

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	1	45

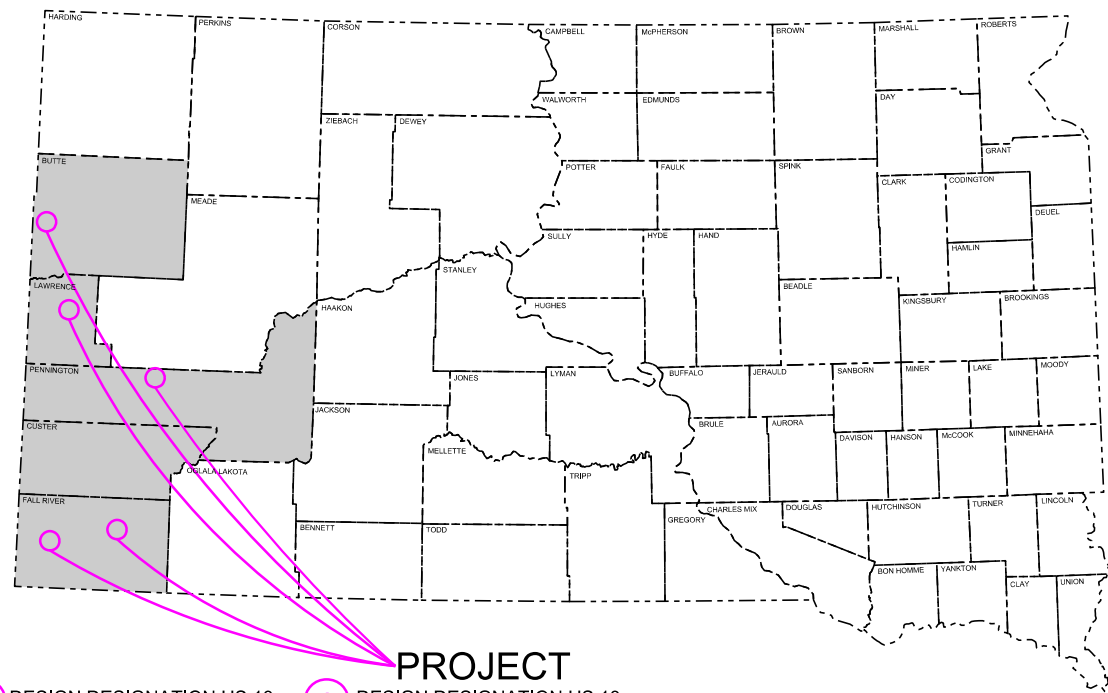
Plotting Date: 02/20/2024 Revised 2/20/24 GDS

PROJECT NH-P 0040(355)
US HIGHWAYS 14A, 16, 18, 18W,
385, 385N, & 212
SD HIGHWAY 445 & 79S

LAWRENCE, FALL RIVER, CUSTER,
BUTTE, & PENNINGTON COUNTIES
PCC PAVEMENT RESTORATION

INDEX OF SHEETS

1-2	General Layout with Index
3-21	Estimate with General Notes & Tables
22-26	Typical Sections
27-32	Special Details
33-45	Standard Plates

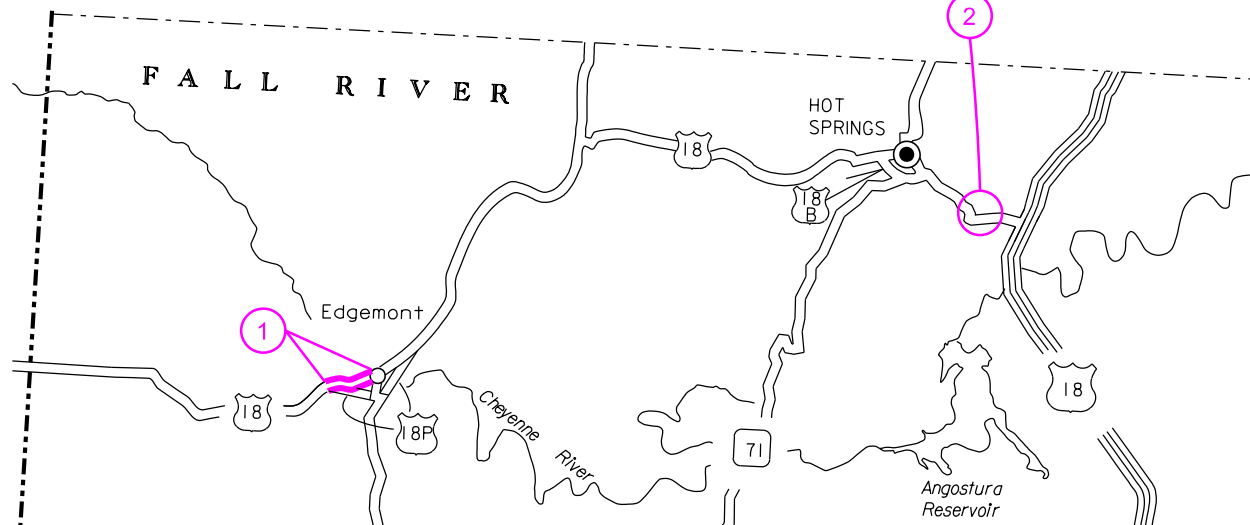


PROJECT

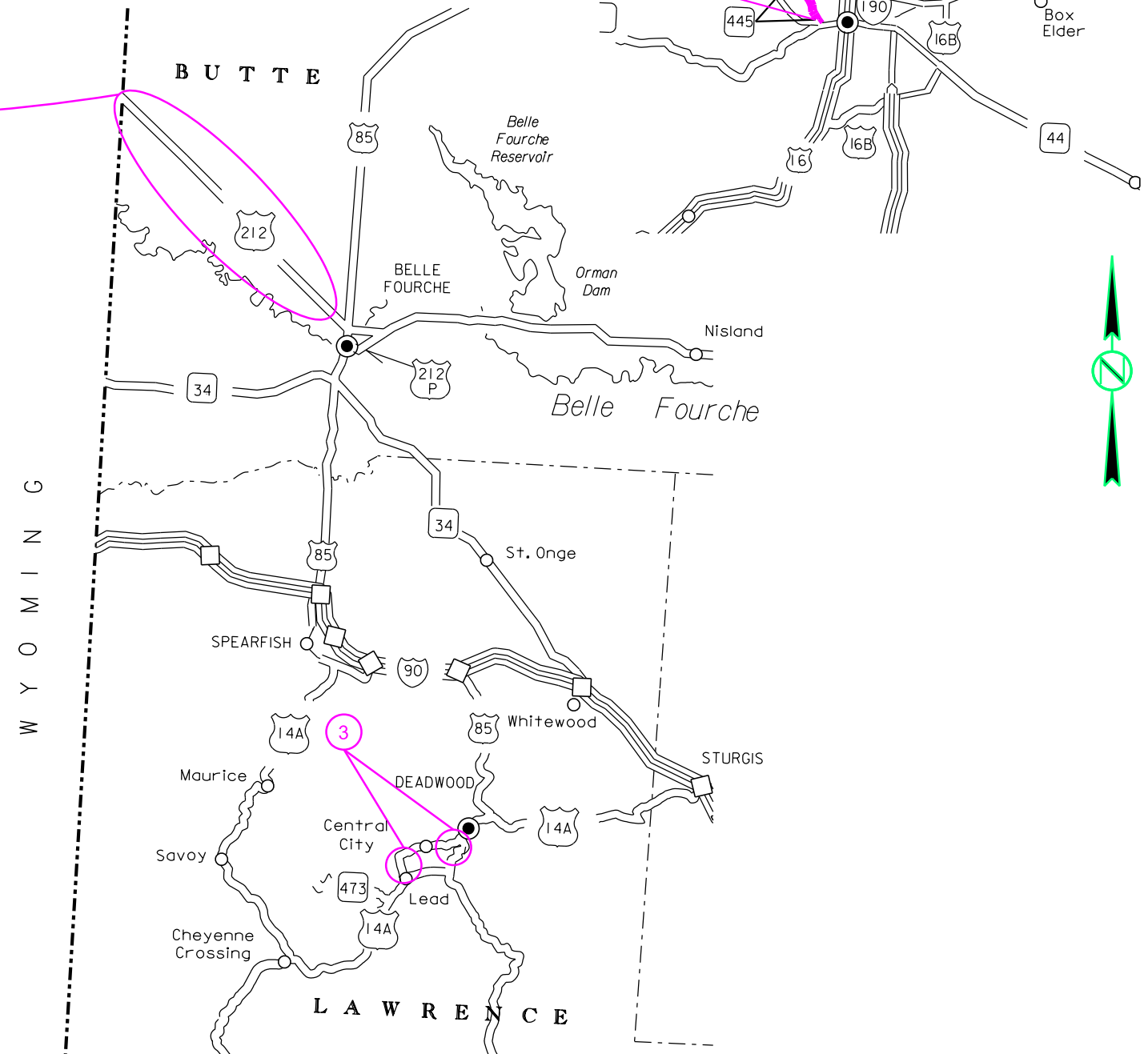
1 DESIGN DESIGNATION US 18	2 DESIGN DESIGNATION US 18
AADT (2022) 1741	AADT (2022) 4924
AADT (2042) 2587	AADT (2042) 7317
DHV 494	DHV 1398
D 51%	D 51%
DHV T% 11.6%	DHV T% 5.3%
AADT T% 25.5%	AADT T% 11.7%
V 55 mph	V 55 mph
3 DESIGN DESIGNATION US 14A	4 DESIGN DESIGNATION US 212
AADT (2022) 6688	AADT (2022) 2085
AADT (2042) 10440	AADT (2042) 2992
DHV 1487	DHV 477
D 51%	D 50%
DHV T% 4.7%	DHV T% 17.4%
AADT T% 10.3%	AADT T% 38.2%
V 25 mph	V 65 mph
5 DESIGN DESIGNATION SD 445	
AADT (2022) 13006	
AADT (2042) 17883	
DHV Unknown	
D 50%	
DHV T% 2.5%	
AADT T% 5.4%	
V 45 mph	

- 1** US18, MRM 11.00 to MRM 12.57 + 0.155
- 2** US18, MRM 43 + 0.674 to MRM 43 + 0.904
- 3** US14A, MRM 36.5 + 0.268 to MRM 40.64 + 0.071
- 4** US212, MRM 0+0.277 to MRM 11 + 0.711
- 5** US445, MRM 74.37+0.037 to MRM 76.0+0.540

STORM WATER PERMIT
None Required



PCN 097D

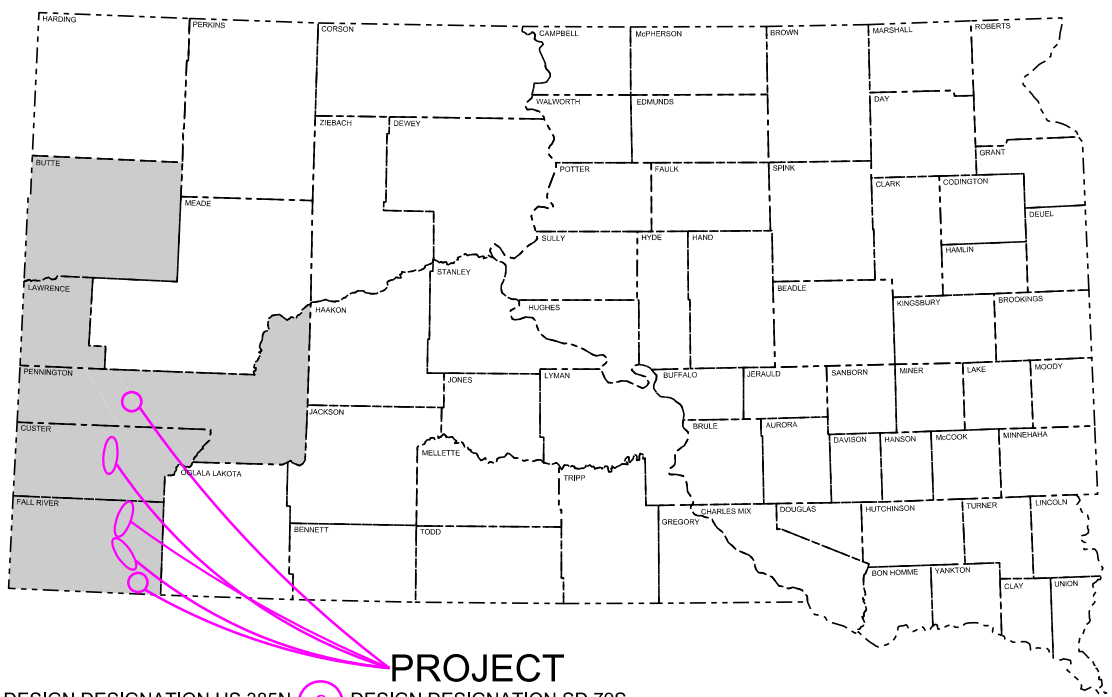


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Plot Scale - 1:200



PROJECT

6 DESIGN DESIGNATION US 385N **9 DESIGN DESIGNATION SD 79S**

AADT (2022)	602	AADT (2022)	2260
AADT (2042)	895	AADT (2042)	3673
DHV	0	DHV	602
D	50%	D	51%
DHV T%	9%	DHV T%	8.1%
AADT T%	19.7%	AADT T%	17.9%
V	70 mph	V	70 mph

7 DESIGN DESIGNATION US 385 **10 DESIGN DESIGNATION US US 16**

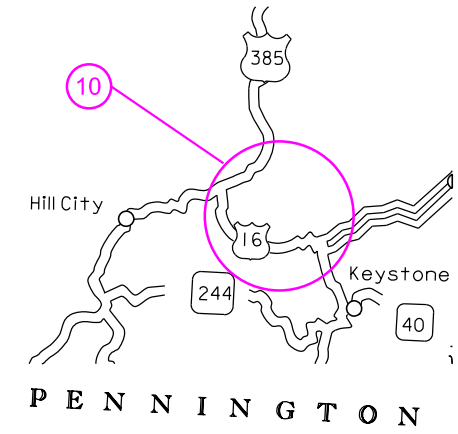
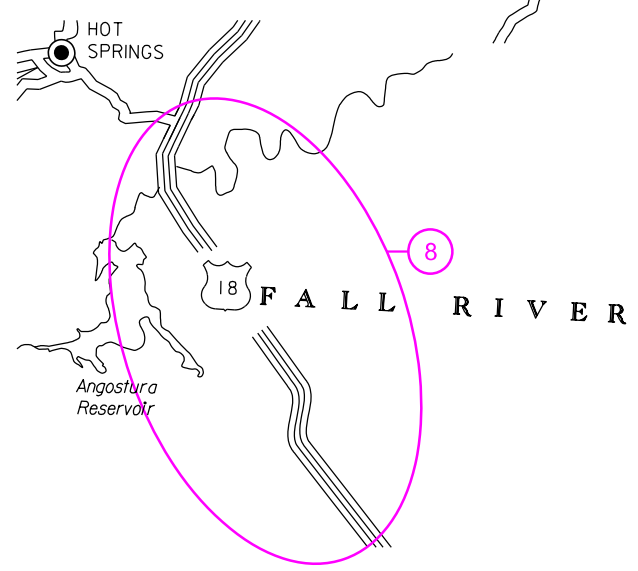
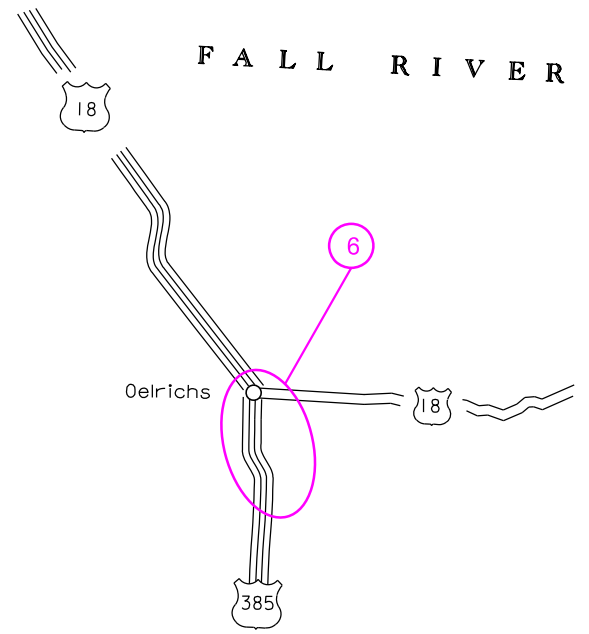
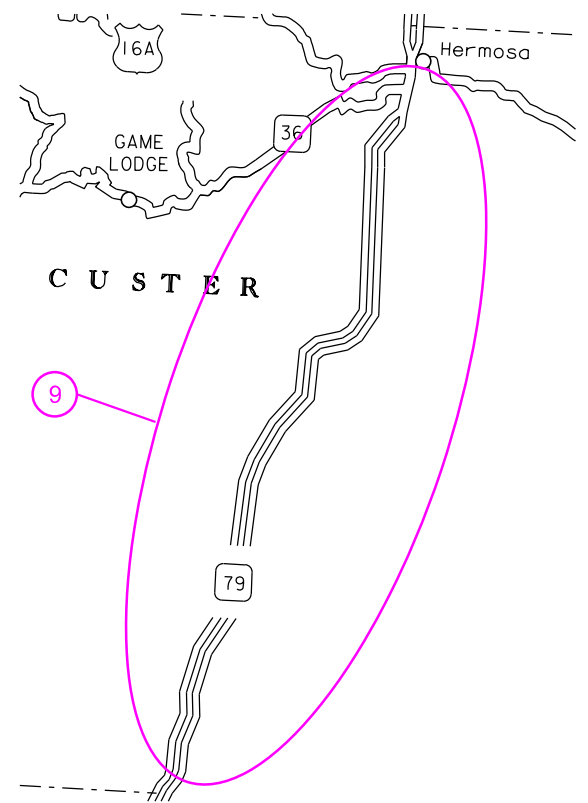
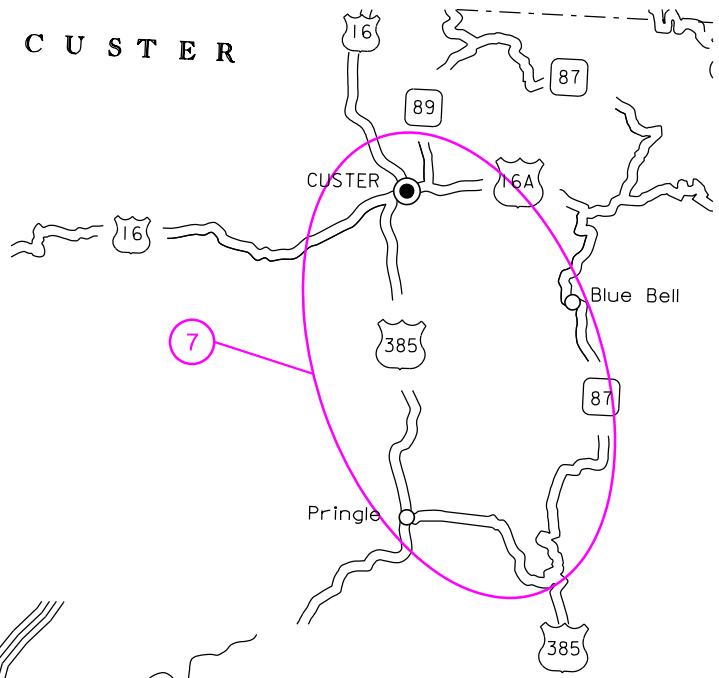
AADT (2022)	2191	AADT (2022)	6463
AADT (2042)	3574	AADT (2042)	10192
DHV	585	DHV	1669
D	51%	D	51%
DHV T%	3.4%	DHV T%	6.2%
AADT T%	7.4%	AADT T%	13.7%
V	70 mph	V	55 mph

8 DESIGN DESIGNATION US 18

AADT (2022)	1150
AADT (2042)	1708
DHV	297
D	51%
DHV T%	10.1%
AADT T%	22.2%
V	70 mph

STORM WATER PERMIT
None Required

- 6** US385N, MRM 10.87 to MRM 12.61
- 7** US385, MRM 49.2 to MRM 66.51
- 8** US18, MRM 44.5 to MRM 61.08
- 9** SD79S, MRM 33.07 to MRM 58.94
- 10** US16, MRM 46.73 to MRM 50.66



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ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	435.0	SqYd
110E1100	Remove Concrete Pavement	3,093.3	SqYd
260E2010	Gravel Cushion	548.0	Ton
320E1200	Asphalt Concrete Composite	105.9	Ton
332E0010	Cold Milling Asphalt Concrete	93	SqYd
380E0060	8.5" Nonreinforced PCC Pavement	3,093.3	SqYd
380E5030	Nonreinforced PCC Pavement Repair	914.2	SqYd
380E6000	Dowel Bar	1,984	Each
380E6010	Dowel Bar Retrofit	396	Each
380E6110	Insert Steel Bar in PCC Pavement	1,401	Each
380E6302	Reseal PCC Pavement Joint - Hot Pour	139,532	Ft
380E6310	Seal Random Cracks in PCC Pavement	2,791	Ft
380E6505	NGCS Grinding PCC Pavement	17,050.9	SqYd
380E6550	Grind 16" Rumble Strip in PCC Pavement	0.3	Mile
390E0212	Repair Type B Spall	24,911	Lb
633E0010	Cold Applied Plastic Pavement Marking, 4"	17,465	Ft
633E0025	Cold Applied Plastic Pavement Marking, 12"	48	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	129	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	4	Each
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	10,829	Ft
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	17,465	Ft
633E5010	Grooving for Cold Applied Plastic Pavement Marking, 12"	48	Ft
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	129	Ft
633E5025	Grooving for Cold Applied Plastic Pavement Marking, Arrow	4	Each
633E5100	Grooving for Durable Pavement Marking, 4"	10,829	Ft
634E0010	Flagging	6,000.0	Hour
634E0020	Pilot Car	3,000.0	Hour
634E0110	Traffic Control Signs	2,136.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	5	Each
634E0420	Type C Advance Warning Arrow Board	7	Each
634E0600	4" Temporary Pavement Marking Tape Type I	144	Ft
634E0900	Portable Temporary Traffic Control Signal	2	Unit
634E1215	Contractor Furnished Portable Changeable Message Sign	8	Each

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal..

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 B4: BALD EAGLE

Bald 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

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.

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](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.

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	NH-P 0040(355)	4	45

Revised 2/20/24 GDS

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.

All costs 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.

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.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the "Special Provision for Fire Plan".

UTILITIES

Utilities are not planned to be affected on this project. 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 PCC PAVEMENT

US 14A MRM 36.5 + 0.268 to MRM 40.64 + 0.071 - The existing pavement on US 14A is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" center to center. The transverse joints are spaced 20'. The transverse joints have 1" diameter steel bars spaced 12" apart.

The existing pavement for SD445, MRM 74.32+0.041 to MRM 76.62+0.000, is 10" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5 x 24" deformed tie bars spaced 48" centers. The transverse joints are spaced at 20' apart. Transverse joints are reinforced with 1 ¼" x 18" plain round dowel bars spaced 12" center to center.

The existing pavement for US 16, MRM 46.73 to MRM 50.66 is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 48" center to center. The transverse joints are spaced at 20' apart. Transverse joints are reinforced with 1" plain round dowel bars and with No. 9 deformed tie bars spaced 12" to 18" center to center.

US 18, MRM 11.00 to MRM 12.57 + 0.155 the existing pavement on US 18 is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" center to center. The transverse joints are spaced 20'. The transverse joints have 1" diameter steel bars spaced 12" apart.

