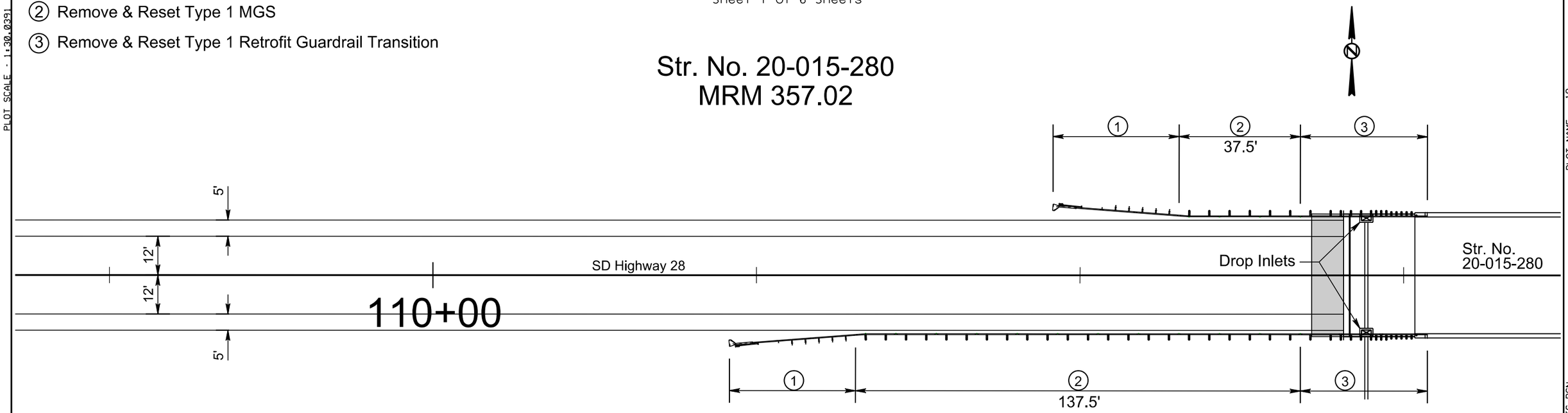
PLOTTED FROM - TRPR18387

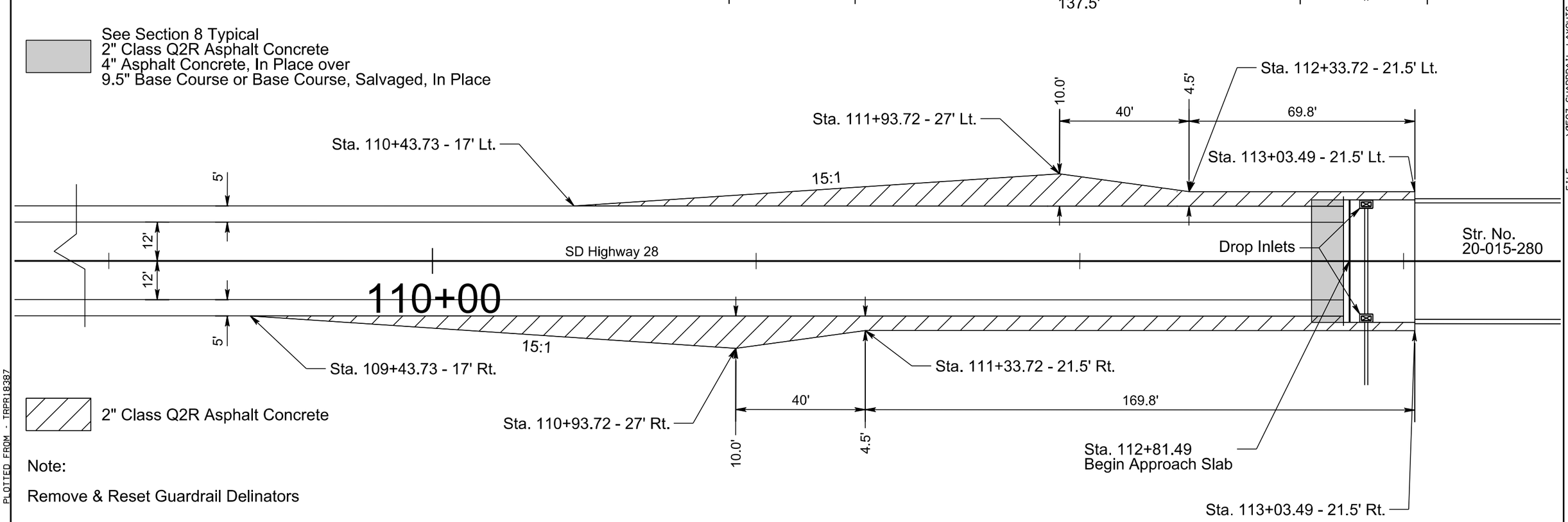
GUARDRAIL LAYOUTS

Scale 1 Inch = 30 Feet
Sheet 1 of 6 Sheets

① Remove & Reset MGS Mash Flared End Terminal
② Remove & Reset Type 1 MGS
③ Remove & Reset Type 1 Retrofit Guardrail Transition

Str. No. 20-015-280
MRM 357.02





Note:

Remove & Reset Guardrail Delinators

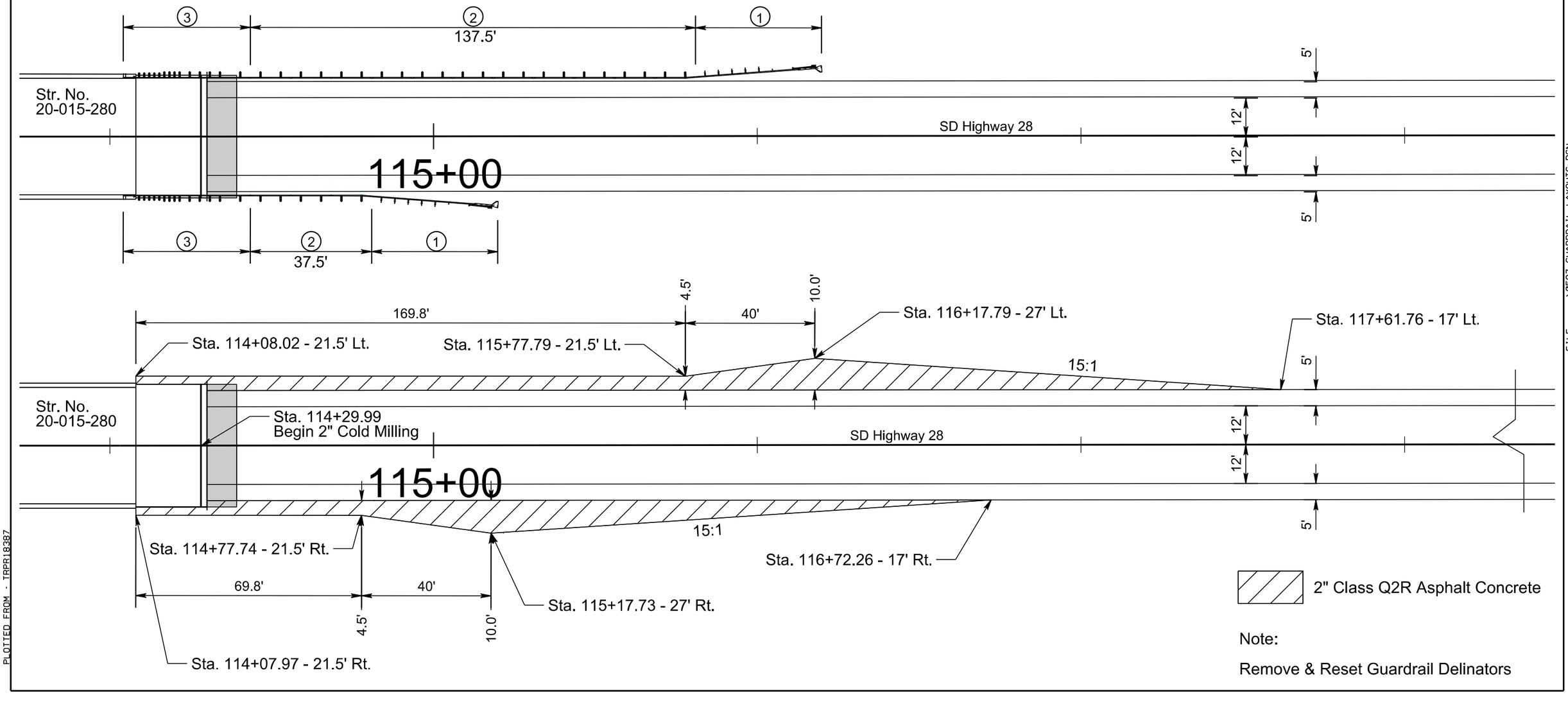
GUARDRAIL LAYOUTS

Scale 1 Inch = 30 Feet
Sheet 2 of 6 Sheets

① Remove & Reset MGS Mash Flared End Terminal
② Remove & Reset Type 1 MGS
③ Remove & Reset Type 1 Retrofit Guardrail Transition

Str. No. 20-015-280
MRM 357.02

See Section 8 Typical
2" Class Q2R Asphalt Concrete
4" Asphalt Concrete, In Place over
9.5" Base Course or Base Course, Salvaged, In Place



Note:

Remove & Reset Guardrail Delinators

GUARDRAIL LAYOUTS

Scale 1 Inch = 30 Feet
Sheet 3 of 6 Sheets

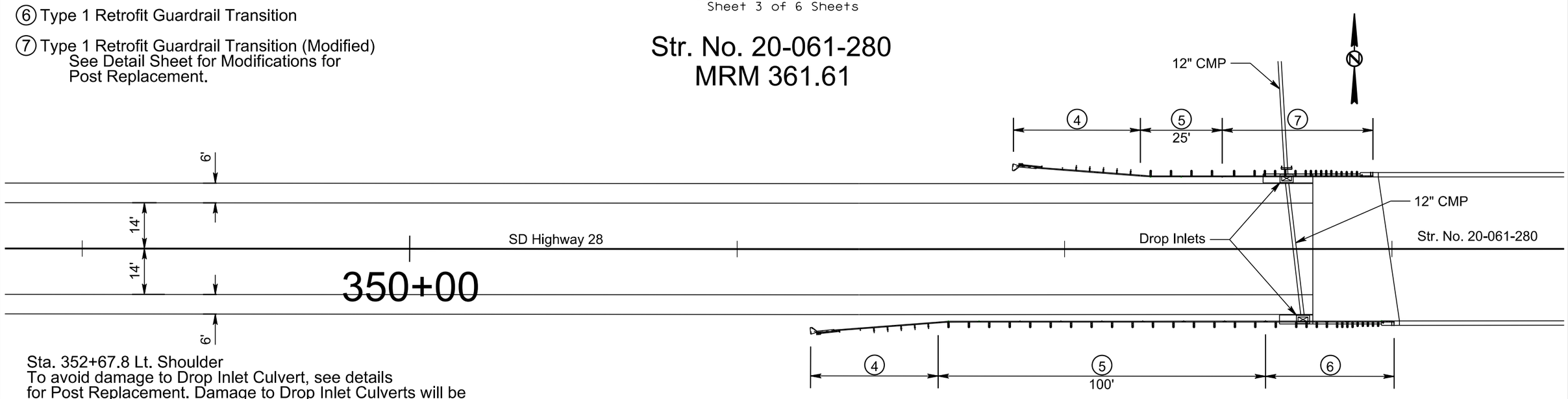
Str. No. 20-061-280
MRM 361.61

④ MGS Mash Flared End Terminal

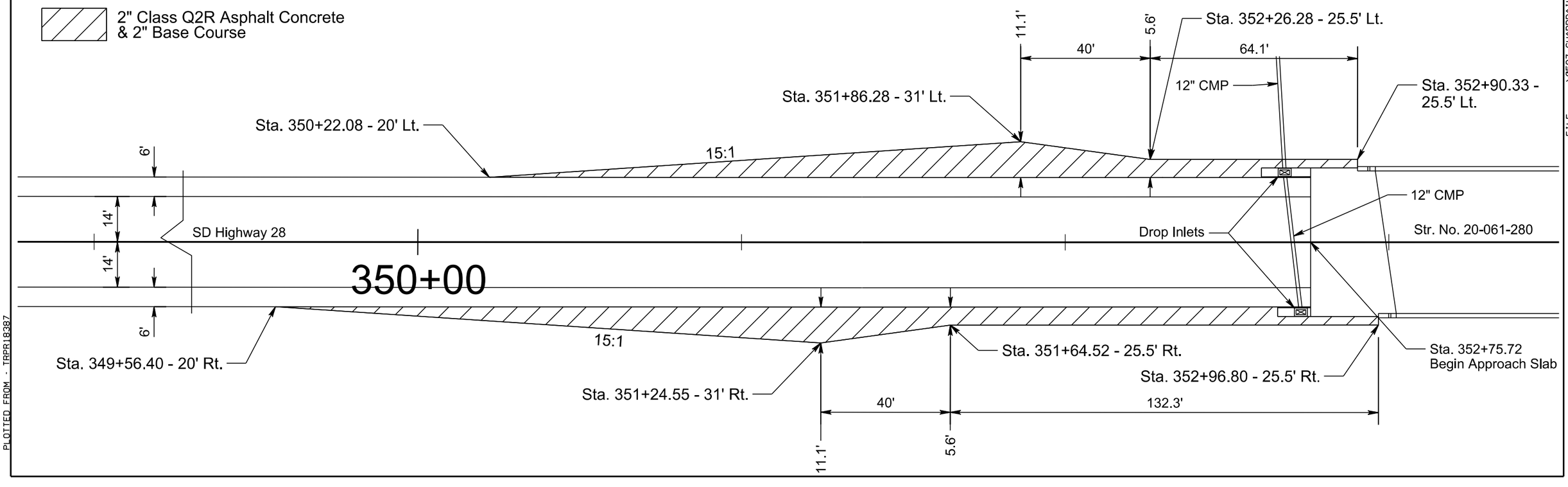
⑤ Type 1 MGS

⑥ Type 1 Retrofit Guardrail Transition

⑦ Type 1 Retrofit Guardrail Transition (Modified)
See Detail Sheet for Modifications for Post Replacement.



