

# SECTION F: SURFACING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F1	F28

Plotting Date: 9/19/2023

## INDEX OF SHEETS

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END P1806(23)186  
Station h 213+52.00



BEGIN P1806(23)186  
Station 1+68.90



Plotted From: ienbrassfield Plot Scale: 1:184,118

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### ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	7,209.3	SqYd
120E0100	Unclassified Excavation, Digouts	1,717	CuYd
120E6200	Water for Granular Material	187.7	MGal
260E1010	Base Course	7,712.6	Ton
260E2030	Gravel Cushion, Salvaged	10,822.1	Ton
260E6000	Granular Material, Furnish	5,411.1	Ton
* 260E6000	Granular Material, Furnish	492.8	Ton
270E0220	Blend and Stockpile Granular Material	10,822.1	Ton
* 270E0220	Blend and Stockpile Granular Material	985.6	Ton
320E1200	Asphalt Concrete Composite	1,617.7	Ton
320E1800	Asphalt Concrete Blade Laid	5,270.9	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	58.9	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	3.4	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	1.2	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	299.0	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	115.4	Ton
330E2000	Sand for Flush Seal	1,755.5	Ton
332E0010	Cold Milling Asphalt Concrete	113,651	SqYd
600E0300	Type III Field Laboratory	1	Each
900E1980	Storage Unit	1	Each

\* - Denotes Non-Participating

### Alternate A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	4,293.6	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	68,407.2	Ton
320E4000	Hydrated Lime	728.2	Ton

### Alternate B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	3,862.3	Ton
320E1002	Class Q2 Hot Mixed Asphalt Concrete	70,017.0	Ton
320E4000	Hydrated Lime	747.9	Ton

### 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".

### CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, Base Course, Salvaged, Gravel Cushion, Salvaged, and 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  $\pm 1/2$  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.

### REMOVE ASPHALT CONCRETE PAVEMENT

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 22. This value was obtained from testing during construction of the in-place asphalt concrete.

An estimated 1702.1 Cubic Yards of the in-place asphalt concrete surfacing will be removed from the existing SD Highway 1806 according to the in-place surfacing typical sections. The removed asphalt concrete will become the property of the Contractor for disposal.

The quantity of removed asphalt material is estimated from the in-place surfacing typical sections. This estimated quantity is not included in the unclassified excavation quantities.

### COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 22. This value was obtained from testing during construction of the in-place asphalt concrete.

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

Cold milling asphalt is estimated to produce 5903.9 tons of cold milled asphalt concrete material. An estimated 5411.1 tons of cold milled asphalt concrete material will be blended with Granular Material, Furnish and will be used on this project as Gravel Cushion, Salvaged at the locations identified in the plans. The remaining blended material will remain at the stockpile site for use by the SDDOT.

Salvage asphalt achieved for project use and/or other uses is based on the dimensions given in the typical sections. Field conditions will vary from that given in the typical sections.



**ASPHALT CONCRETE BLADE LAID**

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 64-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay prior of the overlay of Sections 3-9.

Included in the Estimate of Surfacing Quantities are 225 tons of Asphalt Concrete Blade Laid, 2.25 tons of Hydrated Lime, and 16.7 tons of PG 64-34 Asphalt Binder per mile and will be tight bladed on the existing surface 36 feet wide prior to the overlay of Sections 1 and 2.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q2 Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

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

Included in the Estimate of Surfacing Quantities are 135.4 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.09 Gal./Sq.Yd.)

**CLASS Q2 HOT MIXED ASPHALT CONCRETE**

Mineral Aggregate:

Mineral aggregate for Class Q2 Hot Mixed Asphalt Concrete - Alternate A will conform to the requirements of Class Q2.

Mix Design Criteria:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q2 Hot Mixed Asphalt Concrete – Alternate B will conform to the requirements of Class Q2 except as modified by the following:

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class Q2	13.0

Pay Factor Attributes – Alternate B:

Air Voids:

	Air Voids (%):
Class Q2	3.5 ±1.0

All remaining requirements for Class Q2 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.

**ASPHALT CONCRETE COMPOSITE**

Section 324 will apply except that Class Q2 Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Asphalt Concrete Composite will include MC-70 Asphalt for Prime placed at the rate of 0.30 gallons per square yard. The Asphalt for Prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

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.

**UNCLASSIFIED EXCAVATION, DIGOUTS**

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

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material throughout the project.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts.

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.

A copy of the surfacing/subgrade investigation for this project is available from the Pierre Region and Pierre Area offices."

**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.

**GRANULAR MATERIAL, FURNISH**

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

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

**GRAVEL CUSHION, SALVAGED**

Gravel Cushion, Salvaged will be obtained from the stockpile site(s) provided by the Contractor and may be used without further gradation testing.

The Contractor will ensure the Gravel Cushion, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Gravel Cushion, Salvaged will apply.

**FLEXIBLE PAVEMENT SMOOTHNESS PROVISION**

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



Revised 4/25/24 E.JW

**REPAIR SHOULDER DROP OFF**

Included in the Estimate of Quantities are 103.9 MGal of Water for Granular Material for compaction.

An estimated 10822.1 tons of Gravel Cushion, Salvaged will be placed on the inslope directly outside the asphalt sluff after asphalt paving has been completed to minimize the shoulder drop off for Sections 6, 7, 8, and 9. Each shoulder will require approximately 5411.1 tons of granular material. This rate is for information only and will vary throughout the project. The placement and compaction of this material will be incidental to the contract unit price for Gravel Cushion, Salvaged and Gravel Cushion.

The topsoil will be removed prior to the placement of the granular material for shoulder drop off. Once the granular material has been placed and compacted the topsoil will then be replaced over the compacted granular material.

Shoulder drop-offs will not be allowed to remain overnight. Any shoulder drop-off present during daylight hours must be contained within the active work zone(s).

The exceptions to this work are at intersecting roads, mailbox turnouts, and any other areas as determined by the Engineer.

The Contractor will not damage the asphalt pavement when fixing the shoulder drop off. Any damage to the asphalt concrete or to any pavement markings, will be repaired at no cost to the State.

The Contractor will use a broom to clean the roadway of any loose material after the shoulder repair has been completed. All costs for brooming will be incidental to the various contract items.

**BLEND AND STOCKPILE GRANULAR MATERIAL**

An Estimated 5903.9 tons (for informational purposes only) of salvaged asphalt mix material will be blended with 5903.9 tons of Granular Material, Furnish and stockpiled at the Contractor's furnished stockpile 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.4 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 crushing the salvaged asphalt mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for Blend and Stockpile Granular Material.

**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 8" Rumble Strip or Stripe in Asphalt Concrete. It is estimated that 58.9 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. 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 8" rumble strips at a width of 1.5' 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 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 1.2 miles of sinusoidal rumble stripes will be required.

Sinusoidal rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed sinusoidal rumble stripes at a width of 24" and a rate of 0.10 gal./sq.yd. 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.

Location		Length	
Station	to Station	(Ft)	(Mi)
28+30	73+20	4290	0.9
110+15	126+00	1585	0.3
Total			1.2

**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 3.8 miles of centerline rumble stripes will be required.

Rumble Stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed Rumble Stripes at a width of 24" and a rate of 0.10 gal./sq.yd. 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.

Location		Length	
Station	to Station	(Ft)	(Mi)
73+20	110+15	3695	0.7
126+00	201+13.85	7513.85	1.4
a -11+34.45	a 19+18.73	3053.18	0.6
b 19+52.58	b 52+54.30	3301.72	0.6
c 52+52.58	c 58+45.80	593.22	0.1
Total			3.4

**CENTERLINE RUMBLE STRIPES – FLUSH SEAL**

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

**WATER FOR COMPACTION**

The cost of water for compaction of the granular material will be paid for at the contract unit price per MGal for "Water for Granular Material". Four percent plus or minus moisture will be required at the time of compaction unless otherwise directed by the Engineer.

**PAVEMENT PROFILE CORRECTION**

The Pavement profile will be corrected as shown on the Typical Pavement Profile Correction Sections by placing an asphalt lift or a number of asphalt lifts on both sides of the apex of the bump heave. A single asphalt lift of less than 1.5" will be placed at the apex elevation and extended across the low area, then tapered out at a rate of 1" per 40'. The Contractor may be required to place multiple paving lifts at each location as shown in the table below to correct the pavement profile.

Pavement profile correction lifts should be laid at these locations to obtain an acceptable profile prior to milling operations. Areas where pavement profile correction lifts have been placed will not be milled unless necessary to correct the profile for or to taper into the final lift of pavement. Milling the apex of the heave could result in a thinner, inadequate pavement section at these locations.

The pavement profile correction lifts will be compacted by the Specified Roller Coverage Method. All remaining requirements for Class Q2 Hot Mixed Asphalt Concrete will apply.

The height between uneven roadway lanes cannot be greater than 3" within a lane closure boundary. The lane closures and paving operations will alternate between lanes until the pavement profile has been corrected to the satisfaction of the Engineer. The Contractor will allow sufficient cooling time of each lift of asphalt prior to opening the lane to traffic.



### 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 Gyrotory 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.



# TABLE OF PROJECT STATIONING

SECTION	STATION	TO	STATION	RESURFACING LENGTHS
1	<b>Begin Project</b>		1+68.90 to 25+10.00	2341.1
2			25+10.00 to 27+60.00	250
1			27+60.00 to 31+00.00	340
3			31+00.00 to 150+03.83	11903.83
4			150+03.83 to 167+35.77	1731.94
3			167+35.77 to 201+13.85	3378.08
	<b>Equation</b>		<b>201+13.85 Bk = a -11+34.45 Ah</b>	
4			a -11+34.45 to a -3+56.78	777.67
3			a -3+56.78 to a 9+29.73	1286.51
4			9+29.73 to a 19+18.73	989
	<b>Equation</b>		<b>a 19+18.73 Bk = b 19+52.58 Ah</b>	
3			b 19+52.58 to b 27+32.15	779.57
5			b 27+32.15 to b 52+54.30	2522.15
	<b>Equation</b>		<b>b 52+54.30 Bk = c 52+52.58 Ah</b>	
3			c 52+52.58 to c 58+45.80	593.22
	<b>Equation</b>		<b>c 58+45.80 Bk = d -0+37.64 Ah</b>	
6			d -0+37.64 to d 106+60.40	10698.04
	<b>Equation</b>		<b>d 106+60.40 Bk = e 345+27.30 Ah</b>	
8			e 345+27.30 to e 344+01.00	126.30'
7			e 344+01.00 to e 332+01.00	1200.00'
8			e 332+01.00 to e 0+00.00	33201.00'
	<b>Equation</b>		<b>e 0+00.00 Bk = f 625+27.65 Ah</b>	
8			f 625+27.65 to f 82+02.00	54325.65'
7			f 82+02.00 to f 80+52.00	150.00'
8			f 80+52.00 to f 66+18.00	1434.00'
7			f 66+18.00 to f 64+68.00	150.00'
8			f 64+68.00 to f 58+26.00	642.00'
7			f 58+26.00 to f 56+76.00	150.00'
8			f 56+76.00 to f 0+00.00	5676.00'
	<b>Equation</b>		<b>f 0+00.00 Bk = g 679+92.90 Ah</b>	
9			g 679+92.90 to g 488+68.07	19124.83'
	<b>Equation</b>		<b>g 488+68.07 Bk = h 489+08.43 Ah</b>	
9			h 489+08.43 to h 213+52.00 <b>End Project</b>	27556.43'
<b>TOTALS =</b>				<b>181327.32'</b> <b>34.342 Miles</b>



