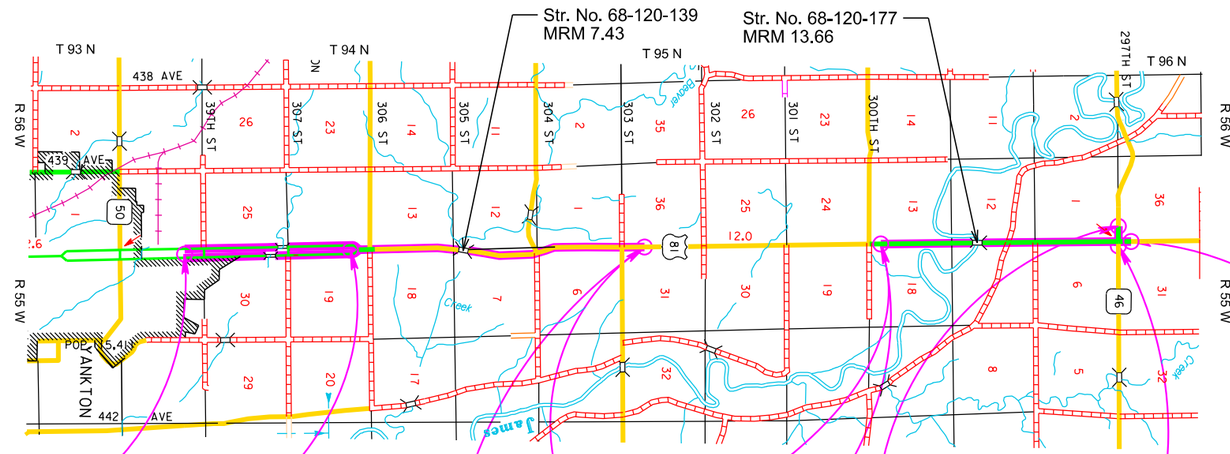
SECTION F: SURFACING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F1	F77

Plotting Date: 09/12/2024

INDEX OF SHEETS



SECTION F – ESTIMATE OF QUANTITIES

PCN 07V2

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
009E1350	Restoration of Stockpile Site	Lump Sum	LS
009E3210	Construction Staking	7.004	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0655	Remove Interim Crossover Closure	160	Ft
110E0730	Remove Beam Guardrail	350.0	Ft
110E0800	Remove W Beam Guardrail End Terminal	4	Each
110E1010	Remove Asphalt Concrete Pavement	191.0	SqYd
110E6410	Remove Type 1 MGS for Reset	600.0	Ft
110E6500	Remove Type 1 Guardrail Transition for Reset	4	Each
110E6619	Remove MGS MASH Tangent End Terminal for Reset	4	Each
120E0010	Unclassified Excavation	181	CuYd
120E0100	Unclassified Excavation, Digouts	128	CuYd
120E0600	Contractor Furnished Borrow	1,029	CuYd
120E6200	Water for Granular Material	579.1	MGal
210E0100	Shoulder Clearing	10.2	Mile
210E1000	Shoulder Preparation	1.000	Mile
210E1005	Surface Preparation	7.500	Mile
210E2000	Shoulder Shaping	7.500	Mile
260E1010	Base Course	4,799.2	Ton
260E1030	Base Course, Salvaged	14,140.3	Ton
260E2010	Gravel Cushion	7,500.0	Ton
* 260E6000	Granular Material, Furnish	8,971.0	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	2,716.0	Ton
270E0110	Salvage and Stockpile Granular Material	14,140.3	Ton
* 270E0220	Blend and Stockpile Granular Material	17,942.0	Ton
* 270E0230	Haul and Stockpile Asphalt Mix Material	3,861.4	Ton
320E0005	PG 58-34 Asphalt Binder	642.1	Ton
320E1070	Class HR Asphalt Concrete	18,317.1	Ton
320E1200	Asphalt Concrete Composite	370.0	Ton
320E3000	Compaction Sample	6	Each
320E5010	Saw and Seal Shoulder Joint	119,344	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	6.9	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	0.2	Mile
330E0010	MC-70 Asphalt for Prime	96.9	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	39.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	23.9	Ton
330E1000	Blotting Sand for Prime	81.6	Ton
330E2000	Sand for Flush Seal	57.3	Ton
332E0010	Cold Milling Asphalt Concrete	44,039	SqYd

SECTION F – ESTIMATE OF QUANTITIES

PCN 07V2

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
380E0050	8" Nonreinforced PCC Pavement	112,186.2	SqYd
380E5010	Fast Track Concrete	1,500.0	SqYd
380E6000	Dowel Bar	73,036	Each
380E6110	Insert Steel Bar in PCC Pavement	34	Each
410E2600	Membrane Sealant Expansion Joint	104.0	Ft
600E0300	Type III Field Laboratory	1	Each
630E0500	Type 1 MGS	387.5	Ft
630E1501	Type 1 Retrofit Guardrail Transition	2	Each
630E1510	Type 3 Guardrail Transition	2	Each
630E2018	MGS MASH Tangent End Terminal	4	Each
630E5010	Reset Type 1 MGS	600.0	Ft
630E5204	Reset MGS MASH Tangent End Terminal	4	Each
630E5300	Reset Type 1 Guardrail Transition	4	Each
632E2220	Guardrail Delineator	38	Each
650E1080	Type F68 Concrete Curb and Gutter	450	Ft
670E1200	Type B Frame and Grate	2	Each
670E5400	Precast Drop Inlet Collar	2	Each
900E0010	Refurbish Single Mailbox	6	Each
900E0012	Refurbish Double Mailbox	5	Each
900E0022	Remove and Reset Mailbox	16	Each

*** - Denotes Non-Participating**

PCN 09P4

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	7.8	SqYd
120E0100	Unclassified Excavation, Digouts	5	CuYd
120E6200	Water for Granular Material	0.6	MGal
210E0100	Shoulder Clearing	0.4	Mile
260E1010	Base Course	55.3	Ton
* 260E6000	Granular Material, Furnish	227.9	Ton
* 270E0220	Blend and Stockpile Granular Material	455.8	Ton
320E0005	PG 58-34 Asphalt Binder	7.7	Ton
320E1070	Class HR Asphalt Concrete	218.9	Ton
320E3000	Compaction Sample	3	Each
320E5010	Saw and Seal Shoulder Joint	1,621	Ft
330E0100	SS-1h or CSS-1h Asphalt for Tack	0.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	0.4	Ton
332E0010	Cold Milling Asphalt Concrete	1,946	SqYd

REVISED 21 January, 2025 - BAH

UTILITIES

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

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

TYPE III FIELD LABORATORY

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

PROTECTION OF BRIDGE JOINTS

It may be necessary to use special methods and equipment to remove/place material as close as practical to structure appurtenances. Also, 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.

SECTION F – ESTIMATE OF QUANTITIES

PCN 07V2

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
004E0050	Remove Traffic Diversion(s)	Lump Sum	LS
009E0010	Mobilization	Lump Sum	LS
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009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0655	Remove Interim Crossover Closure	160	Ft
110E0730	Remove Beam Guardrail	350.0	Ft
110E0800	Remove W Beam Guardrail End Terminal	4	Each
110E1010	Remove Asphalt Concrete Pavement	11,854.6	SqYd
110E6410	Remove Type 1 MGS for Reset	600.0	Ft
110E6500	Remove Type 1 Guardrail Transition for Reset	4	Each
110E6619	Remove MGS MASH Tangent End Terminal for Reset	4	Each
120E0010	Unclassified Excavation	181	CuYd
120E0100	Unclassified Excavation, Digouts	128	CuYd
120E0600	Contractor Furnished Borrow	1,029	CuYd
120E6200	Water for Granular Material	579.1	MGal
210E0100	Shoulder Clearing	10.2	Mile
210E1000	Shoulder Preparation	1.000	Mile
210E1005	Surface Preparation	7.500	Mile
210E2000	Shoulder Shaping	7.500	Mile
260E1010	Base Course	4,799.2	Ton
260E1030	Base Course, Salvaged	14,140.3	Ton
260E2010	Gravel Cushion	7,500.0	Ton
260E6000	Granular Material, Furnish	9,001.1	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	2,746.1	Ton
270E0110	Salvage and Stockpile Granular Material	14,140.3	Ton
* 270E0220	Blend and Stockpile Granular Material	18,002.2	Ton
* 270E0230	Haul and Stockpile Asphalt Mix Material	3,891.5	Ton
320E0005	PG 58-34 Asphalt Binder	642.1	Ton
320E1070	Class HR Asphalt Concrete	18,317.1	Ton
320E1200	Asphalt Concrete Composite	370.0	Ton
320E3000	Compaction Sample	6	Each
320E5010	Saw and Seal Shoulder Joint	114,890	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	6.9	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	0.2	Mile
330E0010	MC-70 Asphalt for Prime	96.9	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	39.9	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	23.9	Ton
330E1000	Blotting Sand for Prime	81.6	Ton
330E2000	Sand for Flush Seal	57.3	Ton
332E0010	Cold Milling Asphalt Concrete	44,039	SqYd

SECTION F – ESTIMATE OF QUANTITIES

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380E5010	Fast Track Concrete	1,500.0	SqYd
380E6000	Dowel Bar	73,036	Each
380E6110	Insert Steel Bar in PCC Pavement	34	Each
410E2600	Membrane Sealant Expansion Joint	104.0	Ft
600E0300	Type III Field Laboratory	1	Each
630E0500	Type 1 MGS	387.5	Ft
630E1501	Type 1 Retrofit Guardrail Transition	2	Each
630E1510	Type 3 Guardrail Transition	2	Each
630E2018	MGS MASH Tangent End Terminal	4	Each
630E5010	Reset Type 1 MGS	600.0	Ft
630E5204	Reset MGS MASH Tangent End Terminal	4	Each
630E5300	Reset Type 1 Guardrail Transition	4	Each
632E2220	Guardrail Delineator	38	Each
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670E1200	Type B Frame and Grate	2	Each
670E5400	Precast Drop Inlet Collar	2	Each
900E0010	Refurbish Single Mailbox	6	Each
900E0012	Refurbish Double Mailbox	5	Each
900E0022	Remove and Reset Mailbox	16	Each

*** - Denotes Non-Participating**

PCN 09P4

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	7.8	SqYd
120E0100	Unclassified Excavation, Digouts	5	CuYd
120E6200	Water for Granular Material	0.6	MGal
210E0100	Shoulder Clearing	0.4	Mile
260E1010	Base Course	55.3	Ton
260E6000	Granular Material, Furnish	229.1	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	1.2	Ton
* 270E0220	Blend and Stockpile Granular Material	458.2	Ton
* 270E0230	Haul and Stockpile Asphalt Mix Material	1.2	Ton
320E0005	PG 58-34 Asphalt Binder	7.7	Ton
320E1070	Class HR Asphalt Concrete	218.9	Ton
320E3000	Compaction Sample	3	Each
330E0100	SS-1h or CSS-1h Asphalt for Tack	0.6	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	0.4	Ton
332E0010	Cold Milling Asphalt Concrete	1,946	SqYd

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REVISED 3 December, 2024 - BAH

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REVISED 3 December, 2024 - BAH

CHECKING SPREAD RATES

The Contractor will be responsible for checking the spread rates for Base Course, Base Course, Salvaged, Gravel Cushion, and Class HR Asphalt Concrete 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.

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.

TABLE OF SUPERELEVATION

Station	to	Station		
10+05.00		53+28.78	-	Normal Crown Section
53+28.78		55+26.78	-	Superelevation Transition
55+26.78		63+91.44	-	8450' Radius Curve Left 0.0240'/' Superelevation Rate Point of Rotation at Inside Lane or 30' Left & Right of Centerline
63+91.44		65+89.44	-	Superelevation Transition
65+89.44		66+65.45	-	Normal Crown Section
66+65.45		69+53.45	-	Superelevation Transition
69+53.45		78+42.96	-	4100' Radius Curve Right 0.0440'/' Superelevation Rate Point of Rotation at Inside Lane or 30' Left & Right of Centerline
78+42.96		81+30.96	-	Superelevation Transition
81+30.96		100+58.08	-	Normal Crown Section
100+58.08		102+83.08	-	Superelevation Transition
102+83.08		126+09.47	-	6500' Radius Curve Left 0.0300'/' Superelevation Rate Point of Rotation at Inside Lane or 30' Left & Right of Centerline
126+09.47		128+34.47	-	Superelevation Transition
128+34.47		134+65.51	-	Normal Crown Section
134+65.51		137+08.51	-	Superelevation Transition
137+08.51		148+15.96	-	5729.58' Radius Curve Right 0.0340'/' Superelevation Rate Point of Rotation at Inside Lane or 30' Left & Right of Centerline
148+15.96		150+58.96	-	Superelevation Transition
150+58.96		208+10.00	-	Normal Crown Section

INTERSECTING ROADS AND ENTRANCES

In areas where granular material has been placed adjacent to the existing asphalt concrete, the Contractor will be required to remove the granular material to a depth below the existing asphalt concrete to allow for the placement of the new asphalt concrete. New asphalt concrete will be placed flush with the existing asphalt concrete. The existing granular material removed will be placed on the entrances, intersecting roads or other locations as directed by the Engineer.

All costs to remove and place the granular material including labor, equipment and incidentals will be incidental to the various related contract items.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Contractor Furnished Borrow".

UNCLASSIFIED EXCAVATION

181 cubic yards of Unclassified Excavation have been included for grading work at the guardrail embankment widening areas. Payment will be based on plans quantity. Further measurements will not be made unless there is a change made in the limits of work.

PLACING EMBANKMENT

Additional embankment is necessary to accommodate the MGS Guardrail System installations.

The existing embankments are to be reshaped according to the details provided in these plans.

Seeding of all disturbed areas will be done by the Contractor.

Embankment material will be furnished by the Contractor, and payment will be made at the contract unit price per cubic yard for "Contractor Furnished Borrow".

Prior to placement or removal of fill material, the Contractor will be required to remove four inches of topsoil and replace it following the placement of the new fill material.

Compaction of the fill material will be to the satisfaction of the Engineer.

Water for compaction may be required; if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. Cost for water will be incidental to the contract unit price per cubic yard for "Contractor Furnished Borrow".

The basis for payment for Contractor Furnished Borrow will be plans quantity. No separate measurements will be taken. Additional quantities will be included for payment only if work sites other than those shown in the plans are added to the contract.

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 Base Course for the shoulder resurfacing areas.

Included in the Estimate of Quantities are 25 cubic yards of Unclassified Excavation, Digouts and 38 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material for the shoulder resurfacing areas.

Included in the Estimate of Quantities are 50 tons of Base Course per mile for backfill of Unclassified Excavation, Digouts for the shoulder resurfacing areas.

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.

REVISED 21 January, 2025 - BAH

SHOULDER CLEARING

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer, prior to cold milling. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

The Contractor will notify the Yankton Area Office at (605) 668-2929 at least two weeks prior to beginning cold milling work on this project so SDDOT personnel can mow and/or spray along the shoulder and inslopes. The Department will not be responsible for the effectiveness of the mowing or spraying.

Each shoulder will be measured for payment. Costs associated with this work will be included in the contract unit price per mile for Shoulder Clearing.

SURFACE PREPARATION

Prior to trimming and placement of the Nonreinforced PCC Pavement, the Contractor will be required to prepare the upper 3” of the existing granular and Asphalt Surface Treatment, In Place surfacing according to the Surface Preparation specifications provided in Section 210. Care will be taken to avoid disturbing the underlying subgrade during the Surface Preparation operation.

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 have been provided for the entire length of the Nonreinforced PCC Pavement. In no case will Surface Preparation operations ahead of Nonreinforced PCC Pavement placement operations exceed fourteen calendar days.

SHOULDER PREPARATION

Included in the Estimate of Quantities is 0.5 miles of Shoulder Preparation for shoulder resurfacing areas for each shoulder for a total of 1 mile of Shoulder Preparation to be used at locations determined by the Engineer.

Where indicated by the Engineer the existing shoulder material will be scarified, reprocessed if required, reshaped, reworked and compacted in accordance with Section 260.3.C to the shape and elevations shown on the typical sections prior to asphalt concrete placement on the shoulder. Cost for this work will be incidental to the contract unit price per mile for “Shoulder Preparation”. Compaction will be to the satisfaction of the Engineer.

Included in the Estimate of Quantities is 150 tons of Base Course and 5 tons of MC-70 Asphalt for Prime to be used during Shoulder Preparation prior to the placement of the Class HR Asphalt Concrete placement.

Shoulder Preparation will be paid for at the contract unit price per mile. Payment will be full compensation for scarifying, reprocessing, reworking, reshaping and compacting, equipment, labor, and incidentals necessary to satisfactorily complete the work.

Water needed for compaction will be incidental to the contract unit price per mile for “Shoulder Preparation”.

SHOULDER SHAPING

The Contractor will remove all granular material generated from the Construction Haul Road to a separate stockpile site as directed by the Engineer. This material may be reused as Base Course, Salvaged at the discretion of the Engineer.

After removal of the Haul Road material and prior to paving the shoulders, the existing Base Course or Base Course, Salvaged on the shoulders will be reshaped and compacted with adequate moisture as determined by the Engineer until a uniform, stable surface is obtained.

After Shoulder Shaping is completed, the shoulder granular material will be placed as specified, according to the Base Course or Base Course, Salvaged requirements.

Included in the Estimate of Quantities are 7.5 miles of Shoulder Shaping for both shoulders.

Included in the Estimate of Quantities is 10 MGal of Water for Granular Material per mile for compaction of granular material associated with Shoulder Shaping.

All costs associated with removing, hauling, stockpiling, and shaping the granular material will be incidental to the contract unit price per mile bid for Shoulder Shaping.

RESTORATION OF STOCKPILE SITE

A stockpile of salvaged asphalt mix material produced from project PCN 04G5 is located within 1 mile of the project. Removal of any remaining stockpiled material will be paid for under the contract unit price for Haul and Stockpile Asphalt Mix 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”.

CONSTRUCTION HAUL ROAD

Included in the Estimate of Quantities are 1,000 tons of Gravel Cushion per mile, and 12 MGal of Water for Granular Material per mile for haul road construction. The use of this material will be at the discretion of the Contractor. Any additional construction and removal for the construction haul road will be the Contractor’s responsibility. The Contractor will receive no additional compensation for this work.

The Gravel Cushion used to construct the haul road will be compacted in the same manner and to the same specifications as the adjacent material below mainline.

All costs associated with construction of the haul road will be incidental to the “Gravel Cushion” quantities provided.

TABLE OF SALVAGE AND STOCKPILE ASPHALT MIX MATERIAL

Location of Salvage Areas	Salvage and Stockpile Asphalt Mix Material Tons
07V2:	
Sta.10+05 to Sta. 12+45 NB & SB	364.8
Sta. 78+56.49 to Sta. 82+98.57 NB	457.7
Sta. 79+80 to Sta. 83+22.15 SB	457.7
Sta. 84+52.26 to Sta. 87+94.33 NB	334.7
Sta. 84+75.84 to Sta. 89+17.84 SB	334.7
Sta. 205+70 to Sta. 208+10	192.0
Intersecting Roads and Entrances	204.4
AC Composite for Temporary Traffic Control	370.0
Total	2,716.0

SALVAGE ASPHALT MIX MATERIAL

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was unknown.

The table above includes quantities of asphalt mix material that will be salvaged from the existing highways and hauled and stockpiled according to the Haul and Stockpile Asphalt Mix Material plan note.

The quantity of salvaged asphalt mix material may vary from the plans.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

The in-place asphalt concrete surfacing will be salvaged and stockpiled for use as base course, salvaged. Care will be taken not to waste the in-place base course. Excess in-place base course will be salvaged and stockpiled. Salvaged material will be processed to meet the requirements of Section 884.2 D.2 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular base material.

The salvaged granular material, estimated at approximately 7,482 cubic yards, will be used as Base Course, Salvaged and any excess will remain the property of the State.

REVISED 24 September, 2024 - BAH

SHOULDER CLEARING

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer, prior to cold milling. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

The Contractor will notify the Yankton Area Office at (605) 668-2929 at least two weeks prior to beginning cold milling work on this project so SDDOT personnel can mow and/or spray along the shoulder and inslopes. The Department will not be responsible for the effectiveness of the mowing or spraying.

Each shoulder will be measured for payment. Costs associated with this work will be included in the contract unit price per mile for Shoulder Clearing.

SURFACE PREPARATION

Prior to trimming and placement of the Nonreinforced PCC Pavement, the Contractor will be required to prepare the upper 3" of the existing granular and Asphalt Surface Treatment, In Place surfacing according to the Surface Preparation specifications provided in Section 210. Care will be taken to avoid disturbing the underlying subgrade during the Surface Preparation operation.

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 have been provided for the entire length of the Nonreinforced PCC Pavement. In no case will Surface Preparation operations ahead of Nonreinforced PCC Pavement placement operations exceed fourteen calendar days.

SHOULDER PREPARATION

Included in the Estimate of Quantities is 0.5 miles of Shoulder Preparation for shoulder resurfacing areas for each shoulder for a total of 1 mile of Shoulder Preparation to be used at locations determined by the Engineer.

Where indicated by the Engineer the existing shoulder material will be scarified, reprocessed if required, reshaped, reworked and compacted in accordance with Section 260.3.C to the shape and elevations shown on the typical sections prior to asphalt concrete placement on the shoulder. Cost for this work will be incidental to the contract unit price per mile for "Shoulder Preparation". Compaction will be to the satisfaction of the Engineer.

Included in the Estimate of Quantities is 150 tons of Base Course and 5 tons of MC-70 Asphalt for Prime to be used during Shoulder Preparation prior to the placement of the Class HR Asphalt Concrete placement.

Shoulder Preparation will be paid for at the contract unit price per mile. Payment will be full compensation for scarifying, reprocessing, reworking, reshaping and compacting, equipment, labor, and incidentals necessary to satisfactorily complete the work.

Water needed for compaction will be incidental to the contract unit price per mile for "Shoulder Preparation".

SHOULDER SHAPING

The Contractor will remove all granular material generated from the Construction Haul Road to a separate stockpile site as directed by the Engineer. This material may be reused as Base Course, Salvaged at the discretion of the Engineer.

After removal of the Haul Road material and prior to paving the shoulders, the existing Base Course or Base Course, Salvaged on the shoulders will be reshaped and compacted with adequate moisture as determined by the Engineer until a uniform, stable surface is obtained.

After Shoulder Shaping is completed, the shoulder granular material will be placed as specified, according to the Base Course or Base Course, Salvaged requirements.

Included in the Estimate of Quantities are 7.5 miles of Shoulder Shaping for both shoulders.

Included in the Estimate of Quantities is 10 MGal of Water for Granular Material per mile for compaction of granular material associated with Shoulder Shaping.

All costs associated with removing, hauling, stockpiling, and shaping the granular material will be incidental to the contract unit price per mile bid for Shoulder Shaping.

RESTORATION OF STOCKPILE SITE

A stockpile of salvaged asphalt mix material produced from project PCN 04G5 is located within 1 mile of the project. Removal of any remaining stockpiled material will be paid for under the contract unit price for Haul and Stockpile Asphalt Mix 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".

CONSTRUCTION HAUL ROAD

Included in the Estimate of Quantities are 1,000 tons of Gravel Cushion per mile, and 12 MGal of Water for Granular Material per mile for haul road construction. The use of this material will be at the discretion of the Contractor. Any additional construction and removal for the construction haul road will be the Contractor's responsibility. The Contractor will receive no additional compensation for this work.

The Gravel Cushion used to construct the haul road will be compacted in the same manner and to the same specifications as the adjacent material below mainline.

All costs associated with construction of the haul road will be incidental to the "Gravel Cushion" quantities provided.

TABLE OF SALVAGE AND STOCKPILE ASPHALT MIX MATERIAL

Location of Removal Areas	Salvage and Stockpile Asphalt Mix Material Tons
07V2:	
Sta.10+05 to Sta. 12+45 NB & SB	364.8
Sta. 78+56.49 to Sta. 82+98.57 NB	457.7
Sta. 79+80 to Sta. 83+22.15 SB	457.7
Sta. 84+52.26 to Sta. 87+94.33 NB	334.7
Sta. 84+75.84 to Sta. 89+17.84 SB	334.7
Sta. 205+70 to Sta. 208+10	192.0
Intersecting Roads and Entrances	204.4
Digouts	30.1
AC Composite for Temporary Traffic Control	370.0
Total	2,746.1
09P4:	
Digouts	1.2
Total	1.2

SALVAGE ASPHALT MIX MATERIAL

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was unknown.

The table above includes quantities of asphalt mix material that will be salvaged from the existing highways and hauled and stockpiled according to the Haul and Stockpile Asphalt Mix Material plan note.

The quantity of salvaged asphalt mix material may vary from the plans.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

The in-place asphalt concrete surfacing will be salvaged and stockpiled for use as base course, salvaged. Care will be taken not to waste the in-place base course. Excess in-place base course will be salvaged and stockpiled. Salvaged material will be processed to meet the requirements of Section 884.2 D.2 prior to stockpiling. The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged granular base material.

The salvaged granular material, estimated at approximately 7,482 cubic yards, will be used as Base Course, Salvaged and any excess will remain the property of the State.

REVISED 21 January, 2025 - BAH

HAUL AND STOCKPILE ASPHALT MIX MATERIAL

Salvaged asphalt concrete material produced from salvaging on PCN 07V2 estimated at 2,716.0 tons and excess stockpiled salvaged asphalt concrete produced from PCN 04G5 not used as RAP in the Class HR Asphalt Concrete estimated at up to 1,145.4 tons (for informational purposes only) and asphalt concrete material produced from cold milling will be hauled and stockpiled in the SW ¼ of Section 36, Township 94 North, Range 56 West of the 5th P.M, Yankton County, South Dakota at the Yankton SDDOT Maintenance Shop. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to stockpiling.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 D.3 prior to stockpiling.

No further gradation testing of the material will be required.

All other costs for crushing, hauling, and stockpiling the salvaged asphalt concrete material will be incidental to the contract unit price per ton for “Haul and Stockpile Granular Material”.

BLEND AND STOCKPILE GRANULAR MATERIAL

Salvaged asphalt concrete material produced from cold milling and salvaging on PCN 07V2 estimated at 7,825.6 tons (for informational purposes only) and excess stockpiled salvaged asphalt concrete produced from PCN 04G5 not used as RAP in the Class HR Asphalt Concrete estimated at up to 1,145.4 tons (for informational purposes only) will be blended with 8,971.0 tons of Granular Material, Furnish and salvaged asphalt concrete material produced from cold milling on PCN 09P4 estimated at 227.9 tons (for informational purposes only) will be blended with 227.9 tons of Granular Material, Furnish and stockpiled in the SW ¼ of Section 36, Township 94 North, Range 56 West of the 5th P.M, Yankton County, South Dakota at the Yankton SDDOT Maintenance Shop. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

The salvaged asphalt mix material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt mix material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All costs for stockpiling and blending the materials will be incidental to the contract unit price per ton for “Blend and Stockpile Granular Material”.

WATER FOR GRANULAR MATERIAL

Included in the Estimate of Quantities are 25 MGal of Water for Granular Material per mile for compaction.

WATER FOR COMPACTION

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

GRANULAR MATERIAL, FURNISH

Granular material will be furnished by the Contractor for use in blending with the salvaged asphalt mix material.

The granular material will be Base Course meeting the requirements of Section 882.

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the material produced on this project and may be used without further gradation testing.

All other requirements for Base Course, Salvaged will apply.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 25. 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). The milling depth on the shoulders will be measured from the top of the concrete. In areas where maintenance patches have raised and/or widened the shoulder, additional asphalt concrete will be milled to provide a uniform typical section from edge of concrete to the edge of the finished shoulder. 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 5,337.5 tons of cold milled asphalt concrete material. An estimated 5,337.5 tons of cold milled asphalt concrete material will be hauled and stockpiled according to the Haul and Stockpile Asphalt Mix Material plan note.

TABLE OF COLD MILLING

Location	Plan Area	Cold Milled Asphalt Concrete Material
	SqYd	Ton
US81		
Sta. a114+02 to Sta. a115+20	212.8	24.9
Sta. a115+20 to Sta. a219+14.50	17,324.2	2,010.0
Sta. 348+95.12 to Sta. 509+23.96	26,714.7	3,099.6
Totals 07V2:	44,038.9	5,109.6
SD46		
Sta. 6+16.50 to sta. 9+77.11	601.0	69.7
Sta. 9+77.11 to Sta. 15+10.90	1,008.3	118.9
Sta. 15+10.90 to Sta. 17+00.00	336.2	39.3
Totals 09P4:	1,945.5	227.9

CLASS HR ASPHALT CONCRETE

An estimated 7,154.6 tons of RAP is needed for the Class HR mixture. The Class HR Asphalt Concrete will include 40 percent RAP in the mixture.

RAP will be obtained from the stockpiled salvaged asphalt mix material produced from project PCN 04G5, estimated at 8,300 tons, located within 1 mile of the project. The RAP produced from PCN 04G5 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 D.6 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 HR Hot Mixed Asphalt Concrete”.

When directed by the Engineer, the Contractor will saw and remove a total of three undamaged compaction cores per asphalt concrete lift from designated area(s) and repair the hole(s) to the satisfaction of the Engineer. All costs associated with the compaction cores will be incidental to the contract unit price per each for “Compaction Sample”.

All other requirements for Class HR Asphalt Concrete will apply.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite shall be furnished by the Contractor.

The Asphalt Concrete Composite will extend over and fill the existing shoulder rumble strip where temporary widening is needed.

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E or G, Type 1 or 2.

The Contractor shall provide a Job-Mix Formula to the Bituminous Engineer with supporting mix design date prior to production.

REVISED 24 September, 2024 - BAH

HAUL AND STOCKPILE ASPHALT MIX MATERIAL

Salvaged asphalt concrete material produced from cold milling and salvaging on PCN 07V2 estimated at 7,855.7 tons (for informational purposes only) and excess stockpiled salvaged asphalt concrete produced from PCN 04G5 not used as RAP in the Class HR Asphalt Concrete estimated at up to 1,145.4 tons (for informational purposes only) and salvaged asphalt concrete material produced from cold milling and salvaging on PCN 09P4 estimated at 229.1 tons (for informational purposes only) will be hauled and stockpiled in the SW ¼ of Section 36, Township 94 North, Range 56 West of the 5th P.M, Yankton County, South Dakota at the Yankton SDDOT Maintenance Shop. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to stockpiling.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 D.3 prior to stockpiling.

No further gradation testing of the material will be required.

All other costs for crushing, hauling, and stockpiling the salvaged asphalt concrete material will be incidental to the contract unit price per ton for “Haul and Stockpile Granular Material”.

BLEND AND STOCKPILE GRANULAR MATERIAL

Salvaged asphalt concrete material produced from cold milling and salvaging on PCN 07V2 estimated at 7,855.7 tons (for informational purposes only) and excess stockpiled salvaged asphalt concrete produced from PCN 04G5 not used as RAP in the Class HR Asphalt Concrete estimated at up to 1,145.4 tons (for informational purposes only) will be blended with 9,001.1 tons of Granular Material, Furnish and salvaged asphalt concrete material produced from cold milling and salvaging on PCN 09P4 estimated at 229.1 tons (for informational purposes only) will be blended with 229.1 tons of Granular Material, Furnish and stockpiled in the SW ¼ of Section 36, Township 94 North, Range 56 West of the 5th P.M, Yankton County, South Dakota at the Yankton SDDOT Maintenance Shop. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

The salvaged asphalt mix material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt mix material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All costs for stockpiling and blending the materials will be incidental to the contract unit price per ton for “Blend and Stockpile Granular Material”.

WATER FOR GRANULAR MATERIAL

Included in the Estimate of Quantities are 25 MGal of Water for Granular Material per mile for compaction.

WATER FOR COMPACTION

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

GRANULAR MATERIAL, FURNISH

Granular material will be furnished by the Contractor for use in blending with the salvaged asphalt mix material.

The granular material will be Base Course meeting the requirements of Section 882.

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the material produced on this project and may be used without further gradation testing.

All other requirements for Base Course, Salvaged will apply.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 25. 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). The milling depth on the shoulders will be measured from the top of the concrete. In areas where maintenance patches have raised and/or widened the shoulder, additional asphalt concrete will be milled to provide a uniform typical section from edge of concrete to the edge of the finished shoulder. 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 5,337.5 tons of cold milled asphalt concrete material. An estimated 5,337.5 tons of cold milled asphalt concrete material will be hauled and stockpiled according to the Haul and Stockpile Asphalt Mix Material plan note.

TABLE OF COLD MILLING

Location	Plan Area	Cold Milled Asphalt Concrete Material
	SqYd	Ton
US81		
Sta. a114+02 to Sta. a115+20	212.8	24.9
Sta. a115+20 to Sta. a219+14.50	17,324.2	2,010.0
Sta. 348+95.12 to Sta. 509+23.96	26,714.7	3,099.6
Totals 07V2:	44,038.9	5,109.6
SD46		
Sta. 6+16.50 to sta. 9+77.11	601.0	69.7
Sta. 9+77.11 to Sta. 15+10.90	1,008.3	118.9
Sta. 15+10.90 to Sta. 17+00.00	336.2	39.3
Totals 09P4:	1,945.5	227.9

CLASS HR ASPHALT CONCRETE

An estimated 7,154.6 tons of RAP is needed for the Class HR mixture. The Class HR Asphalt Concrete will include 40 percent RAP in the mixture.

RAP will be obtained from the stockpiled salvaged asphalt mix material produced from project PCN 04G5, estimated at 8,300 tons, located within 1 mile of the project. The RAP produced from PCN 04G5 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 D.6 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 HR Hot Mixed Asphalt Concrete”.

When directed by the Engineer, the Contractor will saw and remove a total of three undamaged compaction cores per asphalt concrete lift from designated area(s) and repair the hole(s) to the satisfaction of the Engineer. All costs associated with the compaction cores will be incidental to the contract unit price per each for “Compaction Sample”.

All other requirements for Class HR Asphalt Concrete will apply.

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite shall be furnished by the Contractor.

The Asphalt Concrete Composite will extend over and fill the existing shoulder rumble strip where temporary widening is needed.

Mineral aggregate for the Asphalt Concrete Composite shall conform to the requirements of the Standard Specifications for Class E or C, Type 1 or 2.

The Contractor shall provide a Job-Mix Formula to the Bituminous Engineer with supporting mix design date prior to production.

COMPACTION

Location	Compaction With Specified Density	Compaction Without Specified Density
	Ton	Ton
US81		
Sta. a114+02 to Sta. a219+14.50 Shoulders	2,588.4	---
Sta. 10+05 to Sta. 192+53.80 Shoulders Median Crossovers	7,162.4 ---	--- 714.1
Sta. 192+53.80 to Sta. 208+10 Full Width	3,196.4	---
Sta. 348+95.12 to Sta. 509+23.96 Shoulders	4,044.8	---
Sta. a114+02 to Sta. 509+23.96 (thru equations) Entrances and Intersecting Roads	---	562.0
TOTALS:	16,992.0	1,276.1

Location	Compaction With Specified Density	Compaction Without Specified Density
	Ton	Ton
SD46 (09P4)		
Sta. 6+16.5 to Sta. 16+24 Shoulders	218.9	---
TOTALS:	218.9	---

FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

SAND FOR FLUSH SEAL

The sand application will be placed 11' wide in each lane, leaving 12" on center line and 6" on each edge line free of sand.

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)

TRIM MATERIAL

Material removed during the trimming operation may be used for the Construction Haul Road or hauled from the roadbed. Material hauled from the roadbed may be placed on shoulders after completion of the nonreinforced concrete pavement placement. No additional payment will be made for handling, stockpiling, processing, or placement of trim material. Water added by road mix or plant mix methods will be paid at the contract unit price per MGal for Water for Granular Material.

TRANSVERSE CONTRACTION JOINTS

Unless specified otherwise in the PCC Pavement Joint Layout Sheets or elsewhere in the plans, the typical joint spacing for the 8” Nonreinforced PCC Pavement will be 13’. Joint spacing in the PCC Shoulder Pavement will match adjacent mainline pavement.

See Standard Plate 380.04 for placement of Dowel Bars.

The transverse contraction joints will be perpendicular to the centerline. In multilane areas the transverse contraction joints will be perpendicular to the centerline and be in a straight line across the entire width of pavement. In special situations the Engineer may pre-approve transverse contraction joints that do not meet these requirements. All nonconforming transverse contraction joints will be removed at the Contractor’s expense. Any method of placement that cannot produce these requirements will not be allowed.

8" NONREINFORCED PCC PAVEMENT

The fine aggregate will be screened over a 1-inch square opening screen just prior to introduction into the concrete paving mix. The Contractor will screen all of the aggregate to prevent the incorporation of foreign materials (i.e. mud balls) into the concrete mix.

The concrete mix will conform to the Special Provision for Contractor Furnished Mix Design for PCC Pavement.

A minimum of 20 pavement blockouts may be required at various locations on this project to facilitate traffic during the paving activity.

There will be no direct payment for trimming of the gravel cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement. Trimming will be performed as required by Section 380.3 C of the Specifications.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement. The transverse construction joints will be handled in accordance with Standard Plate 380.15.

The location of joints, as shown and designated on the PCC Pavement Joint Layout(s) are only approximate locations to be used as a guide and to afford bidders a basis for estimating the construction cost of the joints. The final locations of the joints are to be designated by the Engineer during construction.

All driving surfaces of the mainline paving, including ramps and auxiliary lanes, will be longitudinally tined from 6” each side of centerline pavement markings to 6” inside the outside pavement markings. Areas with concrete curb and gutter without pavement markings will be longitudinally tined to within 2 to 3 feet of the face of the curb. All other areas will be textured as directed by the Engineer.

Rumble Strips will be placed 15 inches wide 3 inches from the outside edge of the pavement. Rumble strips will not be placed on the side where curb and gutter is located. Payment for forming rumble strips including labor, materials and incidentals will be incidental to the contract unit price per square yard for “8" Nonreinforced PCC Pavement”.

The following locations will be tested for smoothness in accordance with the Special Provision for IRI PCC Pavement Smoothness.

US81 – Sta. 10+05 to Sta. 192+53.8 (Driving and Passing Lanes)

Turning lanes including center turn lane and side streets will be tested using the 10’ straight edge as per Specifications 380.3.O.1.

TABLE OF NONREINFORCED PCC PAVEMENT – PCN 07V2

Location	8" Nonreinforced PCC Pavement (SqYd)
Mainline	
Sta. 10+05 to Sta. 16+50 - NB Lanes	1,863.3
Sta. 10+05 to Sta. 16+50 - SB Lanes	1,863.3
Sta. 16+50 to Sta. 19+15 - NB & SB Lanes	2,114.1
Sta. 19+15 to Sta. 29+00 - NB & SB Lanes	7,442.2
Sta. 29+00 to Sta. 31+50 - NB & SB Lanes	1,944.4
Sta. 31+50 to Sta. 82+98.56 - NB Lanes	14,873.6
Sta. 31+50 to Sta. 83+22.14 - SB Lanes	15,243.3
Sta. 84+52.26 to Sta. 192+53.80 - NB Lanes	31,204.4
Sta. 84+75.84 to Sta. 192+53.80 - SB Lanes	31,136.3
Median Crossovers	
Sta. 124+70 to Sta. 134+78	2,962.7
Sta. 181+36 to Sta. 191+54	3,038.6
Total:	113,686.2

RATES OF MATERIALS

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

RATE 1: OUTSIDE SHOULDER OVERLAY

NB Sta. a114+02 to Sta. a219+14.50
SB Sta. a115+20 to Sta. a219+14.50
NB Sta. 341+44.28 to Sta. 408+18.84
SB Sta. 341+44.28 to Sta. 408+18.84
NB Sta. 411+70.18 to Sta. 509+23.96
SB Sta. 411+70.18 to Sta. 509+23.96

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 68.0 lbs applied 8 feet wide
(Rate = 0.09 gallon per square yard on Milled Surfaces).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 35.4 lbs. applied 7.5 feet wide
(Rate = 0.05 gallon per square yard).

CLASS HR ASPHALT CONCRETE

Crushed Aggregate	7.12 tons
Salvaged Asphalt Concrete	4.75 tons
PG 58-34 Asphalt Binder	0.44 tons
Total	12.31 tons

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

RATE 2: NEW OUTSIDE SHOULDERS

NB Sta. 10+05.00 to Sta. 82+98.57
NB Sta. 84+52.26 to Sta. 192+53.80
SB Sta. 10+05.00 to Sta. 60+47.54
SB Sta. 65+00.00 to Sta. 83+22.15
SB Sta. 84+75.84 to Sta. 192+53.80

Base Course or Base Course, Salvaged 19.62 tons

Water for Granular Material at the rate of 0.24 MGal

MC-70 Asphalt for Prime at the Rate of 0.11 ton applied 8.5 feet wide
(Rate = 0.30 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 46.6 lbs applied 8.0 feet wide
(Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 32.9 lbs applied 7.5 feet wide
(Rate = 0.05 gallon per square yard).

CLASS HR ASPHALT CONCRETE

Crushed Aggregate	7.24 tons
Salvaged Asphalt Concrete	4.24 tons
PG 58-34 Asphalt Binder	0.44 tons
Total	11.92 tons

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

RATE 3: NEW MEDIAN SHOULDERS

NB Sta. 10+05 to Sta. 16+50
SB Sta. 10+05 to Sta. 16+50

Base Course or Base Course, Salvaged 16.07 tons

Water for Granular Material at the rate of 0.19 MGal

MC-70 Asphalt for Prime at the Rate of 0.09 ton applied 6.5 feet wide
(Rate = 0.30 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 34.1 lbs applied 6.0 feet wide
(Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 26.7 lbs applied 5.5 feet wide.
(Rate = 0.05 gallon per square yard).

