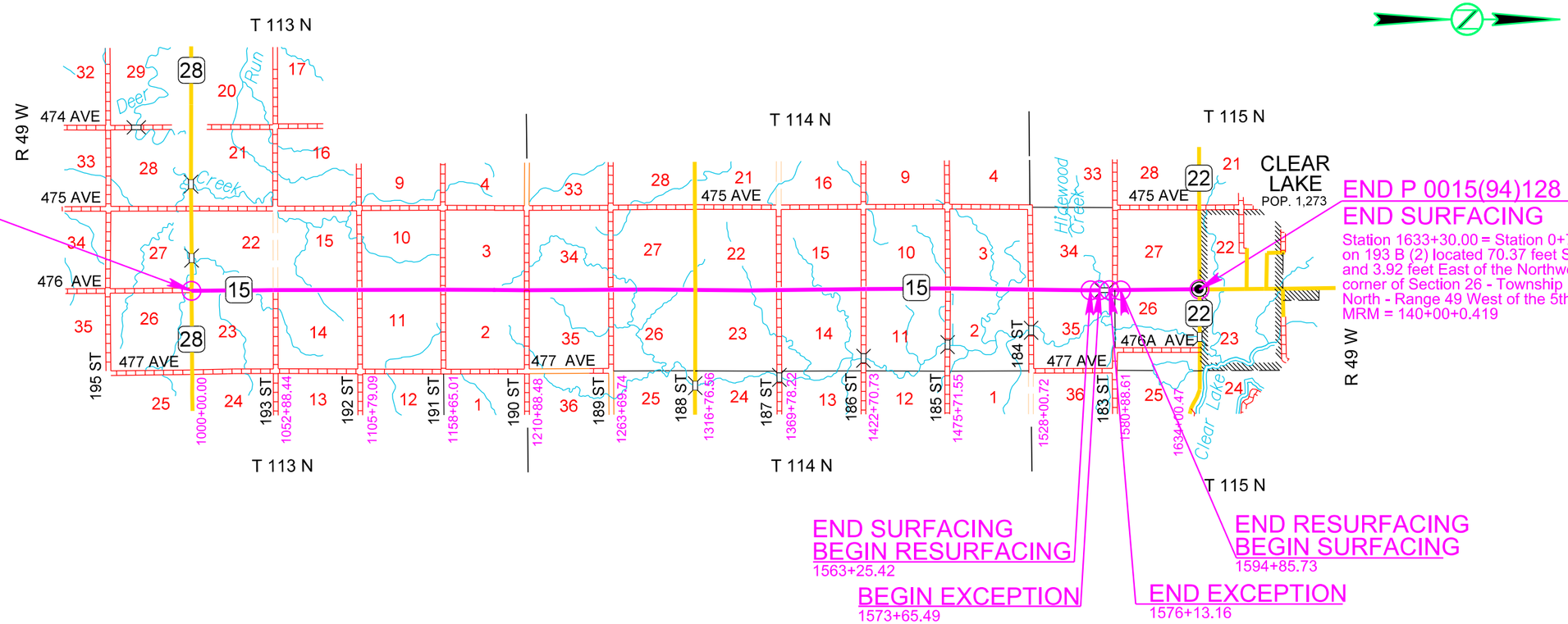
SECTION F: SURFACING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F1	F19

Plotting Date: 06/07/2024

INDEX OF SHEETS



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SECTION F – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	75.0	SqYd
120E0010	Unclassified Excavation	654	CuYd
120E0100	Unclassified Excavation, Digouts	597	CuYd
120E6200	Water for Granular Material	37.4	MGal
210E1005	Surface Preparation	3.000	Mile
260E1010	Base Course	1,946.0	Ton
260E1030	Base Course, Salvaged	1,235.1	Ton
270E0110	Salvage and Stockpile Granular Material	1,235.1	Ton
320E0005	PG 58-34 Asphalt Binder	3,217.3	Ton
320E1200	Asphalt Concrete Composite	25.0	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	69,231.4	Ton
320E4000	Hydrated Lime	692.2	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	24.0	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	8.7	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	3.3	Mile
330E0010	MC-70 Asphalt for Prime	100.1	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	169.0	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	64.3	Ton
330E1000	Blotting Sand for Prime	215.0	Ton
330E2000	Sand for Flush Seal	628.7	Ton
332E0010	Cold Milling Asphalt Concrete	12,039	SqYd
600E0300	Type III Field Laboratory	1	Each
900E0022	Remove and Reset Mailbox	14	Each
900E1980	Storage Unit	1	Each

SURFACING THICKNESS DIMENSIONS

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

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

UTILITIES

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

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

TYPE III FIELD LABORATORY

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

SURFACE PREPARATION

Prior to placement of the Class Q3R Hot Mixed Asphalt Concrete, the Contractor will be required to prepare the existing surface according to the Surface Preparation specifications provided in Section 210, at locations determined by the Engineer.

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

Quantities for Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime have been provided for 3 miles of the asphalt surfacing project. Actual limits to receive Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime ahead of Class Q3R Hot Mixed Asphalt Concrete placement will be limited to particular project conditions and will be subject to approval by the Engineer. In no case will Surface Preparation operations ahead of Class Q3R Hot Mixed Asphalt Concrete placement operations exceed fourteen calendar days. Rate for MC-70 Asphalt for Prime will be 0.30 gallons per square yard applied at 45.0 feet wide. Rate of Blotting Sand for Prime will be 10 pounds per square yard applied 24.0 feet wide.

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

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Class Q3R Hot Mixed Asphalt Concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

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

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

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

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

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

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the CHECKER. No allowances will be made to the contract lump sum price for CHECKER due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

STORAGE UNIT

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

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

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

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

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

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

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

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

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

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

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

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course for Sections 7 and 8. The depth of asphalt will match the in-place thickness. The backfilling material for the digouts will be Base Course for Sections 6, 9, and 10.

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

Included in the Estimate of Quantities are 75 square yards of Remove Asphalt Concrete Pavement for the removal of asphalt for Sections 7 and 8.

Included in the Estimate of Quantities are 100 tons of Base Course and 1.2 MGal of Water for Granular Material per mile for the backfill of Unclassified Excavation, Digouts throughout the project.

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

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.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

An estimated 1,235.1 tons (653.5 Cubic Yards) of granular material will be salvaged from the existing highway according to the in-place surfacing typical sections and stockpiled at a site furnished by the Contractor and satisfactory to the Engineer.

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 granular material.

The salvaged material not used on the project will be stockpiled or disposed of as directed by the Engineer.

The quantity of salvaged granular material may vary from the plans.

The quantity of salvageable material is estimated from the in-place surfacing typical sections. This estimated quantity was included in the unclassified excavation quantities.

FLEXIBLE PAVEMENT SMOOTHNESS PROVISION

All sections, not excluded by the Special Provision for Flexible Pavement Smoothness will be evaluated as two opportunities.

COLD MILLING ASPHALT CONCRETE

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

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

Cold milling asphalt is estimated to produce 632.0 tons of cold milled asphalt concrete material.

The salvaged asphalt concrete material produced by cold milling will be become the property of the Contractor for disposal.

COLD MILLING ASPHALT CONCRETE

Location of Cold Milling Areas	Cold Milled Asphalt Concrete SqYds	Depth of Cold Milling Asphalt Concrete	Cold Milled Asphalt Concrete Tons
Sta. 1563+25.42 to 1571+38.20	3,522	1”	184.9
Sta. 1571+38.20 to 1573+65.49	707	2”	37.1
Sta. 1576+13.16 to 1578+62.58	776	2”	40.7
Sta. 1578+62.58 to 1594+85.73	7,034	1”	369.3
TOTAL	12,039		632.0

TABLE OF UNCLASSIFIED EXCAVATION

	Salvaged Granular Material
Location (vertical transitions	CuYd
Sta. 1000+20 to 1002+00	51.9
Sta. 1561+45.42 to 1563+25.42	51.9
Sta. 1594+82.73 to 1596+65.73	51.9
Sta. 1625+60 to 1628+00	90.6
Sta. 1628+00 to 1630+30	173.6
Sta. 1630+30 to 1633+30	233.6
Total Unclassified Excavation	653.5

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q3R Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

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

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 5 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)

CLASS Q3R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

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

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

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

RAP will be obtained from the stockpiled salvaged asphalt mix material produced from project PCN 04HL, estimated at 15,100 tons, located in the Northeast 1/4 of Section 27, Township 115 North, Range 49 West of the 5th P.M., Deuel County, South Dakota at the Clear Lake SDDOT Maintenance Shop. The RAP produced from PCN 04HL was planned to be removed and stockpiled the year prior to this project. The RAP was processed to meet the requirements of Section 884.2 C.1 prior to stockpiling. There is potential that some of the RAP has clumped or gummed together since the time it was processed and stockpiled. The Contractor may be required to re-process the material to meet the requirements of Section 884.2 C.1, prior to incorporating into the mixture. This determination will be made by the Engineer during construction. All costs to process the material will be incidental to “Class Q3R Hot Mixed Asphalt Concrete

Mix Design Criteria:

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

Gyratory Compactive Effort:

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

All remaining requirements for Class Q3 will apply.

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.

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt concrete rumble strips will be constructed on the 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 24.0 miles of asphalt concrete rumble strips will be required.

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

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline, as detailed in the plan set. 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 8.7 miles of rumble stripes will be required. This centerline rumble stripes will be constructed according to the details of Standard Plate 320.18 outside the limits shown in the Table of Sinusoidal Centerline Rumble Stripes.

