

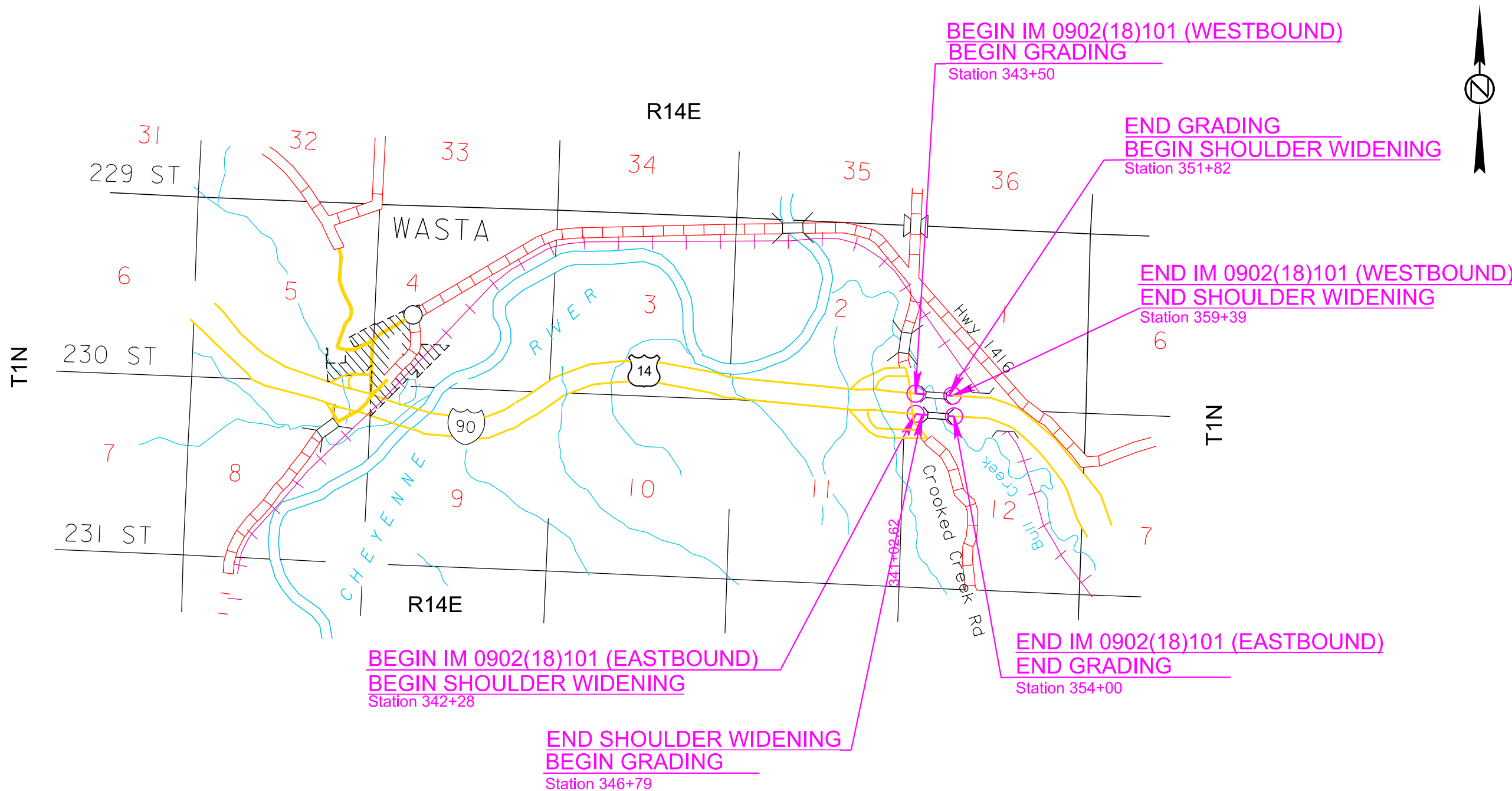
SECTION F: SURFACING PLANS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(18)101	F1	F15

Plotting Date: 03/26/2024

INDEX OF SHEETS

F1	General Layout with Index
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F15	Standard Plates



Plot Scale - 1:200

Plotted From - TRPR16032

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SECTION F – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
120E6200	Water for Granular Material	124.4	MGal
260E1010	Base Course	10,382.8	Ton
320E3000	Compaction Sample	8	Each
320E5020	Saw Joint in Asphalt Concrete	2,493	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	0.7	Mile
330E0010	MC-70 Asphalt for Prime	10.5	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	5.2	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	1.6	Ton
330E1000	Blotting Sand for Prime	5.0	Ton
330E2000	Sand for Flush Seal	6.5	Ton

Alternate A Quantities

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	166.1	Ton
320E1060	Class G Asphalt Concrete	2,891.6	Ton
320E4000	Hydrated Lime	28.6	Ton

Alternate B Quantities

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0008	PG 64-34 Asphalt Binder	146.8	Ton
320E1060	Class G Asphalt Concrete	2,969.5	Ton
320E4000	Hydrated Lime	29.4	Ton

SURFACING THICKNESS DIMENSIONS

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

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Class G Asphalt Concrete and Base Course 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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(18)101	F2	F15

SAW JOINT IN ASPHALT CONCRETE

Prior to the removal of in place asphalt concrete, the existing pavement will be sawed full depth to a true line with a vertical face. See typical sections. If approved by the Engineer, the Contractor may elect to use a different method to create this vertical face. All costs to saw joint will be incidental to the contract unit price per foot for Saw Joint in Asphalt Concrete.

JOINT SAWING TABLE

Station		Station	Asphalt Concrete Joint (feet)
I-90 EBL			
342+28 Lt. & Rt. Shoulders			14
Rt. Shoulder			
342+28	to	346+79.29	451.3
Lt. Shoulder			
342+28	to	346+79.29	451.3
346+79.29 Mainline			24
I-90 WBL			
351+81.65 Mainline			24
Rt. Shoulder			
351+81.65	to	359+38.61	757.0
Lt. Shoulder			
351+81.65	to	359+38.61	757.0
359+38.61 Lt. & Rt. Shoulders			14
Total =			2,492.6

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 G ASPHALT CONCRETE

Mineral Aggregate for Class G Asphalt Concrete - Alternate A will conform to the requirements for Class G, Type 1.

