

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	1	33

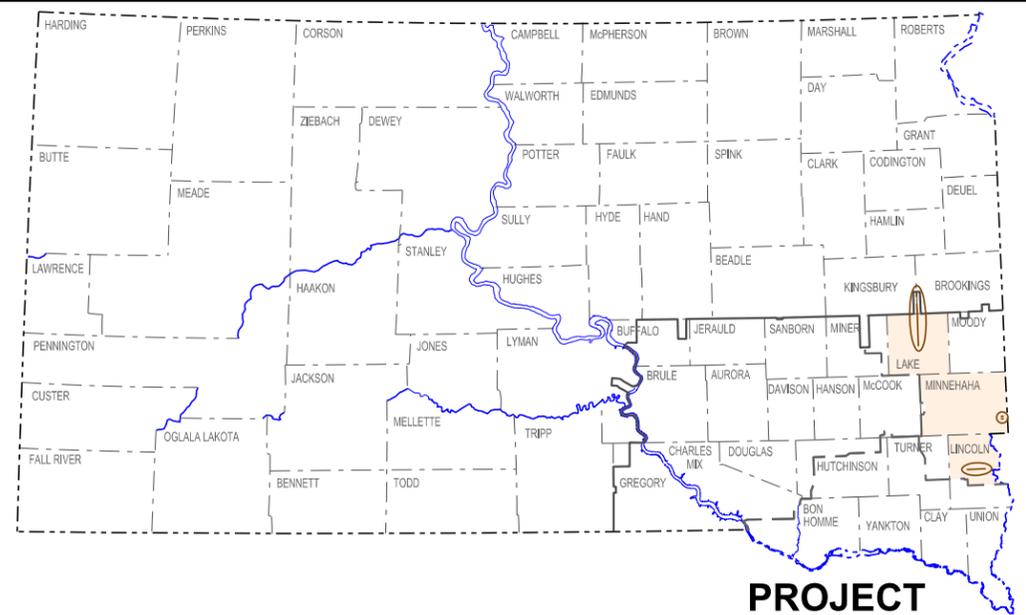
Plotting Date: 01/22/2026

PLANS FOR PROPOSED
IM-NH 0022(102)
INTERSTATE 90 EXIT 410,
US HIGHWAYS 18 & 81
LAKE, LINCOLN, BROOKINGS,
KINGSBURY & MINNEHAHA COUNTIES
ASPHALT SURFACE TREATMENT &
ASPHALT SURFACE TREATMENT OF SHOULDERS
PCN 09WU

INDEX OF SHEETS

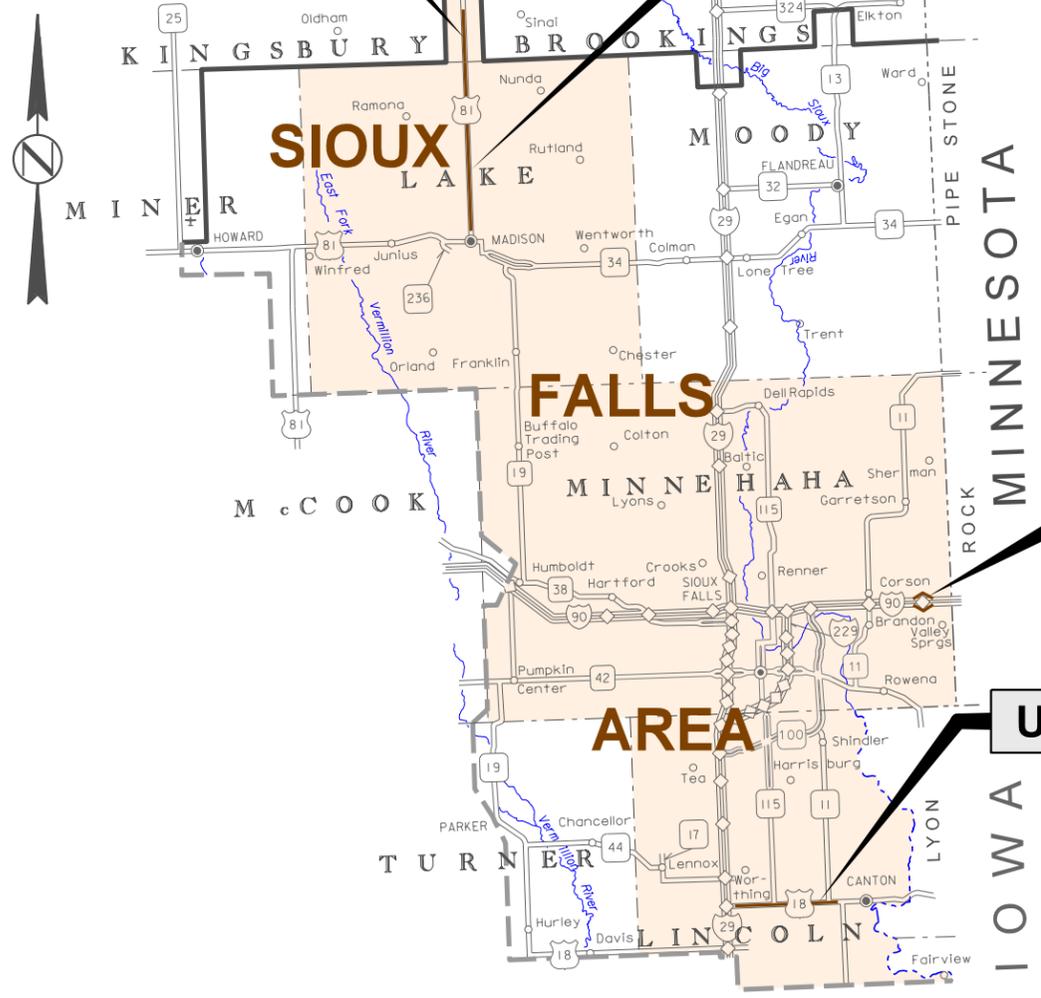
Sheet 1	Title Sheet
Sheets 2 - 5	Layout Maps
Sheets 6 & 7	Estimate of Quantities
Sheets 8 & 9	Environmental Commitments
Sheets 10 - 16	Plan Notes
Sheet 11	Itemized List of Traffic Control
Sheets 12 - 14	Traffic Control Fixed Signing
Sheets 15 - 28	Traffic Control Details & Standard Plates
Sheets 29 - 33	Pavement Marking Details & Standard Plates

PLOT SCALE - 1"=7000'



PROJECT

US81 North Segment **US81 South Segment**



I90 Exit 410 Ramps

US18

STORM WATER PERMIT
(None required)

PLOTTED FROM - TRSF12115

FILE - ... \2026 SF AREA CHIP SEAL TITL09WU.DGN

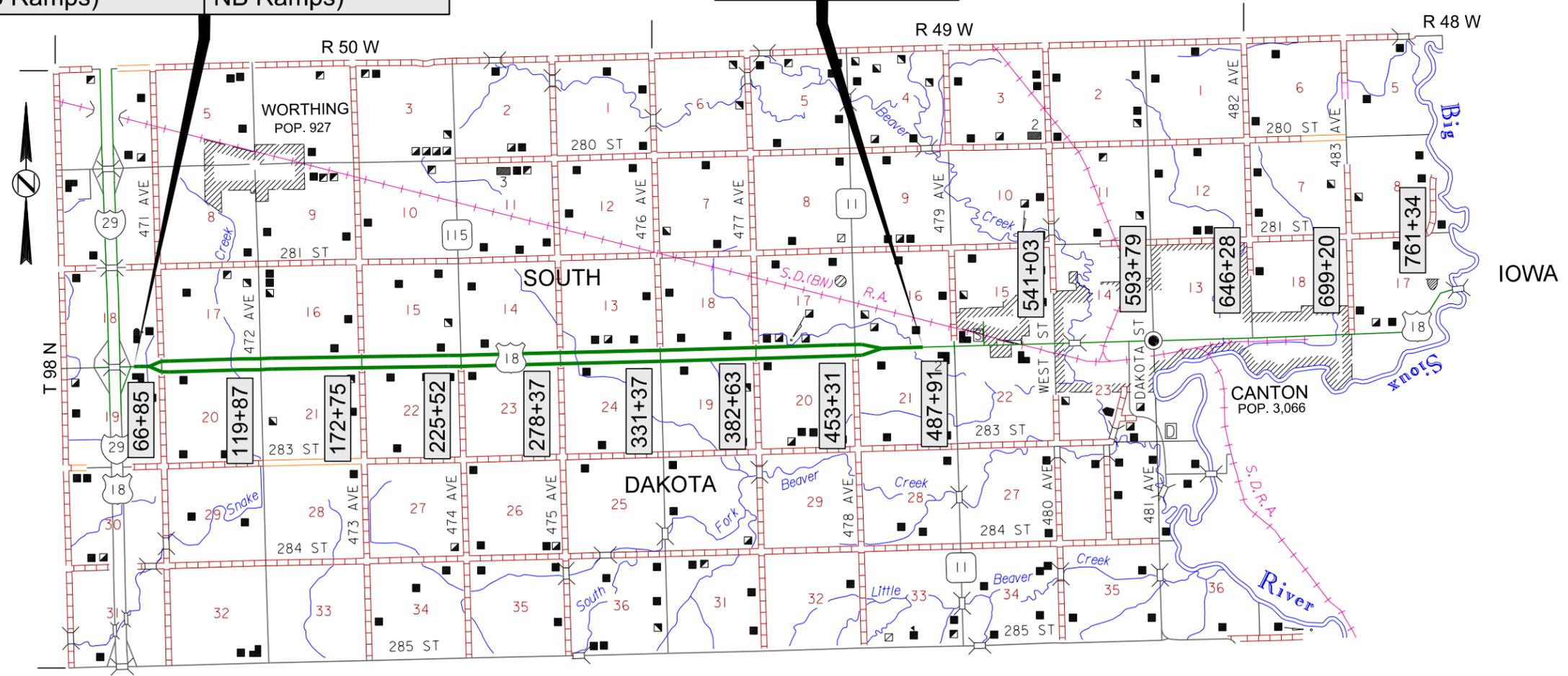
US HIGHWAY 18 LINCOLN COUNTY ASPHALT SURFACE TREATMENT OF SHOULDERS LENGTH: 7.876 MILES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	2	33

Plotting Date: 01/22/2026

BEGIN US18 WB STA. 46+81 MRM 438.28 +0.061 (39' E of Jct I29 NB Ramps)	BEGIN US18 EB STA. 53+67 MRM 438.28 +0.191 (725' E of Jct I29 NB Ramps)
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END US18 STA. 466+10 MRM 446.00 +0.394 (At Begin C&G)



ADT (2024) 3,437

PLOT SCALE - 1:7000

PLOTTED FROM - TRSF12115

PLOT NAME - 2

FILE - ... \2026 SF AREA CHIP SEAL TITL09WU.DGN

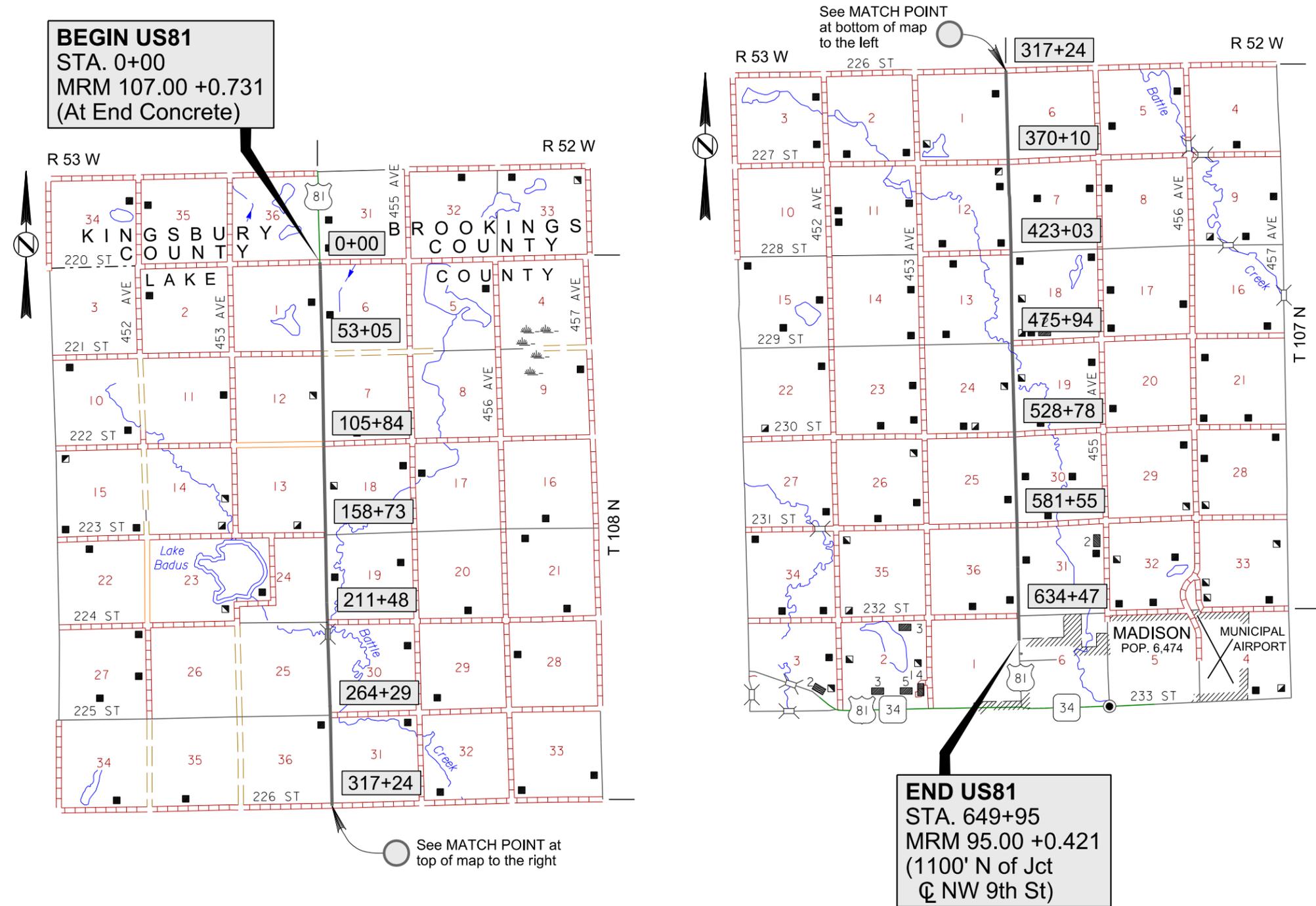
US HIGHWAY 81 SOUTH SEGMENT LAKE COUNTY ASPHALT SURFACE TREATMENT LENGTH: 12.310 MILES

STATE OF SOUTH DAKOTA	PROJECT IM-NH 0022(102)	SHEET 3	TOTAL SHEETS 33
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Plotting Date: 01/22/2026

PLOT SCALE - 1:7000

PLOT NAME - 3



ADT (2024) 1,872

PLOTTED FROM - TRSF12115

FILE - ... \2026 SF AREA CHIP SEAL TITL09WU.DGN

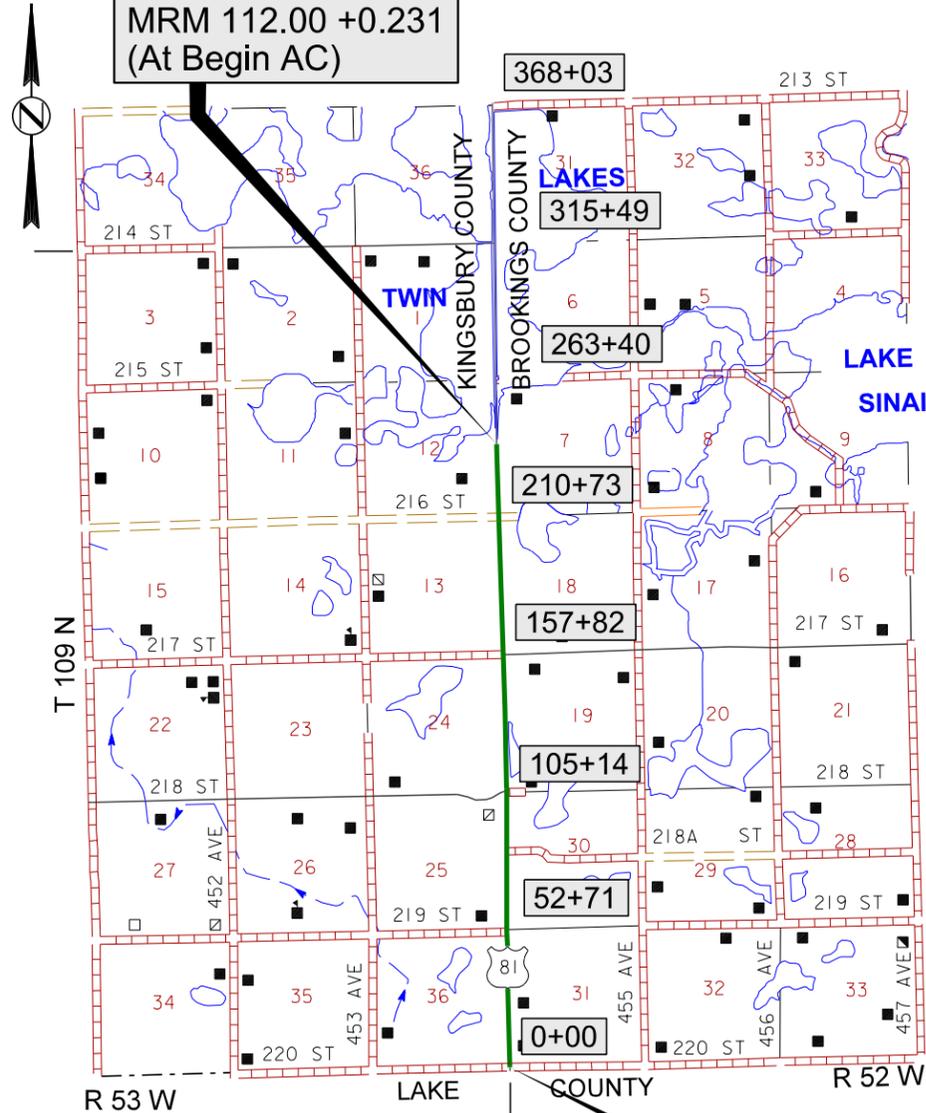
**US HIGHWAY 81 NORTH SEGMENT
KINGSBURY & BROOKINGS COUNTIES
ASPHALT SURFACE TREATMENT
OF SHOULDERS (FLUSH SEAL)
LENGTH: 4.520 MILES**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	4	33