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

GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the centerline, as detailed in the plan set. Sinusoidal rumble stripes will be paid for at the contract unit price per mile for Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete. It is estimated that 3.3 miles of sinusoidal rumble stripes will be required. This centerline rumble stripes will be constructed according to the details of Standard Plate 320.40.

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

TABLE OF SINUSOIDAL CENTERLINE RUMBLE STRIPES

Location of Sinusoidal Rumble Stripes	Length (feet)	Length (miles)
Sta. 1000+20 to Sta. 1009+08	888	0.168
Sta. 1049+00 to Sta. 1058+76	976	0.185
Sta. 1128+16 to Sta. 1140+74	1258	0.238
Sta. 1276+77 to Sta. 1287+00	1023	0.194
Sta. 1313+40 to Sta. 1323+00	960	0.182
Sta. 1386+16 to Sta. 1398+72	1256	0.238
Sta. 1413+00 to Sta. 1425+72	1272	0.241
Sta. 1493+24 to Sta. 1531+78	3854	0.730
Sta. 1547+00 to Sta. 1565+26	1826	0.346
Sta. 1592+20 to Sta. 1633+30	4110	0.778
TOTAL	17,423	3.3

CENTERLINE RUMBLE STRIPES – FLUSH SEAL

Asphalt for Flush Seal will be applied after the centerline rumble stripes have been installed. The application width should extend 1 ft beyond the centerline of the roadway in each direction to create a total application rate of 0.10 gal./sq.yd on the centerline rumble stripes.

RATES OF MATERIALS

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

Section 6 – Mainline
Sta. 1000+20 to 1308+92
Sta. 1324+50 to 1563+25.42
Sta. 1594+82.73 to 1628+00

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

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 1st Lift

Crushed Aggregate	1800 Tons
Salvaged Asphalt Concrete	450 Tons
PG 58-34 Asphalt Binder	111 Tons
Hydrated Lime	24 Tons
Total	2385 Tons

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

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 2nd Lift

Crushed Aggregate	1440 Tons
Salvaged Asphalt Concrete	360 Tons
PG 58-34 Asphalt Binder	89 Tons
Hydrated Lime	19 Tons
Total	1908 Tons

Section 6 – Shoulders
(Rate for one side only)
Sta. 1000+20 to 1308+92
Sta. 1324+50 to 1563+25.42
Sta. 1594+82.73 to 1628+00

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

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 1st Shoulder Lift

Crushed Aggregate	295 Tons
Salvaged Asphalt Concrete	74 Tons
PG 58-34 Asphalt Binder	18 Tons
Hydrated Lime	4 Tons
Total	391 Tons

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

CLASS Q3R HOT MIXED ASPHALT CONCRETE - 2nd Shoulder Lift

Crushed Aggregate	310 Tons
Salvaged Asphalt Concrete	78 Tons
PG 58-34 Asphalt Binder	19 Tons
Hydrated Lime	4 Tons
Total	411 Tons

Section 6 Flush Seal and Sand application
Sta. 1000+20 to 1308+92
Sta. 1324+50 to 1563+25.42
Sta. 1594+82.73 to 1628+00

FLUSH SEAL

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

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

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

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

Section 7 – Mainline
Sta. 1563+25.42 to 1571+38.2
Sta. 1578+62.58 to 1594+85.73

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

CLASS Q3R HOT MIXED ASPHALT CONCRETE - Mainline Lift

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

Section 7 – Shoulders
(Rate for one side only)
Sta. 1563+25.42 to 1571+38.2
Sta. 1578+62.58 to 1594+85.73

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.02 ton applied 6.5 feet wide (Rate = 0.06 gallon per square yard).

CLASS Q3R HOT MIXED ASPHALT CONCRETE – Shoulder Lift

Crushed Aggregate	4.60 Tons
Salvaged Asphalt Concrete	1.15 Tons
PG 58-34 Asphalt Binder	0.28 Tons
Hydrated Lime	0.06 Tons
Total Mix with Hydrated Lime	6.09 Tons

Section 7
Sta. 1563+25.42 to 1571+38.2
Sta. 1578+62.58 to 1594+85.73

FLUSH SEAL

SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.09 ton applied 40.0 feet wide (Rate = 0.05 gallon per square yard).

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

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

Summary of Class Q3R Hot Mixed Asphalt Concrete Compaction

Location-Description	Compaction With Specified Density Ton / Lift	Compaction Without Specified Density Ton / Lift
Sta. 1000+20 to 1308+92 28' Mainline Shoulders	13,945.1 / 11,156.1	 4,572.4 / 4,806.2
Sta. 1308+92 to 1324+50 28' Mainline + Turn lane Shoulders	922.7 / 738.3	 230.8 / 242.5
Sta. 1324+50 to 1563+25.42 28' Mainline Shoulders	10,784.7 / 8,627.8	 3,536.1 / 3,717.0
Sta. 1563+25.42 to 1571+38.2 28' Mainline Shoulders	293.6	 99.0
Sta. 1571+38.2 to 1573+65.49 28' Mainline	79.2	
Sta. 1576+13.16 to 1578+62.58 28' Mainline	87.0	
Sta. 1578+62.58 to 1594+85.73 28' Mainline Shoulders	585.3	 197.3
Sta. 1594+85.73 to 1628+00 28' Mainline Shoulders	1,498.5 / 1,198.8	 491.3 / 516.5
Sta. 1628+00 to 1630+30 28' Mainline Shoulders	60.3 / 100.4 / 80.3	 28.0 / 40.8 / 37.3
Sta. 1630+30 to 1633+30 28' Mainline Shoulders	81.3 / 135.5 / 108.4	 36.5 / 45.8 / 48.6
Intersecting Roads – 2		102.0
TOTAL	50,483.3	18,748.1

MAILBOXES

Mailboxes 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" (12 single and 2 double).

TABLE OF REMOVE AND RESET MAILBOX

Station	L/R	Single (Each)	Double (Each)
1029+26	L	1	0
1137+93	R	1	0
1217+25	R	1	1
1282+31	R	0	1
1286+02	R	1	0
1356+65	L	1	0
1418+98	R	1	0
1553+72	R	1	0
1558+65	R	1	0
1597+95	R	1	0
1607+42	R	1	0
1611+45	R	1	0
1628+66	L	1	0
Totals:		12	2

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

All cost to perform the following items will be incidental to the contract lump sum price for Construction Staking.

Roadway and Description	Begin Station	End Station	Length (Ft)	Length (Mile)	Miscellaneous Staking Quantity (Mile)	Centerline Offset and Stationing Stakes Quantity (Mile)
SD 15	1000+20	1573+65.49	57345.49	10.861	10.861	10.861
SD 15	1576+13.16	1633+30.0	5716.84	1.083	1.083	1.083
				TOTALS =	11.944	11.944

TABLE OF ADDITIONAL QUANTITIES

Location-Description	Water for Granular Material	Base Course or Base Course, Salvaged	Class Q3R Hot Mixed Asphalt Concrete	PG 58-34 Asphalt Binder	Hydrated Lime	Asphalt for Prime	SS-1h or CSS-1h Asphalt for Tack	SS-1h or CSS-1h Asphalt for Flush Seal	Sand for Flush Seal
	MGal	Ton	Ton / Lift	Ton / Lift	Ton / Lift	Ton	Ton / Lift	Ton	Ton
Mainline SD 15									
Sta. 1308+92 to 1324+50			1,153.5 / 980.8	53.6 / 45.6	11.4 / 9.8		2.4 / 2.4	1.7	21.0
Sta. 1571+38.20 to 1573+65.49			79.2	3.7	0.8		0.2	0.2	2.2
Sta. 1576+13.16 to 1578+62.58			87.0	4.1	0.8		0.2	0.2	2.5
Sta. 1628+00 to 1630+30			88.3 / 141.2 / 117.6	4.1 / 6.6 / 5.5	0.8 / 1.4 / 1.2		0.3 / 0.3 / 0.3	0.2	2.3
Sta. 1630+30 to 1633+30			117.8 / 181.3 / 157.0	5.5 / 8.5 / 7.4	1.1 / 1.9 / 1.6		0.4 / 0.4 / 0.4	0.3	3.0
Miscellaneous Areas									
Prime where base course removed						6.2			
Farm Entrances – 71	19.1	1,590.0							
Intersecting Roads AC – 3	0.4	40.0	102.0	5.0	1.0		0.2	0.1	2.0
Intersecting Roads Gravel – 3	3.6	360.0							
TOTAL	23.1	1,990.0	3,205.7	149.6	31.8	6.2	7.5	2.7	33.0

TABLE OF MATERIAL QUANTITIES

Location-Description	Water for Granular Material	Base Course or Base Course, Salvaged	Class Q3R Hot Mixed Asphalt Concrete	PG 58-34 Asphalt Binder	Hydrated Lime	Asphalt for Prime	Blotting Sand for Prime	SS-1h or CSS-1h Asphalt for Tack	SS-1h or CSS-1h Asphalt for Flush Seal	Sand for Flush Seal
	MGal	Ton	Ton / Lift	Ton / Lift	Ton / Lift	Ton	Ton	Ton / Lift	Ton	Ton
Section 6 - Rates of Materials			34,828.1 / 30,022.4	1,616.5 / 1,396.6	351.9 / 296.9			79.2 / 79.2	59.4	571.8
Section 7 - Rates of Materials			1,175.2	54.6	11.6			3.1	2.2	23.9
Additional Quantities Table	23.1	1,990.0	3,205.7	149.6	31.8	6.2		7.5	2.7	33.0
Quantities from Notes										
Unclassified Excavation – Digouts	14.3	1,191.1								
Blotting Sand for Prime							5.0			
Surfacing Preparation						93.9	210.0			
TOTAL	37.4	3,181.1	69,231.4	3,217.3	692.2	100.1	215.0	169.0	64.3	628.7

