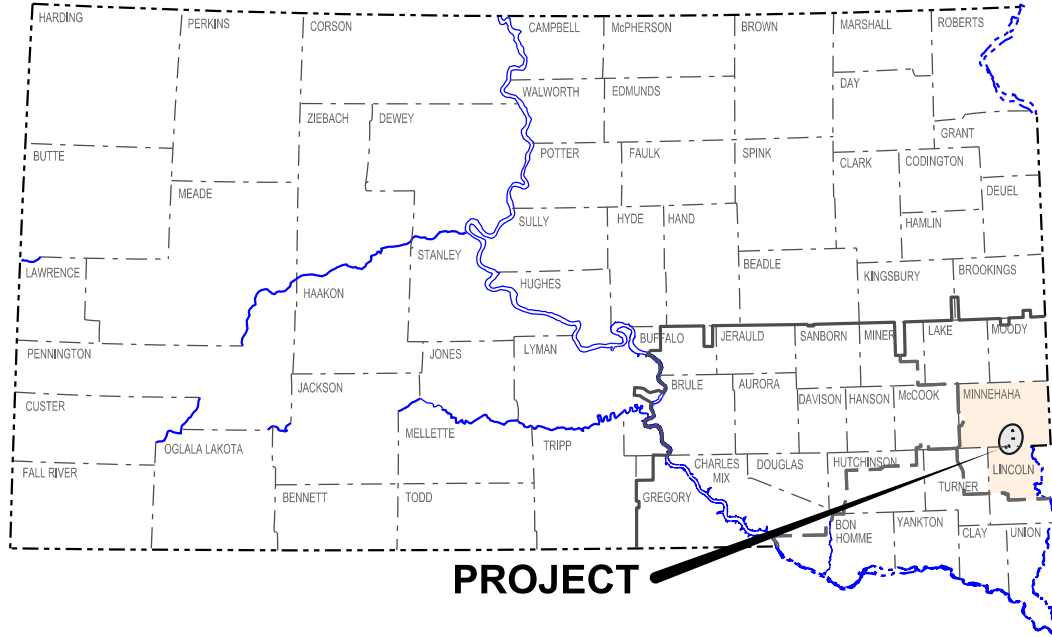


PLOT SCALE - 1"=7000'



PROJECT

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT IM 2292(118)0
INTERSTATE 229
LINCOLN & MINNEHAHA
COUNTIES

COLD MILLING ASPHALT CONCRETE, PLANING PCC PAVEMENT,
ASPHALT CONCRETE RESURFACING, SAW & SEAL AC JOINTS,
PARTIAL DEPTH PATCHING, NRC & CRC PAVEMENT REPAIR,
MEMBRANE SEALANT EXPANSION JOINTS & PAVEMENT MARKING
PCN 0A8F

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	1	99

Plotting Date: 10/02/2025

Rev. 10/2/25 MR

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Sheet 98	Original Construction Plans for Terminal Ramp Junctions
Sheet 99	Standard Plate

STORM WATER PERMIT
(None required)

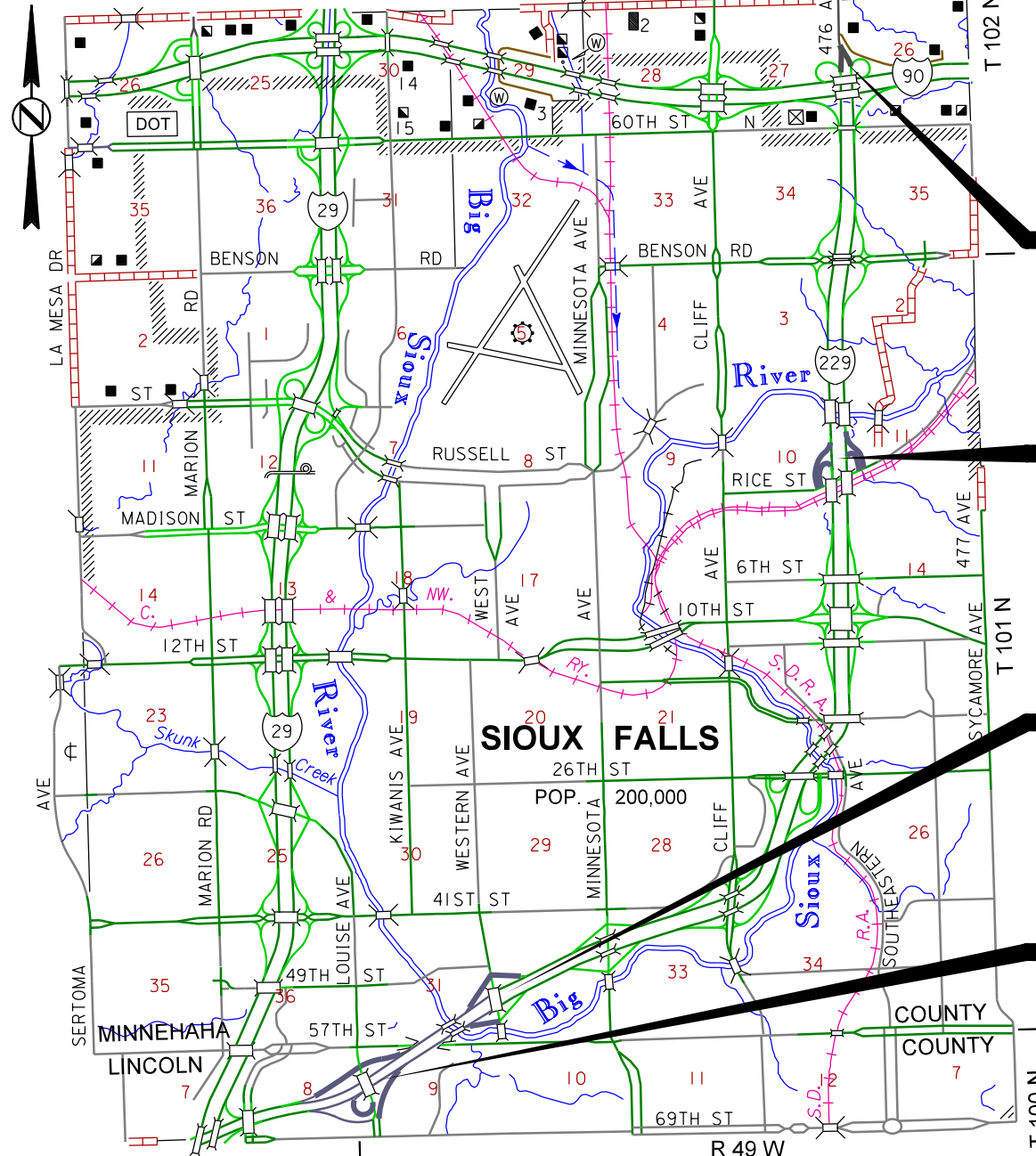
476TH AVE ADT (N/A)

DESIGN DESIGNATION				
EXIT 1C		EXIT 2		
ROUTE	I229 SB	I229 NB	I229 SB	I229 NB
ADT(2024)	19,889	19,927	21,486	21,555
ADT(2044)	33,076	33,139	34,634	34,689
DHV	3,632	3,639	3,803	3,809
D	53%	53%	53%	53%
T DHV	5.1%	4.9%	3.1%	3.1%
T ADT	11.3%	10.9%	6.9%	6.9%
V	65 MPH	65 MPH	65 MPH	65 MPH

JUST SOUTH OF END I229				
EXIT 7				
ROUTE	I229 SB	I229 NB	I229 SB	I229 NB
ADT(2024)	14,714	14,715	10,750	10,750
ADT(2044)	23,190	23,192	16,942	16,942
DHV	2,546	2,546	1,860	1,860
D	53%	53%	53%	53%
T DHV	4.8%	4.8%	4.3%	4.3%
T ADT	10.6%	10.6%	9.4%	9.4%
V	65 MPH	65 MPH	65 MPH	65 MPH

I229 EXIT 1C	I229 EXIT 2	I229 EXIT 7
ADT (2022)	ADT (2022)	ADT (2022)
NB On Ramp 3,857	NB On Ramp 6,455	NB On Ramp 2,247
NB Loop Ramp 4,106	NB Off Ramp 3,421	NB Off Ramp 3,454
SB On Ramp 5,304	SB On Ramp 2,985	SB On Ramp 4,878
SB Off Ramp 8,333	SB Off Ramp 6,602	SB Off Ramp 2,228
ADT (2024)	ADT (2024)	ADT (2024)
Louise Ave 26,600	Western Ave 25,100	Rice Street 13,100

LENGTH	I229 SB	I229 NB	RAMPS	TOTAL
Length:	968'	812'	13,412'	15,192' 2.877 Miles



I229 AT END ROUTE
I229 Divided NB = 548'
I229 Divided SB = 704'
I229 Transition = 264'

I229 STA. S to N
46+98 to 52+46
45+23 to 52+27
52+36 to 55+00

I229 EXIT 7 RAMPS
NB On Ramp = 1,200'
NB Off Ramp = 780'
SB On Ramp = 855'
SB Off Ramp = 1,410'

EXIT 7 STA. S to N
0+25 to 12+25
0+25 to 8+05
0+25 to 8+80
0+25 to 14+35

I229 EXIT 2 RAMPS
NB On Ramp = -
NB Off Ramp = 817'
SB On Ramp = 811'
SB Off Ramp = 762'

EXIT 2 STA. N to S
NB On Ramp -
0+37 to 8+54
0+44 to 8+55
13+65 to 21+27

I229 EXIT 1C RAMPS
NB On Ramp = 1,744'
Loop Ramp = 1,420'
SB On Ramp = 2,113'
SB Off Ramp = 1,500'

EXIT 1C STA. N to S
14+38 to 31+82
0+72 (Avg) to 14+92
0+35 to 20+40 +108' Connector
5+68 to 20+68

December 3, 2025

PLOTTED FROM - TRMLINT15

FILE - ... \PRJ2026\MINN0A8F\TTL0A8F.DGN

ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	2	99

Rev. 10/9/25 MR

ESTIMATE OF QUANTITIES

ESTIMATE OF QUANTITIES BREAKDOWN
(FOR INFORMATION ONLY)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
320E0033	PG 58V-34 Asphalt Binder	326.5	Ton
320E0402	Asphalt Repair Mastic Type 2	150	Lb
320E1060	Class G Asphalt Concrete	5,463.0	Ton
320E3000	Compaction Sample	3	Each
320E4000	Hydrated Lime	54.7	Ton
320E5000	Saw and Seal Joint in Asphalt Concrete	25,293	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	0.6	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	26.6	Ton
332E0010	Cold Milling Asphalt Concrete	5,686	SqYd
380E5030	Nonreinforced PCC Pavement Repair	140.3	SqYd
380E5100	Continuously Reinforced PCC Pavement Repair	55.5	SqYd
380E5200	PCC Pavement Partial Depth Patch	2,100	SqFt
380E6110	Insert Steel Bar in PCC Pavement	182	Each
380E6310	Seal Random Cracks in PCC Pavement	1,050	Ft
380E6500	Planing PCC Pavement	5,345.0	SqYd
410E2600	Membrane Sealant Expansion Joint	99.0	Ft
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	16,307	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	14,784	Ft
633E1240	High Build Waterborne Pavement Marking Paint, 8" White	806	Ft
633E1250	High Build Waterborne Pavement Marking Paint, 12" White	1,527	Ft
633E1260	High Build Waterborne Pavement Marking Paint, 24" White	605	Ft
633E1262	High Build Waterborne Pavement Marking Paint, 24" Yellow	78	Ft
633E1272	High Build Waterborne Pavement Marking Paint, Arrow	24	Each
633E1278	High Build Waterborne Pavement Marking Paint, Combination Arrow	5	Each
633E1286	High Build Waterborne Pavement Marking Paint, Message	11	Each
633E3000	Durable Pavement Marking, 4" White	16,307	Ft
633E3005	Durable Pavement Marking, 4" Yellow	14,784	Ft
633E3010	Durable Pavement Marking, 8" White	806	Ft
633E3020	Durable Pavement Marking, 12" White	1,527	Ft
633E3030	Durable Pavement Marking, 24" White	605	Ft
633E3035	Durable Pavement Marking, 24" Yellow	78	Ft
633E3045	Durable Pavement Marking, Arrow	24	Each
633E3050	Durable Pavement Marking, Combination Arrow	5	Each
633E3060	Durable Pavement Marking, Message	11	Word
633E5100	Grooving for Durable Pavement Marking, 4"	31,091	Ft
633E5105	Grooving for Durable Pavement Marking, 8"	806	Ft
633E5110	Grooving for Durable Pavement Marking, 12"	1,527	Ft
633E5115	Grooving for Durable Pavement Marking, 24"	683	Ft
633E5125	Grooving for Durable Pavement Marking, Arrow	24	Each
633E5130	Grooving for Durable Pavement Marking, Combination Arrow	5	Each
633E5135	Grooving for Durable Pavement Marking, Message	11	Word
634E0010	Flagging	106.0	Hour
634E0110	Traffic Control Signs	826.3	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	14	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0640	Temporary Pavement Marking	3,120	Ft
634E1215	Contractor Furnished Portable Changeable Message Sign	7	Each
634E1255	Contractor Furnished Speed Monitoring Radar Trailer	2	Each
634E2015	Temporary Pedestrian Access Route	Lump Sum	LS

BID ITEM NUMBER	ITEM	LOUISE AVE QUANTITY	WESTERN AVE QUANTITY	RICE STREET QUANTITY	END I229 QUANTITY	TOTAL QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LS
320E0033	PG 58V-34 Asphalt Binder	158.1	53.6	84.5	30.3	326.5	Ton
320E0402	Asphalt Repair Mastic Type 2	50	50	50	-	150	Lb
320E1060	Class G Asphalt Concrete	2640	894	1421	508	5463	Ton
320E3000	Compaction Sample	<----- 3 ----->				3	Each
320E4000	Hydrated Lime	26.4	9.0	14.2	5.1	54.7	Ton
320E5000	Saw and Seal Joint in Asphalt Concrete	11359	4050	9884	-	25293	Ft
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	-	-	-	0.6	0.6	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	12.4	4.3	7.1	2.8	26.6	Ton
332E0010	Cold Milling Asphalt Concrete	1028	444	-	4214	5686	SqYd
380E5030	Nonreinforced PCC Pavement Repair	30	43.9	66.4	-	140.3	SqYd
380E5100	Continuously Reinforced PCC Pavement Repair	-	27.8	27.7	-	55.5	SqYd
380E5200	PCC Pavement Partial Depth Patch	1000	500	600	-	2100	SqFt
380E6110	Insert Steel Bar in PCC Pavement	40	60	82	-	182	Each
380E6310	Seal Random Cracks in PCC Pavement	-	150	800	100	1050	Ft
380E6500	Planing PCC Pavement	1492	1636	2217	-	5345	SqYd
410E2600	Membrane Sealant Expansion Joint	-	25	74	-	99	Ft
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	8239	2336	3982	1750	16307	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	6452	1834	4324	2174	14784	Ft
633E1240	High Build Waterborne Pavement Marking Paint, 8" White	506	-	-	300	806	Ft
633E1250	High Build Waterborne Pavement Marking Paint, 12" White	180	362	174	811	1527	Ft
633E1260	High Build Waterborne Pavement Marking Paint, 24" White	219	284	102	-	605	Ft
633E1262	High Build Waterborne Pavement Marking Paint, 24" Yellow	-	-	-	78	78	Ft
633E1272	High Build Waterborne Pavement Marking Paint, Arrow	13	3	8	-	24	Each
633E1278	High Build Waterborne Pavement Marking Paint, Combination Arrow	3	-	2	-	5	Each
633E1286	High Build Waterborne Pavement Marking Paint, Message	6	2	3	-	11	Each
633E3000	Durable Pavement Marking, 4" White	8239	2336	3982	1750	16307	Ft
633E3005	Durable Pavement Marking, 4" Yellow	6452	1834	4324	2174	14784	Ft
633E3010	Durable Pavement Marking, 8" White	506	-	-	300	806	Ft
633E3020	Durable Pavement Marking, 12" White	180	362	174	811	1527	Ft
633E3030	Durable Pavement Marking, 24" White	219	284	102	-	605	Ft
633E3035	Durable Pavement Marking, 24" Yellow	-	-	-	78	78	Ft
633E3045	Durable Pavement Marking, Arrow	13	3	8	-	24	Each
633E3050	Durable Pavement Marking, Combination Arrow	3	-	2	-	5	Each
633E305A	Durable Pavement Marking, Message	6	2	3	-	11	Word
633E5100	Grooving for Durable Pavement Marking, 4"	14691	4170	8306	3924	31091	Ft
633E5105	Grooving for Durable Pavement Marking, 8"	506	-	-	300	806	Ft
633E5110	Grooving for Durable Pavement Marking, 12"	180	362	174	811	1527	Ft
633E5115	Grooving for Durable Pavement Marking, 24"	219	284	102	78	683	Ft
633E5125	Grooving for Durable Pavement Marking, Arrow	13	3	8	-	24	Each
633E5130	Grooving for Durable Pavement Marking, Combination Arrow	3	-	2	-	5	Each
633E5135	Grooving for Durable Pavement Marking, Message	6	2	3	-	11	Word
634E0010	Flagging	27	27	26	26	106	Hour
634E0110	Traffic Control Signs	206.575	206.575	206.575	206.575	826.3	SqFt
634E0120	Traffic Control Miscellaneous	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum	LS
634E0275	Type 3 Barricade	4	4	3	3	14	Each
634E0420	Type C Advance Warning Arrow Board	<----- 2 ----->				2	Each
634E0640	Temporary Pavement Marking	780	780	780	780	3120	Ft
634E1215	Contractor Furnished Portable Changeable Message Sign	<----- 7 ----->				7	Each
634E1255	Contractor Furnished Speed Monitoring Radar Trailer	<----- 2 ----->				2	Each
634E2015	Temporary Pedestrian Access Route	Lump Sum	Lump Sum	-	-	Lump Sum	LS

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges is available for download and viewing at <https://dot.sd.gov/doing-business/contractors/standard-specifications>.

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	3	99

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: <https://sdleastwanted.sd.gov/maps/default.aspx>

South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: <https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04>

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

- Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, No Dumping Allowed.
- Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

Cost associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

ENVIRONMENTAL COMMITMENTS (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	4	99

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow 30 Days from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

PLOT SCALE - 1+4

PLOTTED FROM - TRML1INT15

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN PLOT NAME - 3

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	6	99

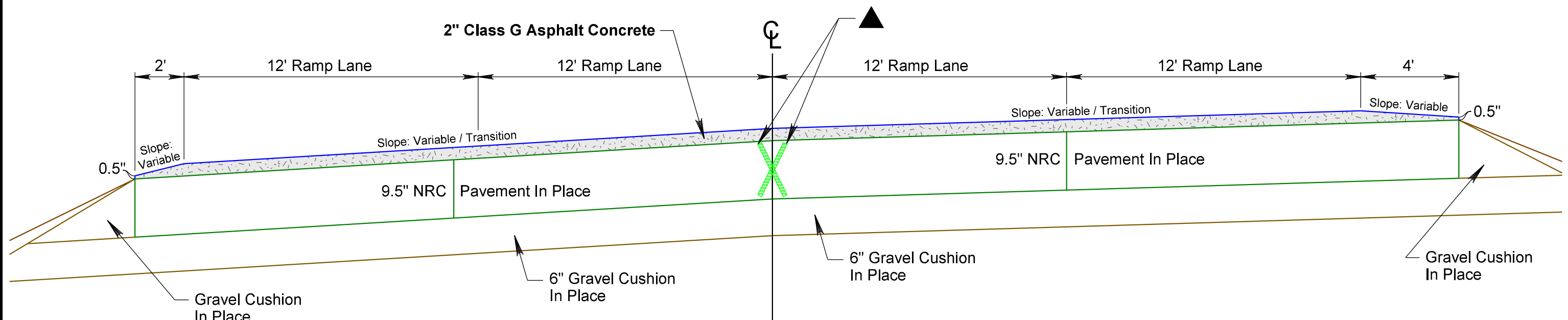
Plotting Date: 09/18/2025

- 2" Class G Asphalt Concrete
- Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

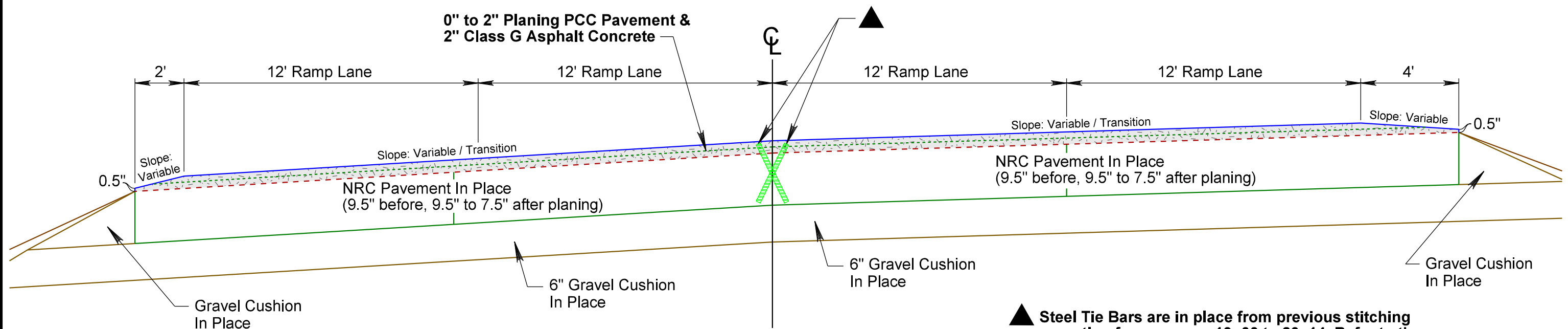
SECTION 2L

I229 Exit 1C Louise Ave
319' Length from 16+55 to 19+74 - Four Lane SB Off Ramp



SECTION 2L

I229 Exit 1C Louise Ave
40' Length from 19+74 to 20+14 - Four Lane SB Off Ramp (0" to 2" Planing)



▲ Steel Tie Bars are in place from previous stitching operation from approx. 19+00 to 20+14. Refer to the notes for PLANING PCC PAVEMENT for concrete removal and sawing off steel tie bars in this area.

PLOT SCALE - 1+4

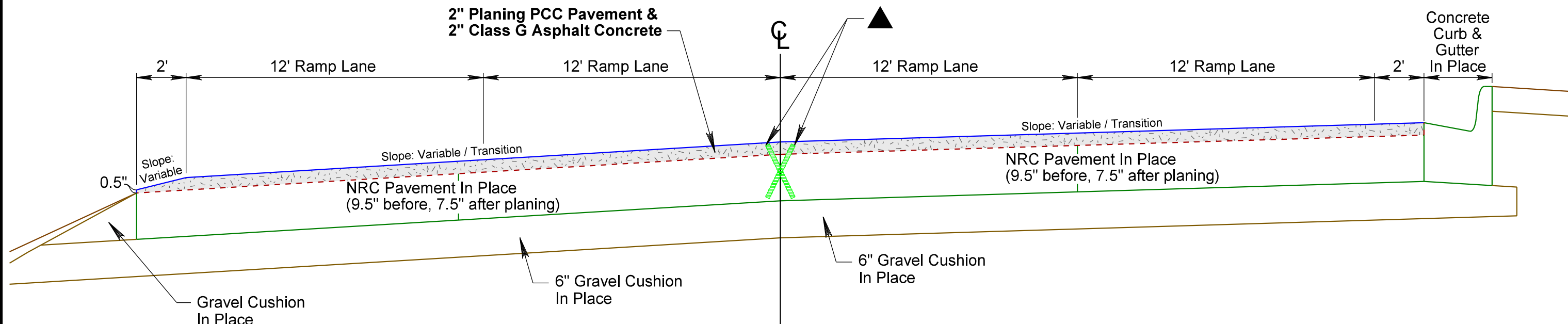
PLOTTED FROM - TRM1INT15

- 2" Class G Asphalt Concrete
- Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

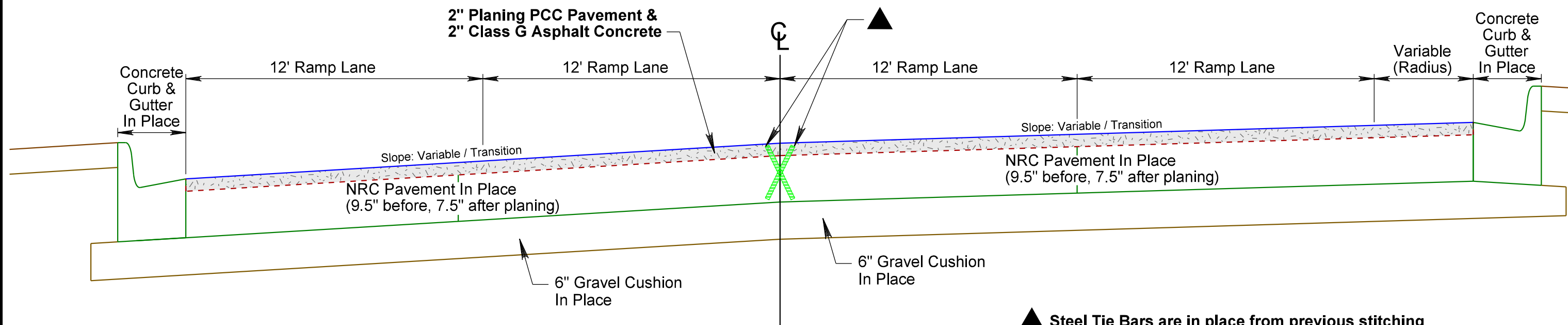
SECTION 3L

I229 Exit 1C Louise Ave
12' Length from 20+14 to 20+26 - Four Lane SB Off Ramp (2" Planing)



SECTION 4L

I229 Exit 1C Louise Ave
42' Length from 20+26 to 20+68 - Four Lane SB Off Ramp (2" Planing)



▲ Steel Tie Bars are in place from previous stitching operation from approx. 20+14 to 20+30. Refer to the notes for PLANING PCC PAVEMENT for concrete removal and sawing off steel tie bars in this area.

STATE OF SOUTH DAKOTA	PROJECT IM 2292(118)0	SHEET 7	TOTAL SHEETS 99
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Plotting Date: 09/18/2025

PLOT NAME - 4

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN

PLOT SCALE - 1"=4'

PLOTTED FROM - JRM11N115

- 2" Class G Asphalt Concrete
- Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

SECTION 5L

I229 Exit 1C Louise Ave

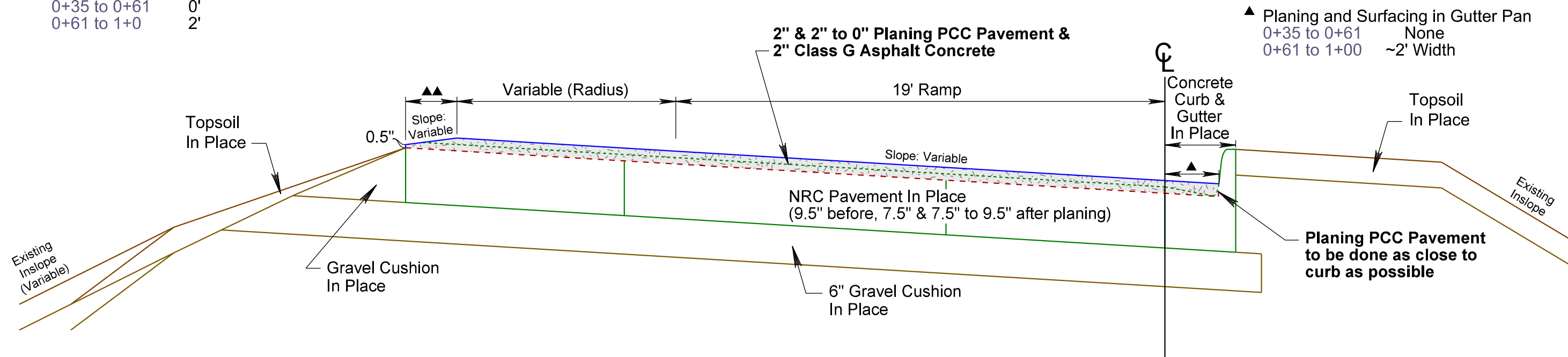
26' Length from 0+35 to 0+61 - SB On Ramp (2" Planing)

39' Length from 0+61 to 1+00 - SB On Ramp (2" to 0" Planing)

Bevel:
0+35 to 0+61 0'
0+61 to 1+0 2'

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	8	99

Plotting Date: 09/18/2025



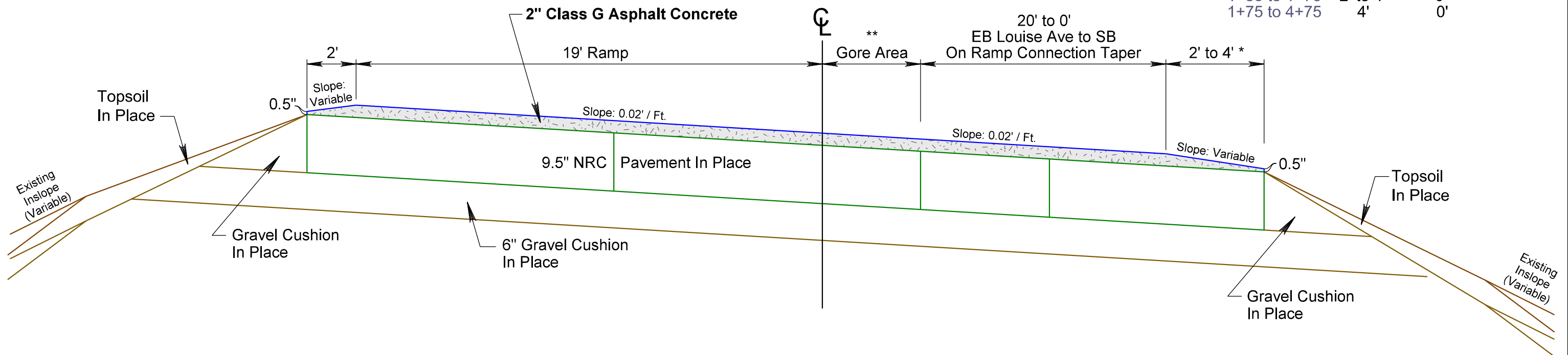
▲ Planing and Surfacing in Gutter Pan
0+35 to 0+61 None
0+61 to 1+00 ~2' Width

SECTION 6L

I229 Exit 1C Louise Ave

375' Length from 1+00 to 4+75 - SB On Ramp
(with EB Louise Ave to SB On Ramp Connection Taper)

Transition:
1+00 to 1+35 * 2' 8' to 0' **
1+35 to 1+75 2' to 4' 0' 0'
1+75 to 4+75 4' 0' 0'



FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN PLOT NAME - 5

PLOT SCALE - 1"=4'

PLOTTED FROM - TRM11NT15

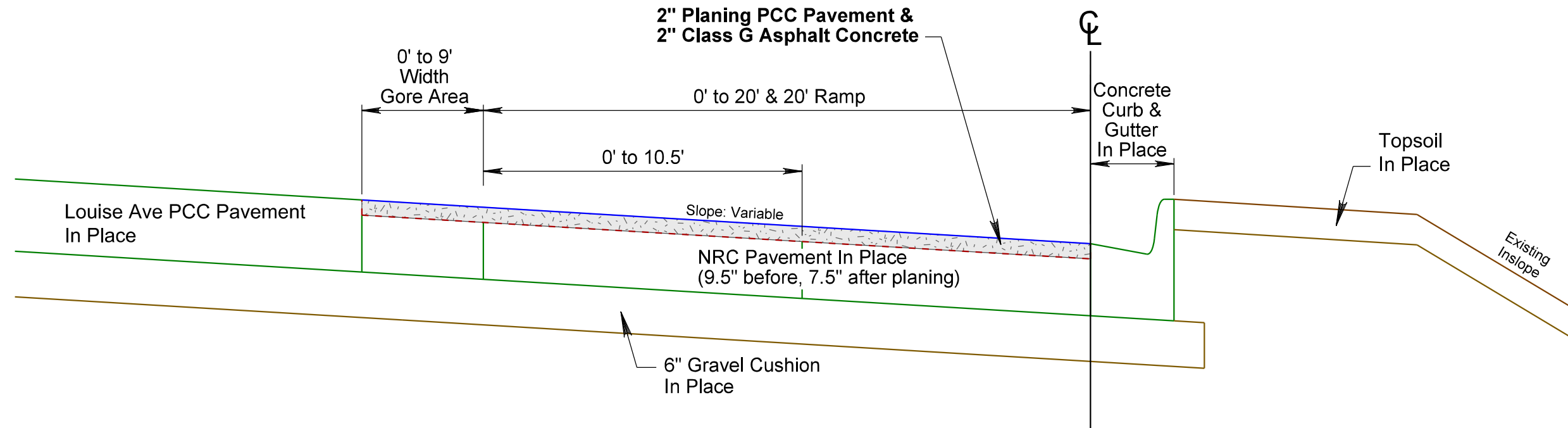
-  2" Class G Asphalt Concrete
-  Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

SECTION 7L

I229 Exit 1C Louise Ave

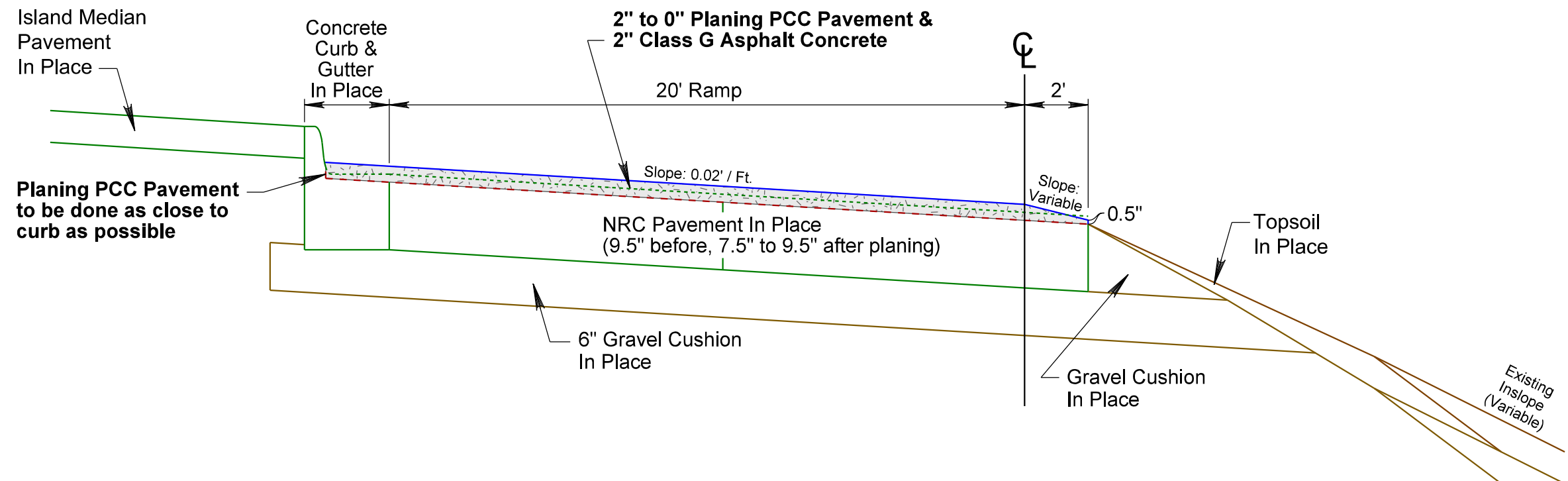
47' Length from EB Louise Ave to SB On Ramp Connector Ramp (2" Planing)



SECTION 8L

I229 Exit 1C Louise Ave

61' Length from EB Louise Ave to SB On Ramp Connector Ramp (2" to 0" Planing)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	9	99

Plotting Date: 09/18/2025

PLOT NAME - 6

FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN

PLOT SCALE - 1"=4'

PLOTTED FROM - TRM1INT15

- 2" Class G Asphalt Concrete
- Cold Milling Asphalt Concrete

TYPICAL RESURFACING SECTIONS

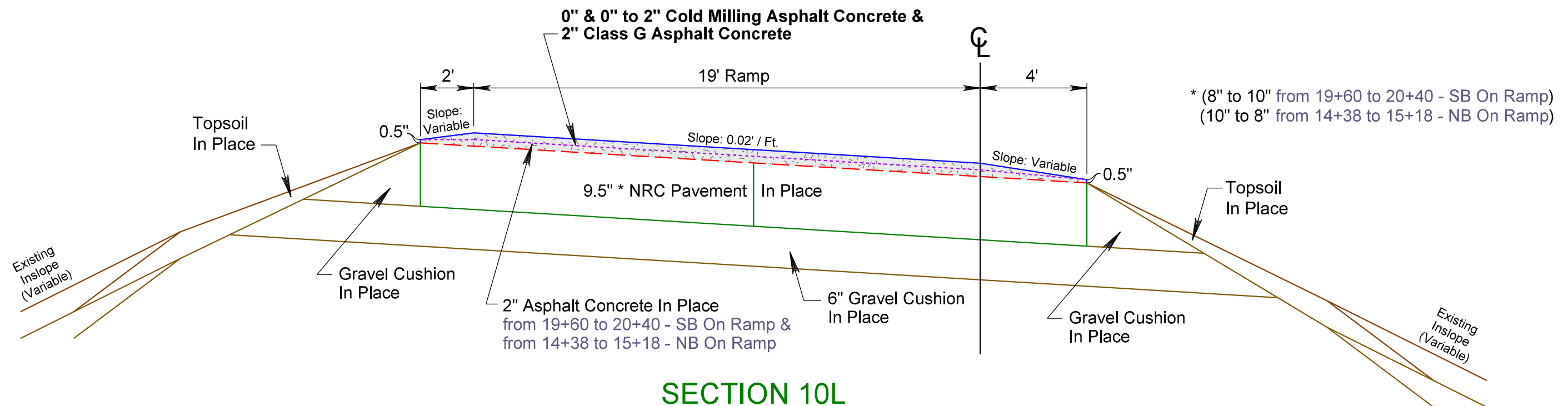
SECTION 9L

I229 Exit 1C Louise Ave
1,485' Length from 4+75 to 19+60 - SB On Ramp (No Milling)
80' Length from 19+60 to 20+40 - SB On Ramp (0" to 2" Milling)

I229 Exit 1C Louise Ave
80' Length from 14+38 to 15+18 - NB On Ramp (2" to 0" Milling)
1,402' Length from 15+18 to 29+20 - NB On Ramp (No Milling)

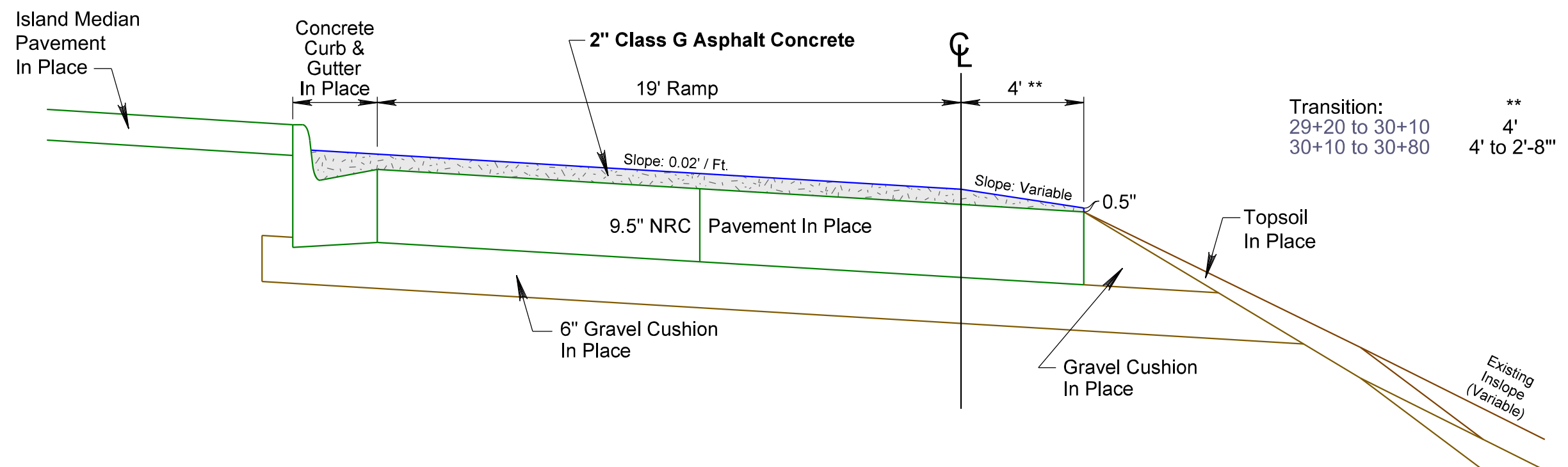
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	10	99

Plotting Date: 09/18/2025



SECTION 10L

I229 Exit 1C Louise Ave
160' length from 29+20 to 30+80 - NB On Ramp



PLOT NAME - 7

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN

PLOT SCALE - 1+4

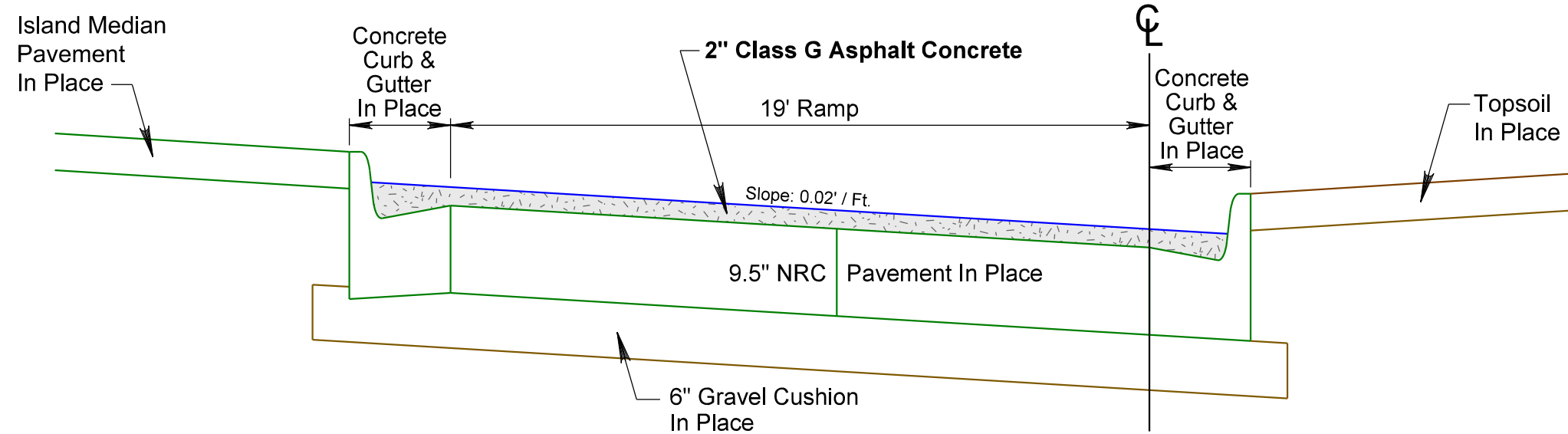
PLOTTED FROM - TRM1INT15

-  2" Class G Asphalt Concrete
-  Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

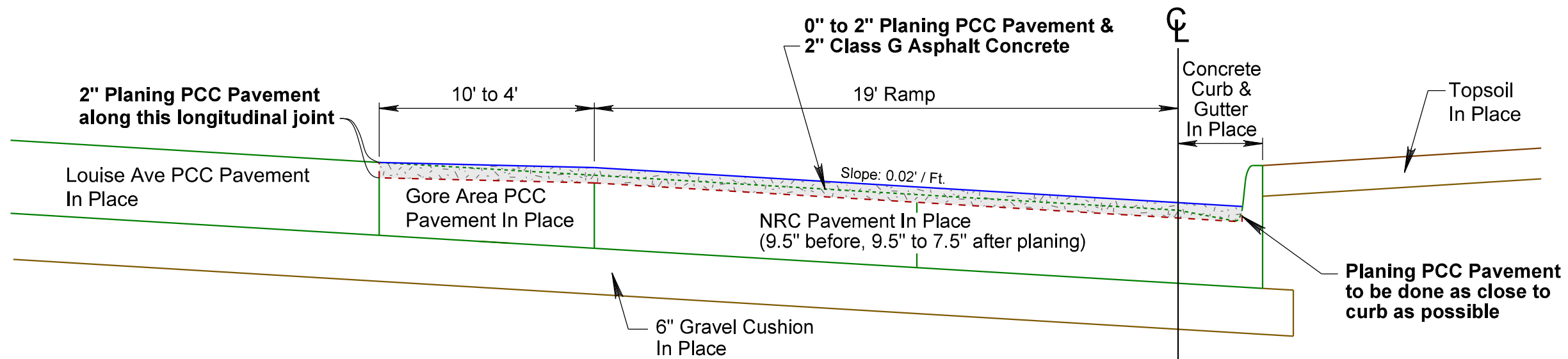
SECTION 11L

I229 Exit 1C Louise Ave
60' Length from 30+80 to 31+40 - NB On Ramp



SECTION 12L

I229 Exit 1C Louise Ave
42' Length from 31+40 to 31+82 - NB On Ramp (0" to 2" Planing)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	11	99

Plotting Date: 09/18/2025

PLOT NAME - 8

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN

PLOT SCALE - 1+4

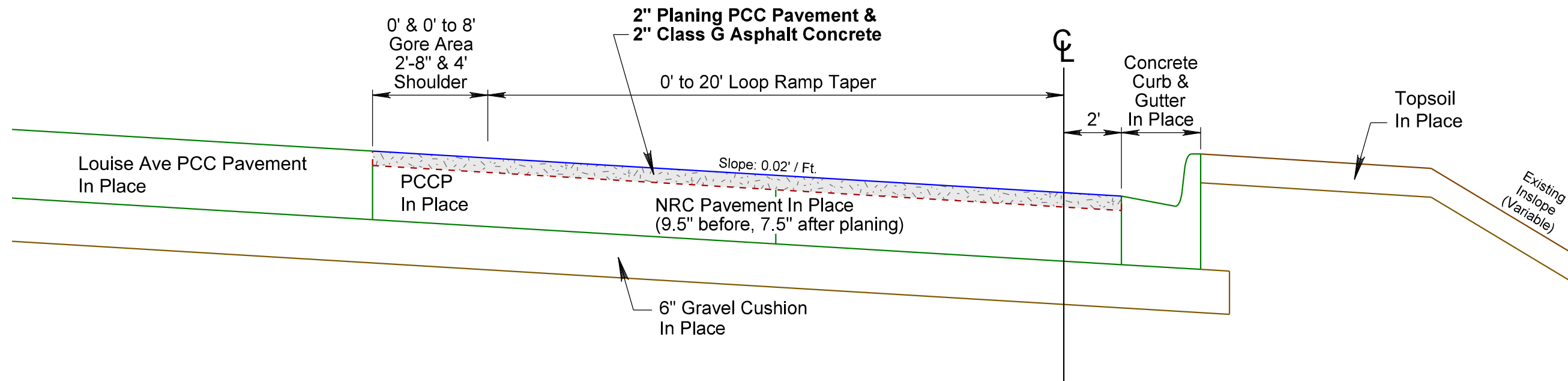
PLOTTED FROM - TRM11NT15

- 2" Class G Asphalt Concrete
- Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

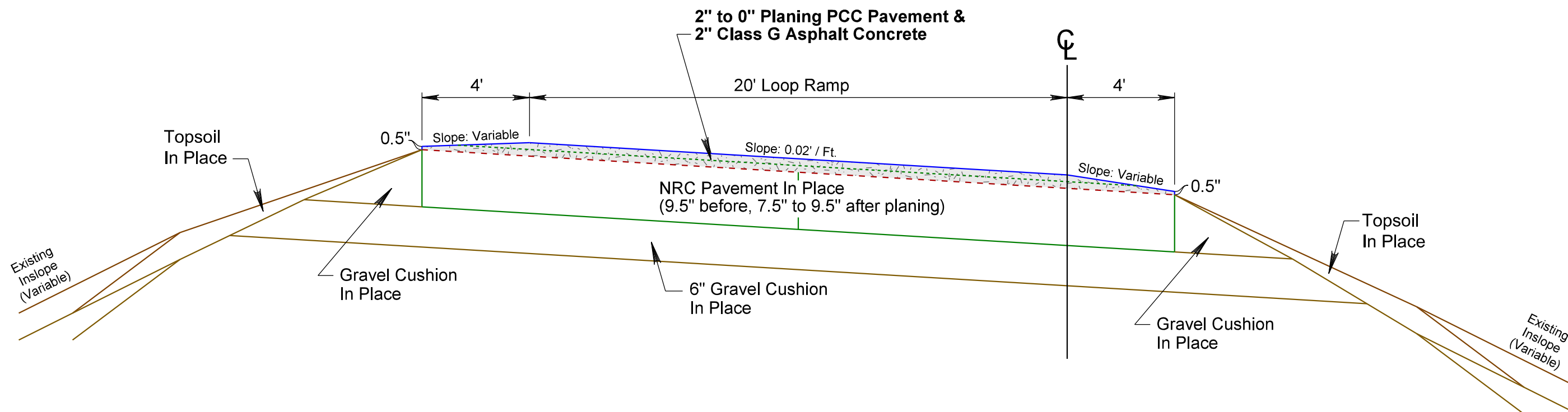
SECTION 13L

I229 Exit 1C Louise Ave
67' Length (Avg) from 0+72 (Avg) to 1+39 - NB Loop On Ramp at Louise Ave (2" Planing)



SECTION 14L

I229 Exit 1C Louise Ave
40' Length from 1+39 to 1+79 - NB Loop On Ramp at Louise Ave (2" to 0" Planing)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	12	99

Plotting Date: 09/18/2025

PLOT NAME - 9

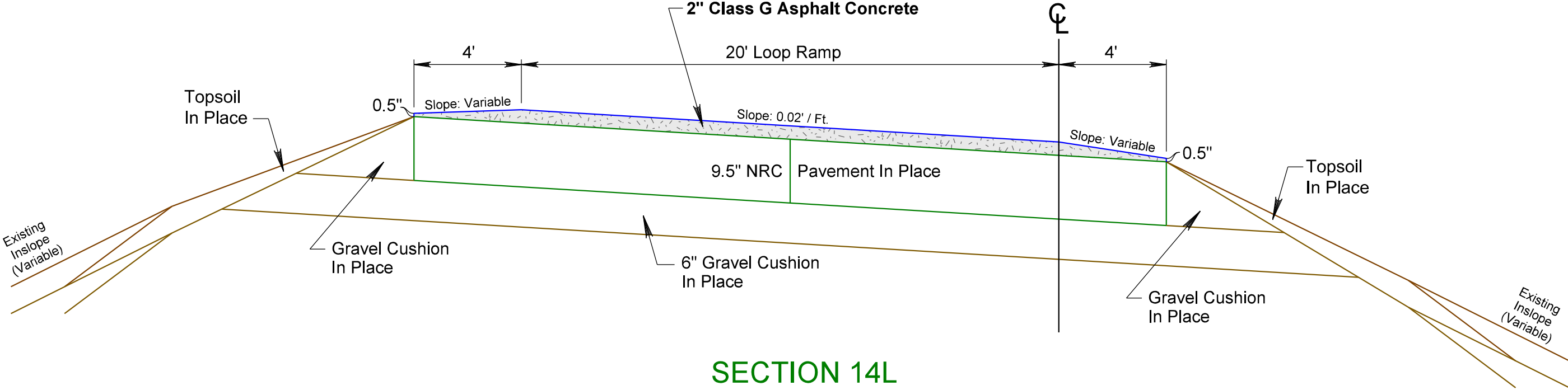
FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN

TYPICAL RESURFACING SECTION

SECTION 14L

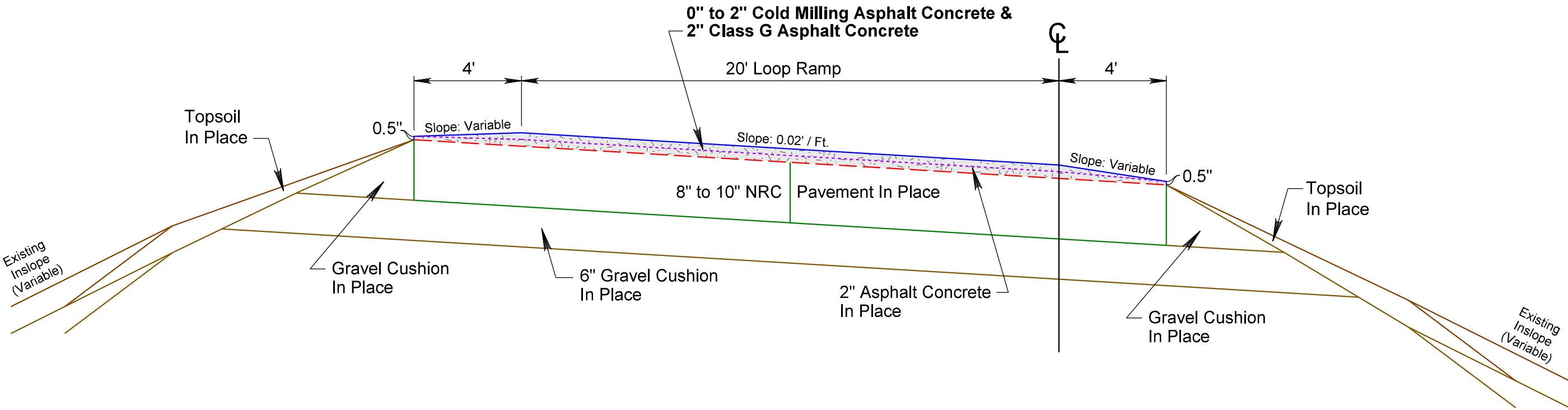
I229 Exit 1C Louise Ave
1,233' Length from 1+79 to 14+12 - NB Loop On Ramp at Louise Ave

 2" Class G Asphalt Concrete
 Cold Milling Asphalt Concrete



SECTION 14L

I229 Exit 1C Louise Ave
80' Length from 14+12 to 14+92 - NB Loop On Ramp at Louise Ave (0" to 2" Milling)