The existing pavement on US 18, MRM 43+0.674 through MRM 43+0.904 is 8.5" Nonreinforced PCC . Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" center to center. The transverse joints are spaced 20'. The transverse joints have 1¼" diameter steel bars spaced 12" apart.

US 18 The existing pavement on US 18, MRM 44.5 to MRM 61.08 is 8.5" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" center to center. The transverse joints are spaced 20'. The transverse joints have 1 ¼" diameter steel bars spaced 12" apart.

The existing pavement for: SD 79, MRM 33.07 to MRM 58.94 is 8.5" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" to 48" center to center. The transverse joints are spaced at 20' apart. Transverse joints are reinforced with 1 ¼" plain round dowel bars and with No. 9 deformed tie bars spaced 12" center to center.

The existing pavement on US 385N, MRM 10.87 to MRM 12.61 is 8.0" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" center to center. The transverse joints are spaced 20'. The transverse joints have 1" diameter steel bars spaced 12" apart.

The existing pavement for: US 385, MRM 49.2 to MRM 66.51 is 8" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 48" center to center. The transverse joints are spaced at 20' apart. Transverse joints are reinforced with 1" plain round dowel bars and with No. 9 deformed tie bars spaced 12" center to center.

EXISTING PCC PAVEMENT (CONTINUED)

US212, The existing pavement on US 212 is 9" Nonreinforced PCC Pavement with limestone aggregate. Longitudinal joints are reinforced with No. 5x30" deformed tie bars spaced 30" to 48" center to center. The transverse joints are spaced at 20' apart. Transverse joints are reinforced with 1 1/4" steel dowel bars spaced 12" center to center

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will be used for shoulder repair at full depth PCC replacement locations as noted in the tables.

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

All other requirements in the Standard Specifications for Asphalt Concrete Composite will apply.

The asphalt binder used in the mixture will be PG 58-28, PG 64-28, or PG 64-34 Asphalt Binder.

No MC-70 Asphalt for Prime will be required.

No flush seal will be required.

SEAL RANDOM CRACKS IN PCC PAVEMENT

Random cracks that exhibit minor spalling will be routed and sealed 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 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.

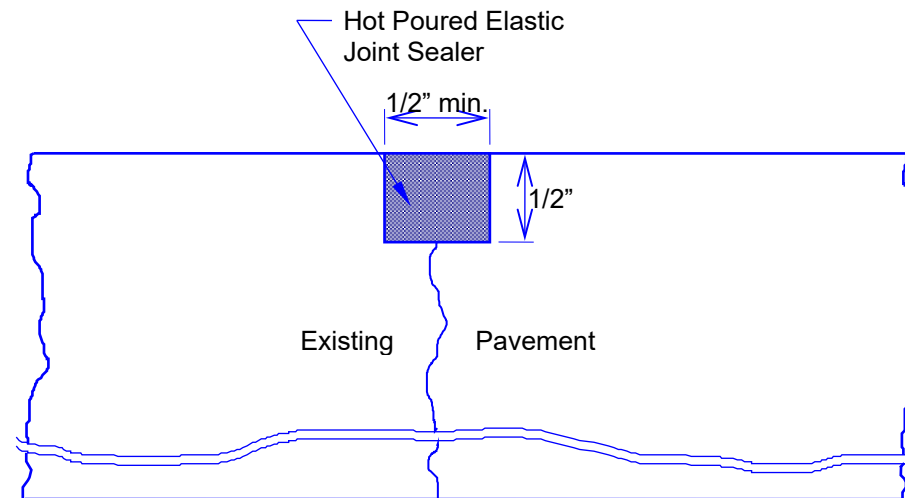
Random cracks narrower than 1/2 inch will be routed and sealed 1/2 inch wide by 1/2 inch deep.

Random cracks wider than 1/2 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.

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 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.



RESEAL PCC PAVEMENT JOINT - US 212 & US 18

Sealing joints shall be performed in accordance with Section 380.3 P.

It is not essential that all of the sealant be removed. Remaining sealant adhering to the sides may remain in place if the Engineer determines that it is not detrimental to the joint.

Joint widths are to be kept as narrow as possible and shall not be widened more than 1/8". In certain areas the joint may be wider than the original construction. It may be necessary to provide backer rod in the wide area. Any additional cost to perform this work shall be at no additional cost to the State. The Contractor shall be responsible to verify joint widths prior to establishing the contract unit price.

Cost for removing, cleaning, and resealing the transverse joints shall be incidental to the contract unit price per foot for Reseal PCC Pavement Joint-Hot Pour.

REPAIR TYPE B SPALL

A unit weight of 116 Lb/CuFt was used for estimating purposes.

The material for Repair of Type B Spall will be TechCrete-R manufactured by Crafcoc, or an approved equal. The maximum width of the Type B spall repair will be 12". The length will be as needed to repair the joint. The material will be measured and paid for per pound.

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 (ASTM C309, 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 surface 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 3,000 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 3,000 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, repairing gravel and asphalt concrete shoulders, labor, tools and equipment will be included in the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

An inspection of the gravel cushion subgrade 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 and excess material will be removed. Each replacement area will be leveled and compacted to the satisfaction of the Engineer.

Holes in the gravel and asphalt concrete shoulders created during removal and replacement of PCC pavement repair areas will be filled with gravel cushion material and hot-mix asphalt concrete (to match the shoulder surfacing) prior to opening the lane to traffic. Gravel cushion material and hot-mix asphalt concrete will be furnished and installed by the Contractor at no additional cost to the State.

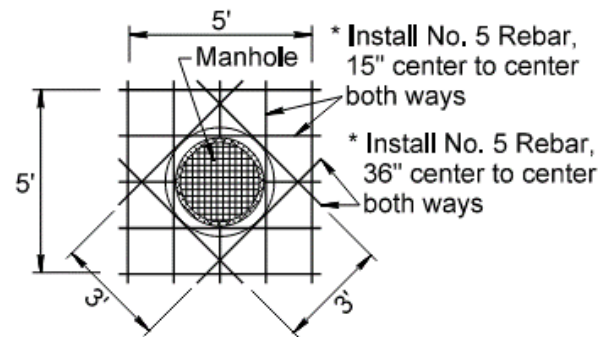
NONREINFORCED PCC PAVEMENT REPAIR (CONTINUED)

At US US18, MRM 43 + 0.674 to MRM 43 + 0.904 the Project Engineer will determine the existing grade of the highway at each end of the repair. The grade change will not exceed 0.2% at the ends and at form joints. A 10' straightedge will be used to ensure these criteria are met.

All costs associated with this work will be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair.

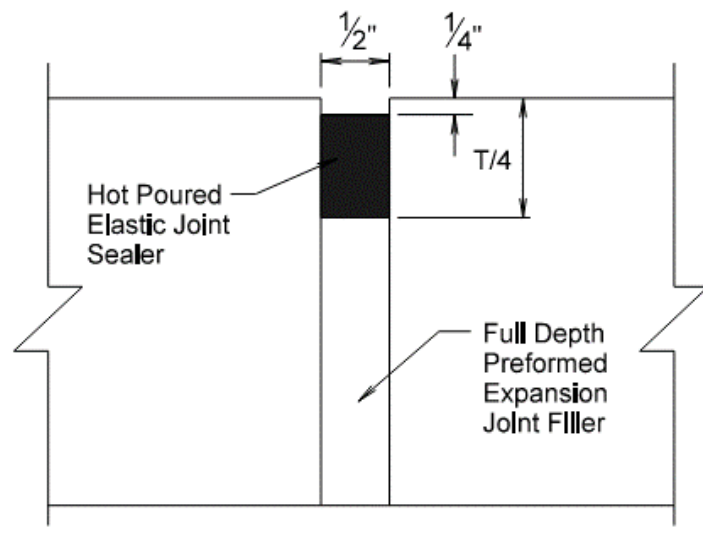
DETAILS FOR REBAR INSTALLATION AT MANHOLES

**REBAR LAYOUT
IN PCC PAVEMENT WITHOUT BOX-OUT**



The rebar will not cross any joint in the concrete pavement. If manhole is next to a joint in the concrete pavement the Engineer will approve a revised layout of the rebar.

**MANHOLE EXPANSION
JOINT DETAIL**



* Rebar will be placed at the midpoint depth of the PCC Pavement. Cost for furnishing & installing rebar and constructing box-outs will be incidental to the contract unit price per square yard for Nonreinforced PCC Pavement Repair and/or Fast Track Concrete for PCC Pavement Repair.

STEEL BAR INSERTION

The Contractor will insert the Steel Bars (No. 8 x 18 inch epoxy coated deformed tie bars transverse, No. 9 x 18 inch epoxy coated deformed tie bars transverse, No. 5 x 30 inch epoxy coated deformed tie bars longitudinally, 1" Bars transverse, and 1 1/4" Bars transverse) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole.

The steel bars will be cut to the specified length by sawing or shearing and will be free from burring or other deformations.

Epoxy coated plain round steel bars will be inserted on 12-inch centers in the transverse joint. The first steel bar will be placed a minimum of 3 inches and a maximum of 6 inches from the outside edge of the slab.

Epoxy coated deformed steel bars will be inserted on 18-inch centers in the transverse joint. The first steel bar will be placed a minimum of 3 inches and a maximum of 9 inches from the outside edge of the slab.

Epoxy coated deformed steel bars will be inserted on 30-inch centers in the longitudinal joint and will be placed a minimum of 15 inches from the existing transverse contraction joint.

DOWEL BAR RETROFIT

The contractor shall Dowel Bar Retrofit the existing PCC Pavement lane from MRM 12.37 to MRM 12.57 on US Highway 18 as noted in the Table of Dowel Bar Retrofit.

This work consists of installing epoxy coated 1-1/2 inch diameter by 18 inch long plain round dowels into existing concrete pavement joints.

The existing Portland Cement Concrete Pavement shall be removed and the dowel bars shall be retrofit across the pavement joints.

This work shall meet the requirements of the "Special Provision for PCCP Dowel Bar Retrofit" included as part of this contract.

NGCS GRINDING OF PCC PAVEMENT

NGCS Grinding of PCC Pavement will be applied to the pavement on US 18 at Edgemont upon the completion of the dowel bar retrofit at this location.

NGCS Grinding PCCP Pavement can be performed with a single-pass or two-passes to produce longitudinal grooves on the concrete surface in accordance with the Special Provision.

NGCS grinding of PCC pavement will be accomplished according to the Special Provision for NGCS Grinding PCC Pavement. All costs to grind mainline will be incidental to the contract unit price per square yard for NGCS Grinding PCC Pavement.

Shoulder grinding will transition from the edge of the mainline and other lanes requiring NGCS grinding as required to provide drainage and an acceptable riding surface. Adequate cross slope drainage will be maintained. The Contractor will use conventional diamond grinding in accordance with section 380.3 O to feather PCC Pavement adjacent to NGCS grinding areas.

Costs to feather grind shoulder areas adjacent to NGCS grinding will be incidental to the contract unit price per square yard of Grinding PCC Pavement.

8.5" NONREINFORCED PCC PAVEMENT

The contract item 8.5" Nonreinforced PCC Pavement will be used for repair of US 18, MRM 43+0.674 through MRM 43+0.904. The PCC pavement will be placed in accordance with the original typical section provided and to the satisfaction of the Engineer.

The aggregate may require screening as determined by the Engineer.

The concrete used in the Portland Cement Concrete Pavement will conform to Section 380, contain a minimum of 600 lbs of cement, and 20% fly ash. The concrete will contain at least 55% coarse aggregate. The use of a water reducer at manufacturers recommendations will be required. The concrete will obtain a minimum 4,000 psi at 28 days. The contractor is responsible for the mix design used. The contractor will submit a mix design for approval at least 2 weeks prior to use.

There will be no direct payment for trimming of the gravel cushion for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement. Trimming will be performed as required by Section 380.3 C of the Specifications.

A construction joint will be sawed whenever new concrete pavement is placed adjacent to existing concrete pavement.

The Contractor will note the locations of the in-place transverse construction joints and will be place the new joints at the existing locations.

The base material on the shoulders will be shaped in accordance with the original typical section provided and to the satisfaction of the Engineer. The asphalt shoulders will be replaced with a 3" lift of Asphalt Concrete Composite in accordance with the original typical section provided and to the satisfaction of the Engineer.

GRIND 16" RUMBLE STRIP OR STRIPE IN PCC PAVEMENT.

Where rumble strips are currently in place for areas of PCC Pavement Repair NGCS Grinding, or 8.5" PCC Pavement, the Contractor will grind in new Rumble Strips.

Rumble Strips will be placed 15 inches wide 3 inches from the outside edge of the pavement. Payment for grinding rumble strips including labor, materials and incidentals will be incidental to the contract unit price per mile for Grind 16" Rumble Strip or Stripe in PCC Pavement.

COLD APPLIED PLASTIC PAVEMENT MARKING

All materials will be applied as per the manufacturer's recommendations.

Cold Applied Plastic Pavement Markings will be 3M Series 380 IES or an approved equal.

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 the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads.

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.

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.

GROOVING FOR COLD APPLIED PLASTIC PAVEMENT MARKING

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. The cleaning of the residue for grooving will be to the satisfaction of the Engineer and may require more than one pass to adequately remove material. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot, square foot, each, or word for Grooving for Cold Applied Plastic Pavement Marking contract items.

GROOVING FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot, square foot, each, or word for "Grooving for Durable Pavement Marking" contract items.

Unless otherwise specified in the plans, the Contractor will groove the surface for High Build Waterborne Pavement Marking Paint as specified in these plans and as per the manufacturer's instructions.

The grooving will be completed within the following tolerances:

Description	Specification	Tolerance
Depth of Groove	Marking Thickness ¹ + 15 mils	+ 5 mils
Width of Groove	5 to 6 inches	
Length of Skip Lines ²	10 foot 6 inches	± 3 inch
Tapers at ends of lines	6 to 9 inches	
Between Double Lines	4 inches	± 1/2 inch

¹ Marking thickness will include the thickness of marking material and reflective media.

² Additional length may be required as specified in the plans.

The equipment will be capable of the following:

- Grooving the total width of the groove in one pass or uniform depths with multiple passes.
- Grooving without causing damage to the pavement joints or joint sealant material.
- Provide uniform alignment and depth.
- Moving continuously to permit a mobile traffic work operation.

If damage occurs, including, but not limited to, joints, joint sealant material, and backer rod, the grooving operation will be stopped and modifications will be made to the grooving operation to prevent further damage. The Contractor will be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused will be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the 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.

US14A – Standard Plates 634.47, 634.48, 634.52, 634.53, 634.85, and 634.99 will be used for traffic control at the MRM 36.5 + 0.268 to MRM 46.6 + 0.071 locations in the Contractors sequence of operations.

SD 445 – Standard Plates 634.52, 634.53, 634.55, 634.56, 634.57, 634.60, 634.69, 634.85, and 634.99 will be used at the MRM 74.37+0.037 to MRM 76.0+0.540 locations in the Contractors sequence of operations. Work on SD445 from Universal drive to the north end of the project will be completed at night – from 8:00 pm to 6:00 am. All traffic control will be off of the roadway outside of those work hours in that location.

US 16 – Standard Plates 634.64, 634.85, and 634.99 will be used at the MRM 46.73 to MRM 50.66 locations for traffic control in the Contractors sequence of operations.

US 18 – Standard Plates 634.23, 634.26, 634.85, and 634.99 will be used at the MRM 11.00 to MRM 12.57 + 0.155 locations for traffic control in the Contractors sequence of operations. portable temporary traffic control signals will be used at this location.

Standard Plates 634.03, 634.46, 634.85, and 634.99 will be used at the MRM 43 + 0.674 to MRM 43 + 0.904 locations for traffic control in the Contractors sequence of operations.

Standard Plates 634.63, 634.85, and 634.99 will be used at the MRM 44.5 to MRM 61.08 locations for traffic control in the Contractors sequence of operations.

SD 79S – Standard Plates 634.63, 634.85, and 634.99 will be used at the MRM 33.07 to MRM 58.94 locations for traffic control in the Contractors sequence of operations.

US 385 – Standard Plates 634.63, 634.85, and 634.99 will be used at the MRM 10.87 to MRM 12.61 locations for traffic control in the Contractors sequence of operations.

Standard Plates 634.23, 634.85, and 634.99 will be used for traffic control at MRM 49.2 to MRM 66.51 in the Contractors sequence of operations. US212 - roadway will be open to 2 lanes of traffic every night. Flaggers and a pilot car will be used during construction operations.

US 212 - Standard Plates 634.23, 634.85, and 634.99 will be used for traffic control at the MRM 0+0.277 to MRM 11 + 0.711 locations in the Contractors sequence of operations. US212 - roadway will be open to 2 lanes of traffic every night. Flaggers and a pilot car will be used during construction operations.

COORDINATION BETWEEN CONTRACTORS

A separate contract for Project NH-P 0042(98) – Butte County PCN 096V has been awarded to another for Contractor for Asphalt Surface Treatment (PCN Bute 096V). The work for PCN 096V will occur on US 212 from MRM 0+0.027 to MRM 12+0.461.

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 096V. 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.

PORTABLE TEMPORARY TRAFFIC CONTROL SIGNAL

A Portable Temporary Traffic Control Signal will be used for US 18 at MRM 11.00 to MRM 12.57 + 0.155

The Contractor will furnish, install, operate, and maintain a portable temporary traffic control signal during construction phases as determined by the Engineer. There will be one controller and one slave unit per location.

The portable temporary traffic control signal will be set up to dwell in red. Detection will be video, microwave, or radar. The green time may be adjusted as needed. The initial timings for the construction sites are given below:

The portable temporary traffic control signal will be set up to dwell in red. Detection will be video, microwave, or radar. The green time may be adjusted as needed. The Engineer will contact the Region Traffic Engineer one week prior to activation to obtain the appropriate signal timings.

All vehicle signal heads will have backplates with retroreflective border. The vehicle signal head backplates will have a factory applied 3-inch wide yellow retroreflective border. Sheeting for the border will be Type IX or Type XI in conformance with ASTM D4956.

Signal backplates will be polycarbonate, aluminum, or aluminum-composite. Minimum material thicknesses are:

Polycarbonate, 0.10-inch
Aluminum, 0.06-inch
Aluminum-Composite, 0.08-inch

Signal backplates will extend not less than 5 inches from the edge of the signal head at the top, bottom, and sides.

All traffic signal equipment and materials will meet the requirements of Sections 635 and 985 of the Specifications except the controller requirements.

All costs involved with constructing the portable temporary traffic control signal as specified above and on the plans, will be included in the contract unit price per unit for "Portable Temporary Traffic Control Signal".

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.

All construction operations will be conducted in the general direction of traffic movement.

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.

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans.

Temporary flexible road markers (tabs) will be used for lane closure tapers or lane shift tapers that are left up overnight and shall be installed at 5' spacing. Due to the unknown amount of lane closure set ups to complete the work on this project, tabs used for tapers and shifts will not be measured for payment. All costs associated to furnish, install, maintain (including replacement as required by the Engineer at no added cost to the Department), and remove all markers will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

Access to approaches will be maintained at all times.

When work is in progress within an intersection, Flaggers will be required to direct traffic.

Each mainline concrete full depth repair location, from which the in-place concrete has been removed, will be marked with a Type 3 Barricade.

TEMPORARY PAVEMENT MARKING TAPE, TYPE I

Temporary pavement marking for stop lines will consist of 4" Temporary Pavement Marking Tape Type I. Placement of each 24" white stop line will be accomplished by placing six pieces of 4" x 12' tape adjacent to one another. Each workspace requires two stop lines which is an equivalent of approximately 144' of 4" tape (1 workspaces at 144' = 144'). Temporary tape will be removed upon completion of the project.

PERMANENT PAVEMENT MARKING

The Contractor will be required to repaint all existing pavement markings including centerline, edge line, lane lines, turn arrows, stop bars, and pedestrian crossings. 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, pedestrian and crossings before the markings are obliterated. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

Portable changeable message signs will be utilized on US14A, SD445. US 18 at MRM 11.00 to MRM 12.57 + 0.155, and US 18 at MRM 43 + 0.674 to MRM 43 + 0.904

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	8	45

Revised 12/20/24 GDS

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 directed by the Engineer.

TRAFFIC CONTROL FOR PCCP REPAIR

Each mainline concrete repair location, from which the in-place concrete has been removed, will be marked with a minimum of two reflectorized drums. In areas containing numerous concrete repair locations, two reflectorized drums should be installed at a spacing of 660 feet alternating with the Type 3 Barricades.

Construction workspaces on divided roadways will be limited to 5 miles in length. Construction workspaces on undivided roadways will be limited to 1000 feet in length. The distance between the closest points of any two construction workspaces, including channeling devices, will not be less than 3 miles. Drivers in two-way traffic workspaces must be able to see approaching traffic through and beyond the work zone. Flagger controlled workspaces will be limited to 2 miles in length.

Construction workspaces in urban areas will be limited to 3 blocks in length. The minimum distance between workspaces will be 3 blocks.

When work is in progress within an intersection, Flaggers will be required to direct traffic.

Routing traffic onto the mainline shoulders during any phase of the construction will not be allowed.

Damage to the shoulders, median, or ditch due to the Contractor's operations will be repaired by the Contractor to the satisfaction of the Engineer at no expense to the State. This includes the apparent routing of traffic onto the shoulders around the work zones.

Joints in approaches to signalized intersections containing vehicle detector loops will not be sawed, sealed, or otherwise disturbed.

The Contractor will be required to contact the Engineer two weeks in advance so that the Region Traffic Engineer can arrange for signal timings to be adjusted to accommodate traffic when a lane is closed near a signalized intersection.

Reflectorized drums or Type 2 Barricades will be used to maintain a minimum of two-way traffic at intersecting roads or streets. The Contractor will mark and maintain alternating one-way access to businesses and residences along the project with cones, drums, or Type 1 Barricades. The Contractor will advise affected businesses before a restriction to the business is installed, as well as the anticipated duration of the restriction.

The Contractor will maintain pedestrian access at crosswalk locations. Additional traffic control devices will be used as necessary to accommodate the pedestrian traffic if work activities block an existing crosswalk.

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.

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.

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.



FLAGGING (CONTINUED)

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.

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. 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.

