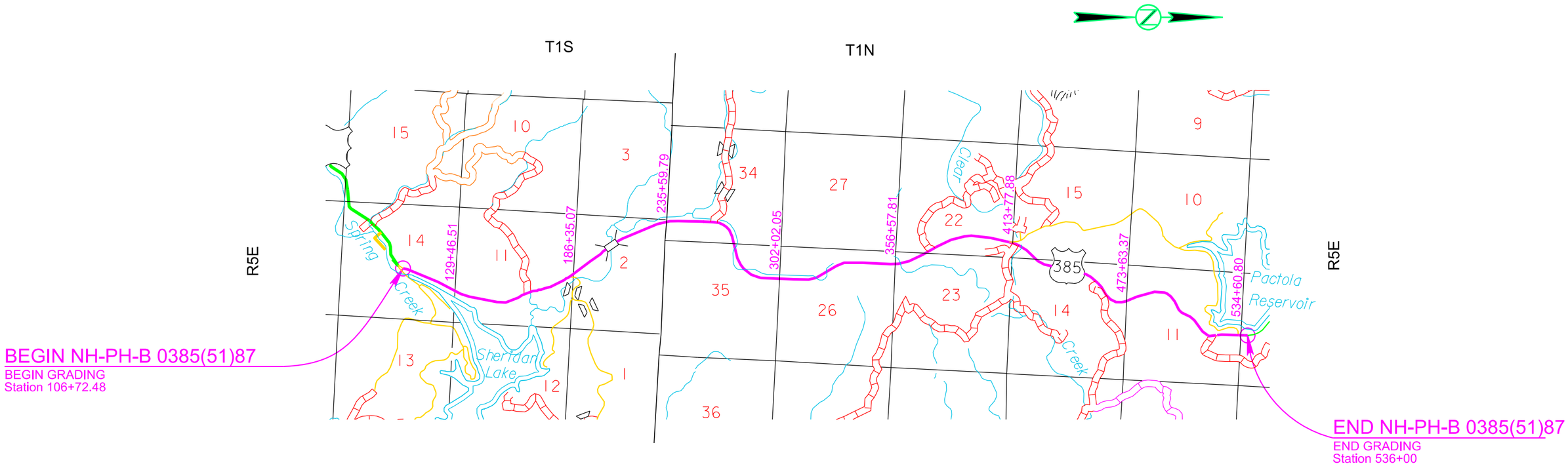
Section F: Surfacing Plans

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385(51)87	F1	F16

Plotting Date: 09/03/2024

INDEX OF SHEETS



SECTION F – ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3320	Checker	Lump Sum	LS
120E6200	Water for Granular Material	1,917.1	MGal
260E1010	Base Course	51,011.4	Ton
260E1030	Base Course, Salvaged	108,754.0	Ton
* 270E0230	Haul and Stockpile Asphalt Mix Material	11,000.0	Ton
320E1200	Asphalt Concrete Composite	1,313.6	Ton
330E0010	MC-70 Asphalt for Prime	270.2	Ton
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	28.7	Ton
330E1000	Blotting Sand for Prime	585.0	Ton
330E3000	Sand for Fog Seal	10.0	Ton
332E0010	Cold Milling Asphalt Concrete	139,683	SqYd
360E0020	AE150S Asphalt for Surface Treatment	199.2	Ton
360E1050	Type 3 Cover Aggregate	2,684.9	Ton

*** - Denotes Non-Participating**

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.

SALVAGED MATERIAL

The quantity of salvaged asphalt mix and granular base material may vary from the plans. The Contractor will be required to use all of the salvaged material on this project, except for material stockpiled for use on a future surfacing project, by decreasing or increasing the quantity of base course as necessary, or as directed by the Engineer.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 25. This value was obtained from testing during construction of the in-place asphalt concrete.

11,000 tons of cold milled asphalt concrete material will be salvaged from the existing highway and stockpiled at a state furnished stockpile site to be used as RAP in the asphalt concrete for PCN 068X.

The estimated cold milling depth for stockpiling RAP is 1.75” (for information only). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans. Cold milling asphalt concrete will be completed on US385 prior to Salvage and Stockpile Asphalt Mix and Granular Base Material and extend from the beginning to the end of the project.

HAUL AND STOCKPILE ASPHALT MIX MATERIAL

11,000 tons of cold milled material will be hauled to the state furnished stockpile site in the Southwest 1/4 of Section 14, Township 1 North, Range 5 East of the 5th P.M., and in the Northwest ¼ of Section 14, Township 1 North, Range 5 East of the 5th P.M. south of Victoria Lake Road in South Dakota on the east side of US385. The cold milled material will be used as RAP in the asphalt concrete for PCN 068X. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

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

The cold milled material will be crushed to meet the requirements of Section 884.2 C.1 prior to stockpiling.

No further gradation testing of the material will be required.

All other costs for crushing, hauling, and stockpiling the cold milled material will be incidental to the contract unit price per ton for Haul and Stockpile Asphalt Mix Material.

COVER AGGREGATE

Cover Aggregate will conform to the requirements of the Specifications for Type 3 and will be furnished by the Contractor.

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

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, Salvaged or Base Course for the full width of the bottom layer of Asphalt Concrete Composite.

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 0.06 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.

The asphalt binder used in the mixture will be PG 64-34.

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CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, Base Course, Salvaged and Asphalt Concrete Composite 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.

FOG SEAL

The fog seal will be placed following the completion of the asphalt surface treatment. Prior to the application of the fog seal, the Contractor will be required to broom the asphalt surface treatment. A CSS-1h or SS-1h emulsion will be used for the fog seal application. A water-to-emulsion rate of 1:1 should be used for the Fog Seal application.

The Contractor will fog seal the entire asphalt surface treatment surface.

The Contractor will plan the fog seal operation to allow adequate cure time for the fog seal and to minimize/eliminate the need to apply Sand for Fog Seal.

If adequate cure time for the Fog Seal is not available, to facilitate traffic, the Contractor will be allowed to place a minimum sufficient amount of blotting sand on the fog seal to allow traffic to cross the uncured portion of the fog seal, as permitted by the Engineer.

Sand for Fog Seal is only intended to be placed for accesses to businesses, intersection crossings, and as determined by the Engineer to facilitate traffic movements. Sand for Fog Seal will not be placed to accelerate the Contractor's schedule.

