

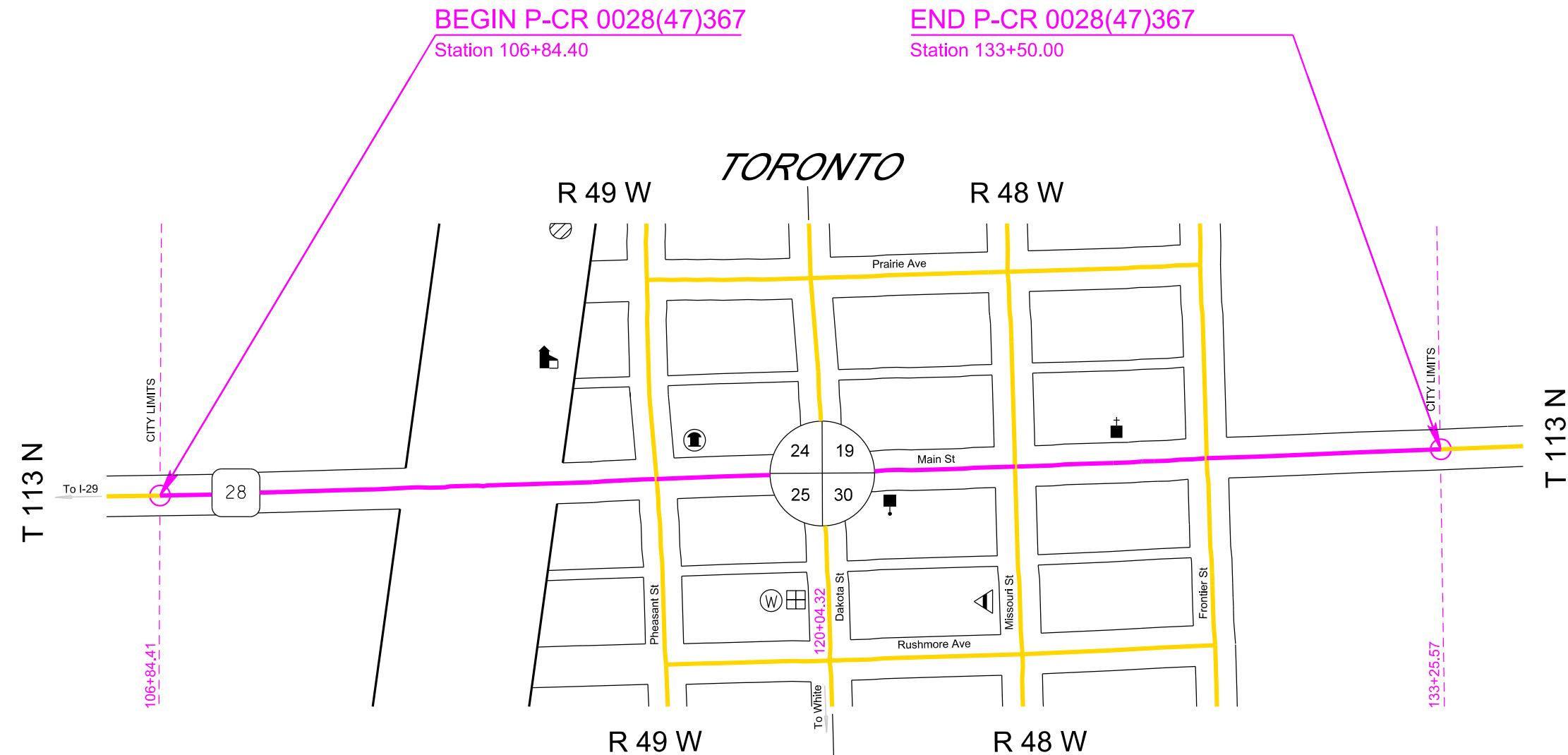
# Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-CR 0028(47)367	F1	F15

Plotting Date: 08/28/2025

## INDEX OF SHEETS

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- F7 - F9 Typical Surfacing Sections
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- F15 Standard Plates



## ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
120E6200	Water for Granular Material	134.6	MGal
260E1010	Base Course	2,500.0	Ton
260E1030	Base Course, Salvaged	10,629.0	Ton
260E2030	Gravel Cushion, Salvaged	76.7	Ton
260E3030	Gravel Surfacing, Salvaged	469.6	Ton
320E0032	PG 58H-34 Asphalt Binder	237.3	Ton
320E1050	Class E Asphalt Concrete	4,087.8	Ton
320E1200	Asphalt Concrete Composite	60.0	Ton
320E3000	Compaction Sample	8	Each
330E0010	MC-70 Asphalt for Prime	18.5	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	7.7	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	3.0	Ton
330E1000	Blotting Sand for Prime	76.3	Ton
330E2000	Sand for Flush Seal	58.4	Ton
380E3020	6" PCC Driveway Pavement	243.2	SqYd

## CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, 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.

## 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.

## INTERSECTING ROADS AND ENTRANCES

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

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

## PREPARATION FOR PARKING LOT & DRIVEWAY PAVEMENTS

The foundation will be excavated, shaped, and compacted to a firm, uniform bearing surface. Unsuitable foundation material will be removed and replaced as directed by the Engineer. The foundation will be thoroughly moistened immediately prior to placing the PCC Pavement. Moisture will be applied without forming pools of water.

Granular material will be placed to the depth specified and satisfactorily compacted.

Payment for any excavation will be incidental to the contract unit price of the surfacing material.