CLASS HR ASPHALT CONCRETE

Crushed Aggregate	5.10 tons
Salvaged Asphalt Concrete	3.40 tons
PG 58-34 Asphalt Binder	0.31 tons
Total	8.81 tons

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

RATE 4: NEW MEDIAN SHOULDERS

NB Sta. 31+50.00 to Sta. 82+98.57
NB Sta. 84+52.26 to Sta. 124+63.79
NB Sta. 132+03.57 to Sta. 181+34.93
NB Sta. 186+54.85 to Sta. 192+53.8
SB Sta. 31+50.00 to Sta. 83+22.15
SB Sta. 84+75.84 to Sta. 129+82.57
SB Sta. 134+89.57 to Sta. 184+07.93

Base Course or Base Course, Salvaged 16.93 tons

Water for Granular Material at the rate of 0.20 MGal

MC-70 Asphalt for Prime at the Rate of 0.09 ton applied 6.5 feet wide
(Rate = 0.30 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 34.1 lbs applied 6.0 feet wide
(Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 26.7 lbs applied 5.5 feet wide
(Rate = 0.05 gallon per square yard).

CLASS HR ASPHALT CONCRETE

Crushed Aggregate	5.10 tons
Salvaged Asphalt Concrete	3.40 tons
PG 58-34 Asphalt Binder	0.31 tons
Total	8.81 tons

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

RATE 5: FULL WIDTH ASPHALT PAVEMENT

NB Sta. 192+53.80 to Sta. 199+88.00
SB Sta. 192+53.80 to Sta. 199+88.00

Base Course or Base Course, Salvaged 78.83 tons

Water for Granular Material at the rate of 0.95 MGal

MC-70 Asphalt for Prime at the Rate of 0.56 ton applied 42.0 feet wide
(Rate = 0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 1.33 tons applied 24.0 feet wide
(Rate = 10.0 lbs. per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.11 tons applied 41.0 feet wide
(Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.10 tons applied 42.0 feet wide
(Rate = 0.06 gallon per square yard).

Sand for Flush Seal at the rate of 1.06 ton applied 24 feet wide
(Rate = 8.0 lbs. per square yard).

CLASS HR ASPHALT CONCRETE: 1st Lift

Crushed Aggregate	31.99 tons
Salvaged Asphalt Concrete	21.32 tons
PG 58-34 Asphalt Binder	1.93 tons
Total	55.24 tons

CLASS HR ASPHALT CONCRETE: 2nd Lift

Crushed Aggregate	32.68 tons
Salvaged Asphalt Concrete	21.79 tons
PG 58-34 Asphalt Binder	1.97 tons
Total	56.44 tons

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

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ALKALI SILICA REACTIVITY

Fine aggregate will conform to Section 800.2 D Alkali Silica Reactivity (ASR) Requirements.

Below is a list of known fine aggregate sources and the average corresponding 14-day expansion values (as of 9-18-2024):

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.146
Concrete Materials - Vellek Pit	Yankton, SD	0.411**
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Blair Pit	W of Vale, SD	0.171
Fisher S&G - Mickelson Pit	E of Nisland, SD	0.129
Fisher S&G - Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Henning – Tilstra Pit	Ash Creek, MN	0.199
Higman	Hudson, SD	0.187
Jensen	Herried, SD	0.276*
L.G. Everist	Akron, IA	0.257*
L.G. Everist	Brookings, SD	0.297*
L.G. Everist – Ode Pit	E Sioux Falls, SD	0.222
L.G. Everist – Nelson Pit	NE Sioux Falls, SD	0.156
L.G. Everist	Hawarden, IA	0.211
L.G. Everist	Summit, SD	0.184
Mark's S&G – Moerke Pit	Underwood, MN	0.165
Morris – Birdsall	Blunt, SD	0.229
Morris - Leesman	Blunt, SD	0.231
Morris - Richards Pit	Onida, SD	0.188
Morris - Shawn's Pit	E of Sturgis, SD	0.186
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.154
Opperman - Gunvordahl Pit	Burke, SD	0.363*
Opperman - Cahoy Pit	Herrick, SD	0.307*
Opperman - Jones Pit	Burke, SD	0.321*
Opperman - Randall Pit	Pickstown, SD	0.230
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.157
Pete Lien & Sons	Wasta, SD	0.255*
Simon Materials - Beltline Pit	Scottsbluff, NE	0.277*
Thorpe Pit	Britton, SD	0.098
Valley S&G – Van Beek Pit	Rock Valley, IA	0.228
Wagner Building Supplies	Pickstown (Wagner), SD	0.251*
Winter Brothers- Whitehead Pit	Brookings, SD	0.197

* These sources will require Type II cement with a fly ash content of 25% in the concrete mix.
** These sources will not be used.

The Department will use the running average of the last three or fewer known expansion test results for determining acceptability of the source. These expansion results are reported in the preceding table. Additional testing,

when requested by the Contractor, will be performed by the Department at the Contractor's expense.

The values listed in the table are intended for use in bidding. If a previously tested pit by SDDOT with a test value less than 0.250 is discovered after letting to be 0.250 or greater, then the Department will accept financial responsibility if higher costs are incurred due to higher percent of fly ash requirement.

POLY-ALPHA METHYLSTYRENE (AMS) MEMBRANE CURING COMPOUND

Provide poly-alpha methylstyrene liquid membrane curing compounds for spray application on portland cement concrete surfaces exposed to the air.

The AMS membrane curing compound will conform to section 821 of the Specifications and the following requirements:

1. The AMS membrane curing compound will be successfully reviewed by the Department before use.
2. Meets the requirements of ASTM C 309 for white pigmented Type 2, Class B.
3. The Engineer will not allow the use of curing compound that is over 1 year from the manufacture date.
4. Resin is 100 percent poly-alpha methylstyrene and formulated to maintain the specified properties of the following Table.

REQUIREMENTS FOR AMS MEMBRANE CURING COMPOUND	
Properties	**Range**
Total solids, % by weight of compound	≥ 42
% reflectance in 72 h (ASTM E 1247)	≥ 65
Loss of Water, kg/sq. m in 24 h (AASHTO T 155)	≤ 0.15
Loss of Water, kg/sq. m in 72 h (AASHTO T 155)	≤ 0.40
Settling Test, ml/100 ml in 72 h *	≤ 2
V.O.C. Content, g/L	≤ 350
Infrared Spectrum, vehicle	100% α methylstyrene
*Test in accordance with MNDOT method.	

The application will be in accordance with section 380.3 M plus the following:

Before application, agitate the curing compound as received in the shipping container to obtain a homogenous mixture. Protect membrane curing compounds from freezing before application. Handle and apply the membrane curing compound in accordance with the manufacturer's recommendations.

1. Apply curing compound homogeneously to provide a uniform, solid, white opaque coverage on all exposed concrete surfaces (equal to a white sheet of typing paper) at the time of application.
2. If the Engineer determines that the initial or corrective spraying result in unsatisfactory curing, the Engineer may require the Contractor to use the blanket curing method, at no additional cost to the Department.

Use the fully-automatic, self-propelled mechanical power sprayer to apply the curing compound:

1. Operate the equipment to direct the curing compound to the surface from two different lateral directions.
2. If puddling, dripping, or non-uniform application occurs, suspend the operation to perform corrections as approved by the Engineer.
3. A re-circulating bypass system that provides for continuous agitation of the reservoir material.
4. Separate filters for the hose and nozzle.
5. Check valve nozzles.
6. Multiple or adjustable nozzle system that provides for variable spray patterns.
7. A spray-bar drive system that operates independently of the wheels or track drive system.

Equipment for hand spraying of odd width or shapes and surfaces exposed by form removal will be:

1. Used from two directions to ensure coverage equal to a white sheet of typing paper as visible from any direction immediately after spraying.
2. A re-circulating bypass system that provides for continuous agitation of the reservoir material.
3. Separate filters for the hose and nozzle.
4. Multiple or adjustable nozzle system that provides for variable spray patterns.

A recommended practice for using AMS membrane curing compound is to clean out the sprayer including tank and nozzles each day after use.

Payment for AMS membrane curing compound, including labor, materials and incidentals will be incidental to the contract unit price per square yard for "8" Nonreinforced PCC Pavement".

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FAST TRACK CONCRETE

At specific locations (intersecting streets, driveways, and blockouts) designated by the Engineer, Fast Tack Concrete may be used. The intent of the Fast Track Concrete is to ensure the new pavement can be opened to traffic within 48 hours after placement.

Fast Track Concrete will be constructed according to plan details and specifications for the 8” Nonreinforced PCC Pavement except as follows:

The Fast Track Concrete will be designed to achieve a minimum compressive strength of 3000 psi in 48 hours. Use of a water reducer, accelerator, or a high range water reducer may be required to achieve the desired early strength. If any of these additives are used, they will be compatible with all other ingredients of the mix. The minimum pounds of cementitious material will be 600 pounds per cubic yard of Type II or III cement with 15% to 25% fly ash. The coarse aggregate will be a minimum of 50% of total aggregate weight per cubic yard. Coarse aggregate will be crushed ledge rock, Size No. 1 or 15. The water cement ratio will be as low as practical to achieve the desired results. The slump requirement will be limited to 4 inches maximum and the entrained air content will be 4.5% to 7.0% after all admixtures are added to the concrete. The Contractor is responsible for the mix design used. The Contractor will submit a mix design and supporting documentation to the Engineer for approval at least 2 weeks prior to use. The Department of Transportation’s Office of Materials & Surfacing will review and comment on the proposed mix design prior to its use.

Fast Track Concrete will be cured with Linseed Oil Base Emulsion Curing Compound. The initial contraction joint sawing will be performed as soon as practical after placement to avoid random cracking.

The pavement may be opened to traffic, earlier than 48 hours, provided the compressive strength of 3000 psi has been attained. The final contraction joint sawing and sealing are not required at this time to open pavement to traffic.

An estimated 112,186.2 square yards of 8” Nonreinforced PCC Pavement and 1,500 square yards of Fast Track Concrete is to be used on this project. If more or less Fast Track Concrete is used, an equal amount will be subtracted from or added to the total for 8” Nonreinforced PCC Pavement. All costs for Fast Track Concrete will be incidental to the contract unit price per square yard for “Fast Track Concrete”.

STEEL BAR INSERTION

The Contractor will insert the Steel Bars (No. 9 x 18 inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. Anchoring of the steel bars in the drilled holes will conform to the Specifications.

The steel bars will be cut to the specified length by sawing or shearing and will be free from burring or other deformations.

Epoxy coated deformed steel bars will be inserted on 18-inch centers in the transverse joint. The first steel bar will be placed a minimum of 3 inches and a maximum of 9 inches from the outside edge of the slab.

TABLE OF STEEL BAR INSERTION

LOCATION	QUANTITY OF BARS No. 9
Sta. 10+05 SB Lanes.	17
Sta. 10+05 NB Lanes.	17
Totals:	34

TEMPORARY SURFACING FOR TRAFFIC CONTROL

The temporary widening typical section will consist of 12” (4” lifts) of Base Course and 6” (2-3” lifts) of Asphalt Concrete Composite with the top of the surface elevation constructed to match the existing roadway and roadway crown..

An estimated 636 cubic yards of Contractor Furnished Borrow will be needed to construct the temporary widening. The material shall be obtained by the Contractor. After completion of the project the excess materials shall be removed and disposed of by the Contractor.

Compaction of the embankment will be to the satisfaction of the Engineer. Water needed to achieve compaction will be incidental to the contract unit price per cubic yard of Contractor Furnished Borrow.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 3:1 within 30 feet of the traveled way.

Cost for hauling, placing, compaction, removing and wasting this material will be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow.

An estimated 744 tons of Base Course and 370 tons of Asphalt Concrete Composite are included in the Estimate of Quantities for surfacing of the temporary widening areas. After completion of the project, the temporary surfacing shall be removed and disposed of by the Contractor.

Compaction of the Asphalt Concrete Composite shall be compacted by the Specified Roller Coverage.

Cost for furnishing, hauling, placing, compacting, removing and disposing of the surfacing materials and embankment shall be paid for at their respective contact unit prices.

MAILBOXES

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

To refurbish mailboxes, the Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single or double 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 “Refurbish Single Mailbox” or “Refurbish Double Mailbox”.

TABLE OF REFURBISH & REMOVE AND RESET MAILBOX

Station	L/R	Refurbish Single (Each)	Refurbish Double (Each)	Remove and Reset Single (Each)	Remove and Reset Double (each)
a 164+20	R		1		
a 167+80	R	1			
a 173+81	R	1	1		
a 183+22	R	1	1		
a 187+00	R		1		
a 196+58	R	1			
a 201+21	R		1		
13+42	R			1	
38+77	R			1	
51+18	R			1	
52+81	R			1	
56+22	R			1	
60+83	L				1
60+86	L				1
62+65	L			1	
78+06	R			1	
78+10	R			1	
90+74	R			1	
140+22	R				1
150+66	L			1	1
185+42	L			1	
198+37	R			1	
361+18	L	1			
467+13	L	1			
Totals:		6	5	12	4

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GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt concrete rumble strips will be constructed on the median shoulders. Rumble strips 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 6.9 miles of asphalt concrete rumble strips will be required.

Rumble strip installation will be completed prior to application of the flush seal and permanent pavement markings. A flush seal will be applied to the newly installed 12" rumble strips at a width of 18" and a rate of 0.10 gal./SqYd All costs associated with placing the flush seal will be incidental to the contract unit price per ton for "SS-1h or CSS-1h Asphalt for Flush Seal".

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline from Sta. 199+88 to Sta. 208+10. 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 0.2 miles of rumble stripes will be required.

Rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. A flush seal will be applied to the newly installed rumble stripes at a width of 24" and a rate of 0.10 gal./SqYd All costs associated with placing the flush seal will be incidental to the contract unit price per ton for "SS-1h or CSS-1h Asphalt for Flush Seal".

REMOVE TRAFFIC DIVERSION

Upon completion of the project the Median Crossover at MRM 5.00+0.808 will be removed. The asphalt concrete, granular material and pit run material will be disposed of by the Contractor as approved by the Engineer. All culverts and pipe end sections will become the property of the Contractor.

Cost for removing the asphalt concrete and granular material and removal of culverts and pipe end sections will be incidental to the contract lump sum price for "Remove Traffic Diversion(s)".

DROP INLETS

Drop Inlets were installed with temporary covers under a previous contract. Contractor will remove and dispose of the temporary covers installed on the drop inlets. All costs for removal and disposal of the covers will be incidental to the contract unit prices for the Type B Frames and Grates.

Under the previous contract, weep holes were drilled in the drop inlets for drainage during the period between grading and final surfacing. After the permanent surfacing has been placed, the Contractor will seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with sealing the weep holes and removing debris from the drop inlets will be incidental to the contract unit prices for the Type B Frames and Grates.

TABLE OF DROP INLETS AND QUANTITIES

Station	L / R	Drop Inlet Size	Drop Inlet Type	Precast Drop Inlet Collar (Each)	Frame and Grate/Lid Type
64+75	L	2'x3'	B	1	B
64+90	L	2'x3'	B	1	B
			Totals:	2	

Total Type B Frame and Grate 2

TABLE OF TYPE F68 CONCRETE CURB AND GUTTER

Station	to	Station	L/R	Quantity (Ft)
60+47.54		65+00.00	L	449.7
			Total:	449.7

CONSTRUCTION STAKING DATA

Construction staking data from the grading and in-place interim surfacing project, NH-B 0081(103)06, PCN 04G5, can be obtained from the Yankton Area office.

The Contractor must request this information from the Yankton Area Engineer at least two weeks prior to beginning staking work.

TABLE OF DOWEL BARS

Location	12 Bar Assembly Dowel Bar (Size 1 ¼") Each
Sta. 10+05 to Sta. 82+98.57 NB	14,417
Sta. 10+05 to Sta. 83+22.15 SB	14,793
Sta. 84+52.26 to Sta. 192+53.80 NB	21,906
Sta. 84+75.84 to Sta. 192+53.80 SB	21,920
Total:	73,036

TABLE OF SAW AND SEAL SHOULDER JOINT

SAW AND SEAL SHOULDER JOINT				
Location	Begin Station	to	End Station	Feet
Mainline - NB Lanes				
Outside Shoulder	a 114+02.00	to	a 219+14.50	10,512.5
Median Shoulder	10+05.00	to	16+50.00	645.0
	31+50.00	to	82+98.56	5,148.6
	84+52.26	to	124+63.76	4,011.5
	132+03.57	to	181+34.93	4,931.4
	186+54.84	to	192+79.80	625.0
Outside Shoulder	10+05.00	to	82+98.56	7,293.6
	84+52.26	to	192+79.80	10,827.5
Mainline - SB Lanes				
Outside Shoulder	a 114+02.00	to	a 219+14.50	10,512.5
Median Shoulder	10+05.00	to	16+50.00	645.0
	31+50.00	to	83+22.14	5,172.1
	84+75.84	to	129+82.57	4,506.7
	134+89.57	to	184+07.93	4,918.4
	191+61.84	to	192+79.80	118.0
Outside Shoulder	10+05.00	to	83+22.14	7,317.1
	84+75.84	to	192+79.80	10,804.0
Mainline - NB & SB Lanes				
Lt. Shoulder	348+95.12	to	408+18.84	5,923.7
	411+70.18	to	509+23.96	9,753.8
Rt. Shoulder	348+95.12	to	408+18.84	5,923.7
	411+70.18	to	509+23.96	9,753.8
			Total 07V2:	119,343.9
PCN 09P4				
Lt. Shoulder	6+13.60	to	15+08.91	895.3
Rt. Shoulder	6+13.60	to	9+32.68	319.1
	11+02.51	to	15+08.91	406.4
			Total 09P4:	1,620.8

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GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt concrete rumble strips will be constructed on the median shoulders. Rumble strips 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 6.9 miles of asphalt concrete rumble strips will be required.

Rumble strip installation will be completed prior to application of the flush seal and permanent pavement markings. A flush seal will be applied to the newly installed 12" rumble strips at a width of 18" and a rate of 0.10 gal./SqYd All costs associated with placing the flush seal will be incidental to the contract unit price per ton for "SS-1h or CSS-1h Asphalt for Flush Seal".

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline from Sta. 199+88 to Sta. 208+10. 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 0.2 miles of rumble stripes will be required.

Rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. A flush seal will be applied to the newly installed rumble stripes at a width of 24" and a rate of 0.10 gal./SqYd All costs associated with placing the flush seal will be incidental to the contract unit price per ton for "SS-1h or CSS-1h Asphalt for Flush Seal".

REMOVE TRAFFIC DIVERSION

Upon completion of the project the Median Crossover at MRM 5.00+0.808 will be removed. The asphalt concrete, granular material and pit run material will be disposed of by the Contractor as approved by the Engineer. All culverts and pipe end sections will become the property of the Contractor.

Cost for removing the asphalt concrete and granular material and removal of culverts and pipe end sections will be incidental to the contract lump sum price for "Remove Traffic Diversion(s)".

DROP INLETS

Drop Inlets were installed with temporary covers under a previous contract. Contractor will remove and dispose of the temporary covers installed on the drop inlets. All costs for removal and disposal of the covers will be incidental to the contract unit prices for the Type B Frames and Grates.

Under the previous contract, weep holes were drilled in the drop inlets for drainage during the period between grading and final surfacing. After the permanent surfacing has been placed, the Contractor will seal the weep holes with grout and remove all debris from the drop inlet. All costs involved with sealing the weep holes and removing debris from the drop inlets will be incidental to the contract unit prices for the Type B Frames and Grates.

TABLE OF DROP INLETS AND QUANTITIES

Station	L / R	Drop Inlet Size	Drop Inlet Type	Precast Drop Inlet Collar (Each)	Frame and Grate/Lid Type
64+75	L	2'x3'	B	1	B
64+90	L	2'x3'	B	1	B
			Totals:	2	

Total Type B Frame and Grate 2

TABLE OF TYPE F68 CONCRETE CURB AND GUTTER

Station	to	Station	L/R	Quantity (Ft)
60+47.54		65+00.00	L	449.7
			Total:	449.7

CONSTRUCTION STAKING DATA

Construction staking data from the grading and in-place interim surfacing project, NH-B 0081(103)06, PCN 04G5, can be obtained from the Yankton Area office.

The Contractor must request this information from the Yankton Area Engineer at least two weeks prior to beginning staking work.

TABLE OF DOWEL BARS

Location	12 Bar Assembly Dowel Bar (Size 1 ¼") Each
Sta. 10+05 to Sta. 82+98.57 NB	14,417
Sta. 10+05 to Sta. 83+22.15 SB	14,793
Sta. 84+52.26 to Sta. 192+53.80 NB	21,906
Sta. 84+75.84 to Sta. 192+53.80 SB	21,920
Total:	73,036

TABLE OF ADDITIONAL QUANTITIES 07V2

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Location	Contractor Furnished Borrrow CuYd	Water For Granular Material Mgal	Base Course or Base Course, Salvaged Ton	Base Course Ton	Asphalt Concrete Composite Ton	MC-70 Asphalt For Prime Ton	Blotting Sand For Prime Ton	PG 58-34 Asphalt Binder Ton	Class HR Asphalt Concrete Ton	SS-1h OR CSS-1h Asphalt For Tack Ton	SS-1h OR CSS-1h Asphalt For Flush Seal Ton	Sand For Flush Seal Ton
Mainline Shoulders												
Sta. a114+02 to Sta. a115+20 SB								0.5	14.5			
Sta. 124+63.79 to Sta. 129+47.57 NB		0.6	49.4									
Sta. 131+87.63 to Sta. 132+03.57 NB		0.0	1.6									
Sta. 181+34.93 to Sta. 183+32.80 NB		0.2	20.2									
Sta. 186+36.25 to Sta. 186+54.85 NB		0.0	1.9									
Sta. 129+82.57 to Sta. 130+00.68 SB		0.0	1.8									
Sta. 132+85.39 to Sta. 134+89.57 SB		0.3	20.9									
Sta. 184+07.93 to Sta. 184+25.62 SB		0.0	1.8									
Sta. 186+74.71 to Sta. 191+61.85 SB		0.6	49.8									
Sta. 191+61.85 to Sta. 192+53.80 SB		0.2	15.6			0.1		0.3	8.1			
Sta. 199+88.00 to Sta. 208+10.00 NB & SB		11.0	916.3			7.1	16.5	51.6	1,475.4	2.8	1.2	13.1
Misc. Areas												
(11) Intersecting Roads, Gravel to ROW		5.7		472.9								
(4) Intersecting Roads, AC Beyond ROW		5.0	420.0			3.1	13.2	15.4	439.6	0.7	0.6	10.6
(3) Farm and Field Entrances AC to Radius		0.7	55.0			0.9	1.0	4.3	122.4	0.2	0.2	0.8
(58) Farm and Field Entrances Gravel to ROW		13.9		1,160.0								
(11) Public Median Crossovers – AC		10.8	901.2			5.1	21.5	25.0	714.1	1.1	0.9	17.2
Guardrail Embankment Areas	393	4.4	366.0			1.4		5.0	130.0	0.3	0.2	
Temporary Widening for Traffic Control	636	8.9		744.0	370.0							
TOTALS:	1,029	62.3	2,821.5	2,376.9	370.0	17.7	52.2	102.1	2,904.1	5.1	3.1	41.7

TABLE OF QUANTITIES 09P4

Location	Water For Granular Material Mgal	Base Course Ton	PG 58-34 Asphalt Binder Ton	Class HR Asphalt Concrete Ton	SS-1h OR CSS-1h Asphalt For Tack Ton	SS-1h OR CSS-1h Asphalt For Flush Seal Ton
Mainline Shoulders						
Sta. 6+16.50 to Sta. 9+44.56 EB			1.4	40.4	0.1	0.1
Sta. 10+74.12 to Sta. 15+56.84 EB			2.1	59.4	0.2	0.1
Sta. 16+25.39 to Sta. 17+00.00 EB			0.3	9.2	0.0	0.0
Sta. 6+16.50 to sta. 15+08.91 WB			3.9	109.9	0.3	0.2
(3) Farm and Field Entrances Gravel to ROW	0.5	45.0				
Digouts	0.1	10.3				
TOTALS:	0.6	55.3	7.7	218.9	0.6	0.4

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TABLE OF PROJECT STATIONING 07V2

RATE	LANE	BEGIN STATION	END STATION	LENGTH (ft)
1	NB	a 114+02.00	a 219+14.50	10512.50
	SB	a 115+20.00	a 219+14.50	10394.50
	NB	341+44.28	408+18.84	6674.56
	SB	341+44.28	408+18.84	6674.56
	NB	411+70.18	509+23.96	9753.78
	SB	411+70.18	509+23.96	9753.78
2 (Outside Shoulder)	NB	10+05.00	82+98.57	7293.57
	NB	84+52.26	192+53.80	10801.54
	SB	10+05.00	60+47.54	5042.54
	SB	65+00.00	83+22.15	1822.15
	SB	84+75.84	192+53.80	10777.96
3 (Median Shoulder)	NB	10+05.00	16+50.00	645.00
	SB	10+05.00	16+50.00	645.00
4 (Median Shoulder)	NB	31+50.00	82+98.57	5148.57
	NB	84+52.26	124+63.79	4011.53
	NB	132+03.57	181+34.93	4931.36
	NB	186+54.85	192+53.80	598.95
	SB	31+50.00	83+22.15	5172.15
	SB	84+75.84	129+82.57	4506.73
	SB	134+89.57	184+07.93	4918.36
5	NB	192+53.80	199+88.00	734.20
	SB	192+53.80	199+88.00	734.20

TABLE OF MATERIAL QUANTITIES 07V2

07V2 Mainline US81	Water for Granular Material (MGAL)	Base Course (Ton)	Base Course or Base Course, Salvaged (Ton)	Gravel Cushion (Ton)	PG 58-34 Binder (Ton)	Class HR Asphalt Concrete (Ton)	MC-70 Asphalt for Prime (Ton)	SS-1h or CSS-1h Asphalt for Tack (Ton)	SS-1h or CSS-1h Asphalt for Flush Seal (Ton)	Blotting Sand for Prime (Ton)	Sand for Flush Seal (Ton)
Rate 1					234.3	6,618.7		18.3	9.2		
Rate 2	83.9		7,012.1		155.1	4,467.3	39.9	8.1	6.0		
Rate 3	2.4		207.4		4.0	113.4	1.2	0.2	0.2		
Rate 4	59.3		4,959.0		88.8	2,573.6	24.9	5.0	4.0		
Rate 5 Bottom Lift	13.8		1,157.6		28.8	811.2	8.2	1.6		19.4	
Rate 5 Top Lift					29.0	828.8		1.6	1.4		15.6
Table of Additional Quantities	62.3	2,376.9	2,821.5		102.1	2,904.1	17.7	5.1	3.1	52.2	41.7
Unclassified Excavation, Digouts Note	3.1	255.0									
Shoulder Preparation Note	1.8	150.0					5.0				
Shoulder Shaping Note	75.0										
Construction Haul Road Note	90.0			7,500.0							
Water for Granular Material Note	187.5										
Blotting Sand for Prime Note										10.0	
TOTAL	579.1	2,781.9	16,157.6	7,500.0	642.1	18,317.1	96.9	39.9	23.9	81.6	57.3

TABLE OF GUARDRAIL

Location	Remove W Beam Guardrail End Terminal (Each)	Remove Beam Guardrail (Ft)	Remove Type 1 MGS For Reset (Ft)	Remove Type 1 Guardrail Transition for Reset (Each)	Remove MGS MASH Tangent End Terminal for Reset (Each)	Reset Type 1 MGS (Ft)	Reset Type 1 Guardrail Transition (Each)	Reset MGS MASH Tangent End Terminal (Each)	Type 1 MGS (Ft)	Type 1 Retrofit Guardrail Transition (Each)	Type 3 Guardrail Transition (Each)	MGS MASH Tangent End Terminal (Each)
Structure No. 68-120-077 (James River)												
Begin Bridge Lt.	1	43.75							37.5		1	1
Begin Bridge Rt.	1	131.25							150.0		1	1
End Bridge Lt.	1	131.25							150.0	1		1
End Bridge Rt.	1	43.75							50.0	1		1
Structure No. 68-121-139 (NB Beaver Crk)												
Begin Bridge Lt.			150.0	1	1	150.0	1	1				
Begin Bridge Rt.			150.0	1	1	150.0	1	1				
Structure No. 68-120-139 (SB Beaver Crk)												
Begin Bridge Lt.			150.0	1	1	150.0	1	1				
Begin Bridge Rt.			150.0	1	1	150.0	1	1				
Totals:	4	350.0	600.0	4	4	600.0	4	4	387.5	2	2	4

CONSTRUCTION STAKING

				Grade Staking				
Roadway and Description	Begin Station	End Station	`Number of Lanes	Length (ft)	Length (miles)	Lane Factor	Sets of Stakes	Construction Staking Quantity (Mile)
US Hwy 81 NB	10+05.00	16+50.00	2	645	0.122	1	1	0.122
US Hwy 81 SB	10+05.00	16+50.00	2	645	0.122	1	1	0.122
US Hwy 81	16+50.00	31+50.00	5	1500	0.284	1	1	0.284
US Hwy 81 NB	31+50.00	82+98.56	2	5149	0.975	1	1	0.975
US Hwy 81 SB	31+50.00	83+22.15	2	5172	0.980	1	1	0.980
NB Str # 68-121-139	82+98.56	84+52.26	---	---	---	---	---	---
SB Str # 68-120-139	83+22.14	84+75.84	---	---	---	---	---	---
US Hwy 81 NB	84+52.26	199+88.00	2	11536	2.185	1	1	2.185
US Hwy 81 SB	84+75.84	199+88.00	2	11512	2.180	1	1	2.180
US Hwy 81	199+88.00	208+10.00	2	822	0.156	1	1	0.156
							Totals:	7.004

LOCATION OF INTERSECTING ROADS AND ENTRANCES

PCN 07V2

INTERSECTING ROADS			ENTRANCES				
(Gravel to ROW/AC to Radius)	(Gravel beyond ROW/AC to Radius)	Asphalt beyond ROW	(Gravel to ROW)				(AC to Radius)
24' Intersecting Roads	24' Intersecting Roads	26' Intersecting Road	24' Entrances		30' Entrances	40' Entrances	24' Entrance
Sta. 130+91 Rt Sta. 431+11 Lt Sta. 431+11 Rt Sta. 448+21 Rt	Sta. 60+00 Lt Sta. 78+60 Lt	Sta. 130+91 Lt	Sta. a 128+65 Rt Sta. a 135+56 Lt Sta. a 139+04 Lt Sta. a 139+04 Rt Sta. a 160+33 Lt Sta. a 163+83 Lt Sta. a 163+83 Rt	Sta. 56+46 Rt Sta. 78+60 Rt Sta. 90+86 Lt Sta. 107+00 Lt Sta. 140+53 Lt Sta. 198+54 Lt Sta. 198+54 Rt	Sta. 457+90 Lt Sta. 457+90 Rt Sta. 472+12 Lt	Sta. 38+27 Lt Sta. 38+29 Rt Sta. 51+54 Rt Sta. 91+00 Rt Sta. 106+61 Rt Sta. 140+53 Rt Sta. 150+39 Rt	Sta. a 173+54 Lt
28' Intersecting Roads	28' Intersecting Road	28' Intersecting Roads	Sta. a 167+93 Lt Sta. a 173+54 Rt	Sta. 348+96 Lt Sta. 348+96 Rt		Sta. 163+00 Rt Sta. 498+83 Rt	40' Entrances
Sta. a 128+65 Lt Sta. a 181+54 Rt Sta. 25+11 Rt Sta. 185+30 Lt	Sta. 64+75 Rt	Sta. 25+15 Lt Sta. 185+30 Rt	Sta. a 181+54 Lt Sta. a 183+43 Lt Sta. a 185+01 Lt Sta. a 187+24 Rt Sta. a 187+40 Lt Sta. a 196+96 Lt Sta. a 207+90 Lt Sta. a 213+82 Lt	Sta. 355+18 Rt Sta. 360+88 Lt Sta. 363+08 Rt Sta. 384+18 Rt Sta. 394+51 Lt Sta. 394+54 Rt Sta. 406+63 Lt Sta. 415+18 Lt			Sta. a 201+42 Lt Sta. a 204+56 Lt
		40' Intersecting Road	Sta. a 213+82 Rt	Sta. 421+18 Lt			
		Sta. 150+39 Lt	Sta. 13+73 Lt Sta. 18+40 Lt Sta. 43+26 Lt Sta. 51+54 Lt Sta. 53+24 Rt	Sta. 466+64 Lt Sta. 485+61 Rt Sta. 497+61 Rt XR131 Sta. 0+92 Lt XR185 Sta. 5+30 Lt			

PCN 09P4

ENTRANCES
(Gravel to ROW)
24' Entrances
Sta. 6+78 Rt Sta. 10+78 Lt Sta. 11+95 Lt

IN PLACE TYPICAL SECTIONS

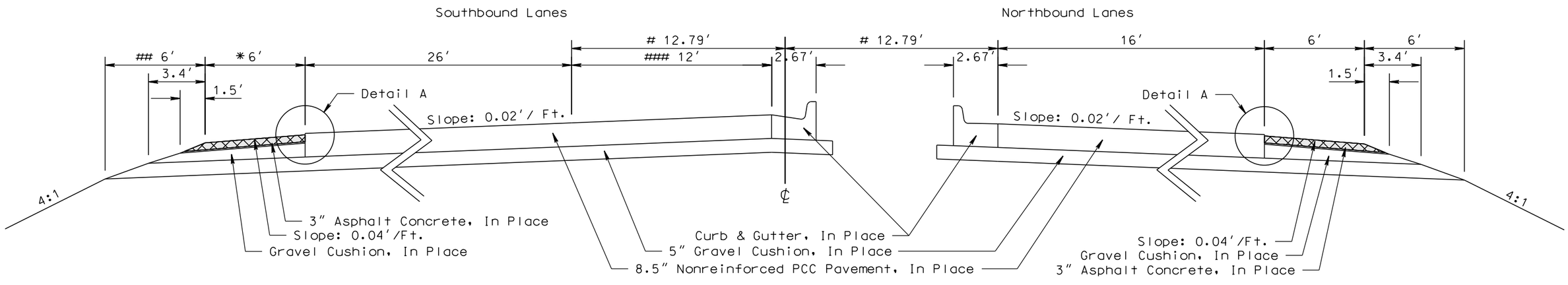
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F14	F77

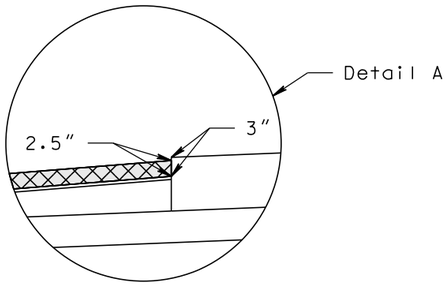
Plotting Date: 09/12/2024

Cold Milling Asphalt Concrete

MAINLINE US 81

Sta. a 114+02 to Sta. a 120+61
In Place Section Showing Material to be Removed





Transitions:

Sta. a 114+02 to Sta. a 114+11.90
12.67′ to 12.79′
8.67′ to 8.45′

Sta. a 114+11.90 to Sta. a 120+61
12.79′ to 20.33′
5′ to 6′

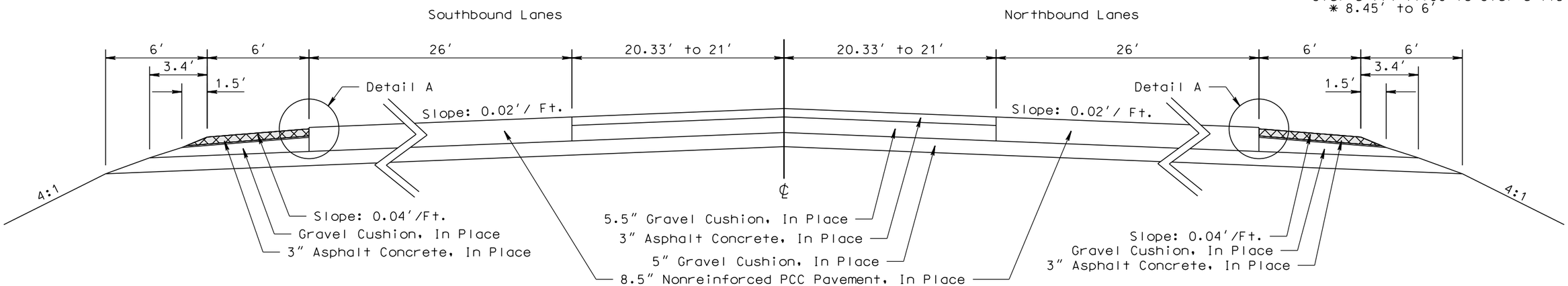
Sta. a 118+33 to Sta. a 119+54.10
12′ to 0′

Sta. a 119+54.10 to Sta. a 120+61
0′

Sta. a 114+11.90 to Sta. a 115+20
* 8.45′ to 6′

MAINLINE US 81

Sta. a 120+61 to Sta. a 121+18
In Place Section Showing Material to be Removed



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 2

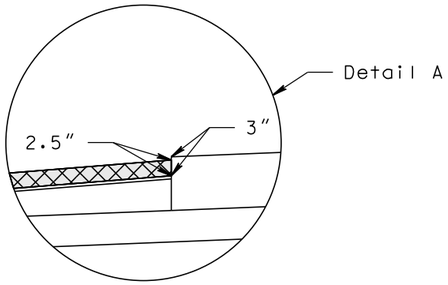
FILE - ...\07V2_TYPICAL SECTIONS.DGN

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F15	F77

Plotting Date: 09/12/2024

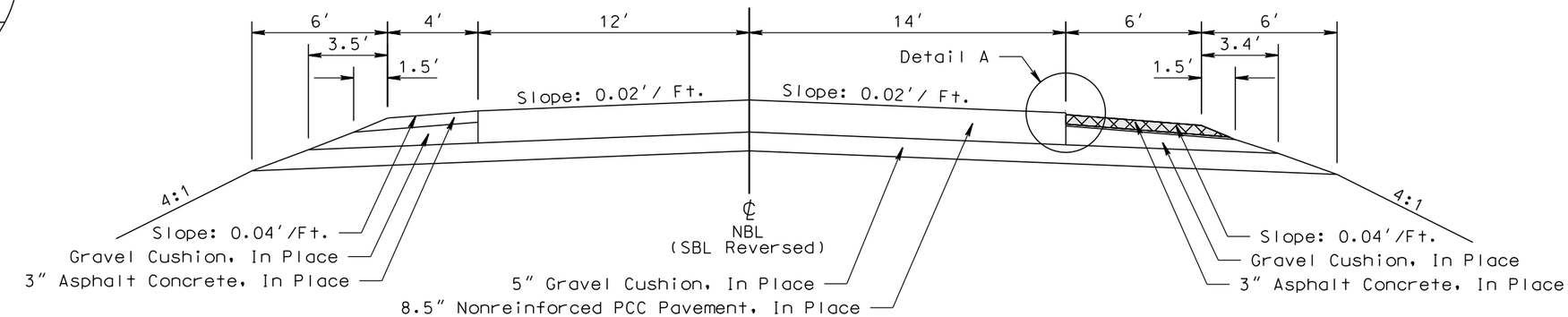
Cold Milling Asphalt Concrete



MAINLINE US 81

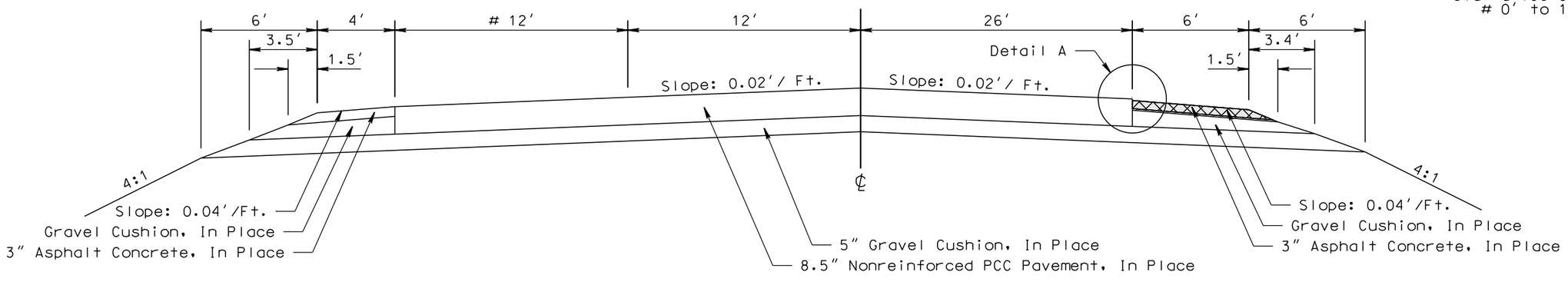
NORTHBOUND LANES
Sta. a 121+18 to Sta. a 186+96
Sta. a 204+77 to Sta. a 219+14.50

SOUTHBOUND LANES
Sta. a 121+18 to a 219+14.50
In Place Section Showing Material to be Removed



MAINLINE US 81

NORTHBOUND LANES
Sta. a 186+96 to Sta. a 204+77
In Place Section Showing Material to be Removed



Transition:

Sta. a 186+96 to Sta. a 190+76
0' to 12'

PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 3

FILE - ...\07V2_TYPICAL SECTIONS.DGN

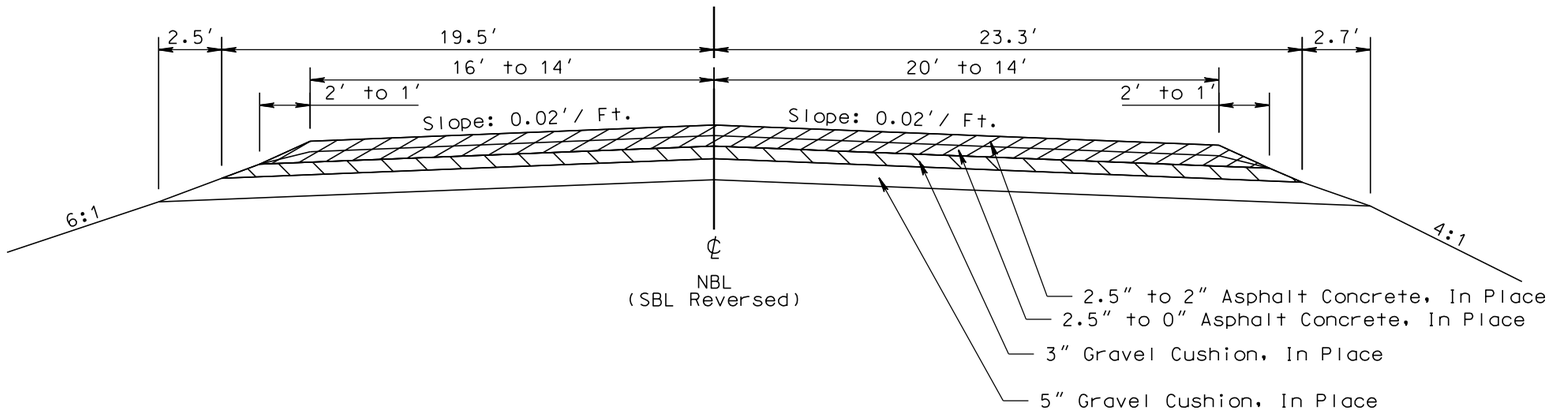
IN PLACE TYPICAL SECTIONS

Salvage Asphalt Concrete Pavement

Salvage and Stockpile Granular Base Material

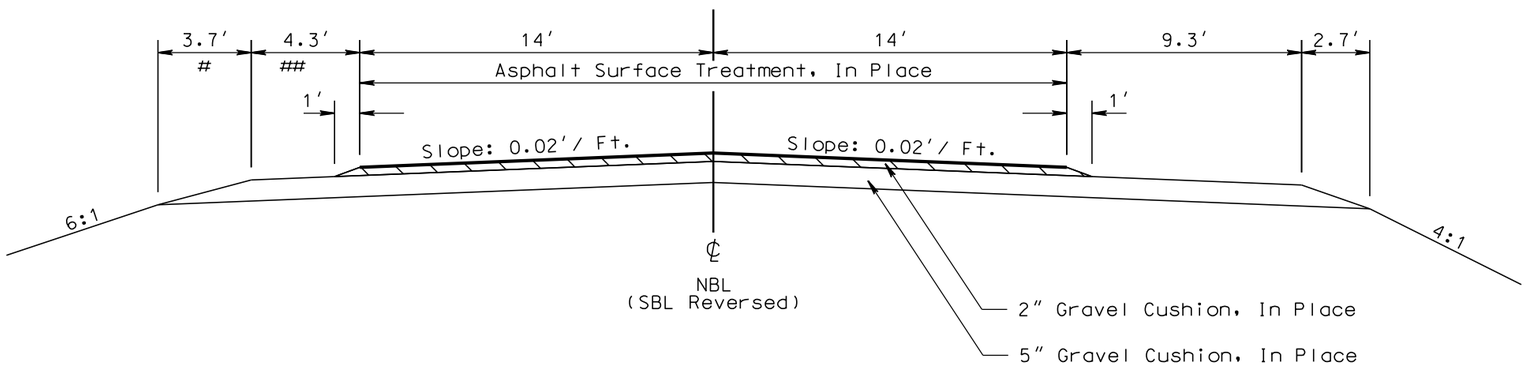
MAINLINE US 81

Sta. 10+05 to Sta. 12+45 NB & SB
In Place Section Showing Material to be Removed



MAINLINE US 81

Sta. 12+40 to Sta. 16+50 NB & SB - # 2.5′ ## 3.5′
Sta. 31+50 to Sta. 78+56.49 NB
Sta. 31+50 to Sta. 79+80 SB
Sta. 87+94.33 to Sta. 199+88 NB
Sta. 89+17.84 to Sta. 199+88 SB
In Place Section Showing Material to be Removed



IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F17	F77

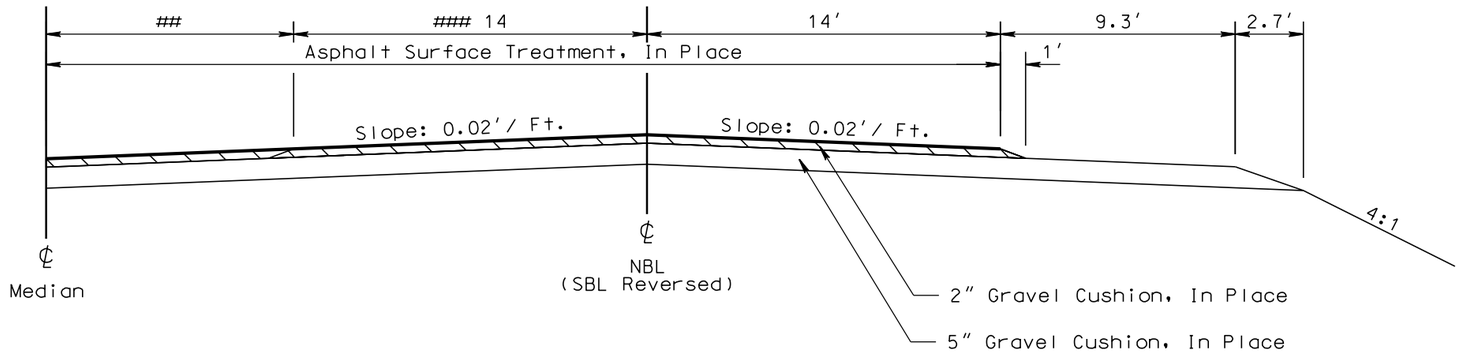
Plotting Date: 09/12/2024

Salvage Asphalt Concrete Pavement

Salvage and Stockpile Granular Base Material

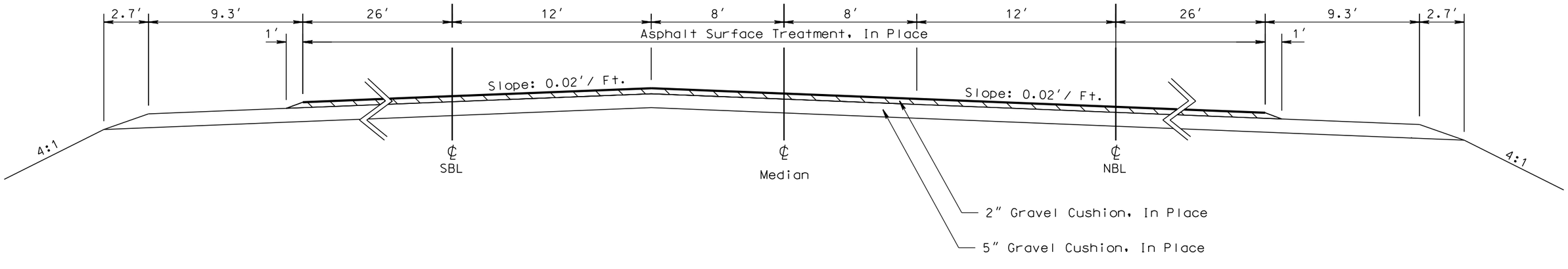
MAINLINE US 81

Sta. 16+50 to Sta. 19+15 NB & SB - ## 11.8′ to 8′
Sta. 29+00 to Sta. 31+50 NB & SB - ## 8′ to 10′
Sta. 199+88 to Sta. 201+82 NB & SB - ## 8.8′ to 0′
Sta. 201+82 to Sta. 205+70 NB & SB - #### 14′ to 0′
In Place Section Showing Material to be Removed



MAINLINE US 81

Sta. 19+15 to Sta. 29+00
In Place Section Showing Material to be Removed



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 5

FILE - ...\07V2_TYPICAL SECTIONS.DGN

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F18	F77

Plotting Date: 09/12/2024

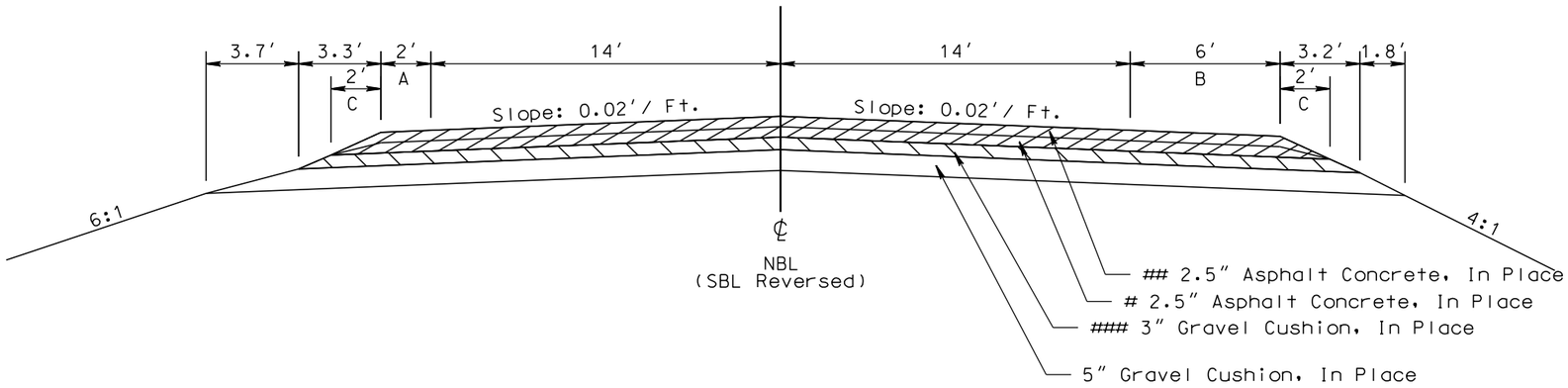
Salvage Asphalt Concrete Pavement

Salvage and Stockpile Granular Base Material

MAINLINE US 81

Sta. 78+56.49 to Sta. 82+98.57 NB
Sta. 79+80 to Sta. 83+22.15 SB
Sta. 84+52.26 to Sta. 87+94.33 NB
Sta. 84+75.84 to Sta. 89+17.84 SB
In Place Section Showing Material to be Removed

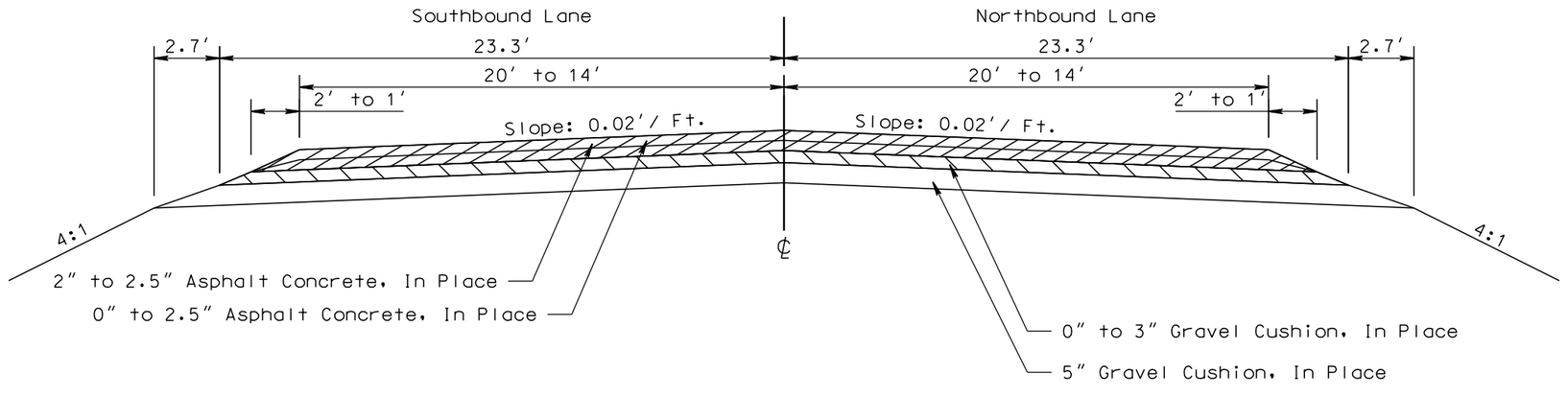
Bridges & Approach Slabs:
Sta. 82+98.57 to Sta. 84+52.26 NB
Sta. 83+22.15 to Sta. 84+75.84 SB



Station to Station	A	B	C	#	##	###
78+56.49 to 80+56.49 NB	0′ to 2′	0′ to 6′	1′ to 2′	0″ to 2.5″	2″ to 2.5″	0″ to 3″
79+80 to 81+80 SB	0′ to 2′	0′ to 6′	1′ to 2′	0″ to 2.5″	2″ to 2.5″	0″ to 3″
85+94.33 to 87+94.33 NB	2′ to 0′	6′ to 0′	2′ to 1′	2.5″ to 0″	2.5″ to 2″	3″ to 0″
87+17.84 to 89+17.84 SB	2′ to 0′	6′ to 0′	2′ to 1′	2.5″ to 0″	2.5″ to 2″	3″ to 0″

MAINLINE US 81

Sta. 205+70 to Sta. 208+10
In Place Section Showing Material to be Removed



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 6

FILE - ...\07V2_TYPICAL SECTIONS.DGN

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F19	F77

Plotting Date: 09/12/2024

PLOT SCALE - 1:6.00001

PLOT NAME - 7

FILE -...\07V2_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRPR19388A

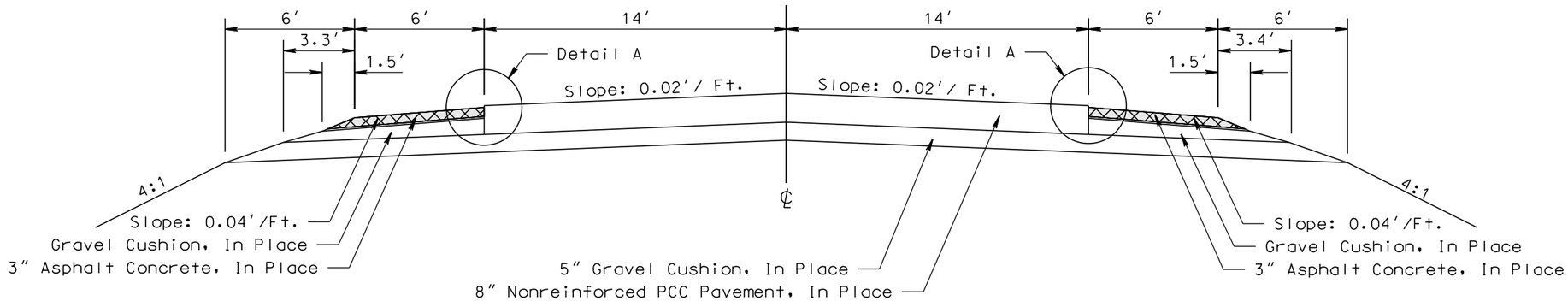
Cold Milling Asphalt Concrete

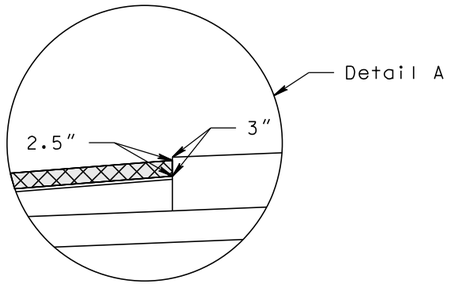
MAINLINE US 81

Sta. 341+44.28 to Sta. 408+18.84
Sta. 411+70.18 to Sta. 494+93.26
In Place Section Showing Material to be Removed

Bridge & Approach Slabs:

Sta. 408+18.84 to Sta. 411+70.18





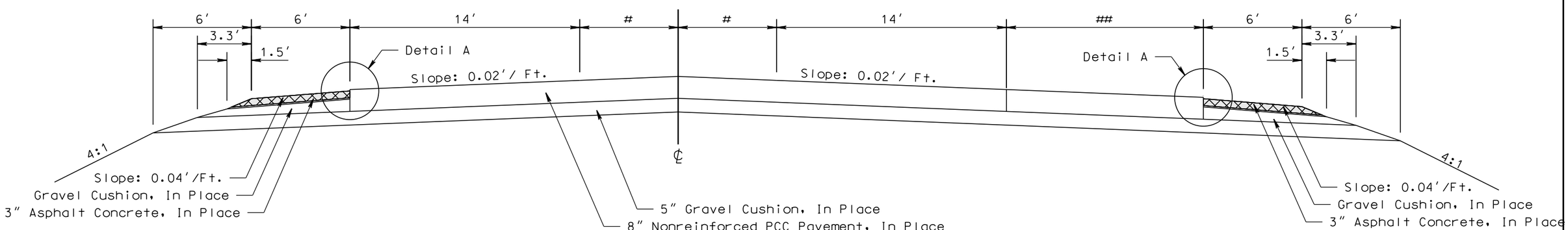
MAINLINE US 81

Sta. 494+93.26 to Sta. 509+23.96
In Place Section Showing Material to be Removed

Transitions:

\# Sta. 494+93.26 to Sta. 499+33.26 - 0′ to 6′
Sta. 499+33.26 to Sta. 502+13.96 - 6′
Sta. 502+13.96 to Sta. 505+43.96 - 6′ to 0′
Sta. 505+43.96 to Sta. 509+23.96 - 0′

\## Sta. 494+93.26 to Sta. 497+28.26 - 0′
Sta. 497+28.26 to Sta. 498+53.26 - 0′ to 12′
Sta. 498+53.26 to Sta. 501+04.00 - 12′
Sta. 501+04.00 to Sta. 509+23.96 - 0′

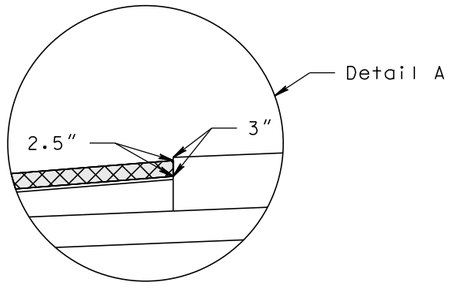


IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F20	F77

Plotting Date: 09/12/2024

Cold Milling Asphalt Concrete



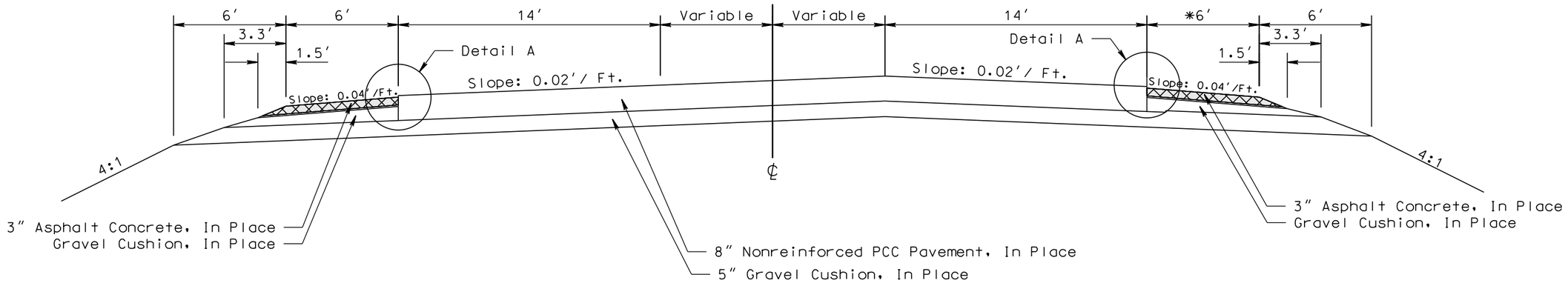
MAINLINE SD 46 - PCN 09P4

Sta. 6+16.5 to Sta. 17+00.0
In Place Section Showing Material to be Removed

Transitions:

Sta. 9+77.11 to Sta. 15+10.9
* 8'

Sta. 15+10.9 to Sta. 15+74.6
* 8' to 6'



PLOT SCALE - 1:6.00001

PLOT NAME - 8

FILE -...\07V2_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRPR183089A

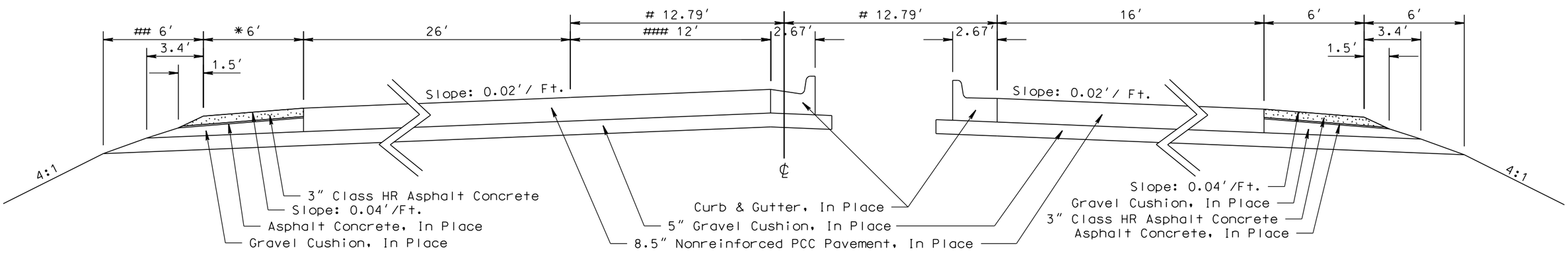
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F21	F77

Plotting Date: 09/12/2024

MAINLINE US 81

Sta. a 114+02 to Sta. a 120+61
Surfacing Section



Transitions:

Sta. a 114+02 to Sta. a 114+11.90
12.67′ to 12.79′
8.67′ to 8.45′

Sta. a 114+11.90 to Sta. a 120+61
12.79′ to 20.33′
5′ to 6′

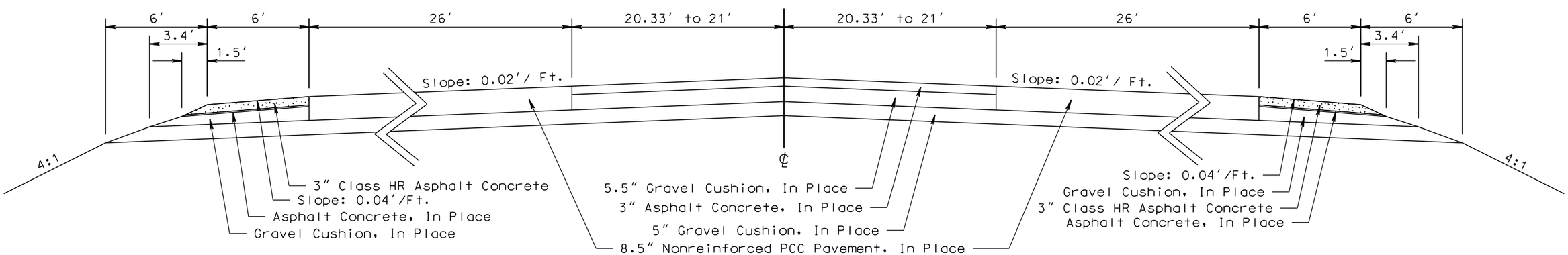
Sta. a 118+33 to Sta. a 119+54.10
12′ to 0′

Sta. a 119+54.10 to Sta. a 120+61
0′

Sta. a 114+11.90 to Sta. a 115+20
* 8.45′ to 6′

MAINLINE US 81

Sta. a 120+61 to Sta. a 121+18
Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 9

FILE - ...\07V2_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

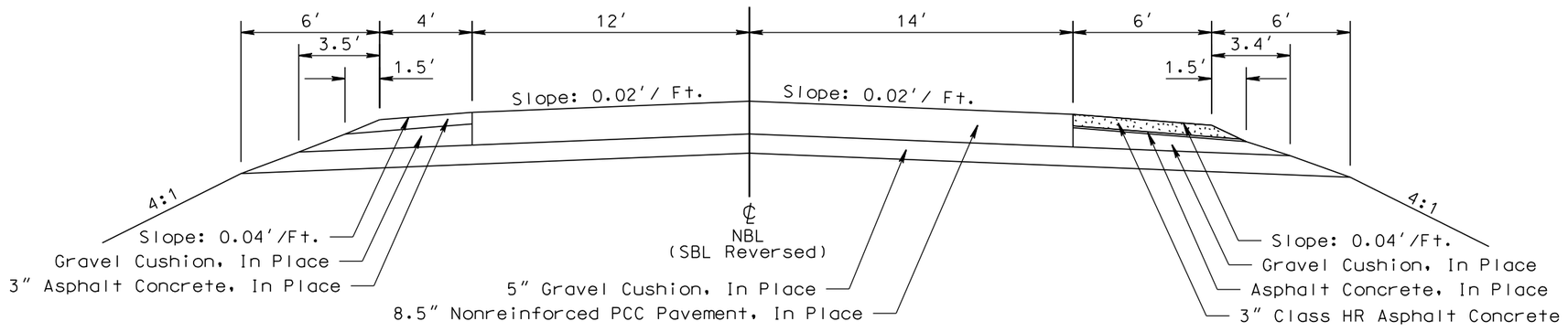
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F22	F77

Plotting Date: 09/12/2024

MAINLINE US 81

NORTHBOUND LANES
Sta. a 121+18 to Sta. a 186+96
Sta. a 204+77 to Sta. a 219+14.50

SOUTHBOUND LANES
Sta. a 121+18 to a 219+14.50
Surfacing Section

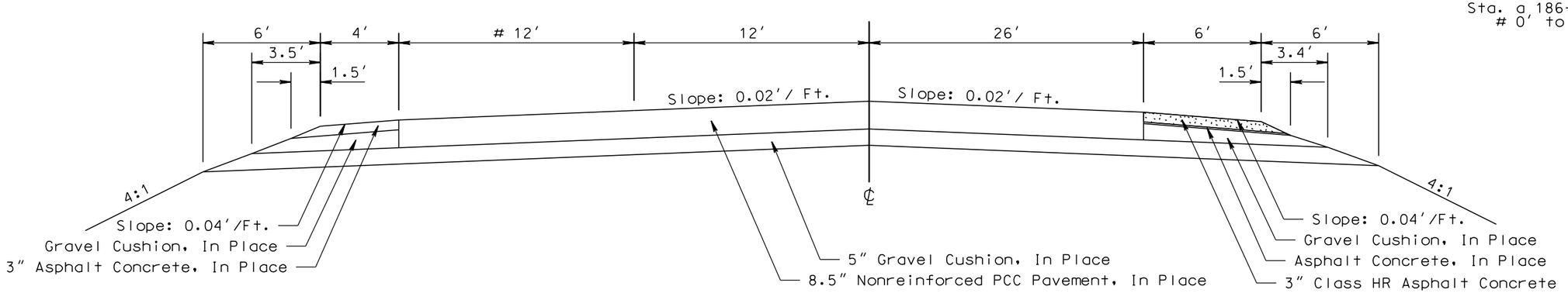


MAINLINE US 81

NORTHBOUND LANES
Sta. a 186+96 to Sta. a 204+77
Surfacing Section

Transition:

Sta. a 186+96 to Sta. a 190+76
0′ to 12′



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 10

FILE - ...\07V2_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

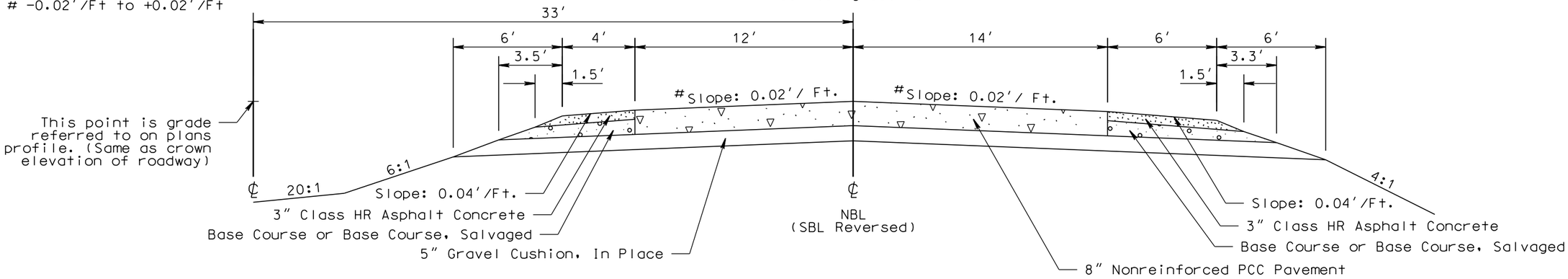
Slope Transitions:

Sta. 15+00.00 to Sta. 16+39.68 NB
+0.02'/Ft to -0.02'/Ft

Sta. 15+00.00 to Sta. 16+39.68 SB
-0.02'/Ft to +0.02'/Ft

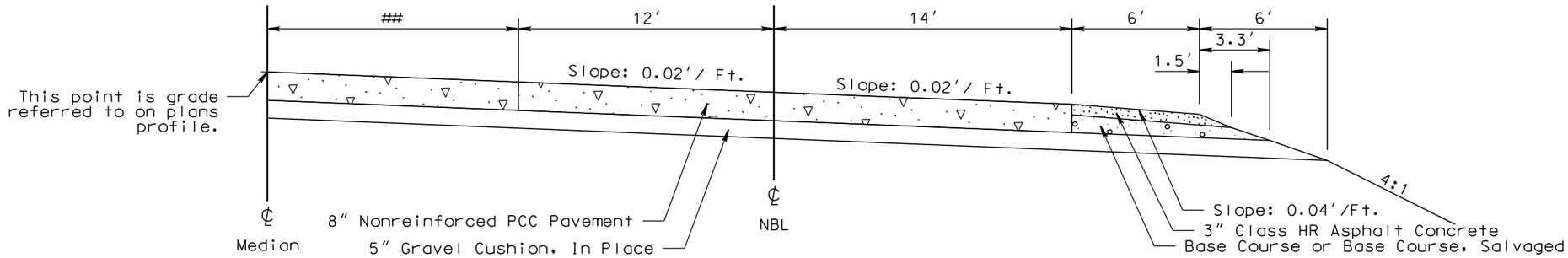
MAINLINE US 81

Sta. 10+05 to Sta. 16+50 NB & SB
Surfacing Section



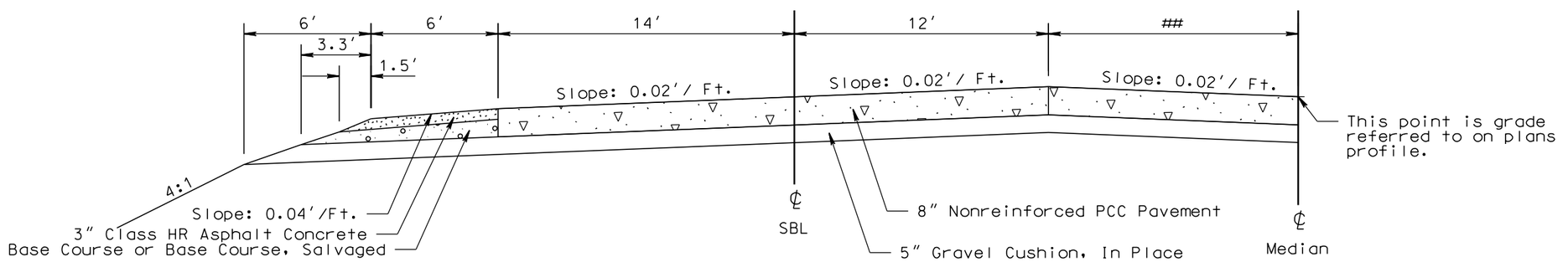
MAINLINE US 81

Sta. 16+50 to Sta. 19+15 NB - ## 11.8' to 8'
Sta. 29+00 to Sta. 31+50 NB - ## 8' to 10'
Surfacing Section



MAINLINE US 81

Sta. 16+50 to Sta. 19+15 SB - ## 11.8' to 8'
Sta. 29+00 to Sta. 31+50 SB - ## 8' to 10'
Surfacing Section



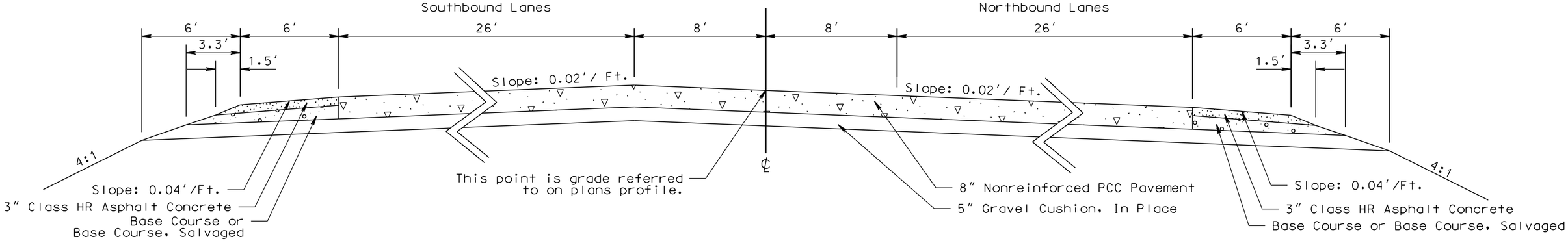
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F24	F77

Plotting Date: 09/12/2024

MAINLINE US 81

Sta. 19+15 to Sta. 29+00
Surfacing Section



Slope Transitions:

Sta. 128+34.47 to Sta. 129+50.00 SB
+0.02′/Ft to -0.02′/Ft

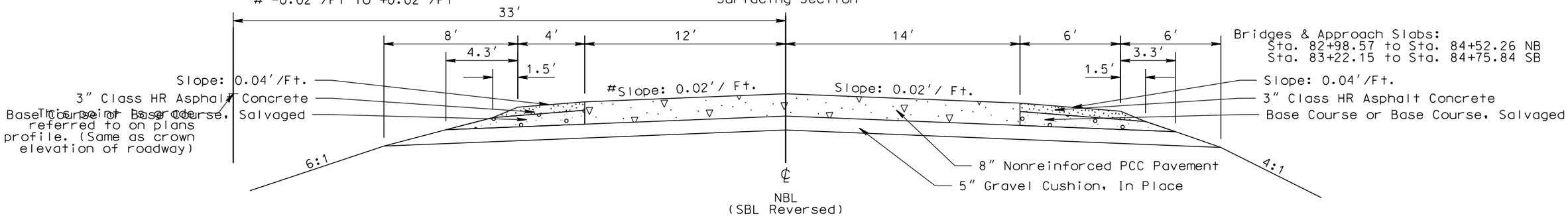
Sta. 132+86.00 to Sta. 134+00.00 NB
-0.02′/Ft to +0.02′/Ft

Sta. 182+00.00 to Sta. 183+32.80 SB
+0.02′/Ft to -0.02′/Ft

Sta. 186+71.49 to Sta. 188+00.00 NB
-0.02′/Ft to +0.02′/Ft

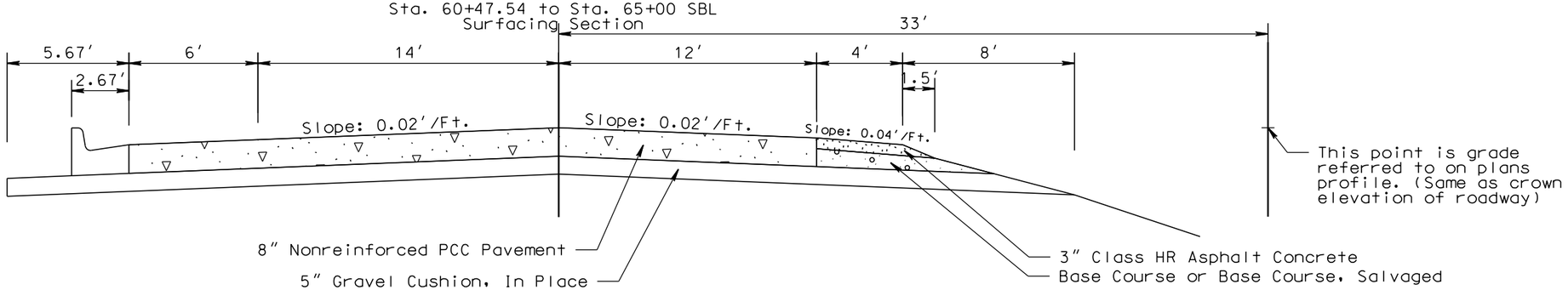
MAINLINE US 81

Sta. 31+50 to Sta. 82+98.57 NB
Sta. 31+50 to Sta. 60+47.54 SB
Sta. 65+00.00 to Sta. 83+22.15 SB
Sta. 84+52.26 to Sta. 124+63.79 NB
Sta. 84+75.84 to Sta. 129+82.57 SB
Sta. 132+03.57 to Sta. 181+34.93 NB
Sta. 134+89.57 to Sta. 184+07.93 SB
Sta. 186+54.85 to Sta. 192+53.80 NB
Sta. 191+61.85 to Sta. 192+53.80 SB
Surfacing Section



Mainline US 81

Sta. 60+47.54 to Sta. 65+00 SBL
Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 12

FILE - ...\07V2_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F25	F77

Plotting Date: 09/12/2024

Transitions:

Sta. 125+06.41 to Sta. 126+07.91 NB
* 4' to 14'

Sta. 126+07.91 to Sta. 127+69.55 NB
* 14'

Sta. 127+69.55 to Sta. 129+47.54 NB
* 14' to 30'

Sta. 131+87.63 to Sta. 132+03.57 NB
* 30' to 4'

Sta. 181+62.92 to Sta. 183+32.80 NB
* 4' to 30'

Sta. 186+36.25 to Sta. 186+54.85 NB
* 30' to 4'

Slope Transitions:

Sta. 128+00.00 to Sta. 129+47.54 NB
+0.02'/Ft to -0.02'/Ft

Sta. 132+85.39 to Sta. 134+00.00 SB
-0.02'/Ft to +0.02'/Ft

Sta. 182+00.00 to Sta. 183+32.80 NB
+0.02'/Ft to -0.02'/Ft

Sta. 186+74.71 to Sta. 188+00.00 SB
-0.02'/Ft to +0.02'/Ft

MAINLINE US 81

Sta. 124+63.79 to Sta. 129+47.54 NB
Sta. 131+87.63 to Sta. 132+03.57 NB
Sta. 129+82.57 to Sta. 130+00.68 SB
Sta. 132+85.39 to Sta. 134+89.57 SB
Sta. 181+34.93 to Sta. 183+32.80 NB
Sta. 186+36.25 to Sta. 186+54.85 NB
Sta. 184+07.93 to Sta. 184+25.62 SB
Sta. 186+74.71 to Sta. 191+61.85 SB
Surfacing Section

Transitions:

Sta. 129+82.57 to Sta. 130+00.68 SB
* 4' to 30'

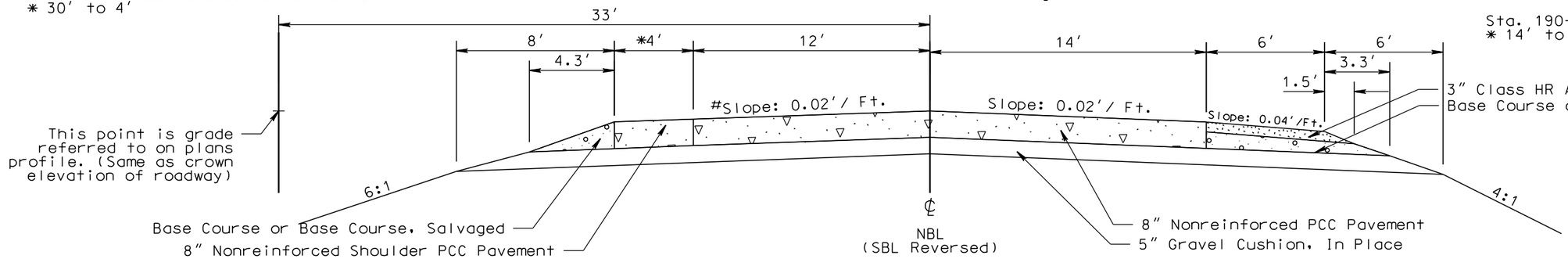
Sta. 132+85.39 to Sta. 134+52.31 SB
* 30' to 4'

Sta. 184+07.93 to Sta. 184+25.62 SB
* 4' to 30'

Sta. 186+74.71 to Sta. 188+52.70 SB
* 30' to 14'

Sta. 188+52.70 to Sta. 190+14.10 SB
* 14'

Sta. 190+14.10 to Sta. 191+14.10 SB
* 14' to 4'



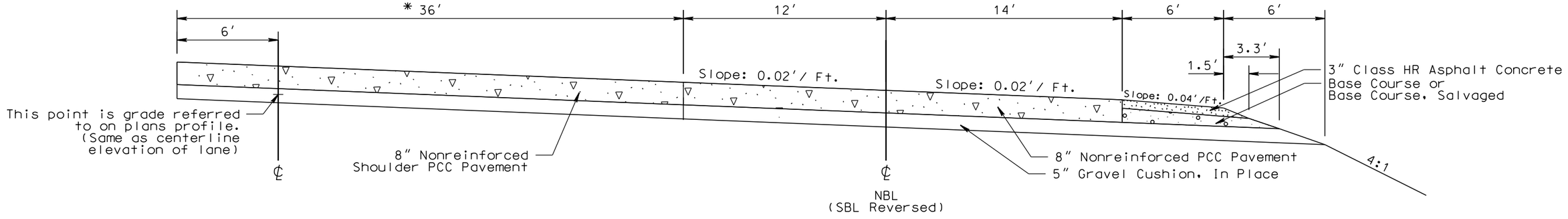
Transitions:

Sta. 129+47.57 to Sta. 129+77.94 NB
* 30' to 36'

Sta. 186+46.88 to Sta. 186+74.71 SB
* 36' to 30'

MAINLINE US 81

Sta. 129+47.54 to Sta. 131+87.63 NB
Sta. 184+25.62 to Sta. 186+74.71 SB
Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 13

