Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F1	F54

Plotting Date: 08/25/2025

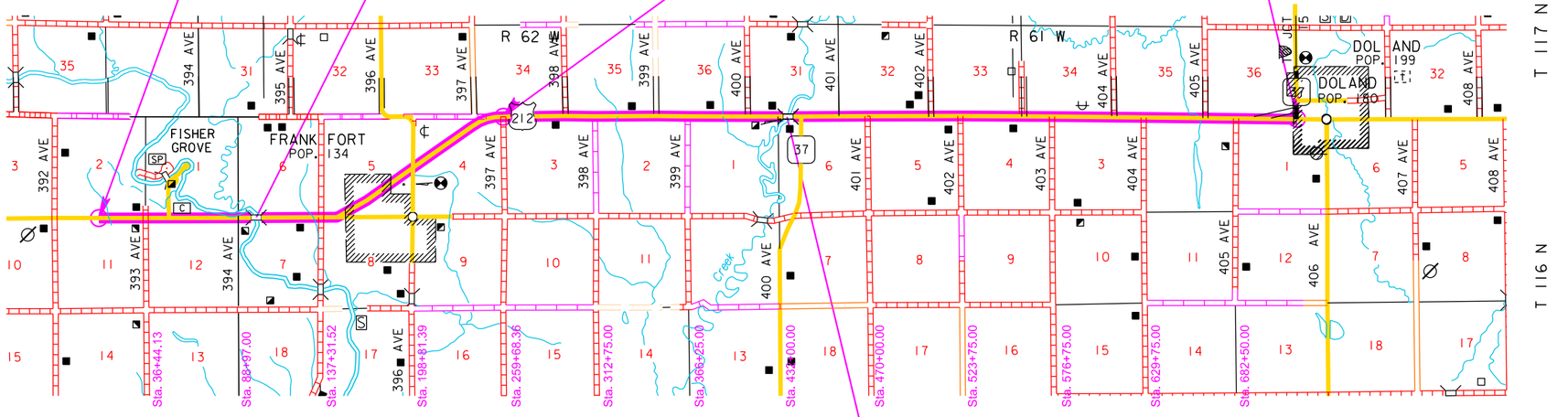
INDEX OF SHEETS

BEGIN SURFACING NH 0212(200)313
Station 10+00.00 = 10+00.00 on NH 212(206)313
located 1644.88 feet west and 43.10 feet south from theNorthwest 1/4 corner of Section 11-Township 116 north - Range 63 West of the 5th P.M
MRM 313.00+0.896

Bridge Exception
Str. No. 58-183-250
Sta. 98+88.61 to Sta. 101+42.32

END SURFACING/
BEGIN RESURFACING
Station 277+71.00
MRM 319.00+0.018

END RESURFACING NH 0212(200)313
Station 713+71
MRM 327.00+0.256



Bridge
Str. No. 58-242-240
Sta. 424+21 to Sta. 425+51

PLOT NAME - 1
FILE - ...\PRJS\PNK\6PO\6PO_TITLEF.DGN

SECTION F – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E1350	Restoration of Stockpile Site	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0400	Remove Drop Inlet	2	Each
110E0420	Remove Drop Inlet Frame and Grate Assembly	2	Each
110E0500	Remove Pipe Culvert	46	Ft
110E0730	Remove Beam Guardrail	500.0	Ft
110E1010	Remove Asphalt Concrete Pavement	617.5	SqYd
110E6410	Remove Type 1 MGS for Reset	175.0	Ft
110E6501	Remove Type 1 Retrofit Guardrail Transition for Reset	4	Each
110E6619	Remove MGS MASH Tangent End Terminal for Reset	4	Each
110E7152	Remove Delineator for Reset	20	Each
120E0010	Unclassified Excavation	639	CuYd
120E0100	Unclassified Excavation, Digouts	687	CuYd
120E0600	Contractor Furnished Borrow	68	CuYd
120E6200	Water for Granular Material	196.8	MGal
210E1000	Shoulder Preparation	15.504	Mile
210E1005	Surface Preparation	1.500	Mile
260E1010	Base Course	2,005.2	Ton
260E1030	Base Course, Salvaged	1,024.4	Ton
270E0110	Salvage and Stockpile Granular Material	1,024.4	Ton
320E0005	PG 58-34 Asphalt Binder	3,146.3	Ton
320E1200	Asphalt Concrete Composite	205.8	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	65,912.5	Ton
320E1800	Asphalt Concrete Blade Laid	1,235.0	Ton
320E4000	Hydrated Lime	663.9	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	26.6	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	10.4	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	2.9	Mile
330E0010	MC-70 Asphalt for Prime	132.9	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	237.2	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	79.1	Ton
330E1000	Blotting Sand for Prime	107.5	Ton
330E2000	Sand for Flush Seal	739.2	Ton
332E0010	Cold Milling Asphalt Concrete	140,823	SqYd
450E0122	18" RCP Class 2, Furnish	8	Ft
450E0130	18" RCP, Install	8	Ft
450E2008	18" RCP Flared End, Furnish	1	Each
450E2009	18" RCP Flared End, Install	1	Each
450E4759	18" CMP 16 Gauge, Furnish	4	Ft
450E4760	18" CMP, Install	4	Ft

SECTION F – ESTIMATE OF QUANTITIES (cont.)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E5010	18" CMP Elbow, Furnish	2	Each
450E5011	18" CMP Elbow, Install	2	Each
450E8009	18" RCP to CMP Transition, Furnish	1	Each
450E8010	18" Pipe Transition, Install	1	Each
600E0300	Type III Field Laboratory	1	Each
630E0500	Type 1 MGS	237.5	Ft
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
630E2100	Beam Guardrail Post	92	Each
630E5010	Reset Type 1 MGS	175.0	Ft
630E5204	Reset MGS MASH Tangent End Terminal	4	Each
630E5301	Reset Type 1 Retrofit Guardrail Transition	4	Each
632E2100	Reset Delineator	20	Each
632E2220	Guardrail Delineator	16	Each
670E0200	Type A Frame and Grate	2	Each
670E1010	2' x 3' Type B Drop Inlet	2	Each
670E5400	Precast Drop Inlet Collar	2	Each
831E0300	Reinforcement Fabric (MSE)	1,073	SqYd
900E0022	Remove and Reset Mailbox	2	Each
900E1980	Storage Unit	1	Each

SURFACING THICKNESS DIMENSIONS

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

TYPE III FIELD LABORATORY

The Contractor will provide high-speed broadband internet connection to the field lab. The multiport internet connection may be hardwired, through a cellular method, or other approved service that allows Wi-Fi connection. Prior to obtaining the internet connection, the Contractor will submit the internet connection's technical data to the Area Office to check for compatibility with the state's computer equipment. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. The internet service will be incidental to the contract unit price per each for "Type III Field Laboratory".

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 21. 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 7,571 tons of cold milled asphalt concrete material. The cold millings will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture.

RAP achieved for project use and/or other uses is based on the dimensions given in the typical section(s). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans, if approved by the Engineer.

TABLE OF COLD MILLING ASPHALT CONCRETE

Location of Cold Milling Areas	Width of Cold Milling Asphalt Concrete	Cold Milled Asphalt Concrete	Cold Milled Asphalt Concrete
	Feet	SqYds	Tons
Sta. 277+71 to 376+02	28.5	31,132	1,634
Sta. 376+02 to 378+83	34.5	1,077	57
Sta. 378+83 to 416+73	28.5	12,002	630
Sta. 416+73 to 421+11	34.5	1,679	88
Sta. 421+11 to 423+14.5	40.67	920	48
Sta. 423+14.5 to 424+21	43.0	509	120
Sta. 425+51 to 426+48	43.0	463	109
Sta. 426+48 to 427+48	40.67	452	24
Sta. 427+48 to 431+68	46.5 ave.	2,170	114
Sta. 431+68 to 433+18	52.5	875	46
Sta. 433+18 to 434+38	50.5 ave.	673	35
Sta. 434+38 to 437+38	44.5 ave.	1,483	78
Sta. 437+38 to 515+96	28.5	24,884	1,306
Sta. 515+96 to 524+07	34.5	3,109	163
Sta. 524+07 to 549+26	28.5	7,977	419
Sta. 549+26 to 552+07	34.5	1,077	57
Sta. 552+07 to 711+04	28.5	50,341	2,643
	TOTAL	140,823	7,571

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”.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Class Q3R Hot Mixed Asphalt Concrete 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.

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BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile site provided by the Contractor and will meet the requirements of 884.2 D.2.

All other requirements for Base Course, Salvaged will apply.

TABLE OF SALVAGED MATERIAL UTILIZATION

	RAP for Class Q3R Asphalt Concrete	Base Course, Salvaged	Excess Material	Total
	tons	tons	tons	tons
Cold Milling Asphalt Concrete	7,571.0			7,571
Stockpiled Asphalt Mix Material from 0808	4,849.5		4,150.5	9,000.0
Salvage and Stockpile and Granular Material		1,024.4		1,024.4
Total =	12,420.5	1,024.4	4,150.5	

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 Sections 1, 2, 3, 7, and 8. (Estimated length = 5.496 miles)

Included in the Estimate of Quantities are 100 tons of Base Course per mile for backfill of Unclassified Excavation, Digouts of Sections 1, 2, 3, 7, and 8. (Estimated length = 5.496 miles)

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material for Sections 4, 5, and 6. (Estimated length = 8.233 miles)

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts for Sections 4, 5, and 6. (Estimated length = 8.233 miles)

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.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class Q3R Hot Mixed Asphalt Concrete, 1.0 tons of Hydrated Lime, and 4.7 tons of PG 58-34 Asphalt Binder per mile for spot leveling, strengthening, and repair of the existing surface of Sections 4, 5, and 6.

ASPHALT TACK FOR LEVELING, AND REPAIR

Included in the estimate of quantities are 2.1 tons of SS-1h or CSS–1h Emulsified Asphalt for Tack for repair and leveling areas throughout the project.

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

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

Virgin mineral aggregate for Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3.

The Class Q3R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture.

RAP will be obtained from the material produced by cold milling on this project. An estimated 7,351 tons of cold milled material will be required for use as RAP.

There is an estimated quantity of 9,000 tons of salvaged asphalt available for use as RAP and can be obtained from the stockpiled salvaged asphalt mix material produced from project PCN 0808, located within 1 mile of the PCN 0808 project limits. The RAP produced from PCN 0808 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 Q3R Hot Mixed Asphalt Concrete. The RAP stockpile is expected to contain 9,000 tons of salvaged asphalt.

Mix Design Criteria:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3 except as modified by the following:

Gyratory Compactive Effort:

	$N_{initial}$	N_{design}	$N_{maximum}$
Class Q3R	6	50	75

All remaining requirements for Class Q3 will apply.

SURFACE PREPARATION

Prior to placement of the Class Q3R Hot Mixed Asphalt Concrete on Sections 1, 2, 3, 7, and 8, 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 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 1.5 miles of the asphalt surfacing project. Actual limits to receive Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime ahead of Class Q3R Hot Mixed Asphalt Concrete placement 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 Q3R Hot Mixed Asphalt Concrete placement operations exceed fourteen calendar days.

SHOULDER PREPARATION

Prior to placement of asphalt concrete on the shoulders of Sections 4 and 6, the upper 4" of existing granular shoulder material will be scarified, reworked, shaped, watered, and compacted to obtain a uniform and stable surface according to Section 260.3 D. The cross slope and inslope requirements will meet what is shown in the typical sections. The final shaping of the granular material on the shoulder must be completed after the Cold Milling Asphalt Concrete operation. Cost for this work will be incidental to the contract unit price per mile for "Shoulder Preparation".

Included in the Estimate of Quantities are 10.3 MGals per shoulder, per mile of Water for Granular Material for shaping and recompaction.

All costs associated with blending, scarifying, reworking, shaping, and compacting the existing granular material will be incidental to the contract unit price per mile for "Shoulder Preparation".

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)

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q3R 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

GRIND RUMBLE STRIPS/STRIPES IN ASPHALT CONCRETE

Asphalt concrete rumble strips/stripes will be constructed on the shoulders. Rumble strips/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 26.6 miles of asphalt concrete rumble strips/stripes will be required.

Rumble strip/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 strips/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.

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 10.4 miles of centerline rumble stripes will be required.

GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the centerline, as detailed in the plans. Sinusoidal centerline rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. Sinusoidal centerline 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 2.9 miles of sinusoidal centerline rumble stripes will be required.

This sinusoidal centerline rumble stripes will be constructed according to the details of Standard Plate 320.40.

TABLE OF SINUSOIDAL CENTERLINE RUMBLE STRIPES

Location of Sinusoidal Rumble Stripes	Length (feet)	Length (miles)
Sta. 31+09 to Sta. 39+86	877	0.166
Sta. 48+51 to Sta. 61+83	1,332	0.252
Sta. 123+29 to Sta. 135+98	1,269	0.240
Sta. 284+21 to Sta. 297+01	1,280	0.242
Sta. 323+37 to Sta. 335+93	1,256	0.238
Sta. 369+76 to Sta. 382+02	1,226	0.232
Sta. 412+11 to Sta. 432+85	2,074	0.393
Sta. 490+63 to Sta. 531+19	4,056	0.768
Sta. 546+71 to Sta. 558+93	1,222	0.231
Sta. 704+31 to Sta. 713+71	940	0.178
TOTAL	15,532	2.9

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.

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.

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

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 58-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay of Sections 4, 5, and 6. Gaps at centerline will not be permitted.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q3R Hot Mixed Asphalt Concrete mix. Mineral Aggregate for tight bladed material will meet the gradation requirements of the Job Mix Formula. Fine Aggregate Angularity and Sand Equivalent requirements will be the same as the Class Q3R Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

The Asphalt Concrete Blade Laid Lift will be designed using an N_{design} Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

Included in the Estimate of Surfacing Quantities are 46.1 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.09 Gal./SqYd)

MAILBOXES

The Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single mailbox assemblies. The local Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for "Remove and Reset Mailbox".

Single mailboxes will be removed and reset at Sta. 130+40 R and Sta. 56+03 R.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

Granular material will be salvaged according to the Details for Surfacing Transitions sheets and typical sections. 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 1,024.5 tons (542 cubic yards), will be used as Base Course, Salvaged on this project.

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

TABLE OF SALVAGE AND STOCKPILE GRANULAR MATERIAL

Location of Removal Areas	Salvage and Stockpile Granular Material
	Tons
Sta. 10+00 to Sta. 12+00	83.2
Sta. 96+88.61 to Sta. 98+88.61	100.5
Sta. 101+42.32 to Sta. 103+42.32	83.2
Sta. 275+71 to Sta. 277+71	90.7
Sta. 423+14.5 to Sta. 424+21	349.6
Sta. 425+51 to Sta. 426+48	317.5
Total	1,024.4

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.

Restoration of the Contractor Furnished Borrow site will be the responsibility of the Contractor.

UNCLASSIFIED EXCAVATION

Payment will be based on plans quantity. Further measurements will not be made unless there is a change made in the limits of work.

TABLE OF UNCLASSIFIED EXCAVATION

Location of Removal Areas	Unclassified Excavation
	CuYd
Sta. 10+00 to Sta. 12+00	44
Sta. 96+88.61 to Sta. 98+88.61	53
Sta. 101+42.32 to Sta. 103+42.32	44
Sta. 275+71 to Sta. 277+71	48
Sta. 423+14.5 to Sta. 424+21	236
Sta. 425+51 to Sta. 426+48	214
Total	639

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F6	F54

Plotting Date: 08/25/2025

THICKENED SURFACING SECTION

Geotextile Specification

Reinforcement Fabric (MSE) will conform to Section 831. The Reinforcement Fabric (MSE) provided will be on the Approved Products List or will be certified by the supplier to meet this specification prior to installation.

Reinforcement Fabric (MSE) will be paid for at the contract unit price per square yard for Reinforcement Fabric (MSE). Payment quantities will be based on area covered plus 15%. Overlaps are accounted for by the additional 15%. Payment will be full compensation for furnishing and installing the Reinforcement Fabric (MSE) only. Granular backfill materials will be paid for under a separate bid item.

Geotextile Installation Procedure

Prior to placing the reinforcement fabric (MSE), the upper 6 inches of subgrade will be scarified and recompacted.

Place the Reinforcement Fabric (MSE) on as level and smooth of surface as possible. Any protrusions that might damage the geotextile will be removed prior to placing the geotextile. No equipment will be allowed on the geotextile until the granular backfill material is in place. The geotextile will be kept as taut as possible prior to backfilling. Placement will be done so that subsequent granular cover material does not shove, wrinkle or distort the in-place geotextile.

The geotextile will be overlapped a minimum of 2 feet. The overlaps will be shingled in a manner that assures granular material will not be forced under the geotextile during backfilling operations.

Granular backfill material will be dumped behind the leading edge of the fill and pushed into place with a loader or dozer. The geotextile may be held in place with small piles of granular material or staples. Granular material will be dumped at least 20 feet behind the leading edge of the backfill and pushed into place with a loader or dozer from the covered areas to the uncovered areas. The granular material will conform to the requirements of Base Course and will be compacted to 97% of the maximum dry density.

PROTECTION OF BRIDGE JOINTS

The Contractor and Engineer will inspect all joints for preexisting damage prior to pavement removals. The Engineer will inspect all joints for work-related damage following removals and again following completion of paving processes.

It may be necessary to use special methods and equipment to remove/place material as close as practical to structure appurtenances. The Contractor will mask all expansion joints prior to any removal/placement of material near the joints. The joints will be protected throughout completion of the work. Once the masking has been removed any loose material contained within the joint will be cleaned from the joint. Any damage to the expansion joints along with any existing structure appurtenances will be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department. All costs related to this work will be incidental to various contract items.
At locations with membrane sealant expansion joints use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.

TABLE OF SUPERELEVATION MAINLINE

Station	to	Station		
10+00.00		137+40.09	-	Normal Crown Section
137+40.09		139+38.09	-	Superelevation Transition
139+38.09		160+93.52	-	3800’ Radius Curve Left 0.046’/’ Superelevation Rate Point of Rotation at Centerline
160+93.52		162+92.02	-	Superelevation Transition
162+92.02		237+29.28	-	Normal Crown Section
237+29.28		239+27.28	-	Superelevation Transition
239+27.28		261+57.09	-	3800’ Radius Curve Right 0.046’/’ Superelevation Rate Point of Rotation at Centerline
261+57.09		263+55.09	-	Superelevation Transition
263+55.09		713+71.0	-	Normal Crown Section

Plot Scale - 1:200

Plotted From - TRPR15123

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RATES OF MATERIALS

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

Section 1 – Mainline (Rate A)
Sta. 10+00 to 98+88
Sta. 101+42 to 144+00
Sta. 151+77 to 188+64
Sta. 210+34 to 277+71

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.5 tons applied 30 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 1st Lift

Crushed Aggregate	1,415 Tons
Salvaged Asphalt Concrete	354 Tons
PG 58-34 Asphalt Binder	87 Tons
Hydrated Lime	19 Tons
Total Mix	1,875 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.5 tons applied 30 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 2nd Lift

Crushed Aggregate	1,062 Tons
Salvaged Asphalt Concrete	266 Tons
PG 58-34 Asphalt Binder	65 Tons
Hydrated Lime	14 Tons
Total Mix	1,407 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.5 tons applied 30 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 3rd Lift

Crushed Aggregate	1,062 Tons
Salvaged Asphalt Concrete	266 Tons
PG 58-34 Asphalt Binder	65 Tons
Hydrated Lime	14 Tons
Total Mix	1,407 Tons

The exact proportions of this material will be determined on construction.

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.6 tons applied 45 feet wide (Rate = 0.05 gallon per square yard).

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

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

Section 1 – Shoulders (Rate B)
(Rate for one side only)
Sta. 10+00 to 98+88 Lt & Rt
Sta. 101+42 to 144+00 Lt & Rt
Sta. 151+77 to 188+64 Lt & Rt
Sta. 210+34 to 277+71 Lt & Rt

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.3 tons applied 9.0 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 1st Shoulder Lift

Crushed Aggregate	292 Tons
Salvaged Asphalt Concrete	73 Tons
PG 58-34 Asphalt Binder	18 Tons
Hydrated Lime	4 Tons
Total	387 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.3 tons applied 8.5 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 2nd Shoulder Lift

Crushed Aggregate	270 Tons
Salvaged Asphalt Concrete	68 Tons
PG 58-34 Asphalt Binder	17 Tons
Hydrated Lime	4 Tons
Total	359 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.1 tons applied 7.5 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 3rd Shoulder Lift

Crushed Aggregate	233 Tons
Salvaged Asphalt Concrete	58 Tons
PG 58-34 Asphalt Binder	14 Tons
Hydrated Lime	3 Tons
Total	308 Tons

The exact proportions of this material will be determined on construction.

Section 4 – Mainline (Rate D)
Sta. 277+71 to 376+02
Sta. 378+83 to 416+73
Sta. 437+38 to 515+96
Sta. 524+07 to 549+26
Sta. 552+07 to 711+04

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.6 tons applied 31 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate	1,440 Tons
Salvaged Asphalt Concrete	360 Tons
PG 58-34 Asphalt Binder	89 Tons
Hydrated Lime	19 Tons
Total Mix	1,908 Tons

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.4 tons applied 43 feet wide (Rate = 0.05 gallon per square yard).

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

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

RATES OF MATERIALS (continued)

Sections 4 & 6 – Shoulders (Rate E)
(Rate for one side only)
Sta. 277+71 to 376+02 Lt & Rt
Sta. 376+02 to 378+83 Rt
Sta. 378+83 to 416+73 Lt & Rt
Sta. 416+73 to 421+11 Lt
Sta. 437+38 to 515+96 Lt & Rt
Sta. 515+96 to 524+07 Rt
Sta. 524+07 to 549+26 Lt & Rt
Sta. 549+26 to 552+07 Lt
Sta. 552+07 to 711+04 Lt & Rt
Sta. 711+04 to 713+73 Rt

MC-70 Asphalt for Prime at the Rate of 5.6 tons applied 8 feet wide (Rate = 0.30 gallon per square yard).

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.2 tons applied 8 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 1st Shoulder Lift

Crushed Aggregate	247 Tons
Salvaged Asphalt Concrete	62 Tons
PG 58-34 Asphalt Binder	15 Tons
Hydrated Lime	3 Tons
Total	327 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 1.0 tons applied 7 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 2nd Shoulder Lift

Crushed Aggregate	266 Tons
Salvaged Asphalt Concrete	66 Tons
PG 58-34 Asphalt Binder	16 Tons
Hydrated Lime	3 Tons
Total	351 Tons

The exact proportions of this material will be determined on construction.

RATES OF MATERIALS

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

Section 2 (Rate C)
Sta. 145+19 to 151+77

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.16 ton applied 58.0 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 1st Lift

Crushed Aggregate	49.18 Tons
Salvaged Asphalt Concrete	12.29 Tons
PG 58-34 Asphalt Binder	3.03 Tons
Hydrated Lime	0.65 Tons
Total Mix	65.15 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.16 ton applied 57.0 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 2nd Lift

Crushed Aggregate	38.82 Tons
Salvaged Asphalt Concrete	9.71 Tons
PG 58-34 Asphalt Binder	2.39 Tons
Hydrated Lime	0.51 Tons
Total Mix	51.43 Tons

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.16 ton applied 55.0 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – 3rd Lift

Crushed Aggregate	37.41 Tons
Salvaged Asphalt Concrete	9.35 Tons
PG 58-34 Asphalt Binder	2.31 Tons
Hydrated Lime	0.49 Tons
Total Mix	49.56 Tons

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.13 tons applied 57 feet wide (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 1.47 tons applied 33 feet wide (Rate = 8 lbs. per square yard).

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

Sections 5 & 6 – Mainline (Rate F)
Sta. 376+02 to 378+83
Sta. 416+73 to 423+89.5
Sta. 425+73 to 427+48
Sta. 515+96 to 524+07
Sta. 549+26 to 552+07
Sta. 711+04 to 713+71

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.09 ton applied 31.0 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate	27.27 Tons
Salvaged Asphalt Concrete	6.82 Tons
PG 58-34 Asphalt Binder	1.68 Tons
Hydrated Lime	0.36 Tons
Total Mix	36.13 Tons

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.10 tons applied 42 feet wide (Rate = 0.05 gallon per square yard).

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

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

Section 6 – Shoulders on milled surface (Rate G)
(Rate for one side only)
Sta. 376+02 to 378+83 Lt
Sta. 416+73 to 421+11 Rt
Sta. 421+11 to 423+89.5 Lt & Rt
Sta. 425+73 to 437+38 Lt & Rt
Sta. 515+96 to 524+07 Rt
Sta. 549+26 to 552+07 Rt
Sta. 711+04 to 713+73 Lt

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.03 tons applied 7 feet wide (Rate = 0.09 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate	5.09 Tons
Salvaged Asphalt Concrete	1.27 Tons
PG 58-34 Asphalt Binder	0.31 Tons
Hydrated Lime	0.07 Tons
Total Mix	6.74 Tons

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

SUMMARY OF CLASS Q3R ASPHALT CONCRETE COMPACTION

Location	Compaction With Specified Density (1st / 2nd / 3rd Lift)	Compaction Without Specified Density (1st / 2nd / 3rd Lift)
	Ton	Ton
Sta. 10+00 to 98+88		
28' Mainline	3,156.2 / 2,368.4 / 2,368.4	
Lt. Shoulders		651.4 / 604.3 / 518.5
Rt. Shoulders		651.4 / 604.3 / 518.5
Sta. 101+42 to 144+00		
28' Mainline	1,512.0 / 1,134.6 / 1,134.6	
Lt. Shoulders		312.1 / 289.5 / 248.4
Rt. Shoulders		312.1 / 289.5 / 248.4
Sta. 144+00 to 151+77		
28' Mainline + Turn Lane	378.0 / 283.5 / 283.5	
Lt. Shoulders		59.6 / 54.7 / 47.4
Rt. Shoulders		59.6 / 54.7 / 47.4
Sta. 151+77 to 188+64		
28' Mainline	1,309.3 / 982.5 / 982.5	
Lt. Shoulders		270.2 / 250.7 / 215.1
Rt. Shoulders		270.2 / 250.7 / 215.1
Sta. 188+64 to 210+34		
28' Mainline + Turn Lanes	1,182.1 / 886.6 / 886.6	
Lt. Shoulders		147.2 / 152.7 / 132.5
Rt. Shoulders		147.2 / 152.7 / 132.5
Sta. 210+34 to 277+71		
28' Mainline	2,392.3 / 1,795.2 / 1,795.2	
Lt. Shoulders		493.8 / 458.0 / 393.0
Rt. Shoulders		493.8 / 458.0 / 393.0
Sta. 277+71 to 376+02		
28' Mainline	3,552.5	
Lt. Shoulders		608.8 / 653.5
Rt. Shoulders		608.8 / 653.5
Sta. 376+02 to 378+83		
28' Mainline	101.5	
Lt. Shoulders		18.9
Rt. Shoulders		17.4 / 18.7
Sta. 378+83 to 416+73		
28' Mainline	1,369.6	
Lt. Shoulders		234.7 / 251.9
Rt. Shoulders		234.7 / 251.9
Sta. 416+73 to 423+89.5		
28' Mainline	26.6 / 26.6 / 258.9	
Lt. Shoulders		7.0 / 33.2 / 47.9
Rt. Shoulders		7.0 / 54.4
Sta. 425+73 to 437+38		
28' Mainline	26.6 / 26.6 / 525.0	
Lt. Shoulders		7.0 / 84.6
Rt. Shoulders		7.0 / 84.6
Sta 437+38 to 515+96		
28' Mainline	2,839.7	
Lt. Shoulders		486.7 / 522.4
Rt. Shoulders		486.7 / 522.4

SUMMARY OF CLASS Q3R ASPHALT CONCRETE COMPACTION (continued)

Location	Compaction With Specified Density (1st / 2nd / 3rd Lift)	Compaction Without Specified Density (1st / 2nd / 3rd Lift)
	Ton	Ton
Sta 515+96 to 524+07		
28' Mainline	296.0	
Lt. Shoulders		50.2 / 53.9
Rt. Shoulders		54.7
Sta 524+07 to 549+26		
28' Mainline	910.3	
Lt. Shoulders		156.0 / 167.5
Rt. Shoulders		156.0 / 167.5
Sta 549+26 to 552+07		
28' Mainline	102.6	
Lt. Shoulders		17.4 / 18.7
Rt. Shoulders		18.9
Sta 552+07 to 711+04		
28' Mainline	5,744.6	
Lt. Shoulders		984.5 / 1,056.8
Rt. Shoulders		984.5 / 1,056.8
Sta 711+04 to 713+71		
28' Mainline	96.5	
Lt. Shoulders		18.0
Rt. Shoulders		16.5 / 17.8
Miscellaneous areas		3,683.9
TOTALS	41,919.2	23,993.3