# SUMMARY OF ASPHALT CONCRETE

Location	<u>ALT A</u> Class Q2 Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	<u>ALT A</u> Class Q2 Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	<u>ALT B</u> Class Q2 Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	<u>ALT B</u> Class Q2 Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
<b>Section 1&amp;2 (2" Lift)</b> 36' Finished Roadway Width 4' Finished Shoulder w/ 2' Bevel	1,314.4	-	1,349.9	-
<b>Section 1&amp;2 Totals =</b>	1,314.4	438.4	1,349.9	450.4
<b>Section 3 (2" Lift)</b> 24' Finished Roadway Width 4' Finished Shoulder w/ 2' Bevel	5,363.7	-	5,508.7	-
<b>Section 3 Totals =</b>	5,363.7	2,033.7	5,508.7	2,085.8
<b>Section 4 (2" Lift)</b> 24' Finished Roadway Width 4' Finished Shoulder w/ 2' Bevel	1,045.9	-	1,074.2	-
<b>Section 4 Totals =</b>	1,045.9	406.0	1,074.2	416.9
<b>Section 5 (2" Lift)</b> 24' Finished Roadway Width 4' Finished Shoulder w/ 2' Bevel	754.0	-	774.4	-
<b>Section 5 Totals =</b>	754.0	279.1	774.4	286.7
<b>Section 6 (2" Lift)</b> 24' Finished Roadway Width w/ 3' Bevel 24' Finished Leveling Width for Profile Correction	3,600.2	-	3,695.4	-
<b>Section 6 Totals =</b>	3,778.7	0.0	3,878.7	183.3
<b>Section 7&amp;8 (2" Lift)</b> 24' Finished Roadway Width w/ 1' Bevel Finished Leveling Width for Profile Correction	30218.4	-	31,047.2	-
<b>Section 7&amp;8 Totals =</b>	30,486.8	0.0	31,322.9	275.7
<b>Section 9 (2" Lift)</b> 22' Finished Roadway Width w/ 1' Bevel	13,376.4	-	13,738.9	-
<b>Section 9 Totals =</b>	13,376.4	0.0	13,738.9	0.0
<b>Table of Additional Quantities Totals =</b>	446.9	9,130.1	459.0	9,129.5
<b>TOTALS =</b>	<b>56,119.9</b>	<b>12,287.3</b>	<b>57,647.7</b>	<b>12,369.3</b>



# RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F8	F28

Revised 4/25/24 EJW

## SECTIONS 1 & 2

Station 1+68.90 to Station 25+10.00  
 Station 27+60.00 to Station 31+00.00  
 Station 25+10.00 to Station 27+60.00

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt. B
Aggregate	55.78 Tons	57.77 Tons
PG 64-34 Asphalt Binder	3.43 Tons	3.04 Tons
<b>TOTAL MIX</b>	<b>59.21 Tons</b>	<b>60.81 Tons</b>
Hydrated Lime	0.59 Tons	0.61 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>59.80 Tons</b>	<b>61.42 Tons</b>

Cold Milling Asphalt Concrete is computed at the rate of 544 square yards per station, applied 49.0 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 tons per station applied 37 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.14 tons per station applied 50.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.12 tons per station applied 49.0 feet wide (Rate = 0.05 gallon per square Yard).

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

## SECTION 3

Station 31+00.00 to Station 150+03.83  
 Station 167+35.77 to Station 201+13.85  
 Equation – Station 201+13.85 = Station a -11+34.45  
 Station a -3+56.78 Station a 9+29.73  
 Equation Station a 19+18.73 = Station b 19+52.58  
 Station b 19+52.58 to Station b 27+32.15  
 Equation Station b 52+54.30 = Station c 52+52.58  
 Station c 52+52.58 to Station c 58+45.80

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	2030 Tons	2103 Tons
PG 64-34 Asphalt Binder	125 Tons	111 Tons
<b>TOTAL MIX</b>	<b>2155 Tons</b>	<b>2214 Tons</b>
Hydrated Lime	22 Tons	22 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>2177 Tons</b>	<b>2236 Tons</b>

Cold Milling Asphalt Concrete is computed at the rate of 378 square yards per station, applied 34.0 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.4 tons per mile applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 5.2 tons per mile applied 35.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 4.2 tons per mile applied 34.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).





# RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F9	F28

## SECTION 4

Station 150+03.83 to Station 167+35.77  
 Station a -11+34.45 to Station a -3+56.78  
 Station a 9+29.73 to Station a 19+18.73

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt. B
Aggregate	38.70 Tons	40.09 Tons
PG 64-34 Asphalt Binder	2.38 Tons	2.11 Tons
<b>TOTAL MIX</b>	<b>41.08 Tons</b>	<b>42.20 Tons</b>
Hydrated Lime	0.41 Tons	0.42 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>41.49 Tons</b>	<b>42.62 Tons</b>

Cold Milling Asphalt Concrete is computed at the rate of 383 square yards per station, applied 34.5 feet wide

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 tons per station applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 tons per station applied 36.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.08 tons per station applied 35.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 0.98 tons per station applied 22.0 feet wide (Rate = 8 pounds per square yard).

## SECTION 5

Station b 27+32.15 to Station b 52+54.30

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	39.20 Tons	39.57 Tons
PG 64-34 Asphalt Binder	2.35 Tons	2.08 Tons
<b>TOTAL MIX</b>	<b>40.55 Tons</b>	<b>41.65 Tons</b>
Hydrated Lime	0.41 Tons	0.42 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>40.96 Tons</b>	<b>42.07 Tons</b>

Cold Milling Asphalt Concrete is computed at the rate of 339 square yards per station, applied 30.5 feet wide.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.07 tons per station applied 24.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 0.10 tons per station applied 35.5 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 0.08 tons per station applied 34.5 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 0.98 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).



# RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F10	F28

## SECTION 6

Equation - Station c 58+45.80 = Station d -0+37.64  
 Station d -0+37.64 to Station d 106+60.40

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt. B
Aggregate	1656 Tons	1716 Tons
PG 64-34 Asphalt Binder	102 Tons	90 Tons
<b>TOTAL MIX</b>	<b>1758 Tons</b>	<b>1806 Tons</b>
Hydrated Lime	18 Tons	18 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>1776 Tons</b>	<b>1824 Tons</b>

SS-1h or CSS-1h Asphalt for Tack at the rate 3.60 tons per mile applied 31.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.60 tons per mile applied 31.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.70 tons per mile applied 30.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).

## SECTIONS 7 & 8

Station e 344+01.00 to Station e 332+01.00 - Reverse Stationing  
 Station f 82+02.00 to Station f 80+52.00 - Reverse Stationing  
 Station f 66+18.00 to Station f 64+68.00 - Reverse Stationing  
 Station f 58+26.00 to Station f 56+76.00 - Reverse Stationing  
 Station e 345+27.30 to Station e 344+01.00 - Reverse Stationing  
 Station e 332+01.00 to e Station 0+00.00 - Reverse Stationing  
 Equation - Station e 0+00.00 = Station f 625+27.65  
 Station f 625+27.65 to Station f 82+02.00 - Reverse Stationing  
 Station f 80+52.00 to Station f 66+18.00 - Reverse Stationing  
 Station f 64+68.00 to Station f 58+26.00 - Reverse Stationing  
 Station f 56+76.00 to Station f 0+00.00 - Reverse Stationing

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1534 Tons	1589 Tons
PG 64-34 Asphalt Binder	94 Tons	84 Tons
<b>TOTAL MIX</b>	<b>1628 Tons</b>	<b>1673 Tons</b>
Hydrated Lime	16 Tons	17 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>1644 Tons</b>	<b>1690 Tons</b>

SS-1h or CSS-1h Asphalt for Tack at the rate of 3.60 tons per mile applied 27.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 4.00 tons per mile applied 27.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### Flush Seal

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.20 tons per mile applied 26.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 52.0 tons per mile applied 22.0 feet wide (Rate = 8 pounds per square yard).



# RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F11	F28

## SECTION 9

Station g 679+92.90 to Station g 488+68.07  
 Equation - Station g 488+68.07 = Station h 489+08.43  
 Station h 489+08.43 to Station h 213+52.00

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

### Class Q2 Hot Mixed Asphalt Concrete (2" Mainline Lift)

	Alt. A	Alt B
Aggregate	1411 Tons	1462 Tons
PG 64-34 Asphalt Binder	87 Tons	77 Tons
<b>TOTAL MIX</b>	<b>1498 Tons</b>	<b>1539 Tons</b>
Hydrated Lime	15 Tons	15 Tons
<b>TOTAL MIX WITH HYDRATED LIME</b>	<b>1513 Tons</b>	<b>1554 Tons</b>

SS-1h or CSS-1h Asphalt for Tack at the rate of 3.60 tons per mile applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application of Asphalt Concrete Blade Laid.

SS-1h or CSS-1h Asphalt for Tack at the rate of 3.70 tons per mile applied 25.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2" lift of Class Q2 Hot Mixed Asphalt Concrete.

### **Flush Seal**

SS-1H or CSS-1h Asphalt for Flush Seal at the rate of 3.00 tons per mile applied 24.0 feet wide (Rate = 0.05 gallon per square Yard).

Sand for Flush Seal at the rate of 47.0 tons per mile applied 20.0 feet wide (Rate = 8 pounds per square yard).



# TABLE OF MATERIAL QUANTITIES

Description	Water For Granular Material (MGal)	Cold Milling Asphalt Concrete (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course (Ton)	Asphalt Concrete Blaid Laid (Ton)	ALT A	ALT B	ALT A	ALT B	ALT A	ALT B	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
						Class Q2 Hot Mixed Asphalt Concrete (Ton)	Class Q2 Hot Mixed Asphalt Concrete (Ton)	PG 64-34 Asphalt Binder (Ton)	PG 64-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Hydrated Lime (Ton)			
Section 1&2	-	15,945	-	-	-	1,752.8	1,800.3	100.5	89.1	17.3	17.9	4.1	3.5	43.1
Section 3	-	67,780	-	-	-	7,397.4	7,594.5	424.8	377.2	74.8	74.8	17.7	14.3	176.7
Section 4	-	13,400	-	-	-	1,451.9	1,491.1	70.0	70.0	14.3	14.7	3.5	2.8	34.3
Section 5	-	8,550	-	-	-	1,033.1	1,061.1	50.4	50.4	10.3	10.6	2.5	2.0	24.7
Section 6	-	-	-	-	-	3,600.2	3,695.4	206.7	182.3	36.5	36.5	9.3	7.5	105.4
Section 7&8	-	-	-	-	-	30,218.4	31,047.2	1,727.8	1,544.1	294.1	312.5	73.5	58.8	955.8
Section 9	-	-	-	-	-	13,376.4	13,738.9	769.2	680.8	132.6	132.6	32.7	26.5	415.5
Asphalt Concrete Blade Laid	-	-	-	-	5,270.9	-	-	390.0	390.0	52.7	52.7	135.4	-	-
Table of Additional Quantities Totals =	187.7	7,976	1,717	7,712.6	-	9,577.0	9,588.5	554.2	478.4	95.6	95.6	20.3	-	-
<b>TOTALS =</b>	<b>187.7</b>	<b>113,651</b>	<b>1,717</b>	<b>7,712.6</b>	<b>5,270.9</b>	<b>68,407.2</b>	<b>70,017.0</b>	<b>4,293.6</b>	<b>3,862.3</b>	<b>728.2</b>	<b>747.9</b>	<b>299.0</b>	<b>115.4</b>	<b>1,755.5</b>