Sta. 352+67.8 Lt. Shoulder
To avoid damage to Drop Inlet Culvert, see details for Post Replacement. Damage to Drop Inlet Culverts will be replaced at the Contractor's expense, to the satisfaction of the Engineer. Cost for Post Replacement will be incidental to Guardrail Transition.



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F21	F38

Plotting Date: 08/22/2025

GUARDRAIL LAYOUTS

Scale 1 Inch = 30 Feet
Sheet 4 of 6 Sheets

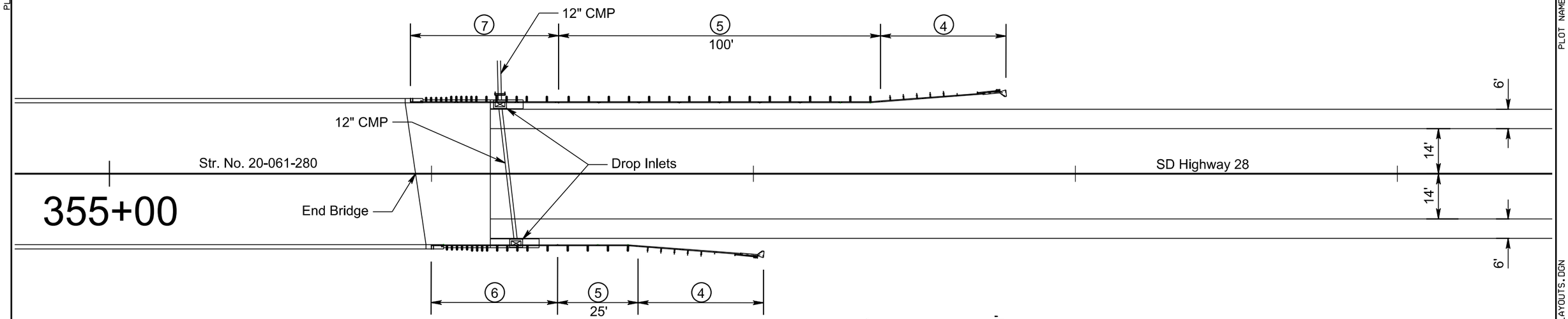
Str. No. 20-061-280
MRM 361.61

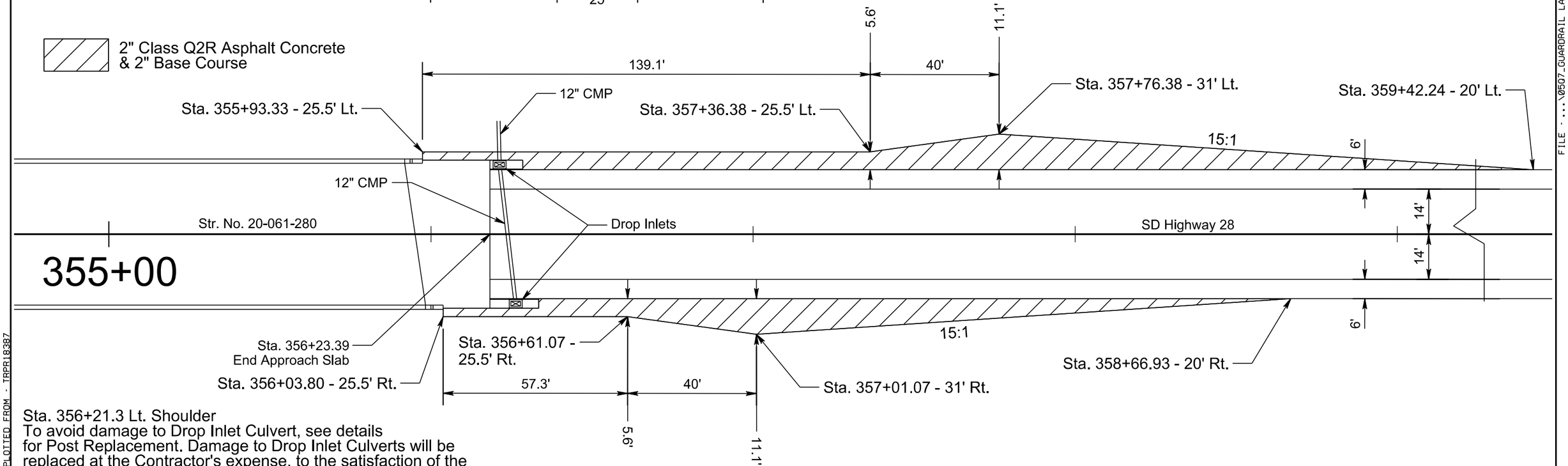
④ MGS Mash Flared End Terminal

⑤ Type 1 MGS

⑥ Type 1 Retrofit Guardrail Transition

⑦ Type 1 Retrofit Guardrail Transition (Modified)
See Detail Sheet for Modifications for Post Replacement.





Sta. 356+21.3 Lt. Shoulder
To avoid damage to Drop Inlet Culvert, see details for Post Replacement. Damage to Drop Inlet Culverts will be replaced at the Contractor's expense, to the satisfaction of the Engineer. Cost for Post Replacement will be incidental to Guardrail Transition.

PLOT SCALE - 1:30.0391
PLOTTED FROM - TRPR18387
PLOT NAME - 21
FILE - ...\0507_GUARDRAIL LAYOUTS.DGN

TYPE 1 RETROFIT GUARDRAIL TRANSITION MODIFIED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F22	F38

Plotting Date: 08/22/2025

Sheet 5 of 6 Sheets

Ⓐ See Standard Plate 630.51

Ⓑ 12'-6" Straight Single Class A Thrie Beam Guardrail with Wood Posts

Ⓒ See Standard Plate 630.51

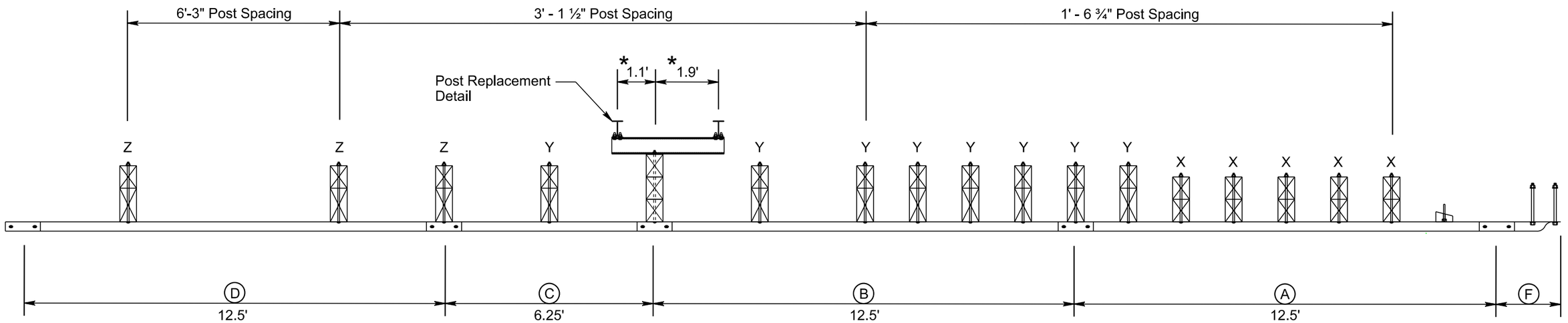
Ⓓ See Standard Plate 630.51

Ⓕ Thrie Beam Terminal Connector (See Standard Plate 630.47)

Str. No. 20-061-280
MRM 361.61
Begin Bridge Lt. Shoulder

Posts & Blocks X,Y, and Z - See Standard Plate 630.51

* Contractor will verify dimensions



TYPE 1 RETROFIT GUARDRAIL TRANSITION MODIFIED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F23	F38

Plotting Date: 08/22/2025

Sheet 6 of 6 Sheets

Ⓐ See Standard Plate 630.51

Ⓑ 12'-6" Straight Single Class A Thrie Beam Guardrail with Wood Posts

Ⓒ See Standard Plate 630.51

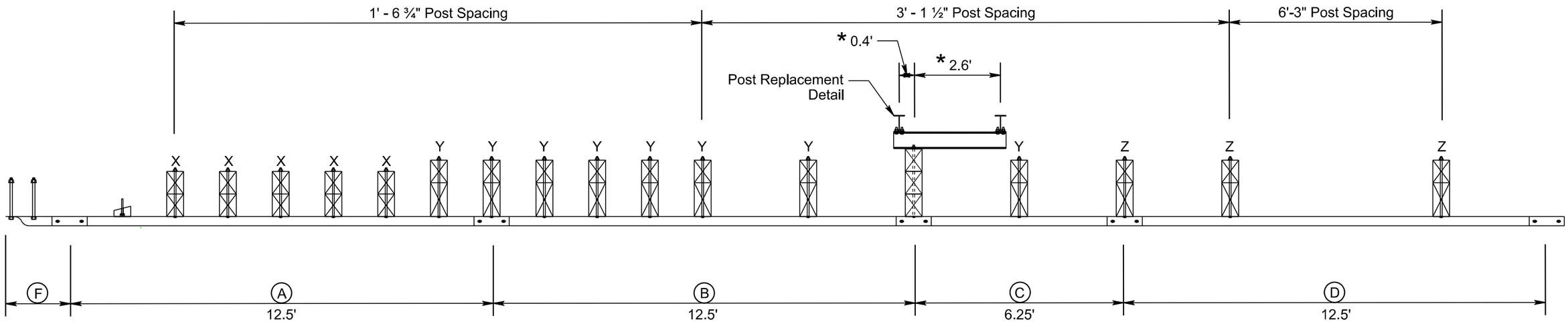
Ⓓ See Standard Plate 630.51

Ⓕ Thrie Beam Terminal Connector (See Standard Plate 630.47)

Str. No. 20-061-280
MRM 361.61
End Bridge Lt. Shoulder

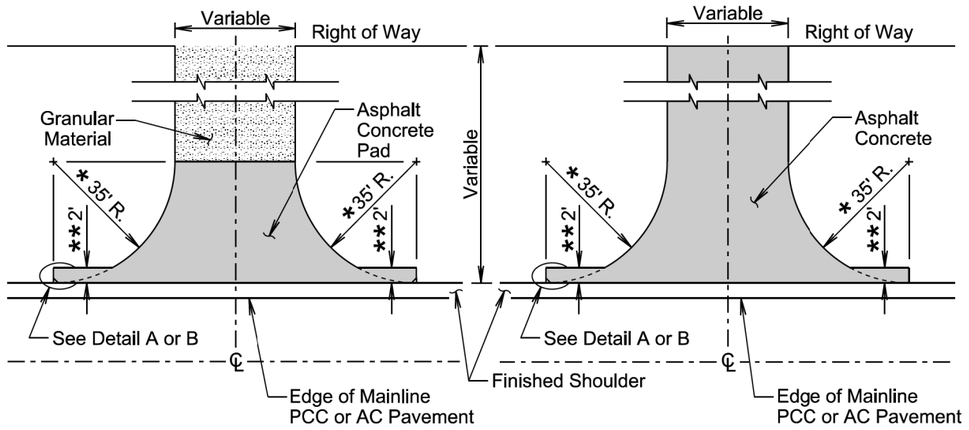
Posts & Blocks X,Y, and Z - See Standard Plate 630.51

* Contractor will verify dimensions



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F24	F38

Plotting Date: 08/22/2025



PLAN VIEW
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)

PLAN VIEW
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)

GENERAL NOTES:

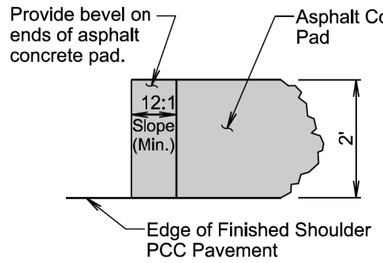
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

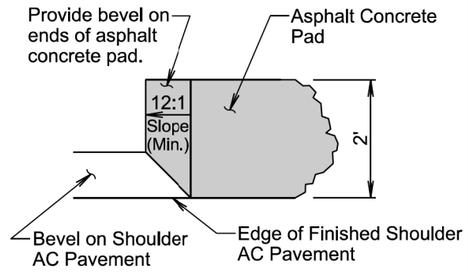
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

August 27, 2020

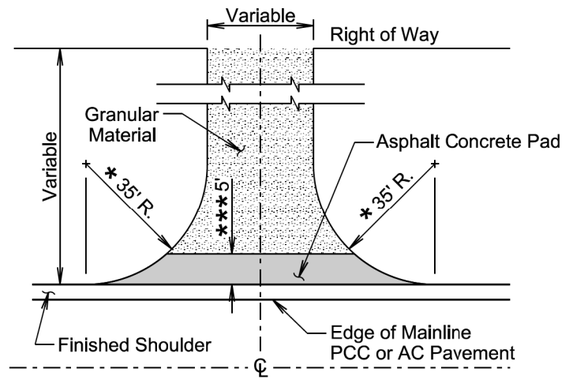
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



DETAIL A
(Typ. for Projects with PCC Pavement on Shoulder)



DETAIL B
(Typ. for Projects with AC Pavement on Shoulder)



PLAN VIEW
(Entrance)

*** Not required if finished shoulder width is 4' or greater.

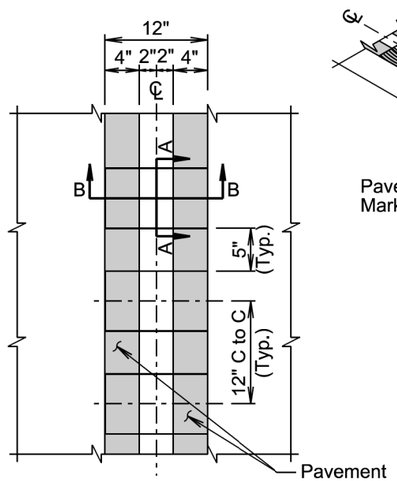
August 27, 2020

Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2

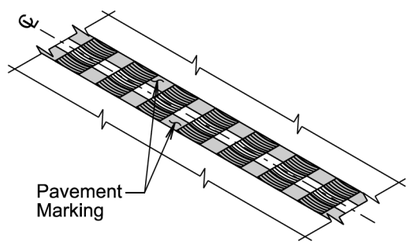
Plot Scale - 1:200

Plotted From - TRPR18387

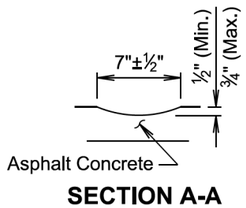
File - ...\haml05Q7\StdPlateSectionF.dgn