TABLE OF ADDITIONAL QUANTITIES

Location-Description	Water for Granular Material	Base Course or Base Course, Salvaged	Asphalt for Prime	Class Q3R Hot Mixed Asphalt Concrete	PG 58-34 Asphalt Binder	Hydrated Lime	SS-1h or CSS-1h Asphalt for Tack	SS-1h or CSS-1h Asphalt for Flush Seal	Sand for Flush Seal
	MGal	Ton	Ton	Ton / Lift	Ton / Lift	Ton / Lift	Ton / Lift	Ton	Ton
Mainline									
Sta. 144+00 to Sta. 145+19				68.5 / 54.5 / 52.2	3.2 / 2.5 / 2.4	0.7 / 0.5 / 0.5	0.2 / 0.2 / 0.2	0.1	1.4
Sta. 188+64 to Sta. 210+34				1,476.5 / 1,192.0 / 1,151.6	68.9 / 55.4 / 53.5	14.6 / 11.8 / 11.3	3.8 / 3.8 / 3.7	3.1	32.4
* Sta. 423+14.5 to Sta. 423+89.5 – 1st Lift	3.2	264.1	0.5	26.6	1.2	0.3	0.1		
- 2nd Lift				26.6	1.2	0.3	0.1		
* Sta. 425+73 to Sta. 426+48 – 1st Lift	3.2	264.1	0.5	26.6	1.2	0.3	0.1		
- 2nd Lift				26.6	1.2	0.3	0.1		
Sta. 427+48 to Sta. 437+38				461.8	21.4	4.6	1.0	1.1	12.4
Shoulders									
* Sta. 423+14.5 to Sta. 423+89.5 – Lt. Sh				7.0 / 6.1	0.3 / 0.3	0.1 / 0.1			
- Rt. Sh				7.0 / 6.1	0.3 / 0.3	0.1 / 0.1			
* Sta. 425+73 to Sta. 426+48 – Lt. Sh				7.0 / 6.1	0.3 / 0.3	0.1 / 0.1			
- Rt. Sh				7.0 / 6.1	0.3 / 0.3	0.1 / 0.1			
Guardrail – Str. # 58-183-250									
Begin bridge – left side	0.3	23.0	0.1	12.5	0.6	0.1	--	--	
Begin bridge – right side	0.4	34.0	0.2	18.4	0.9	0.2	--	--	
End bridge – left side	0.4	33.0	0.2	17.4	0.8	0.2	--	--	
End bridge – right side	0.3	25.0	0.1	13.5	0.6	0.1	--	--	
Guardrail – Str. # 58-242-240									
Begin bridge – left side	0.8	63.8	0.1	13.5	0.6	0.1	--	--	
Begin bridge – right side	0.4	34.9	--	15.7	0.7	0.2	--	--	
End bridge – left side	0.6	47.5	0.1	15.4	0.7	0.2	--	--	
End bridge – right side	0.7	54.3	0.1	13.4	0.6	0.1	--	--	
Miscellaneous Areas									
XR151 Sta. 0+25 to 6+18				221.7 / 221.7	10.3 / 10.3	2.2 / 2.2	0.6 / 0.6	0.4	5.8
XR198 Sta. 10+00 to 29+11				904.8 / 904.8	42.0 / 42.0	9.0 / 9.0	2.2 / 2.2	1.8	18.8
Farm Entrances – 14	4.7	425.0							
Double Farm Entrances – 4	1.6	120.0							
Fisher Lane			0.3	40.3	1.9	0.4	0.1	0.1	1.0
Intersecting Roads – 8	3.2	268.0		382.0	18.0	4.0	0.4	0.4	7.0
Historical Turnout – Sta. 49+59.04				63.0	3.0	1.0	0.1	0.1	1.0
	19.8	1,656.7	2.2	7,474.0	347.5	75.0	19.5	7.1	79.8

* See Rates for 3rd Lift

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F12	F54

Plotting Date: 08/25/2025

TABLE OF MATERIAL QUANTITIES

Location-Description	Water for Granular Material	Base Course or Base Course, Salvaged	Asphalt for Prime	Blotting Sand for Prime	Class Q3R Hot Mixed Asphalt Concrete	PG 58-34 Asphalt Binder	Hydrated Lime	SS-1h or CSS-1h Asphalt for Tack	SS-1h or CSS-1h Asphalt for Flush Seal	Sand for Flush Seal	Asphalt Concrete Blade Laid	Asphalt Concrete Composite
	MGal	Ton	Ton	Ton	Ton / Lift	Ton / Lift	Ton / Lift	Ton / Lift	Ton	Ton	Ton	Ton
Section 1 - Mainline (Rate A)					8,369.8 / 6,280.7 / 6,280.7	388.4 / 290.1 / 290.1	84.8 / 62.6 / 62.6	20.0 / 20.0 / 20.0	24.9	232.0		
Section 1 - Shoulder (Rate B)					3,455.0 / 3205.0 / 2,750.0	160.8 / 151.8 / 125.2	35.6 / 35.6 / 26.6	11.6 / 11.6 / 10.0				
Section 2 - Mainline (Rate C)					428.7 / 338.4 / 326.1	19.9 / 15.7 / 15.2	4.3 / 3.4 / 3.2	1.1 / 1.1 / 1.1	0.9	9.7		
Section 4 - Mainline (Rate D)					14,416.7	672.6	143.6	34.7	40.9	392.9		
Section 4,6 - Shoulder (Rate E)			86.9		5,070.0 / 5,442.4	232.7 / 248.2	46.7 / 46.7	18.8 / 15.8				
Section 5,6 - Mainline (Rate F)					914.6	42.4	9.1	2.3	2.6	24.8		
Section 5,6 - Shoulder (Rate G)					334.6	15.5	3.5	1.4				
Additional Quantities Table	19.8	1,656.7	2.2		7,474.0	347.5	75.0	19.5	7.1	79.8		
Quantities from Notes												
Spot Leveling, Strengthening and Repair					825.8	38.8	8.3	2.1				
Digouts	16.5	1,372.9										205.8
Blade Laid						91.4	12.3	46.1				
Surface Preparation			43.8	97.5								
Shoulder Preparation	160.5											
Maintenance of Traffic				10.0								
Centerline Rumble Strips									2.7			
	196.8	3,029.6	132.9	107.5	65,912.5	3,146.3	663.9	237.2	79.1	739.2	1,235.0	205.8

Plot Scale - 1:200

Plotted From - TRPR15123

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F13	F54

Plotting Date: 08/25/2025

REMOVE AND RESET BEAM GUARDRAIL

Steel beam rail, end terminals, steel posts, wood blockouts for wood posts and hardware items will be removed and reset according to specifications and standard plates. In place wood posts will become the property of the Contractor and will be removed from the project limits. Payment to remove wood posts will be incidental to various guardrail Remove for Reset bid items.

Payment for new wood posts will be incidental to the contract unit price per each for “Beam Guardrail Post”. See Guardrail Table for post size.

TABLE OF GUARDRAIL QUANITITES

Location	Remove Beam Guardrail (Ft)	Remove Flared End Terminal (NABI) (Each)	Remove and Reset Type 1 MGS (Ft)	Remove and Reset Type 1 Retrofit Guardrail Transition (Each)	Remove and Reset MGS MASH Tangent End Terminal (Each)	Type 1 MGS (Ft)	MGS MASH Flared End Terminal (Each)	Type 1 Retrofit Guardrail Transition (Each)	Beam Guardrail Post 6”x8”x7’ Wood Post (Each)	Beam Guardrail Post 6”x8”x6’ Wood Post (Each)	Remove and Reset Guardrail Delineator (Each)	Guardrail Delineator (Each)
Str. # 58-183-250												
Begin Bridge Left			12.5	1	1				5	13	5	
Begin Bridge Right			75.0	1	1				5	23	5	
End Bridge Left			12.5	1	1				5	23	5	
End Bridge Right			75.0	1	1				5	13	5	
Str. # 58-242-240												
Begin Bridge Left	81.25	1				25.0	1	1				4
Begin Bridge Right	168.75	1				87.5	1	1				4
End Bridge Left	168.75	1				100.0	1	1				4
End Bridge Right	81.25	1				25.0	1	1				4
Subtotals =									20	72		
Totals =	500.0	4	175.0	4	4	237.5	4	4	92		20	16

NABI – Not A Bid Item

CONTRACTOR FURNISHED BORROW FOR GUARDRAIL INSTALLATION

Location	Contractor Furnished Borrow (Cu.Yds.)
Str. # 58-242-240	
Begin Bridge Left	42.2
Begin Bridge Right	1.0
End Bridge Left	10.8
End Bridge Right	4.0
Totals =	58.0

Water for compaction of earth embankments will be applied at the rate of 10 gallons per cubic yard of borrow.
The cost of the water will be incidental to the contract unit price per cubic yard for “Contractor Furnished Borrow”.

TABLE OF DROP INLETS AND RELATED ITEMS QUANTITIES

Location	Remove Pipe Culvert		Remove Drop Inlet	Remove Frame and Grate	Furnish & Install 18" RCP	Furnish & Install 18" RCP Flared End	Furnish & Install 18" CMP	Furnish & Install 18" CMP Elbow (45º)	Furnish & Install 18" RCP to CMP Transition	Install 2'x3' Type B Drop Inlet	Install Type A Frame & Grate	Install Precast Drop Inlet Collar	Contactor Furnished Borrow
	RCP Culvert (Ft)	CMP Culvert (Ft)	(Each)	(Each)	(Ft)	(Each)	(Ft)	(Each)	(Each)	(Each)	(Each)	(Each)	(Cu.Yds.)
Structure No. 58-242-240													
* Begin Bridge	38	8	2	2	8	1	4	2	1	2	2	2	10
Subtotals =	38	8											
Totals =	46		2	2	8	1	4	2	1	2	2	2	10

Water for compaction of earth embankments will be applied at the rate of 10 gallons per cubic yard of borrow.
The cost of the water will be incidental to the contract unit price per cubic yard for "Contractor Furnished Borrow".

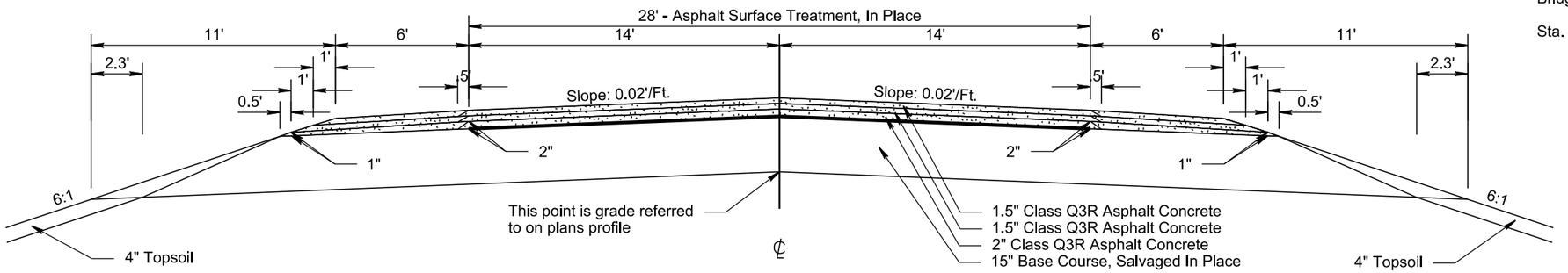
* See Section E and Drop Inlet Layout Sheet in Section F

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F15	F54

Plotting Date: 08/25/2025

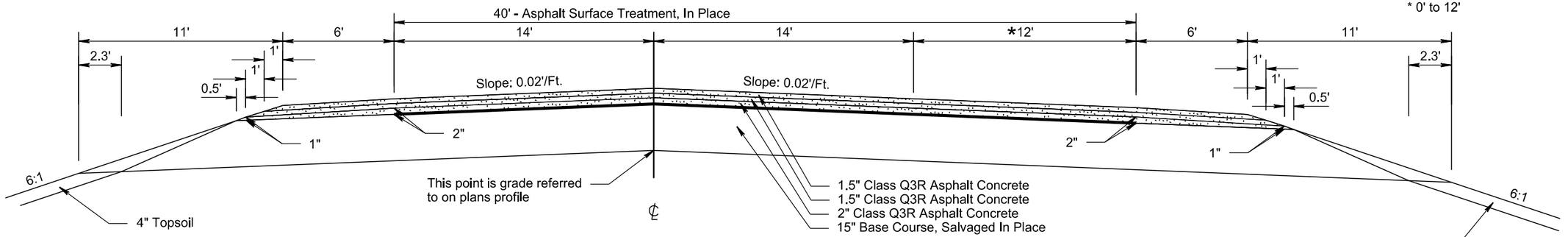
Section 1
Sta. 10+00 to Sta. 144+00
Sta. 151+77 to Sta. 188+64
Sta. 210+34 to Sta. 277+71
Surfacing Section



Bridge Exception:

Sta. 98+88.61 to Sta. 101+42.32

Section 2
Sta. 144+00 to Sta. 151+77
Surfacing Section



Transitions:

Sta. 144+00 to Sta. 145+19
* 0' to 12'

Transitions:

Sta. 184+64 to Sta. 188+64
* 0'

Sta. 188+64 to Sta. 189+81
* 0' to 20

Sta. 189+82 to Sta. 198+53
* 12' to 24'

Sta. 192+03 Lt. to Sta. 196+23 Lt.
** 0' to 6'

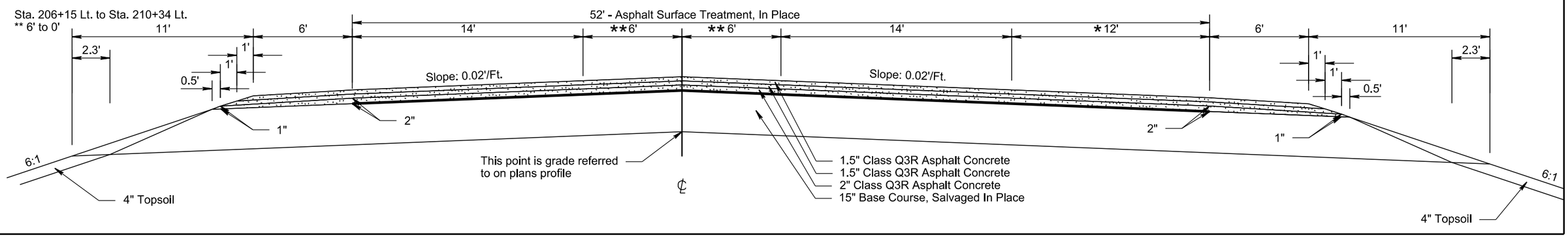
Sta. 206+15 Lt. to Sta. 210+34 Lt.
** 6' to 0'

Transitions

Sta. 192+03 Rt. to Sta. 196+23 Rt.
** 0' to 6'

Sta. 206+15 Rt. to Sta. 210+34 Rt.
** 6' to 0'

Section 3
Sta. 188+64 to Sta. 210+34
Surfacing Section



PLOT SCALE - 1:6.00001

PLOT NAME - 15

FILE - ...\06PO_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRPR15123

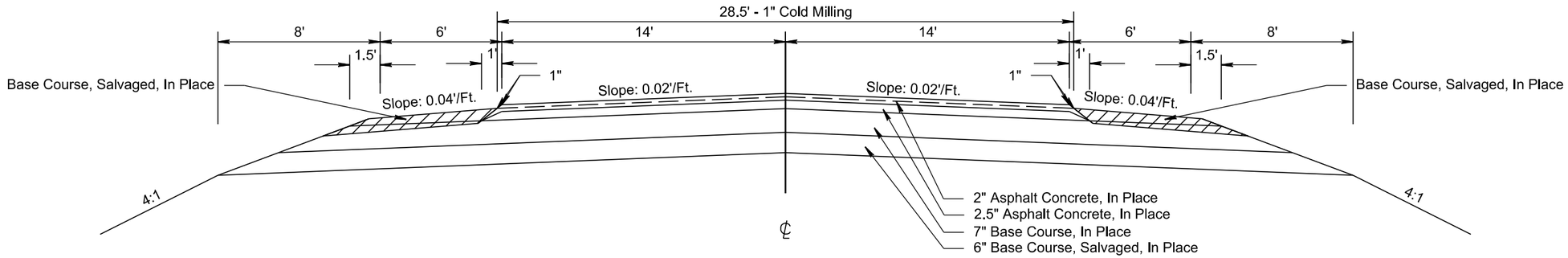
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F16	F54

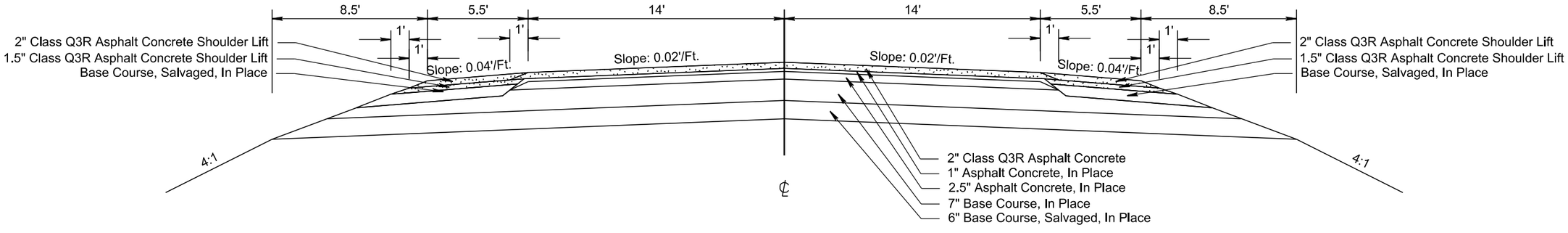
Plotting Date: 08/25/2025

4" Shoulder Preparation

Section 4
Sta. 277+71 to Sta. 376+02
Sta. 378+83 to Sta. 416+73
Sta. 437+38 to Sta. 515+96
Sta. 524+07 to Sta. 549+26
Sta. 552+07 to Sta. 711+04
In Place & Cold Milling Section



Section 4
Sta. 277+71 to Sta. 376+02
Sta. 378+83 to Sta. 416+73
Sta. 437+38 to Sta. 515+96
Sta. 524+07 to Sta. 549+26
Sta. 552+07 to Sta. 711+04
Resurfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR15123

PLOT NAME - 16

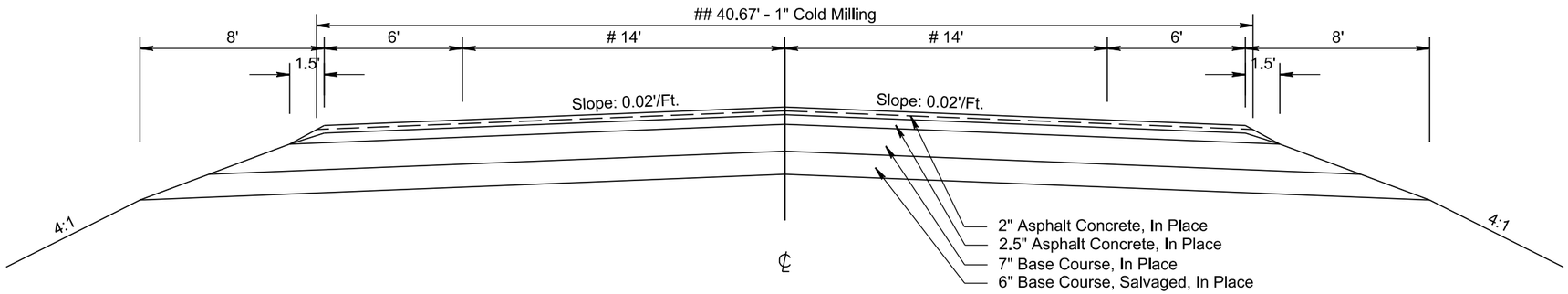
FILE - ...\06PO_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F17	F54

Plotting Date: 08/25/2025

Section 5
Sta. 421+11 to Sta. 423+14.5
Sta. 426+48 to Sta. 437+38
In Place & Cold Milling Section



Transitions:

Sta. 427+48 to Sta. 431+68
14' to 20'
40.67' to 52.67'

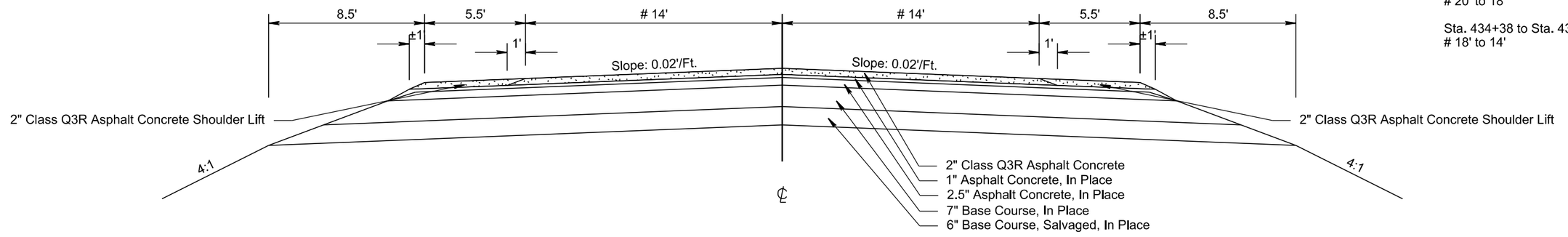
Sta. 431+68 to Sta. 433+18
20'
52.67'

Sta. 433+18 to Sta. 434+38
20' to 18'
##52.67' to 48.67'

Sta. 434+38 to Sta. 437+38
18' to 14'
48.67' to 40.67'

Bridge:
Sta. 424+21.0 to Sta. 425+51.0

Section 5
Sta. 421+11 to Sta. 423+14.5
Sta. 426+48 to Sta. 437+38
Resurfacing Section



Transitions:

Sta. 427+48 to Sta. 431+68
14' to 20'

Sta. 431+68 to Sta. 433+18
20'

Sta. 433+18 to Sta. 434+38
20' to 18'

Sta. 434+38 to Sta. 437+38
18' to 14'

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F18	F54

Plotting Date: 08/25/2025

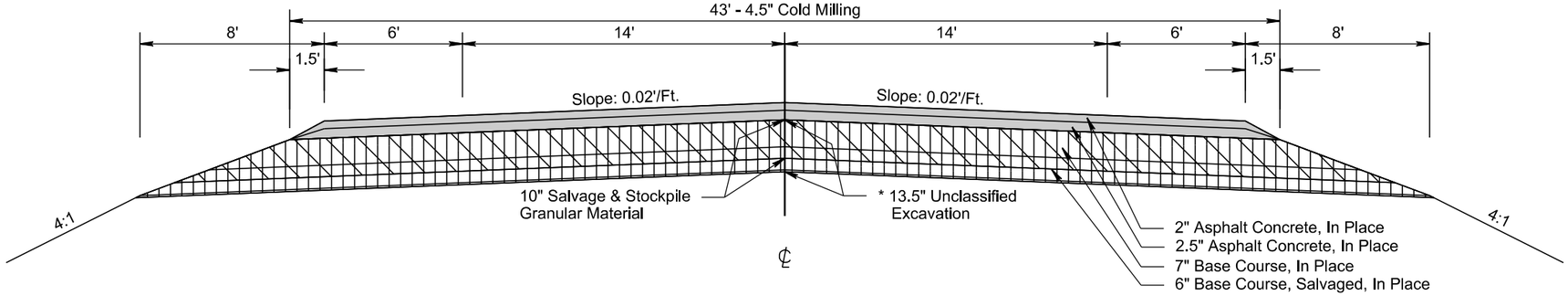
Cold Milling Asphalt Concrete

Salvage and Stockpile Granular Material

Unclassified Excavation

Bridge:
Sta. 424+21 to Sta. 425+51

Section 5a
Sta. 423+14.5 to Sta. 424+21
Sta. 425+51 to Sta. 426+48
In Place & Cold Milling Section



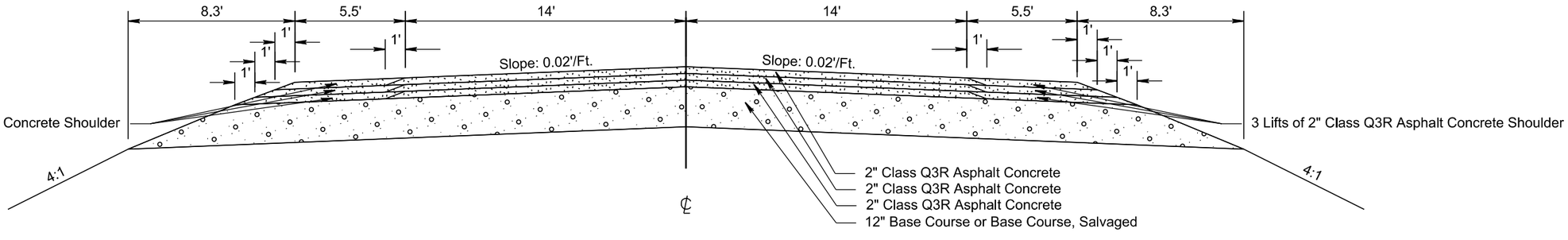
Transitions:

Sta. 423+14.5 to Sta. 423+89.5
* 12.5" to 13.5"

Sta. 425+73.0 to Sta. 426+48.0
* 13.5" to 12.5"

Bridge with New Approach/Sleeper Slabs:
Sta. 423+89.5 to Sta. 425+73

Section 5a
Sta. 423+14.5 to Sta. 423+89.5
Sta. 425+73 to Sta. 426+48
Resurfacing Section



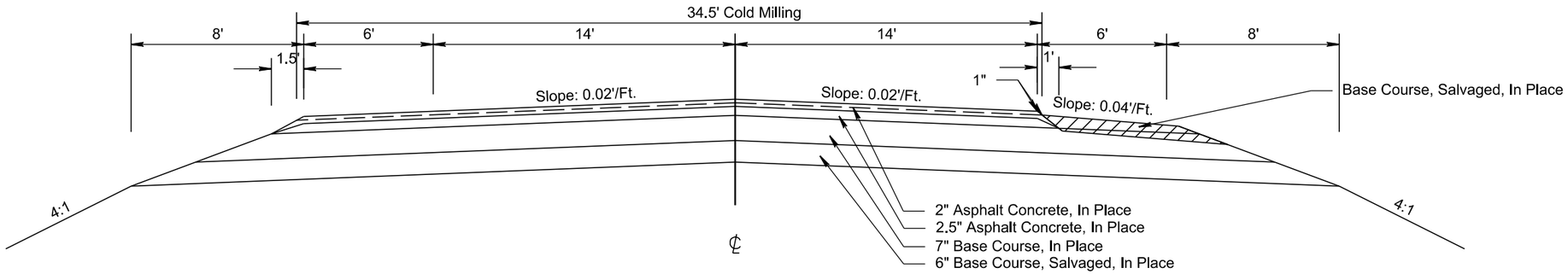
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F19	F54

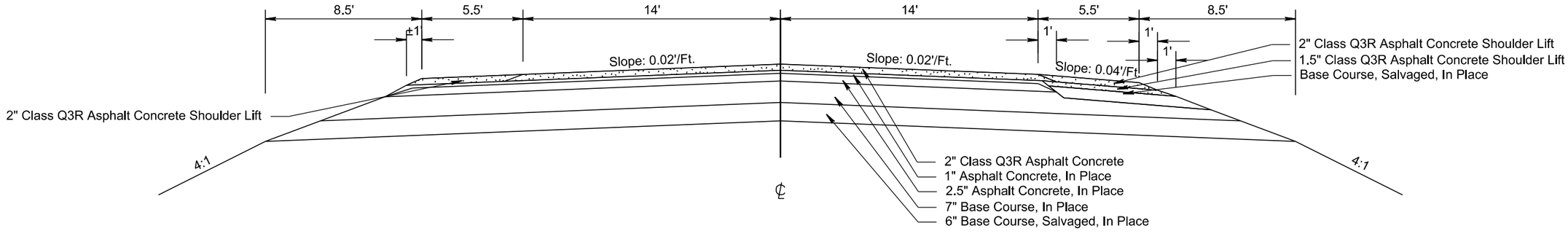
Plotting Date: 08/25/2025

4" Shoulder Preparation

Section 6
Sta. 376+02 to Sta. 378+83
Sta. 416+73 to Sta. 421+11 (Reversed)
Sta. 515+96 to Sta. 524+07 (Reversed)
Sta. 549+26 to Sta. 552+07 (Reversed)
Sta. 711+04 to Sta. 713+71



Section 6
Sta. 376+02 to Sta. 378+83
Sta. 416+73 to Sta. 421+11 (Reversed)
Sta. 515+96 to Sta. 524+07 (Reversed)
Sta. 549+26 to Sta. 552+07 (Reversed)
Sta. 711+04 to Sta. 713+71
Resurfacing Section