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## 6" PCC DRIVEWAY PAVEMENT

The concrete for the 6" PCC Driveway Pavement will comply with the requirements of the specifications for Class M6 Concrete, unless otherwise specified in the plans. The mix design can meet either Class M6 Concrete specifications or conform to Section 380.

The surface of the 6" PCC Driveway Pavement will have a maximum 10% slope and the tie-ins will match the existing and/or new adjoining PCC Approach Pavement.

Contraction joints in the 6" PCC Driveway Pavement will be  $1\frac{1}{2}$  inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint will be at least  $\frac{1}{4}$  the thickness of the approach pavement.

The curing compound will be applied in two applications to ensure the entire surface is white from any viewing angle.

All costs for furnishing and placing the 6" PCC Driveway Pavement and constructing the expansion and contraction joints including labor, equipment, and materials (including the earthen backfill) will be incidental to the contract unit price per square yard for "6" PCC Driveway Pavement".

Payment for any excavation required for placing the 6" PCC Driveway Pavement and granular material will be incidental to the contract unit price of the surfacing material.

All costs for furnishing and placing the granular material will be incidental to the contract unit price per ton for "Gravel Cushion, Salvaged".

## WATER FOR COMPACTION

Water for compaction of the granular material is estimated at 134.6 MGal. A minimum of 4% moisture will be required at the time of compaction unless otherwise directed by the Engineer.

## BASE COURSE, SALVAGED

Base Course, 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 Base Course, 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 Base Course, Salvaged will apply.

## 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.

## GRAVEL SURFACING, SALVAGED

Gravel Surfacing, 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 Surfacing, 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 Surfacing, Salvaged will apply.

## TABLE OF SALVAGED MATERIAL UTILIZATION

	Base Course, Salvaged	Gravel Cushion, Salvaged	Gravel Surfacing, Salvaged	Excess (Estimated)	Total
	tons	tons	tons	tons	tons
Salvage and Stockpile Asphalt Mix and Granular Material	10,629.0	76.7	469.6	1,678.0	12,853.3

## BASE COURSE

1,750 Tons of Base Course has been added to the estimate for repair of unstable subgrade conditions. See Section B for notes on Reinforcement Fabric (MSE).

750 Tons of Base Course has been added to the estimate for maintenance of traffic. See Section C for notes and details.

## CLASS E ASPHALT CONCRETE

Mineral Aggregate for Class E Asphalt Concrete will conform to the requirements for Class E, Type 1.

Two random locations per 1,000 tons of asphalt will be selected by the Engineer for density determination. The cutting and trimming of the cores to the appropriate lift thickness will be performed by the Contractor, as per SD 315. Density determination of the cores will be performed by the Engineer, as per SD 315. The density of each 1,000-ton lot of asphalt will be the average of the two cores from the lot and will be rounded to the nearest whole percent. All costs associated with the compaction cores will be incidental to the contract unit price per each for "Compaction Sample".

All other requirements for Class E will apply.

## PERFORMANCE GRADED ASPHALT BINDER

Performance Graded Asphalt Binder will conform to Section 890, AASHTO M 332, and the Combined State Binder Group Method of Acceptance for Asphalt Binders, available from the Department's Bituminous Engineer.

## COMPACTION

Location	Compaction With Specified Density	Compaction Without Specified Density
	Ton	Ton
SD28		
Sta. 106+84.40 to Sta. 133+50.00		
Mainline & Shoulders	3,679.6	---
Intersecting Roads and Entrances	---	408.2
<b>TOTALS:</b>	<b>3,679.6</b>	<b>408.2</b>

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

The sand application in urban sections will be placed for the full width of asphalt, leaving 12" on center line free of sand.

An additional 10 tons of Sand for Flush Seal has been included in the Estimate of Quantities to be used as necessary for maintenance of traffic as directed by the Engineer.

## BLOTTING SAND FOR PRIME

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

## ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class E 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.

The asphalt binder used in the mixture can be PG 58H-34 Asphalt Binder.

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### RATES OF MATERIALS

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

#### Mainline SD 28

**Sta. 106+84.40 to Sta. 109+55.70**  
**Sta. 127+56.00 to Sta. 133+50.00**

Base Course, Salvaged 319.0 tons

Water for Granular Material at the rate of 3.83 MGal

MC-70 Asphalt for Prime at the Rate of 0.55 ton applied 42 feet wide  
 (Rate = 0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 1.33 tons applied 24 feet wide  
 (Rate = 10 lbs. per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.12 tons applied 41 feet wide  
 (Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.09 tons/Sta.  
 applied 40 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).

Class E Asphalt Concrete – Each Lift

Crushed Aggregate	55.20 tons
PG 58H-34 Asphalt Binder (5.8% of mix)	<u>3.40 tons</u>
Total Mix	58.60 tons

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

**Sta. 117+00.54 to Sta. 120+29.80**  
**Sta. 123+67.00 to Sta. 127+56.00**

Base Course, Salvaged 437.0 tons

Water for Granular Material at the rate of 5.24 MGal

MC-70 Asphalt for Prime at the Rate of 0.72 ton applied 55 feet wide  
 (Rate = 0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 3.06 tons applied 55 feet wide  
 (Rate = 10 lbs. per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack at the rate of 0.16 tons applied 56 feet wide  
 (Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal at the rate of 0.13 tons/Sta.  
 applied 55 feet wide  
 (Rate = 0.05 gallon per square yard).

Sand for Flush Seal at the rate of 2.44 ton applied 55 feet wide  
 (Rate = 8 lbs. per square yard).