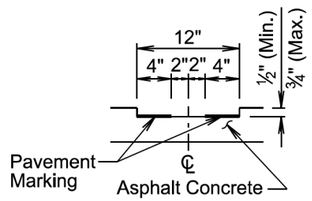
PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)



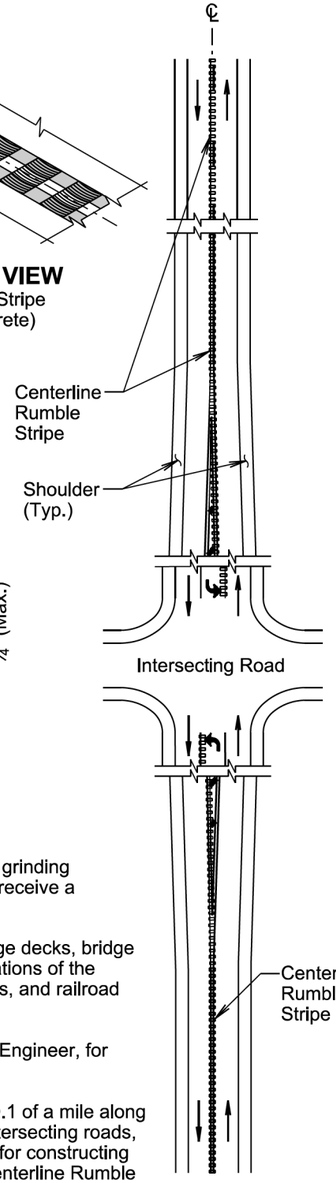
PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)



SECTION A-A



SECTION B-B



PLAN VIEW

GENERAL NOTES:

A rumble stripe will be constructed on the centerline of the roadway by grinding continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

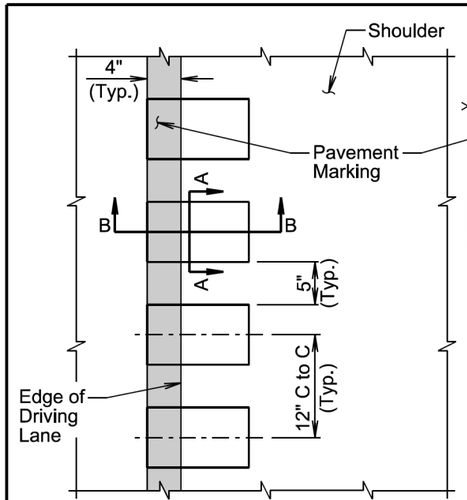
A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

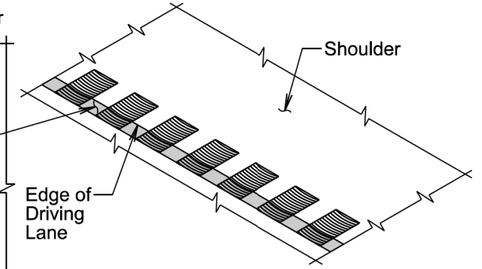
Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Centerline Rumble Stripe in Asphalt Concrete".

November 19, 2020

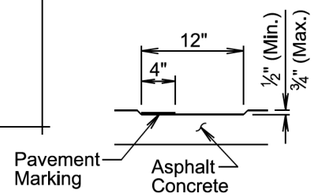
Published Date: 2026	SDDOT	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
			Sheet 1 of 1



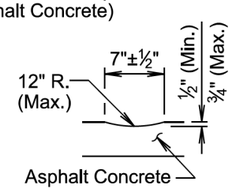
PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)



PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)



SECTION B-B



SECTION A-A

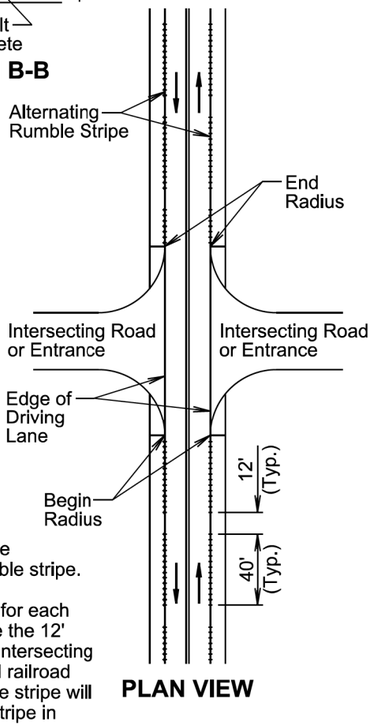
GENERAL NOTES:

A rumble stripe will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble stripe will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

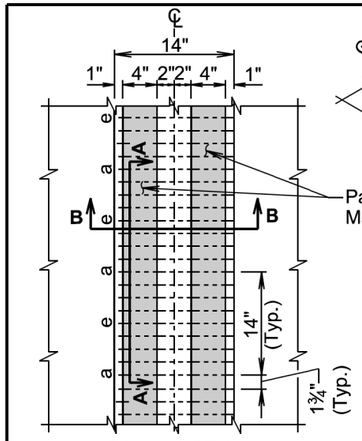
Measurement of the rumble stripe will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe will include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble stripes. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".



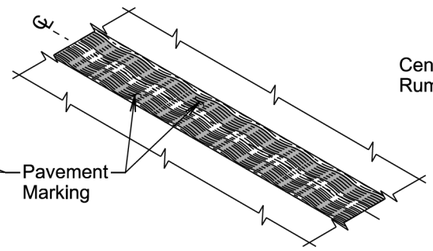
PLAN VIEW

September 14, 2019

Published Date: 2026	SDDOT	12" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.22
			Sheet 1 of 1

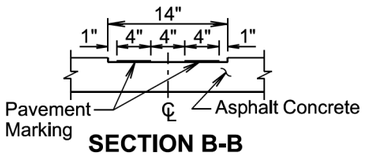


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

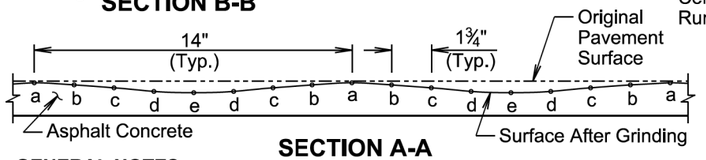


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

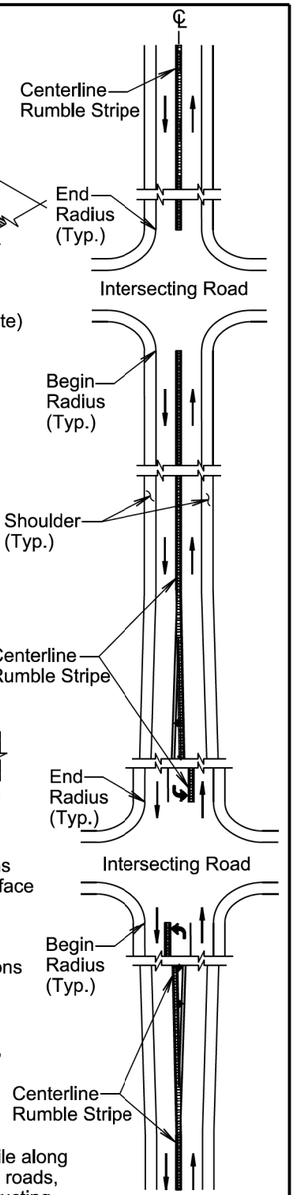
SINUSOIDAL GRINDING	
Location	* Depth (In.)
a	1/16
b	5/32
c	9/32
d	7/16
e	1/2



SECTION B-B



SECTION A-A



PLAN VIEW

GENERAL NOTES:

A rumble stripe will be constructed by grinding continuous sinusoidal indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

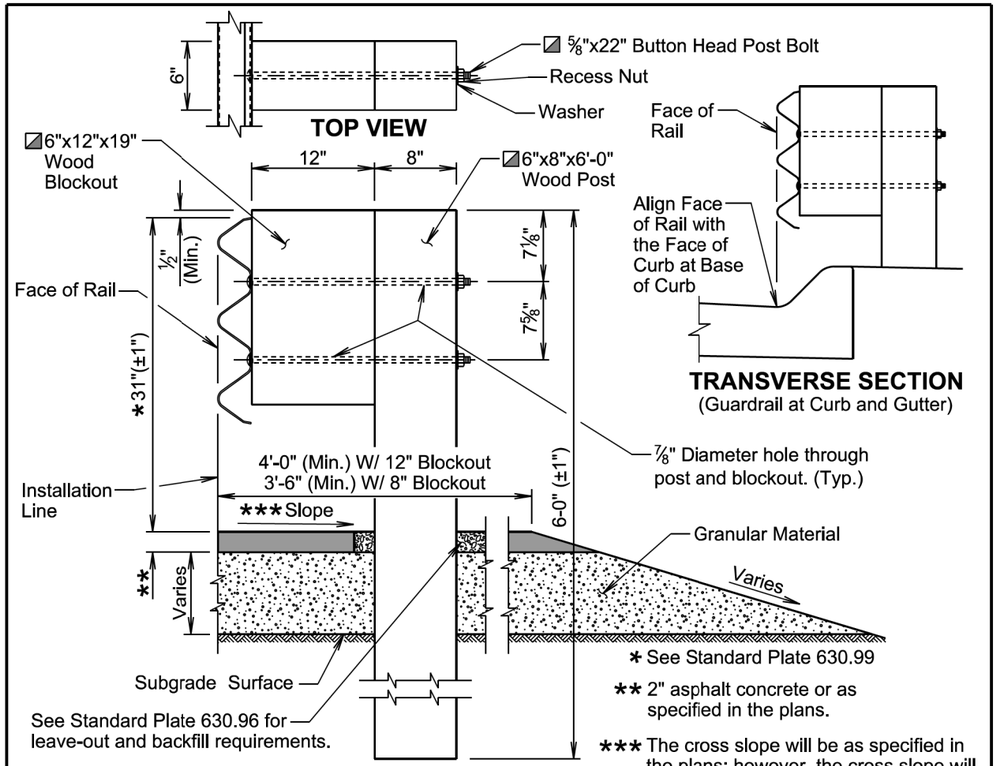
Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

* The sinusoidal rumble stripe construction grinding tolerance will be ± 1/16 inch.

Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete".

September 14, 2019

Published Date: 2026	SDDOT	SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.40 Sheet 1 of 1



* See Standard Plate 630.99

** 2" asphalt concrete or as specified in the plans.

*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

GENERAL NOTES:

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

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

Topsoil is not shown in the transverse section drawing.

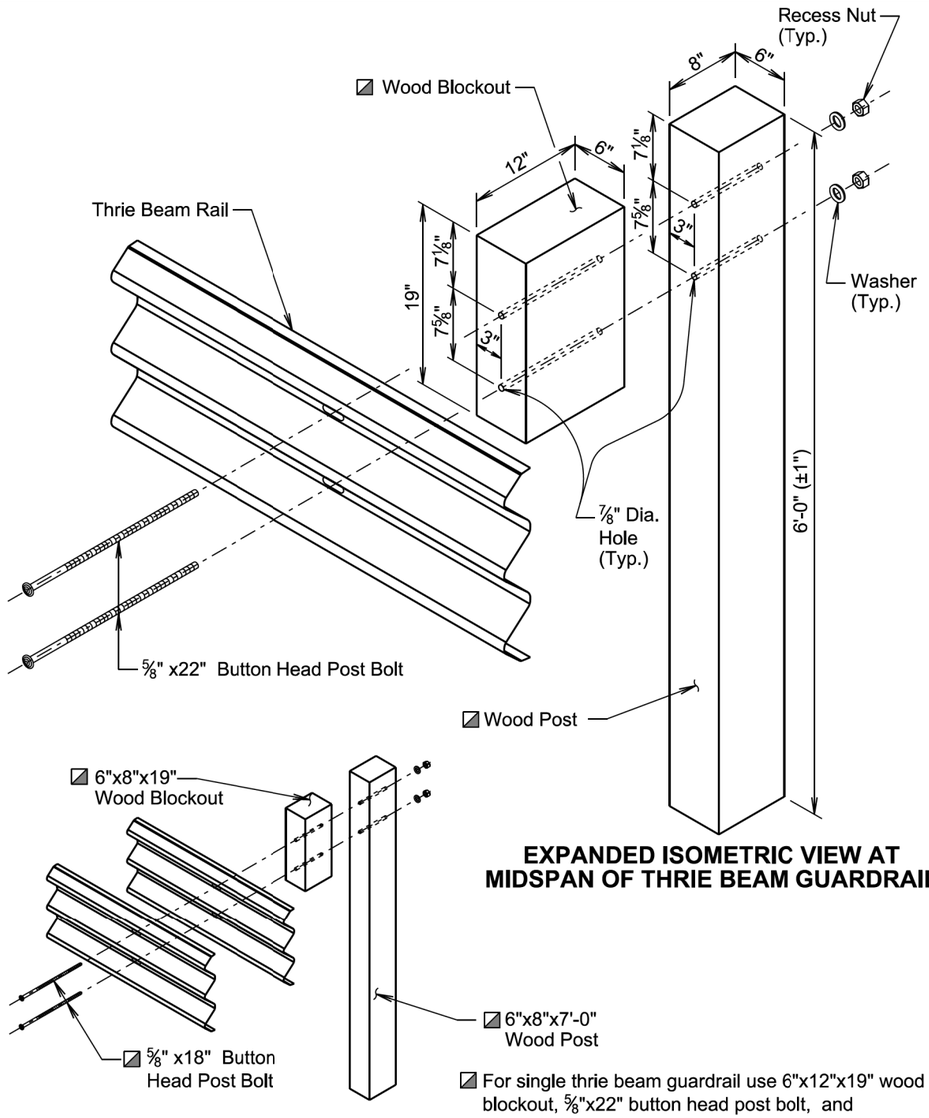
☑ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

The top of post and top of block will have a true square cut. The top of block will be a maximum of ±½ inch from the top of the post.