Sand that is applied will be broomed off the surface of the roadway once the fog seal has sufficiently cured as determined by the Engineer.

Sand for Fog Seal will conform to Section 879.1.B.

Prior to hauling, Sand for Fog Seal will be screened to minimize segregation, eliminate oversize, and effectively breakup or discard material bonded into chunks. All costs for supplying, hauling, placing, and brooming the blotting sand will be incidental to the contract unit price per ton for Sand for Fog Seal.

SAND FOR FOG SEAL

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)

RATES OF MATERIALS

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

Section 3
Sta. 134+00 to 179+70
Sta. 199+00 to 402+85
Sta. 424+80 to 522+50

BASE COURSE or BASE COURSE, SALVAGED

Crushed Aggregate or Salvaged Material 18,856 tons.

Water for Granular Material at the rate of 226.3 M. Gallons.

MC-70 Asphalt for Prime at the Rate of 32.7 ton applied 47 feet wide (Rate = 0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 70 tons applied 24 feet wide (Rate = 10 lbs. per square yard).

ASPHALT SURFACE TREATMENT

Asphalt for Surface Treatment AE150S at the rate of 24.4 tons applied 28 feet wide (Rate = 0.35 gallon per square yard).

Cover Aggregate at the rate of 329 Tons applied 28 feet wide (Rate = 40 lbs. per square yard).

FOG SEAL

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 3.5 ton applied 28 feet wide (Rate = 0.05 gallon per square yard).

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

Section 2
Sta. 109+05 to 134+00

BASE COURSE or BASE COURSE, SALVAGED

Crushed Aggregate or Salvaged Material 341.65 tons.

Water for Granular Material at the rate of 4.10 M. Gallons.

MC-70 Asphalt for Prime at the Rate of 0.62 ton applied 47 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).

ASPHALT SURFACE TREATMENT

Asphalt for Surface Treatment AE150S at the rate of 0.46 tons applied 28 feet wide (Rate = 0.35 gallon per square yard).

Cover Aggregate at the rate of 6.22 Tons applied 28 feet wide (Rate = 40 lbs. per square yard).

FOG SEAL

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 0.07 ton applied 28 feet wide (Rate = 0.05 gallon per square yard).

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
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TABLE OF ADDITIONAL QUANTITIES

Location-Description	Water for Granular Material	Base Course or Base Course, Salvaged	MC-70 Asphalt for Prime	Blotting Sand for Prime	AE150S Asphalt for Surface Treatment	Type 3 Cover Aggregate	SS-1h or CSS-1h Asphalt for Fog Seal	Asphalt Concrete Composite
	MGal	Ton	Ton	Ton	Ton	Ton	Ton	Ton per Lift
Mainline US 385								
Sta. 106+72.48 to Sta. 109+05	10.0	834.3	1.5	3.4	1.2	15.7	0.2	
Sta. 179+70 to Sta. 199+00	98.4	8,181.8	14.4	36.5	12.2	163.4	1.7	
Sta. 402+85 to Sta. 424+84	109.5	9,128.3	16.0	39.5	13.2	177.6	2.0	
Sta. 522+50 to Sta. 524+00	5.9	493.7	0.9	2.0	0.7	9.3	0.1	
Sta. 524+00 to Sta. 535+68.17	49.0	4,082.3						575.0 / 575.0
Sheridan Lake Road	7.2	608.5	1.2					
Victoria Lake Road	19.9	1,656.3	5.3					
Custer Gulch Road	1.7	141.0						36.0 / 36.0
Div. 208	9.0	780.2						
Miscellaneous Areas								
Entrances – 24	6.1	508.0						
Entrance @ Sta. 526+02 Lt.	1.0	84.2						21.9 / 21.9
Entrance @ Sta. 530+62 Lt.	1.2	96.4						23.9 / 23.9
Intersecting Roads – 7	5.0	413.0						
Guardrail Sta. 104+73 to 106+73	0.9	76.0	0.1					
Guardrail Sta. 119+61 to 120+78	0.6	54.0	0.1					
Guardrail Sta. 124+63 to 125+70	0.7	57.0	0.1					
Guardrail Sta. 134+35 to 135+78	0.4	36.0	0.1					
TOTAL	326.5	27,231.0	39.7	91.4	27.3	366.0	4.0	1,313.6

Application Rates: MC-70 Asphalt for Prime rate = 0.30 gallon per square yard
Blotting Sand for Prime rate = 10 lbs. per square yard.
AE 150S Asphalt for Surface Treatment rate = 0.35 gallon per square yard.
Type 3 Cover Aggregate rate = 40 lbs. per square yard.
SS-1h or CSS-1h Asphalt for Fog Seal rate = 0.05 gallon per square yard.

TABLE OF MATERIAL QUANTITIES

Location-Description	Water for Granular Material	Base Course or Base Course, Salvaged	MC-70 Asphalt for Prime	Blotting Sand for Prime	AE150S Asphalt for Surface Treatment	Type 3 Cover Aggregate	SS-1h or CSS-1h Asphalt for Fog Seal	Sand for Fog Seal	Asphalt Concrete Composite
	MGal	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
Section 2 – Rates of Materials	102.3	8,524.2	15.5	33.2	11.5	155.2	1.7		
Section 3 – Rates of Materials	1,488.3	124,010.2	215.0	460.4	160.4	2,163.7	23.0		
Additional Quantities Table	326.6	27,231.0	39.7	91.4	27.3	366.0	4.0		1,313.6
Quantities from Notes				10.0				10.0	
TOTAL	1,917.1	159,765.4	270.2	585.0	199.2	2,684.9	28.7	10.0	1,313.6