Class E Asphalt Concrete – Each Lift

Crushed Aggregate	79.89 tons
PG 58H-34 Asphalt Binder (5.8% of mix)	<u>4.92 tons</u>
Total Mix	84.81 tons

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

**TABLE OF ADDITIONAL QUANTITIES**

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LOCATION	WATER FOR GRANULAR MATERIAL	BASE COURSE	BASE COURSE, SALVAGED	GRAVEL SURFACING, SALVAGED	GRAVEL CUSHION, SALVAGED	ASPHALT CONCRETE COMPOSITE	ASPHALT CONCRETE		ASPHALT BINDER		ASPHALT FOR PRIME	BLOTTING SAND FOR PRIME	ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL	SAND FOR FLUSH SEAL	6" PCC DRIVEWAY PAVEMENT	
							Class E		PG 58H-34				1st Lift	Top Lift	1st Lift	Top Lift		
							(Mgal)	(Ton)	(Ton)	(Ton)			(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(SqYd)
<b>MAINLINE:</b>																		
109+55.70 to 110+10.19	2.0		165.7						31.1	31.1	1.8	1.8	0.3	0.9	0.1	0.1	0.1	0.9
110+10.19 to 114+59.51	16.4		1,361.4						249.4	249.4	14.5	14.5	2.1	9.0	0.5	0.5	0.4	7.0
114+59.51 to 117+00.54	10.8		897.2						170.3	170.3	9.9	9.9	1.5	6.1	0.3	0.3	0.3	4.8
120+29.80 to 123+67.00	17.0		1,412.9						272.9	272.9	15.8	15.8	2.3	9.9	0.5	0.5	0.4	7.7
<b>INTERSECTING STREETS:</b>																		
116+76 Lt	1.4		117.7						21.9	21.9	1.3	1.3	0.2	0.4	0.04	0.04	0.03	0.3
116+76 Rt	1.0		80.3						15.4	15.4	0.9	0.9	0.1	0.3	0.03	0.03	0.02	0.2
120+02 Lt	1.2		95.7						21.6	21.6	1.3	1.3	0.2	0.3	0.04	0.04	0.03	0.3
120+02 Rt	1.0		81.7						18.9	18.9	1.1	1.1	0.2	0.3	0.03	0.03	0.03	0.2
123+85 Lt	1.2		97.9						17.0	17.0	1.0	1.0	0.2	0.4	0.03	0.03	0.03	0.3
123+85 Rt	0.8		63.6						10.8	10.8	0.6	0.6	0.1	0.3	0.02	0.02	0.02	0.2
127+68 Lt	1.1		91.9						17.1	17.1	1.0	1.0	0.1	0.4	0.03	0.03	0.03	0.4
127+68 Rt	1.1		91.9						17.1	17.1	1.0	1.0	0.1	0.4	0.03	0.03	0.03	0.4
<b>ENTRANCES:</b> SURFACE:																		
107+03 Lt	AC & Gravel	1.0		39.2	40.6				27.2		1.6		0.2	0.9	0.04			
109+03 Rt	AC	0.6		47.0					37.3		2.2		0.3	1.1	0.1			
109+63 Lt	AC & Gravel	0.9		31.3	40.2				24.8		1.4		0.2	0.8	0.04			
110+43 Rt	Gravel	1.0			85.1													
111+35 Lt	Gravel	0.8			65.9													
111+35 Rt	Gravel	0.2			18.8													
112+88 Lt	Gravel	0.9			77.1													
114+10 Lt	Gravel	0.5			45.2													
114+10 Rt	Gravel	0.7			58.3													
115+25 Rt	PCC	0.1				4.8												15.1
115+29 Lt	PCC	0.6				46.9												149.0
115+73 Rt	PCC	0.04				3.3												10.4
118+05 Lt	AC	0.1		8.7					6.9		0.4		0.1	0.2	0.01			
121+88 Rt	Approach Pavement Only																	
122+70 Rt	PCC	0.03				2.9												9.2
124+61 Lt	AC	0.1		6.4					5.1		0.3		0.1	0.2	0.01			
125+42 Rt	PCC	0.2				16.7												52.9
125+99 Rt	PCC	0.03				2.1												6.6
133+25 Lt	AC & Gravel	0.9		39.3	38.4				27.3		1.6		0.2	0.9	0.04			
<b>NOTES:</b>			2,500.0					60.0						10.0				10.0
<b>TOTALS:</b>		63.7	2,500.0	4,729.8	469.6	76.7	60.0	1,855.6	107.9	8.5	42.8	3.5	1.4	32.7	243.2			

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## **TABLE OF MATERIALS QUANTITIES**