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01 Sheet 1 of 5



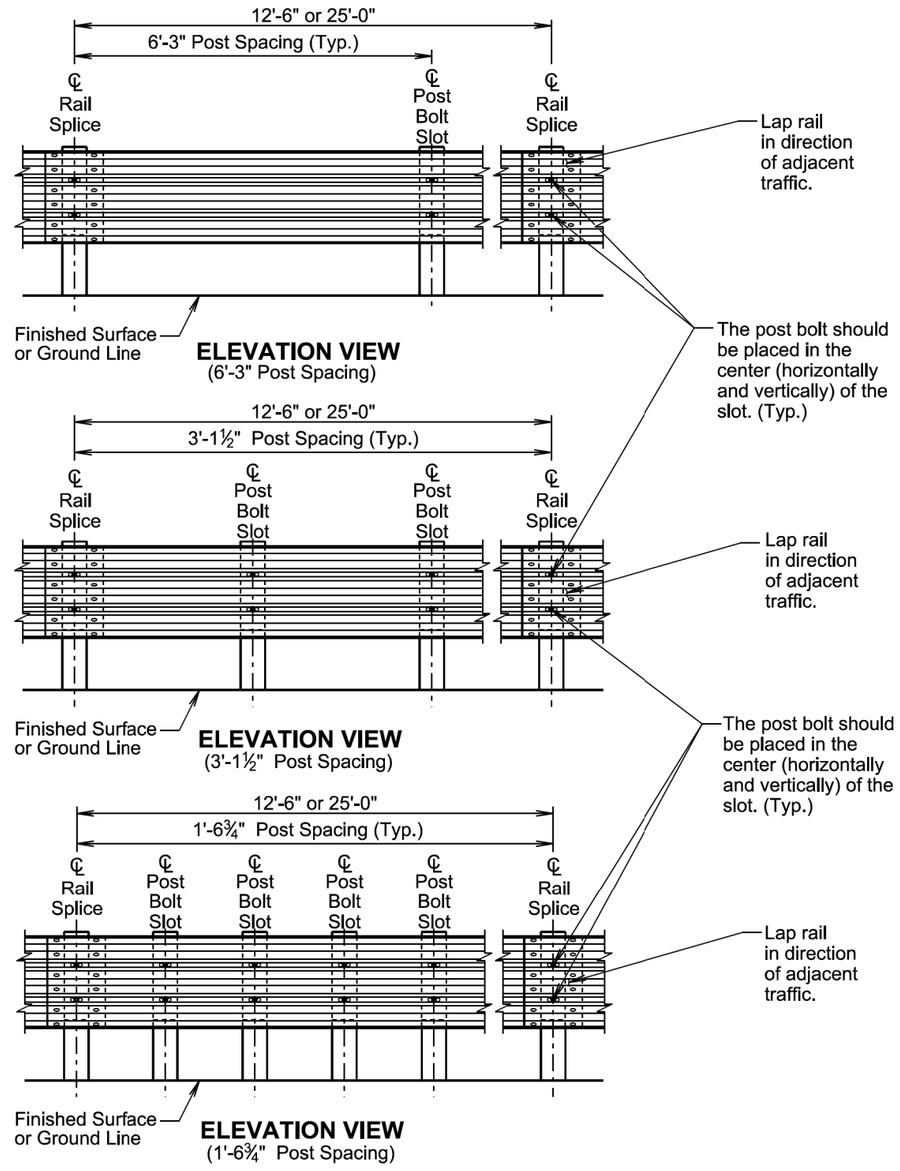
EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) THRIE BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

- For single thrie beam guardrail use 6"x12"x19" wood blockout, ⅝"x22" button head post bolt, and 6"x8"x6'-0" wood post. For double (nested) thrie beam guardrail use 6"x8"x19" wood blockout, ⅝"x18" button head post bolt, and 6"x8"x7'-0" wood post.

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01 Sheet 2 of 5



ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

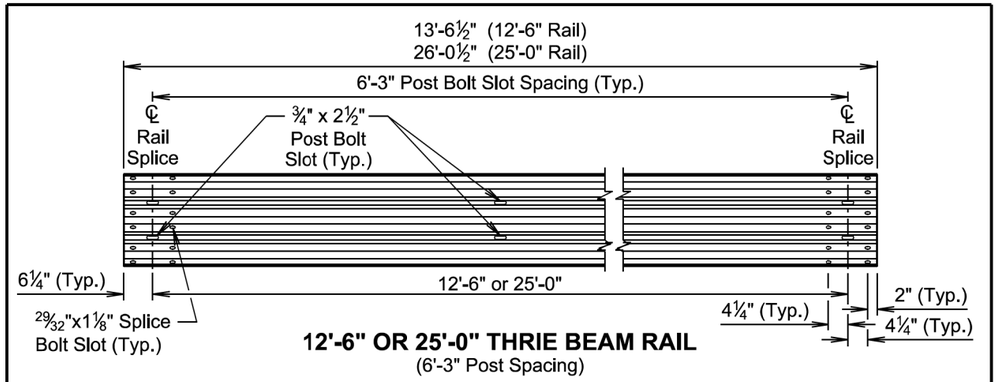
ELEVATION VIEW
(1'-6¾" Post Spacing)

April 8, 2025

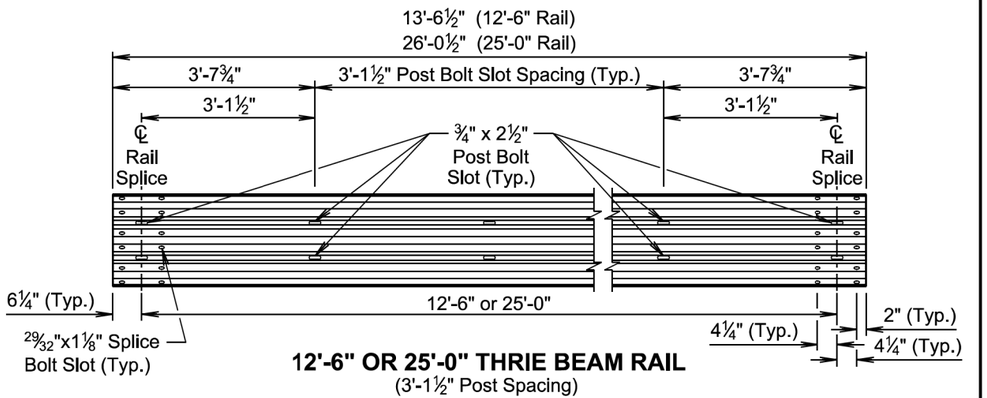
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01 Sheet 3 of 5

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F28	F38

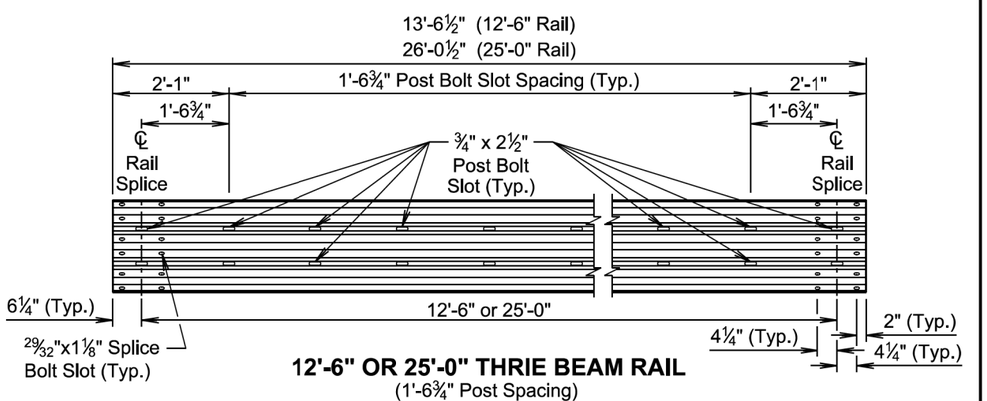
Plotting Date: 08/22/2025



12'-6" OR 25'-0" THRIE BEAM RAIL
(6'-3" Post Spacing)



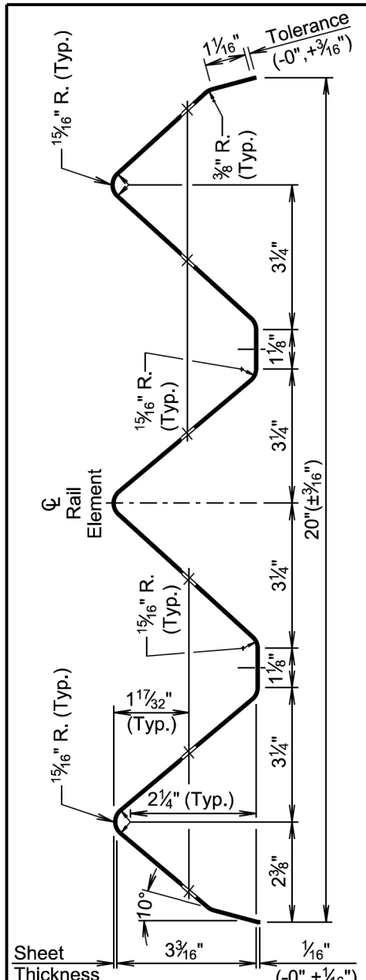
12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1½" Post Spacing)



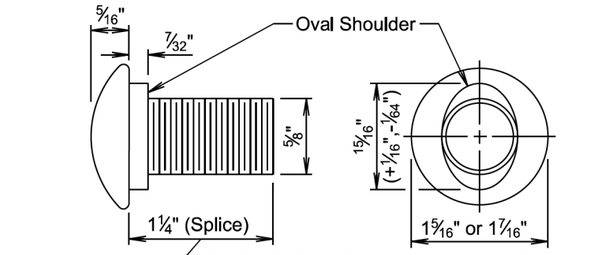
12'-6" OR 25'-0" THRIE BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

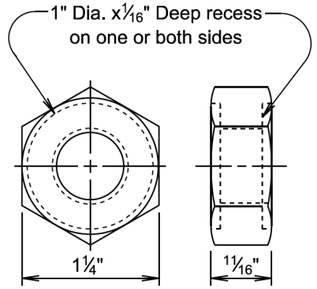
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 4 of 5



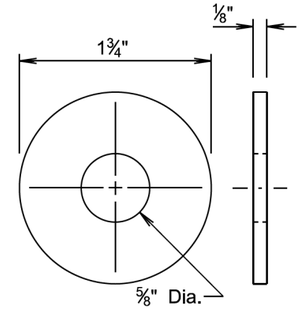
SECTION THROUGH THRIE BEAM RAIL



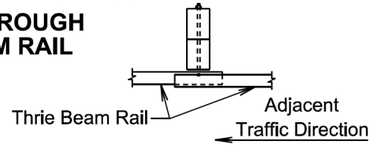
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



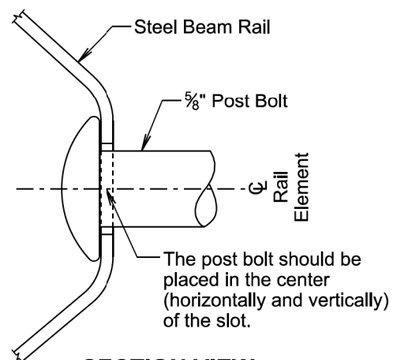
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 1 and 2.)



PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(12 splice bolts and 12 recess nuts per splice, NO washers)



SECTION VIEW
(At Post Bolt)

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 5 of 5

Plot Scale - 1:200
Plotted From - TRPR18387
File - ...\hamlf05Q7\StdPlateSectionF.dgn

TYPE AND DETAILS OF MGS						
Type of MGS	W Beam Rail Single or Double (Nested)	Blockout Size	Blockout Material	Post Size	Post Material	Post Spacing
1	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"
1C	Single	6"x12"x14"	Wood	6"x8"x7'-6"	Wood	6'-3"
2	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	3'-1½"
3	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	1'-6¾"
4	Double	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"

STANDARD PLATE REFERENCE	
Type of MGS	See Standard Plate(s)
1	630.20, 630.22
1C	630.20, 630.25
2	630.20
3	630.20
4	630.20

GENERAL NOTES:

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite".