ITEMIZED LISTS FOR TRAFFIC CONTROL

SD445 - MRM 74.37+0.037 to MRM 76.0+0.540

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-2	LEFT TURN PROHIBITION (symbol)	2	24" x 24"	4.0	8.0
W1-3	REVERSE TURN (L or R)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS	2	48" x 48"	16.0	32.0
W9-3	CENTER LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W13-4P	ON RAMP (plaque)	2	36" x 36"	9.0	18.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
SPECIAL	RAMP WORK AHEAD	8	48" x 48"	16.0	128.0
W20-5	CENTER LANE CLOSED XX FT	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 399.6			

US14A - MRM 36.5 + 0.268 to MRM 40.64+0.071

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R3-2	LEFT TURN PROHIBITION (symbol)	2	24" x 24"	4.0	8.0
W1-3	REVERSE TURN (L or R)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W9-3	CENTER LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	8	48" x 48"	16.0	128.0
W20-5	CENTER LANE CLOSED XX FT	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 317.6			

US 16 - MRM 46.73 to MRM 50.66

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT 128.0			

Revised 2/20/24 GDS

US18 - MRM 11.00 to MRM 12.57 + 0.155

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R10-6	STOP HERE ON RED	2	24" x 36"	6.0	12.0
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	16.0	16.0
W3-3	SIGNAL AHEAD (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	7	30" x 18"	3.8	26.6
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT 191.6			

US18 - MRM 43 + 0.674 to MRM 43 + 0.904

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	16.0	16.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT 160.0			

US18 - MRM 44.5 to MRM 61.08

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	1	36" x 48"	12.0	12.0
R2-1	SPEED LIMIT 65	3	36" x 48"	12.0	36.0
R2-1	SPEED LIMIT 70	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT 228.0			

ITEMIZED LISTS FOR TRAFFIC CONTROL (CONTINUED)

SD 79S - MRM 33.07 to MRM 58.94

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	1	36" x 48"	12.0	12.0
R2-1	SPEED LIMIT 65	3	36" x 48"	12.0	36.0
R2-1	SPEED LIMIT 70	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					228.0

US 385 - MRM 10.87 to MRM 12.61

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	1	36" x 48"	12.0	12.0
R2-1	SPEED LIMIT 65	3	36" x 48"	12.0	36.0
R2-1	SPEED LIMIT 70	1	36" x 48"	12.0	12.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT					228.0

US 385 - MRM 49.2 to MRM 66.51

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	8	30" x 18"	3.8	30.4
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					135.4

US212 - MRM 0+0.277 to MRM 11 + 0.711

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	4	30" x 18"	3.8	15.2
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					120.2

Table of Dowel Bar Retrofit - US 18

MRM	Disp	Direction	Dowel Bar Retrofit (Each)
11	0.509	EB	6
	0.548	EB	6
	0.553	EB	6
	0.678	EB	6
	0.753	EB	6
	0.763	EB	6
	0.778	EB	6
	0.818	EB	6
12	0.012	EB	6
	0.022	EB	6
	0.077	EB	6
	0.082	EB	6
12.1	0.096	EB	6
	0.007	EB	6
	0.013	EB	6
	0.032	EB	6
	0.043	EB	6
	0.047	EB	6
	0.067	EB	6
	0.073	EB	6
	0.077	EB	6
	0.122	EB	6
	0.133	EB	6
	0.137	EB	6
12.37	0.026	EB	6
	0.037	EB	6
	0.041	EB	6
	0.046	EB	6
	0.052	EB	6
	0.056	EB	6
	0.061	EB	6
	0.066	EB	6
	0.071	EB	6
	0.076	EB	6
Subtotal			204

Table of Dowel Bar Retrofit - US 18 (Continued)

MRM	Disp	Direction	Dowel Bar Retrofit (Each)
12.37	0.081	EB	6
	0.086	EB	6
	0.091	EB	6
	0.111	EB	6
	0.116	EB	6
	0.121	EB	6
	0.126	EB	6
	0.131	EB	6
	0.136	EB	6
	0.141	EB	6
	0.146	EB	6
	0.211	EB	6
	0.216	EB	6
	0.221	EB	6
	0.225	EB	6
	0.236	EB	6
	0.241	EB	6
	0.245	EB	6
	0.326	EB	6
	0.331	EB	6
12.37	0.337	WB	6
	0.202	WB	6
	0.196	WB	6
	0.191	WB	6
	0.116	WB	6
	0.026	WB	6
	0.011	WB	6
	0.006	WB	6
12	0.044	WB	6
	0.840	WB	6
11	0.670	WB	6
	0.441	WB	6
Subtotal			192
Total			396

Revised 2/20/24 GDS

Table of Spall Repair										
	IM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall (Lbs)
					(Ft)	(Ft)	(Ft)			
14A	36.59	0.000	NB	Driving	2	0.5	0.17	1		19.7
14A	36.59	0.004	NB	Middle	6	1	0.17	1		118.3
14A	36.59	0.008	NB	Middle	11.3	1	0.17	1		222.8
14A	36.59	0.010	NB	Driving	2.2	1	0.17	1		43.4
14A	36.59	0.027	NB	Middle	2.6	1	0.17	1		51.3
14A	36.79	0.050	SB	Driving	0.7	0.8	0.17	1		11.0
14A	36.59	0.085	NB	Middle	2	0.6	0.17	1		23.7
14A	36.59	0.087	SB	Driving	0.9	1	0.17	1		17.7
14A	36.59	0.089	NB	Driving	5.4	1	0.17	1		106.5
14A	36.59	0.103	NB	Driving	0.8	0.6	0.17	1		9.5
14A	36.59	0.125	NB	Middle	3	0.5	0.17	1		29.6
14A	36.59	0.140	NB	Middle	2	0.7	0.17	1		27.6
14A	36.95	0.008	NB	Driving	1.5	1	0.17	1		29.6
14A	37	0.020	SB	Driving	1.5	0.8	0.17	1		23.7
14A	37	0.020	SB	Driving	2.5	0.9	0.17	1		44.4
14A	37	0.060	WB	Driving	1.6	0.8	0.17	1		25.2
14A	37.04	0.000	NB	Middle	2.9	1	0.17	1		57.2
14A	36.76	0.005	NB	Driving	4.6	1	0.17	1		90.7
14A	37.04	0.040	SB	Driving	8.2	1	0.17	1		161.7
14A	37.04	0.045	SB	Driving	2	1	0.17	1		39.4
14A	37.06	0.000	SB	Driving	10	1	0.17	1		197.2
14A	37.13	0.000	NB	Middle	2	1	0.17	1		39.4
14A	37.13	0.000	NB	Middle	12	1	0.17	1		236.6
14A	37.13	0.009	NB	Middle	3	1	0.17	1		59.2
14A	37.13	0.013	NB	Middle	6	1	0.17	1		118.3
14A	37.13	0.034	NB	Middle	1.5	1	0.17	1		29.6
14A	37.29	0.016	NB	Driving	2	1	0.17	1		39.4
14A	37.29	0.016	SB	Driving	0.5	0.7	0.17	1	On centerline	6.9
14A	37.29	0.026	NB	Driving	11.5	0.8	0.17	1	On centerline	181.4
14A	37.29	0.028	SB	Driving	2.5	0.8	0.17	1		39.4
Subtotal										2100.4

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall (Lbs)
					(Ft)	(Ft)	(Ft)			
14A	37.29	0.029	NB	Driving	3.9	1	0.17	1		76.9
14A	37.29	0.037	NB	Driving	1.4	1	0.17	1		27.6
14A	37.29	0.047	NB	Driving	2	0.5	0.17	2		39.4
14A	37.29	0.081	NB	Driving	0.9	1	0.17	1		17.7
14A	37.29	0.098	SB	Driving	0.8	1	0.17	1		15.8
14A	37.29	0.108	NB	Middle	9	1	0.17	1		177.5
14A	37.29	0.121	SB	Driving	1.5	1	0.17	1		29.6
14A	37.29	0.129	NB	Driving	3	1	0.17	1		59.2
14A	37.29	0.156	SB	Driving	18.8	1	0.17	1		370.7
14A	40.64	0.003	WB	Driving	2.1	1	0.17	1		41.4
14A	40.64	0.004	SB	Driving	3	0.6	0.17	1		35.5
14A	40.64	0.006	SB	Driving	3	0.7	0.17	1		41.4
14A	40.64	0.013	NB	Driving	78	0.5	0.17	1		769.1
14A	40.64	0.014	NB	Driving	35	0.5	0.17	1		345.1
14A	40.64	0.018	NB	Driving	1.4	1	0.17	1		27.6
14A	40.64	0.068	SB	Driving	1	0.5	0.17	3		29.6
14A	40.64	0.071	SB	Driving	26	0.5	0.17	1		256.4
18	11	0.595	EB	Driving	3	0.5	0.17	1		29.6
18	11.77	0.068	WB	Driving	1	1	0.17	1		19.7
18	12	0.038	WB	Driving	2.6	1	0.17	1		51.3
18	12	0.058	WB	Driving	5	0.9	0.17	1		88.7
18	12	0.078	WB	Driving	2.5	0.8	0.17	1		39.4
18	12.08	0.001	WB	Driving	3.5	0.8	0.17	1		55.2
18	12.08	0.001	WB	Middle	2	0.5	0.17	1		19.7
18	44	0.500	WB	Driving	4.5	1	0.17	1		88.7
018 W	57	0.180	WB	Driving	2.5	2	0.17	1		98.6
Subtotal										2851.4

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall
					(Ft)	(Ft)	(Ft)			(Lbs)
212	1.25		WB	Driving	1.0	0.7	0.17	1	L side of centerline	13.8
212	2.02		WB	Driving	1.4	1.0	0.17	1	11' L of centerline	27.6
212	4.97		WB	Driving	2.5	0.8	0.17	1	4' L of centerline	39.4
212	8.5		EB	Driving	1.6	1.0	0.17	1	8' R of centerline, on both sides of transverse joint	31.6
212	8.54		EB	Driving	1.8	0.8	0.17	1	9' R of centerline	28.4
212	9.11		EB	Driving	1.2	0.6	0.17	1	8' R of centerline	14.2
212	9.22		EB	Driving	2.3	0.8	0.17	1	7.5' R of centerline	36.3
212	9.57		EB	Driving	1.0	0.8	0.17	1	4' R of centerline	15.8
212	9.75		WB	Driving	1.3	0.6	0.17	1	L side of centerline	15.4
212	9.93		WB	Driving	1.5	1.0	0.17	1	5' L of centerline	29.6
212	9.95		WB	Driving	1.9	1.0	0.17	1	10.5 L of centerline	37.5
212	10.13		EB	Driving	1.1	0.6	0.17	1	11.0' R of centerline	13.0
212	10.19		EB	Driving	1.8	0.8	0.17	1	9.5' R of centerline	28.4
212	10.41		EB	Driving	2.2	0.8	0.17	1	R side of centerline	34.7
212	10.43		EB	Driving	2.2	0.8	0.17	1	R side of centerline	34.7
212	10.45		EB	Driving	1.4	0.6	0.17	1	R side of centerline	16.6
212	10.59		EB	Driving	1.4	0.6	0.17	1	R side of centerline	16.6
212	10.39		EB	Driving	2.4	0.9	0.17	1	8.0' R of centerline	42.6
212	10.7		WB	Driving	1.5	0.8	0.17	1	L side of centerline	23.7
212	10.81		EB	Driving	3.0	0.9	0.17	1	R of centerline	53.2
212	10.81		WB	Driving	3.8	1.0	0.17	1	L side of centerline	74.9
212	10.86		EB	Driving	1.9	1.0	0.17	1	R side of centerline	37.5
212	10.9		WB	Driving	1.6	1.0	0.17	1	11' R of centerline	31.6
212	10.94		EB	Driving	1.0	1.0	0.17	1	R side of centerline	19.7
212	11.01		EB	Driving	2.0	0.7	0.17	1	R side of centerline	27.6
212	11.05		EB	Driving	3.5	0.9	0.17	1	R side of centerline	62.1
212	11.07		EB	Driving	1.3	0.9	0.17	1	R side of centerline	23.1
212	11.08		EB	Driving	4.0	0.8	0.17	1	9.0' R of centerline	63.1
212	11.17		EB	Driving	1.6	0.6	0.17	1	R side of centerline	18.9
212	11.19		WB	Driving	1.4	0.8	0.17	1	L side of centerline	22.1
212	11.26		EB	Driving	2.0	0.7	0.17	1	8.0' R of centerline	27.6
212	11.53		EB	Driving	1.4	0.8	0.17	1	7.0 R of centerline	22.1
212	11.61		EB	Driving	2.7	0.7	0.17	1	R side of centerline	37.3
212	11.61		EB	Driving	3.0	0.5	0.17	1	14.0' R of centerline	29.6
212	11.62		WB	Driving	1.6	1.0	0.17	1	9.0' L of centerline	31.6
212	11.62		WB	Driving	2.2	0.5	0.17	1	5.0' L of centerline	21.7
212	11.62		WB	Driving	1.4	0.6	0.17	1	5.0' L of centerline	16.6
212	11.62		WB	Driving	1.0	0.6	0.17	1	2.5' L of centerline	11.8
212	11.64		EB	Driving	4.0	0.8	0.17	1	R side of centerline	63.1
									Subtotal	1195.1

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall
					(Ft)	(Ft)	(Ft)			(Lbs)
445	74.31	0.037	NB	Driving	1	0.5	0.17	1		9.9
445	74.31	0.040	NB	Driving	1	1	0.17	1		19.7
445	74.31	0.061	NB	Driving	0.5	0.3	0.17	1		3.0
445	74.37	0.011	NB	All Lane	0.3	0.5	0.17	1		3.0
445	74.37	0.014	NB	Driving	0.4	0.4	0.17	1		3.2
445	74.37	0.024	NB	All Lane	1	0.3	0.17	2		11.8
445	74.37	0.035	NB	Passing	0.4	1	0.17	1		7.9
445	74.37	0.039	NB	Passing	0.3	0.8	0.17	2		9.5
445	74.37	0.049	NB	Passing	1	0.5	0.17	1		9.9
445	74.37	0.053	NB	Driving	0.3	0.3	0.17	1		1.8
445	74.37	0.080	NB	All Lane	3	3	0.17	2	1 spall .5x.5	355.0
445	74.37	0.089	NB	Driving	0.5	0.5	0.17	1		4.9
445	74.37	0.108	NB	Passing	0.4	0.4	0.17	1		3.2
445	74.37	0.137	NB	All Lane	1	0.6	0.17	1		11.8
445	74.37	0.140	NB	Passing	0.4	0.4	0.17	1		3.2
445	74.37	0.151	NB	All Lane	0.5	0.5	0.17	2		9.9
445	74.37	0.155	NB	All Lane	0.4	0.5	0.17	2		7.9
445	74.37	0.198	NB	Passing	0.5	0.6	0.17	1		5.9
445	74.37	0.217	NB		3	0.3	0.17	5		88.7
445	74.37	0.224	NB	All Lane	2	0.3	0.17	5		59.2
445	74.37	0.229	NB	All Lane	1	1	0.17	1		19.7
445	74.37	0.231	NB	All Lane	1	1	0.17	1		19.7
445	74.37	0.236	NB	All Lane	2	2	0.17	1		78.9
445	74.37	0.253	NB	All Lane	3	1	0.17	1		59.2
445	74.37	0.256	NB	Passing	1.5	1	0.17	1		29.6
445	74.37	0.260	NB	All Lane	2	1.5	0.17	1		59.2
445	74.37	0.264	NB	Passing	3	0.5	0.17	1		29.6
445	74.37	0.265	NB	All Lane	1.5	0.5	0.17	1		14.8
									Subtotal	940.1

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall (Lbs)
					(Ft)	(Ft)	(Ft)			
445	74.37	0.270	NB	Passing	24	1	0.17	1		473.3
445	74.37	0.273	NB	Passing	1	0.5	0.17	2		19.7
445	74.37	0.275	NB	All Lane	1	1	0.17	4		78.9
445	74.37	0.283	NB	All Lane	0.5	1	0.17	3		29.6
445	74.37	0.284	NB	Driving	2	0.5	0.17	2		39.4
445	74.37	0.286	NB	Driving	1	1	0.17	2		39.4
445	74.37	0.289			1	1	0.17	4		78.9
445	74.37	0.291	NB	Driving	10	0.5	0.17	4		394.4
445	74.37	0.297	NB	Driving	12.5	1	0.17	1		246.5
445	74.37	0.297	NB	Passing	17.5	1	0.17	1		345.1
445	74.37	0.297	NB	Driving	1	1	0.17	2		39.4
445	74.37	0.300	NB	Driving	1	1	0.17	2		39.4
445	74.37	0.301	NB	Passing	7.5	1	0.17	1		147.9
445	74.37	0.304	NB	All Lane	0.5	2	0.17	4		78.9
445	74.37	0.306	NB	Passing	10	1	0.17	1		197.2
445	74.69	0.000	SB	Driving	2	1	0.17	1		39.4
445	74.69	0.000	SB	Driving	3	1	0.17	1		59.2
445	74.69	0.019	SB	All Lane	1.5	1	0.17	2		59.2
445	74.69	0.022	NB	Driving	4	1	0.17	1		78.9
445	74.69	0.022	SB	All Lane	9	1	0.17	2		355.0
445	74.69	0.025	SB	Driving	2	0.5	0.17	2		39.4
445	74.69	0.049	SB	Passing	4	0.4	0.17	1		31.6
445	74.69	0.060	SB	All Lane	12	0.4	0.17	1		94.7
445	74.69	0.078	SB	All Lane	14	0.4	0.17	1		110.4
445	74.69	0.082	SB	Driving	5	0.4	0.17	1		39.4
445	74.69	0.086	SB	All Lane	18	0.5	0.17	1		177.5
445	74.69	0.096	SB	All Lane	14	0.5	0.17	1		138.0
445	74.69	0.102	NB	Driving	1	1	0.17	1		19.7
Subtotal										3490.4

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall (Lbs)
					(Ft)	(Ft)	(Ft)			
445	74.69	0.111	SB	All Lane	8	0.5	0.17	1		78.9
445	74.69	0.123	SB	Driving	12	0.7	0.17	1		165.6
445	74.69	0.132	SB	Driving	8	0.5	0.17	1		78.9
445	74.69	0.138	SB	All Lane	20	1	0.17	1		394.4
445	74.69	0.141	SB	All Lane	20	0.5	0.17	1		197.2
445	74.69	0.188	SB	Driving	6	0.4	0.17	1		47.3
445	74.69	0.227	NB	Passing	2	2	0.17	1		78.9
445	74.69	0.229	NB	Driving	2.3	1	0.17	1		45.4
445	74.69	0.244	SB	Passing	2	3	0.17	1	In fillet	118.3
445	74.94	0.012	SB	Passing	1	1	0.17	1		19.7
445	74.94	0.057	NB	Passing	1	1	0.17	1		19.7
445	75	0.036	NB	Passing	0.5	1	0.17	1		9.9
445	75	0.064	SB	Passing	10	0.6	0.17	1		118.3
445	75	0.066	SB	All Lane	12	0.4	0.17	1		94.7
445	75	0.067	NB	Driving	2	0.5	0.17	1		19.7
445	75	0.071	NB	Passing	0.5	1	0.17	1		9.9
445	75	0.073	SB	Passing	6	0.4	0.17	1		47.3
445	75	0.075	NB	All Lane	0.5	3	0.17	2		59.2
445	75	0.078	NB	Passing	1	1	0.17	1		19.7
445	75	0.082	SB	All Lane	3	0.5	0.17	1		29.6
445	75	0.083	NB	Passing	12	1	0.17	1		236.6
445	75	0.085	SB	All Lane	8	0.4	0.17	1		63.1
445	75	0.087	NB	Passing	3	1	0.17	2		118.3
445	75	0.089	SB	Driving	4	0.3	0.17	1		23.7
445	75	0.090	NB	All Lane	12	0.5	0.17	1		118.3
445	75	0.094	NB	All Lane	0.5	3	0.17	1		29.6
445	75	0.094	SB	Passing	10	0.3	0.17	1		59.2
445	75	0.098	SB	Passing	8	0.3	0.17	1		47.3
Subtotal										2348.7

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall (Lbs)
					(Ft)	(Ft)	(Ft)			
445	75	0.098	NB	Passing	0.5	4	0.17	1		39.4
445	75	0.103	NB	Driving	0.5	2	0.17	1		19.7
445	75	0.103	SB	Passing	10	0.4	0.17	1		78.9
445	75	0.109	SB	Passing	7	0.5	0.17	1		69.0
445	75	0.109	NB	All Lane	10	0.5	0.17	1		98.6
445	75	0.113	NB	All Lane	9	0.5	0.17	1		88.7
445	75	0.116	NB	All Lane	13	0.5	0.17	1		128.2
445	75	0.121	NB	Driving	3	0.5	0.17	1		29.6
445	75	0.132	NB	Passing	4	0.5	0.17	1		39.4
445	75	0.141	NB	Driving	2	1	0.17	1		39.4
445	75	0.178	NB	All Lane	6	1	0.17	1		118.3
445	75	0.182	NB	Passing	2	1	0.17	1		39.4
445	75	0.186	NB	Passing	1	1	0.17	1		19.7
445	75	0.193	NB	Driving	1	1	0.17	1		19.7
445	75	0.204	NB	Passing	24	1	0.17	1		473.3
445	75	0.207	NB	Passing	13	0.5	0.17	1		128.2
445	75	0.210	SB	All Lane	9	1	0.17	1		177.5
445	75	0.216	SB	All Lane	12	0.5	0.17	1		118.3
445	75	0.222	SB	Driving	10	0.5	0.17	1		98.6
445	75	0.258	SB	All Lane	2.5	0.28	0.17	1		13.8
445	75	0.261	NB	Driving	0.5	1	0.17	1		9.9
445	75	0.321	NB	Passing	4	1	0.17	1		78.9
445	75	0.331	NB	Driving	2	1	0.17	1		39.4
445	75	0.343	SB	Passing	2	0.3	0.17	1		11.8
445	75	0.529	SB	All Lane	2	0.3	0.17	1		11.8
445	75	0.555	SB	All Lane	0.5	0.28	0.17	1		2.8
445	75	0.599	SB	All Lane	0.5	0.5	0.17	1		4.9
445	75	0.710	SB	All Lane	0.5	0.2	0.17	1		2.0
Subtotal										1999.2

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length	Width	Depth	Total Spalls	Notes	Repair Type B Spall (Lbs)
					(Ft)	(Ft)	(Ft)			
445	75	0.871	SB	Driving	6	1	0.17	1		118.3
445	75	0.874	NB	Driving	8	1	0.17	1		157.8
445	75	0.921	SB	Driving	9	1	0.17	1		177.5
445	75.22	0.000	NB	All Lane	18	1	0.17	1		355.0
445	75.22	0.000	NB	All Lane	6	1	0.17	1		118.3
445	75.22	0.000	NB	Passing	8	1	0.17	1		157.8
445	75.22	0.000	SB	Passing	4	0.5	0.17	1		39.4
445	75.22	0.000	SB	All Lane	13	0.5	0.17	1		128.2
445	75.22	0.000	SB	All Lane	18	0.5	0.17	1		177.5
445	76	0.005	NB		5	1	0.17	1		98.6
445	76	0.006	NB	Driving	0.5	1	0.17	1		9.9
445	76	0.011	NB	Driving	2	1	0.17	1		39.4
445	76	0.013	NB	All Lane	2.5	1	0.17	1		49.3
445	76	0.177	NB	Passing	3	1	0.17	1		59.2
445	76	0.177	NB	Driving	0.5	1	0.17	1		9.9
445	76	0.270	NB	Passing	3	1	0.17	1		59.2
445	76	0.280	SB	All Lane	0.5	0.5	0.17	1		4.9
445	76	0.323	NB	Passing	1	1	0.17	1		19.7
445	76	0.366	NB	Driving	1	1	0.17	1		19.7
445	76	0.390	SB	Passing	4	1	0.17	1		78.9
445	76	0.397	NB	Passing	4.5	1	0.17	3		266.2
445	76	0.398	NB	Driving	12	1	0.17	1		236.6
445	76	0.407	NB	All Lane	4	1	0.17	1		78.9
445	76	0.472	SB	All Lane	2	1	0.17	1		39.4
445	76	0.483	NB	Turning	2.3	1	0.17	1		45.4
445	76	0.489	NB	Turning	2	1	0.17	1		39.4
445	76	0.507	NB	Driving	2	1	0.17	1		39.4
445	76	0.513	NB	Driving	9	1	0.17	1		177.5
Subtotal										2801.3