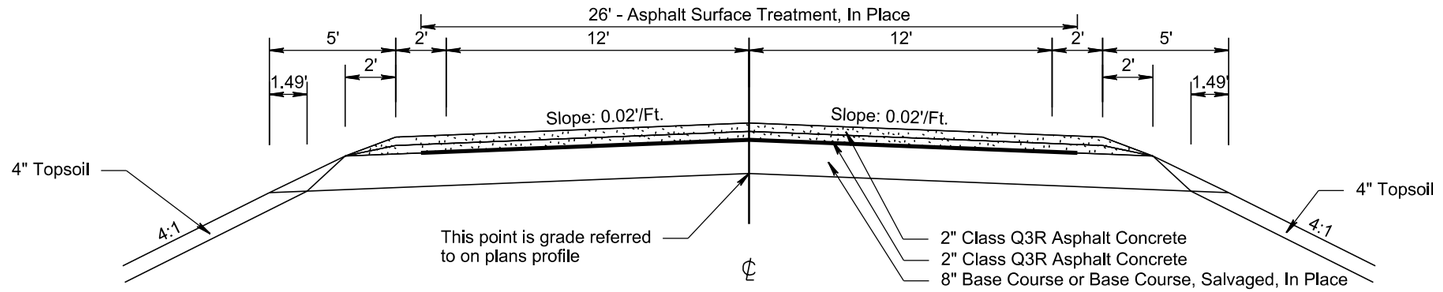
PLOT SCALE - 1:6.00001
PLOT NAME - 19
FILE - ...\06PO_TYPICAL SECTIONS.DGN
PLOTTED FROM - TRPR15123

TYPICAL SURFACING SECTIONS

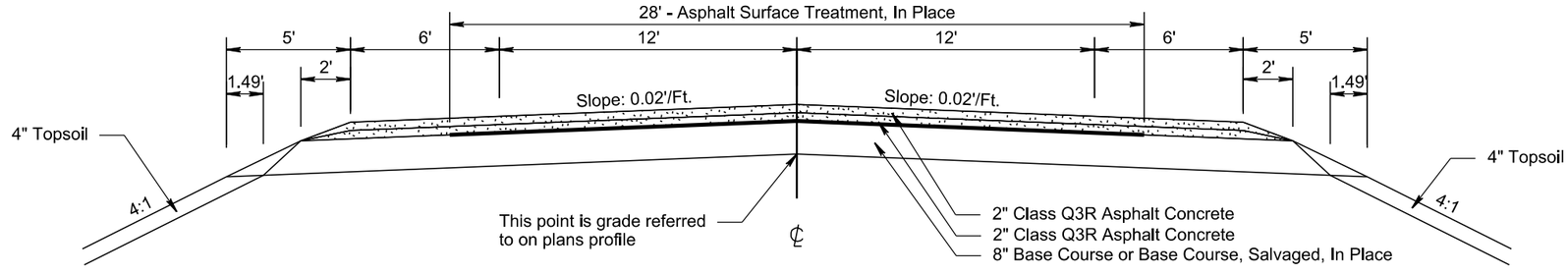
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F20	F54

Plotting Date: 08/25/2025

Section 7
Intersecting Road at Sta. 151+00
XR151
Sta. 0+25 to Sta. 6+18



Section 8
Intersecting Road at Sta. 198+81
XR198
Sta. 10+00 to Sta. 29+11



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR15123

PLOT NAME - 20

FILE - ...\06PO_TYPICAL SECTIONS.DGN

PLOT SCALE - 1:24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F21	F54

Plotting Date: 08/25/2025

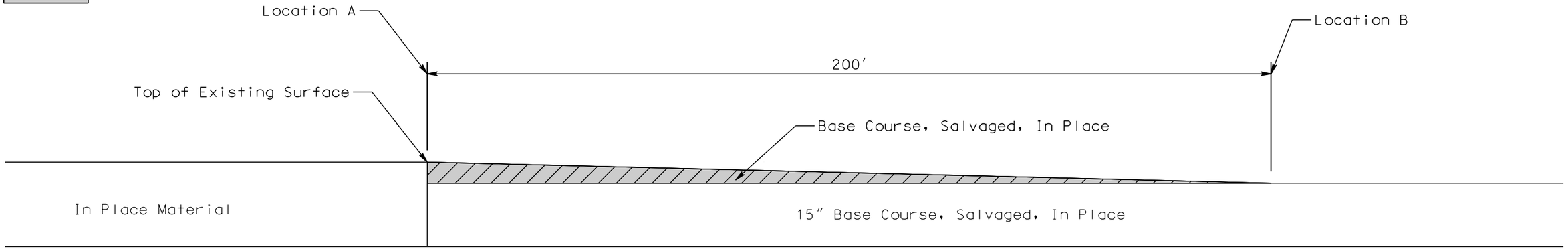
DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE

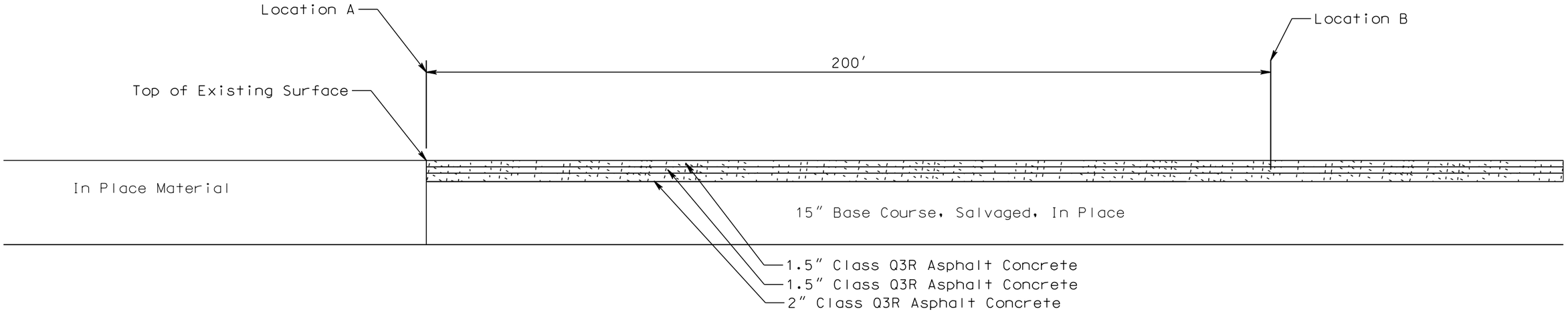
SHEET 1 OF 5 SHEETS

Unclassified Excavation

Salvage and Stockpile Granular Material



Location A	Location B	Depth Transition
Sta. 10+00	Sta. 12+00	5.0" to 0"



PLOTTED FROM - TRPR15123

PLOT NAME - 21

FILE -...\SURFACING TRANSITION DETAIL.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F22	F54

Plotting Date: 08/25/2025

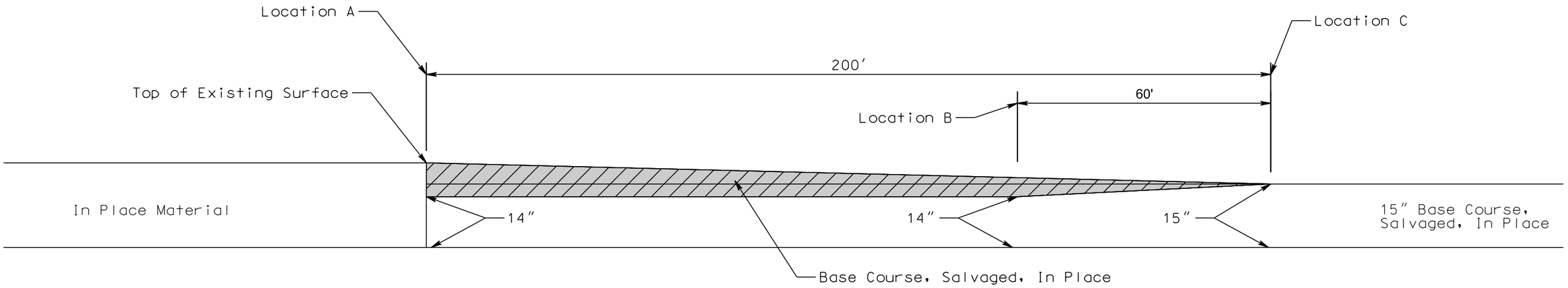
DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE

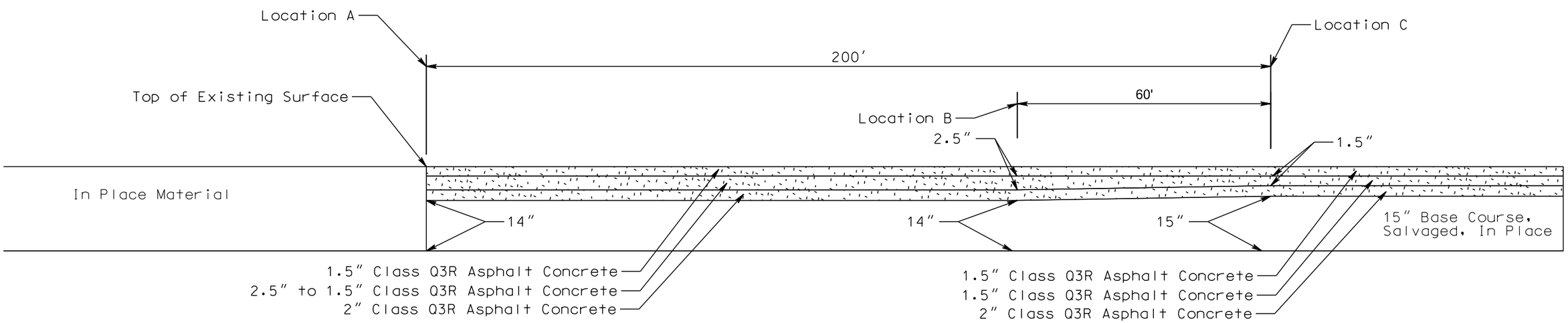
SHEET 2 OF 5 SHEETS

Unclassified Excavation

Salvage and Stockpile Granular Material



Location A	Location B	Location C	Depth Transition
Sta. 96+88.61	Sta. 98+28.61	Sta. 98+88.61	6" to 0"
Sta. 101+42.32	Sta. 102+82.32	Sta. 103+42.32	0" to 6"



PLOT SCALE - 1:24

PLOTTED FROM - TRPR15123

PLOT NAME - 22

FILE -...\SURFACING TRANSITION DETAIL.DGN

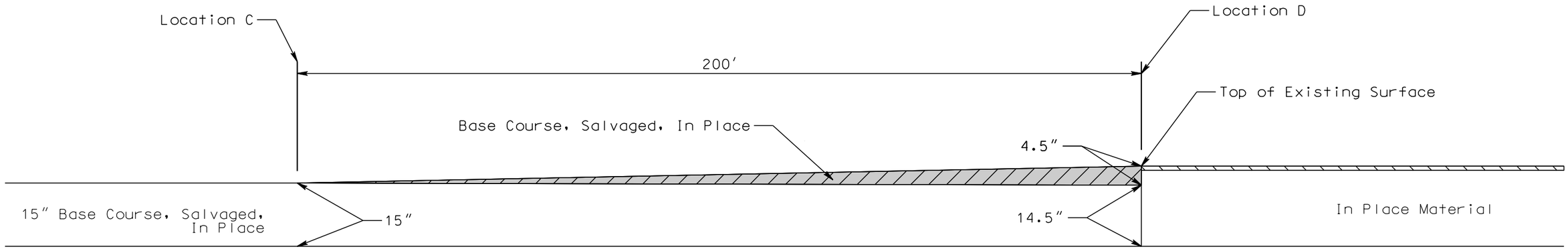
DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE

SHEET 3 OF 5 SHEETS

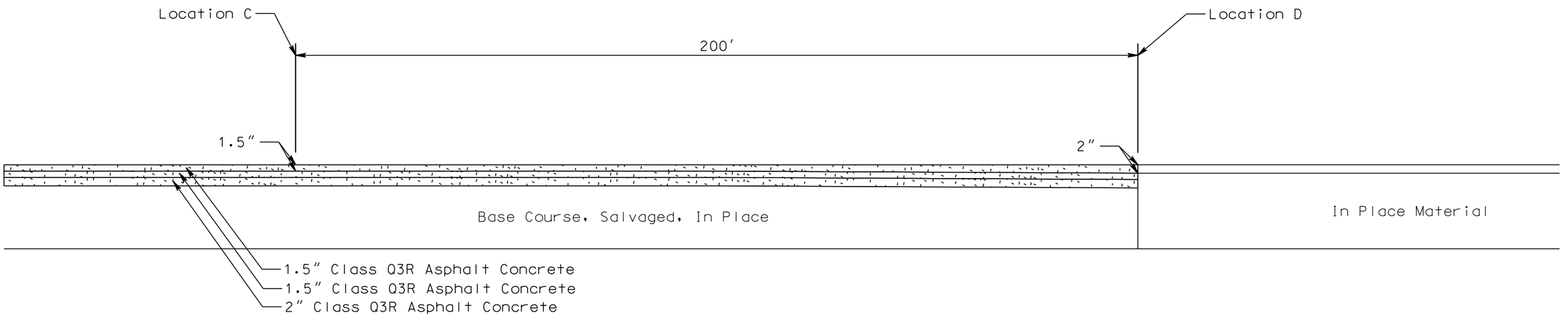
Unclassified Excavation

Salvage and Stockpile Granular Material



1" Cold Milling

Location C	Location D	Depth Transition
Sta. 275+71	Sta. 277+71	0" to 4.5"



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F24	F54

Plotting Date: 08/25/2025

DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE

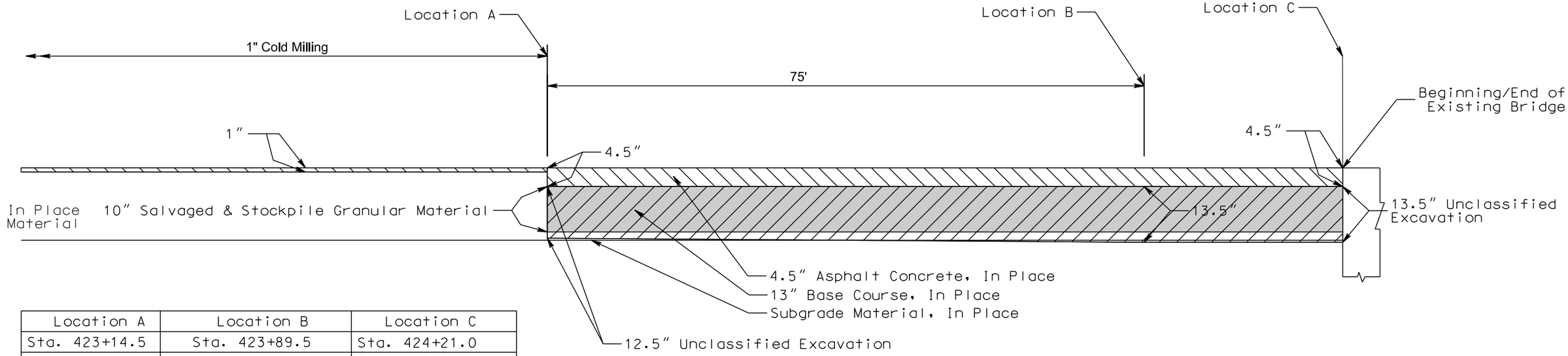
SHEET 4 OF 5 SHEETS

Cold Milling

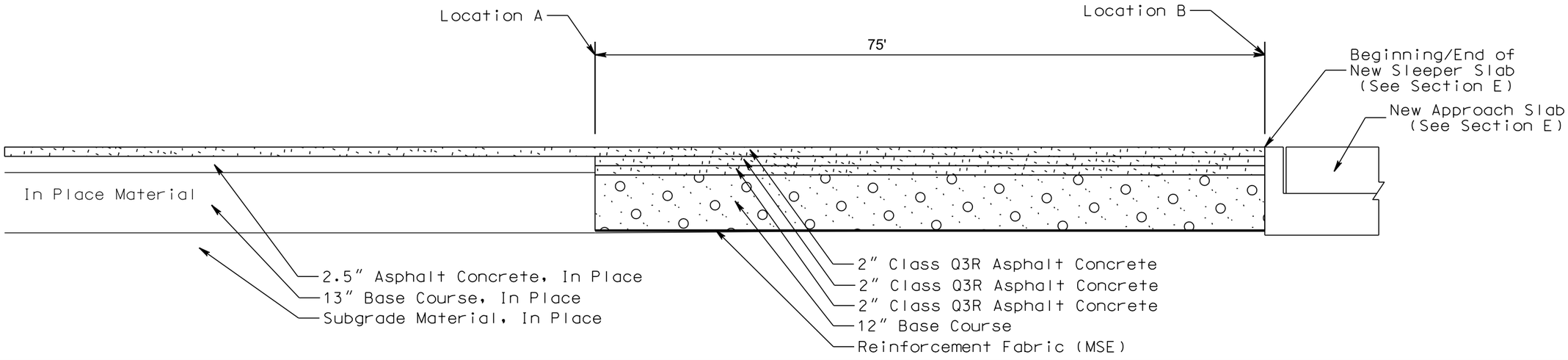
Unclassified Excavation

Salvage and Stockpile Granular Material

BRIDGE APPROACH DETAIL
at Str. No. 58-242-240
Typical at both ends of bridge.



Location A	Location B	Location C
Sta. 423+14.5	Sta. 423+89.5	Sta. 424+21.0
Sta. 426+48.0	Sta. 425+73.0	Sta. 425+51.0



PLOT SCALE - 1:24

PLOT NAME - 24

FILE ....\SURFACING TRANSITION DETAIL.DGN

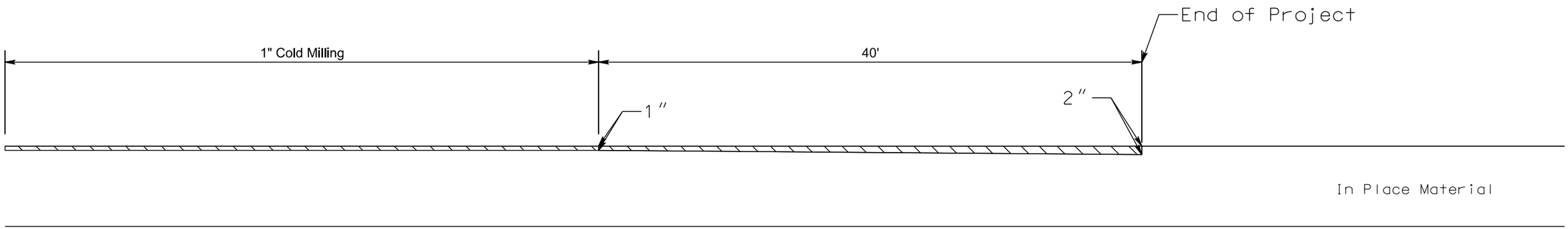
PLOTTED FROM - TRPR15123

DETAILS FOR SURFACING TRANSITIONS

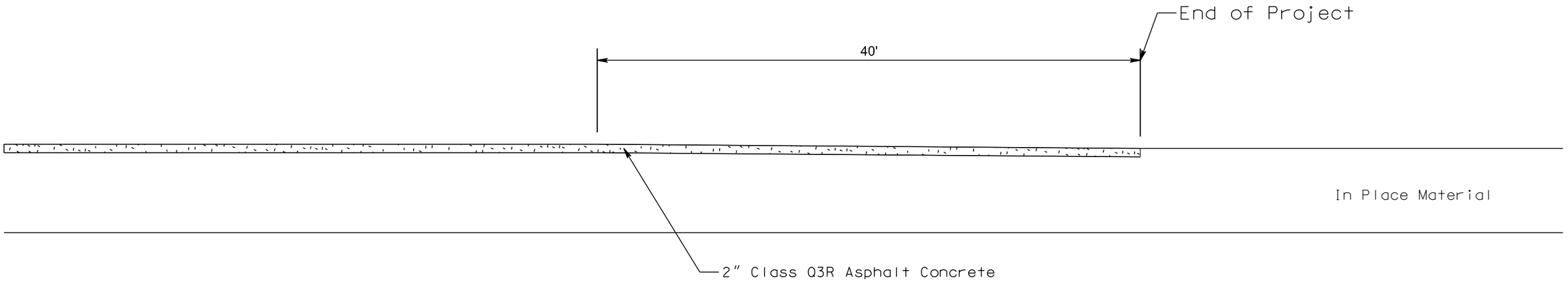
NOT TO SCALE

SHEET 5 OF 5 SHEETS

Cold Milling Transition at End of Project



Surfacing at End of Project



GUARDRAIL LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F26	F54

Plotting Date: 08/25/2025

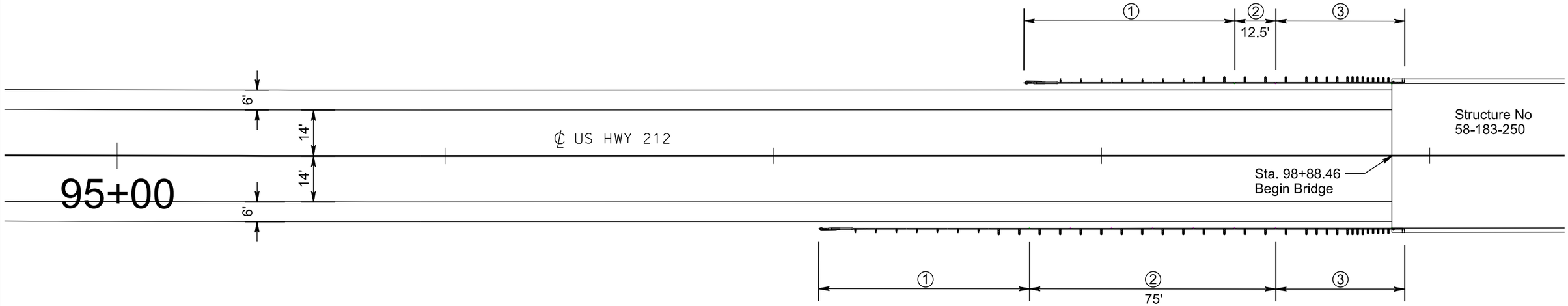
Scale 1 Inch = 30 Feet
Sheet 1 of 4

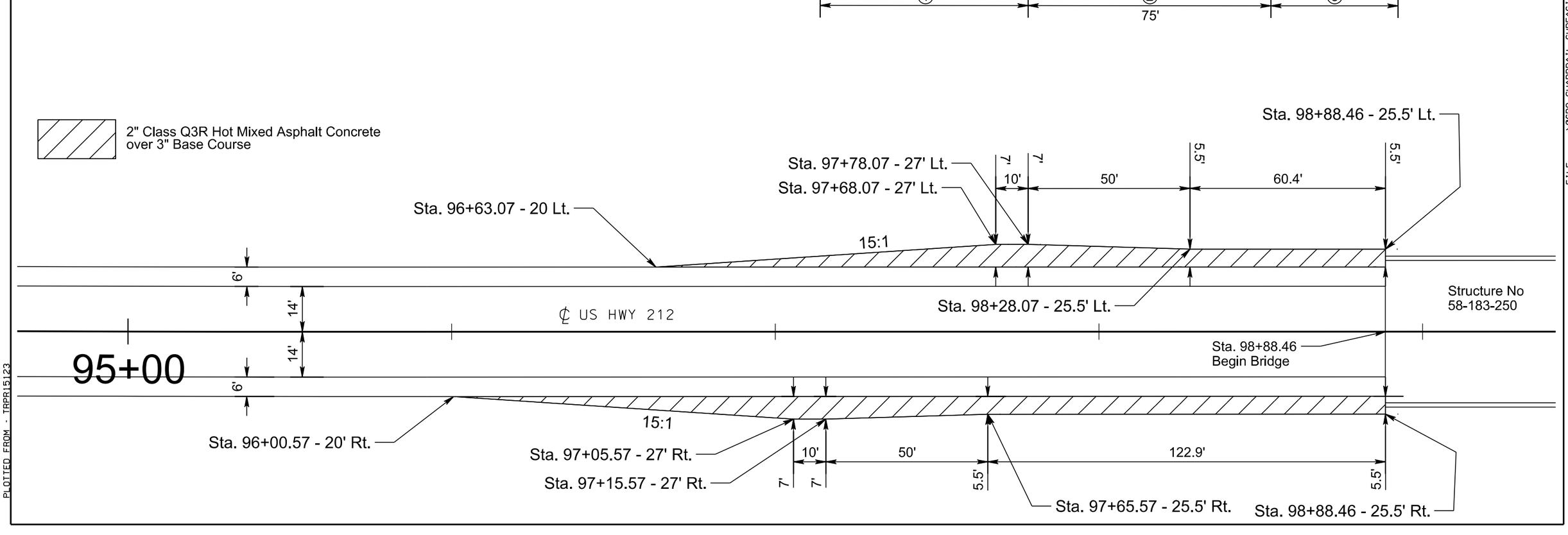
① Remove & Reset MGS Mash Tangent End Terminal (New Wood Posts)

② Remove & Reset Type 1 MGS (New Wood Posts)

③ Remove & Reset Type 1 Retrofit Guardrail Transition (New Wood Posts)

Structure No. 58-183-250
MRM 315.66





PLOT SCALE - 1:30.0391

PLOT NAME - 26

FILE ...\06PO_GUARDRAIL SURFACING.DGN

PLOTTED FROM - TRPR15123

GUARDRAIL LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F27	F54

Plotting Date: 08/25/2025

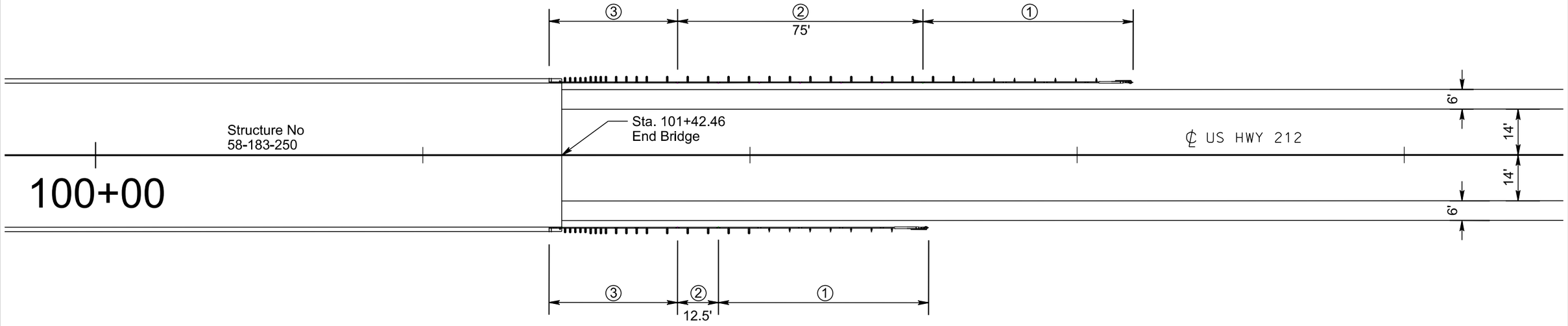
Scale 1 Inch = 30 Feet
Sheet 2 of 4

① Remove & Reset MGS Mash Tangent End Terminal (New Wood Posts)

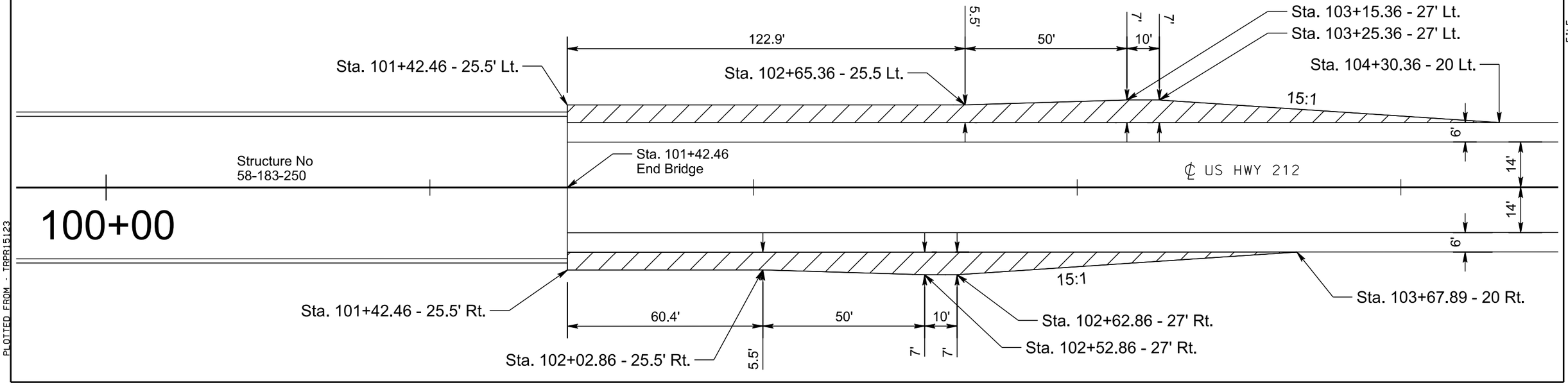
② Remove & Reset Type 1 MGS (New Wood Posts)