# TABLE OF ADDITIONAL QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P (1806)23)186	F13	F28

Description	Water For Granular Material (MGal)	Cold Milling Asphalt Concrete (SqYd)	Cold Milling Asphalt Concrete (Information Only) (Tons)	Remove Asphalt Concrete Pavement (SqYd)	Unclassified Excavation, Digouts (CuYd)	Base Course, Salvaged (Ton)	Base Course (Ton)	Gravel Cushion, Salvaged (Ton)	Granular Material, Furnish (Ton)	Blend & Stockpile Granular Material (Ton)	Asphalt Concrete Composite	ALT A	ALT B	ALT A	ALT B	ALT A	ALT B	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)	
												Class Q2 Hot Mixed Asphalt Concrete (Ton)	Class Q2 Hot Mixed Asphalt Concrete (Ton)	PG 64-34 Asphalt Binder (Ton)	PG 64-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Hydrated Lime (Ton)				
<b>Asphalt to End of ROW</b>																					
18 Intersecting Road, Private, & Commercial Entrances	0.1	6840	359.1	-	-	-	-	-	359.1	718.2	-	630.0	630.0	36.2	31.2	6.2	6.2	0.2	-	-	
<b>Asphalt to End of Radius/Base Course, Salvaged Asphalt Mix to ROW</b>																					
1 Commercial Entrance	0.2	-	-	-	-	-	16	-	-	-	-	11.1	11.1	0.6	0.6	0.1	0.1	0.1	-	-	
<b>Farm &amp; Field Entrances</b>																					
59 Farm & Field, Private, & Commercial Entrances	9.1	-	-	-	-	-	944	-	-	-	-	654.9	654.9	37.6	32.4	6.5	6.5	-	-	-	
<b>SD 1806/SD 204 Intersection Widening</b>																					
SD 1806/SD 204 Intersection Widening	1.7	-	-	-	-	-	176.0	-	-	-	45.1	30.1	30.1	1.7	1.5	0.3	0.3	0.1	-	-	
MRM 192.00+0.256 to MRM 192.00+0.284 Heave Repair	7.2	-	-	802.7	-	187.1	562.0	-	-	-	120.0	82.0	82.0	4.7	4.1	0.8	0.8	0.3	-	-	
MRM 193.00+0.326 to MRM 193.00+0.414 Heave Repair	17.2	-	-	1833.7	-	447.6	1344.0	-	-	-	289.3	196.3	196.3	11.3	9.7	1.9	1.9	0.9	-	-	
MRM 193.00+0.523 to MRM 193.00+0.588 Heave Repair	13.7	-	-	1474.7	-	356.8	1071.4	-	-	-	226.6	151.8	151.8	8.7	7.5	1.5	1.5	0.6	-	-	
MRM 191.00+0.933 to MRM 192.00+0.027 Pavement Profile Correction	-	-	-	-	-	-	-	-	-	-	-	88.6	90.9	5.1	4.5	0.9	0.9	0.4	-	-	
MRM 192.00+0.373 to MRM 192.00+0.467 Pavement Profile Correction	-	-	-	-	-	-	-	-	-	-	-	88.6	90.9	5.1	4.5	0.9	0.9	0.4	-	-	
MRM 198.00+0.403 to MRM 198.00+0.497 Pavement Profile Correction	-	-	-	-	-	-	-	-	-	-	-	88.6	90.9	5.1	4.5	0.9	0.9	0.4	-	-	
MRM 199.00+0.003 to MRM 199.00+0.097 Pavement Profile Correction	-	-	-	-	-	-	-	-	-	-	-	88.6	90.9	5.1	4.5	0.9	0.9	0.4	-	-	
MRM 201.00+0.523 to MRM 201.00+0.617 Pavement Profile Correction	-	-	-	-	-	-	-	-	-	-	-	88.6	90.9	5.1	4.5	0.9	0.9	0.4	-	-	
Pipe Replacement Locations	1.6	-	-	522.4	-	-	165.0	-	-	-	78.1	-	-	-	-	-	-	0.2	-	-	
Blend & Stockpile Cold Milled Asphalt	-	-	5470.2	-	-	-	-	-	5,470.2	10,940.4	-	-	-	-	-	-	-	-	-	-	
Spot Leveling, Strengthening, & Repair	-	-	-	-	-	-	-	-	-	-	-	7377.8	7377.8	427.9	368.9	73.8	73.8	15.9	-	-	
Repair Shoulder Drop Off	103.9	-	-	-	-	-	-	10822.1	-	-	-	-	-	-	-	-	-	-	-	-	
Cold Milling Transitions at Begin/End Cold Milling/Spillway Ends	-	1136	74.6	-	-	-	-	-	74.6	149.2	-	-	-	-	-	-	-	-	-	-	
Asphalt Concrete Blade Laid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Digouts	33.0	-	-	2575.7	1717	-	3434.2	-	-	-	858.6	-	-	-	-	-	-	-	-	-	
<b>TOTALS =</b>	<b>187.7</b>	<b>7,976</b>	<b>5,903.9</b>	<b>7,209.3</b>	<b>1,717</b>	<b>991.5</b>	<b>7,712.6</b>	<b>10,822.1</b>	<b>5,903.9</b>	<b>11,807.8</b>	<b>1,617.7</b>	<b>9,577.0</b>	<b>9,588.5</b>	<b>554.2</b>	<b>478.4</b>	<b>95.6</b>	<b>95.6</b>	<b>20.3</b>	<b>0.0</b>	<b>0.0</b>	

Asphalt to ROW - Quantities for approximately 380 SqYds of Cold Milling Asphalt Concrete & 35 tons of Class Q2 Hot Mixed Asphalt per entrance has been estimated.

Asphalt to Radius - Quantities for approximately 11.1 tons of Class Q2 Hot Mixed Asphalt Concrete and 16.0 tons of Base Course per entrance has been estimated.

Asphalt for Farm and Field Entrances - Quantities for approximately 11.1 tons of Class Q2 Hot Mixed Asphalt Concrete and 16.0 tons of Base Course per entrance has been estimated.

Tonnage shown in the tables above for Class Q2 Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.



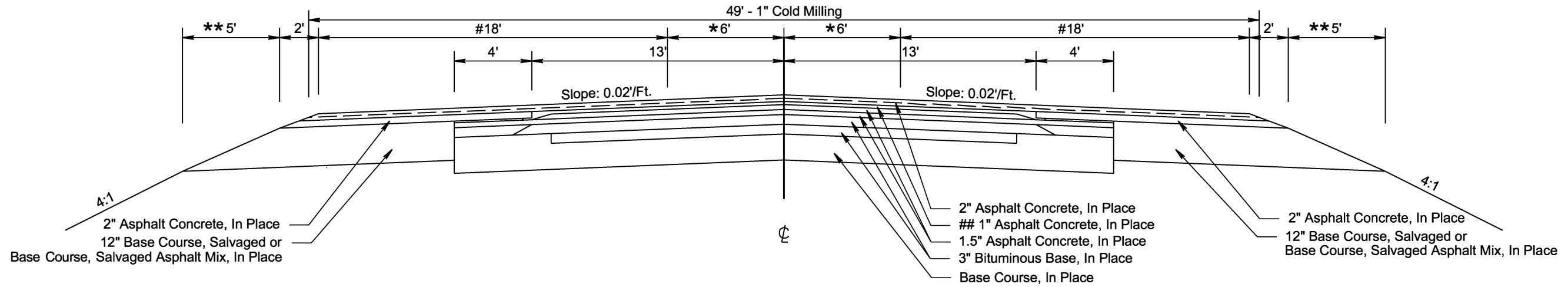
# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F14	F28

Plotting Date: 9/18/2023

## Section 1

Sta. 1+68.90 to Sta. 25+10.00  
Sta. 27+60.00 to Sta. 31+00.00  
In Place Section



### Transitions:

Sta. 1+68.90 to Sta. 2+08.90  
## 0" to 1"

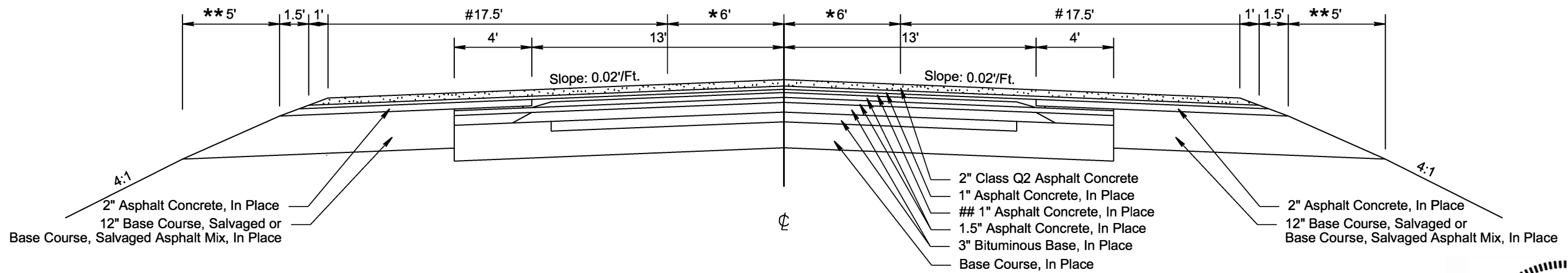
Sta. 1+68.90 to Sta. 4+63.00  
\* 1.2' to 6'  
\*\* 10.88' to 5'

Sta. 27+60.00 to Sta. 30+200..  
\* 3.71' to 0'

Sta. 30+20.00 to Sta. 31+00.00  
\* 0'  
\*\* 5' to 5.1'  
# 17.5' to 16'

## Section 1

Sta. 1+68.90 to Sta. 25+10.00  
Sta. 27+60.00 to Sta. 31+00.00  
Resurfacing Section



FILE ... \060P\_TYSECT\_TJD1.DGN

PLOT SCALE - 1:5.82354

PLOTTED FROM - JENBRASSEFIELD

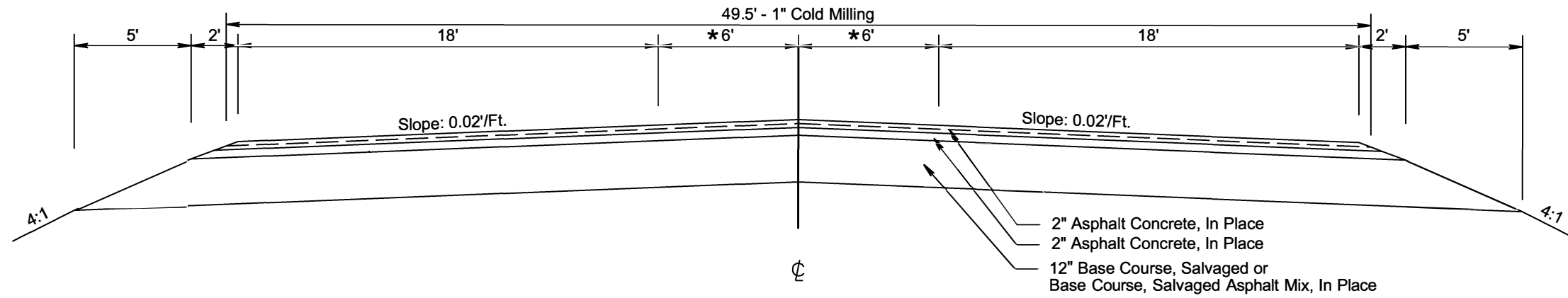
# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F15	F28

Plotting Date: 9/18/2023

## Section 2

Sta. 25+10.00 to Sta. 27+60.00  
In Place Section

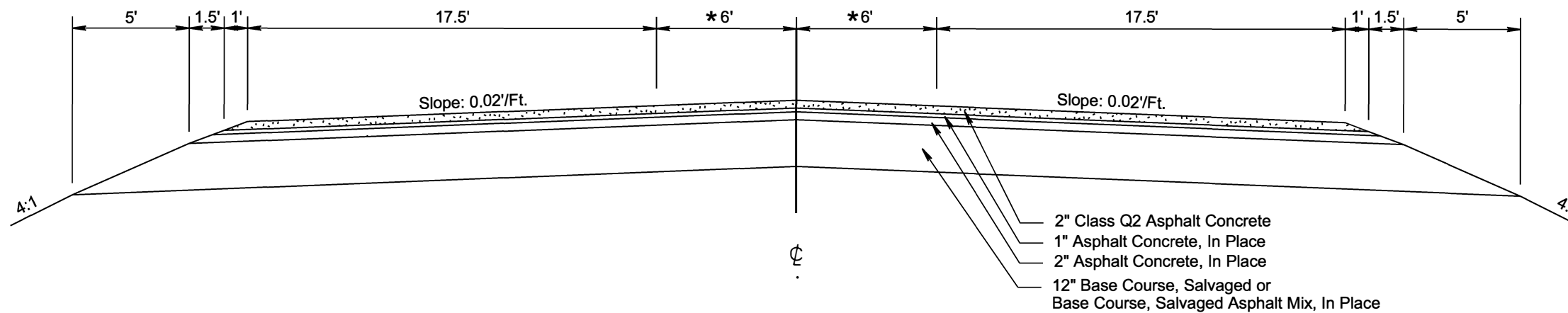


### Transitions:

Sta. 26+00.00 to Sta. 27+60.00  
\* 6' to 3.71'