FILE - ...\07V2_TYPICAL SECTIONS.DGN

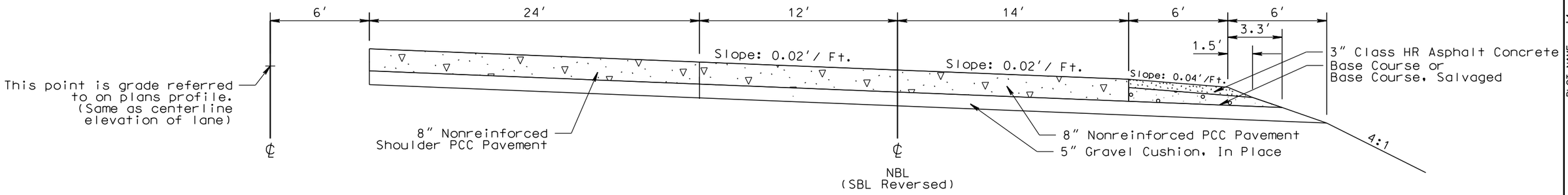
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F26	F77

Plotting Date: 09/13/2024

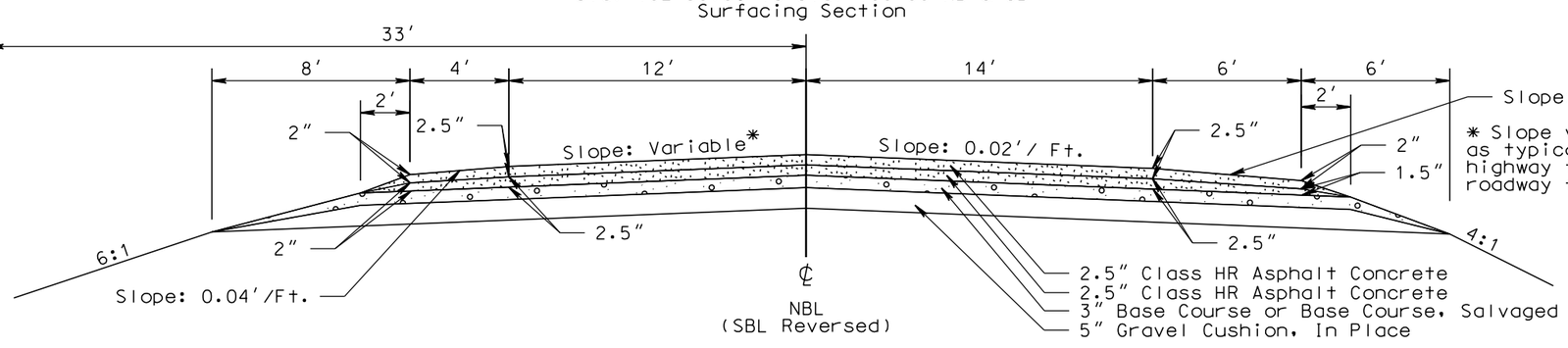
MAINLINE US 81

Sta. 130+00.68 to Sta. 132+85.39 SB
Sta. 183+32.80 to Sta. 186+36.25 NB
Surfacing Section



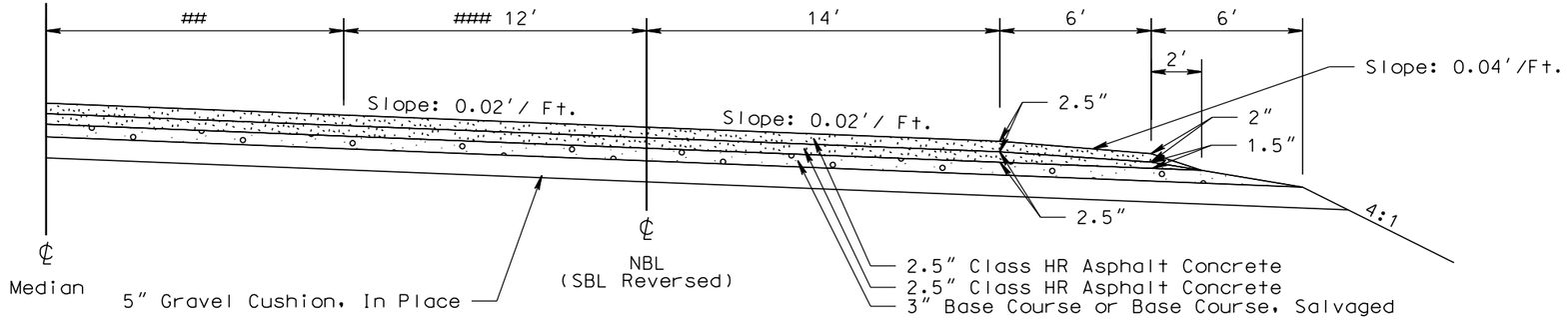
MAINLINE US 81

Sta. 192+53.80 to Sta. 199+88 NB & SB
Surfacing Section



MAINLINE US 81

Sta. 199+88 to Sta. 202+49.62 - ## 12.9' to 0' NB
Sta. 199+88 to Sta. 202+10.62 - ## 10.8' to 0' SB
Sta. 202+10.62 to Sta. 208+10 - #### 12' to 0' SB
Sta. 202+49.62 to Sta. 208+10 - #### 12' to 0' NB
Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR183898A

PLOT NAME - 14

FILE - ...\07V2_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F27	F77

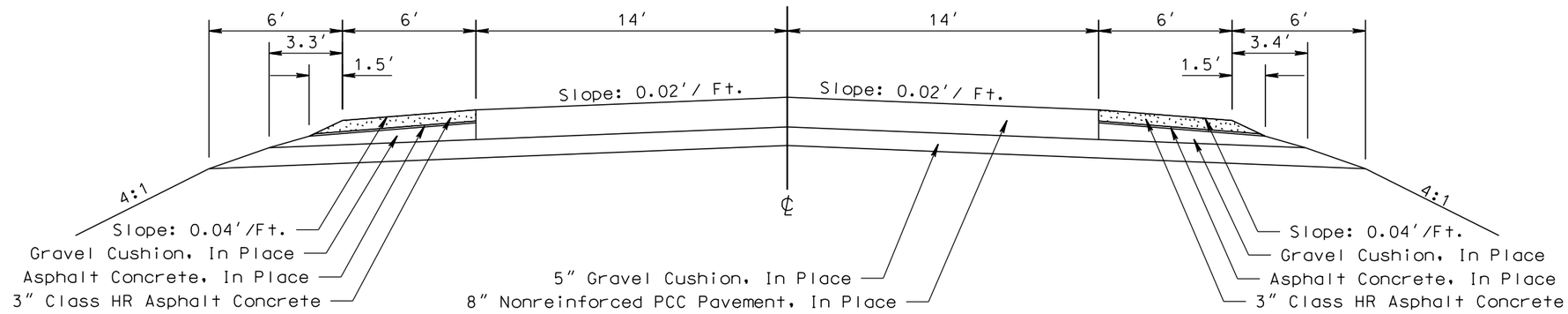
Plotting Date: 09/12/2024

MAINLINE US 81

Sta. 348+95.12 to Sta. 408+18.84
Sta. 411+70.18 to Sta. 494+93.26
Surfacing Section

Bridge & Approach Slabs:

Sta. 408+18.84 to Sta. 411+70.18



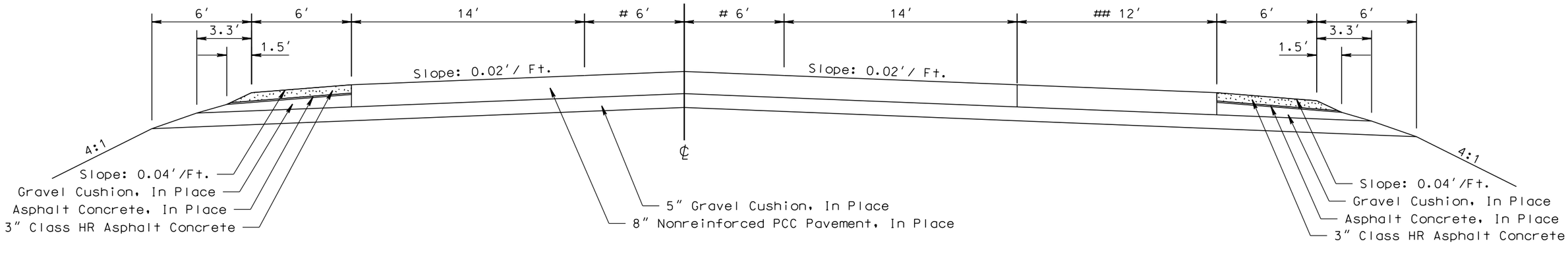
Transitions:

\# Sta. 494+93.26 to Sta. 499+33.26 - 0′ to 6′
Sta. 499+33.26 to Sta. 502+13.96 - 6′
Sta. 502+13.96 to Sta. 505+43.96 - 6′ to 0′
Sta. 505+43.96 to Sta. 509+23.96 - 0′

\## Sta. 494+93.26 to Sta. 497+28.26 - 0′
Sta. 497+28.26 to Sta. 498+53.26 - 0′ to 12′
Sta. 498+53.26 to Sta. 501+04.00 - 12′
Sta. 501+04.00 to Sta. 509+23.96 - 0′

MAINLINE US 81

Sta. 494+93.26 to Sta. 509+23.96
Surfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR18388A

PLOT NAME - 15

FILE ...\07V2_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F28	F77

Plotting Date: 09/12/2024

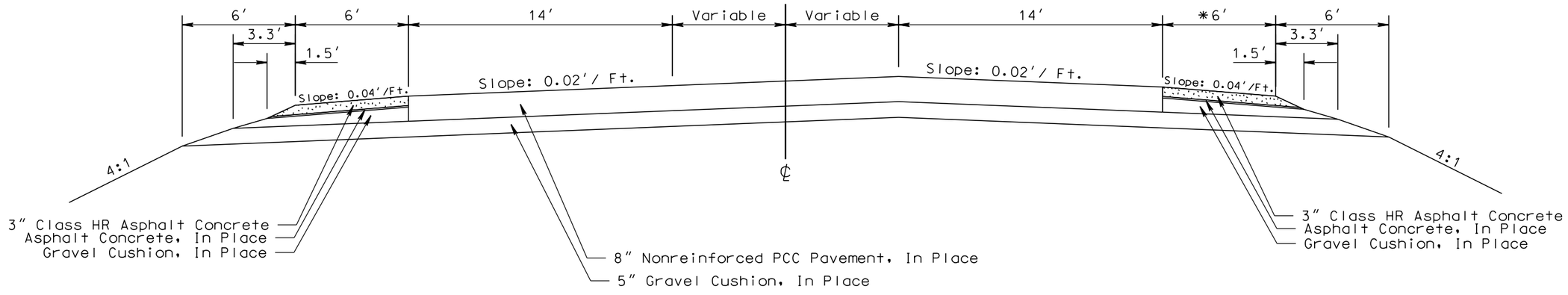
Transitions:

Sta. 9+77.11 to Sta. 15+10.9
* 8′

Sta. 15+10.9 to Sta. 15+74.6
* 8′ to 6′

MAINLINE SD 46 - PCN 09P4

Sta. 6+16.5 to Sta. 17+00.0
Surfacing Section



TYPICAL GRADING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F29	F77

Plotting Date: 09/12/2024

MAINLINE US 81

* Sta. 406+32.87 to Sta. 407+07.88 - 0' to 5'
* Sta. 407+07.88 to Sta. 407+17.88 - 5'
* Sta. 407+17.88 to Sta. 407+67.88 - 5' to 3.5'
* Sta. 407+67.88 to Sta. 408+40.78 - 3.5'
* Sta. 411+48.25 to Sta. 413+40.57 - 3.5'
* Sta. 413+40.57 to Sta. 413+90.58 - 3.5' to 5'
* 413+90.58 to Sta. 414+00.58 - 5'
* Sta. 414+00.58 to Sta. 414+75.56 - 5' to 0'

** Sta. 413+36.70 to Sta. 414+47.19

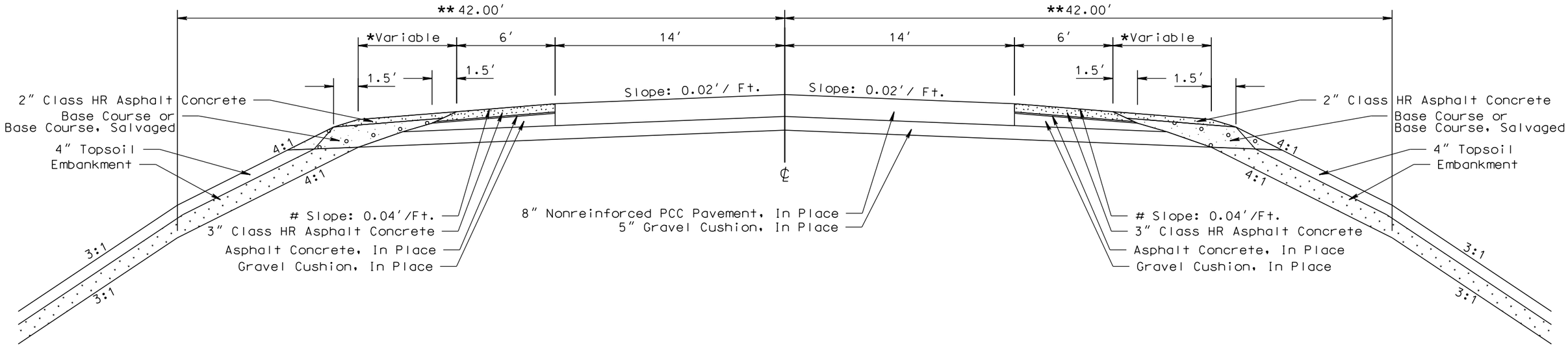
Bridge & Approach Slabs:
Sta. 408+18.84 to Sta. 411+70.18

Note:
Match cross slope to existing at bridge

MAINLINE US 81

* Sta. 405+19.30 to Sta. 405+95.35 - 0' to 5'
* Sta. 405+95.35 to Sta. 406+05.35 - 5'
* Sta. 406+05.35 to Sta. 406+55.35 - 5' to 3.5'
* Sta. 406+55.35 to Sta. 408+40.78 - 3.5'
* Sta. 411+48.25 to Sta. 412+20.67 - 3.5'
* Sta. 412+20.67 to Sta. 412+70.68 - 3.5' to 5'
* Sta. 412+70.68 to Sta. 412+80.68 - 5'
* Sta. 412+80.68 to Sta. 413+56.08 - 5' to 0'

** Sta. 405+20.85 to Sta. 406+60.11
** Sta. 412+16.98to Sta. 413+56.91



PLOT SCALE - 1:6.00001

PLOT NAME - 17

FILE - ...\07V2_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRPR19389A

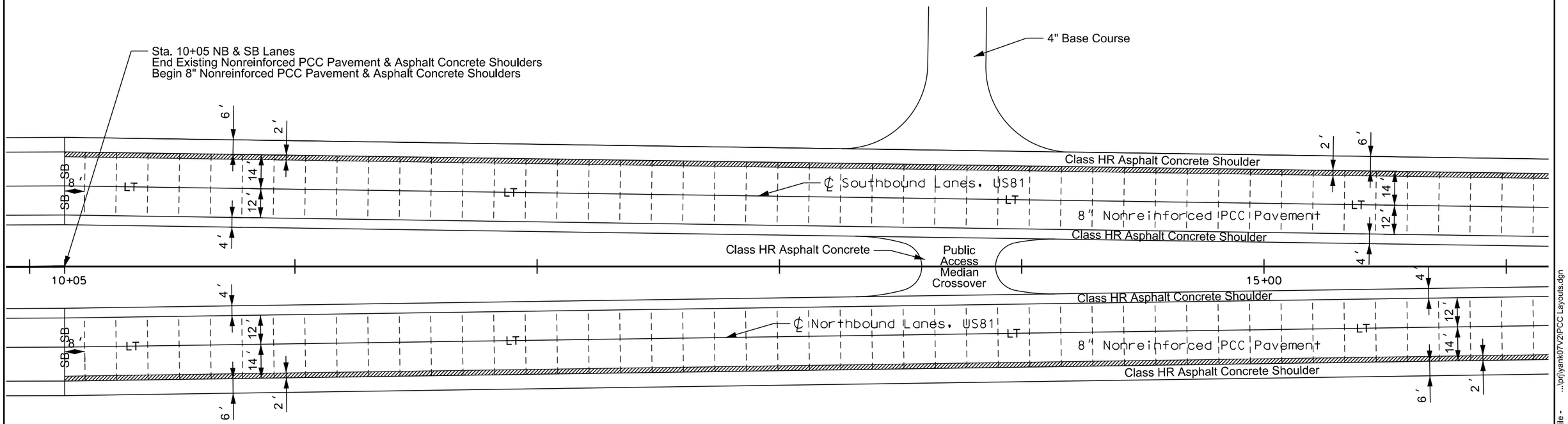
PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F30	F77

Plotting Date: 09/24/2024

REVISED 24 September, 2024 - BAH

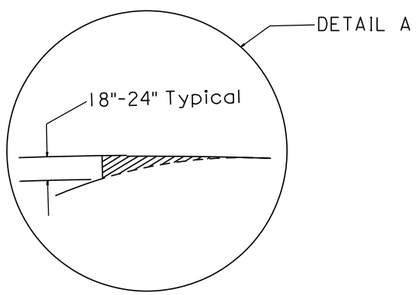
Scale 1 Inch = 40 Feet
Sheet 1 of 15 Sheets



LEGEND:

Longitudinal Joint Without Tie Bars (Construction or Sawed) ——— L ——— L ———
Longitudinal Joint With Tie Bars (Construction or Sawed) ——— LT ——— LT ———
Transverse Contraction Joint —
Steel Bar Installation in Longitudinal or Transverse Joint ——— SB ——— SB ———
Areas to be poured monolithically with adjacent slab ◓ (See Detail A)

Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.



Plot Scale - 1:40

Plotted From - TRPR18388A

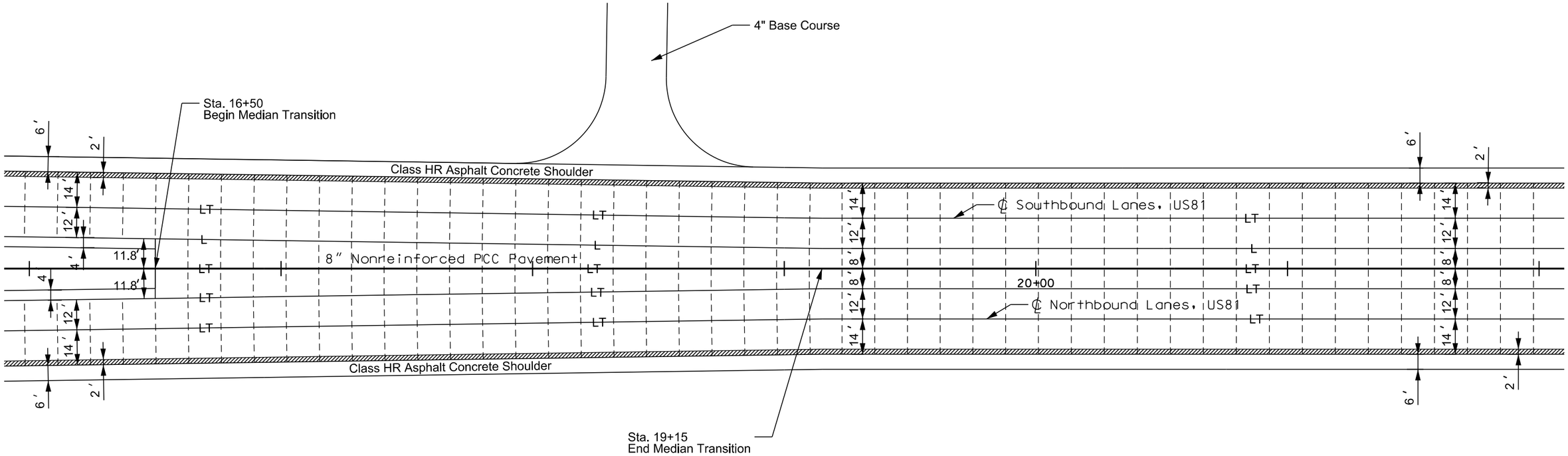
File - ...\prj\yank07\V2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 2 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F31	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\pn\yank07\V2\PCC Layouts.dgn

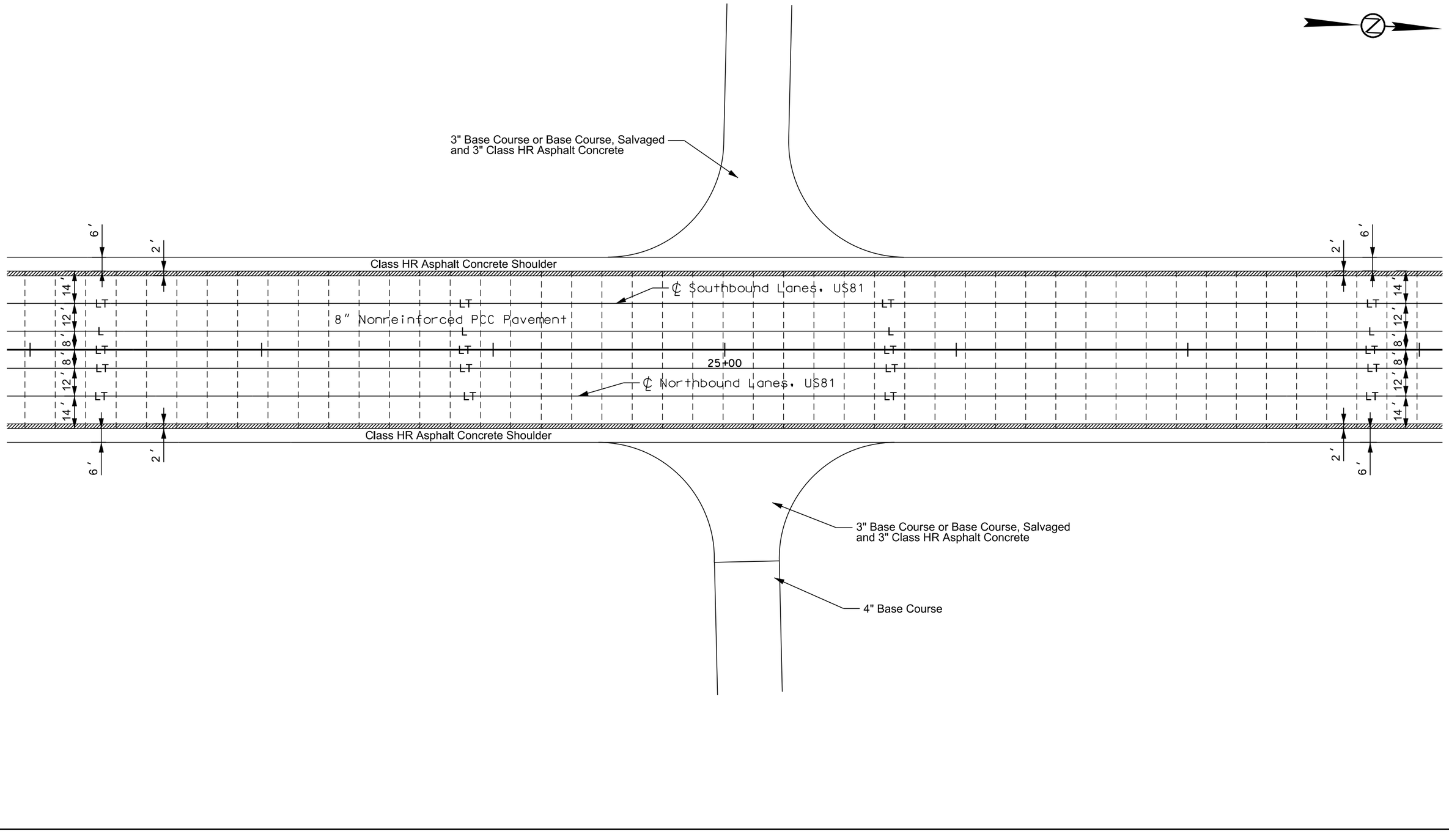
PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F32	F77

Plotting Date: 09/24/2024

REVISED 24 September, 2024 - BAH

Scale 1 Inch = 40 Feet
Sheet 3 of 15 Sheets



Plot Scale - 1:40

Plotted From - TRPR18388A

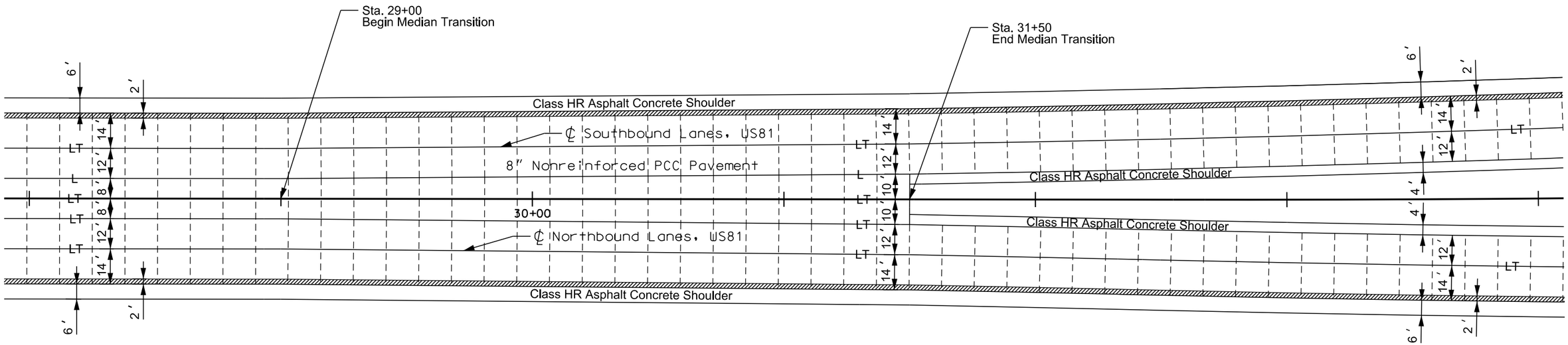
File - ...\prj\yank07\V2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 4 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F33	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\prj\yank07\V2\PCC Layouts.dgn

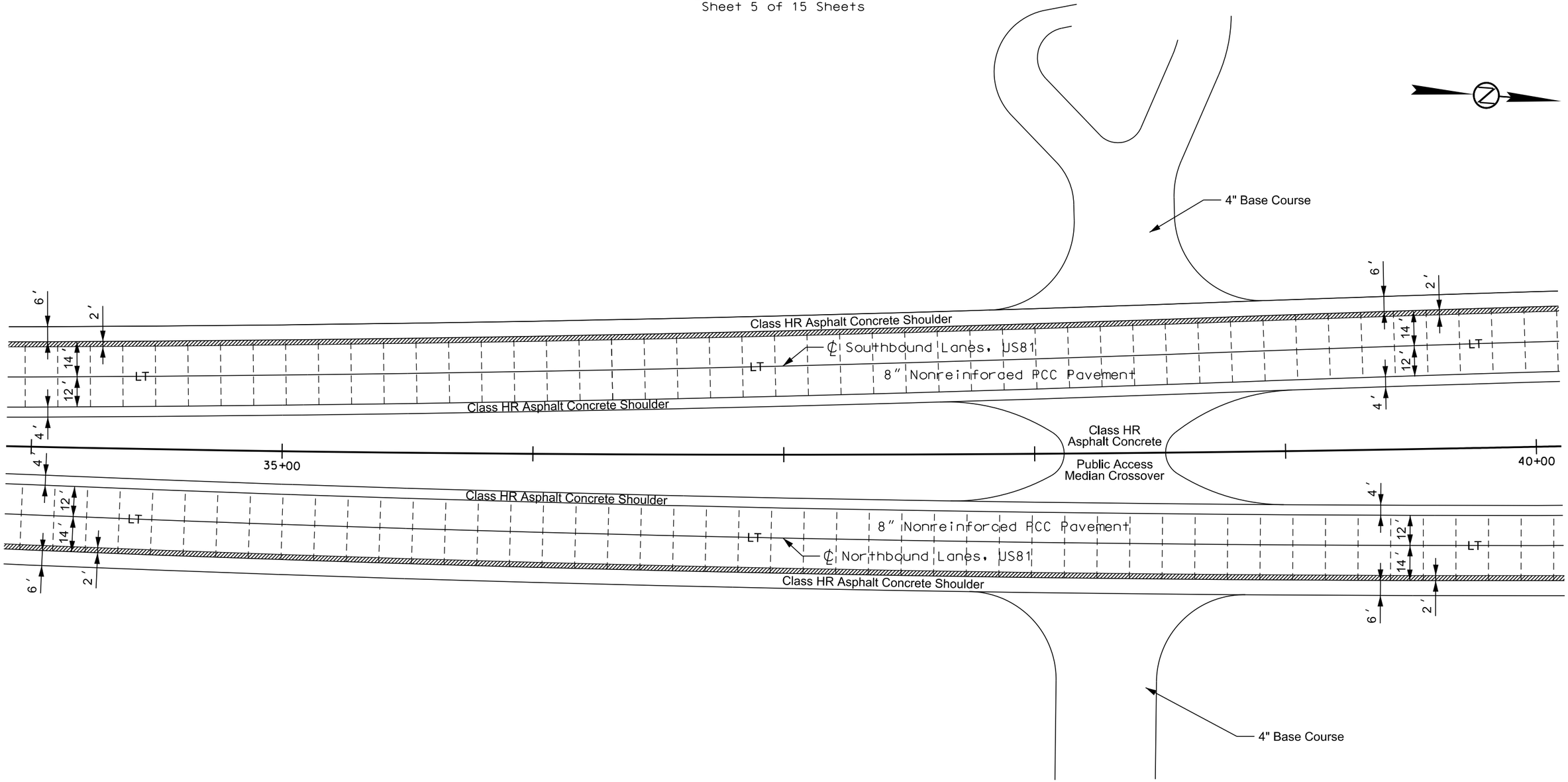
PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F34	F77

Plotting Date: 09/24/2024

REVISED 24 September, 2024 - BAH

Scale 1 Inch = 40 Feet
Sheet 5 of 15 Sheets



Plot Scale - 1:40

Plotted From - TRPR18388A

File - ...\prj\yank07\V2\PCC Layouts.dgn

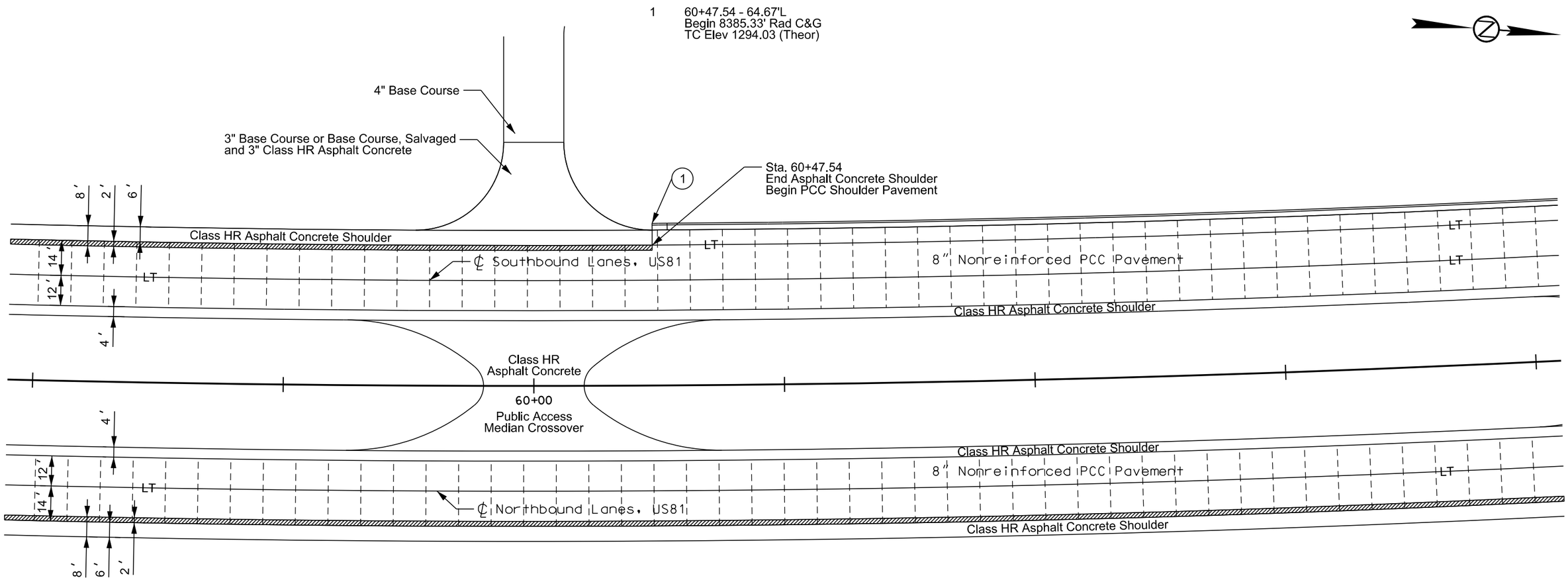
PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F35	F77

Plotting Date: 09/24/2024

REVISED 24 September, 2024 - BAH

Scale 1 Inch = 40 Feet
Sheet 6 of 15 Sheets



Plot Scale - 1:40

Plotted From - TRPR18388A

File - ...\prj\yank07\V2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F36	F77

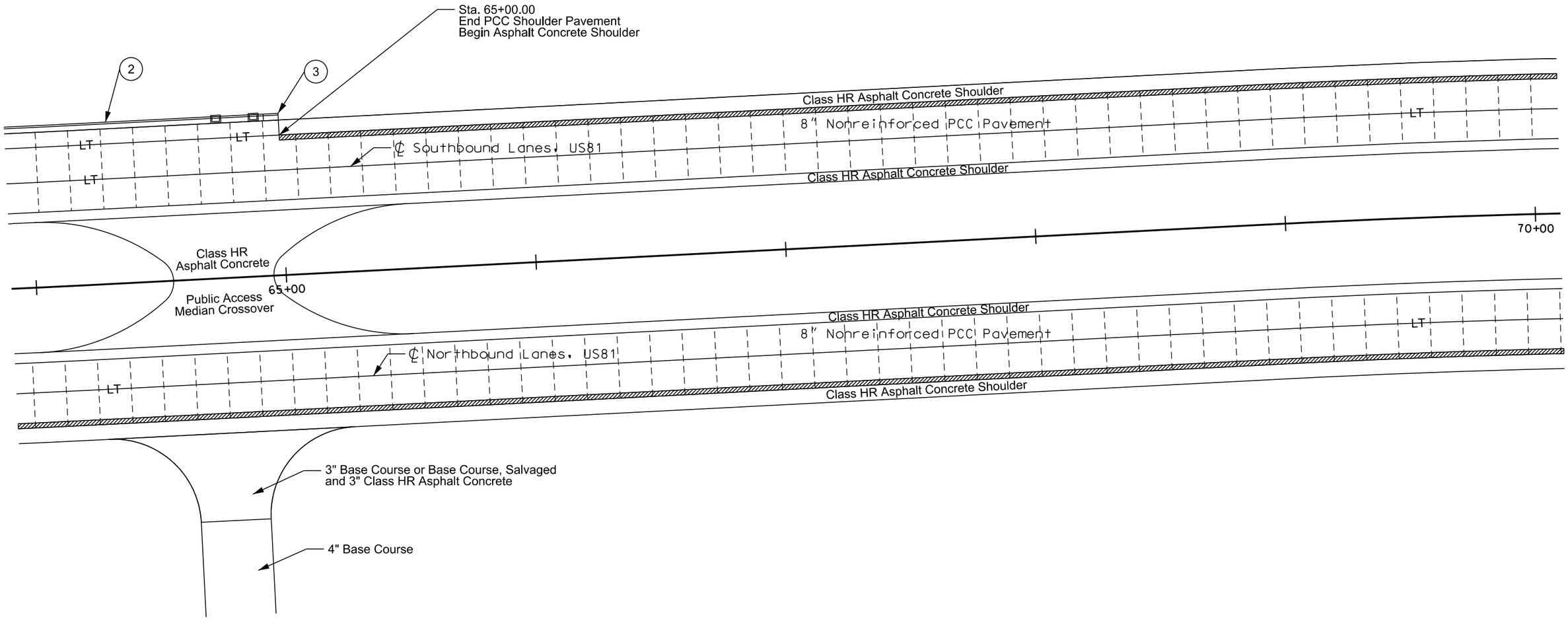
Plotting Date: 09/24/2024

REVISED 24 September, 2024 - BAH

Scale 1 Inch = 40 Feet
Sheet 7 of 15 Sheets

2 64+31.04 - 64.67'L
End 8385.33' Rad C&G
Begin Str C&G
TC Elev 1278.85

3 65+00.00 - 64.67'L
End Str C&G
TC Elev 1276.27 (Theor)



Plot Scale - 1:40

Plotted From - TRPR18388A

File - ...\prj\yank07\V2\PCC Layouts.dgn

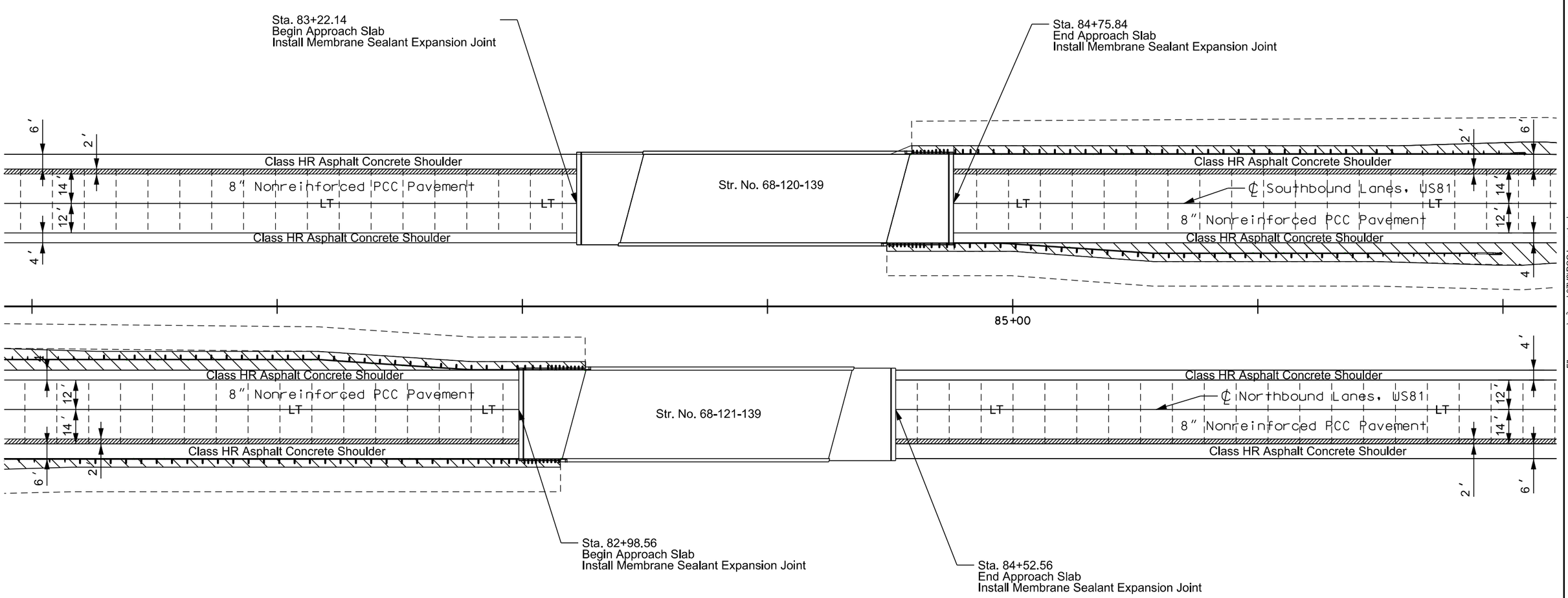
PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F37	F77

Plotting Date: 09/24/2024

REVISED 24 September, 2024 - BAH

Scale 1 Inch = 40 Feet
Sheet 8 of 15 Sheets



Plot Scale - 1:40

Plotted From - TRPR18388A

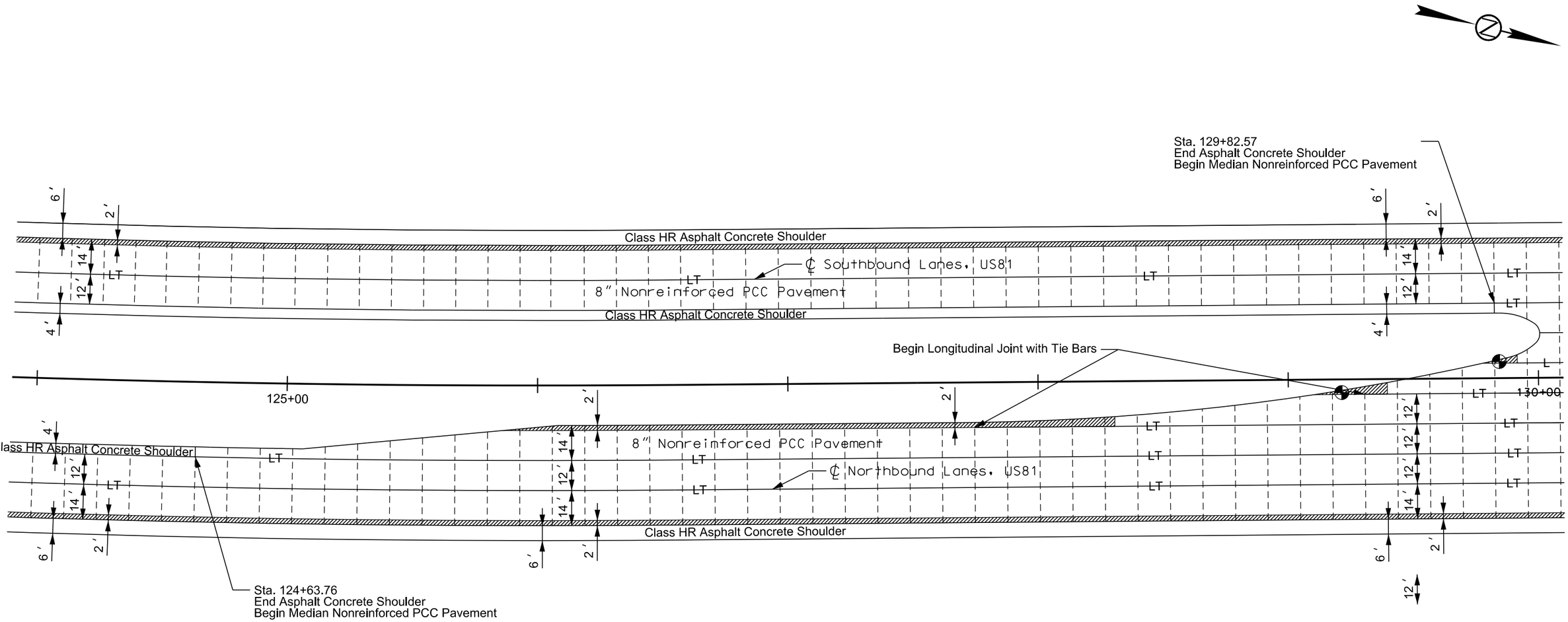
File - ...\prj\yank07\V2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 9 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F38	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