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length (Ft)	Width (Ft)	Depth (Ft)	Total Spalls	Notes	Repair Type B Spall (Lbs)
445	76	0.526	SB	Ramp	3	1	0.17	1		59.2
445	76	0.527	SB	Ramp	1	1	0.17	1		19.7
445	76	0.606	SB	Driving	2	1	0.17	1		39.4
445	76	0.606	NB	Turning	2	1	0.17	1		39.4
445	76	0.610	NB	Driving	1	1	0.17	1		19.7
445	76	0.610	NB	Turning	2.3	1	0.17	1		45.4
445	76	0.619	NB	Turning	0.5	1	0.17	1		9.9
445	76	0.630	SB	Driving	12	1	0.17	1		236.6
445	76	0.630	NB	Turning	18	1	0.17	1		355.0
445	76	0.631	NB	Driving	4	1	0.17	1		78.9
445	76	0.631	NB	Turning	12	1	0.17	1		236.6
445	76	0.633	NB	Turning	2	1	0.17	1		39.4
445	76	0.635	NB	Turning	10	1	0.17	1		197.2
445	76	0.635	SB	Driving	6	1	0.17	1		118.3
445	76	0.637	NB	Turning	10	1	0.17	1		197.2
445	76	0.639	SB	Driving	6	1	0.17	1		118.3
445	76	0.640	NB	Turning	6	1	0.17	1		118.3
445	76	0.640	NB	Driving	6	0.5	0.17	1		59.2
445	76	0.640	NB	Turning	20	1	0.17	1		394.4
445	76	0.640	NB	Turning	1	1	0.17	1		19.7
445	76	0.641	NB	Turning	22	1	0.17	1		433.8
445	76	0.642	NB	Ramp	1	1	0.17	1		19.7
445	76	0.643	SB	Driving	6	1	0.17	1		118.3
445	76	0.643	NB	Turning	5	1	0.17	1		98.6
445	76	0.643	NB	Turning	2	1	0.17	1		39.4
445	76	0.644	NB	Driving	1	1	0.17	1		19.7
445	76	0.646	SB	Driving	8	1	0.17	1		157.8
445	76	0.647	SB	Driving	10	1	0.17	1		197.2
Subtotal										3486.3

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length (Ft)	Width (Ft)	Depth (Ft)	Total Spalls	Notes	Repair Type B Spall (Lbs)
445	76	0.649	NB	Turning	6	1	0.17	1		118.3
445	76	0.650	SB	Driving	6	1	0.17	1		118.3
445	76	0.650	SB	Ramp	1.5	1	0.17	1		29.6
445	76	0.653	SB	Driving	6	1	0.17	1		118.3
445	76	0.657	SB	Driving	4	0.5	0.17	1		39.4
445	76	0.672	Both	Middle	4	1	0.17	1		78.9
445	76	0.675	Both	Middle	1	1	0.17	1		19.7
445	76	0.940	SB	Driving	3	0.5	0.17	1		29.6
079 S	30	0.020	SB	Passing	7.5	1	0.17	1		147.9
079 S	51	0.410	SB	All Lanes	4	1	0.17	2	Two spalls 1x4 and 3x4	157.8
079 S	53	0.600	SB	Driving	3	1	0.17	1		59.2
Subtotal										917.0

Table of Spall Repair (Continued)										
Route	MRM	Disp	Direction	Lane	Length (Ft)	Width (Ft)	Depth (Ft)	Total Spalls	Notes	Repair Type B Spall (Lbs)
385	49.2	0.420	SB	Driving	4.5	1	0.17	1		88.7
385	51	0.060	Both	All Lane	3	1	0.17	2	Two spalls 3.0x1.0 and 250 feet to the south, 4.0x3	118.3
385	56.28	0.130	SB	Driving	5	1	0.17	2	Two spalls 2.5 x 2.0, 2.5 x 1.5	197.2
385	56.28	0.660	SB	Driving	2.5	1	0.17	1		49.3
385	57	0.210	Both	Driving	8.8	1	0.17	3	Three Spalls 7.0x1.25, 2.5x1.5, 3.5x2.5	520.6
385	57	0.350	Both	Driving	13.5	3	0.17	1		798.7
385	57	0.860	NB	Driving	2	1	0.17	4	Four spalls 4x2, 2x2, 1.5x1, 1.25x0.75	157.8
385	58	0.580	NB	Driving	4	0.67	0.17	1		52.8
385	58	0.630	NB	Driving	10	1	0.17	1		197.2
385	58	0.670	NB	Driving	1.25	1	0.17	1		24.7
385	58	0.720	NB	Driving	8	1	0.17	1		157.8
385	60	0.930	SB	Driving	2.3	1	0.17	1		45.4
385	62	0.950	Both	All Lane	1	1	0.17	2	Two 1x1 spalls	39.4
385	63	0.680		All Lane	3.8	1	0.17	3	Three spalls 2.5x1.5, 0.5x0.5, 2.0x2.0	224.8
385	64	0.940	NB	Driving	1	0.5	0.17	1		9.9
385	66	0.120	SB	Driving	1	1	0.17	1		19.7
385	66	0.260	SB	Driving	3	1	0.17	1		59.2
385	66.51	0.110	NB	Driving	2	0.5	0.17	1		19.7
Subtotal										2781.2
Grand Total										24911.1

Table of Seal Random Cracks in PCC Pavement						
Route	MRM	Disp	Width	Length	Seal Random Cracks in PCC Pavement	Notes
			(Ft)	(Ft)	(Ft)	
014A	36.5	0.268		2.9	2.9	
014A	36.5	0.271		25.0	25.0	
14A	36.5	0.279		37.0	37.0	
14A	36.59	0.019		12.5	12.5	
14A	36.59	0.089		10.0	10.0	
14A	36.59	0.105		22.0	22.0	
14A	36.79	0.042		87.0	87.0	
14AWF	37	0.063		13.0	13.0	
14A	37.04	0.013		12.5	12.5	
14A	37.04	0.016	16.0		16.0	
14A	37.06	0.015		12.7	12.7	
14A	37.13	0.011		12.0	12.0	
14A	37.13	0.015		12.0	12.0	
14A	37.13	0.021		36.0	36.0	
14A	37.13	0.021		13.0	13.0	
14A	37.13	0.039	18.2		18.2	
14A	37.13	0.042	88.0	12.5	100.5	
14A	37.29	0.012		13.0	13.0	
14A	37.29	0.016		13.0	13.0	
14A	37.29	0.033		11.5	11.5	
14A	37.29	0.035		12.0	12.0	
14A	37.29	0.045		12.7	12.7	
14A	37.29	0.046		12.3	12.3	
14A	37.29	0.053		13.0	13.0	
14A	37.29	0.057		12.5	12.5	
14A	37.29	0.098		10.0	10.0	
14A	37.29	0.099		12.0	12.0	
14A	40.64	0.003		13.0	13.0	
14A	40.64	0.017		13.0	13.0	
				Subtotal	590.3	

Table of Seal Random Cracks in PCC Pavement (Continued)						
Route	MRM	Disp	Width	Length	Seal Random Cracks in PCC Pavement	Notes
			(Ft)	(Ft)	(Ft)	
18	11	0.450		28.0	28.0	
18	11	0.455		23.0	23.0	
18	11	0.500		13.0	13.0	
18	11	0.552		13.0	13.0	
18	11	0.555		13.0	13.0	
18	11	0.573		13.0	13.0	
18	11	0.615		13.0	13.0	
18	11	0.676		24.0	24.0	
18	11	0.679		25.0	25.0	
18	11	0.708		13.0	13.0	
18	11	0.750		13.0	13.0	
18	11	0.752		11.0	11.0	
18	11	0.763		13.0	13.0	
18	11	0.765		13.0	13.0	
18	11.77	0.028		13.0	13.0	
18	11.77	0.035		23.0	23.0	
18	11.77	0.039		13.0	13.0	
18	11.77	0.071		25.0	25.0	
18	11.77	0.144		13.0	13.0	
18	12	0.025		13.0	13.0	
18	12	0.039	1.0		1.0	
18	12	0.045		13.0	13.0	
18	12	0.055		13.0	13.0	
18	12	0.078		34.0	34.0	
18	12.08	0.202		13.0	13.0	
18	12.1	0.056		13.0	13.0	
18	12.1	0.068		13.0	13.0	
18	12.1	0.086		13.0	13.0	
18	12.1	0.105		16.0	16.0	
18	12.1	0.116		13.0	13.0	
				Subtotal	470.0	

Table of Seal Random Cracks in PCC Pavement (Continued)						
Route	MRM	Disp	Width (Ft)	Length (Ft)	Seal Random Cracks in PCC Pavement (Ft)	Notes
18	12.37	0.030	12		12.0	EB
18	12.37	0.040	12		12.0	EB
18	12.37	0.045	12		12.0	EB
18	12.37	0.050	12		12.0	EB
18	12.37	0.050	12		12.0	EB
18	12.37	0.060	12		12.0	EB
18	12.37	0.065	12		12.0	EB
18	12.37	0.070	12		12.0	EB
18	12.37	0.075	12		12.0	EB
18	12.37	0.085	12		12.0	EB
18	12.37	0.095	12		12.0	EB
18	12.37	0.125	12		12.0	EB
18	12.37	0.130	18		18.0	EB
18	12.37	0.135	12		12.0	EB
18	12.37	0.140	12		12.0	EB
18	12.37	0.145	12		12.0	EB
18	12.37	0.215	12		12.0	EB
18	12.37	0.220	12		12.0	EB
18	12.37	0.225	12		12.0	EB
18	12.37	0.240	12		12.0	EB
18	12.37	0.245	12		12.0	EB
18	12.37	0.003	12		12.0	WB
18	12.37	0.113	12		12.0	WB
18	12.37	0.193	12		12.0	WB
18	12.37	0.203	12		12.0	WB
018 W	49.06	0.665		30	30.0	WB Driving Lane - Cracks in two panels
018 W	61	0.080		38	38.0	WB Driving Lane - Two cracks need sealing on two panels
				Subtotal	374.0	

Table of Seal Random Cracks in PCC Pavement (Continued)						
Route	MRM	Disp	Width (Ft)	Length (Ft)	Seal Random Cracks in PCC Pavement (Ft)	Notes
212 WB	0	0.462		3	3.0	Crack at CL WB
212 WB	1	0.040		1	1.0	
212 WB	1	0.067		4	4.0	At CL WB
212 WB	1	0.164		2	2.0	Long Crack
212 WB	1	0.249		4	4.0	Long Crack
212 WB	1	0.891		8	8.0	Long Crack
212 WB	1	0.894		7	7.0	Long Crack
212 WB	2	0.695	14.2		14.2	Transverse Crack within 0.5' at Middle of 15' Panel
212 WB	3	0.135		1.2	1.2	Random Cracking
212 WB	4	0.458		14.2	14.2	Long Crack
212 WB	4	0.584	14.2		14.2	Crack Transverse 4.9' from Joint
212 WB	4	0.950	2		2.0	Crack
212 WB	5	0.876		14.2	14.2	Crack Tansverse 4.2' from Joint
212 WB	5	0.876	4.2		4.2	Long Crack
212 WB	9	0.762	10		10.0	Several Cracks
212 WB	9	0.927	22		22.0	Long Crack
212 WB	9	0.930	12		12.0	Long Crack
212 WB	9	0.951	21		21.0	Long Crack
212 WB	10	0.301	4		4.0	Long Crack
212 WB	10	0.539	3		3.0	Long Crack
212 WB	10	0.566	2		2.0	Long Crack
212 WB	10	0.592	2		2.0	Long Crack
212 WB	10	0.601	8		8.0	Long Crack
212 WB	10	0.630	3		3.0	Long Crack
212 WB	10	0.896	2		2.0	Long Crack
212 WB	11	0.028	10		10.0	Various Cracks
212 WB	11	0.361	4		4.0	Long Crack
212 WB	11	0.365	4		4.0	Long Crack
212 WB	11	0.652	8		8.0	Long Crack
212 WB	11	0.656	6		6.0	Long Crack
				Subtotal	214.2	

Table of Seal Random Cracks in PCC Pavement (Continued)

Route	MRM	Disp	Width (Ft)	Length (Ft)	Seal Random Cracks in PCC Pavement (Ft)	Notes
212 EB	0	0.953	6		6.0	Long Crack
212 EB	0	0.982	4		4.0	Long Crack
212 EB	1	0.790	4		4.0	Long Crack
212 EB	1	0.799	6		6.0	Long Crack
212 EB	1	0.836	9		9.0	Long Crack
212 EB	1	0.864	6		6.0	Long Crack
212 EB	1	0.894	24		24.0	Long Crack
212 EB	1	0.912	6		6.0	Long Crack
212 EB	1	0.932	6		6.0	Long Crack
212 EB	1	0.949	10		10.0	Long Crack
212 EB	1	0.958	6		6.0	Long Crack
212 EB	2	0.040	28		28.0	Transverse Crack center of the panel crosses wb & EB
212 EB	4	0.585	14		14.0	Transverse Crack Center of Panel with small spall
212 EB	5	0.846	14		14.0	Trabsverse Crack 4.3' from Edge of 15' Panel
212 EB	6	0.102	28		28.0	Transverse Crack 4.5" from Joint Both Labes
212 EB	6	0.328	70		70.0	Long Cracks Between MRM's
212 EB	6	0.344	2		2.0	Long Crack
212 EB	6	0.377	6		6.0	Long Crack
212 EB	6	0.388	6		6.0	Long Crack
212 EB	6	0.621	8		8.0	Randpm Cracks
212 EB	7	0.005	6		6.0	Long Crack
212 EB	7	0.974	8		8.0	Long Crack
212 EB	8	0.000	8		8.0	Long Crack
212 EB	8	0.170	3		3.0	Long Crack
212 EB	8	0.542	8		8.0	Long Crack
212 EB	8	0.585	6		6.0	Long Crack
212 EB	9	0.801	28		28.0	Transverse Crack both EB & WB 6' from joint 20' panel
212 EB	10	0.812	2		2.0	Crack
212 EB	11	0.338	3		3.0	Long Crack
212 EB	11	0.452	4		4.0	Long Crack
212 EB	11	0.482	40		40.0	Long Crack
212 EB	11	0.501	2		2.0	Long Crack
212 EB	11	0.532	40		40.0	Long Crack
212 EB	11	0.605	8		8.0	Long Crack
212 EB	11	0.692	8		8.0	Long Crack
212 EB	11	0.704	8		8.0	Long Crack
Subtotal					445.0	

Table of Seal Random Cracks in PCC Pavement (Continued)

Route	MRM	Disp	Width (Ft)	Length (Ft)	Seal Random Cracks in PCC Pavement (Ft)	Notes
445 NB	74.37	0.083		6	6	
445 NB	74.69	0.208		14	14	
445 NB & SB	75.22	0.000		66	66	
445 NB & SB	75.22	0.000		24	24	
445 SB	75.22	0.000		8	8	
445 SB	75.22	0.000		13	13	
445 SB	75	0.223		50	50	
445 NB	76	0.174		25	25	
445 NB & SB	76	0.261		60	60	
445 NB	76	0.610		14	14	
445 NB	76	0.638		20	20	
445 SB	75	0.250		40	40	
445 NB & SB	76	0.395		6	6	
445 NB	76	0.481		20	20	
445 NB	76	0.495		80	80	
445 NB	76	0.514		12	12	
445 SB	76	0.531		12	12	
445 SB	76	0.524		50	50	
445 SB	76	0.393		40	40	
445 SB	76	0.396		30	30	
445 SB	76	0.376		50	50	
445 SB	76	0.653		12	12	
445 SB	76	0.655		15	15	
385 N	12.6	0.010		30	30	NB Driving Lane - One crack across two panels
Subtotal					697	
Grand Total					2790.5	

Table of PCC Repair

Route	MRM	Disp	Direction	Lane	Length (Ft)	Width (Ft)	Notes	No. 5 Deformed Tie Bar (Each)	No. 8 Deformed Tie Bar (Each)	No. 9 Deformed Tie Bar (Each)	1" Bar (Each)	1 ¼" Bar (Each)	Insert Steel Bar in PCC Pavement (Each)	Dowel Bar (Each)	Nonreinforced PCC Pavement Repair (SqYd)	
14A	36.5	0.268	SB	Driving	12	12.5		6	8		8		22		16.7	
14A	36.59	0.026	SB	Driving	7	12		4	8		8		20		9.3	
14A	37	0.036	SB	Driving	7	12		4	8		8		20		9.3	
14AWF	37	0.061	WB	Driving	16	6		8	4		4		16		10.7	
14A	37.13	0.035	NB	Driving	20	12		10			16		26		26.7	
14A	37.13	0.035	NB	Driving	9	12		4	8		8		20		12	
14A	37.29	0.032	NB	Driving	13	12		6	8		8		22		17.3	
14A	37.29	0.057	NB	Middle	12	13		6	9		9		24		17.3	
14A	37.29	0.056	NB	Driving	13	12.5		6	8		8		22		18.1	
14A	37.29	0.110	NB	Middle	18	12.5		10	8		8		26		25	
14A	37.29	0.115	NB	Middle	20	12.5		10			16		26		27.8	
14A	37.29	0.119	NB	Middle	20	12		10			16		26		26.7	
14A	40.64	0.007	SB	Driving	14	11		8	7		7		22		17.1	
14A	40.64	0.011	SB	Passing	14	11		8	7		7		22		17.1	
14A	40.64	0.013	SB	Passing	12	13		6	9		9		24		17.3	
14A	40.64	0.015	SB	Passing	6	11		4	7		7		18		7.3	
14A	40.64	0.017	SB	Passing	12	11		6	7		7		20		14.7	
14A	40.64	0.020	SB	Driving	11	6		6	4		4		14		7.3	
14A	40.64	0.070	NB	Driving	13	6		6	4		4		14		8.7	
16	46	0.730	WB	Driving	30	15	Two panels need replacing.	16	10		10		36	12	50	
16	49	0.690	WB	Driving	28	16	2 panels need replacing	14	11		11		36	12	49.8	
18	11	0.510	EB	Driving	9.5	12.5		4	8		8		20		13.2	
18	11	0.514	EB	Driving	80	12.5	4 full panels	40			24		64	36	111.1	
18	11	0.525	EB	Driving	40	12.5	2 full panels	20			24		44	12	55.6	
18	11	0.752	EB	Driving	11	12		6	8		8		22		14.7	
079 S	33	0.700	SB	All Lanes	40	26	Two panels (one in drive lane and one in passing lane);	20		17		17	54	24	115.6	
079 S	42	0.140	SB	All Lanes	20	26	1.5 panels in drive lane and 1.0 panels in passing lane	10		17		17	44		57.8	
079S	58.94	0.030	SB	Driving	30	14	1.5 panels in drive lane	16		9		9	34	12	46.7	
385 N	10	0.870	NB	Driving	60	14	Four panels with cracking and spalling	30	9		9		48	48	93.3	
												Total		806	156	914.2

Table of 8.5" Nonreinforced PCC Pavement

Route	MRM	Disp	Direction	Lane	Length (Ft)	Width (Ft)	Notes	No. 5 Deformed Tie Bar (Each)	1 ¼" Bar (Each)	Insert Steel Bar in PCC Pavement (Each)	Dowel Bar (Each)	Remove Concrete Pavement (SqYd)	8.5" Nonreinforced PCC Pavement (SqYd)	Remove Asphalt Concrete (SqYd)	Gravel Cushion (Ton)	Asphalt Concrete Composite (Ton)
18	43	0.849	EB/WB	Full Width	300	64	100 full panels & 9' AC Shoulder	300	80	380	1316	2133.3	2133.3	300	378	67.5
18	43	0.674	EB/WB	Full Width	135	64	45 full panels & 9' AC Shoulder	135	80	215	512	960	960	135	170	30.4
Total								435	160	595	1828	3093.3	3093.3	435	548	97.9

Table of Pavement Grinding and Reseal Joints

HWY	MRM	Disp. To	MRM	Disp.	Length Mile	Transverse Joints Ft	Longitudinal Joints Ft	NGCS Grinding PCC Pavement (28') SqYd	Reseal PCC Pavement Joint - Hot Pour Ft	Notes
18	11	0.449	11	0.952	0.503	3718.4	2656	8262.6	11686.4	2' of width on each side for a feather pass to remove any vertical edges
18	11	0.952	12	0.142	0.190	1404.2	1003	3121.1	4413.2	No Grinding in Turn Lane, just feather pass. 2' of width on each side for a feather pass to remove any vertical edges
18	12.37	0.016	12.37	0.361	0.345	2550.8	1822	5667.2	8016.8	2' of width on each side for a feather pass to remove any vertical edges
212 E/W	0.00	0.000	11.00	0.711	11.710	115416.0			115416.0	Transverse throughout project length
Total								17050.9	139532.4	

Table of Cold Milling and Overlay Shoulders

Route	Direction	MRM	Disp.	Lane	Length (Ft)	Width (Ft)	Cold Milling Asphalt Concrete (SqYd)	Asphalt Concrete Composite (Ton)	Notes
SD 79	SB	41	0.980	Outside Shoulder	80	6	53.3	4.6	Mill 1.5" and place 1.5" Asphalt Concrete Composite
SD 79	SB	48	0.390	Outside Shoulder	60	6	40	3.4	Mill 1.5" and place 1.5" Asphalt Concrete Composite
Total							93.3	8	

Revised 2/20/24 GDS

Table of Pavement Marking

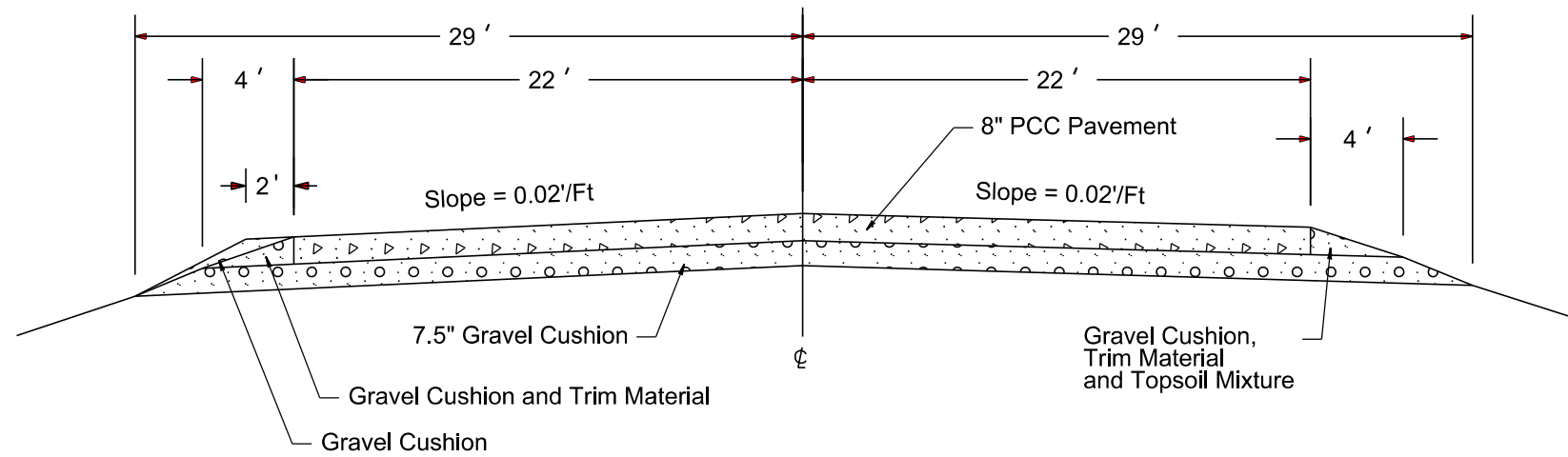
Route	MRM	Disp	Direction	Lane	Cold Applied Plastic Pavement Marking, 4" (Yellow) (Ft)	Cold Applied Plastic Pavement Marking, 4" (White) (Ft)	Cold Applied Plastic Pavement Marking, 12" (White) (Ft)	Cold Applied Plastic Pavement Marking, 24" (Yellow) (Ft)	Cold Applied Plastic Pavement Marking, 24" (White) (Ft)	Cold Applied Plastic Pavement Marking, Arrow (Each)	High Build Waterborne Pavement Marking Paint, 4" White (Ft)	Grooving for Cold Applied Plastic Pavement Marking, 4" (Ft)	Grooving for Cold Applied Plastic Pavement Marking, 12" (Ft)	Grooving for Cold Applied Plastic Pavement Marking, 24" (Ft)	Grooving for Cold Applied Plastic Pavement Marking, Arrow (Each)	Grooving for Durable Pavement Marking, 4" (Ft)
14A	36.5	0.268	SB	Driving	12							12				
14A	36.59	0.026	SB	Driving	7							7				
14A	37	0.036	SB	Driving	7							7				
14AWF	37	0.061	WB	Driving	16							16				
14A	37.13	0.035	NB	Driving	20							20				
14A	37.13	0.035	NB	Driving	9							9				
14A	37.29	0.032	NB	Driving	13							13				
14A	37.29	0.057	NB	Middle	6							6				
14A	37.29	0.056	NB	Driving	8							8				
14A	37.29	0.110	NB	Middle	10							10				
14A	37.29	0.115	NB	Middle	10							10				
14A	37.29	0.119	NB	Middle	10							10				
14A	40.64	0.007	SB	Driving	8		24		24			8	24	24		
14A	40.64	0.011	SB	Passing	8							8				
14A	40.64	0.013	SB	Passing	6							6				
14A	40.64	0.015	SB	Passing	4							4				
14A	40.64	0.017	SB	Passing	6							6				
14A	40.64	0.020	SB	Driving	6		24		24			6	24	24		
14A	40.64	0.070	NB	Driving	8							8				
16	46	0.730	WB	Driving	8							8				
16	49	0.690	WB	Driving	7							7				
18	11	0.510	EB	Driving	3							3				
18	11	0.514	EB	Driving	20							20				
18	11	0.525	EB	Driving	10							10				
18	11	0.752	EB	Driving	6							6				
18	11	0.449	EB/WB	Full Width	5312						5312	5312				5312
18	11	0.952	EB/WB	Full Width	4180	120		36			1003	4300		36		1003
18	12.37	0.016	EB/WB	Full Width	3644						3644	3644				3644
18	43	0.849	EB/WB	Full Width	375	150				2	600	525		2		600
18	43	0.674	EB/WB	Full Width	169	68		45		2	270	237		45	2	270
079 S	33	0.700	SB	All Lanes	40	100						140				
079 S	42	0.140	SB	All Lanes	20	50						70				
079S	58.94	0.030	SB	Driving		76						76				
385 N	10	0.870	NB	Driving	75	60						135				
Spall Repair Areas					1398.75	1398.75						2797.5				
Total					15441.75	2022.75	48	81	48	4	10829	17464.5	48	129	4	10829