## Section 2

Sta. 25+10.00 to Sta. 27+60.00  
Resurfacing Section



PLOT SCALE - 1:5.82354

PLOT NAME - FILE ... \060P\_TYPSCT\_TJDI.DGN

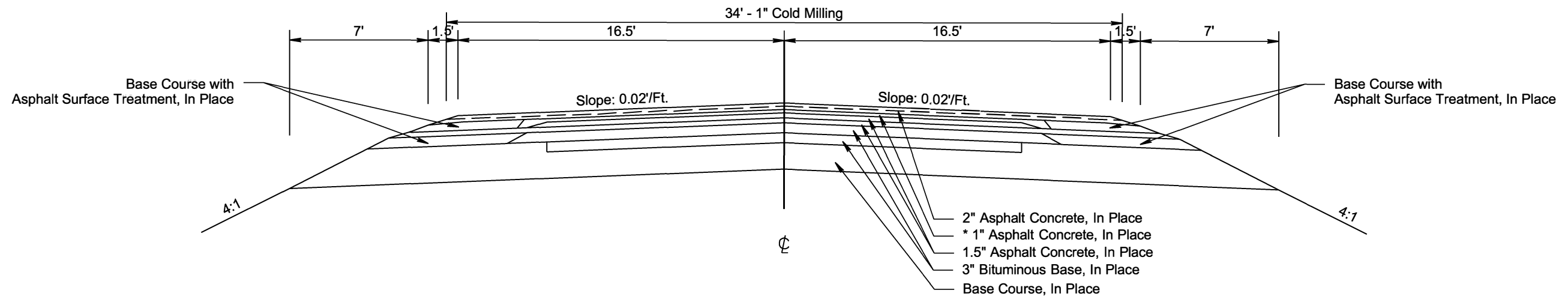
# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F16	F28

Plotting Date: 9/18/2023

### Section 3

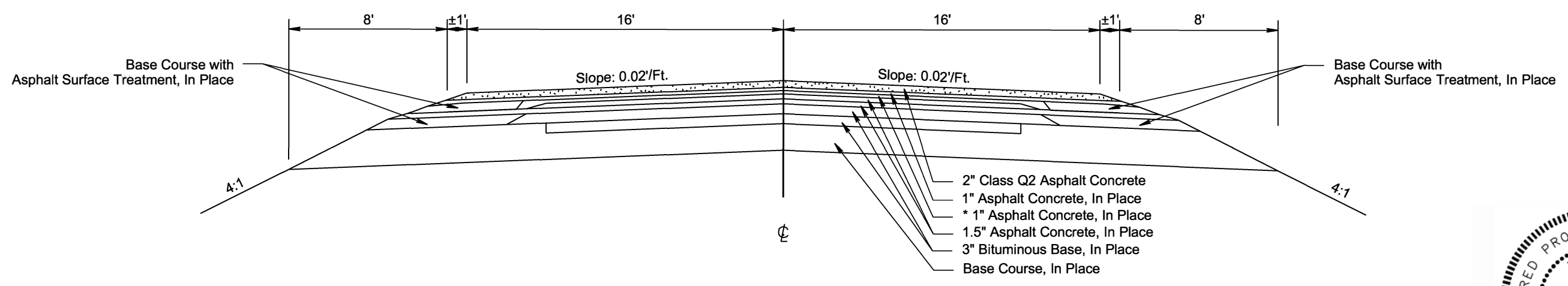
Sta. 31+00.00 to Sta. 150+03.83  
 Sta. 167+35.77 to Sta. 201+13.85  
 Equation - Sta. 201+13.85 = Sta. a -11+34.45  
 Sta. a -3+56.78 to Sta. a 9+29.73  
 Equation - Sta. a 19+18.73 = Sta. b 19+52.58  
 Sta. b 19+52.58 to Sta. b 27+32.15  
 Equation - Sta. b 52+54.3 = Sta. c 52+52.58  
 Sta. c 52+52.58 to Sta. c 58+45.80  
 In Place Section



Transitions:  
 Sta. a 58+05.8 to Sta. a 58+45.8  
 \* 1" to 0"

### Section 3

Sta. 31+00.00 to Sta. 150+03.83  
 Sta. 167+35.77 to Sta. 201+13.85  
 Equation - Sta. 201+13.85 = Sta. a -11+34.45  
 Sta. a -3+56.78 to Sta. a 9+29.73  
 Equation - Sta. a 19+18.73 = Sta. b 19+52.58  
 Sta. b 19+52.58 to Sta. b 27+32.15  
 Equation - Sta. b 52+54.3 = Sta. c 52+52.58  
 Sta. c 52+52.58 to Sta. c 58+45.80  
 In Place Section



PLOT SCALE - 1:5.82354

PLOT NAME - FILE - ... \060P\_TYPSCT\_TJDI.DGN



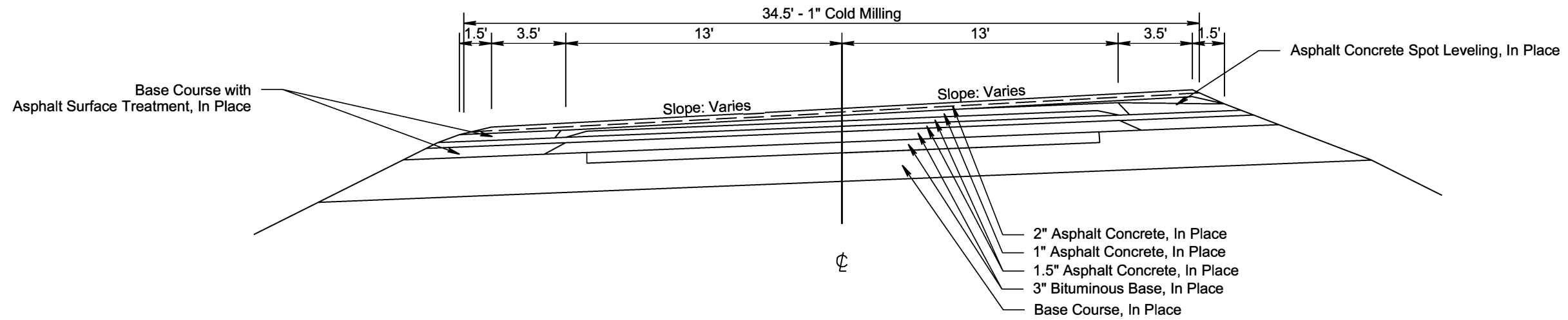
# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F17	F28

Plotting Date: 9/18/2023

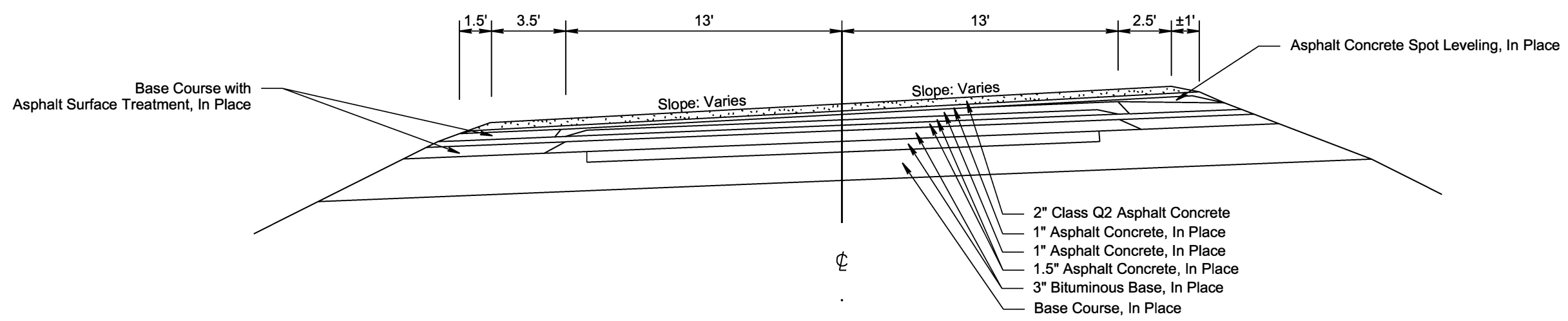
## Section 4

Sta. 150+03.83 to Sta. 167+35.77  
 Sta. a -11+34.45 to Sta. a -3+56.78  
 Sta. a 9+29.73 to Sta. a 19+18.73  
 In Place & Cold Milling Section



## Section 4

Sta. 150+03.83 to Sta. 167+35.77  
 Sta. a -11+34.45 to Sta. a -3+56.78  
 Sta. a 9+29.73 to Sta. a 19+18.73  
 In Place & Cold Milling Section



PLOT SCALE - 1:1.5, 82354

PLOTTED FROM - JENBRASSE.FLD

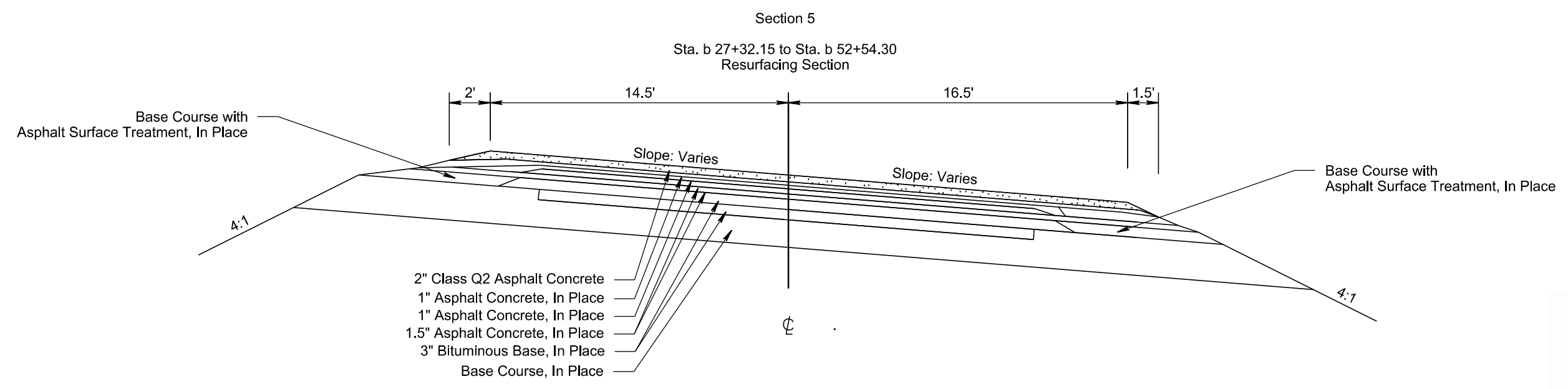
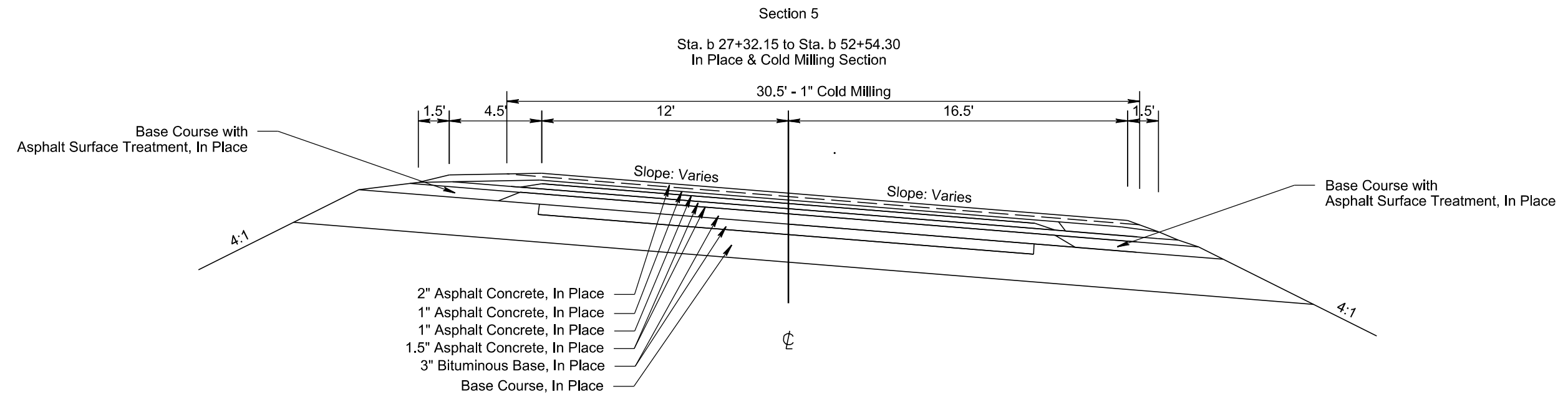
PLOT NAME -