2" Class G Asphalt Concrete

Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

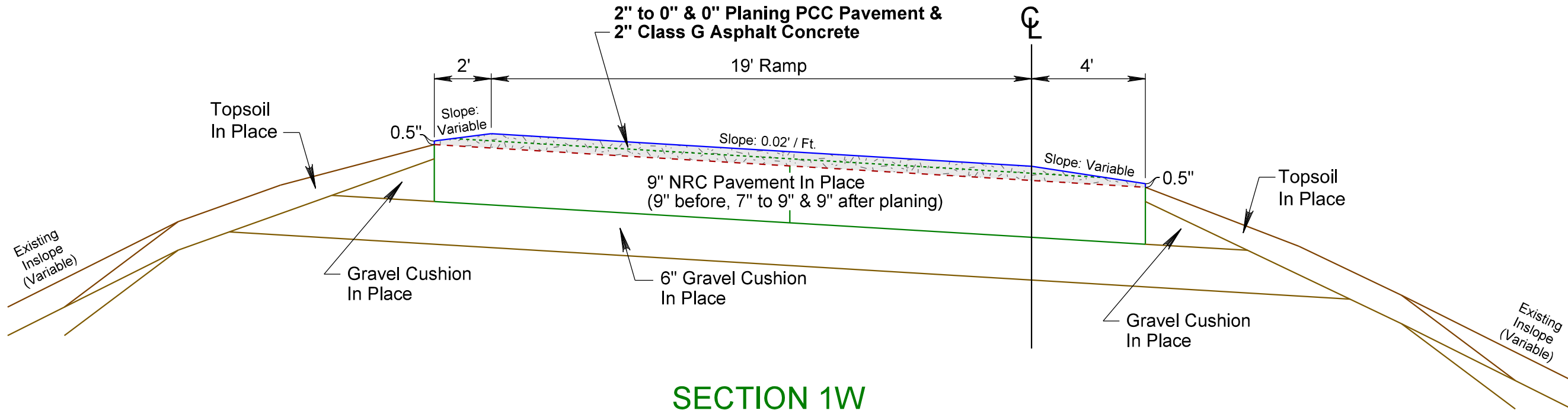
SECTION 1W

I229 Exit 2 Western Ave

80' Length from 13+65 to 14+45 - SB Off Ramp (2" to 0" Planing)

91' Length from 14+45 to 15+36 - SB Off Ramp (No Planing)

(13+60 is Ramp Terminal Joint)



SECTION 1W

I229 Exit 2 Western Ave

275' Length from 5+00 to 7+75 - SB On Ramp (No Milling)

80' Length from 7+75 to 8+55 - SB On Ramp (0" to 2" Milling)

I229 Exit 2 Western Ave

130' Length from 6+44 to 7+74 - NB Off Ramp (No Milling)

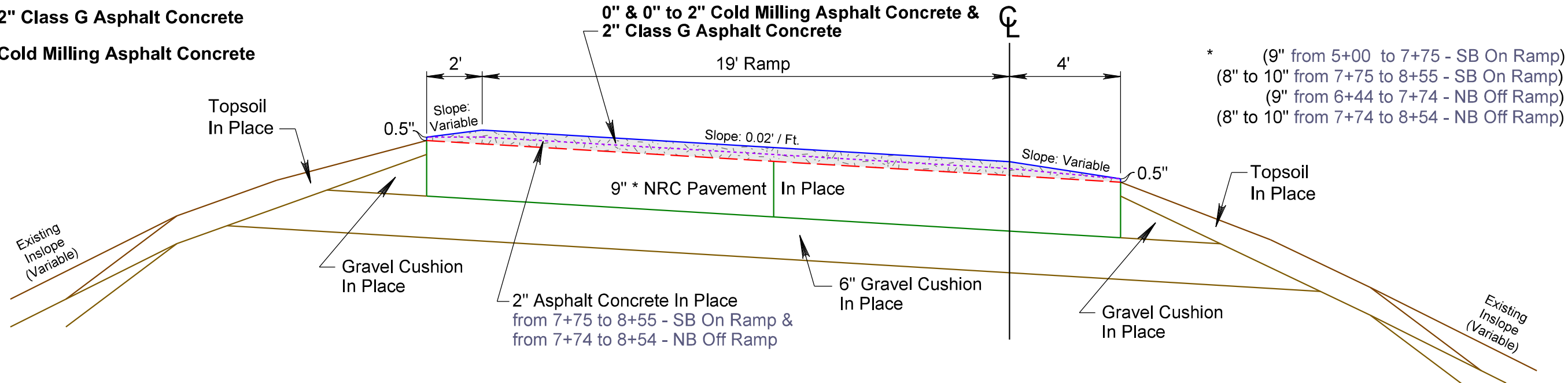
80' Length from 7+74 to 8+54 - NB Off Ramp (0" to 2" Milling)



2" Class G Asphalt Concrete



Cold Milling Asphalt Concrete



PLOT SCALE - 1+4

PLOTTED FROM - TRM1INT15



2" Class G Asphalt Concrete

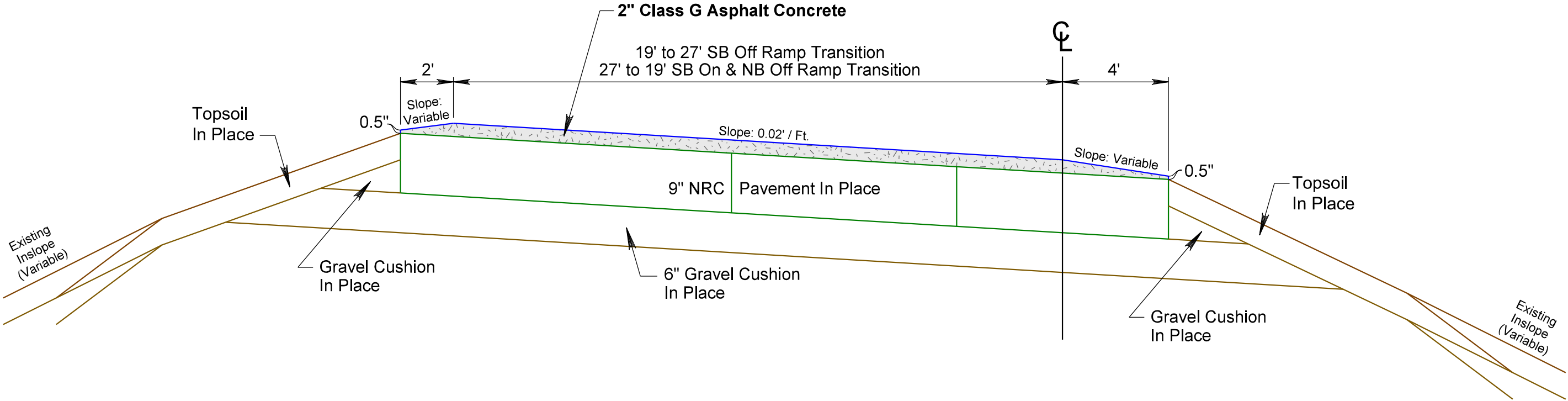
TYPICAL RESURFACING SECTION

SECTION 2W

I229 Exit 2 Western Ave
479' Length from 15+36 to 20+15 - SB Off Ramp Transition
325' Length from 1+75 to 5+00 - SB On Ramp Transition
497' Length from 1+47 to 6+44 - NB Off Ramp Transition

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	15	99

Plotting Date: 09/18/2025



PLOT NAME - 14

FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN

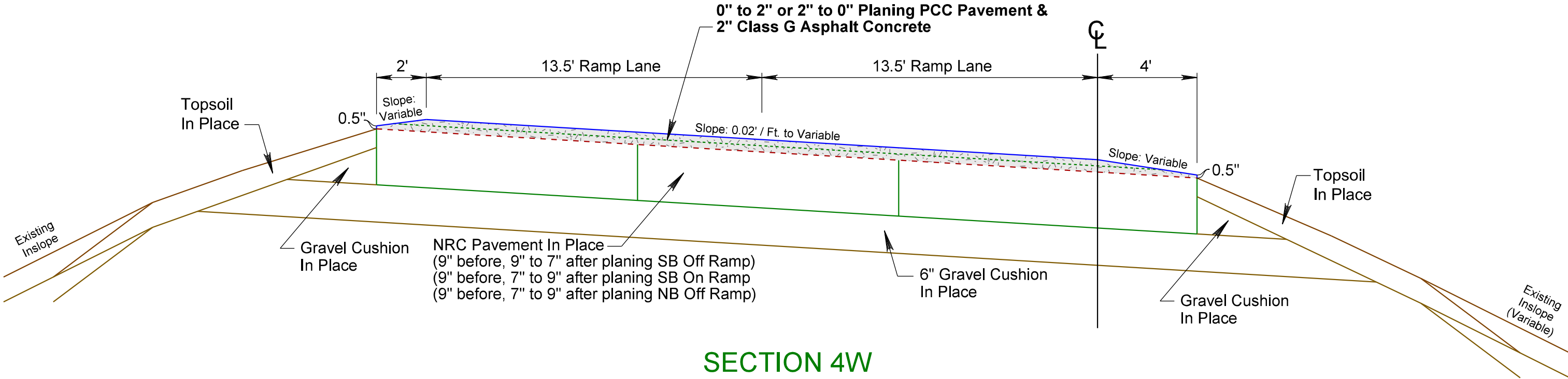
 2" Class G Asphalt Concrete
 Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

SECTION 3W

I229 Exit 2 Western Ave

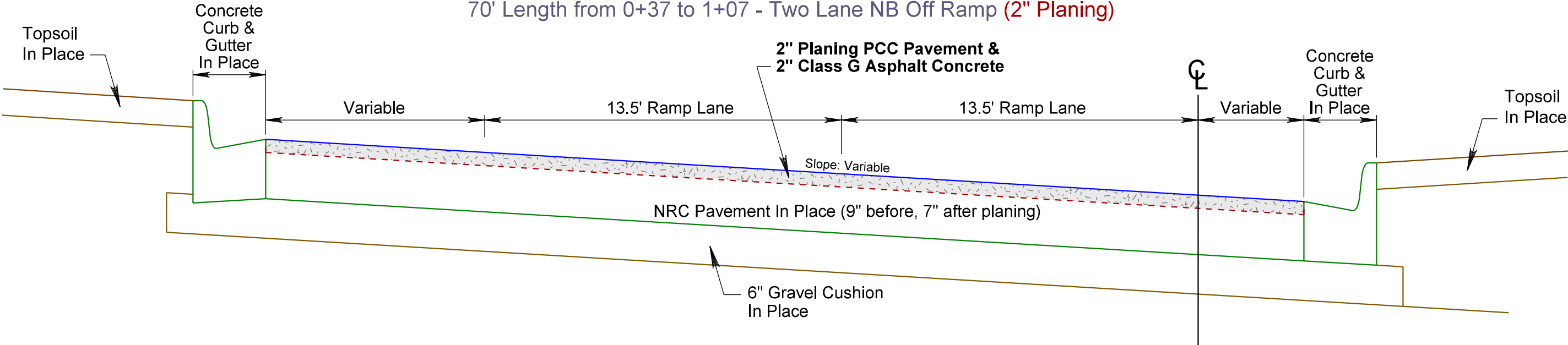
40' Length from 20+15 to 20+55 - Two Lane SB Off Ramp (0" to 2" Planing)
40' Length from 1+35 to 1+75 - Two Lane SB On Ramp (2" to 0" Planing)
40' Length from 1+07 to 1+47 - Two Lane NB Off Ramp (2" to 0" Planing)



SECTION 4W

I229 Exit 2 Western Ave

72' Length from 20+55 to 21+27 - Two Lane SB Off Ramp (2" Planing)
91' Length from 0+44 to 1+35 - Two Lane SB On Ramp (2" Planing)
70' Length from 0+37 to 1+07 - Two Lane NB Off Ramp (2" Planing)



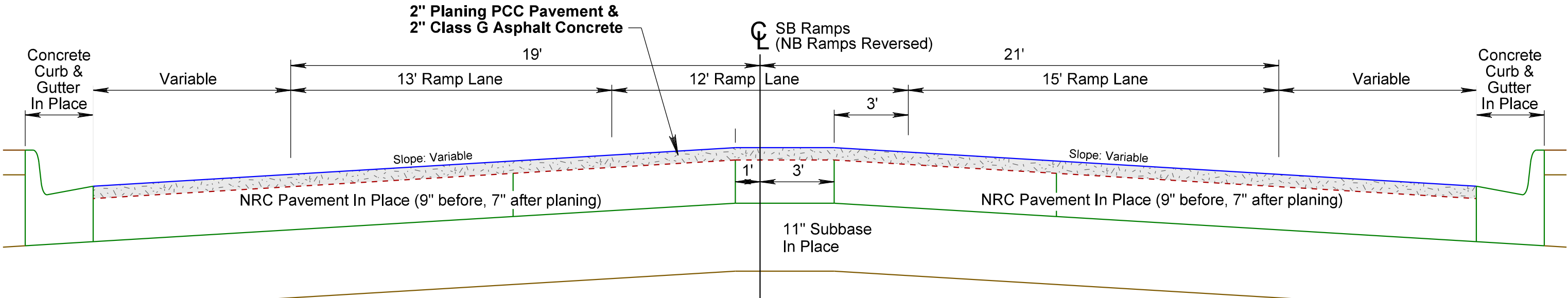
TYPICAL RESURFACING SECTIONS

SECTION 1R

I229 Exit 7 Rice St

20' Length from 0+25 to 0+45 - SB Off Ramp (2" Planing)
57' Length (Avg) from 0+25 to 0+82 - NB On Ramp (2" Planing)

20' Length from 0+25 to 0+45 - SB On Ramp (2" Planing)
57' Length (Avg) from 0+25 to 0+82 - NB Off Ramp (2" Planing)

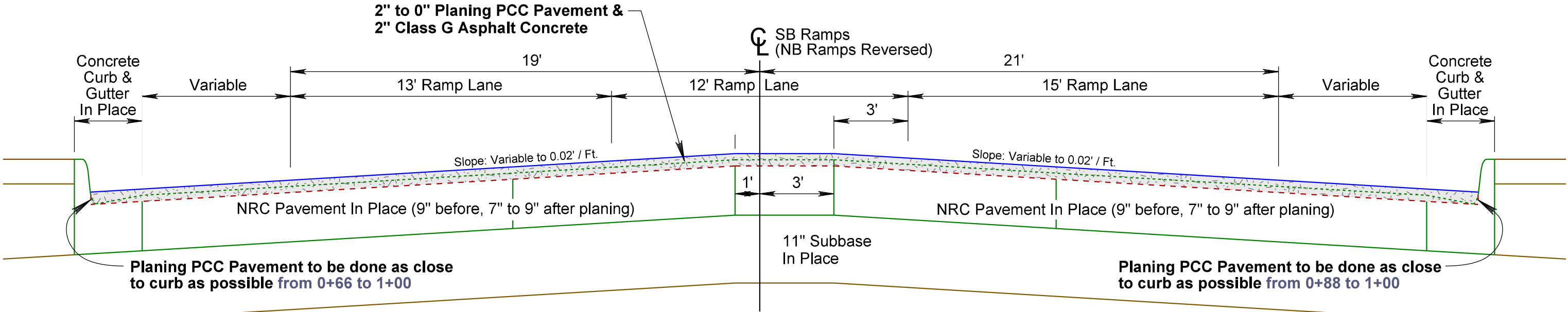


SECTION 2R

I229 Exit 7 Rice St

55' Length from 0+45 to 1+00 - SB Off Ramp (2" to 0" Planing)
40' Length (Avg) from 0+82 to 1+22 - NB On Ramp (2" to 0" Planing)

55' Length from 0+45 to 1+00 - SB On Ramp (2" to 0" Planing)
40' Length (Avg) from 0+82 to 1+22 - NB Off Ramp (2" to 0" Planing)



PLOT SCALE - 1+4

PLOTTED FROM - JRM11N115

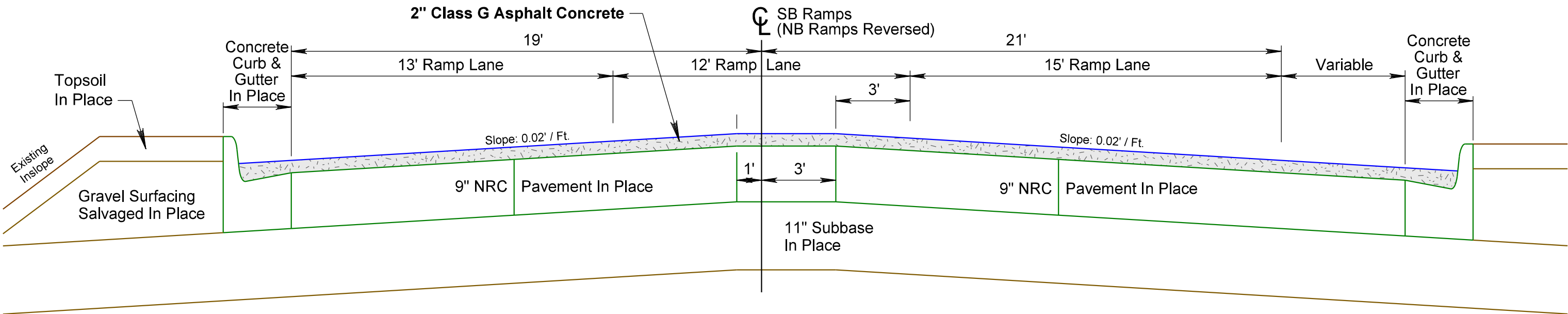
 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTION

SECTION 3R

I229 Exit 7 Rice St

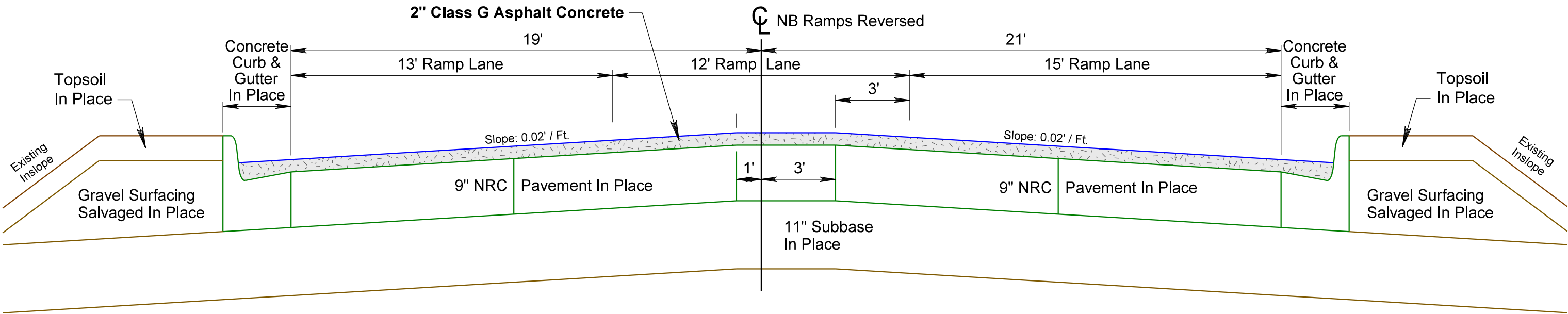
75' Length from 1+00 to 1+75 - SB Off Ramp 75' Length from 1+00 to 1+75 - SB On Ramp
52' Length from 1+22 to 1+74 - NB On Ramp 52' Length from 1+22 to 1+74 - NB Off Ramp



SECTION 4R

I229 Exit 7 Rice St

106' Length from 1+74 to 2+80 - NB On Ramp
106' Length from 1+74 to 2+80 - NB Off Ramp



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	18	99

Plotting Date: 09/18/2025

PLOT NAME - 17

FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN

 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	19	99

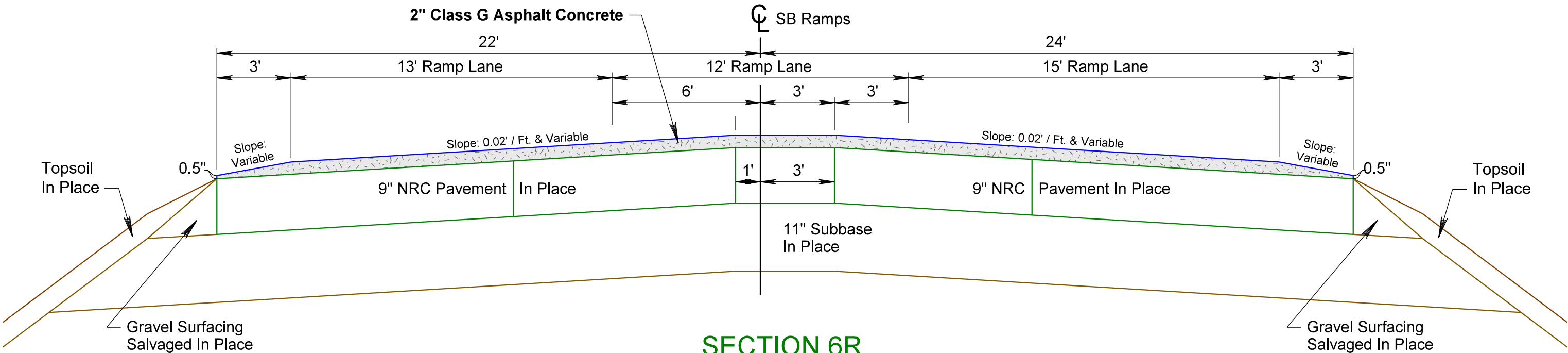
Plotting Date: 09/18/2025

SECTION 5R

I229 Exit 7 Rice St

157' Length from 1+75 to 3+32 - SB Off Ramp

157' Length from 1+75 to 3+32 - SB On Ramp



SECTION 6R

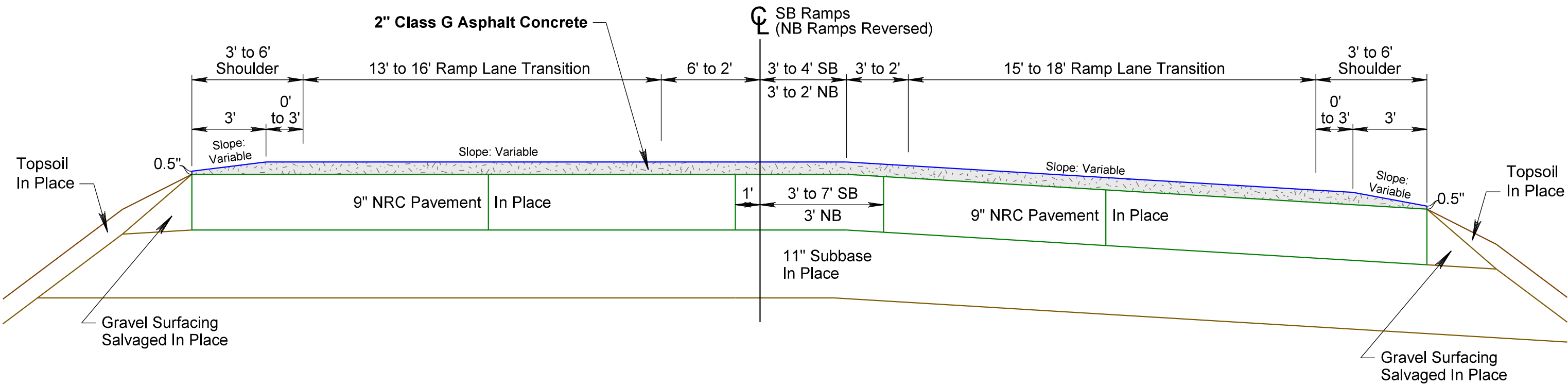
I229 Exit 7 Rice St

66' length from 3+32 to 3+98 - SB Off Ramp

66' length from 3+32 to 3+98 - SB On Ramp

50' length from 2+80 to 3+30 - NB On Ramp

50' length from 2+80 to 3+30 - NB Off Ramp



PLOT SCALE - 1+4

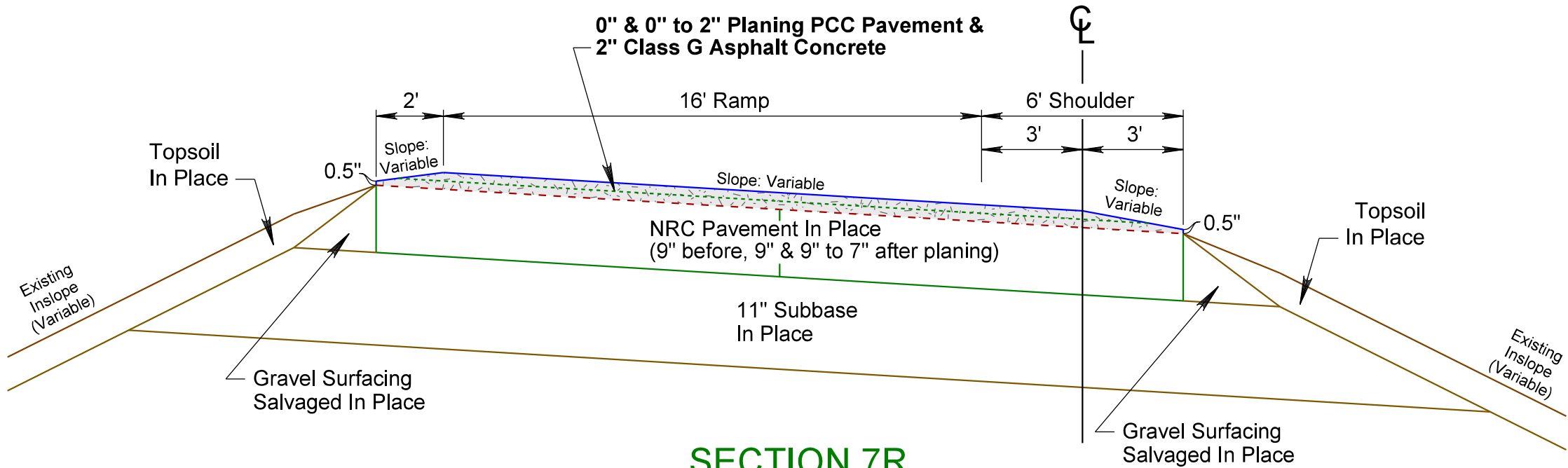
PLOTTED FROM - TRM1INT15

- 2" Class G Asphalt Concrete
- Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

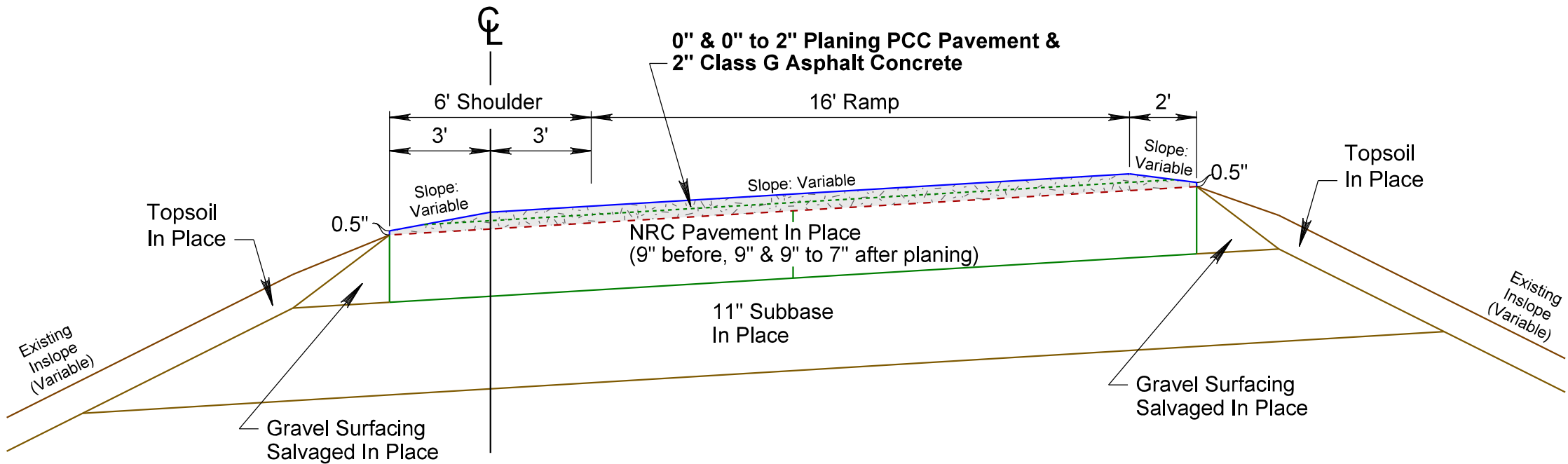
SECTION 7R

I229 Exit 7 Rice St
815' Length from 3+30 to 11+45 - NB On Ramp (No Planing)
80' Length from 11+45 to 12+25 - NB On Ramp (0" to 2" Planing)
(12+30 is Ramp Terminal Joint)



SECTION 7R

I229 Exit 7 Rice St
957' Length from 3+98 to 13+55 - SB Off Ramp (No Planing)
80' Length from 13+55 to 14+35 - SB Off Ramp (0" to 2" Planing)
(14+40 is Ramp Terminal Joint)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	20	99

Plotting Date: 09/18/2025

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN PLOT NAME - 19

PLOT SCALE - 1+4

PLOTTED FROM - TRML1N15

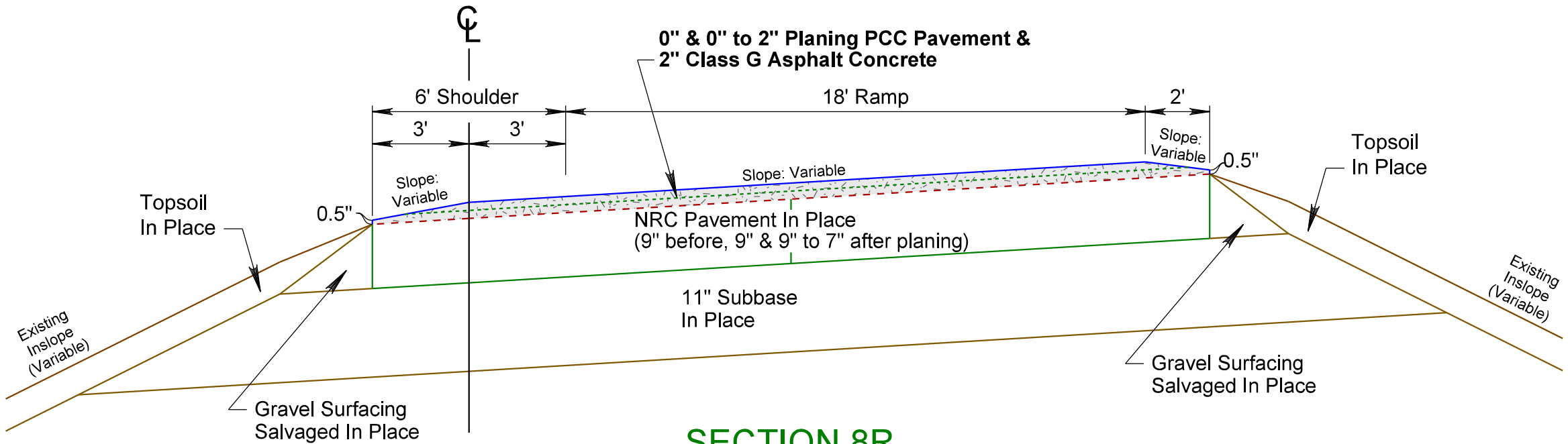
- 2" Class G Asphalt Concrete
- Planing PCC Pavement

TYPICAL RESURFACING SECTIONS

SECTION 8R

I229 Exit 7 Rice St

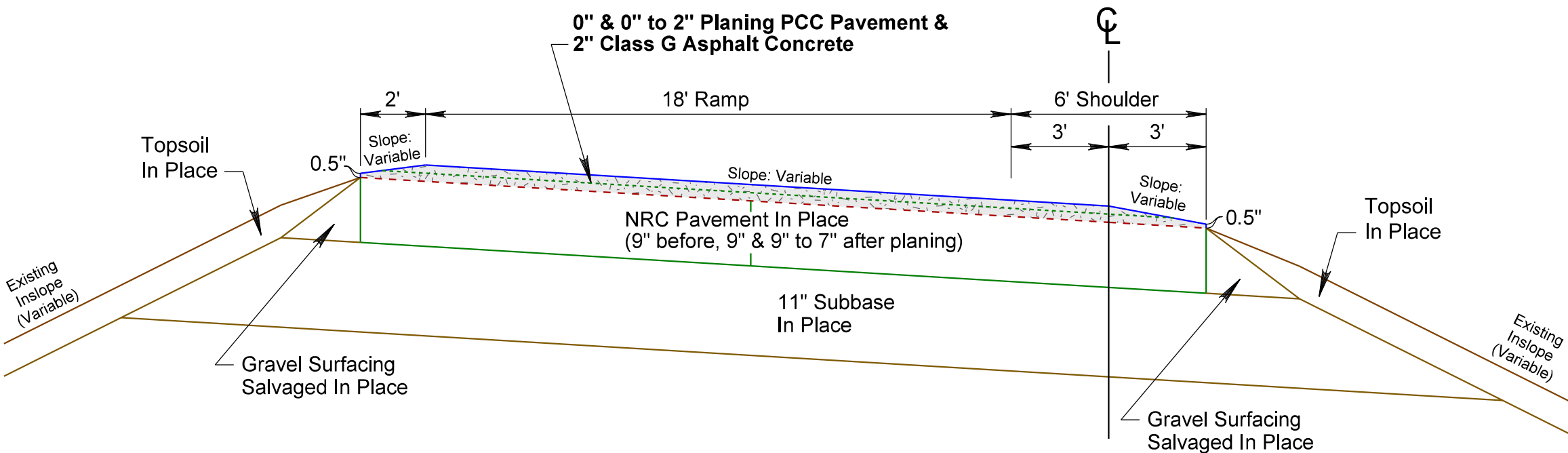
415' Length from 3+30 to 7+45 - NB Off Ramp (No Planing)
60' Length from 7+45 to 8+05 - NB Off Ramp (0" to 2" Planing)
(8+13 is Ramp Terminal Joint)



SECTION 8R

I229 Exit 7 Rice St

422' Length from 3+98 to 8+20 - SB On Ramp (No Planing)
60' Length from 8+20 to 8+80 - SB On Ramp (0" to 2" Planing)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	21	99

Plotting Date: 09/18/2025

FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN PLOT NAME - 20

PLOT SCALE - 1+4

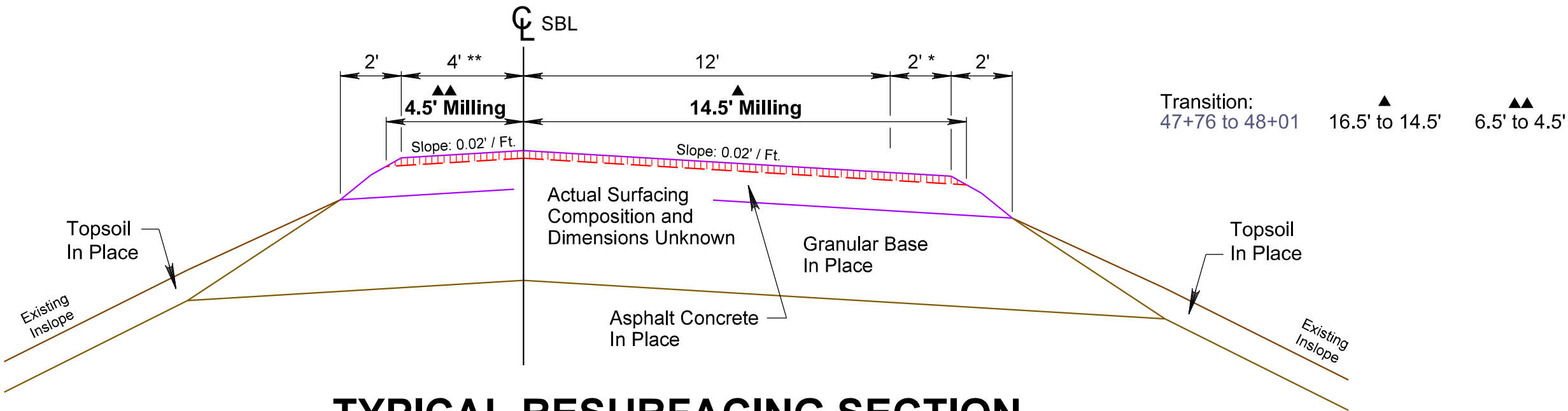
PLOTTED FROM - TRM1INT15

 Cold Milling Asphalt Concrete

TYPICAL COLD MILLING SECTION

SECTION 2E

I229 SBL
25' Length from 47+76 to 48+01 (1" Milling)
239' Length from 48+01 to 50+40 (1" Milling)

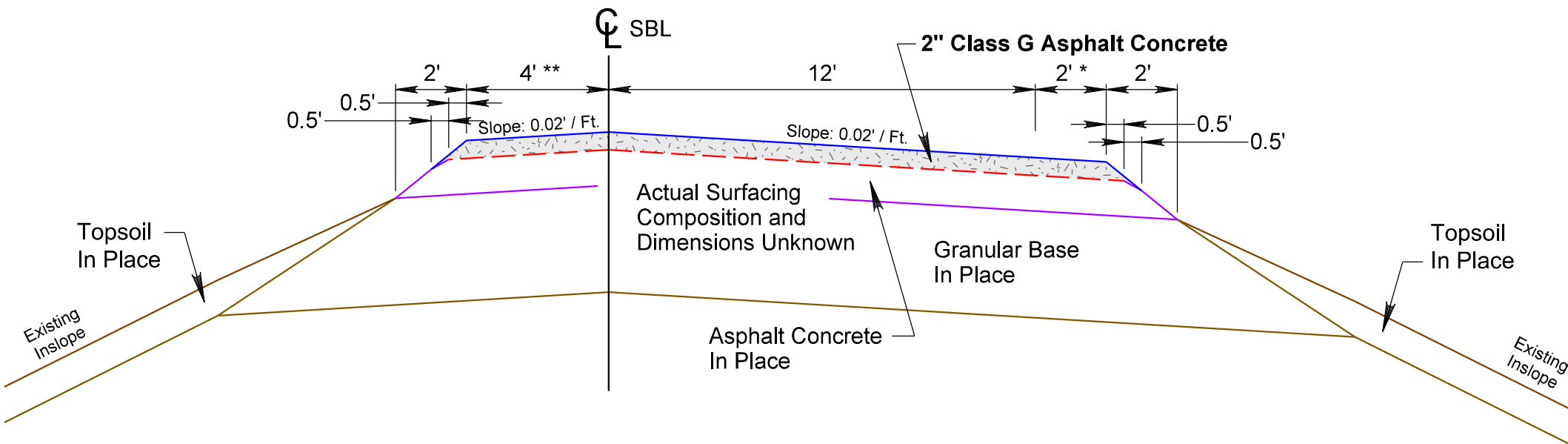


 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTION

SECTION 2E

I229 SBL
25' Length from 47+76 to 48+01
239' Length from 48+01 to 50+40



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	23	99

Plotting Date: 09/18/2025

PLOT NAME - 22

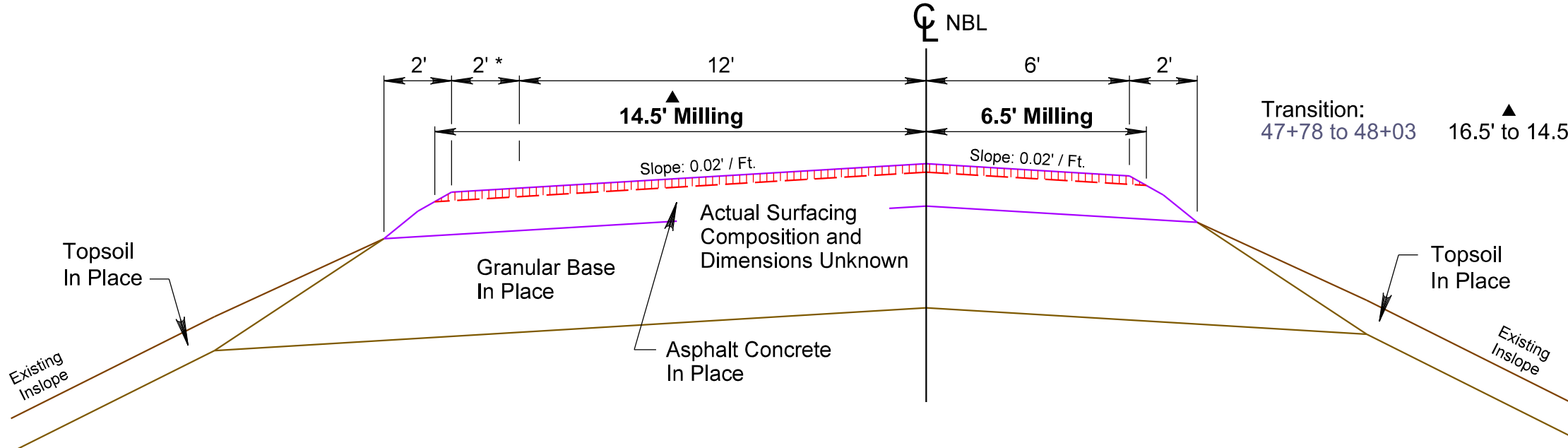
FILE - ... \PRJ2026\MINN08F\TSEC08F.DGN

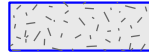
 Cold Milling Asphalt Concrete

TYPICAL COLD MILLING SECTION

SECTION 3E

I229 NBL
25' Length from 47+78 to 48+03 (1" Milling)
47' Length from 48+03 to 48+50 (1" Milling)



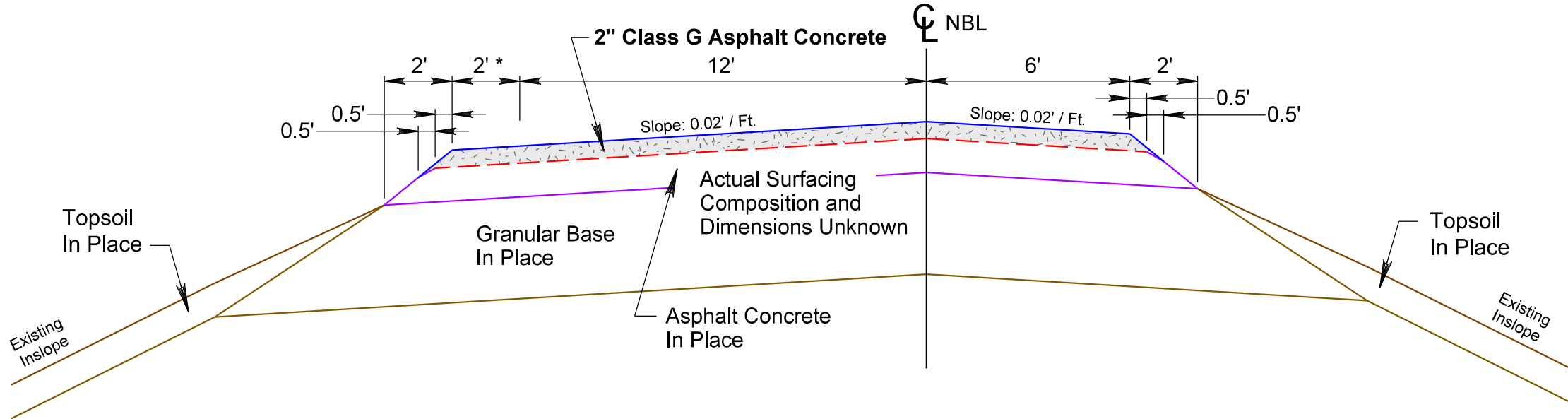
 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTION

SECTION 3E

I229 NBL
25' Length from 47+78 to 48+03
47' Length from 48+03 to 48+50

Shoulder Transition: 47+78 to 48+03 4' to 2'



PLOT SCALE - 1:4

PLOTTED FROM - I229NBL15

PLOT NAME - 23

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	24	99

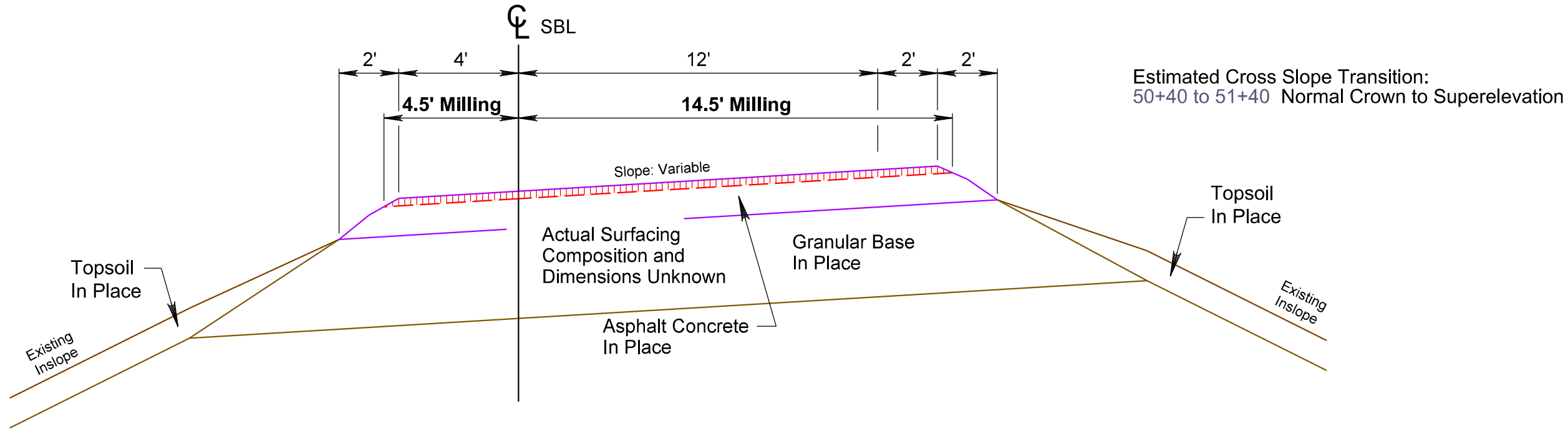
Plotting Date: 09/18/2025

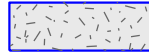
 Cold Milling Asphalt Concrete

TYPICAL COLD MILLING SECTION

SECTION 4E

I229 SBL
187' Length from 50+40 to 52+27 (1" Milling)

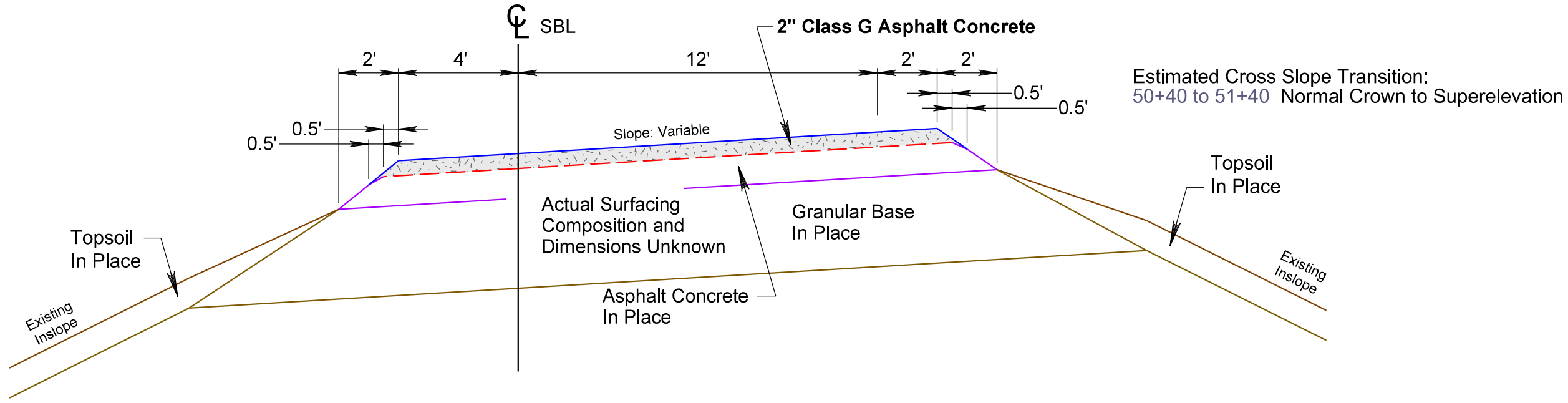


 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTION

SECTION 4E

I229 SBL
187' Length from 50+40 to 52+27

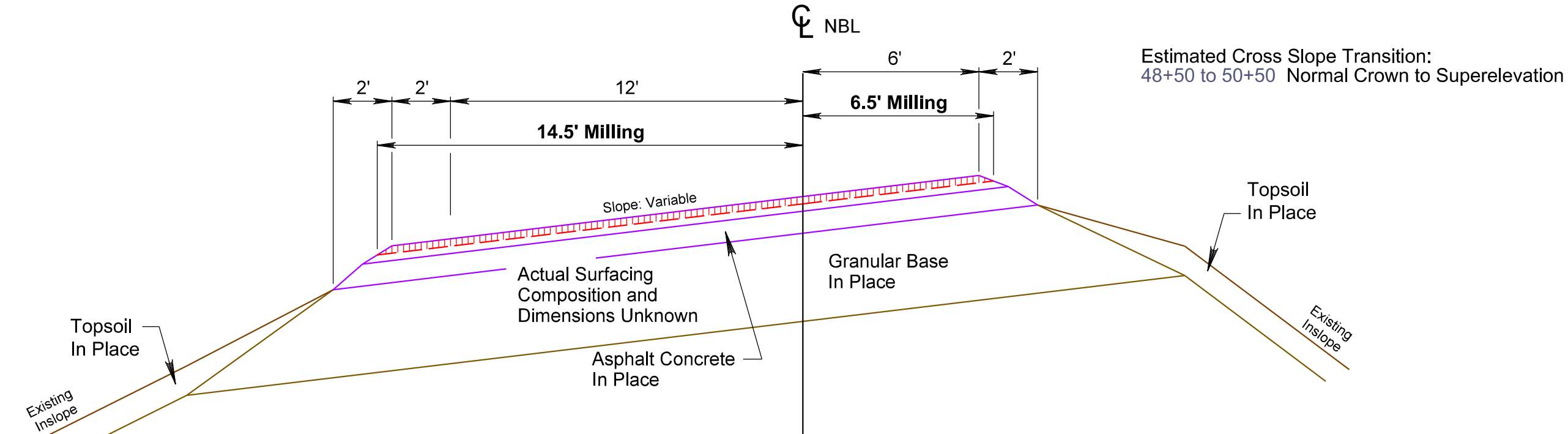


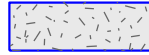
 Cold Milling Asphalt Concrete

TYPICAL COLD MILLING SECTION

SECTION 5E

I229 NBL
396' Length from 48+50 to 52+46 (1" Milling)

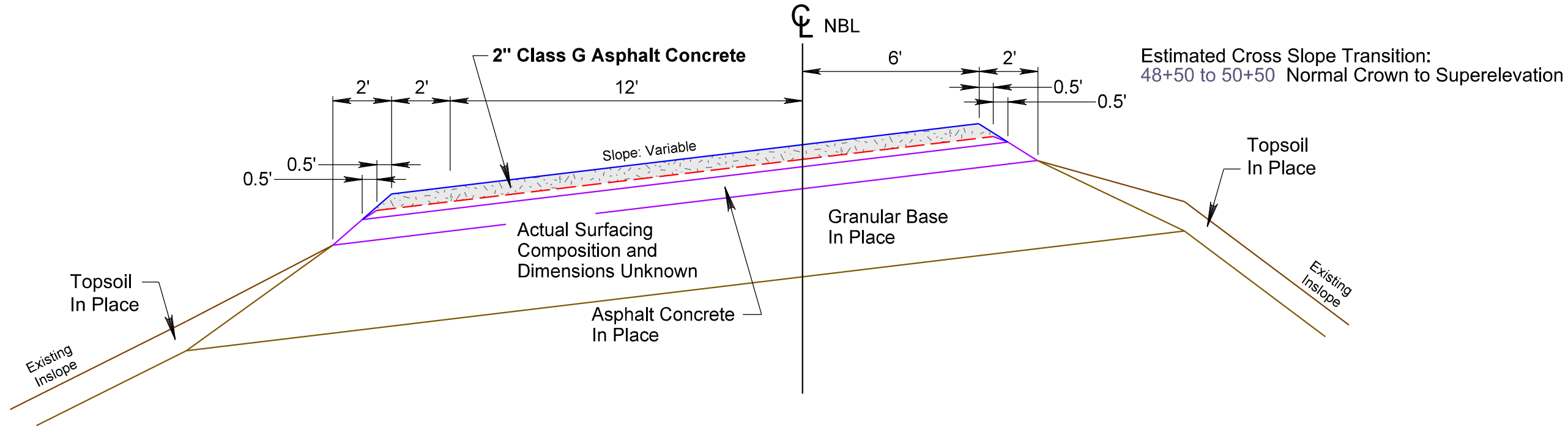


 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTION

SECTION 5E

I229 NBL
396' Length from 48+50 to 52+46



PLOT SCALE - 1:4

PLOTTED FROM - I229NBL15

PLOT NAME - 25

FILE - ... \PRJ2026\MINN048F\TSEC048F.DGN

PLOT SCALE - 1+4

PLOTTED FROM - JRM11N115

 Cold Milling Asphalt Concrete

TYPICAL COLD MILLING SECTION

SECTION 6E

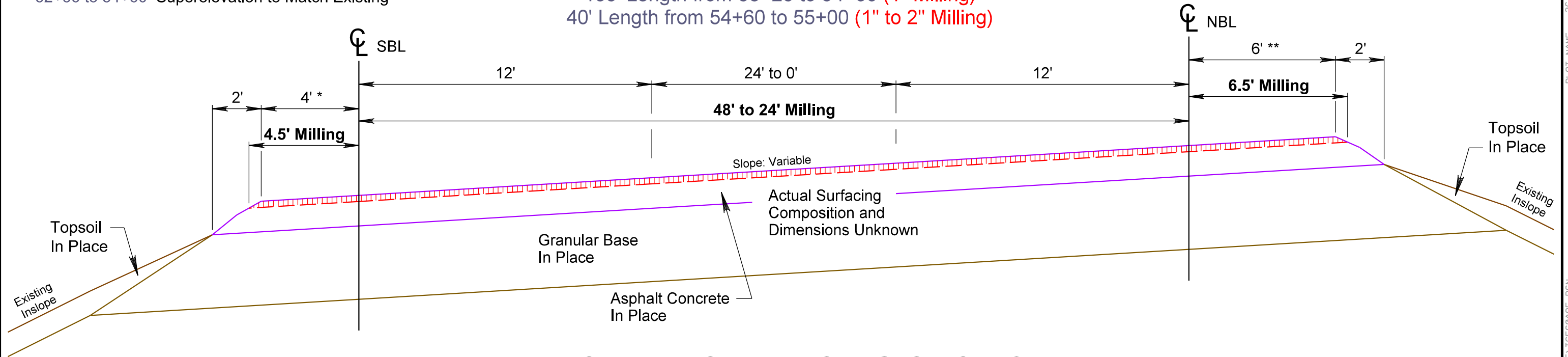
1229 SBL & NBL Width Transition to Two Lane Local Road

89' Length from 52+36 to 53+25 (1" Milling)

135' Length from 53+25 to 54+60 (1" Milling)

40' Length from 54+60 to 55+00 (1" to 2" Milling)

Estimated Cross Slope Transition:
52+36 to 54+60 Superelevation to Match Existing