Plotting Date: 01/22/2026

**US HIGHWAY 81 NORTH SEGMENT
KINGSBURY & BROOKINGS COUNTIES
ASPHALT SURFACE TREATMENT OF
SHOULDERS & MAINLINE MAINTENANCE PATCHES
LENGTH: 1.994 MILES**

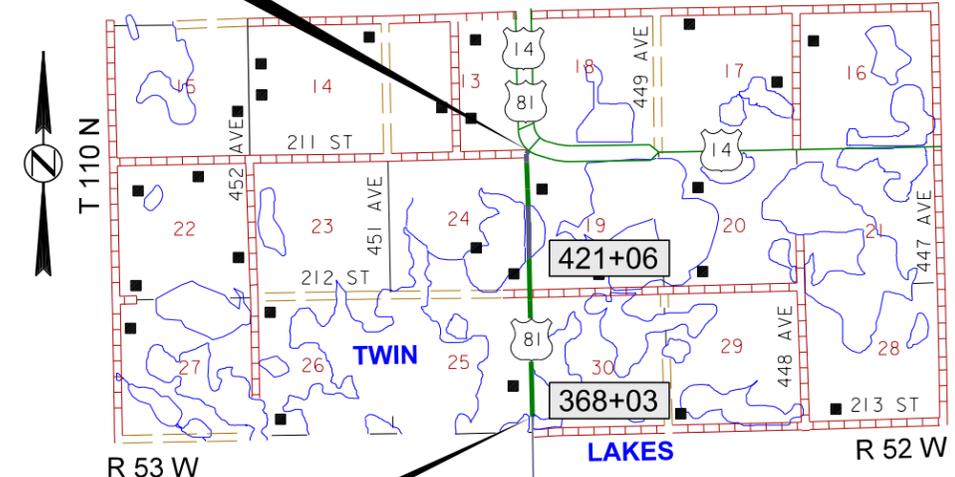
END US81
STA. 238+67
MRM 112.00 +0.231
(At Begin AC)



BEGIN US81
STA. 0+00
MRM 107.00 +0.731
(At Begin Concrete)

ADT (2024) 1,549

END US81
STA. 479+37
MRM 116.64 +0.000
(At Jct US14E)



BEGIN US81
STA. 374+11
MRM 114.00 +0.806
(At Begin Concrete)

PLOTTED FROM: TRSF12115

PLOTTED FROM: TRSF12115

PLOT NAME: 4

FILE: ...\\2026 SF AREA CHIP SEAL TITL09WU.DGN

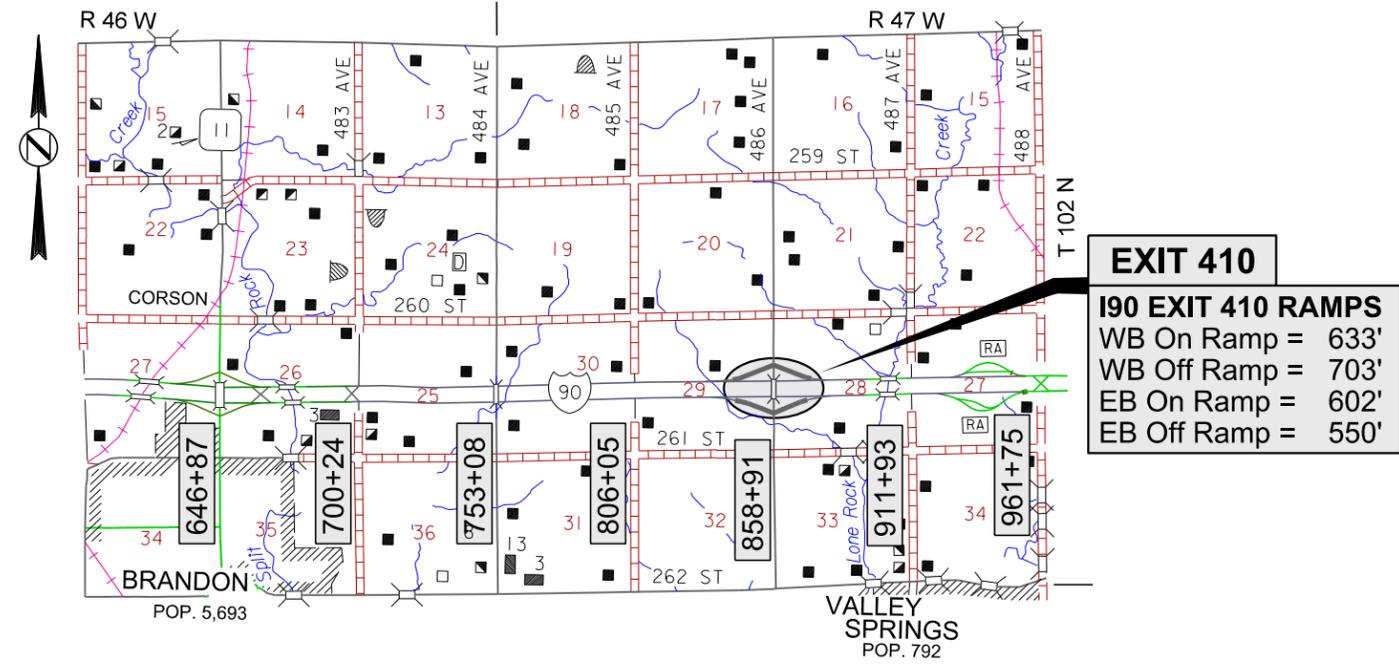
I90 EXIT 410 MINNEHAHA COUNTY ASPHALT SURFACE TREATMENT RAMPS LENGTH: 0.471 MILE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	5	33

Plotting Date: 01/22/2026

PLOT SCALE - 1:7000

PLOT NAME - 5



I90 EXIT 410 ADT (2023) WB On Ramp 699 WB Off Ramp 108 EB On Ramp 109 EB Off Ramp 683 Crossroad 1,260

PLOTTED FROM - TRSF12115

FILE - ... \2026 SF AREA CHIP SEAL TITL09WU.DGN

ESTIMATE OF QUANTITIES (FOR INFORMATION ONLY)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	6	33

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	120.5	Ton
330E3000	Sand for Fog Seal	40.0	Ton
360E0042	CRS-2P Asphalt for Surface Treatment	452.7	Ton
360E1040	Type 2B Cover Aggregate	78.7	Ton
360E1040	Type 2B Cover Aggregate	633.3	Ton
360E1040	Type 2B Cover Aggregate	2,056.7	Ton
360E1040	Type 2B Cover Aggregate	232.9	Ton
633E0030	Cold Applied Plastic Pavement Marking, 24"	1,066	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	15	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	743	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	293	Gal
633E5050	Surface Preparation for Pavement Marking	1,066	Ft
633E5052	Surface Preparation for Pavement Marking	15	Each
633E6010	Pavement Marking Masking, 9"	160	Ft
633E6020	Pavement Marking Masking, 25"	2,160	Ft
633E6030	Pavement Marking Masking, Arrow	32	Each
634E0010	Flagging	356.0	Hour
634E0020	Pilot Car	82.0	Hour
634E0110	Traffic Control Signs	3,207.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	40	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E0630	Temporary Pavement Marking	39.4	Mile
634E1215	Contractor Furnished Portable Changeable Message Sign	6	Each
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	2	Each

ESTIMATE OF QUANTITIES (FOR INFORMATION ONLY)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	7	33

Rev. 2/4/26 BV

BID ITEM NUMBER	ITEM	I90 Minnehaha	US18 Lincoln	US81 South Seg Lake	US81 North Seg Kingsbury Brookings	TOTAL QUANTITY
009E0010	Mobilization	←—————LUMP SUM—————→				Lump Sum
009E4100	Construction Schedule, Category I	←—————LUMP SUM—————→				Lump Sum
330E0300	SS-1h or CSS-1h Asphalt for Fog Seal	2.3	21.0	82.0	15.2	120.5 Ton
330E3000	Sand for Fog Seal	10.0	10.0	10.0	10.0	40.0 Ton
360E0042	CRS-2P Asphalt for Surface Treatment	11.2	90.3	317.7	33.5	452.7 Ton
360E1040	Type 2B Cover Aggregate - I90	78.7	----	----	----	78.7 Ton
360E1040	Type 2B Cover Aggregate - US18	----	633.3	----	----	633.3 Ton
360E1040	Type 2B Cover Aggregate - US81 South Segment	----	----	2,056.7	----	2,056.7 Ton
360E1040	Type 2B Cover Aggregate - US81 North Segment	----	----	----	232.9	232.9 Ton
633E0030	Cold Applied Plastic Pavement Marking, 24"	----	----	1,066	----	1,066 Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	----	----	15	----	15 Each
633E1200	High Build Waterborne Pavement Marking Paint, White	13	4	694	32	743 Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	13	3	273	4	293 Gal
633E5050	Surface Preparation for Pavement Marking	----	----	1,066	----	1,066 Ft
633E5052	Surface Preparation for Pavement Marking	----	----	15	----	15 Each
633E6010	Pavement Marking Masking, 9"	----	160	----	----	160 Ft
633E6020	Pavement Marking Masking, 25"	----	28	2,132.0	----	2,160 Ft
633E6030	Pavement Marking Masking, Arrow	----	2	30.0	----	32 Each
634E0010	Flagging	64	60	200	32	356 Hour
634E0020	Pilot Car	16	----	50	16	82 Hour
634E0110	Traffic Control Signs	353.0	1,725.2	531.4	597.6	3,207.2 SqFt
634E0120	Traffic Control, Miscellaneous	←—————LUMP SUM—————→				Lump Sum
634E0275	Type 3 Barricade	----	40	----	0	40 Each
634E0420	Type C Advance Warning Arrow Board	----	2	----	----	2 Each
634E0630	Temporary Pavement Marking	0.9	0.0	36.9	1.6	39.4 Mile
634E1215	Contractor Furnished Portable Changeable Message Sign	2	2	1	1	6 Each
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	----	2	----	----	2 Each

ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	8	33

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/doing-business/environmental/about-environmental/>

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 B4: BALD AND GOLDEN EAGLE

Bald and/or Golden eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

If a Contractor needs access to state waters for extraction, the Contractor must obtain a water right, through the application of a Temporary Permit to Use Public Waters before work begins.

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 (SDDANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Temporary permit to use public waters for highway construction purposes application can be found on the SDDANR website: <https://danr.sd.gov/OfficeOfWater/WaterRights/PermitForms/default.aspx>

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:

1. 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.
2. 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-NH 0022(102)	9	33

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 150 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.

RATES OF MATERIALS AND TABLE OF ADDITIONAL QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	10	33

US81 (N. SEGMENT) SUMMARY OF MATERIALS QUANTITIES

	Miles	CRS-2P	Type 2B	CSS-1h
Mainline (See Rate of Materials)	0.547	14.13	98.84	2.87
Shoulders 0+00 to 238+67	4.520			8.45
Shoulders 374+11 to 472+00	1.854	17.11	119.64	3.47
Shoulders 472+00 to 479+37	0.140	2.23	14.46	0.42
US81 N. Segment Total Tons		33.48	232.93	15.21

US81 (South Segment) RATES OF MATERIALS

Mainline	0+00 to 649+95	12.310 miles
CRS-2P Asphalt for Surface Treatment at the rate of 24.93 tons/mile applied 25 feet wide (Rate = 0.37 gallon per square yard).		
Type 2B Cover Aggregate at the rate of 161.33 tons/mile applied 25 feet wide (Rate = 22 pounds per square yard).		
SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 6.36 tons/mile applied 34 feet wide (Rate = 0.075 gallons per square yard).		

US81 (North Segment) RATES OF MATERIALS

Shoulders **0+00 to 238+67** **4.520 miles**

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 1.87 tons/mile applied 10 feet wide (5 feet each shoulder) (Rate = 0.075 gallons per square yard).

Shoulders **374+11 to 472+00** **1.854 miles**

CRS-2P Asphalt for Surface Treatment at the rate of 9.23 tons/mile applied 10 feet wide (5 feet each shoulder) (Rate = 0.40 gallon per square yard).

Type 2B Cover Aggregate at the rate of 64.53 tons/mile applied 10 feet wide (5 feet each shoulder) (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 1.87 tons/mile applied 10 feet wide (5 feet each shoulder) (Rate = 0.075 gallons per square yard).

Mainline **433+00 to 454+50** **0.407 miles**
 472+00 to 479+37 **0.140 miles**
 0.547 miles

CRS-2P Asphalt for Surface Treatment at the rate of 25.83 tons/mile applied 28 feet wide (Rate = 0.37 gallon per square yard).

Type 2B Cover Aggregate at the rate of 180.69 tons/mile applied 28 feet wide (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 5.24 tons/mile applied 28 feet wide (Rate = 0.075 gallons per square yard).

Shoulders **472+00 to 479+37** **0.140 miles**

CRS-2P Asphalt for Surface Treatment at the rate of 15.96 tons/mile applied 16 feet wide (8 feet each shoulder) (Rate = 0.40 gallon per square yard).

Type 2B Cover Aggregate at the rate of 103.25 tons/mile applied 16 feet wide (8 feet each shoulder) (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 2.99 tons/mile applied 16 feet wide (8 feet each shoulder) (Rate = 0.075 gallons per square yard).

US 81 (South Segment) TABLE OF ADDITIONAL QUANTITIES

Location	CRS-2P ASPHALT SURFACE TREATMENT TON	TYPE 2B COVER AGGREGATE TON	CSS-1H ASPH. FOR FOG SEAL TON
US81			
Sta. 158+73 Lt. 228 SqYd 223rd Intersection Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	0.39	2.74	-
Sta. 158+73 1920 SqYd 223rd Turn Lane Rates = 0.40 gal, 22 lb & 0.075 gal/SqYd	3.26	21.12	0.61
Sta. 145+03 to 167+83 1957 SqYd 223rd Turn Lane Shoulders Width Varies from 5' to 8' Rates = 0.075 gal/SqYd	-	-	0.62
Sta. 264+29 Rt. 150 SqYd 225th Intersection Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	0.25	1.8	-
Sta. 264+29 Lt. 1920 SqYd 225th Turn Lane Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	3.26	21.12	0.61
Sta. 255+19 to 277+99 1957 SqYd 225th Turn Lane Shoulders Width Varies from 5' to 8' Rates = 0.075 gal/SqYd	-	-	0.62
Sta. 423+03 Lt. 237 SqYd 228th Intersection Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	0.4	2.85	-
Sta. 423+03 Rt. 1920 SqYd 228th Turn Lane Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	3.26	21.12	0.61
Sta. 409+93 to 432+13 1957 SqYd 228th Turn Lane Shoulders Width Varies from 5' to 8' Rates = 0.075 gal/SqYd	-	-	0.62
US 81 (S. Segment) Total Additional Quantities	10.82	70.75	3.69

RATES OF MATERIALS AND TABLE OF ADDITIONAL QUANTITIES (CONTINUED)

STATE OF SOUTH DAKOTA	PROJECT IM-NH 0022(102)	SHEET 11	TOTAL SHEETS 33
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US81 (S. Segment) SUMMARY OF MATERIALS QUANTITIES

	Miles	CRS-2P	Type 2B	CSS-1h
Additional Quantities		10.82	70.75	3.69
Mainline (See Rates of Materials)	12.310	306.89	1985.97	78.29
US81 S. Segment Total Tons		317.71	2056.72	81.98

US18 (WEST SEGMENT) RATES OF MATERIALS

Shoulders **46+81 to 48+71 (WB)** **0.036 miles**

CRS-2P Asphalt for Surface Treatment at the rate of 3.69 tons/mile applied 4 feet wide on shoulder (Rate = 0.37 gallon per square yard).

Type 2B Cover Aggregate at the rate of 25.81 tons/mile applied 6 feet wide on shoulder (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 0.75 tons/mile applied 4 feet wide on shoulder (Rate = 0.075 gallons per square yard).

Shoulders **48+71 to 466+10 (WB)** **7.905 miles**
 53+67 to 466+10 (EB) **7.811 miles**
 15.716 miles

CRS-2P Asphalt for Surface Treatment at the rate of 5.54 tons/mile applied 6 feet wide on each shoulder (Rate = 0.40 gallon per square yard).

Type 2B Cover Aggregate at the rate of 38.72 tons/mile applied 6 feet wide on each shoulder (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 1.12 tons/mile applied 6 feet wide on each shoulder (Rate = 0.075 gallons per square yard).

US 18 TABLE OF ADDITIONAL QUANTITIES

Location	CRS-2P ASPHALT SURFACE TREATMENT TON	TYPE 2B COVER AGGREGATE TON	CSS-1h ASPH. FOR FOG SEAL TON
US18			
Sta. 119+87 Rt. 472 nd Intersection Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	205 SqYd 0.35	2.46	-
Sta. 119+87 Lt. 472nd Intersection Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	190 SqYd 0.32	2.28	-
Sta. 225+52 Lt. SD 115 Mainline (36') Rates = 0.35 gal, 24 lb & 0.075 gal/SqYd	400 SqYd 0.6	4.8	-
Sta. 331+37 Rt. 476th Intersection Rates = 0.40 gal, 24 lb & 0.075 gal/SqYd	420 SqYd 0.71	5.04	-
Sta. 487+91 Lt. SD 11 Mainline (36') Rates = 0.35 gal, 24 lb & 0.075 gal/SqYd	776 SqYd 1.15	9.31	-
Station (Various) 13 Truck Turn Arouns Rates = 0.075 gal/SqYd	823 SqYd Each		3.38
US 18 (W. Segment) Total Additional Quantities	3.13	23.89	3.38

I90 RATES OF MATERIALS

Ramps **WB ON** **0.120 miles**
 WB OFF **0.133 miles**
 EB ON **0.114 miles**
 EB OFF **0.104 miles**
 0.471 miles

CRS-2P Asphalt for Surface Treatment at the rate of 22.14 tons/mile applied 24 feet wide (Rate = 0.37 gallon per square yard).