FILE - ... \060P\_TYPSCT\_TJD1.DGN

# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F18	F28

Plotting Date: 9/19/2023



PLOT SCALE - 1:5.82354

PLOTTED FROM - JENBRASSE IELD

PLOT NAME -

FILE - ... \060P\_TYPSCT\_TJD1.DGN

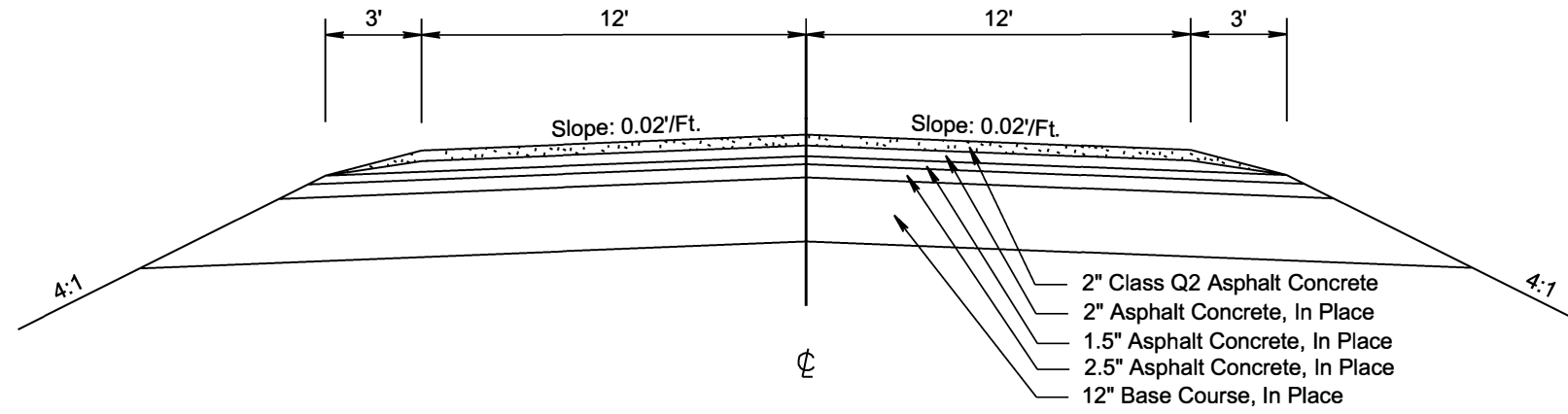
# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F19	F28

Plotting Date: 9/18/2023

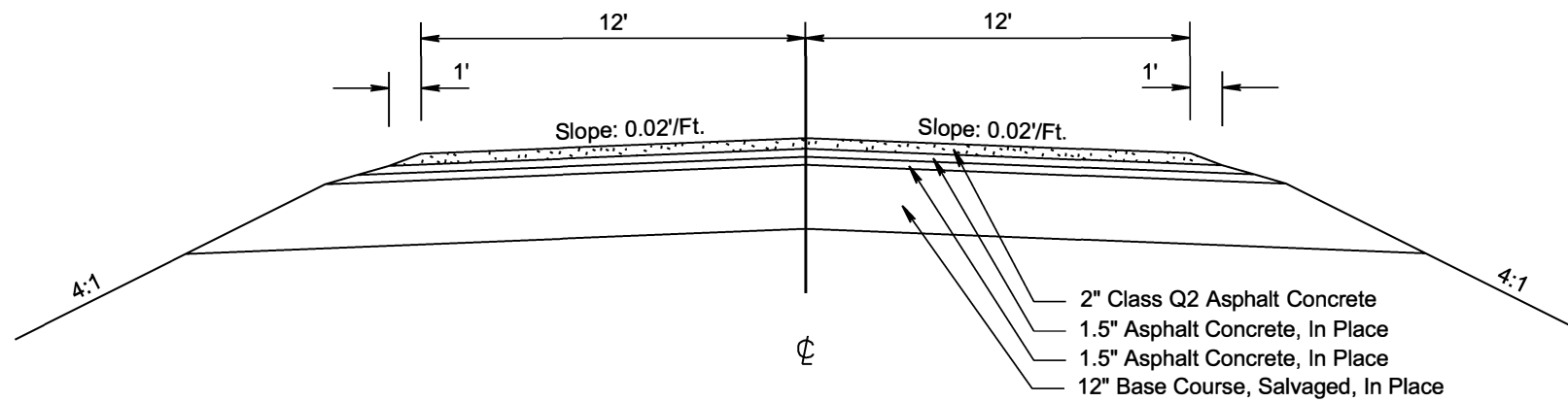
## Section 6

Equation - Sta. c 58+45.80 = Sta. d 0-37.64  
Sta. d 0-37.64 to Sta. d 106+60.40  
Resurfacing Section



## Section 7

Sta. e 344+01.00 to Sta. e 332+01.00 - Reverse Stationing  
Sta. f 82+02.00 to Sta. f 80+52.00 - Reverse Stationing  
Sta. f 66+18.00 to Sta. f 64+68.00 - Reverse Stationing  
Sta. f 58+26.00 to Sta. f 56+76.00 - Reverse Stationing  
Resurfacing Section



PLOT SCALE - 1:5.82354

PLOT NAME - ... \060P\_TYPSCT\_TJD1.DGN

PLOTTED FROM - JENBRASSFIELD

# TYPICAL SURFACING SECTIONS

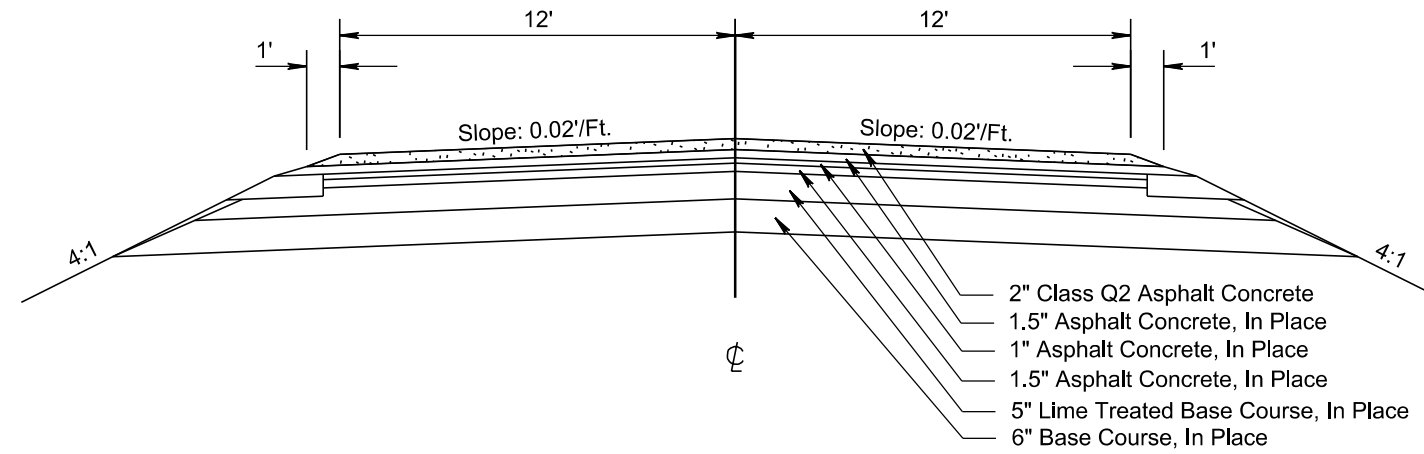
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F20	F28

Plotting Date: 9/18/2023

Surfacing Exception over the Lake Oahe Emergency Spillway

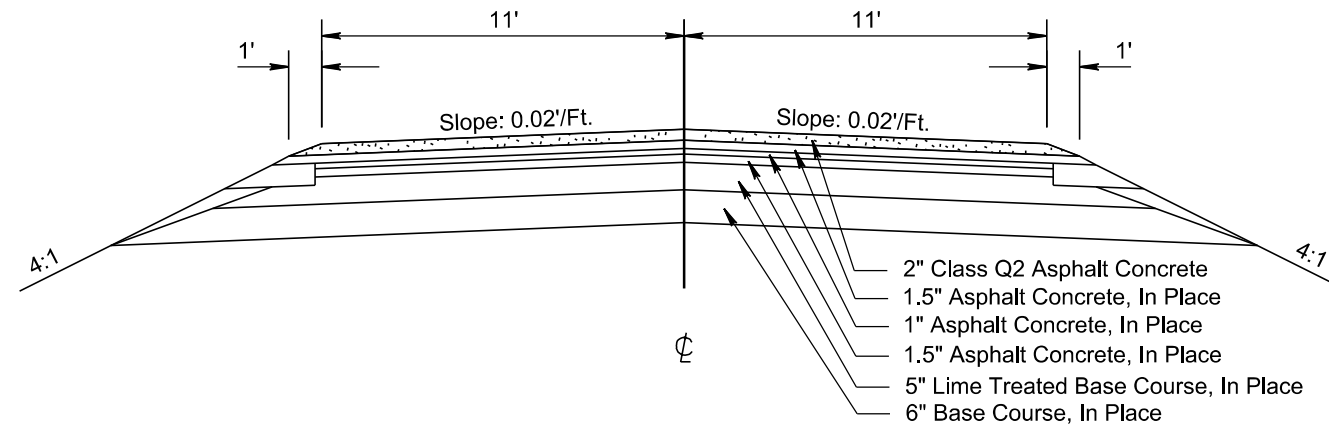
## Section 8

Sta. e 345+27.30 to Sta. e 344+01.00 - Reverse Stationing  
 Sta. e 332+01.00 to e 0+00.00 - Reverse Stationing  
 Equation - Sta. e 0+00.00 = Sta. f 625+27.65  
 Sta. f 625+27.65 to Sta. f 82+02.00 - Reverse Stationing  
 Sta. f 80+52.00 to Sta. f 66+18.00 - Reverse Stationing  
 Sta. f 64+68.00 to Sta. f 58+26.00 - Reverse Stationing  
 Sta. f 56+76.00 to Sta. f 0+00.00 - Reverse Stationing  
 Resurfacing Section



## Section 9

Sta. g 679+92.90 to Sta. g 488+68.07  
 Equation - Sta. g 488+68.07 = Sta. h 489+08.43  
 Sta. h 489+08.43 to Sta. h 213+52.00  
 Resurfacing Section



PLOT NAME - 1  
 FILE - ... \060P\_TYPSCT\_TJD1.DGN

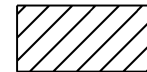
PLOT SCALE - 1:5.82354  
 PLOTTED FROM - JENBRASSE IELD