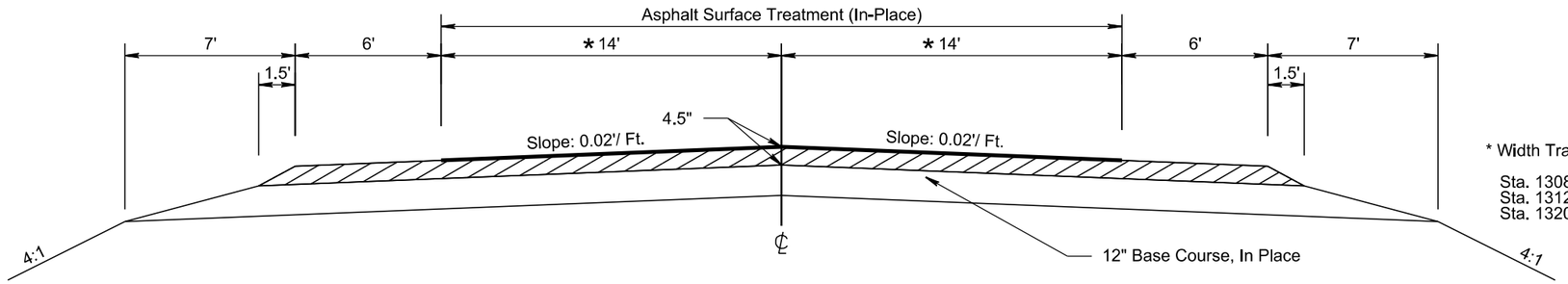
IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F8	F19

Plotting Date: 06/07/2024

Surface Preparation
(See Plan Note)

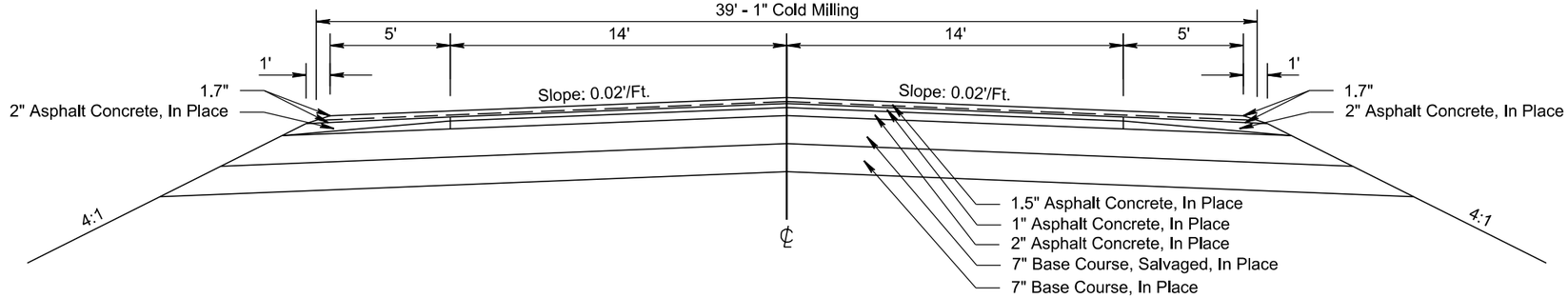
Section 1
Sta. 1000+20 to Sta. 1563+25.42
Sta. 1594+85.73 to Sta. 1628+00



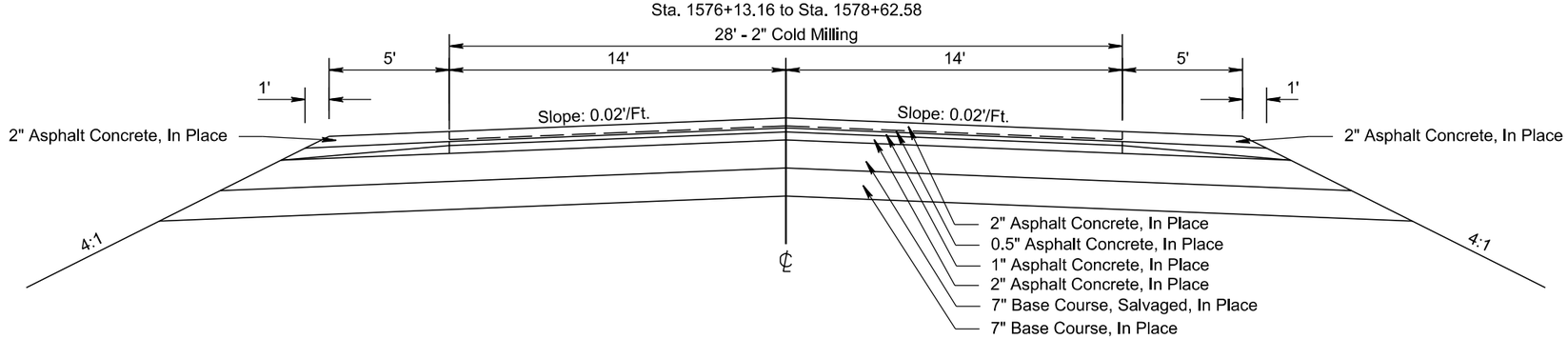
* Width Transitions:

Sta. 1308+92 to Sta. 1312+82 - 14' to 20'
Sta. 1312+82 to Sta. 1320+70 - 20'
Sta. 1320+70 to Sta. 1324+50 - 20- to 14'

Section 2
Sta. 1563+25.42 to Sta. 1571+38.20
Sta. 1578+62.58 to Sta. 1594+85.73



Section 3
Sta. 1571+38.20 to Sta. 1573+65.49
Sta. 1576+13.16 to Sta. 1578+62.58



Note:

Sta. 1573+65.49 to Sta. 1576+13.16
Bridge & Approach Slabs

IN PLACE TYPICAL SECTIONS

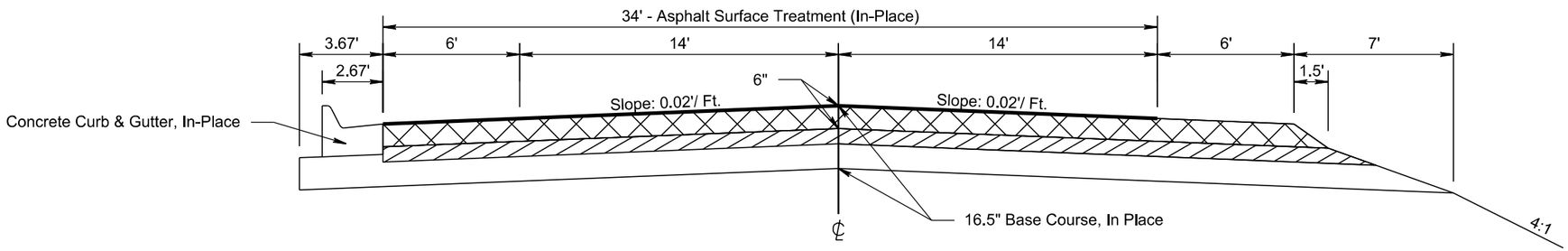
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F9	F19

Plotting Date: 06/07/2024

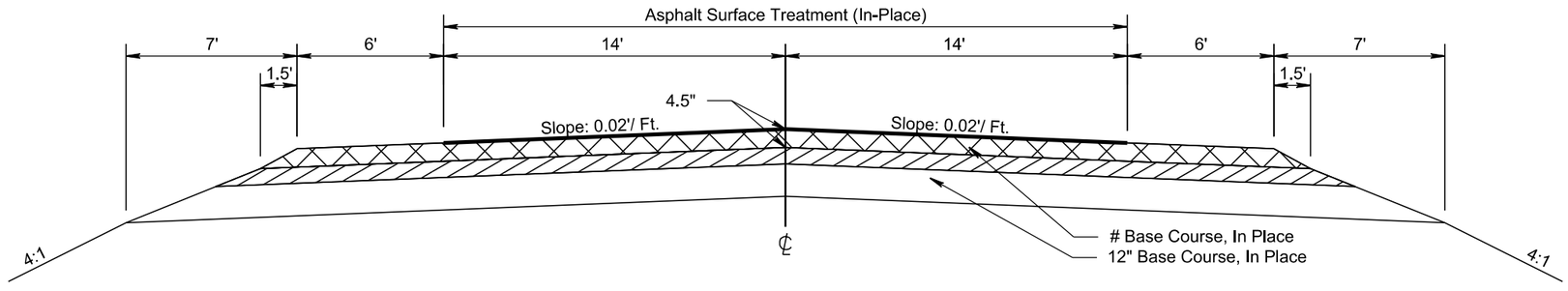
Surface Preparation
(See Plan Note)

Salvage & Stockpile Granular Material
(See Surfacing Transition Detail)