Type 2B Cover Aggregate at the rate of 154.88 tons/mile applied 24 feet wide (Rate = 22 pounds per square yard).

SS-1h or CSS-1h Asphalt for Fog Seal at the rate of 4.49 tons/mile applied 24 feet wide (Rate = 0.075 gallons per square yard).

I90 TABLE OF ADDITIONAL QUANTITIES

LOCATION	CRS-2P ASPHALT SURFACE TREATMENT TON	TYPE 2B COVER AGGREGATE TON	CSS-1h ASPH. FOR FOG SEAL TON
I90			
WB OFF Ramp Radii – 486th Ave 84 SqYd Rates = 0.37 gal, 22 lb & 0.075 gal/SqYd	0.14	1.01	0.03
WB ON Ramp Radii – 486th Ave 188 SqYd Rates = 0.37 gal, 22 lb & 0.075 gal/SqYd	0.29	2.25	0.06
EB OFF Ramp Radii – 486th Ave 83 SqYd Rates = 0.37 gal, 22 lb & 0.075 gal/SqYd	0.13	0.99	0.03
EB ON Ramp Radii – 486th Ave 124 SqYd Rates = 0.37 gal, 22 lb & 0.075 gal/SqYd	0.19	1.48	0.04
I90 Total Additional Quantities	0.75	5.73	0.16

I90 SUMMARY OF MATERIALS QUANTITIES

	Miles	CRS-2P	Type 2B	CSS-1h
Mainline	0.471	10.43	72.95	2.11
Additional Quantities		0.75	5.73	0.16
I90 Total Tons		11.18	78.68	2.27

The above quantities are included in the Estimate of Quantities.

RIDE ACROSS SOUTH DAKOTA BIKE TOUR

The Ride Across South Dakota bike tour may be on routes that are in this contract to have an asphalt surface treatment applied to them. The routes of the tour can be found at www.RASDAK.com. The Contractor will schedule work to complete the affected routes after the bike tour is completed.

COORDINATION BETWEEN CONTRACTORS

The Contractor will schedule work so as not to interfere with or hinder the progress of the work performed by other Contractors on the NH 0018(157) 438 PCN 6923 project.

COORDINATION WITH SDDOT

The Contractor will notify the Engineer 30 days prior to beginning the asphalt surface treatment operations on US 18 & US 81 to give SDDOT Maintenance forces adequate time to rout and seal the cracks on these routes.

SHOULDER WORK

Prior to construction, Department of Transportation Maintenance Forces will spray the shoulders to kill existing vegetation. It will be the Contractor's responsibility to notify the State a minimum of 30 days prior to starting work on the shoulders of the highway. The State assumes no responsibility for the effectiveness of the herbicide applied.

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed to the satisfaction of the Engineer prior to asphalt surface treatment.

Shoulder work will be incidental to other contract items. Separate measurement and payment will not be made.

BRIDGES, APPROACH SLABS, SLEEPER SLABS, JOINTS, RAILROAD CROSSINGS, MANHOLES, WATER VALVES, MAINLINE RUMBLE STRIPS AND CONCRETE

Asphalt Surface Treatment will not be placed on any of the bridges, approach slabs, sleeper slabs, joints, railroad crossings, manholes, water valves or any type of concrete. It also will not be placed on the rumble strips in the mainline driving lane prior to a Stop sign.

Material used to cover and protect these areas will be removed and disposed of properly after the application of the asphalt surface treatment. When the material is removed, the asphalt surface treatment that does not stay adhered to the material will be removed from the road surface.

ESTIMATED QUANTITIES FOR ASPHALT SURFACE TREATMENT

The quantities of asphalt for surface treatment and cover aggregate are based on the rates shown in the Rates of Materials. This is only an estimate. The actual application rates of materials will be determined by mix design as stated in the Special Provision for Asphalt Surface Treatment Design. The mix design rates may vary from the estimated rates stated in the Rates of Materials depending on the aggregate source and the variation in gradation and flakiness index. The application rates may also be adjusted in the field due to results of gradation, flakiness index, sweep tests and differing surface conditions as encountered. Pay quantities will be based on the actual target rates the inspectors use even though they may vary significantly from plans estimates.

ASPHALT FOR SURFACE TREATMENT

The asphalt for surface treatment that is delivered for use on this contract will be used in the order it is received. Storage of asphalt for surface treatment will only be allowed at the end of the work day. The material that is placed in storage will be the first material used the following day.

COVER AGGREGATE

At least 50% of the aggregate will be stockpiled at each stockpile site, adjacent to or near the routes on this contract, at least one week prior to work beginning on the project. This is to allow the Area Office time to run tests on the material and enter the results into the mix design spreadsheets.

BROOMING

Material will be broomed off bridges and curb & gutter areas adjacent to the bridges. No material will be broomed under the guardrail, including the 3 cable guardrail or into the drop inlets. Material from the curb & gutter areas of the bridges, from guardrail areas of the bridges, and from drop inlets will be disposed of in a manner satisfactory to the Engineer.

No material will be broomed into the ditches or on the boulevards in residential and commercial areas where the adjacent landowner conducts the mowing of the right-of-way. This material will be disposed of in a manner satisfactory to the Engineer.

Material that is broomed onto the roadway inslopes will not be left in piles or windrows. The material will be evenly distributed at a height that will not hinder mowing operations or cause dispersion of the material into the traveled roadway when passed over with a mower.

Anticipated areas, other than the bridge areas stated above, that will require either removal of the chips with a pickup sweeper or additional dispersal of the chips with the rotary powered broom are:

ROUTE	LOCATION
US18	Residential and commercial areas in the City of Canton.
US81	Residential and commercial areas in the City of Madison.

This list may not be complete. Additional areas may need attention as directed by the Engineer.

FOG SEAL

Fog Seal will be placed on all the routes.

The fog seal will be placed following the completion of the asphalt surface treatment and prior to the placement of the permanent pavement marking.

Application of the fog seal will begin no earlier than the morning following application of the chip seal but no later than four days after the application of each day's chip seal.

Immediately prior to the applications of the fog seal the Contractor will be required to broom the entire width of the chip seal. An SS-1h or CSS-1h emulsion will be used for the fog seal application. An emulsion-to-water ratio of 3:1 should be used for the binder application.

Sand for Fog Seal will conform to Section 879.1 B of the specifications except for the following requirements:

The shale content or other particles of low specific gravity (less than 1.95) passing the No. 4 sieve will not exceed 4.5%. Prior to hauling, sand will be screened to minimize segregation, eliminate oversize and effectively breakup or discard material bonded into chunks.

Sand for Fog Seal will be furnished by the Contractor. A rate of application for the sand will not be given. A small quantity of Sand for Fog Seal is set up for each respective route to be Fog Sealed, to be used as directed by the Engineer at locations of high traffic volumes, such as intersecting state or county highways, that traffic cannot be stopped from crossing. The Contractor will be required to keep traffic off other areas until the Fog Seal has cured sufficiently as to not stick to tires.

TRANSVERSE RUMBLE STRIPS

The Contractor will ensure transverse rumble strips are not damaged or otherwise modified to lose their functionality during the application of the surface treatment. The Contractor will only apply a fog seal to the rumble strips. The Contractor will repair any damage or loss of functionality of rumble strips to the satisfaction of the Engineer at no additional cost to the State.

TEMPORARY PAVEMENT MARKING

Paint will not be allowed for Temporary Pavement Marking, except after the placement of the fog seal.

The total length of no passing zones on this contract is estimated to be 4.718 miles.

For locations where the annual average daily traffic (ADT) is 2500 or less, it is estimated that 24 DO NOT PASS and 25 PASS WITH CARE signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

**TABLES OF DO NOT PASS AND PASS WITH CARE SIGNS
(ADT LESS THAN OR EQUAL TO 2500)**

ROUTE	DO NOT PASS	PASS WITH CARE
US81	24	25
TOTAL	24	25

Prior to asphalt surface treatment the Contractor will mark, with appropriately colored temporary flexible vertical markers (tabs), the location of existing pavement marking, except edgelines. However, the Contractor will place temporary flexible vertical markers (tabs) on the edgeline of transition areas such as turn lanes and climbing lanes and on dashed edgelines. Prior to installation of the permanent pavement marking, the Engineer is to be notified. The Contractor will give the Engineer ample notification to verify and check the placement of the temporary flexible vertical markers (tabs) that are to be used for placement of the permanent pavement marking.

If the Contractor uses the DO NOT PASS and PASS WITH CARE signs, the beginning and ending of no passing zones will be marked with temporary flexible vertical markers (tabs).

The Contractor will remove and dispose of temporary flexible vertical markers (tabs) after Permanent Pavement Marking is applied. Removal will be accomplished within one week of completion of the Permanent Pavement Marking.

In the absence of a signed lane closure or pilot car operation, Flagger symbol signs (W20-7) and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1), a Workers symbol sign (W21-1) or a BE PREPARED TO STOP (W3-4) warning sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work will be approved by the Engineer.

PAVEMENT MARKING MASKING

Any existing pavement marking that is to be salvaged on this contract will be covered with an approved pavement marking masking immediately prior to sealing to preserve the various marking. The masking material will be sturdy enough to eliminate being punctured by the cover aggregate when traffic drives over it.

Pavement marking to be masked will be cleaned with a high pressure air blast device immediately prior to the application of the Pavement Marking Masking. The width of this masking will be one inch wider than the existing marking. The various items for Pavement Marking Masking will include material, labor and equipment to satisfactorily install the masking prior to sealing and remove and dispose of the masking after the completion of the work and will be incidental to the contract unit price for Pavement Marking Masking.

If the pavement marking is damaged due to improper masking, it will be replaced or repaired at the Contractor's expense.

When the masking is removed, the asphalt surface treatment that does not stay adhered to the masking will be removed from the road surface.

TABLE OF PAVEMENT MARKING MASKING

ROUTE	LOCATION	DESCRIPTION
*US18	225+52 Lt	Arrow (1 Each - Left)
*US18	331+37 Rt	24" Stop Bar
*US18	331+37 Rt	9" Contrast Tape x 80'
*US81 S Segment	223rd Street	Arrows (5 Left)
*US81 S Segment	225th Street	Arrows (5 Left)
*US81 S Segment	228th Street	Arrows (5 Left)
*US81 S Segment	228th Street	24" Yellow Cross Hatch for Turn Bays (173')
*US81 S Segment	225th Street	24" Yellow Cross Hatch for Turn Bays (170')
*US81 S Segment	223rd Street	24" Yellow Cross Hatch for Turn Bays (190')

* Masking of the required areas on these routes may need to be done twice due to the required placement of the Fog Seal on these routes. Once prior to the placement of the chip seal and once prior to the fog seal application. Each masking application will be paid for separately. If the Contractor can achieve satisfactory results by leaving the masking in place for both the chip seal and the fog seal applications, this procedure will be allowed. In this case, the masking will be paid for once.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to 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.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 27.8 Gals/Mile
Dashed 4" line = 7.6 Gal/Mile
Glass Beads = 8 Lbs/Gal.

All cost for materials, 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.

PERMANENT PAVEMENT MARKING

The existing pavement marking on portions of US 81 & US 18 (East Segment) is epoxy pavement marking & US 18 (West Segment) is Tape. The Contractor will take precautions so that this marking is not damaged. Any marking damaged due to the Contractor's work will be replaced in kind at the Contractor's expense.

The application of permanent pavement marking may not begin until 7 calendar days following completion of the fog seal and will be completed within 14 calendar days following completion of the fog seal.

Marking eight inch edgelines and gore areas will require the use of two spray nozzles to achieve the required width. Marking twelve inch gore lines will require the use of three spray nozzles to achieve the required width.

The Contractor will be required to repaint existing pavement marking including centerline, edgeline, dashed edgelines, dashed lane lines, lane lines, turn lanes, gore areas, etc.

Stop lines are to be located a minimum of 10' and a maximum of 30' back from the edge of the intersecting roadway. The stop line is to be located to provide the best sight distance for a stopped motorist to view intersecting traffic. The Project Engineer is to be notified prior to the installation of the stop lines to verify their location. Adjustments of the location of the existing stop lines, if needed, will be made prior to the placement of the new stop lines.

Flush sealing will not be allowed as an option for correction of pavement marking not within tolerance due to the occurrence of shadow through.

The following table contains locations of existing pavement marking to be painted by hand.

TABLES OF PERMANENT PAVEMENT MARKING

I90 Exit 410 Ramps	White	Yellow
4" Solid Yellow Edgelines Ramps = 0.471 miles @ 27.8 Gal/Mile		13
4" Solid White Edgelines Ramps = 0.471 miles @ 27.8 Gal/Mile	13	
TOTAL GALLONS	13	13

US18	White	Yellow
Yellow Centerline Dashes = 0.015 miles @ 7.6 Gal/Mile		0.1
Solid Yellow Centerline = 0.058 miles @ 27.8 Gal/Mile		1.6
Double Yellow for Turn Bays = 2 (4" line) x 0.019miles @ 27.8 Gal/Mile		1.1
4" Solid White Edgeline = 0.153 miles @ 27.8 Gal/Mile	4.3	
Solid White Lane Lines = 0.005 miles @ 27.8 Gal/Mile	0.1	
TOTAL GALLONS	4	3

US81 (N. Segment)	White	Yellow
Yellow Centerline Dashes = 0.574 miles @ 7.6 Gal/Mile		4.4
4" Solid White Edgeline = 1.148 miles @ 27.8 Gal/Mile	31.9	
TOTAL GALLONS	32	4

US81 S Segment	White	Yellow
Yellow Centerline Dashes = 11.201 miles @ 7.6 Gal/Mile		85.1
Solid Yellow Centerline = 3.648 miles @ 27.8 Gal/Mile		101.4
Double Yellow for Turn Bays = 2 (4" line) x 1.546 miles @ 27.8 Gal/Mile		86.0
4" Solid White Edgeline = 24.620 miles @ 27.8 Gal/Mile	684.4	
Solid White Lane Lines = 0.351 miles @ 27.8 Gal/Mile	9.8	
TOTAL GALLONS	694	273

SURFACE PREPARATION FOR PAVEMENT MARKING TAPE

No surface preparation will be allowed on bridge decks. Pavement marking on bridge decks will be surface applied.

Pavement surfaces that will have permanent pavement marking tape applied to them will be ground lightly or abrasive blasted to remove the existing pavement marking paint, pavement marking tape or painted pavement marking tape. These areas will then be cleaned with a high-pressure air blast device prior to application of the cold applied plastic pavement marking.

Surface preparation is defined as surface abrasion 15 mils ± 5 mils deep to establish a roughened surface free of surface treatments, laitance, loose paint chips, loose seal aggregate and surface impurities. If the surface preparation does not remove the existing pavement marking, the Contractor will abrasive blast the area to remove the existing pavement marking. Removal depth is measured vertically, from the bottom of a three-foot or longer straight edge placed on the existing roadway surface (not the newly chip sealed surface), to the ground surface. Immediately stop surface preparation if the depth exceeds 20 mils and make adjustments to meet the specified surface preparation depth.

Meet the following removal limits:

1. Grind not more than 1 inch wider than the item to be applied.
2. Remove the remains of the existing pavement marking.
3. The bottom of the preparation area will be uniform and free of loose material.

TABLES OF SURFACE PREPARATION FOR PAVEMENT MARKING TAPE

ROUTE	LOCATION	DESCRIPTION
US81 S Segment	223 rd Street	Arrows (5 Left)
US81 S Segment	225th Street	Arrows (5 Left)
US81 S Segment	228th Street	Arrows (5 Left)
US81 S Segment	228th Street	24" Yellow Cross Hatch for Turn Bays (346 SqFt)
US81 S Segment	225th Street	24" Yellow Cross Hatch for Turn Bays (340 SqFt)
US81 S Segment	223 rd Street	24" Yellow Cross Hatch for Turn Bays (380 SqFt)

COLD APPLIED PLASTIC PAVEMENT MARKING

Cold Applied Plastic Pavement Marking will be 3M Series 380 AW or approved equal and be applied as per manufacturer's recommendations.

Cold Applied Plastic Pavement Marking will be installed and properly masked prior to the application of the Asphalt Surface Treatment.

Stop lines are to be located a minimum of 10' and a maximum of 30' back from the edge of the intersecting roadway. The stop line is to be located to provide the best sight distance for a stopped motorist to view intersecting traffic. The Project Engineer is to be notified prior to the installation of the stop lines to verify their location. Adjustments of the location of the existing stop lines, if needed, will be made prior to the placement of the new stop lines.

TABLES OF COLD APPLIED PLASTIC PAVEMENT MARKING

ROUTE	LOCATION	DESCRIPTION
US81 S Segment	223 rd Street	Arrows (5 Left)
US81 S Segment	225th Street	Arrows (5 Left)
US81 S Segment	228th Street	Arrows (5 Left)
US81 S Segment	228th Street	24" Yellow Cross Hatch for Turn Bays (346 SqFt)
US81 S Segment	225th Street	24" Yellow Cross Hatch for Turn Bays (340 SqFt)
US81 S Segment	223 rd Street	24" Yellow Cross Hatch for Turn Bays (380 SqFt)

SEQUENCE OF OPERATIONS

If the Contractor requests to deviate from the sequence of operations it 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 below sequence is per route:

1. Install fixed location ground mounted traffic control devices.
2. Install and remove temporary traffic control devices as needed for each type of work.
3. Place temporary pavement marking not more than 24 hours prior to chip seal.
4. Place pavement marking masking immediately prior to chip seal. See Pavement Marking Masking note for alternate sequence.
5. Apply chip seal.
The brooming operation will be immediately in front of the asphalt distributor.
The Contractor will begin sealing operations at the farthest point from the stockpile site and work towards the stockpile site to eliminate unnecessary driving and turning on the fresh seal.
Only one distributor will be allowed to apply the chip seal oil at a time for each chip seal crew. If the Contractor wants to propose to use more than one distributor at a time, then their process will need to be approved by the Engineer in writing two weeks prior to the start of chip seal operations.
The application of the asphalt and aggregate will cease at least one hour prior to sunset each day.
6. Remove pavement marking masking immediately after chip seal.
7. Remove plastic covers from temporary flexible vertical markers (tabs) after application of the chip seal and prior to nightfall.
8. Broom chip sealed areas the next morning following the chip seal application.
9. Place pavement marking masking immediately prior to fog seal. See Pavement Marking Masking note for alternate sequence.
10. Pick up cover aggregate in curb & gutter areas and other areas as stated in the plans and directed by the Engineer.
11. Apply fog seal.
Only one distributor will be allowed to apply the fog seal oil at a time for each fog seal crew.
12. Remove pavement marking masking immediately after fog seal.
13. Remove plastic covers from temporary flexible vertical markers (tabs) or apply temporary pavement marking paint after application of the fog seal and prior to nightfall.
14. Immediately prior to application of the permanent pavement marking, the areas to be painted will be broomed or blown off with high pressure compressed air. If a high pressure air device is used to clean the pavement surface, it will be capable of sustaining continuous high pressure for the duration of the pavement marking process.
15. Complete the permanent pavement marking.