# FAULT-HEAVE REPAIR

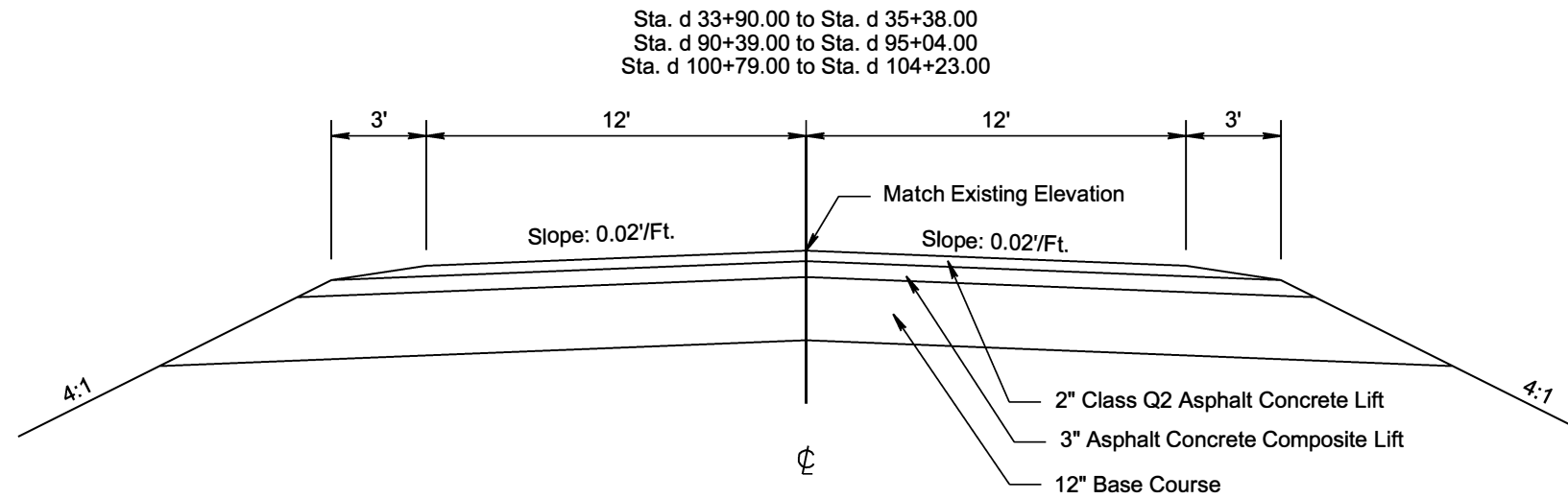
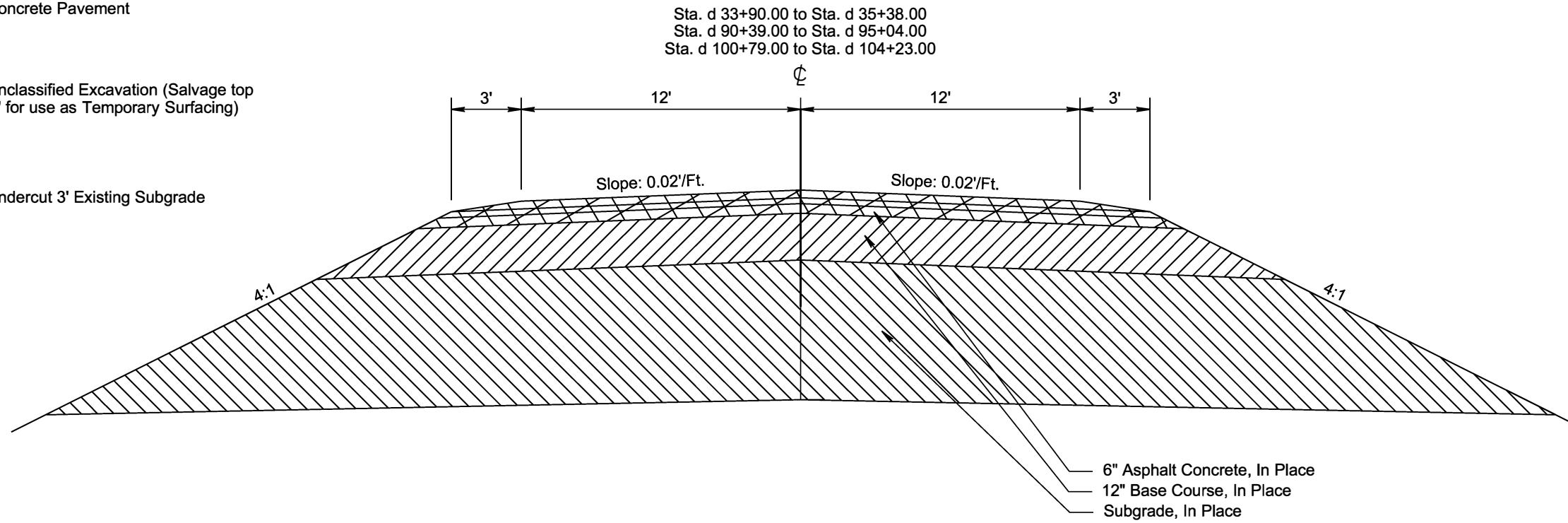
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F21	F28

Plotting Date: 9/18/2023

 Remove Asphalt Concrete Pavement

 Unclassified Excavation (Salvage top 5" for use as Temporary Surfacing)

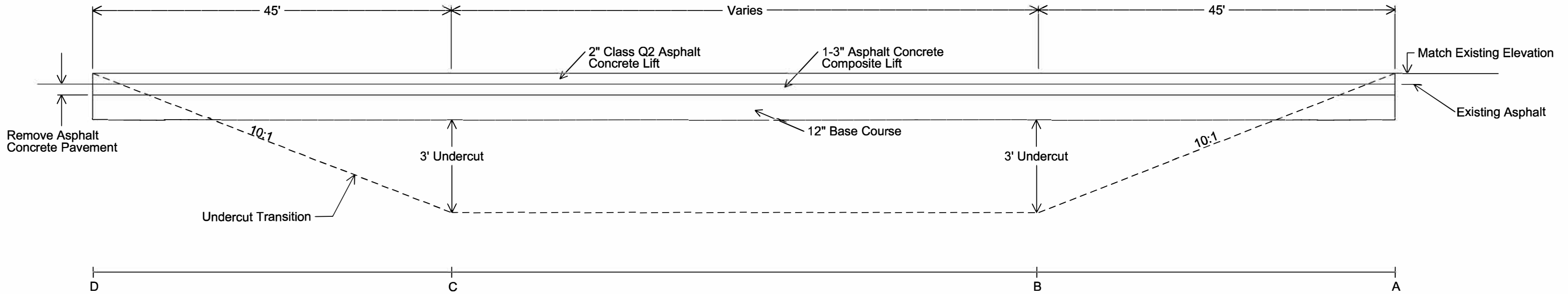
 Undercut 3' Existing Subgrade



PLOTTED FROM - JENBRASSEFIELD PLOT SCALE - 1:5.82354

PLOT NAME - FILE ... \060P\_TYPSCT\_TJD1.DGN

# FAULT-HEAVE REPAIR



Heave Repair					
MRM	MRM	A	B	C	D
192.00+0.256	to 192.00+0.284	d 33+45	d 33+90	d 35+38	d 35+83
193.00+0.326	to 193.00+0.354	d 90+05	d 90+50	d 95+04	d 95+49
193.00+0.386	to 193.00+0.414	d 100+34	d 100+79	d 104+23	d 104+68



DRAWING NOT TO SCALE

Plot Scale - 1:28.0914

Plotted From - jenbrassfield

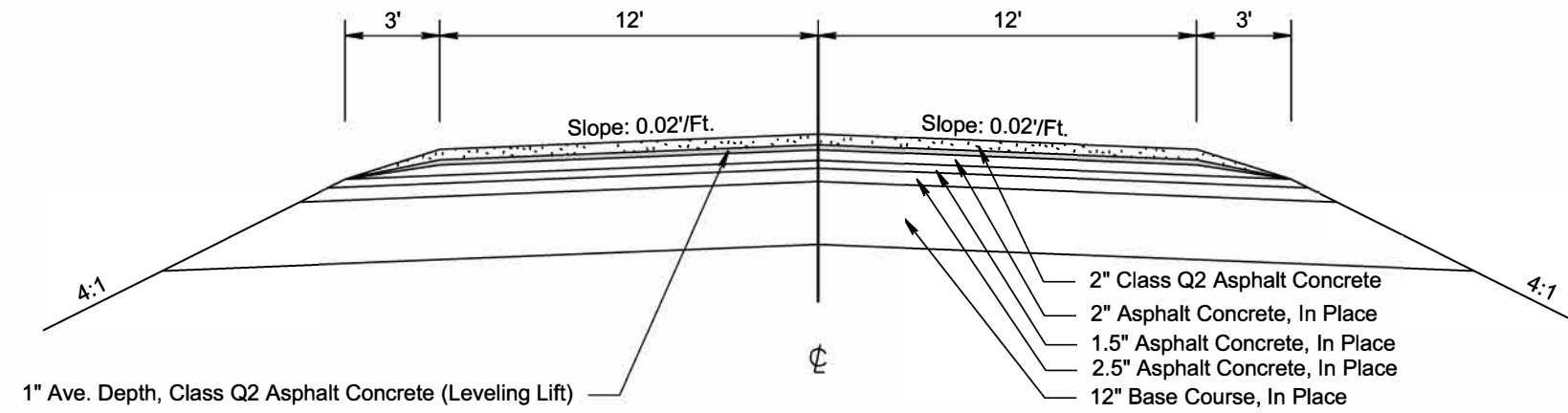
File - ...Details\Heave Repair.dgn

Plotting Date: 9/19/2023

# TYPICAL PAVEMENT PROFILE CORRECTION SECTION

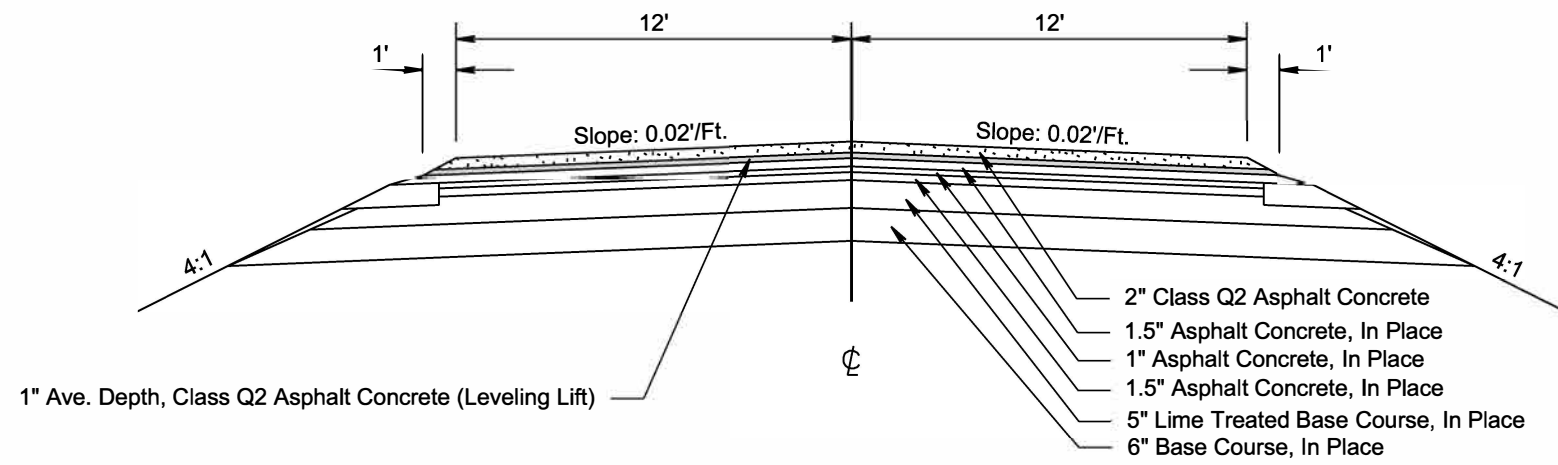
## Section 6

Sta. d 17+15 to Sta. d 22+15  
Sta. d 40+38 to Sta. d 45+38



## Section 8

Sta. e 71+48 to Sta. e 66+48 - Reverse Stationing  
Sta. e 103+67 to Sta. e 98+67 - Reverse Stationing  
Sta. f 565+83 to Sta. f 560+83 - Reverse Stationing