 2" Class G Asphalt Concrete

TYPICAL RESURFACING SECTION

SECTION 6E

1229 SBL & NBL Width Transition to Two Lane Local Road

89' Length from 52+36 to 53+25

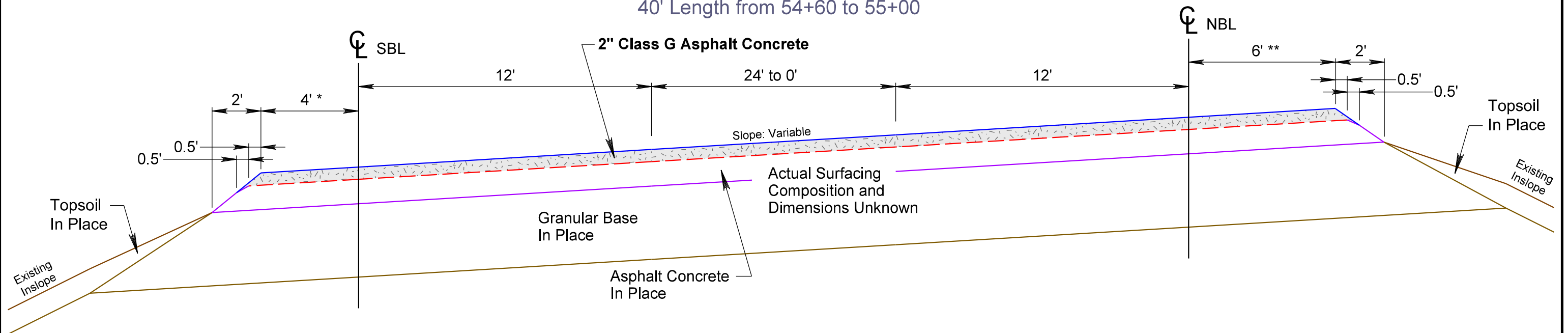
135' Length from 53+25 to 54+60

40' Length from 54+60 to 55+00

Estimated Cross Slope Transition:
52+36 to 54+60 Superelevation to Match Existing

Shoulder
Transitions:

	*	**
52+36 to 54+60	4' to 2'	-
53+25 to 54+60	-	6' to 4'
54+60 to 55+00	-	4' to 2'



Plotting Date: 09/18/2025

FILE - ... \PRJ2026\11N115\048F\TSEC048F.DGN

TABLE OF PROJECT STATIONING

SECTION	STATION TO	STATION	DESCRIPTION	SEGMENT LENGTH	TOTAL LENGTH
LOUISE AVENUE RAMPS					
1L	5+68	to 6+48	Two Lane SB Off Ramp	80'	1500'
1L	6+48	to 13+45	Two Lane SB Off Ramp	697'	
1L	13+45	to 16+55	Two to Four Lane SB Off Ramp Transition	310'	
2L	16+55	to 19+74	Four Lane SB Off Ramp	319'	
2L	19+74	to 20+14	Four Lane SB Off Ramp	40'	
3L	20+14	to 20+26	Four Lane SB Off Ramp	12'	
4L	20+26	to 20+68	Four Lane SB Off Ramp	42'	
5L	0+35	to 0+61	SB On Ramp	26'	2005'
5L	0+61	to 1+00	SB On Ramp	39'	
6L	1+00	to 4+75	SB On Ramp with Connector Ramp	375'	
9L	4+75	to 19+60	SB On Ramp	1485'	
9L	19+60	to 20+40	SB On Ramp	80'	108'
7L			SB On Ramp Connector Ramp	47'	
8L			SB On Ramp Connector Ramp	61'	1744'
9L	14+38	to 15+18	NB On Ramp	80'	
9L	15+18	to 29+20	NB On Ramp	1402'	
10L	29+20	to 30+80	NB On Ramp	160'	
11L	30+80	to 31+40	NB On Ramp	60'	
12L	31+40	to 31+82	NB On Ramp	42'	
13L	0+72	to 1+39	NB Loop On Ramp	67'	1420'
14L	1+39	to 1+79	NB Loop On Ramp	40'	
14L	1+79	to 14+12	NB Loop On Ramp	1233'	
14L	14+12	to 14+92	NB Loop On Ramp	80'	
LOUISE AVENUE RAMPS TOTAL:					6777'

WESTERN AVENUE RAMPS					
1W	13+65	to 14+45	SB Off Ramp	80'	762'
1W	14+45	to 15+36	SB Off Ramp	91'	
2W	15+36	to 20+15	SB Off Ramp Transition	479'	
3W	20+15	to 20+55	Two Lane SB Off Ramp	40'	
4W	20+55	to 21+27	Two Lane SB Off Ramp	72'	811'
4W	0+44	to 1+35	SB On Ramp	91'	
3W	1+35	to 1+75	SB On Ramp	40'	
2W	1+75	to 5+00	SB On Ramp Transition	325'	
1W	5+00	to 7+75	Two Lane SB On Ramp	275'	
1W	7+75	to 8+55	Two Lane SB On Ramp	80'	
4W	0+37	to 1+07	NB Off Ramp	70'	817'
3W	1+07	to 1+47	NB Off Ramp	40'	
2W	1+47	to 6+44	NB Off Ramp Transition	497'	
1W	6+44	to 7+74	Two Lane NB Off Ramp	130'	
1W	7+74	to 8+54	Two Lane NB Off Ramp	80'	
WESTERN AVENUE RAMPS TOTAL:					2390'

SECTION	STATION TO	STATION	DESCRIPTION	SEGMENT LENGTH	TOTAL LENGTH
RICE STREET RAMPS					
1R	0+25	to 0+45	SB Off Ramp (together with SB On Ramp)	20'	1410'
2R	0+45	to 1+00	SB Off Ramp (together with SB On Ramp)	55'	
3R	1+00	to 1+75	SB Off Ramp (together with SB On Ramp)	75'	
5R	1+75	to 3+32	SB Off Ramp (together with SB On Ramp)	157'	
6R	3+32	to 3+98	SB Off Ramp (together with SB On Ramp)	66'	
7R	3+98	to 13+55	SB Off Ramp	957'	
7R	13+55	to 14+35	SB Off Ramp	80'	
1R	0+25	to 0+45	SB On Ramp (together with SB Off Ramp)	20'	855'
2R	0+45	to 1+00	SB On Ramp (together with SB Off Ramp)	55'	
3R	1+00	to 1+75	SB On Ramp (together with SB Off Ramp)	75'	
5R	1+75	to 3+32	SB On Ramp (together with SB Off Ramp)	157'	
6R	3+32	to 3+98	SB On Ramp (together with SB Off Ramp)	66'	
8R	3+98	to 8+20	SB On Ramp	422'	
8R	8+20	to 8+80	SB On Ramp	60'	780'
1R	0+25	to 0+82	NB Off Ramp (together with NB On Ramp)	57'	
2R	0+82	to 1+22	NB Off Ramp (together with NB On Ramp)	40'	
3R	1+22	to 1+74	NB Off Ramp (together with NB On Ramp)	52'	
4R	1+74	to 2+80	NB Off Ramp (together with NB On Ramp)	106'	
6R	2+80	to 3+30	NB Off Ramp (together with NB On Ramp)	50'	
8R	3+30	to 7+45	NB Off Ramp	415'	
8R	7+45	to 8+05	NB Off Ramp	60'	
1R	0+25	to 0+82	NB On Ramp (together with NB Off Ramp)	57'	1200'
2R	0+82	to 1+22	NB On Ramp (together with NB Off Ramp)	40'	
3R	1+22	to 1+74	NB On Ramp (together with NB Off Ramp)	52'	
4R	1+74	to 2+80	NB On Ramp (together with NB Off Ramp)	106'	
6R	2+80	to 3+30	NB On Ramp (together with NB Off Ramp)	50'	
7R	3+30	to 11+45	NB On Ramp	815'	
7R	11+45	to 12+25	NB On Ramp	80'	
RICE STREET RAMPS TOTAL:					4245'

END I229					
1E	45+23	to 45+63	I229 SBL	40'	704'
1E	45+63	to 47+76	I229 SBL	213'	
2E	47+76	to 48+01	I229 SBL	25'	
2E	48+01	to 50+40	I229 SBL	239'	
4E	50+40	to 52+27	I229 SBL	187'	548'
1E	46+98	to 47+38	I229 NBL	40'	
1E	47+38	to 47+78	I229 NBL	40'	
3E	47+78	to 48+03	I229 NBL	25'	
3E	48+03	to 48+50	I229 NBL	47'	
5E	48+50	to 52+46	I229 NBL	396'	
6E	52+36	to 53+25	I229 SBL & NBL Width Transition to Two Lane Local Roac	178'	528'
6E	53+25	to 54+60	I229 SBL & NBL Width Transition to Two Lane Local Roac	270'	
6E	54+60	to 55+00	I229 SBL & NBL Width Transition to Two Lane Local Roac	80'	
END I229 TOTAL:					1780'

UTILITIES

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

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

EXISTING NRC PAVEMENT

The existing pavement is approximately 11” x 24’, 25’ or 26’ NRC Pavement in areas to be repaired.

The aggregate in the existing NRC Pavement is quartzite.

EXISTING CRC PAVEMENT

The existing pavement is approximately 11” x 24’, 25’ or 26’ CRC Pavement in areas to be repaired. The longitudinal reinforcing steel consists of No. 6 deformed bars spaced 6” center to center, and the transverse reinforcing steel consists of No. 4 deformed bars spaced 48” center to center.

The aggregate in the existing CRC Pavement is quartzite.

RESTORATION OF GRAVEL CUSHION

An inspection of the gravel cushion will be made after removing concrete from each pavement replacement area. Areas of excess moisture will be dried to the satisfaction of the Engineer. Loose material will be removed. Each replacement area will be leveled and compacted to the satisfaction of the Engineer.

If additional gravel cushion material is required, the Contractor will furnish, place and compact gravel cushion to the satisfaction of the Engineer at no additional cost to the State.

Cost for this work will be incidental to the contract unit prices per square yard for Nonreinforced PCC Pavement Repair and Continuously Reinforced PCC Pavement Repair.

GRAVEL CUSHION

If quarried ledge rock is used in the Gravel Cushion, a maximum blend of 40% quarried ledge rock will be allowed.

NONREINFORCED PCC PAVEMENT REPAIR - GENERAL

New pavement thickness will equal existing pavement thickness ($T_N = T$).

Locations and size (length or width) of concrete repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. Payment will be based on actual area replaced.

Existing concrete pavement will be sawed full depth at the beginning and end of the NRCP repair areas. When either the beginning or end of a NRCP repair area falls close to an existing joint or crack, the NRCP repair area will be extended to eliminate the existing joint or crack. Where possible, new working joints will be adjacent to existing working joints.

Saw cuts that extend beyond the repair area will be minimized and filled with a non-shrinkage mortar mix at the Contractor’s expense.

Existing concrete pavement in the replacement areas will be removed by the lift out method or by means that minimize damage to the base and sides of remaining in place concrete. Removed material will be removed from within the right-of-way by the end of the workday. Damage to adjacent concrete caused by the Contractor’s operations will be removed and replaced at the Contractor’s expense.

If the pavement replacement area is entirely on either side of the existing contraction joint, the location of one of the working joints will be at the original location. Any existing dowel bar assemblies/steel bars will be sawed off and removed.

The initial contraction joint sawing will be performed as soon as practical after placement to avoid random cracking.

Joints (longitudinal and transverse) through and around the repair areas will be sawed and sealed in accordance with the details shown in these plans. Refer to Saw and Seal Joints notes.

NONREINFORCED PCC PAVEMENT REPAIR

Concrete will meet the requirements stated in Section 380 of the specifications, except as modified by the following notes:

The fine aggregate will be screened over a one-inch square-opening screen just prior to introduction into the concrete paving mix if required by the Engineer.

The slump requirement will be limited to 3" maximum after water reducer is added and the concrete will contain 4.5% to 7.0% entrained air. The concrete will contain a minimum of 50% coarse aggregate by weight. Coarse aggregate will be crushed ledge rock, Size No. 1 unless an alternative gradation is approved by the Concrete Engineer as part of the mix design submittal. The mix design will contain at least 650 lbs of Type I or II cement or 600 lbs of Type III cement per cubic yard. The minimum 28 day compressive strength will be 4,000 psi. The Contractor is responsible for the mix design used. The Contractor will submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

The use of a water reducer at manufacturer's recommended dosage will be required.

Concrete will be cured with white pigmented curing compound (AASHTO M148, Type 2) applied as soon as practical at a rate of 125 square feet per gallon. Concrete will be cured for a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60°F or higher throughout the cure period. If the concrete temperature falls below 60°F, the cure time will be extended, or other measures taken, at no additional cost to the State. A strength of 2,500 psi must be attained prior to opening to traffic.

Upon placement of the concrete, repair areas will be straight edged to ensure a smooth riding surface and will be textured longitudinally with the pavement by finishing with a stiff broom. Repair areas will then be checked with a 10’ foot straight edge. The permissible longitudinal and transverse surface deviation will be 1/8” in 10’.

Concrete will be covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. Insulation blanket will have an R-value of at least 0.5, as rated by the manufacturer. Insulation blanket will be left in place, except for joint sawing operations, until the 2,500 psi is attained. Insulation blanket will be overlapped on to the existing concrete by 4’. This requirement for covering repair areas with insulation blankets may be waived during periods of hot weather upon approval of the Engineer.

Cost for performing the aforementioned work including sawing and removing concrete, furnishing and placing concrete, sawing and sealing joints, labor, tools and equipment will be included in the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

CONTINUOUSLY REINFORCED PCC PAVEMENT REPAIR

New pavement thickness will equal existing pavement thickness ($T_N = T$).

Locations and size (length or width) of pavement repair areas are subject to change in the field, at the discretion of the Engineer, at no additional cost to the state. Payment will be based on actual area replaced.

The Engineer will mark the location of the area to be repaired on construction. Where repair crosses both lanes, the passing lane should be repaired first.

Existing Steel Retained

The Contractor will saw the in place concrete around the periphery of each repair area to a depth of 2" (above the in place reinforcing steel). The cuts will be a minimum of 6" from the nearest tight crack outside of the patch.

Light chipping hammers (not exceeding 15 pounds) will be used to remove the concrete from the repair area, leaving the reinforcing steel in place.

Saw cuts that extend beyond the repair area will be minimized and filled with a non-shrinkage mortar mix at the Contractor's expense.

Care will be taken not to cut, bend or otherwise damage the in place reinforcing steel. Damage to in place reinforcing steel or to in place concrete beyond the repair area will be replaced at the Contractor's expense, to the satisfaction of the Engineer.

The Contractor will remove and dispose of the in place concrete and in place asphalt concrete.

Existing exposed reinforcing steel and concrete faces will be cleaned by sandblasting and compressed air to remove dirt and debris prior to placement of concrete. In place steel damaged or weathered beyond use will be removed and replaced with new (in-kind) steel tied and be tied to sound remaining steel.

Concrete will not be placed in the repair areas before 12:00pm and should be placed in the late afternoon. Temperature of the concrete at the time of placement will be between 50°F and 90°F. The temperature of the concrete will be maintained above 40°F during the curing period.

Concrete will meet the requirements stated in Section 380 of the specifications, except as modified by the following notes:

The fine aggregate will be screened over a one-inch square-opening screen just prior to introduction into the concrete paving mix if required by the Engineer.

The slump requirement will be limited to 3" maximum after water reducer is added and the concrete will contain 4.5% to 7.0% entrained air. The concrete will contain a minimum of 50% coarse aggregate by weight. Coarse aggregate will be crushed ledge rock, Size No. 1 unless an alternative gradation is approved by the Concrete Engineer as part of the mix design submittal. The mix design will contain at least 650 lbs of Type I or II cement or 600 lbs of Type III cement per cubic yard. The minimum 28 day compressive strength will be 4,000 psi. The Contractor is responsible for the mix design used. The Contractor will submit a mix design and supporting documentation for approval at least 2 weeks prior to use.

The use of a water reducer at manufacturer's recommended dosage will be required.

CONTINUOUSLY REINFORCED PCC PAVEMENT REPAIR (CONTINUED)

Concrete will be cured with white pigmented curing compound (AASHTO M148, Type 2) applied as soon as practical at a rate of 125 square feet per gallon. Concrete will be cured a minimum of 48 hours before opening to traffic. The 48 hours is based upon a concrete surface temperature of 60°F or higher throughout the cure period. If the concrete temperature falls below 60°F, the cure time will be extended, or other measures taken, at no additional cost to the State. A strength of 2,500 psi must be attained prior to opening to traffic.

Concrete will be covered with suitable insulation blanket consisting of a layer of closed cell polystyrene foam protected by at least one layer of plastic. Insulation blanket will have an R-value of at least 0.5, as rated by the manufacturer. Insulation blanket will be left in place, except for joint sawing operations until 2,500 psi is attained. Insulation blanket will be overlapped on to the existing concrete by 4'. This requirement for covering repair areas with insulation blankets may be waived during periods of hot weather upon approval of the Engineer.

Upon placement of the concrete, repair areas will be straight edged to ensure a smooth riding surface and will be textured longitudinally with the pavement by finishing with a stiff broom. Repair areas will then be checked with a 10' foot straight edge. The permissible longitudinal and transverse surface deviation will be 1/8" in 10'.

Cost for performing the aforementioned work including sawing, chipping and removing concrete, sandblasting, cleaning, furnishing and placing concrete and reinforcing steel (if necessary), finishing and curing, labor and equipment will be included in the contract unit price per square yard for Continuously Reinforced PCC Pavement Repair.

STEEL BAR INSERTION

Steel bars will conform to Section 1010.

Locations and quantities of concrete repair are subject to change in the field at the discretion of the Engineer. The Contractor will be responsible for ordering the actual quantity of steel bars necessary to complete the work.

The Contractor will insert No. 11 x 18" epoxy coated deformed tie bars for transverse joints and No. 5 x 30" epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole as per Section 380.3 C.1.

Steel bars will be inserted in the transverse joint on 18" centers. The first steel bar in the transverse joint will be placed 9" from the edge of the slab closest to centerline. Steel bars will be inserted in the longitudinal joint on 30" centers and will be a minimum of 15" from either transverse joint. A typical one-lane patch 12' wide and 5' long will require 18 steel bars (8 in each transverse joint and 2 in the longitudinal joint). It will be necessary to laterally adjust the location of some of the inserted steel bars when the dimensions above interfere with existing steel bar locations.

A rigid frame or mechanical device will be required to guide the drill to ensure proper horizontal and vertical alignment of the steel bars in the drilled holes.

SAW AND SEAL JOINTS

For NRCP, longitudinal and transverse joints at concrete repair areas will be sawed and sealed.

For CRCP, longitudinal joints (in line with existing longitudinal joints) at concrete repair areas will be sawed and sealed.

Joint sealing will conform to Section 380.3 P.

Longitudinal and transverse joints may be sealed with either Hot Poured Elastic Joint Sealer or Low Modulus Silicone Sealant.

Acceptance of the Low Modulus Silicone Sealant and Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

Cost for sawing and sealing of the longitudinal construction joint will be incidental to the contract unit price per square yard for the respective items Nonreinforced PCC Pavement Repair and Continuously Reinforced PCC Pavement Repair.

PLANING PCC PAVEMENT

In order to construct the new asphalt concrete flush with the PCC Pavement, Planing PCC Pavement will be done as detailed in these plans.

Tie Bar Stitching was done at Exit 1C on the centerline of the SB Off Ramp from approx. 19+00 to 20+30. Steel tie bars were placed diagonally into the pavement on both sides of the centerline joint and may be protrude into the top 0" to 2" of concrete where planing is to be done. The Contractor is advised that the steel tie bars will likely be encountered by planing equipment in this area.

The Contractor may be elect to use light chipping hammers (not exceeding 15 pounds) for concrete removal in the vicinity of the tie bars within the planing area. The portion of the steel tie bars protruding above the planed surface will be sawed off flush with the top of the planed surface.

Cost for labor, equipment and incidentals necessary to remove concrete within the vicinity of the tie bars and saw off and remove the tops of the tie bars will be incidental to the contract unit price per square yard for Planing PCC Pavement.

Planing PCC Pavement operations ahead of asphalt concrete laydown will be limited by particular job conditions and be subject to approval of the Engineer.

The work will be performed only during daylight hours.

If resurfacing as per the typical section cannot be placed immediately after planing, then temporary asphalt mix ramps will be placed as directed by the Engineer. Cost for placing and removing the temporary ramps will be incidental to the contract unit prices for the various items.

The Contractor will establish a positive means for the removal of the planing residue. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. Residue will not be permitted to flow across lanes used by public traffic or into gutters or drainage facilities. Residue will be disposed of in a manner that will prevent residue, whether in solid or slurry form, from entering any waterway in a concentrated state.

Residue may continuously flow on adjacent vegetated roadway slopes or ditches within the right-of-way. A flexible drag hose will be attached to the discharge end of the slurry pipe to minimize splashing of slurry placed on roadway slopes or ditches.

If the Engineer determines that the slurry may enter a waterway, drainage facility, or curb and gutter section, the slurry will be placed in storage tanks and deposited in settling basins, spread over flat vegetated areas, or filtered by other means approved by the Engineer at no additional cost.

The basis of payment for Planing PCC Pavement will be plans quantity. No separate measurements will be taken.

PCC PAVEMENT PARTIAL DEPTH PATCH

PCC Pavement Partial Depth Patch work will consist of removing existing deteriorated asphalt concrete, broken or loose concrete and any loose joint material. The exposed surface will be cleaned with compressed air. The repair area will be tacked and filled with Class G Asphalt Concrete or filled with Spall Repair Concrete in accordance with Section 390 as determined by the Contractor and approved by the Engineer.

Location of the existing transverse joint will be preserved after the repair work when using the concrete alternate by use of an approved insert material, full depth grooving of the fresh concrete or by sawing (3/8" minimum width).

Locations will be staked by the Engineer. The size and locations will be identified on construction. An average depth of 3" is estimated for patching needs.

Class G Asphalt Concrete or Spall Repair Concrete necessary to backfill patches will be incidental to the contract unit price per square foot for PCC Pavement Partial Depth Patch.

PCC Pavement Partial Depth Patch will be paid for at the contract unit price per square foot measured for payment. Payment will be full compensation for labor, equipment, material and incidentals necessary for removing, disposing of removed material, cleaning, furnishing and placing fill material and preserving the existing transverse joint.

TABLE FOR PCC PAVEMENT PARTIAL DEPTH PATCH

LOCATION	PARTIAL DEPTH PATCH SQFT	LOCATION	PARTIAL DEPTH PATCH SQFT
Exit 1C - Louise Ave		Exit 2 - Western Ave	
SB Off Ramp	420	SB Off Ramp	150
SB On Ramp	360	SB On Ramp	200
SB On Ramp Connector	40	NB Off Ramp	150
NB On Ramp	120	Exit 2 - Subtotal:	500
NB Loop On Ramp	60	Exit 7 - Rice Street	
Exit 1C - Subtotal:	1000	SB Off Ramp	200
		SB On Ramp	140
		NB On Ramp	200
		NB Off Ramp	60
		Exit 7 - Subtotal:	600
		Project Total:	2100

SEAL RANDOM CRACKS IN PCC PAVEMENT

For the purpose of this project, a quantity of Sealing Random Cracks in PCC Pavement is included in the estimate to address portions of the ramps and ramp shoulders on this project that will not receive an asphalt concrete overlay.

Locations are as follows:

- Western Ave Exit 2 SB Off Ramp from the ramp terminal joint north for 550'.
- Rice St Exit 7 SB Off Ramp from the ramp terminal joint north for 100'.
- Rice St Exit 7 SB On Ramp from end AC resurfacing south to the Rice Street Bridge approach slab.
- Rice St Exit 7 NB Off Ramp from the ramp terminal joint south to the Rice Street Bridge approach slab.
- Rice St Exit 7 NB On Ramp from the ramp terminal joint north to the Big Sioux River Bridge approach slab.
- At End I229 on the NB I229 to EB I90 ramp.
- Shoulders adjacent to the above locations.

SEAL RANDOM CRACKS IN PCC PAVEMENT (NRCP)

Random cracks will be repaired in accordance with the detail for Sealing Random Cracks. Reservoir dimensions may vary slightly from the details, due to the nature of this operation. However, any variance due to Contractor negligence will be repaired at the Contractor's expense.

Only those random cracks in the existing concrete pavement that are open and accept water and incompressible materials as selected by the Engineer will be prepared and sealed with either Low Modulus Silicone Sealant or Hot Poured Elastic Joint Sealer.

Prior to sealing, each random crack will be routed and thoroughly cleaned with compressed air or by other methods satisfactory to the Engineer. Routing will be performed with a saw designed for that purpose.

Random cracks narrower than ½ inch will be routed and sealed ½ inch wide by ½ inch deep.

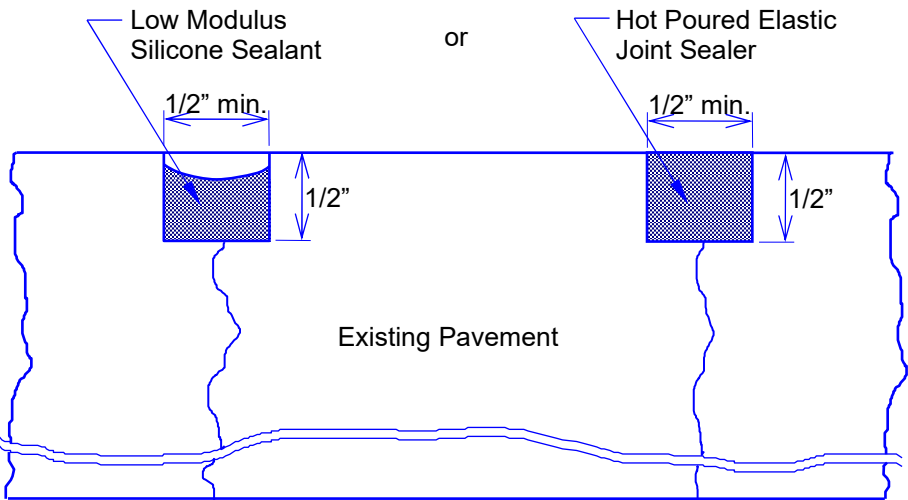
Random cracks wider than ½ inch may require the placement of a backer rod prior to sealing. Use of backer rod should be limited to locations where, once placed, the top of the backer rod will be a minimum of 2¼ inches below the top surface of the pavement. The hot pour in cracks wider than ½" should be placed 2 inch thick with the final surface of the hot pour remaining recessed ¼ inch below the top surface of the pavement.

Sealant will be placed in the routed reservoir with equipment and by methods that insure complete and uniform filling. Hot Poured Elastic Joint Sealer will be placed level with the driving surface of the concrete for cracks ½" or narrower. Low Modulus Silicone Sealant will have a tooled surface with the top middle portion of the sealant recessed. Any excess or overrun of sealant will be removed by the Contractor at no additional cost to the State.

Acceptance of the Low Modulus Silicone Sealant and Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

Seal Random Cracks in PCC Pavement will be measured by the foot to the nearest 0.1 foot of random cracks sealed and accepted and will be paid for at the contract unit price per foot measured for payment. Payment will be full compensation for labor, equipment, material and incidentals required for crack routing, cleaning, furnishing and installing backer rod when necessary, furnishing and placing sealant and removing routed and foreign material from the roadway.

SEALING RANDOM CRACKS



SEAL RANDOM CRACKS IN PCC PAVEMENT (CRCP)

Random cracks that exhibit minor spalling will be routed, sealed and overbanded in accordance with the detail for Sealing Random Cracks. Reservoir dimensions may vary slightly from the details, due to the nature of this operation. However, any variance due to Contractor negligence will be repaired at the Contractor's expense.

Only those random cracks in the existing concrete pavement that are open and accept water and incompressible materials as selected by the Engineer will be prepared, sealed and overbanded with Hot Poured Elastic Joint Sealer. Typically, patterned cracks associated with the underlying steel reinforcement should not be routed and sealed.

Prior to sealing, each random crack will be routed and thoroughly cleaned with compressed air or by other methods satisfactory to the Engineer. Routing will be performed with a saw designed for that purpose.

Random cracks narrower than ½ inch will be routed and sealed ½ inch wide by ½ inch deep.

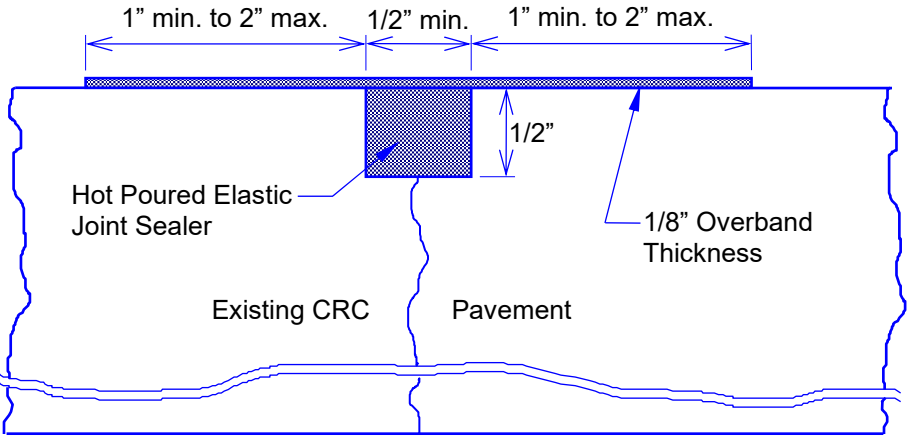
Random cracks wider than ½ inch may require the placement of a backer rod prior to sealing. Use of backer rod should be limited to locations where, once placed, the top of the backer rod will be 2 inches below the top surface of the pavement, resulting in a maximum hot pour depth of 2 inches.

Sealer will be placed in the routed reservoir with equipment and by methods that insure complete and uniform filling. Sealer will be overbanded to prohibit further respalling of the joint.

Acceptance of the sealer will be based on visual inspection by the Engineer.

Seal Random Cracks in PCC Pavement will be measured by the foot to the nearest 0.1 foot of random cracks sealed and accepted and will be paid for at the contract unit price per foot measured for payment. Payment will be full compensation for labor, equipment, material and incidentals required for crack routing, cleaning, furnishing and installing backer rod when necessary, furnishing and placing sealant, overbanding and removing routed and foreign material from the roadway.

SEALING RANDOM CRACKS



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.

ASPHALT REPAIR MASTIC TYPE 2

A quantity of Asphalt Repair Mastic Type 2 is included in the Estimate of Quantities.

Asphalt Repair Mastic is included as an alternative to PCC Pavement Partial Depth Patch for locations that would otherwise be difficult to fill with asphalt concrete. For example: filling separated joints or cracks between PCC Pavement slabs. The Engineer will determine which locations may be filled with Asphalt Repair Mastic.

COLD MILLING ASPHALT CONCRETE

In order to construct the new asphalt concrete flush with the existing asphalt concrete pavement and to profile existing pavement, Cold Milling Asphalt Concrete will be done as detailed in these plans.

The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete at Exits 1C & 2 is 28. The Los Angeles Abrasion Loss value on the aggregate used for the in place asphalt concrete at End I229 is unknown. This value was obtained from testing during construction of the in place asphalt concrete.

Cold milling is estimated to produce 340 tons of cold milled asphalt concrete material. The milled material will become the property of the Contractor for disposal.

Cold milling operations ahead of asphalt concrete laydown will be limited by particular job conditions and be subject to approval of the Engineer.

The requirement for a traveling stringline will be waived.

If resurfacing as per the typical section cannot be placed immediately after cold milling, then temporary asphalt mix ramps will be placed as directed by the Engineer. Cost for placing and removing the temporary ramps will be incidental to the contract unit prices for the various items.

Asphalt for tack will be applied prior to each lift of Asphalt Concrete Composite placed in partial depth patch areas.

SS-1h or CSS-1h ASPHALT FOR TACK

Asphalt for tack will be applied at a rate of 0.07 gallons per square yard. The Asphalt for tack will be applied for the full width of the bottom layer of asphalt concrete plus 0.5' around the periphery of the resurfaced area.

Asphalt for tack will be applied prior to each lift of asphalt concrete placed in partial depth patch areas.

CLASS G ASPHALT CONCRETE

Mineral Aggregate for Class G Asphalt Concrete will conform to the requirements for Class G, Type 2.

The asphalt binder used in the mixture will be PG 58V-34 Asphalt Binder.

When directed by the Engineer, the Contractor will saw and remove a total of three undamaged compaction cores (4" dia. Min.) per asphalt concrete lift from designated area(s) and repair the hole(s) to the satisfaction of the Engineer.

Class G Asphalt Concrete (except where placed as partial depth patch material) will be compacted to Specified Density.

Cost associated with the compaction cores will be included in the contract unit price per each for Compaction Sample.

All other requirements for Class G Asphalt Concrete 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.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 2.84 tons of Class G Asphalt Concrete, 0.16 ton of PG 58V-34 Asphalt Binder and 0.03 ton of Hydrated Lime per station for spot leveling, strengthening and repair of the existing surface.

Included in the Estimate of Quantities are 12.8 tons of SS-1h or CSS-1h Asphalt for Tack for surface repair and leveling areas throughout the project. (Rate = 0.07 gallon per square yard).

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Edgeline rumble strips will be constructed according to Standard Plate 320.28.

Asphalt concrete rumble strips will be constructed on the shoulders through the newly resurfaced asphalt concrete section at the end of I229. The Engineer will provide the exact start and stop locations.

Rumble strip installation will be completed prior to application of the flush seal and permanent pavement marking. The Contractor will be required to apply the flush seal to the newly installed 12" rumble strips at a width of 18" and at a rate of 0.1 Gal/SqYd. Cost for this work will be incidental to the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete.

Rumble strips will be paid for at the contract unit price per mile for Grind 12" Rumble Strip or Stripe in Asphalt Concrete.

WORK ADJACENT TO EXISTING GUARDRAIL

Three Cable Guardrail exists in the median at End I229 SB. The Contractor will conduct operations so as not to disturb the existing guardrail. Any guardrail disturbed / damaged due to the Contractor's operations will be replaced by the Contractor at no expense to the State.

SAW AND SEAL JOINTS IN ASPHALT CONCRETE

Saw and Seal Joints in Asphalt Concrete will consist of marking the existing transverse joint in the PCC Pavement prior to placement of the asphalt concrete, sawing, cleaning, and sealing the transverse joint in the new asphalt concrete. The joints will be constructed immediately over and in line with the underlying transverse joint in the PCC Pavement. Use a string line between established marking to determine the saw cut locations. The existing transverse pavement joints are spaced approximately 20' on Louise & Western Avenue Ramps and spaced variably from 9' to 15' on Rice Street Ramps.

Sawing will be performed after the asphalt concrete has cooled and no more than 36 hours after the asphalt concrete is placed. Sawing will be performed prior to any evidence of reflective cracking. Saw cuts may be made wet or dry and will be accurately located by pins and string line subject to approval of the Engineer.

The dimension of the saw cut on the Class G Asphalt Concrete will be 1/8" wide by 1.5" deep directly above the underlying joint in the PCC Pavement to facilitate cracking. A sealant reservoir 5/8" wide by 5/8" deep will be sawed in and centered directly over the underlying 1/8" saw cut.

The saw cut will be the full width of the pavement.

Dry sawed joints will be cleaned with high-pressure air. Wet sawed joints will be cleaned with high-pressure water followed by high-pressure air. The air compressor will produce a minimum of 125-CFM output and will be equipped with a 5/8" nozzle. After cleaning and drying and just prior to sealing, a bond breaker tape consisting of masking tape or other suitable bond breaker tape will be placed in the bottom of the reservoir. The tape width will be equal to the reservoir width or 1/8" narrower.

The sealant will meet the requirements of Section 871.B.

Joint sealant material will be from the South Dakota Department of Transportation's approved products list for Sealants Approved for Asphalt Concrete over Long Jointed Concrete Pavement. The Approved Product List for sealant may be viewed at the following Internet Site:

<http://apps.sd.gov/HC60ApprovedProducts/main.aspx>

The sealant will be placed in accordance with the manufacturer's recommendations. The sealant will fit the joint such that after cooling, the level of the sealant will not be greater than 1/8" below the pavement surface. Care will be taken so that the joints will not be overfilled. Sealant will not be spread over the pavement surface.

Blotting material such as toilet paper will be placed over the sealant material where traffic is allowed to cross a sealed area before track free status has been achieved.

Payment for sawing and sealing joints will be paid for as Saw and Seal Joints in Asphalt Concrete inclusive of cost for marking existing joints, sawing, cleaning, sealing, equipment, labor and incidentals necessary to complete the work.

PERMANENT PAVEMENT MARKING

Pavement marking quantities are based on replacing pavement marking in all areas designated to be resurfaced with new asphalt concrete or replaced with new concrete, plus a minimum length of 5’ beyond the ends of the resurfacing or replacement areas. Some locations in these plans are dimensioned further beyond these limits to replace worn marking or upgrade marking to current standards.

The Contractor will be required to repaint all existing pavement marking including centerline, edge line, lane lines, turn arrows, stop bars, and messages. This list is approximate. The Contractor will be required to document and be able to relocate for replacement of the existing turn arrows, stop bars, messages, etc. before obliterating the existing marking. Additional quantities are included in the estimate of quantities to paint the additional pavement marking. Cost for duplicating existing marking locations will be incidental to the contract unit prices for the various contract items.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Material will be applied as per manufacturer’s recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

Marking 8-inch edge lines and gore areas will require the use of 2 spray nozzles to achieve the required width. Marking 12-inch gore lines will require the use of 3 spray nozzles to achieve the required width.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4” line = 22.5 Gals/Mile
Dashed 4” line = 6.2 Gal/Mile
Glass Beads = 8 Lbs/Gal.

Cost for material, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 14 days and within 42 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees, and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m²/lux for white and 170 mc/m²/lux for yellow.

CL on this sheet is Construction Base Line –
See Typical Sections for location of CL

TABLES OF SUPERELEVATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	34	99

EXIT 1C – LOUISE AVENUE RAMPS

Ramp A SB Off Ramp			
Station	to Station		DESCRIPTION
0+00	5+00	-	Normal Crown
5+00	6+50	-	Superelevation Transition
6+50	11+74	-	2°30' Curve R 0.040 Superelevation Rate Point of Rotation is CL
11+74	13+24	-	Superelevation Transition
13+24	21+03	-	Normal Crown
Ramp B NB On Ramp			
Station	to Station		DESCRIPTION
0+00	12+00	-	Normal Crown
12+00	13+50	-	Superelevation Transition
13+50	30+67	-	4°00' Curve L 0.052 Superelevation Rate Point of Rotation is CL
30+67	32+17	-	Superelevation Transition
32+17	34+79	-	Normal Crown
Ramp C Loop On Ramp			
Station	to Station		DESCRIPTION
0+00	15+13	-	17°00' Curve R 0.058 Superelevation Rate Point of Rotation is CL
15+13	16+23	-	Superelevation Transition
16+23	19+00	-	Normal Crown
Ramp D NB Off Ramp			
Station	to Station		DESCRIPTION
0+00	1+65	-	Normal Crown
1+65	2+65	-	Superelevation Transition
2+65	7+72	-	8°00' Curve R 0.043 Superelevation Rate Point of Rotation is CL
7+72	8+72	-	Superelevation Transition
8+72	10+08	-	Normal Crown
10+08	11+58	-	Superelevation Transition
11+58	21+38	-	3°00' Curve L 0.045 Superelevation Rate Point of Rotation is CL
21+38	21+88	-	Superelevation Transition
21+88	27+88	-	Normal Crown
Ramp E SB On Ramp			
Station	to Station		DESCRIPTION
0+00	13+50	-	Normal Crown
13+50	15+00	-	Superelevation Transition
15+00	20+90	-	2°30' Curve R 0.040 Superelevation Rate Point of Rotation is CL
20+90	22+40	-	Superelevation Transition
22+40	34+48	-	Normal Crown

EXIT 2 – WESTERN AVENUE RAMPS

Ramp A SB Off Ramp			
Station	to Station		DESCRIPTION
0+00	10+00	-	Normal Crown
10+00	11+50	-	Superelevation Transition
11+50	16+78	-	3°30' Curve R 0.048 Superelevation Rate Point of Rotation is CL
16+78	18+28	-	Superelevation Transition
18+28	21+64	-	Normal Crown
Ramp C NB Off Ramp			
Station	to Station		DESCRIPTION
0+00	1+94	-	Normal Crown
1+94	3+44	-	Superelevation Transition
3+44	10+08	-	3°30' Curve L 0.048 Superelevation Rate Point of Rotation is CL
10+08	11+58	-	Superelevation Transition
Ramp D SB On Ramp			
Station	to Station		DESCRIPTION
0+00	2+67	-	Normal Crown
2+67	4+17	-	Superelevation Transition
4+17	9+88	-	3°30' Curve R 0.048 Superelevation Rate Point of Rotation is CL
9+88	11+38	-	Superelevation Transition

EXIT 7 – RICE STREET RAMPS

Ramps NB On & Off			
A & B	Ramps		DESCRIPTION
Station	to Station		
0+97	2+00	-	Normal Crown
Ramp A NB On Ramp			
Station	to Station		DESCRIPTION
2+00	4+00	-	Superelevation Transition (Ramps A-B) in to Ramp A
4+00	5+25	-	9°56'04" Curve L -0.060 Superelevation Rate Point of Rotation is CL
5+25	7+00	-	Superelevation Transition
7+00	7+50	-	Cross Slope 0.020
7+50	8+75	-	Superelevation Transition
8+75	10+75	-	6°00' Curve R 0.060 Superelevation Rate Point of Rotation is CL
10+75	11+25	-	Superelevation Transition
11+25	12+30	-	Cross Slope 0.020
12+30	12+35	-	NRC to CRC Joint to End Work
Ramp B NB Off Ramp			
Station	to Station		DESCRIPTION
2+00	3+50	-	Superelevation Transition (Ramps A-B) in to Ramp B
3+50	8+14	-	35°48'36" Curve L 0.060 Superelevation Rate Point of Rotation is CL
8+14	8+20	-	NRC to CRC Joint to End Work
Ramps SB Off & On			
C & D	Ramps		DESCRIPTION
Station	to Station		
0+14	2+75	-	Normal Crown
Ramp C SB Off Ramp			
Station	to Station		DESCRIPTION
2+75	3+25	-	Cross Slope 0.020 (Ramps C-D) in to Ramp C
3+25	4+75	-	Superelevation Transition
4+75	7+25	-	10°50'03" Curve R -0.060 Superelevation Rate Point of Rotation is CL
7+25	9+00	-	Superelevation Transition
9+00	10+25	-	Cross Slope 0.020
10+25	11+25	-	Superelevation Transition
11+25	14+40	-	6°00' Curve L 0.060 Superelevation Rate Point of Rotation is CL
14+40	14+60	-	NRC to CRC Joint to End Work
Ramp D SB On Ramp			
Station	to Station		DESCRIPTION
2+75	4+25	-	Superelevation Transition (Ramps C-D) in to Ramp D
4+25	8+68	-	35°48'36" Curve R 0.060 Superelevation Rate Point of Rotation is CL
8+80		-	End Work

SEQUENCE OF OPERATIONS

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation. The Contractor will be allowed to work one site at one time. If working on multiple sites requires an increase in quantities of any traffic control items, those increases will be at the Contractor's expense.

Site 1A- I229 Exit 1C, Louise Ave. Southbound Off and On Ramps

1. Install traffic control devised per the details in these plans. Close southbound off and on ramp at I229 Exit 1C.
2. Perform all planing and milling on the ramp.
3. Perform all ramp asphalt resurfacing work.
4. Install permanent pavement marking.
5. Remove temporary traffic control devices.

Site 1B- I229 Exit 1C, Louise Ave. Northbound On Ramps

1. Install traffic control devised per the details in these plans. Close northbound on ramps at I229 Exit 1C.
2. Perform all planing and milling on the ramp.
3. Perform all ramp asphalt resurfacing work.
4. Install permanent pavement marking.
5. Remove temporary traffic control devices.

Site 2A – I229 Exit 2, Western Ave. Southbound Off and On ramps.

1. Install partial off ramp traffic control closure on the inside shoulder on the southbound off ramp per standard plate 634.69.
2. Perform all terminal full depth joint pavement repair on the southbound off ramp at 13+60 on the inside shoulder.
3. Switch temporary traffic control devices to the outside shoulder of the southbound off ramp. Partially close southbound ramp on the outside shoulder per standard plate 634.69.
4. Perform all terminal full depth joint pavement repair on the southbound off ramp at 13+60 on the outside shoulder
5. Install traffic control devised per the details in these plans. Close southbound off and on ramps at I229 Exit 2.
6. Perform all planing and milling on the ramp.
7. Perform all ramp asphalt work.
8. Install permanent pavement marking.
9. Remove temporary traffic control devices.

Site 2B – I229 Exit 2, Western Ave. Northbound Off ramps.

1. Install traffic control devised per the details in these plans. Close northbound off ramp.
2. Perform all planing and milling on the ramp.
3. Remove temporary traffic control devices.

SEQUENCE OF OPERATIONS (CONTINUED)

Site 3A – I229 Exit 7, Rice St. Southbound On and Off ramps.

1. Install partial off ramp traffic control closure on the inside shoulder on the southbound off ramp per standard plate 634.69.
2. Perform all terminal full depth joint pavement repair on the southbound off ramp at 14+40 on the inside shoulder.
3. Switch temporary traffic control devices to the outside shoulder of the southbound off ramp. Partially close southbound ramp on the outside shoulder per standard plate 634.69.
4. Perform all terminal full depth joint pavement repair on the southbound off ramp at 14+40 on the outside shoulder
5. Install traffic control devised per the details in these plans. Close southbound exit and entrance ramps.
6. Perform all planing and milling on the ramp.
7. Perform all ramp asphalt work.
8. Install permanent pavement marking.
9. Remove temporary traffic control devices.

Site 3B – I229 Exit 7, Rice St. Northbound On and Off ramps.

1. Install partial off ramp traffic control closure on the inside shoulder on the northbound off ramp per standard plate 634.69.
2. Perform all terminal full depth joint pavement repair on the northbound off ramp at 8+13 on the inside shoulder.
3. Switch temporary traffic control devices to the outside shoulder of the northbound off ramp. Partially close northbound off ramp on the outside shoulder per standard plate 634.69.
4. Perform all terminal full depth joint pavement repair on the northbound off ramp at 8+13 on the outside shoulder
5. Remove and reset partial off ramp traffic control closure from the northbound off ramp to southbound on ramp.
6. Install partial off ramp traffic control closure on the inside shoulder on the northbound off ramp per standard plate 634.69.
7. Perform all terminal full depth joint pavement repair on the northbound on ramp at 12+30 on the inside shoulder.
8. Switch temporary traffic control devices to the outside shoulder of the northbound off ramp. Partially close northbound ramp on the outside shoulder per standard plate 634.69.
9. Perform all terminal full depth joint pavement repair on the northbound off ramp at 12+30 on the outside shoulder
10. Install traffic control devised per the details in these plans. Close northbound off and on ramp with ramps closed.
11. Perform all planing and milling on the ramp.
12. Perform all ramp asphalt work.
13. Install permanent pavement marking.
14. Remove temporary traffic control devices.

Site 4 – I229 North of JCT I90, 476th Ave.

1. Install traffic control devised per the details in these plans. Install lane closure for the northbound left lane to 476th Ave. Install traffic control on 476th Ave. and E 72nd St. N , and 476th Ave. and 476th Ave. Frontage Rd. intersections per standard plate 634.29.
2. Perform all planing and milling on the ramp.
3. Perform all ramp asphalt work.
4. Install permanent pavement marking.
5. Remove temporary traffic control devices.

Off and on ramps cannot be closed during either the pavement repair or the asphalt surfacing work without prior approval from the Engineer.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

Pedestrian traffic on the crossroad and ramps will be maintained for the duration of the project. The sidewalk on the east side of Louise Avenue will be closed until milling and asphalt work are complete. The sidewalk on the west side of S Western Avenue will be closed until milling and asphalt work are complete.

All temporary speed limit signs will have a minimum mounting height of 5 feet in rural locations, even when mounted on portable supports.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

COORDINATION BETWEEN CONTRACTORS

A separate contract for Project EM 0292(88)73 – PCN 06JQ will be awarded to another Contractor for Construct Interchange, Grading, PCC Surfacing, Storm Sewer, Pavement Marking, Lighting, Signal, Sidewalk, ROW on I29 and I229 adjacent to this project (PCN 0A8F). The Construct Interchange, Grading, PCC Surfacing, Storm Sewer, Pavement Marking, Lighting, Signal, Sidewalk, ROW for PCN 06JQ will begin at MRM 0.00 and end at MRM 0.92 on I229.

A separate contract for Project CR 000S(462) – PCN 09L5 will be awarded to another Contractor for Install Dynamic Message Boards on I229 adjacent to this project (PCN 0A8F) The Install Dynamic Message Boards for PCN 05L5 will begin at MRM 0.00 and end at MRM 10.84.

A separate contract for Project IM-B-CR 2292(101)3 – PCN 05HN will be awarded to another Contractor (T&R Contracting, Inc.) for Grading, PCC Surfacing, Replace Str Bridge, Curb Ramps, Sidewalk, Signals, Lighting on I229 adjacent to this project (PCN 0A8F). The Grading, PCC Surfacing, Replace Str Bridge, Curb Ramps, Sidewalk, Signals, Lighting for PCN 05HN will begin at MRM 3.26+0.243 and end at MRM 4.37+0.465 northbound, and begin MRM 3.30+0.227 and end at MRM 4.51+0.294 southbound.

The Contractor will schedule work so as not to interfere with or hinder the progress of the work performed by the other Contractor on PCN 06JQ, 09LF, & 05HN. Conflicting traffic control devices may need to be temporarily adjusted or removed as directed by the Engineer and at no additional cost to the contract.

LANE CLOSURES

Interstate lane closures shorter than 5 miles will be used if 5 miles is greater than the length of work that can be accomplished in one day’s production. More than one lane closure may be permitted; however, there will be a minimum of a three-mile section between lane closures, excluding the tapers.

Interstate lane closures will be removed when work will not be occurring for a period of 3 or more calendar days. Activities that do not involve workers being present, such as curing time for concrete, constitute work. Lane closures will not be set up on a Friday if no work will be occurring on Saturday or Sunday. In these cases, the lane closure will be installed on Monday.

FLAGGING

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours.

If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for “Flagging”.

WORK ZONE SPEED REDUCTION

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown on standard plate 634.63 or as shown in the plans. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

TEMPORARY PAVEMENT MARKING

3,120 feet of temporary pavement markings have been included for standard plate 634.69

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

One week prior to starting work affecting the traveling public, portable changeable message signs (PCMS) will be installed at locations detailed in the plans to notify drivers of the upcoming construction. The Contractor will program the portable changeable message signs with the following message:

ROAD WORK
STARTS (Date)

CONSIDER
ALT
ROUTE

Exit 1C, Louise Avenue

EXIT 1C
RAMP WORK
AHEAD

Exit 2, Western Avenue

EXIT 2
RAMP WORK
AHEAD

Exit 7, Rice Street

EXIT 7
RAMP WORK
AHEAD

Exit 10, Minnehaha County Hwy. 125

HWY 125
CLOSED
AHEAD

When work begins that will affect traffic patterns, the Contractor will re-program the PCMS with the messages as detailed in the plans.

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, City of Sioux Falls Police Department, the Minnehaha and Lincoln County Sheriff and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

INCIDENTS (CONTINUED)

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for “Flagging”.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a press release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor will provide the Engineer with pertinent information 7 days prior to any phase change or any other major change that affects traffic flow.

TEMPORARY PEDESTRIAN ACCESS ROUTE

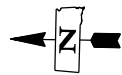
A Temporary Pedestrian Access Route (TPAR) will be provided when crosswalks, sidewalks, or other pedestrian facilities are blocked, closed, or relocated. A TPAR may consist of a combination of existing and/or temporary pedestrian facilities. The TPAR will be kept free of any obstructions and hazards, such as holes, debris, mud, snow, construction equipment, traffic control signing, stored materials, etc.

The Contractor will notify the Engineer at least 72 hours prior to start of any construction operation that will necessitate a change in pedestrian access. Pedestrian traffic signal displays controlling a crosswalk that is closed will be covered or removed.