Mineral Aggregate for Class G Asphalt Concrete - Alternate B will consist of a minimum of eighty percent crushed limestone ledge rock and will conform to the requirements for Class G, 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".

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

Air Voids:

	Air Voids (%):
Class G	3.5 ± 1.0

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class G	13.0

Gyratory Compactive Effort:

	N _{initial}	N _{design}
Class G	6	50

All other requirements for Class G 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.

Summary of Class G Asphalt Concrete Compaction – Alt. A

Location-Description	With Specified Density	Without Specified Density
	Ton / Lift	Ton / Lift
I-90 Mainline		
Sta. 343+50 to Sta. 347+10.96 WBL	283.8 / 267.0 / 250.1 / 186.6	
Sta. 351+48.96 to Sta. 351+81.65 WBL	25.7 / 24.2 / 22.7 / 16.9	
Sta. 346+79.29 to Sta. 347+11.68 EBL	25.5 / 24.0 / 22.4 / 16.7	
Sta. 351+49.68 to Sta. 354+00 EBL	196.8 / 185.1 / 173.5 / 129.4	
I-90 Shoulders		
Sta. 351+81.65 to Sta. 359+38.61 WBL		
- Median	113.2 / 113.2	
- Outside	169.7 / 169.7	
Sta. 342+28 to Sta. 346+79.29 EBL		
- Median	67.5 / 67.5	
- Outside	101.2 / 101.2	
Miscellaneous Area		
Guardrail Surfacing		138.0
TOTAL =	2,753.6	138.0

Summary of Class G Asphalt Concrete Compaction – Alt. B

Location-Description	With Specified Density	Without Specified Density
	Ton / Lift	Ton / Lift
I-90 Mainline		
Sta. 343+50 to Sta. 347+10.96 WBL	291.5 / 274.2 / 256.9 / 191.6	
Sta. 351+48.96 to Sta. 351+81.65 WBL	26.4 / 24.8 / 23.3 / 17.4	
Sta. 346+79.29 to Sta. 347+11.68 EBL	26.2 / 24.6 / 23.0 / 17.2	
Sta. 351+49.68 to Sta. 354+00 EBL	202.2 / 190.1 / 178.1 / 132.9	
I-90 Shoulders		
Sta. 351+81.65 to Sta. 359+38.61 WBL		
- Median	116.2 / 116.2	
- Outside	174.3 / 174.3	
Sta. 342+28 to Sta. 346+79.29 EBL		
- Median	69.3 / 69.3	
- Outside	103.9 / 103.9	
Miscellaneous Area		
Guardrail Surfacing		141.7
TOTAL =	2,827.8	141.7

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 0.7 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 12" 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.

RUMBLE STRIP TABLE

Station		Station	Rumble Strips (feet)
I-90 EBL			
Rt. Shoulder			
342+28	to	347+11.68	483.7
351+49.68	to	354+00	250.3
Lt. Shoulder			
342+28	to	347+11.68	483.7
351+49.68	to	354+00	250.3
I-90 WBL			
Rt. Shoulder			
343+50	to	347+10.96	361.0
351+48.96	to	359+38.61	789.7
Lt. Shoulder			
343+50	to	347+10.96	361.0
351+48.96	to	359+38.61	789.7
Total (feet) =			3769.4
Total (miles) =			0.7

TABLE OF QUANTITIES

Location-Description	Water For Granular Material	Base Course	MC-70 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	Ton / Lift	Ton	Ton
I-90 Mainline						
Sta. 343+50 to Sta. 347+10.96 WBL	22.7	1,895.0	2.6	0.5 / 0.5 / 0.5 / 0.5	0.4	3.5
Sta. 351+48.96 to Sta. 351+81.65 WBL	2.1	171.6	0.2			0.3
Sta. 346+79.29 to Sta. 347+11.68 EBL	2.0	170.0	0.2			0.3
Sta. 351+49.68 to Sta. 354+00 EBL	15.8	1,314.2	1.8	0.4 / 0.4 / 0.3 / 0.3	0.3	2.4
I-90 Shoulders						
Sta. 351+81.65 to Sta. 359+38.61 WBL						
- Median	14.7	1,225.4	1.1	0.2 / 0.2	0.2	
- Outside	18.6	1,552.1	1.5	0.3 / 0.3	0.3	
Sta. 342+28 to Sta. 346+79.29 EBL						
- Median	8.8	730.5	0.7	0.1 / 0.1	0.1	
- Outside	11.1	925.3	0.9	0.2 / 0.2	0.1	
Guardrail Surfacing						
Str. No. 52-830-310						
- WBL Median Shoulder (Temporary)	3.1	259.0				
- WBL Outside Shoulder (Temporary)	0.8	70.8				
- EBL Median Shoulder (Temporary)	2.3	188.3				
- EBL Outside Shoulder (Temporary)	0.6	48.9				
Str. No. 52-831-309 WBL						
- Begin Bridge Median Sh. (Temporary)	1.9	161.1				
- Begin Bridge Outside Sh. (Temporary)	1.0	85.1				
- End Bridge Median Sh. (Permanent)	8.0	668.8	0.7	0.1	0.1	
- End Bridge Outside Sh. (Permanent)	2.3	195.7	0.2			
Str. No. 52-831-310 EBL						
- Begin Bridge Median Sh. (Permanent)	4.7	393.4	0.4	0.1	0.1	
- Begin Bridge Outside Sh. (Permanent)	2.3	195.6	0.2			
- End Bridge Median Sh. (Temporary)	1.6	132.0				
TOTAL =	124.4	10,382.8	10.5	5.2	1.6	6.5

TABLE OF QUANTITIES (CONTINUED)