PLOT SCALE - 1:5.82354

PLOT NAME -

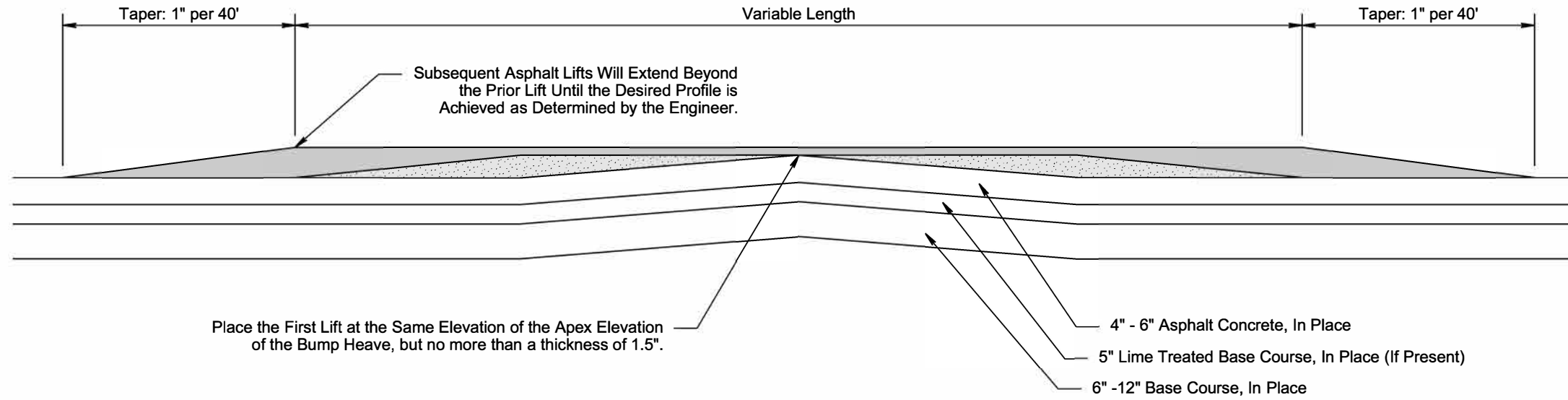
PLOTTED FROM - JENBRASSFIELD

FILE - ... \060P\_TYPSCT\_TJD1.DGN

# TYPICAL PAVEMENT PROFILE CORRECTION SECTION

Note: Depth of Asphalt and Length Taper varies at each leveling location

Side View




DRAWING NOT TO SCALE

Note: Quantities are based on a variable length of 500', but will be adjusted, based on field conditions.

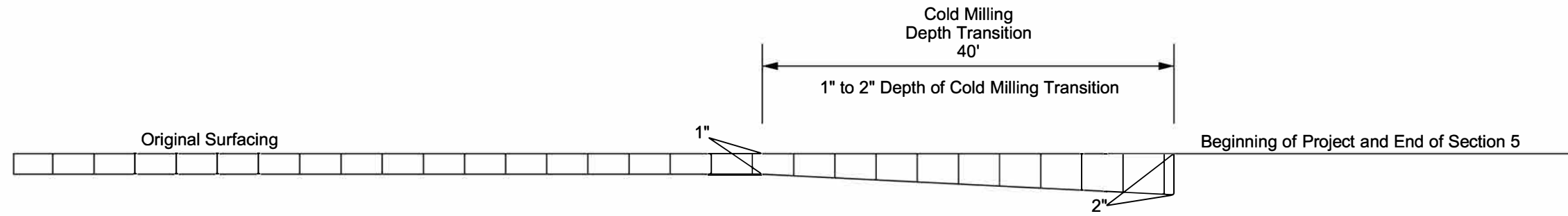




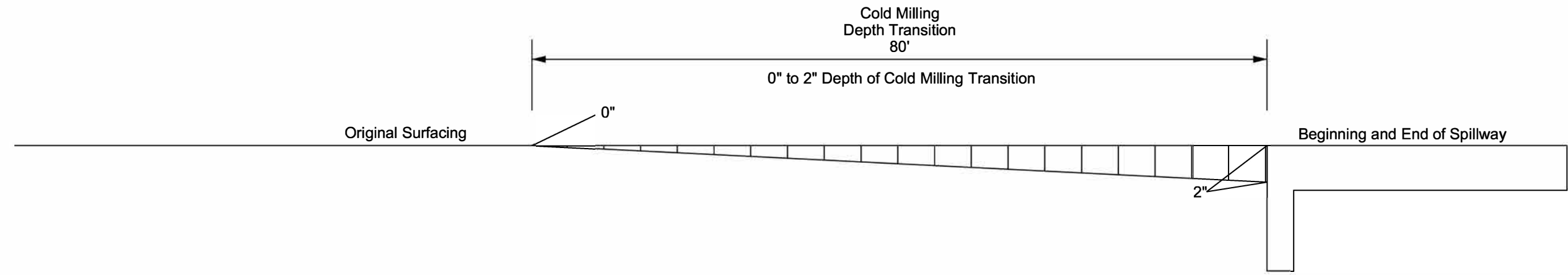
# BEGIN AND END COLD MILLING TRANSITIONS

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 1806(23)186	F25	F28

Plotting Date: 9/18/2023



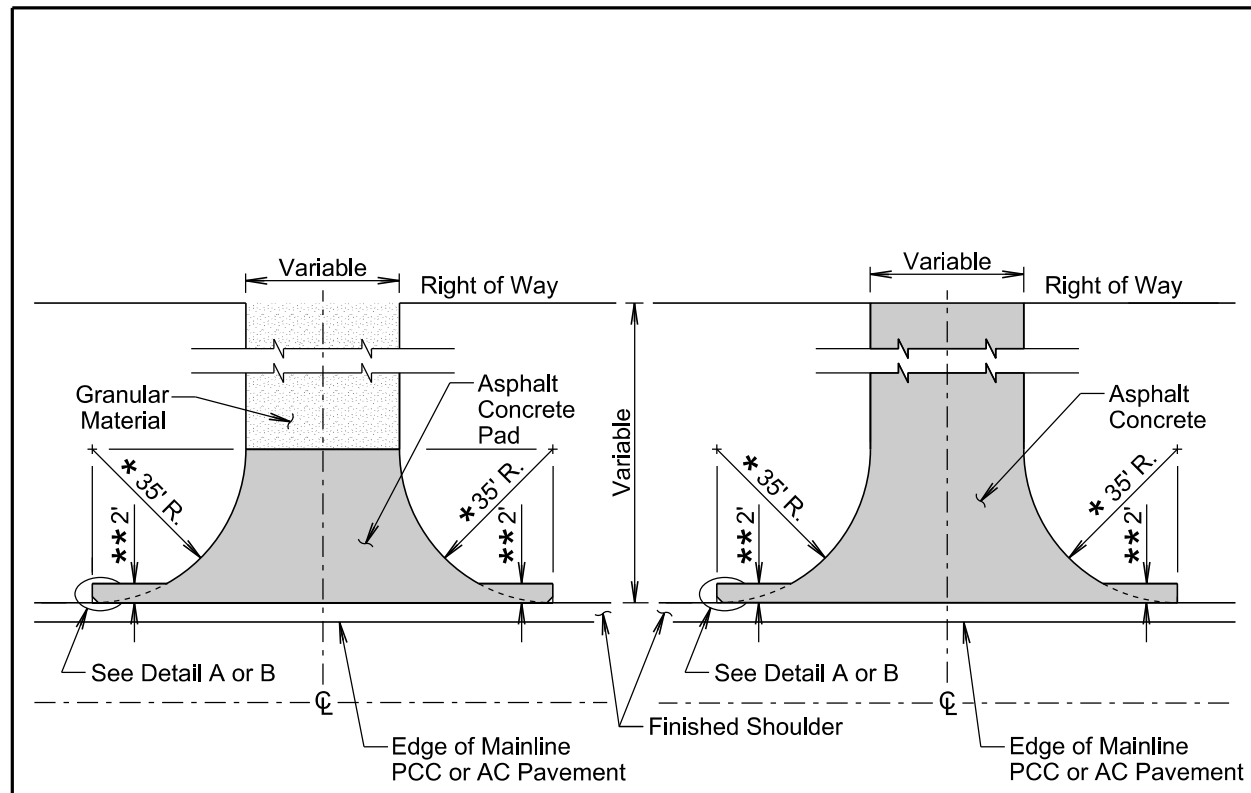
# COLD MILLING ASPHALT CONCRETE AT SPILLWAY ENDS



Plot Scale - 1:48,5294

Plotted From - lenbrassifield

File - ...Special Cold Milling Transitions.dgn



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

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

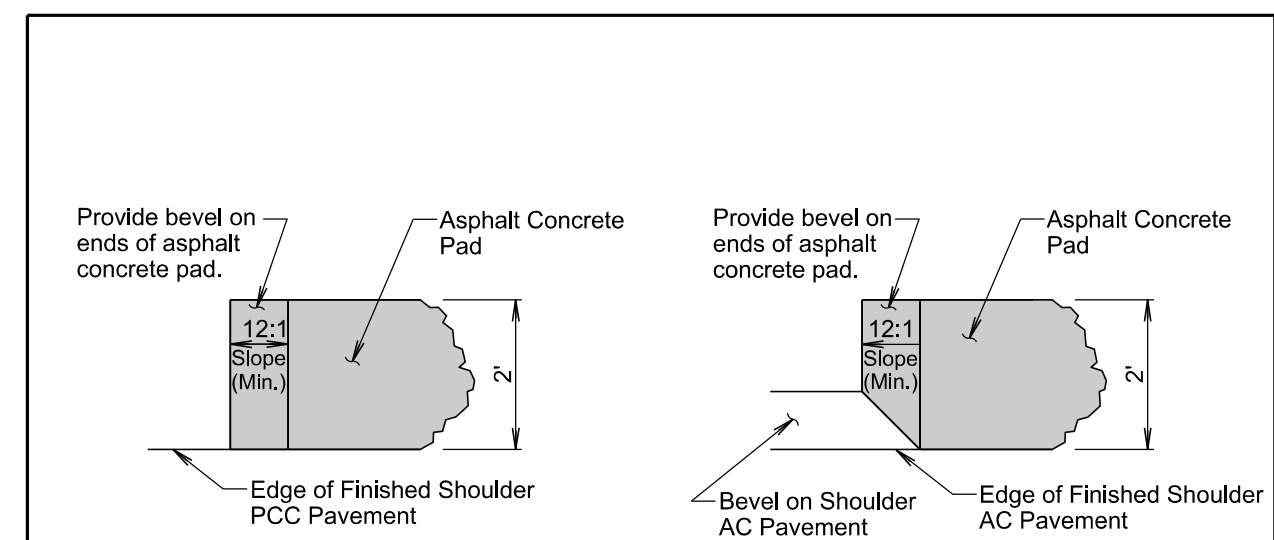
**GENERAL NOTES:**

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.