IN PLACE TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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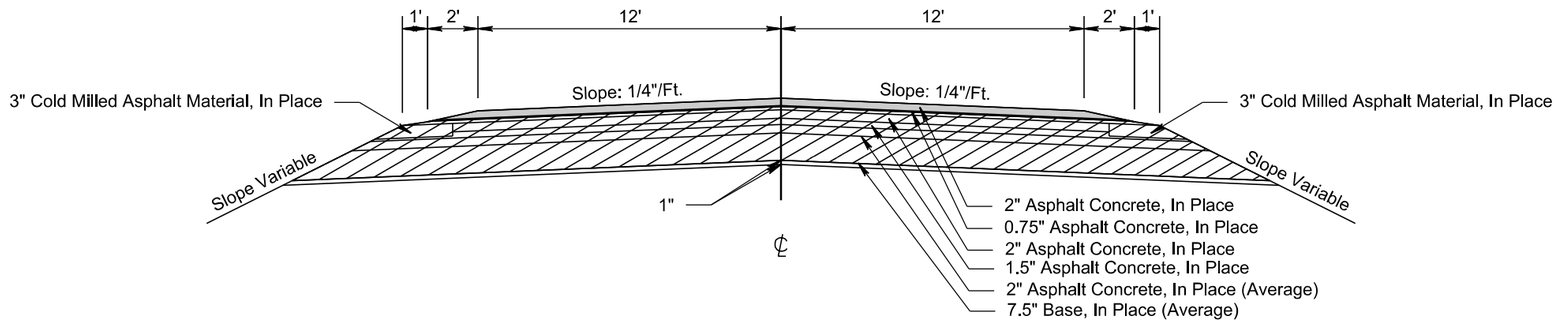
Cold Milling Asphalt Concrete
11,000 tons

Salvage and Stockpile Asphalt Mix and Granular Base Material

Section 1
Sta. 0+00 to Sta. 61+37.70
Equation Sta. 61+37.70 = Sta. a 61+39.20
Sta. a 61+39.20 to Sta. a 218+00
Equation Sta. a 218+00 = Sta. b 218+17.90
Sta. b 218+17.90 to Sta. b 233+74
Equation Sta. b 233+74 = Sta. c 233+00
Sta. c 233+00 to Sta. c 341+58.50
Equation Sta. c 341+58.50 = Sta. d 341+60
Sta. d 341+60 to Sta. d 431+80



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PLOT NAME - 2

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TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385(51)87	F6	F16

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PLOT NAME - 3

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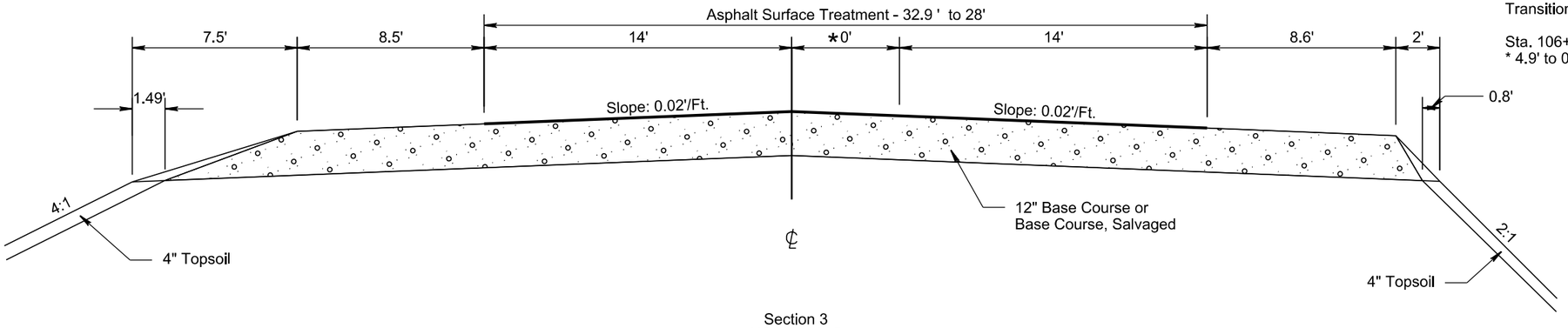
Section 2
US HWY 385
Sta. 106+72.48 to Sta. 134+00



Transitions:

Sta. 106+72.48 to Sta. 109+05
* 4.9' to 0'

Transitions:

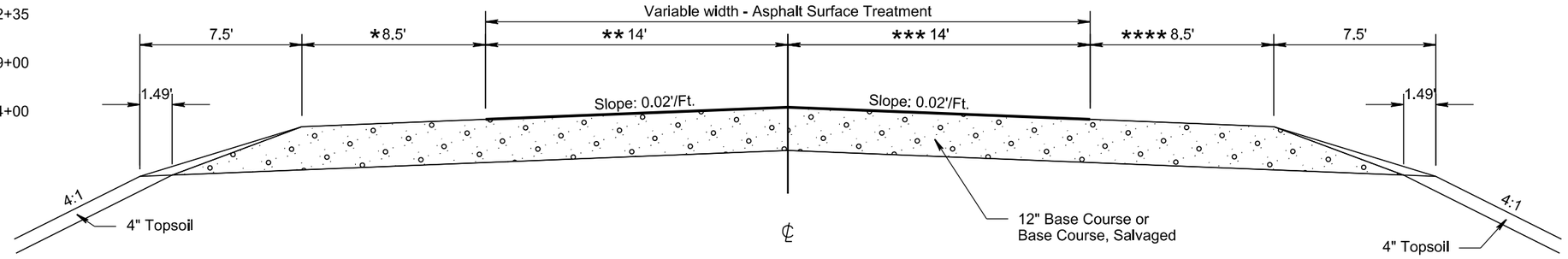
Sta. 179+70 to Sta. 186+30
** 14' to 26'

Sta. 186+30 to Sta. 192+35
** 26'

Sta. 192+35 to Sta. 199+00
** 26' to 14'

Sta. 522+50 to Sta. 524+00
* 8.5' to 6.5'

Section 3
US HWY 385
Sta. 134+00 to Sta. 402+85
Sta. 424+80 to Sta. 524+00



Transitions:

Sta. 182+00 to Sta. 183+20
*** 14' to 26'

Sta. 182+00 to Sta. 182+40
**** 8.5' to 4.5'

Sta. 183+20 to Sta. 185+70
*** 26'

Sta. 182+40 to Sta. 185+70
**** 4.5'

Sta. 185+70 to Sta. 187+80
*** 26' to 14'

Sta. 185+70 to Sta. 187+80
**** 4.5' to 8.5'

Sta. 522+50 to Sta. 524+00
**** 8.5' to 4.5'