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	22	45

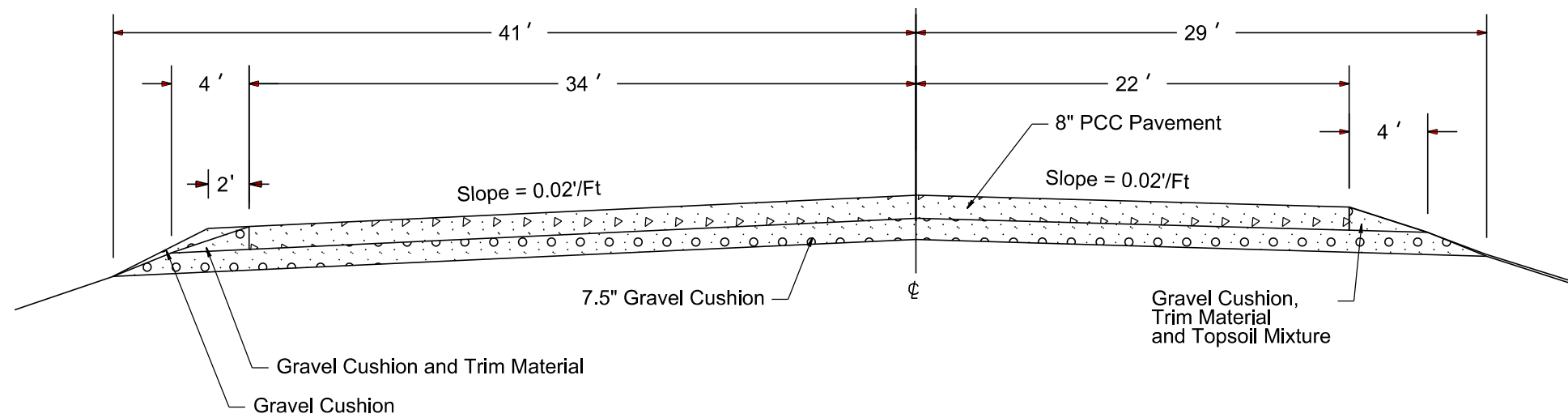
Plotting Date: 02/07/2024

TYPICAL SECTIONS

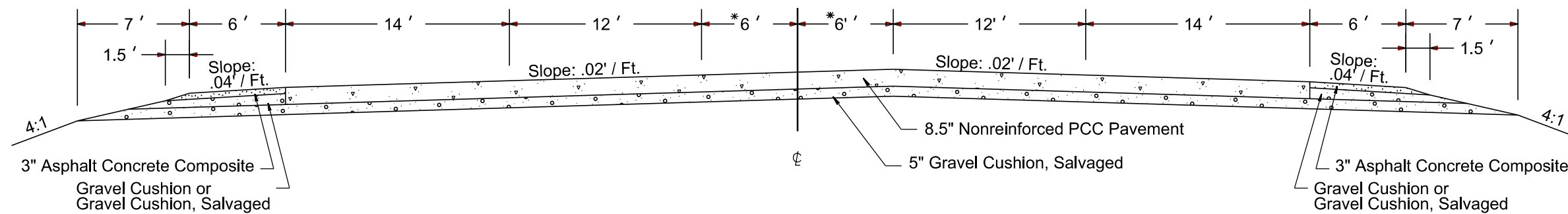
US Highway 18
MRM11+0.450 through MRM 11+0.962
and MRM 12+0.223 through MRM 12.57



US Highway 18
MRM 11+0.962 through MRM 12+0.223



US Highway 18
MRM 43+0.674 through MRM 43+0.904



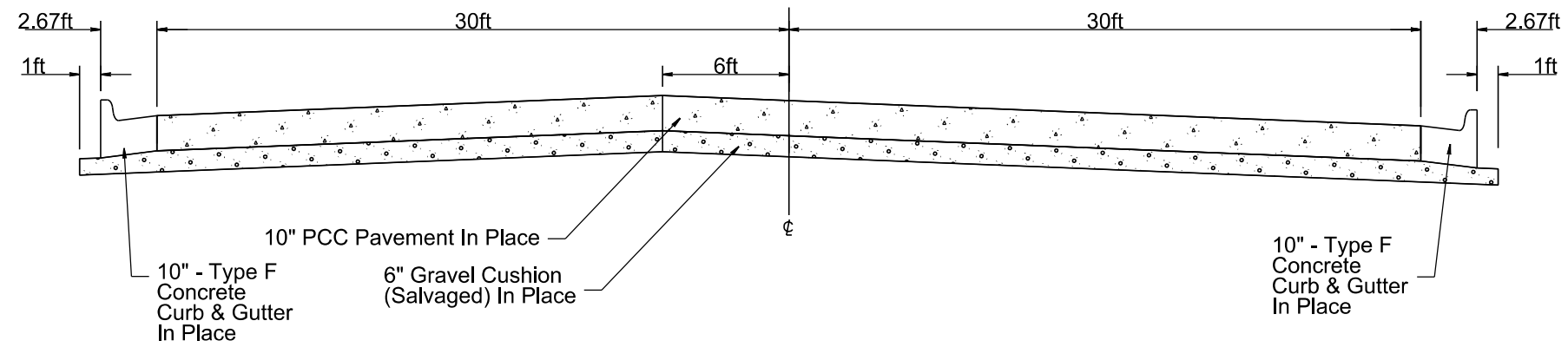
PLOTTED FROM - ITRC12508

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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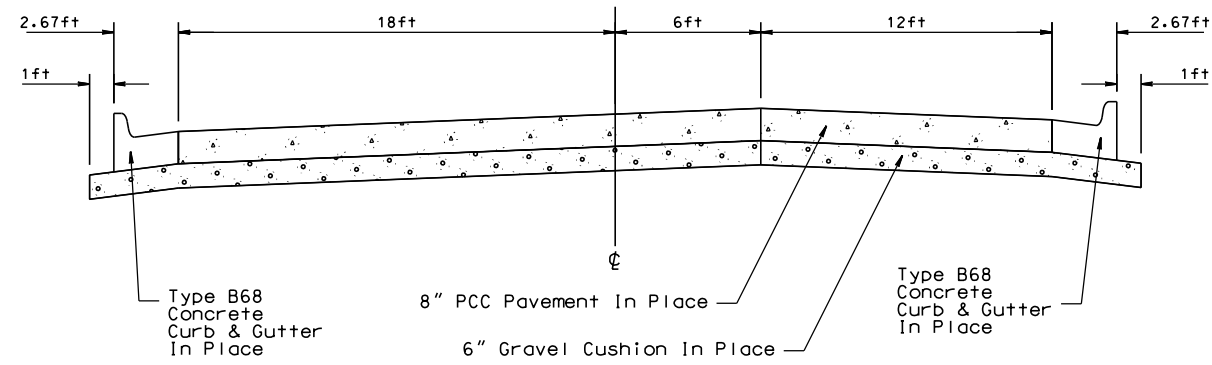
Plotting Date: 02/07/2024

TYPICAL SECTIONS

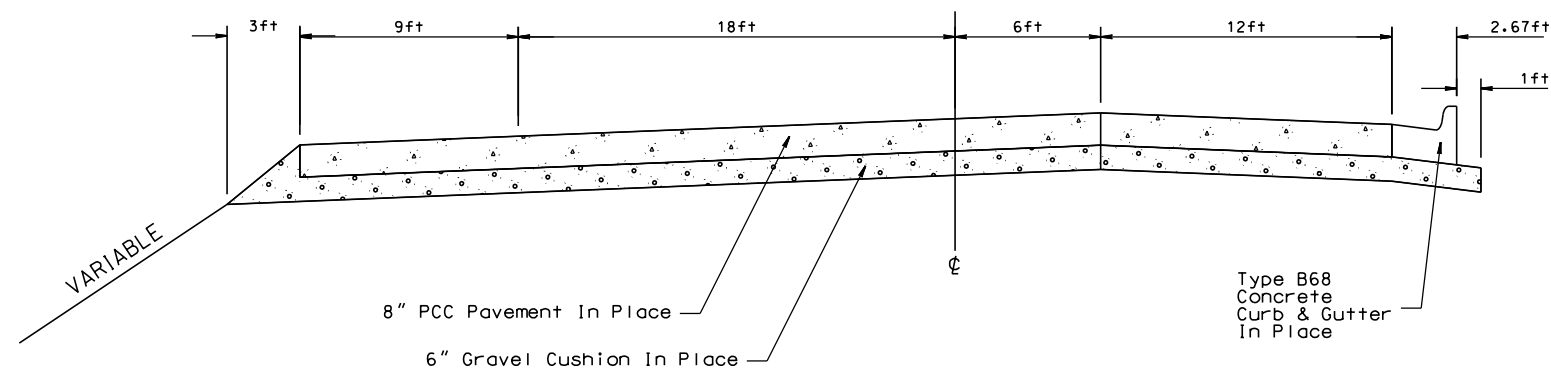
SD HWY 445
MRM 74.32+0.041 to MRM 76.62+0.000



US HWY 14A
MRM 36.5 + 0.268 to MRM 46.6 + 0.071
(Various Locations)



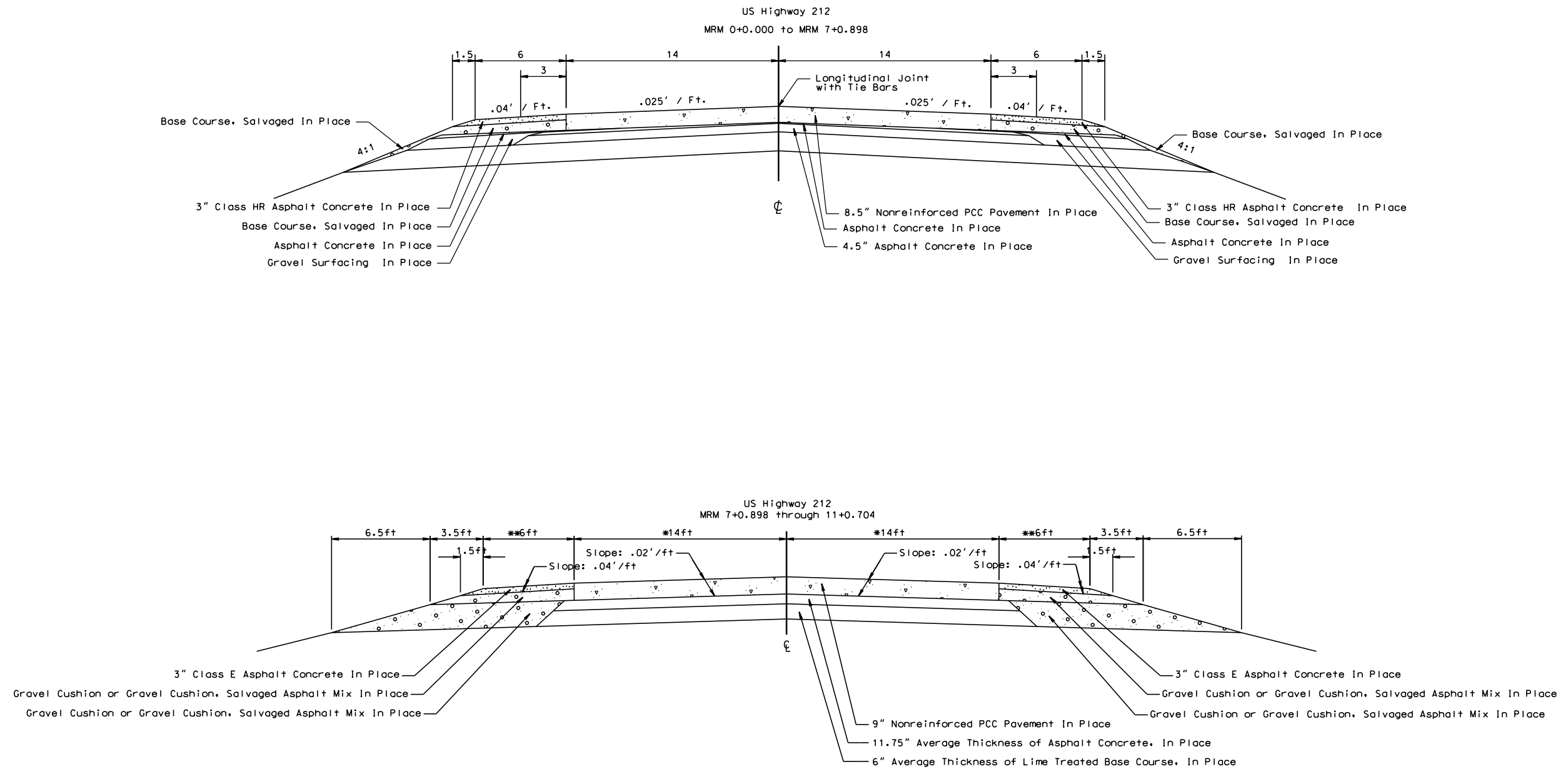
US HWY 14A
MRM 36.5 + 0.268 to MRM 46.6 + 0.071
(Various Locations)



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 02/07/2024

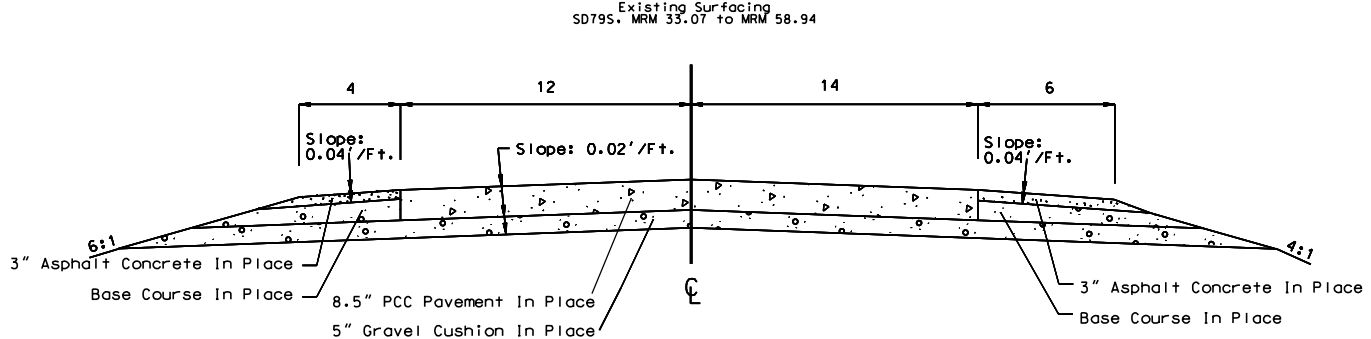
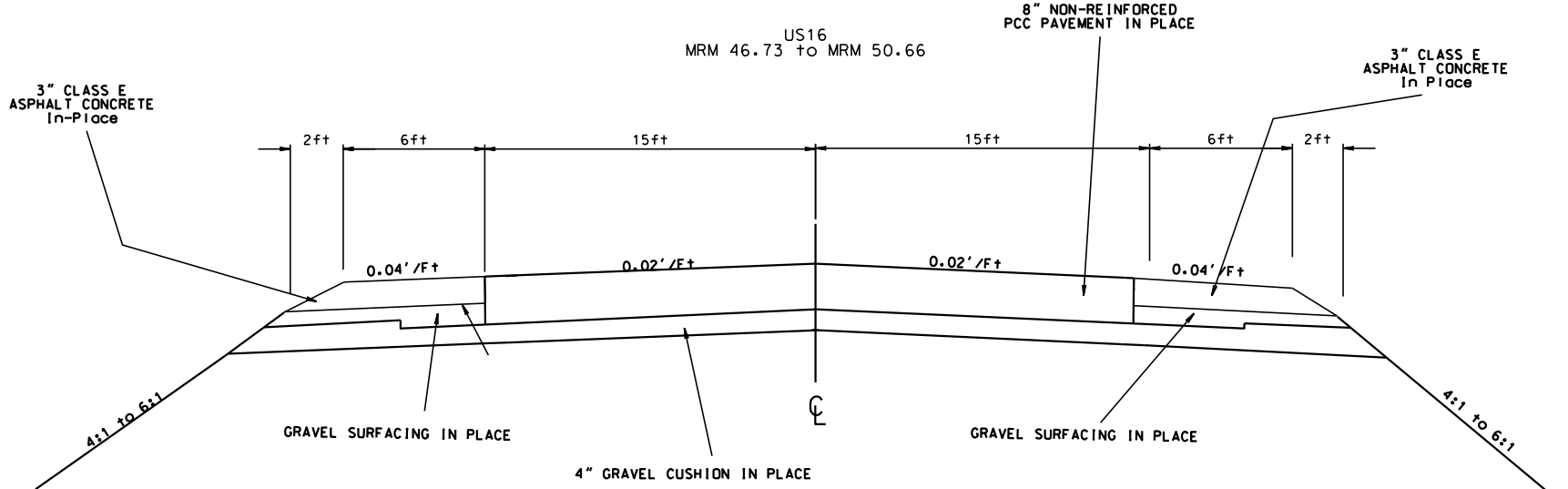
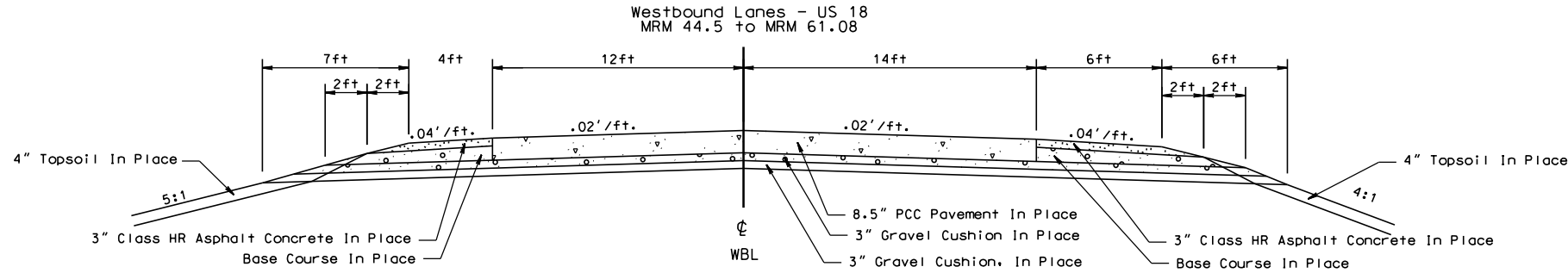
TYPICAL SECTIONS



TYPICAL SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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Plotting Date: 02/07/2024

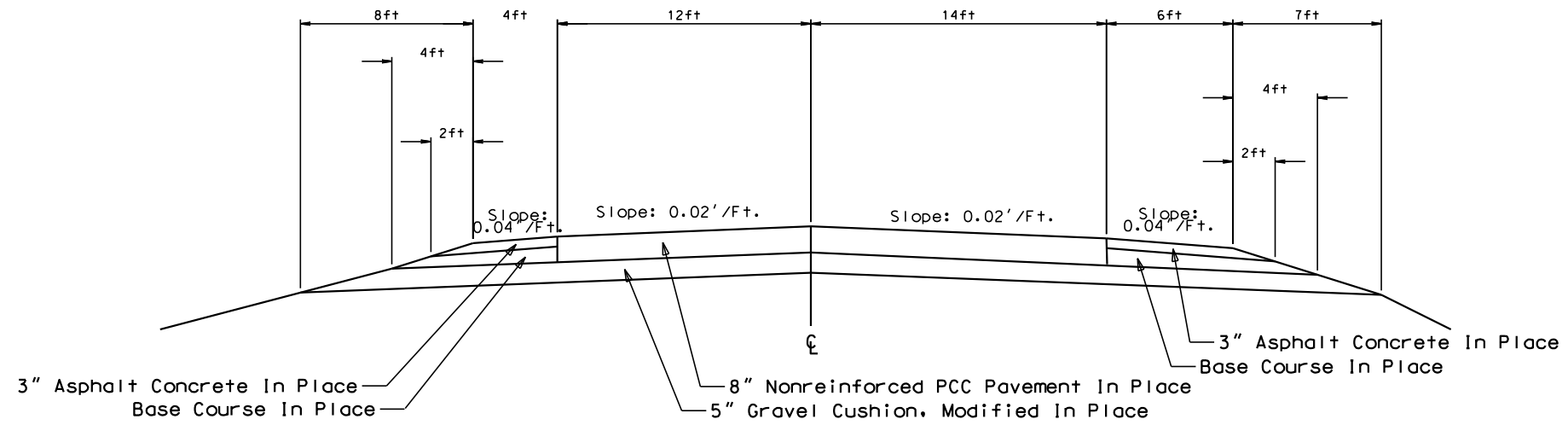


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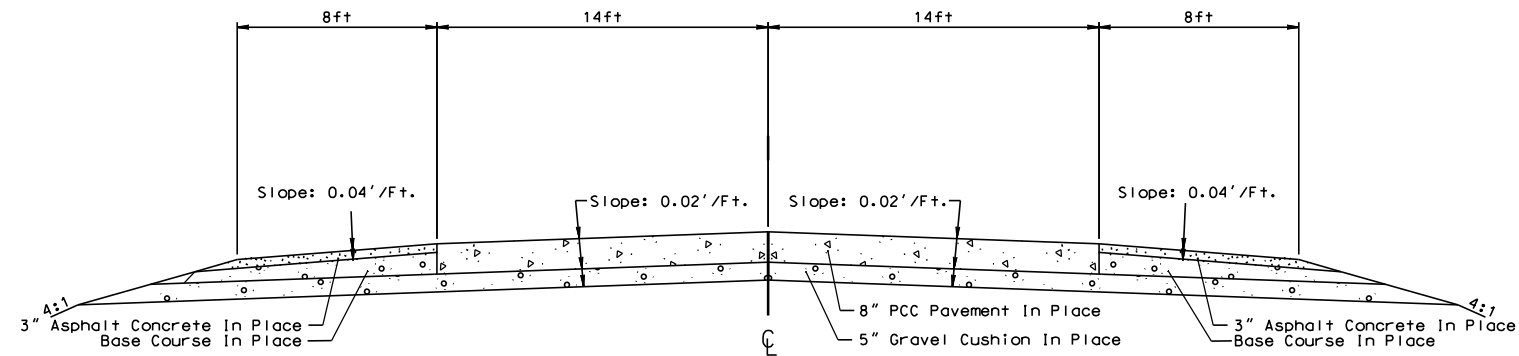
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	26	45