SEQUENCE OF OPERATIONS (CONTINUED)

16. Complete required hand painted pavement marking areas within the 14 day time period specified elsewhere in the plans.
17. Remove temporary flexible vertical markers (tabs) within the seven day time period specified elsewhere in the plans.
18. Remove traffic control devices.

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.

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.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans. Additional Type 3 Barricades will be installed facing traffic within the closed lane at a spacing of ¼ mile.

GENERAL TRAFFIC CONTROL (CONTINUED)

Lane closures will be limited to 5 miles in length. The distance between the closest points of any two-lane closures will be at least 3 miles, excluding tapers.

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers to exit or enter traffic.

A mobile work operation will be allowed for the fog sealing of the shoulders on US18 provided the fog sealing can be completed satisfactorily by a continuously moving work operation. The mobile work operation will be as shown in the detail for Fog Seal Operations on Shoulders of Multi-Lane Road. Cost associated with the traffic control for mobile operations including signs, arrow boards, vehicles and attenuators will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

The Contractor must exercise extreme caution during fog seal operations to prevent damage to existing permanent durable pavement markings. Any damage to the pavement markings shall be repaired or replaced in kind by the contractor at no cost to the Department.

TRAFFIC CONTROL SIGNS

Traffic control signs have been included in a table for each route. Payment will only be for those signs used on each route.

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. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. 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".

TRAFFIC CONTROL FOR ASPHALT SURFACE TREATMENT

The Contractor will furnish, install, and maintain LOOSE GRAVEL (W8-7) signs with 40 MPH (W13-1P) advisory speed plaques upon start of surface treatment operations at each end of the segment and on either side of intersecting asphalt roads and major intersections as determined by the Engineer. In addition, LOOSE GRAVEL signs with 40 MPH advisory speed plaques will be installed at no more than 4 mile intervals throughout each segment. The 40 MPH advisory speed plaque should not be installed with LOOSE GRAVEL signs in areas where the posted speed limit is less than 40 MPH. LOOSE GRAVEL signs and 40 MPH advisory speed plaques will be covered or removed from view when they are not applicable.

ROAD WORK NEXT XX MILES (G20-1), LOOSE GRAVEL (W8-7), and END ROAD WORK (G20-2) signs are the only signs that need to be mounted on fixed location breakaway sign supports, as shown on the plan layout. ROAD WORK AHEAD (W20-1), FLAGGER (W20-7), ONE LANE ROAD AHEAD (W20-4), and TRUCK CROSSING (W8-6) signs may be mounted on portable supports. Signs mounted on portable supports will be moved as necessary to keep current with the work activities.

Until the end of each day's chip seal operations, at the discretion of the Contractor, additional flaggers and FLAGGER (W20-7) symbol signs will be provided to alert the traveling public entering completed portions of the project to the potential of airborne chips.

The flaggers will provide each motorist with a printed notice on the Contractor's letterhead similar to the one shown below. Cost of the notice will be incidental to other contract items.

"CONTRACTOR'S LETTERHEAD"

THIS HIGHWAY IS BEING RESURFACED WITH A ROCK CHIP SEAL COAT.

THIS TYPE OF CONSTRUCTION HAS THE POTENTIAL OF CAUSING VEHICLE DAMAGE SUCH AS CHIPPED WINDSHIELDS AND BROKEN HEADLIGHTS DUE TO ROCKS BEING THROWN BY HIGH SPEED ONCOMING OR PASSING TRAFFIC.

YOU MAY WISH TO CONSIDER TAKING AN ALTERNATE ROUTE. IF YOU PROCEED, KEEP TO THE RIGHT AND DRIVE 40 MPH OR LESS. ANOTHER FLAGGER AND A PILOT CAR WILL BE ESCORTING YOU AROUND THE OIL SEAL COAT APPLICATION AREA.

THANK YOU.

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

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

STOCKPILE SITE RELEASES

Upon completion of the contract, the Contractor will supply the Engineer a copy of the stockpile site releases to place in the Department's file.

ITEMIZED LIST FOR TRAFFIC CONTROL

190 – MINNEHAHA COUNTY

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-2	YIELD	2	36"	3.9	7.8
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W13-4P	ON RAMP (plaque)	4	36" x 36"	9.0	36.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
E5-1	EXIT GORE	2	72" x 60"	30.0	60.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					353.0

US18 – LINCOLN COUNTY

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 65	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 45	12	36" x 48"	12.0	144.0
R2-6aP	FINES DOUBLE (plaque)	2	36" x 24"	6.0	12.0
R4-8	KEEP LEFT (symbol)	12	36" x 48"	12.0	144.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	8	48" x 48"	16.0	128.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	4	48" x 48"	16.0	64.0
W8-6	TRUCK CROSSING	1	48" x 48"	16.0	16.0
W8-7	LOOSE GRAVEL	16	48" x 48"	16.0	256.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	12	48" x 48"	16.0	192.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	6	48" x 48"	16.0	96.0
W21-2	FRESH OIL	12	48" x 48"	16.0	192.0
W21-5	SHOULDER WORK	8	48" x 48"	16.0	128.0
G20-1	ROAD WORK NEXT 8 MILES	4	48" x 24"	8.0	32.0
G20-1	ROAD WORK NEXT 7 MILES	4	48" x 24"	8.0	32.0
G20-1	ROAD WORK NEXT 5 MILES	2	48" x 24"	8.0	16.0
G20-1	ROAD WORK NEXT 3 MILES	4	48" x 24"	8.0	32.0
G20-1	ROAD WORK NEXT 1 MILE	2	48" x 24"	8.0	16.0
G20-2	END ROAD WORK	4	48" x 24"	8.0	32.0
SPECIAL	ON SHOULDER	16	30" x 24"	5.0	80.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					1725.2

US 81 N. SEGMENT – KINGSBURY & BROOKINGS COUNTIES

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	8	48" x 48"	16.0	128.0
W13-1P	ADVISORY SPEED (plaque)	8	30" x 30"	6.3	50.4
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	8	48" x 48"	16.0	128.0
SPECIAL	WAIT FOLLOW PILOT CAR	4	30" x 18"	3.8	15.2
G20-1	ROAD WORK NEXT 5 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 3 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 2 MILES	4	36" x 18"	4.5	18.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
SPECIAL	ON SHOULDER	6	30" x 24"	5.0	30.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					597.6

US81 SOUTH SEGMENT – LAKE COUNTY

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	10	48" x 48"	16.0	160.0
W13-1P	ADVISORY SPEED (plaque)	10	30" x 30"	6.3	63.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
SPECIAL	WAIT FOLLOW PILOT CAR	8	30" x 18"	3.8	30.4
G20-1	ROAD WORK NEXT 13 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 8 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 4 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 9 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 3 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 5 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 7 MILES	1	36" x 18"	4.5	4.5
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					531.4

US HIGHWAY 18 LINCOLN COUNTY ASPHALT SURFACE TREATMENT OF SHOULDERS LENGTH: 7.876 MILES

STATE OF SOUTH DAKOTA	PROJECT IM-NH 0022(102)	SHEET 18	TOTAL SHEETS 33
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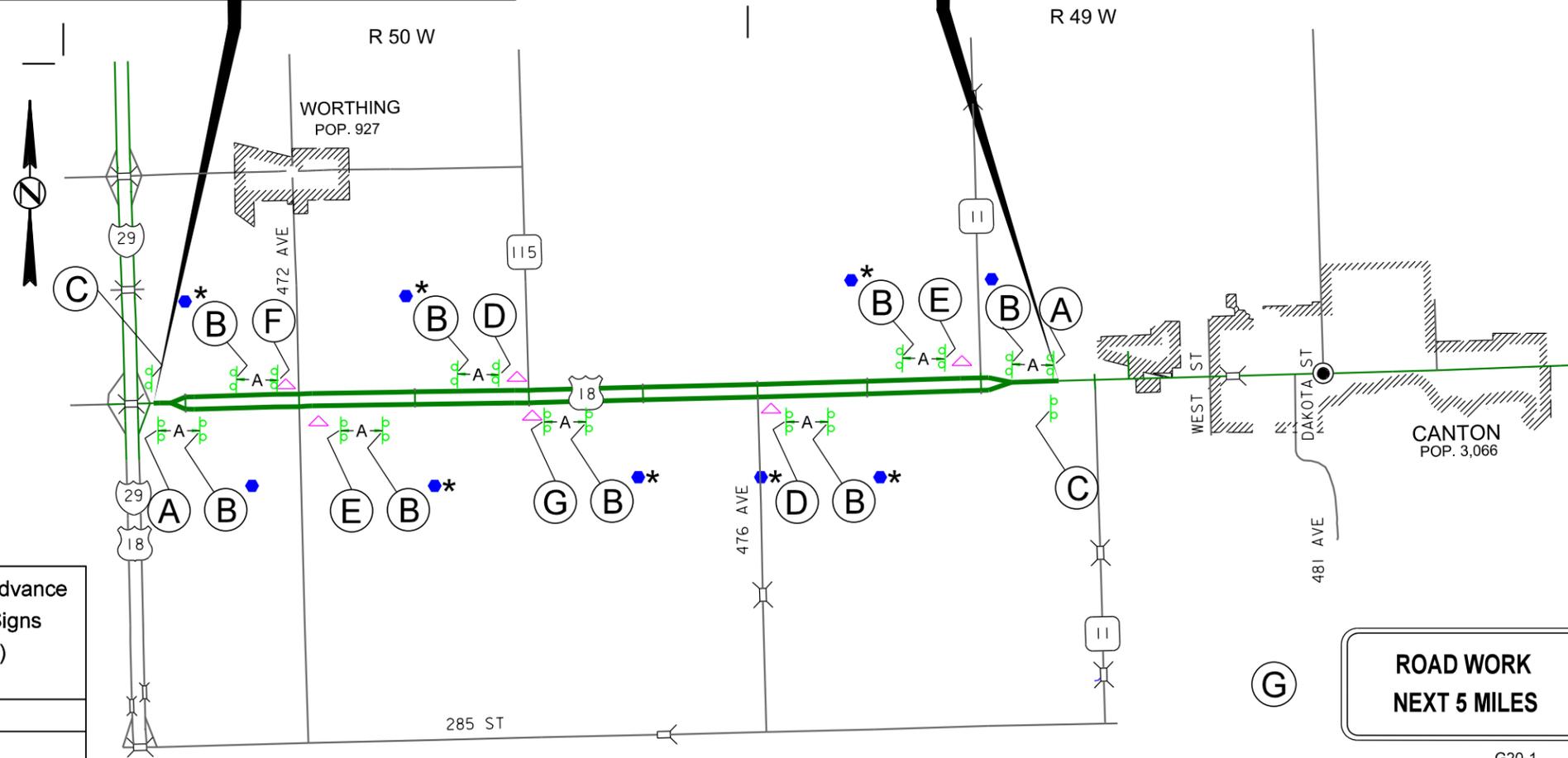
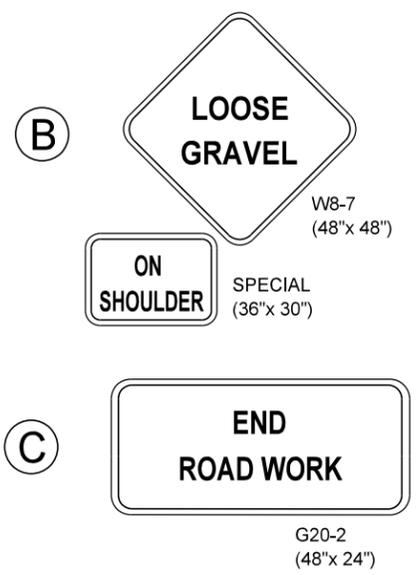
Plotting Date: 02/02/2026

PLOT SCALE - 1:7000

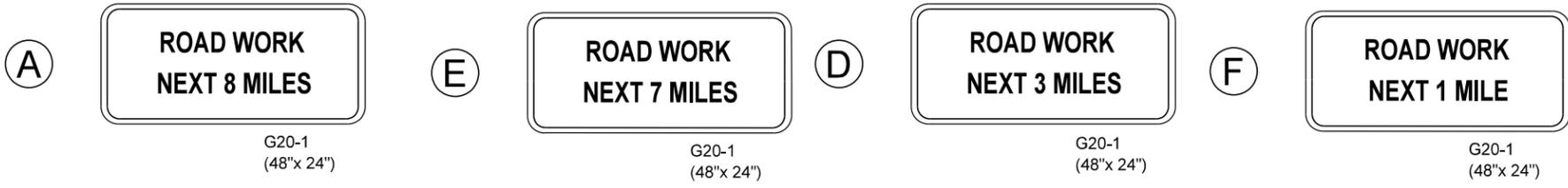
PLOT NAME - 4

BEGIN US18 WB STA. 46+81 MRM 438.28 +0.061 (39' E of Jct I29 NB Ramps)	BEGIN US18 EB STA. 53+67 MRM 438.28 +0.191 (725' E of Jct I29 NB Ramps)
--	---

END US18
 STA. 466+10
 MRM 446.00 +0.394
 (At Begin C&G)



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (FEET) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
75 - 80	1000



- NOTES:**
- W20-1 signs are also to be used per the applicable standard plate(s). Road Work Next ## Miles signs and End Road Work signs will remain in place until the permanent pavement marking is complete.
 - △ Signs will be placed 200' to 300' from an intersection. Exact location to be approved by the Engineer.
 - Construction signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.
 - Loose Gravel signs with advisory speed plaques will be removed from view the same day that the fog seal is applied in the area that they represent.
 - ★ Signs will be left mounted and right mounted on divided highways.

PLOTTED FROM - TRSF12115

FILE - ... \09WU CHIPSEAL\TC 26 09WU.DGN

US HIGHWAY 81 SOUTH SEGMENT LAKE COUNTY ASPHALT SURFACE TREATMENT LENGTH: 12.310 MILES

STATE OF SOUTH DAKOTA	PROJECT IM-NH 0022(102)	SHEET 19	TOTAL SHEETS 33
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Plotting Date: 02/02/2026

PLOT SCALE - 1:7000

PLOT NAME - 5

FILE - ... \09WU CHIPSEAL\TC 26 09WU.DGN

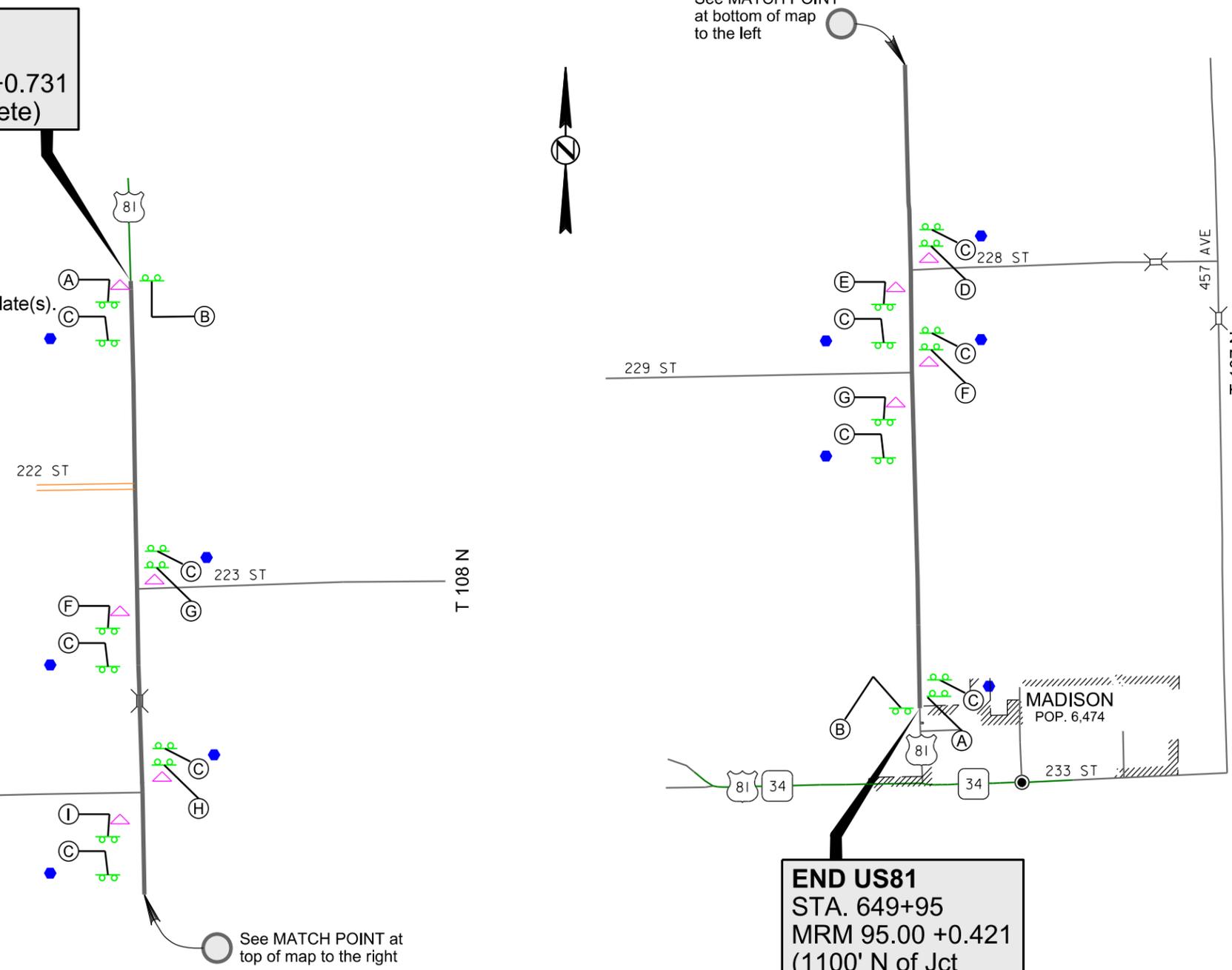
BEGIN US81
STA. 0+00
MRM 107.00 +0.731
(At End Concrete)