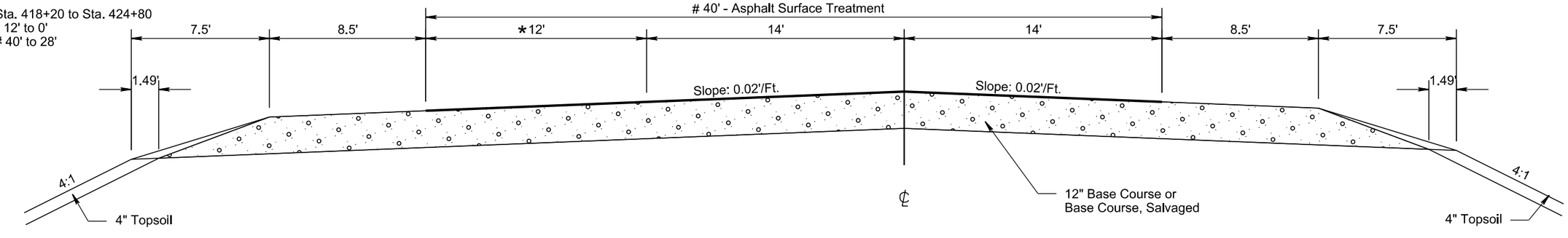
Transitions:

Sta. 402+85 to Sta. 409+45
* 0' to 12'
# 28' to 40'

Sta. 409+45 to Sta. 418+20
* 12'
# 40'

Sta. 418+20 to Sta. 424+80
* 12' to 0'
# 40' to 28'

Section 4
US HWY 385
Sta. 402+85 to Sta. 424+84



TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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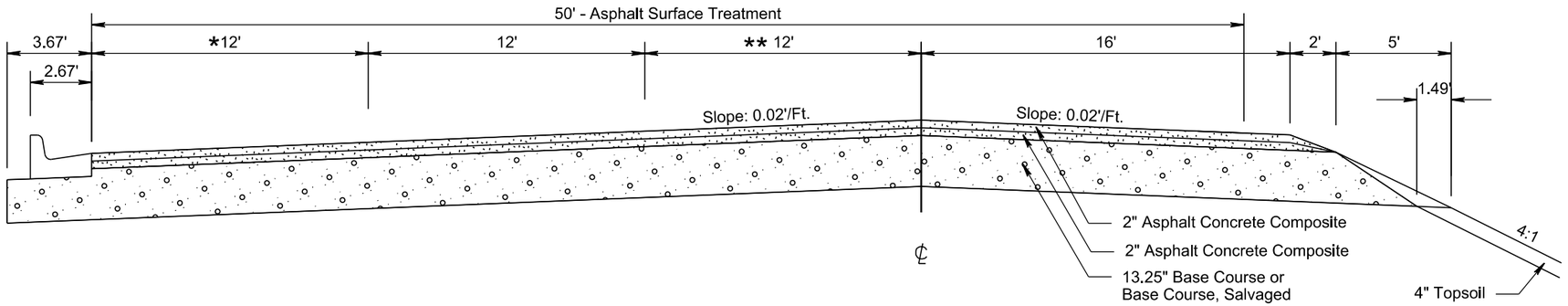
Section 5
US HWY 385
Sta. 524+00 to Sta. 535+68.17



Transitions:

Sta. 524+00 to Sta. 525+10.3
* 4'

Sta. 525+10.3 to Sta. 526+41.1
* 4' to 2'

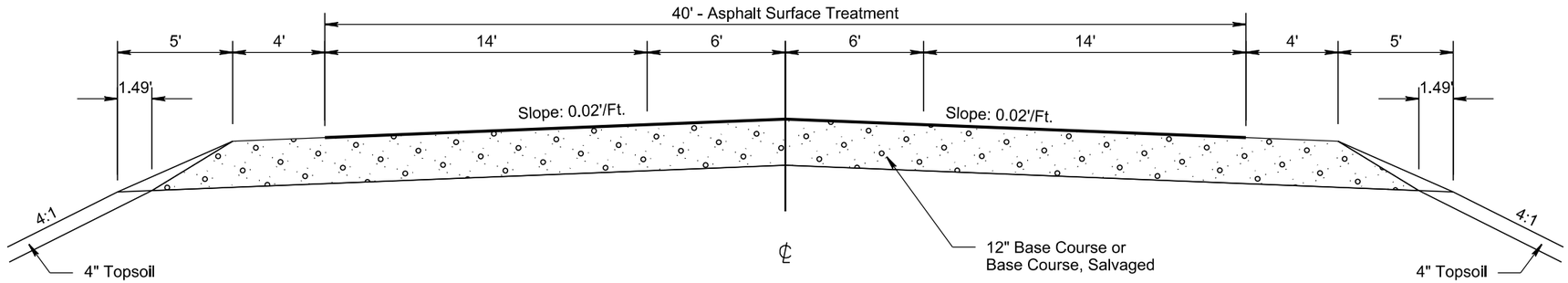
Sta. 526+41.1 to Sta. 533+80
* 2'

Sta. 533+80 to Sta. 534+80
* 2' to 12'

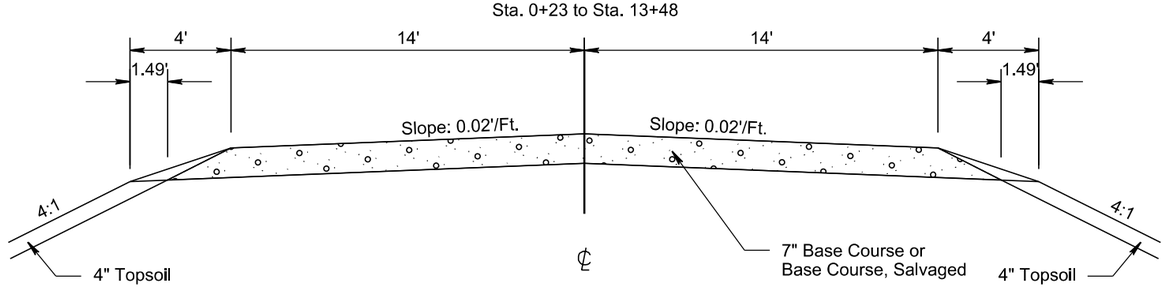
Sta. 524+00 to Sta. 525+20
** 0'

Sta. 525+20 to Sta. 531+80
** 0' to 12'