REVISED 9/16/2025 - BAH

LOCATION	WATER FOR GRANULAR MATERIAL	BASE COURSE	BASE COURSE, SALVAGED	GRAVEL SURFACING, SALVAGED	GRAVEL CUSHION, SALVAGED	ASPHALT CONCRETE COMPOSITE	ASPHALT CONCRETE		ASPHALT BINDER		ASPHALT FOR PRIME	BLOTTING SAND FOR PRIME	ASPHALT FOR TACK		ASPHALT FOR FLUSH SEAL	SAND FOR FLUSH SEAL	6" PCC DRIVEWAY PAVEMENT		
							Class E		PG 58H-34				1st Lift	Top Lift	1st Lift	Top Lift			
							(Ton)	(Ton)	(Ton)	(Ton)			(Ton)	(Ton)	(Ton)	(Ton)			
	(Mgal)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)	(Ton)		
<b>MAINLINE:</b>																			
106+84.40 to 109+55.70	10.4		865.5					159.0	159.0	9.2	9.2	1.5	3.6	0.3	0.3	0.2	2.7		
117+00.54 to 120+29.80	17.3		1,438.9					279.2	279.2	16.2	16.2	2.4	10.1	0.5	0.5	0.4	7.9		
123+67.00 to 127+56.00	20.4		1,699.9					329.9	329.9	19.1	19.1	2.8	11.9	0.6	0.6	0.5	9.3		
127+56.00 to 133+25.57	22.8		1,894.9					348.0	348.0	20.2	20.2	3.3	7.9	0.7	0.7	0.5	5.8		
<b>TABLE OF ADDITIONAL QUANTITIES:</b>	63.7	2,500.0	4,729.8	469.6	76.7	60.0	1,855.6		107.9		8.5	42.8		3.5		1.4	32.7	243.2	
<b>TOTAL:</b>	134.6	2,500.0	10,629.0	469.6	76.7	60.0	4,087.8		237.3		18.5	76.3		7.7		3.0	58.4	243.2	

# IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT P-CR 0028(47)367	HEET F7	TOTAL SHEETS F15
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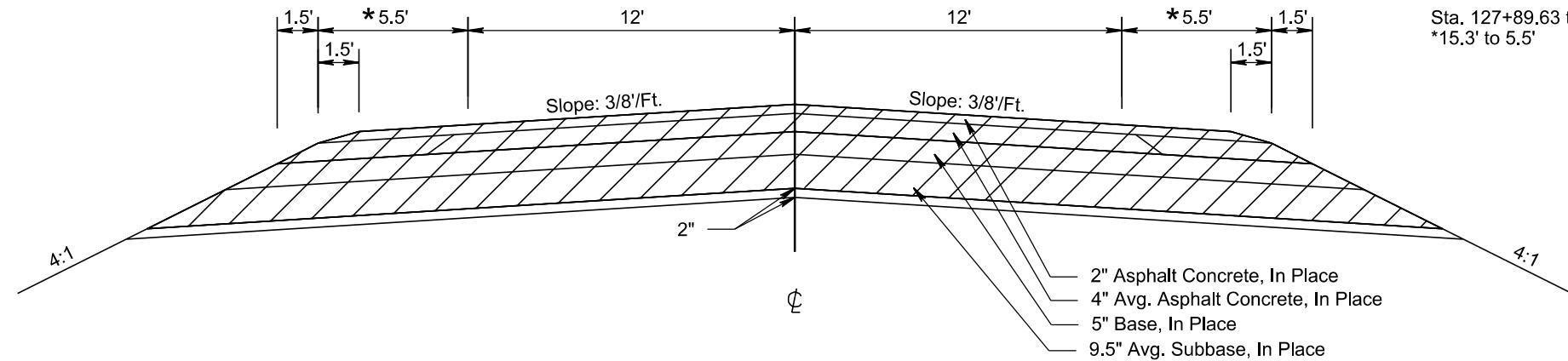
Salvage and Stockpile Asphalt Mix  
and Granular Base Material

Sta. 106+84.40 to Sta. 114+35.85  
Sta. 127+89.63 to Sta. 133+50.00

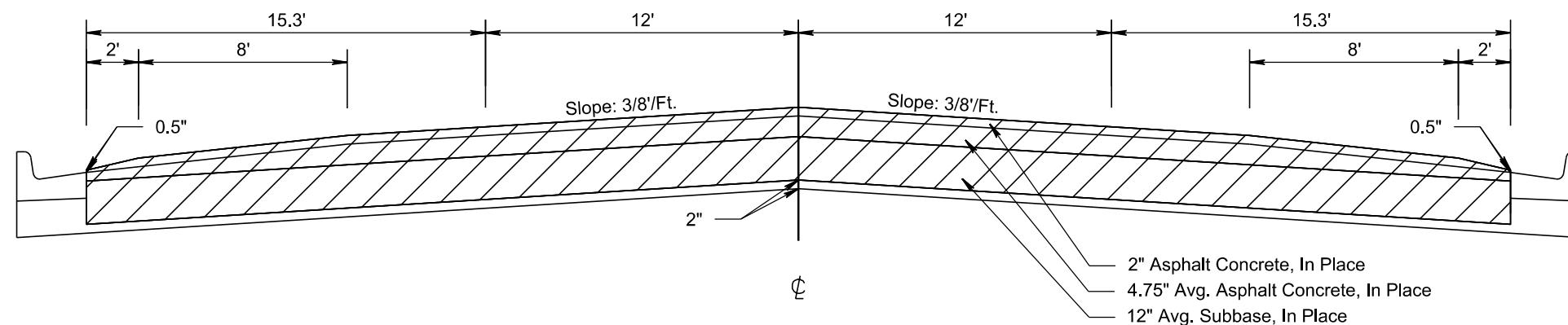
Transitions:

Sta. 114+11.72 to Sta. 114+35.85  
\* 5.5' to 15.3'

Sta. 127+89.63 to Sta. 128+03.38  
\*15.3' to 5.5'