Section 4
Sta. 1628+00 to Sta. 1630+30



Section 5
Sta. 1630+30 to Sta. 1633+30



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR15123

PLOT NAME - 9

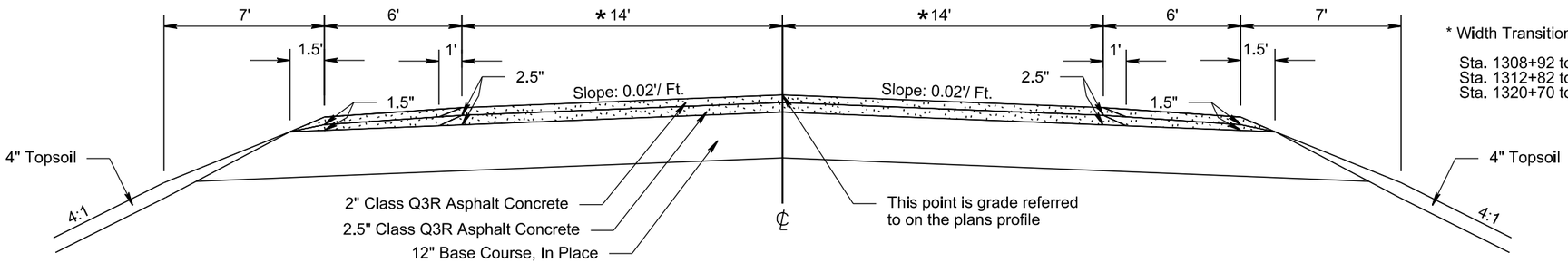
FILE - ...\0506_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F10	F19

Plotting Date: 06/07/2024

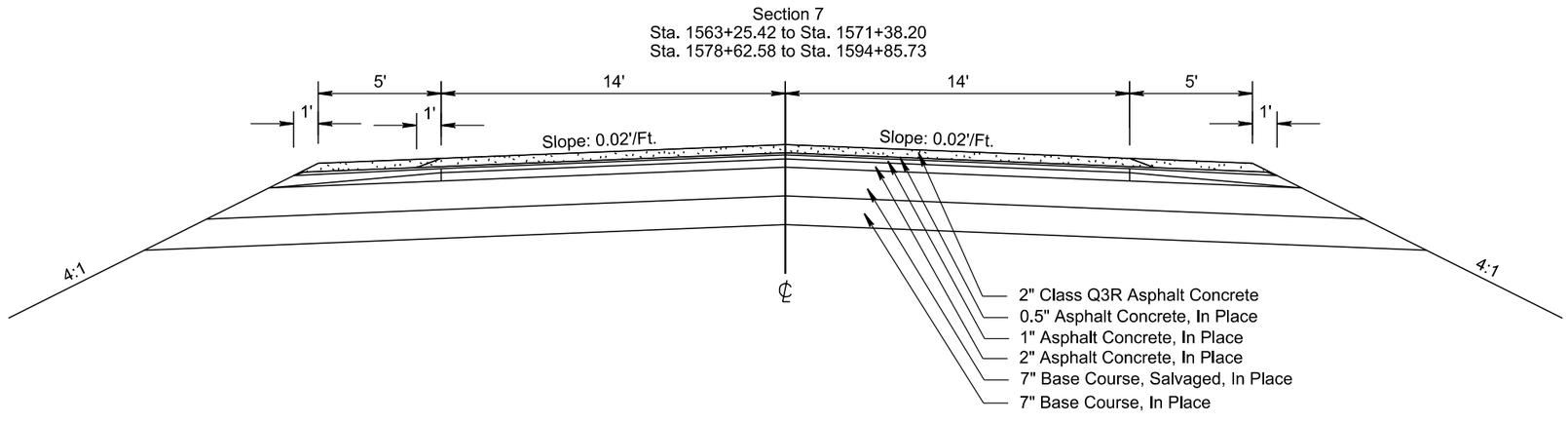
Section 6
Sta. 1000+20 to Sta. 1563+25.42
Sta. 1594+85.73 to Sta. 1628+00



* Width Transitions:

Sta. 1308+92 to Sta. 1312+82 - 14' to 20'
Sta. 1312+82 to Sta. 1320+70 - 20'
Sta. 1320+70 to Sta. 1324+50 - 20- to 14'

Section 7
Sta. 1563+25.42 to Sta. 1571+38.20
Sta. 1578+62.58 to Sta. 1594+85.73



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRPR15123

PLOT NAME - 10

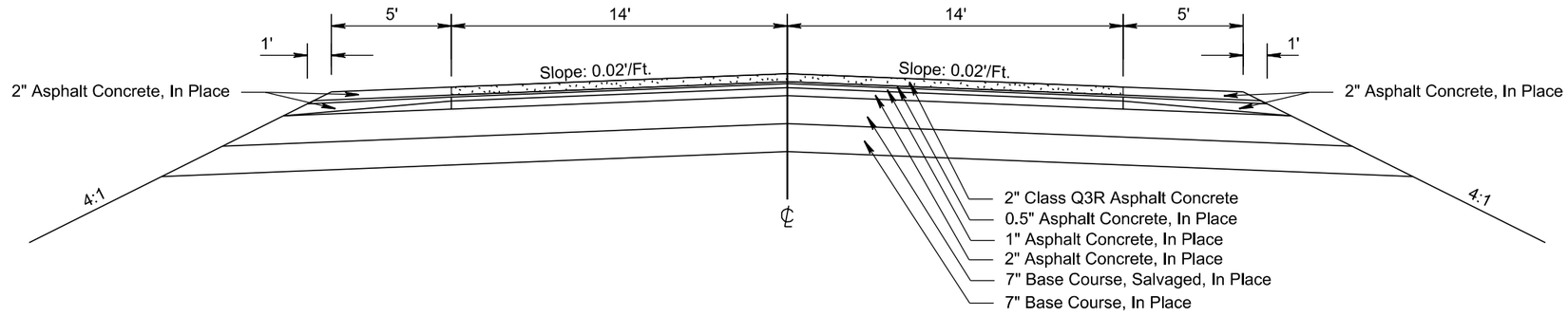
FILE - ...\0506_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F11	F19

Plotting Date: 06/07/2024

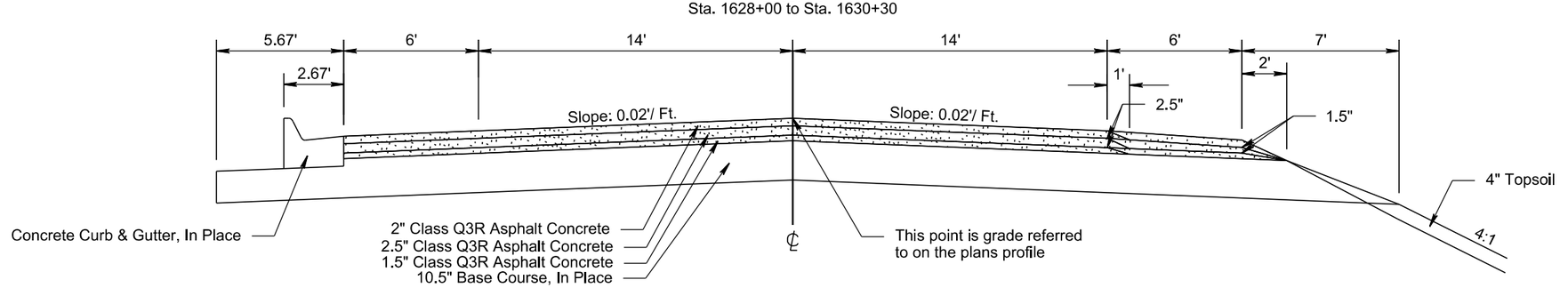
Section 8
Sta. 1571+38.20 to Sta. 1573+65.49
Sta. 1576+13.16 to Sta. 1578+62.58



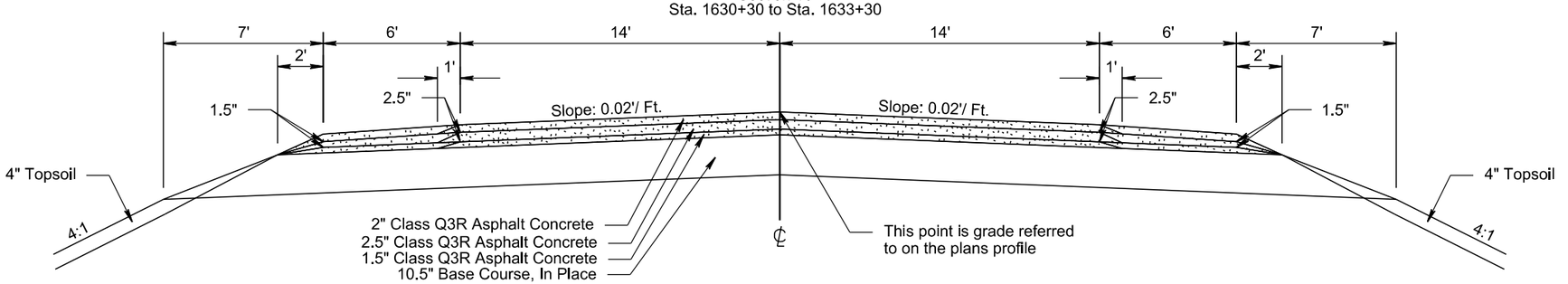
Note:

Sta. 1573+65.49 to Sta. 1576+13.16
Bridge & Approach Slabs

Section 9
Sta. 1628+00 to Sta. 1630+30



Section 10
Sta. 1630+30 to Sta. 1633+30



PLOT SCALE - 1:6.00001
PLOTTED FROM - TRPR15123
PLOT NAME - 11
FILE - ...\0506_TYPICAL SECTIONS.DGN

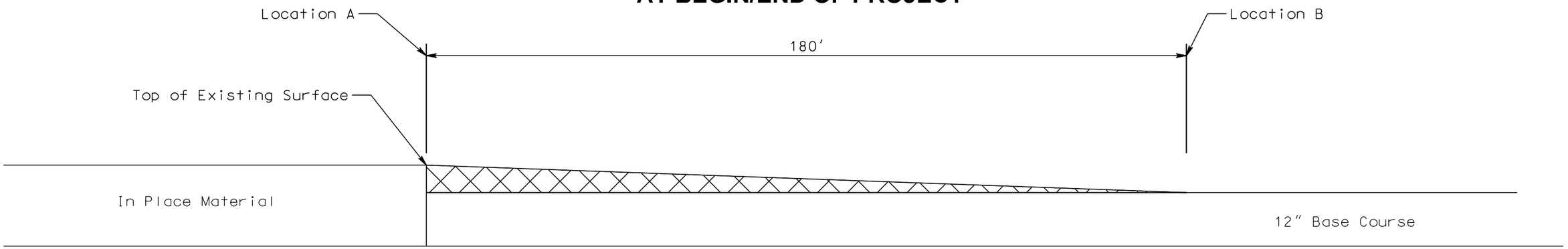
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F12	F19

Plotting Date: 06/07/2024

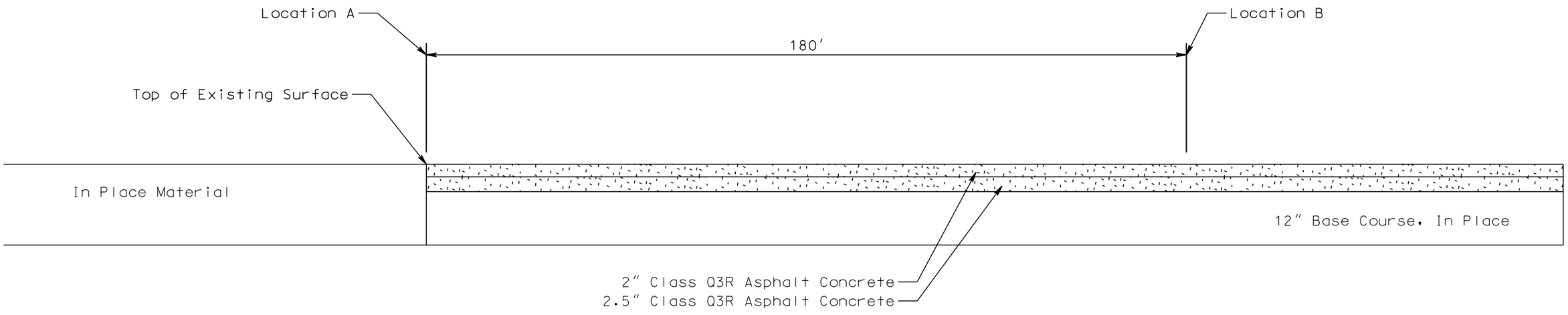
DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE
SHEET 1 OF 3 SHEETS

SURFACING REMOVAL TRANSITION AT BEGIN/END OF PROJECT



Location A	Location B	Depth Transition
Sta. 1000+20.00	Sta. 1002+00.00	4.5" to 0"
Sta. 1626+20.00	Sta. 1628+00.00	0" to 4.5"



PLOT SCALE - 1:24
PLOT NAME - 12
FILE ...\SURFACING TRANSITION DETAIL.DGN
PLOTTED FROM - TRPR15123

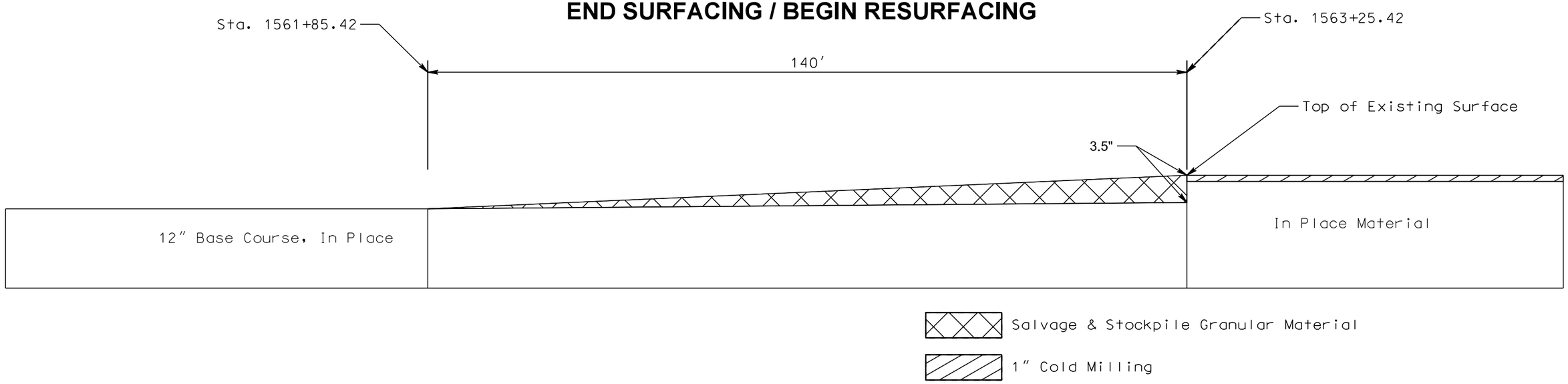
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F13	F19

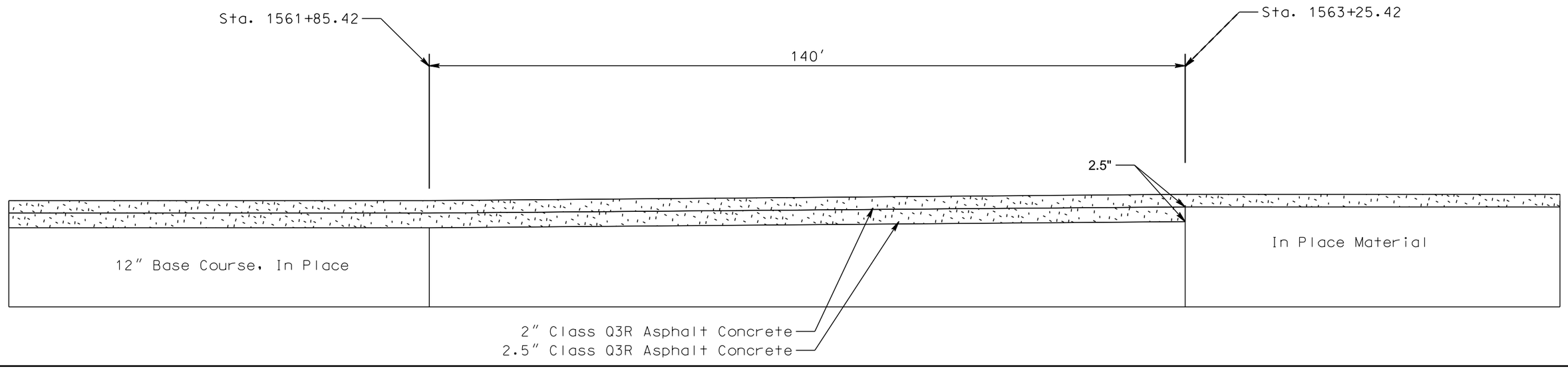
Plotting Date: 06/10/2024

DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE
SHEET 2 OF 3 SHEETS

SURFACING TRANSITION AT END SURFACING / BEGIN RESURFACING





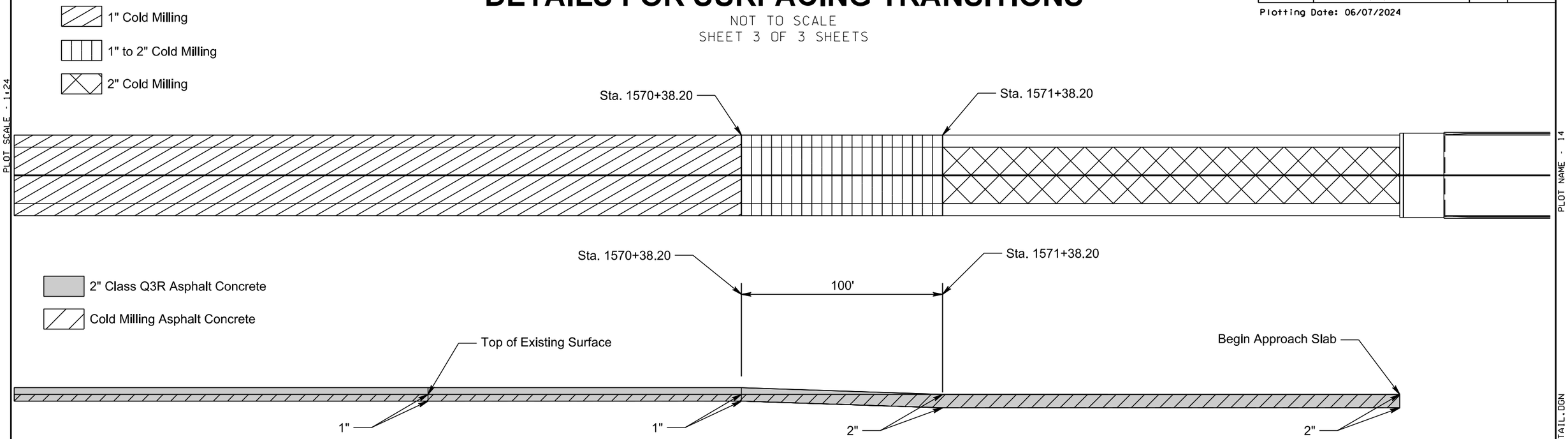
PLOT SCALE - 1:24
PLOTTED FROM - TRPR15123
PLOT NAME - 13
FILE - ...\SURFACING TRANSITION DETAIL.DGN