TRAFFIC CONTROL SIGNS

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD				EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4		36"	7.5	
R2-1	SPEED LIMIT 30		24" x 30"	5.0		4	36" x 48"	12.0	48.0
R2-1	SPEED LIMIT 45		24" x 30"	5.0		4	36" x 48"	12.0	48.0
R2-1	SPEED LIMIT 65		24" x 30"	5.0		2	36" x 48"	12.0	24.0
R2-6aP	FINES DOUBLE (plaque)		24" x 18"	3.0		2	36" x 24"	6.0	12.0
R9-9	SIDEWALK CLOSED	4	24" x 12"	2.0	8.0				
R9-11	SIDEWALK CLOSED AHEAD (ARROW L or R) CROSS HERE	4	24" x 18"	3.0	12.0				
R11-3a	ROAD CLOSED ___ MILES AHEAD LOCAL TRAFFIC ONLY	1	60" x 30"	12.5	12.5				
W3-5	SPEED REDUCTION AHEAD (30 MPH)		48" x 48"	16.0		4	48" x 48"	16.0	64.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)		48" x 48"	16.0		4	48" x 48"	16.0	64.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)		48" x 48"	16.0		4	48" x 48"	16.0	64.0
W4-3	ADDED LANE (symbol)		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES		48" x 48"	16.0		2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	1	48" x 48"	16.0	16.0	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD		48" x 48"	16.0		4	48" x 48"	16.0	64.0
W21-5a	LEFT or RIGHT SHOULDER CLOSED		48" x 48"	16.0		1	48" x 48"	16.0	16.0
W20-3	ROAD CLOSED 500 FT	2	48" x 48"	16.0	32.0		" x "		
W20-3	ROAD CLOSED 1000 FT	2	48" x 48"	16.0	32.0		" x "		
E5-2a	EXIT CLOSED	8	48" x 36"	12.0	96.0		48" x 36"	12.0	
G20-2	END ROAD WORK		36" x 18"	4.5		2	48" x 24"	8.0	16.0
M3-2	DIRECTION MARKER - EAST	1	24" x 12"	2.0	2.0		36" x 18"	4.5	
M4-8	DETOUR	3	24" x 12"	2.0	6.0		30" x 15"	3.1	
M5-1	ADVANCE TURN ARROW 90° (L or R)	1	21" x 15"	2.2	2.2		30" x 21"	4.4	
M6-1	DIRECTION ARROW - Horizontal Single Head (L or R)	1	21" x 15"	2.2	2.2		30" x 21"	4.4	
M1-6	COUNTY MARKER (3 digits)	3	30" x 24"	5.0	15.0		24" x 18"	3.0	
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 246.3				EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT 580.0			



TRAFFIC CONTROL SITE 4 - INSET A

STATE OF SOUTH DAKOTA	PROJECT IM 2292(118)0	SHEET 38	TOTAL SHEETS 99
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Plotting Date: 10/8/2025

Legend

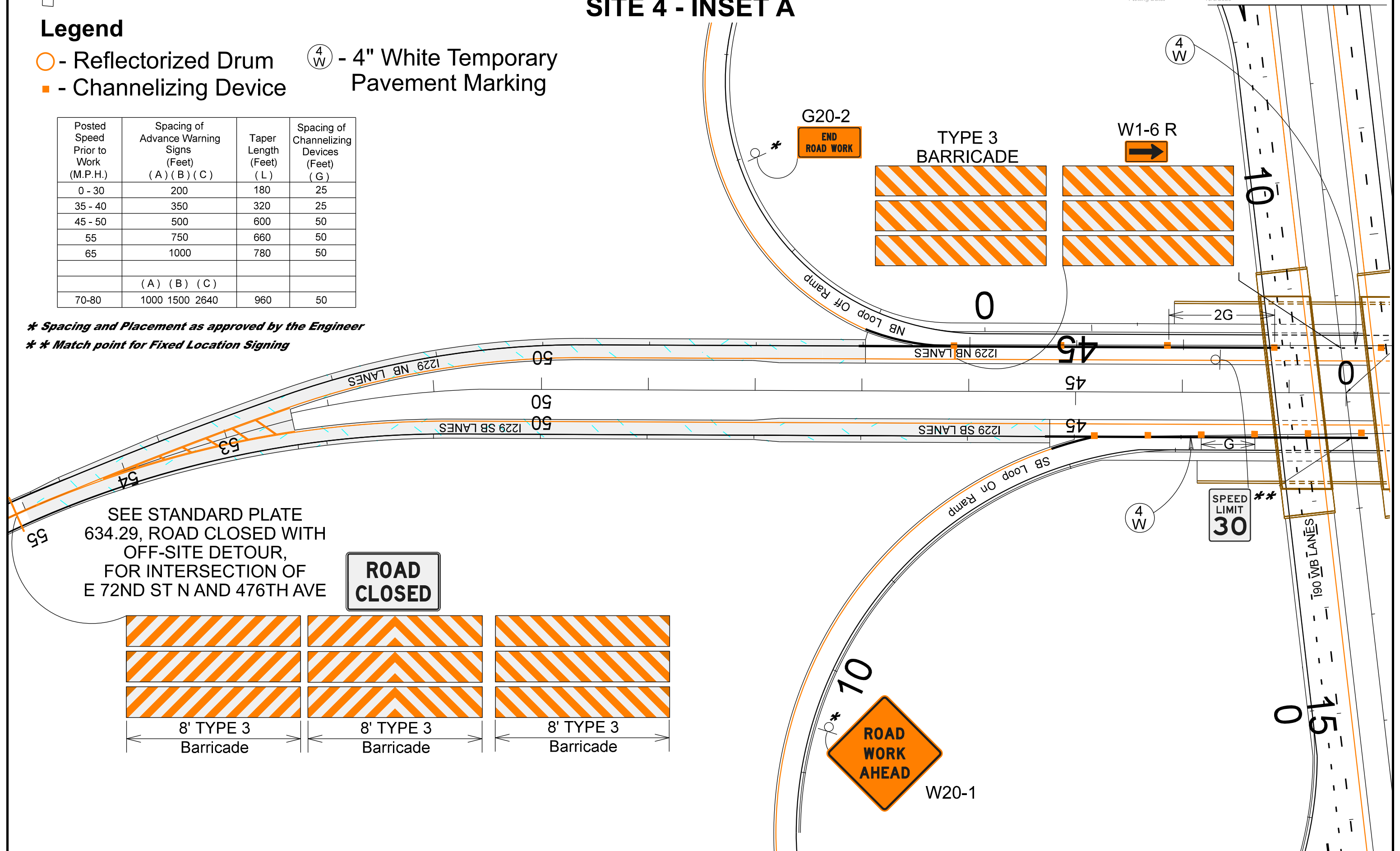
- - Reflectorized Drum
- - Channelizing Device

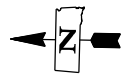
④ W - 4" White Temporary Pavement Marking

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
	(A)	(B)	(C)		
0 - 30	200			180	25
35 - 40	350			320	25
45 - 50	500			600	50
55	750			660	50
65	1000			780	50
	(A)	(B)	(C)		
70-80	1000	1500	2640	960	50

* Spacing and Placement as approved by the Engineer

** Match point for Fixed Location Signing





TRAFFIC CONTROL SITE 4 - INSET B

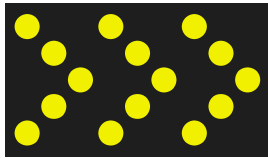
STATE OF SOUTH DAKOTA	PROJECT IM 2292(118)0	SHEET 39	TOTAL SHEETS 99
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Plotting Date: 10/8/2025

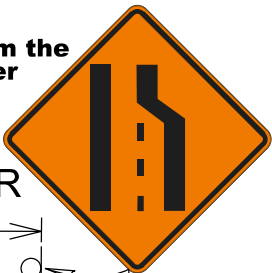
Legend

- - Reflectorized Drum
- - Channelizing Device
- ④ W - 4" White Temporary Pavement Marking

ARROW BOARD
SEQUENTIAL CHEVRON



Install 2000 ft. from the
end of the taper



W4-2 R



* 2000 FT.

* 2000 FT.

④ W

G20-2

END
ROAD WORK

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)			Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
	(A)	(B)	(C)		
0 - 30		200		180	25
35 - 40		350		320	25
45 - 50		500		600	50
55		750		660	50
65		1000		780	50
	(A)	(B)	(C)		
70-80	1000	1500	2640	960	50

* Spacing and Placement as approved by the Engineer

** Match point for Fixed Location Signing

20

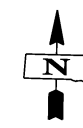
30

190 EB LANES

15

20

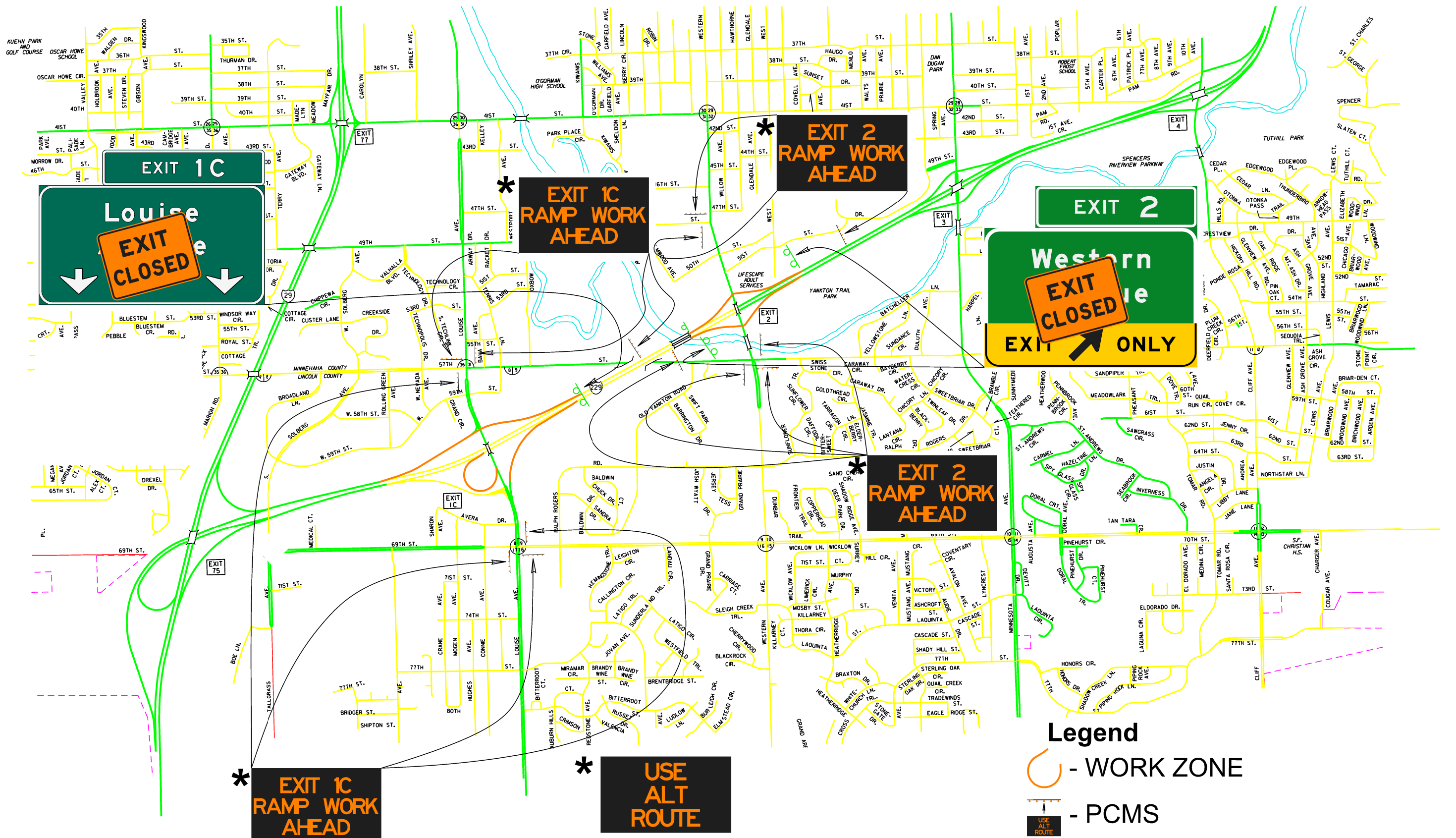
SB On R



TRAFFIC CONTROL EXIT 1C & 2 DIVERSION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	40	99

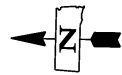
Plotting Date: 10/8/2025 REV. 10-8-25, JMP



Legend

- WORK ZONE
- PCMS

- SECOND PCMS MESSAGE



* - SECOND MESSAGE

TRAFFIC CONTROL EXIT 7 & HWY 125 DIVERSION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	41	99

Plotting Date: 10/8/2025

Legend

 - WORK ZONE

 - PCMS

USE
ALT
ROUTE

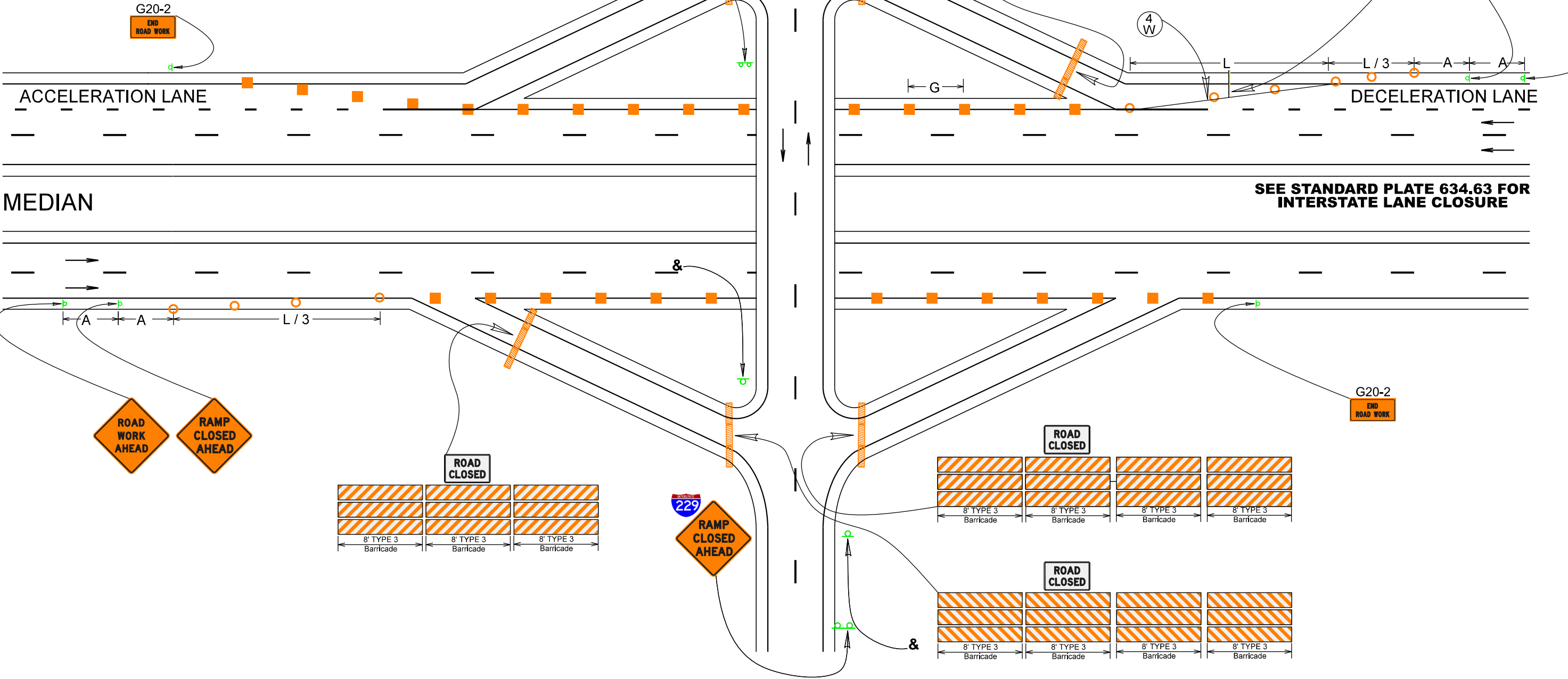


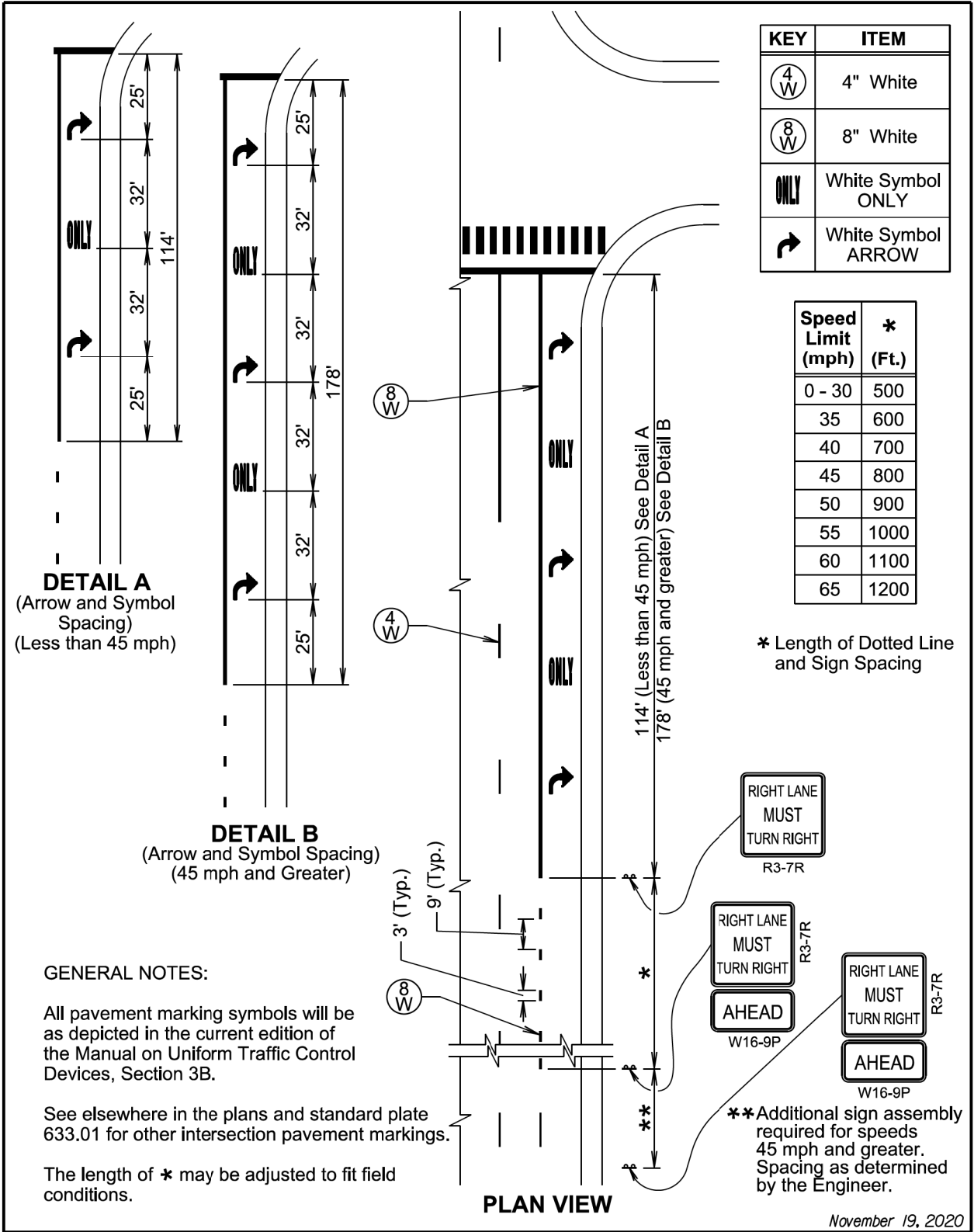
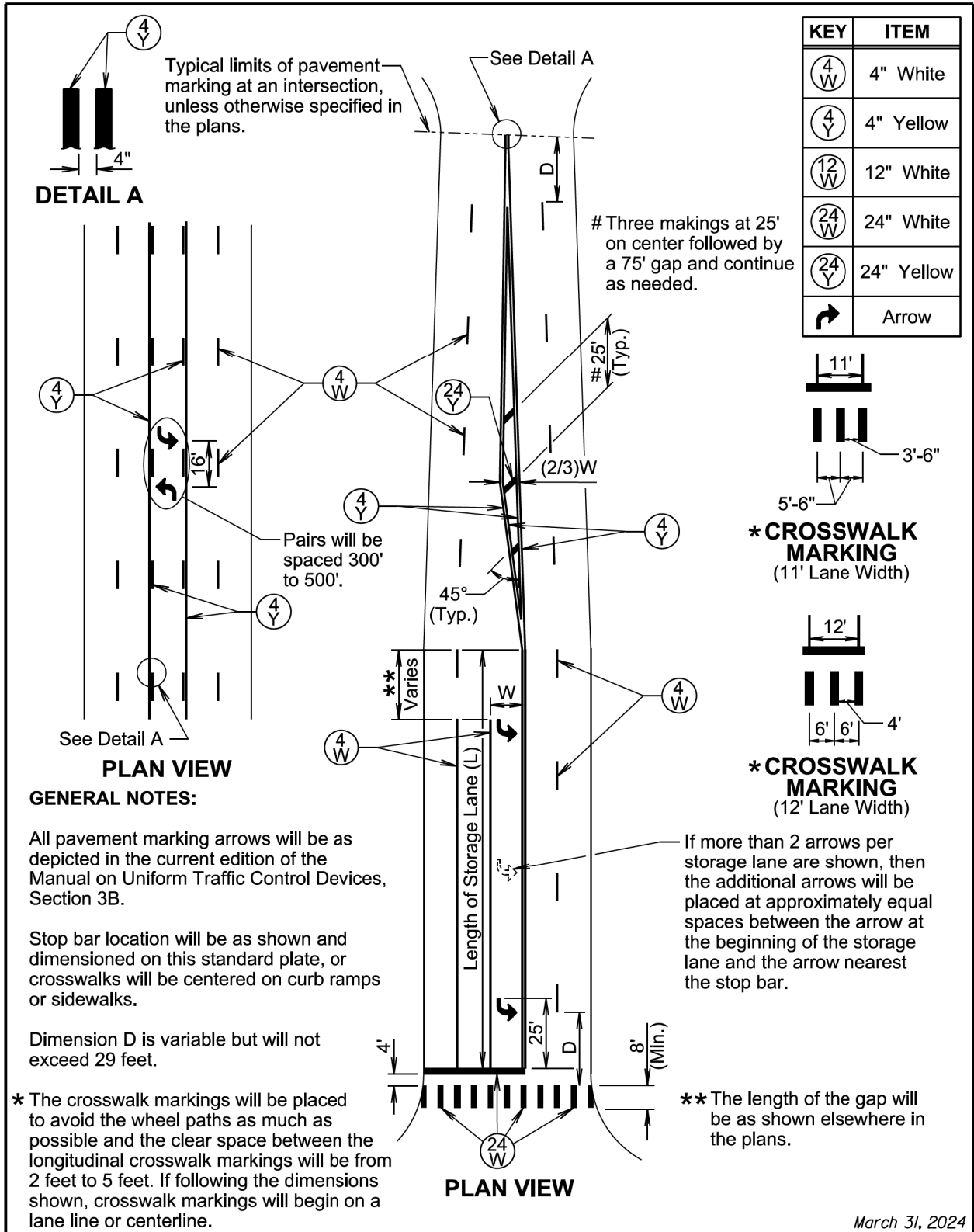
Legend

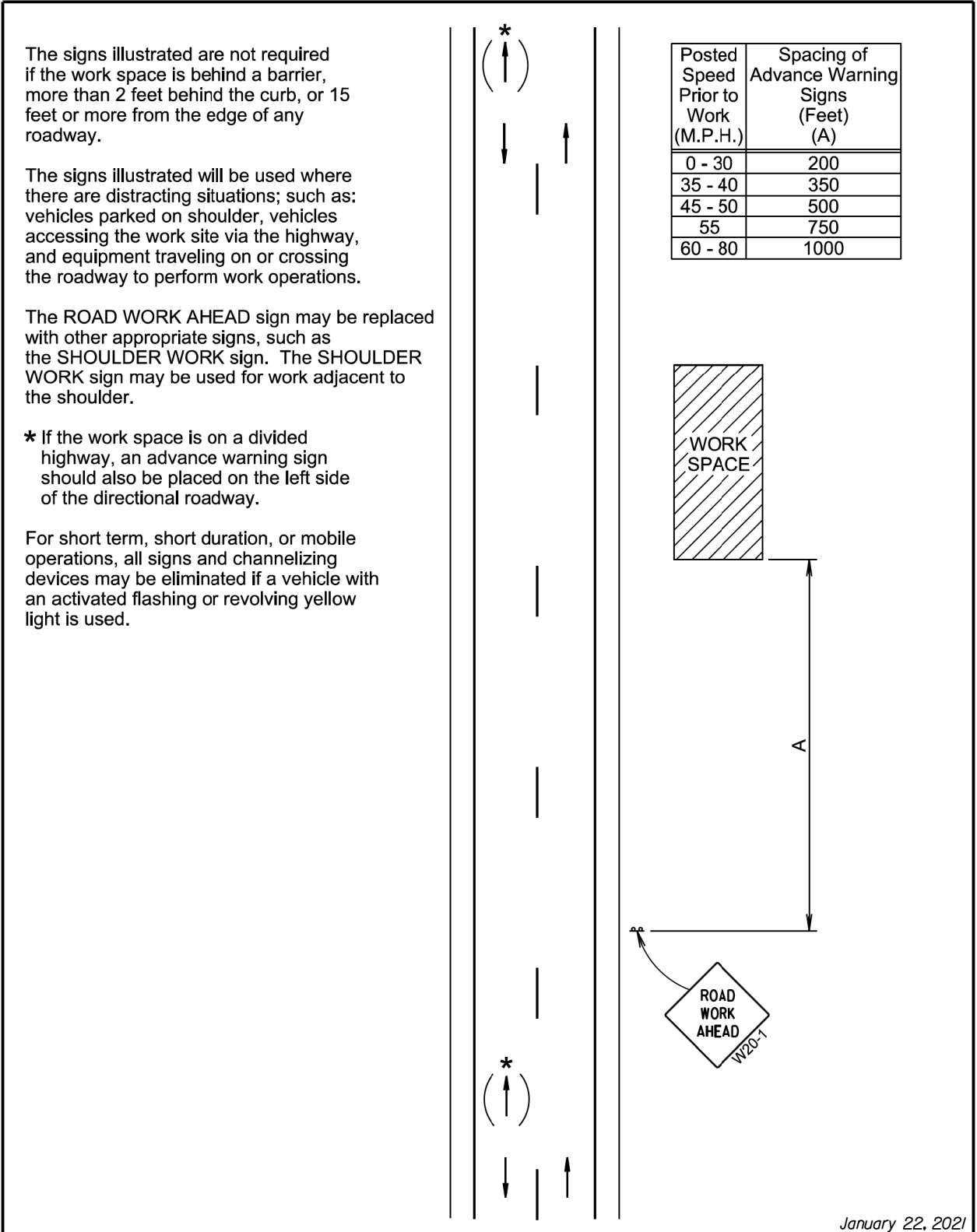
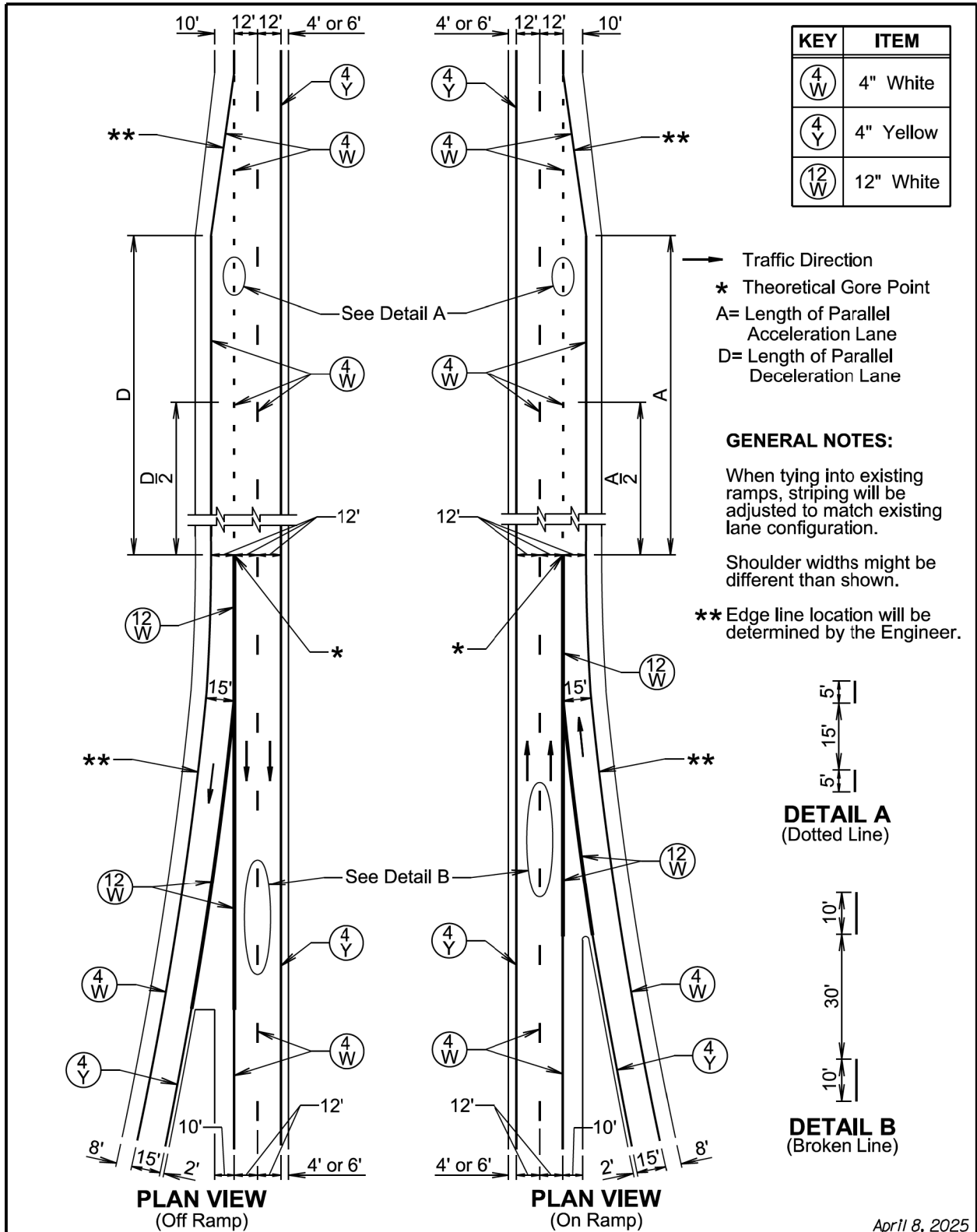
- - Reflectorized Drum (4 W) - 4" White Temporary Pavement Marking
- - Channelizing Device

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)			Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200			180	25
35 - 40	350			320	25
45 - 50	500			600	50
55	750			660	50
65	1000			780	50
	(A) (B) (C)				
70-80	1000	1500	2640	960	50

- * - Spacing and Placement as approved by the Engineer
- * * - Match point for Fixed Location Signing
- & - Cover Existing Route Marker Signs







*In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

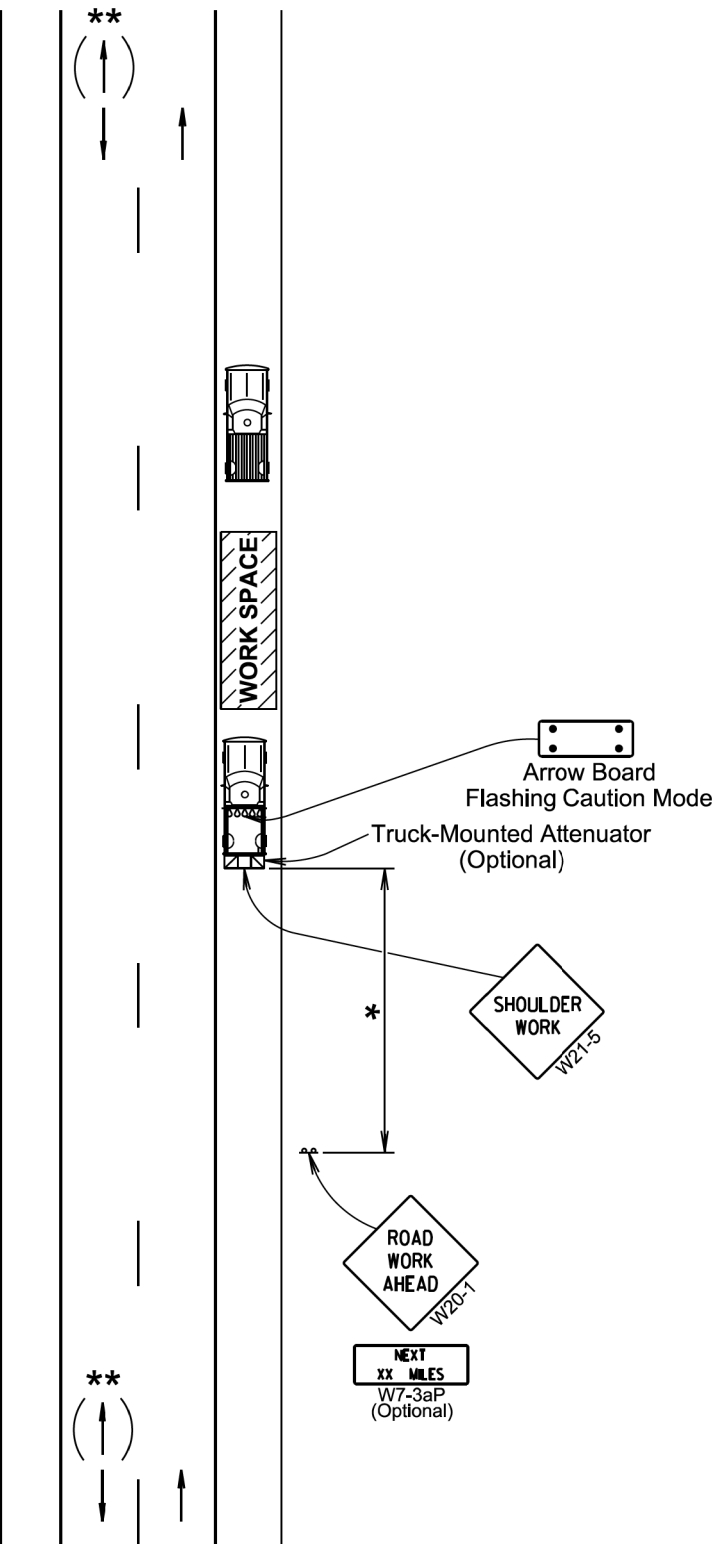
The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

Arrow board is required for intermittently and continuously moving mobile operations when work exceeds 1 hour.

**If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign.

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



January 22, 2021

* Messages on signs will vary depending on the operation being conducted.

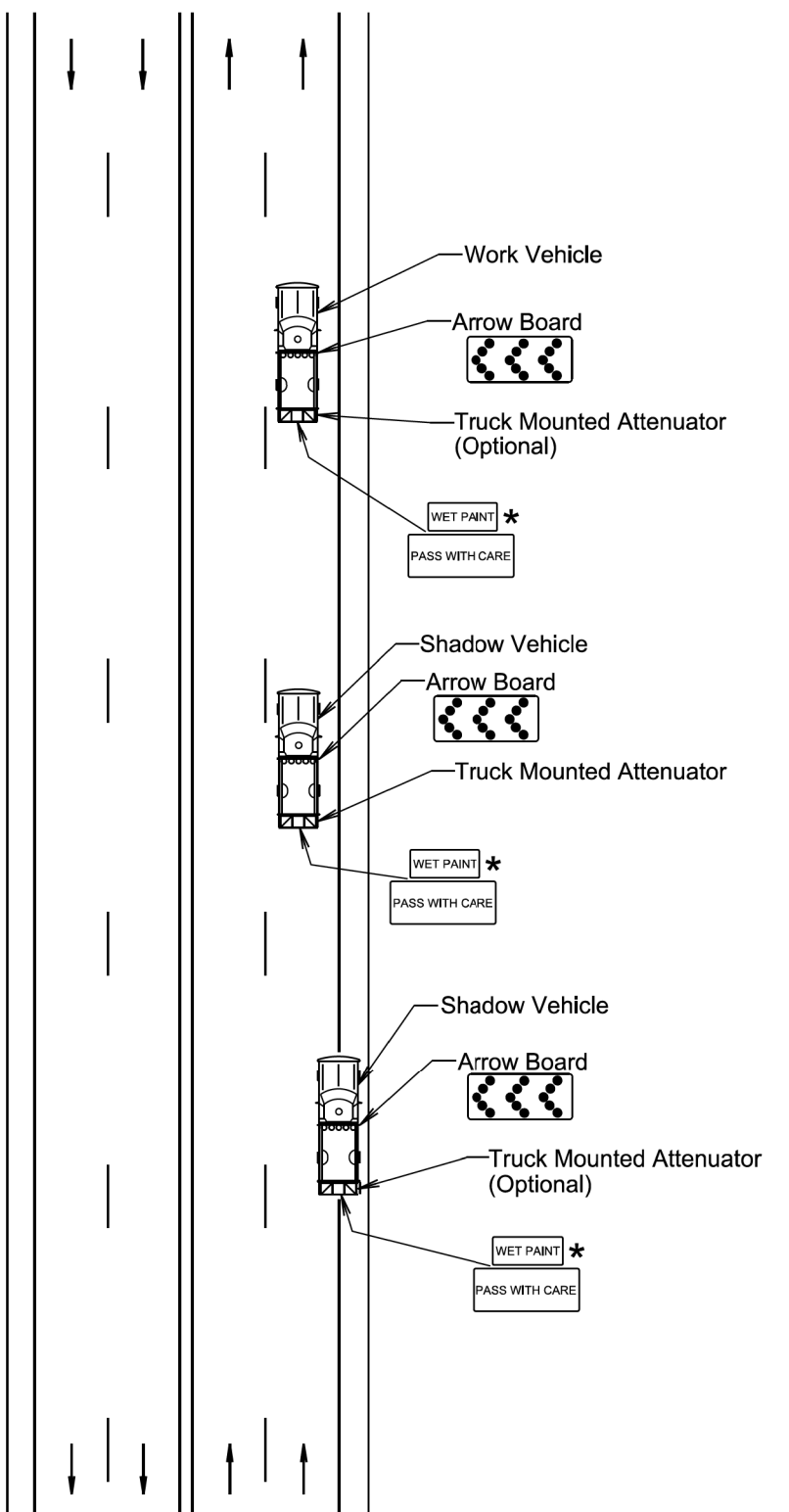
Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



January 22, 2021

Only the traffic control devices controlling pedestrian flows are shown. Other devices may be needed to control traffic on the streets. Use lane closure signing or ROAD NARROWS signs, as needed.

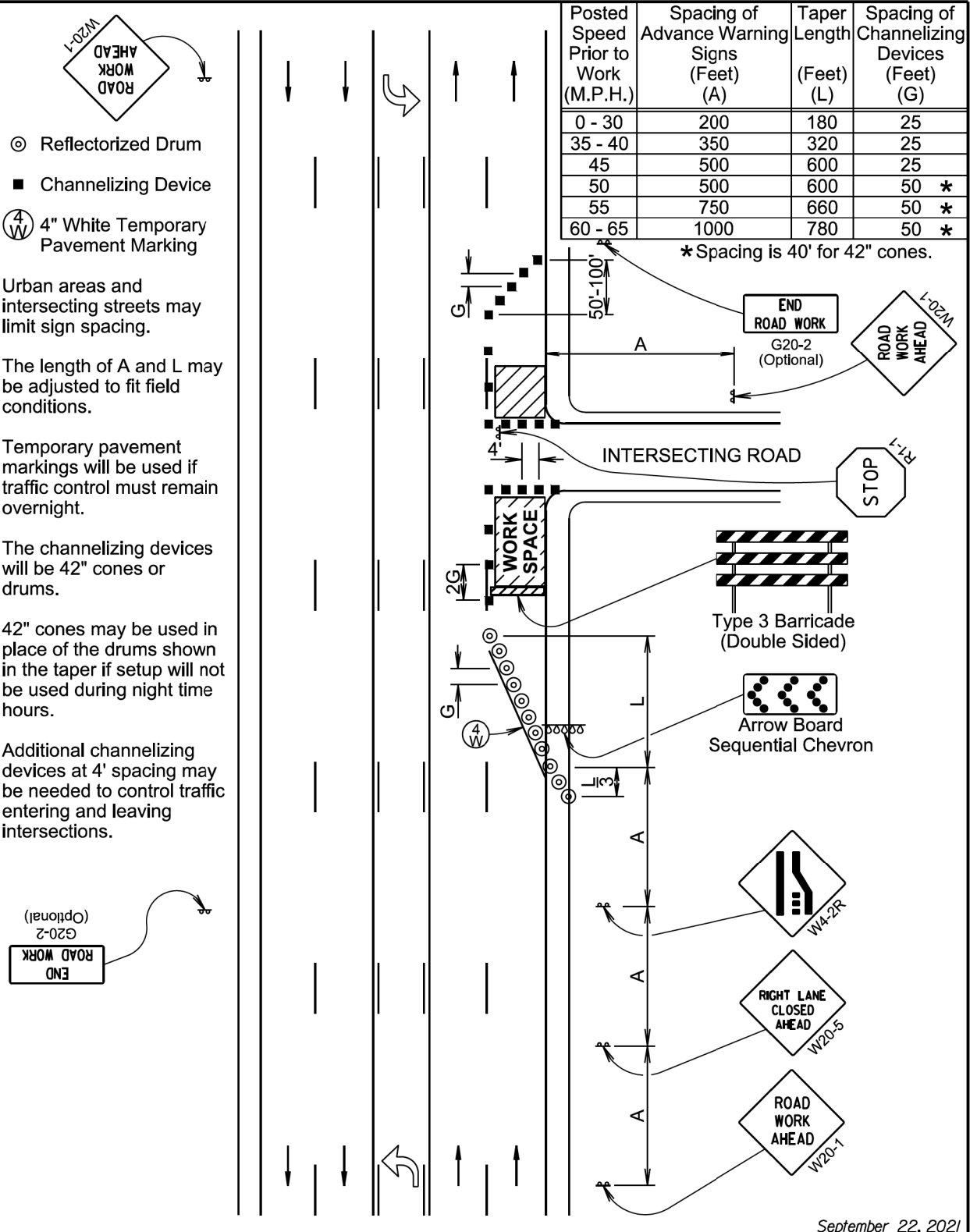
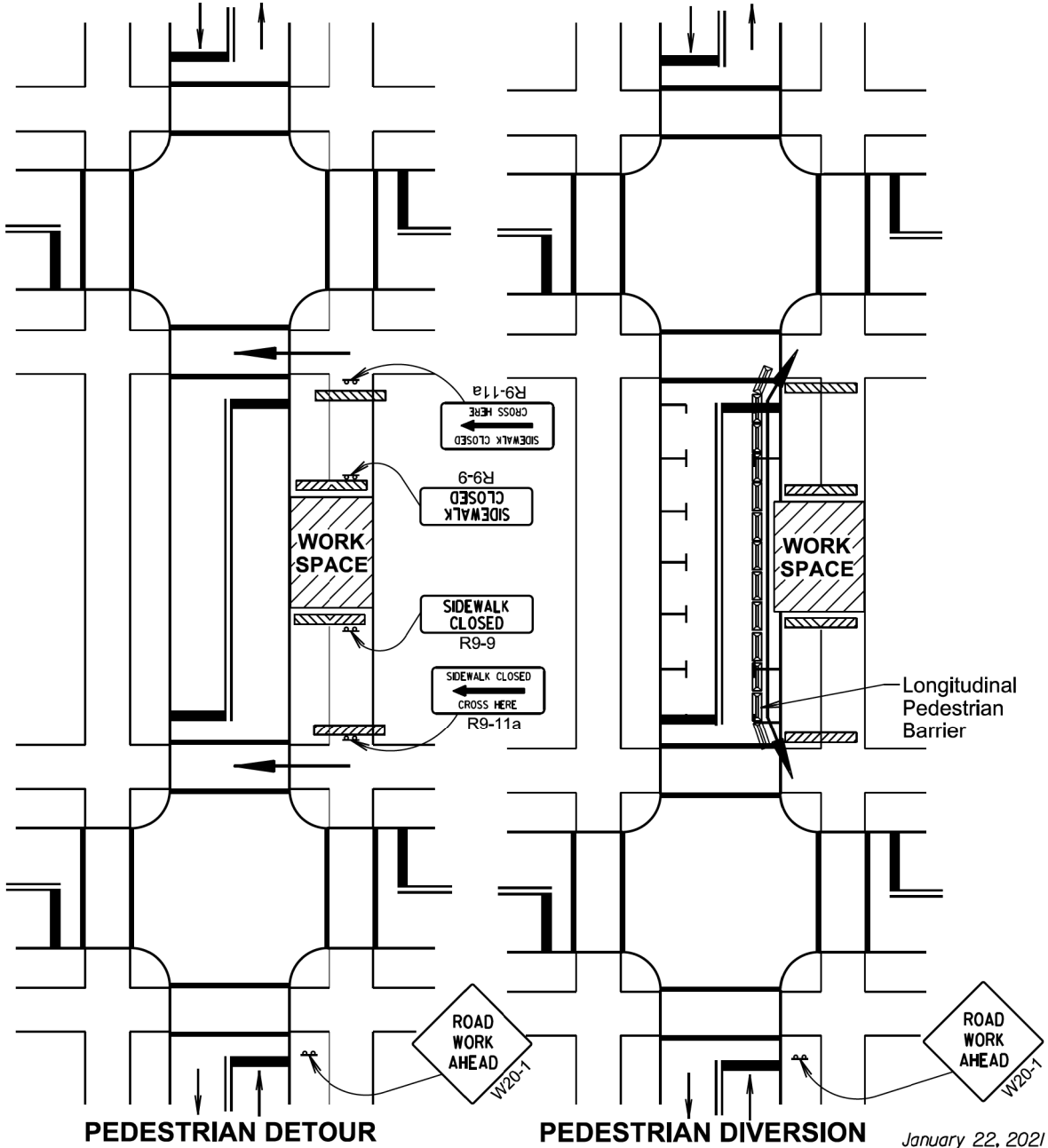
Signs may be placed along a temporary diversion to guide or direct pedestrians. Examples include KEEP RIGHT and KEEP LEFT signs.

Additional advance warning may be necessary.

For nighttime closures, Type A flashing warning lights may be used on barricades supporting signs and closing sidewalks. Type C steady-burn lights may be used on channelizing devices separating the temporary pedestrian diversion from vehicular traffic.

Street lighting should be considered.

Longitudinal Pedestrian Barricade and



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)		
	(A)	(B)	(C)
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
	(A)	(B)	(C)
70 - 80	1000	1500	2640

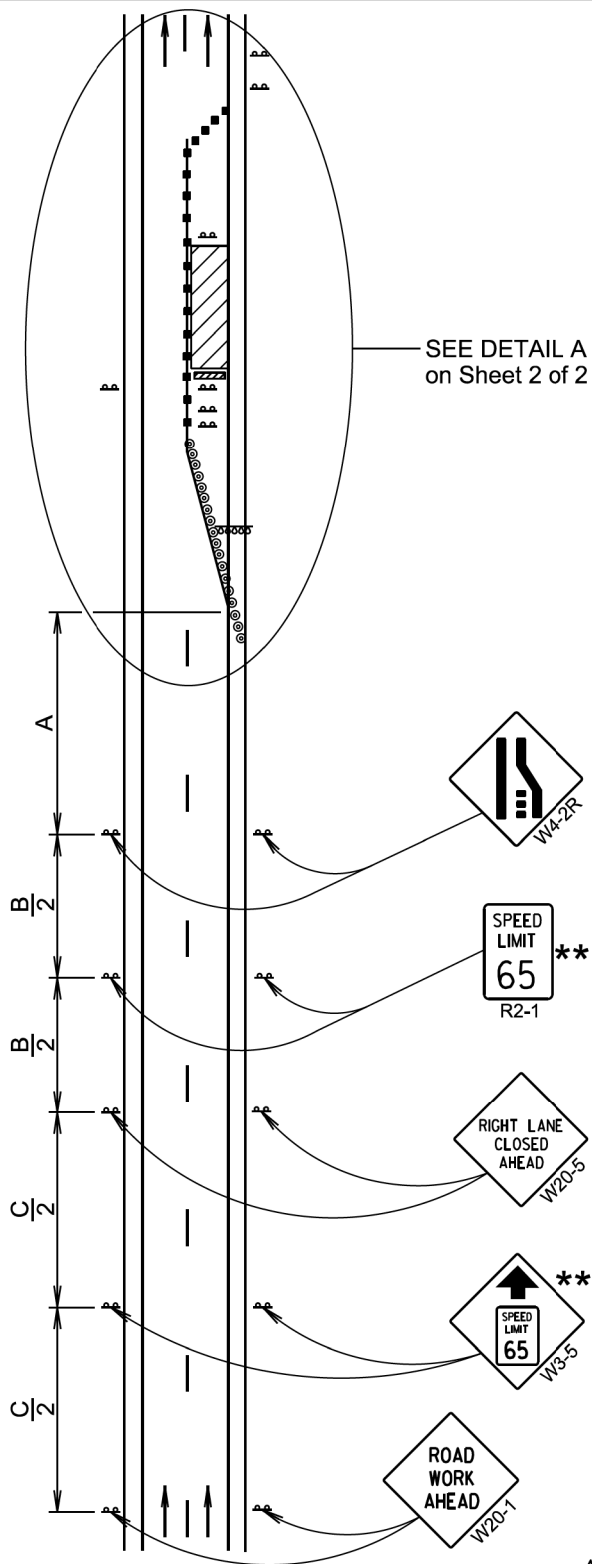
** Speed appropriate for location.

● Reflectorized Drum

■ Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



April 8, 2025

Published Date: 2026

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WORK ZONE SPEED REDUCTION
FOR INTERSTATE AND HIGH
SPEED MULTI-LANE HIGHWAYS

PLATE NUMBER
634.63

Sheet 1 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs will be covered or removed when workers are not present.

● Reflectorized Drum

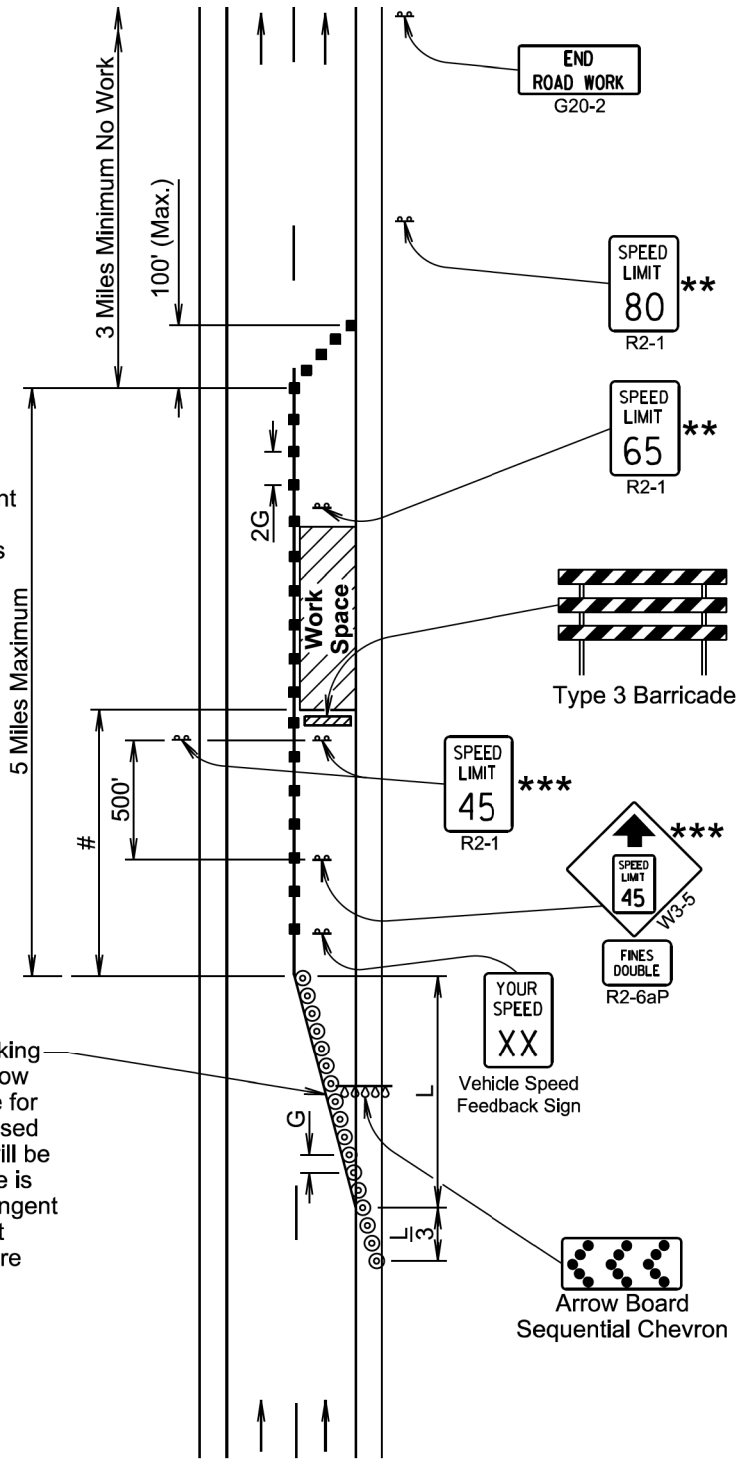
■ Channelizing Device

The Work Space will be a minimum of 500' from the end of the taper.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

April 8, 2025

Published Date: 2026

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WORK ZONE SPEED REDUCTION
FOR INTERSTATE AND HIGH
SPEED MULTI-LANE HIGHWAYS

PLATE NUMBER
634.63

Sheet 2 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B)		Taper Length (Feet) (L)
45 - 50	500		600
55	750		660
60 - 65	1000		780
	(A)	(B)	
70 - 80	1000	1500	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

■ Channelizing Device

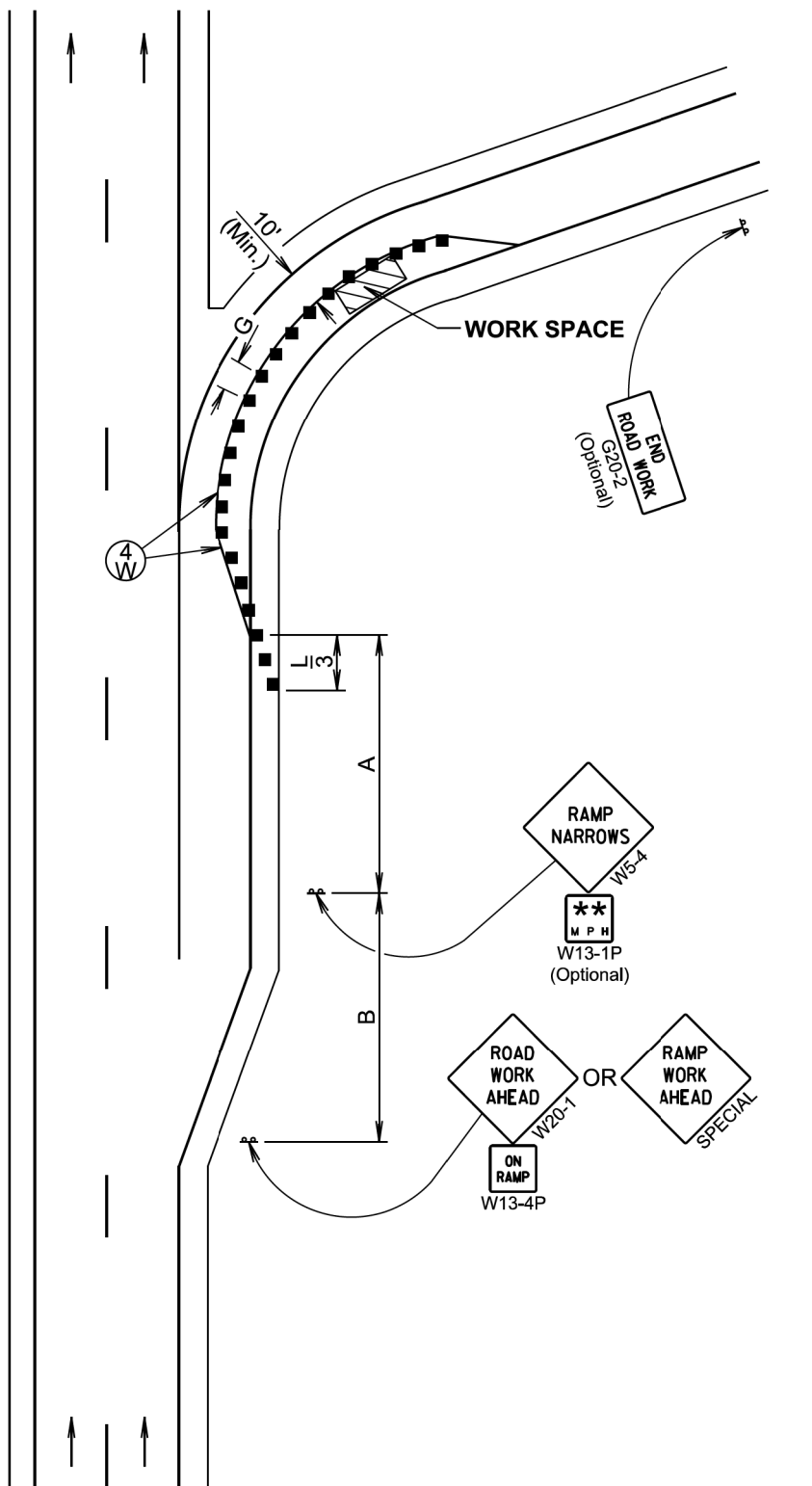
④ W 4" White Temporary Pavement Marking

** Need and safe speed to be determined by the Engineer.

Temporary pavement markings will be used if traffic control must remain overnight.