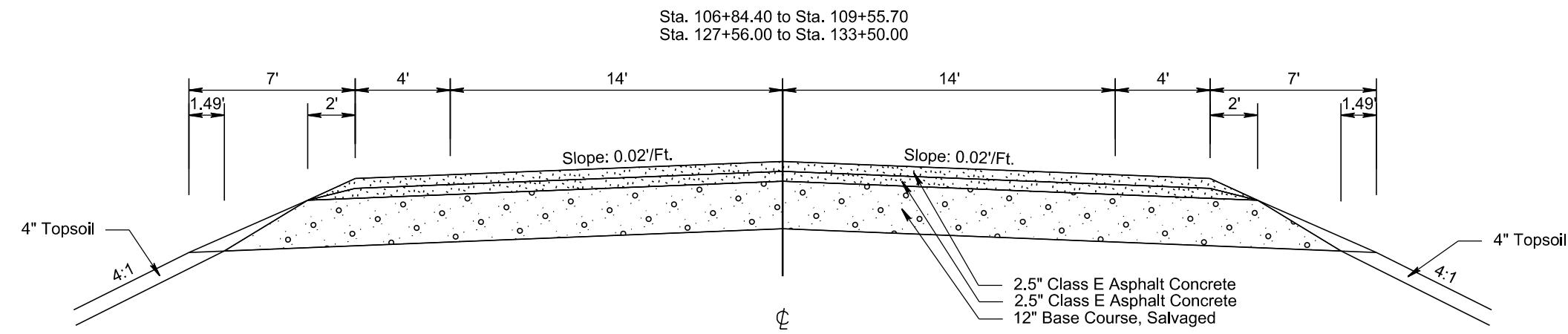
Sta. 114+35.85 to Sta. 127+89.63



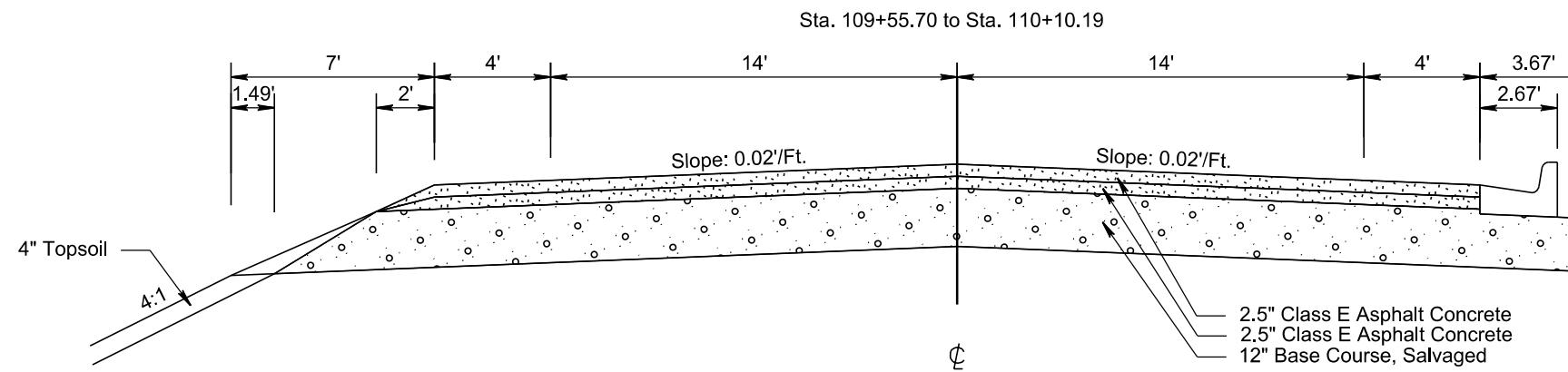
# TYPICAL SURFACING SECTIONS

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PLOT SCALE - 1:6.00001



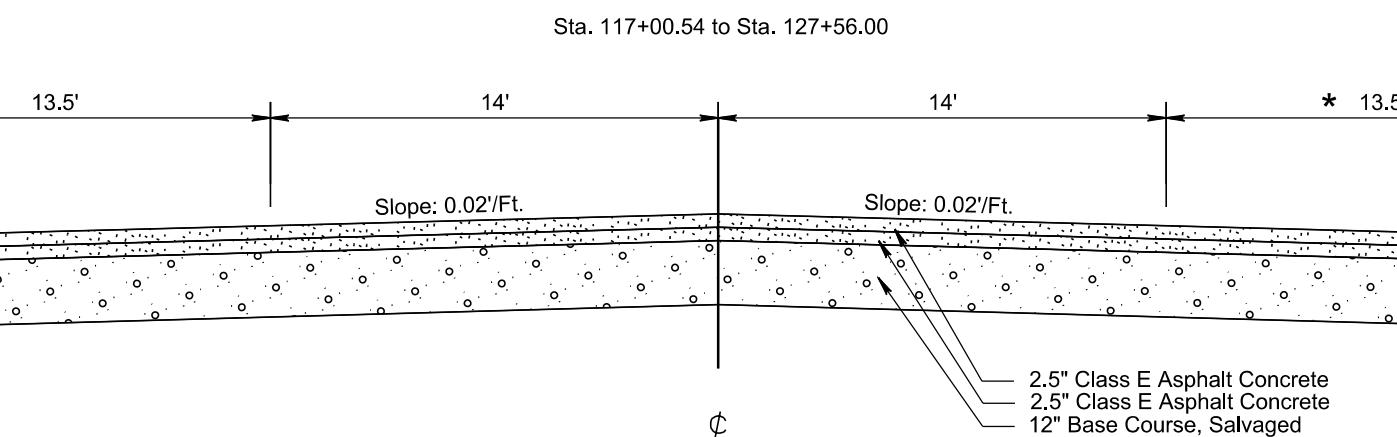
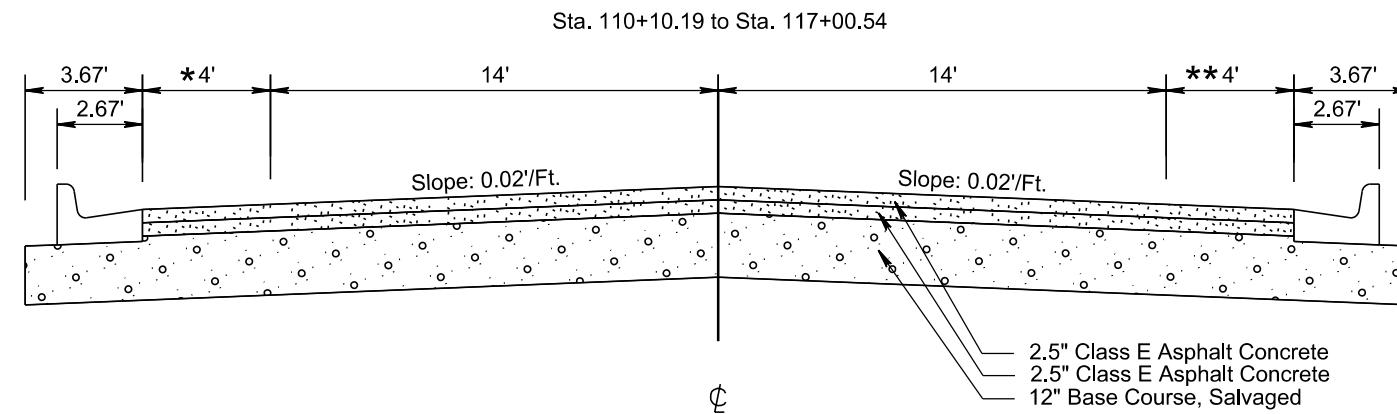
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# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT P-CR 0028(47)367	HEET F9	TOTAL SHEETS F15
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PLOT SCALE - 1:6.00001