Plotting Date: 02/07/2024

US 385
MRM 10.87 to MRM 12.61

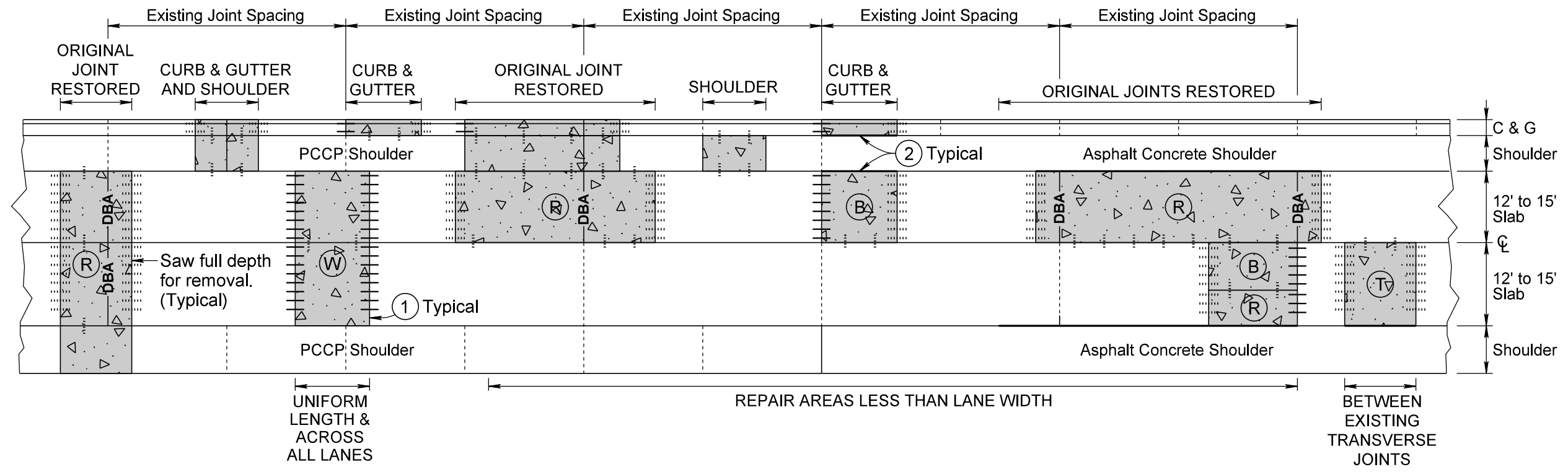


US 385
MRM 49.2 to MRM 66.51



NONREINFORCED PCC PAVEMENT REPAIR

TYPICAL REPAIR AREAS



KEY:

PCC Pavement Repair Area

PCC PAVEMENT REPAIR AREA TYPES:

- (W)** Two Working Joints (Use only if repair is full roadway width and uniform length (across all lanes))
- (T)** Two Tied Joints
- (B)** One Working & One Tied Joint
- (R)** Two Tied Joints with Original Joint Restored with Dowel Bar Assembly

Steel Bars for Transverse Joints

- Pavement Thickness $\geq 10.5"$**
 - Drilled in $1\frac{1}{2}" \times 18"$ epoxy coated plain round dowel bars spaced 18" center to center.
 - Drilled in No. 11 x 18" epoxy coated deformed tie bars spaced 18" center to center.
- Pavement Thickness $\geq 8.5"$ and $< 10.5"$**
 - Drilled in $1\frac{1}{4}" \times 18"$ epoxy coated plain round dowel bars spaced 18" center to center.
 - Drilled in No. 9 x 18" epoxy coated deformed tie bars spaced 18" center to center.
- Pavement Thickness $< 8.5"$**
 - Drilled in $1" \times 18"$ epoxy coated plain round dowel bars spaced 18" center to center.
 - Drilled in No. 8 x 18" epoxy coated deformed tie bars spaced 18" center to center.

DBA Dowel Bar Assembly

Steel Bars for Longitudinal Joints

- No. 5 x 30" epoxy coated deformed tie bars. Sawn Joint - spaced 48" center to center. Construction Joint - spaced 48" center to center.
- No. 5 x 24" epoxy coated deformed tie bars. Drilled In - spaced 30" center to center.

NOTES: Saw around repair areas full depth for removal.

- (1)** Where possible, transverse joints will be constructed/maintained full roadway width.
- (2)** Edges of repair areas will be formed to match the width of the existing concrete pavement.

Plot Scale - 1:10

Plotted From - TRRC12608

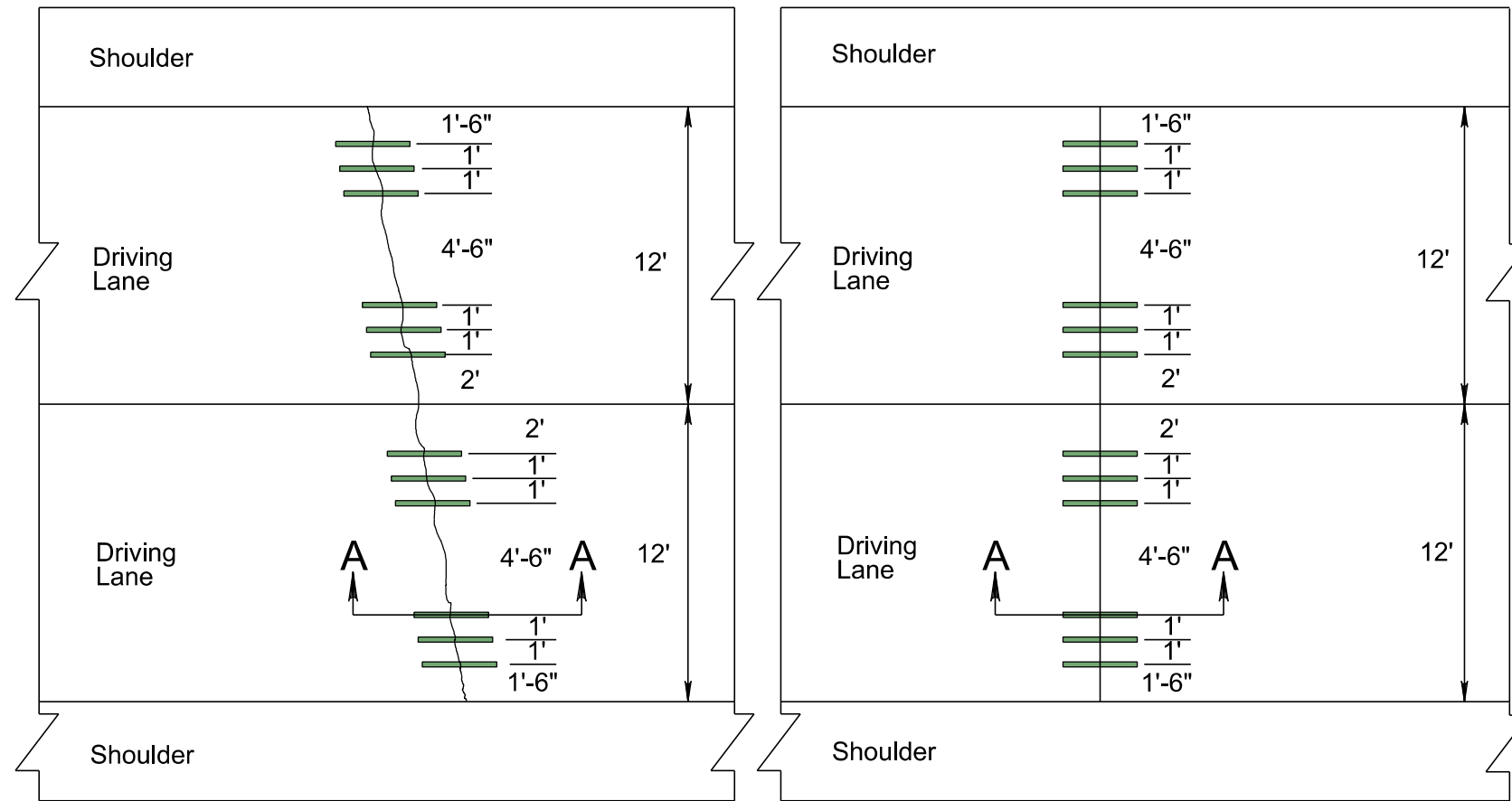
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DOWEL BAR RETROFIT - IN TRANSVERSE JOINT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	28	45

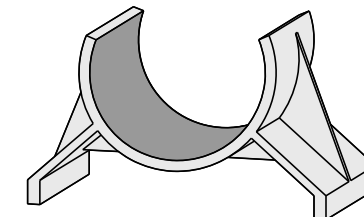
Plotting Date: 02/07/2024

DOWEL BAR RETROFIT SPACING

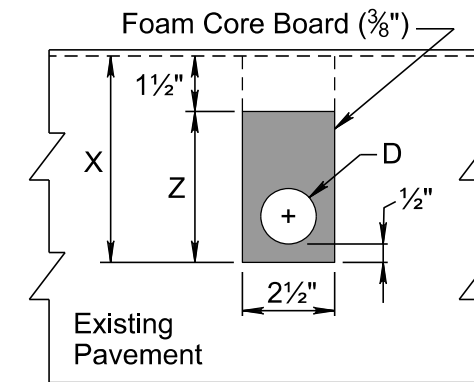


RANDOM CRACK

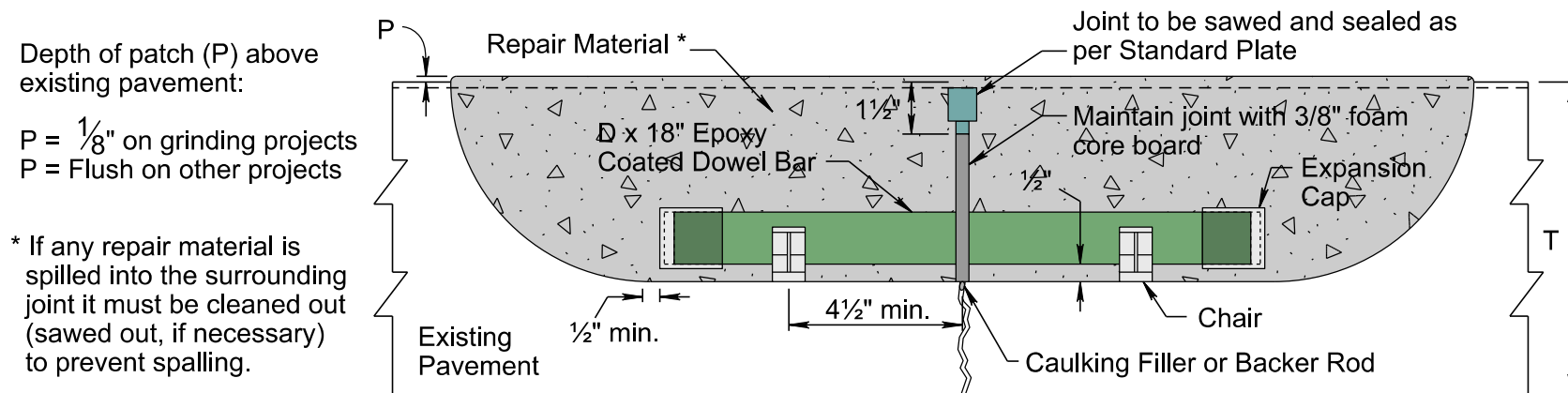
PERPENDICULAR JOINT



CHAIR DETAIL

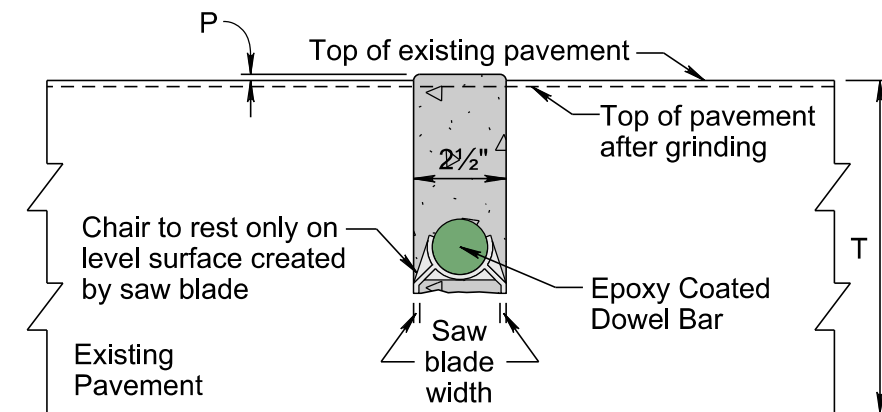


FOAM CORE BOARD



SECTION A-A

T = Existing Pavement Thickness



CHAIR PLACEMENT

Depth of patch (P) above existing pavement:
 P = 1/8" on grinding projects
 P = Flush on other projects

* If any repair material is spilled into the surrounding joint it must be cleaned out (sawed out, if necessary) to prevent spalling.

DOWEL BAR DIAMETER & PLACEMENT TABLE

Pavement Thickness (T)	Dowel Bar Diameter (D)	Slot Depth (X)	Foam Core Board Height (Z)
< 8"	1"	3 1/2" ± 1/8"	2"
≥ 8"	1 1/2"	T/2 + 1 1/4" ± 1/8"	X - 1 1/2"

PLOT SCALE - 1/8" = 1'-0"

PLOTTED FROM - TRRC12608

PLOT NAME - 9

FILE - ... \DETAILS \ DOWEL BAR RETROFIT.DGN

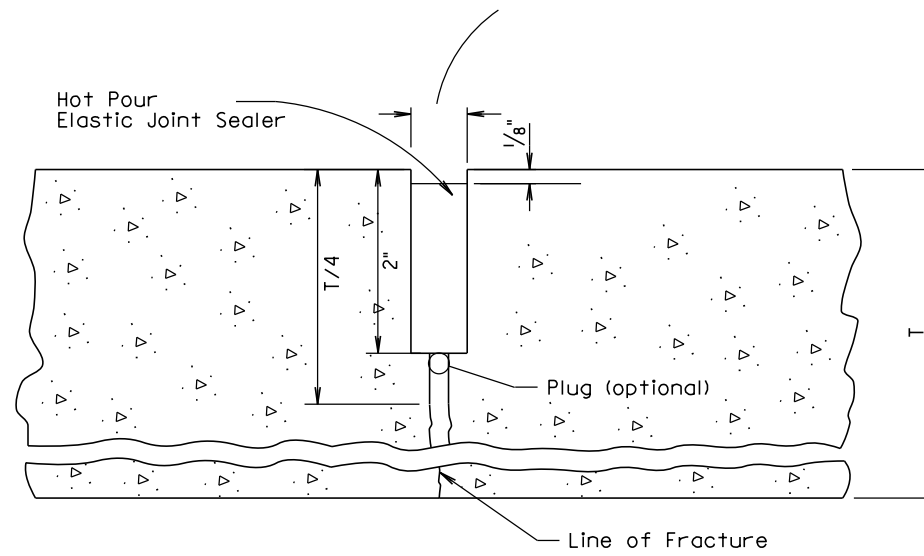
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	29	45

Plotting Date: 02/07/2024 Revised 3/11/21 GDS

Plot Scale - 1:200

RESEAL PCC PAVEMENT TRANSVERSE JOINT

Joint will widened to a maximum of 1/8" wider than existing joint



T/4 when saw cutting to control cracking.

Plotted From - TRRC12608

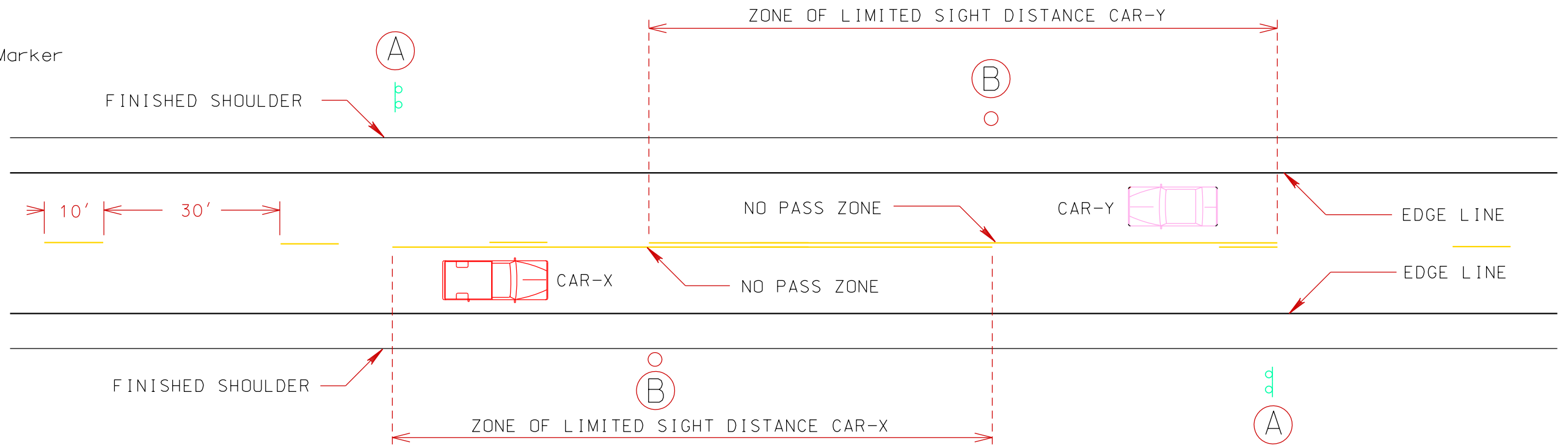
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TYPICAL PAVEMENT MARKING LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH-P 0040(355)	30	45
Plotting Date:		02/07/2024	



(A) NO PASSING ZONE
(B) End of Zone Marker



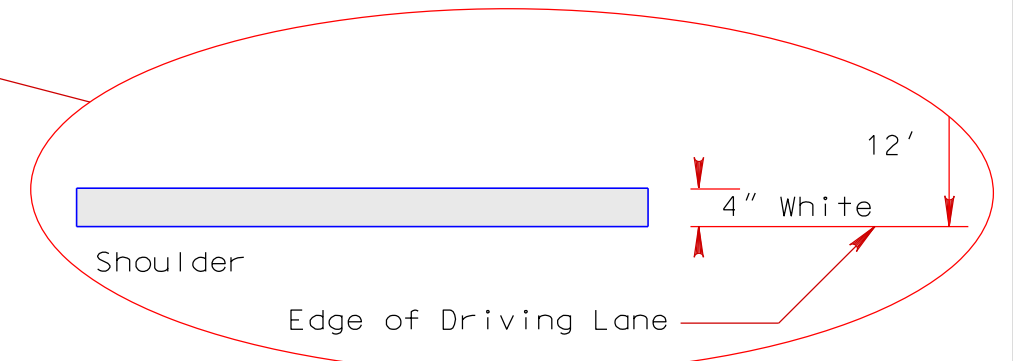
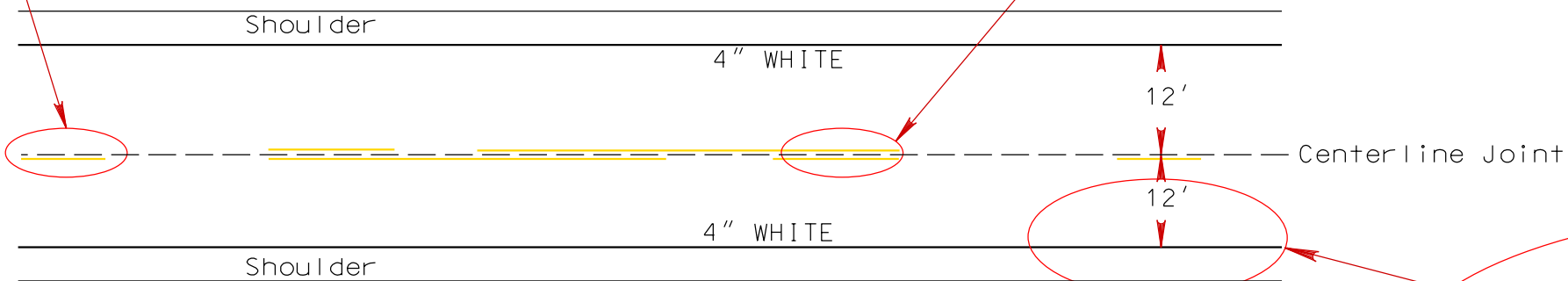
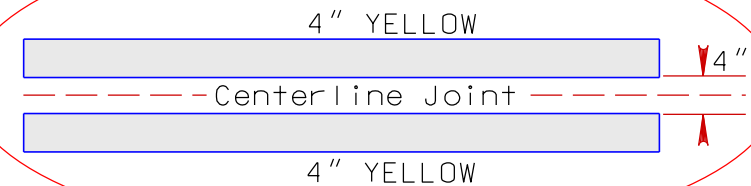
Centerline Detail



NOTE: A TWO "GUN" SYSTEM WILL BE USED TO OBTAIN THIS PATTERN.

WHEN A SINGLE SKIP LINE EXISTS, THE SKIP WILL BE PLACED TO THE SOUTH OR EAST OF THE CENTERLINE JOINT.