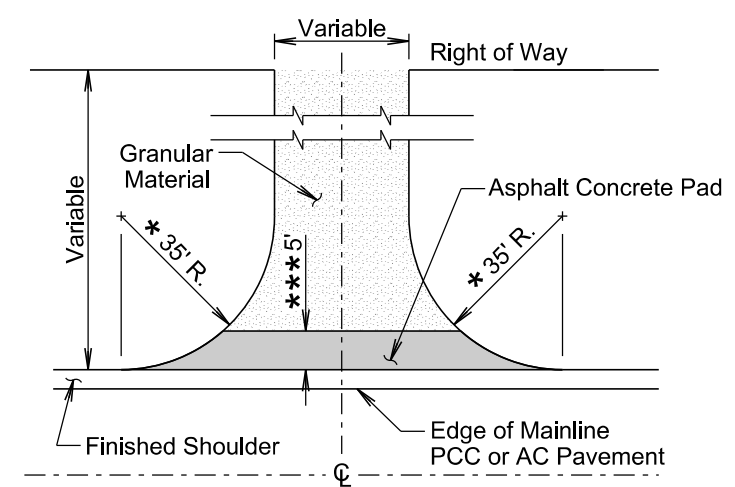
August 27, 2020

<b>SD DOT</b>	<b>SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)</b>	PLATE NUMBER 320.04
		Sheet 1 of 2
Published Date: 2024		



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

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

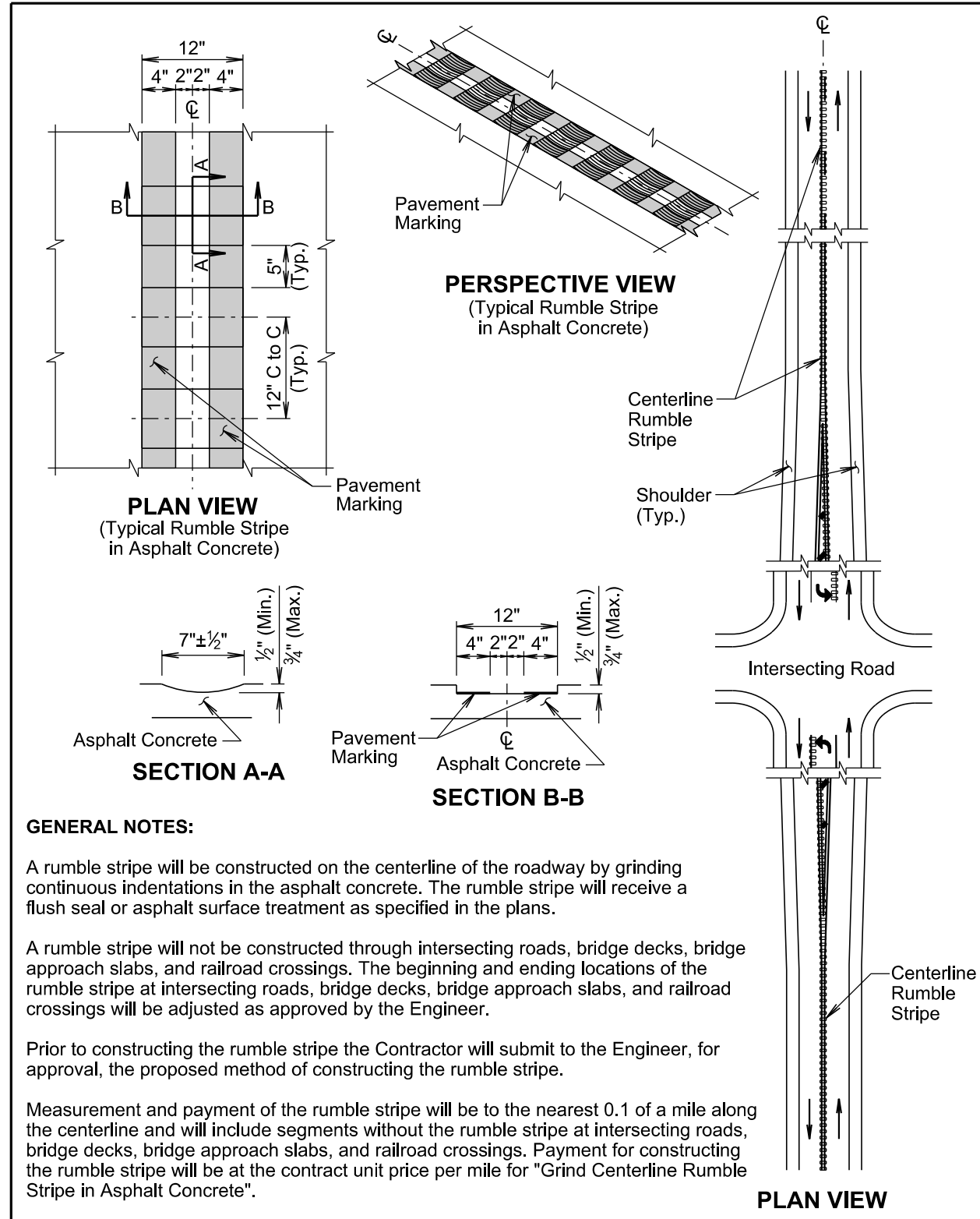


**PLAN VIEW**  
(Entrance)

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

August 27, 2020

<b>SD DOT</b>	<b>SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)</b>	PLATE NUMBER 320.04
		Sheet 2 of 2
Published Date: 2024		



**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.

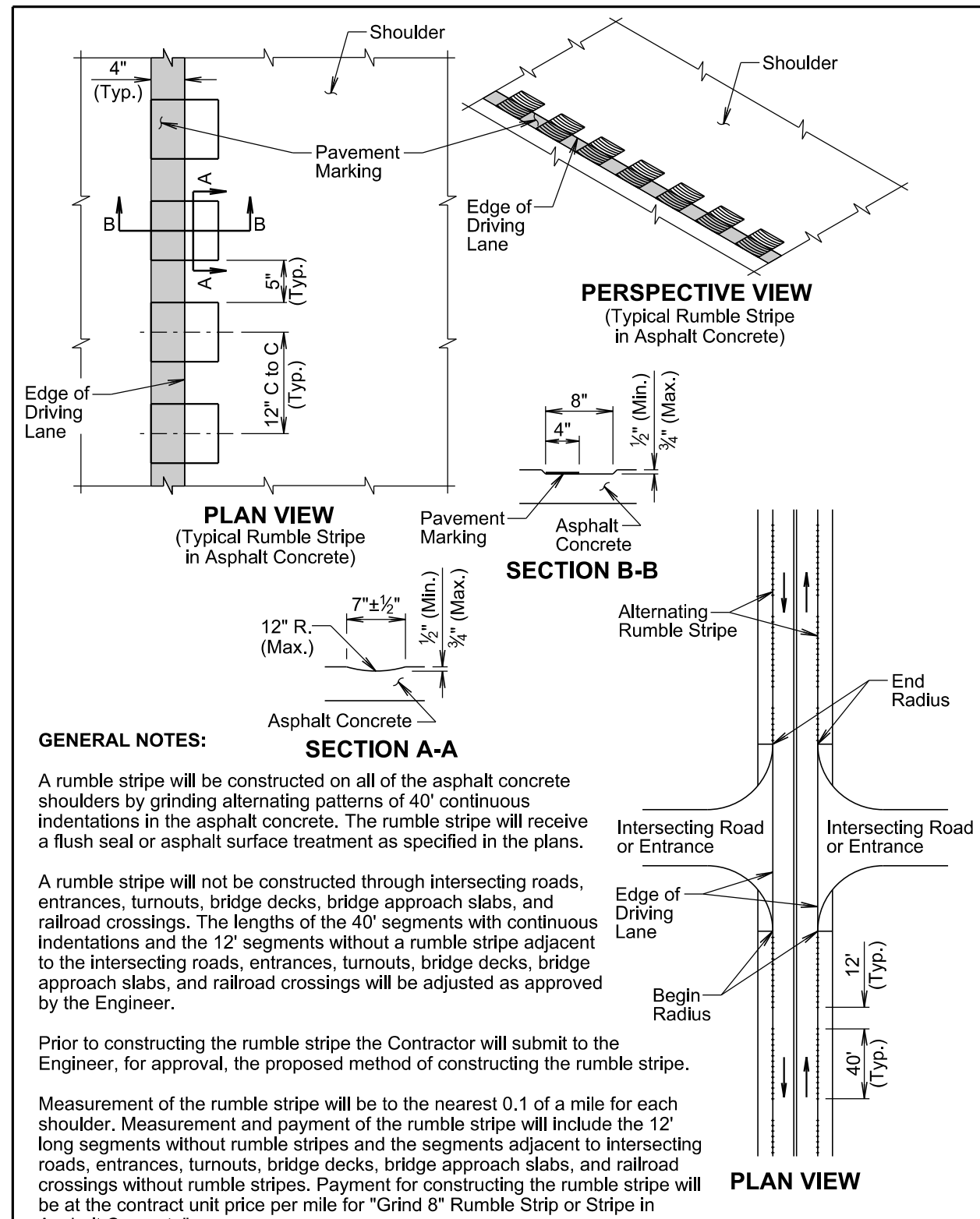
A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the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

<b>S D D O T</b>	<b>12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE</b>	PLATE NUMBER 320.18
		Sheet 1 of 1
		Published Date: 2024



**GENERAL NOTES:**

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

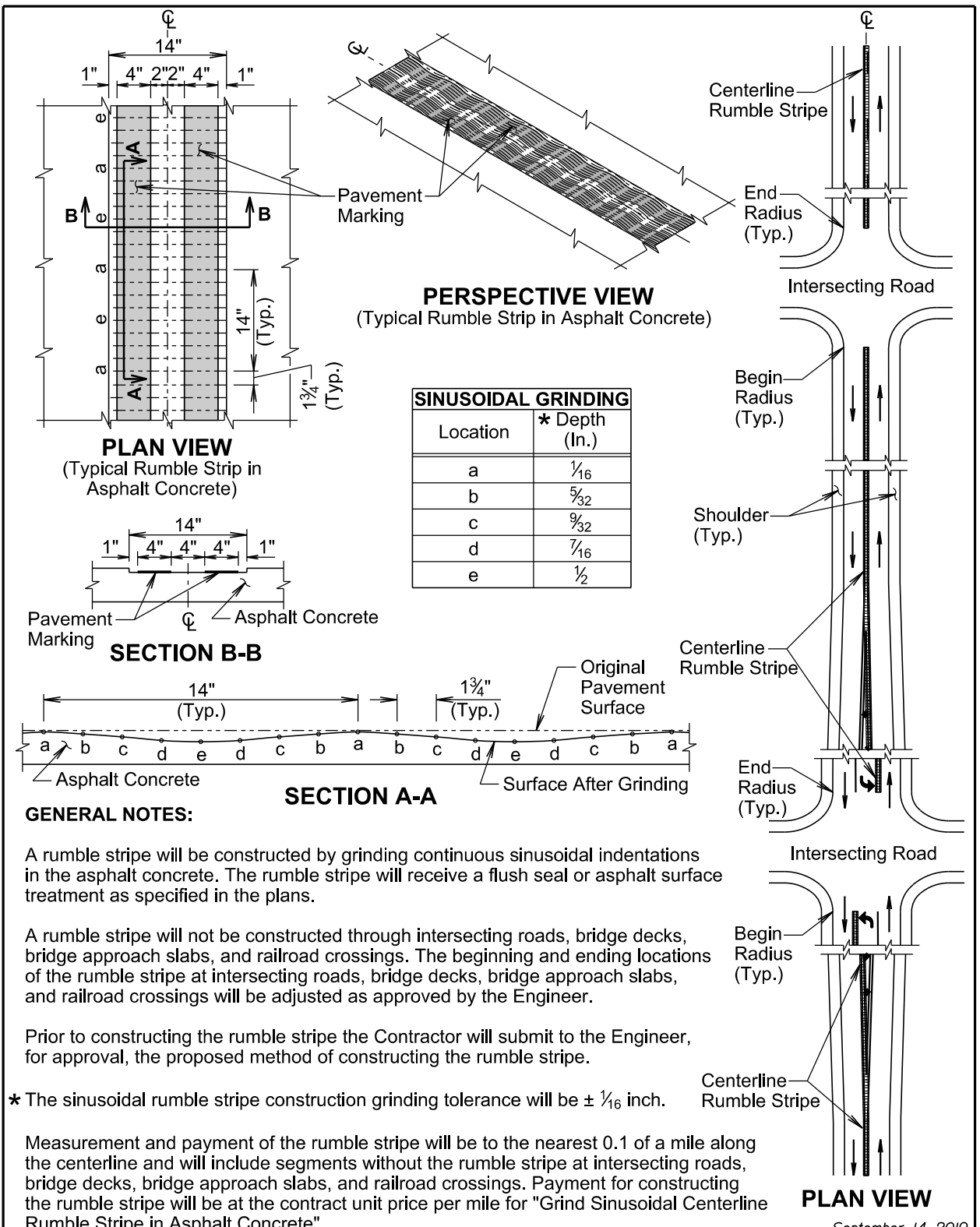
A rumble stripe will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances,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

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

Measurement of the rumble stripe will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe will include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble stripes. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

September 14, 2019

<b>S D D O T</b>	<b>8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS</b>	PLATE NUMBER 320.20
		Sheet 1 of 1
		Published Date: 2024



**PLAN VIEW**

September 14, 2019

<b>S D D O T</b>	<b>SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE</b>	PLATE NUMBER <b>320.40</b>
	Published Date: 2024	Sheet 1 of 1