③ Remove & Reset Type 1 Retrofit Guardrail Transition (New Wood Posts)

Structure No. 58-183-250
MRM 315.66



2" Class Q3R Hot Mixed Asphalt Concrete over 3" Base Course



PLOT SCALE - 1:30.0391

PLOTTED FROM - TRPR15123

PLOT NAME - 27

FILE - ...\06P0_GUARDRAIL SURFACING.DGN

GUARDRAIL LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F28	F54

Plotting Date: 08/25/2025

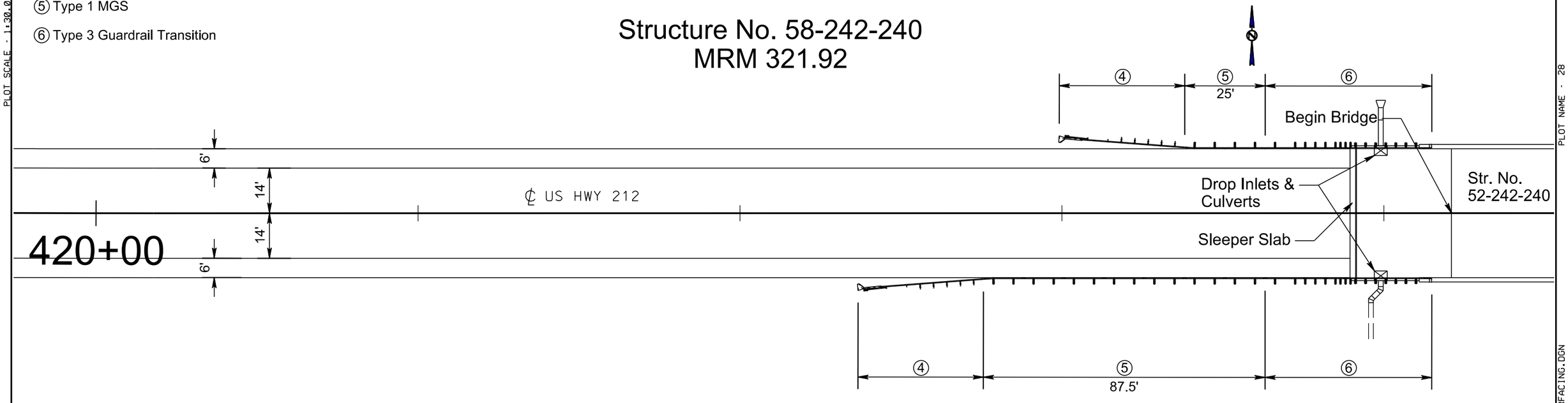
Scale 1 Inch = 30 Feet
Sheet 3 of 4

④ MGS Mash Flared End Terminal

⑤ Type 1 MGS

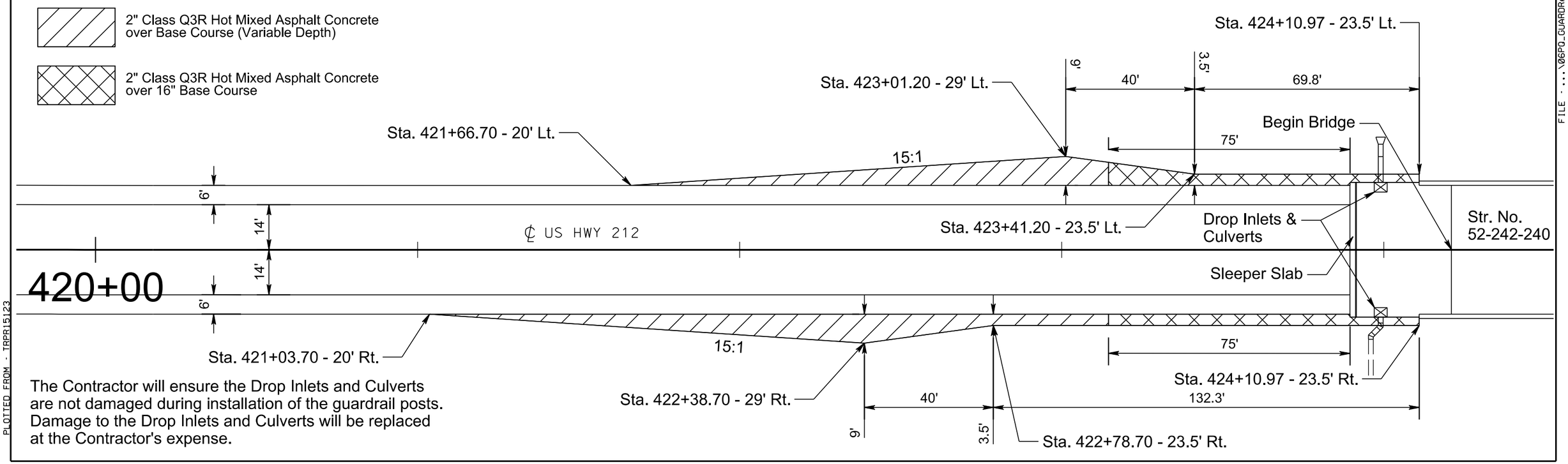
⑥ Type 3 Guardrail Transition

Structure No. 58-242-240
MRM 321.92



2" Class Q3R Hot Mixed Asphalt Concrete over Base Course (Variable Depth)

2" Class Q3R Hot Mixed Asphalt Concrete over 16" Base Course



The Contractor will ensure the Drop Inlets and Culverts are not damaged during installation of the guardrail posts. Damage to the Drop Inlets and Culverts will be replaced at the Contractor's expense.

PLOT SCALE - 1:30.0391

PLOTTED FROM - TRPR15123

PLOT NAME - 28

FILE - ...\06P0_GUARDRAIL SURFACING.DGN

GUARDRAIL LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F29	F54

Plotting Date: 08/25/2025

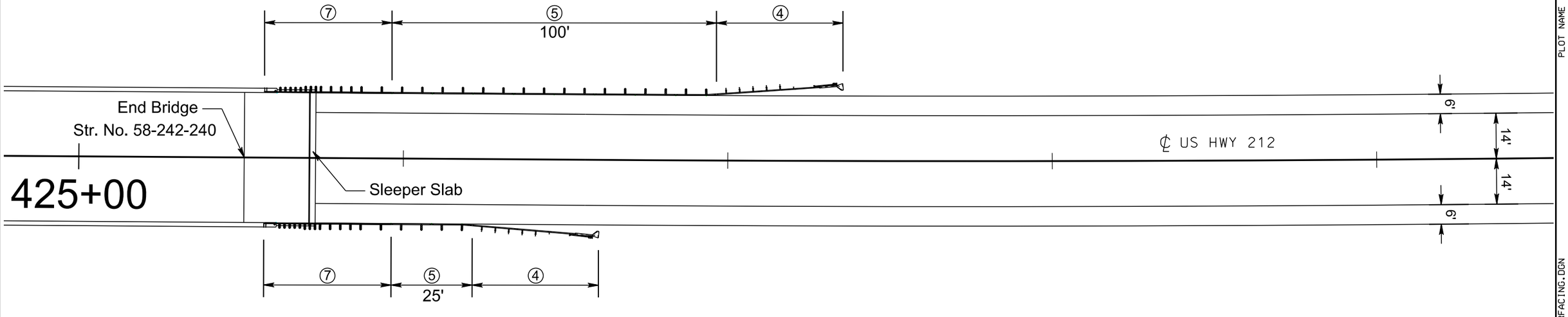
Scale 1 Inch = 30 Feet
Sheet 4 of 4

④ MGS Mash Flared End Terminal

⑤ Type 1 MGS

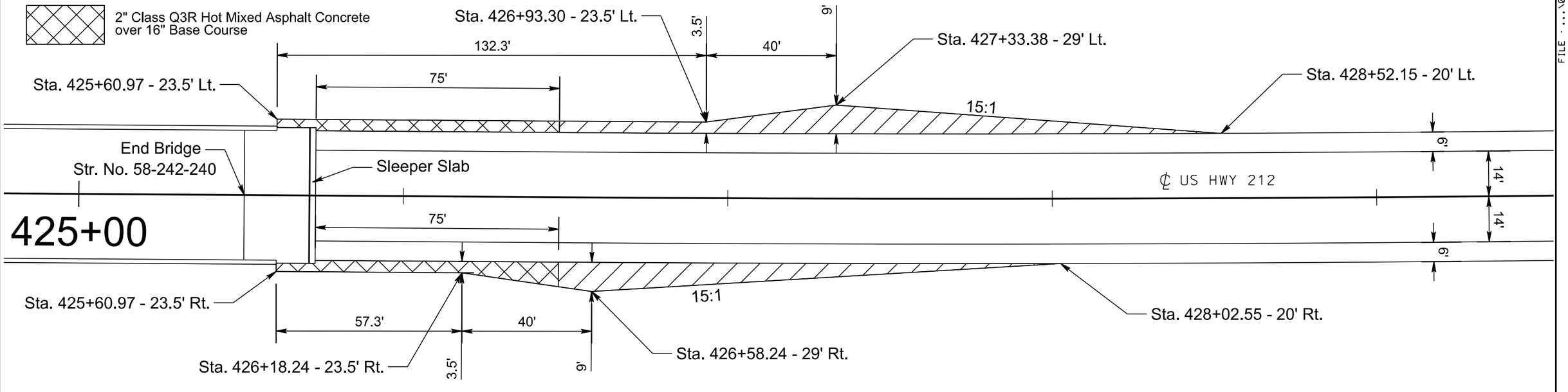
⑦ Type 1 Retrofit Guardrail Transition

Structure No. 58-242-240
MRM 321.92



2" Class Q3R Hot Mixed Asphalt Concrete over Base Course (Variable Depth)

2" Class Q3R Hot Mixed Asphalt Concrete over 16" Base Course



PLOT SCALE - 1:30.0391

PLOT NAME - 29

FILE ...\06P0_GUARDRAIL SURFACING.DGN

PLOTTED FROM - TRPR15123

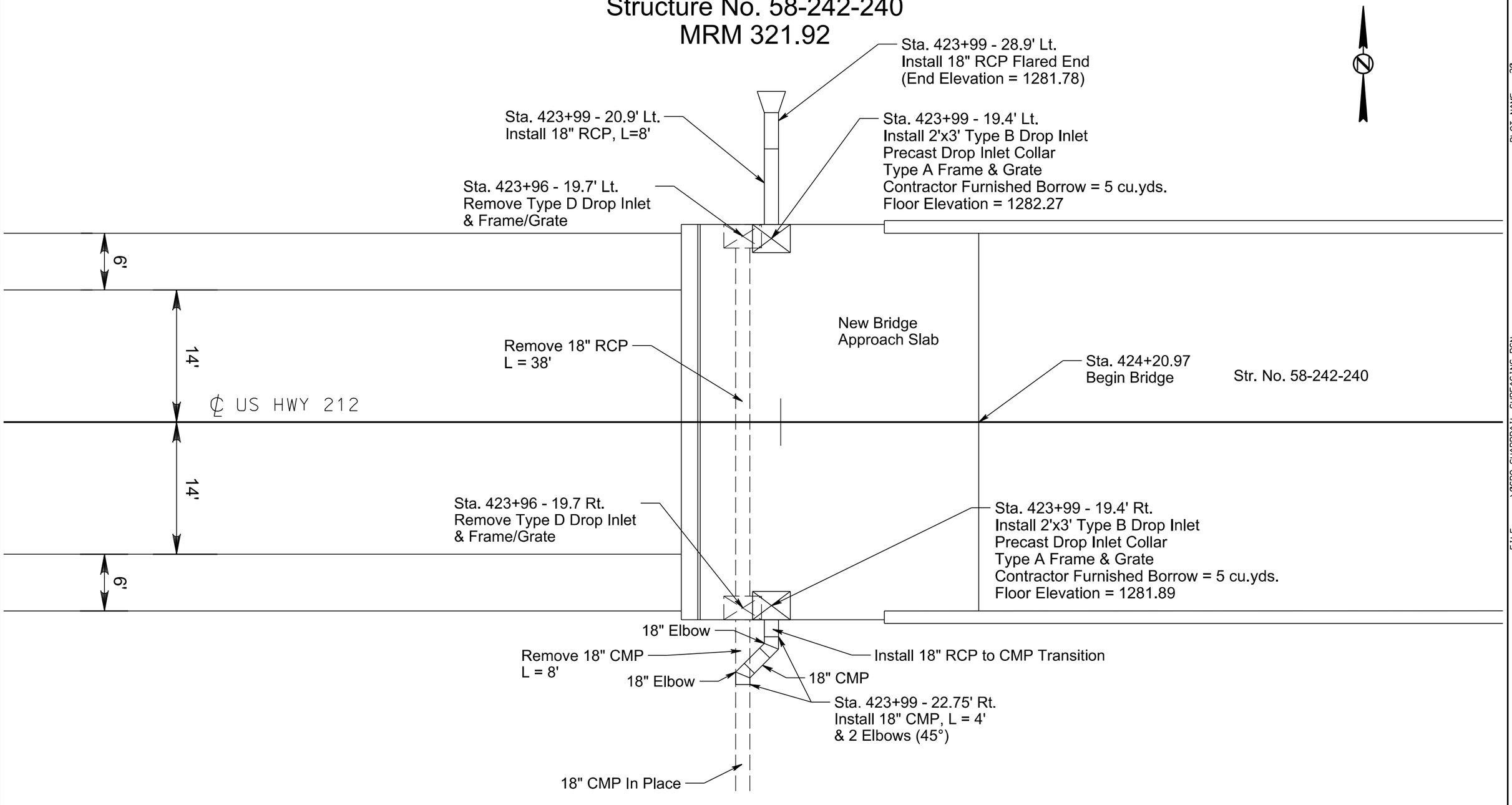
DROP INLET LAYOUT

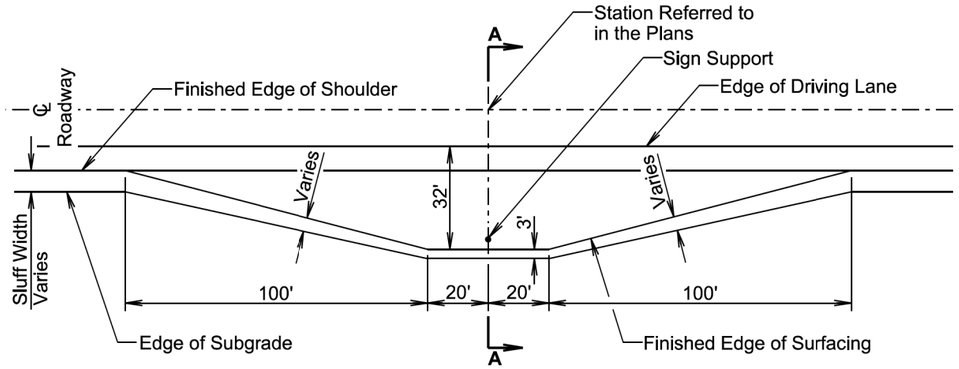
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F30	F54

Plotting Date: 08/25/2025

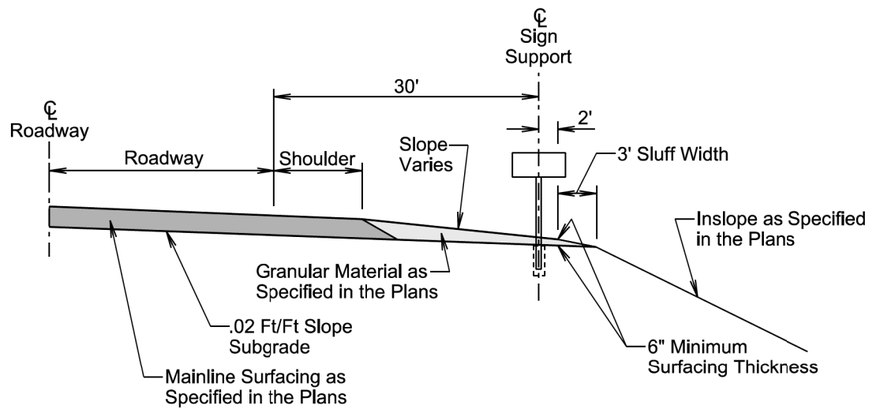
Sheet 1 of 1

Structure No. 58-242-240
MRM 321.92





PLAN VIEW



SECTION A-A

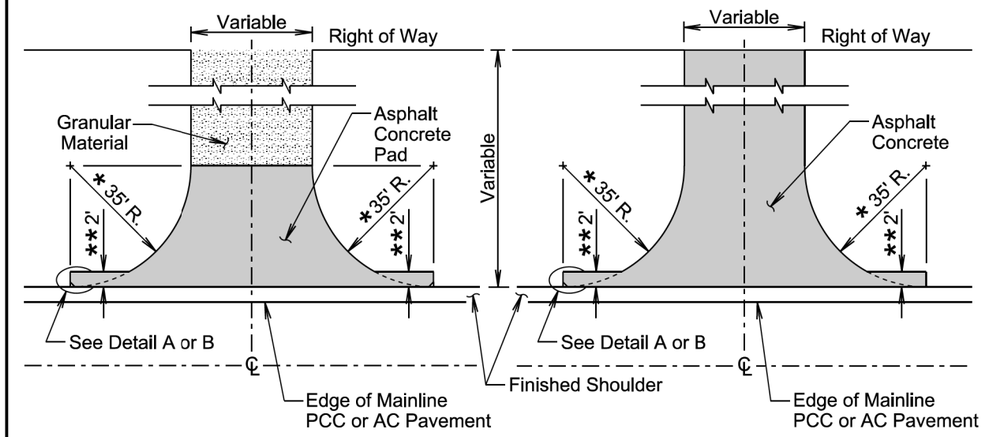
GENERAL NOTES:

The finished cross slope of the turnout from the edge of the shoulder to the outside edge of the finished surface will vary depending upon the mainline surfacing thickness.

The minimum surfacing thickness within the turnout will be 6" as depicted in Section A-A.

September 14, 2018

Published Date: 2026	SDDOT	HISTORICAL MARKER TURNOUT	PLATE NUMBER 120.20 Sheet 1 of 1



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.

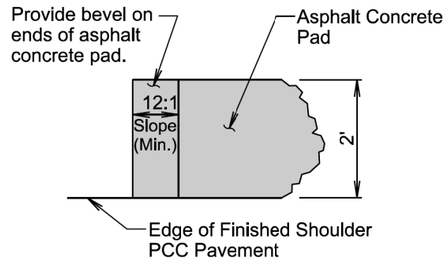
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete 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

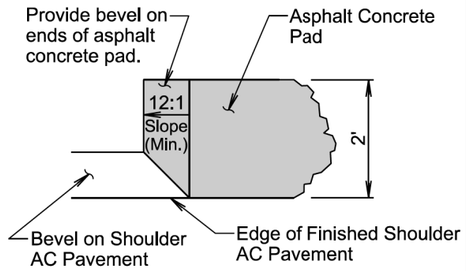
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F32	F54

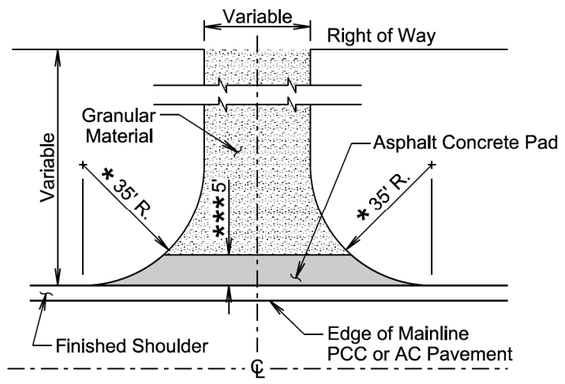
Plotting Date: 08/25/2025



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



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

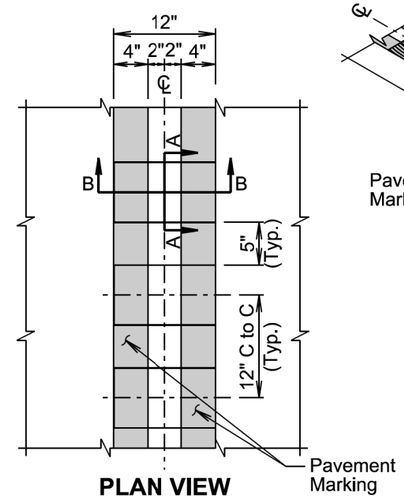


PLAN VIEW
(Entrance)

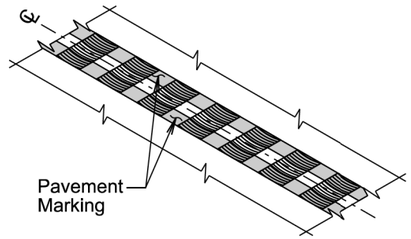
*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

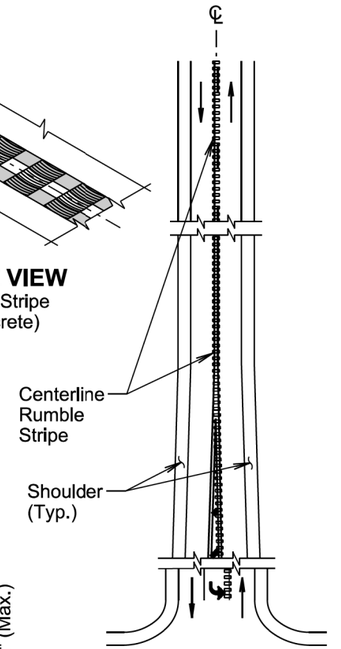
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04
			Sheet 2 of 2

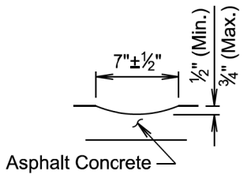


PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)

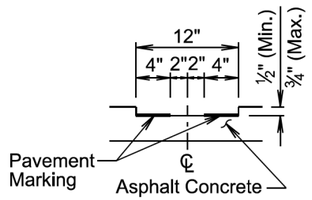


PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)





SECTION A-A



SECTION B-B

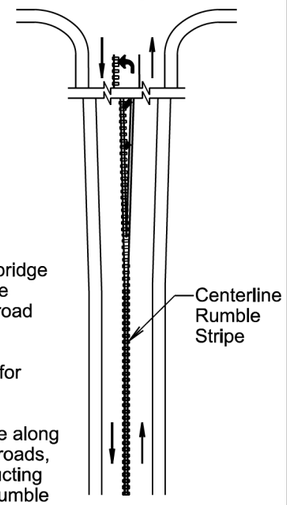
GENERAL NOTES:

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".

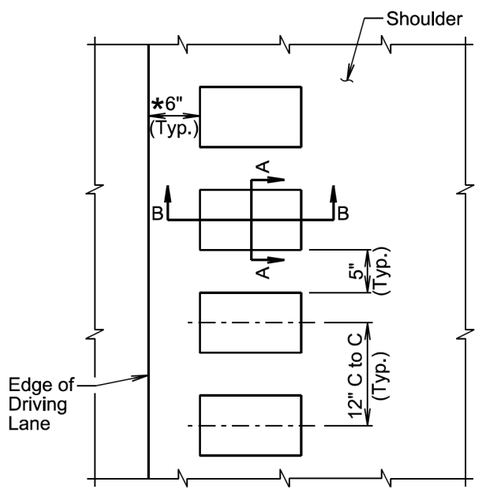


PLAN VIEW

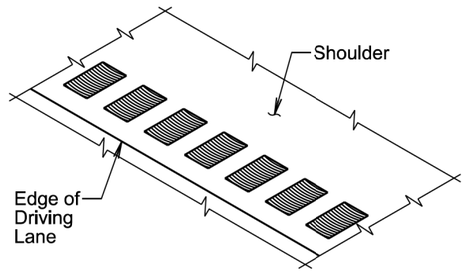
November 19, 2020

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

Plot Scale - 1:200
Plotted From - TRPR15123
File - ...\spnk06PQ\StdPlateSectionF.dgn

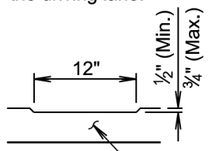


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

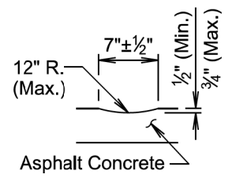


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

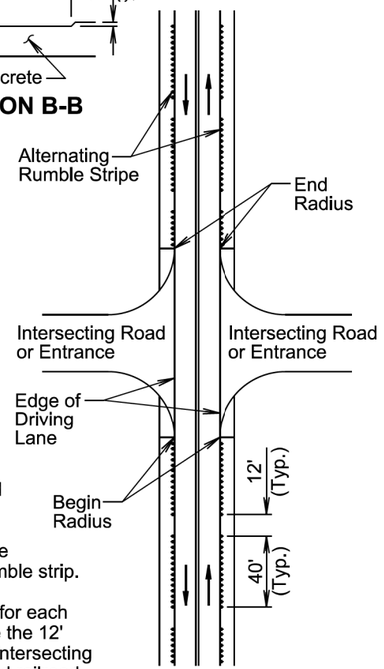
*When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



SECTION B-B



SECTION A-A



PLAN VIEW

GENERAL NOTES:

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

A rumble strip 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 strip 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 strip the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble strip.

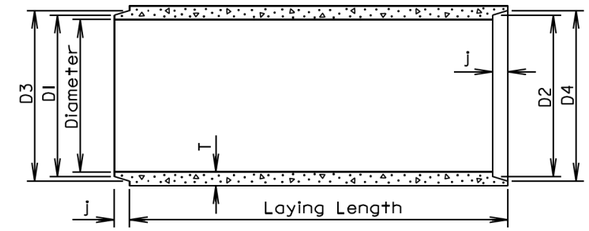
Measurement of the rumble strip will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip will include the 12' long segments without rumble strips and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad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

September 14, 2019

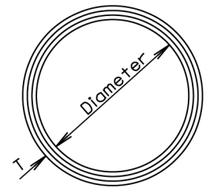
Published Date: 2026	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or ⅜" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± ¼" for 36" or greater.
Length of joint (j): ± ¼".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than ½".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

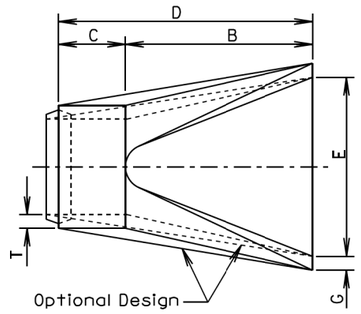
Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

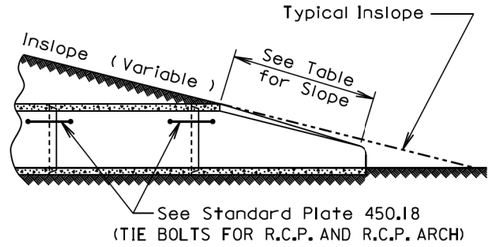
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1¾	13¼	13⅝	13⅞	14¼
15	127	2¼	2	16½	16⅞	17¼	17⅝
18	168	2½	2¼	19⅝	20	20⅜	20¾
21	214	2¾	2½	22⅞	23¼	23¾	24⅛
24	265	3	2¾	26	26⅜	27	27⅜
27	322	3¼	3	29¼	29⅝	30¼	30⅝
30	384	3½	3¼	32⅜	32¾	33½	33⅞
36	524	4	3¾	38¾	39¼	40	40½
42	685	4½	4	45⅛	45⅝	46½	47
48	867	5	4½	51½	52	53	53½
54	1070	5½	4½	57⅞	58⅜	59⅜	59⅞
60	1296	6	5	64¼	64¾	66	66½
66	1542	6½	5½	70⅝	71⅛	72½	73
72	1810	7	6	77	77½	79	79½
78	2098	7½	6½	83⅜	83⅞	85⅝	86⅛
84	2410	8	7	89¾	90¼	92⅛	92⅝
90	2740	8½	7	95¾	96¼	98⅛	98⅝
96	2950	9	7	102⅛	102⅝	104½	105
102	3075	9½	7½	109	109½	111½	112
108	3870	10	7½	115½	116	118	118½

June 26, 2015

Published Date: 2026	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



TOP VIEW

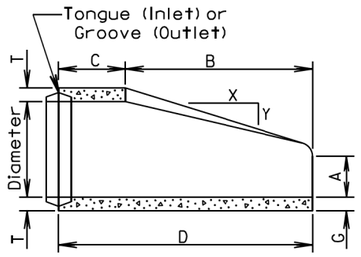


SLOPE DETAIL

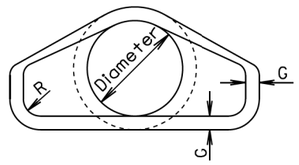
GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



LONGITUDINAL SECTION



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

Published Date: 2026	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

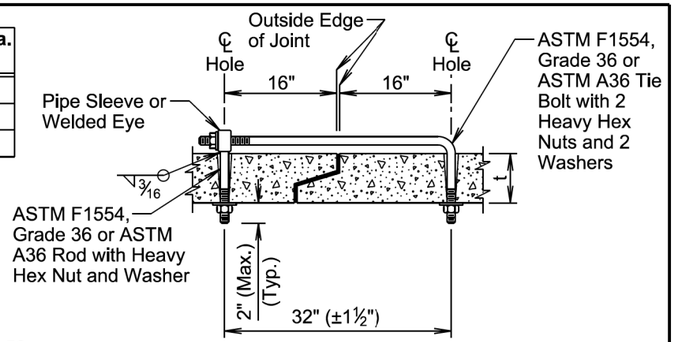
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2-6 1/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

Tie bolts will conform to ASTM F1554, Grade 36 or ASTM A36. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

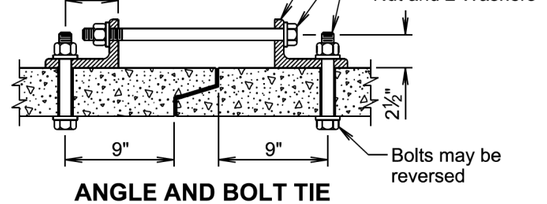
Pipe Sleeve will conform to ASTM A53, Grade B or ASTM A500, Grade B or C.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1



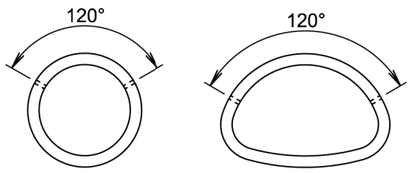
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles will conform to ASTM A36.