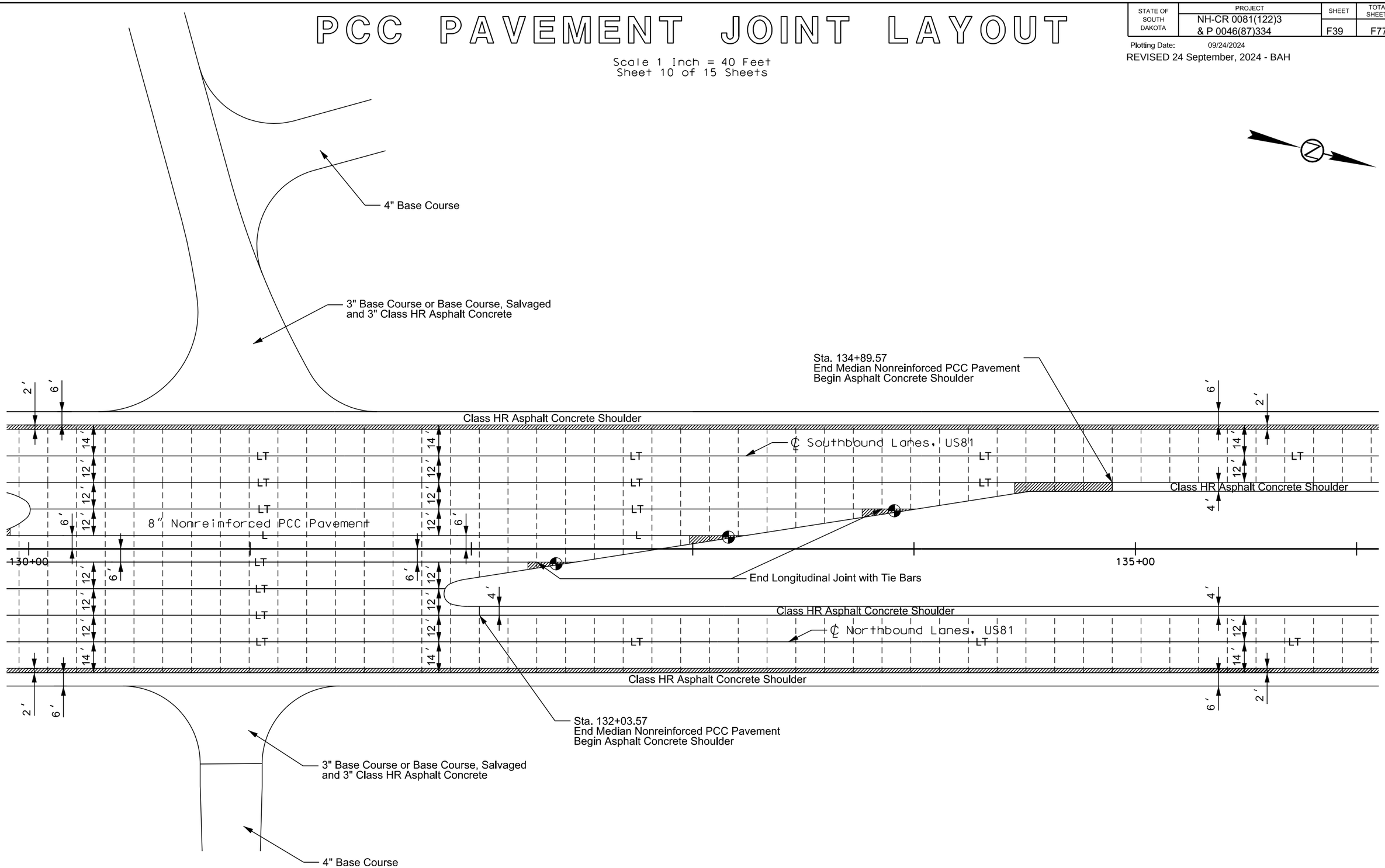
Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\prj\yank07\V2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 10 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F39	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



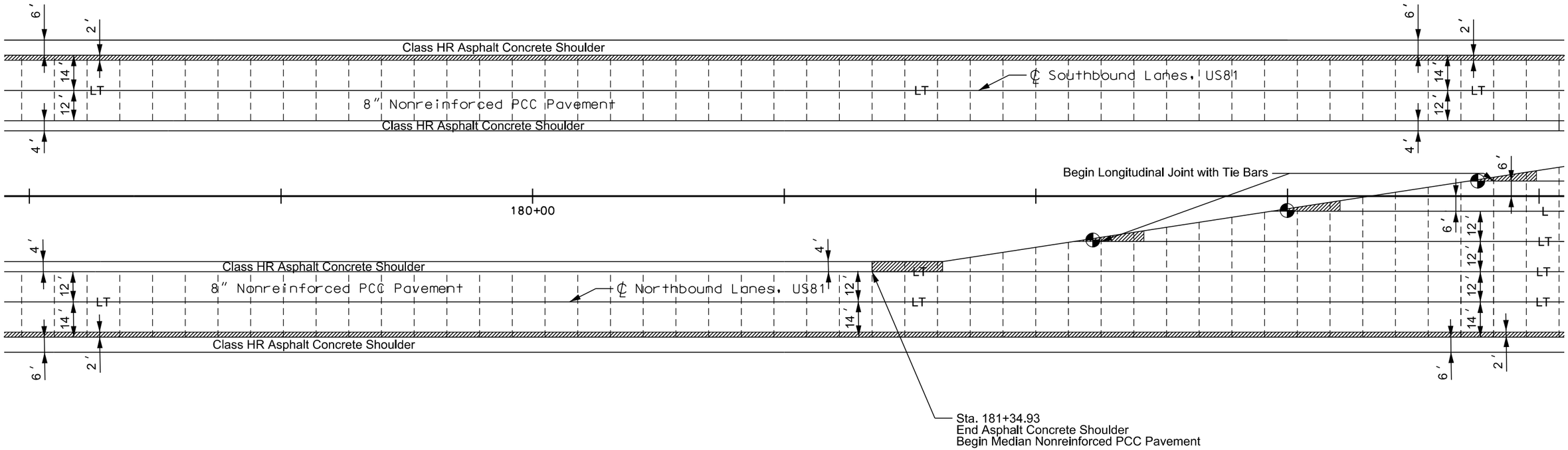
Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\pr\jyank07\2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 11 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F40	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\pr\jyank07\2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F41	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH

Scale 1 Inch = 40 Feet
Sheet 12 of 15 Sheets

Sta. 184+07.93
End Asphalt Concrete Shoulder
Begin Median Nonreinforced PCC Pavement

4" Base Course

3" Base Course or Base Course, Salvaged and 3" Class HR Asphalt Concrete

Class HR Asphalt Concrete Shoulder

℄ Southbound Lanes, US81

8" Nonreinforced PCC Pavement

185+00

190+00

End Longitudinal Joint with Tie Bars

Class HR Asphalt Concrete Shoulder

℄ Northbound Lanes, US81

Class HR Asphalt Concrete Shoulder

Sta. 186+54.84
End Median Nonreinforced PCC Pavement
Begin Asphalt Concrete Shoulder

3" Base Course or Base Course, Salvaged and 3" Class HR Asphalt Concrete

4" Base Course

Plot Scale - 1:40

Plotted From - TRPR18388A

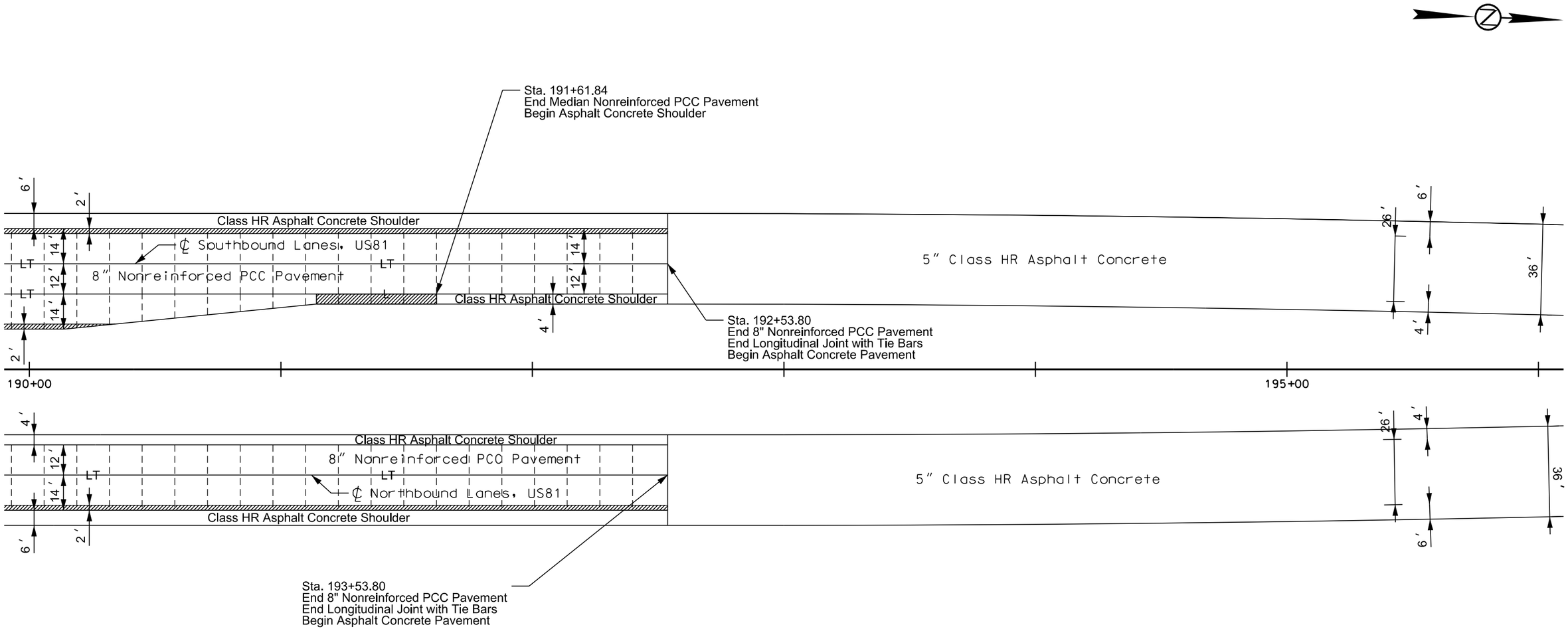
File - ...\pn\yank07\V2\PCC Layouts.dgn

PCC PAVEMENT JOINT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 13 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F42	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



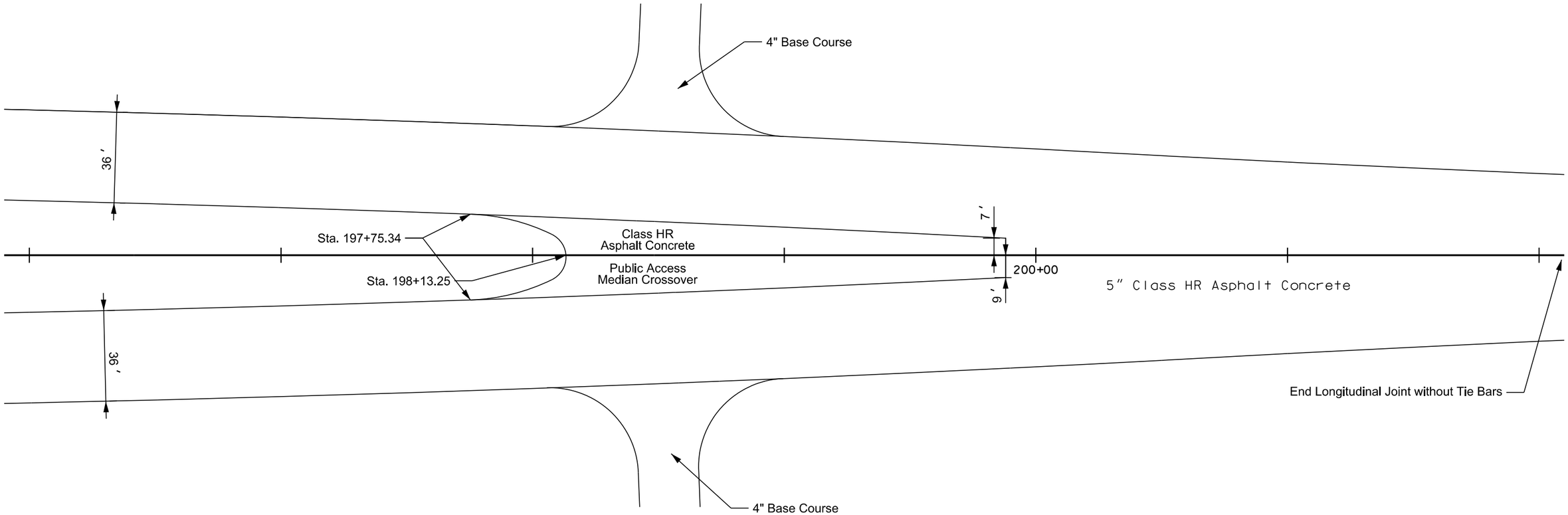
Plot Scale - 1:40
Plotted From - TRPR19388A
File - ...\prj\yank07\V2\PCC Layouts.dgn

PAVEMENT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 14 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F43	F77

Plotting Date: 09/24/2024
REVISED 24 September, 2024 - BAH



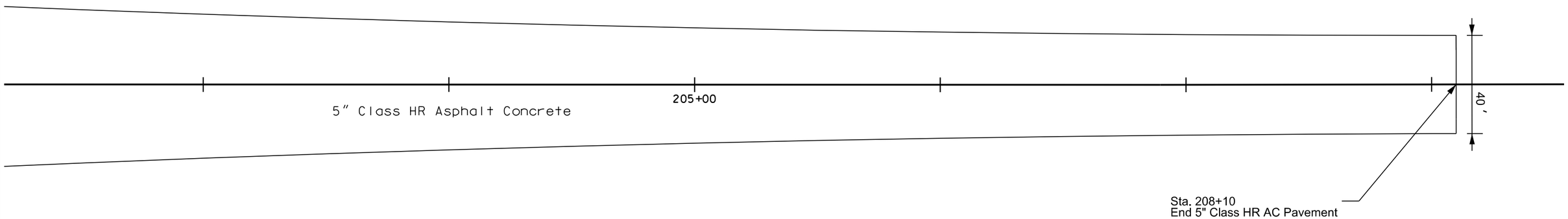
Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\prj\yank07\V2\PCC Layouts.dgn

PAVEMENT LAYOUT

Scale 1 Inch = 40 Feet
Sheet 15 of 15 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F44	F77

Plotting Date: 09/12/2024



Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\pn\yank07\V2\PCC Layouts.dgn

GUARDRAIL LAYOUTS

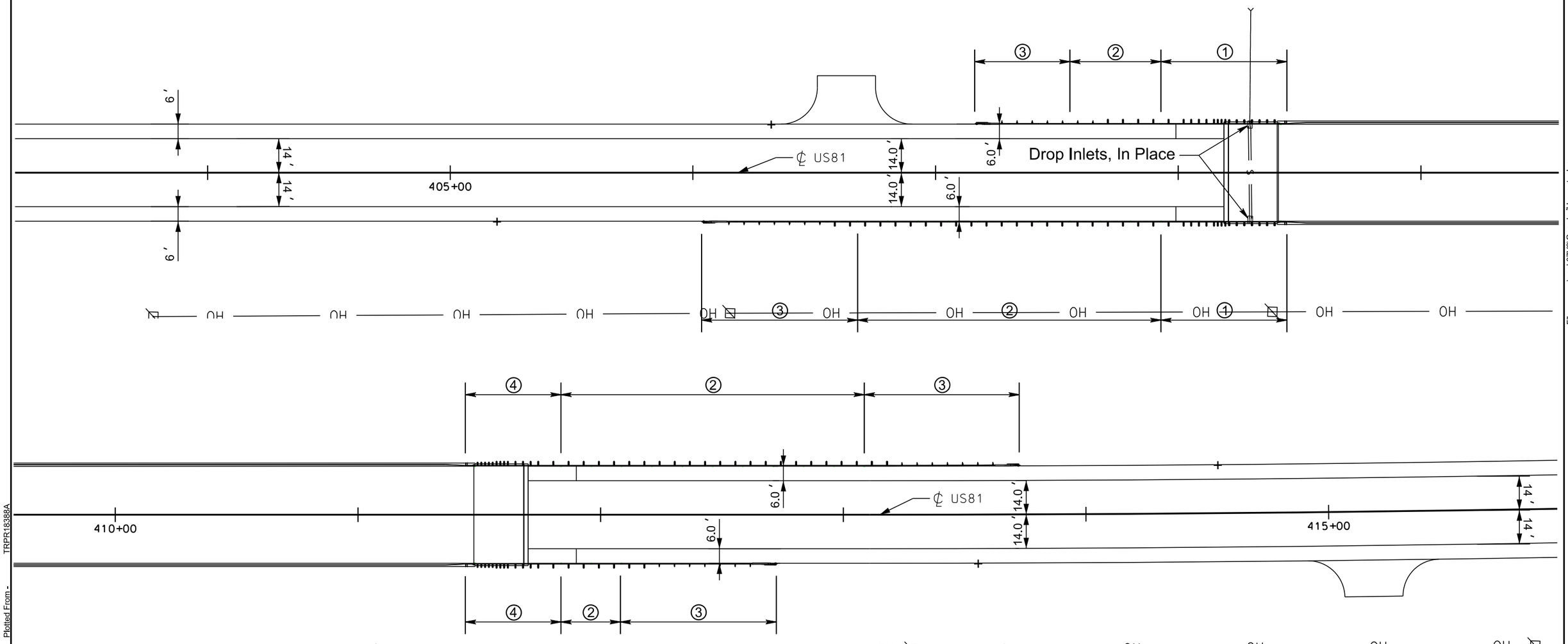
Scale 1 Inch = 40 Feet
Sheet 1 of 3 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F45	F77

Plotting Date: 09/12/2024

①Install Type 3 Guardrail Transition
②Install Type 1 MGS
③Install MGS MASH Tangent End Terminal
④Install Type 1 Retrofit Guardrail Transition

Str. No. 68-120-077 over James River



Plot Scale - 1:40
TRPR18388A
Plotted From -
File - ...\yank07\V2\Guardrail Layouts.dgn

GUARDRAIL LAYOUTS

Scale 1 Inch = 40 Feet
Sheet 2 of 3 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F46	F77

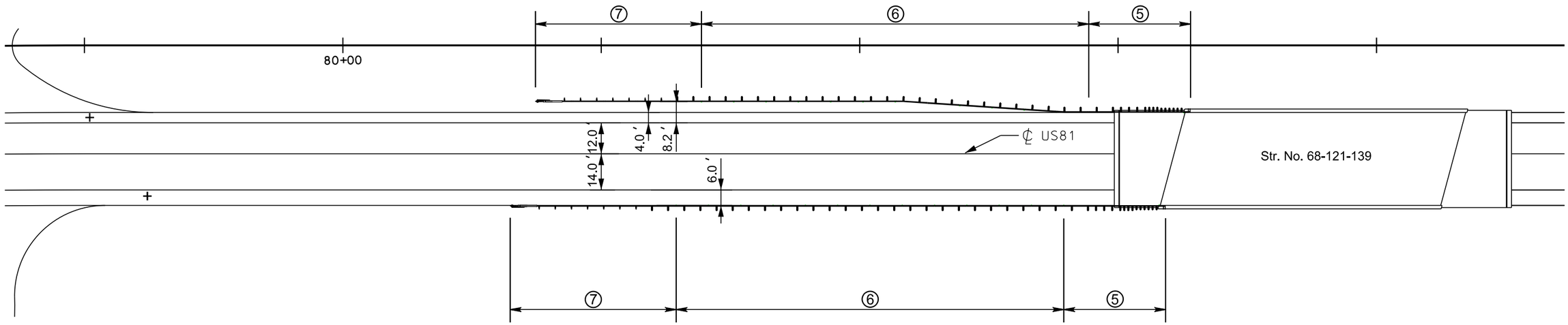
Plotting Date: 09/12/2024

⑤Remove & Reset Type 1 Guardrail Transition

⑥Remove & Reset Type 1 MGS

⑦Remove & Reset MGS MASH Tangent End Terminal

Str. No. 68-121-139
Northbound Lanes



Plot Scale - 1:40

Plotted From - TRPR18388A

File - ...\yank07V2\Guardrail Layouts.dgn

GUARDRAIL LAYOUTS

Scale 1 Inch = 40 Feet
Sheet 3 of 3 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F47	F77

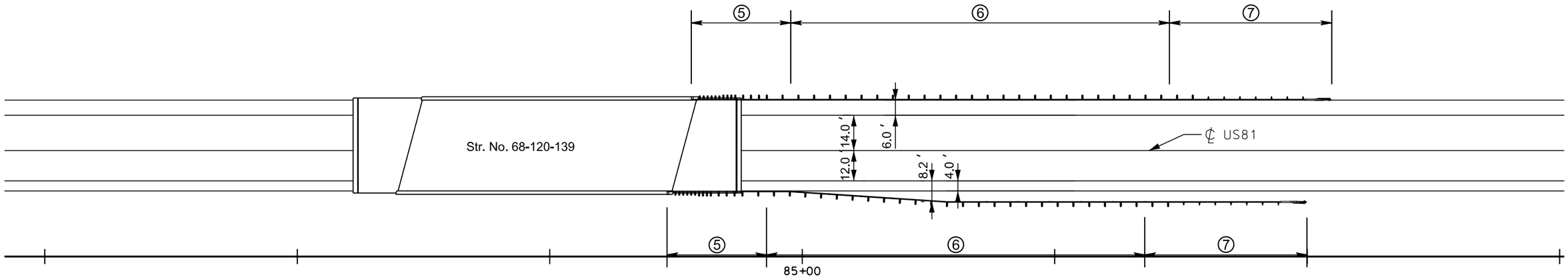
Plotting Date: 09/12/2024

⑤Remove & Reset Type 1 Guardrail Transition

⑥Remove & Reset Type 1 MGS

⑦Remove & Reset MGS MASH Tangent End Terminal

Str. No. 68-120-139
Southbound Lanes



Plot Scale - 1:40

Plotted From - TRPR18388A

File - ...\yank07V2\Guardrail Layouts.dgn

GUARDRAIL EMBANKMENT LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F48	F77

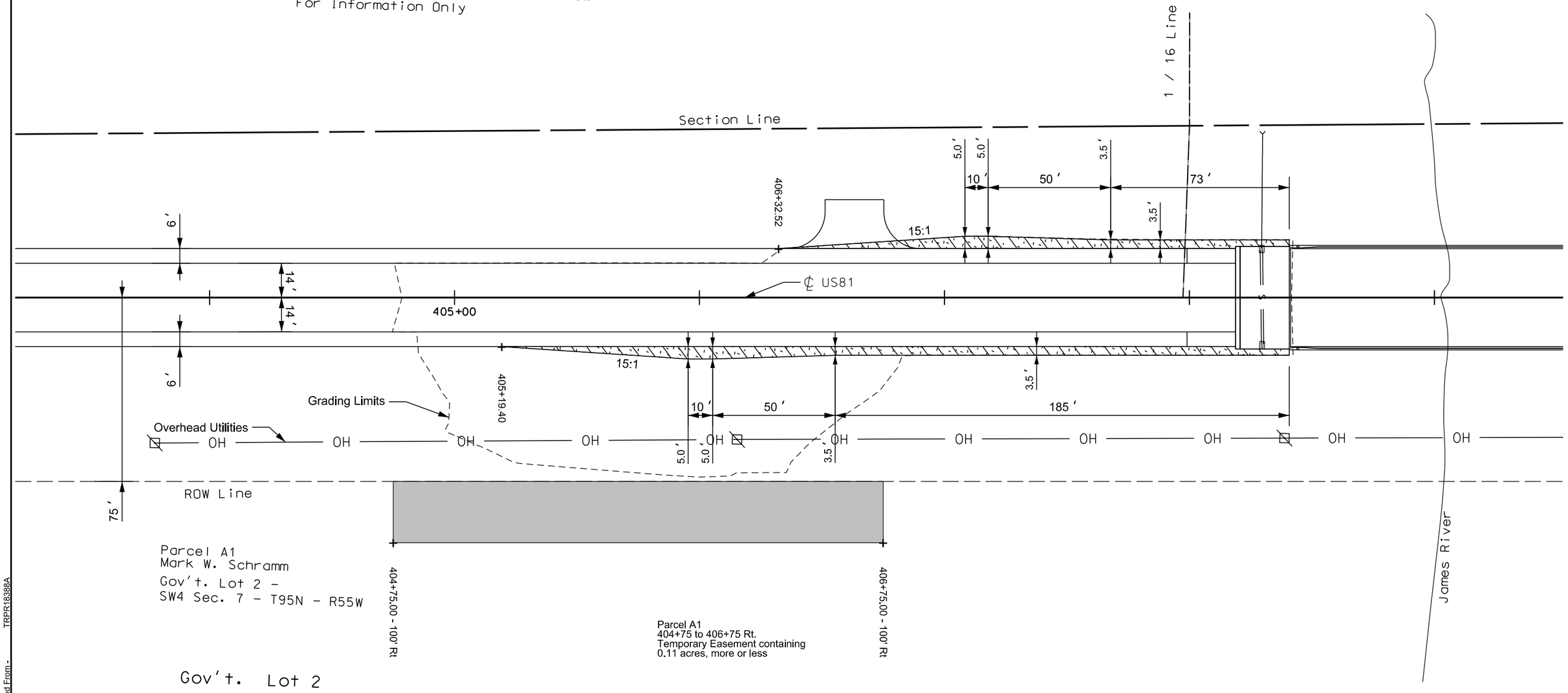
Plotting Date: 09/12/2024

Scale 1 Inch = 40 Feet
Sheet 1 of 4 Sheets

Limits of embankment to be surfaced with 2" Class HR Asphalt Concrete over variable depth Base Course

Str. No. 68-120-077 over James River

State of South Dakota
(Dept. of Transportation)
Gov't Lot 9 - Sec. 12 - T95N - R56W
For Information Only



Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\Guardrail Embankment Layouts.dgn

GUARDRAIL EMBANKMENT LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F49	F77

Plotting Date: 09/12/2024

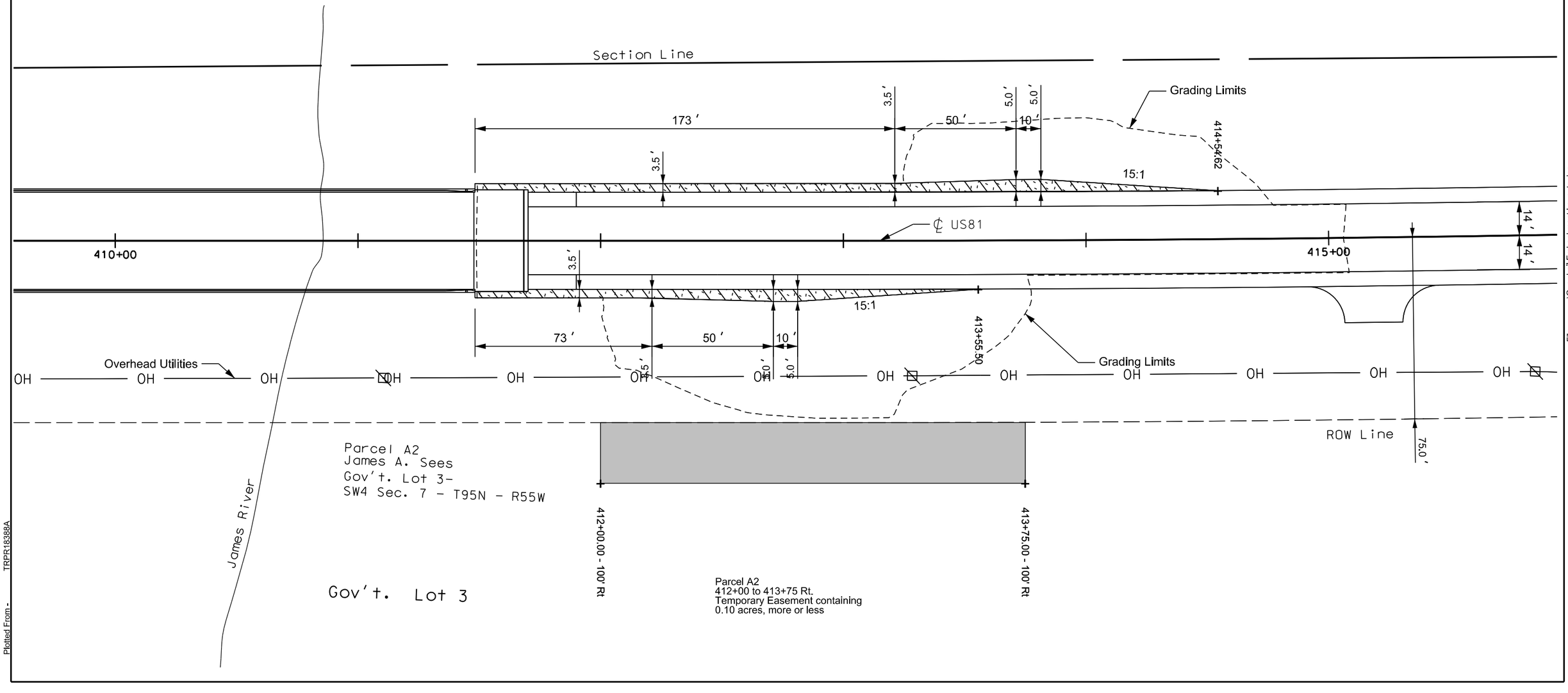
Scale 1 Inch = 40 Feet
Sheet 2 of 4 Sheets

Limits of embankment to be surfaced with 2" Class HR Asphalt Concrete over variable depth Base Course

Gov't. Lot 8

Str. No. 68-120-077 over James River

William Todd Knutson & Lori Ann Knutson
Gov't Lot 8 - Sec. 12 - T95N - R56W
For Information Only



Plot Scale - 1:40
Plotted From - TRPR18388A
File - ...\Guardrail Embankment Layouts.dgn

GUARDRAIL EMBANKMENT LAYOUTS

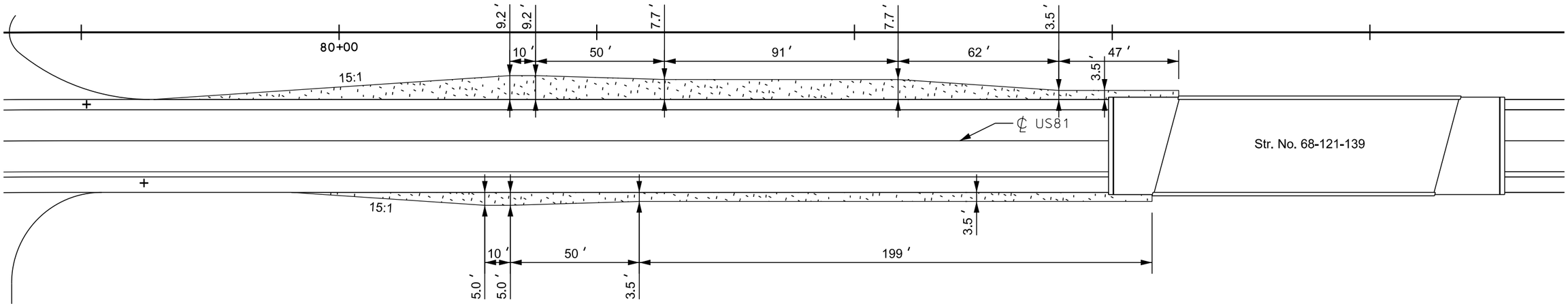
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F50	F77

Plotting Date: 09/12/2024

Scale 1 Inch = 40 Feet
Sheet 3 of 4 Sheets

Limits of embankment to be surfaced with
2" Class HR Asphalt Concrete over
variable depth Base Course

Str. No. 68-121-139
Northbound Lanes



Plot Scale - 1:40

Plotted From - TRPR18388A

File - ...\Guardrail Embankment Layouts.dgn

GUARDRAIL EMBANKMENT LAYOUTS

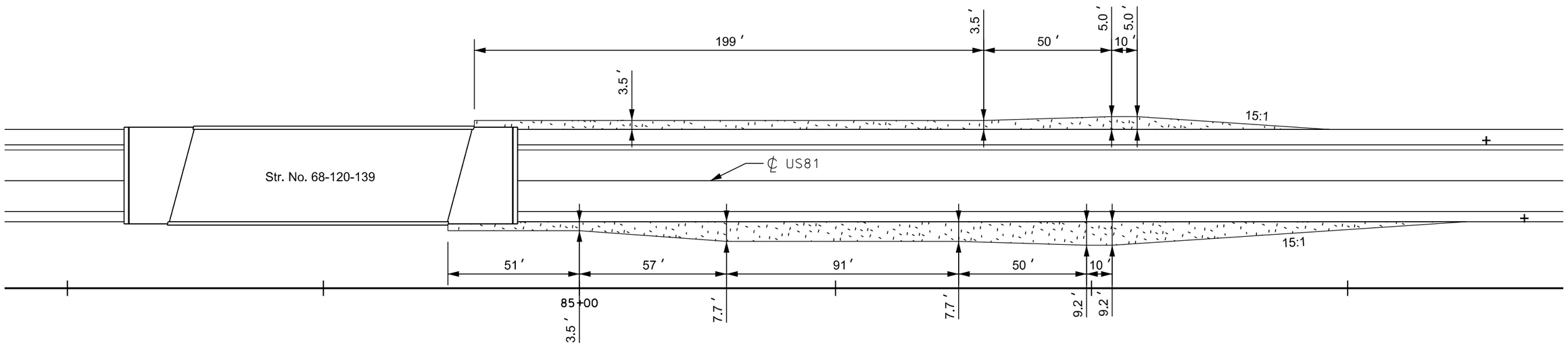
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F51	F77

Plotting Date: 09/12/2024

Scale 1 Inch = 40 Feet
Sheet 4 of 4 Sheets

Limits of embankment to be surfaced with 2" Class HR Asphalt Concrete over variable depth Base Course

Str. No. 68-120-139
Southbound Lanes



Plot Scale - 1:40

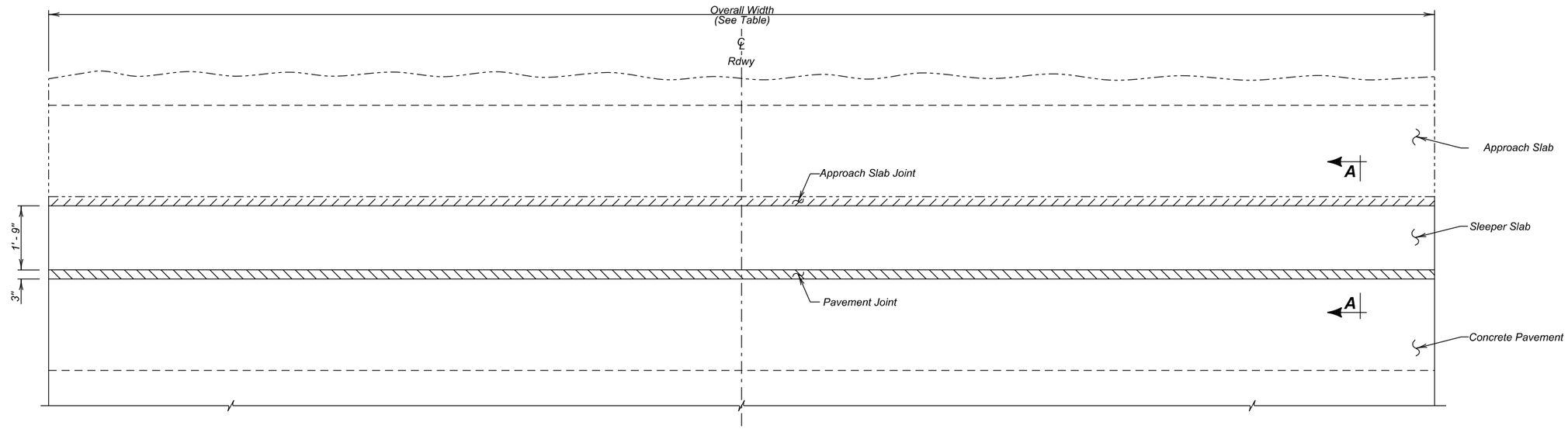
Plotted From - TRPR18388A

File - ...\Guardrail Embankment Layouts.dgn

Membrane Sealant Expansion Joint Details

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F52	F77

Revised: 11-22-2019 LLA



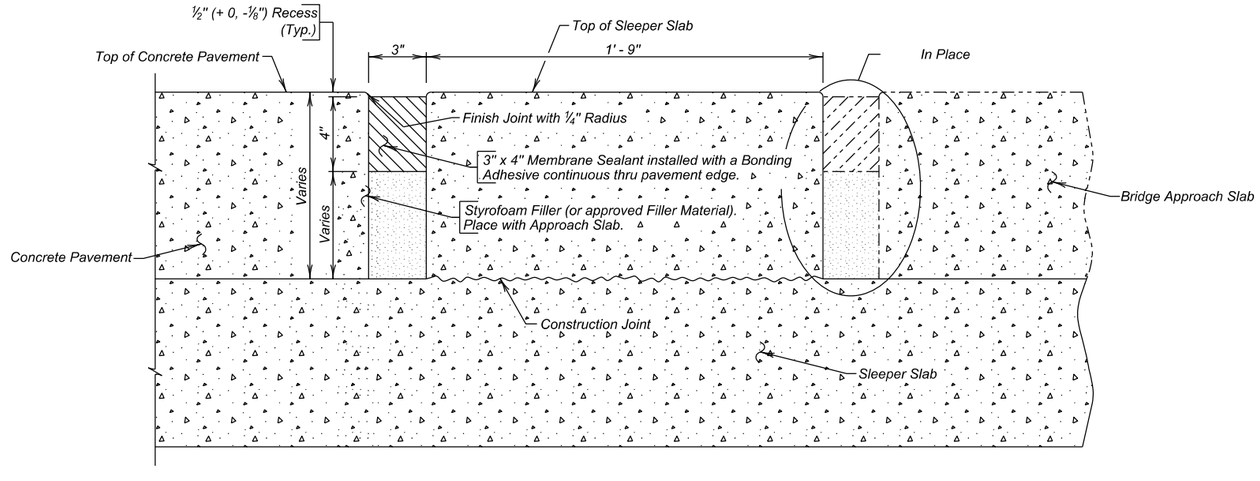
PLAN

GENERAL NOTES

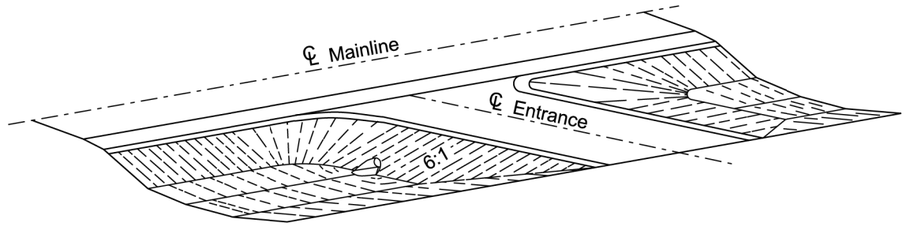
1. The Membrane Sealant will be on the approved product list for Membrane Sealant Expansion Joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer, however, in no case will the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension.
4. The membrane sealant will be supplied in pieces a minimum of 5 feet in length. The foam sealant will be ultra-violet and ozone resistant.
5. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
6. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
7. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
8. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
9. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to ensure the Contractor installs the joint to the manufacturers' recommendations.
10. Surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the surface. At a minimum, two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the surface will be required. Cleaning of the surfaces with solvents, wire brushing, or grinding will not be permitted.
11. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
12. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
13. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
14. 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.
15. The Membrane Sealant Expansion Joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The Membrane Sealant Expansion Joint will be paid for at the contract unit price per foot complete in place. Payment for this item will be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.