Location-Description	Class G Asphalt Concrete – Alt. A	PG 64-34 Asphalt Binder – Alt. A	Hydrated Lime – Alt. A		Class G Asphalt Concrete – Alt. B	PG 64-34 Asphalt Binder – Alt. B	Hydrated Lime – Alt. B
	Ton / Lift	Ton / Lift	Ton / Lift		Ton / Lift	Ton / Lift	Ton / Lift
I-90 Mainline							
Sta. 343+50 to Sta. 347+10.96 WBL	283.8 / 267.0 / 250.1 / 186.6	16.3 / 15.3 / 14.4 / 10.7	2.8 / 2.6 / 2.5 / 1.8		291.5 / 274.2 / 256.9 / 191.6	14.4 / 13.6 / 12.7 / 9.5	2.9 / 2.7 / 2.5 / 1.9
Sta. 351+48.96 to Sta. 351+81.65 WBL	25.7 / 24.2 / 22.7 / 16.9	1.5 / 1.4 / 1.3 / 1.0	0.3 / 0.2 / 0.2 / 0.2		26.4 / 24.8 / 23.3 / 17.4	1.3 / 1.2 / 1.2 / 0.9	0.3 / 0.2 / 0.2 / 0.2
Sta. 346+79.29 to Sta. 347+11.68 EBL	25.5 / 24.0 / 22.4 / 16.7	1.5 / 1.4 / 1.3 / 1.0	0.3 / 0.2 / 0.2 / 0.2		26.2 / 24.6 / 23.0 / 17.2	1.3 / 1.2 / 1.1 / 0.9	0.3 / 0.2 / 0.2 / 0.2
Sta. 351+49.68 to Sta. 354+00 EBL	196.8 / 185.1 / 173.5 / 129.4	11.3 / 10.6 / 10.0 / 7.4	1.9 / 1.8 / 1.7 / 1.3		202.2 / 190.1 / 178.1 / 132.9	10.0 / 9.4 / 8.8 / 6.6	2.0 / 1.9 / 1.8 / 1.3
I-90 Shoulders							
Sta. 351+81.65 to Sta. 359+38.61 WBL							
– Median	113.2 / 113.2	6.5 / 6.5	1.1 / 1.1		116.2 / 116.2	5.8 / 5.8	1.2 / 1.2
– Outside	169.7 / 169.7	9.7 / 9.7	1.7 / 1.7		174.3 / 174.3	8.6 / 8.6	1.7 / 1.7
Sta. 342+28 to Sta. 346+79.29 EBL							
– Median	67.5 / 67.5	3.9 / 3.9	0.7 / 0.7		69.3 / 69.3	3.4 / 3.4	0.7 / 0.7
– Outside	101.2 / 101.2	5.8 / 5.8	1.0 / 1.0		103.9 / 103.9	5.1 / 5.1	1.0 / 1.0
Guardrail Surfacing							
Str. No. 52-830-310							
– WBL Median Shoulder (Temporary)							
– WBL Outside Shoulder (Temporary)							
– EBL Median Shoulder (Temporary)							
– EBL Outside Shoulder (Temporary)							
Str. No. 52-831-309 WBL							
– Begin Bridge Median Sh. (Temporary)							
– Begin Bridge Outside Sh. (Temporary)							
– End Bridge Median Sh. (Permanent)	63.5	3.6	0.6		65.2	3.2	0.6
– End Bridge Outside Sh. (Permanent)	18.6	1.1	0.2		19.1	0.9	0.2
Str. No. 52-831-310 EBL							
– Begin Bridge Median Sh. (Permanent)	37.3	2.1	0.4		38.3	1.9	0.4
– Begin Bridge Outside Sh. (Permanent)	18.6	1.1	0.2		19.1	0.9	0.2
– End Bridge Median Sh. (Temporary)							
TOTAL =	2,891.6	166.1	28.6		2,969.5	146.8	29.4

Application Rates: PG 64-34 Asphalt Binder for Class G Asphalt Concrete-Alt. A at 5.8% (total mix weight = 148 lbs./cu.ft.)
PG 64-34 Asphalt Binder for Class G Asphalt Concrete-Alt. B at 5.0% (total mix weight = 152 lbs./cu.ft.)
Hydrated Lime at 1.0%
MC-70 Asphalt for Prime rate = 0.30 gallon per square yard
SS-1h or CSS-1h Asphalt for Tack rate = 0.06 gallon per square yard
SS-1h or CSS-1h Asphalt for Flush Seal rate = 0.05 gallon per square yard
Sand for Flush Seal rate = 8.00 lbs. per square yard


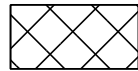
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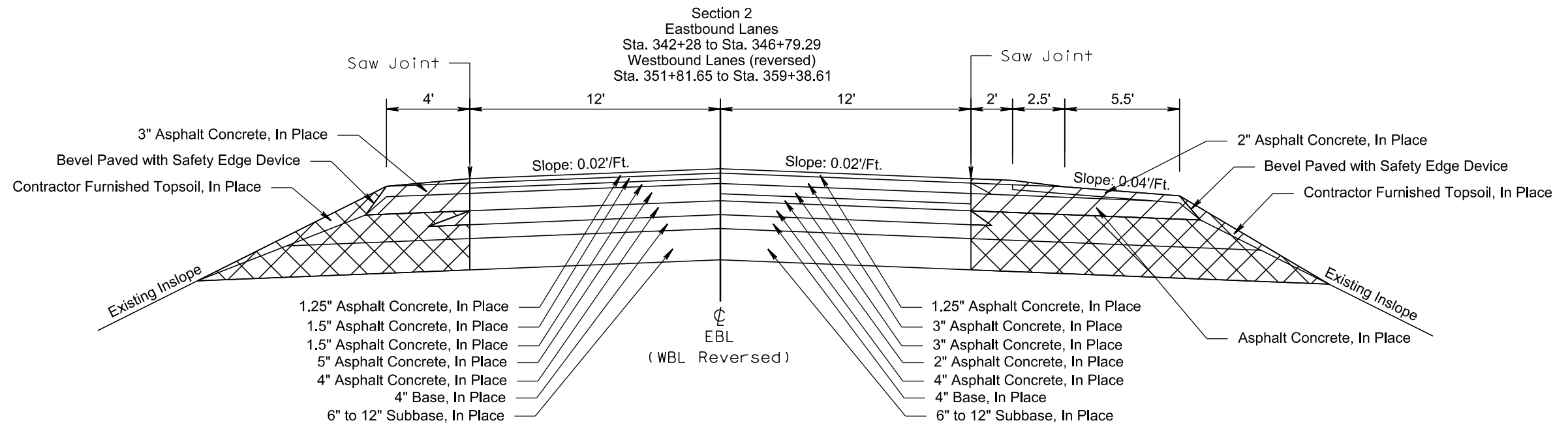
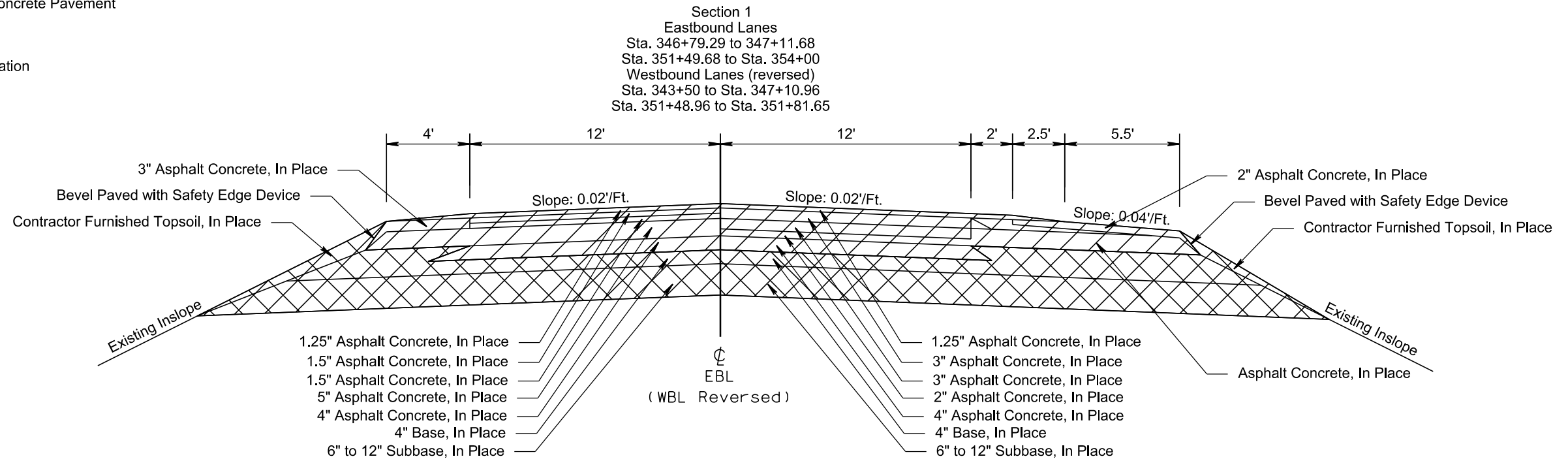
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(18)101	F6	F15