Bolts will conform to ASTM A307. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW (Circular)

END VIEW (Arch)

GENERAL NOTES:

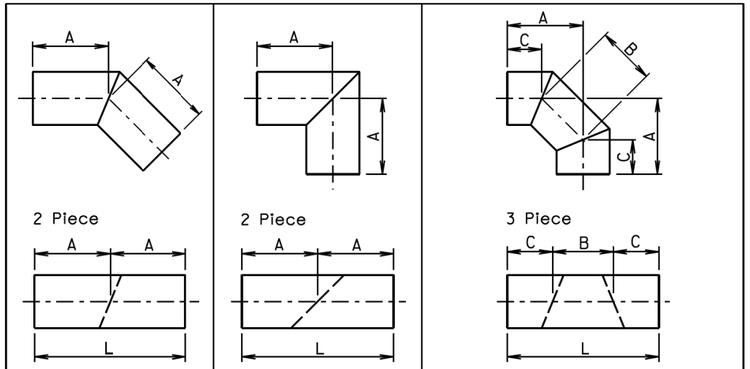
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch will be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manholes, and junction boxes will be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts will be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

April 8, 2025

Published Date: 2026	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



Diameter	A	L	Diameter	A	L	Diameter	A	B	C	L
Inches	Feet	Feet	Inches	Feet	Feet	Inches	Inches			Feet
12	1	2	12	2	4	12	25½	11	18½	4
15	1	2	15	2	4	15	26½	12	18	4
18	1	2	18	2	4	18	27	14	17	4
21	2	4	21	2	4	21	27	15	16½	4
24	2	4	24	2	4	24	27½	16	16	4
27	2	4	27	2	4	27	27½	17	15½	4
30	2	4	30	3	6	30	40	19	26½	6
33	2	4	33	3	6	33	40	20	26	6
36	2	4	36	3	6	36	40½	21	25½	6
42	2	4	42	3	6	42	41	23	24½	6
48	2	4	48	4	8	48	53½	26	35	8
54	3	6	54	4	8	54	54	28	34	8
60	3	6	60	4	8	60	54½	31	32½	8
66	3	6	66	4	8	66	54	33	31½	8
72	3	6	72	5	10	72	67½	36	42	10
78	3	6	78	5	10	78	68	39	40½	10
84	3	6	84	5	10	84	68½	41	39½	10
90	3	6	90	6	12	90	70	46	37	10
96	3	6	96	6	12	96	82	46	49	12

FABRICATED ELBOW LENGTHS FOR ALL CORRUGATIONS

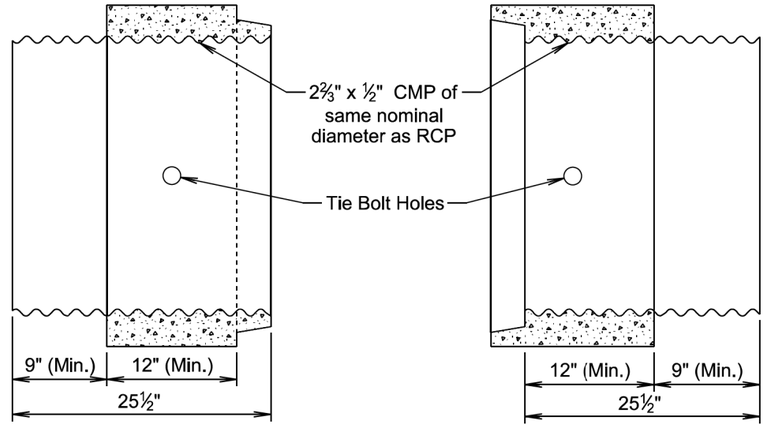
GENERAL NOTES:

All dimensions shown are nominal.

L = Linear Feet of C.M.P. required to fabricate fitting.

June 26, 2001

Published Date: 2026	SDDOT	***C.M.P. FABRICATED LENGTHS FOR ELBOWS***	*PLATE NUMBER* 450.32 / *Sheet 1 of 1*



INLET
(CMP to RCP Transition)

OUTLET
(RCP to CMP Transition)

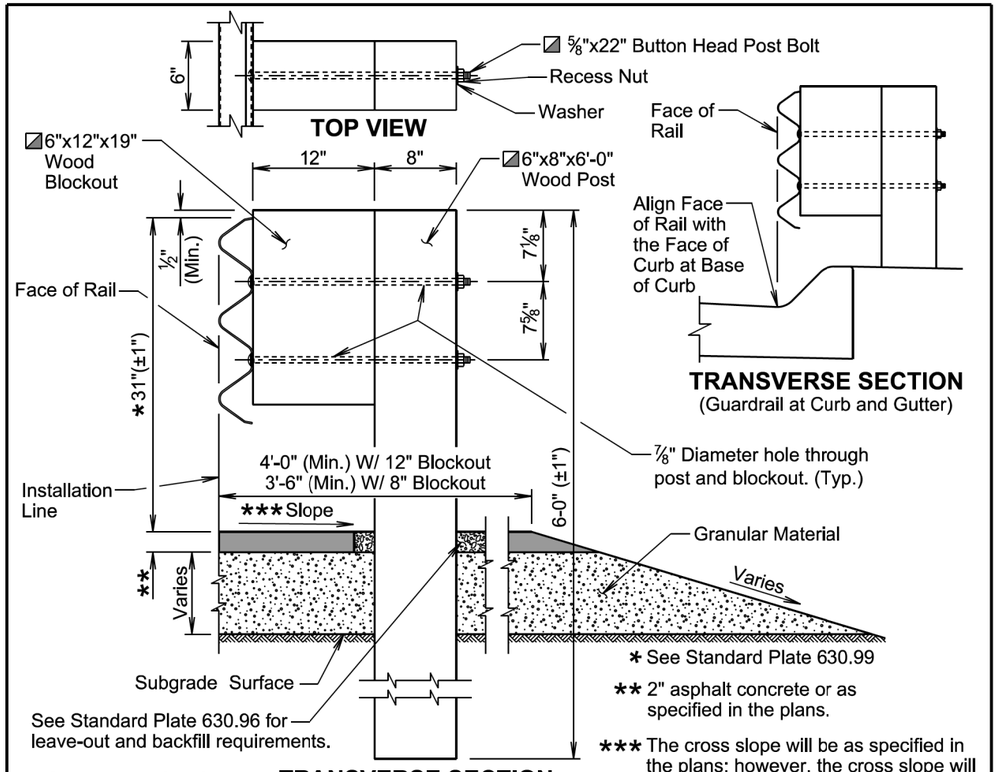
GENERAL NOTE:

Arch pipe transitions will be fabricated similar to the round transition shown above.

All pipe transitions will be precast as shown. Alternate designs other than shown will need to be approved by the Engineer.

November 19, 2022

Published Date: 2026	SDDOT	***C.M.P. TO R.C.P. TRANSITION AND R.C.P. TO C.M.P. TRANSITION***	*PLATE NUMBER* 450.50 / *Sheet 1 of 1*



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.

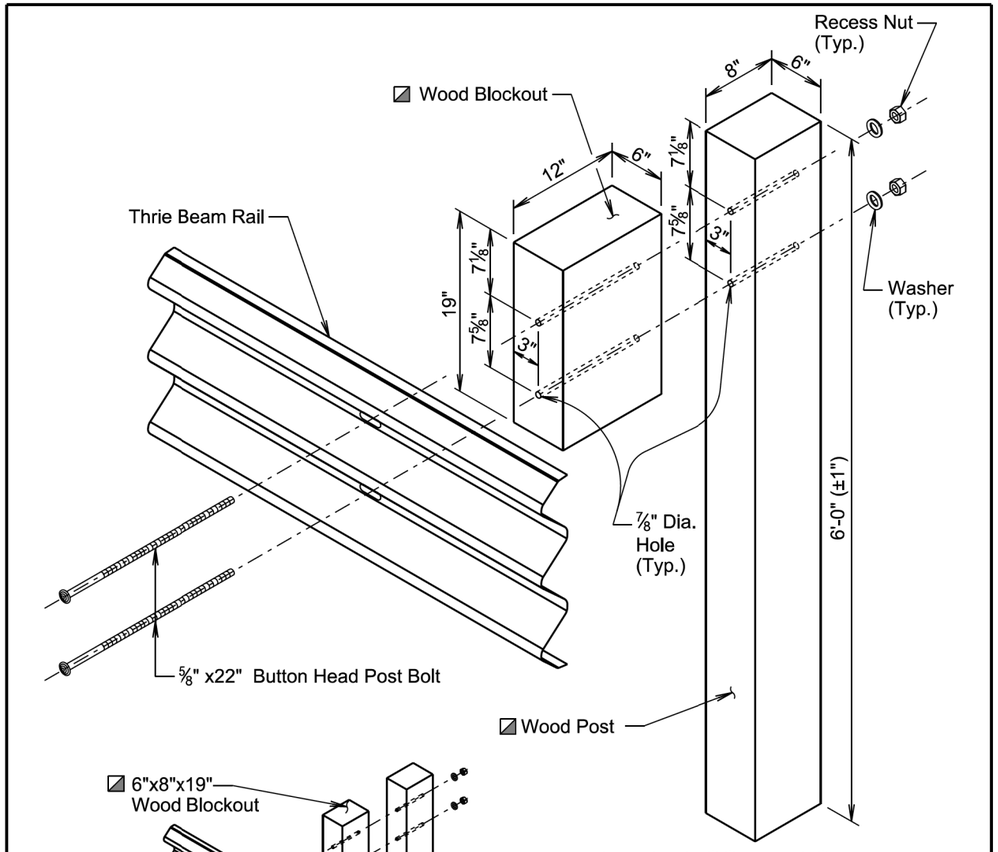
⧄ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

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

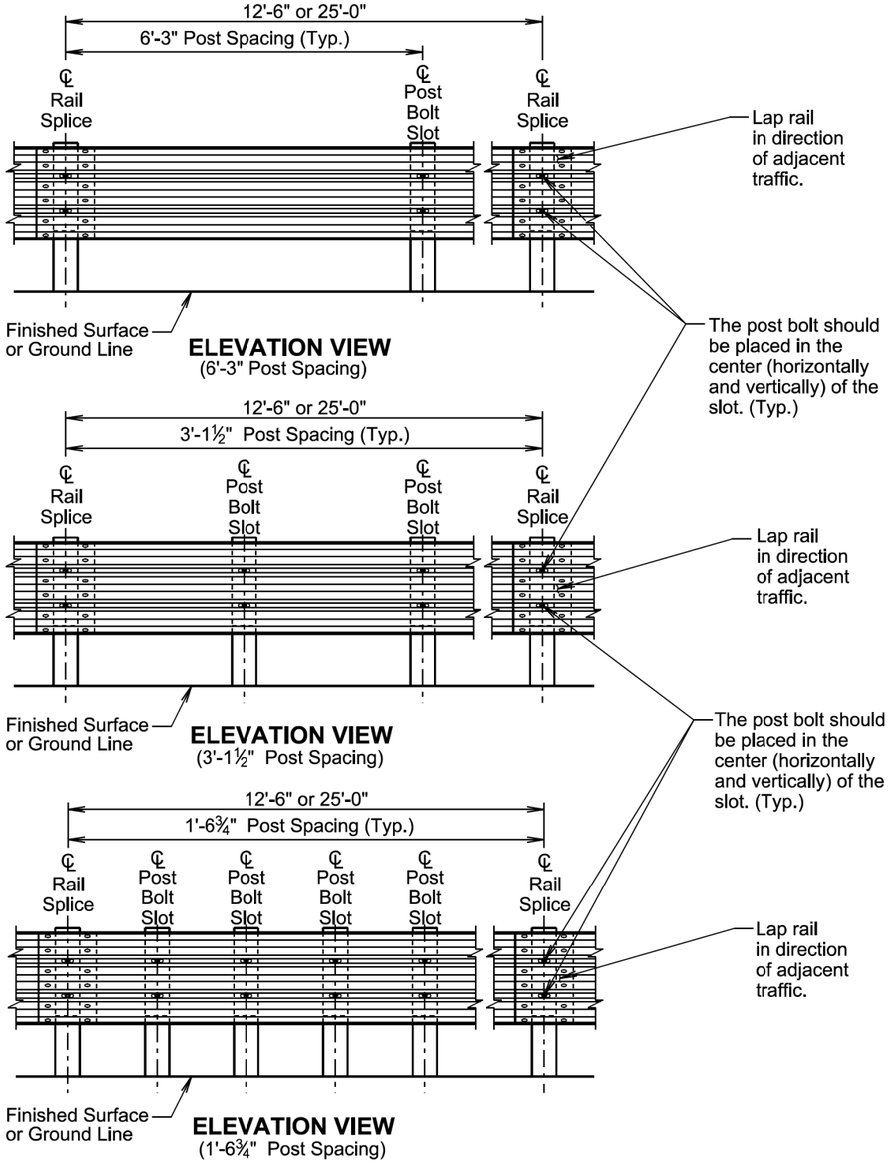
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 1 of 5



⧄ 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.

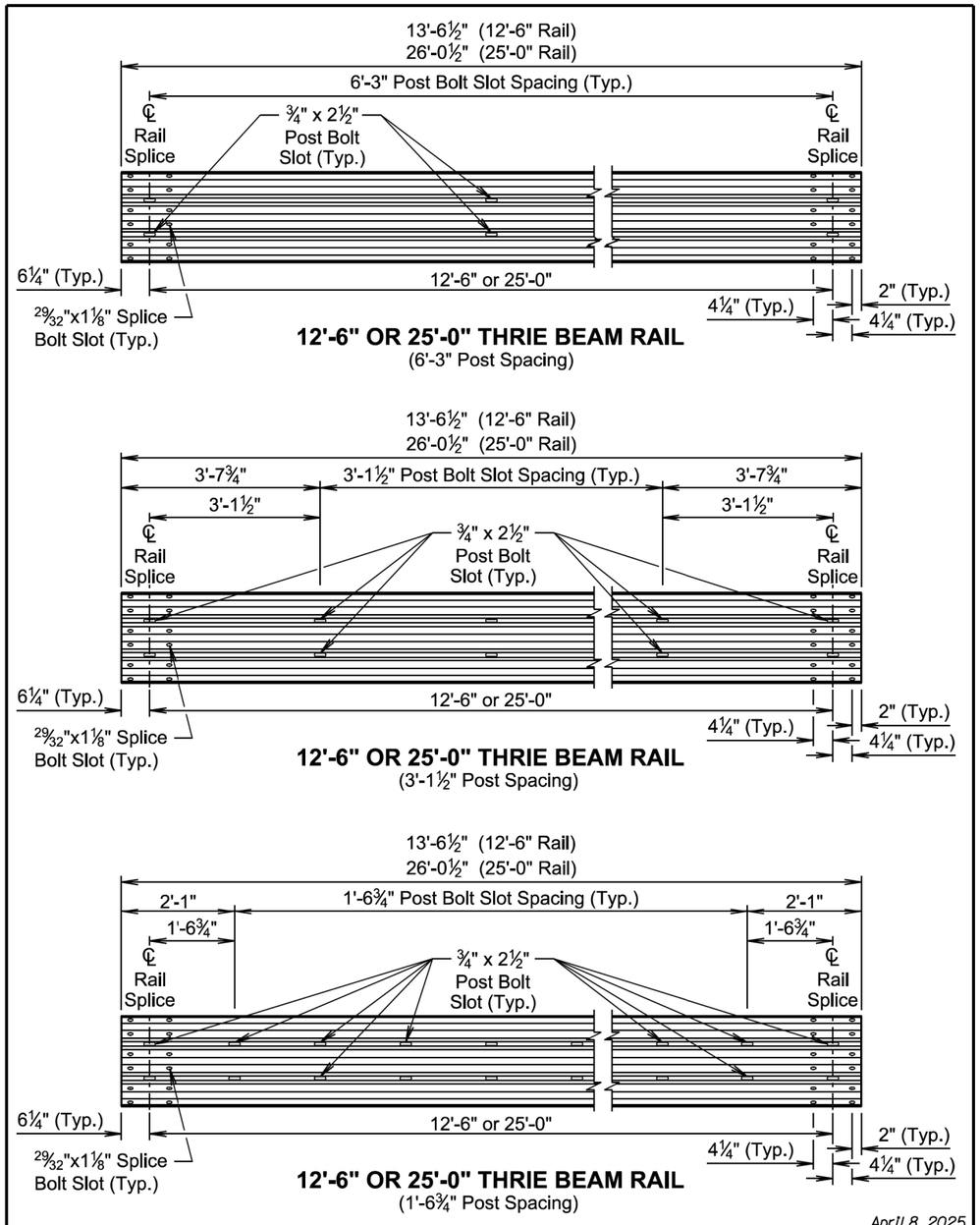
April 8, 2025

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



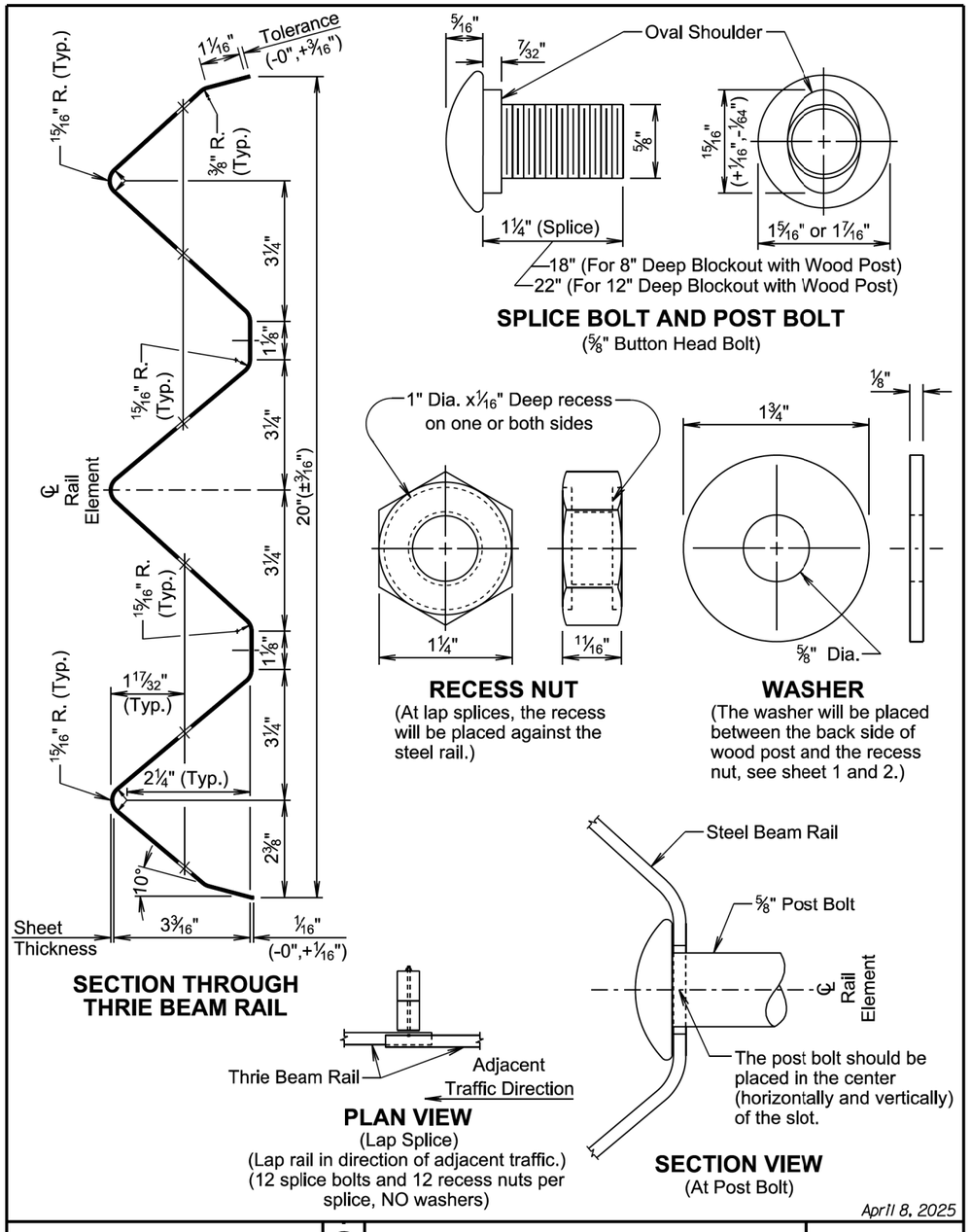
April 8, 2025

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



April 8, 2025

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



April 8, 2025

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

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.

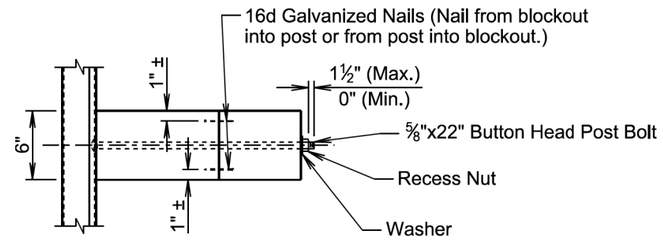
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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.

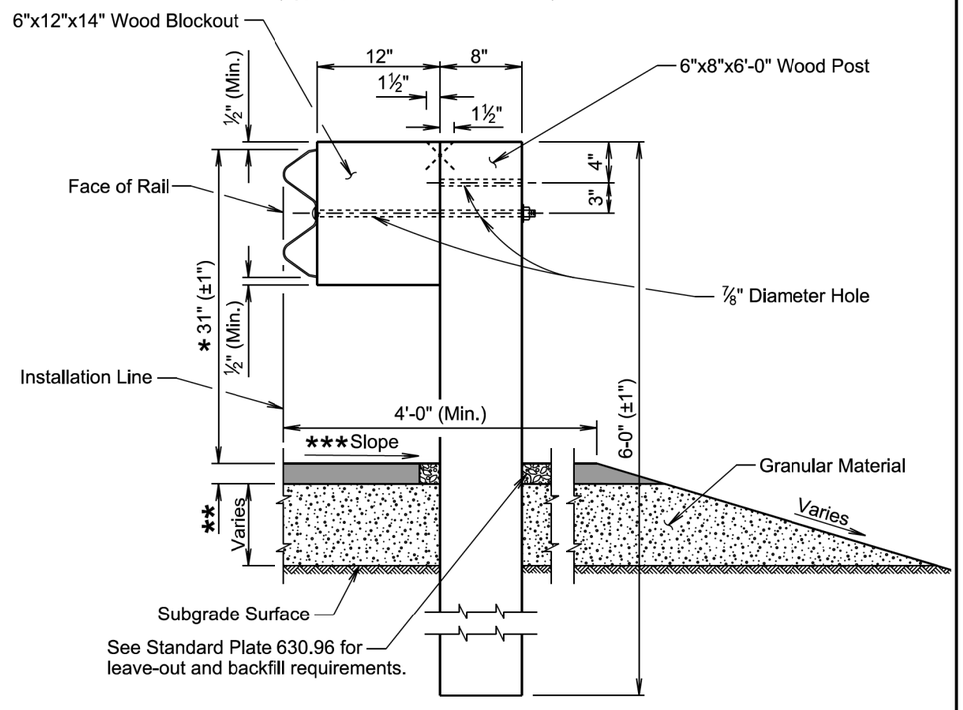
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

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



TOP VIEW
(Type 1, 2, or 3 MGS Installation)



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

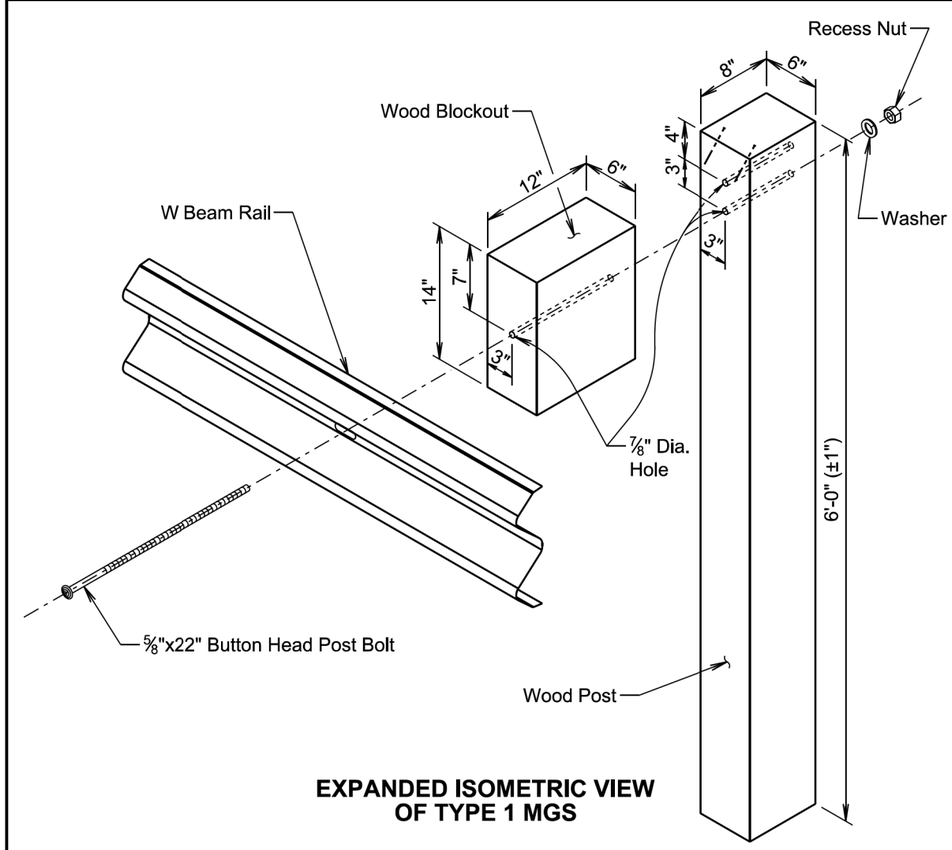
* See Standard Plate 630.99

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

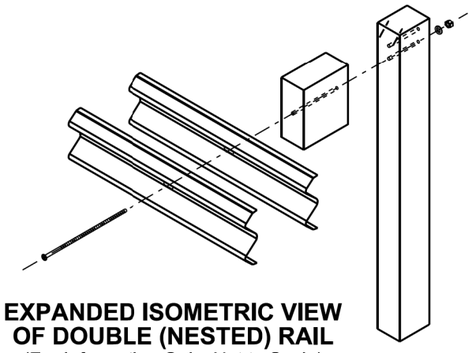
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