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

Topsoil is not shown in the transverse section drawing on sheet 2 of 6.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

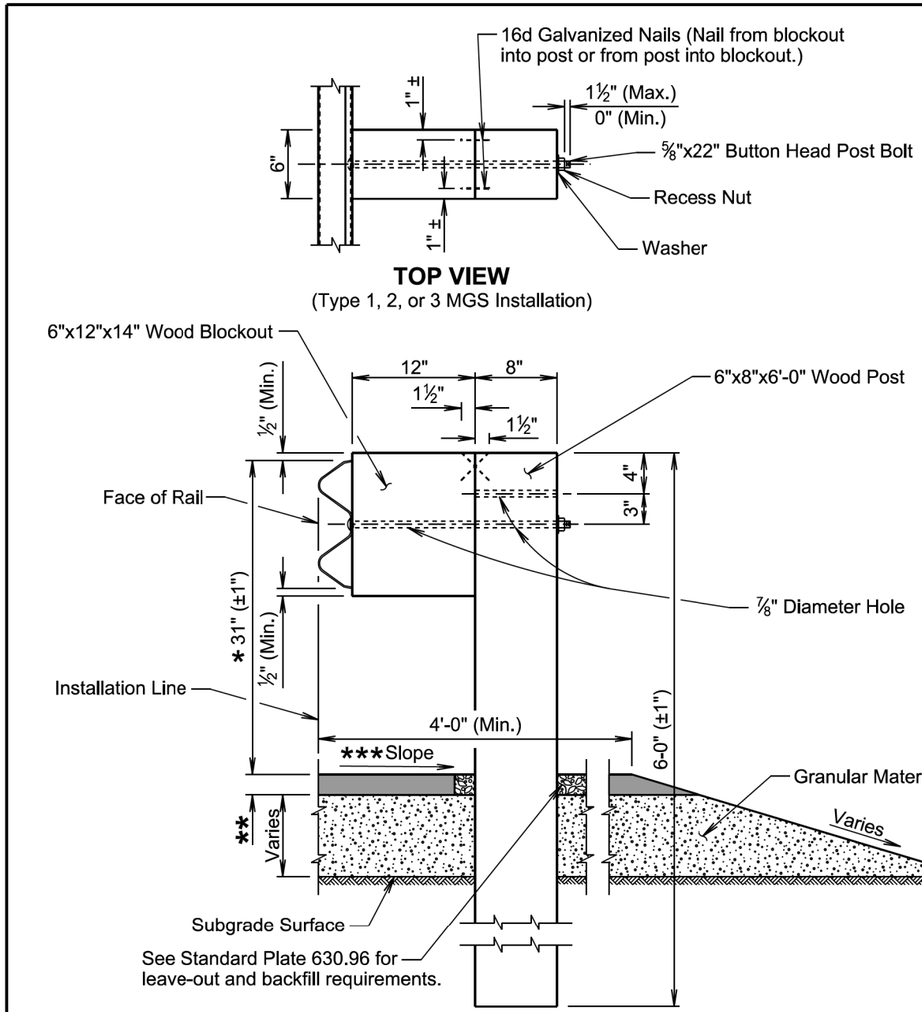
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20 Sheet 1 of 6



TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

* See Standard Plate 630.99

** 2" asphalt concrete or as specified in the plans.

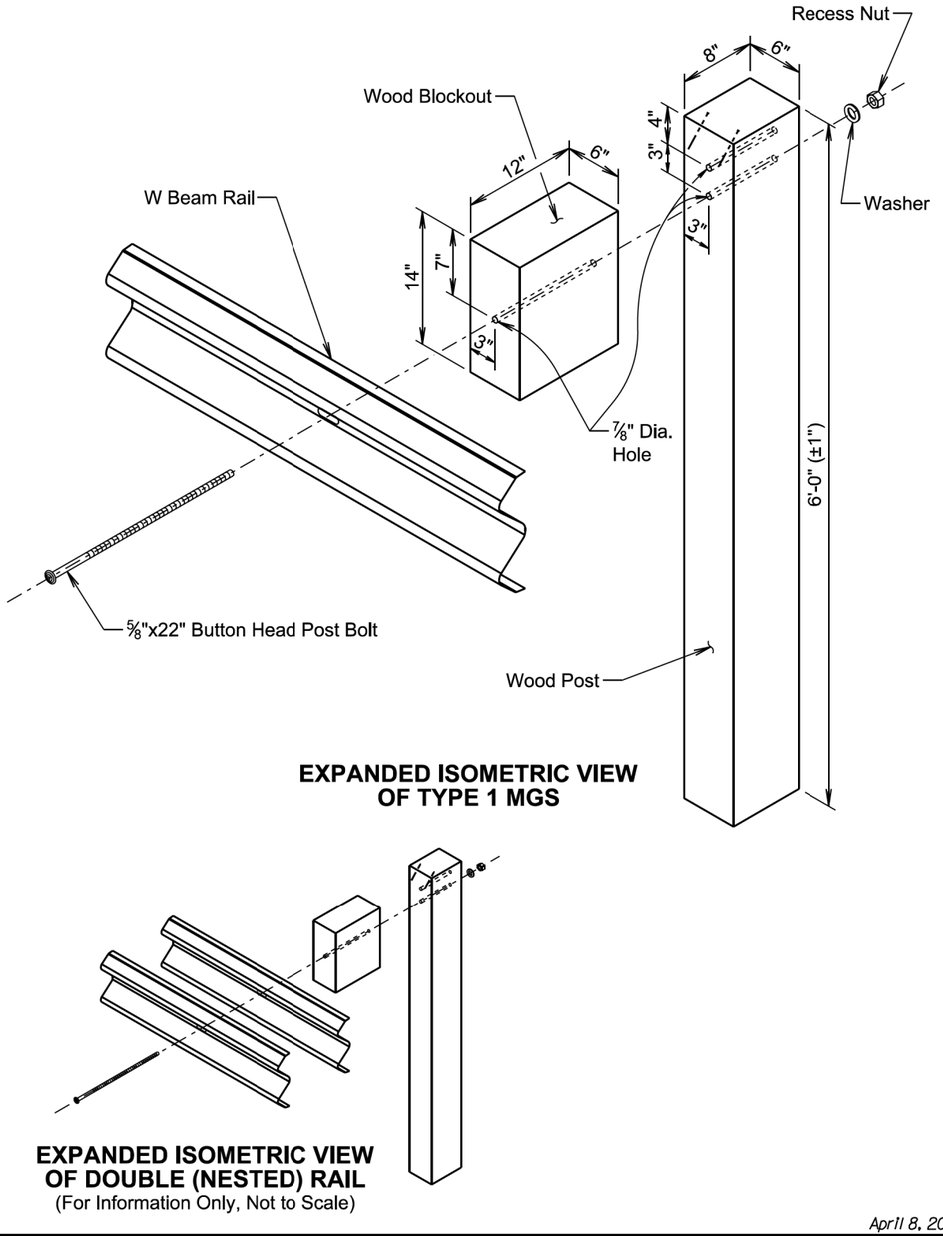
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20 Sheet 2 of 6

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F30	F38

Plotting Date: 08/22/2025

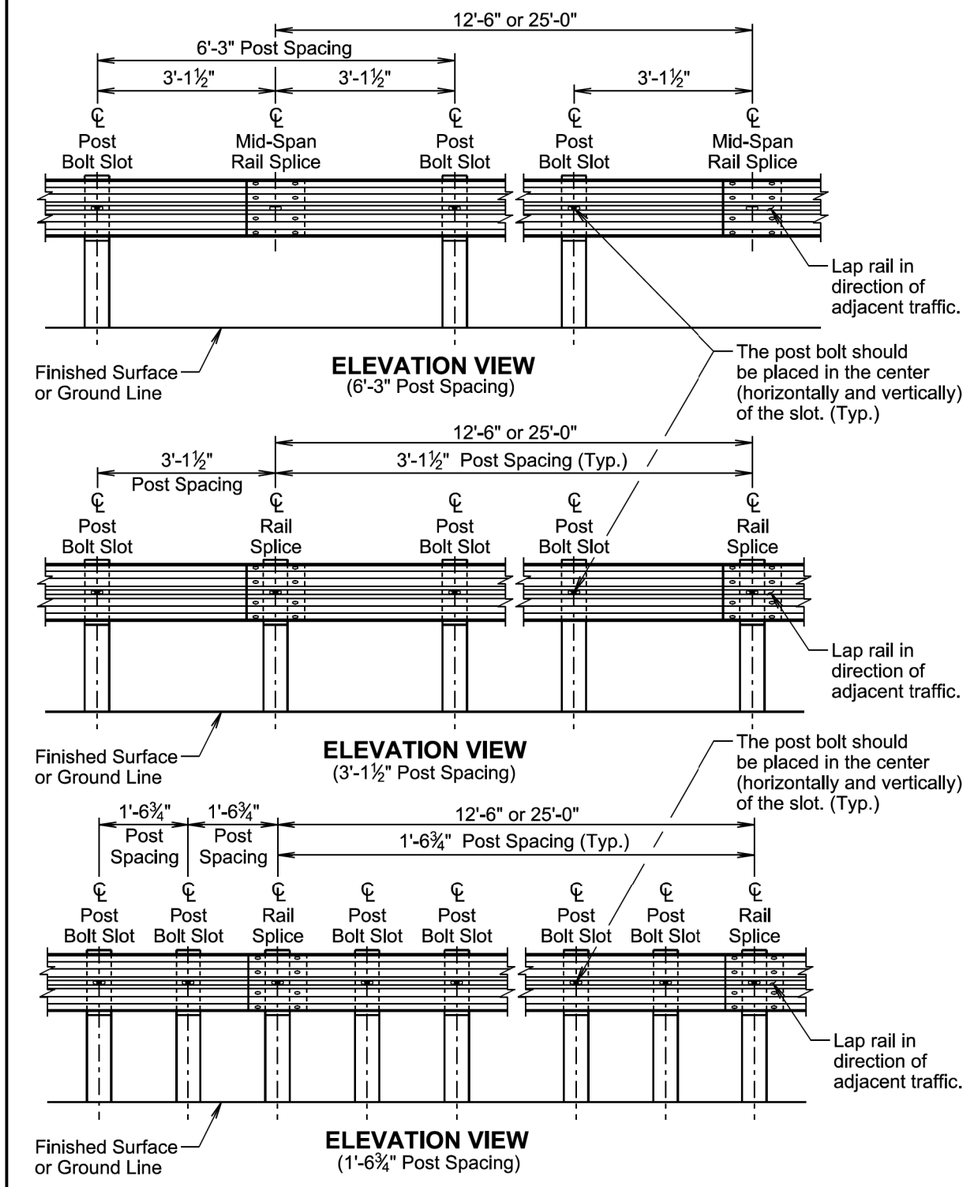


EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS

EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) RAIL
(For Information Only, Not to Scale)

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6



ELEVATION VIEW
(6'-3" Post Spacing)

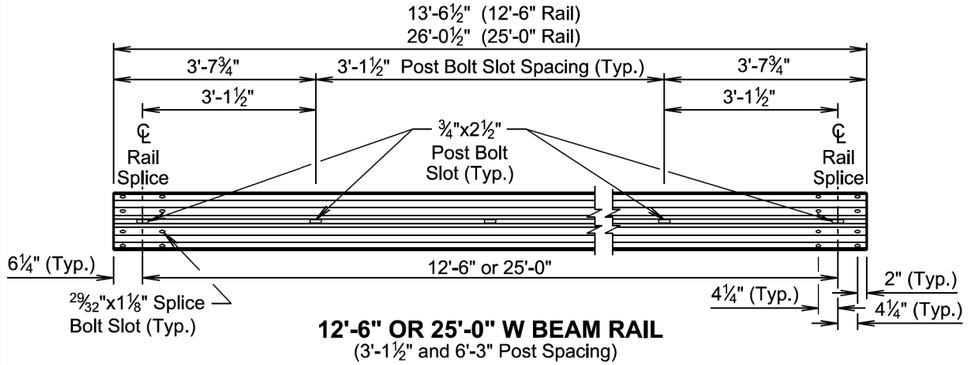
ELEVATION VIEW
(3'-1½" Post Spacing)

ELEVATION VIEW
(1'-6¾" Post Spacing)

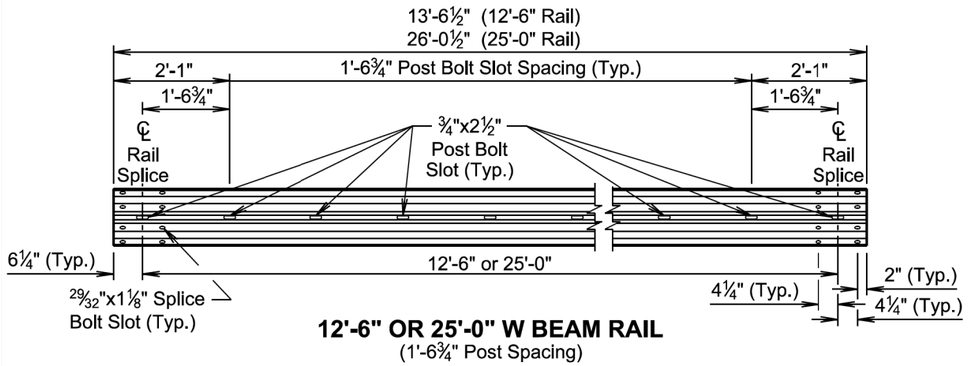
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6

Plot Scale - 1:200
Plotted From - TRPR18387
File - ...\ham\05\07\StdPlateSectionF.dgn



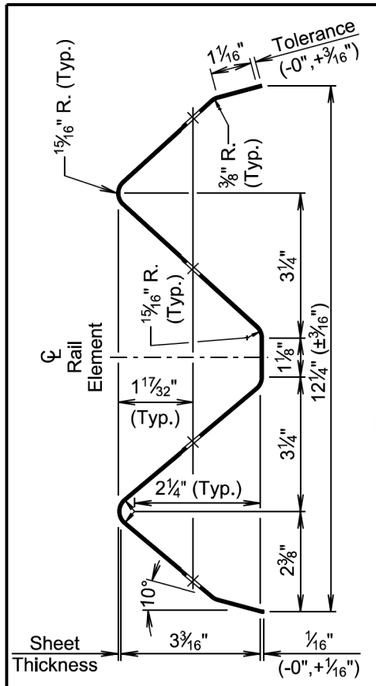
12'-6" OR 25'-0" W BEAM RAIL
(3'-1½" and 6'-3" Post Spacing)



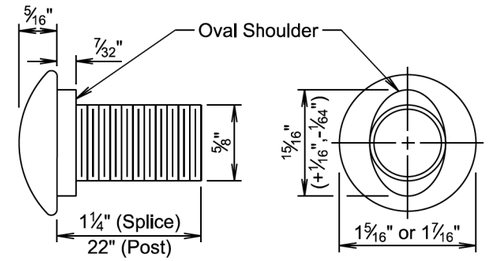
12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

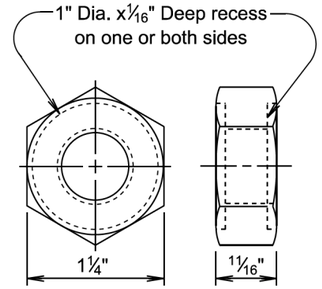
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



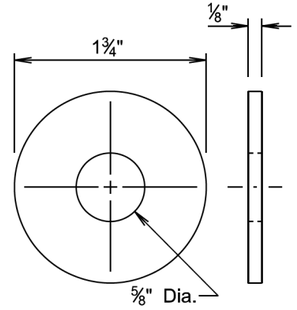
SECTION THROUGH W BEAM RAIL



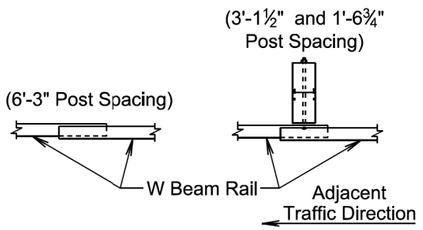
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



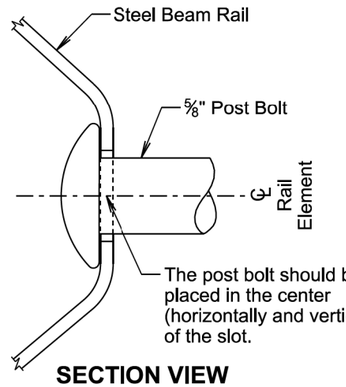
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 2 and 3.)



PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(8 splice bolts and 8 recess nuts per splice, NO washers)

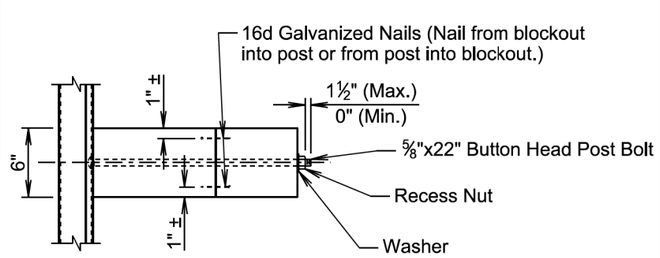


SECTION VIEW
(At Post Bolt)

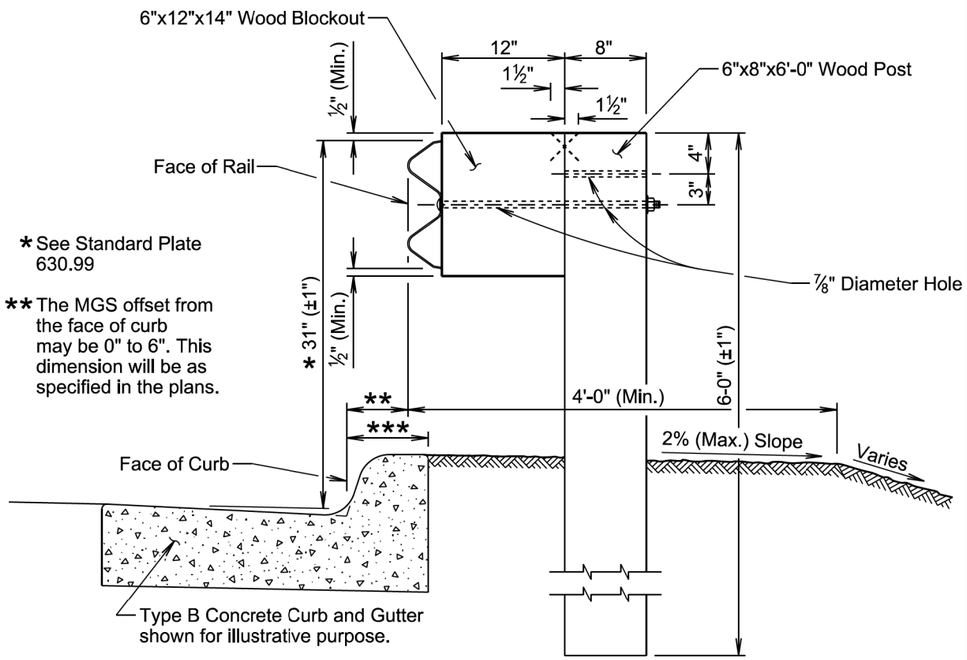
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6

CONCRETE CURB AND GUTTER TYPE	DIMENSION *** (in.)
B and BL	8
D	12
F and FL	10
R	11



TOP VIEW



* See Standard Plate 630.99

** The MGS offset from the face of curb may be 0" to 6". This dimension will be as specified in the plans.

TRANSVERSE SECTION

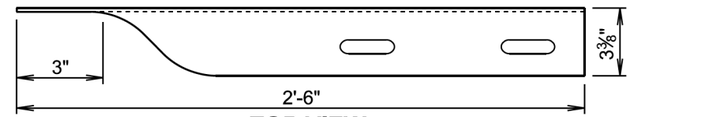
GENERAL NOTES:

The guardrail on this standard plate is Type 1 MGS. See standard plate 630.20 for specifications regarding Type 1 MGS.

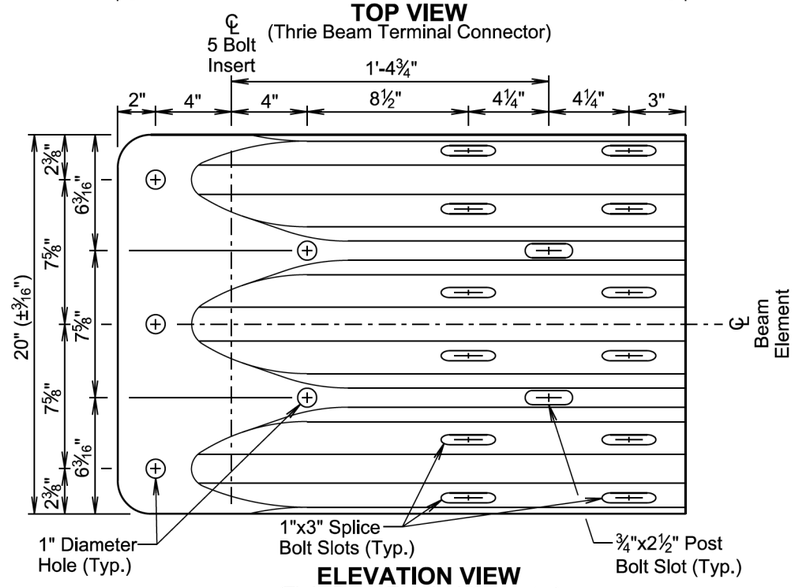
When PCC pavement or asphalt concrete pavement is adjacent to the post, see standard plate 630.96 for leave-out and backfill requirements.

April 8, 2025

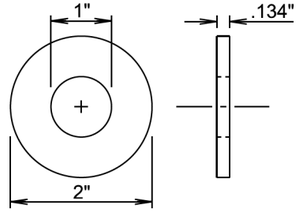
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS) AT CURB AND GUTTER	PLATE NUMBER 630.22
			Sheet 1 of 1



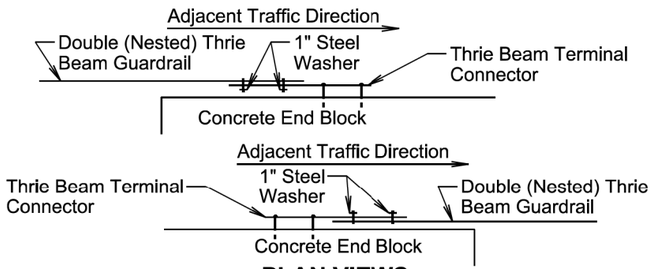
TOP VIEW
(Thrie Beam Terminal Connector)



ELEVATION VIEW
(Thrie Beam Terminal Connector)



1" STEEL WASHER
(12 washers required)



PLAN VIEWS
(Typical Locations of 1" Steel Washers)
(Washers are required at these lap splices)

GENERAL NOTES:

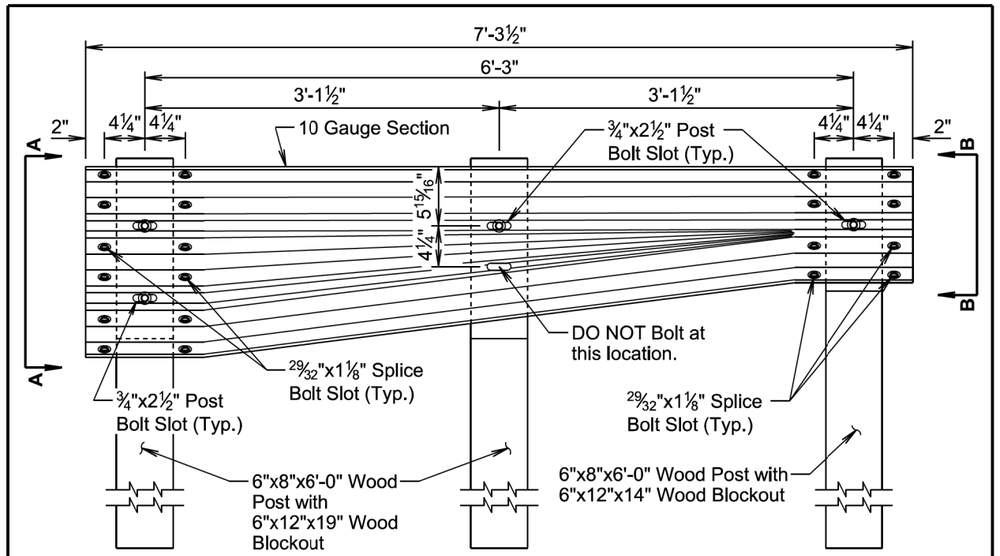
Thrie Beam Terminal Connectors will be 10 gauge.

When the thrie beam terminal connector is used to connect the rail to the bridge or concrete end block, 1" steel washers will be used at the lap splice and the washers will 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.

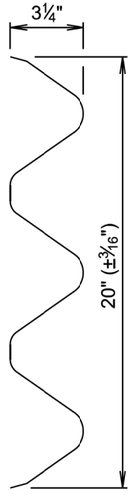
There will be no separate payment for furnishing and installing the thrie beam terminal connector. All costs for furnishing and installing the thrie beam terminal connector will be incidental to the contract unit price of the respective guardrail item it is attached to.

September 14, 2019

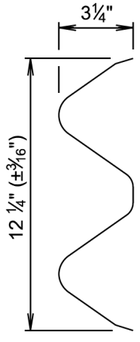
Published Date: 2026	SDDOT	THRIE BEAM TERMINAL CONNECTOR	PLATE NUMBER 630.47
			Sheet 1 of 1



ELEVATION VIEW



VIEW A-A



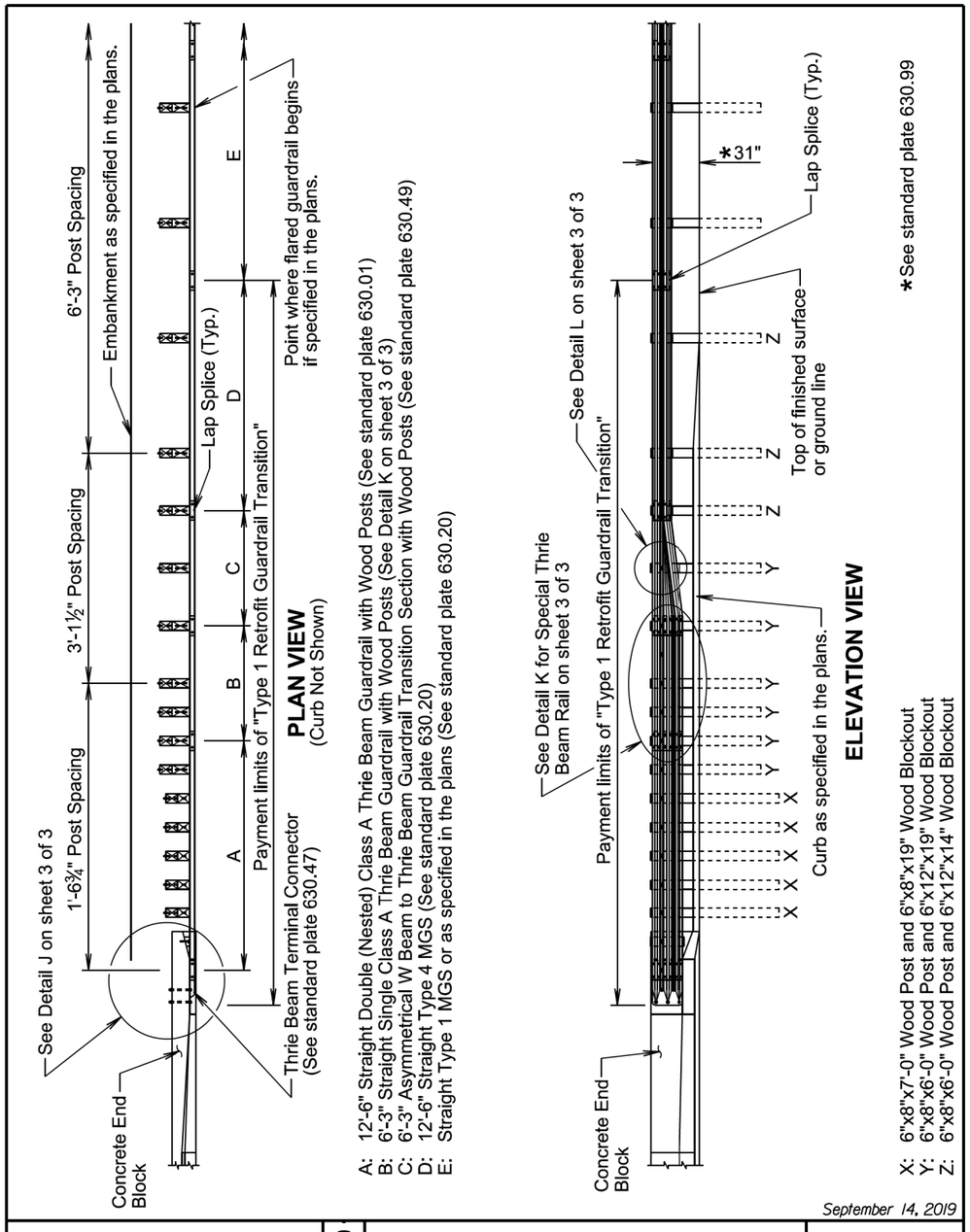
VIEW B-B

GENERAL NOTES:

All costs for furnishing and installing the asymmetrical W beam to thrie beam guardrail transition including labor, equipment, and materials including two posts, two blocks, asymmetrical W beam to thrie beam transition section, and hardware will be incidental to the contract unit price per each for the corresponding guardrail transition contract item.