Plotting Date: 03/26/2024

PLOT SCALE - 1+6.00001

PLOT NAME - 2

-  Remove Asphalt Concrete Pavement
-  Unclassified Excavation

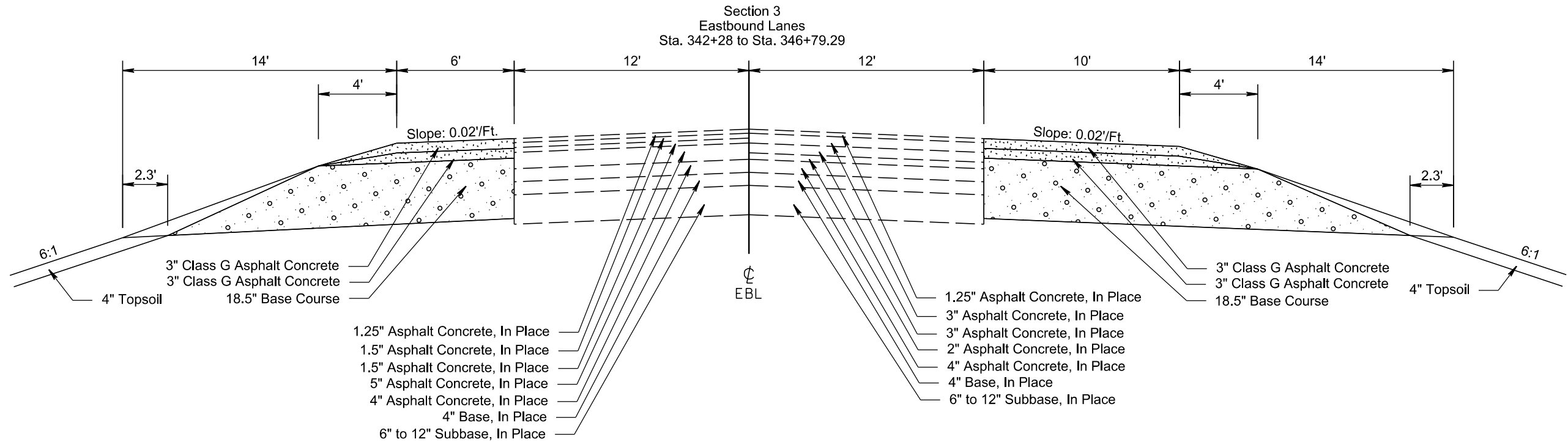


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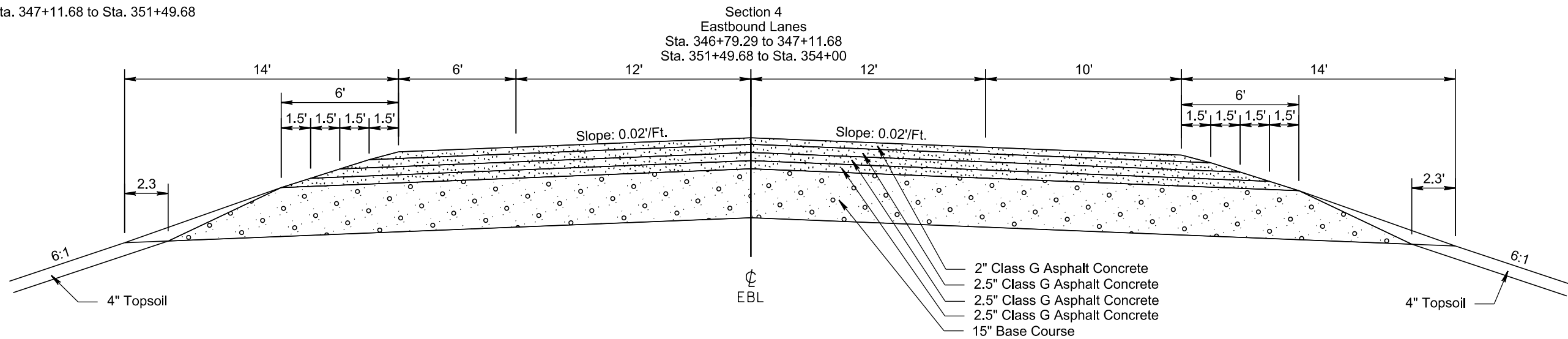
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TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Bridge & Approach Slab: Sta. 347+11.68 to Sta. 351+49.68