April 8, 2025

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



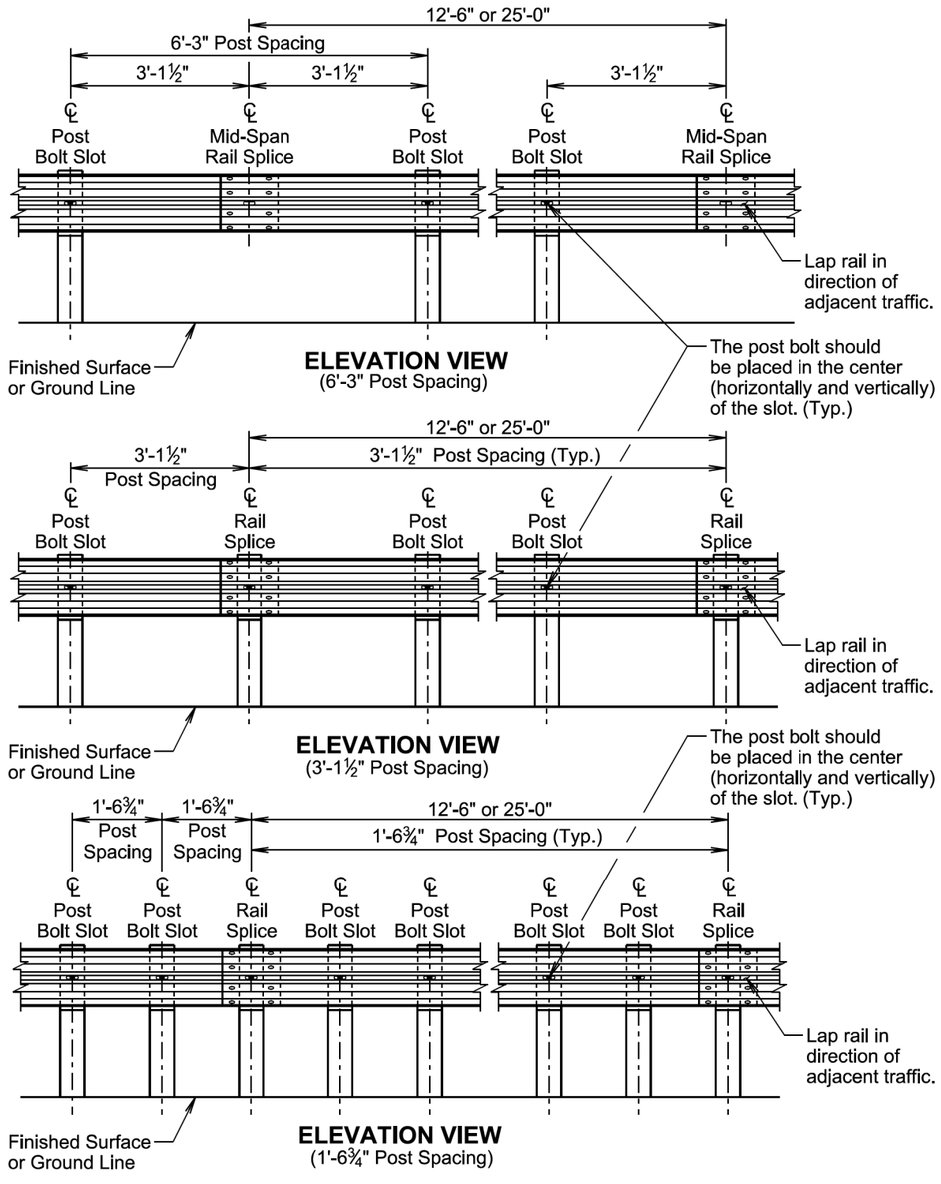
EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS



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

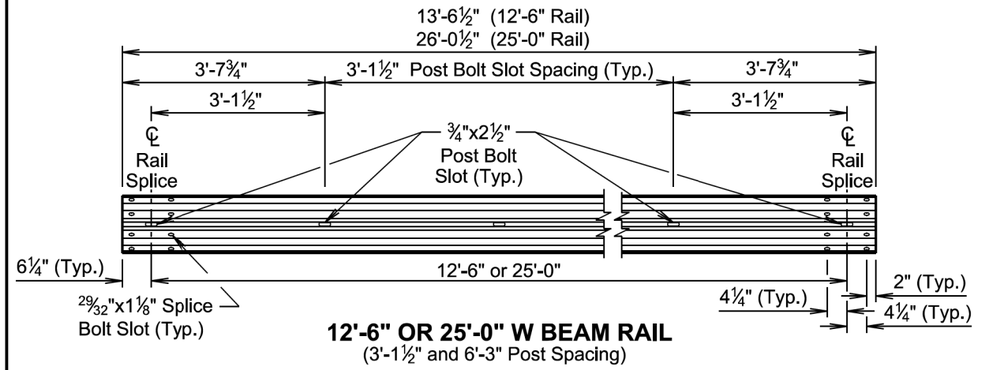
April 8, 2025

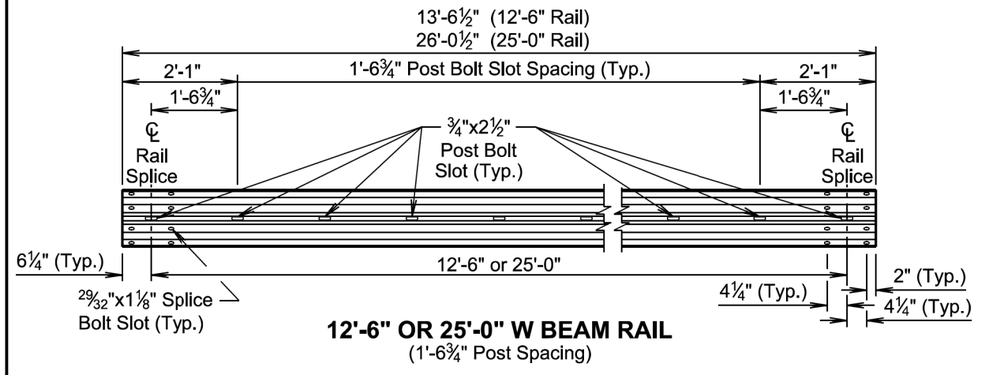
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20 Sheet 3 of 6



April 8, 2025

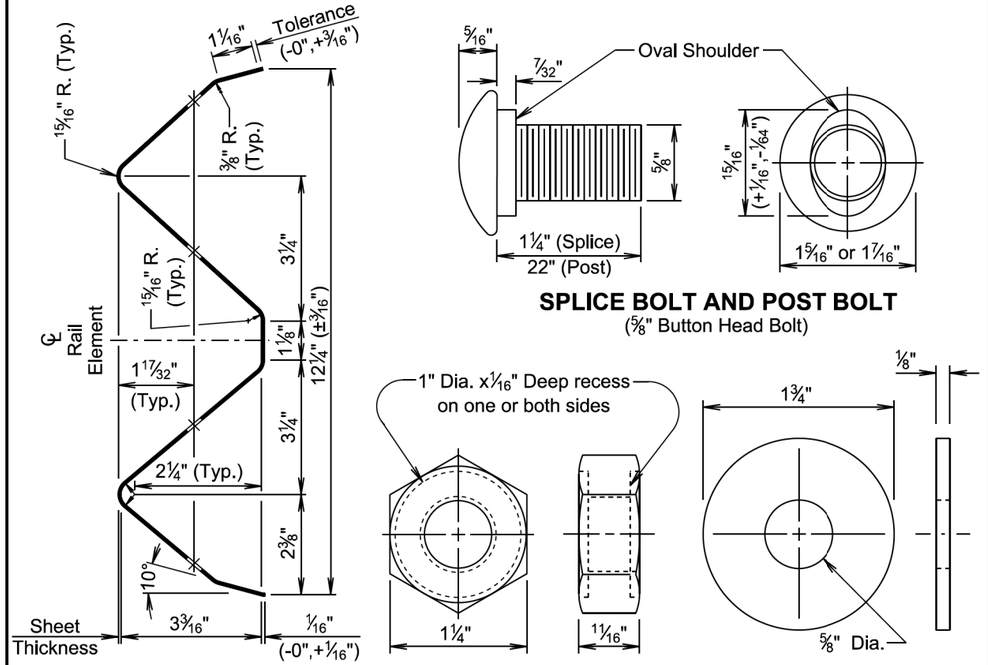
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6





April 8, 2025

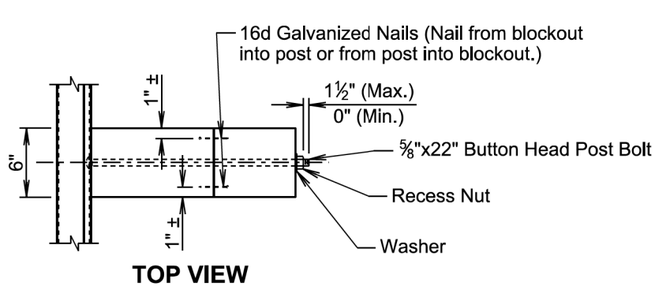
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



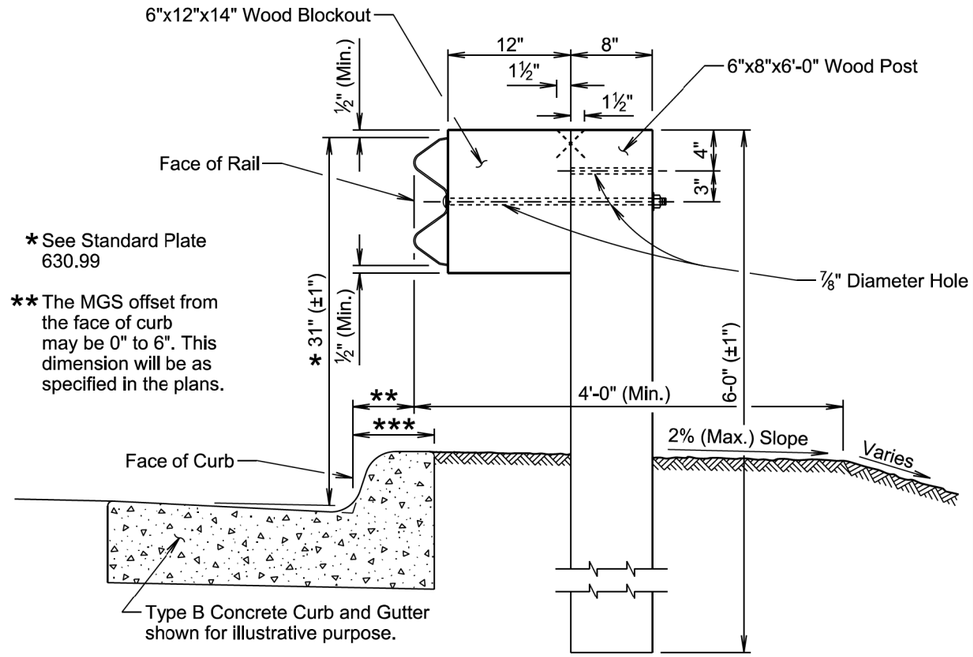
April 8, 2025

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

TRANSVERSE SECTION

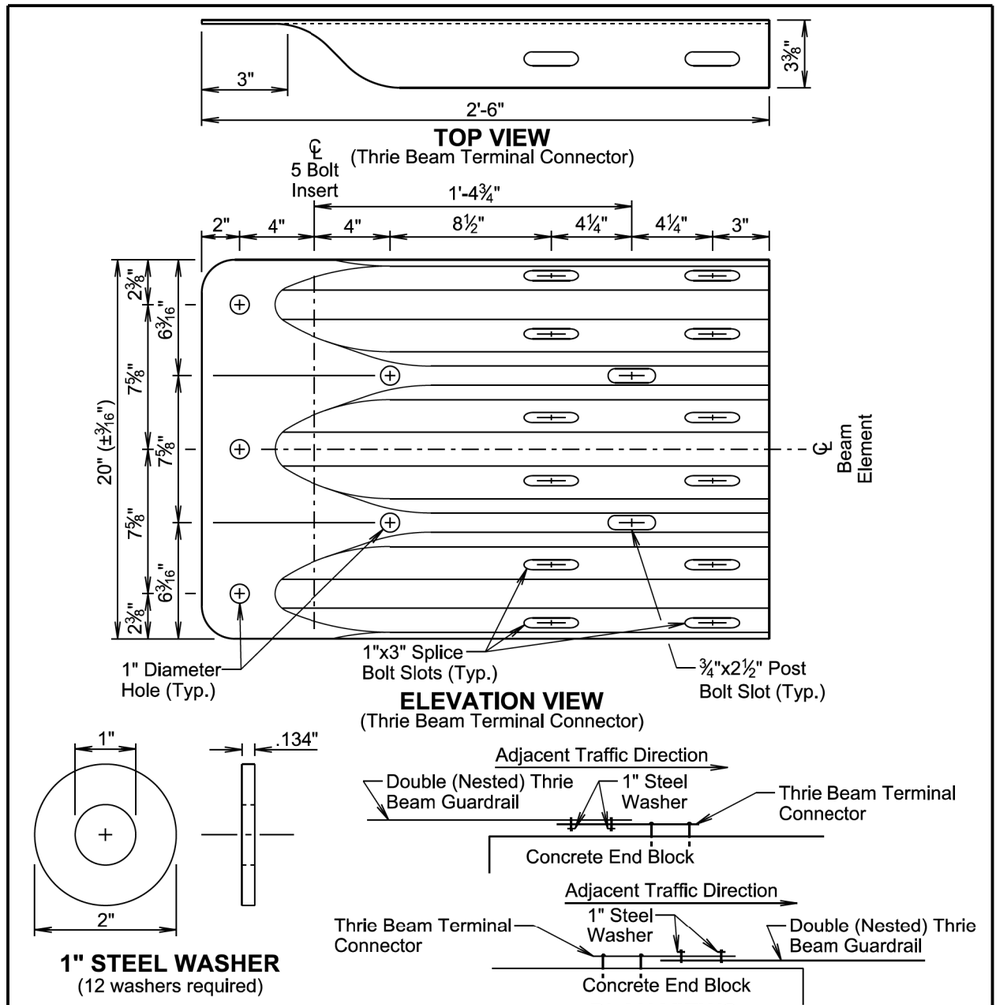
GENERAL NOTES:

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



GENERAL NOTES:

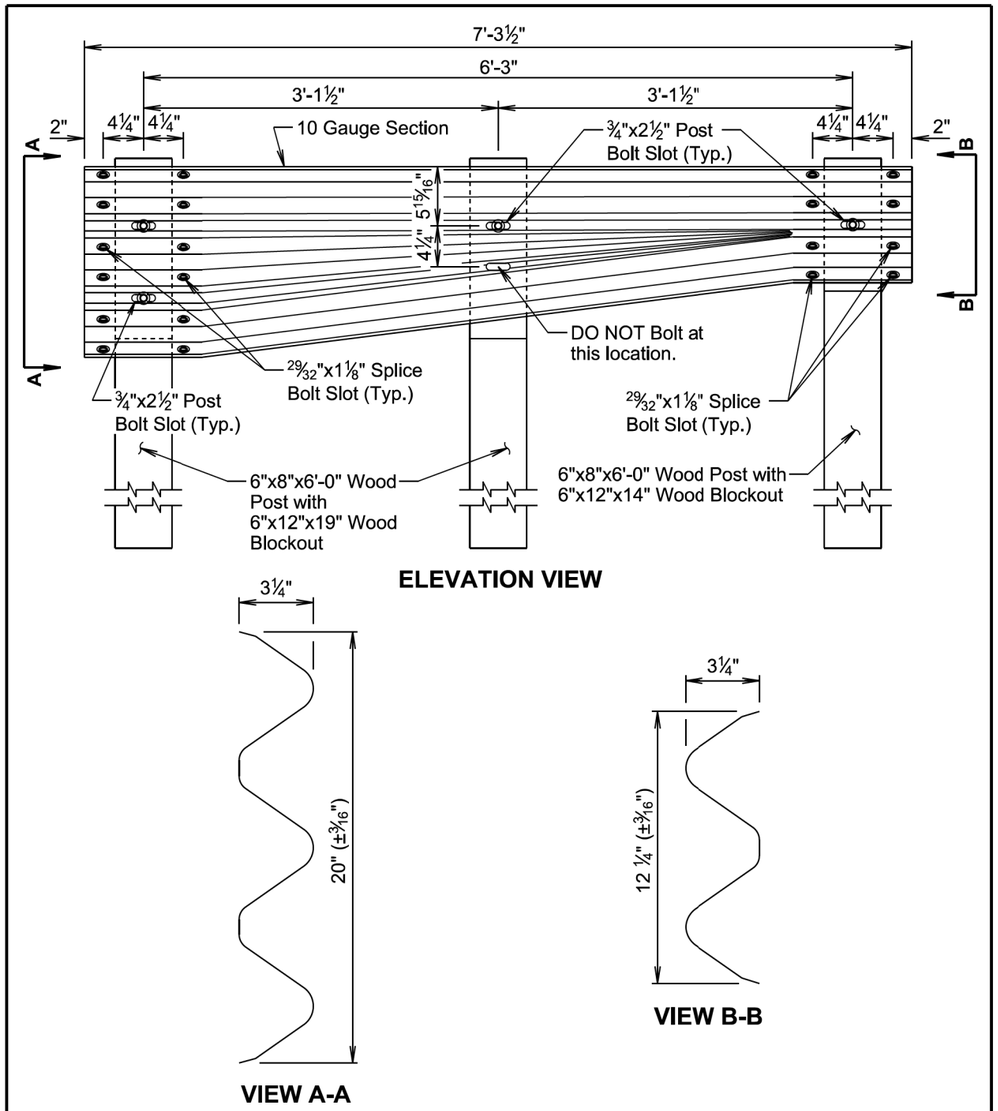
Thrie Beam Terminal Connectors will be 10 gauge.

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



GENERAL NOTES:

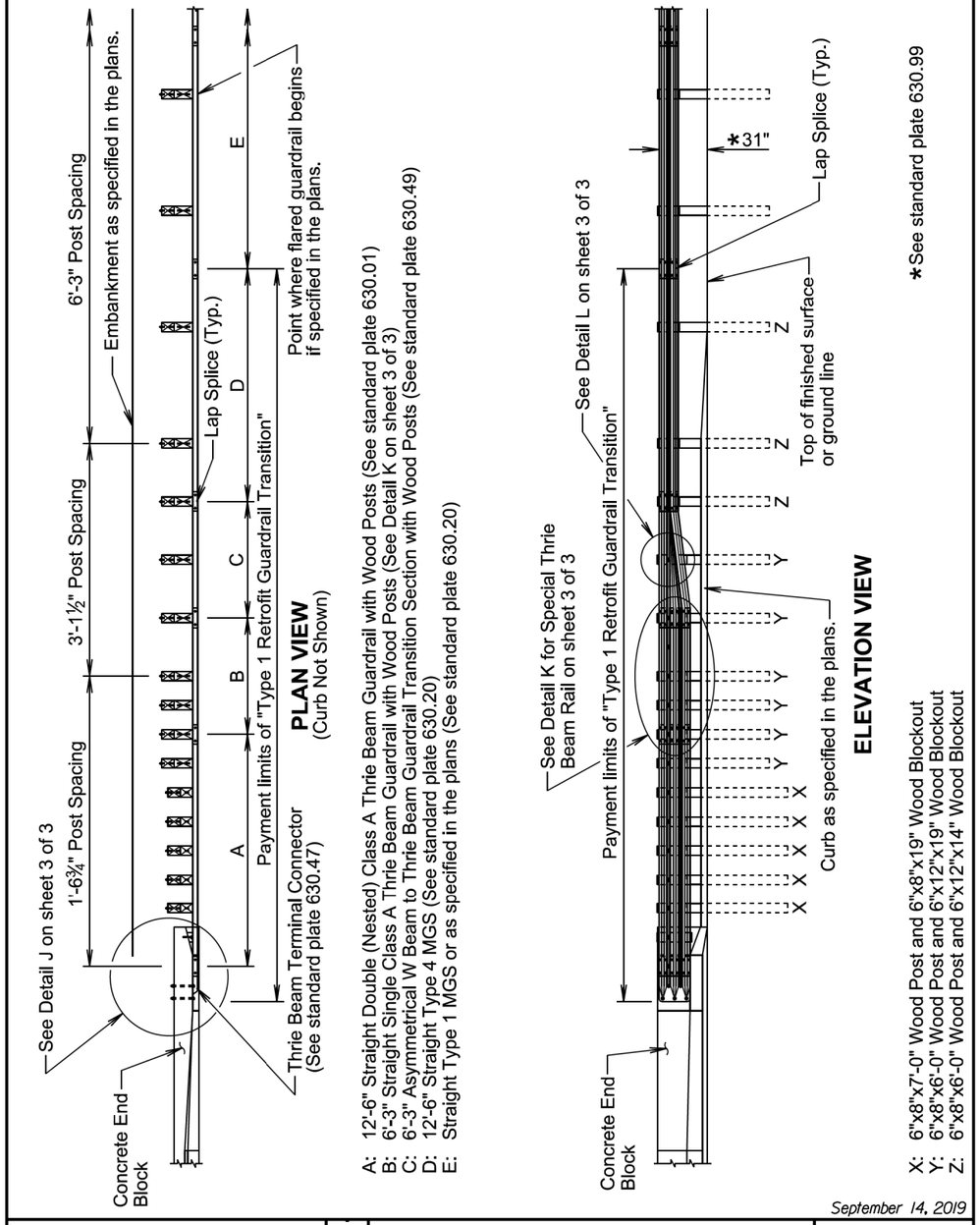
All costs for furnishing and installing the asymmetrical W beam to thrie beam guardrail transition including labor, equipment, and materials including two posts, two blocks, asymmetrical W beam to thrie beam transition section, and hardware will be incidental to the contract unit price per each for the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

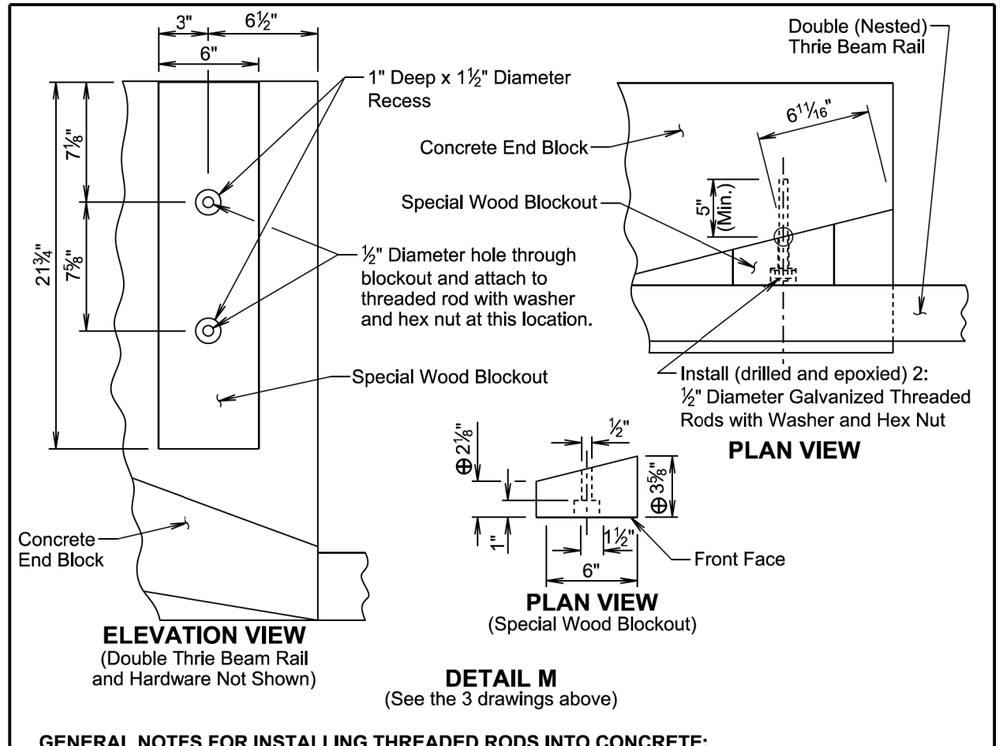
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F43	F54

Plotting Date: 08/25/2025



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



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

Plot Scale - 1:200

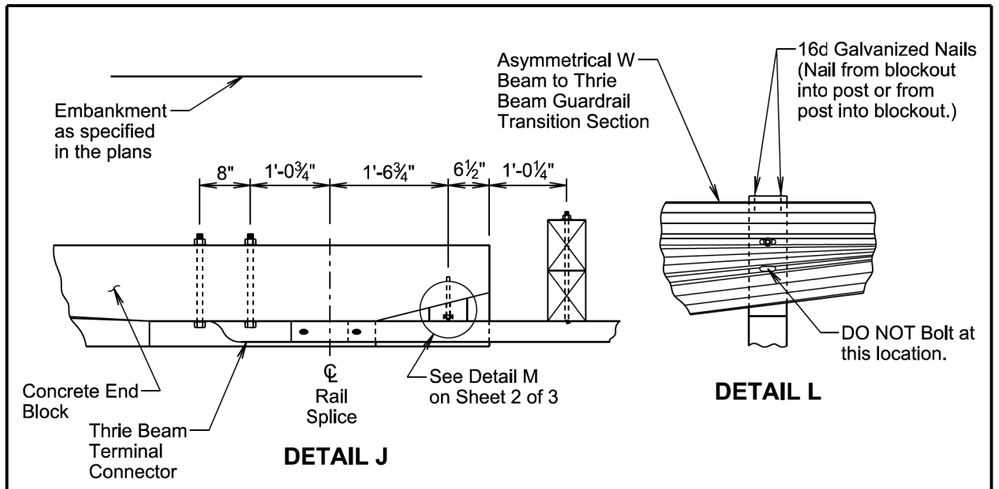
Plotted From - TRPR15123

File - ...\spnk06PQ\StdPlateSectionF.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F44	F54

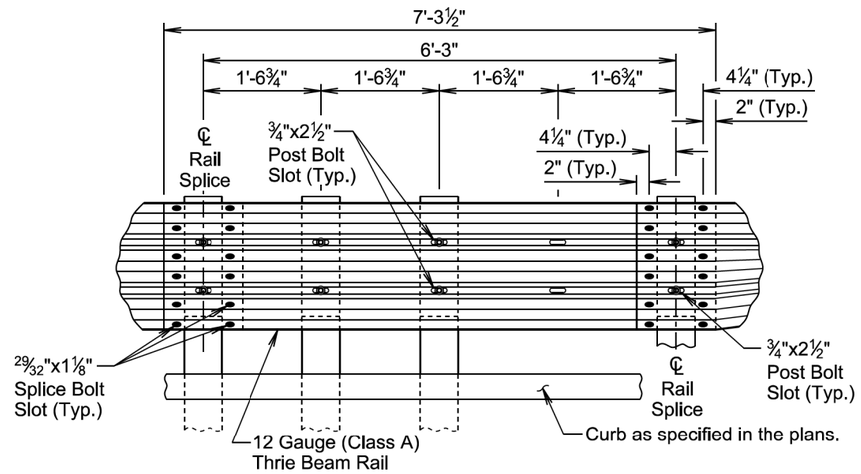
Plotting Date: 08/25/2025

Plot Scale - 1:200



DETAIL J

DETAIL L



DETAIL K
(Special Thrie Beam Rail)