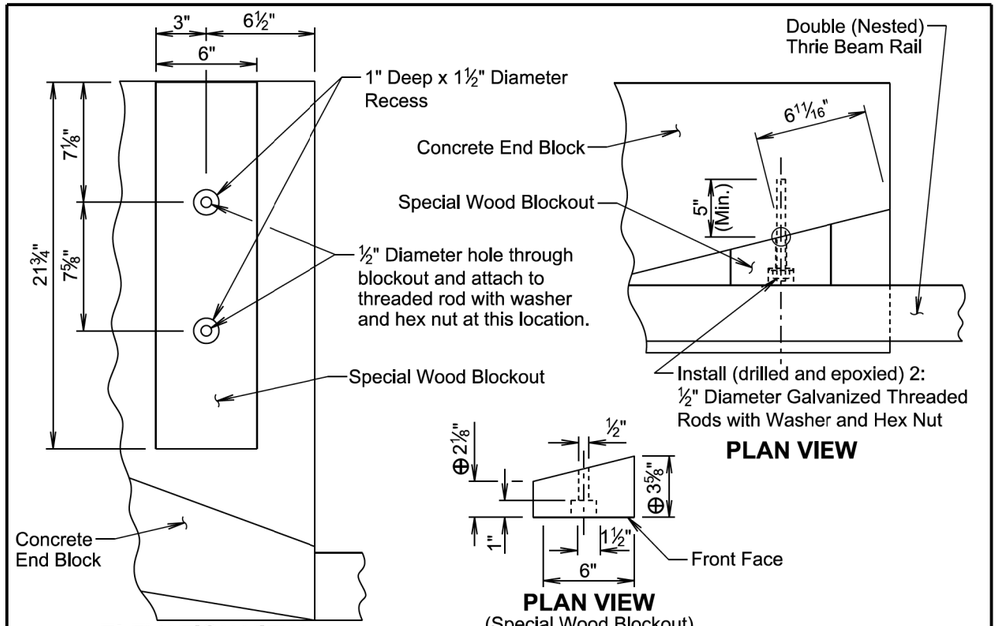
September 14, 2019

Published Date: 2026	SDDOT	ASYMMETRICAL W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.49 Sheet 1 of 1



September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 1 of 3



DETAIL M
(See the 3 drawings above)

GENERAL NOTES FOR INSTALLING THREADED RODS INTO CONCRETE:

⊕ The dimensions shown are estimated based on original construction plans of the concrete end block. The special wood blockout will be cut as necessary such that the front face of the special wood blockout will align with the vertical front face of the concrete end block ±½".

The threaded rods will be ½" diameter and conform to ASTM F1554, Grade 55. The threaded rods will be embedded a minimum of 5" into the concrete.

The diameter of the drilled holes will not be less than ⅛" greater or more than ⅜" greater than the diameter of the threaded rods or as per the Manufacturer's recommendations. The holes will not be drilled using core bits. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to the epoxy injection.

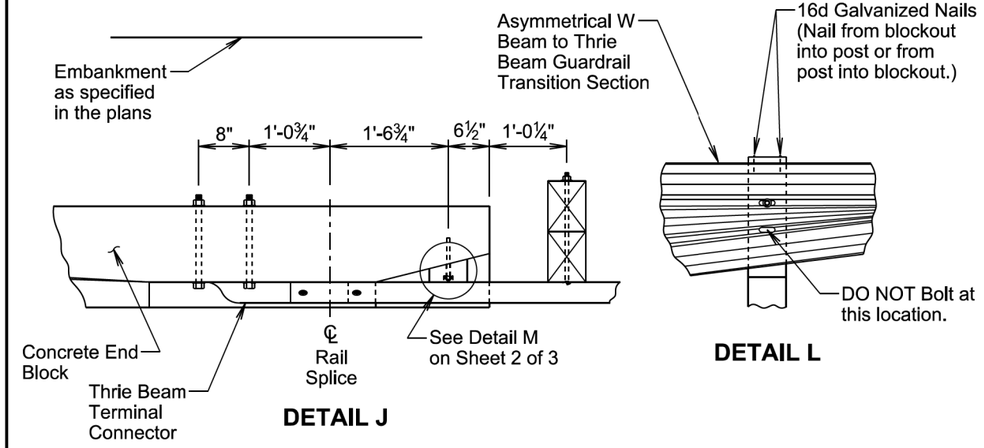
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation to eliminate voids and ensure complete bonding of the rod. Insertion of the rods by the dipping or painting methods will not be allowed.

Loads will not be applied to the epoxy grouted threaded rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin Manufacturer.

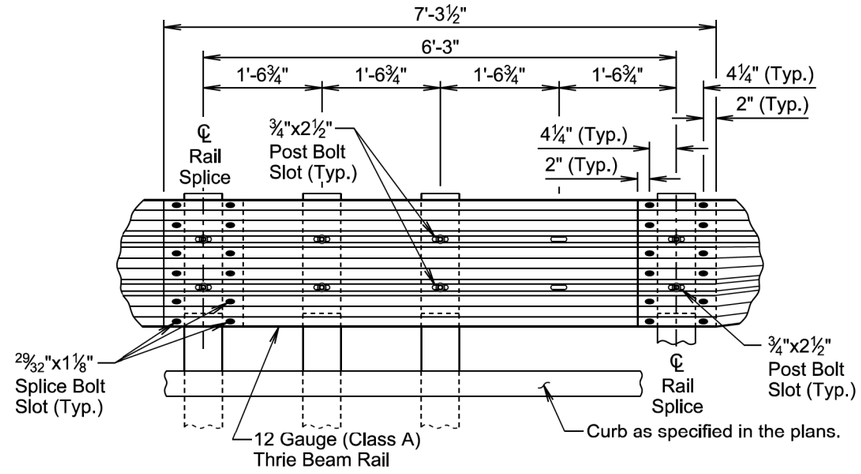
September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 2 of 3



DETAIL L

DETAIL J



DETAIL K
(Special Thrie Beam Rail)

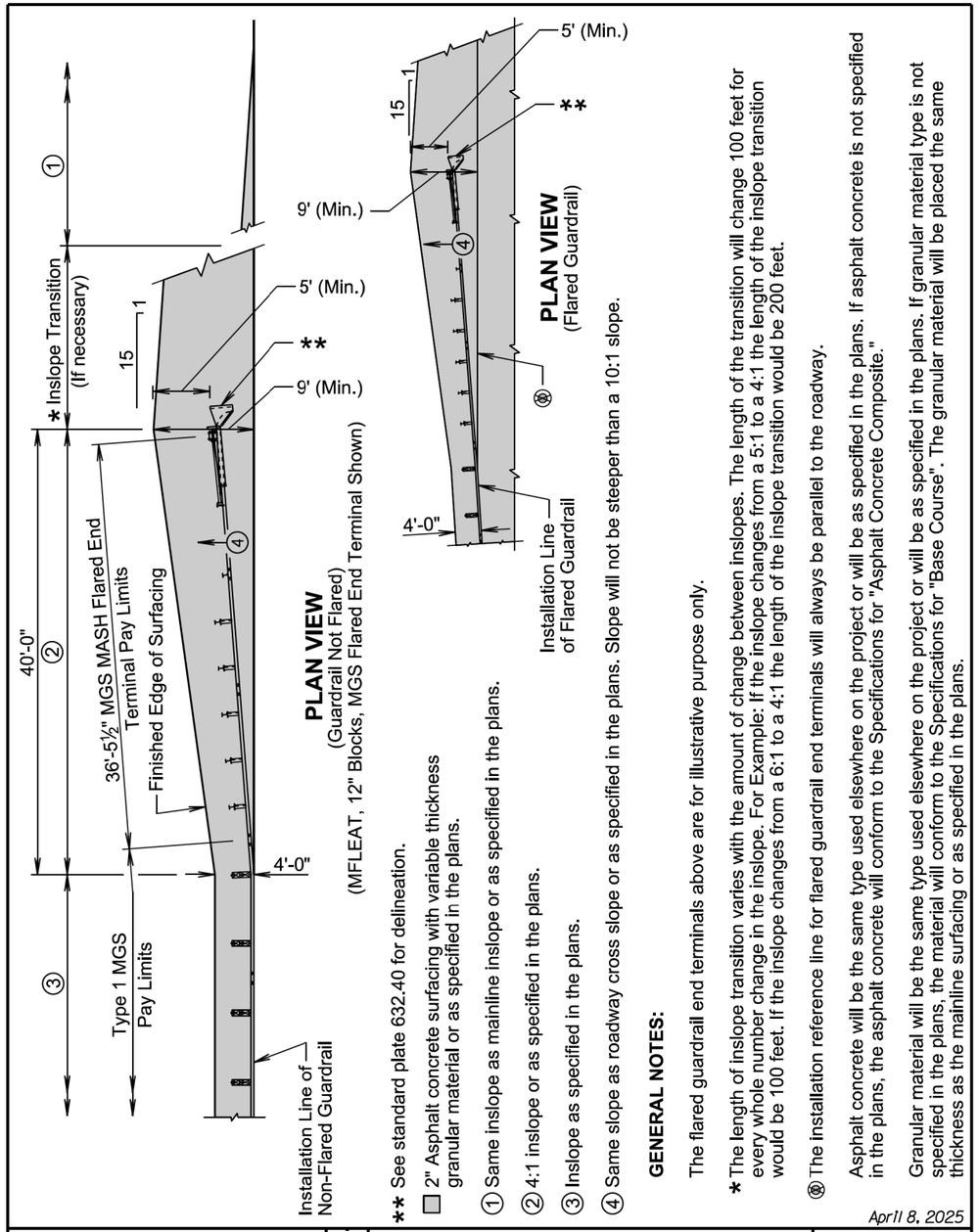
GENERAL NOTES:

Throughout the type 1 retrofit guardrail transition, slots in the rails will be provided as specified in the plans and by the Manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for furnishing and installing the type 1 retrofit guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, special blockout, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Retrofit Guardrail Transition".

September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 3 of 3



** See standard plate 632.40 for delineation.

□ 2" Asphalt concrete surfacing with variable thickness granular material or as specified in the plans.

GENERAL NOTES:

The flared guardrail end terminals above are for illustrative purpose only.

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100 feet 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 200 feet. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200 feet.

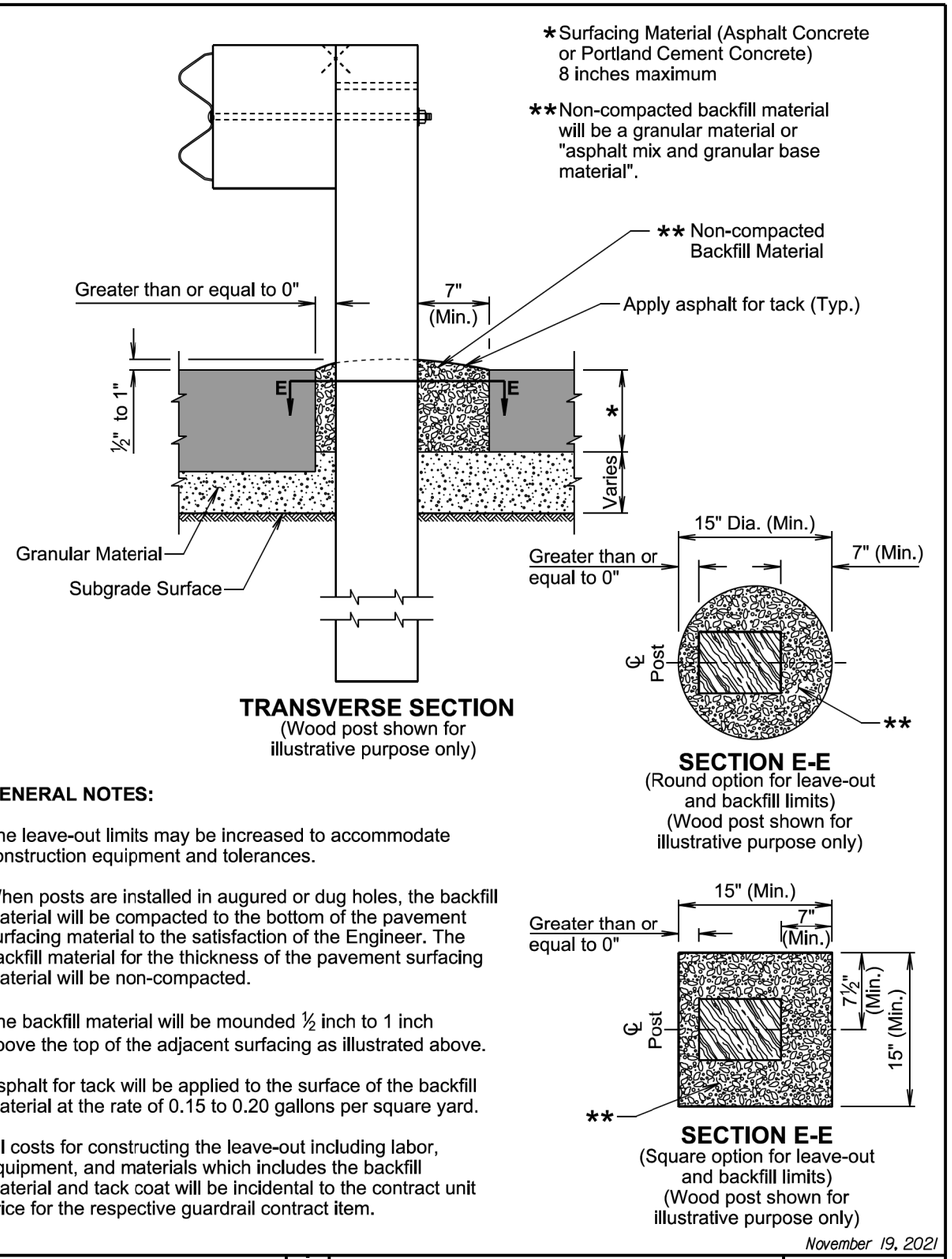
Ⓡ The installation reference line for flared guardrail end terminals will always be parallel to the roadway.

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

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

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87
			Sheet 1 of 2



GENERAL NOTES:

The leave-out limits may be increased to accommodate construction equipment and tolerances.

When posts are installed in augured or dug holes, the backfill material will be compacted to the bottom of the pavement surfacing material to the satisfaction of the Engineer. The backfill material for the thickness of the pavement surfacing material will be non-compacted.