The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

Truck off-tracking should be considered when determining whether the 10-foot minimum lane width is adequate.



January 22, 2021

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PARTIAL EXIT RAMP CLOSURE

PLATE NUMBER
634.69

Sheet 1 of 1

Published Date: 2026

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)			Taper Length (Feet) (L)
0 - 30	200			180
35 - 40	350			320
45 - 50	500			600
55	750			660
60 - 65	1000			780
	(A)	(B)	(C)	
70 - 80	1000	1500	2640	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

⊙ Reflectorized Drum

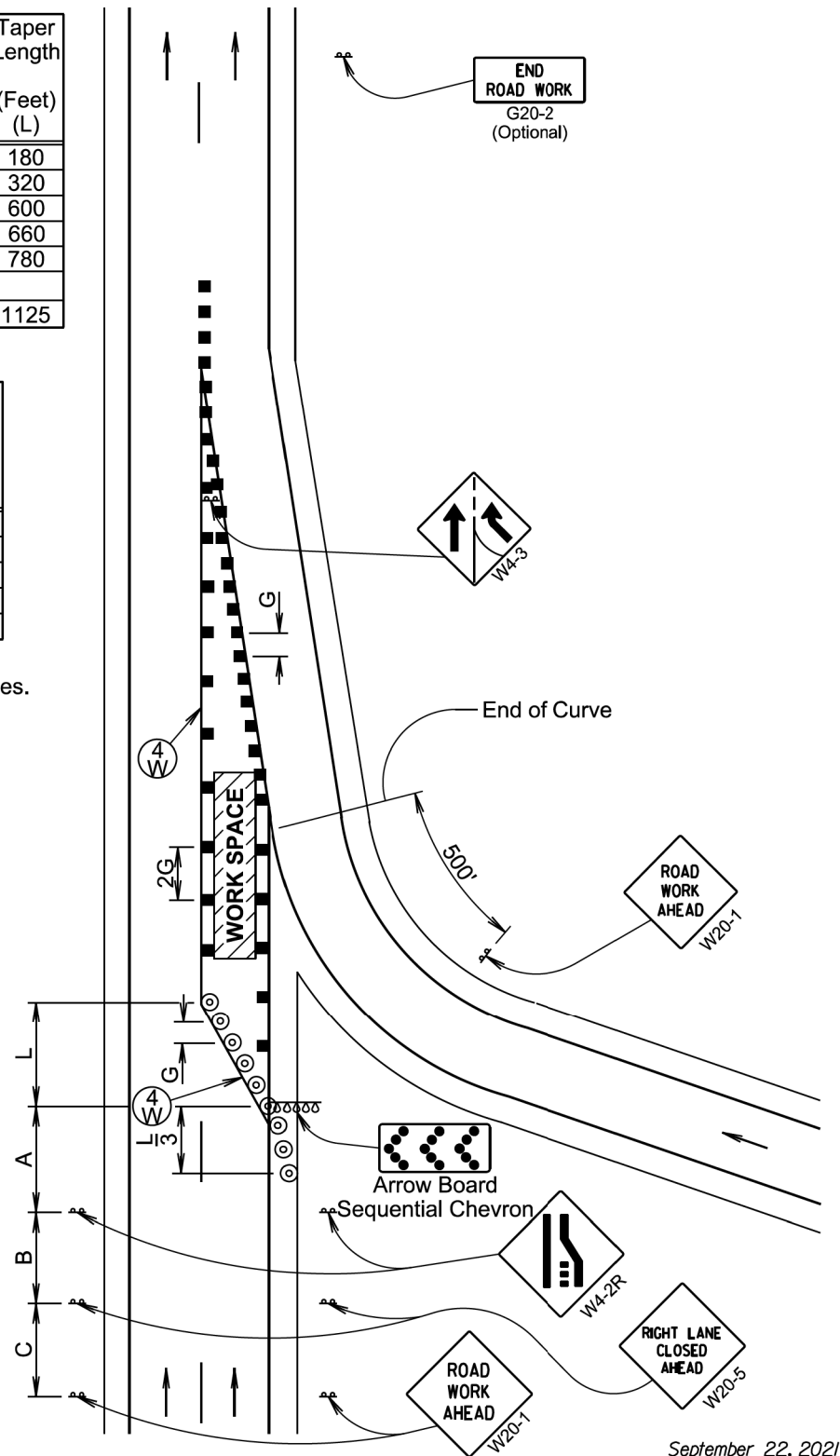
■ Channelizing Device

④ W 4" White Temporary Pavement Marking

Temporary pavement markings will be used if traffic control must remain overnight.

The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.



September 22, 2021

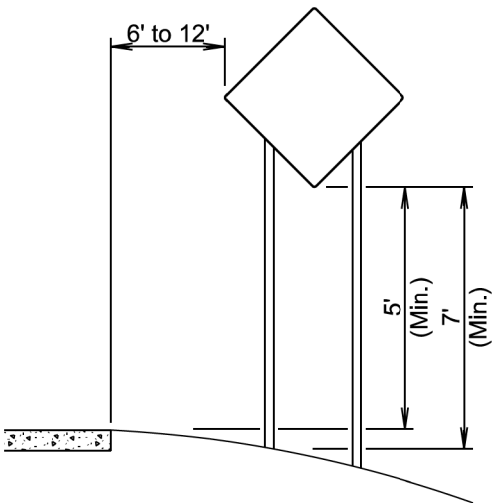
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WORK IN VICINITY OF ENTRANCE RAMP

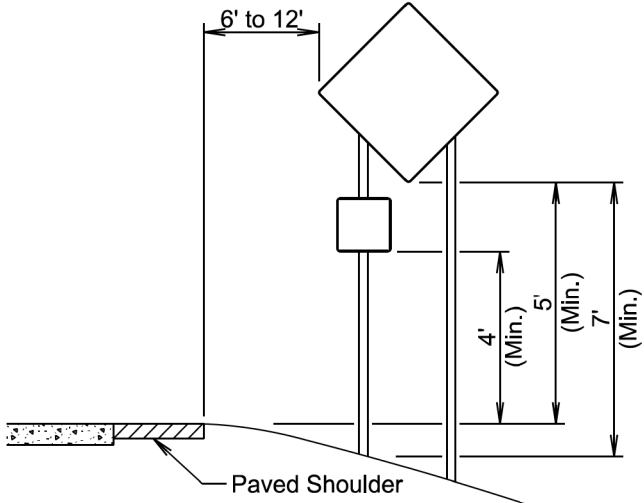
PLATE NUMBER
634.70

Sheet 1 of 1

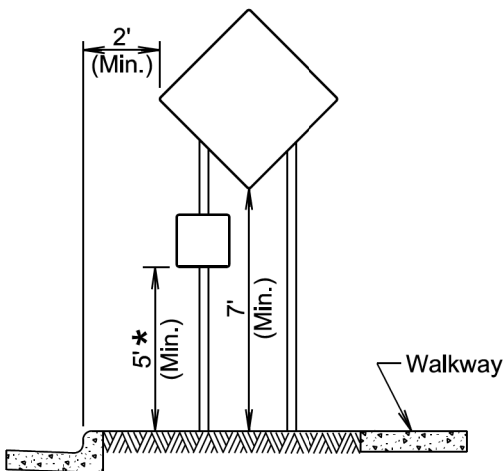
Published Date: 2026



RURAL DISTRICT

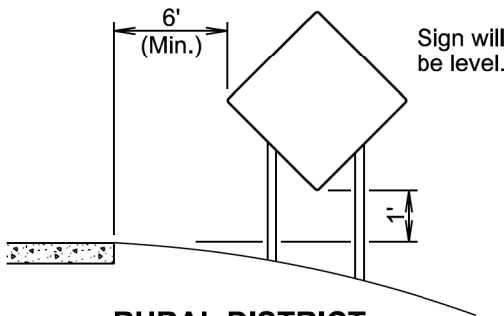


RURAL DISTRICT WITH
SUPPLEMENTAL PLATE



URBAN DISTRICT

* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.



RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

January 22, 2021

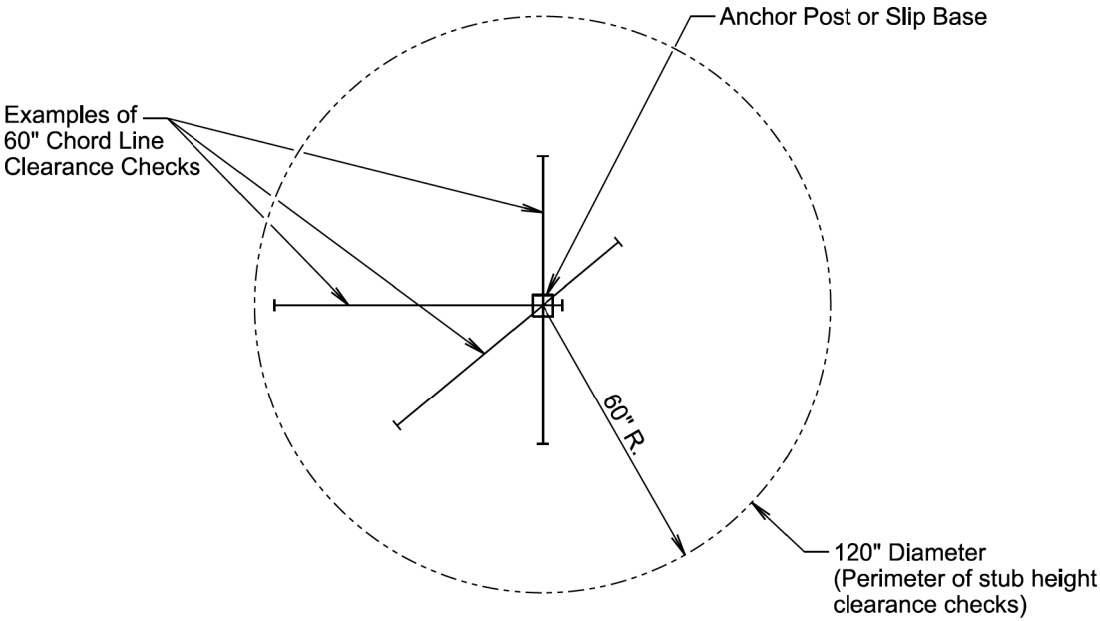
Published Date: 2026

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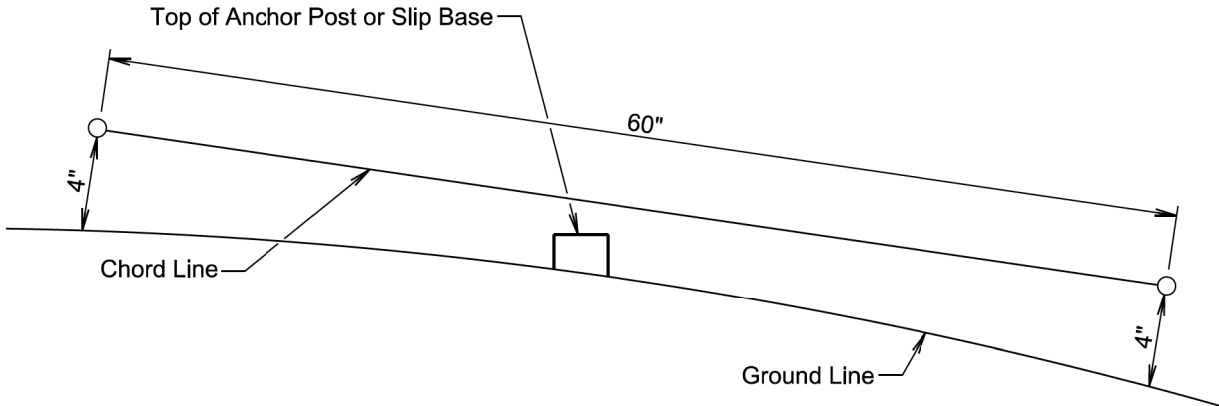
CRASHWORTHY SIGN SUPPORTS
(Typical Construction Signing)

PLATE NUMBER
634.85

Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

Published Date: 2026

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BREAKAWAY SUPPORT STUB CLEARANCE

PLATE NUMBER
634.99

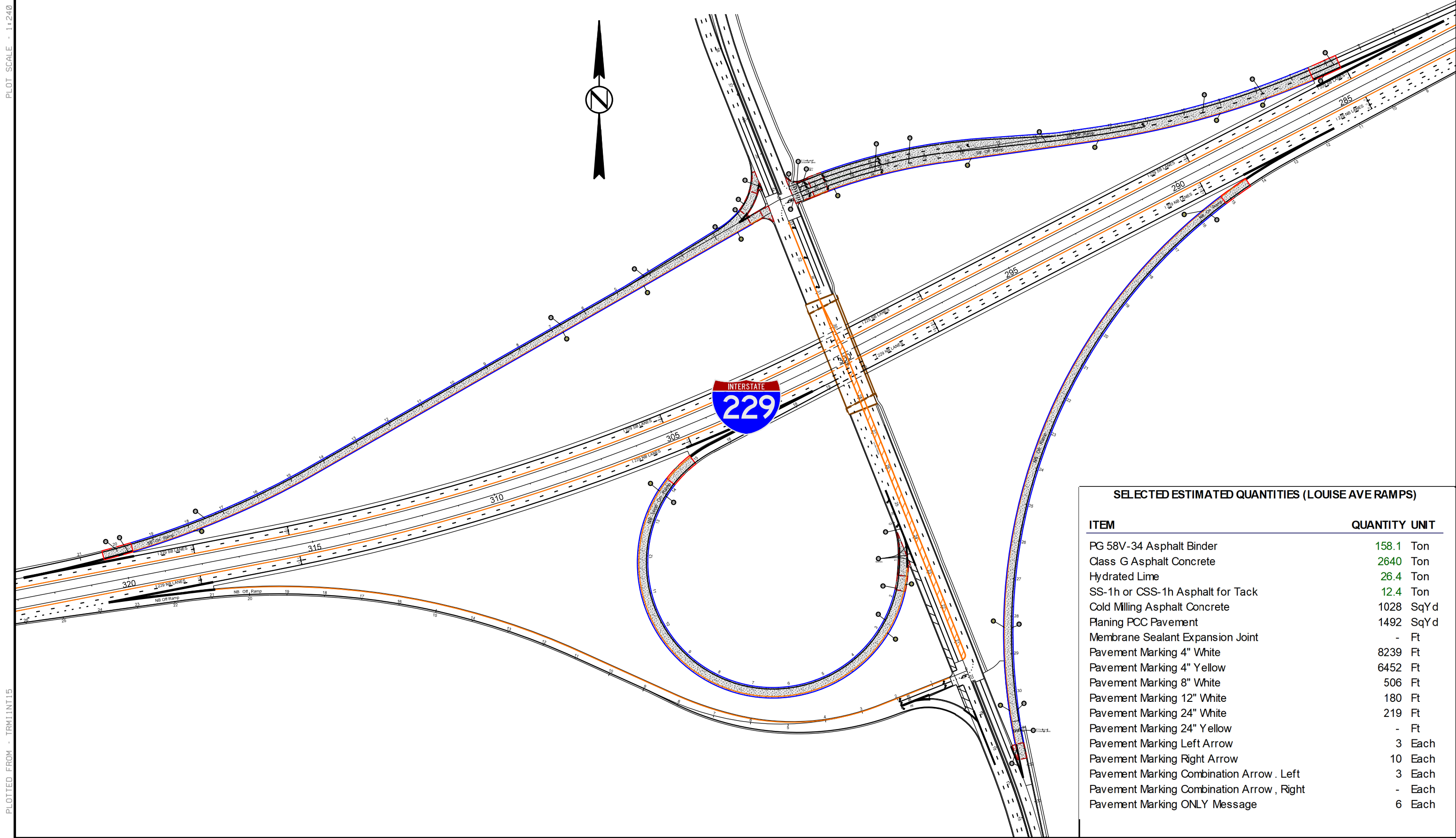
Sheet 1 of 1

OVERVIEW & ESTIMATED QUANTITIES FOR LOUISE AVENUE I229 EXIT 1C RAMPS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	51	99
Plotting Date: 10/02/2025		Rev. 10/2/25 MR	

PLOT SCALE - 1:240

PLOT NAME - 25



SELECTED ESTIMATED QUANTITIES (LOUISE AVE RAMPS)		
ITEM	QUANTITY	UNIT
PG 58V-34 Asphalt Binder	158.1	Ton
Class G Asphalt Concrete	2640	Ton
Hydrated Lime	26.4	Ton
SS-1h or CSS-1h Asphalt for Tack	12.4	Ton
Cold Milling Asphalt Concrete	1028	SqYd
Planing PCC Pavement	1492	SqYd
Membrane Sealant Expansion Joint	-	Ft
Pavement Marking 4" White	8239	Ft
Pavement Marking 4" Yellow	6452	Ft
Pavement Marking 8" White	506	Ft
Pavement Marking 12" White	180	Ft
Pavement Marking 24" White	219	Ft
Pavement Marking 24" Yellow	-	Ft
Pavement Marking Left Arrow	3	Each
Pavement Marking Right Arrow	10	Each
Pavement Marking Combination Arrow . Left	3	Each
Pavement Marking Combination Arrow , Right	-	Each
Pavement Marking ONLY Message	6	Each

PLOTTED FROM - TRMLINT15

FILE - ...\\INTERCHANGE OVERVIEWS 008F.DGN

OVERVIEW & ESTIMATED QUANTITIES FOR WESTERN AVENUE I229 EXIT 2 RAMPS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	52	99

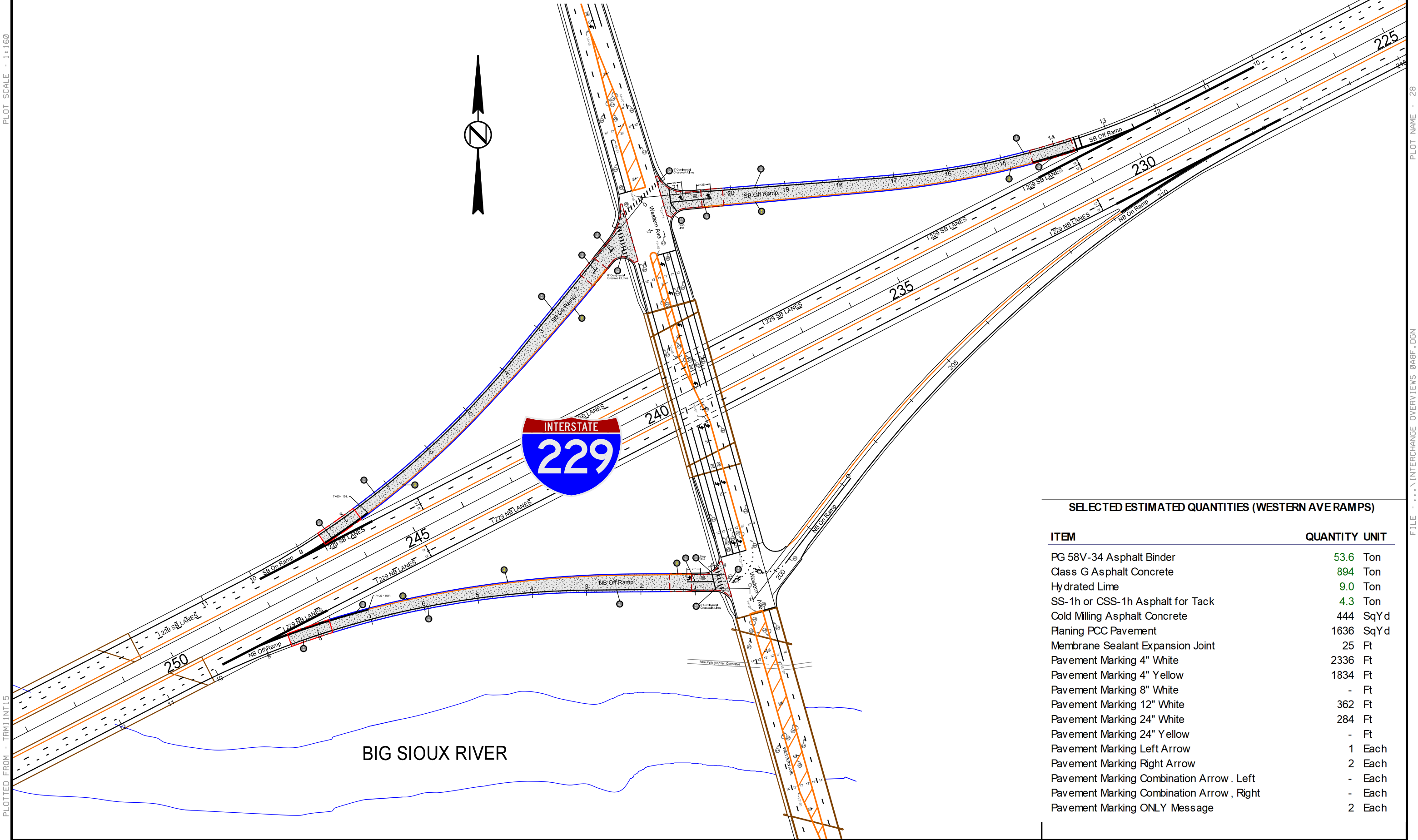
Plotting Date: 09/18/2025

PLOT SCALE - 1"=160'

PLOTTED FROM - TRML11T15

PLOT NAME - 28

FILE - ...\\INTERCHANGE OVERVIEWS 048F.DGN



SELECTED ESTIMATED QUANTITIES (WESTERN AVE RAMPS)

ITEM	QUANTITY	UNIT
PG 58V-34 Asphalt Binder	53.6	Ton
Class G Asphalt Concrete	894	Ton
Hydrated Lime	9.0	Ton
SS-1h or CSS-1h Asphalt for Tack	4.3	Ton
Cold Milling Asphalt Concrete	444	SqYd
Planing PCC Pavement	1636	SqYd
Membrane Sealant Expansion Joint	25	Ft
Pavement Marking 4" White	2336	Ft
Pavement Marking 4" Yellow	1834	Ft
Pavement Marking 8" White	-	Ft
Pavement Marking 12" White	362	Ft
Pavement Marking 24" White	284	Ft
Pavement Marking 24" Yellow	-	Ft
Pavement Marking Left Arrow	1	Each
Pavement Marking Right Arrow	2	Each
Pavement Marking Combination Arrow . Left	-	Each
Pavement Marking Combination Arrow , Right	-	Each
Pavement Marking ONLY Message	2	Each

OVERVIEW & ESTIMATED QUANTITIES FOR RICE STREET I229 EXIT 7 RAMPS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	53	99

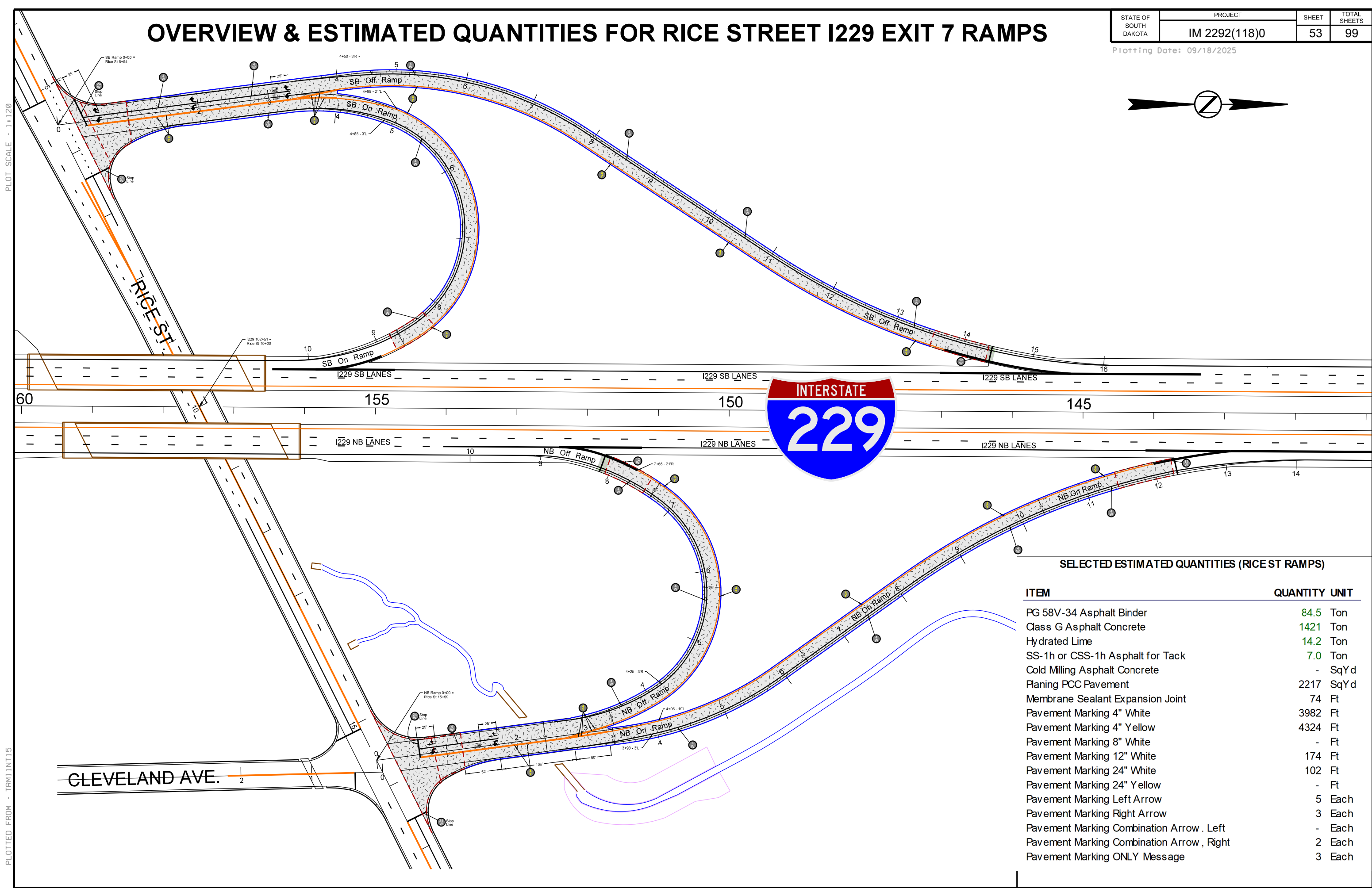
Plotting Date: 09/18/2025



PLOT SCALE - 1"=120'

PLOTTED FROM - TRMLINT15

FILE - ...\\INTERCHANGE OVERVIEWS 048F.DGN PLOT NAME - 29



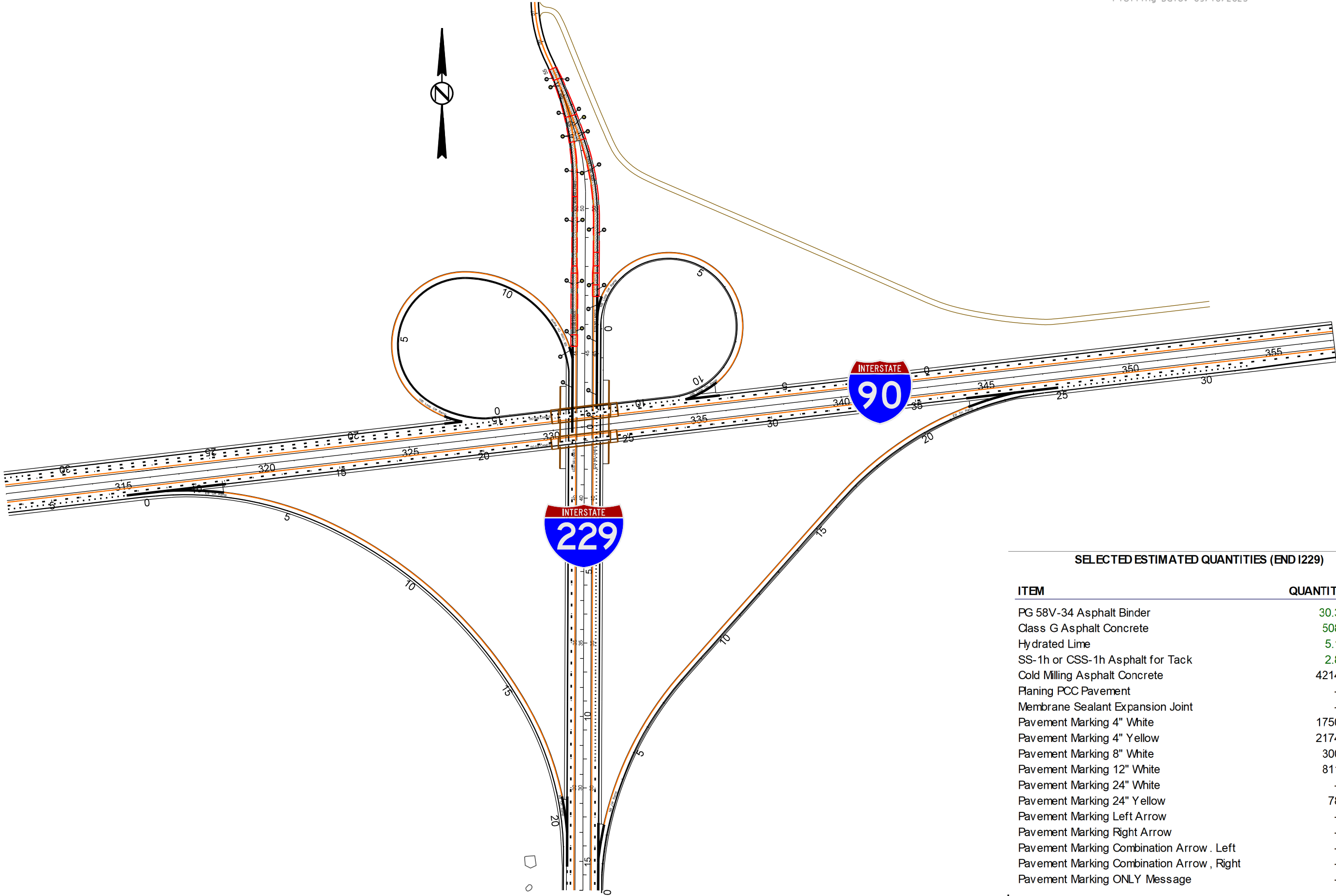
SELECTED ESTIMATED QUANTITIES (RICE ST RAMPS)

ITEM	QUANTITY	UNIT
PG 58V-34 Asphalt Binder	84.5	Ton
Class G Asphalt Concrete	1421	Ton
Hydrated Lime	14.2	Ton
SS-1h or CSS-1h Asphalt for Tack	7.0	Ton
Cold Milling Asphalt Concrete	-	SqYd
Planing PCC Pavement	2217	SqYd
Membrane Sealant Expansion Joint	74	Ft
Pavement Marking 4" White	3982	Ft
Pavement Marking 4" Yellow	4324	Ft
Pavement Marking 8" White	-	Ft
Pavement Marking 12" White	174	Ft
Pavement Marking 24" White	102	Ft
Pavement Marking 24" Yellow	-	Ft
Pavement Marking Left Arrow	5	Each
Pavement Marking Right Arrow	3	Each
Pavement Marking Combination Arrow . Left	-	Each
Pavement Marking Combination Arrow , Right	2	Each
Pavement Marking ONLY Message	3	Each

OVERVIEW & ESTIMATED QUANTITIES FOR I229 NORTH OF JCT I90 - I229 EXIT 10

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	54	99

Plotting Date: 09/18/2025



PLOT SCALE - 1:320

PLOTTED FROM - I229INT15

PLOT NAME - 30

FILE - ...\\INTERCHANGE OVERVIEWS 048F.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	55	99



Cold Milling Asphalt Concrete & 2" Class G Asphalt Concrete



2" Class G Asphalt Concrete



4 W Pavement Marking, 4" White

 Pavement Marking, 4" Yellow

12 W Pavement Marking, 12" White

Asphalt Concrete over PCC Pavement In Place

PCC Pavement In Place

SB Off Ramp

285

1 229 NB LANES

11

PLOT SCALE - 1:32

PLOTTED FROM - TRMI1NT15

PLOT NAME - 31

FILE - ... \PRJ2026\MINN0A8F\229EXIT1C.DGN

I229 EXIT 1C SB OFF RAMP & TRANSITION RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	56	99

Plotting Date: 09/18/2025

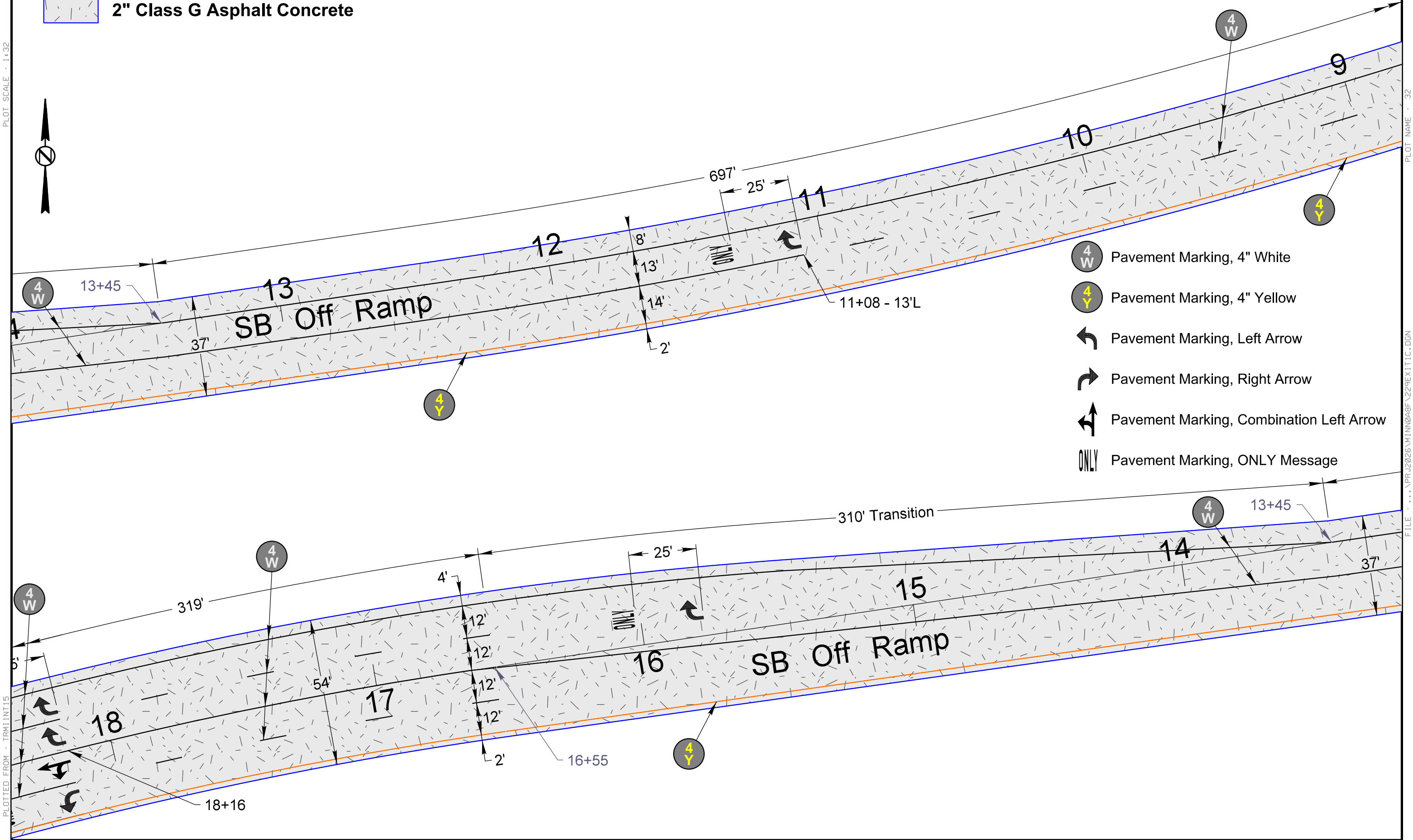
2" Class G Asphalt Concrete

PLOT SCALE - 1:32



PLOTTED FROM - TRM11T15

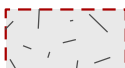
PLOT NAME - 32
FILE - ... \PRJ2026\WINN048F\229EXIT1C.DGN



I229 EXIT 1C SB OFF & ON RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	57	99

Plotting Date: 09/18/2025

-  Planing PCC Pavement & 2" Class G Asphalt Concrete
-  2" Class G Asphalt Concrete

Steel Tie Bars are in place from previous stitching operation from approx. 19+00 to 20+30. Refer to the notes for PLANING PCC PAVEMENT for concrete removal and sawing off steel tie bars in this area.

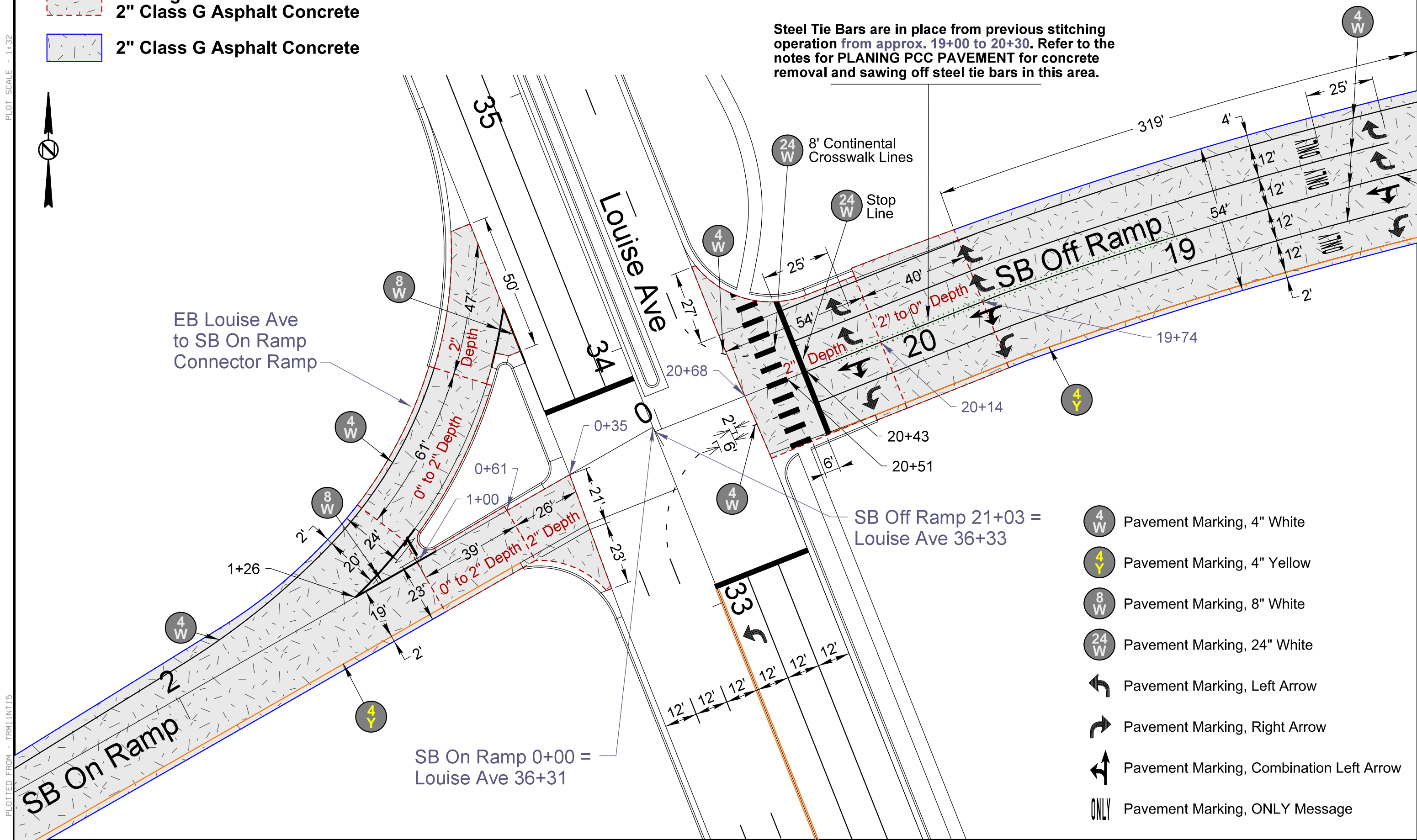
PLOT SCALE - 1:32



PLOTTED FROM - TRML115

PLOT NAME - 33

FILE - ... \PRJ2026\WINN048F\229EXIT1C.DGN



-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow
-  Pavement Marking, 8" White
-  Pavement Marking, 24" White
-  Pavement Marking, Left Arrow
-  Pavement Marking, Right Arrow
-  Pavement Marking, Combination Left Arrow
-  Pavement Marking, ONLY Message

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	58	99

FLOT NAME

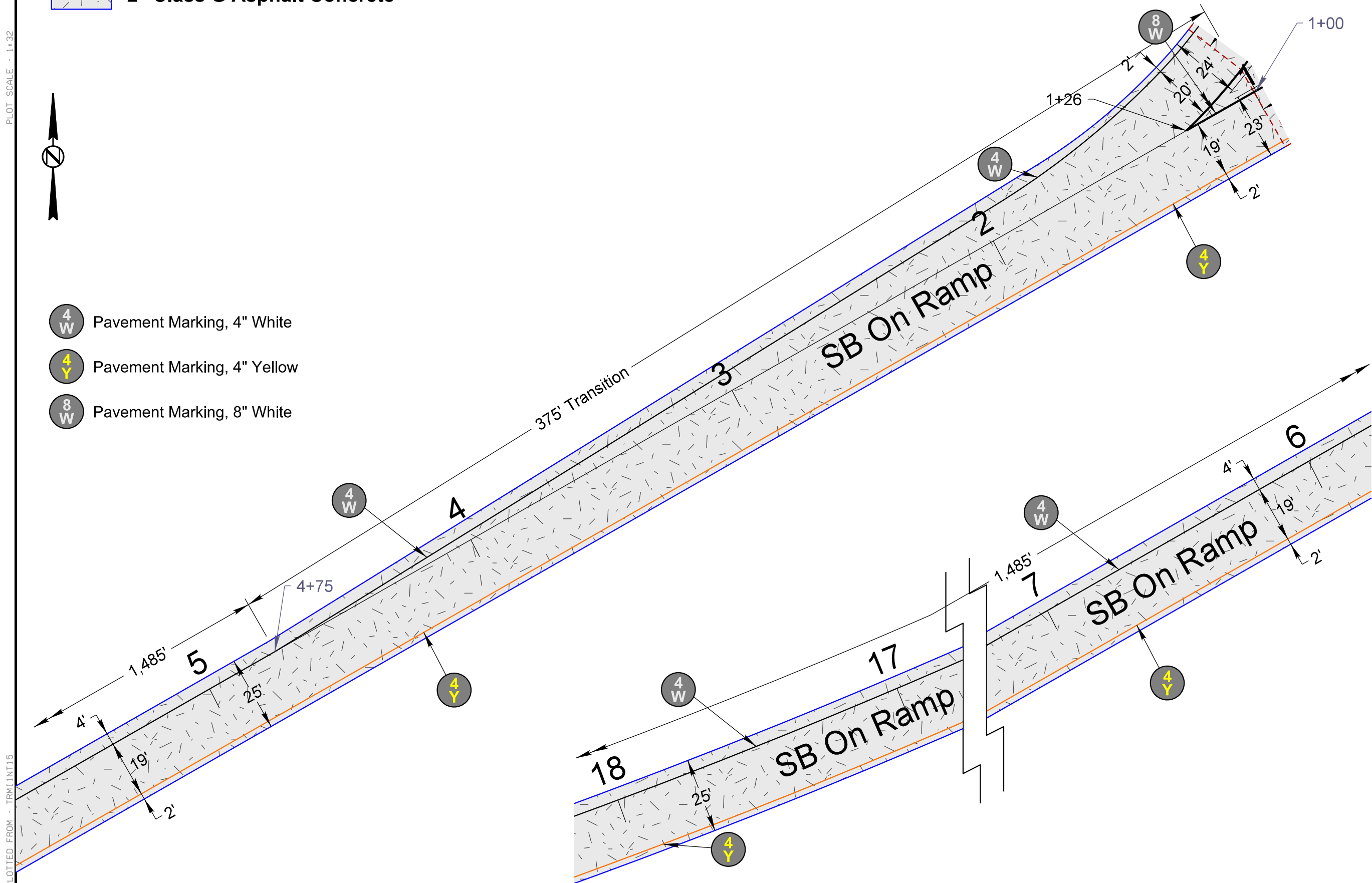
FILE - ...: VPCJ220 AMININWHP01 V22 JEX11 TC.D001

PLOT SCALE - 1:32

PLOTTED FROM - TRMI1NT15



-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow
-  Pavement Marking, 8" White



I229 EXIT 1C SB ON RAMP MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	59	99

Plotting Date: 09/18/2025

-  Cold Milling Asphalt Concrete & 2" Class G Asphalt Concrete
-  2" Class G Asphalt Concrete

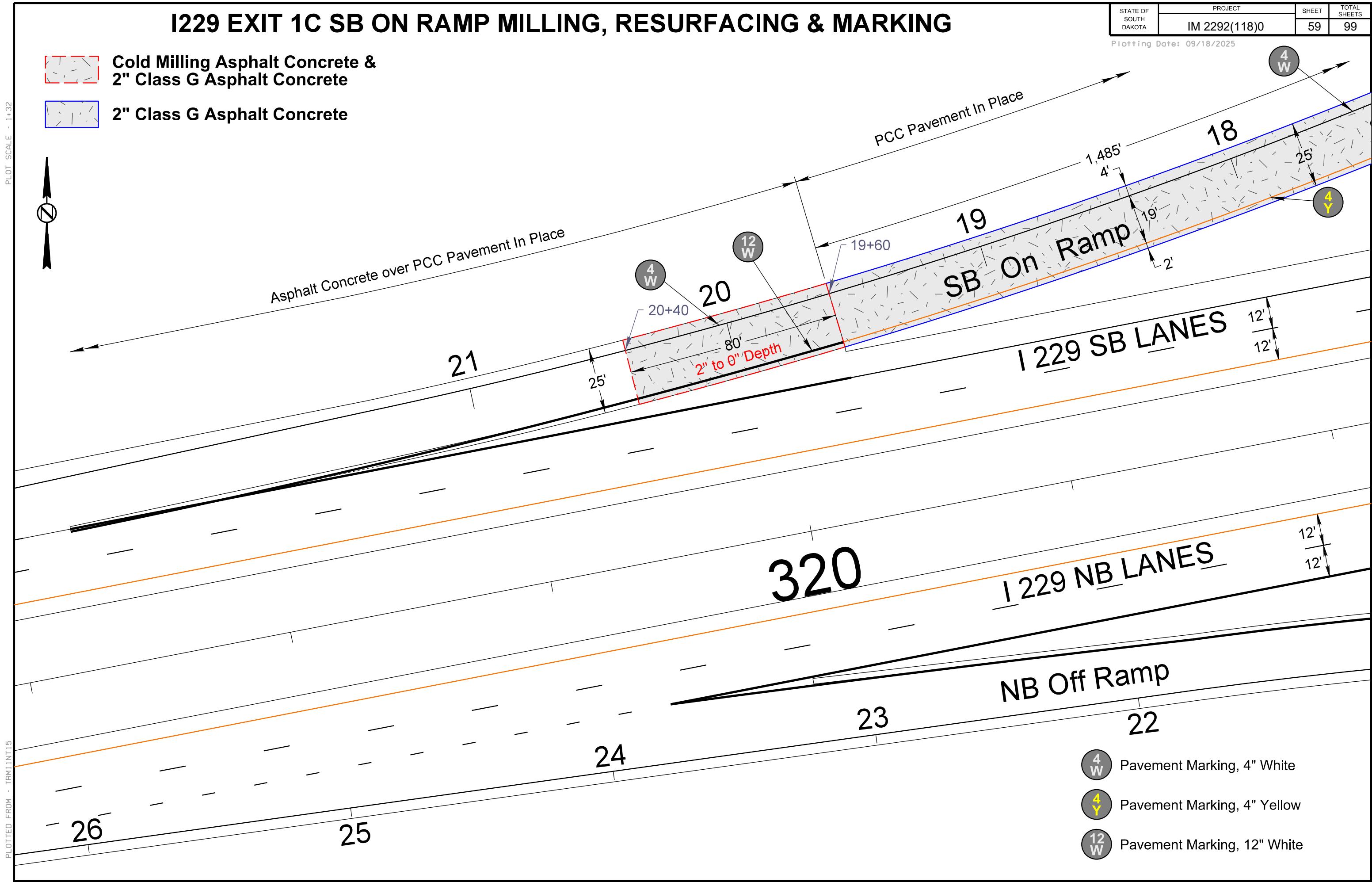


PLOT SCALE - 1:32

PLOT NAME - 35

PLOTTED FROM - IRMLINT15

FILE - ... \PRJ2026\WINN048F\229EXIT1C.DGN



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	60	99

Plotting Date: 10/02/2025 Rev. 10/2/25 MR

Rev. 10/2/25 MR

NB Off Ramp

Louise Ave
20

Up On Ramp

30

4 W

8' Continental Crosswalk Lines

- 31+82

32



8 W

4
W

4
Y

24
W

Pavement Marking, 24" White

PLOTTED FROM - TRMI1NT15

PLOT NAME - 34

FILE - ... \PRJ2026\MINN0A8F\229EXIT1C.DGN

I229 EXIT 1C NB ON RAMP MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	61	99

Plotting Date: 09/18/2025

-  Cold Milling Asphalt Concrete &
2" Class G Asphalt Concrete
-  2" Class G Asphalt Concrete

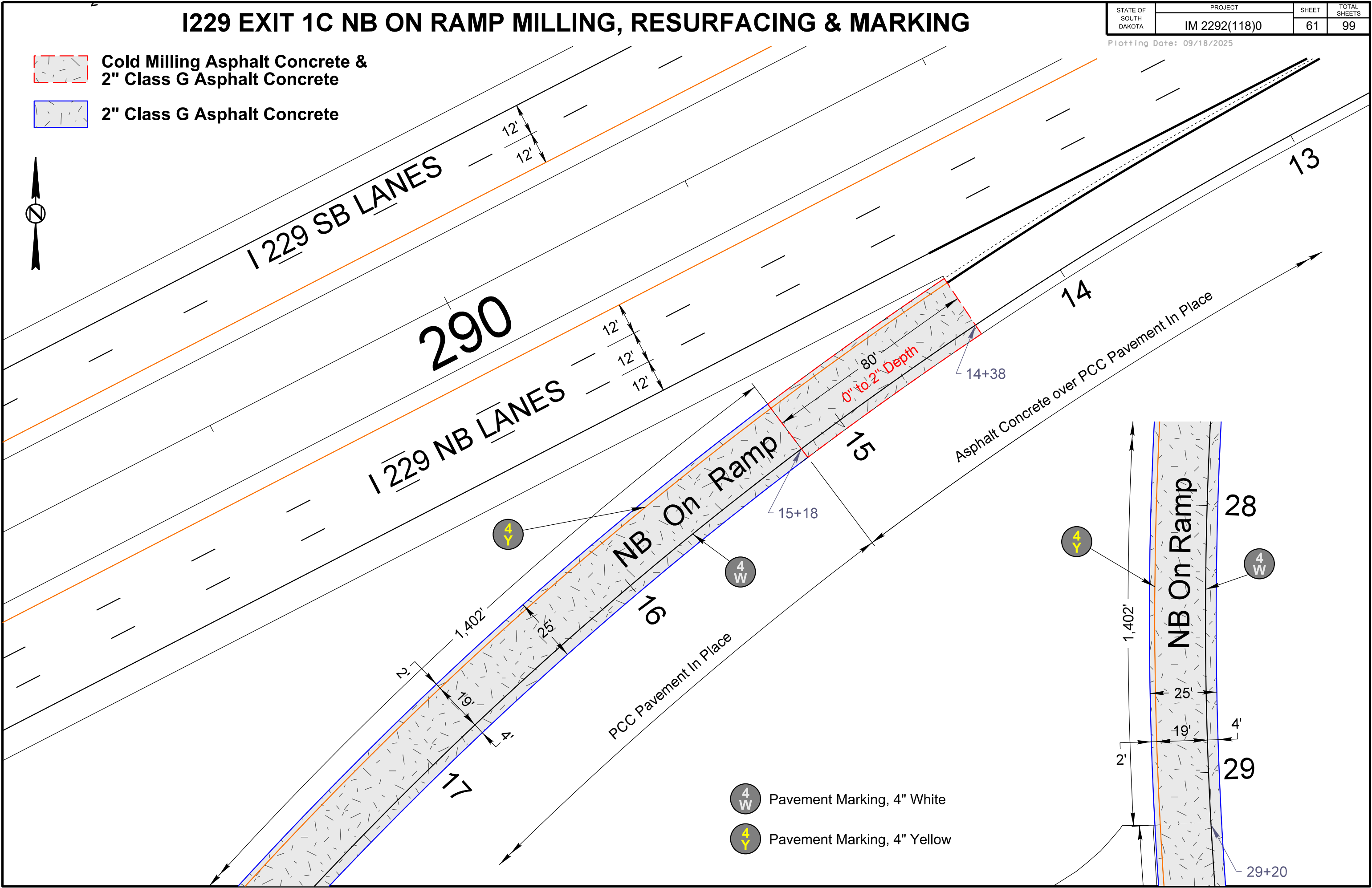


PLOT SCALE - 1:32

PLOTTED FROM - TRM11N115

PLOT NAME - 37

FILE - ... \PRJ2026\MINN048F\229EXIT1C.DGN



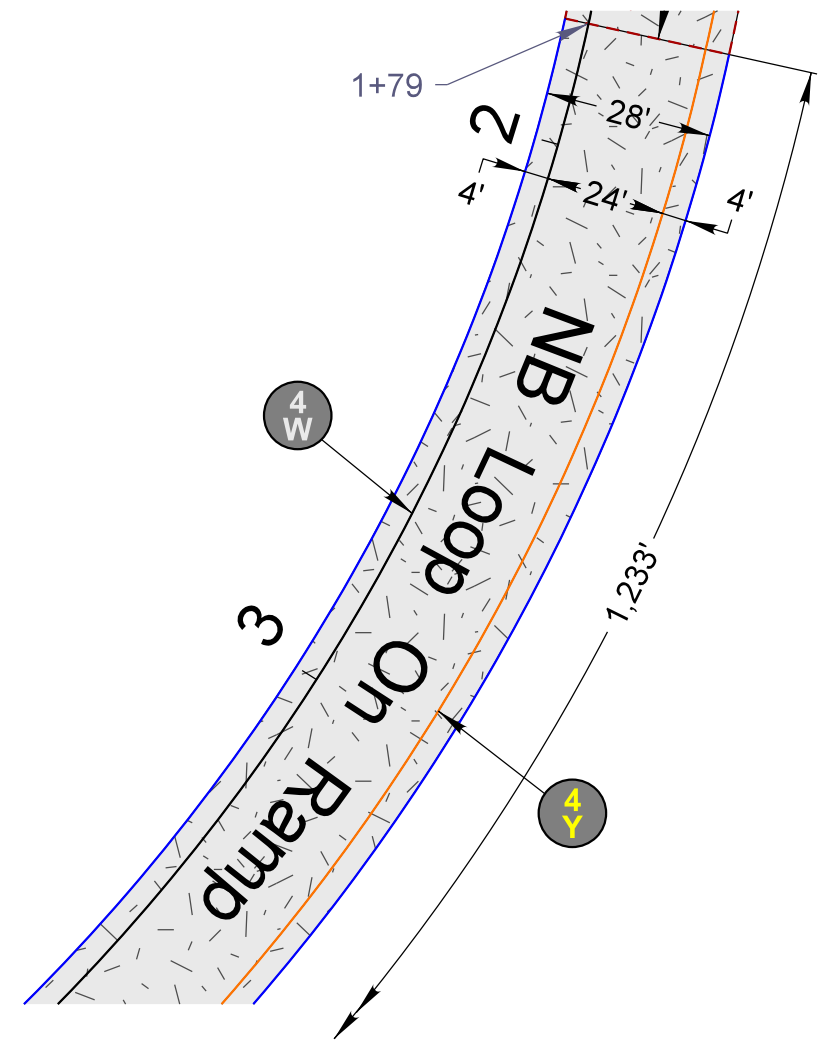
-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	62	99