# AC LAYOUTS

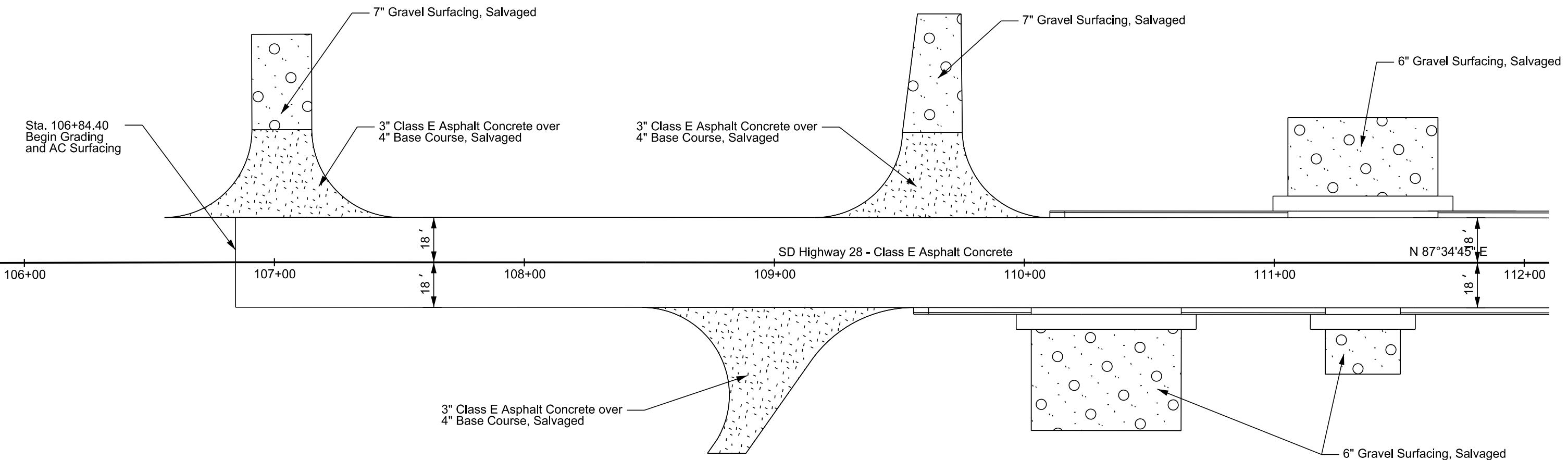
Scale 1 Inch = 40 Feet  
Sheet 1 of 5 Sheets