PLOT SCALE - 1+6.00001

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PLOT NAME - 3

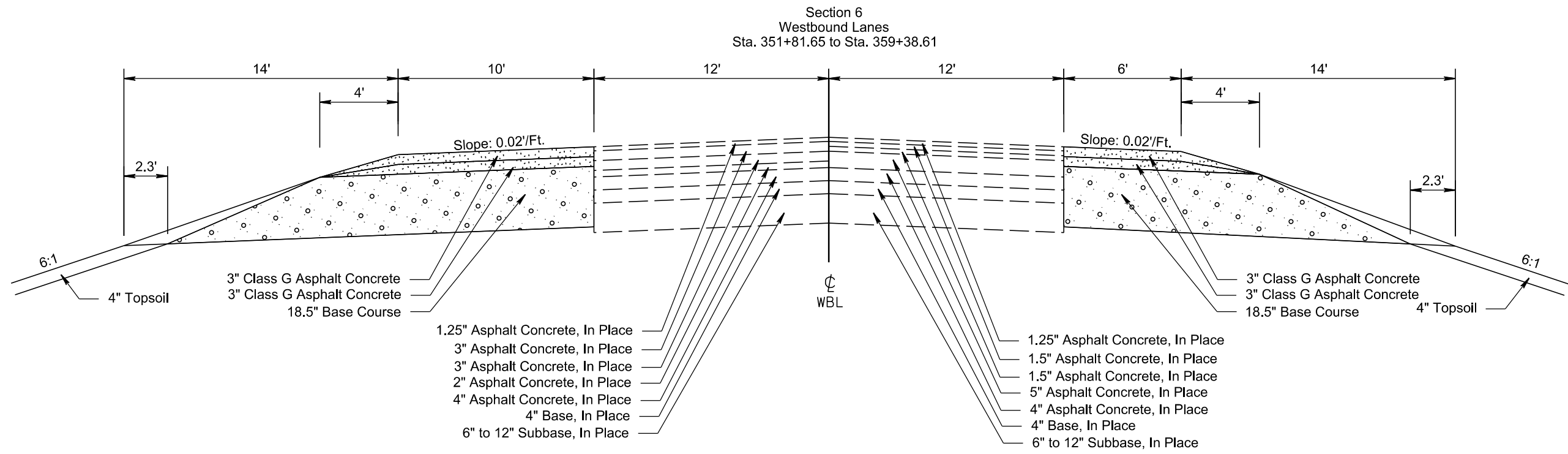
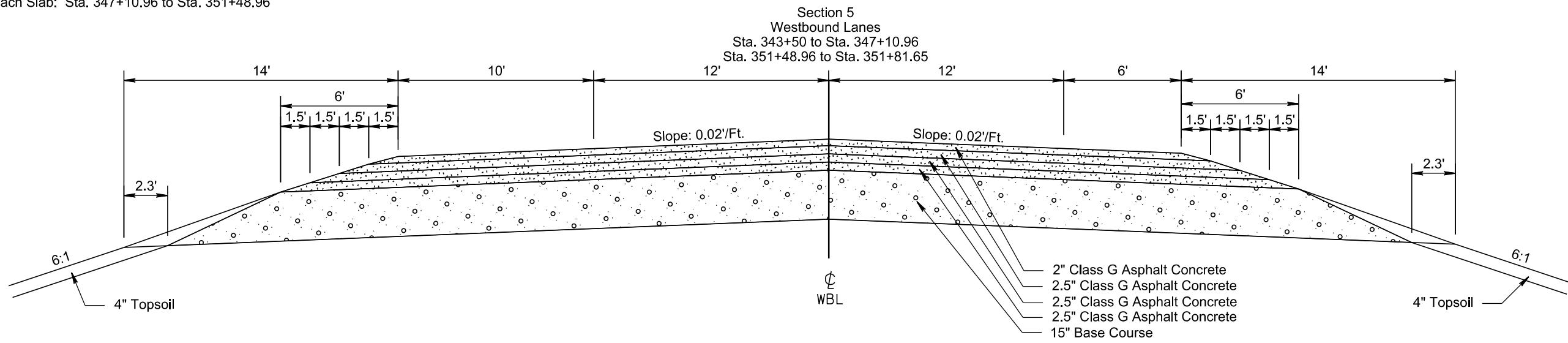
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TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(18)101	F8	F15