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FILE - ..\PRJ2026\MINN08F\229EXIT1C.DGN
```

PLOTTED FROM - TRMI1NT15

NB Loop On Ramp 0+00 =
Louise Ave 24+57-36'L



-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow
-  Pavement Marking, 8" White
-  Pavement Marking, 24" White
-  Pavement Marking, Right Arrow
-  Pavement Marking, ONLY Message

I229 EXIT 1C NB LOOP ON RAMP MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	63	99

Plotting Date: 09/18/2025

- Cold Milling Asphalt Concrete & 2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete

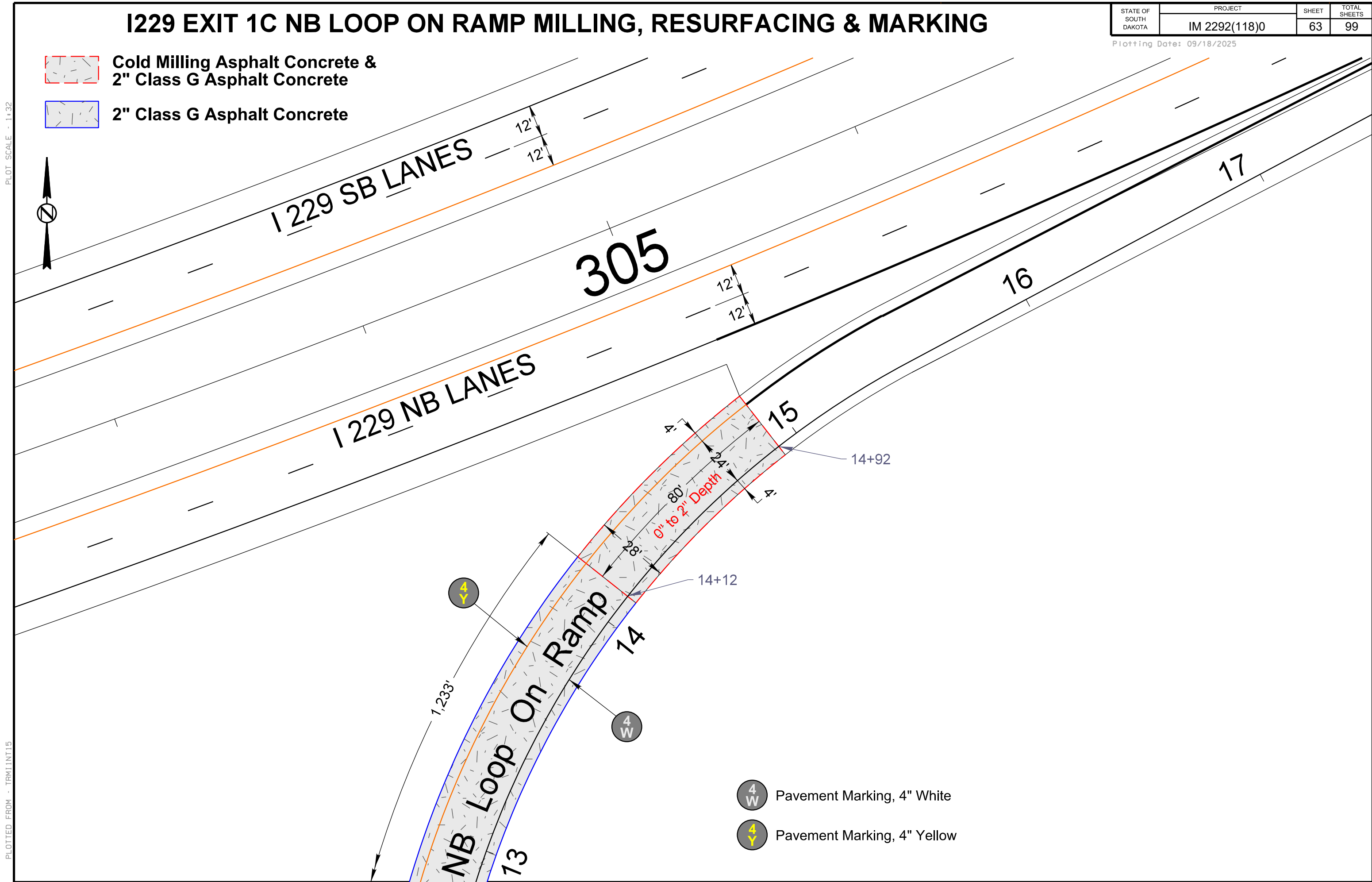


PLOT SCALE - 1:32

PLOT NAME - 39

PLOTTED FROM - TRM11NT15

FILE - ... \PRJ2026\MINN048F\229EXIT1C.DGN



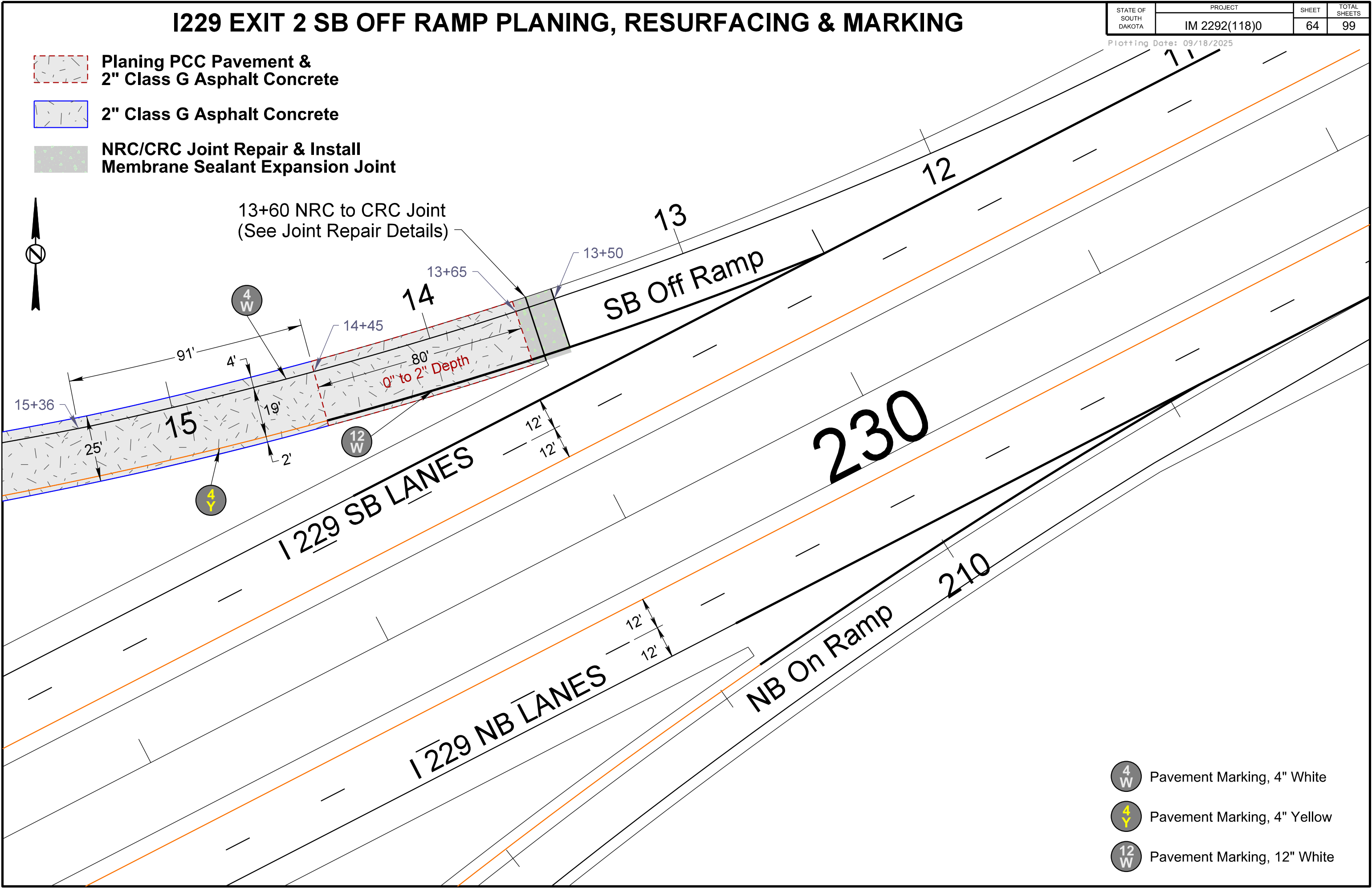
- 4 W Pavement Marking, 4" White
- 4 Y Pavement Marking, 4" Yellow

I229 EXIT 2 SB OFF RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	64	99

Plotting Date: 09/18/2025

- Planing PCC Pavement & 2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete
- NRC/CRC Joint Repair & Install Membrane Sealant Expansion Joint



- 4 W Pavement Marking, 4" White
- 4 Y Pavement Marking, 4" Yellow
- 12 W Pavement Marking, 12" White

PLOT SCALE - 1:31.9999

PLOTTED FROM - TRMLINT15

FILE - ... \PRJ2026\WINN048F\229EXIT2.DGN PLOT NAME - 40

I229 EXIT 2 SB OFF RAMP TRANSITION RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	65	99

Plotting Date: 09/18/2025

2" Class G Asphalt Concrete

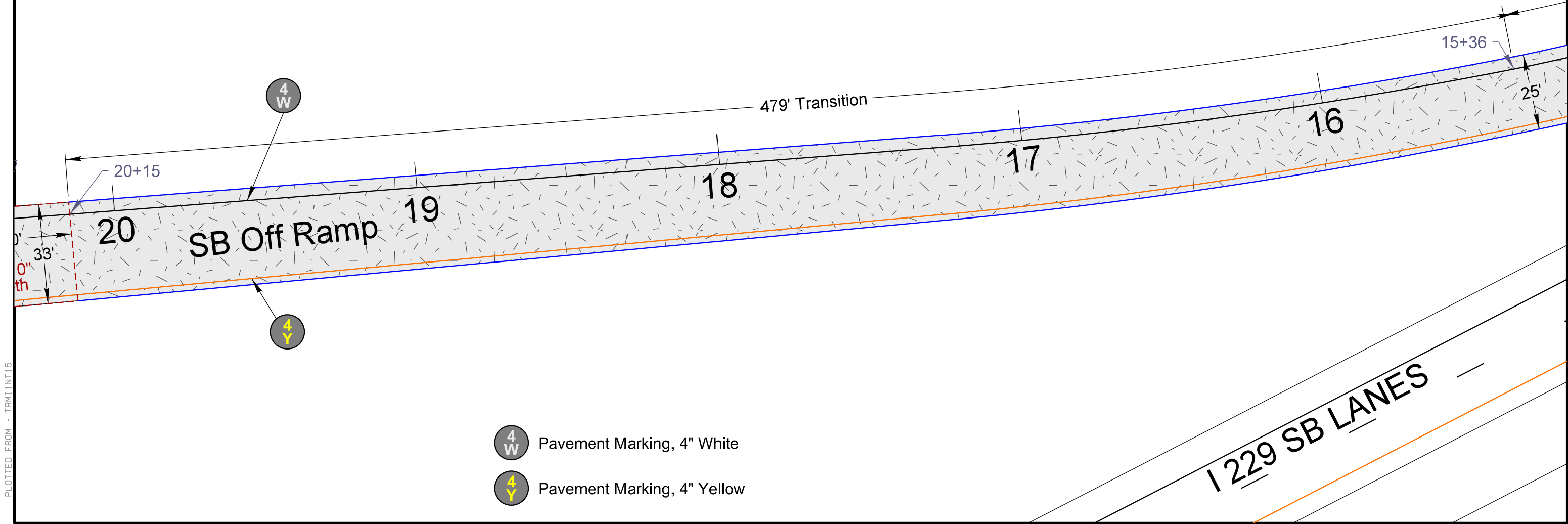


PLOT SCALE - 1+31.9999

PLOT NAME - 41

FILE - ... \PRJ2026\MINN08F\229EXIT2.DGN

PLOTTED FROM - TRM1INT15



- 4 W Pavement Marking, 4" White
- 4 Y Pavement Marking, 4" Yellow

I229 EXIT 2 SB OFF & ON RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	66	99

Plotting Date: 09/18/2025

- Planing PCC Pavement & 2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete



SB On Ramp 0+00 =
Western Ave 16+45

SB Off Ramp 21+65 =
Western Ave 16+37

24 W 8' Continental
Crosswalk Lines

24 W
Stop
Line

24 W 8' Continental
Crosswalk Lines

20 SB Off Ramp 19

SB On Ramp 2

I 229 SB LANES

- 4 W Pavement Marking, 4" White
- 4 Y Pavement Marking, 4" Yellow
- 24 W Pavement Marking, 24" White
- ➡ Pavement Marking, Right Arrow
- ONLY Pavement Marking, ONLY Message

PLOT SCALE - 1"=31.9999'

PLOTTED FROM - TRM11N115

PLOT NAME - 42

FILE - ... \PRJ2026\WINN048F\229EXIT2.DGN

I229 EXIT 2 SB ON RAMP & TRANSITION MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	67	99

Plotting Date: 09/18/2025



Cold Milling Asphalt Concrete & 2" Class G Asphalt Concrete



2" Class G Asphalt Concrete



 Pavement Marking, 4" White

 Pavement Marking, 4" Yellow

12 W Pavement Marking, 12" White



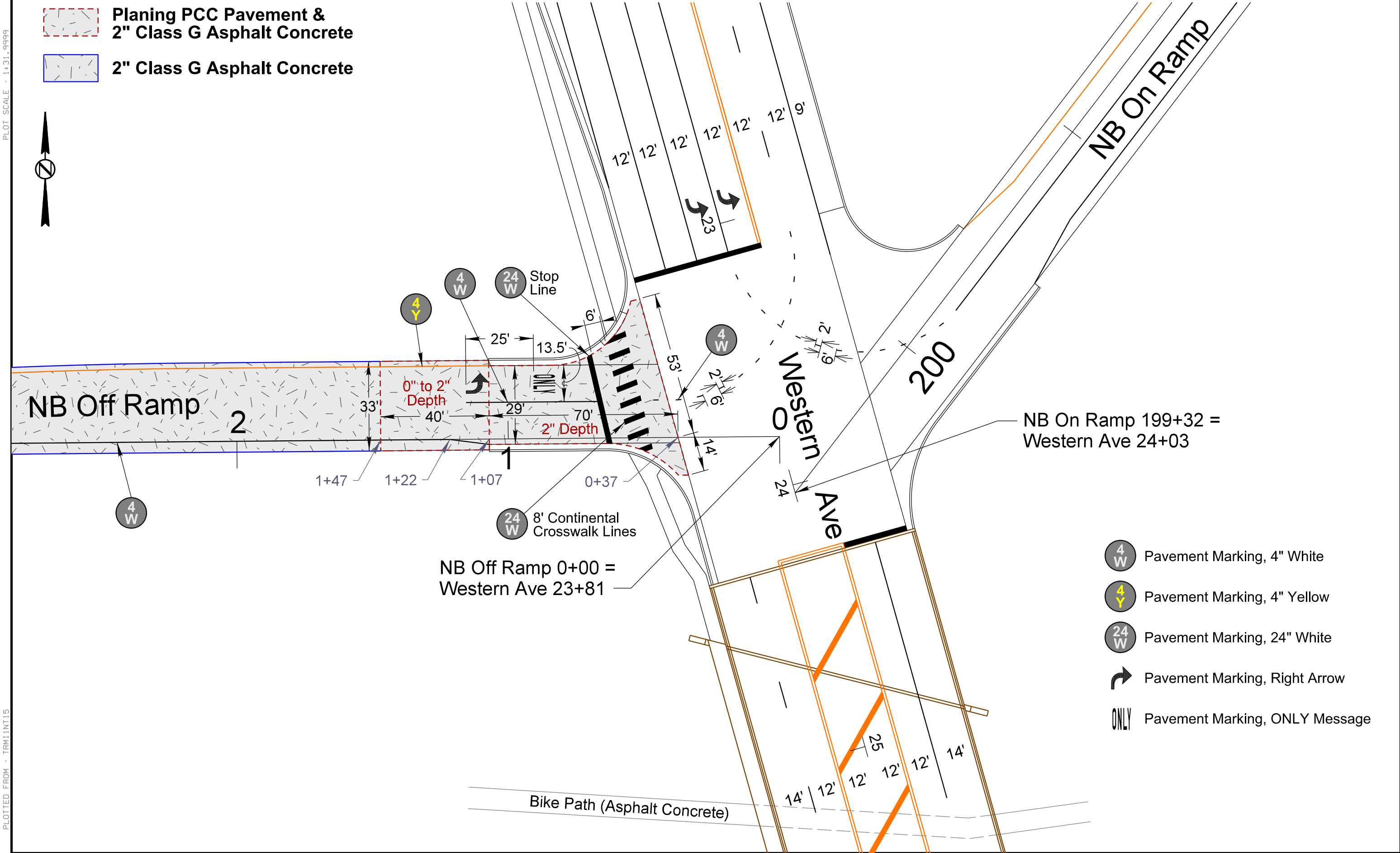
I229 EXIT 2 NB OFF RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	68	99

Plotting Date: 09/18/2025

PLOT SCALE - 1+31.9999

- Planing PCC Pavement &
2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete



- 4 W

Pavement Marking, 4" White
- 4 Y

Pavement Marking, 4" Yellow
- 24 W

Pavement Marking, 24" White
- ➡

Pavement Marking, Right Arrow
- ONLY

Pavement Marking, ONLY Message

PLOTTED FROM - TRM1INT15

FILE - ... \PRJ2026\MINN08F\229EXIT2.DGN PLOT NAME - 44

I229 EXIT 2 NB OFF RAMP & TRANSITION MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	69	99

Plotting Date: 09/18/2025

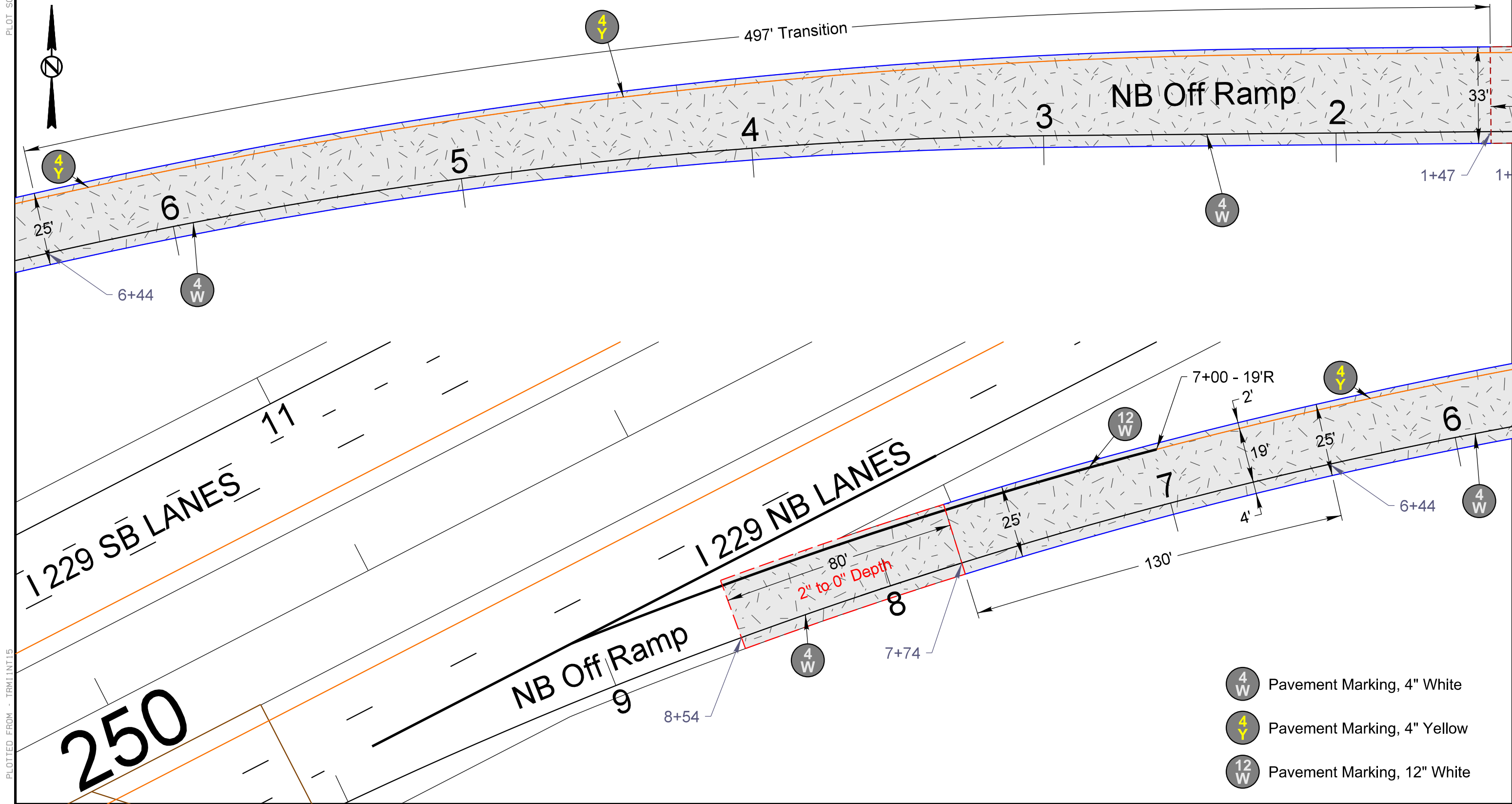
PLOT SCALE - 1+31.9999

PLOT NAME - 45

FILE - ... \PRJ2026\WINN08F\229EXIT2.DGN

PLOTTED FROM - TRM1INT15

-
-



-
-
-

I229 EXIT 7 SB OFF & ON RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	70	99

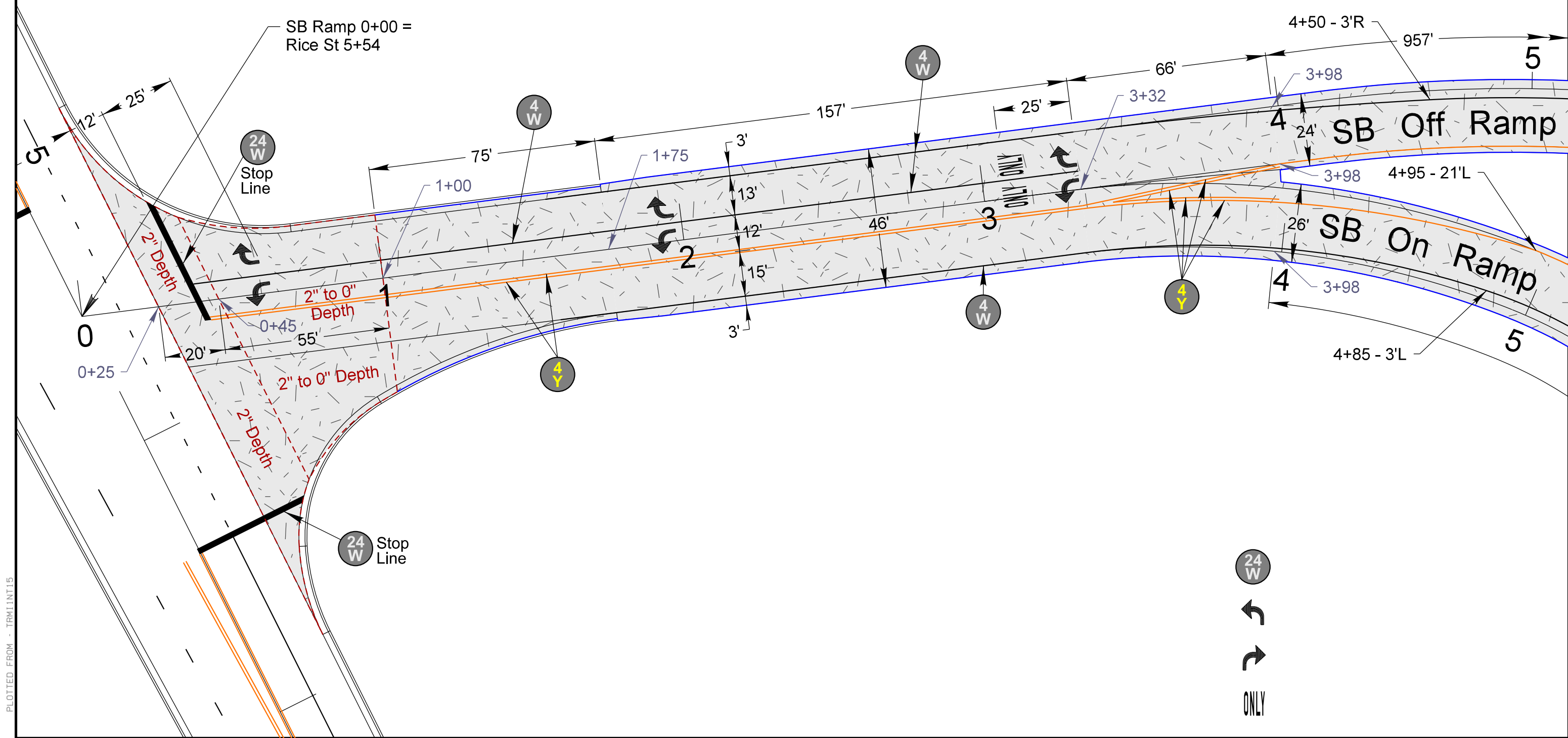
Plotting Date: 09/18/2025

- Planing PCC Pavement &
2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete



PLOT SCALE - 1:31.9999

PLOT NAME - 46
FILE - ...\\PRJ2026\\MIN068F\\229EXIT7.DGN



24 W
ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	71	99



I229 EXIT 7 SB OFF RAMP RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	72	99

Plotting Date: 09/18/2025



PLOT SCALE - 1:31.9999

PLOT NAME - 48

FILE - ... \PRJ2026\MINN08F\229EXIT7.DGN

PLOTTED FROM - TRM1INT15

4
Y

4
W

9

10

4
Y

4
W

11

12

4
W

13

SB Off Ramp

13+55

4
Y

13+76 - 19'R

0" to

2" Class G Asphalt Concrete

4
W Pavement Marking, 4" White

4
Y Pavement Marking, 4" Yellow

957'

24'

957'

6'

16'

2'

I229 EXIT 7 SB OFF RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	73	99

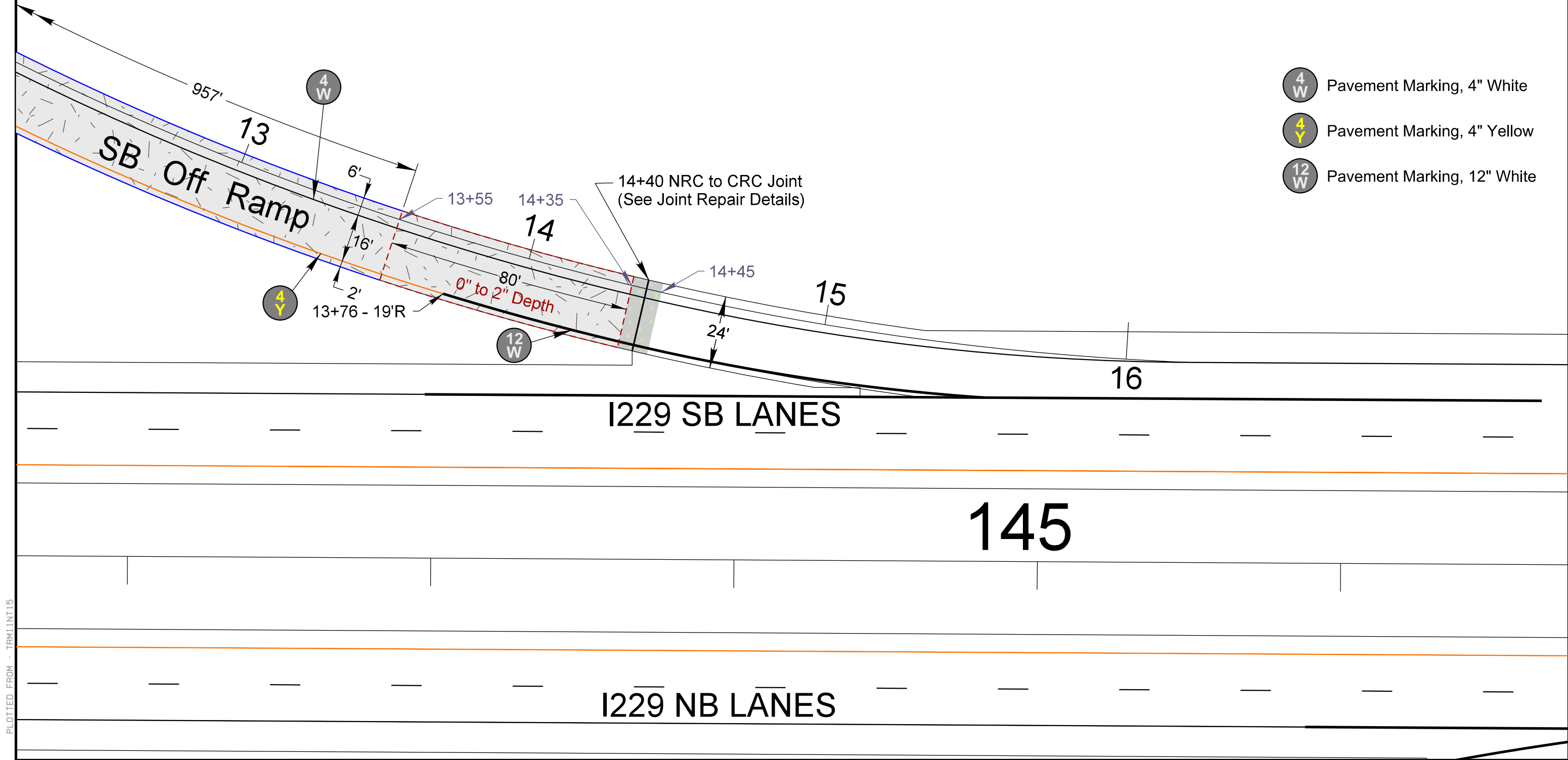
Plotting Date: 09/18/2025

-  Planing PCC Pavement &
2" Class G Asphalt Concrete
-  2" Class G Asphalt Concrete
-  NRC/CRC Joint Repair & Install
Membrane Sealant Expansion Joint



PLOT SCALE - 1:31.9999

PLOT NAME - 49



PLOTTED FROM - TRM1INT15

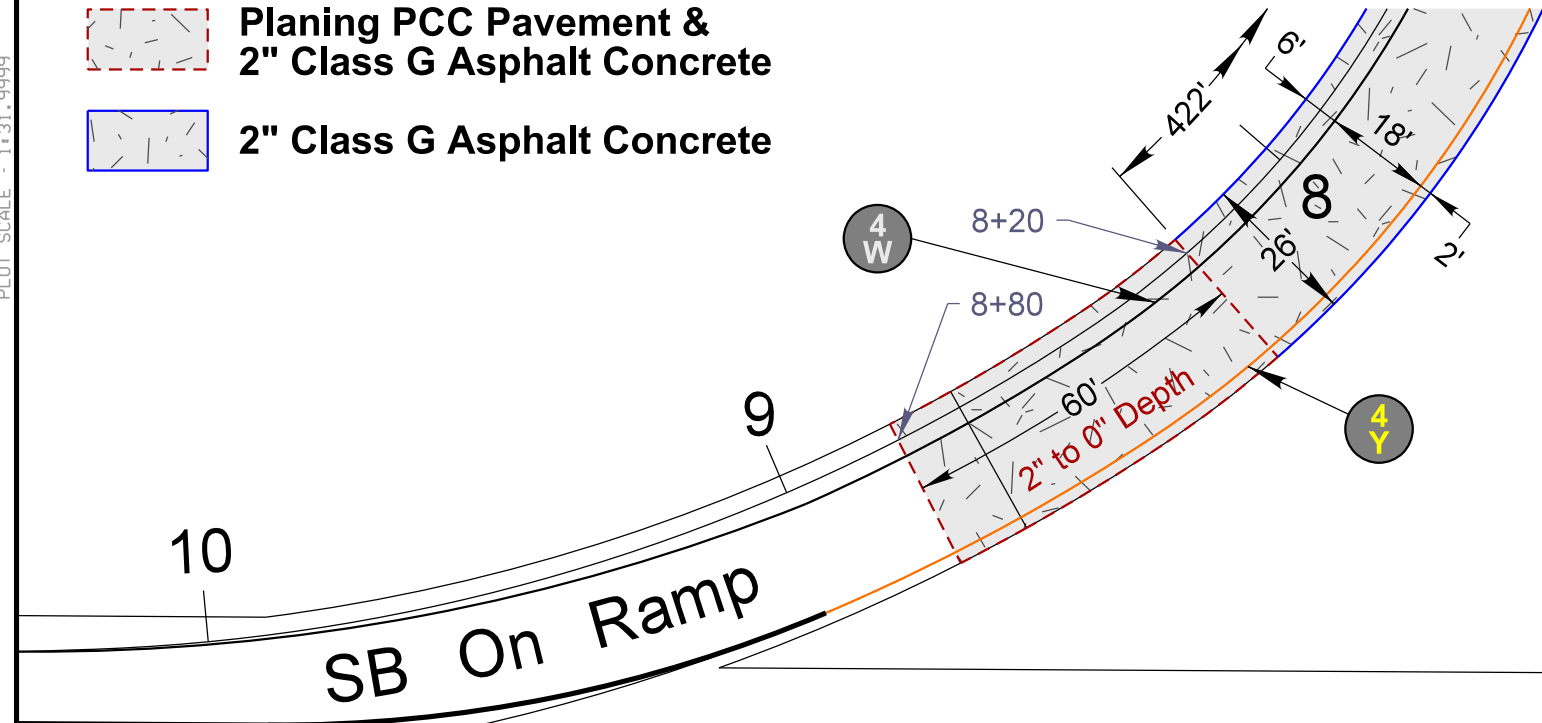
FILE - ... \PRJ2026\MINN08F\229EXIT7.DGN

I229 EXIT 7 SB ON RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	74	99

Plotting Date: 09/18/2025

- Planing PCC Pavement &
2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete



I229 SB LANES

155

I229 NB LANES

4 W Pavement Marking, 4" White

4 Y Pavement Marking, 4" Yellow

PLOT SCALE - 1:31.9999

PLOTTED FROM - TRM1INT15

PLOT NAME - 50

FILE - ... \PRJ2026\MINN08F\229EXIT7.DGN

I229 EXIT 7 NB OFF & ON RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	75	99

Plotting Date: 09/18/2025

- Planing PCC Pavement &
2" Class G Asphalt Concrete
- 2" Class G Asphalt Concrete

- 4
W

Pavement Marking, 4" White
- 4
Y

Pavement Marking, 4" Yellow
- 24
W

Pavement Marking, 24" White
- Pavement Marking, Left Arrow
- Pavement Marking, Combination Right Arrow
- ONLY

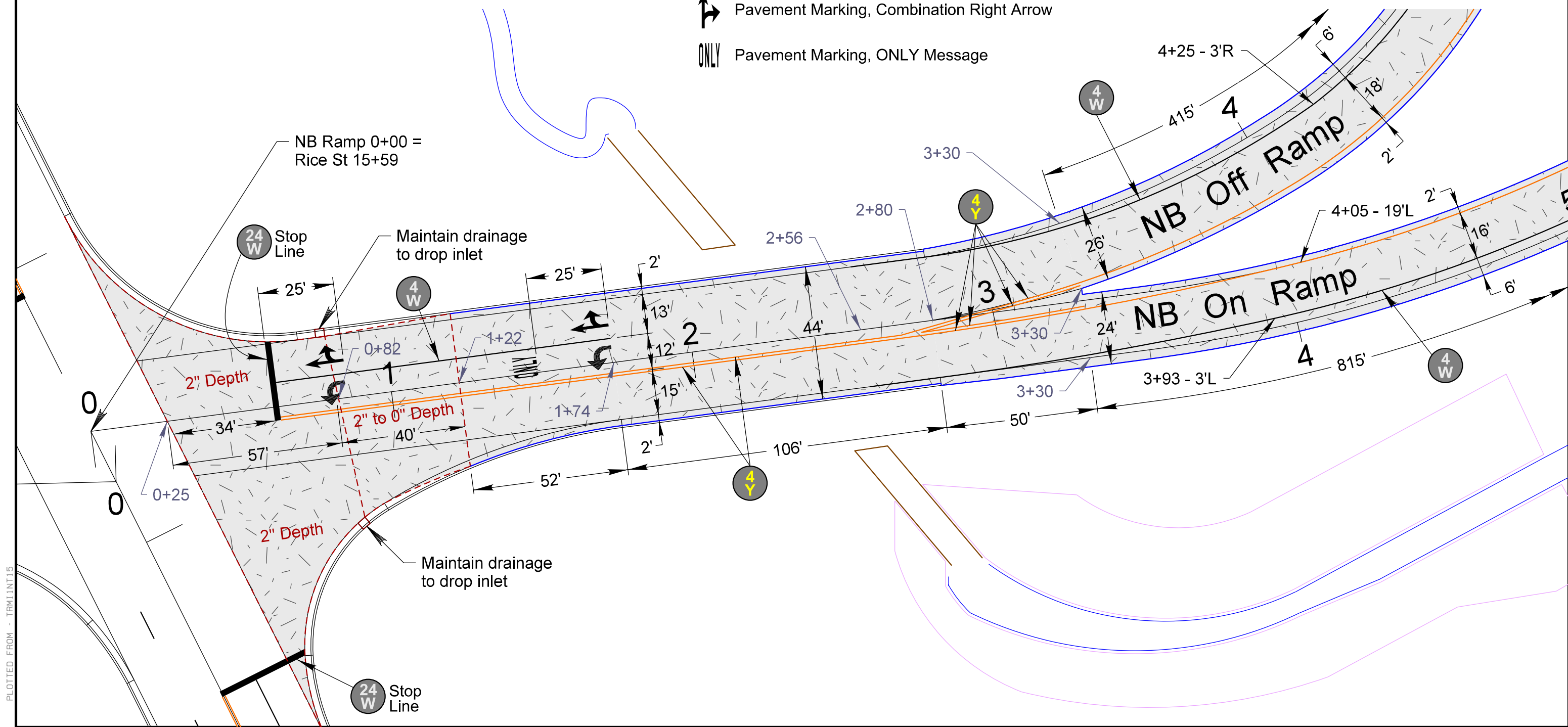
Pavement Marking, ONLY Message



PLOT SCALE - 1+31.9999

PLOT NAME - 51
FILE - ... \PRJ2026\MINN068F\229EXIT7.DGN

PLOTTED FROM - TRMLINT15



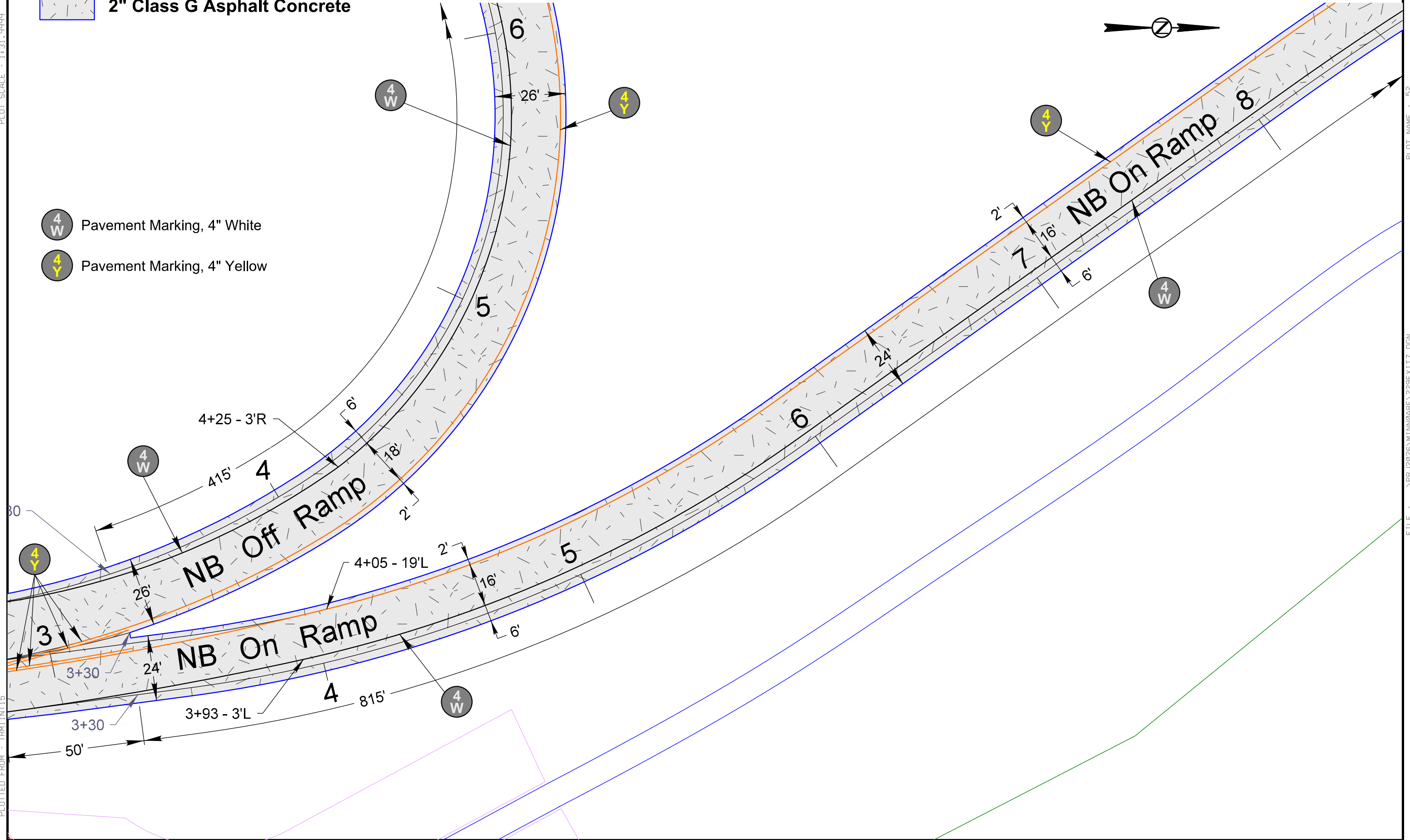
I229 EXIT 7 NB OFF & ON RAMP RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	76	99

Plotting Date: 09/18/2025

2" Class G Asphalt Concrete

- Pavement Marking, 4" White
- Pavement Marking, 4" Yellow



PLOT SCALE - 1:31.9999

PLOTTED FROM - TRM1INT15

PLOT NAME - 52

FILE - ... \PRJ2026\WINN048F\229EXIT7.DGN

I229 EXIT 7 NB ON RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	77	99

Plotting Date: 09/18/2025



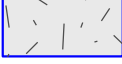
I229 SB LANES

16

145

I229 NB LANES

 Planing PCC Pavement &
2" Class G Asphalt Concrete

 2" Class G Asphalt Concrete

NB On Ramp

12+00 - 19'L

80'
2" to 0" Depth

12

12+25

12+30 NRC to CRC Joint
(See Joint Repair Details)

11+45

11

2'

24'

16'

6'

10

9

815'

-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow
-  Pavement Marking, 12" White

PLOT SCALE - 1:31.9999

PLOTTED FROM - TRM1INT15

PLOT NAME - 53

FILE - ... \PRJ2026\MINN08F\229EXIT7.DGN

I229 EXIT 7 NB OFF RAMP PLANING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	78	99

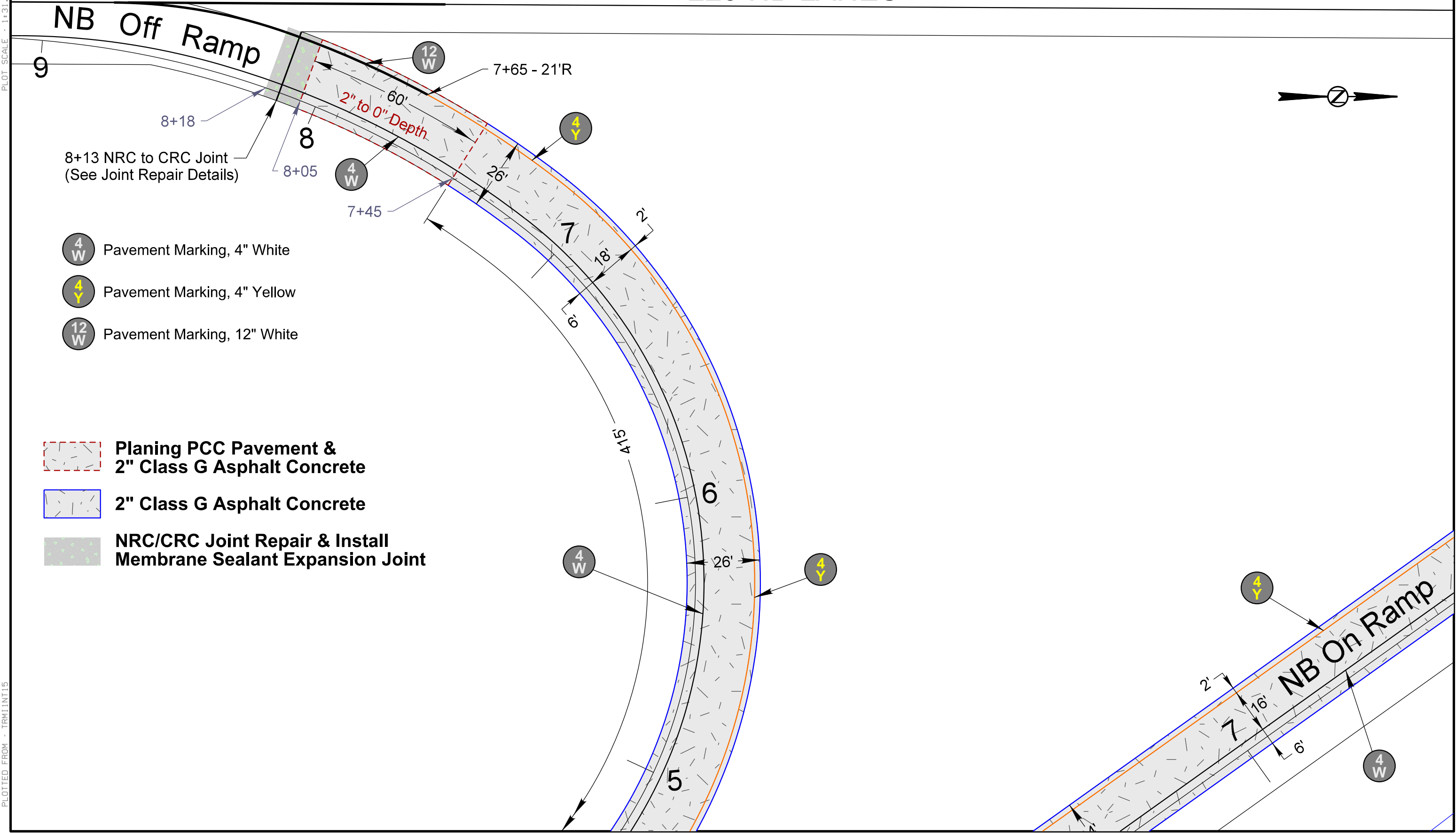
Plotting Date: 09/18/2025

I229 NB LANES

PLOT SCALE - 1"=31.9999'

PLOT NAME - 54

FILE - ... \PRJ2026\MINN048F\229EXIT7.DGN



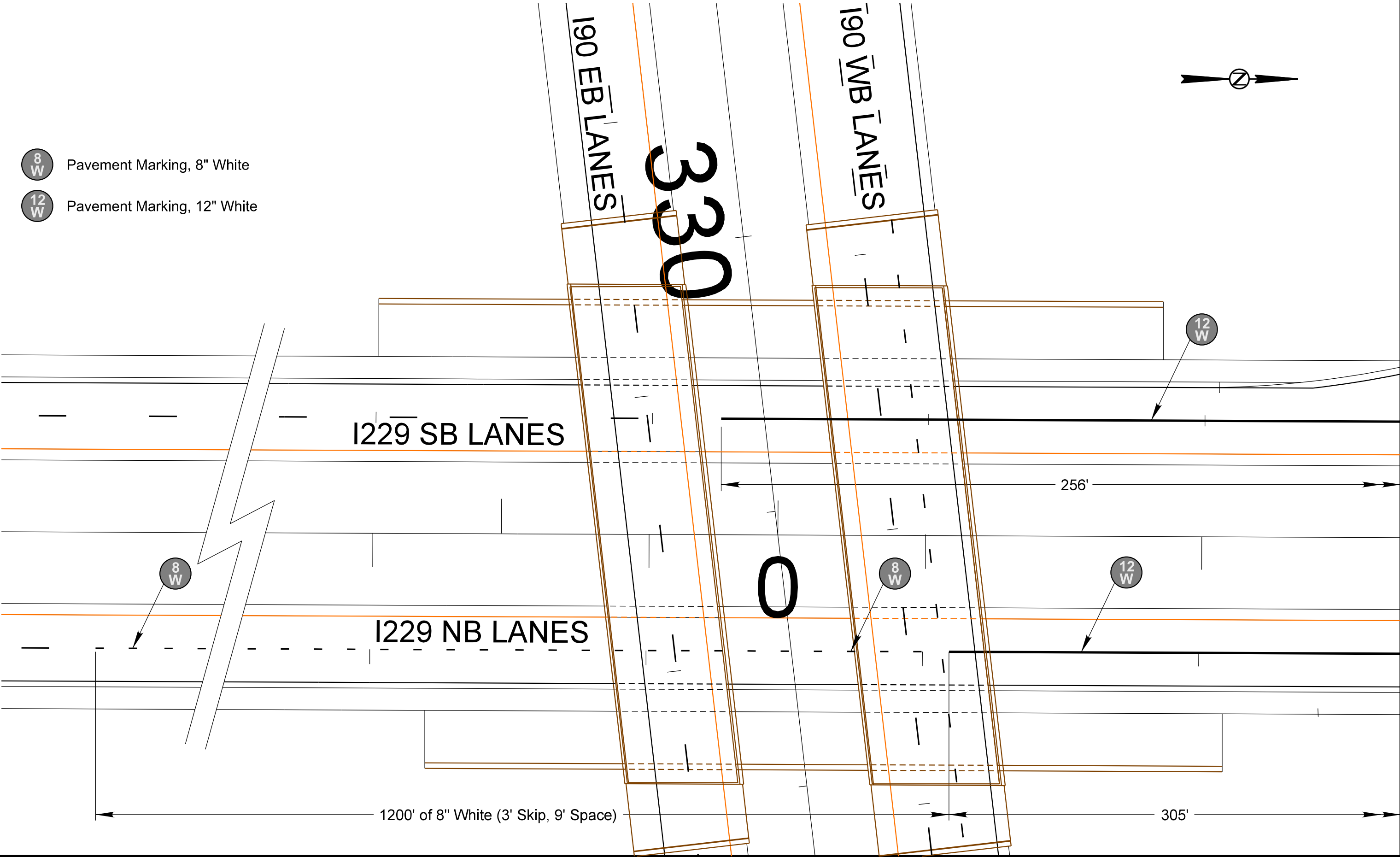
END I229 AT EXIT 10 MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	79	99

Plotting Date: 09/18/2025



-  Pavement Marking, 8" White
-  Pavement Marking, 12" White



PLOT SCALE - 1:32

PLOTTED FROM - I229EXIT10.DGN

PLOT NAME - 55

FILE - ... \PRJ2026\MINN048F\229EXIT10.DGN

END I229 AT EXIT 10 MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	80	99

Plotting Date: 09/18/2025

Cold Milling Asphalt Concrete &
2" Class G Asphalt Concrete

-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow
-  Pavement Marking, 12" White

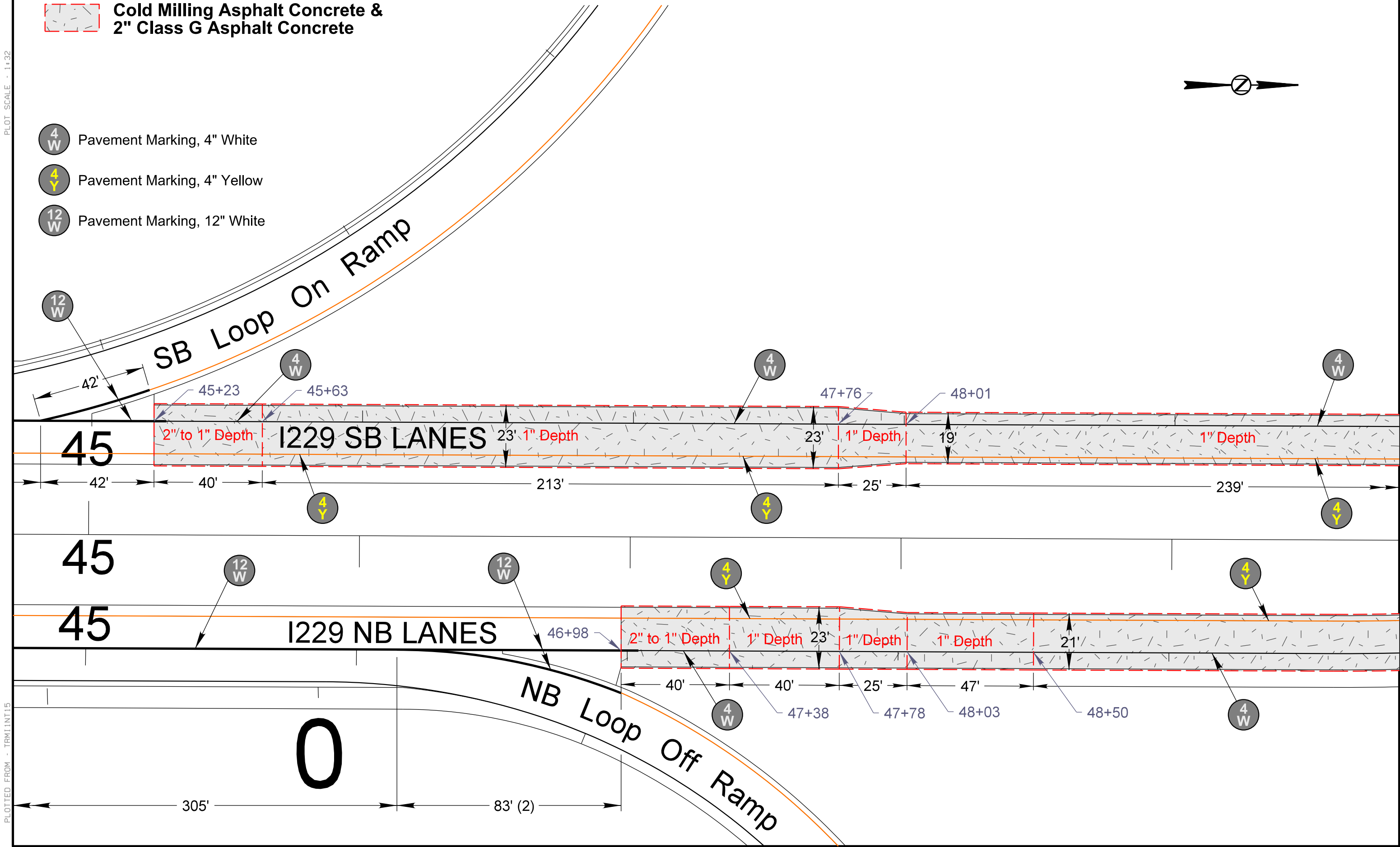


PLOT SCALE - 1:32

PLOT NAME - 56

PLOTTED FROM - ITRM11N15

FILE - ... \PRJ2026\MINN08F\229EXIT10.DGN