END US81
STA. 649+95
MRM 95.00 +0.421
(1100' N of Jct
Q NW 9th St)

NOTES:

- W20-1 signs are also to be used per the applicable standard plate(s). Road Work Next ## Miles signs and End Road Work signs will remain in place until the permanent pavement marking is complete.
- △ Signs will be placed 200' to 300' from an intersection. Exact location to be approved by the Engineer.
- Construction signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.
- Loose Gravel signs with advisory speed plaques will be removed from view the same day that the fog seal is applied in the area that they represent.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (FEET) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
75 - 80	1000



A

**ROAD WORK
NEXT 13 MILES**

G20-1
(36"x 18")

B

**END
ROAD WORK**

G20-2
(36"x 18")

C

**LOOSE
GRAVEL**

W8-7
(48"x 48")

**40
MPH**

W13-1P
(30"x 30")

D

**ROAD WORK
NEXT 8 MILES**

G20-2
(36"x 18")

E

**ROAD WORK
NEXT 4 MILES**

G20-1
(48"x 24")

F

**ROAD WORK
NEXT 9 MILES**

G20-1
(48"x 24")

G

**ROAD WORK
NEXT 3 MILES**

G20-1
(48"x 24")

H

**ROAD WORK
NEXT 5 MILES**

G20-1
(48"x 24")

I

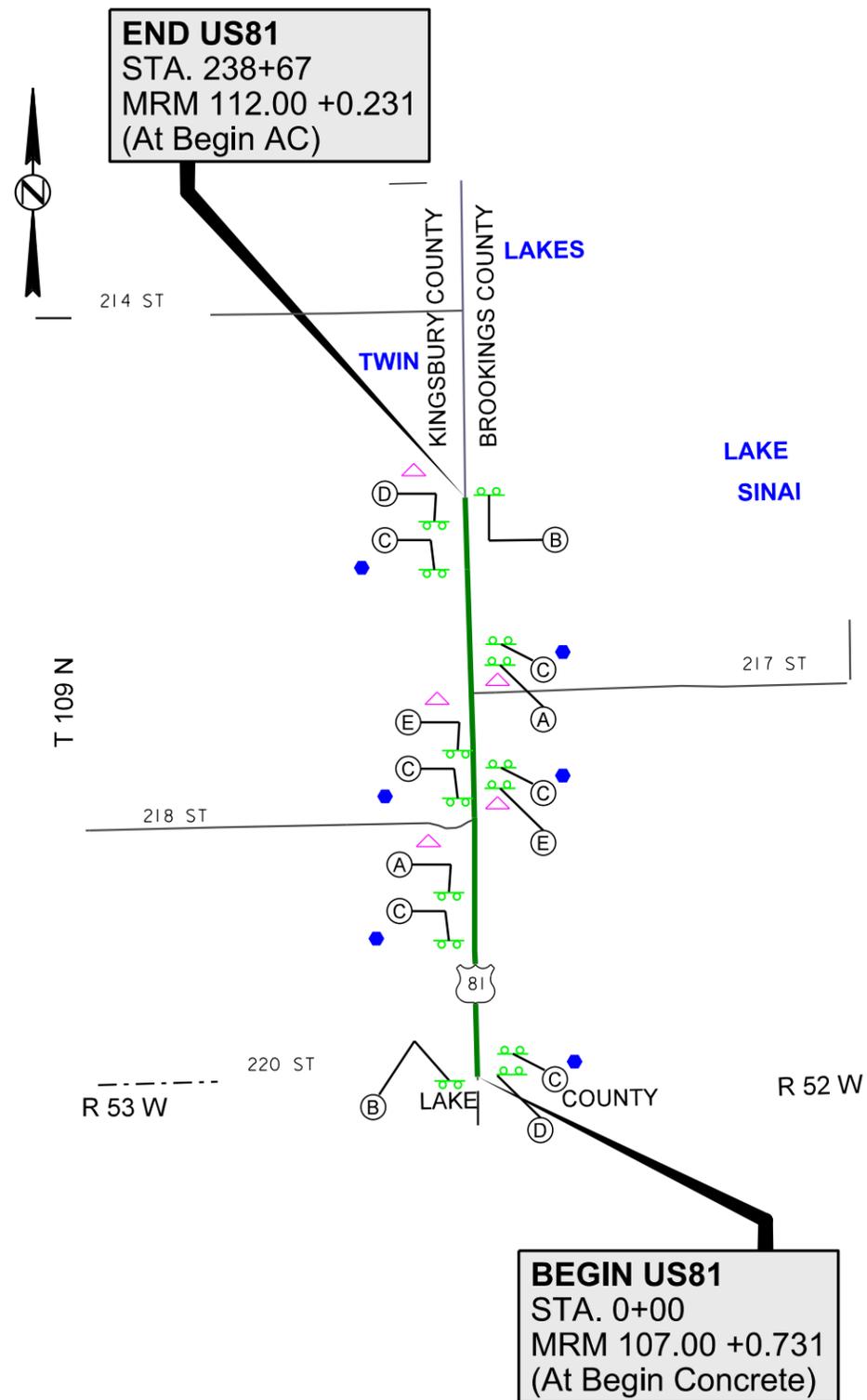
**ROAD WORK
NEXT 7 MILES**

G20-1
(48"x 24")

PLOTTED FROM - TRSF12115

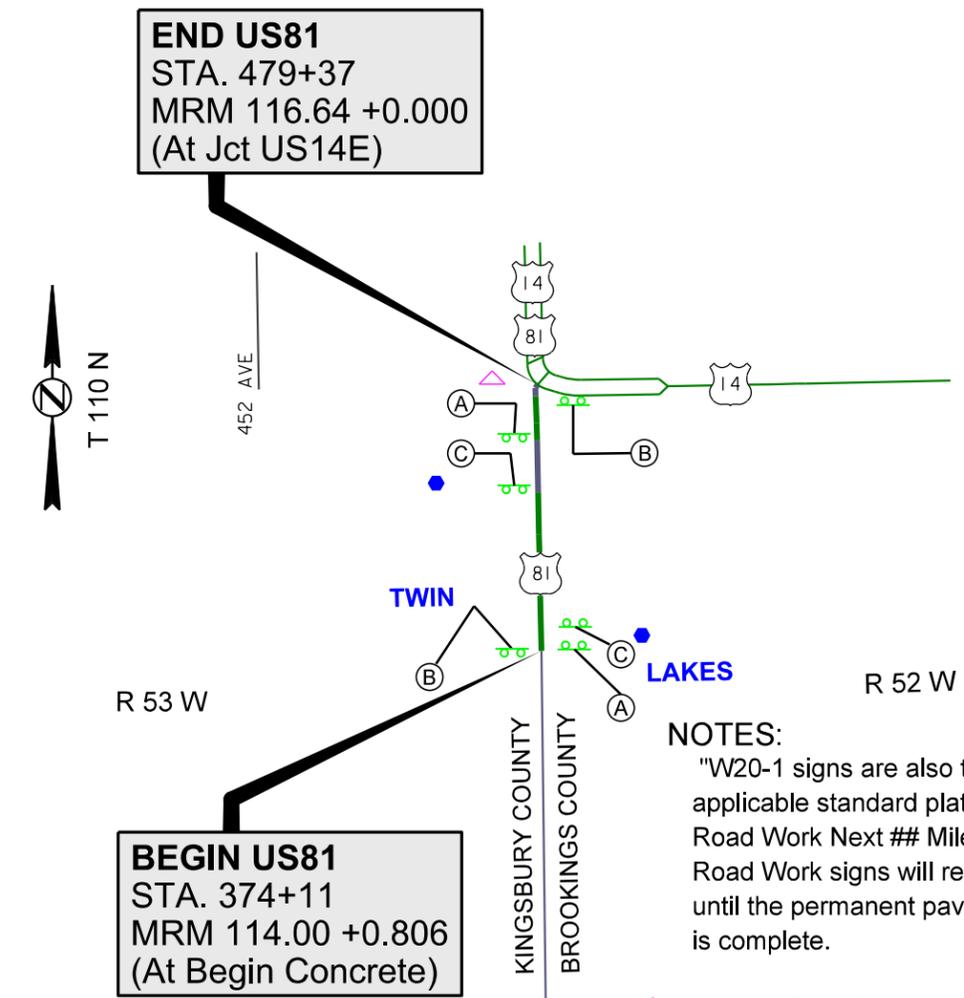
US HIGHWAY 81 NORTH SEGMENT KINGSBURY & BROOKINGS COUNTIES ASPHALT SURFACE TREATMENT OF SHOULDERS (FLUSH SEAL) LENGTH: 4.520 MILES

Plotting Date: 02/02/2026



- (A) ROAD WORK NEXT 2 MILES
G20-1 (36"x 18")
- (B) END ROAD WORK
G20-2 (36"x 18")
- (C) LOOSE GRAVEL
W8-7 (48"x 48")
40 MPH
W13-1P (30"x 30")
- (D) ROAD WORK NEXT 5 MILES
G20-2 (36"x 18")
- (E) ROAD WORK NEXT 3 MILES
G20-1 (48"x 24")

US HIGHWAY 81 NORTH SEGMENT KINGSBURY & BROOKINGS COUNTIES ASPHALT SURFACE TREATMENT OF SHOULDERS & MAINLINE MAINTENANCE PATCHES LENGTH: 1.994 MILES



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (FEET) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
75 - 80	1000

- NOTES:**
- "W20-1 signs are also to be used per the applicable standard plate(s)."
 - Road Work Next ## Miles signs and End Road Work signs will remain in place until the permanent pavement marking is complete.
 - Signs will be placed 200' to 300' from an intersection. Exact location to be approved by the Engineer.
 - Construction signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.
 - Loose Gravel signs with advisory speed plaques will be removed from view the same day that the fog seal is applied in the area that they represent.

PLOT SCALE - 1:7000

PLOTTED FROM - TRSF12115

PLOT NAME - 6

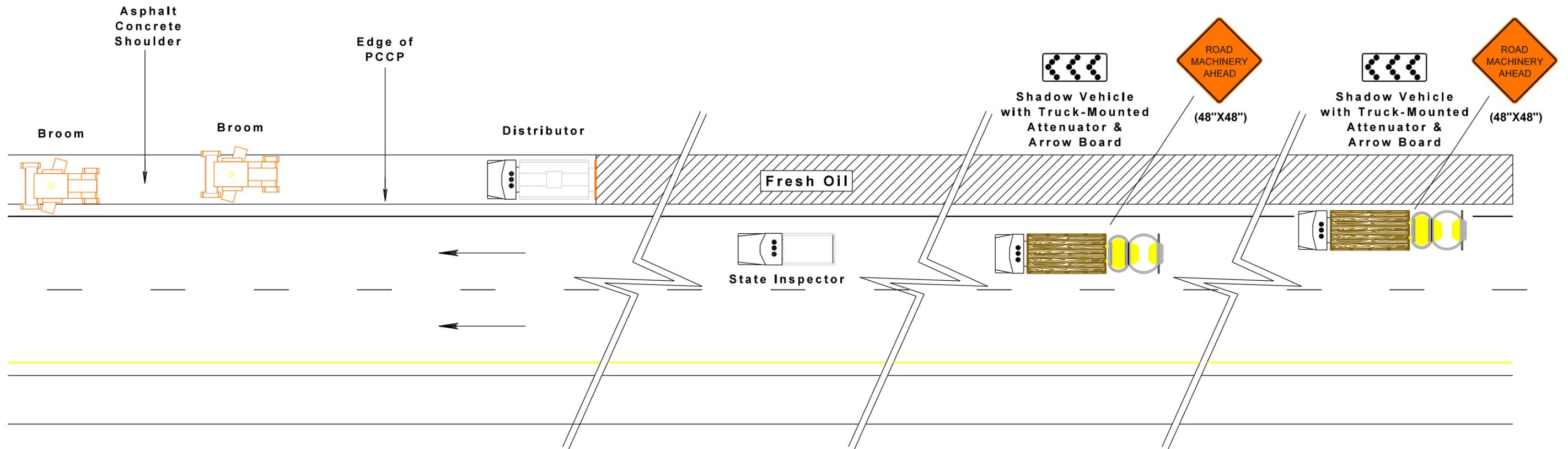
FILE - ... \09WU CHIPSEAL\TC 26 09WU.DGN

GUIDES FOR TRAFFIC CONTROL DEVICES

FOG SEAL OPERATION ON SHOULDERS OF MULTI-LANE ROAD

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	21	33

Plotting Date: 11/21/2024



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

The arrow board will be used in the chevron mode.

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

FRESH OIL (W21-2 48" x 48") signs will be placed a minimum of every four miles.

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



PLOT SCALE - 1:7000

PLOTTED FROM - TRMLINT15

PLOT NAME - 9

FILE - ... \0975 CHIPSEAL\TC 25 0975.DGN

PLOT SCALE - 1:7000

Temporary Traffic Control Warning signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.

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

Temporary Traffic Control Warning signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.

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

GUIDES FOR TRAFFIC CONTROL DEVICES TRUCK CROSSING SIGN INSTALLATION

April 2023

PLOTTED FROM - TRSF12115

PLOT NAME - 2

FILE - ... \09WU CHIPSEAL\TC 26 09WU.DGN

Temporary Traffic Control Warning signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (FEET) (B)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485
70	535
75	585

Temporary Traffic Control Warning signs will not obscure existing signs and must be installed a minimum of 200' from an existing sign.

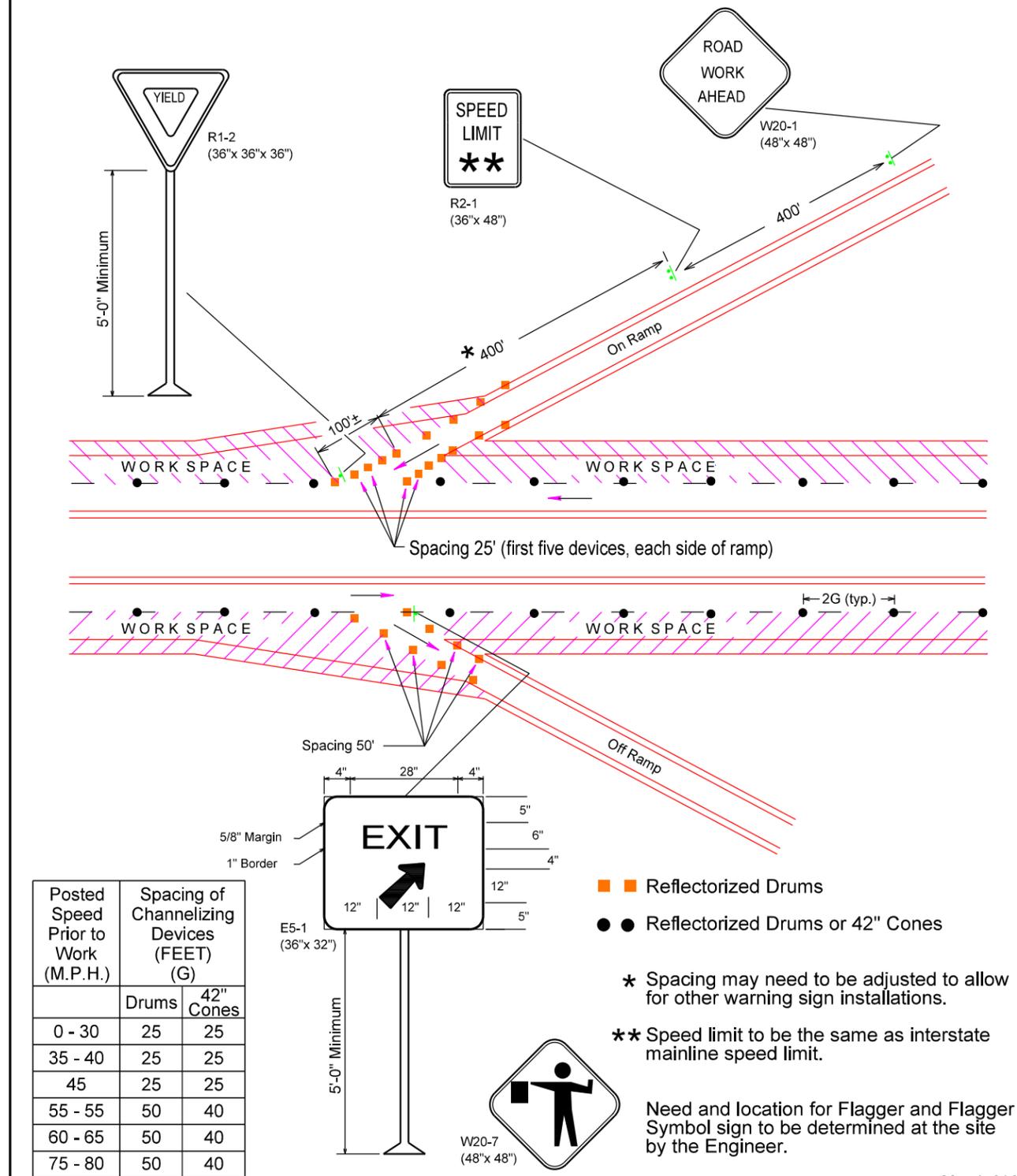
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (FEET) (A)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 80	1000