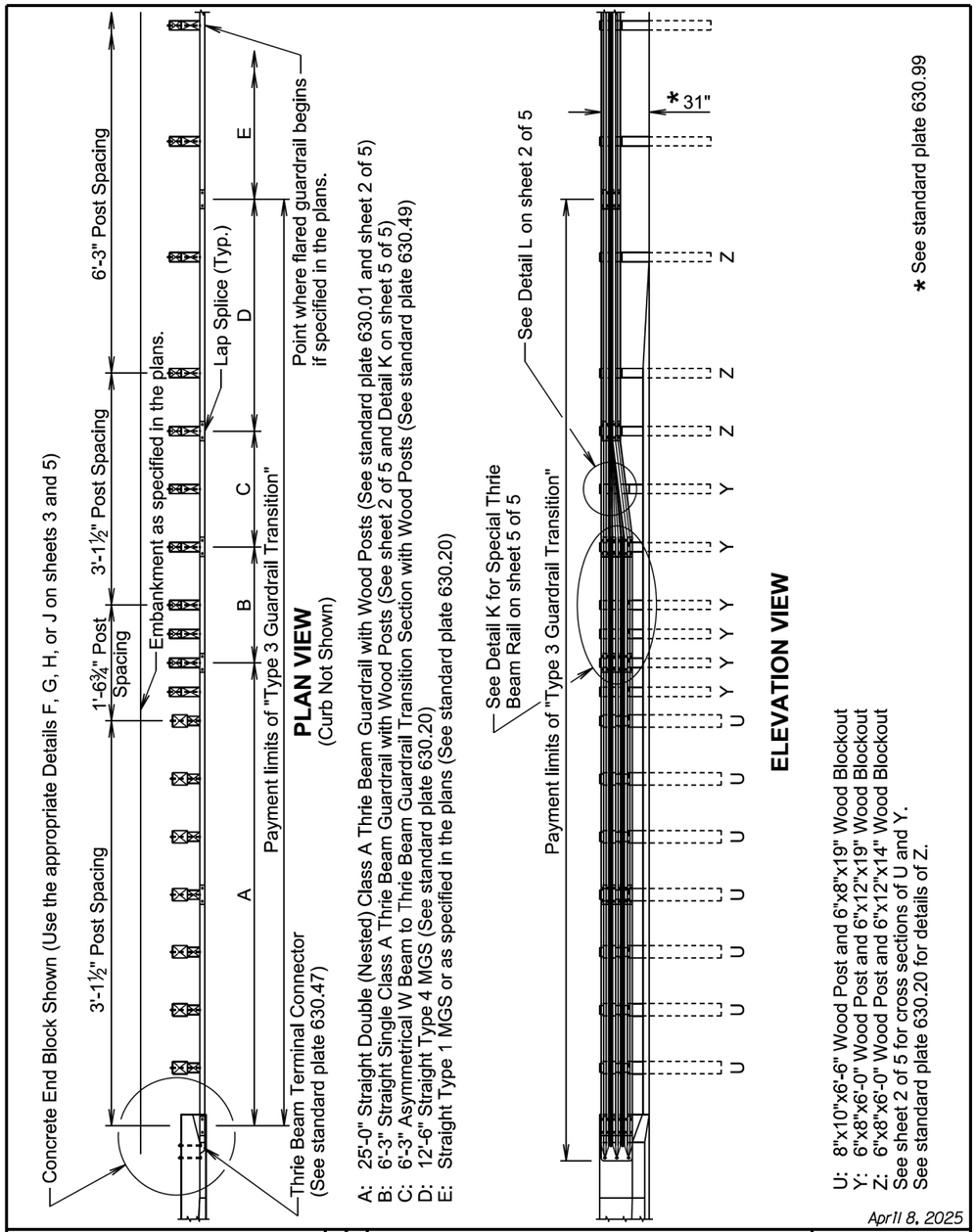
GENERAL NOTES:

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

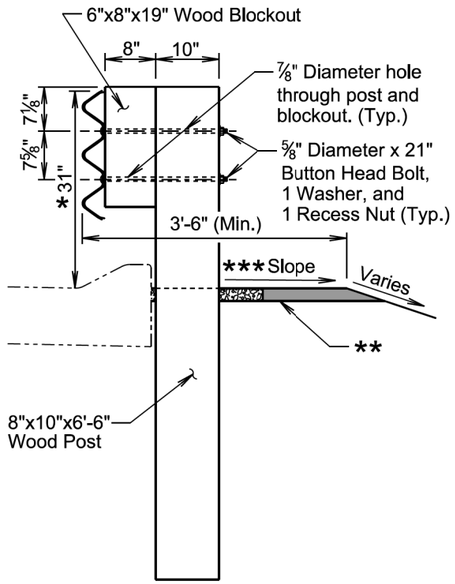


April 8, 2025

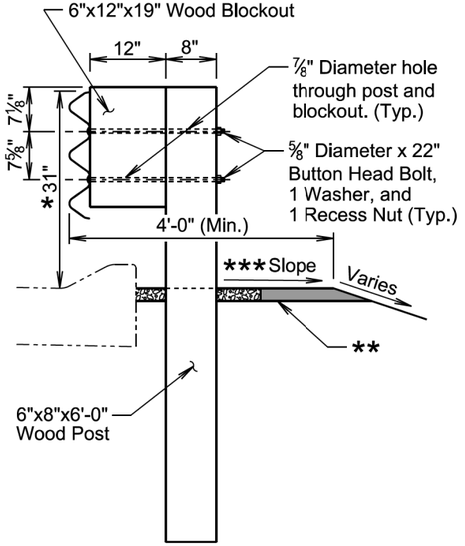
Published Date: 2026	SDDOT	TYPE 3 GUARDRAIL TRANSITION (VARIOUS BRIDGE RAILS AND CONCRETE END BLOCKS TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.56
			Sheet 1 of 5

Plotted From - TRPR15123

File - ...\spnk06PQ\StdPlateSectionF.dgn



CROSS SECTION
(Post U)

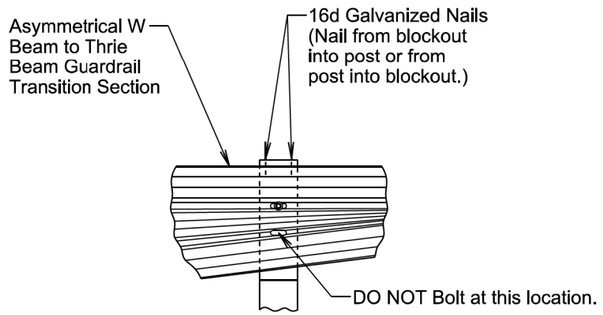


CROSS SECTION
(Post Y)
(Section through special single thrie beam rail portion)

* See standard plate 630.99

** 2" asphalt concrete or as specified in the plans and see standard plate 630.96 for leave-out and backfill requirements.

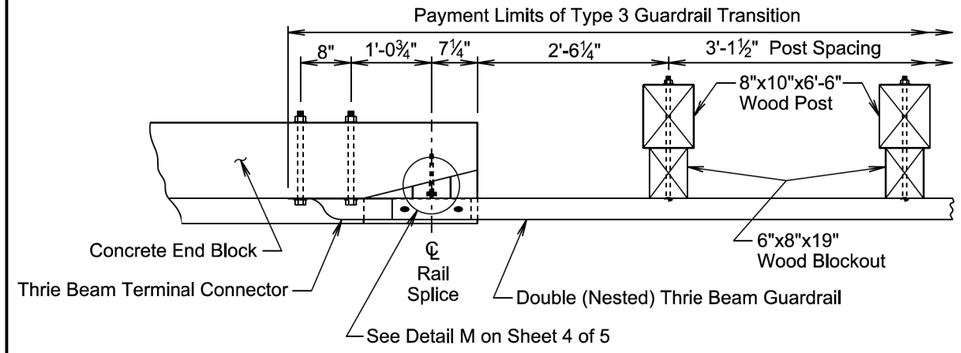
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.



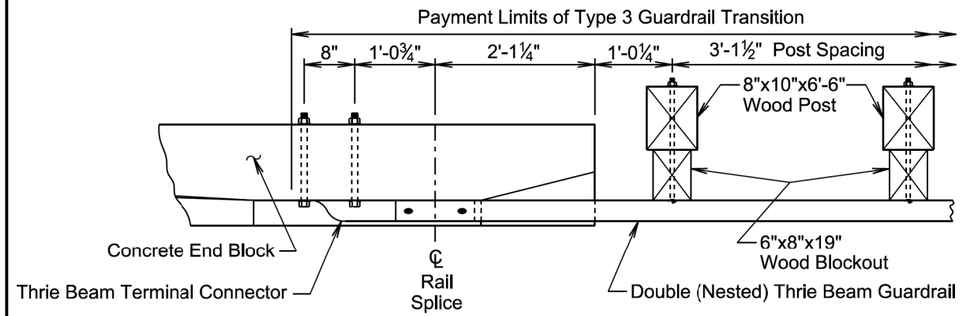
DETAIL L

April 8, 2025

Published Date: 2026	SDDOT	TYPE 3 GUARDRAIL TRANSITION (VARIOUS BRIDGE RAILS AND CONCRETE END BLOCKS TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.56
			Sheet 2 of 5



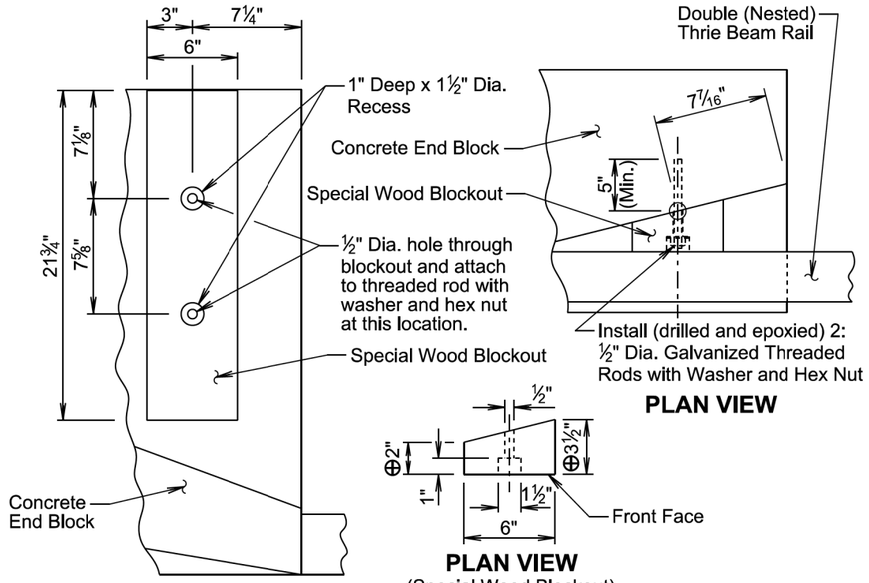
DETAIL F



DETAIL G

April 8, 2025

Published Date: 2026	SDDOT	TYPE 3 GUARDRAIL TRANSITION (VARIOUS BRIDGE RAILS OR CONCRETE END BLOCKS TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.56
			Sheet 3 of 5



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.

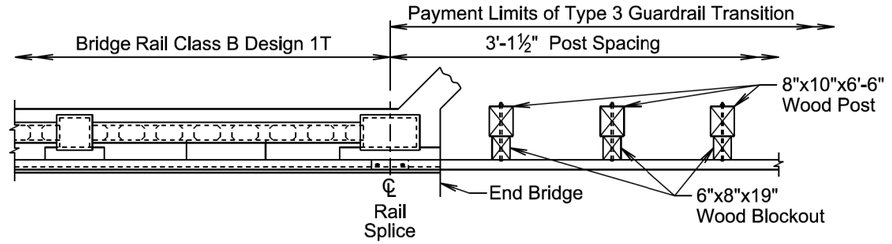
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

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.

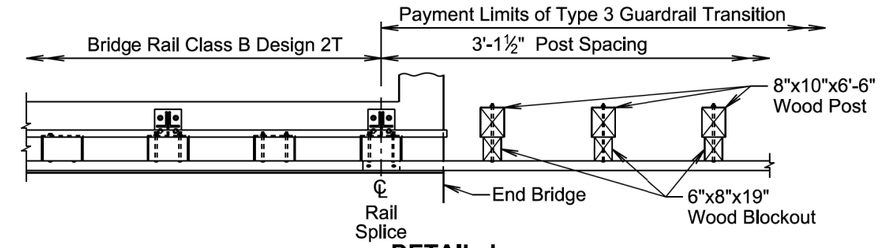
Loads will not be applied to the epoxy grouted threaded rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin Manufacturer.

April 8, 2025

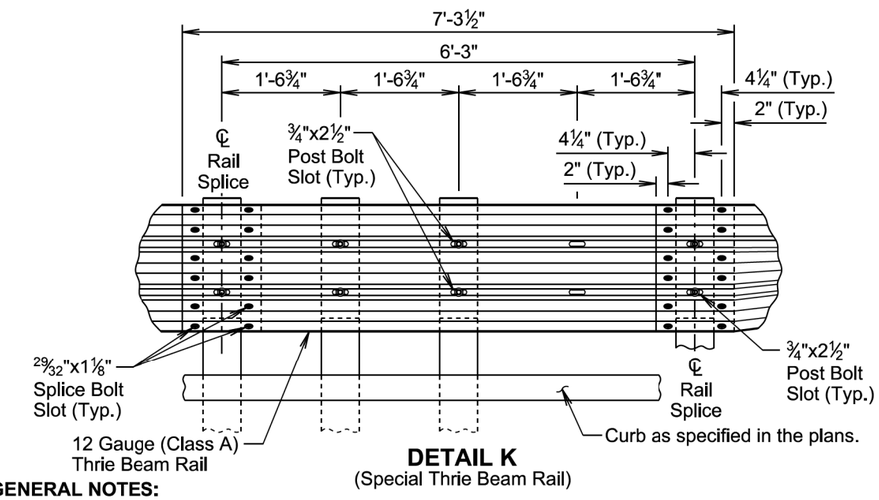
Published Date: 2026	SDDOT	TYPE 3 GUARDRAIL TRANSITION (VARIOUS BRIDGE RAILS OR CONCRETE END BLOCKS TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.56
			Sheet 4 of 5



DETAIL H



DETAIL J



DETAIL K
(Special Thrie Beam Rail)

GENERAL NOTES:

Throughout the type 3 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 3 guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, hardware, and incidentals will be included in the contract unit price per each for "Type 3 Guardrail Transition".

April 8, 2025

Published Date: 2026	SDDOT	TYPE 3 GUARDRAIL TRANSITION (VARIOUS BRIDGE RAILS AND CONCRETE END BLOCKS TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.56
			Sheet 5 of 5

Published Date: 2026

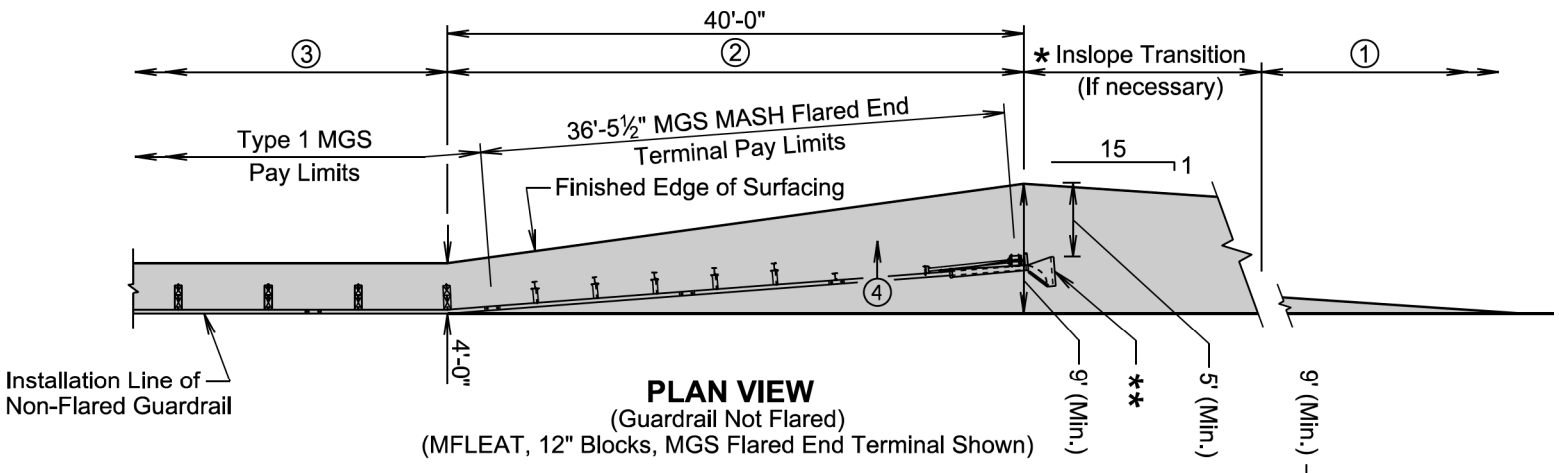
SDDOT

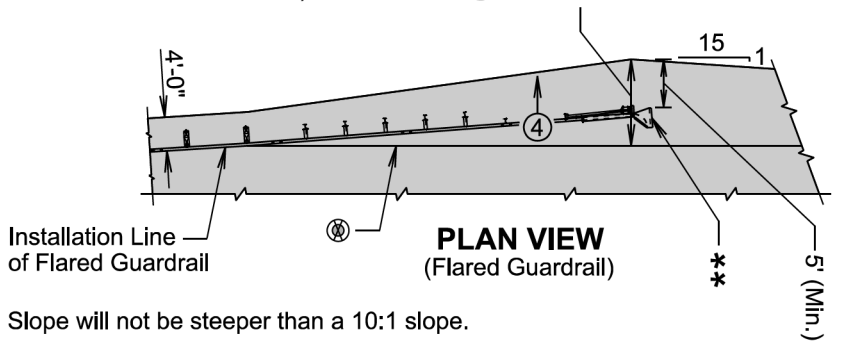
EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL

PLATE NUMBER 630.87

Sheet 1 of 2

April 8, 2025





** See standard plate 632.40 for delineation.

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

① Same inslope as mainline inslope or as specified in the plans.

② 4:1 inslope or as specified in the plans.

③ Inslope as specified in the plans.

④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

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 100 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.

Published Date: 2026

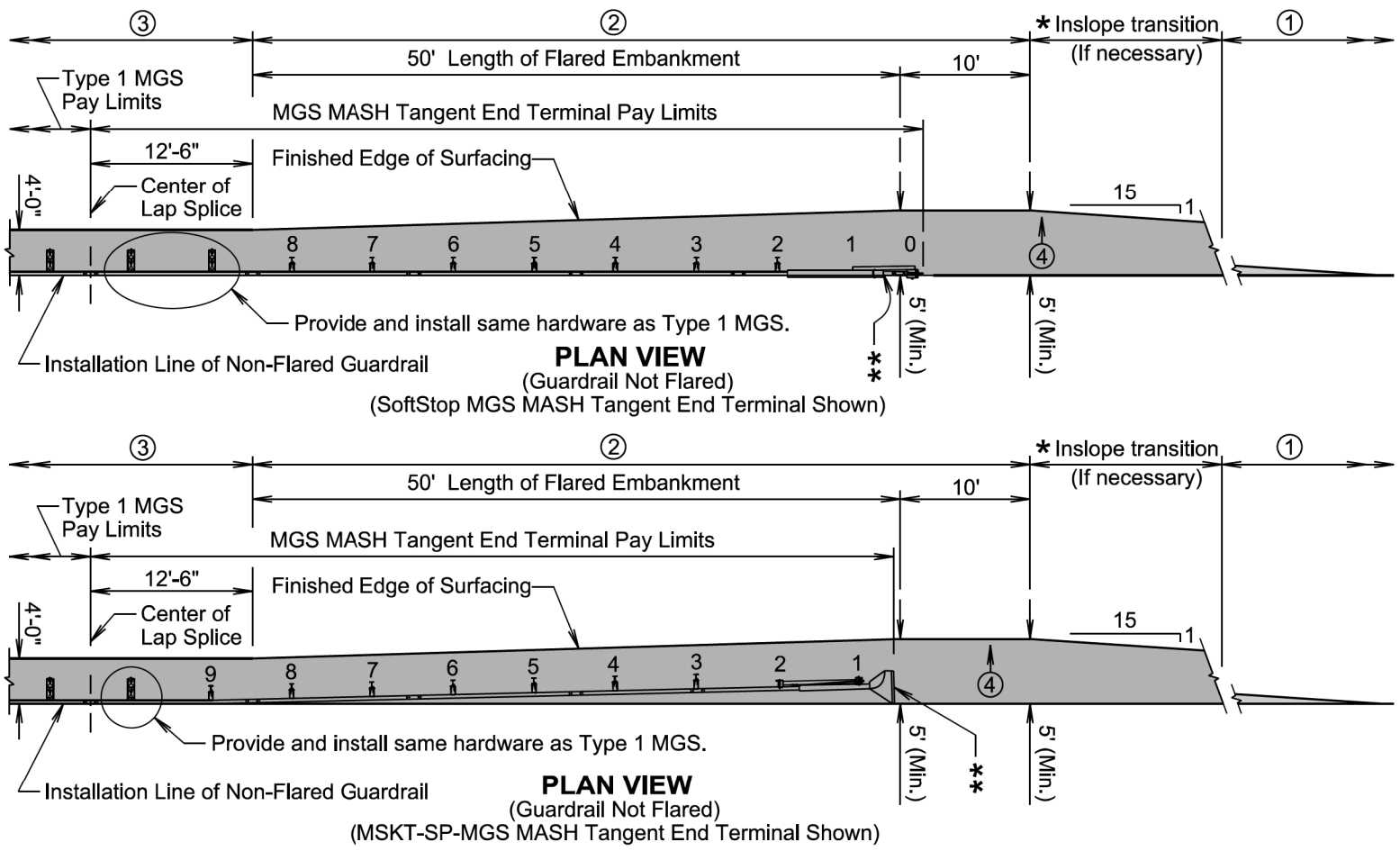
SDDOT

EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL

PLATE NUMBER 630.89

Sheet 1 of 3

April 8, 2025



** See standard plate 632.40 for delineation.

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

① Same inslope as mainline inslope or as specified in the plans.

② 4:1 inslope or as specified in the plans.

③ Inslope as specified in the plans.

④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

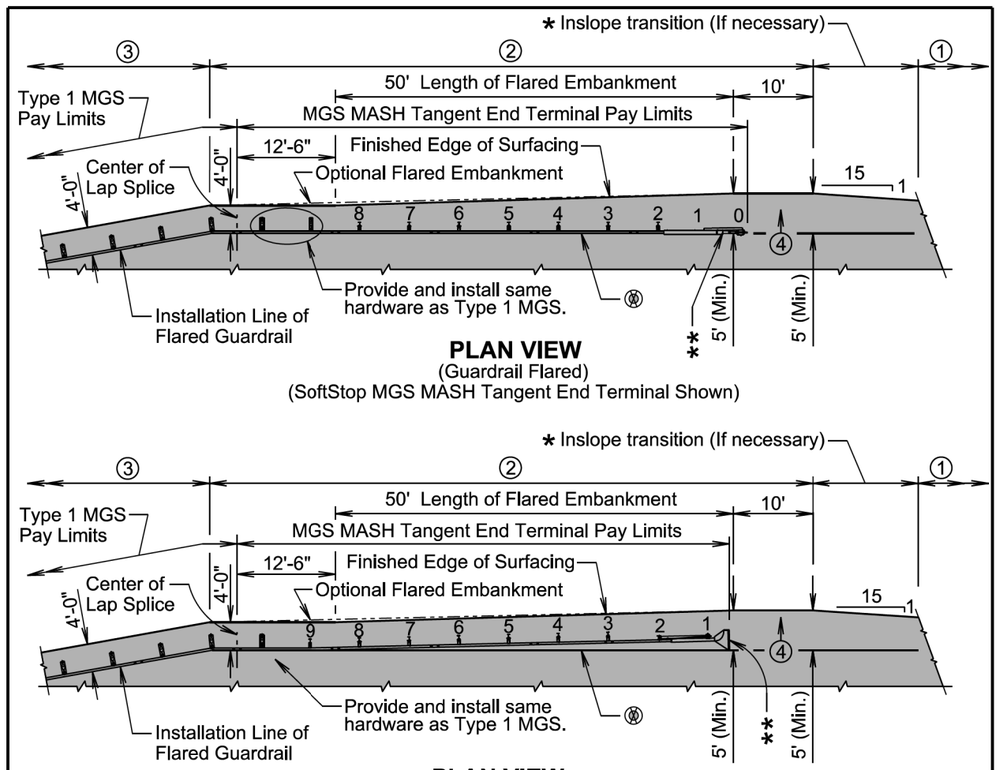
Plotting Date: 08/25/2025

STATE OF SOUTH DAKOTA

PROJECT NH 0212(200)313

SHEET F47

TOTAL SHEETS F54



GENERAL NOTES:

The MGS MASH tangent end terminals above are for illustrative purpose only. Pay limit length of the MGS MASH tangent end terminal is 62'-6".

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

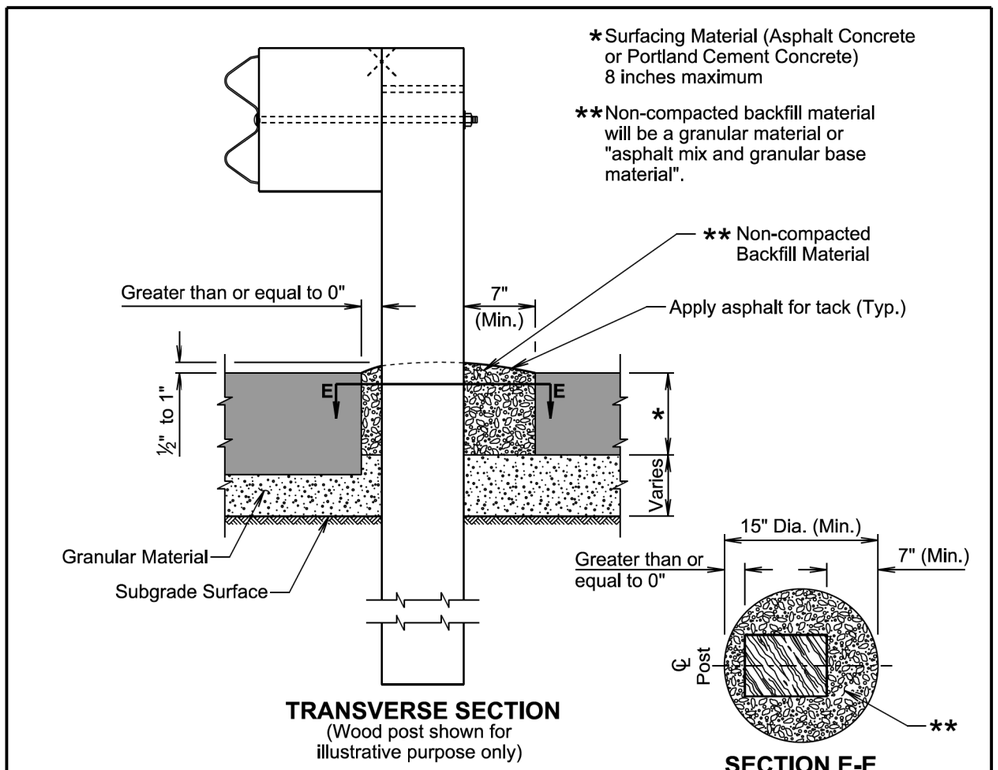
Ⓜ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

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 TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 2 of 3



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.

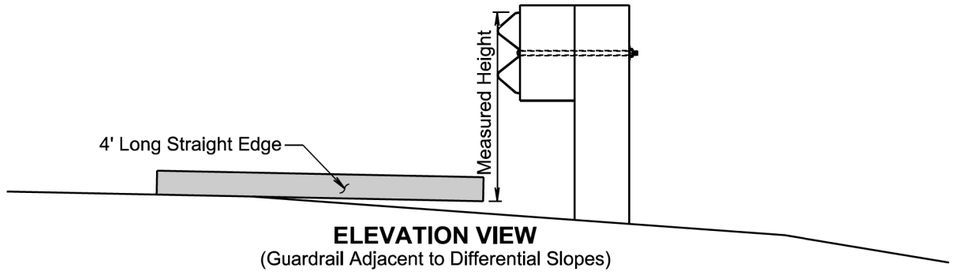
All costs for constructing the leave-out including labor, equipment, and materials which includes the backfill material and tack coat will be incidental to the contract unit price for the respective guardrail contract item.