Membrane Sealant Expansion Joint Estimated Quantities

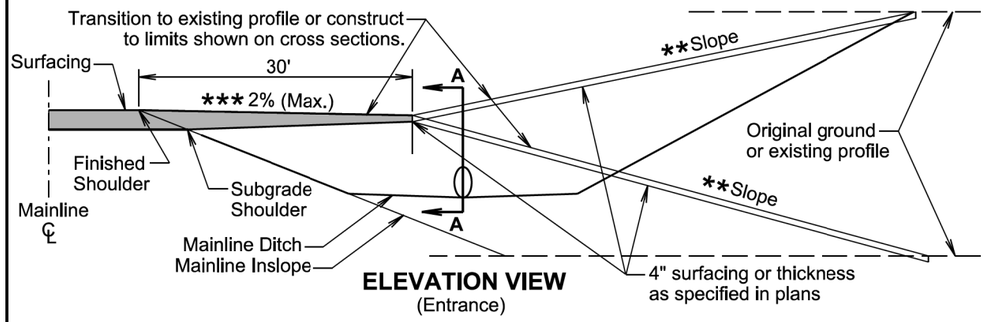
ITEM	UNIT	QUANTITY
Sta. 82+98.56 NBL	Ft.	26
Sta. 83+22.14 SBL	Ft.	26
Sta. 84+52.26 NBL	Ft.	26
Sta. 84+75.84 SBL	Ft.	26
Total:	Ft.	104



SEC. A - A



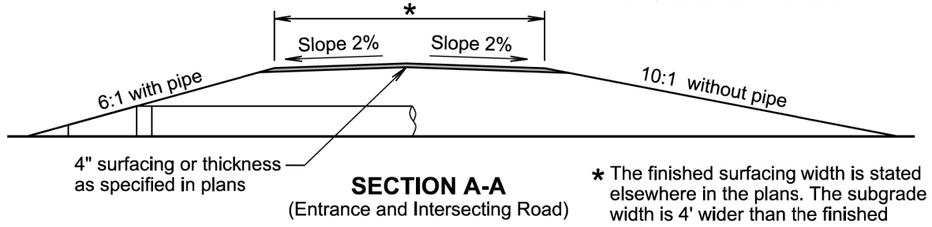
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

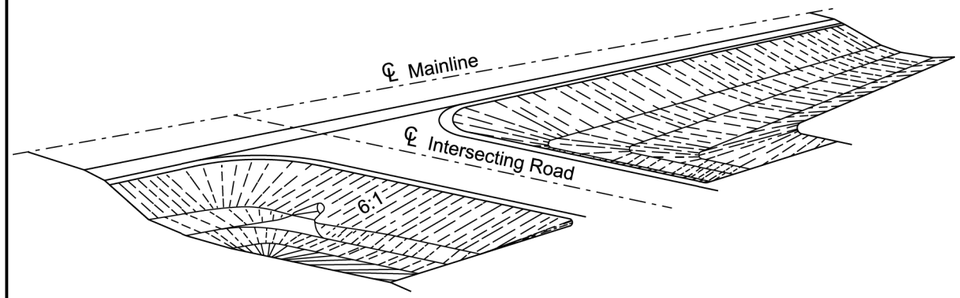
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

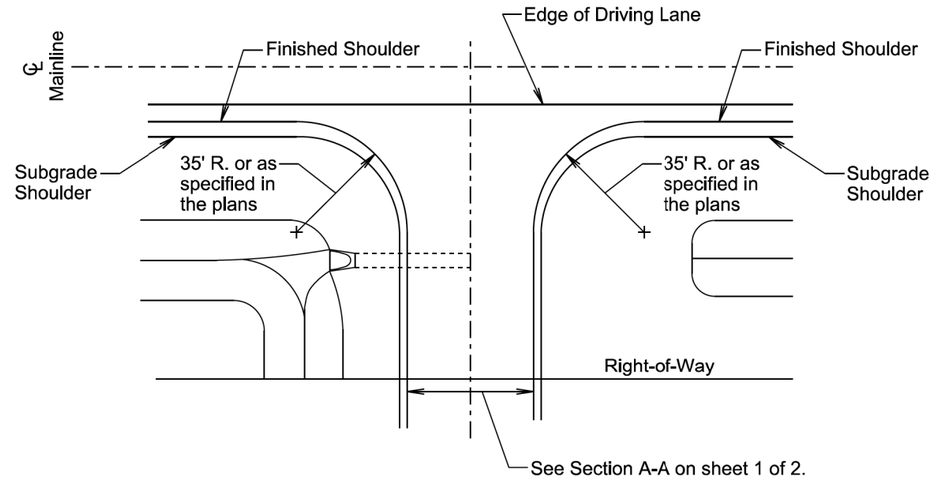
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



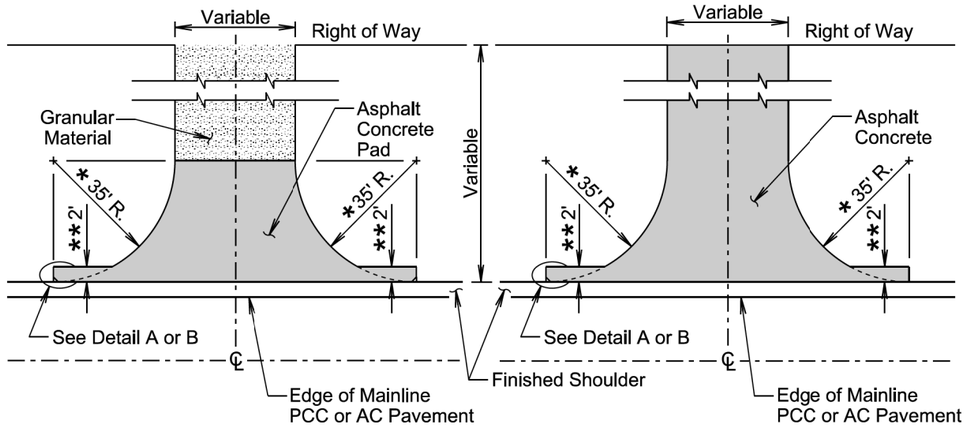
PLAN VIEW

GENERAL NOTES:

The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2



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:

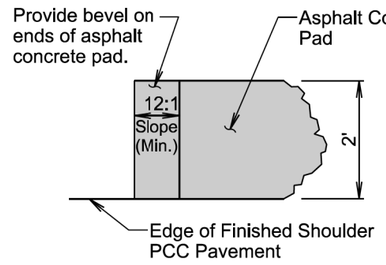
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

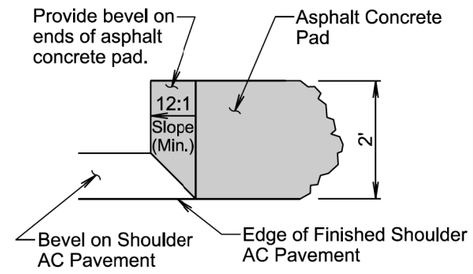
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete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

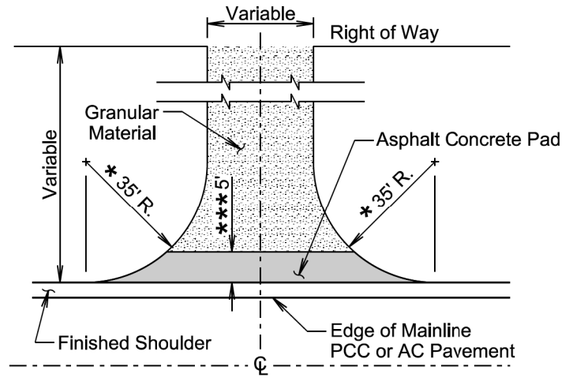
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



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



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



PLAN VIEW
(Entrance)

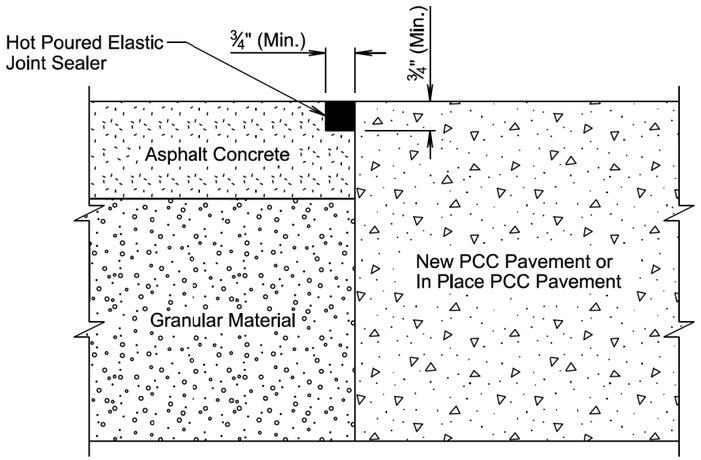
*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F55	F77

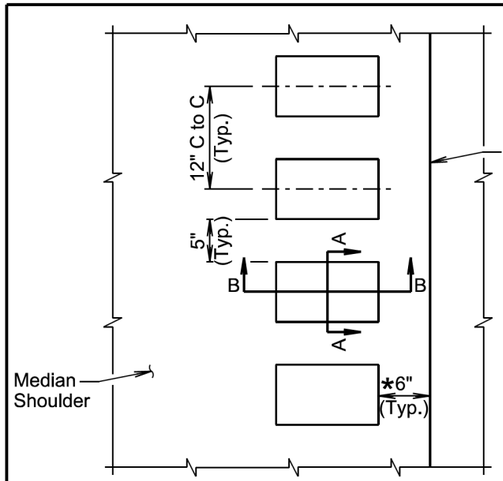
Plotting Date: 09/12/2024



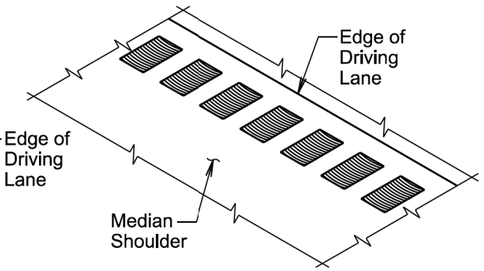
TRANSVERSE SECTION
(Asphalt Concrete Shoulder Joint)

September 14, 2019

Published Date: 2025	SDDOT	ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT	PLATE NUMBER 320.15
			Sheet 1 of 1

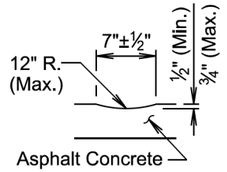


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

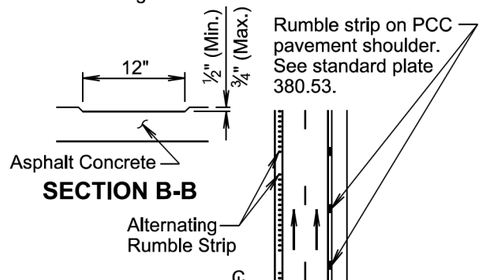


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

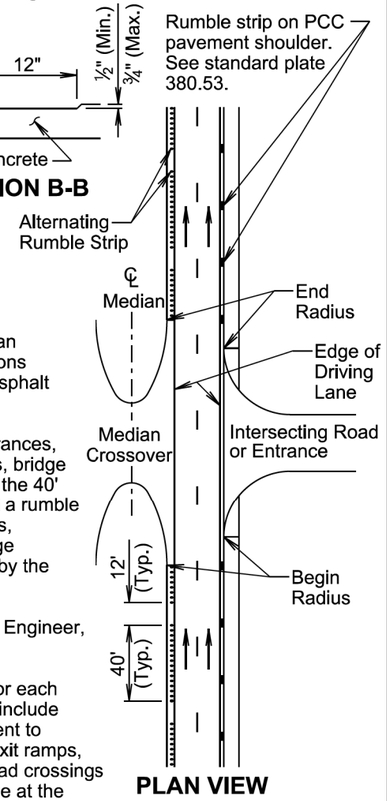
* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



SECTION A-A



SECTION B-B



PLAN VIEW

GENERAL NOTES:

A rumble strip will be constructed on all of the asphalt concrete median 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, median crossovers, entrance ramps, exit ramps, turnouts, gore areas, 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, median crossovers, entrance ramps, exit ramps, turnouts, gore areas, 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 median 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, median crossovers, entrance ramps, exit ramps, turnouts, gore areas, 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".

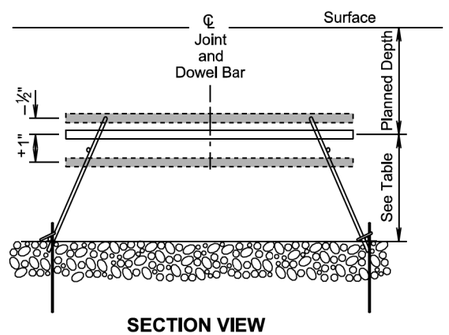
March 31, 2024

Published Date: 2025	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON DIVIDED HIGHWAY MEDIAN SHOULDER	PLATE NUMBER 320.26
			Sheet 1 of 1

Plot Scale - 1:200

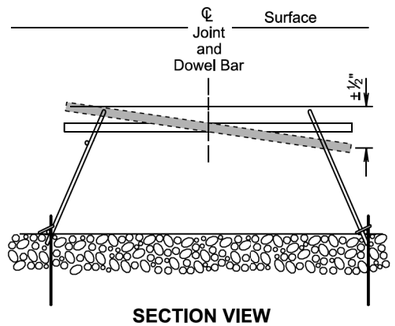
Plotted From - TRPR18388A

File - ...\yank07\2\StdPlateSectionF.dgn



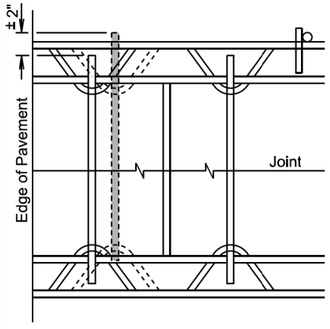
SECTION VIEW
VERTICAL TRANSLATION

Depth: mid-depth + 1 inch or − ½ inch



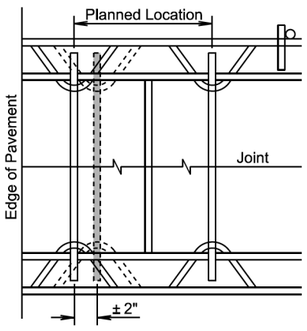
SECTION VIEW
VERTICAL TILT

Vertical rotational alignment: ½ inch over 18 inch



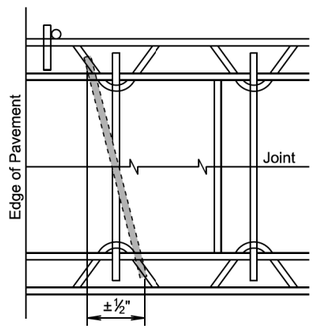
PLAN VIEW
LONGITUDINAL TRANSLATION

Longitudinal side shift: ± 2 inch for 18 inch bars



PLAN VIEW
HORIZONTAL TRANSLATION

Side shift ± 2 inch



PLAN VIEW
HORIZONTAL SKEW

Horizontal rotational alignment: ½ inch over 18 inch

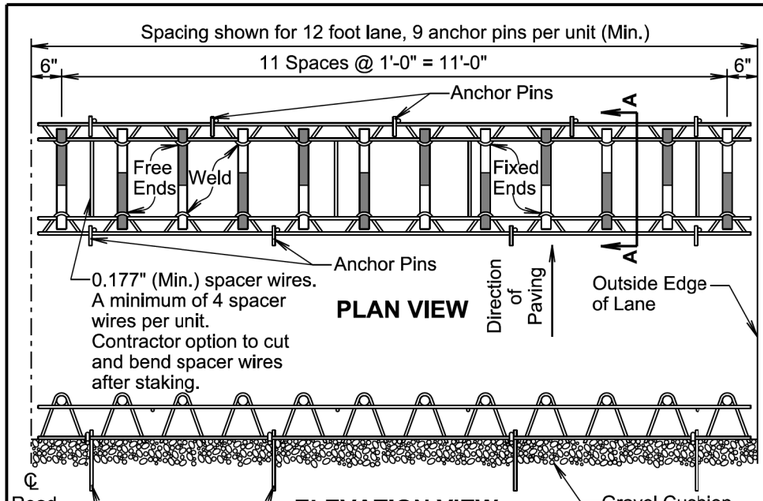
PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 13"	1½" x 18"	5.0"

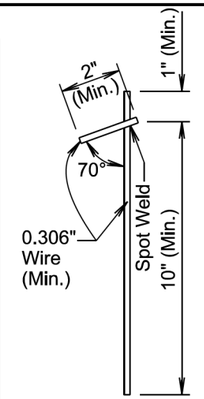
GENERAL NOTE:

The tolerances shown above represent the maximum deviation for acceptance of dowel bar placement.

November 19, 2022

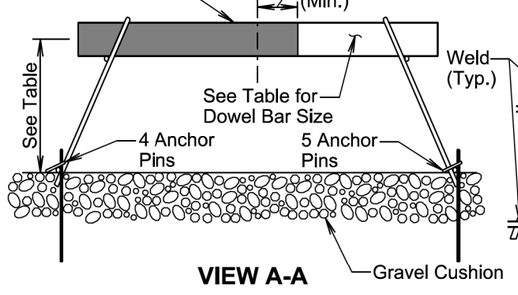
Published Date: 2025	SDDOT	**PCC PAVEMENT DOWEL BAR ALIGNMENT TOLERANCES**	PLATE NUMBER 380.01 Sheet 1 of 1



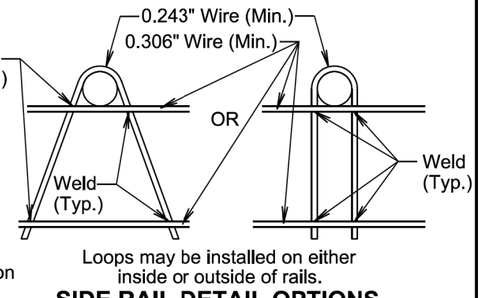


TYPICAL ANCHOR PIN

PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 13"	1½" x 18"	5.0"



VIEW A-A



Loops may be installed on either inside or outside of rails.

SIDE RAIL DETAIL OPTIONS

GENERAL NOTES:

Longitudinal joint tie bars will be placed a minimum of 15 inches from the transverse contraction joint.

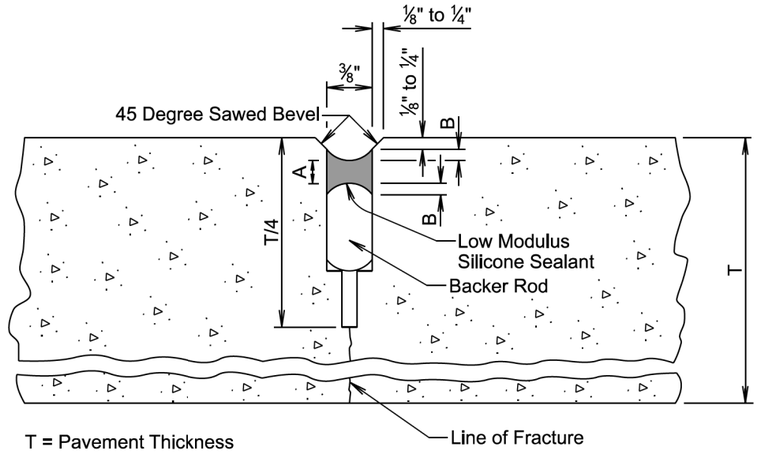
The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.

Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, will be used to maintain proper horizontal and vertical alignment of the dowel bars.

All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

November 19, 2022

Published Date: 2025	SDDOT	**PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material**	PLATE NUMBER 380.04 Sheet 1 of 1



T = Pavement Thickness

LOW MODULUS SILICONE SEALANT ALLOWABLE CONSTRUCTION TOLERANCES			
A (Min.) (in.)	A (Max.) (in.)	B (Min.) (in.)	B (Max.) (in.)
3/16	5/16	⅛	¼

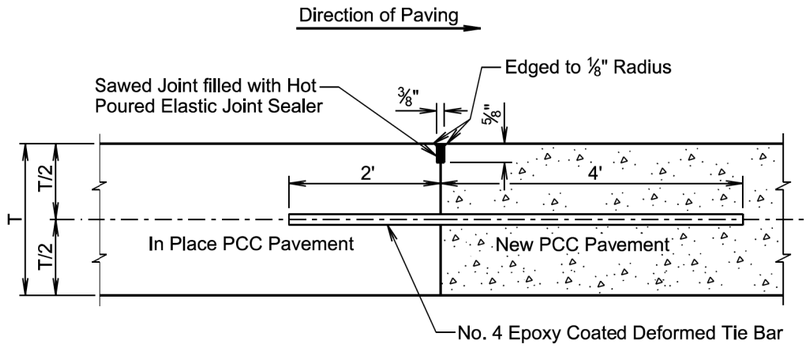
GENERAL NOTES:

The first saw cut to control cracking will be a minimum of ¼ the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the low modulus silicone joint sealant will be necessary.

The backer rod will be a non-moisture absorbing resilient material approximately 25% larger in diameter than the width of the joint to be sealed.

November 19, 2022

Published Date: 2025	SDDOT	PCC PAVEMENT BEVELED TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.13
			Sheet 1 of 1



T = Pavement Thickness

GENERAL NOTES:

No. 4 epoxy coated deformed tie bars will be spaced 12 inches center to center and will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint will be 5 feet.

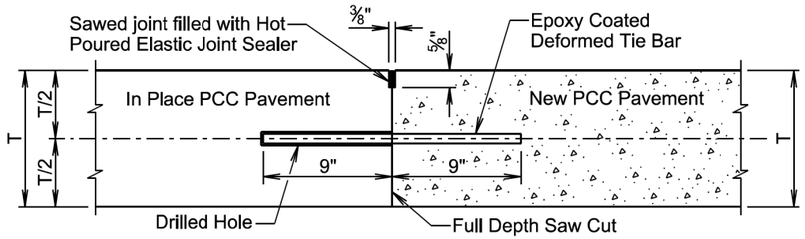
When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

March 31, 2024

Published Date: 2025	SDDOT	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.14
			Sheet 1 of 1

DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

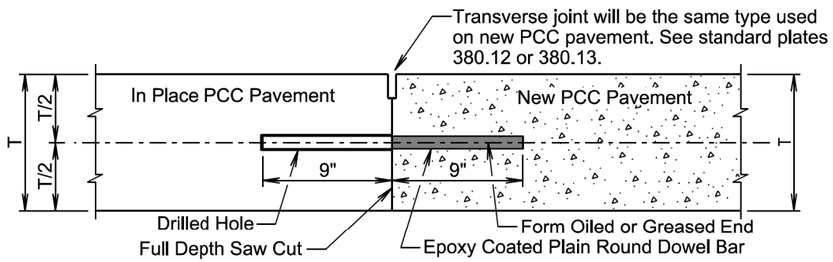
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A will be used.

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

No. 9 epoxy coated deformed tie bars will be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars will be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing will be 18 inches center to center and will be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



GENERAL NOTES: T = In Place PCC Pavement and New PCC Pavement Thickness

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

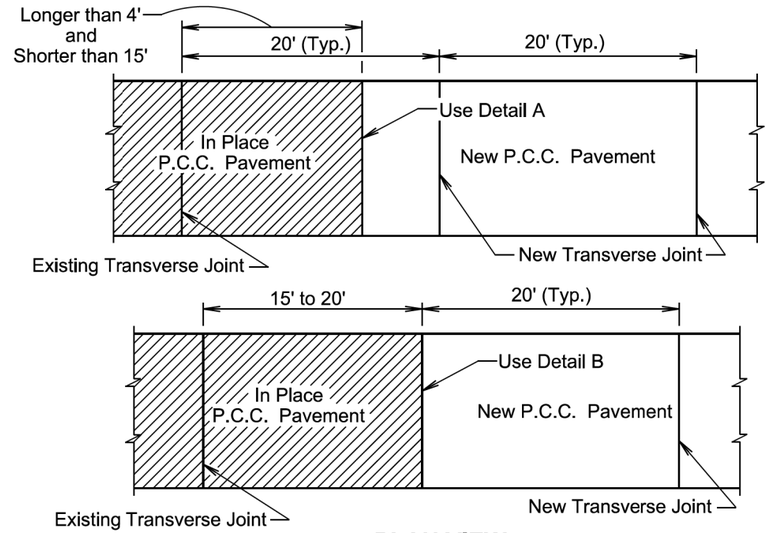
See sheet 2 of 2 of this standard plate to determine if Detail B will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

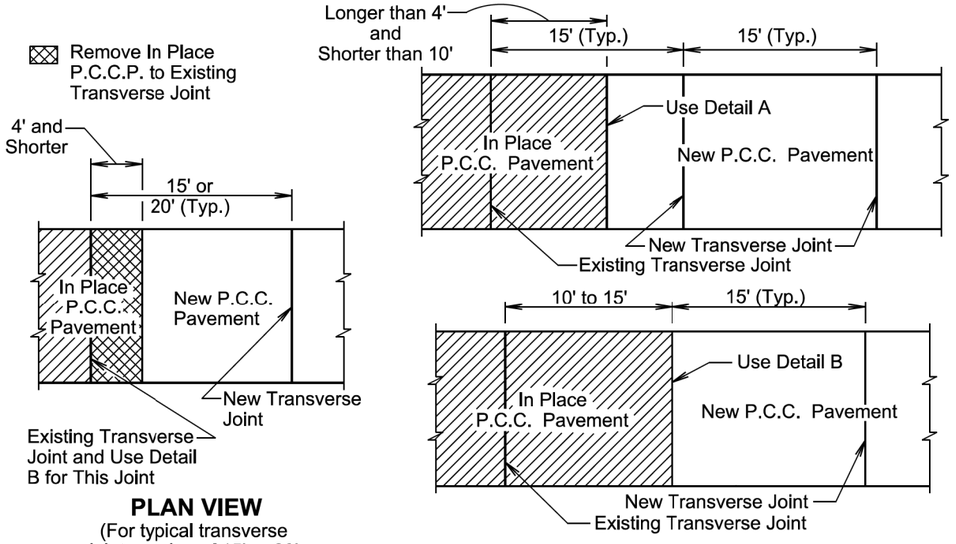
The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.04, 380.05, 380.06, or 380.07). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

January 22, 2023

Published Date: 2025	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 1 of 2



PLAN VIEW
(For typical transverse joint spacing of 20' on the current project)



PLAN VIEW
(For typical transverse joint spacings of 15' or 20' on the current project)

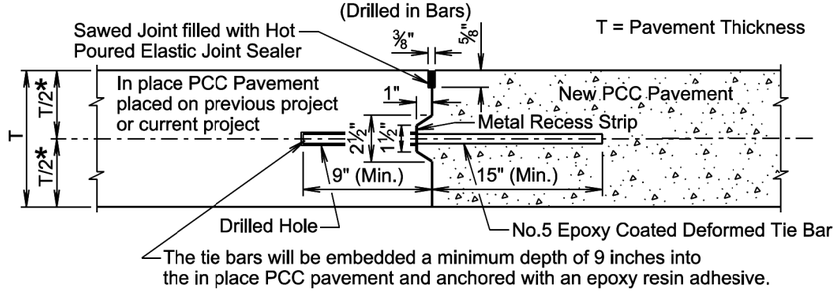
PLAN VIEW
(For typical transverse joint spacing of 15' on the current project)

January 22, 2023

Published Date: 2025	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 2 of 2

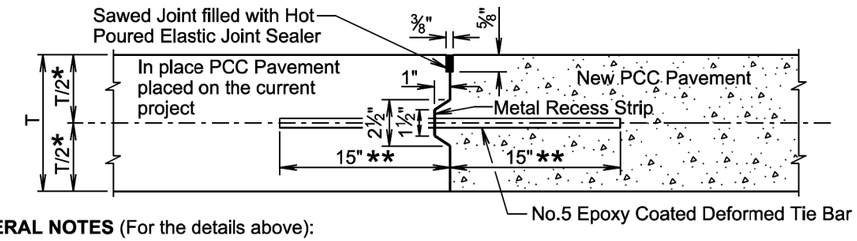
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Drilled in Bars)



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will be spaced in accordance with the following tables:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

TIE BAR SPACING 30" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

The tie bars will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

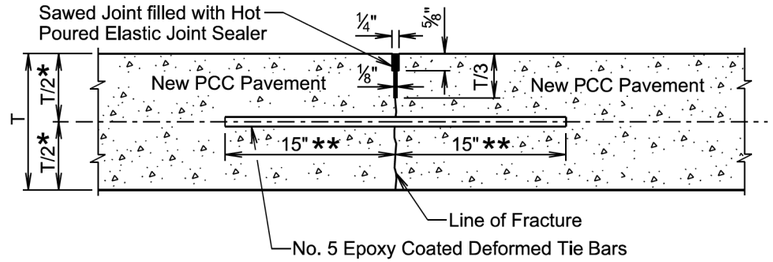
* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2025	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS

(Poured Monolithically)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars will be spaced in accordance with the following table:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

The tie bars will be placed a minimum of 15 inches from the transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing will apply to tie bars within each panel.

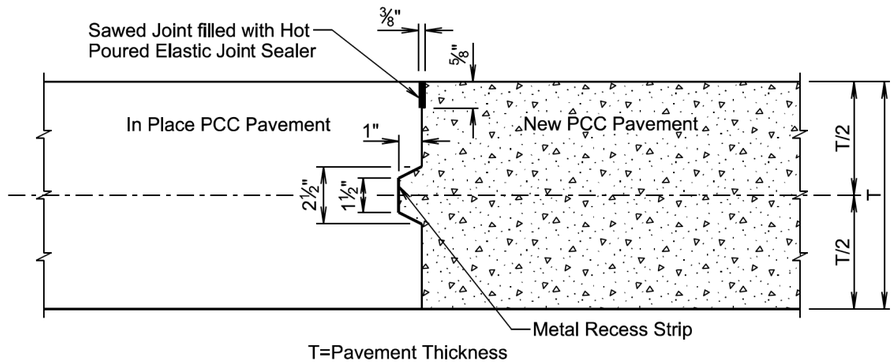
The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2025	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



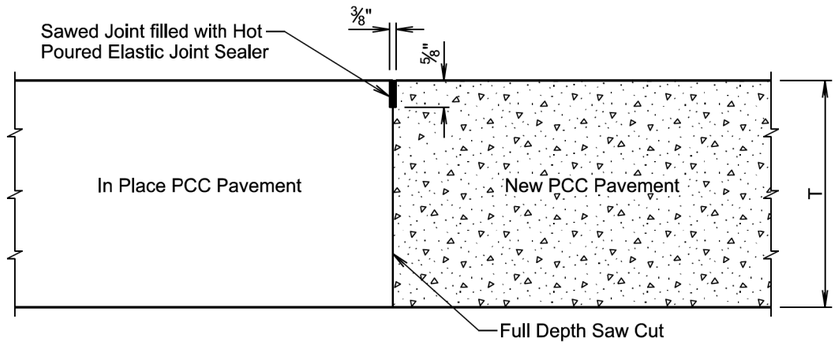
T=Pavement Thickness

GENERAL NOTES:

When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

LONGITUDINAL CONSTRUCTION JOINT WITHOUT TIE BARS



T=Pavement Thickness

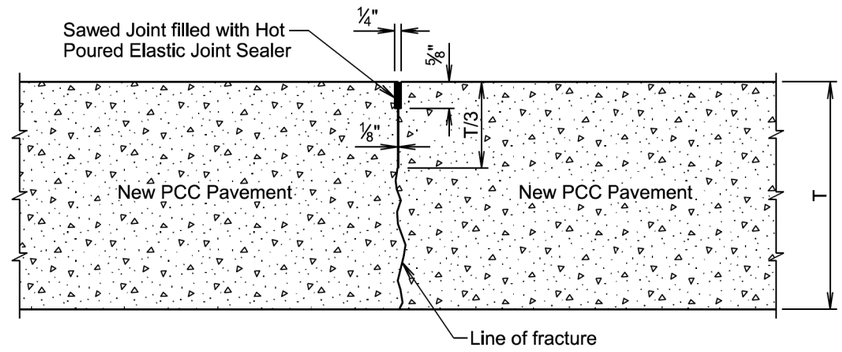
GENERAL NOTE:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

November 19, 2022

Published Date: 2025	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.22
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITHOUT TIE BARS



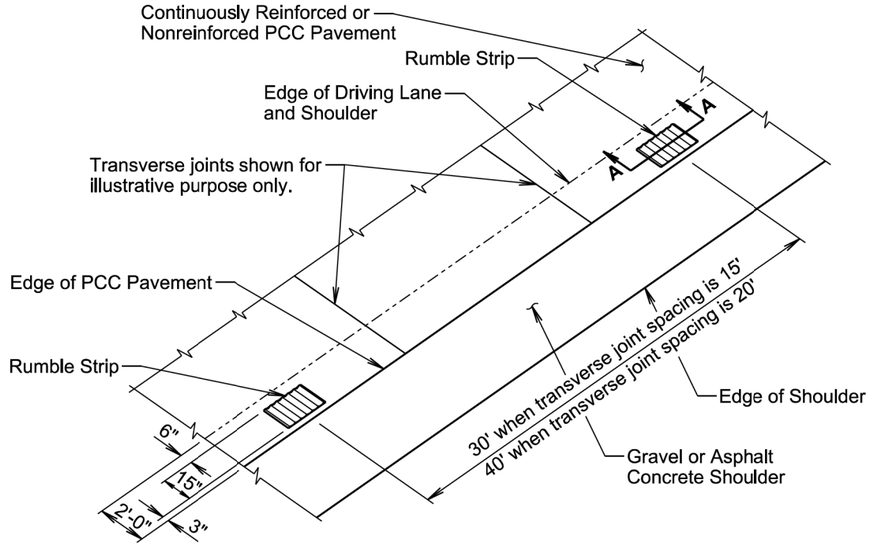
T=Pavement Thickness

GENERAL NOTE:

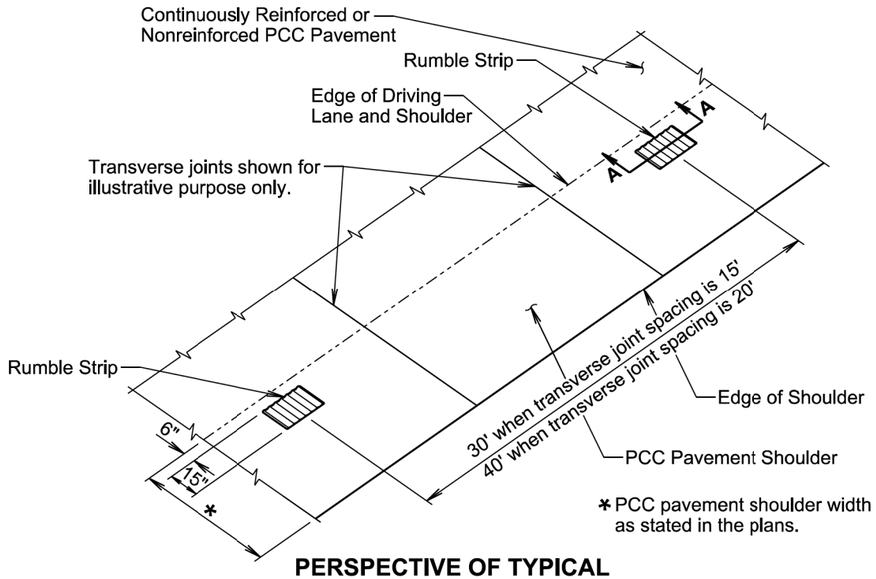
The first saw cut to control cracking will be a minimum of ⅓ the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer will be necessary.

November 19, 2022

Published Date: 2025	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITHOUT TIE BARS	PLATE NUMBER 380.22
			Sheet 2 of 2



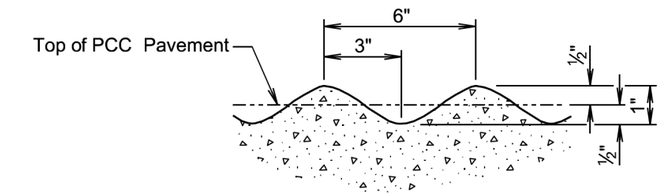
PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER ADJACENT TO GRAVEL OR ASPHALT CONCRETE SHOULDER



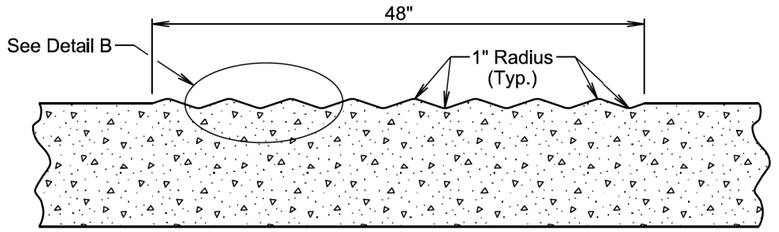
PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER

November 19, 2022

Published Date: 2025	SDDOT	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.53
			Sheet 1 of 2



DETAIL B



SECTION A-A

GENERAL NOTES:

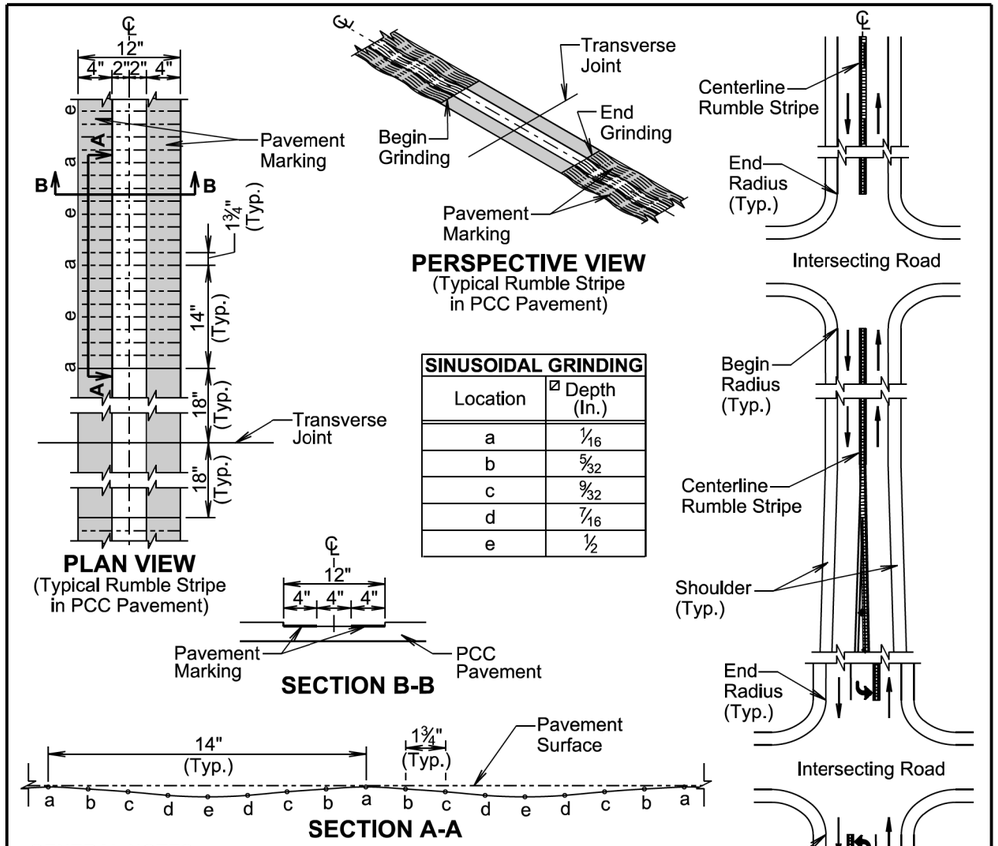
The rumble strips will be evenly spaced and will not coincide with any transverse contraction joints.

The rumble strips will NOT be placed along areas adjacent to entrance ramps, exit ramps, and gore areas.

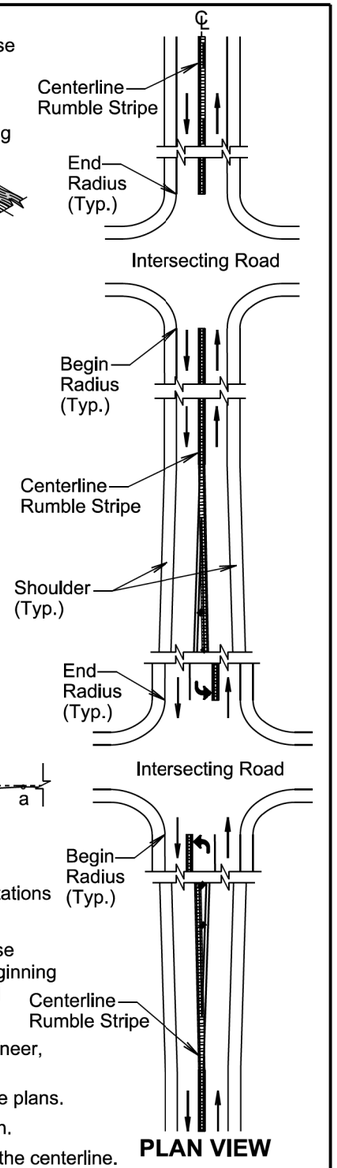
Payment for constructing the PCC Pavement Rumble Strips will be incidental to the contract unit price per square yard for the corresponding PCC Pavement contract item.

November 19, 2022

Published Date: 2025	SDDOT	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.53
			Sheet 2 of 2



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



GENERAL NOTES:

A rumble stripe will be constructed by grinding continuous sinusoidal indentations in the PCC pavement with diamond blades.

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

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

The longitudinal centerline joint will be resealed as detailed elsewhere in the plans.

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

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

November 19, 2022

Published Date: 2025	SDDOT	***SINUSOIDAL CENTERLINE RUMBLE STRIPE IN PCC PAVEMENT***	***PLATE NUMBER*** 380.56 Sheet 1 of 1

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.

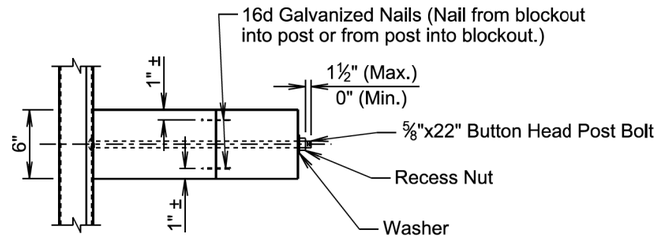
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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.