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (FEET) (B)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

GUIDES FOR TRAFFIC CONTROL DEVICES FLAGGER SIGN INSTALLATION AT INTERSECTING ROADS

April 2023

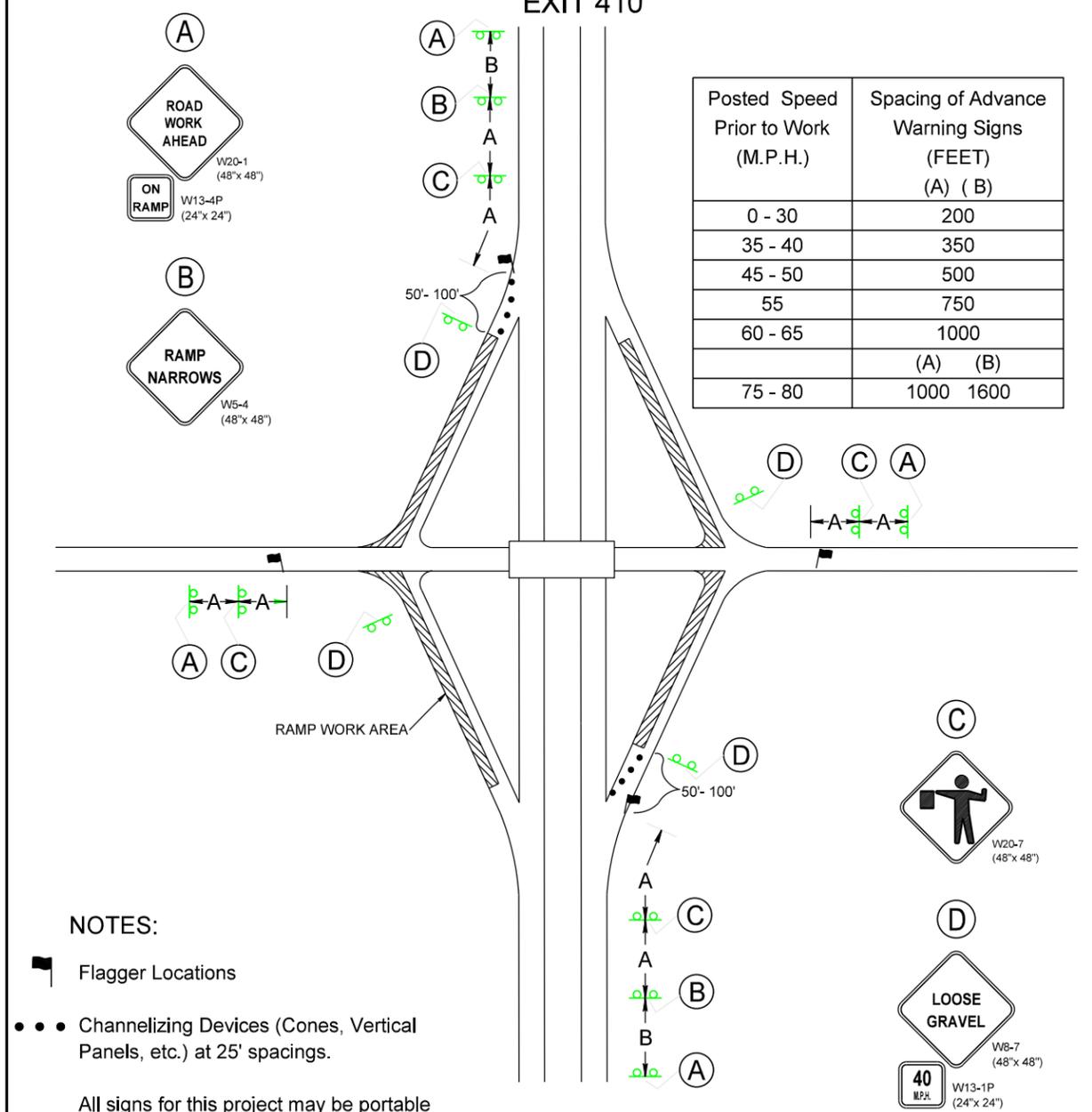
TRAFFIC CONTROL ENTRANCE RAMP AND EXIT RAMP DETAILS



March 2024

TRAFFIC CONTROL ENTRANCE RAMP AND EXIT RAMP DETAILS

I 90 - 09WU
 MINNEHAHA COUNTY
 EXIT 410



March 2024

PLOT SCALE - 1:7000

PLOTTED FROM - TRSF12115

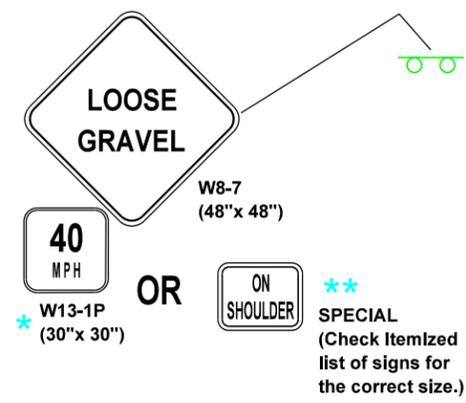
PLOT NAME - 1

FILE - ... \09WU CHIPSEAL\TC 26 09WU.DGN

PLOT SCALE - 1:7000

PLOT NAME - 3

FILE - ... \09WU CHIPSEAL\TC 26 09WU.DGN



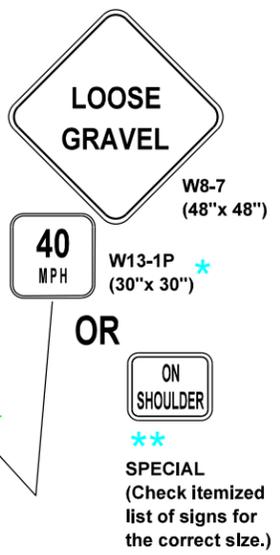
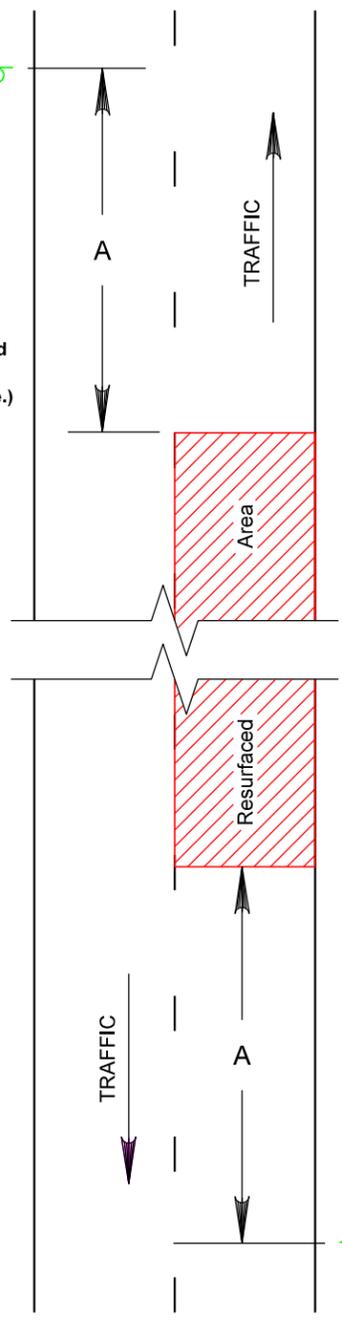
- * The W13-1P plaque will be used when the asphalt surface treatment is applied to the mainline.
- ** The Special (On Shoulder) plaque will be used when the asphalt surface treatment is applied only to the shoulders.

NOTES:

The Contractor will provide an additional Flagger at each urban intersection to control side-street traffic whenever the work activities create a hazard or whenever traffic must be restricted from the work area (fresh seal).

Install additional W8-7, LOOSE GRAVEL, signs at 4 mile intervals throughout the entire length of the loose aggregate area and at affected major intersections, edge of towns, etc.

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



GUIDES FOR TRAFFIC CONTROL DEVICES

Typical Application - Traffic Control Devices to be used on an undivided highway, Asphalt Surface Treatment, when operations have created a driving surface or shoulder with loose aggregate.

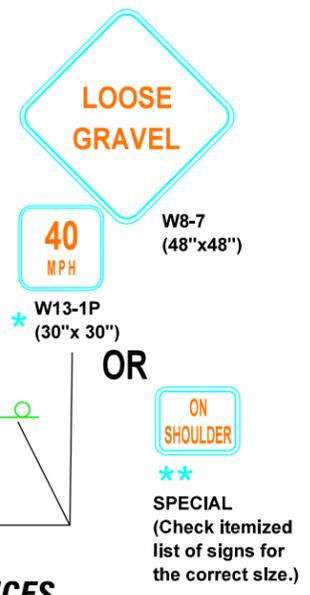
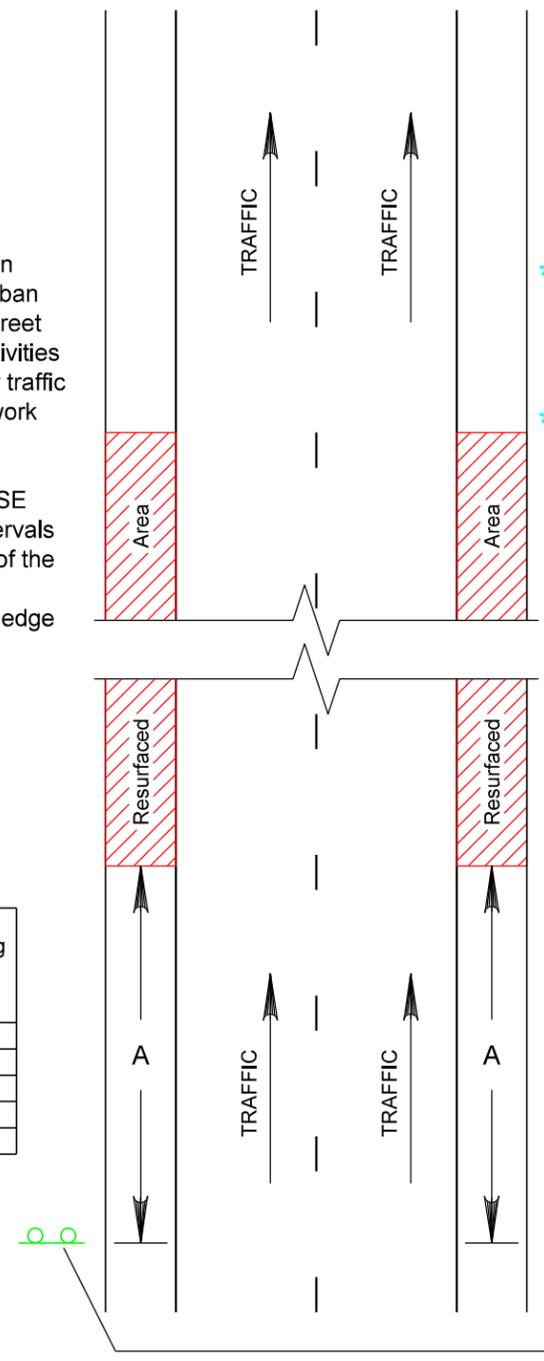
April 2023

NOTES:

The Contractor will provide an additional Flagger at each urban intersection to control side-street traffic whenever the work activities create a hazard or whenever traffic must be restricted from the work area (fresh seal).

Install additional W8-7, LOOSE GRAVEL, signs at 4 mile intervals throughout the entire length of the loose aggregate area and at affected major intersections, edge of towns, etc.

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



GUIDES FOR TRAFFIC CONTROL DEVICES

Typical Application - Traffic Control Devices to be used on a multi-lane divided or undivided highway, Asphalt Surface Treatment when operations have created a driving surface or shoulder with loose aggregate.

April 2023

PLOTTED FROM - TRSF12115

*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.

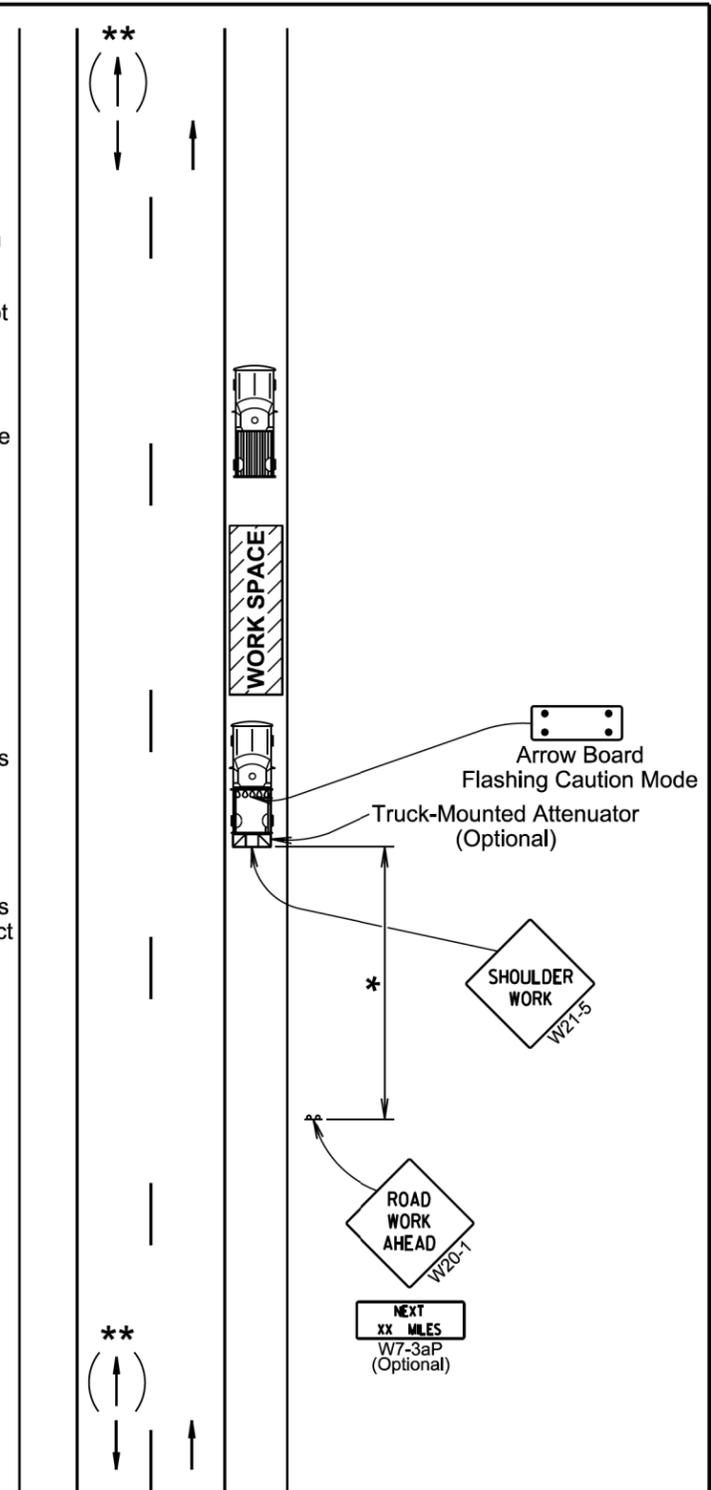
The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

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

Published Date: 2026

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MOBILE OPERATIONS ON SHOULDERS

PLATE NUMBER
634.04

Sheet 1 of 1

* 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.

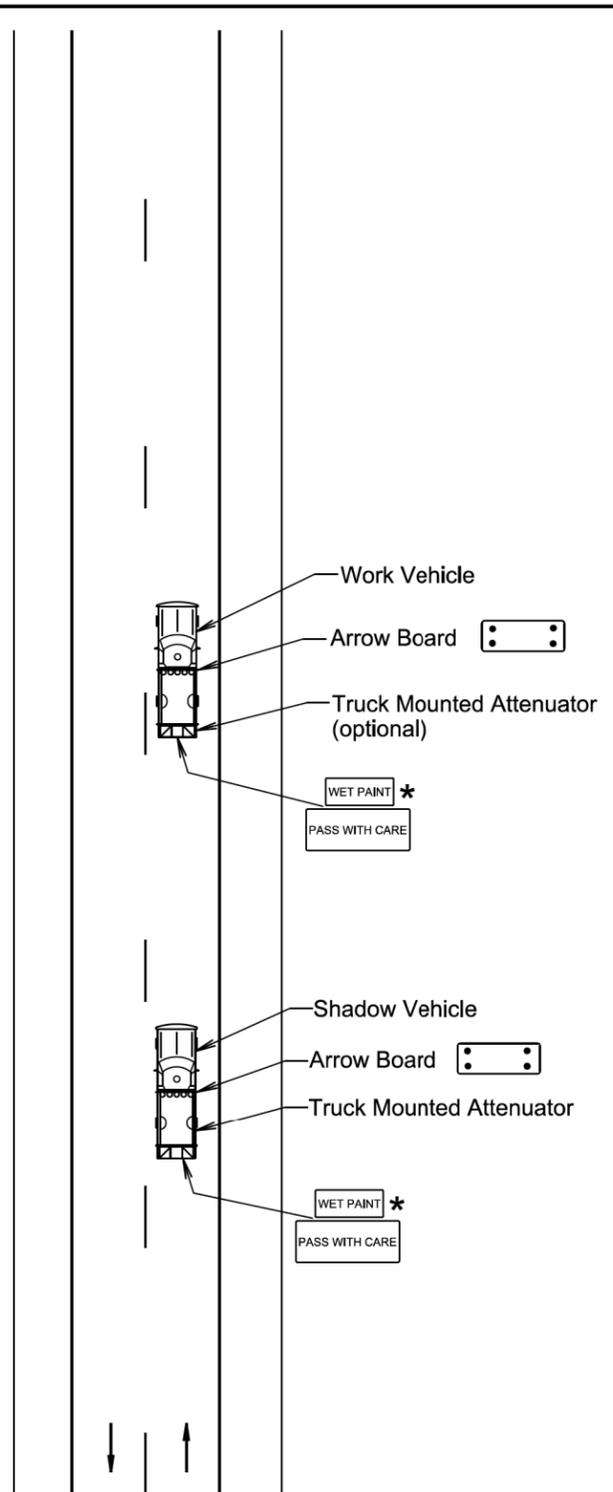
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

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

Published Date: 2026

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MOBILE OPERATIONS ON 2-LANE ROAD

PLATE NUMBER
634.06

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices will be drums or 42" cones.