Section 6
Sheridan Lake Road
Sta. 1+31.45 to Sta. 3+00



Section 7
Victoria Lake Road
Sta. 0+23 to Sta. 13+48



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TYPICAL SURFACING SECTIONS

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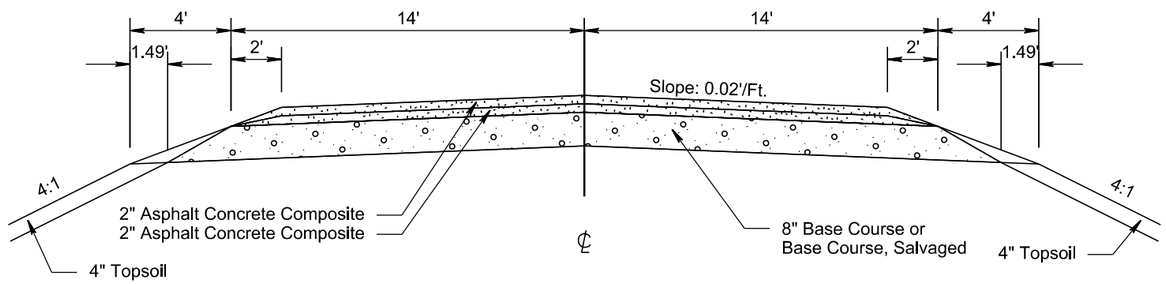
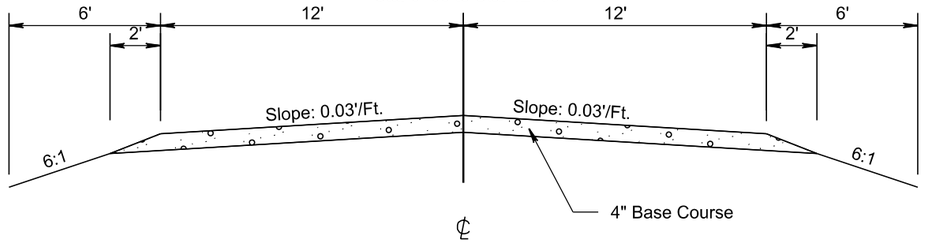
Section 8
Custer Gulch Road
Sta. 70+85 to Sta. 73+77.56



Section 9
Div208
Sta. 0+00 to Sta. 12+79



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TYPICAL SURFACING SECTIONS

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PLOT NAME - 6

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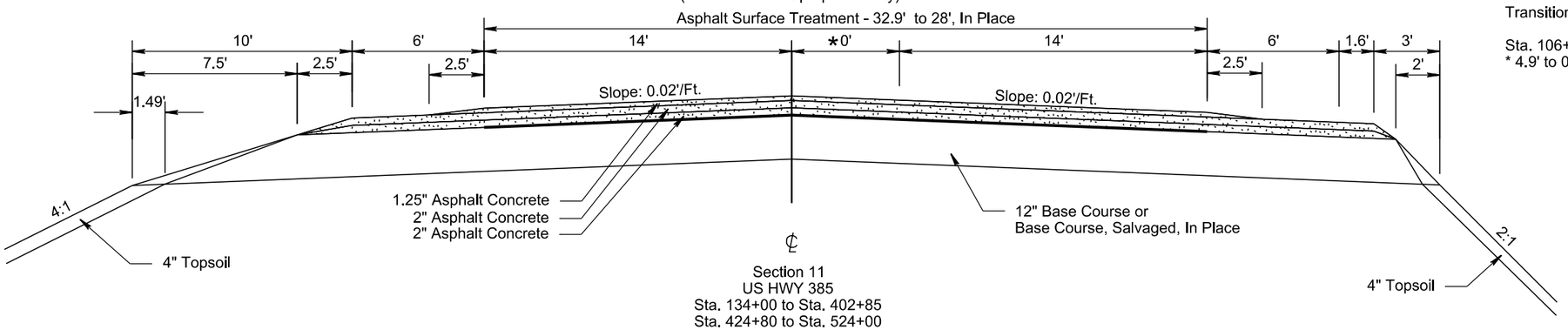
Section 10
US HWY 385
Sta. 106+72.48 to Sta. 134+00

Ultimate Section
(for informational purposes only)

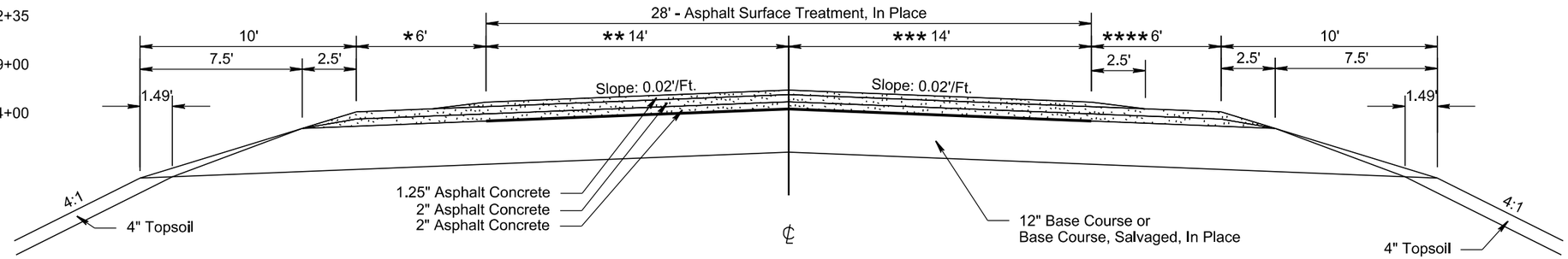


Transitions:

Sta. 106+72.48 to Sta. 109+05
* 4.9' to 0'

Section 11
US HWY 385
Sta. 134+00 to Sta. 402+85
Sta. 424+80 to Sta. 524+00

Ultimate Section
(for informational purposes only)



Transitions:

Sta. 179+70 to Sta. 186+30
** 14' to 26'

Sta. 186+30 to Sta. 192+35
** 26'

Sta. 192+35 to Sta. 199+00
** 26' to 14'

Sta. 522+50 to Sta. 524+00
* 6' to 2'

Transitions:

Sta. 182+00 to Sta. 183+20
*** 14' to 26'

Sta. 182+00 to Sta. 182+40
**** 6' to 2'

Sta. 183+20 to Sta. 185+70
*** 26'

Sta. 182+40 to Sta. 185+70
**** 2'

Sta. 185+70 to Sta. 187+80
*** 26' to 14'

Sta. 185+70 to Sta. 187+80
**** 2' to 6'

Sta. 522+50 to Sta. 524+00
**** 6' to 2'

Transitions:

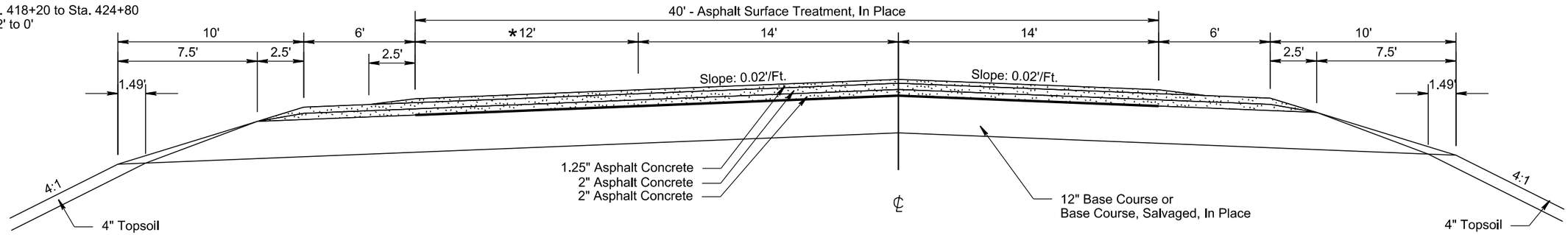
Sta. 402+85 to Sta. 409+45
* 0' to 12'

Sta. 409+45 to Sta. 418+20
* 12'

Sta. 418+20 to Sta. 424+80
* 12' to 0'

Section 12
US HWY 385
Sta. 402+85 to Sta. 424+84

Ultimate Section
(for informational purposes only)



TYPICAL SURFACING SECTIONS

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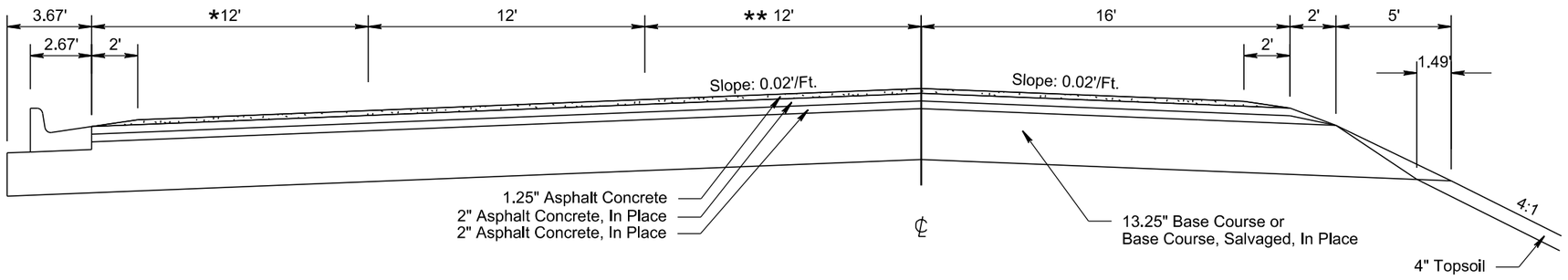
Section 13
US HWY 385
Sta. 524+00 to Sta. 535+68.17

Ultimate Section
(for informational purposes only)



Transitions:

Sta. 524+00 to Sta. 525+10.3
* 4'

Sta. 525+10.3 to Sta. 526+41.1
* 4' to 2'

Sta. 526+41.1 to Sta. 533+80
* 2'

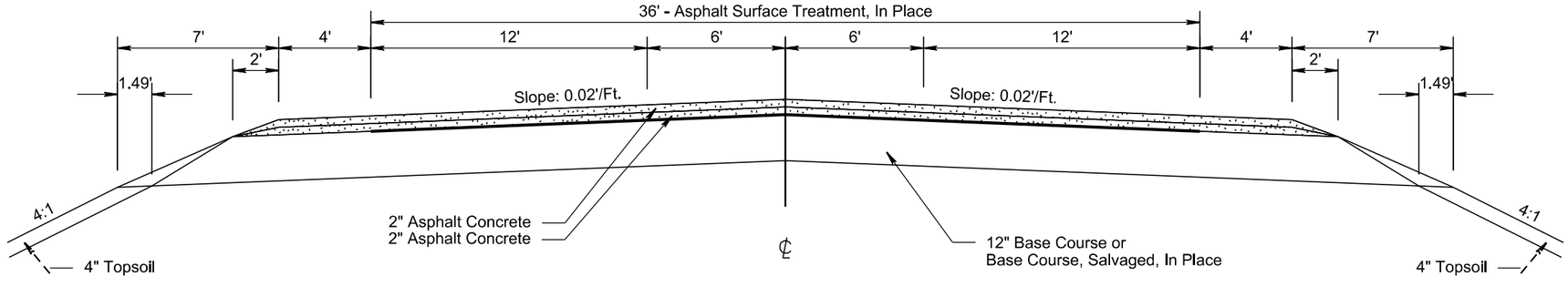
Sta. 533+80 to Sta. 534+80
* 2' to 12'

Sta. 524+00 to Sta. 525+20
** 0'

Sta. 525+20 to Sta. 531+80
** 0' to 12'

Section 14
Sheridan Lake Road
Sta. 1+31.45 to Sta. 3+00

Ultimate Section
(for informational purposes only)



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PLOT NAME - 7

FILE - ...\03VD_TYPICAL SECTIONS.DGN

TYPICAL SURFACING SECTIONS

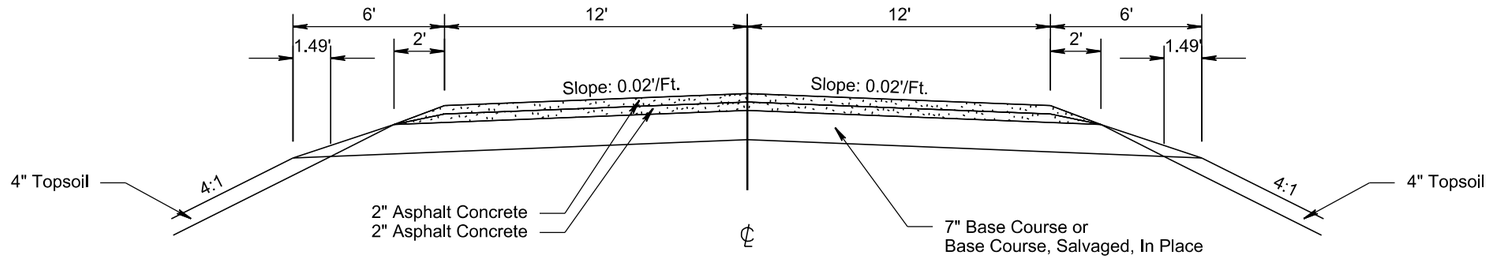
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385(51)87	F11	F16