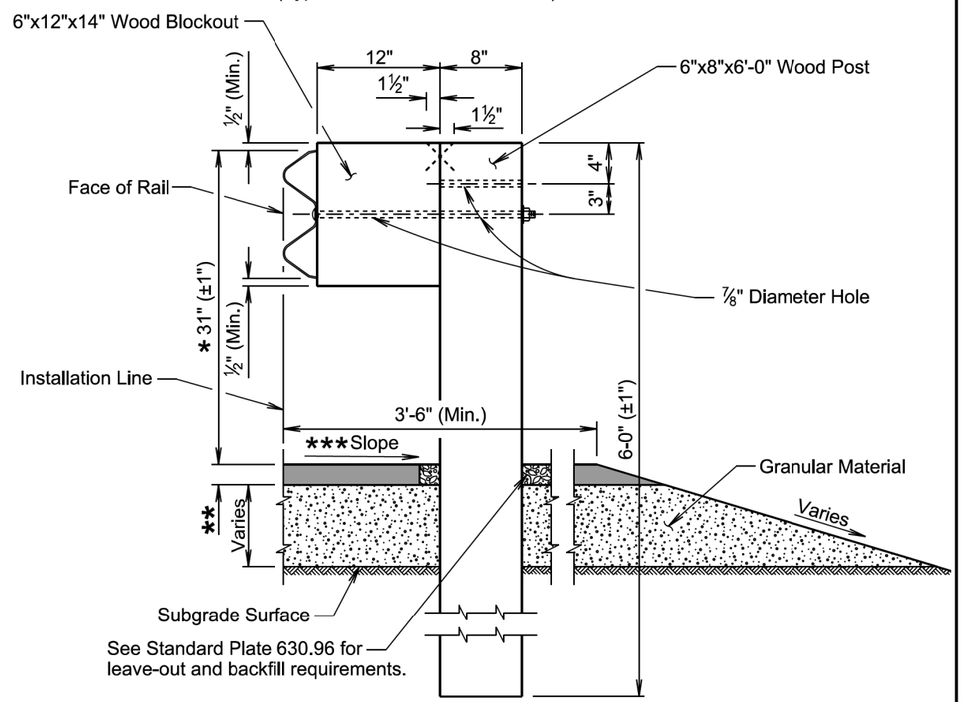
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

September 14, 2019

Published Date: 2025	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)

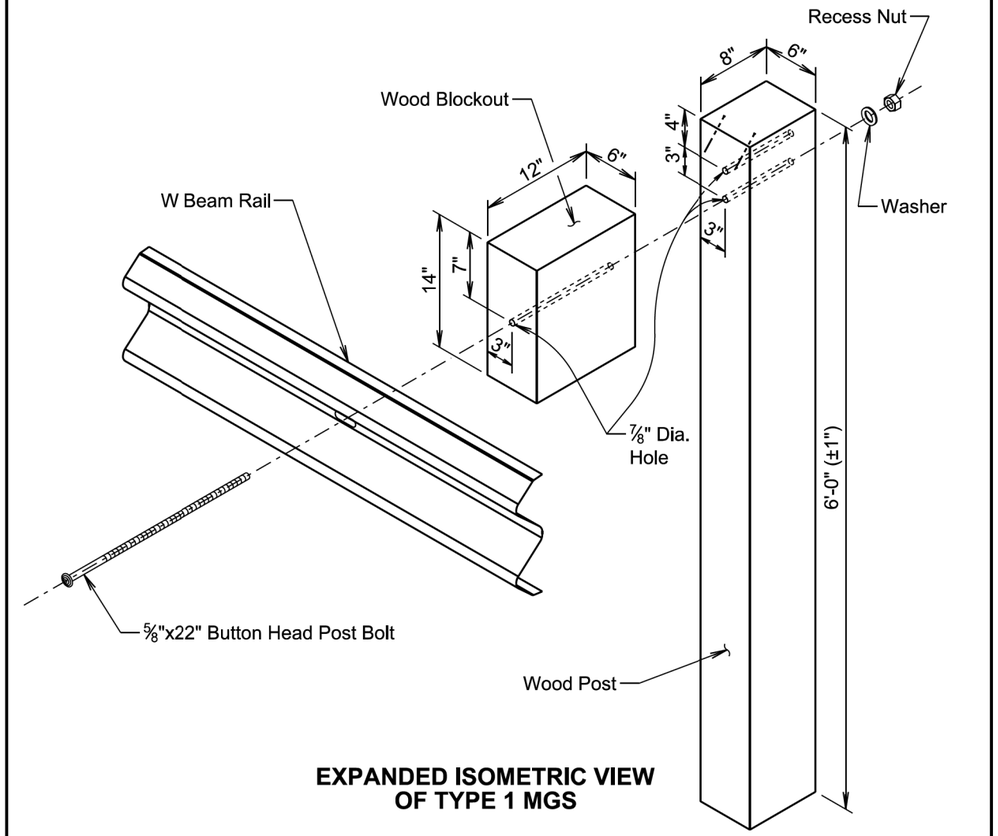
* See Standard Plate 630.99

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

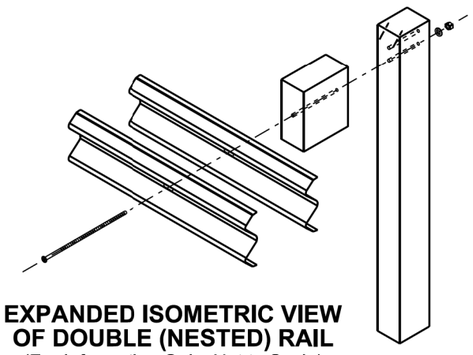
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

September 14, 2019

Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6



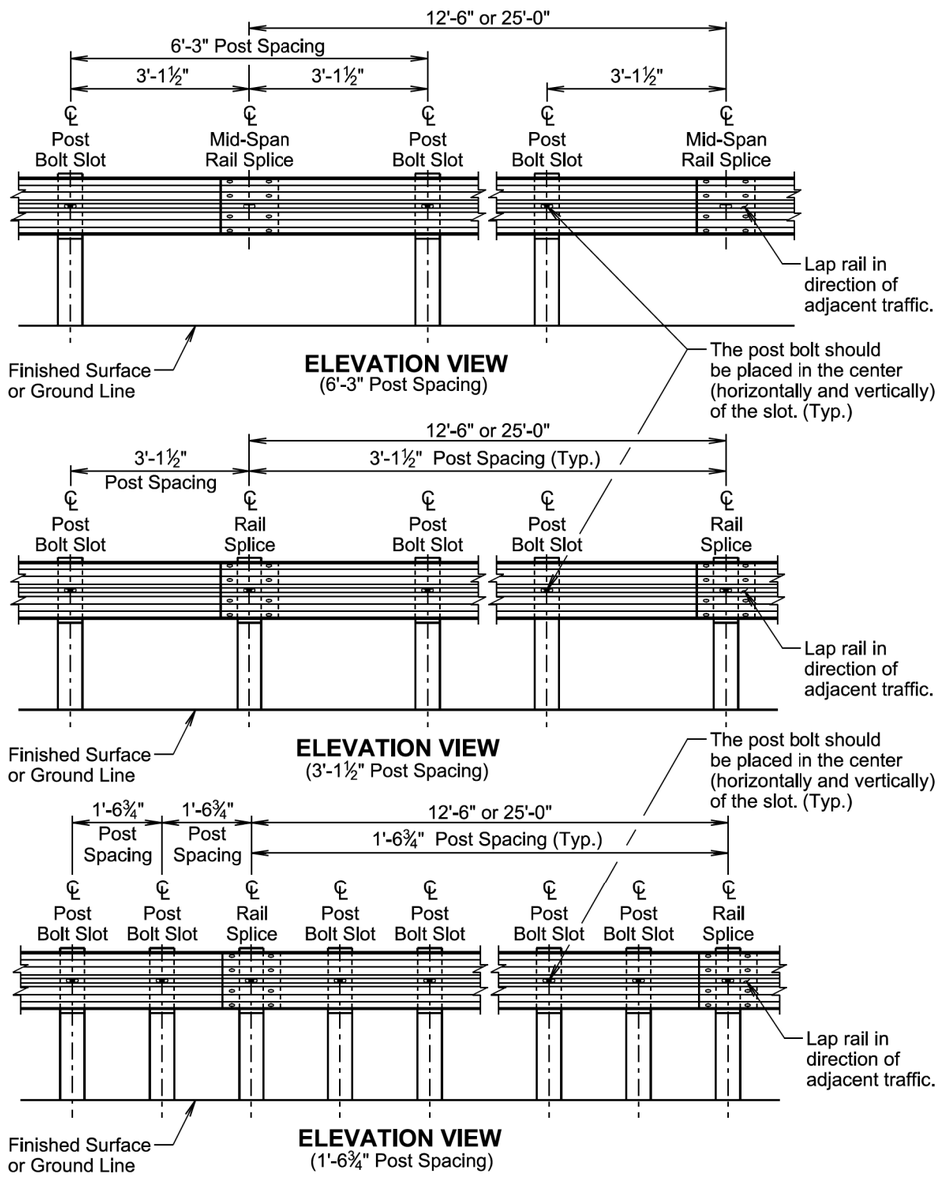
EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS



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

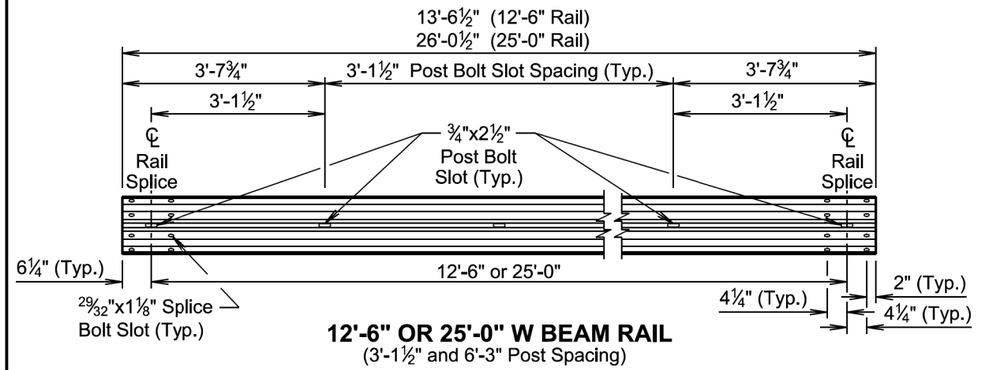
September 14, 2019

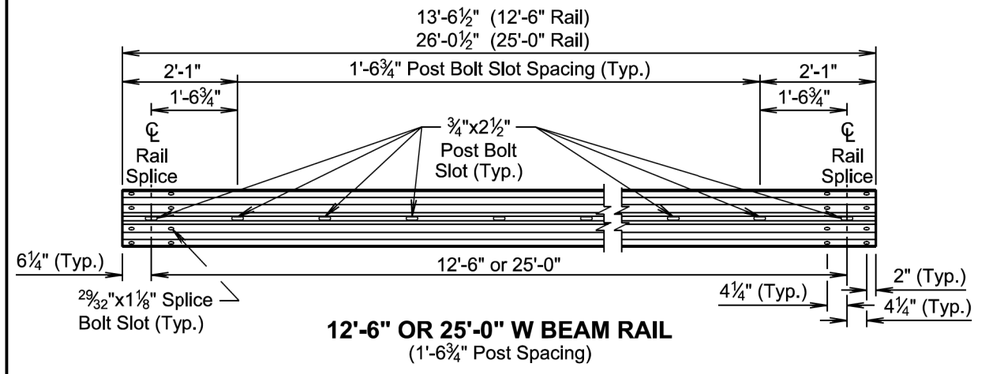
Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6



September 14, 2019

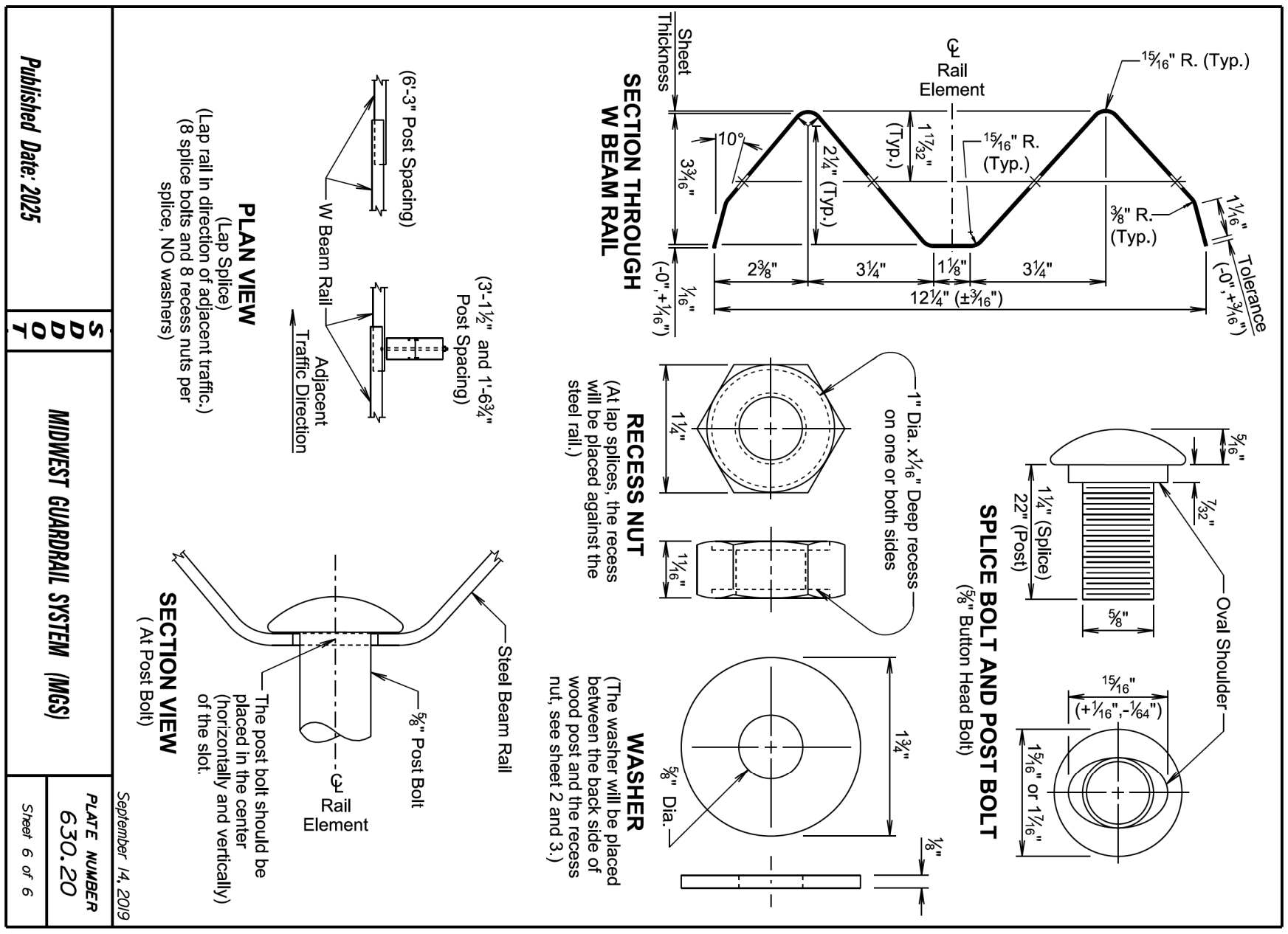
Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6

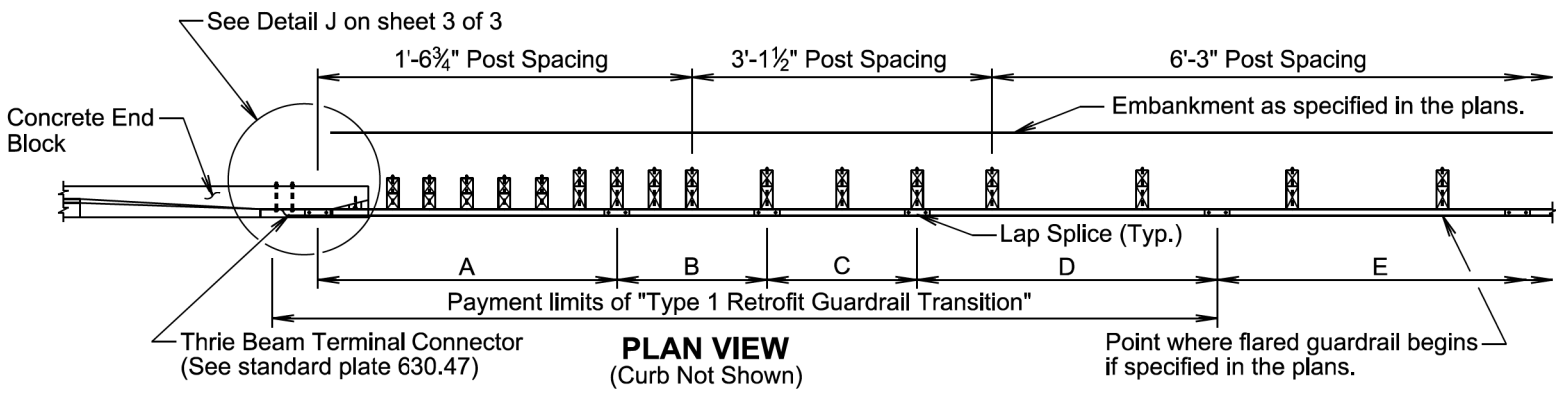




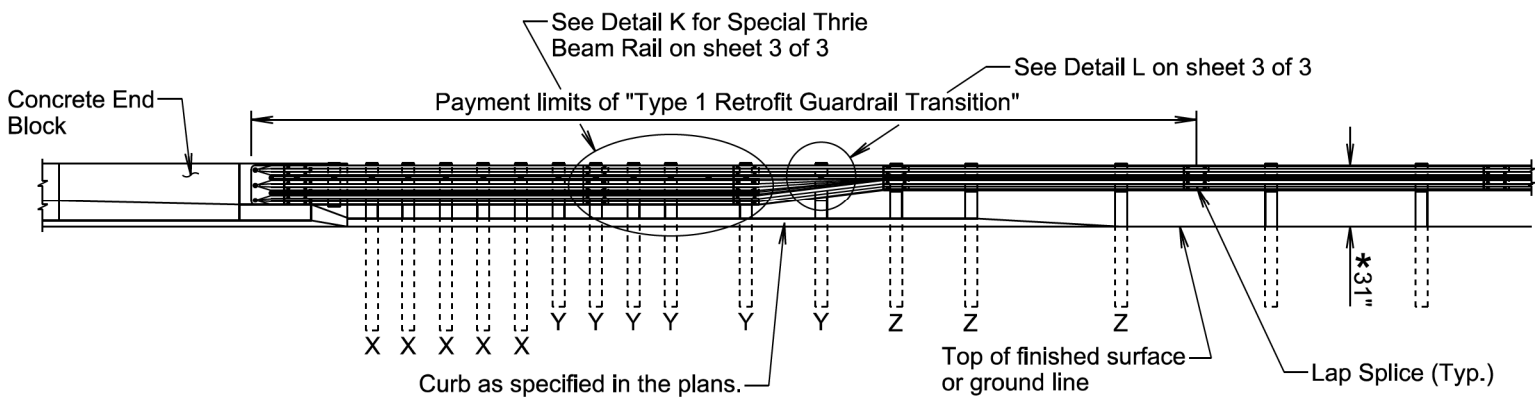
September 14, 2019

Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6





A: 12'-6" Straight Double (Nested) Class A Thrie Beam Guardrail with Wood Posts (See standard plate 630.01)
B: 6'-3" Straight Single Class A Thrie Beam Guardrail with Wood Posts (See Detail K on sheet 3 of 3)
C: 6'-3" Asymmetrical W Beam to Thrie Beam Guardrail Transition Section with Wood Posts (See standard plate 630.49)
D: 12'-6" Straight Type 4 MGS (See standard plate 630.20)
E: Straight Type 1 MGS or as specified in the plans (See standard plate 630.20)



X: 6"x8"x7'-0" Wood Post and 6"x8"x19" Wood Blockout
Y: 6"x8"x6'-0" Wood Post and 6"x12"x19" Wood Blockout
Z: 6"x8"x6'-0" Wood Post and 6"x12"x14" Wood Blockout

*See standard plate 630.99

Published Date: 2025

SDDOT

MIDWEST GUARDRAIL SYSTEM (MGS)

PLATE NUMBER 630.20

Sheet 6 of 6

September 14, 2019

SDDOT

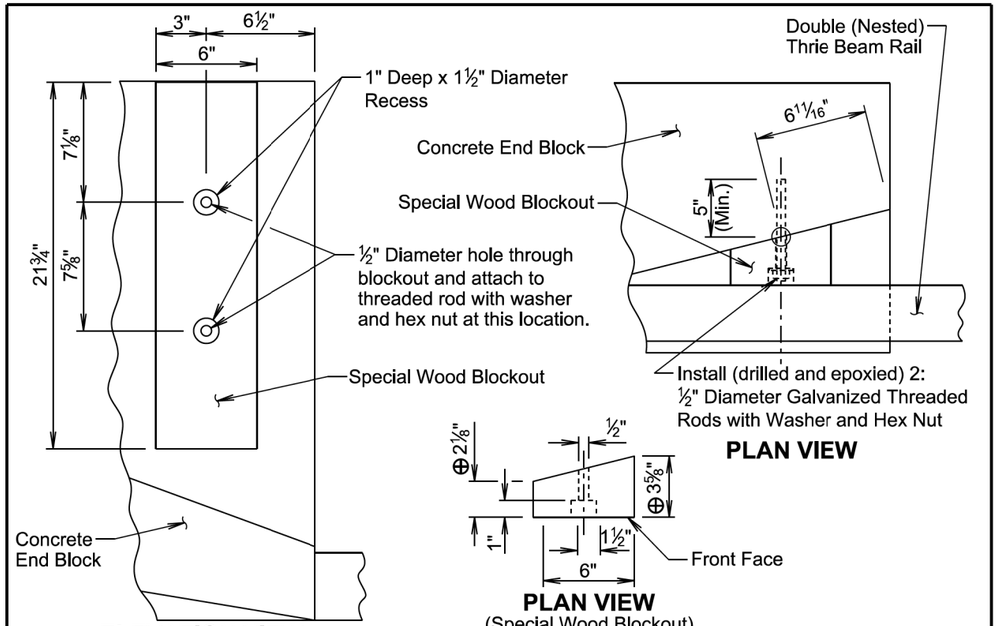
TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))

PLATE NUMBER 630.51

Sheet 1 of 3

September 14, 2019

STATE OF SOUTH DAKOTA
PROJECT NH-CR 0081(122)3 & P 0046(87)334
SHEET F65
TOTAL SHEETS F77
Plotting Date: 09/12/2024



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.

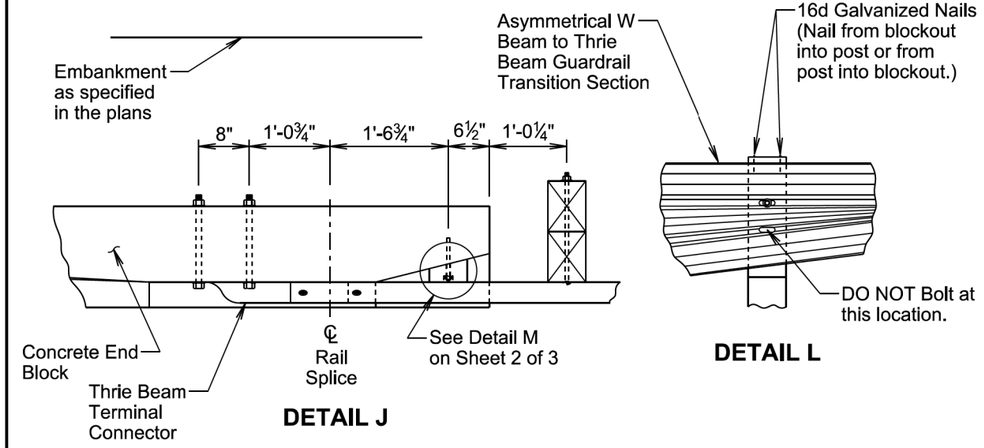
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

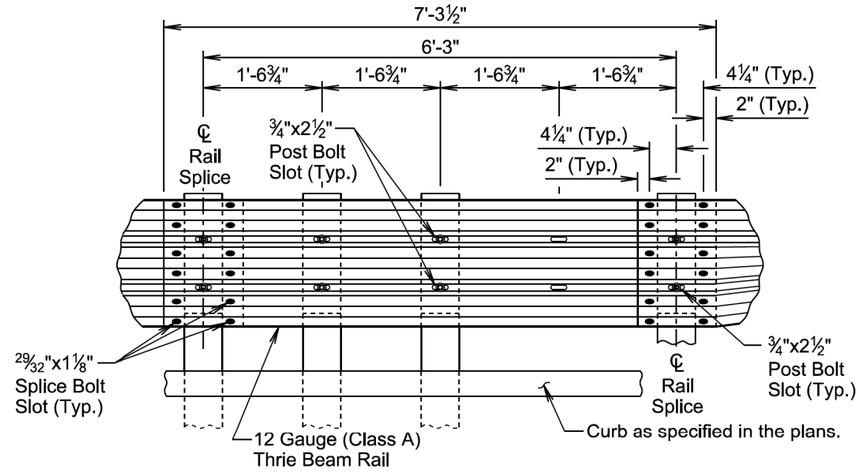
Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation 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: 2025	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 2 of 3





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.

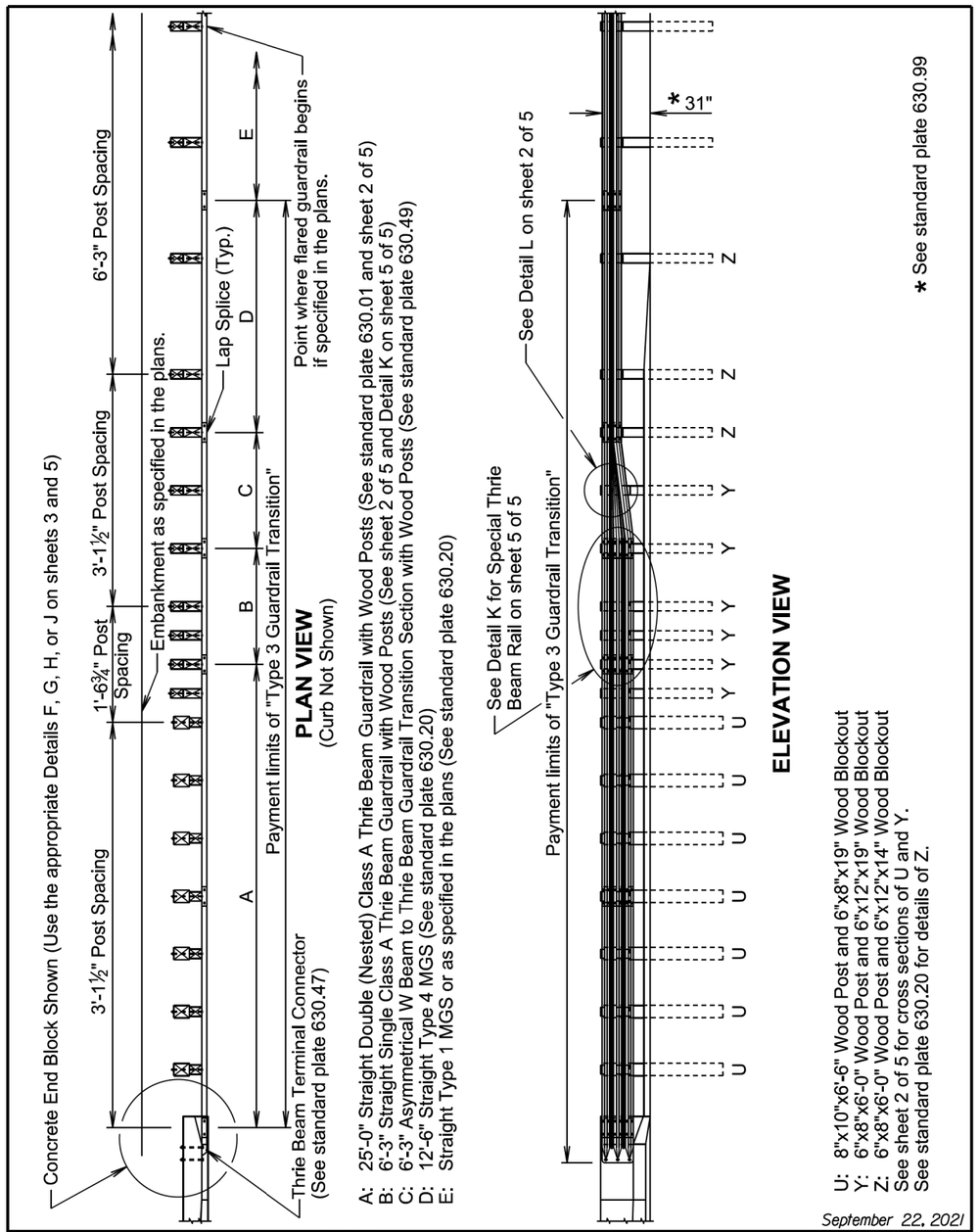
All costs for furnishing and installing the type 1 retrofit guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, special blockout, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Retrofit Guardrail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

September 14, 2019

Published Date: 2025	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 3 of 3

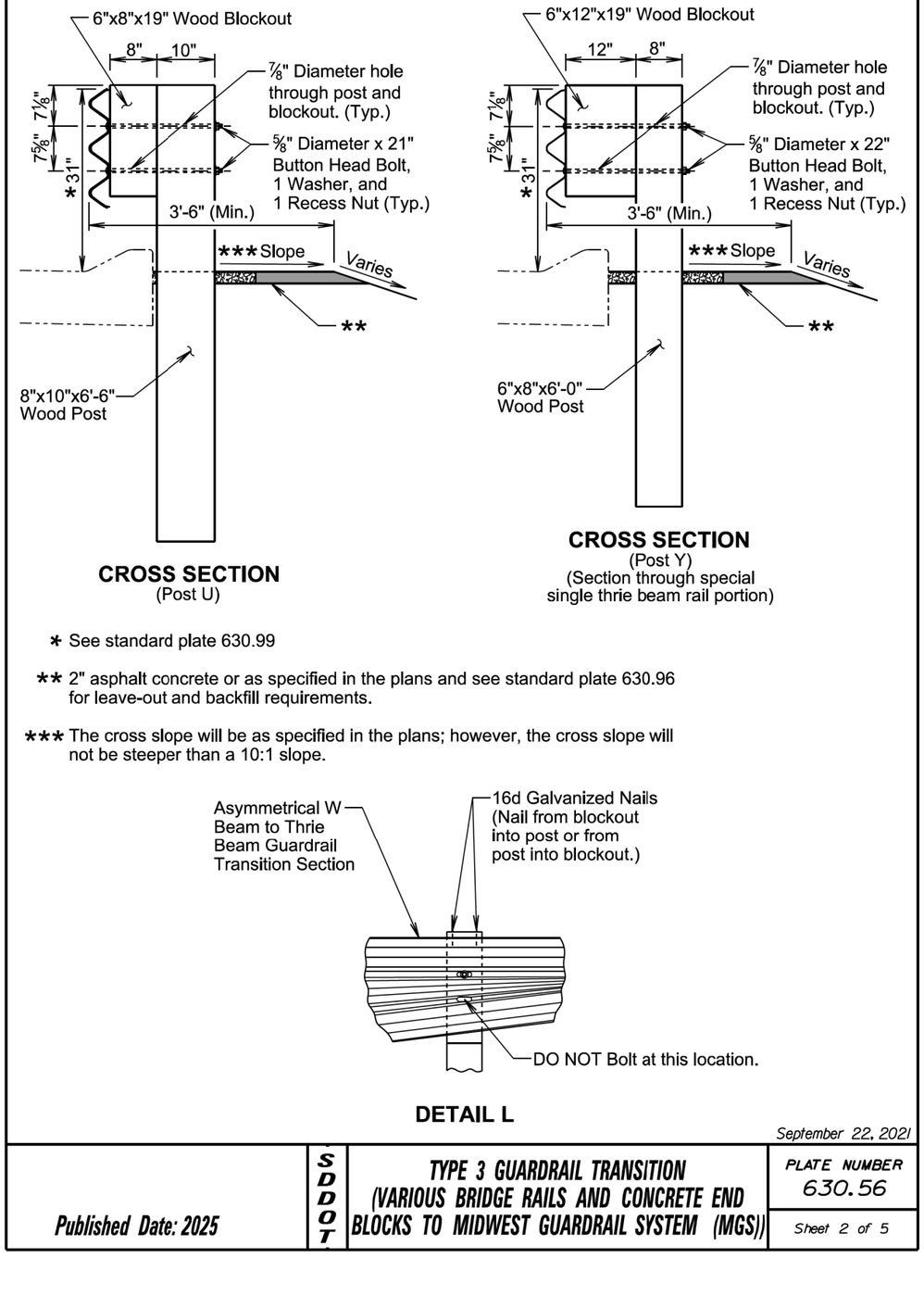
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F67	F77

Plotting Date: 09/12/2024



September 22, 2021

Published Date: 2025	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



* 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

September 22, 2021

Published Date: 2025	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

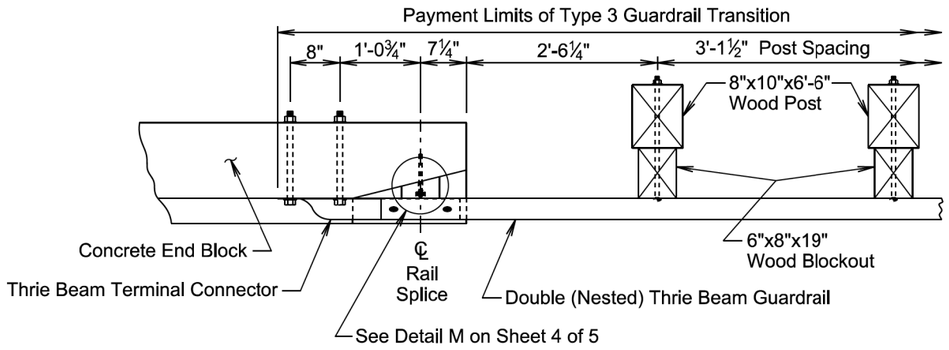
Plot Scale - 1:200

Plotted From - TRPR18388A

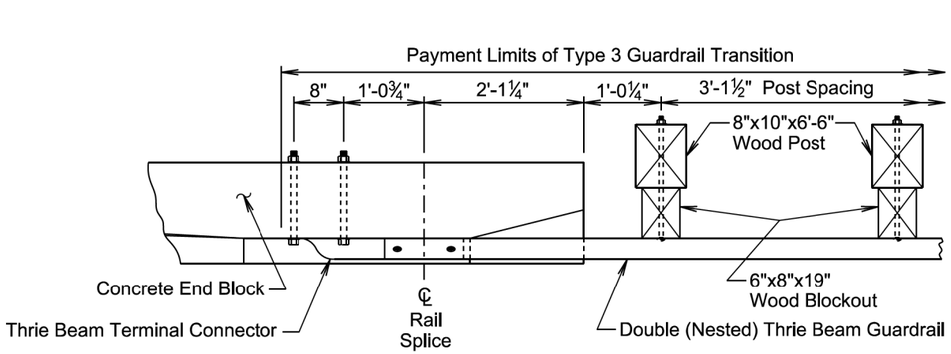
File - ...\yank07v2\StdPlateSectionF.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F68	F77

Plotting Date: 09/12/2024



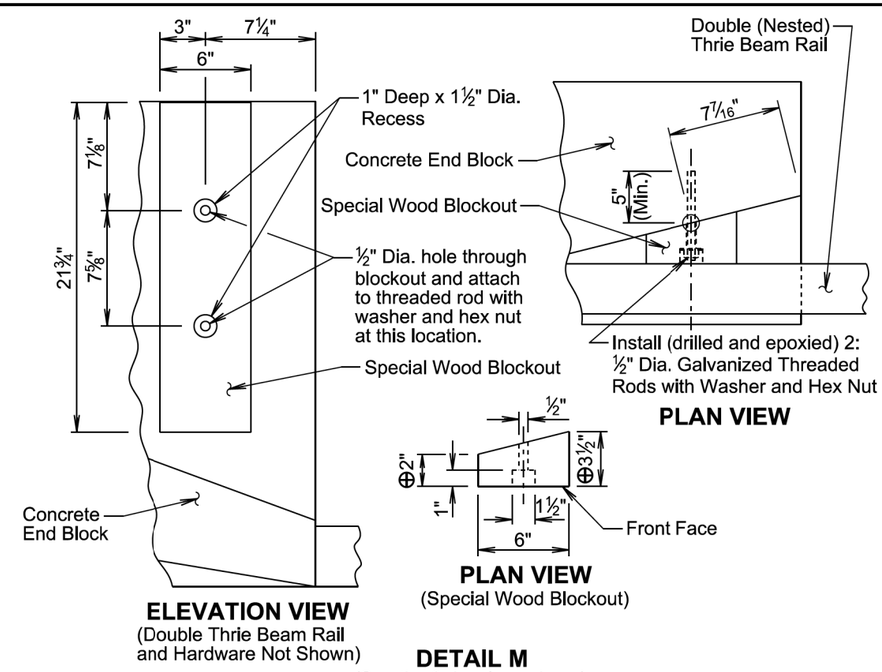
DETAIL F



DETAIL G

September 22, 2021

Published Date: 2025	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



ELEVATION VIEW
(Double Thrie Beam Rail and Hardware Not Shown)

PLAN VIEW

PLAN VIEW
(Special Wood Blockout)

DETAIL M
(See the 3 drawings above)

GENERAL NOTES FOR INSTALLING THREADED RODS INTO CONCRETE:

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

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

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

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

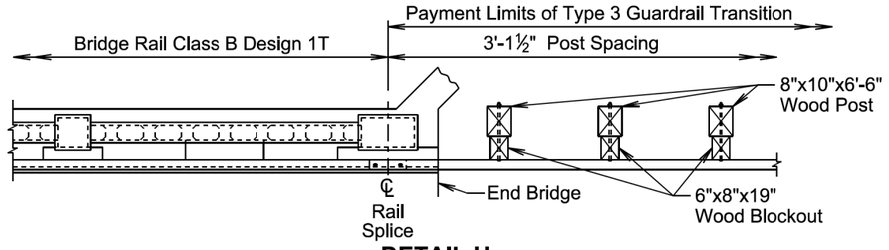
Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation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

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

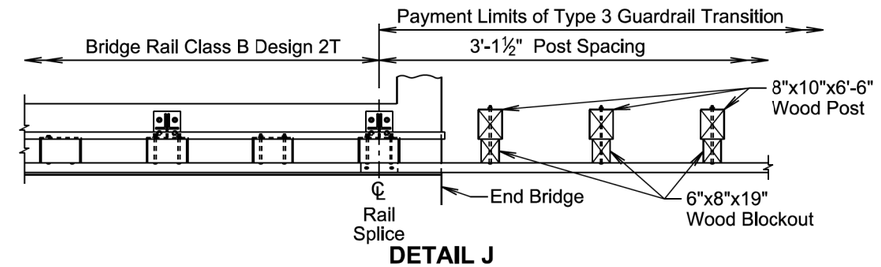
September 22, 2021

Published Date: 2025	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

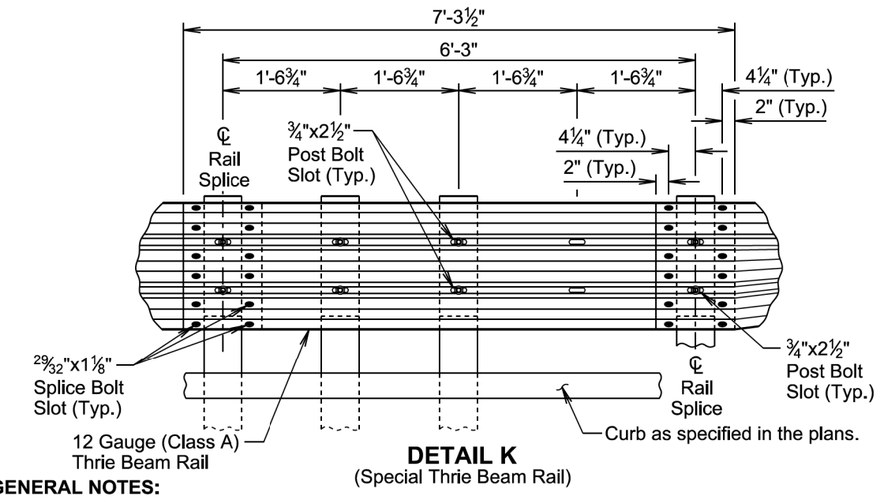
Plot Scale - 1:200
Plotted From - TRPR18388A
File - ...\yank07\2\StdPlateSectionF.dgn



DETAIL H



DETAIL J



DETAIL K
(Special Thrie Beam Rail)

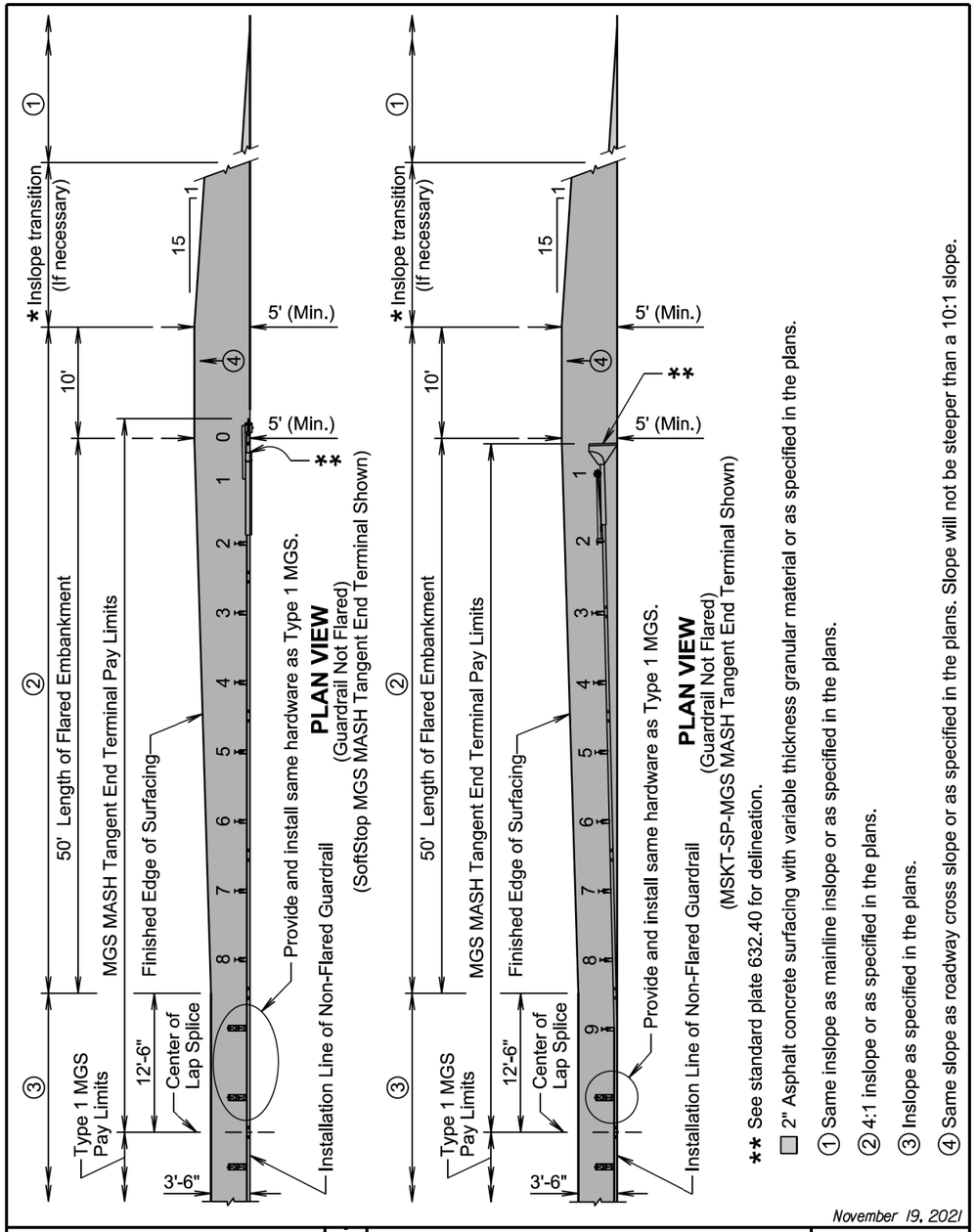
GENERAL NOTES:

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".