Centerline Detail



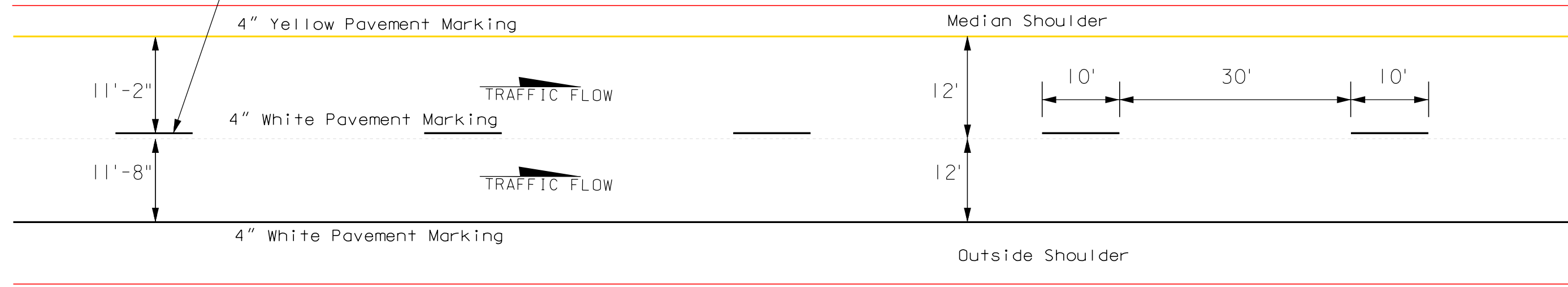
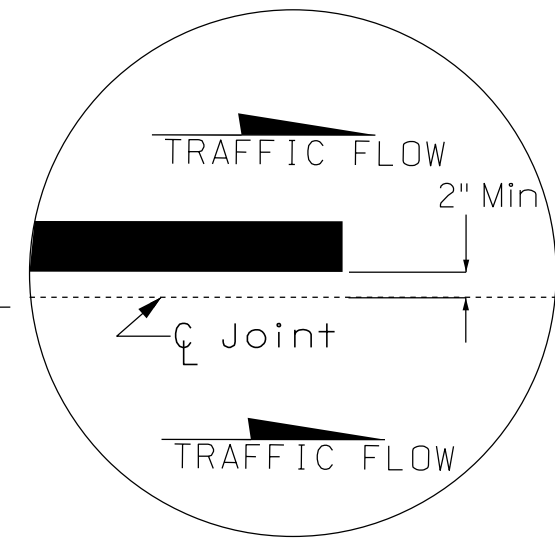
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	31	45

Plotting Date: 02/07/2024

PAVEMENT MARKING LAYOUT (4 LANE DIVIDED)

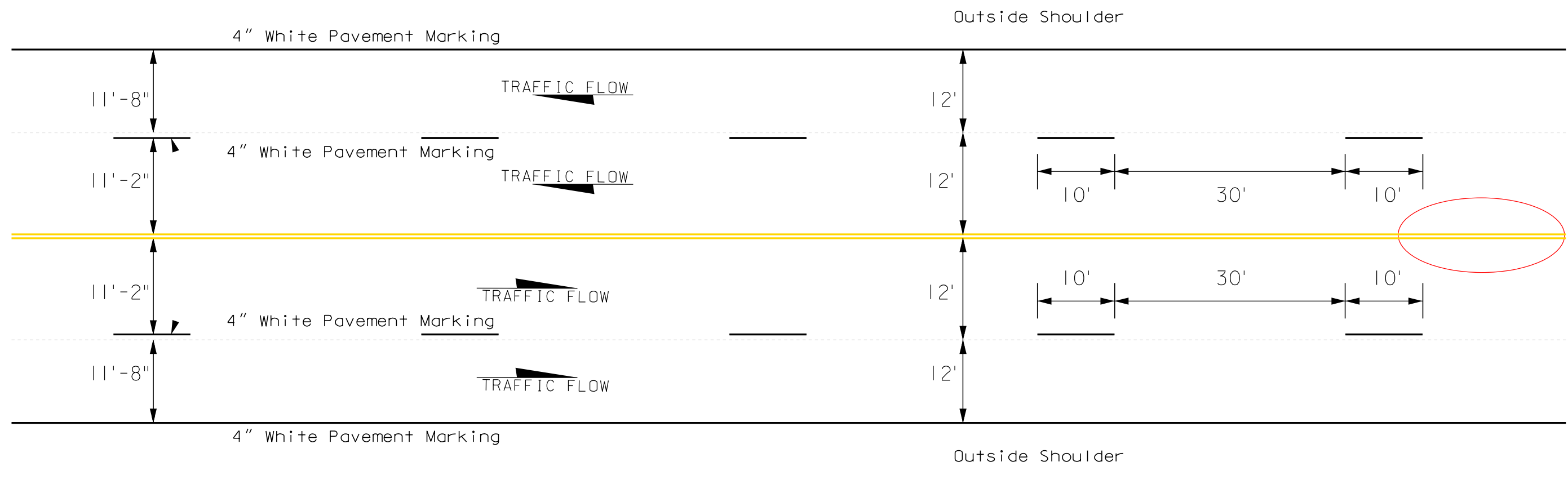
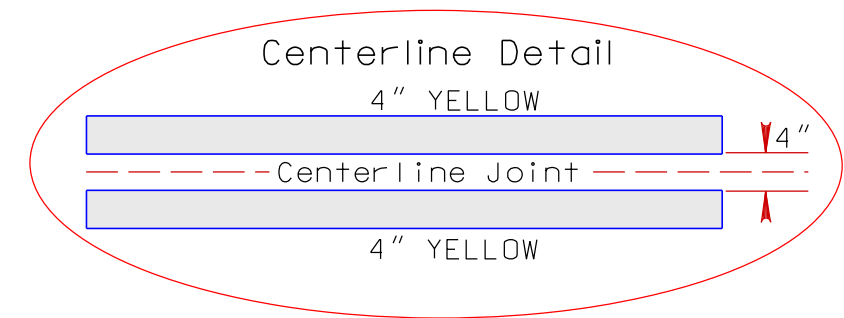
Plot Scale - 1:20

Plotted From - TRRC12608

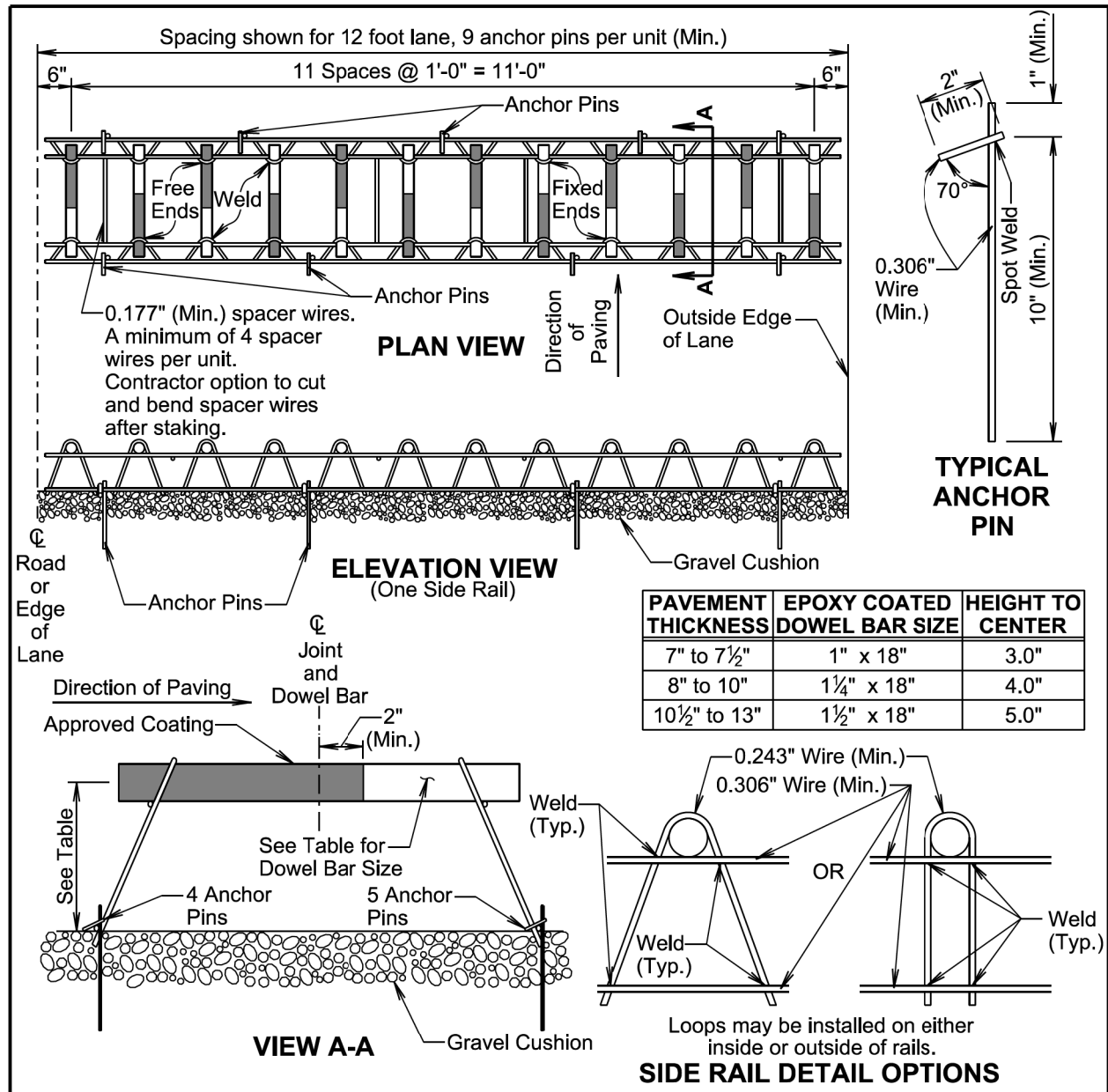


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PAVEMENT MARKING LAYOUT (4 LANE UNDIVIDED)



Plot Scale - 1:200



GENERAL NOTES:

Longitudinal joint tie bars will be placed a minimum of 15 inches from the transverse contraction joint.

The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.

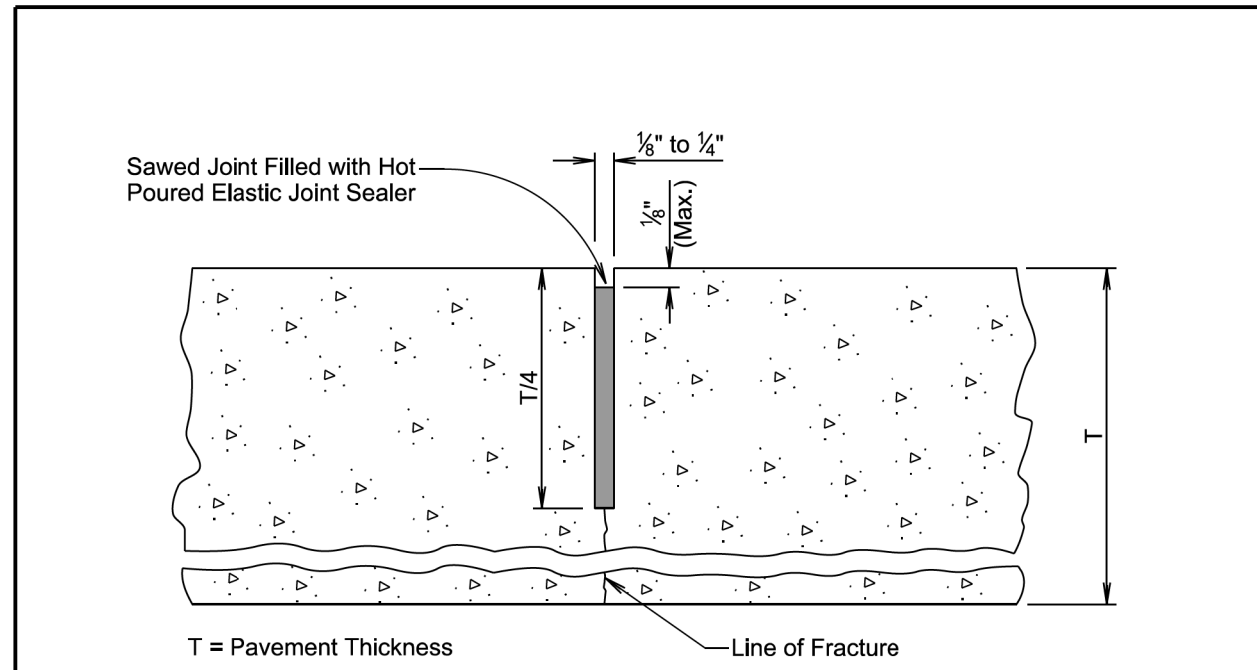
Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, will be used to maintain proper horizontal and vertical alignment of the dowel bars.

All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

November 19, 2022

S D D O T	PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material	PLATE NUMBER 380.04
		Sheet 1 of 1

Published Date: 2024



GENERAL NOTES:

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum ¼ of the thickness of the pavement.

All hot poured elastic joint sealer material spilled on the surface of the concrete pavement will be removed as soon as the material has cooled. The extent of removal of material will be to the satisfaction of the Engineer. All costs for removal of the spilled joint sealer material will be borne by the Contractor.

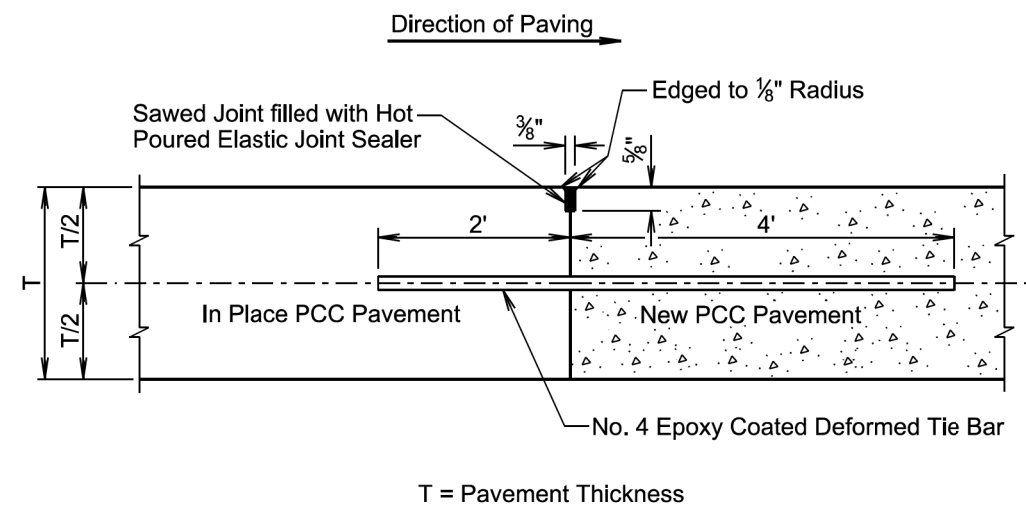
November 19, 2022

S D D O T	PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY	PLATE NUMBER 380.12
		Sheet 1 of 1

Published Date: 2024

- Plotted From - TRRC12608

File - ...12024\Design\Std Pits\380-1.dgn

1:200
Plot Scale -

GENERAL NOTES:

No. 4 epoxy coated deformed tie bars will be spaced 12 inches center to center and will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

The minimum distance between a transverse construction joint with tie bars and an adjacent transverse contraction joint will be 5 feet.

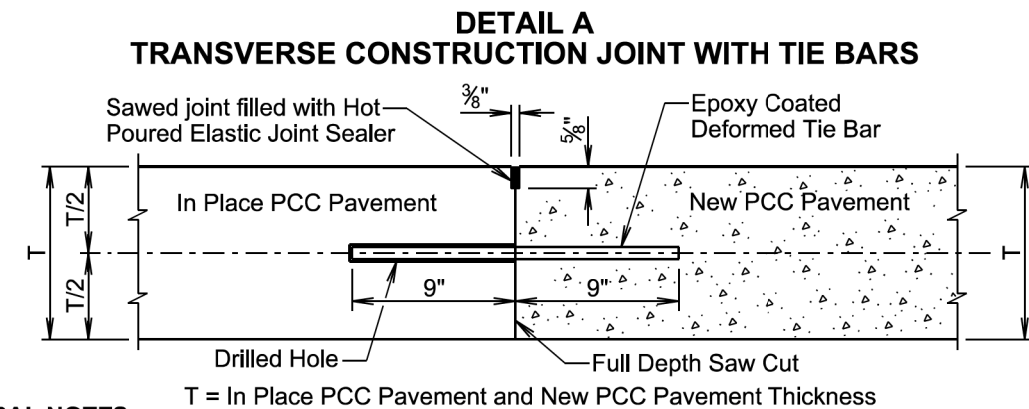
When a transverse construction joint is made, paving will not be allowed in this area for 12 hours.

A transverse construction joint may be placed in lieu of the transverse contraction joint when shown in the plans.

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on the current project.

November 19, 2022

S D D O T	PCC PAVEMENT MID PANEL TRANSVERSE CONSTRUCTION JOINT	PLATE NUMBER 380.14
	<i>Published Date: 2024</i>	Sheet 1 of 1

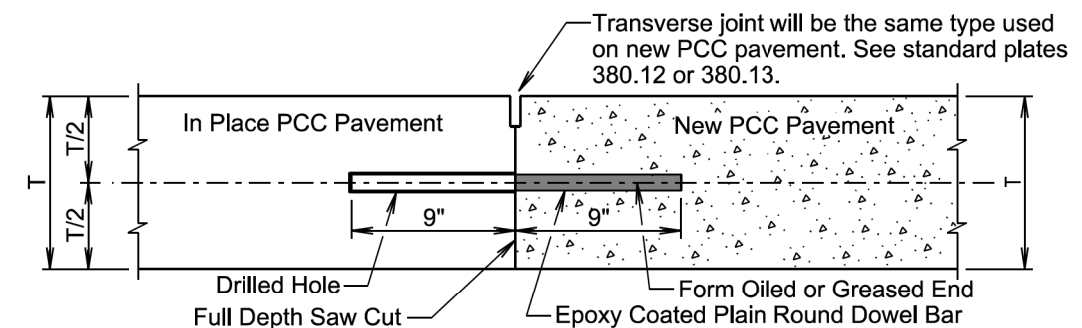

GENERAL NOTES:

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A will be used.

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

No. 9 epoxy coated deformed tie bars will be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars will be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing will be 18 inches center to center and will be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

**DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS**

GENERAL NOTES:

T = In Place PCC Pavement and New PCC Pavement Thickness

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

See sheet 2 of 2 of this standard plate to determine if Detail B will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.04, 380.05, 380.06, or 380.07). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

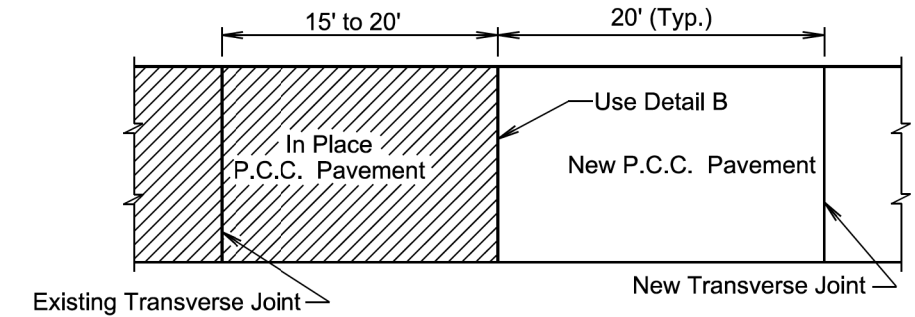
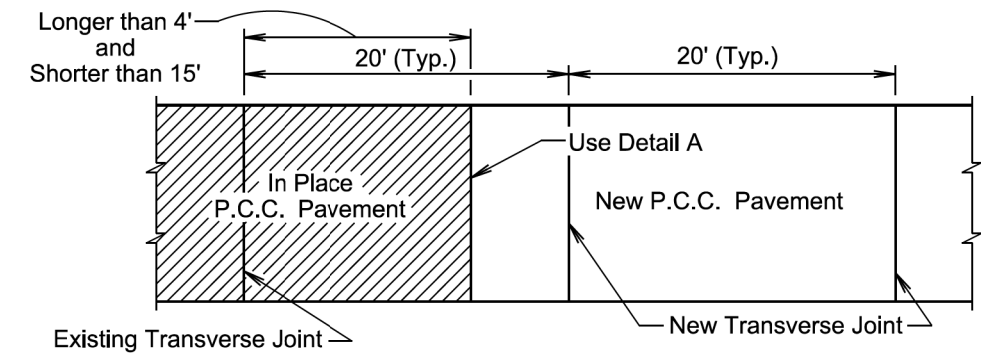
January 22, 2023

S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
	<i>Published Date: 2024</i>	Sheet 1 of 2

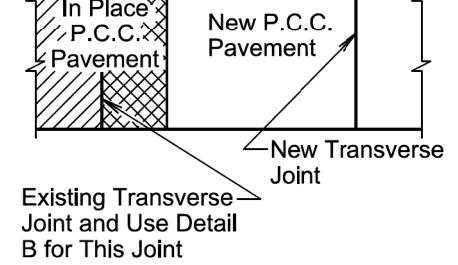
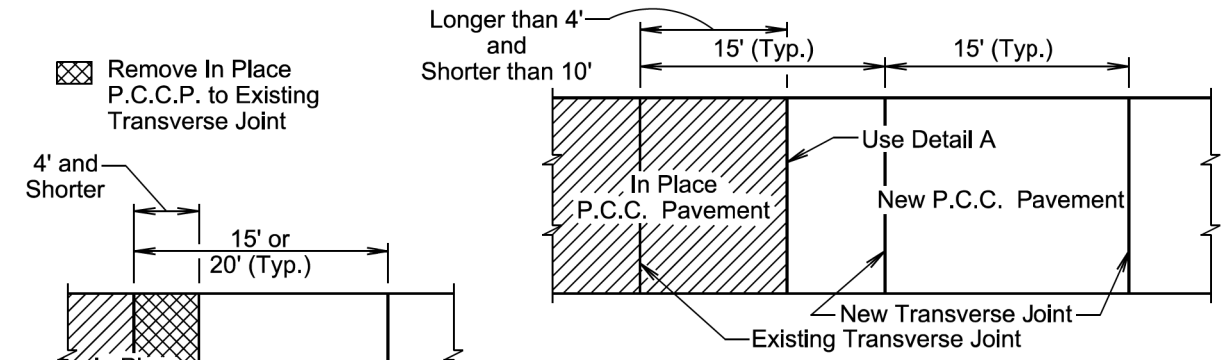
- Plotted From - TRRC12608

File - ...12024\Design\Std Plts\380-2.dgn

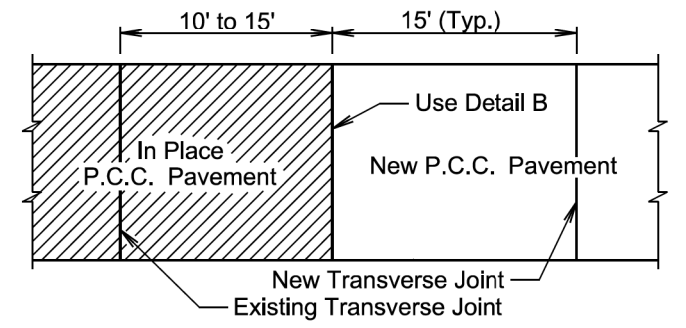
Plot Scale - 1:200



PLAN VIEW
(For typical transverse joint spacing of 20' on the current project)



PLAN VIEW
(For typical transverse joint spacing of 15' or 20' on the current project)

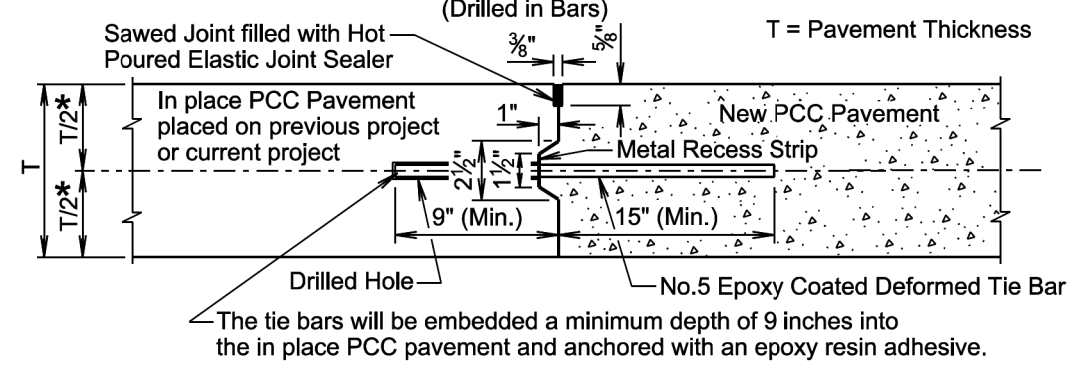


PLAN VIEW
(For typical transverse joint spacing of 15' on the current project)

January 22, 2023

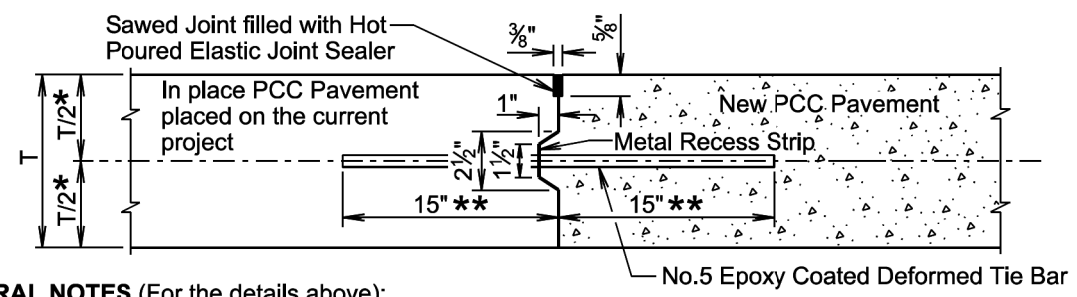
Published Date: 2024	S D D O T	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 2 of 2

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Drilled in Bars)



The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive.