Plotting Date: 09/03/2024

Revised: 3Sep24, RML

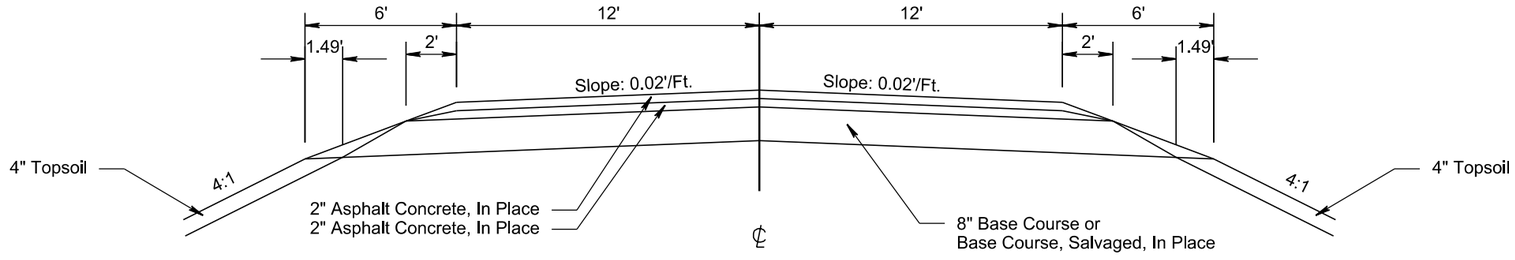
Section 15
Victoria Lake Road
Sta. 0+23 to Sta. 13+48

Ultimate Section
(for informational purposes only)



Section 16
Custer Gulch Road
Sta. 70+85 to Sta. 73+77.56

Ultimate Section
(for informational purposes only)



PLOT SCALE - 1:6.00001

PLOT NAME - 8

FILE - ...\03VD_TYPICAL SECTIONS.DGN

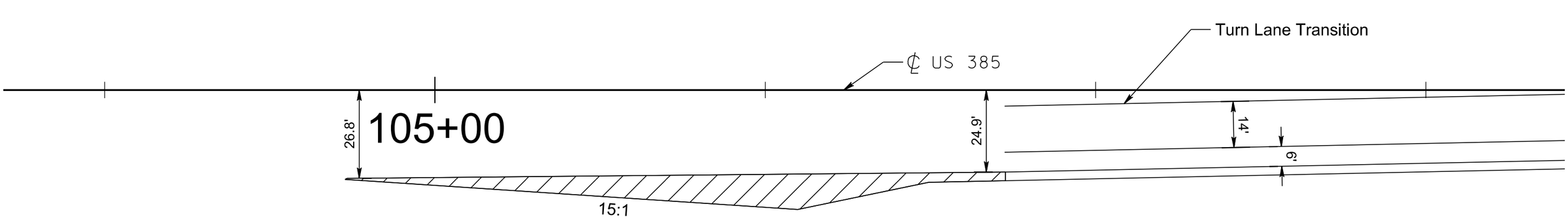
PLOTTED FROM - TRPR16032

GUARDRAIL EMBANKMENT

Scale 1 Inch = 40 Feet
Sheet 1 of 4 Sheets

12" Base Course or Base Course, Salvaged

US HWY 385



GUARDRAIL EMBANKMENT

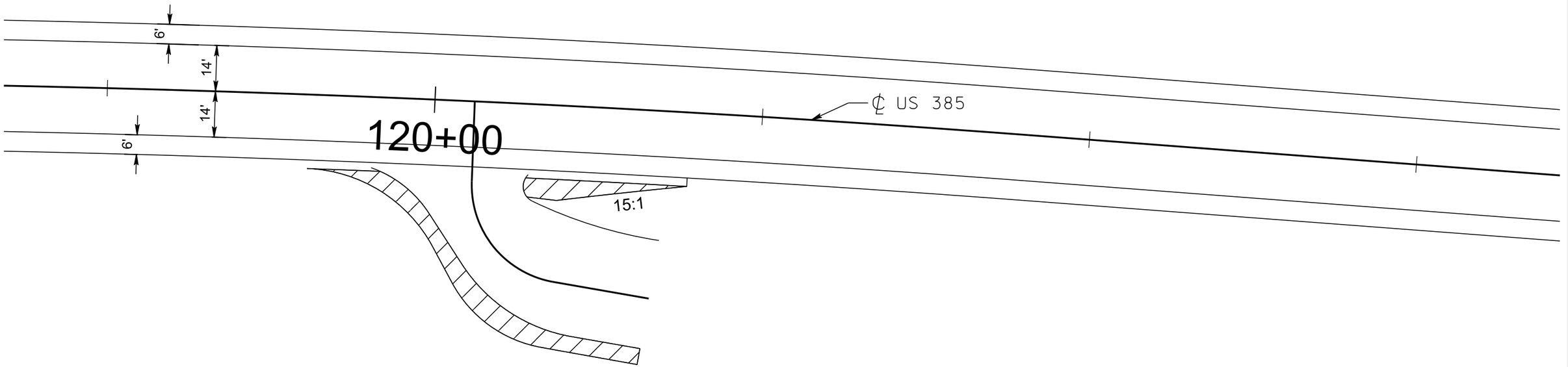
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385(51)87	F13	F16