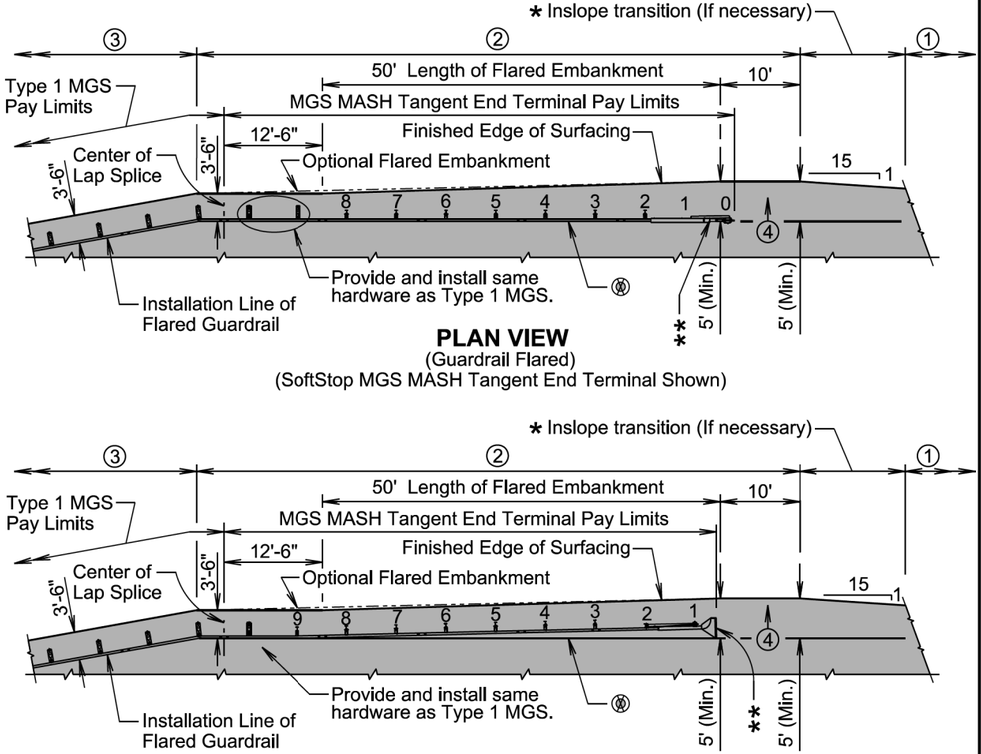
September 22, 2021

Published Date: 2025	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



November 19, 2021

Published Date: 2025	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 1 of 2



PLAN VIEW
(Guardrail Flared)
(SoftStop MGS MASH Tangent End Terminal Shown)

PLAN VIEW
(Guardrail Flared)
(MSKT-SP-MGS MASH Tangent End Terminal Shown)

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'.

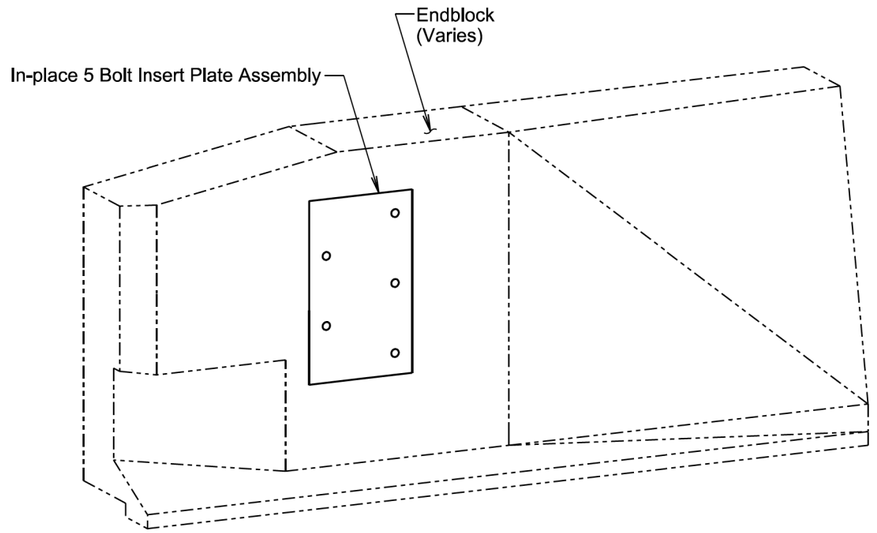
Ⓜ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

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.

November 19, 2021

Published Date: 2025	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 2 of 2



ISOMETRIC VIEW

GENERAL NOTES:

Bolts, nuts, and washers are furnished with each new assembly. Where guardrail is to be reset, bolts will be salvaged and reset for guardrail installation. Any hardware damaged or lost from the Contractor's operation will be replaced at no additional cost to the State.

New bolts, if required, will be galvanized and conform to the requirements of ASTM A307, F-1554 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

Bolt heads will be placed on the traffic side of the endblock. Bolt projection at the back side of the insert will not exceed 1 inch beyond the nut.

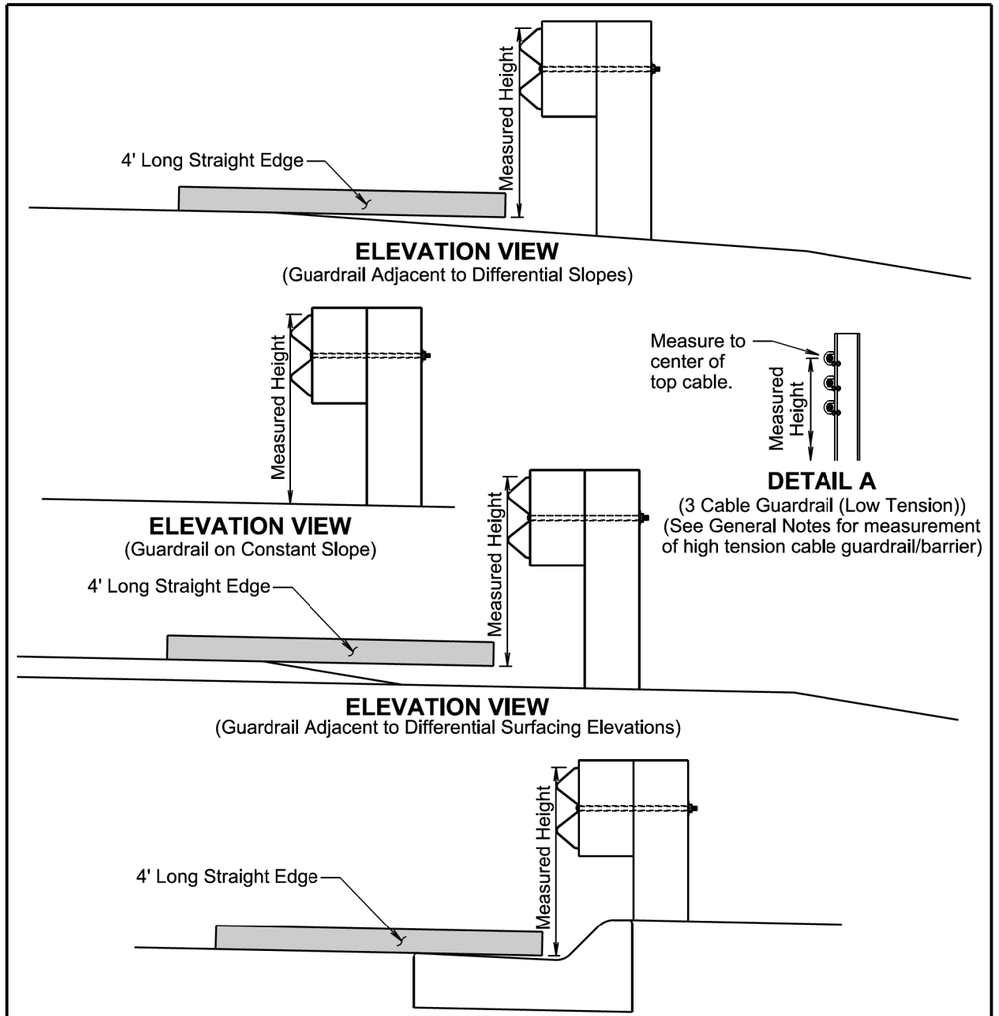
All costs for salvaging, resetting, and refurnishing lost hardware will be incidental to the contract unit price for the respective guardrail contract item.

November 19, 2022

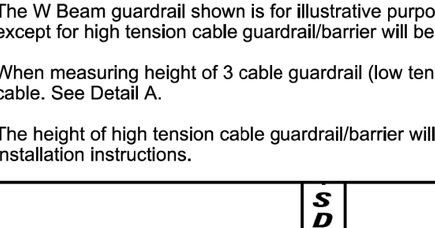
Published Date: 2025	SDDOT	GUARDRAIL ATTACHMENT TO BRIDGE ENDBLOCKS	PLATE NUMBER 630.93
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F71	F77

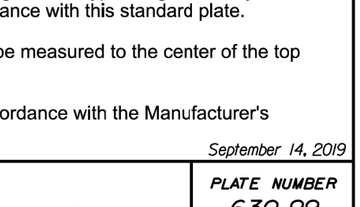
Plotting Date: 09/12/2024



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:

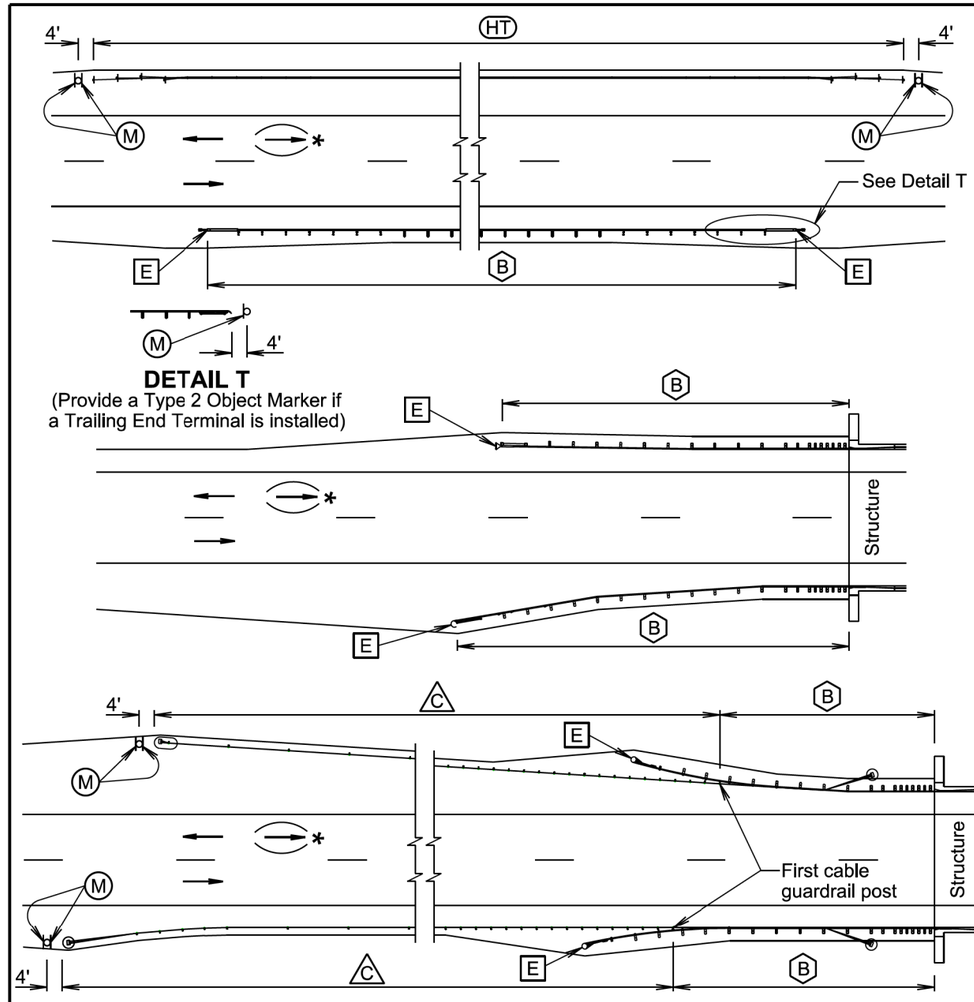
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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: 2025	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.

March 31, 2024

Published Date: 2025	SDDOT	***DELINEATION OF GUARDRAIL***	***PLATE NUMBER*** 632.40
			Sheet 1 of 4

Plot Scale - 1:200

Plotted From - TRPR18388A

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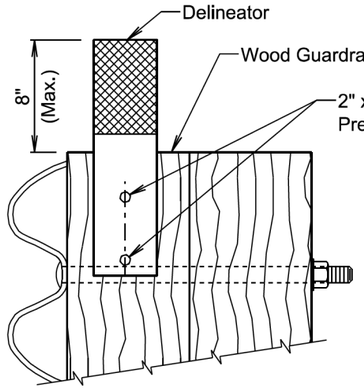
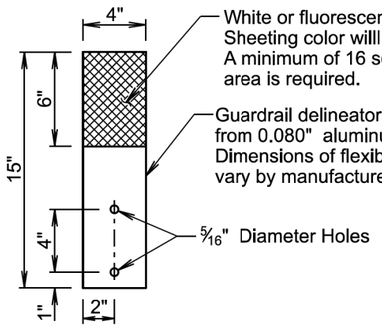
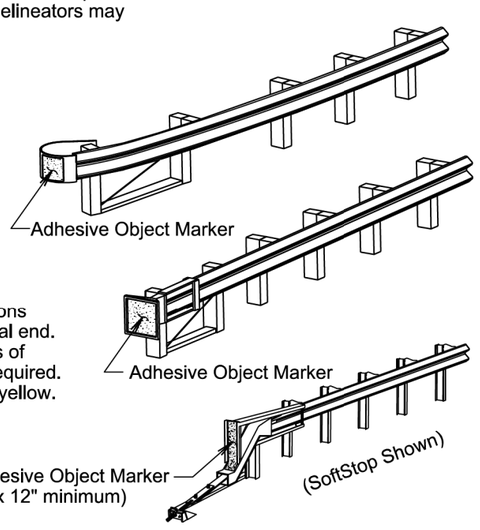


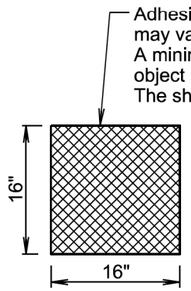
(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



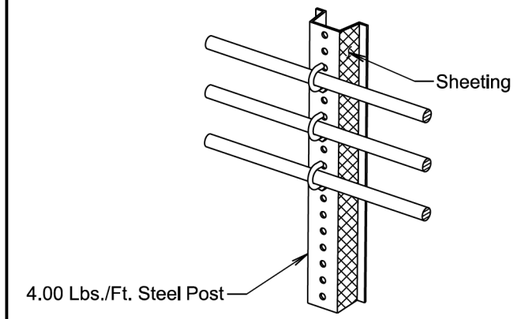
(E) GUARDRAIL END TERMINAL OBJECT MARKER



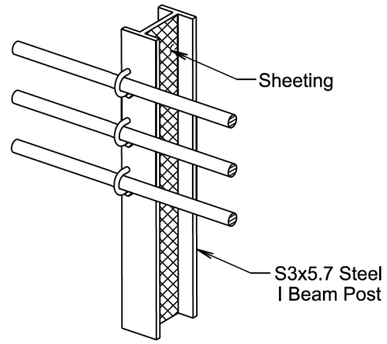
ADHESIVE OBJECT MARKER

March 31, 2024

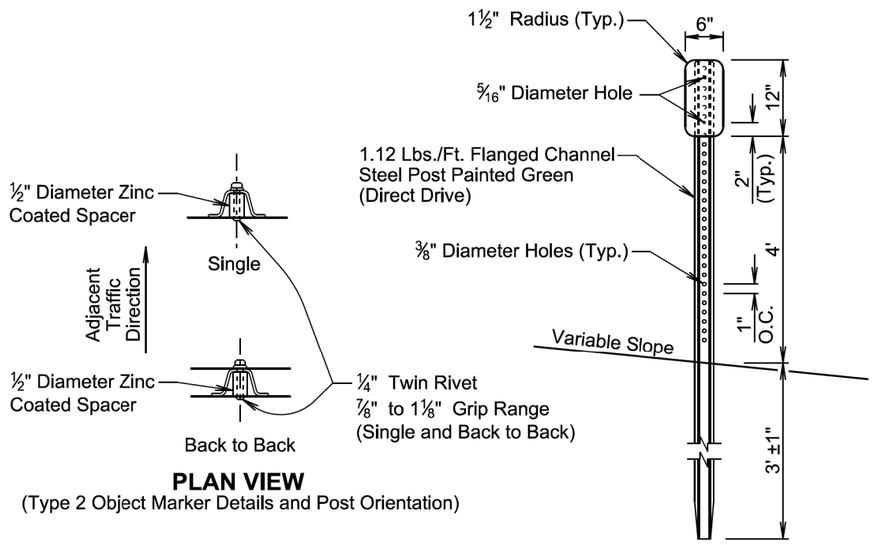
Published Date: 2025	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



(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)

March 31, 2024

Published Date: 2025	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".

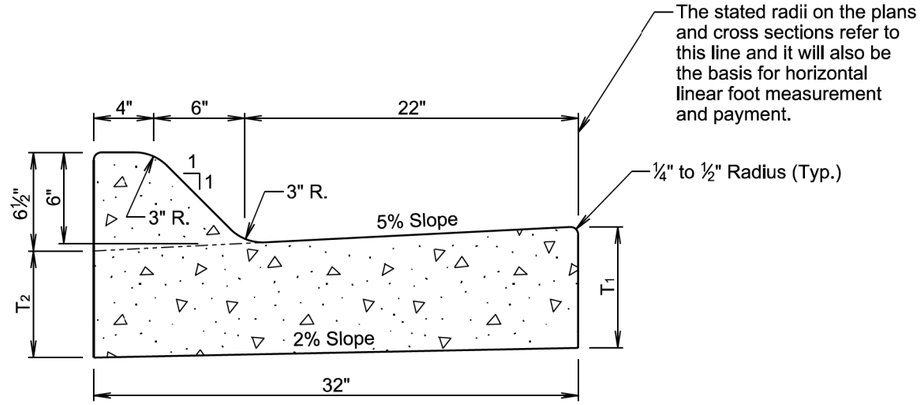
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

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 adjacent to the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, and trailing end terminal at the location 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.

March 31, 2024

Published Date: 2025	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4



TYPE F CONCRETE CURB AND GUTTER				
Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
F66	6	5 1/16	0.057	17.6
F67	7	6 1/16	0.065	15.4
F68	8	7 1/16	0.073	13.6
F68.5	8.5	7 9/16	0.077	12.9
F69	9	8 1/16	0.082	12.3
F69.5	9.5	8 9/16	0.086	11.7
F610	10	9 1/16	0.090	11.1
F610.5	10.5	9 9/16	0.094	10.7
F611	11	10 1/16	0.098	10.2
F611.5	11.5	10 9/16	0.102	9.8
F612	12	11 1/16	0.106	9.4

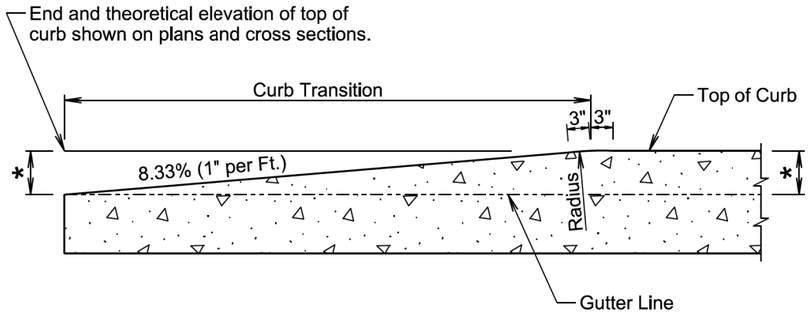
GENERAL NOTES:

When concrete curb and gutter longitudinally adjoins new concrete pavement, the method of attachment will be by one of the methods shown on standard plate 380.21.

See standard plate 650.90 for expansion and contraction joints in the curb and gutter.

January 22, 2023

Published Date: 2025	SDDOT	TYPE F CONCRETE CURB AND GUTTER	PLATE NUMBER 650.20
			Sheet 1 of 1

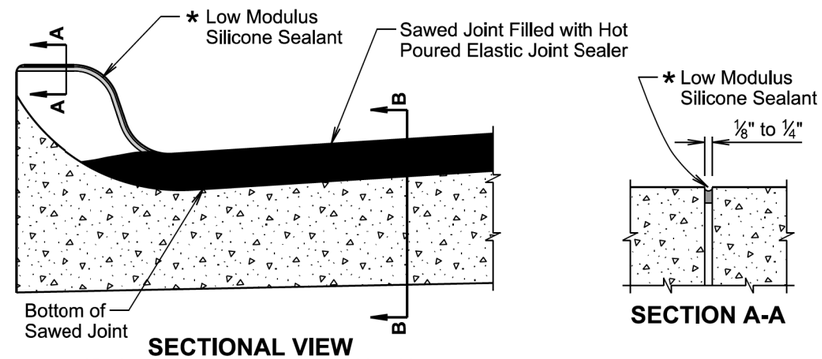


* Height of Curb

LONGITUDINAL SECTION
(Concrete Curb Taper)

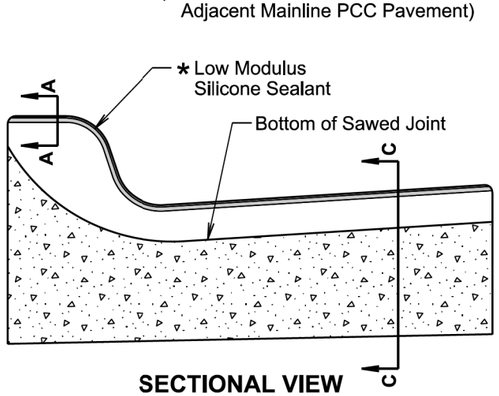
December 23, 2019

Published Date: 2025	SDDOT	***CONCRETE CURB TAPER***	***PLATE NUMBER*** 650.35 Sheet 1 of 1

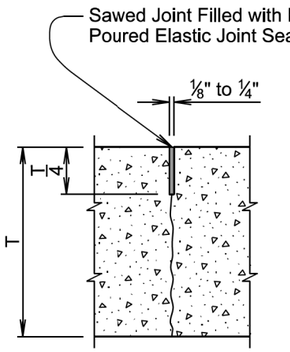


SECTIONAL VIEW
(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

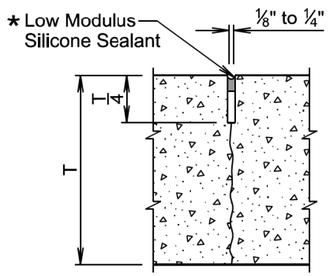
SECTION A-A



SECTIONAL VIEW
(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)



SECTION B-B

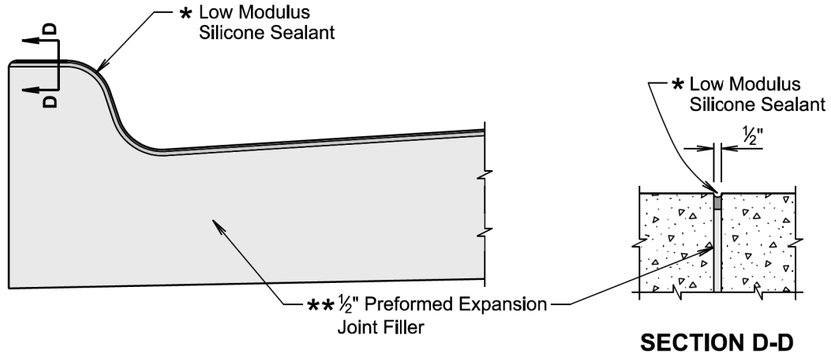


SECTION C-C

* The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

December 23, 2019

Published Date: 2025	SDDOT	***JOINTS IN CONCRETE CURB AND GUTTER***	***PLATE NUMBER*** 650.90 Sheet 1 of 2



SECTION D-D

SECTIONAL VIEW
(Curb and Gutter at ½" Preformed Expansion Joint Filler Location)

* The silicone sealant will be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

GENERAL NOTES:

For illustrative reason, only the type B curb and gutter is shown.

** A ½-inch preformed expansion joint filler will be placed transversely in the curb and gutter at the following locations:

At each junction between the radius return of curb and gutter, and curb and gutter which is parallel to the project centerline.

At each junction between new curb and gutter and existing curb and gutter.

Transverse contraction joints will be constructed at 10 foot intervals in the concrete curb and gutter except when the concrete curb and gutter is constructed adjacent to mainline PCC pavement. When concrete curb and gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint will be constructed in the concrete curb and gutter at each mainline PCC pavement transverse contraction joint location.

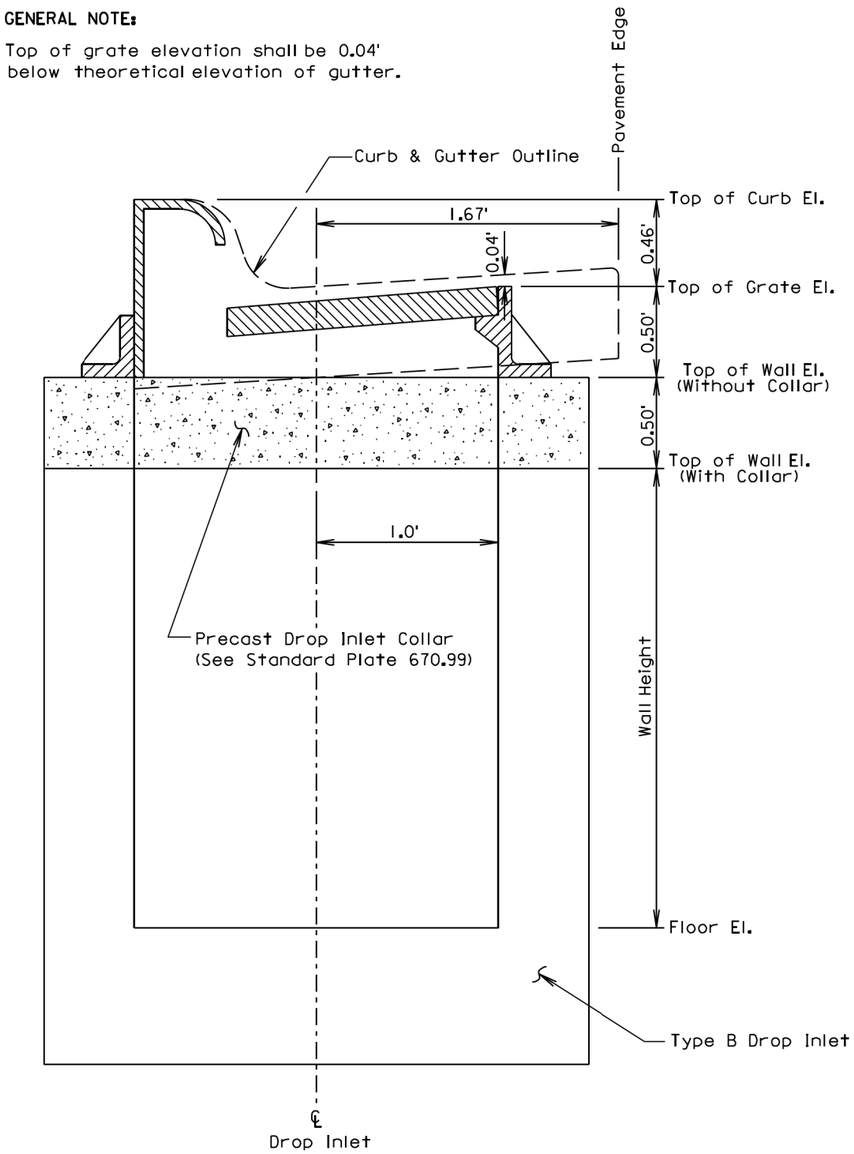
When concrete curb and gutter is not placed monolithically with the mainline PCC pavement or when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete curb and gutter will be 1½ inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least ¼ the thickness of the concrete and the joint will be sealed in accordance with the details shown above.

December 23, 2019

Published Date: 2025	SDDOT	JOINTS IN CONCRETE CURB AND GUTTER	PLATE NUMBER 650.90
			Sheet 2 of 2

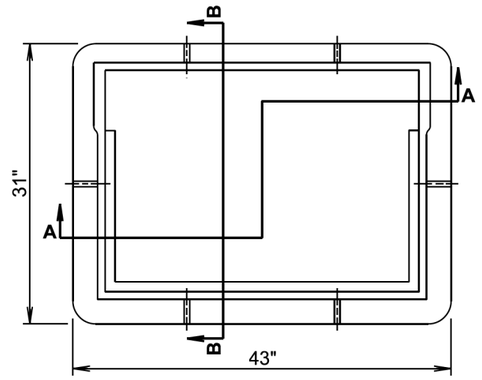
GENERAL NOTE:

Top of grate elevation shall be 0.04' below theoretical elevation of gutter.

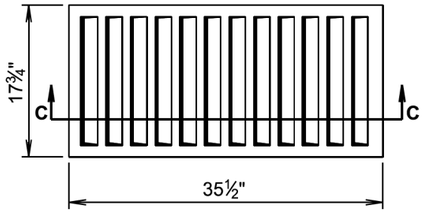


June 26, 2011

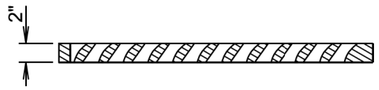
Published Date: 2025	SDDOT	INSTALLATION OF TYPE B DROP INLET	PLATE NUMBER 670.75
			Sheet 1 of 1



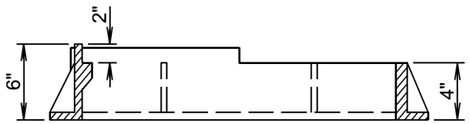
PLAN VIEW
(Frame)



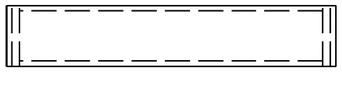
PLAN VIEW
(Grate)



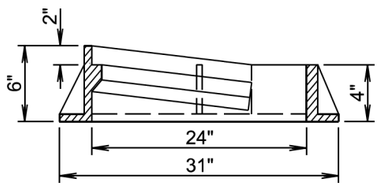
SECTION C-C



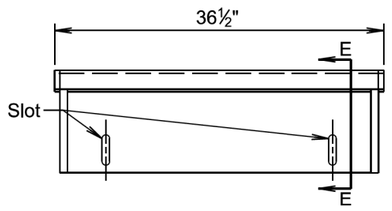
SECTION A-A



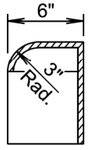
TOP VIEW
(Curb Box)



SECTION B-B



ELEVATION VIEW
(Curb Box)



SECTION E-E

GENERAL NOTES:

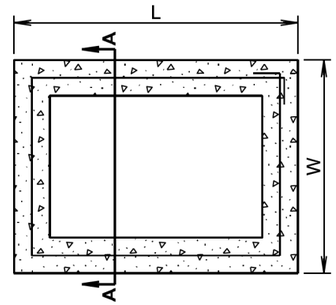
The product dimensions may vary from those shown on the standard plate depending on the manufacturer. Grate size and configuration will be similar to the standard plate for hydraulic capacity and bicycle safety. Any variation in dimensions will be approved by the Engineer and the type B frame and grate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

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

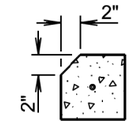
The curb box will be adjustable 6" to 9".

June 1, 2022

Published Date: 2025	SDDOT	*TYPE B FRAME AND GRATE*	*PLATE NUMBER* 670.80
			Sheet 1 of 1

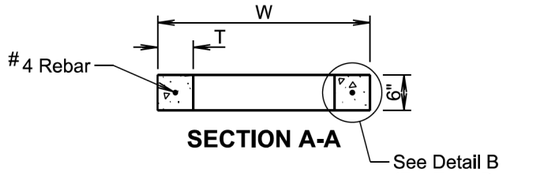


PLAN VIEW



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

DETAIL B



SECTION A-A

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.

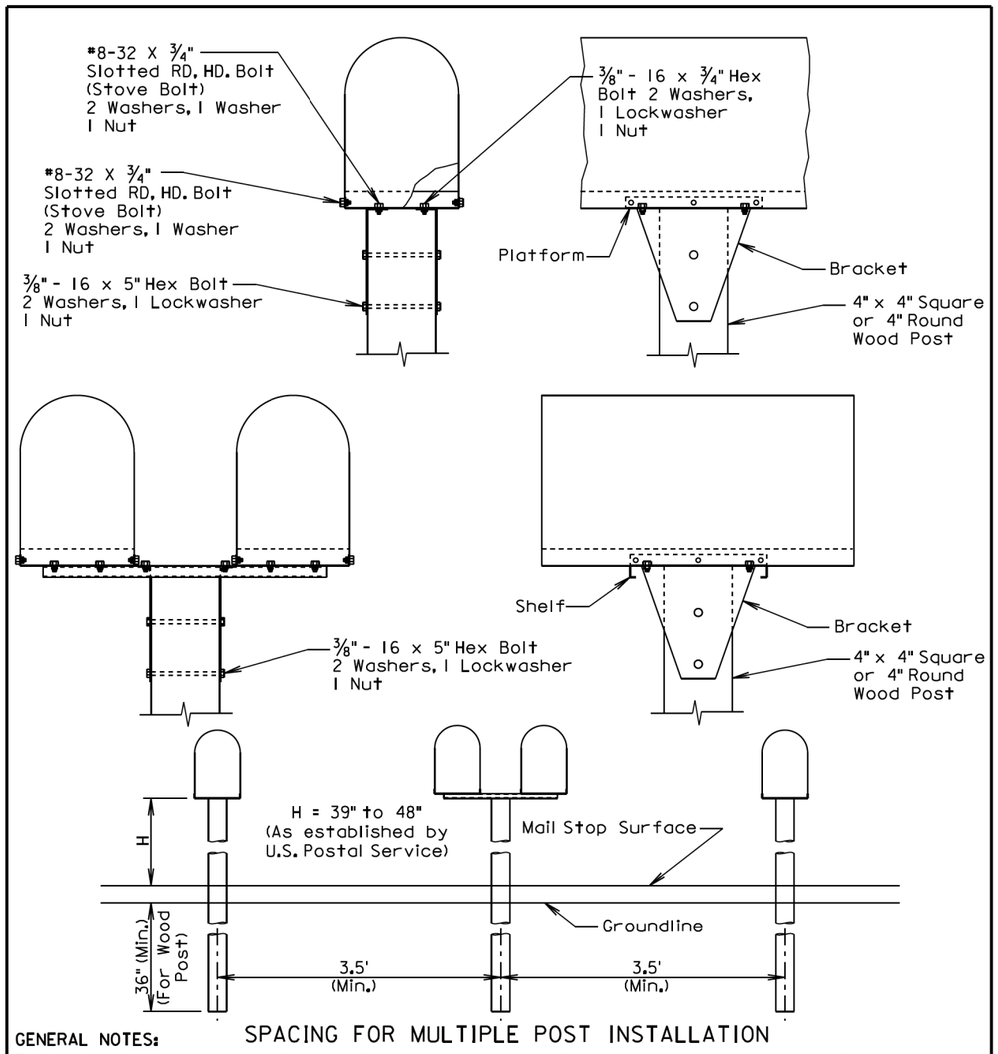
The cost of furnishing and installing Precast Drop Inlet Collars, including labor, materials, and incidentals will be incidental to the contract unit price per Each for "Precast Drop Inlet Collar".

June 1, 2022

Published Date: 2025	SDDOT	*PRECAST DROP INLET COLLAR*	*PLATE NUMBER* 670.99
			Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-CR 0081(122)3 & P 0046(87)334	F77	F77

Plotting Date: 09/12/2024



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

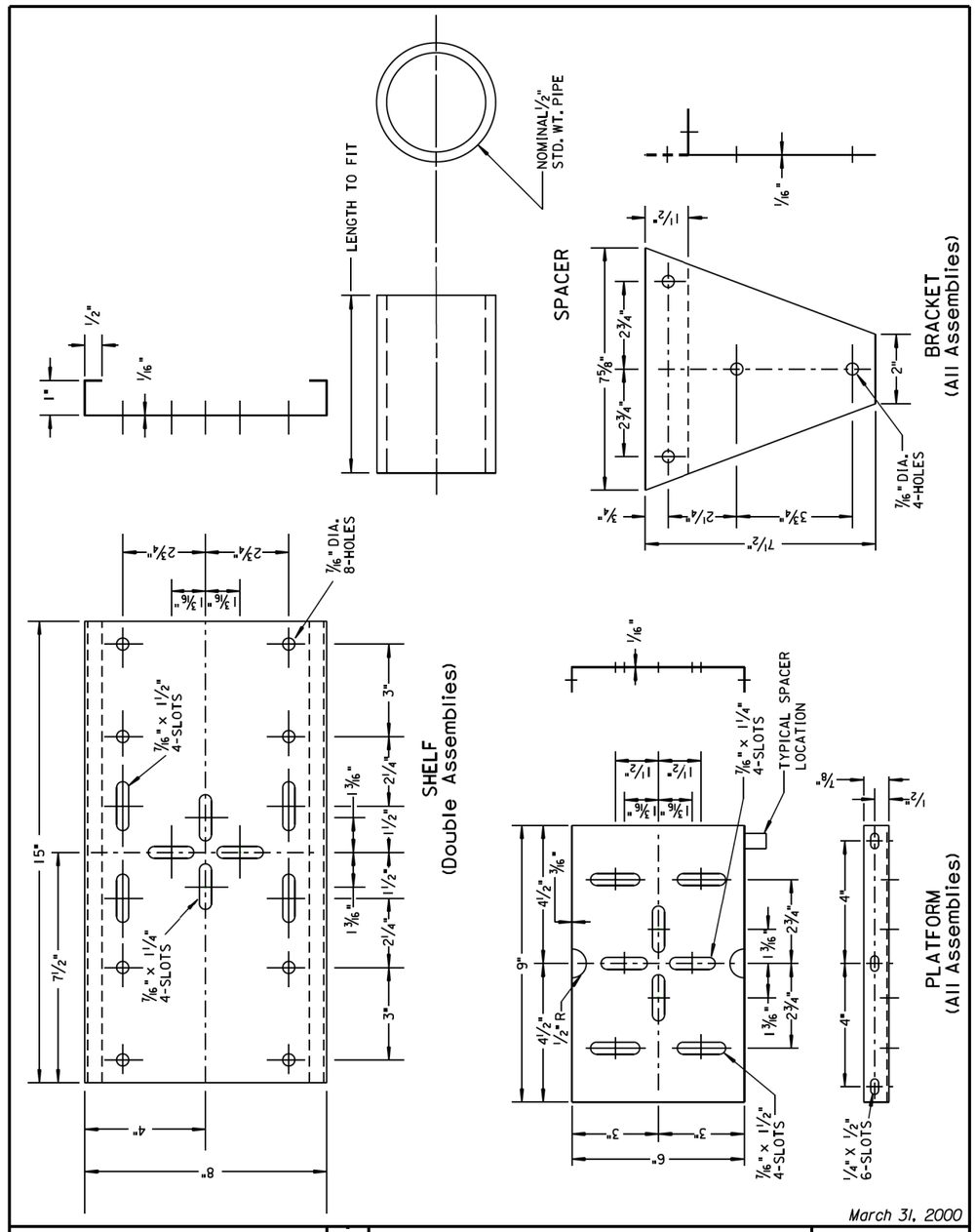
Single and double mailboxes may be in any sequence.

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: 2025	SDDOT	***SINGLE AND DOUBLE MAILBOX ASSEMBLIES***	***PLATE NUMBER*** 900.02 *Sheet 1 of 1*



March 31, 2000

Published Date: 2025	SDDOT	***MAILBOX SUPPORT HARDWARE***	***PLATE NUMBER*** 900.03 *Sheet 1 of 1*

Plot Scale - 1:200

Plotted From - TRPR18388A

File - ...\vank07\V2\StdPlateSectionF.dgn