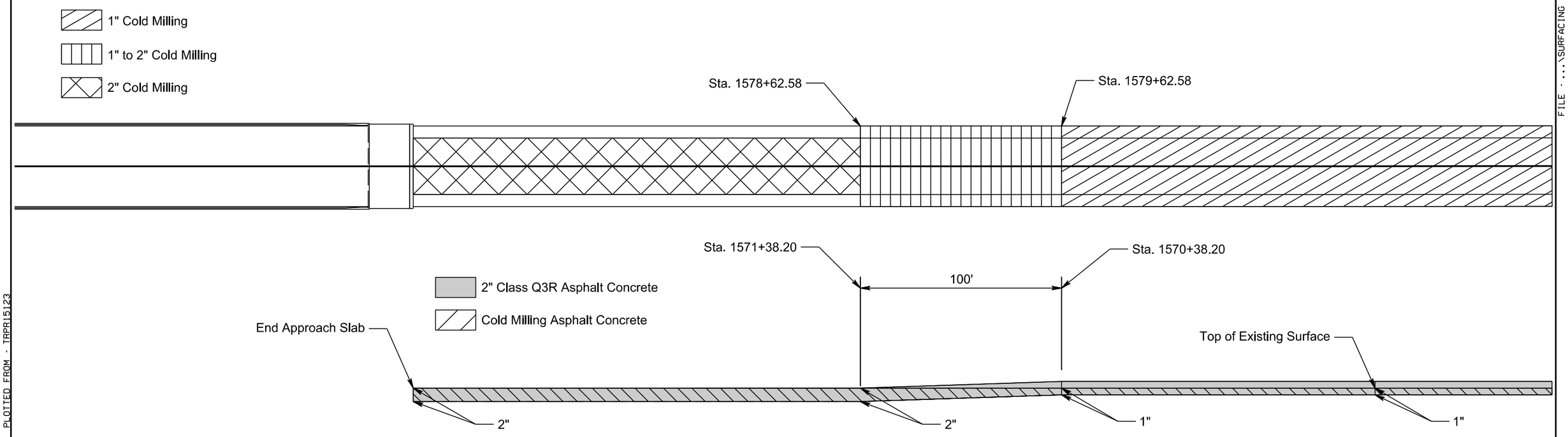
DETAILS FOR SURFACING TRANSITIONS

NOT TO SCALE
SHEET 3 OF 3 SHEETS

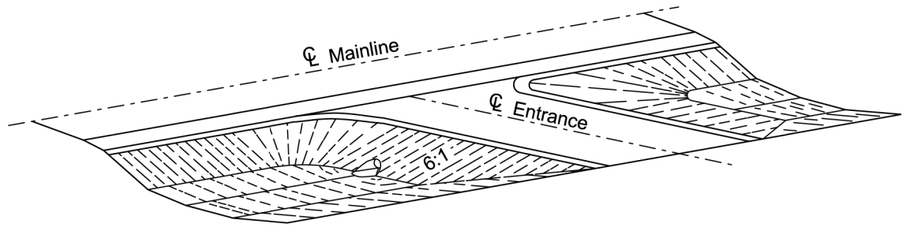
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F14	F19

Plotting Date: 06/07/2024

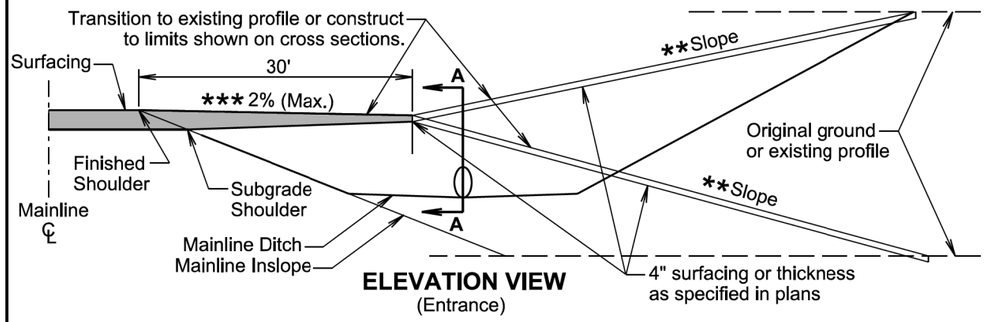




PLOT SCALE - 1:24
PLOT NAME - 14
FILE ...\SURFACING TRANSITION DETAIL.DGN
PLOTTED FROM - TRPR15123



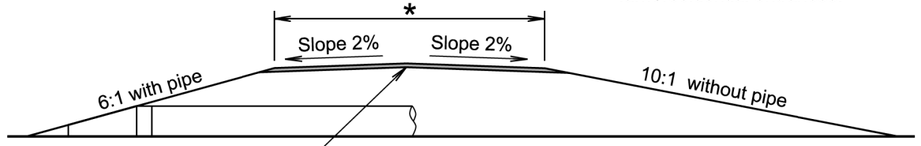
PERSPECTIVE OF ENTRANCE



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.

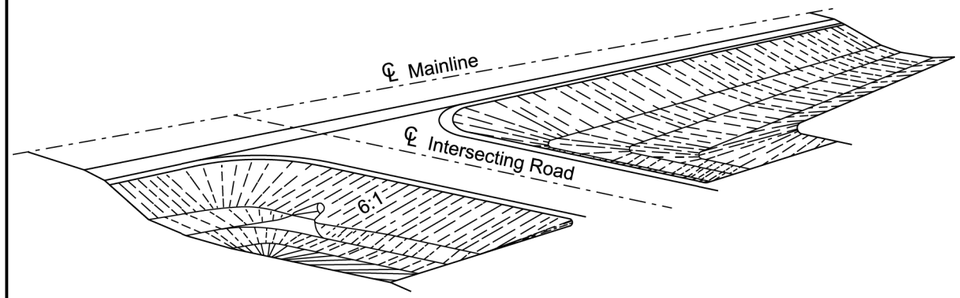
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

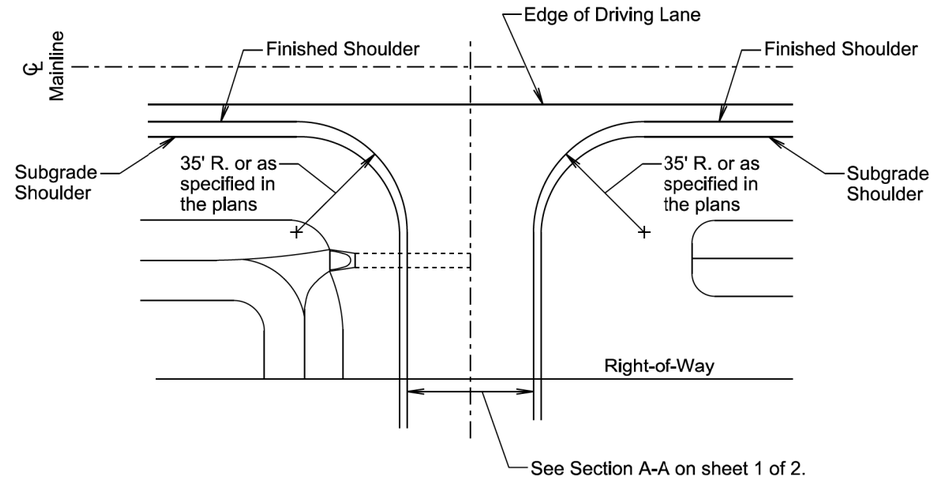
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

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:

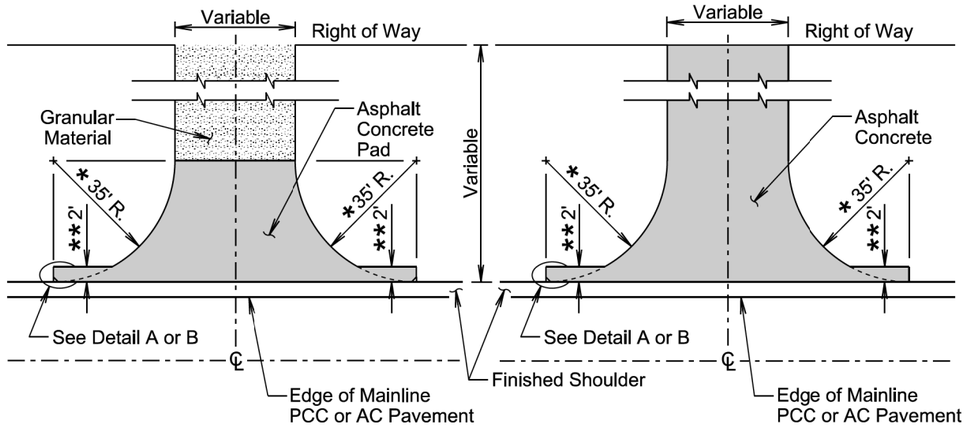
The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F16	F19