Plotting Date: 03/26/2024

Bridge & Approach Slab: Sta. 347+10.96 to Sta. 351+48.96



PLOT SCALE - 1+6.00001

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PLOT NAME - 4


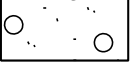
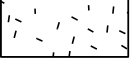
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GUARDRAIL EMBANKMENT LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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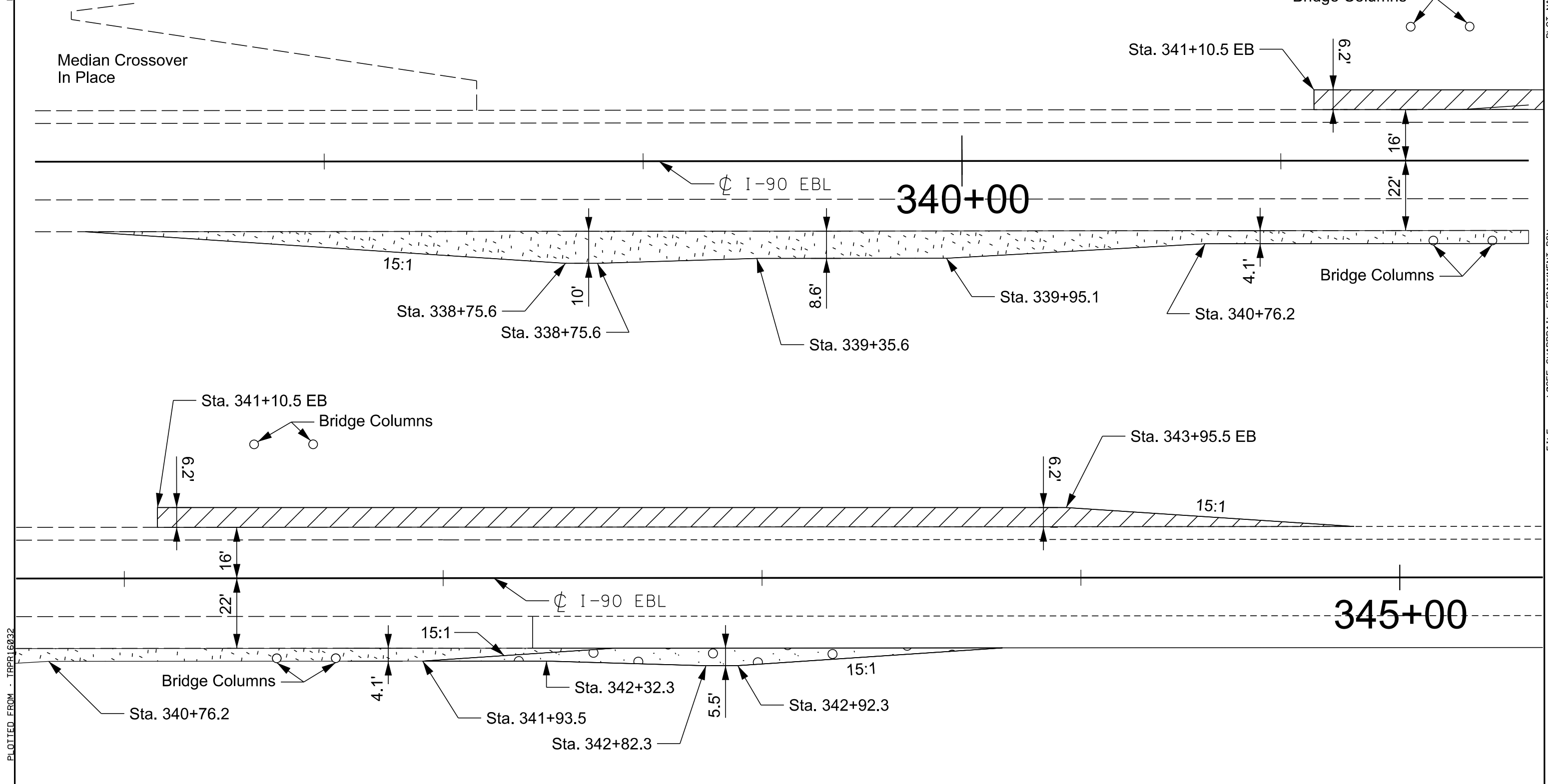
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Sheet 1 of 6 Sheets

-  16" Base Course
-  15" Base Course
-  2" Class G Asphalt Concrete and 13" Base Course (Permanent Surfacing)

EB Temporary & Permanent Surfacing

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PLOT NAME - 5



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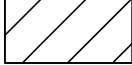
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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(18)101	F10	F15

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Scale 1 Inch = 40 Feet
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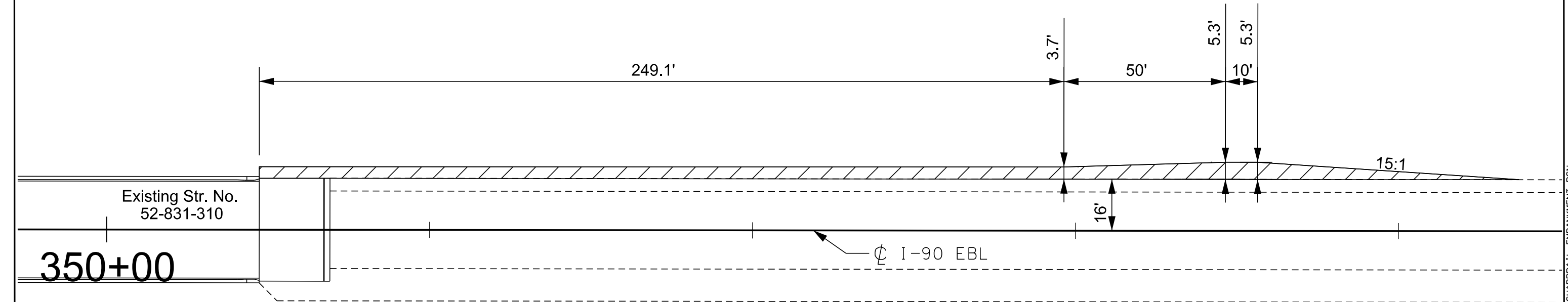
EB Temporary Surfacing

 16" Base Course



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PLOT NAME - 6



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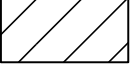
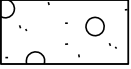

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GUARDRAIL EMBANKMENT LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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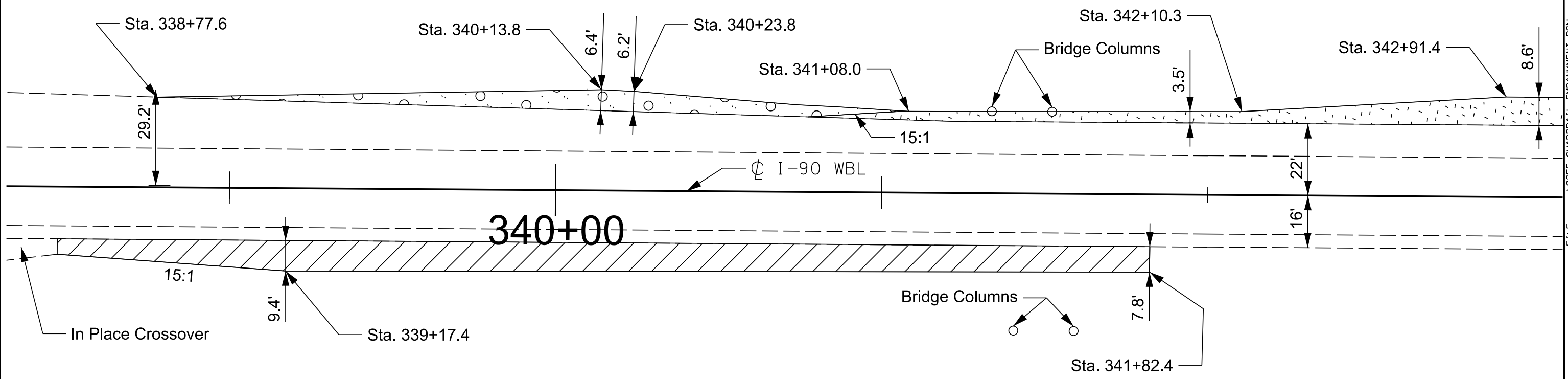
-  16" Base Course
-  15" Base Course
-  2" Class G Asphalt Concrete and 13" Base Course (Permanent Surfacing)