Plotting Date: 09/03/2024

Scale 1 Inch = 40 Feet
Sheet 2 of 4 Sheets

12" Base Course or Base Course, Salvaged

US HWY 385



PLOT SCALE - 1:30.0391

GUARDRAIL EMBANKMENT

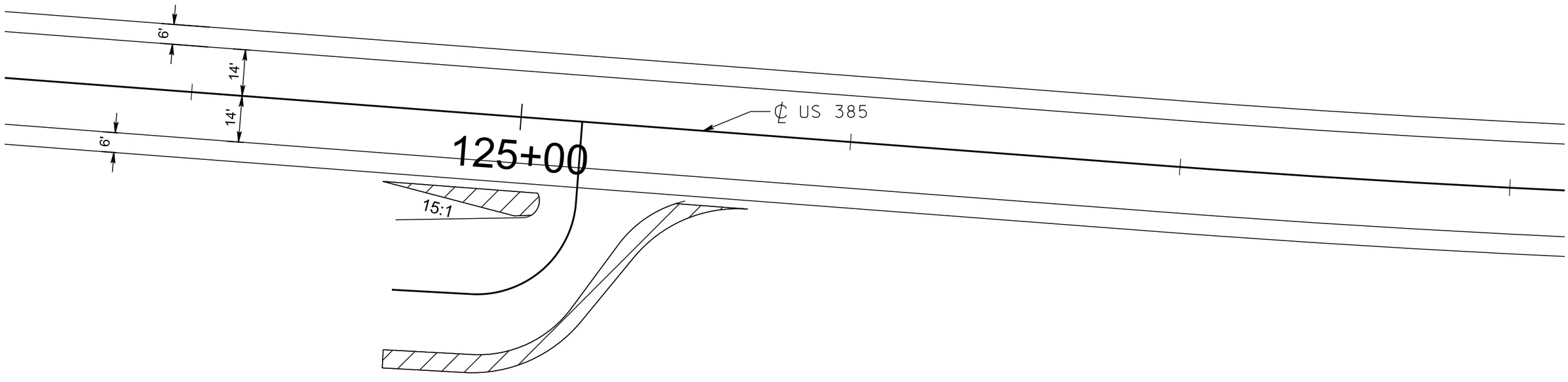
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385(51)87	F14	F16

Plotting Date: 09/03/2024

Scale 1 Inch = 40 Feet
Sheet 3 of 4 Sheets

12" Base Course or Base Course, Salvaged

US HWY 385



PLOTTED FROM - TRPR16032

PLOT NAME - 11

FILE - ...\03VD_GUARDRAIL EMBANKMENT.DGN

GUARDRAIL EMBANKMENT

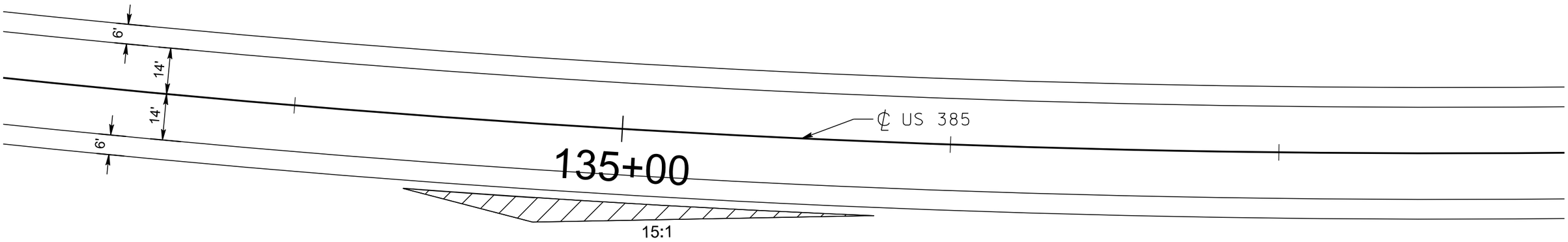
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-PH-B 0385(51)87	F15	F16

Plotting Date: 09/03/2024

Scale 1 Inch = 40 Feet
Sheet 4 of 4 Sheets

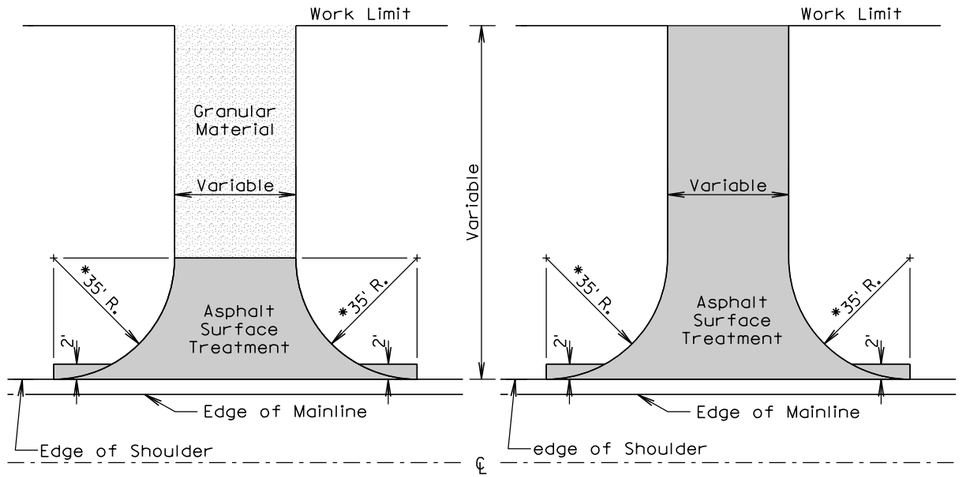
12" Base Course or Base Course, Salvaged

US HWY 385



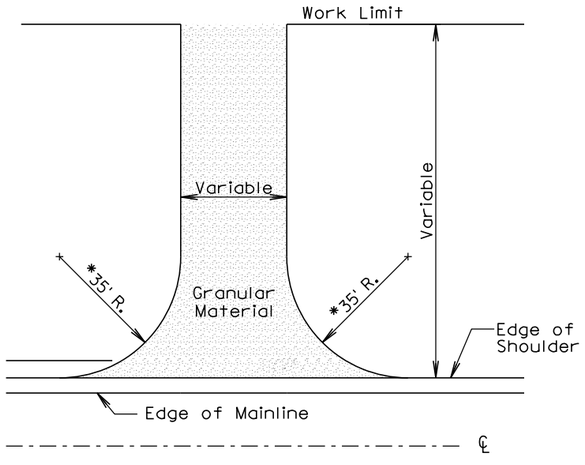
SPECIAL DETAILS

INTERIM SURFACING OF INTERSECTING ROADS AND ENTRANCES



INTERSECTING ROAD
NO ASPHALT CONCRETE SURFACING
BEYOND RIGHT OF WAY

INTERSECTING ROAD
ASPHALT CONCRETE SURFACING
BEYOND RIGHT OF WAY



ENTRANCE

GENERAL NOTES:

The details shown are provided as a guide for surfacing. The precise construction limits for situations other than the standards shown will be determined by the Engineer during construction.

*35' Radius except as noted elsewhere in plans.