November 19, 2021

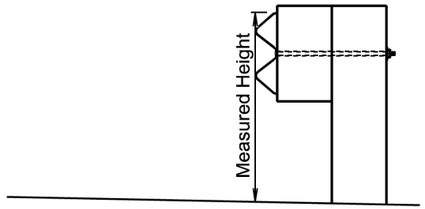
Published Date: 2026	SDDOT	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F49	F54

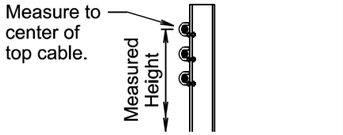
Plotting Date: 08/25/2025



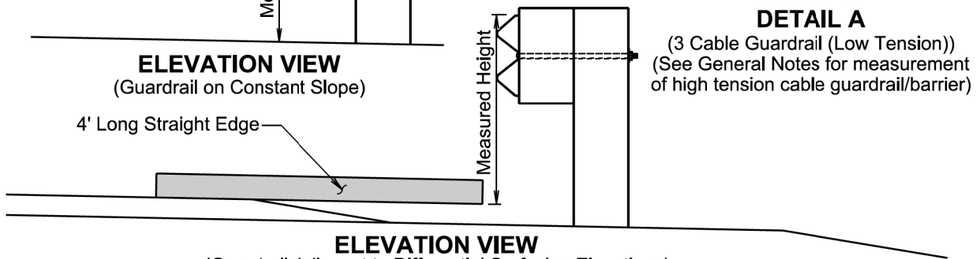
ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)



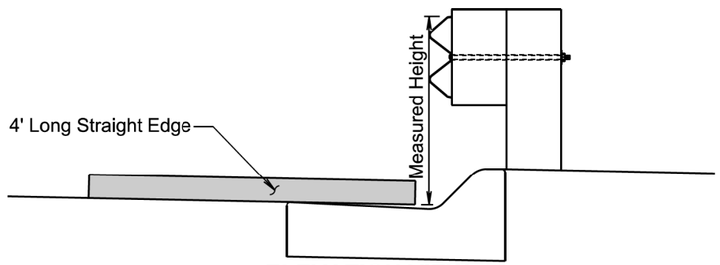
ELEVATION VIEW
(Guardrail on Constant Slope)



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:

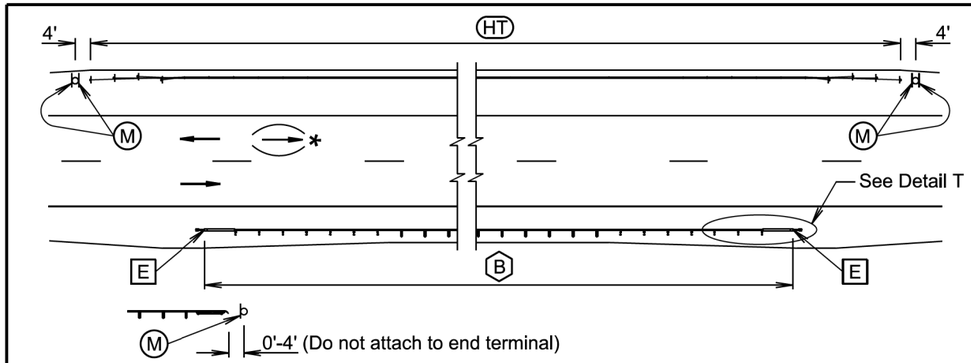
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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

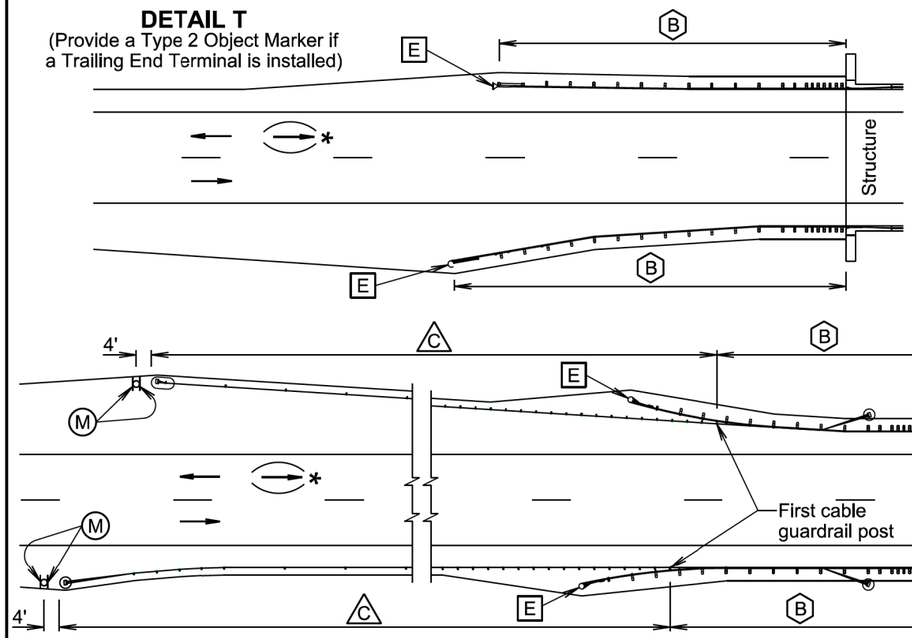
The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

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

*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.

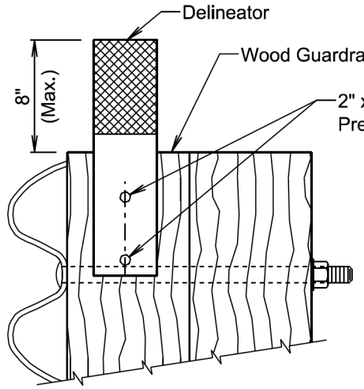
April 8, 2025

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

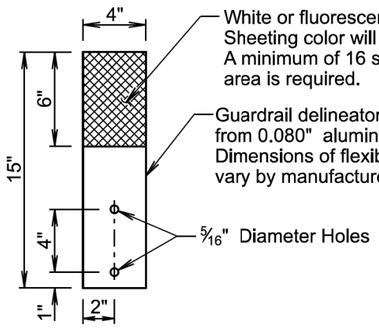
Plot Scale - 1:200

Plotted From - TRPR15123

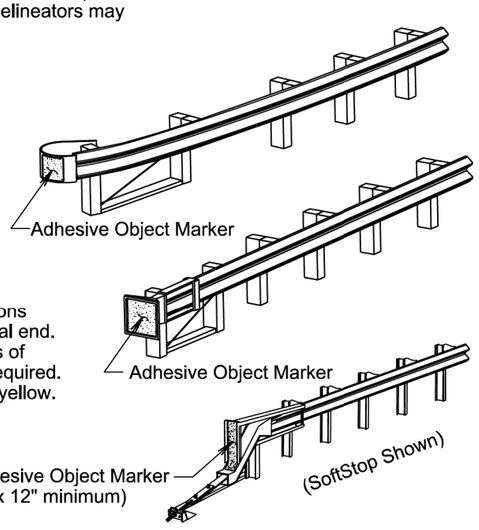
File - ...\Spnk06PQ\StdPlateSectionF.dgn

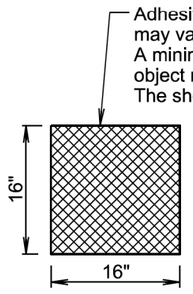


(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



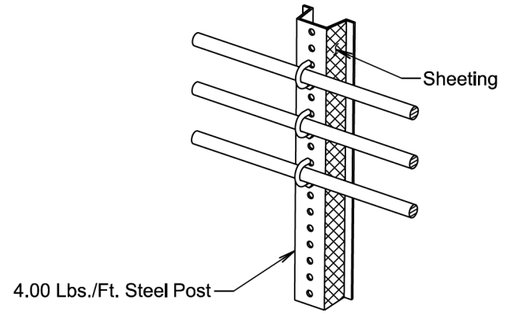


ADHESIVE OBJECT MARKER

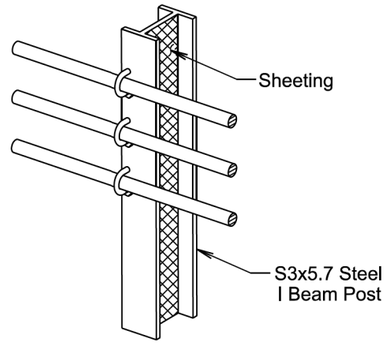
(E) GUARDRAIL END TERMINAL OBJECT MARKER

April 8, 2025

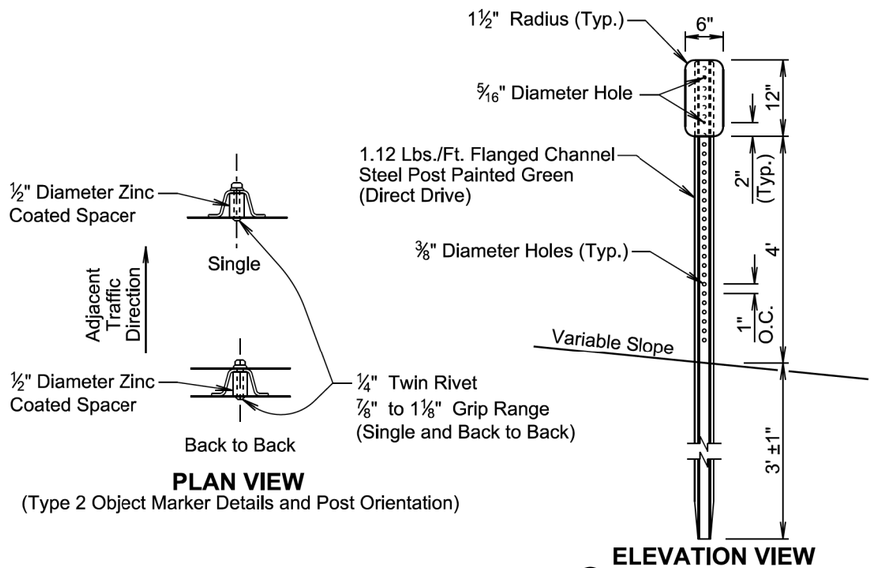
Published Date: 2026	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40 Sheet 2 of 4



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



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

ELEVATION VIEW
(M) (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

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".

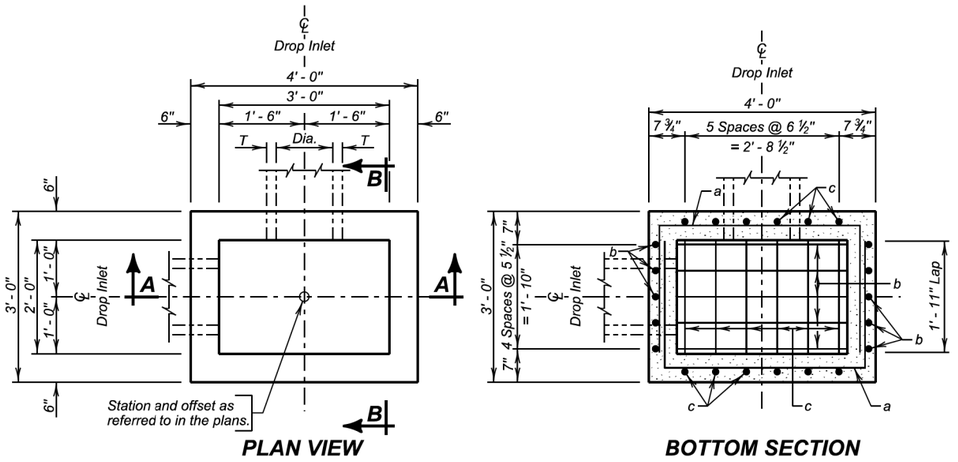
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

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



ESTIMATED QUANTITIES

ITEM	UNIT	CONSTANT QUANTITY	VARIABLE QUANTITY
⚹ Class M6 Concrete	Cu. Yd.	0.26	0.22H
Reinforcing Steel	Lb.	51.19	28.97H
Frame and Grate Assembly	Each	1	———

DROP INLETS FOR 12" TO 24" DIAMETER PIPE

SPECIFICATIONS

Design Specifications: AASHTO LRFD Bridge Design Specifications, 2012 Edition.

Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, Current Edition and required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

GENERAL NOTES:

Design Live Load: HL-93. No construction loading in excess of legal load was considered.

Reinforcing steel shall conform to ASTM A615 grade 60. The d bars shall be lapped 12 inches with the b and c bars. Cut and bend reinforcing steel as required to place pipe(s) through the drop inlet wall.

Drop inlet may be precast. If precast drop inlet details differ from this standard plate, submit a checked design done by a SD registered P.E. and shop plans to the Office of Bridge Design for approval.

⚹ *Reduce total quantities of concrete by the amount of concrete displaced by the pipe(s). The total quantity of concrete shall be computed to the nearest hundredth of a cubic yard. The total quantity of reinforcing steel shall be computed to the nearest pound.*

Drop inlet shown may be modified by the addition or omission of connecting pipes as noted elsewhere in the plans. All pipes entering drop inlet must fit between the inside face of walls and shall not enter through the corners.

Maximum R.C.P. diameter shall not exceed 18 inches on the 2-foot wide side and shall not exceed 24 inches (24 inches for R.C. arch) on the 3-foot wide side of the drop inlet.

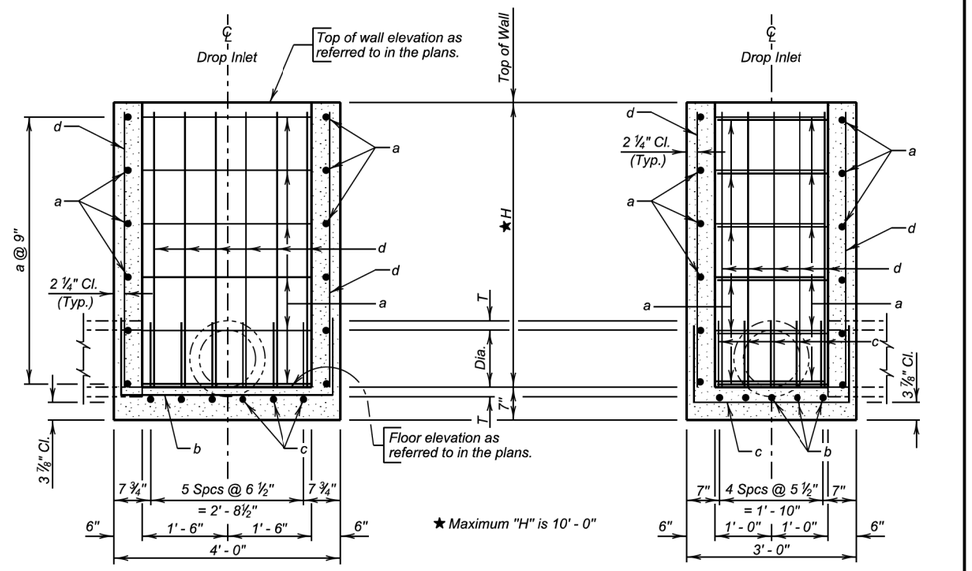
The dimension of H is in feet. Maximum H is 10 feet.

PIPE DISPLACEMENT REDUCTIONS

	Diameter (Inches)	Wall T (Inches)	Class M6 Concrete (Cu. Yd.)
R.C.P.	12	2	0.03
	15	2 ¼	0.04
	18	2 ½	0.05
	24	3	0.09
R.C. ARCH	18	2 ½	0.05
	24	3 ½	0.09

March 31, 2024

Published Date: 2026	SDDOT	2' X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01
			Sheet 1 of 2

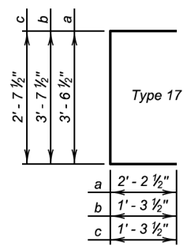


SEC. A - A ***SEC. B - B***

REINFORCING SCHEDULE

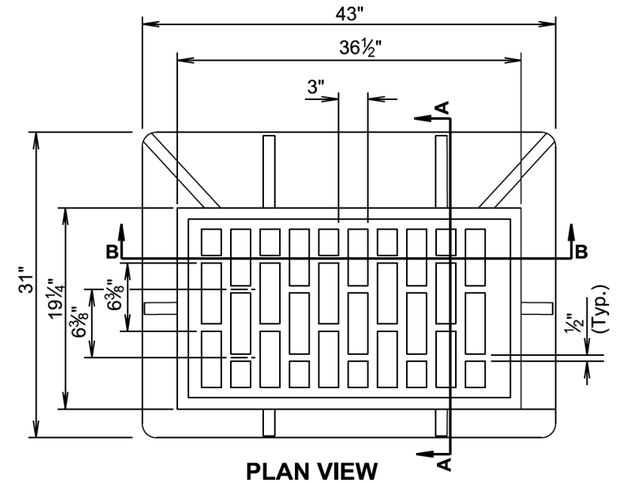
Mk.	No.	Size	Length	Type	Bending Details
a	2.67H	4	8' - 0"	17	
b	5	5	6' - 3"	17	
c	6	4	5' - 3"	17	
d	22	4	H - 2"	Str.	

NOTE:
All dimensions are out to out of bars.

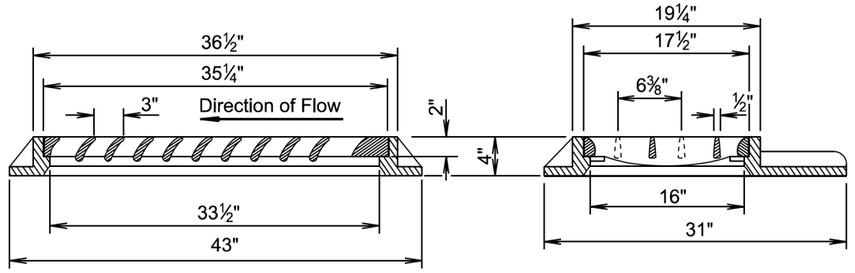


March 31, 2024

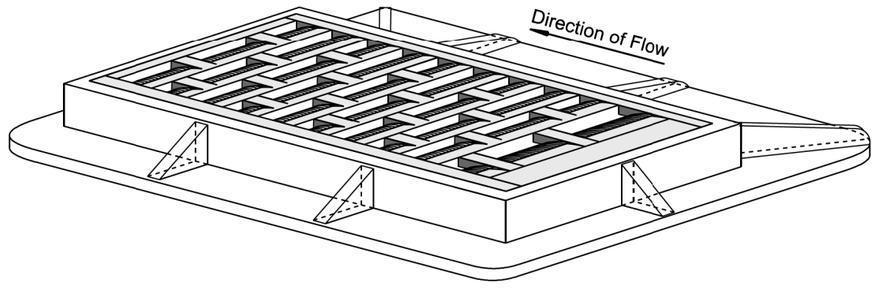
Published Date: 2026	SDDOT	2'X 3' TYPE B REINFORCED CONCRETE DROP INLET	PLATE NUMBER 670.01 Sheet 2 of 2



PLAN VIEW



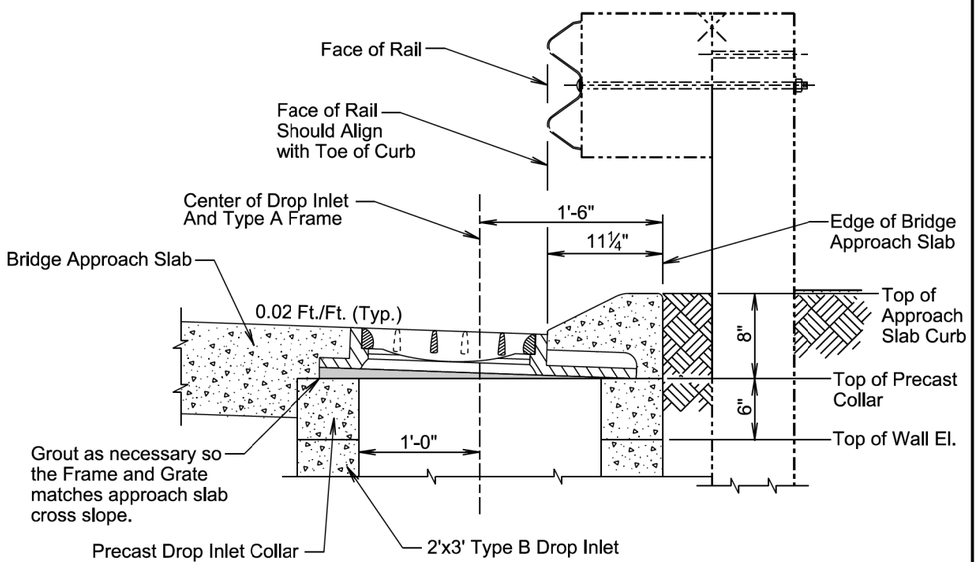
SECTION B-B **SECTION A-A**



ISOMETRIC VIEW

March 31, 2024

Published Date: 2026	SDDOT	TYPE A FRAME AND GRATE	PLATE NUMBER 670.78 Sheet 1 of 2



ELEVATION VIEW

(Installation of Type A Frame and Grate in Bridge Approach Slab)

GENERAL NOTES:

The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type A frame and grate will be from a manufacturer on the approved products list.

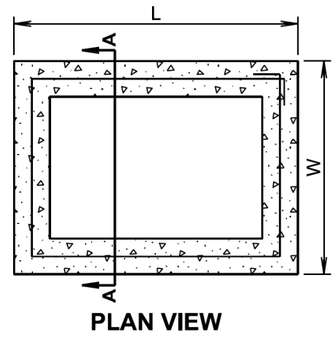
Design load for the grate will meet the requirements of AASHTO HL-93.

The type A frame and grate will be installed on a 2'x3' type B drop inlet.

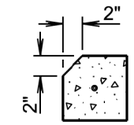
The direction of flow is shown for illustrative purpose only. The grate will be installed to intercept the direction of flow.

March 31, 2024

Published Date: 2026	SDDOT	*TYPE A FRAME AND GRATE*	*PLATE NUMBER* 670.78
			Sheet 2 of 2

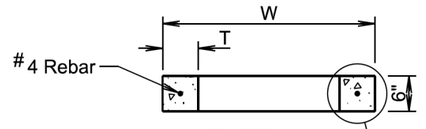


PLAN VIEW



For Type D Drop Inlets only:
Use Precast Drop Inlet Collar with
2" chamfer on L sides only.

DETAIL B



SECTION A-A

See Detail B
(For Type D
Drop Inlets Only)

INFORMATIONAL QUANTITIES					
FRAME AND GRATE TYPE	L (Ft-in)	W (Ft-in)	T (in)	CLASS M6 CONCRETE (CuYd)	REINFORCING STEEL (Lb)
TYPE A, B, and E	4'-0"	3'-0"	6	0.11	9
TYPE C	5'-0"	4'-0"	6	0.15	11
TYPE D	4'-0"	2'-6"	6	0.10	8

GENERAL NOTES:

All reinforcing steel will conform to ASTM A615, Grade 60.

The ½" diameter bar will lap 6"± and will be centered in the concrete.

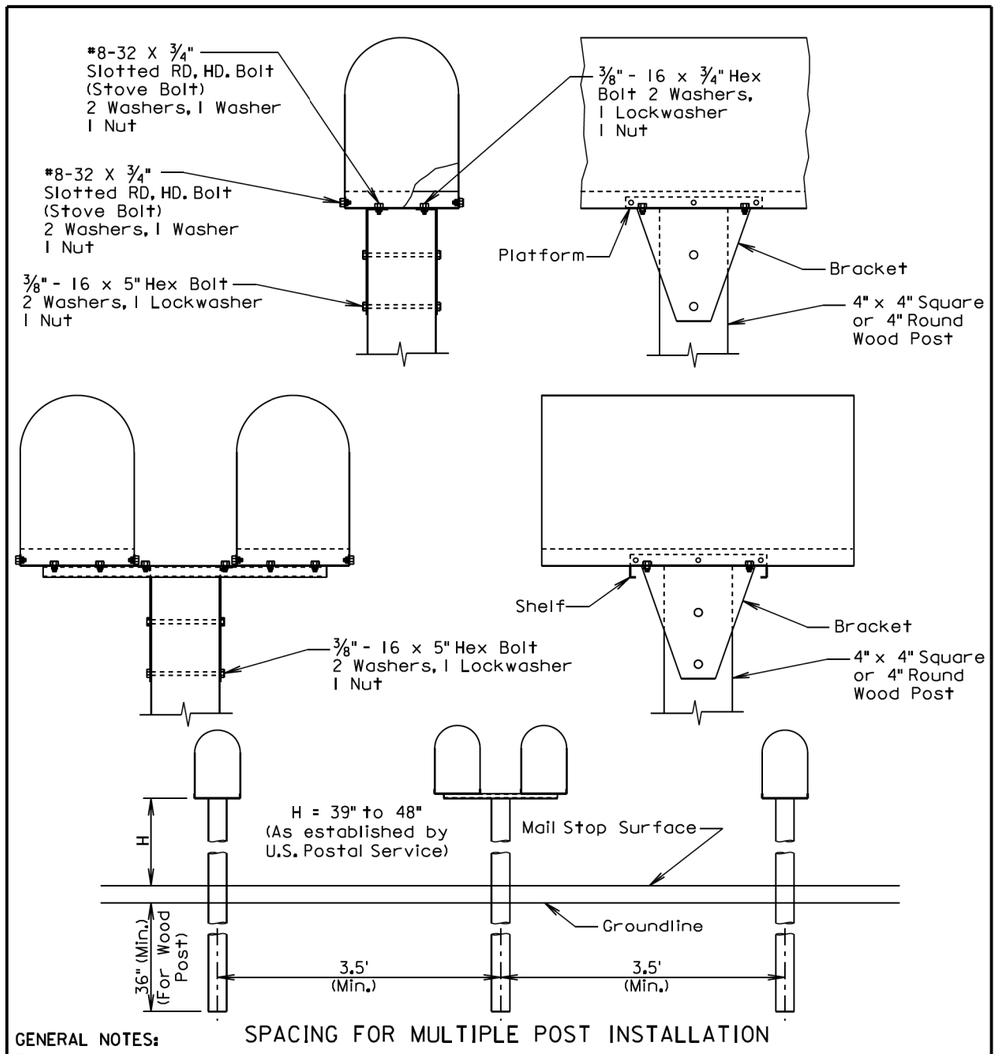
The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals will be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

June 1, 2022

Published Date: 2026	SDDOT	*PRECAST DROP INLET COLLAR*	*PLATE NUMBER* 670.99
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0212(200)313	F54	F54

Plotting Date: 08/25/2025



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

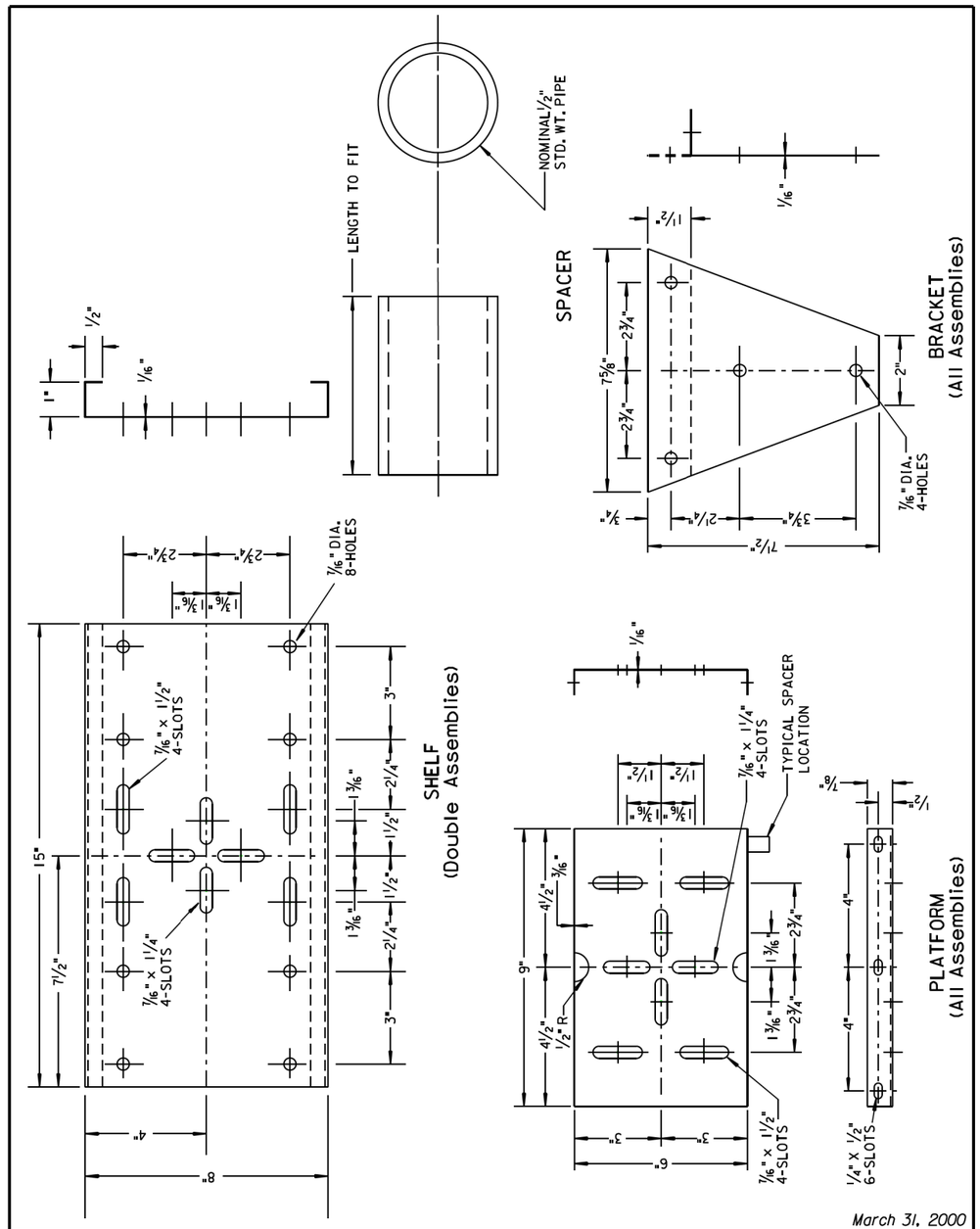
The post support assemblies provided should be consistant throughout the project. Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 2026	SDDOT	***SINGLE AND DOUBLE MAILBOX ASSEMBLIES***	*PLATE NUMBER* 900.02 *Sheet 1 of 1*



March 31, 2000

Published Date: 2026	SDDOT	***MAILBOX SUPPORT HARDWARE***	*PLATE NUMBER* 900.03 *Sheet 1 of 1*

Plot Scale - 1:200

Plotted From - TRPR15123

File - ...\bspnk06PQ\StdPlateSectionF.dgn