WB Temporary & Permanent Surfacing



PLOT SCALE - 1:30.0789

PLOT NAME - 7



PLOTTED FROM - ITRP16032

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GUARDRAIL EMBANKMENT LAYOUTS




STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0902(18)101	F12	F15

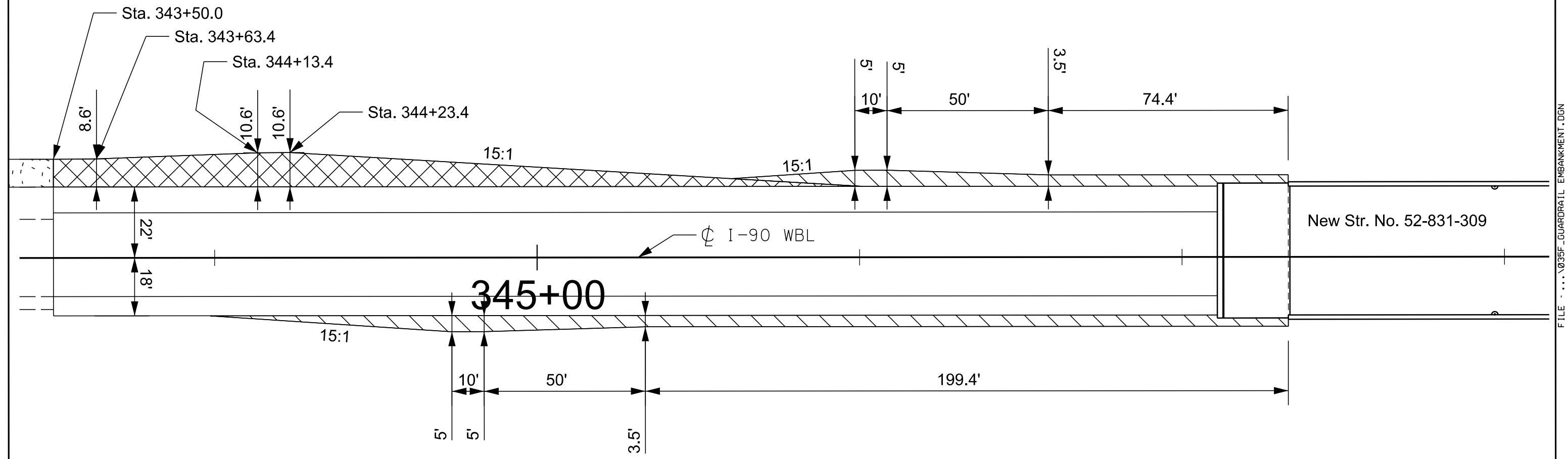
Plotting Date: 03/26/2024

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Sheet 4 of 6 Sheets

WB Temporary & Permanent Surfacing



-  24.5" Base Course
-  2" Class G Asphalt Concrete and 13" Base Course (Permanent Surfacing)
-  2" Class G Asphalt Concrete and 22.5" Base Course (Permanent Surfacing)



PLOT SCALE - 1:30.0789

PLOTTED FROM - ITRP16032

PLOT NAME - 8

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GUARDRAIL EMBANKMENT LAYOUTS

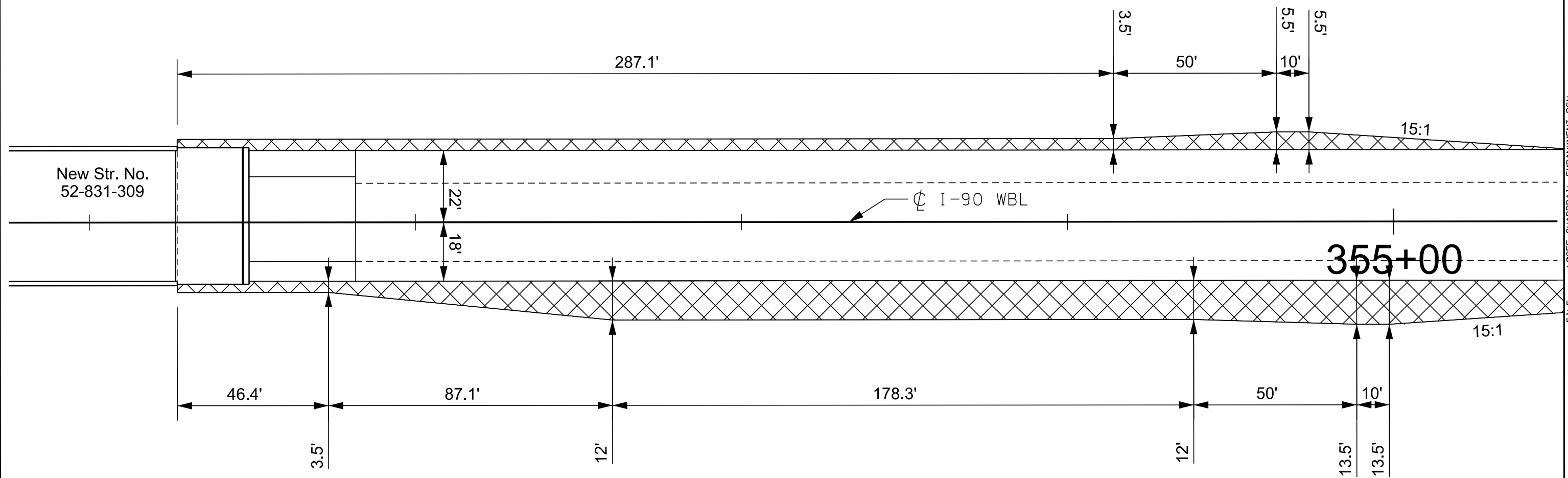
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Scale 1 Inch = 40 Feet
Sheet 5 of 6 Sheets

WB Permanent Surfacing

 2" Class G Asphalt Concrete
and 22.5" Base Course
(Permanent Surfacing)



PLOT SCALE - 1:30.0789

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PLOT NAME - 9

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GUARDRAIL EMBANKMENT LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Scale 1 Inch = 40 Feet
Sheet 6 of 6 Sheets