Plotting Date: 06/07/2024



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:

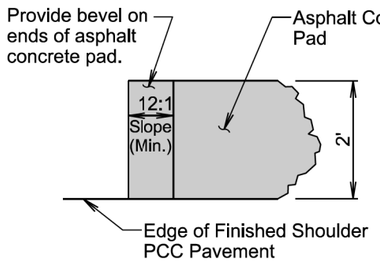
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

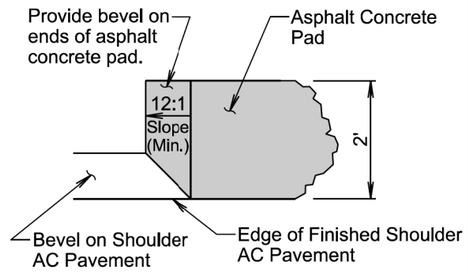
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete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

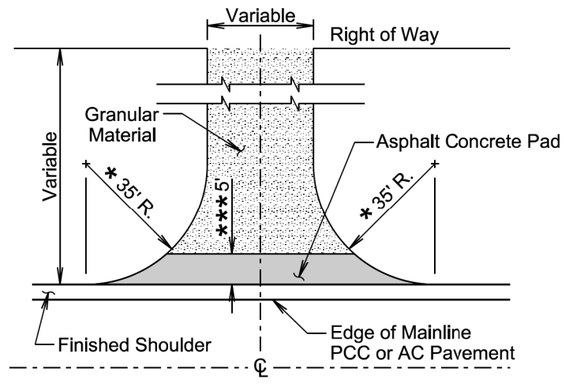
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



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



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



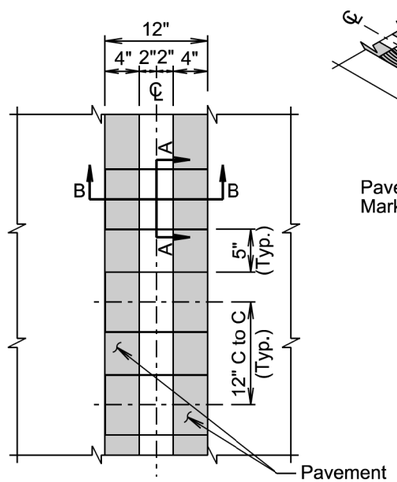
PLAN VIEW
(Entrance)

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

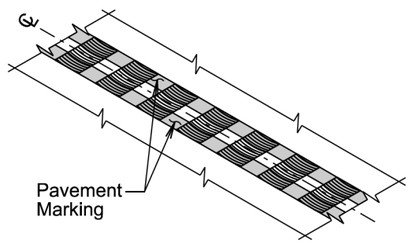
August 27, 2020

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

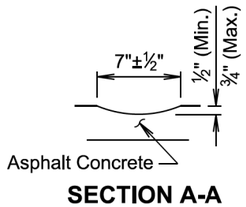
Plot Scale - 1:200
Plotted From - TRPR15123
File - ...\deu\05Q6\Std\PlateSectionF.dgn



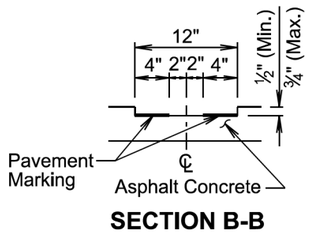
PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)



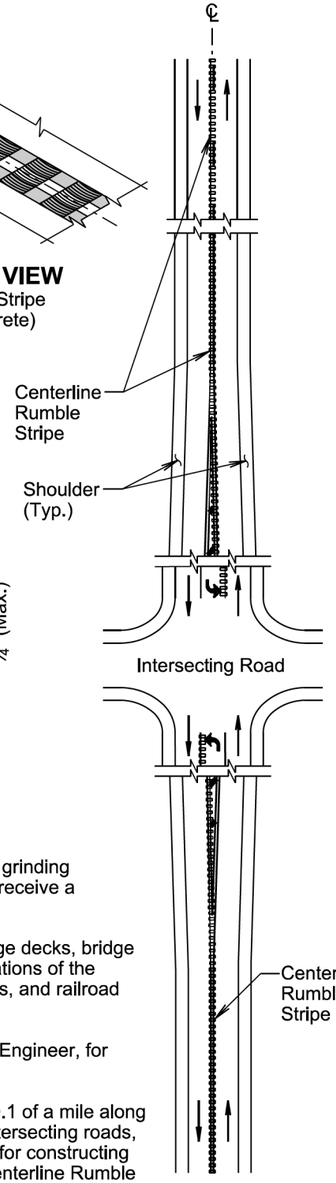
PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)



SECTION A-A



SECTION B-B



PLAN VIEW

GENERAL NOTES:

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

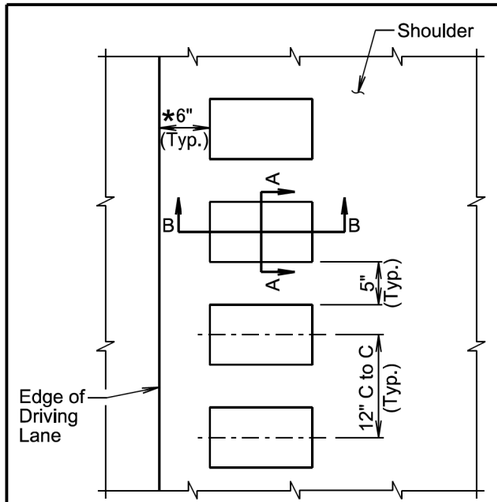
A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the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

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

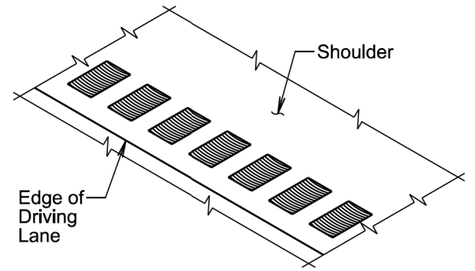
Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract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

November 19, 2020

Published Date: 2025	SDDOT	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
			Sheet 1 of 1

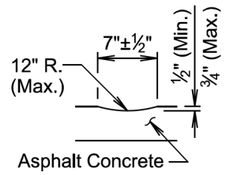


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

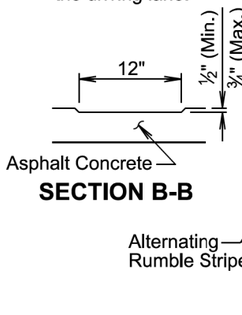


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

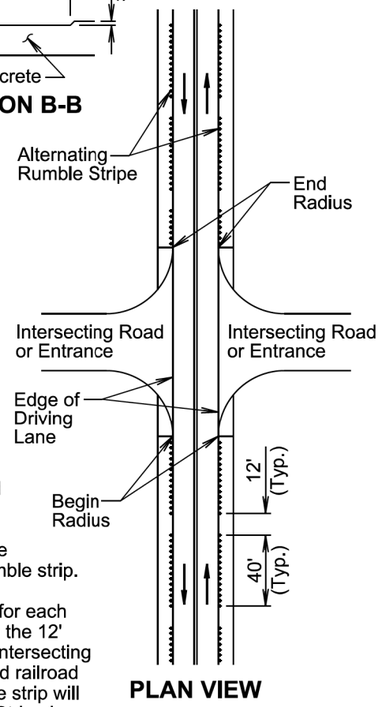
* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



SECTION A-A



SECTION B-B



PLAN VIEW

GENERAL NOTES:

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

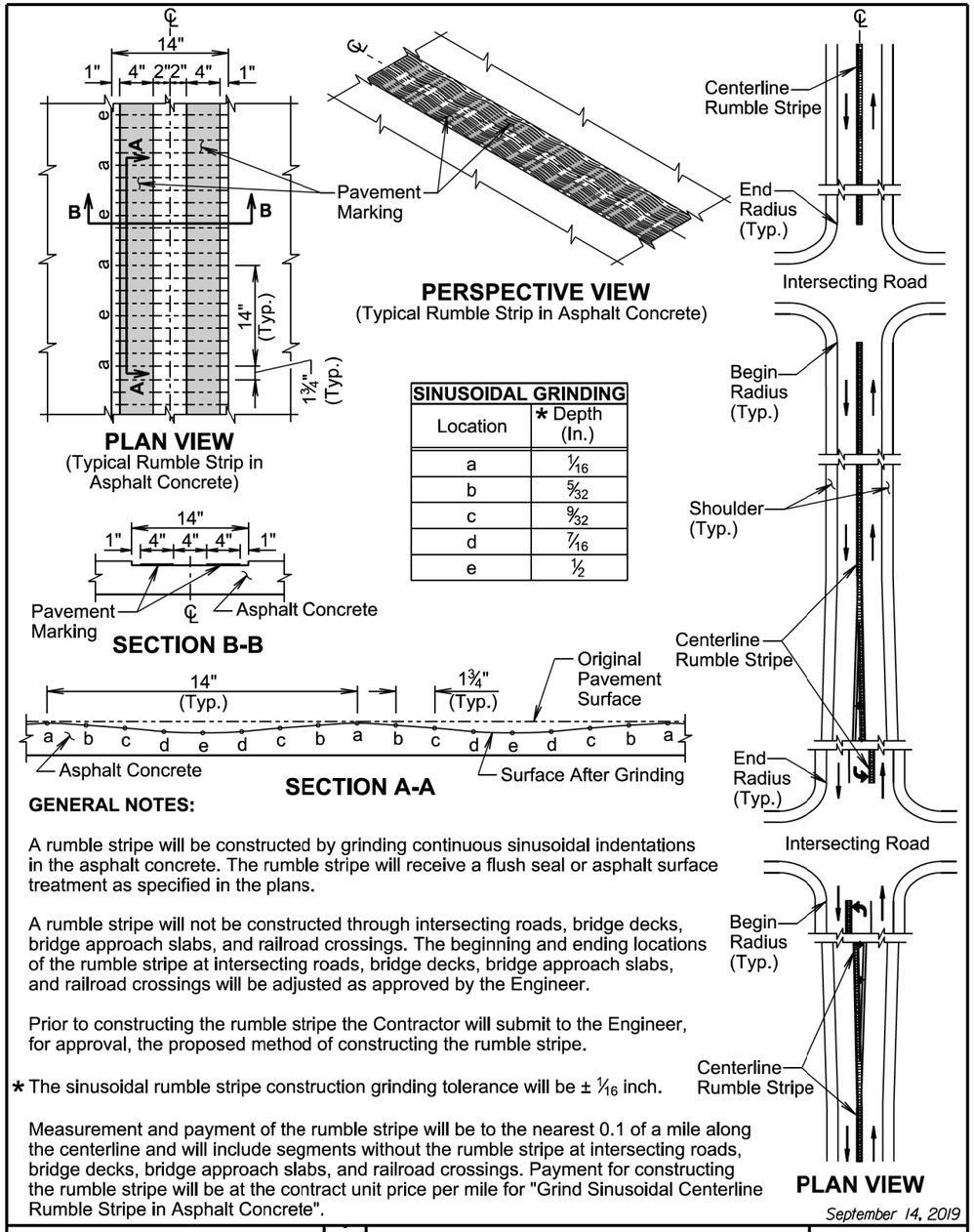
A rumble strip will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances,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