The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

Asphalt for tack will be applied to the surface of the backfill material at the rate of 0.15 to 0.20 gallons per square yard.

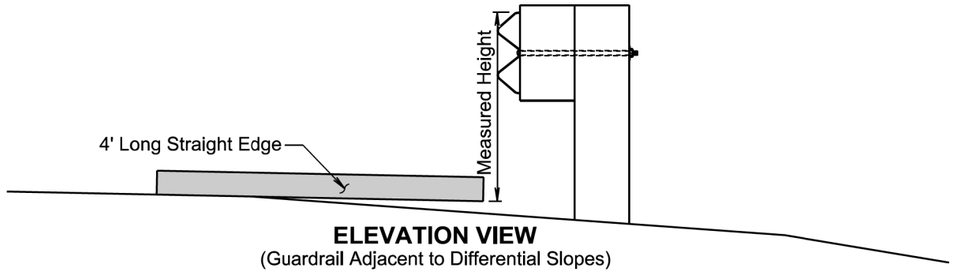
All costs for constructing the leave-out including labor, equipment, and materials which includes the backfill material and tack coat will be incidental to the contract unit price for the respective guardrail contract item.

November 19, 2021

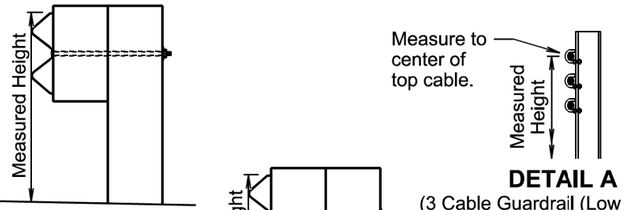
Published Date: 2026	SDDOT	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F36	F38

Plotting Date: 08/22/2025

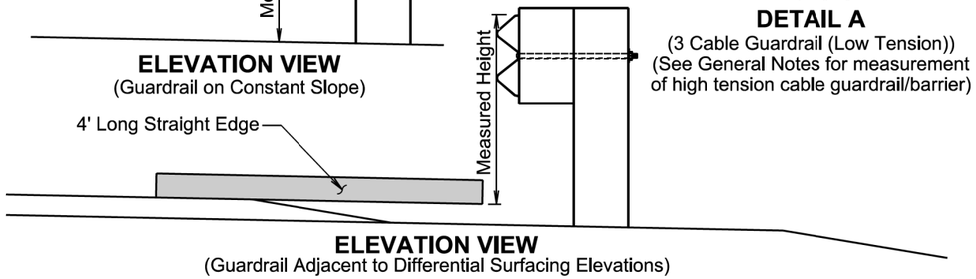


ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)

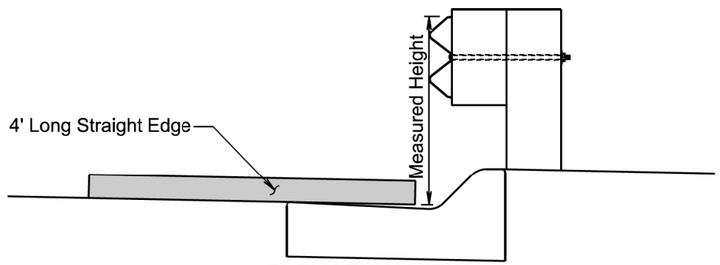


ELEVATION VIEW
(Guardrail on Constant Slope)

DETAIL A
(3 Cable Guardrail (Low Tension))
(See General Notes for measurement of high tension cable guardrail/barrier)



ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

GENERAL NOTES:

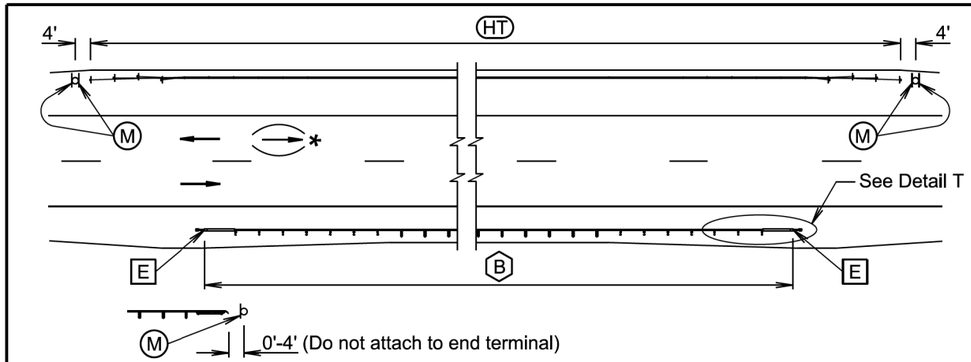
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

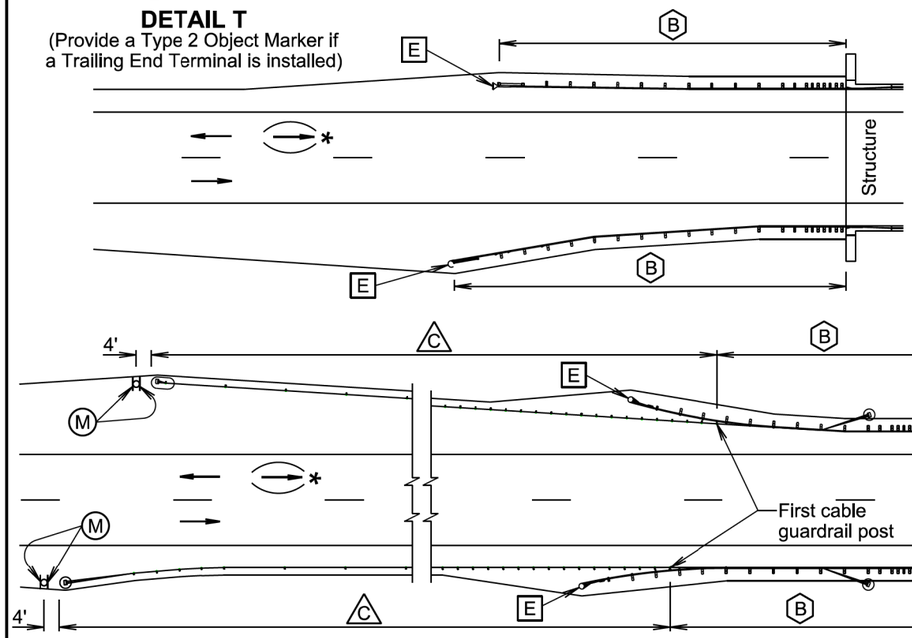
The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

September 14, 2019

Published Date: 2026	SDDOT	***MEASURING GUARDRAIL HEIGHT***	*PLATE NUMBER* 630.99 *Sheet 1 of 1*



DETAIL T
(Provide a Type 2 Object Marker if a Trailing End Terminal is installed)



PLAN VIEW
(Typical Guardrail Layouts)

- (B) Steel Beam Guardrail Delineation
- [E] Guardrail End Terminal Object Marker
- △C 3 Cable Guardrail (Low Tension) Delineation
- (HT) High Tension Cable Guardrail Delineation
- (M) Type 2 Object Marker

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

April 8, 2025

Published Date: 2026	SDDOT	***DELINEATION OF GUARDRAIL***	*PLATE NUMBER* 632.40 *Sheet 1 of 4*

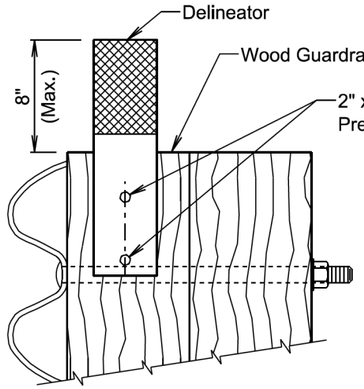
Plot Scale - 1:200

Plotted From - TRPR18387

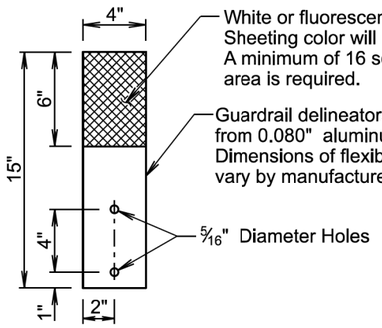
File - ...\ham\05Q7\StdPlateSectionF.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F37	F38

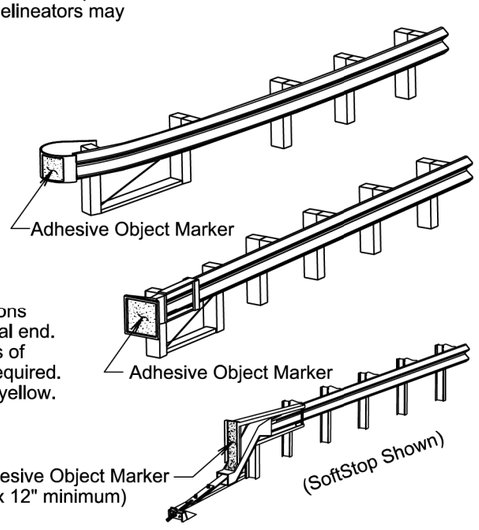
Plotting Date: 08/22/2025



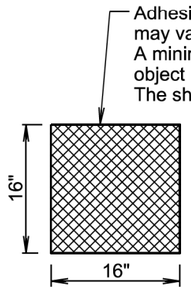
Ⓑ STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



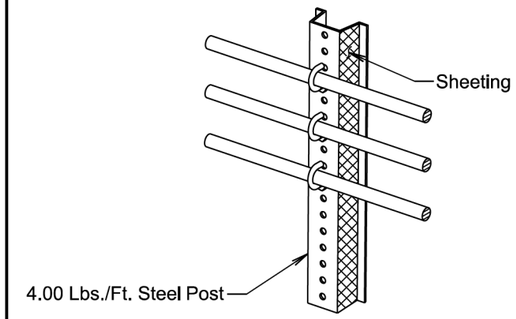
Ⓔ GUARDRAIL END TERMINAL OBJECT MARKER



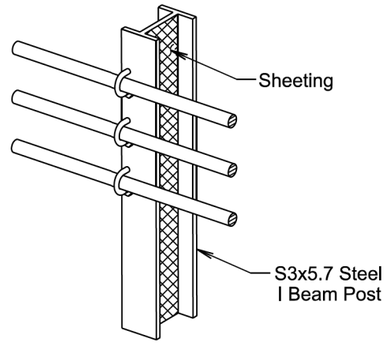
ADHESIVE OBJECT MARKER

April 8, 2025

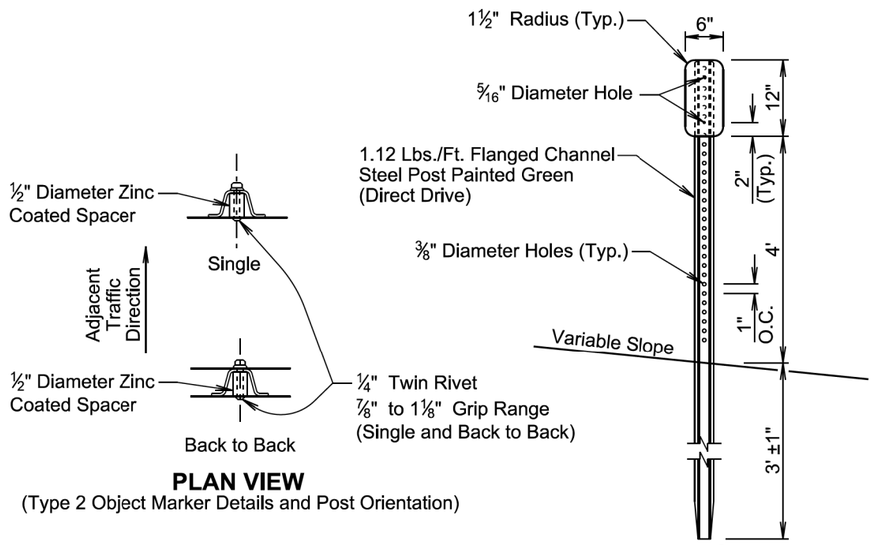
Published Date: 2026	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)

ELEVATION VIEW
Ⓜ (Type 2 Object Marker)
(For Marking 3 Cable Guardrail (Low Tension) Anchor, High Tension Cable Guardrail Anchor, and Trailing End Terminal)

April 8, 2025

Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 3 of 4

Plot Scale - 1:200

Plotted From - TRPR18387

File - ...\ham\05Q7\StdPlateSectionF.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0028(43)355	F38	F38

Plotting Date: 08/22/2025

GENERAL NOTES:

The delineation of high tension cable guardrail will be reflective sheeting placed back to back on every third post cap or cable spacer. Maximum spacing of delineation will not exceed 35 feet. The sheeting will be type XI in conformance with ASTM D4956. The color of the reflective sheeting will be the same as the nearest pavement marking.

The delineators for steel beam guardrail and sheeting on 3 cable guardrail (low tension) posts will be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting will be type XI in conformance with ASTM D4956. Along two-way roadways the sheeting will be on both sides of the delineators and guardrail posts and will be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

When steel beam guardrail is attached to a bridge the first delineator will be attached to the post nearest the bridge.

At bridges with guardrail less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object marker. The spacing between the delineators will be approximately one third of the length of the guardrail.

At bridges with guardrail 200 feet and greater in length, including bridges that have steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

Steel beam guardrail that is not attached to a bridge and is less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object markers. The spacing between the delineators will be approximately one third of the length of the guardrail.

Steel beam guardrail that is not attached to a bridge and is 200 feet and greater in length, including steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation on 3 cable guardrail and steel beam guardrail will be included in the contract unit price per each for "Guardrail Delineator".

All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface area. Other end terminals (SoftStop) will require an adhesive object marker with a minimum size of 6" x 12". The reflective sheeting will be fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the adhesive object marker will be incidental to various contract items.

A type 2 object marker will be placed such that the edges of the type 2 object marker and the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, or the trailing end terminal that are nearest to the roadway will be installed in line with the same lateral offset from the traveled way at the location as noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") will have fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware will be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

April 8, 2025

Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40 Sheet 4 of 4

Plot Scale - 1:200

Plotted From - TRPR18387

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