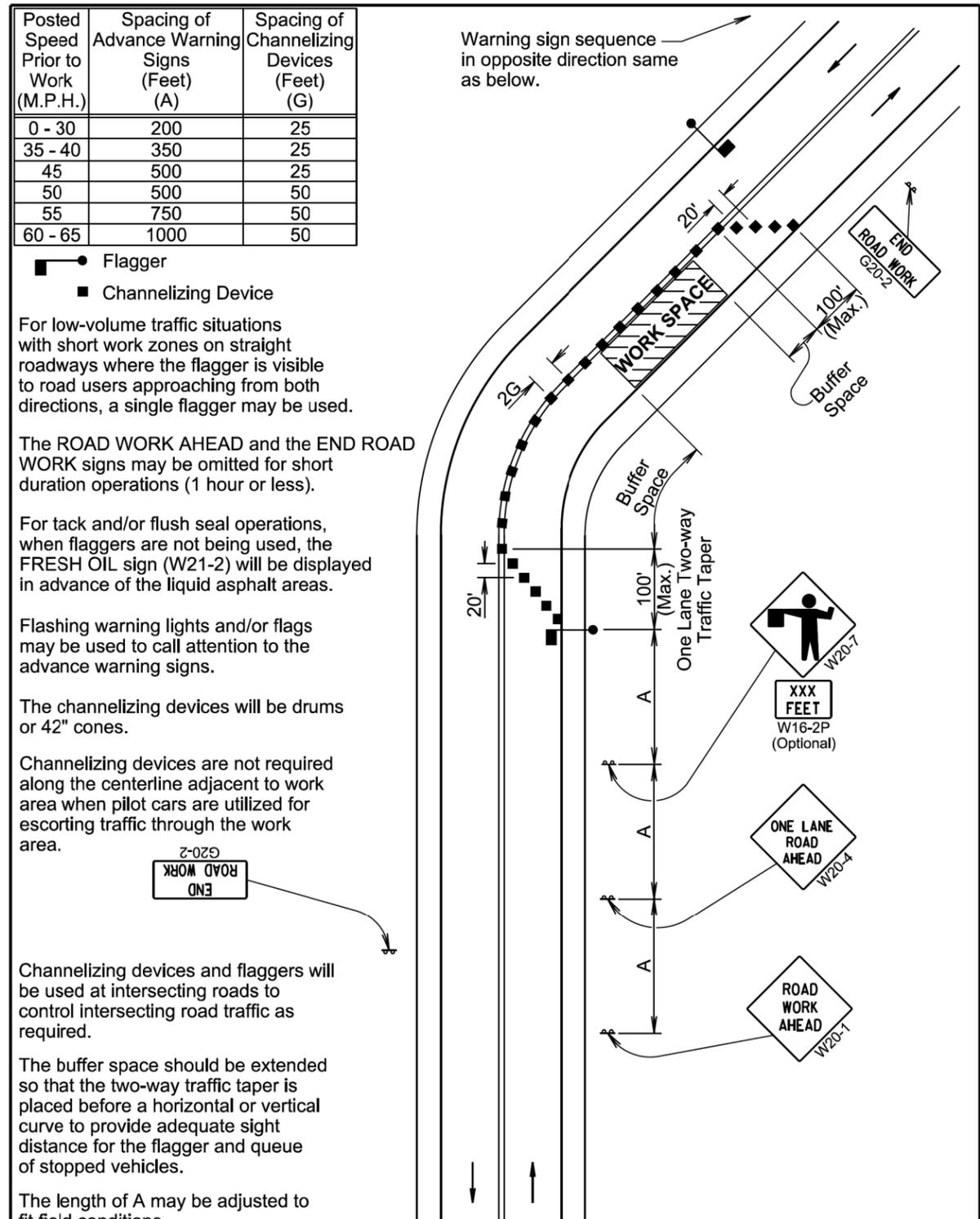
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.

Warning sign sequence in opposite direction same as below.



January 22, 2021

Published Date: 2026

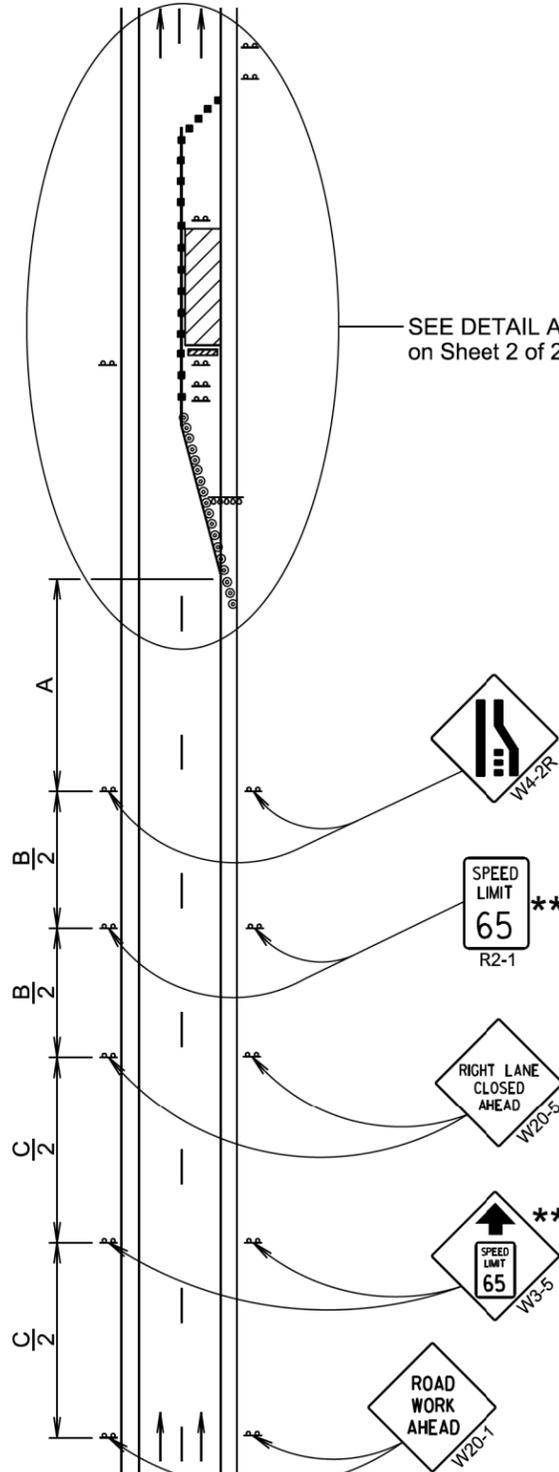
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LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER
634.23

Sheet 1 of 1

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		
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

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

PLATE NUMBER
634.63

Sheet 1 of 2

Published Date: 2026

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.

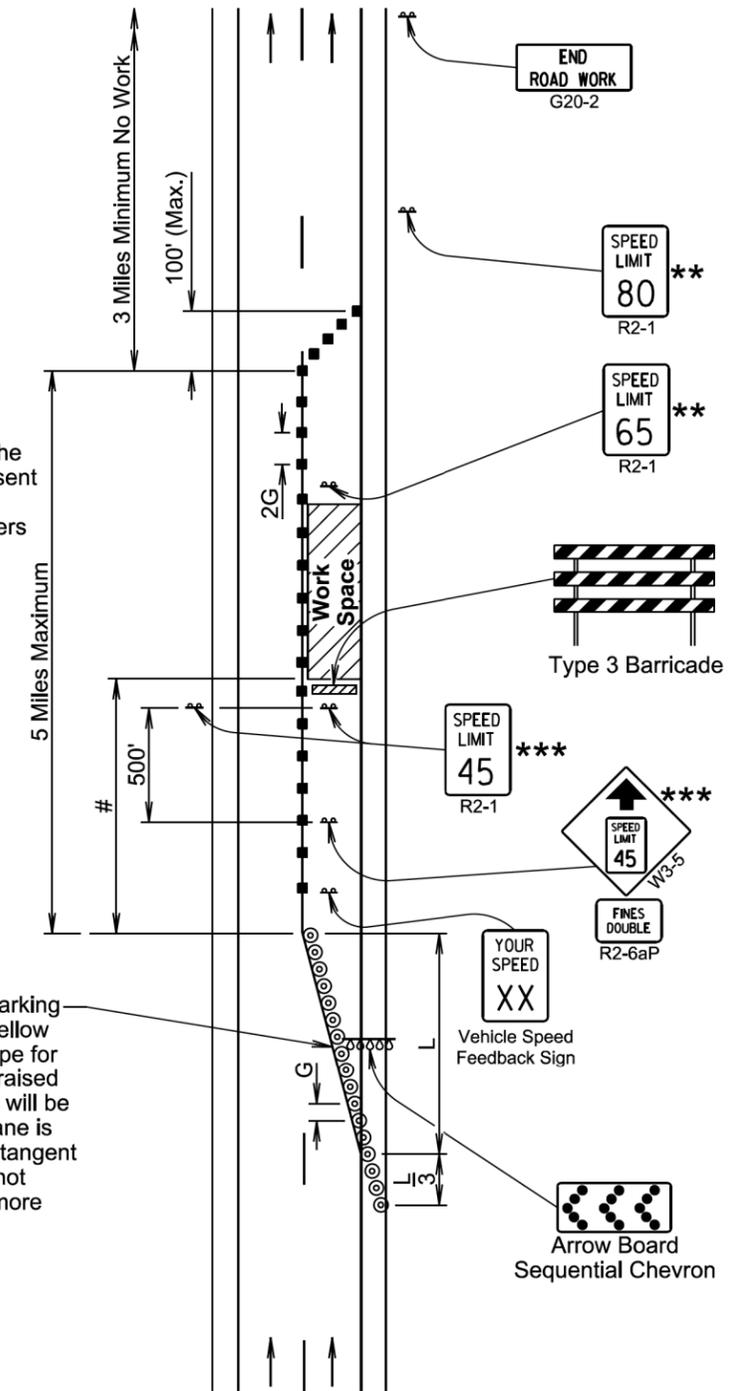
- ⊙ Reflectorized Drum
- Channelizing Device

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

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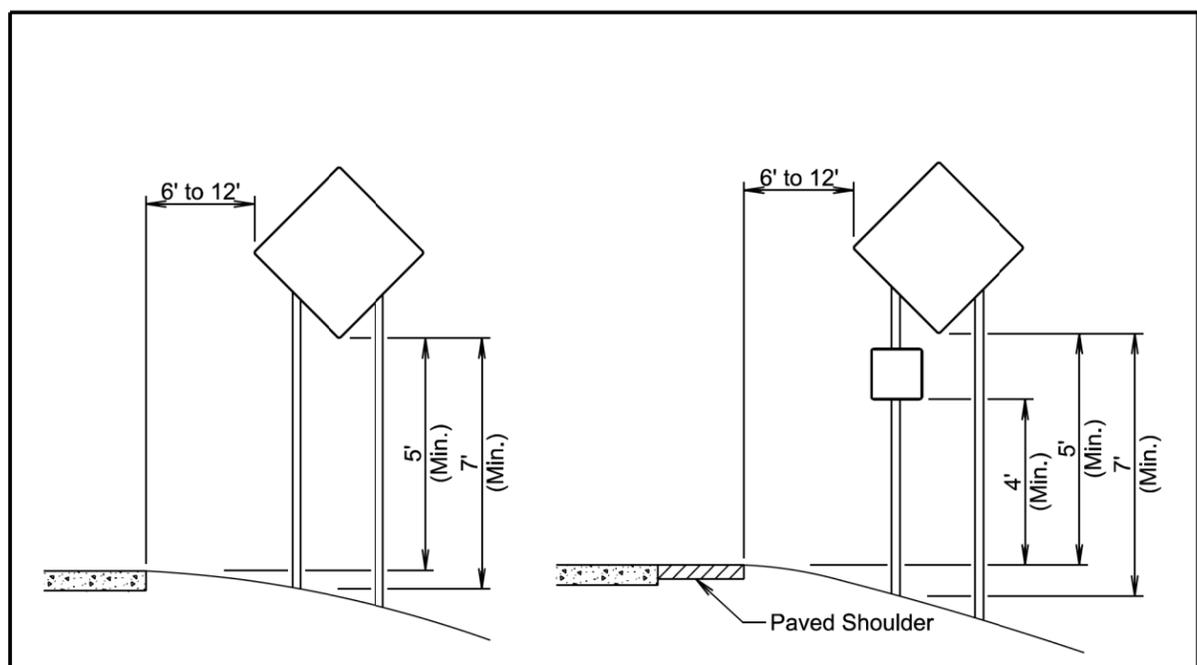
WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS

PLATE NUMBER
634.63

Sheet 2 of 2

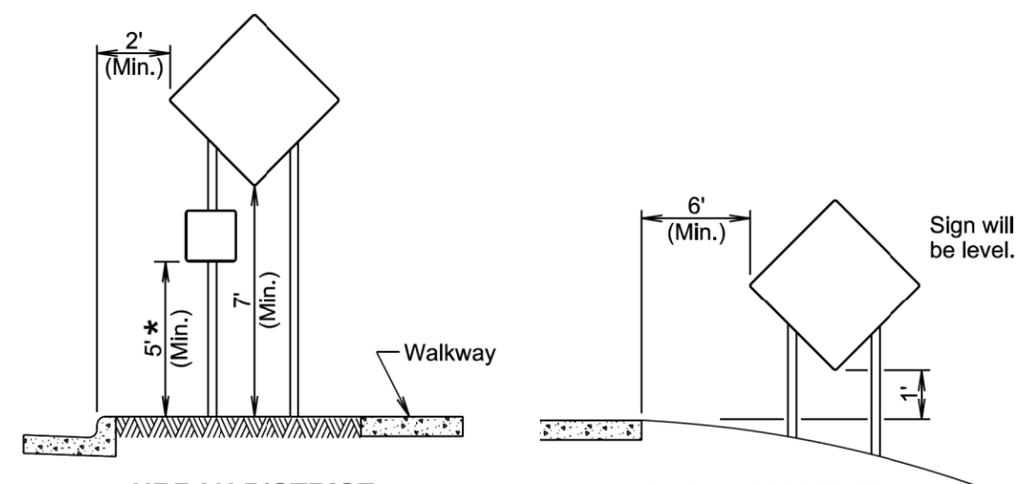
Published Date: 2026

Plot Scale - 1:200



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



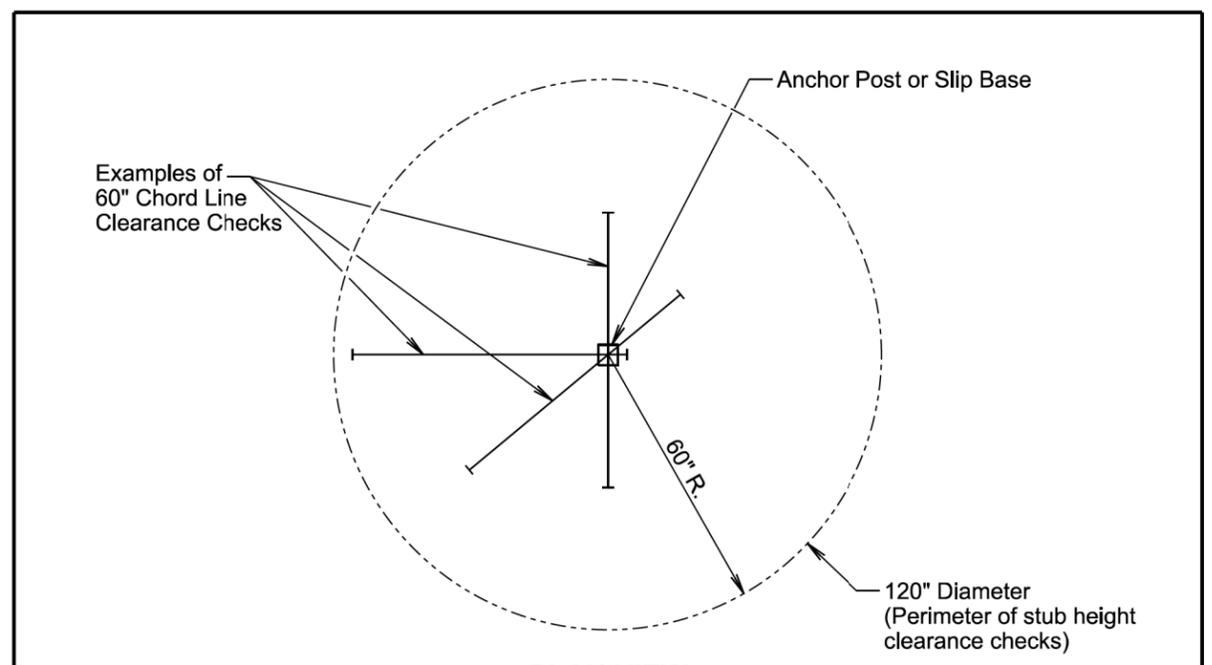
URBAN DISTRICT

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

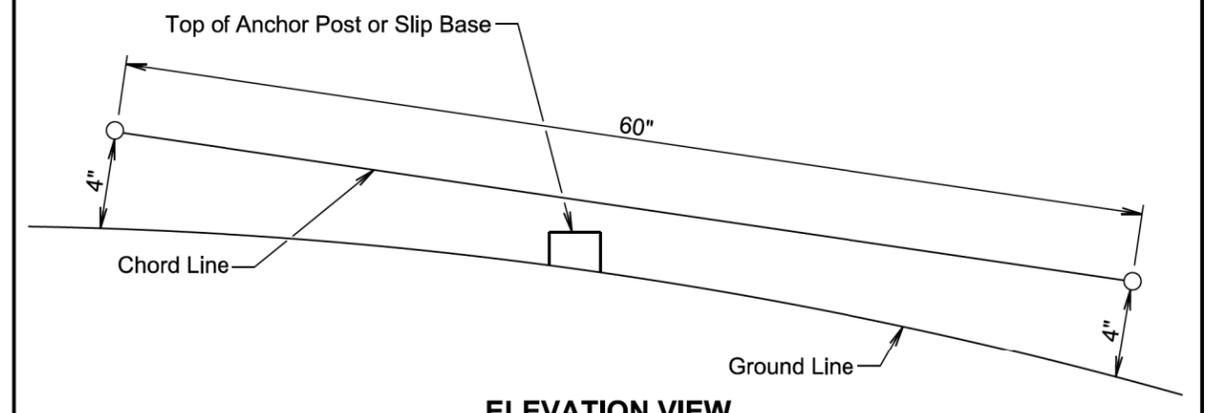
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	S D D O T	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