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Plot Scale -

- Gravel Surfacing, Salvaged
- Class E Asphalt Concrete
- PCC Driveway Pavement



Plotted From - TRPR1338A

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# AC LAYOUTS

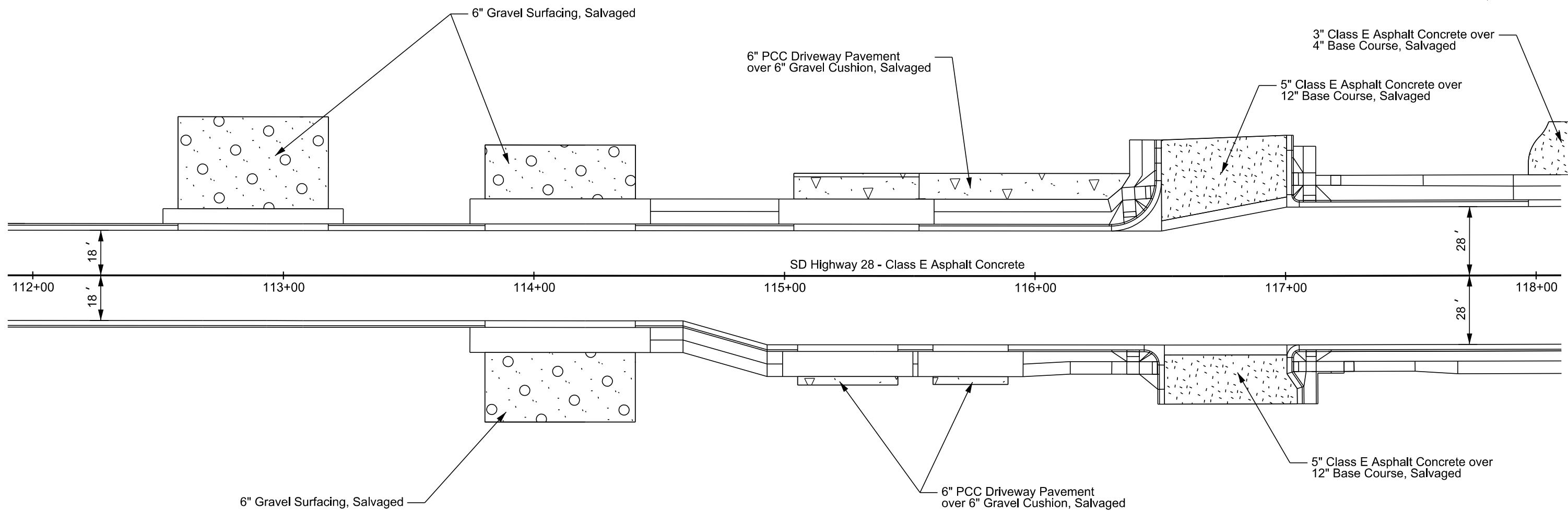
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Sheet 2 of 5 Sheets

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Plot Scale -

-  Gravel Surfacing, Salvaged
-  Class E Asphalt Concrete
-  PCC Driveway Pavement



Plotted From - TRPR1338A

File - ...06R7\_Pavement Layouts.dgn

# AC LAYOUTS

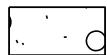
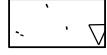
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-CR 0028(47)367		

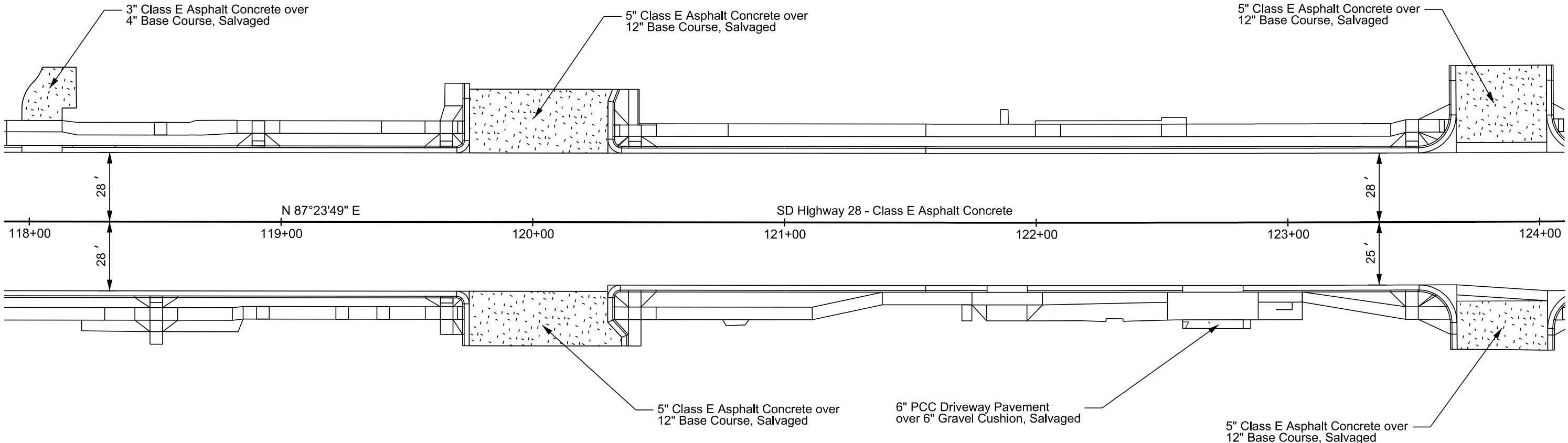
Plotting Date: 09/16/2025

Plot Scale -

Plotted From - TRPR1338A

Scale 1 Inch = 40 Feet  
Sheet 3 of 5 Sheets

-  Gravel Surfacing, Salvaged
-  Class E Asphalt Concrete
-  PCC Driveway Pavement