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

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

September 14, 2019

Published Date: 2025	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1



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 asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

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

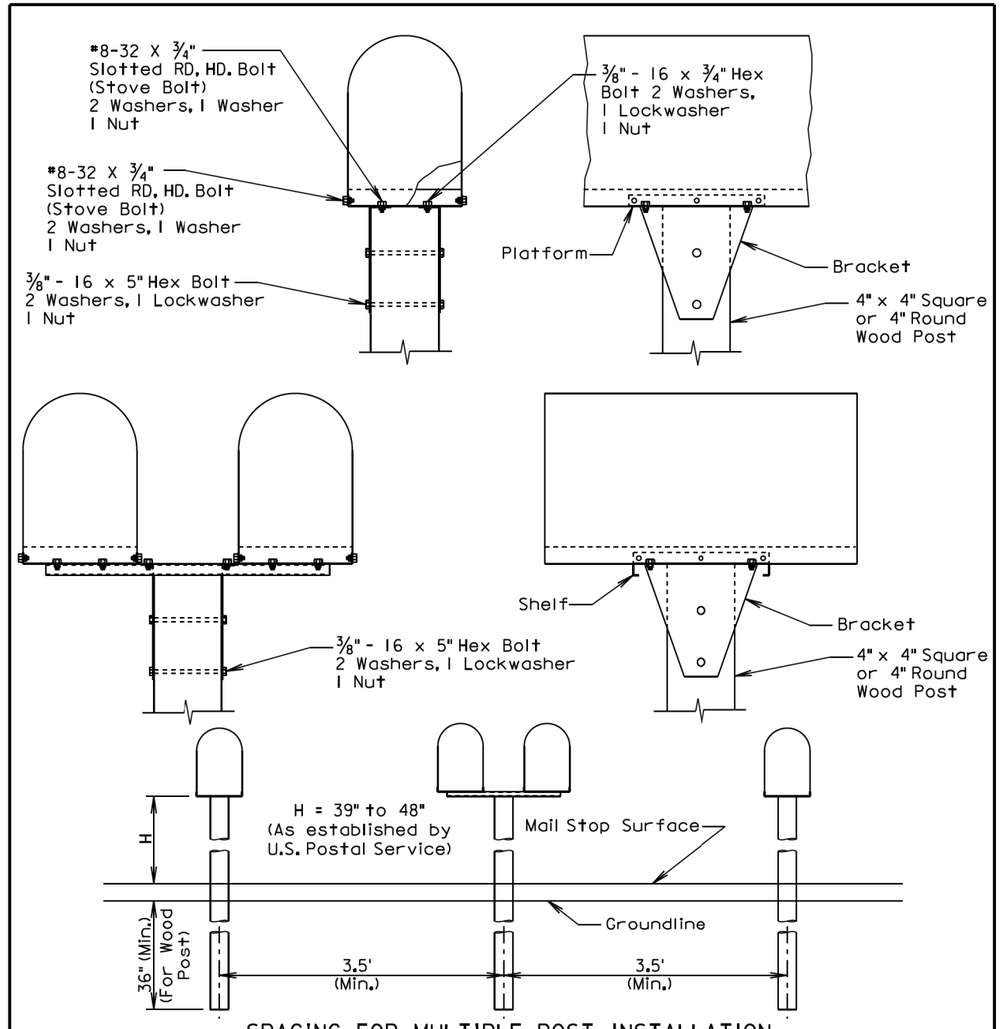
Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

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

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

September 14, 2019

Published Date: 2025	SDDOT	SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.40
			Sheet 1 of 1



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.

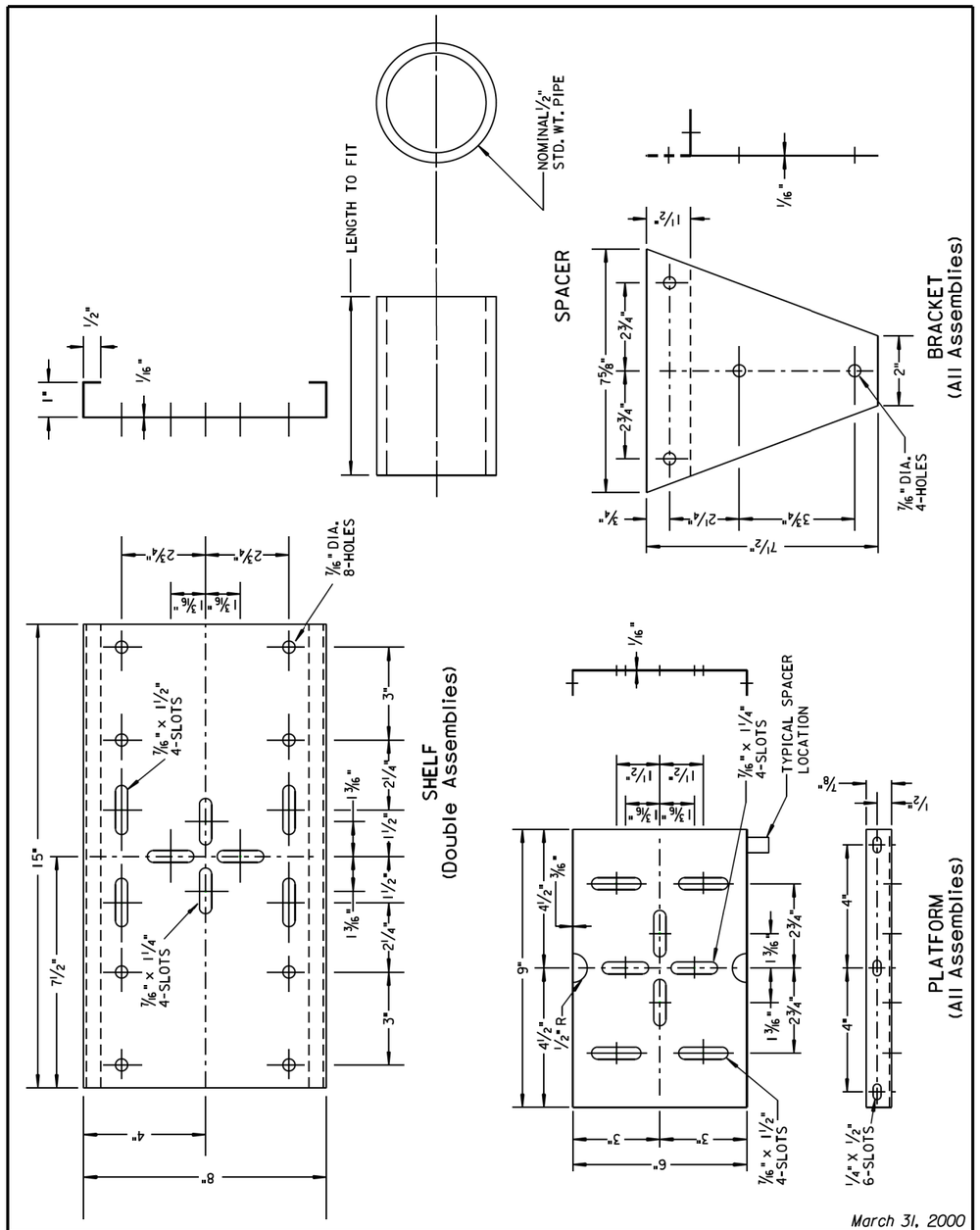
Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation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

September 6, 2013

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0015(94)128	F19	F19

Plotting Date: 06/07/2024



March 31, 2000

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

Plot Scale - 1:200

Plotted From - TRPR15123

File - ...\deul05Q6\StdPlateSectionF.dgn