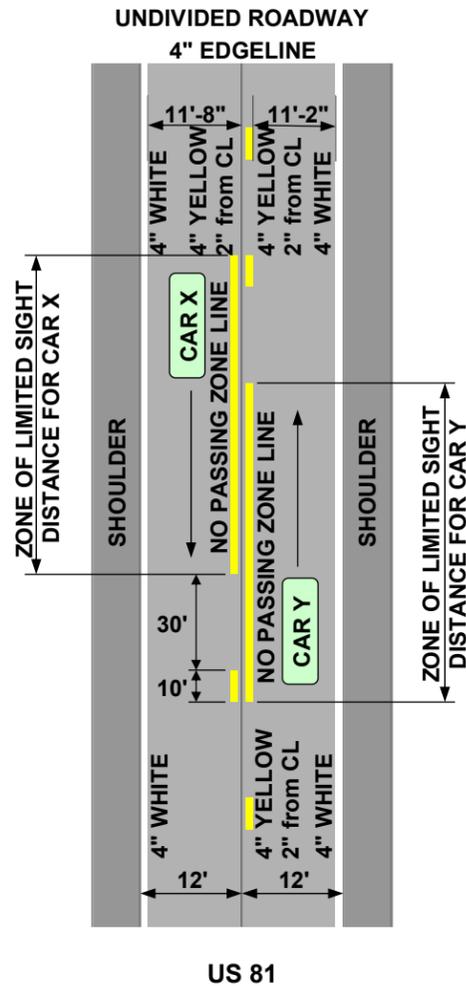
Published Date: 2026	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

Plotted From - trs112115

File - ...Std Plates 09WU.dgn

FURNISHING AND APPLYING PAVEMENT MARKING PAINT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	29	33



US 81

Application rates will be as follows:

UNDIVIDED ROADWAY	
ROUTES US81	ROUTES
TWO LANE ROADWAY (Rate for one line)	
Solid Yellow Centerline Rate = 27.8 Gal/Pass-Mile	
Dashed Yellow Centerline Rate = 7.6 Gal/Pass-Mile	
Solid White Edgeline – 4" Rate = 27.8 Gal/Pass-Mile	Solid White Edgeline – 8" Rate = 55.6 Gal/Pass-Mile

Typical pavement marking as shown on the previous sheet and the following sheets will be applied throughout the entire length of applicable sections of roadway.

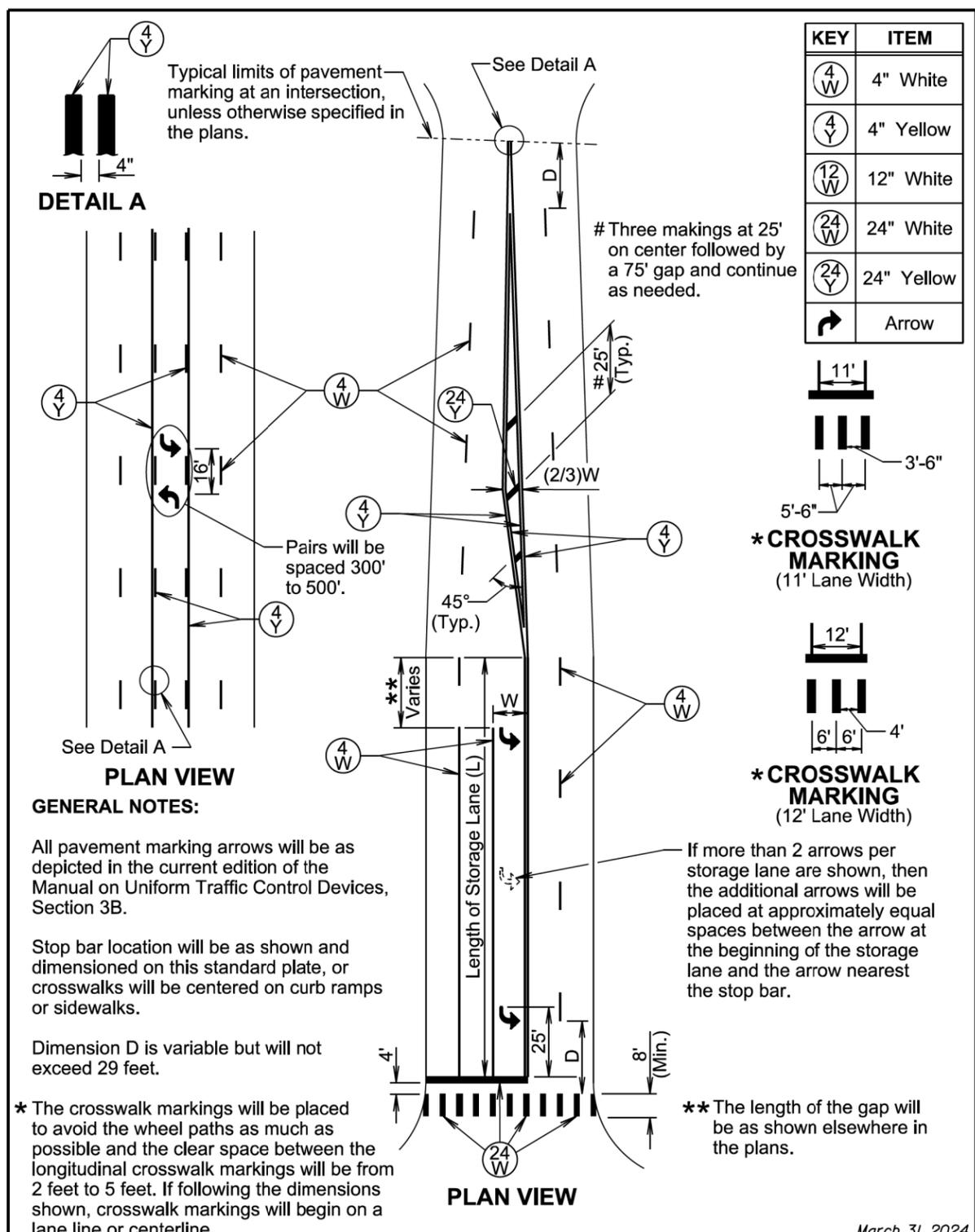
Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights and advance warning arrow board. The trailing warning vehicle will also be equipped with a truck mounted attenuator. This mobile work operation will be as per Standard Plate 634.06.

4" Yellow Skip Centerline (when not adjacent to a 4" Yellow No Passing Zone) will be placed consistently to the south or east of centerline.

NOTE: All pavement marking dimensions are based on 12' driving lanes.

ESTIMATED QUANTITIES		
ROUTES	PAVEMENT MARKING PAINT	
	WHITE	YELLOW
I90	13	13
US18	4	3
US81 S. SEGMENT	694	273
US81 N. SEGMENT	32	4
TOTAL GALLONS	743	293

Plot Scale - 1:200

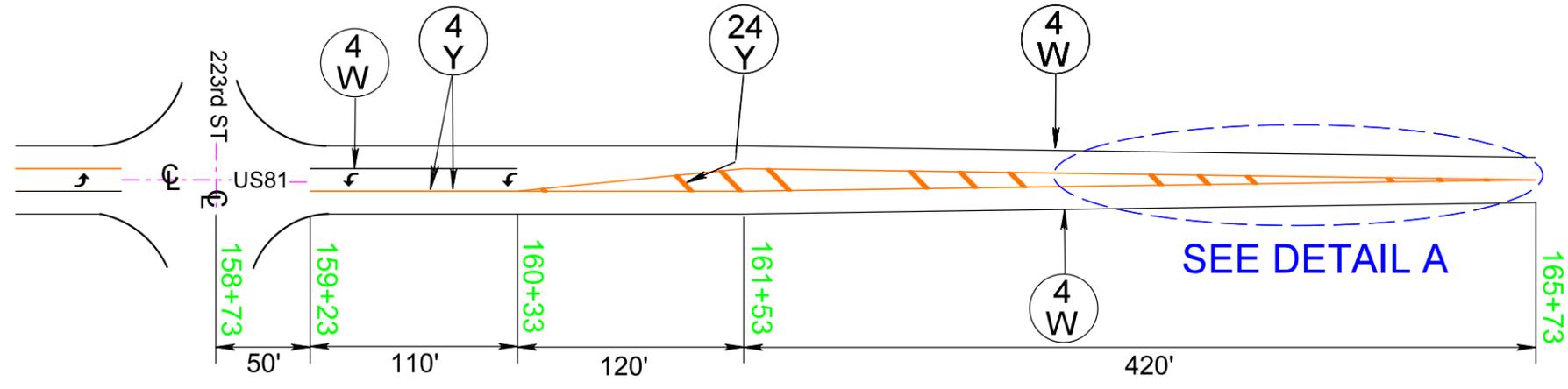
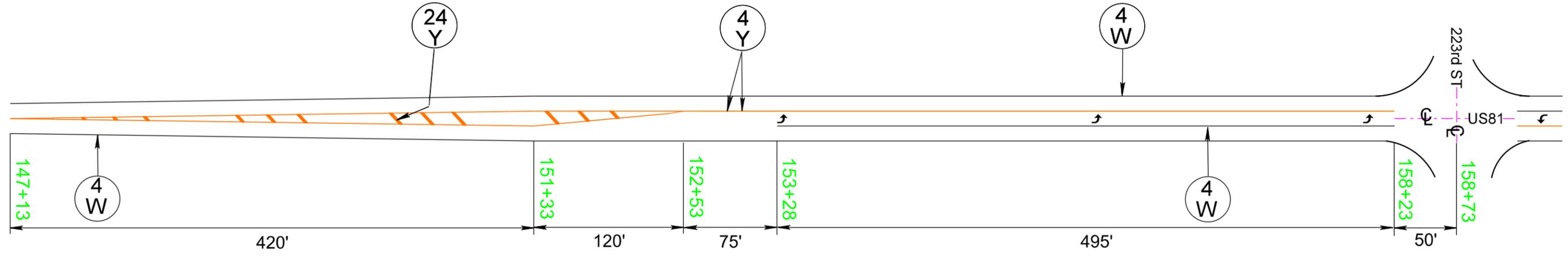


Plotted From - trs112115

File - ...Std Plates 09WU.dgn

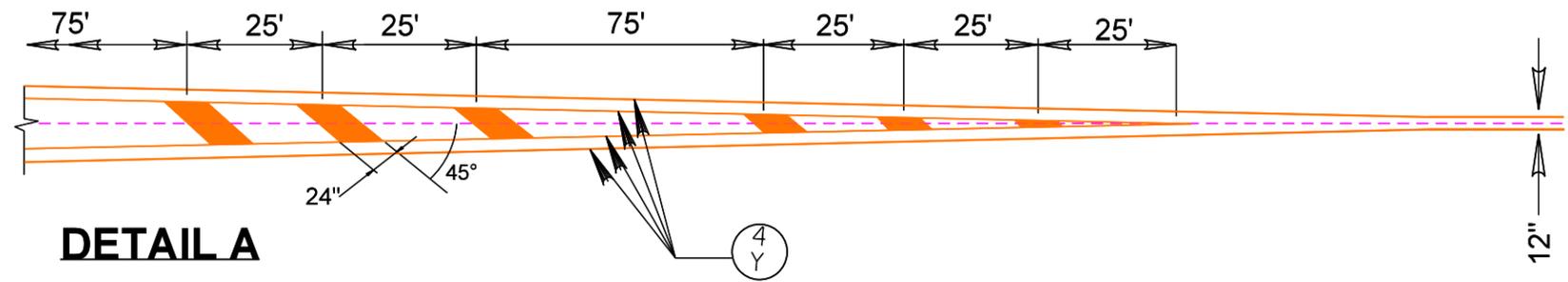
S D D O T	PAVEMENT MARKINGS FOR ADJACENT INTERSECTIONS AND CENTER TURN LANE	PLATE NUMBER 633.01
	Published Date: 2026	Sheet 1 of 1

PERMANENT PAVEMENT MARKINGS JCT OF US81 & 223rd ST



LEGEND

- 4" WHITE PAINTED PAVEMENT MARKING
- 4" YELLOW PAINTED PAVEMENT MARKING
- 24" YELLOW PAINTED PAVEMENT MARKING
- THERMOPLASTIC WHITE PAVEMENT MARKING, ARROW



Plot Scale - 1:85,000

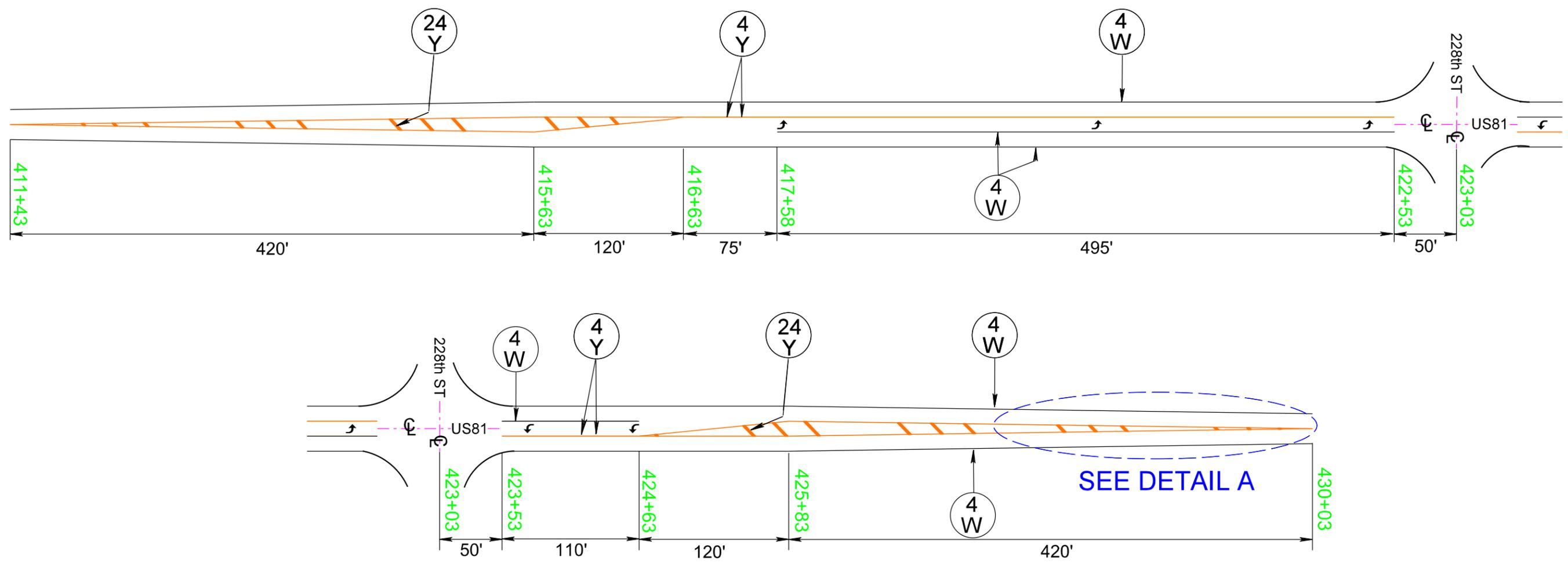
Plotted From - Irs112115

File - ...106P9 Marking Layout Sheet.dgn

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM-NH 0022(102)	33	33

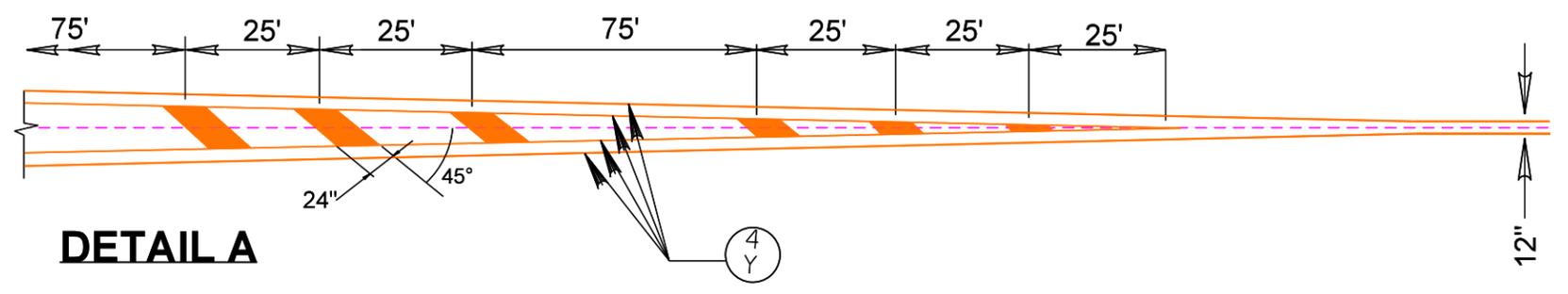
Plotting Date: 01/22/2026

PERMANENT PAVEMENT MARKINGS JCT OF US81 & 228th ST



LEGEND

- 4" WHITE PAINTED PAVEMENT MARKING
- 4" YELLOW PAINTED PAVEMENT MARKING
- 24" YELLOW PAINTED PAVEMENT MARKING
- THERMOPLASTIC WHITE PAVEMENT MARKING, ARROW



Plot Scale - 1:85,000

Plotted From - Irs12115

File - I:\0659 Marking Layout Sheet.dgn