END I229 AT EXIT 10 MILLING, RESURFACING & MARKING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	81	99
Plotting Date: 09/30/2025		Rev. 9-30-25 MR	

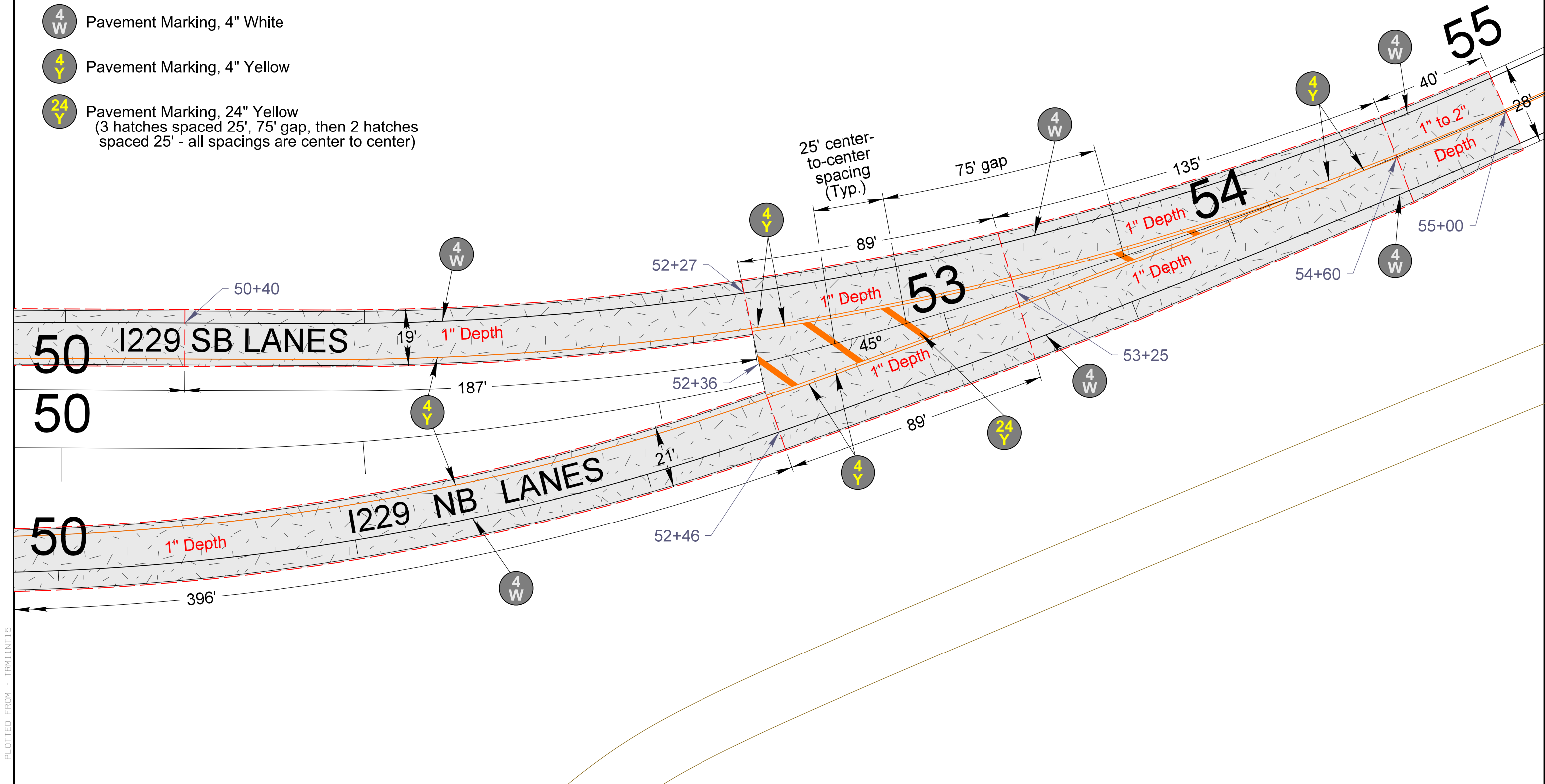
 Cold Milling Asphalt Concrete &
2" Class G Asphalt Concrete

-  Pavement Marking, 4" White
-  Pavement Marking, 4" Yellow
-  Pavement Marking, 24" Yellow
(3 hatches spaced 25', 75' gap, then 2 hatches
spaced 25' - all spacings are center to center)

PLOT SCALE - 1:32

PLOT NAME - 1

FILE - ... \PRJ026\MINN048F\229EXIT10.DGN



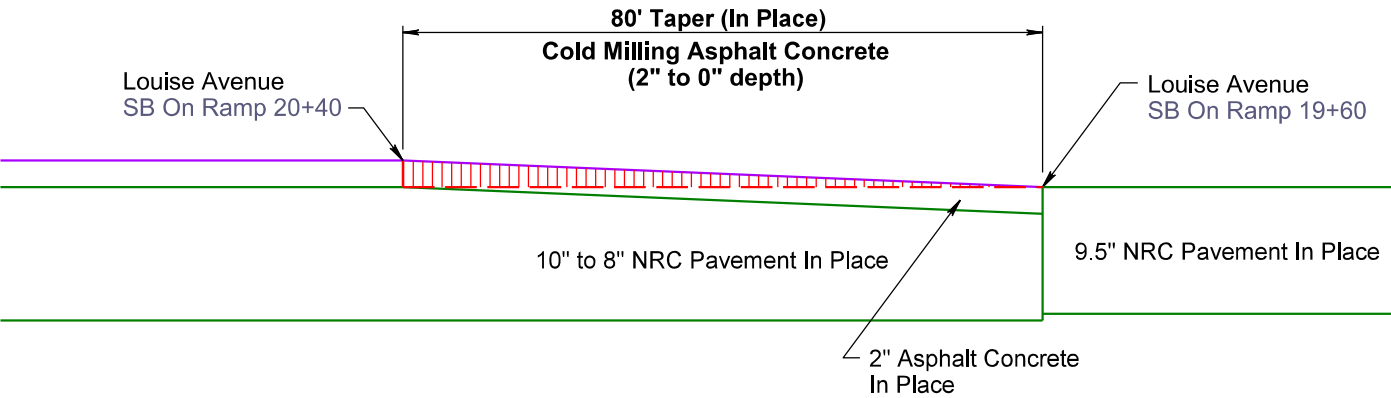
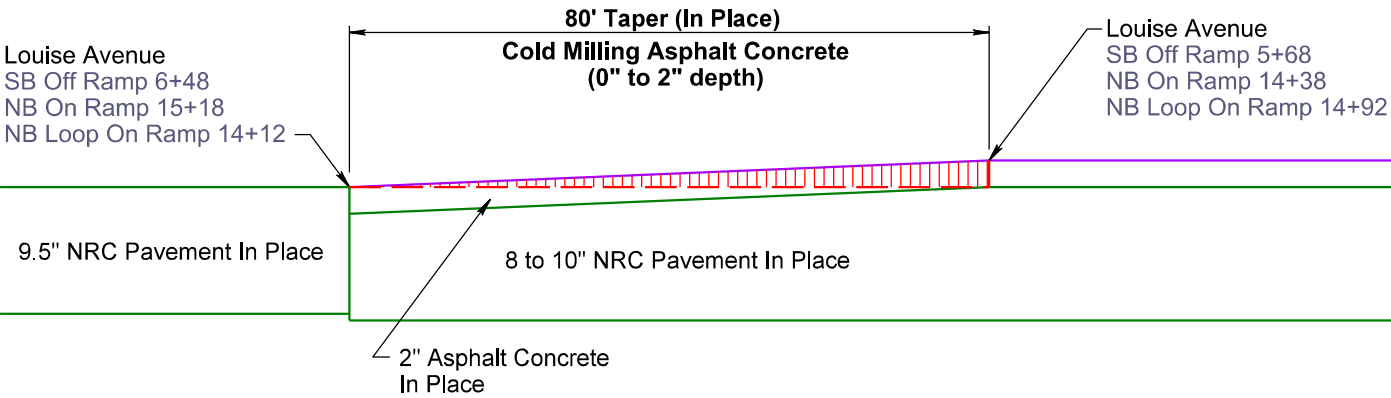
PLOTTED FROM - TRM1INT15

COLD MILLING ASPHALT CONCRETE TAPERS

AT LOUISE AVENUE RAMP CONNECTIONS TO I229

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	82	99

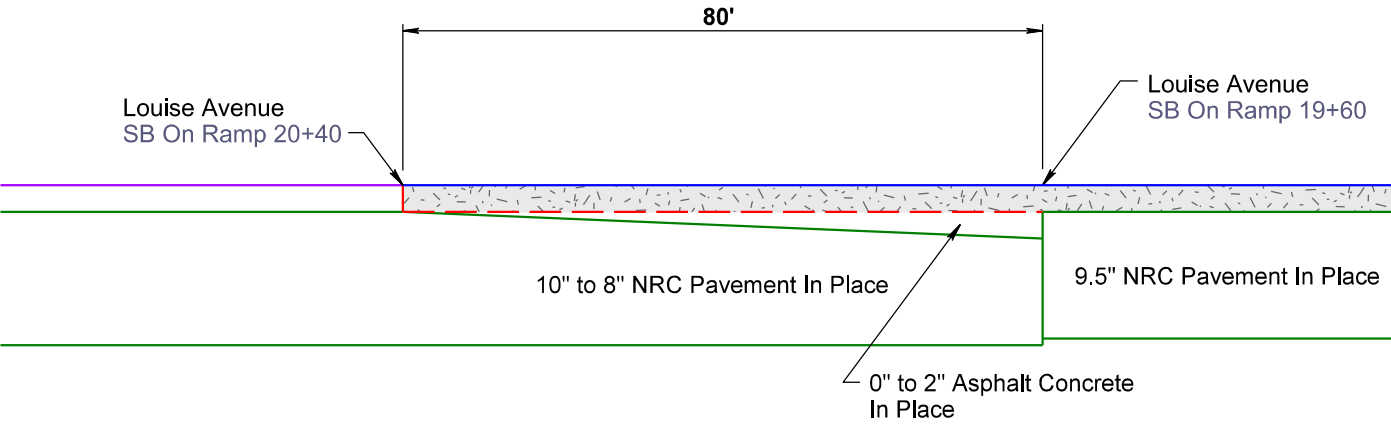
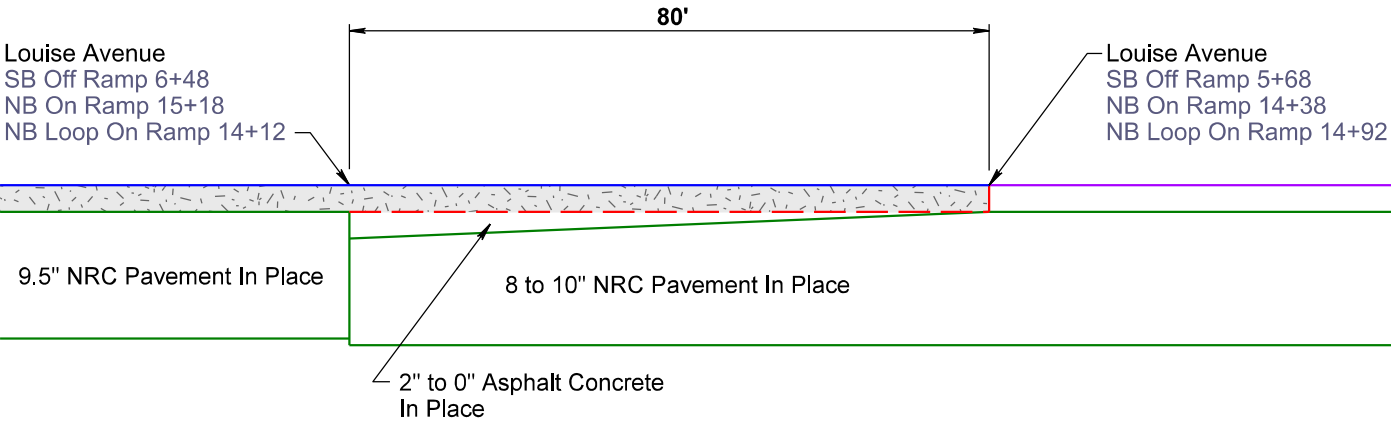
Plotting Date: 09/18/2025



 Cold Milling Asphalt Concrete

ASPHALT CONCRETE RESURFACING TAPERS

AT LOUISE AVENUE RAMP CONNECTIONS TO I229



 2" Class G Asphalt Concrete

PLOT SCALE - 1+1.2

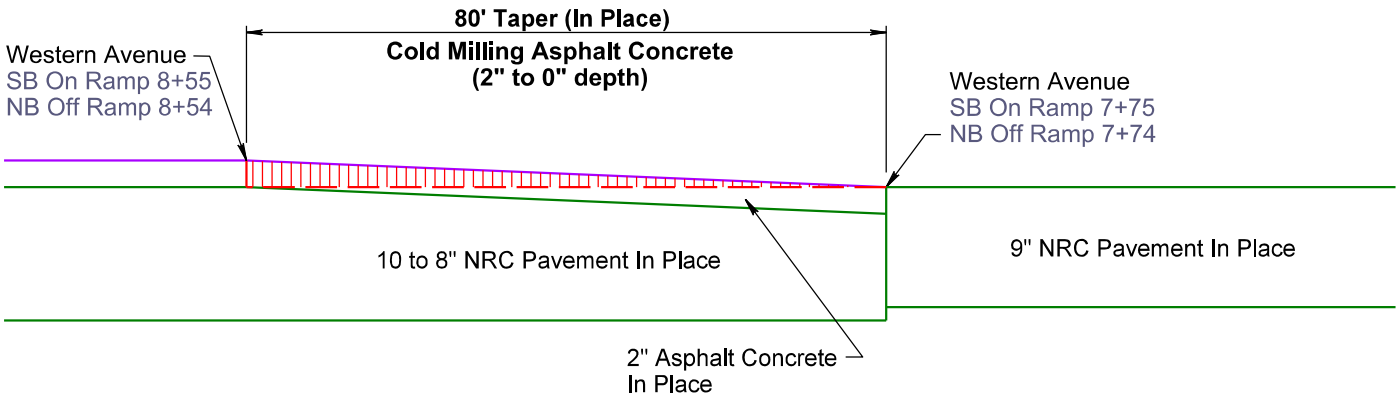
PLOTTED FROM - TRM11N15

PLOT NAME - 58

FILE - ... \MILLING & PLANING PROFILES 08F.DGN

COLD MILLING ASPHALT CONCRETE TAPERS

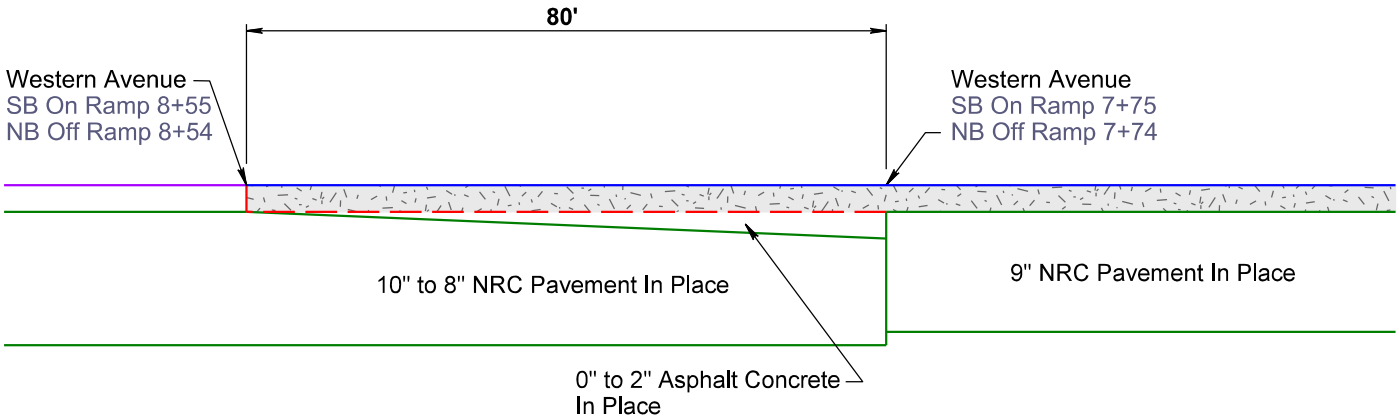
AT WESTERN AVENUE RAMP CONNECTIONS TO I229

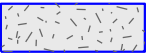


 Cold Milling Asphalt Concrete

ASPHALT CONCRETE RESURFACING TAPERS

AT WESTERN AVENUE RAMP CONNECTIONS TO I229



 2" Class G Asphalt Concrete

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	83	99
Plotting Date: 10/02/2025		Rev. 10/2/25 MR	

PLOT SCALE - 1+1.2

PLOTTED FROM - TRM11NT15

PLOT NAME - 57

FILE - ... \MILLING & PLANING PROFILES 008F.DGN

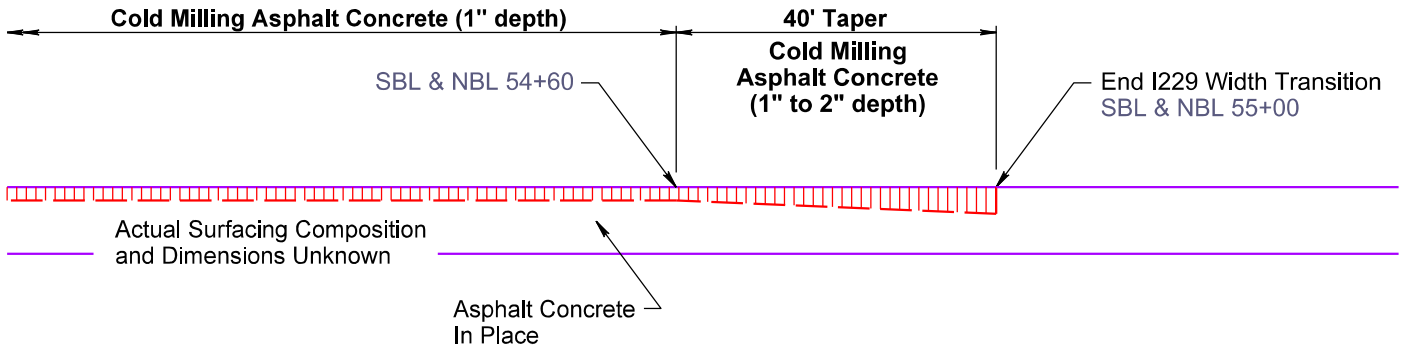
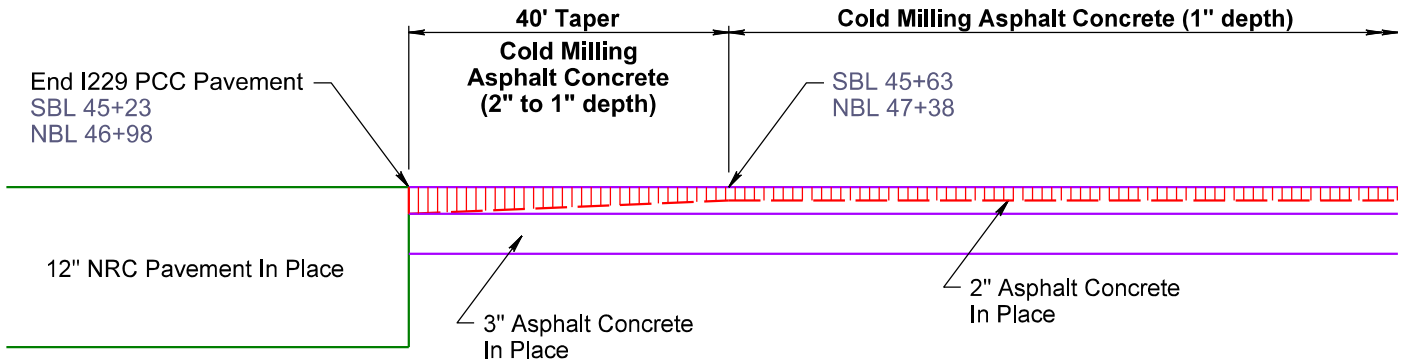
COLD MILLING ASPHALT CONCRETE TAPERS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	84	99

Plotting Date: 09/18/2025

AT END I229 PCC PAVEMENT

AT END I229 WIDTH TRANSITION

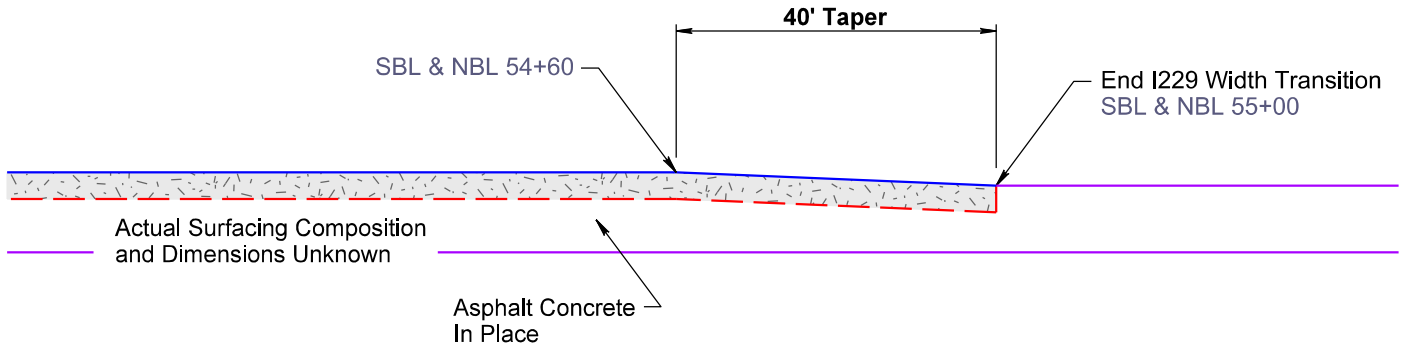
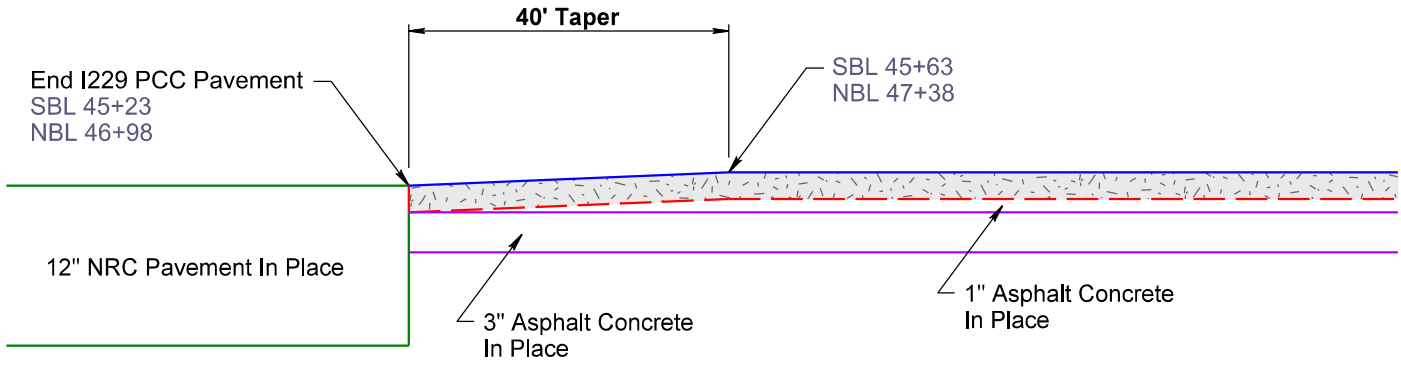


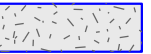
 Cold Milling Asphalt Concrete

ASPHALT CONCRETE RESURFACING TAPERS

AT END I229 PCC PAVEMENT

AT END I229 WIDTH TRANSITION



 2" Class G Asphalt Concrete

PLOT SCALE - 1+1.2

PLOTTED FROM - TRM1INT15

PLOT NAME - 60

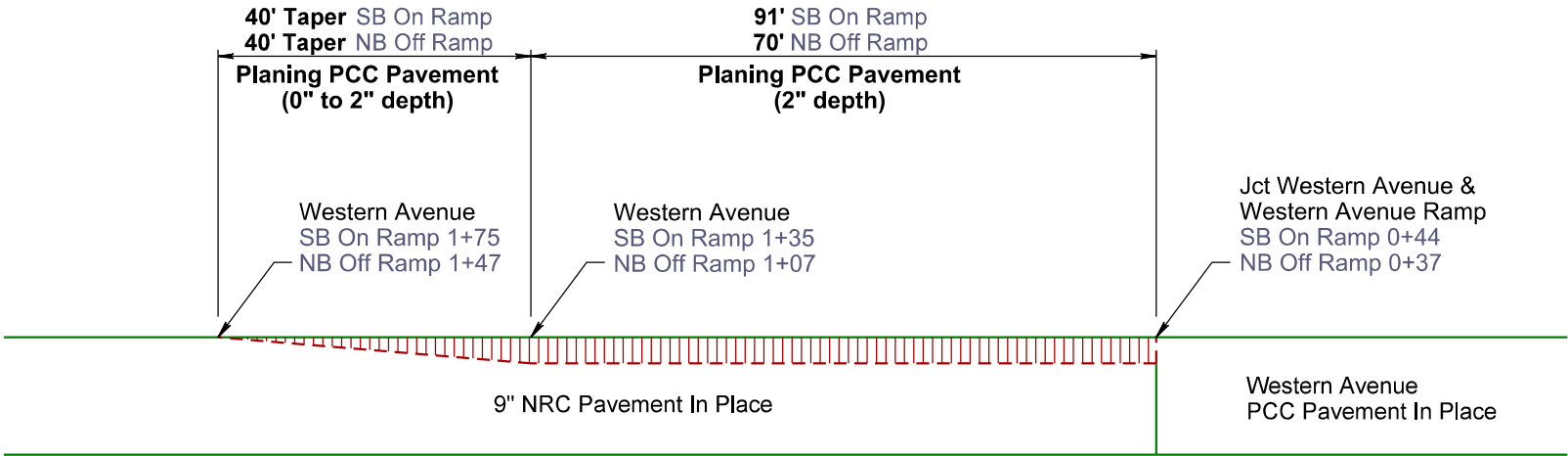
FILE - ... \MILLING & PLANING PROFILES 008F.DGN

PLOT SCALE - 1+1.2

PLOTTED FROM - TRM11NT15

PLANING PCC PAVEMENT TAPERS

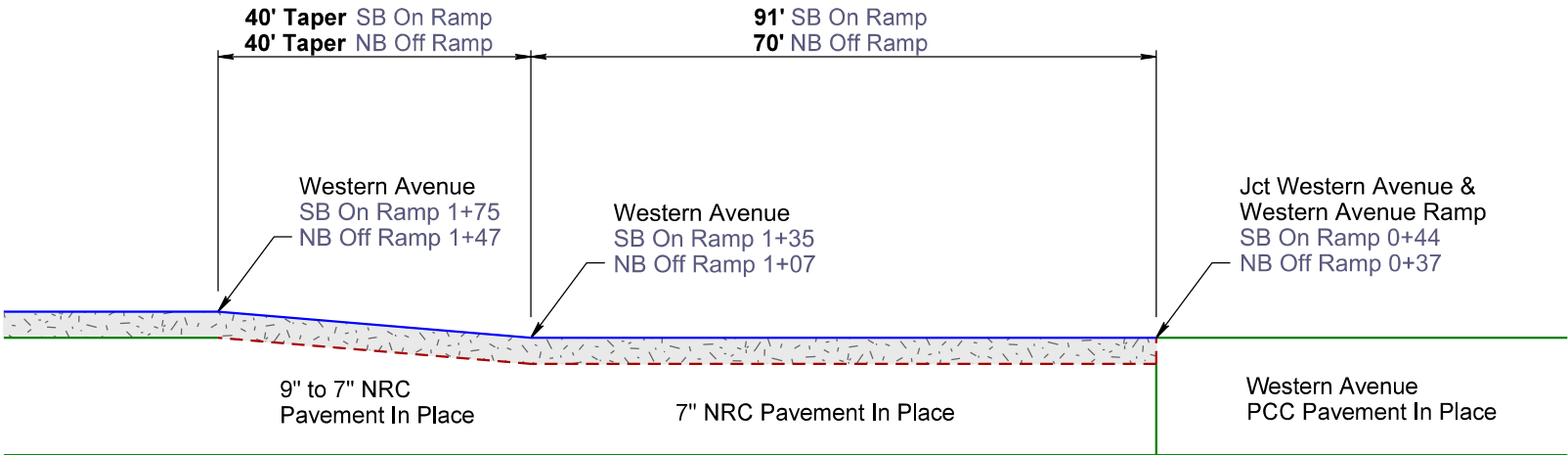
RAMPS AT JCT WESTERN AVENUE



Planing PCC Pavement

ASPHALT CONCRETE RESURFACING TAPERS

RAMPS AT JCT WESTERN AVENUE



2" Class G Asphalt Concrete

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	86	99

Plotting Date: 09/18/2025

FILE - ... \MILLING & PLANING PROFILES 048F.DGN PLOT NAME - 62

PLOT SCALE - 1+1.2

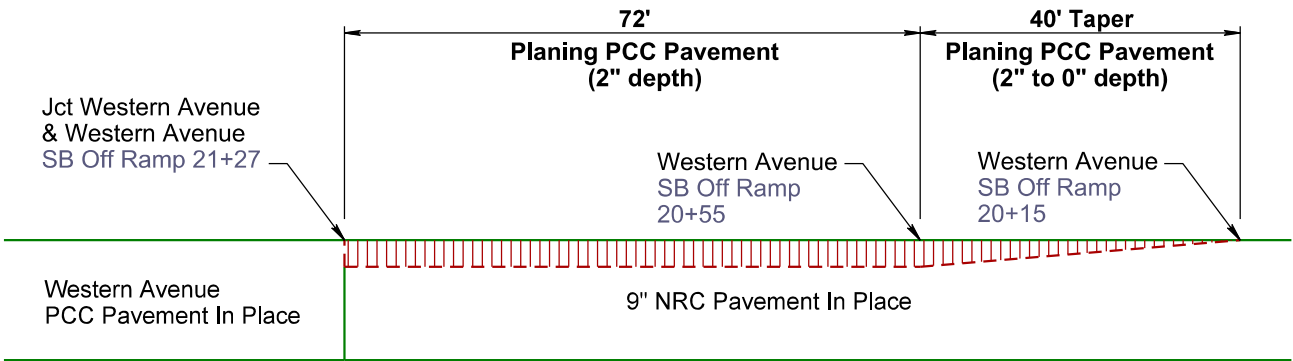
PLOTTED FROM - TRM11INT15

PLANING PCC PAVEMENT TAPERS

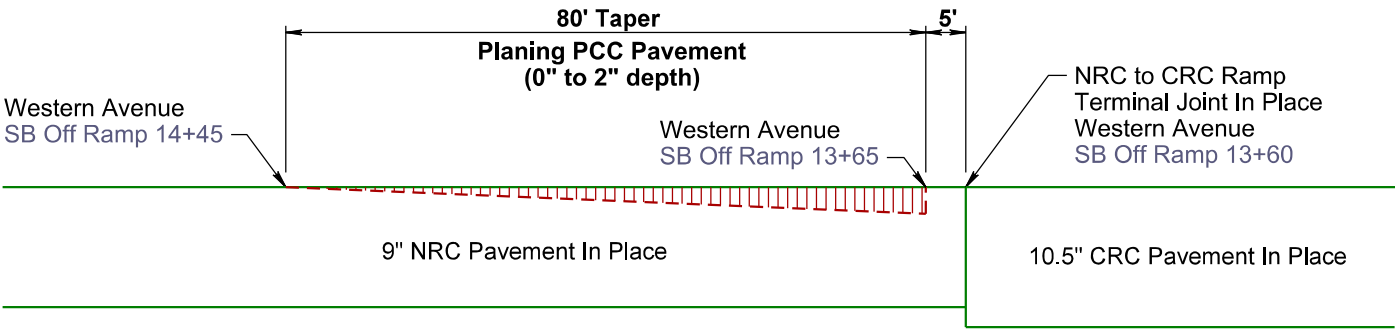
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	87	99

Plotting Date: 09/18/2025

SB OFF RAMP AT JCT WESTERN AVENUE



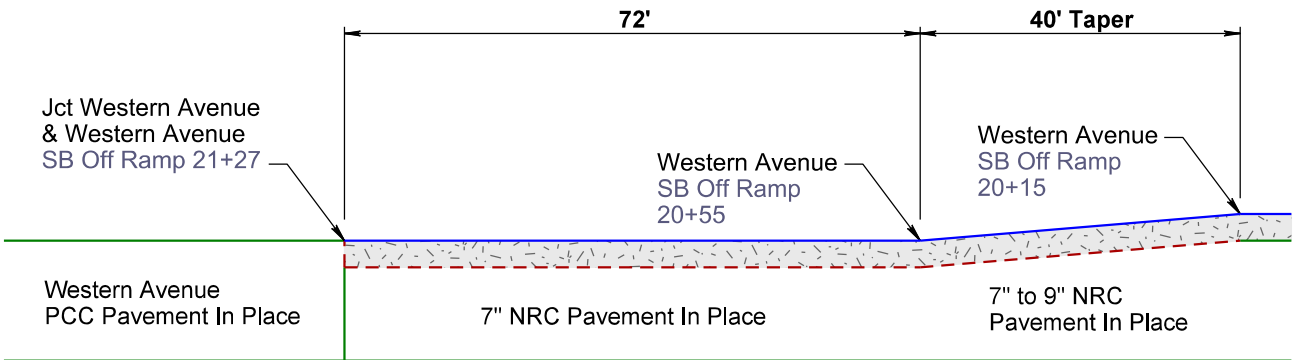
AT WESTERN AVENUE SB OFF RAMP CONNECTION TO I229



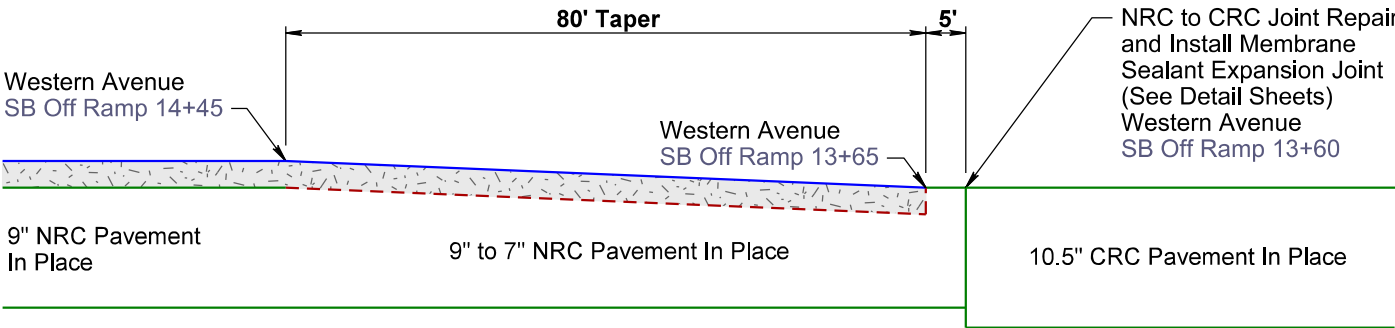
 Planing PCC Pavement

ASPHALT CONCRETE RESURFACING TAPERS

SB OFF RAMP AT JCT WESTERN AVENUE



AT WESTERN AVENUE SB OFF RAMP CONNECTION TO I229



 2" Class G Asphalt Concrete

FILE - ... \MILLING & PLANING PROFILES 088F.DGN PLOT NAME - 63

PLOT SCALE - 1+1.2

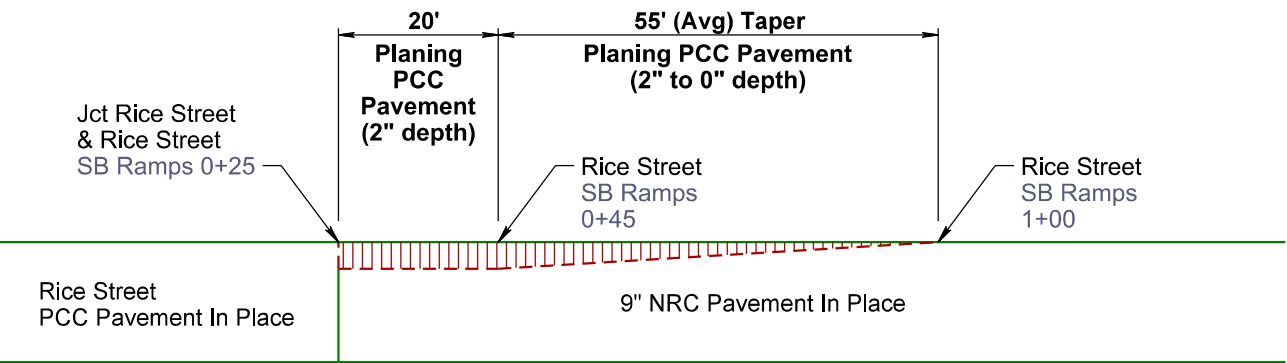
PLOTTED FROM - TRM11NT15

PLANING PCC PAVEMENT TAPERS

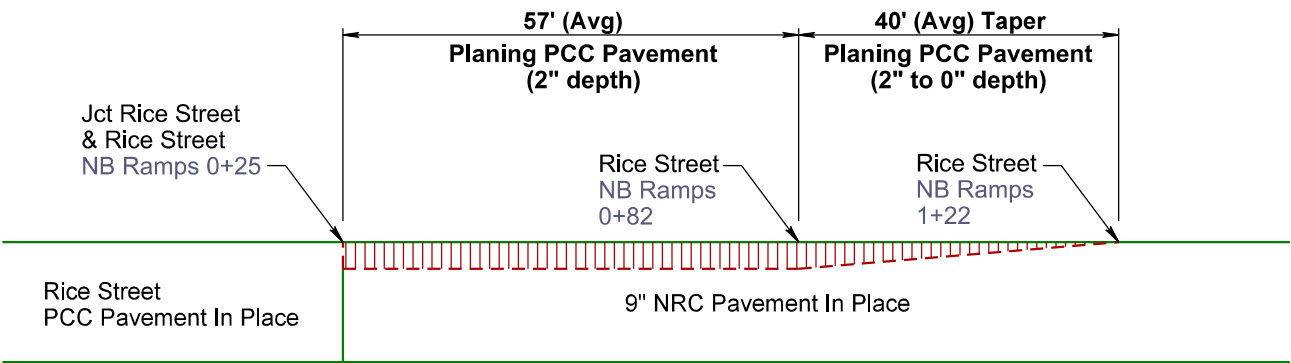
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	88	99

Plotting Date: 09/18/2025

SB RAMPS AT JCT RICE STREET



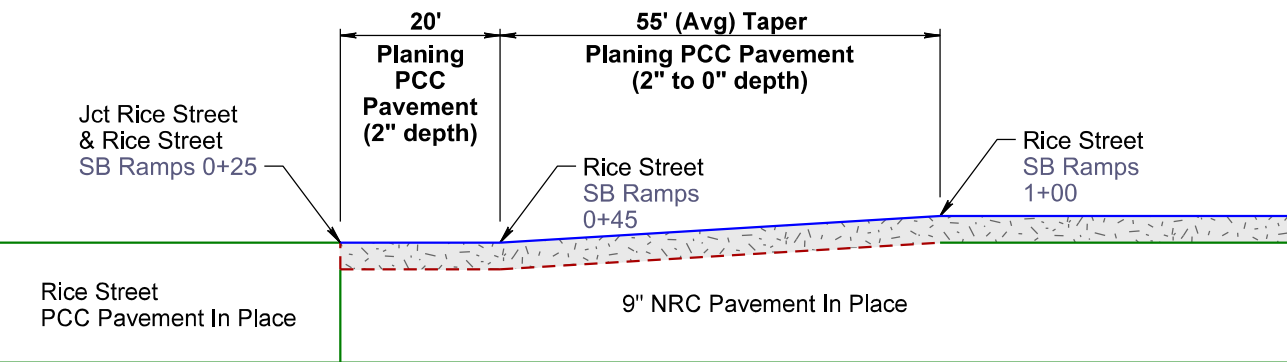
NB RAMPS AT JCT RICE STREET



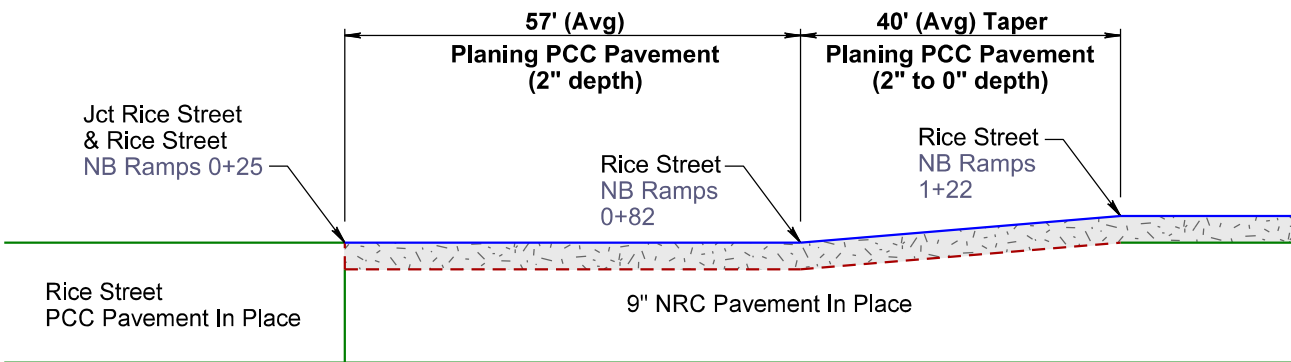
 Planing PCC Pavement

ASPHALT CONCRETE RESURFACING TAPERS

SB RAMPS AT JCT RICE STREET



NB RAMPS AT JCT RICE STREET



 2" Class G Asphalt Concrete

FILE - ... \MILLING & PLANING PROFILES 088F.DGN PLOT NAME - 64

PLOT SCALE - 1+1.2

PLOTTED FROM - TRM11NT15

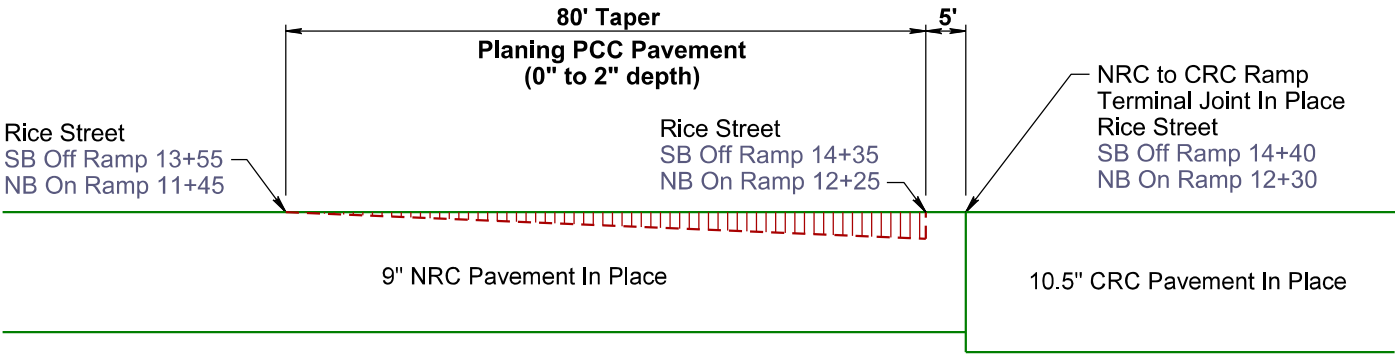
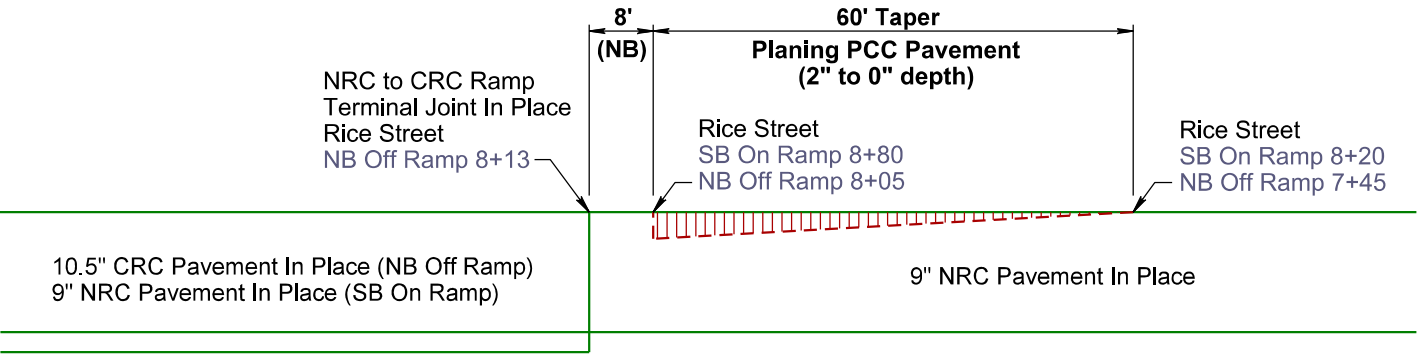
PLANING PCC PAVEMENT TAPERS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	89	99

Plotting Date: 09/18/2025

AT RICE STREET RAMP CONNECTIONS TO I229

AT RICE STREET RAMP CONNECTIONS TO I229

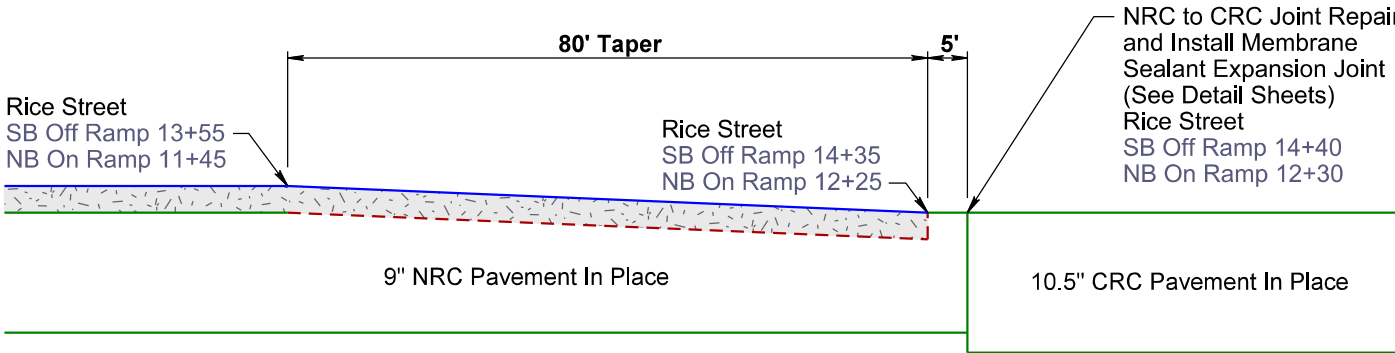
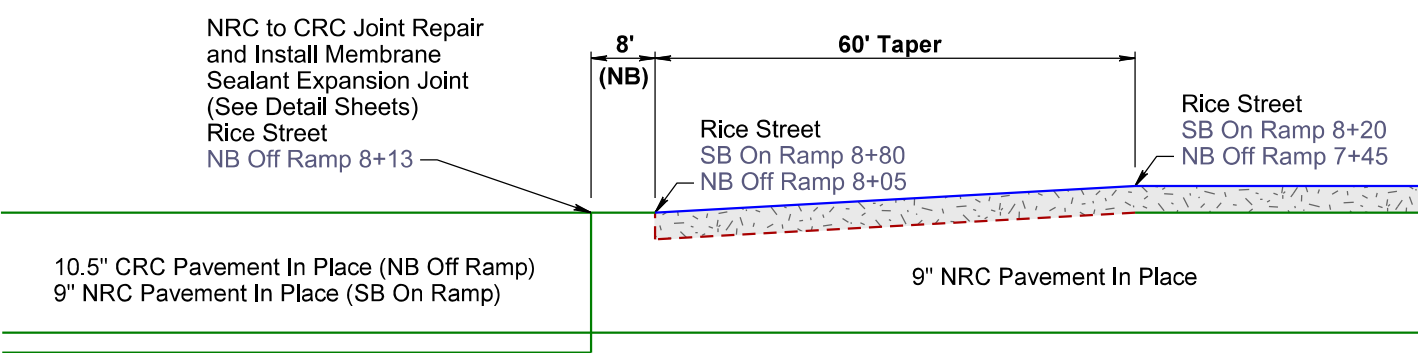


Planing PCC Pavement

ASPHALT CONCRETE RESURFACING TAPERS

AT RICE STREET RAMP CONNECTIONS TO I229

AT RICE STREET RAMP CONNECTIONS TO I229



2" Class G Asphalt Concrete

PLOT NAME - 65

FILE - ... \MILLING & PLANING PROFILES 086F.DGN

PLOT SCALE - 1+10

PLOTTED FROM - TRM11NT15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	90	99

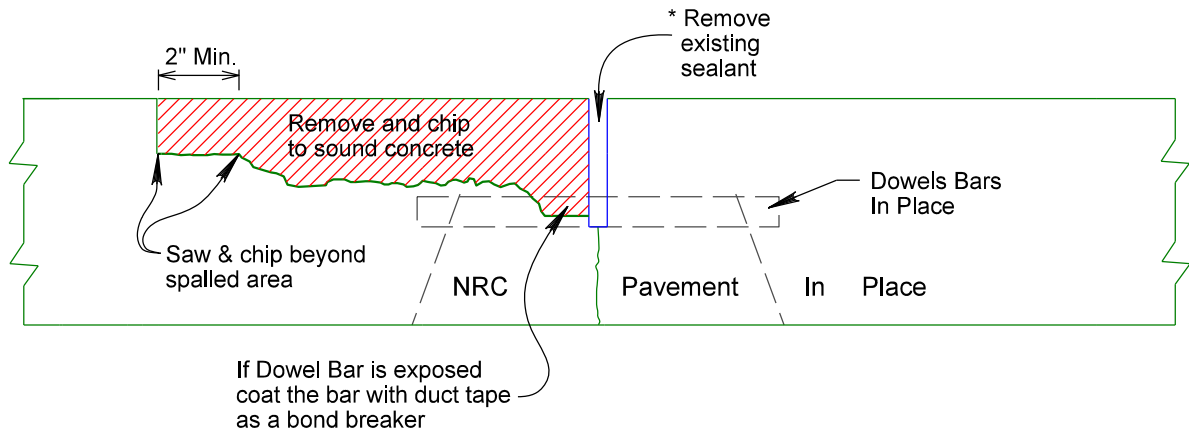
Plotting Date: 09/18/2025

PLOT NAME - 66

FILE - ... \MINN048F\PC\PARTIAL.DGN

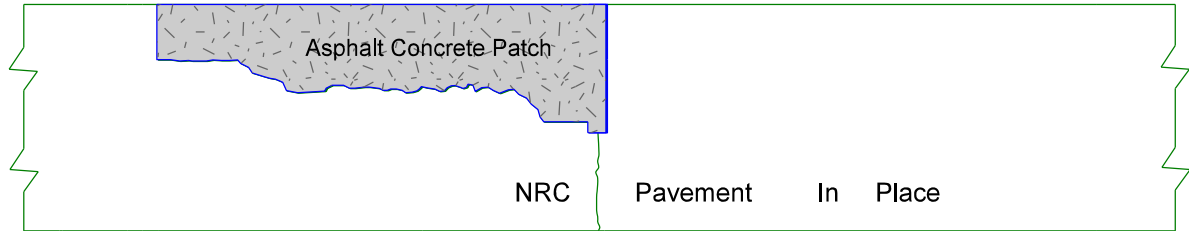
**PARTIAL DEPTH PATCH
WHEN PATCHED WITH ASPHALT CONCRETE**

REMOVAL



* Existing Sealant to be removed is low modulus silicone sealant with backer rod or hot poured elastic joint sealer.

PATCHING



PLOT SCALE - 1:10

PLOTTED FROM - JRM1115

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	91	99

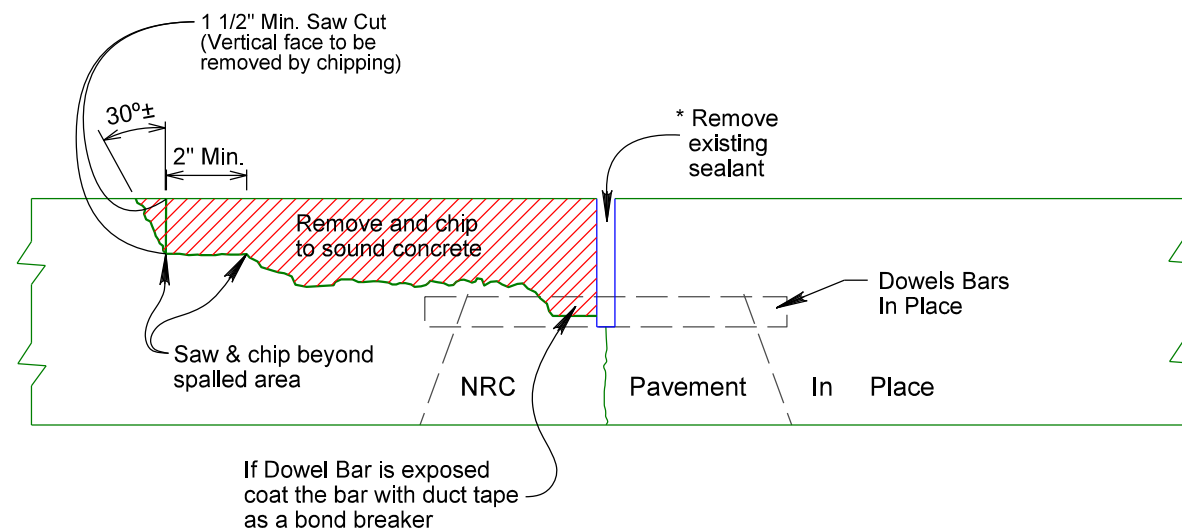
Plotting Date: 09/18/2025

PLOT NAME - 67

FILE - ... \WINN048F\PC\PARTIAL.DGN

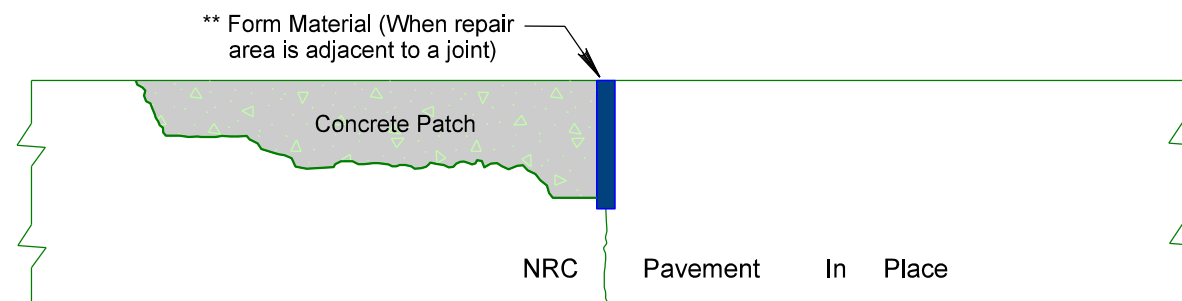
PARTIAL DEPTH PATCH WHEN PATCHED WITH CONCRETE

REMOVAL



* Existing Sealant to be removed is low modulus silicone sealant with backer rod or hot poured elastic joint sealer.

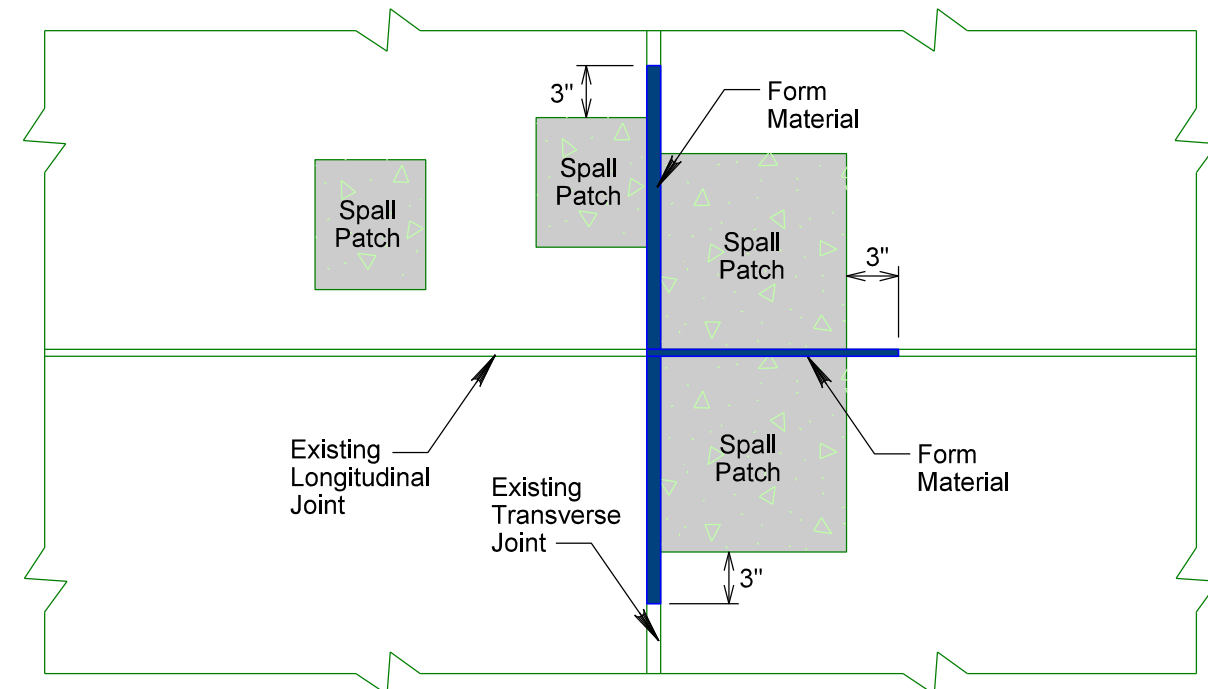
PATCHING



** Form Material will be removed by sawing or other means approved by the Engineer.
Spall repaired joints will then be sealed with Backer Rod and Low Modulus Silicone Sealant.

PARTIAL DEPTH PATCH WHEN PATCHED WITH CONCRETE

SPALL PATCHES (PLAN VIEW)



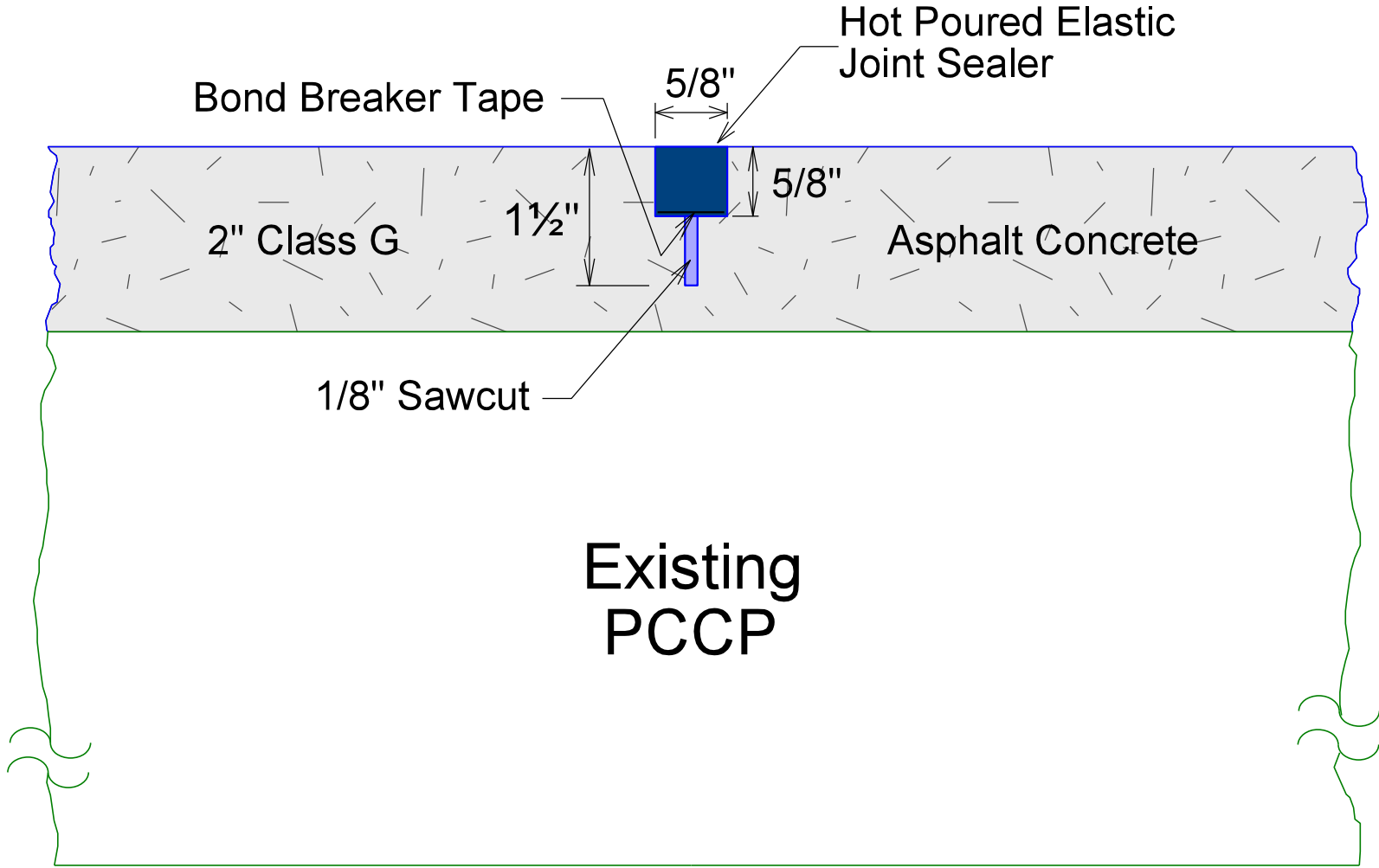
PLOT SCALE - 1:10
PLOTTED FROM - TRM1INT15

SAW AND SEAL TRANSVERSE JOINT IN ASPHALT CONCRETE AFTER RESURFACING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	92	99

Plotting Date: 09/18/2025

SAW AND SEAL TRANSVERSE JOINT IN ASPHALT CONCRETE



OFFSET WORKING JOINT DETAIL

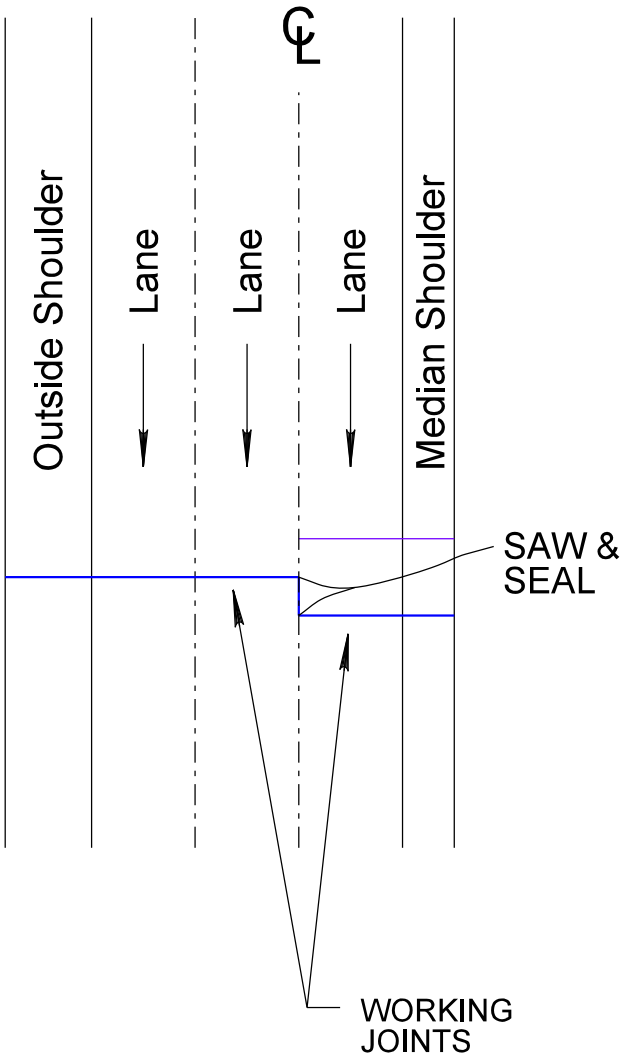


TABLE FOR NRC & CRC PAVEMENT REPAIR ON I229 RAMPS & RAMP TERMINALS

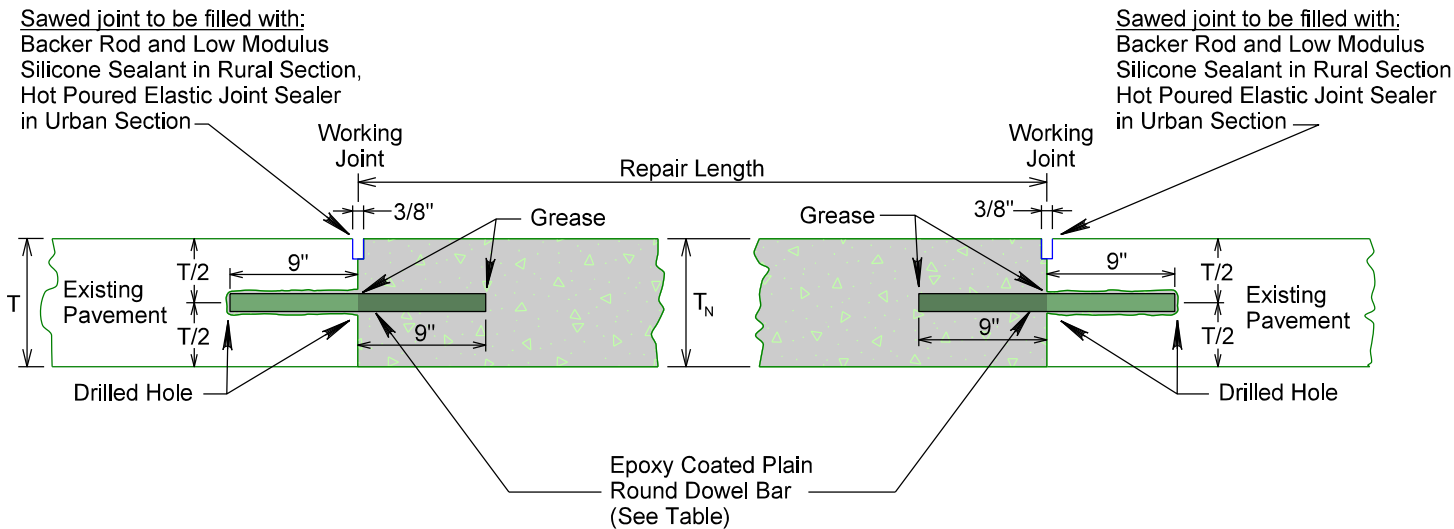
LOCATION	RAMP PORTION (NRCP)		RAMP PORTION (CRCP)		NRCP REPAIR SqYds	CRCP REPAIR SqYds	NEW JOINT CON- FIG. (NRCP)	INSERT STEEL BAR IN PCC PAVEMENT (NRCP)		INSERT STEEL BAR IN NRCP TOTAL Each
	L	W	L	W				No. 11 x 18" DEFORMED TIE BARS	No. 5 x 24" DEFORMED TIE BARS	
	Ft	Ft	Ft	Ft				Each	Each	
Western Ave SB Off Ramp Terminal	5	25	10	25	13.9	27.8	T	16	4	20
Rice St SB Off Ramp Terminal	5	24	5	24	13.3	13.3	T	16	4	20
Rice St NB On Ramp Terminal										
Rice St NB Off Ramp Terminal	8	26	5	26	23.1	14.4	T	16	6	22
TOTALS:					50.3	55.5		48	14	62
ADDITIONAL QUANTITIES:					90.0	-		90	30	120
GRAND TOTALS:					140.3	55.5		138	44	182

Note: Additional quantities are provided to repair severely damaged concrete pavement (as determined by the Engineer) prior to asphalt concrete resurfacing.

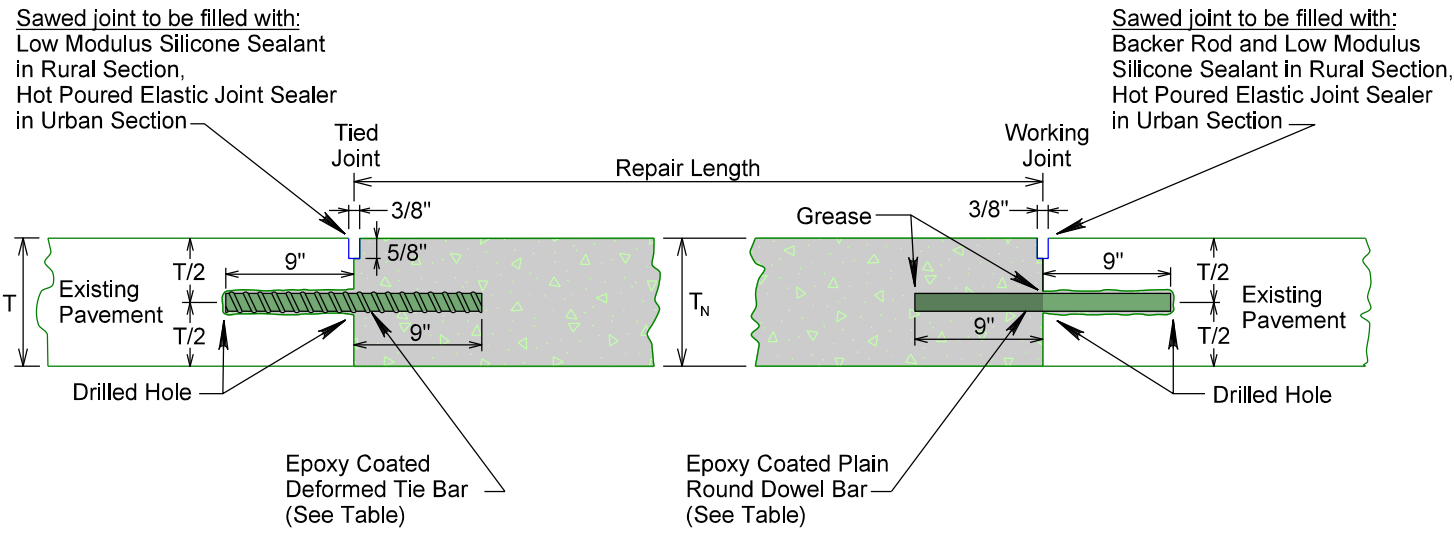
NONREINFORCED PCC PAVEMENT REPAIR

Plotting Date: 09/18/2025

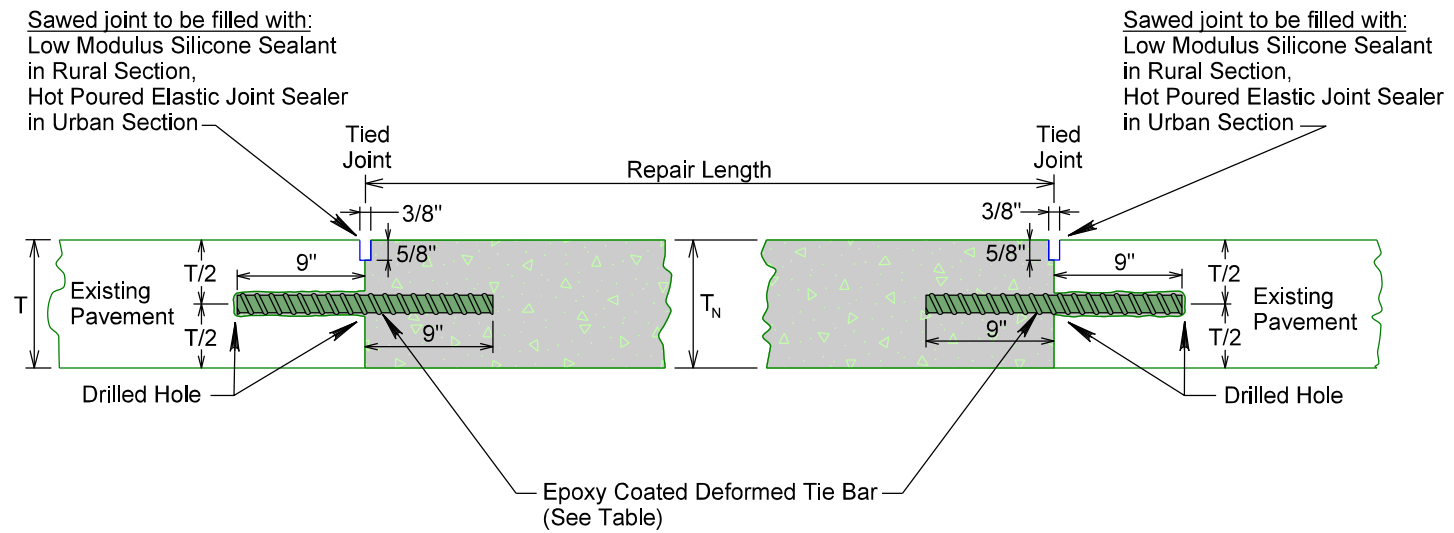
PLAIN ROUND DOWEL BAR INSERTION
TYPE W - (TWO WORKING JOINTS)



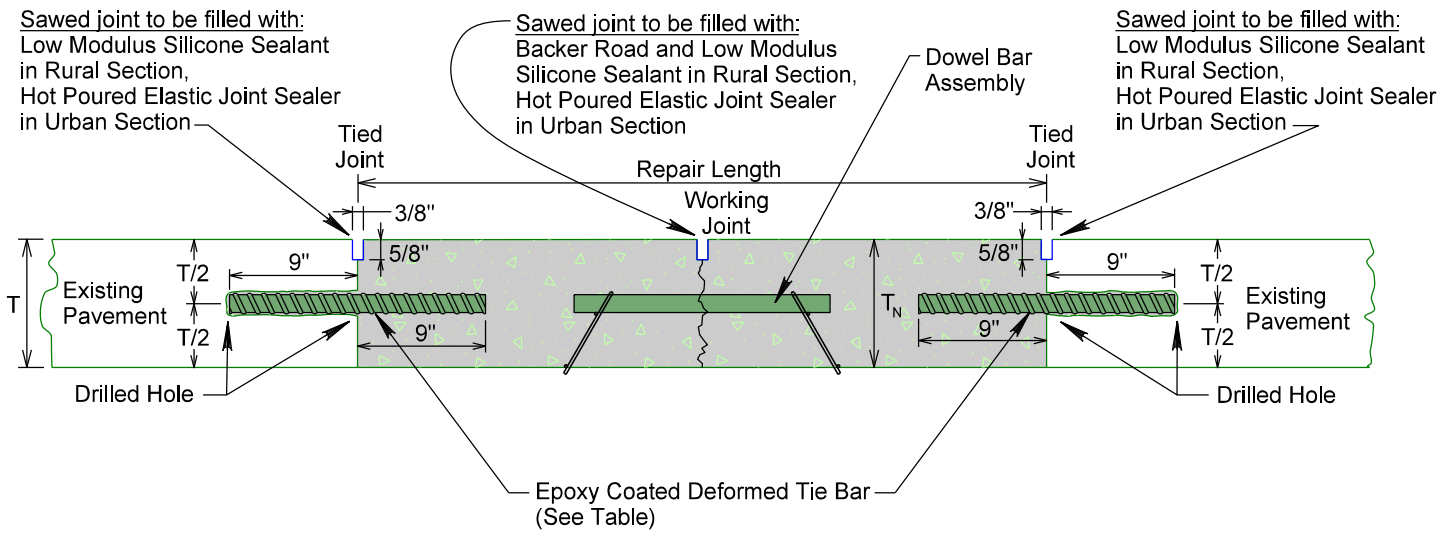
DEFORMED TIE BAR AND PLAIN ROUND DOWEL BAR INSERTION
TYPE B - (ONE TIED JOINT AND ONE WORKING JOINT)



DEFORMED TIE BAR INSERTION
TYPE T - (TWO TIED JOINTS)



DEFORMED TIE BAR INSERTION WITH DOWEL BAR ASSEMBLY
TYPE R - (TWO TIED JOINTS AND ONE WORKING JOINT - ORIGINAL JOINT RESTORED)



Existing Pavement Thickness	Epoxy Coated Deformed Tie Bar Size	Epoxy Coated Plain Round Dowel Bar Size