# AC LAYOUTS

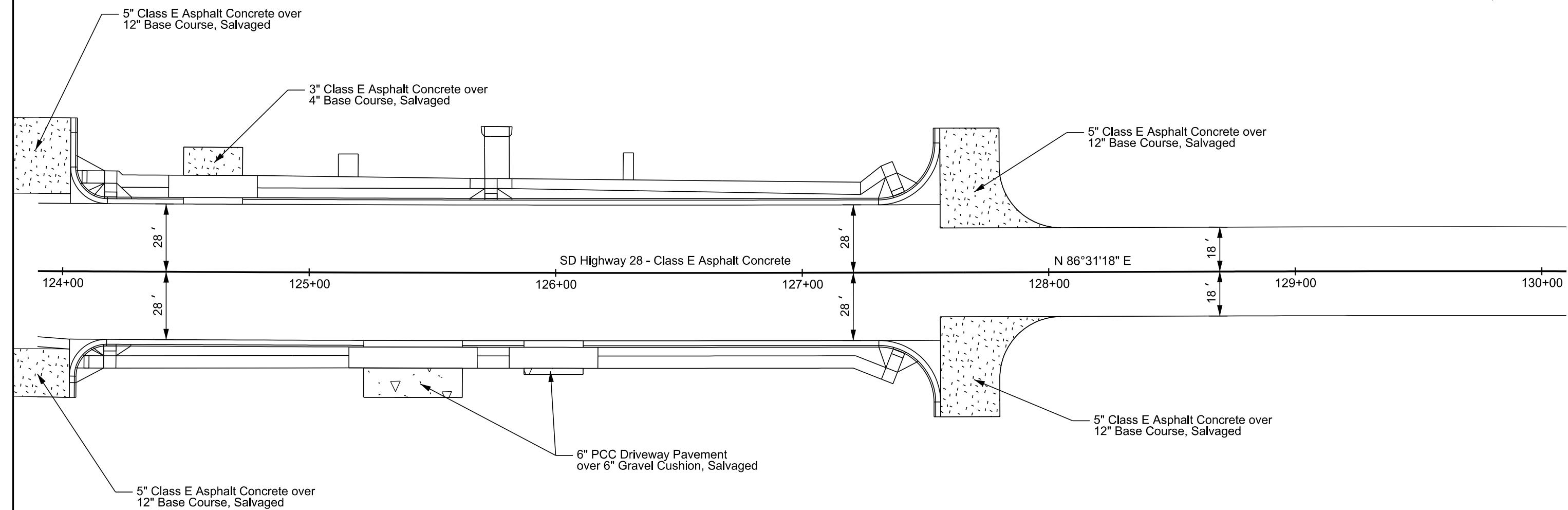
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Plot Scale -

- Gravel Surfacing, Salvaged
- Class E Asphalt Concrete
- PCC Driveway Pavement



Plotted From - TRPR1338A

# AC LAYOUTS

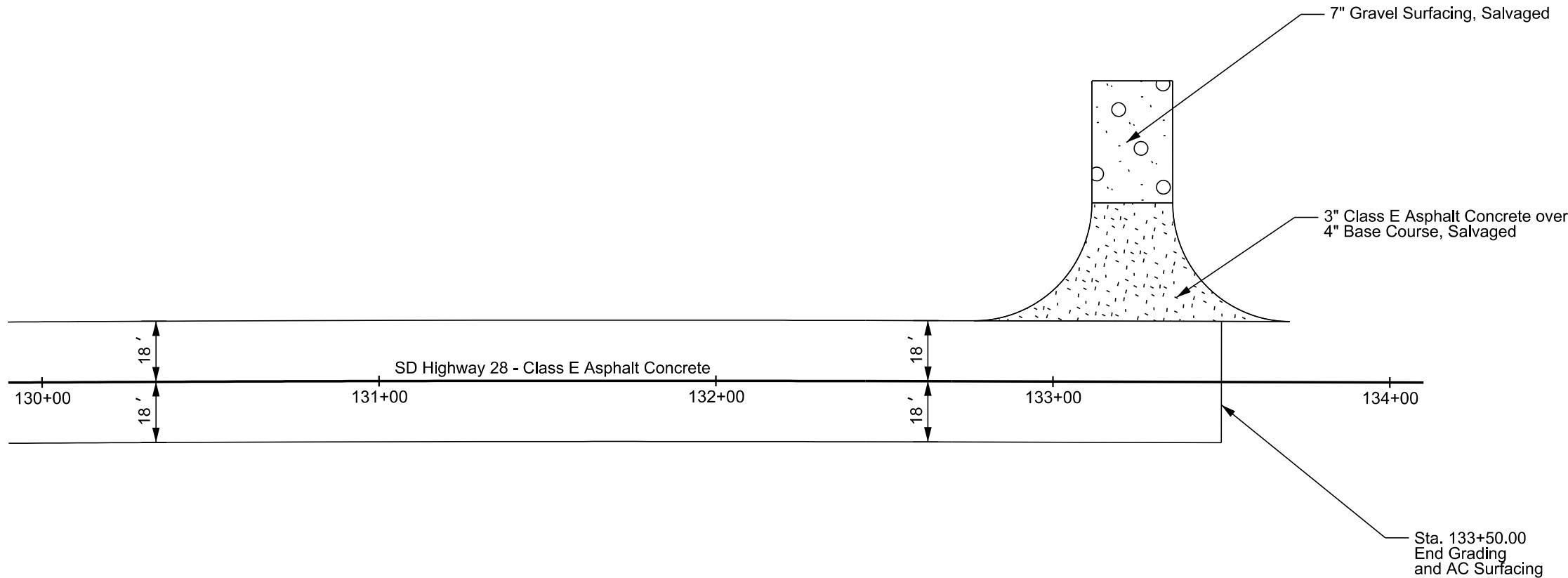
Scale 1 Inch = 40 Feet  
Sheet 5 of 5 Sheets

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-CR 0028(47)367	F14	F15

Plotting Date: 09/16/2025  
REVISED 9/16/2025 - BAH

Plot Scale -

-  Gravel Surfacing, Salvaged
-  Class E Asphalt Concrete
-  PCC Driveway Pavement



Plotted From - TRPR1338A