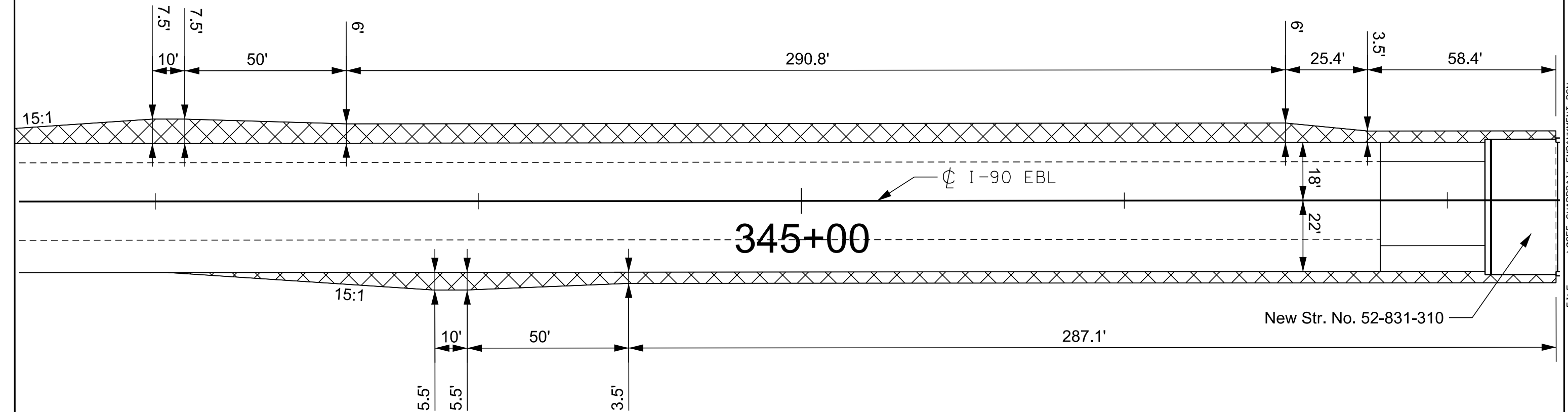
EB Permanent Surfacing

 2" Class G Asphalt Concrete and 22.5" Base Course (Permanent Surfacing)



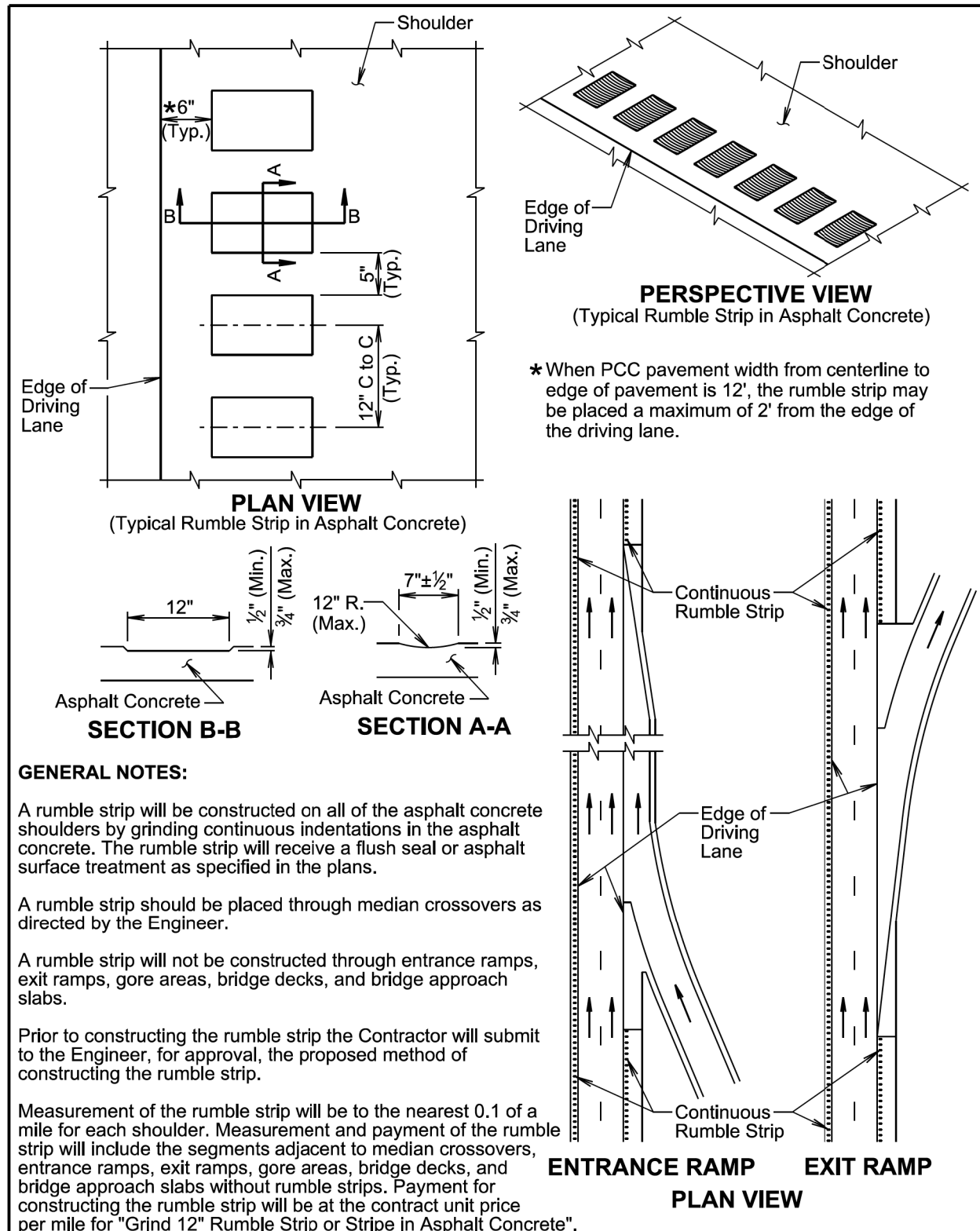
PLOT SCALE - 1:30.0789

PLOT NAME - 10



FILE ... \035F_GUARDRAIL_EMBANKMENT.DGN

PLOTTED FROM - TIRP16032



September 14, 2019

S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON INTERSTATE SHOULDERS	PLATE NUMBER 320.32
	Published Date: 2025	Sheet 1 of 1