T ≥ 10.5"	No. 11 x 18"	1½" x 18"
T ≥ 8.5" & T < 10.5"	No. 9 x 18"	1¼" x 18"
T < 8.5"	No. 8 x 18"	1" x 18"

T = Existing pavement thickness.
T_N = New pavement thickness.

Bar embedded to a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Cost for furnishing and inserting steel bars (deformed tie and plain round dowel) will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

Cost for furnishing and installing dowel bar assembly will be included in the contract unit price per each for Dowel Bar.

T_N = T
(top of new pavement
will be flush with top
of existing pavement)

PLOT SCALE - 1/4"=1'-0"

PLOTTED FROM - TRMLINT15

PLOT NAME - 69

FILE - ... \PRJ2026\WIN008F\PCP\BARS.DGN

PLOT SCALE - 1:11.25

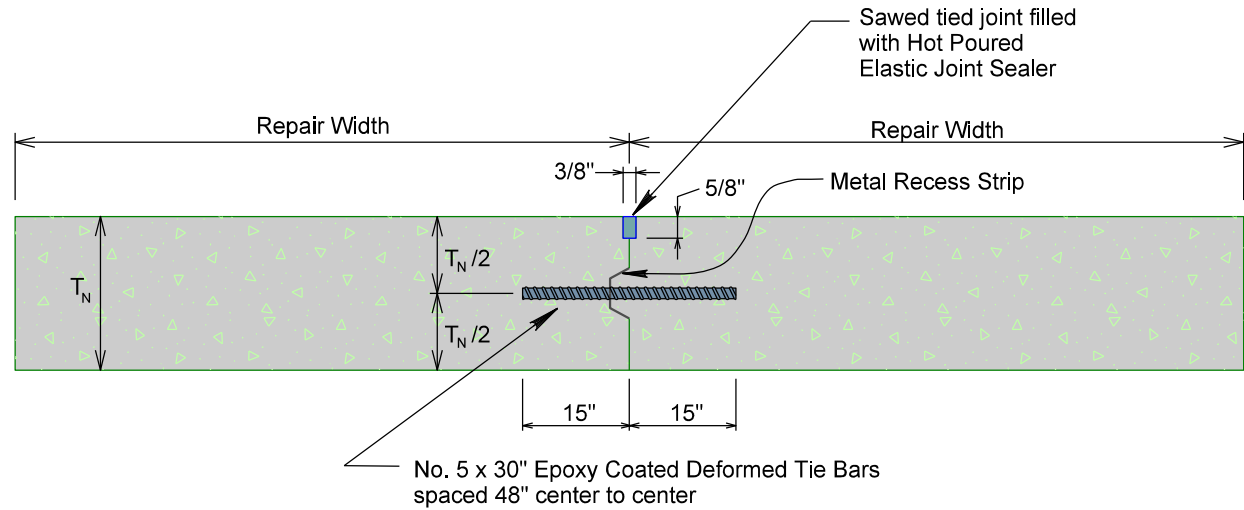
PLOTTED FROM - JRM1115

NONREINFORCED PCC PAVEMENT REPAIR

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	95	99

Plotting Date: 09/18/2025

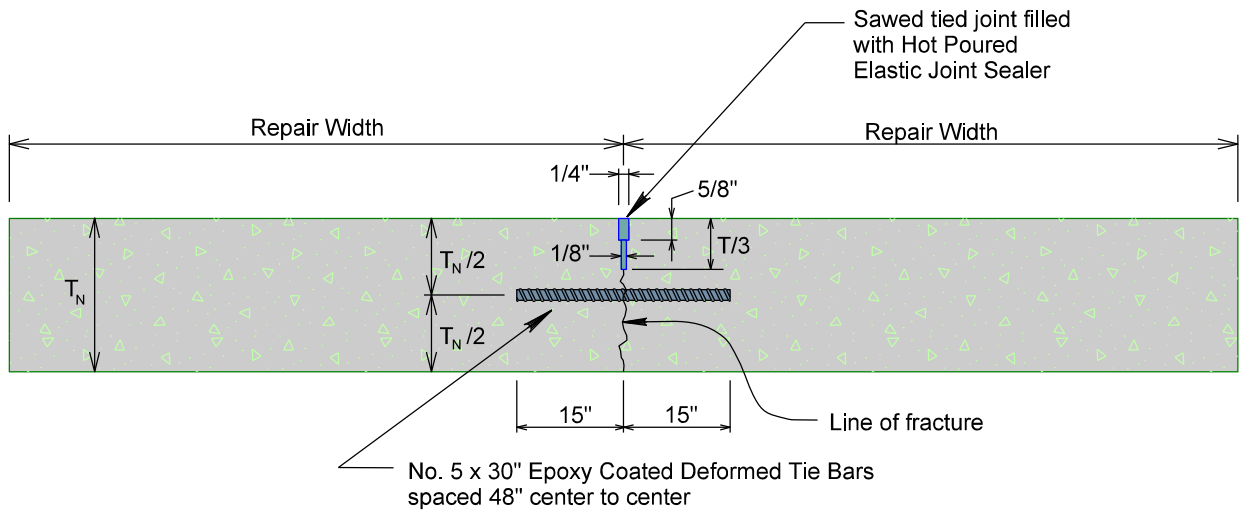
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS & KEYWAY



T_N = New pavement thickness.

Cost for furnishing and inserting tie bars will be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

SAWED LONGITUDINAL JOINT

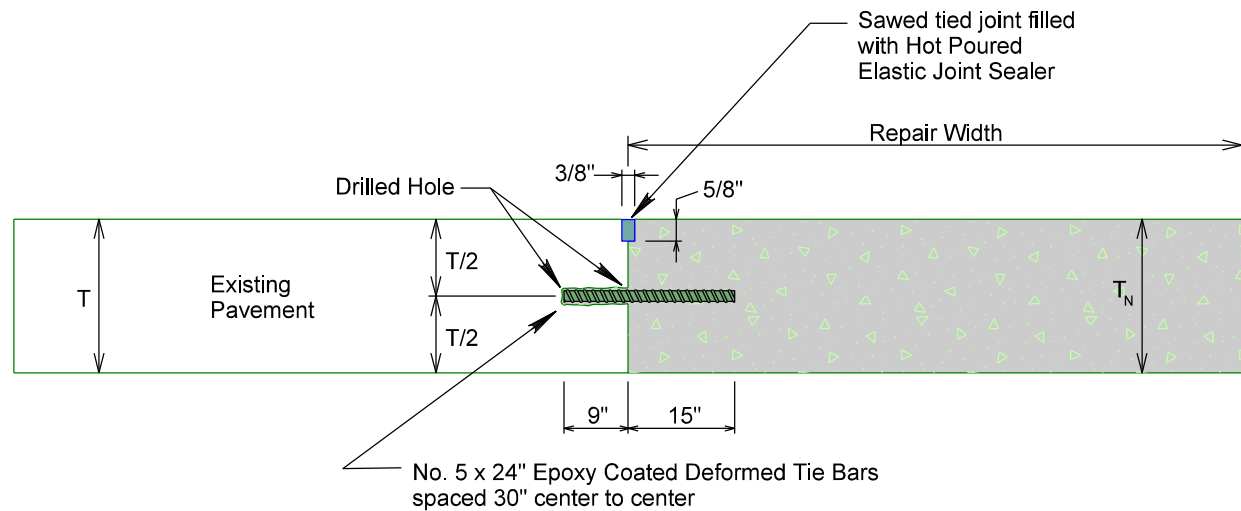


T_N = New pavement thickness.

The first saw cut to control cracking will be a minimum of 1/3 the depth of the pavement. Additional sawing for widening the saw cut will be necessary.

Cost for furnishing and inserting tie bars will be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS



T = Existing pavement thickness.

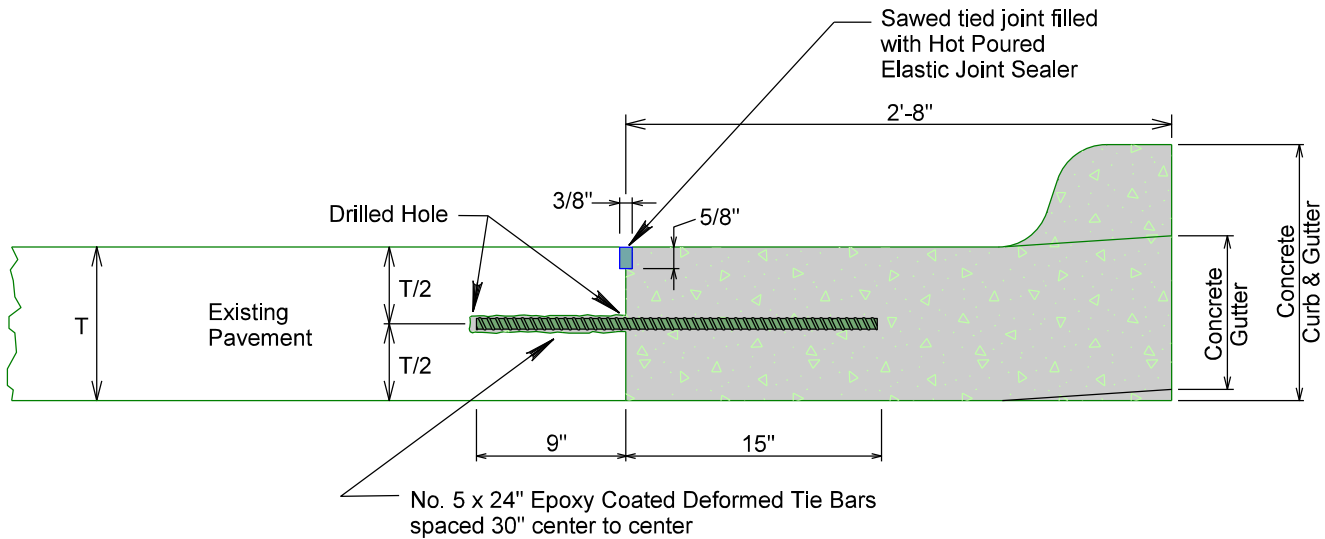
T_N = New pavement thickness.

Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Bars will be placed a minimum of 15 inches from existing transverse contraction joints.

Cost for furnishing and inserting drilled in tie bars will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

LONGITUDINAL CONSTRUCTION JOINT WITH DRILLED IN TIE BARS



T = Existing pavement thickness.

Bar embedded a minimum depth of 9 inches into the existing pavement by utilizing an epoxy resin adhesive.

Bars will be placed a minimum of 15 inches from existing transverse contraction joints.

Cost for furnishing and inserting drilled in tie bars will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.

PLOT NAME - 70

FILE - ... \PRJ2026\MIN0048F\PC\BARS.DGN

MEMBRANE SEALANT EXPANSION JOINT INSTALLATION & PAVEMENT REPLACEMENT AT IN PLACE CRC TO NRC PAVEMENT JOINT

VARIOUS RAMP TERMINALS - SHEET 1 OF 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	96	99

Plotting Date: 09/18/2025

PLAN VIEW

Pavement Width	*	**
Western Ave SB Off Ramp	12.5'	25'
Rice St SB Off Ramp	12'	24'
Rice St NB On Ramp	12'	24'
Rice St NB Off Ramp	13'	26'

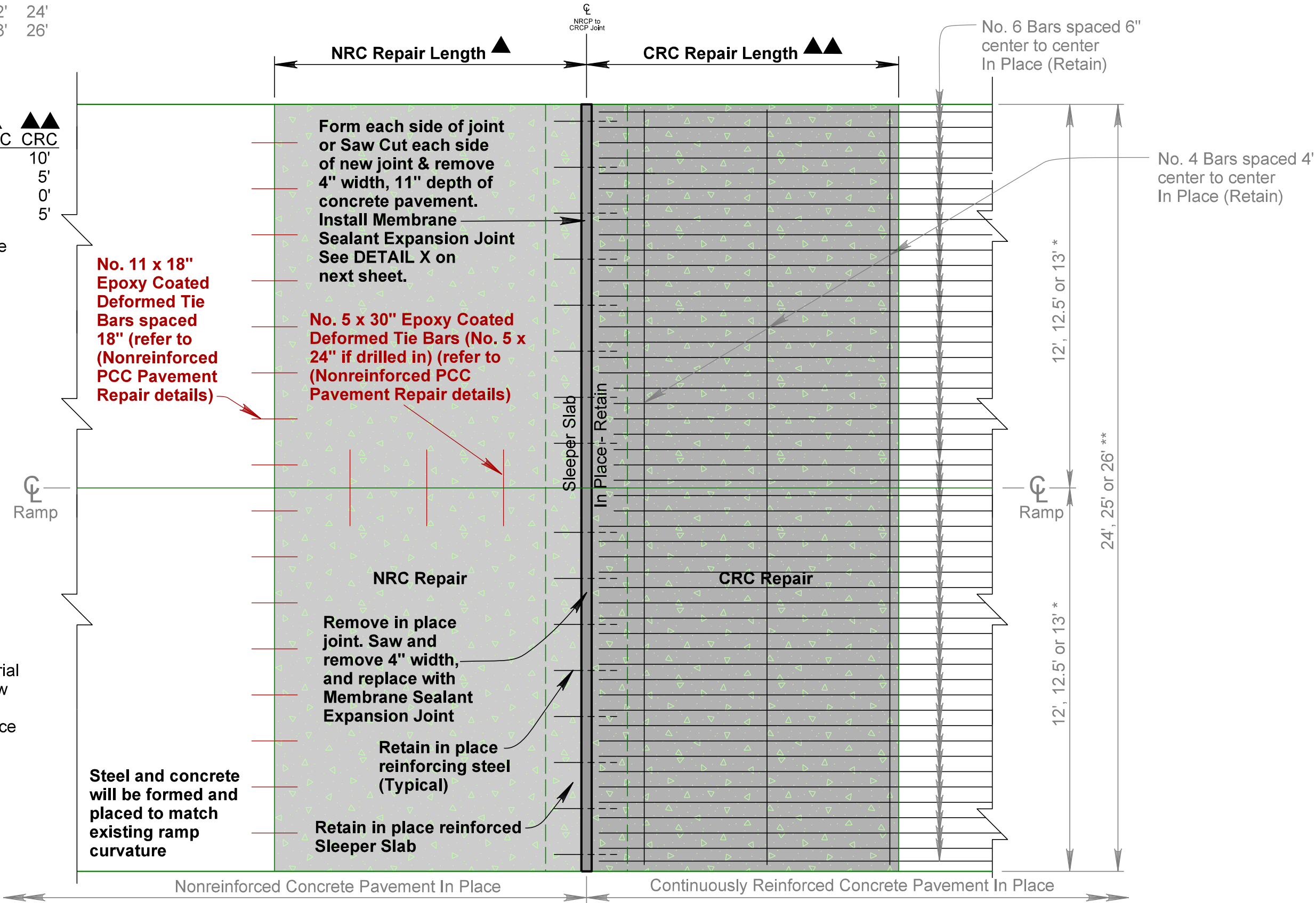
Pavement Repair Length	NRC	CRC
Western Ave SB Off Ramp	5'	10'
Rice St SB Off Ramp	5'	5'
Rice St NB On Ramp	0'	0'
Rice St NB Off Ramp	8'	5'

Pavement Repair Length may be adjusted on construction by the Engineer based on condition of pavement.

In Place joints will be removed and replaced with Membrane Sealant Expansion Joints at these locations whether pavement repair is needed or not.

Cost for equipment, labor, material and incidentals necessary to saw and remove in place joint will be incidental to the contract unit price per foot for Membrane Sealant Expansion Joint.

Note: Clear Cover on all rebar is 2"



PLOT SCALE - 1+0.833333

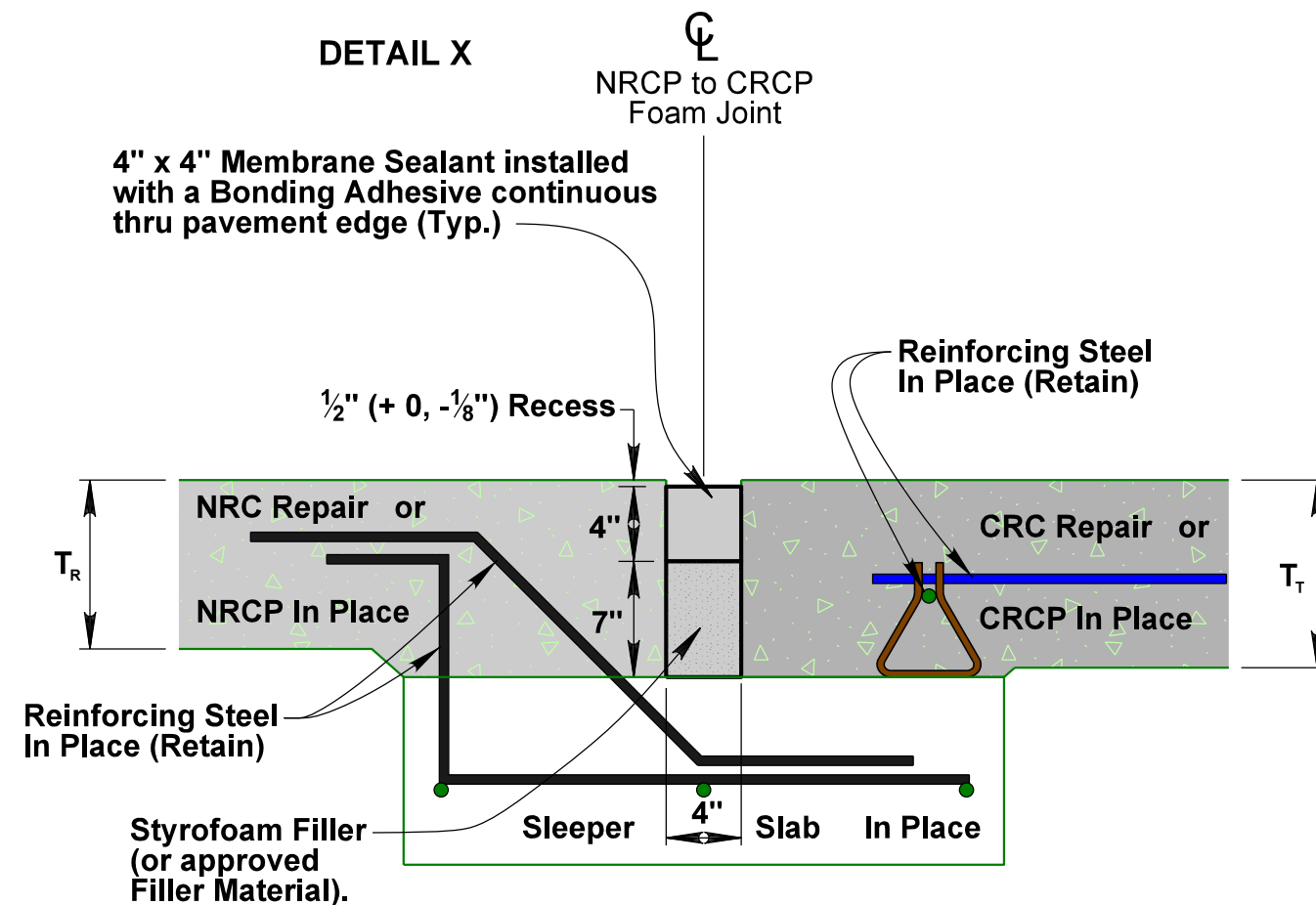
PLOTTED FROM - JRM11N115

MEMBRANE SEALANT EXPANSION JOINT INSTALLATION & PAVEMENT REPLACEMENT AT IN PLACE CRC TO NRC PAVEMENT JOINT

VARIOUS RAMP TERMINALS - SHEET 2 OF 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	97	99

Plotting Date: 09/18/2025



T_R In place and new pavement ramp pavement thickness. Approximately 9" at these locations.

T_T In place and new pavement ramp transition pavement thickness. Approximately 10.5" at these locations.

LOCATION	QUANTITY OF MEMBRANE SEALANT EXPANSION JOINT
WESTERN AVE SB OFF RAMP TERMINAL	25'
RICE ST SB OFF RAMP TERMINAL	24'
RICE ST NB ON RAMP TERMINAL	24'
RICE ST NB OFF RAMP TERMINAL	26'
TOTAL:	99'

GENERAL NOTES

1. The Membrane Sealant will be on the approved product list for Membrane Sealant Expansion Joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer, however, in no case will the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension.
4. The membrane sealant will be supplied in pieces a minimum of 5 feet in length. The foam sealant will be ultra-violet and ozone resistant.
5. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
6. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
7. If Styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
8. The minimum concrete air temperature at the time of joint installation and adhesive curing will be 40° F.
9. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to ensure the Contractor installs the joint to the Manufacturers recommendations.
10. Surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the surface. At a minimum, two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the surface will be required. Cleaning of the surfaces with solvents, wire brushing, or grinding will not be permitted.
11. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
12. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
13. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
14. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
15. The Membrane Sealant Expansion Joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The Membrane Sealant Expansion Joint will be paid for at the contract unit price per foot complete in place. Payment for this item will be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.

FILE - ...\\MEMBRANE JOINT AT CRC TO NRC PAVEMENT JOINT ON RAMP WITH REPAIRPUGH NAME - 72

ORIGINAL CONSTRUCTION PLANS FOR TERMINAL RAMP JUNCTIONS

STATE OF
SOUTH
DAKOTA

PROJECT
IM 2292(118)0

SHEET
98

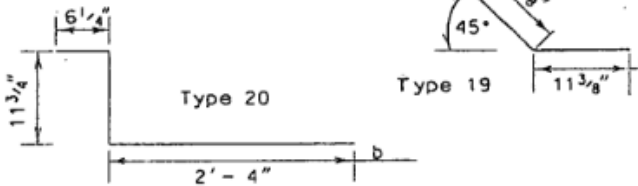
TOTAL
SHEETS
99

CONTINUOUSLY REINFORCED TO NONREINFORCED PCC PAVEMENT TERMINAL RAMP JUNCTION

Ramp Junction Terminal Length =
10' @ Shoulders
19' @ 10th St. Ramps
25' @ All Other Ramp Locations

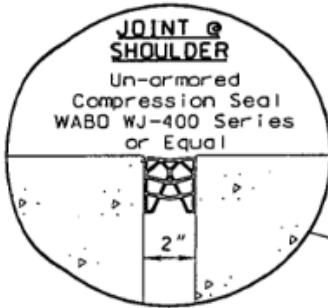
REINFORCING SCHEDULE

Mk.	Size	Length	Type
a *	4	3' - 4 1/4"	19
b *	4	3' - 10"	20
c	4		Str

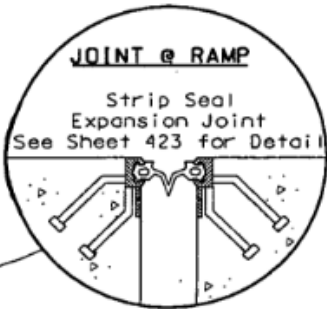


NOTE:
All dimensions are out to out of bars.

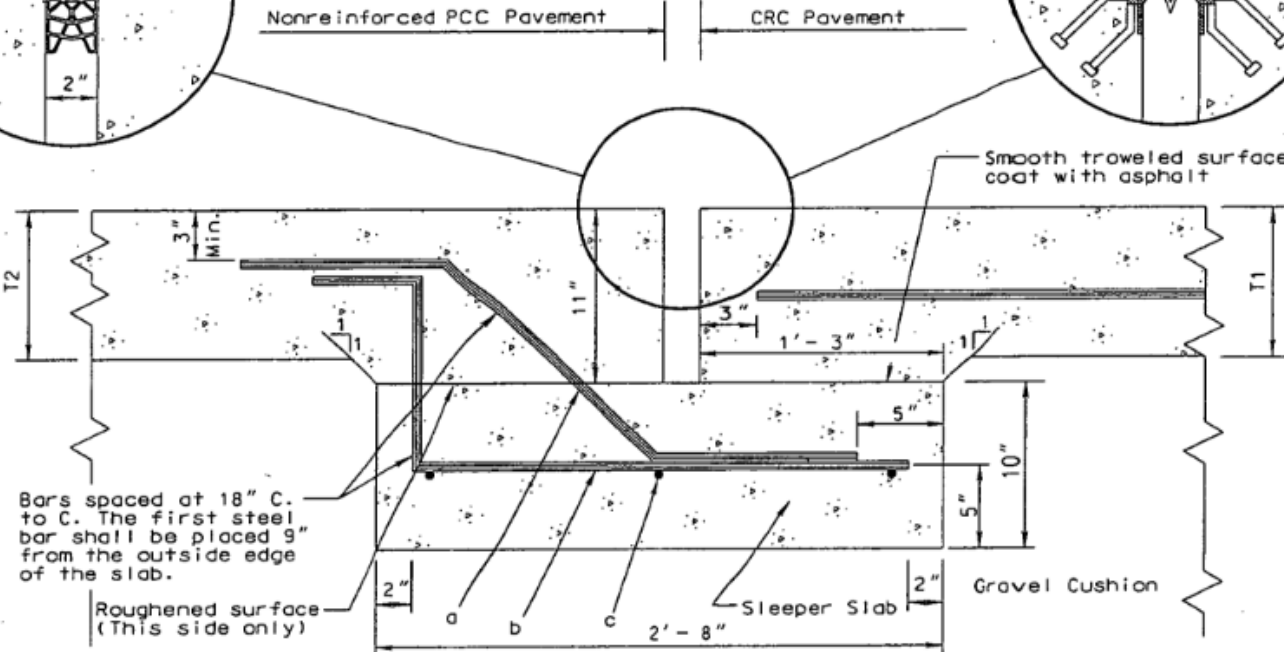
* Bars to be Epoxy Coated



JOINT @ SHOULDER
Un-armored
Compression Seal
WABO WJ-400 Series
or Equal



JOINT @ RAMP
Strip Seal
Expansion Joint
See Sheet 423 for Detail



Bars spaced at 18" C. to C. The first steel bar shall be placed 9" from the outside edge of the slab.

Roughened surface (This side only)

Smooth troweled surface coat with asphalt

Sleeper Slab

Gravel Cushion

T1 - Depth of Continuously Reinforced PCC Pavement (10.5")

T2 - Depth of Nonreinforced PCC Pavement (9" Ramps, 8" Shoulders)

REVISED AUGUST 2001
March 14, 1999

S
D
D
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T

PCC PAVEMENT CONTINUOUSLY REINFORCED - TERMINAL RAMP JUNCTION

Misc.
1 of 1

PLOT SCALE - 1:200

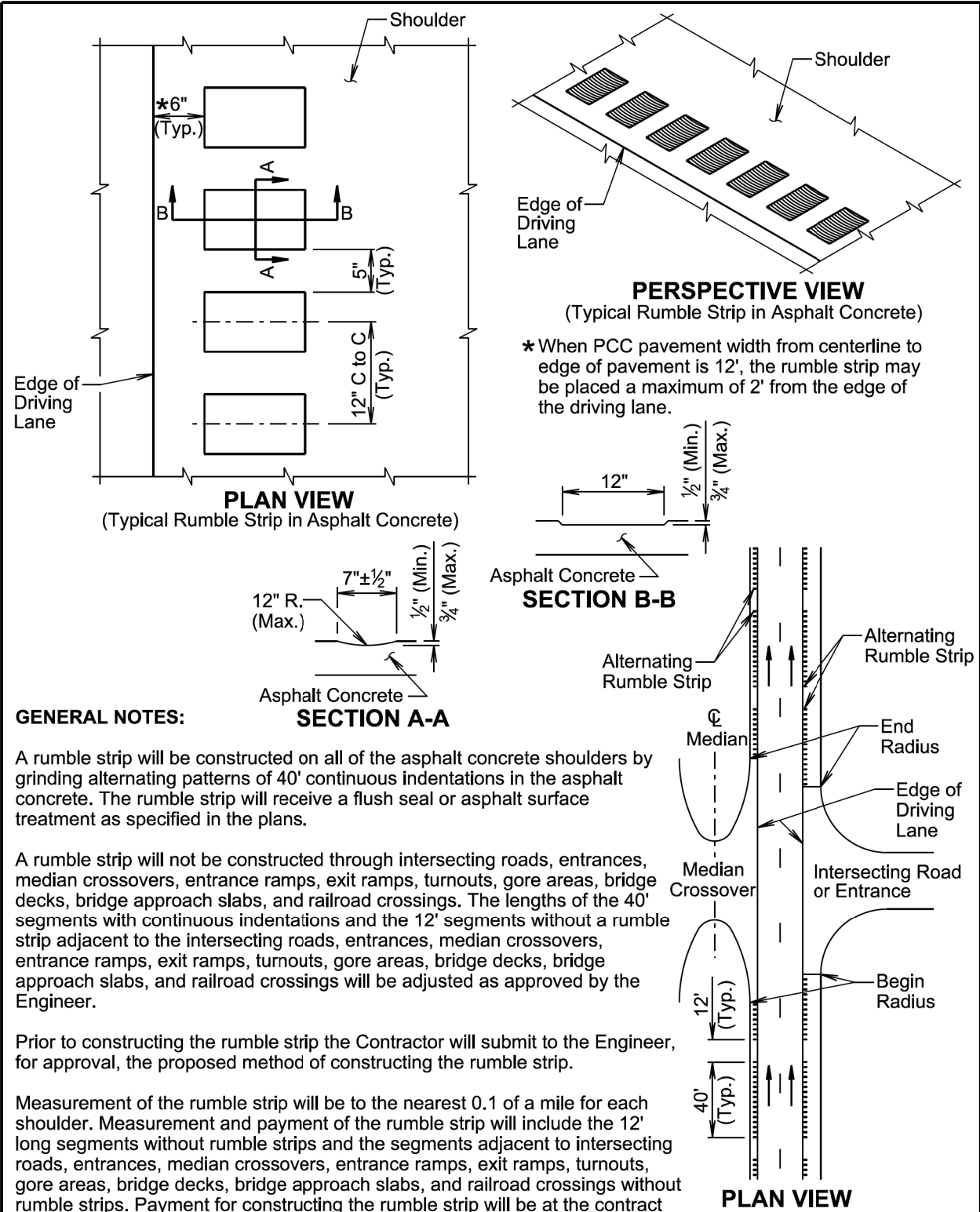
.PLOTTED FROM - TRM11NT15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 2292(118)0	99	99

Plotting Date: 09/18/2025

PLOT NAME - 73

FILE - ... \MINN048F\STD PLATES 048F.DGN



GENERAL NOTES:

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

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

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

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

September 14, 2019

Published Date: 2026	S D D O T	12" RUMBLE STRIP IN ASPHALT CONCRETE ON DIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.28
			Sheet 1 of 1