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS
(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will be spaced in accordance with the following tables:

Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

The tie bars will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

* The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.

** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

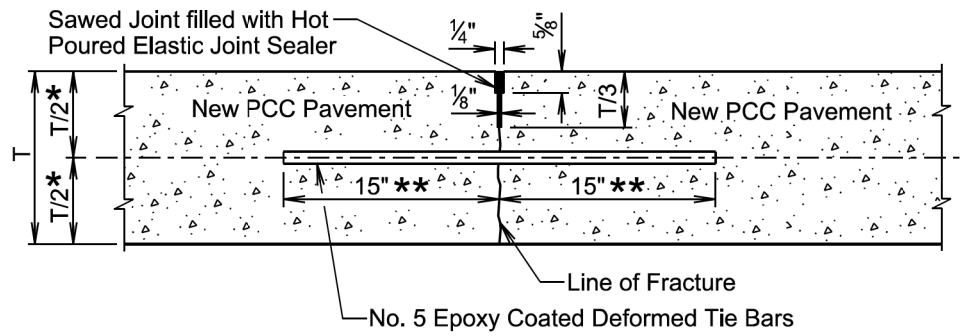
November 19, 2022

Published Date: 2024	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 1 of 2

-Plotted From- TRRC12608

File - ...12024Design\Std Pfts\380-3.dgn

SAWED LONGITUDINAL JOINT WITH TIE BARS (Poured Monolithically)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars will be spaced in accordance with the following table:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

The tie bars will be placed a minimum of 15 inches from the transverse contraction joints.

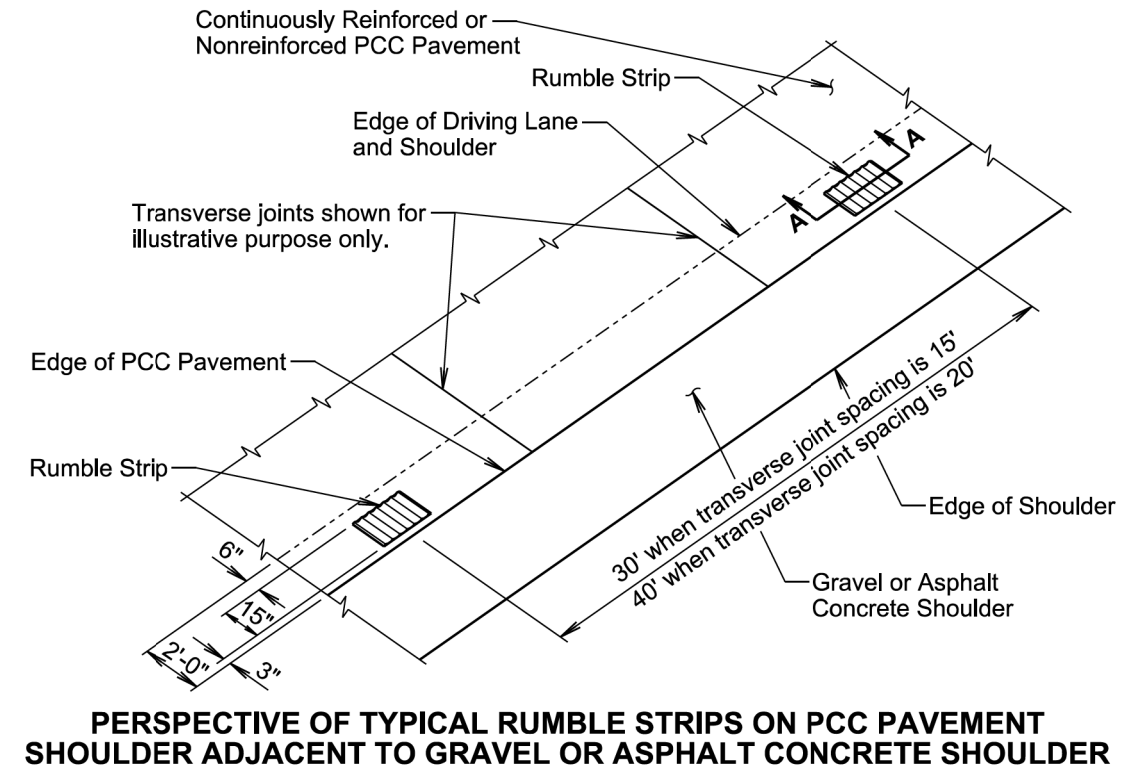
The required number of tie bars as shown in the table will be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing will apply to tie bars within each panel.

The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

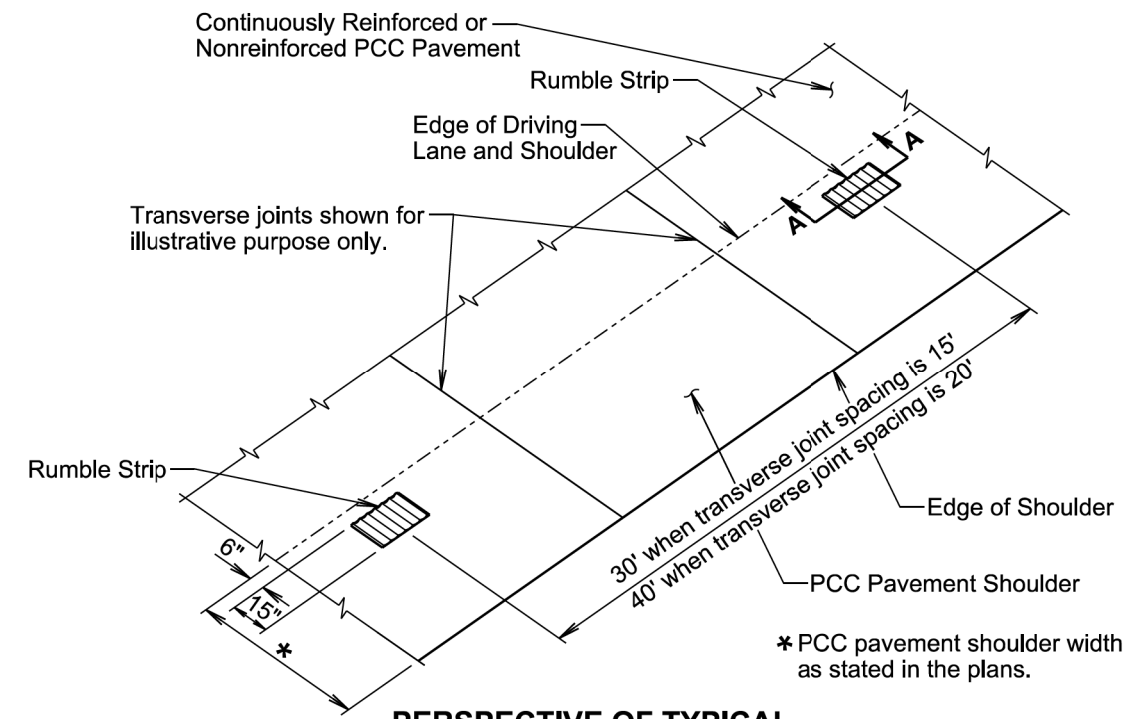
- * The vertical placement tolerance for any part of the tie bar will be $\pm T/6$.
- ** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
	Published Date: 2024	Sheet 2 of 2



PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER ADJACENT TO GRAVEL OR ASPHALT CONCRETE SHOULDER



PERSPECTIVE OF TYPICAL RUMBLE STRIPS ON PCC PAVEMENT SHOULDER

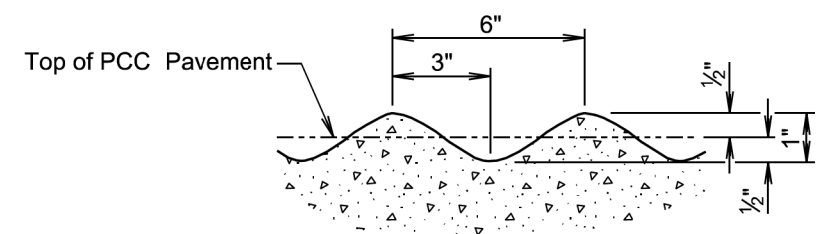
* PCC pavement shoulder width as stated in the plans.

November 19, 2022

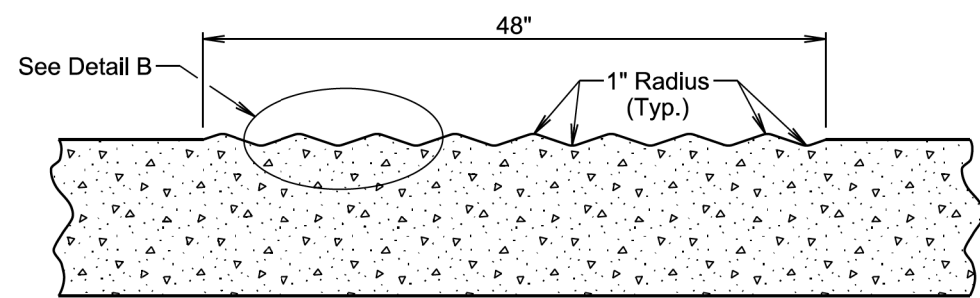
S D D O T	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.53
	Published Date: 2024	Sheet 1 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH-P 0040(355)	37	45

Plotting Date: 02/07/2024



DETAIL B



SECTION A-A

GENERAL NOTES:

- The rumble strips will be evenly spaced and will not coincide with any transverse contraction joints.
- The rumble strips will NOT be placed along areas adjacent to entrance ramps, exit ramps, and gore areas.
- Payment for constructing the PCC Pavement Rumble Strips will be incidental to the contract unit price per square yard for the corresponding PCC Pavement contract item.

November 19, 2022

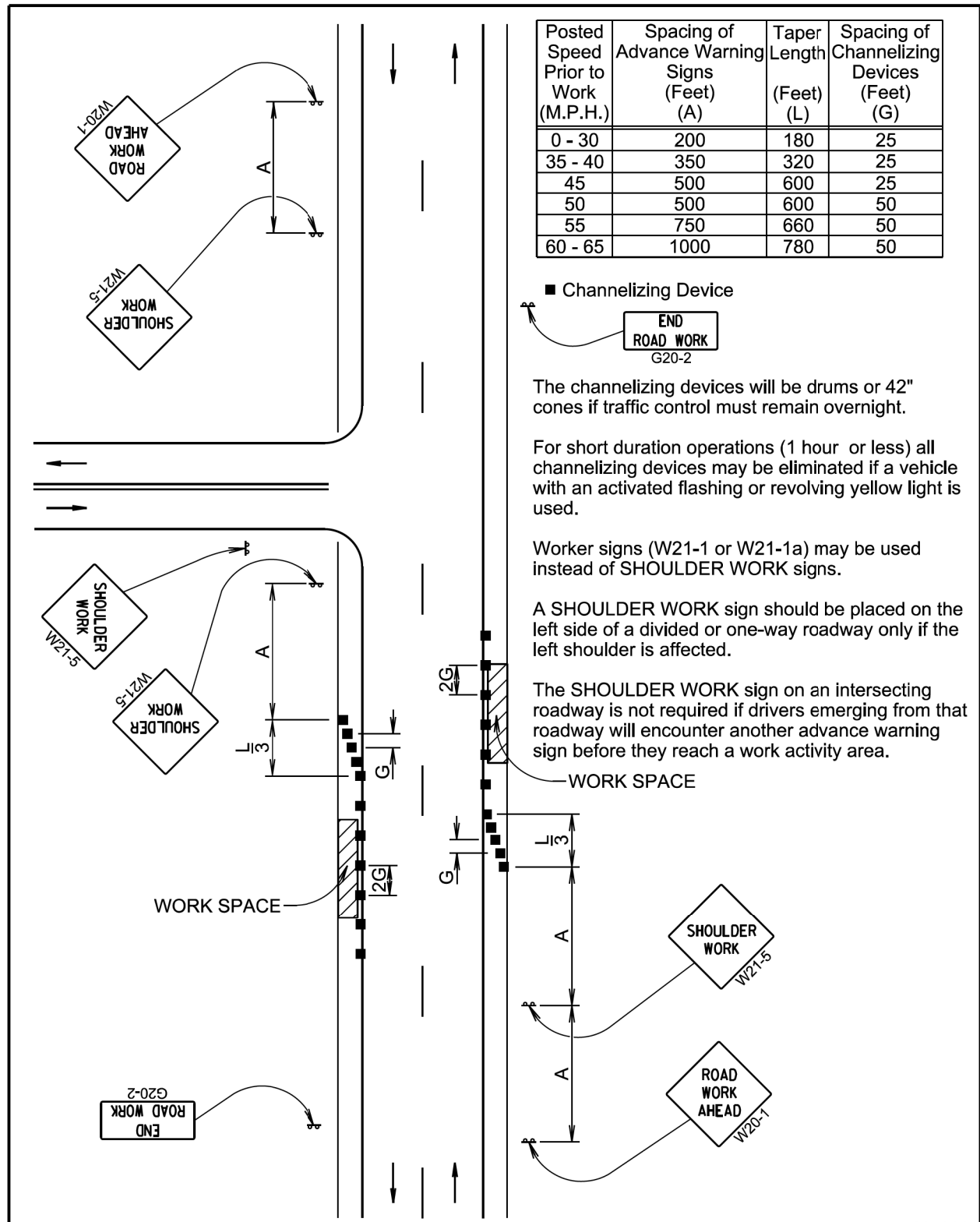
<i>Published Date: 2024</i>	S D D O T	RUMBLE STRIP ON PCC PAVEMENT SHOULDER	PLATE NUMBER 380.53
			Sheet 2 of 2

Plot Scale - 1:200

Plotted From - TRRC12608

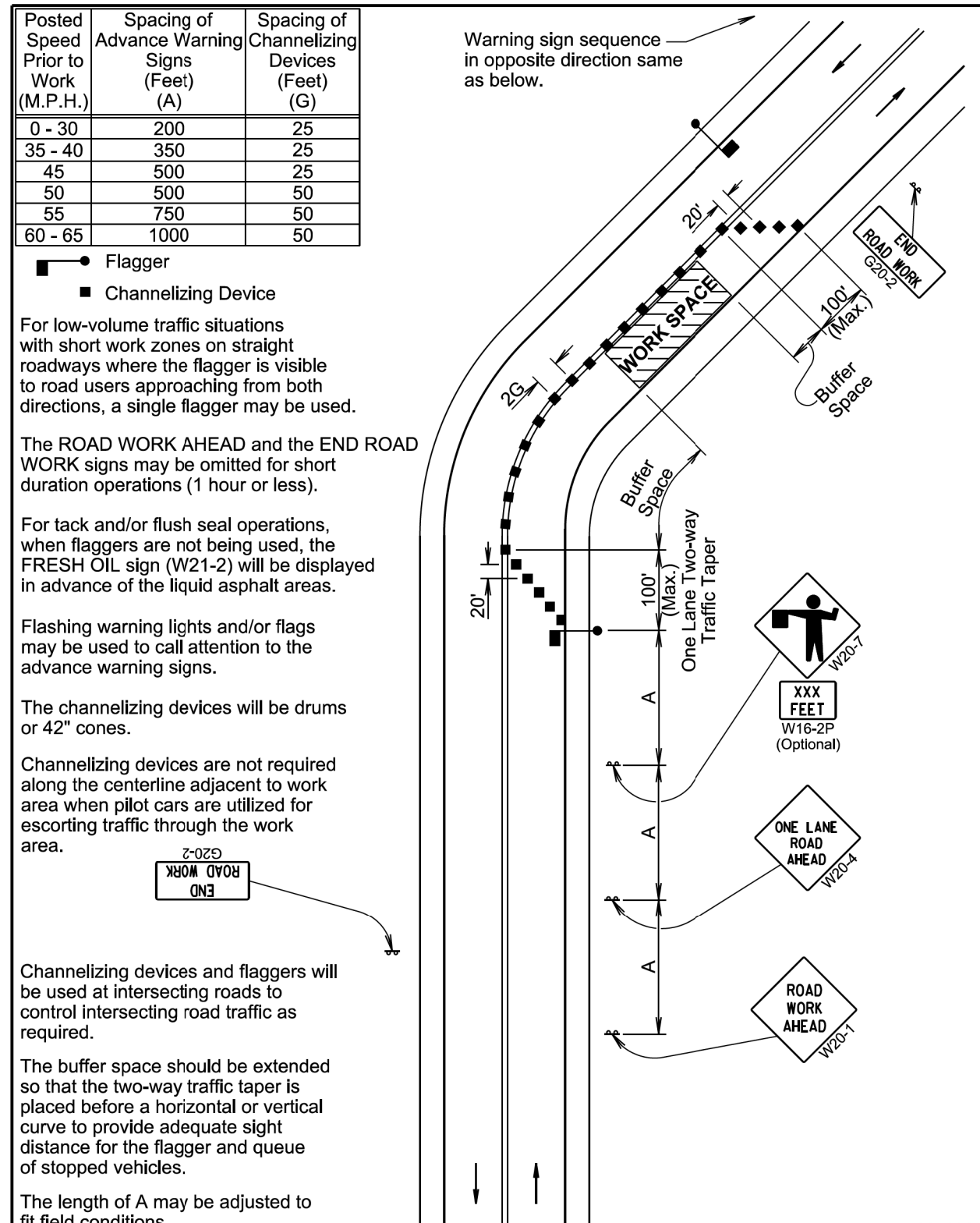
File - ...12024\Design\Std Pits\380-5.dgn

Plot Scale - 1:200



S D D O T	WORK ON SHOULDERS	PLATE NUMBER 634.03
	Published Date: 2024	Sheet 1 of 1

January 22, 2021

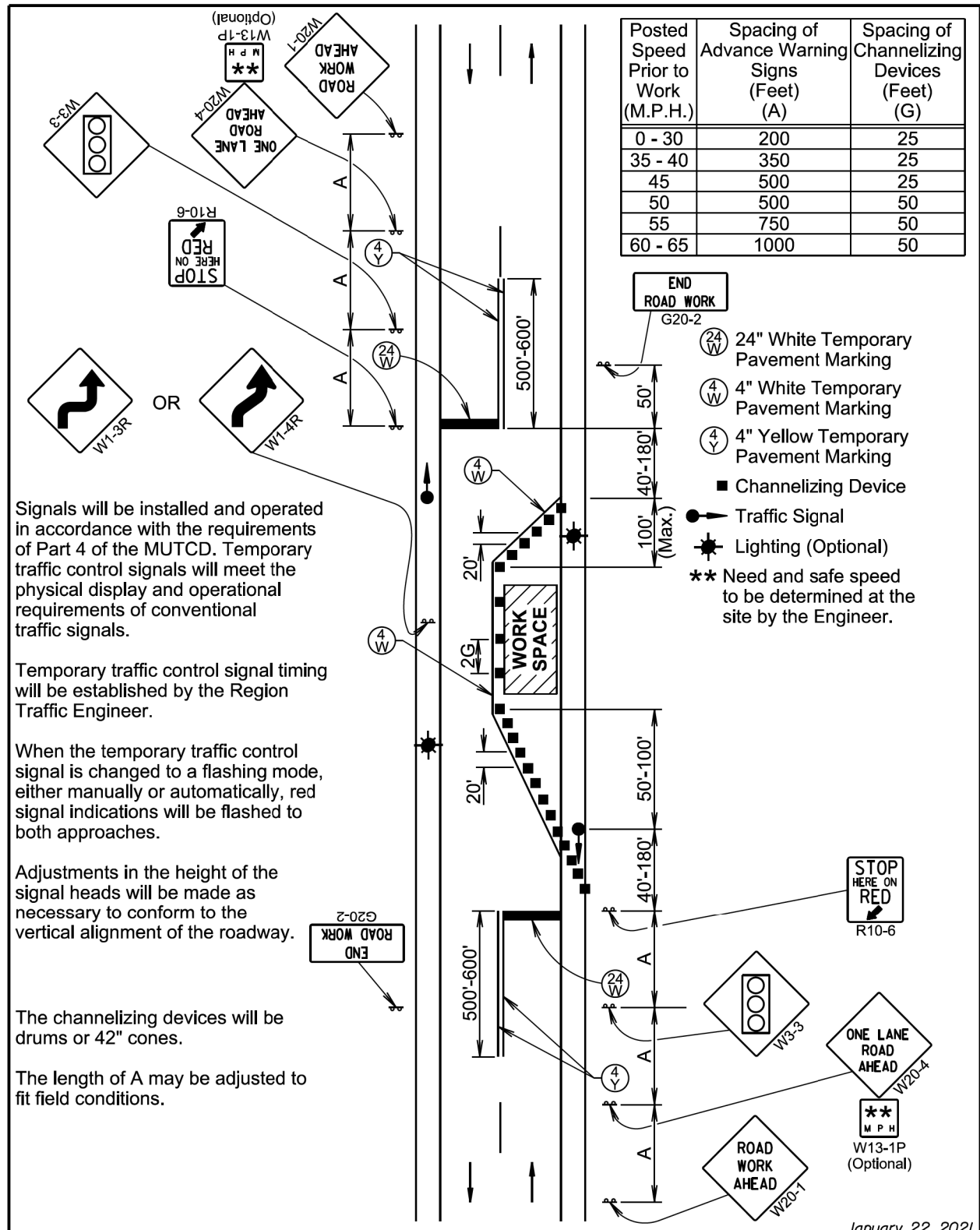


S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
	Published Date: 2024	Sheet 1 of 1

January 22, 2021

File - ...12024DesignStd Plts634-1.dgn

Plot Scale - 1:200



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

- END ROAD WORK G20-2
- 24" White Temporary Pavement Marking
- 4" White Temporary Pavement Marking
- 4" Yellow Temporary Pavement Marking
- Channelizing Device
- Traffic Signal
- Lighting (Optional)
- ** Need and safe speed to be determined at the site by the Engineer.

Signals will be installed and operated in accordance with the requirements of Part 4 of the MUTCD. Temporary traffic control signals will meet the physical display and operational requirements of conventional traffic signals.

Temporary traffic control signal timing will be established by the Region Traffic Engineer.

When the temporary traffic control signal is changed to a flashing mode, either manually or automatically, red signal indications will be flashed to both approaches.

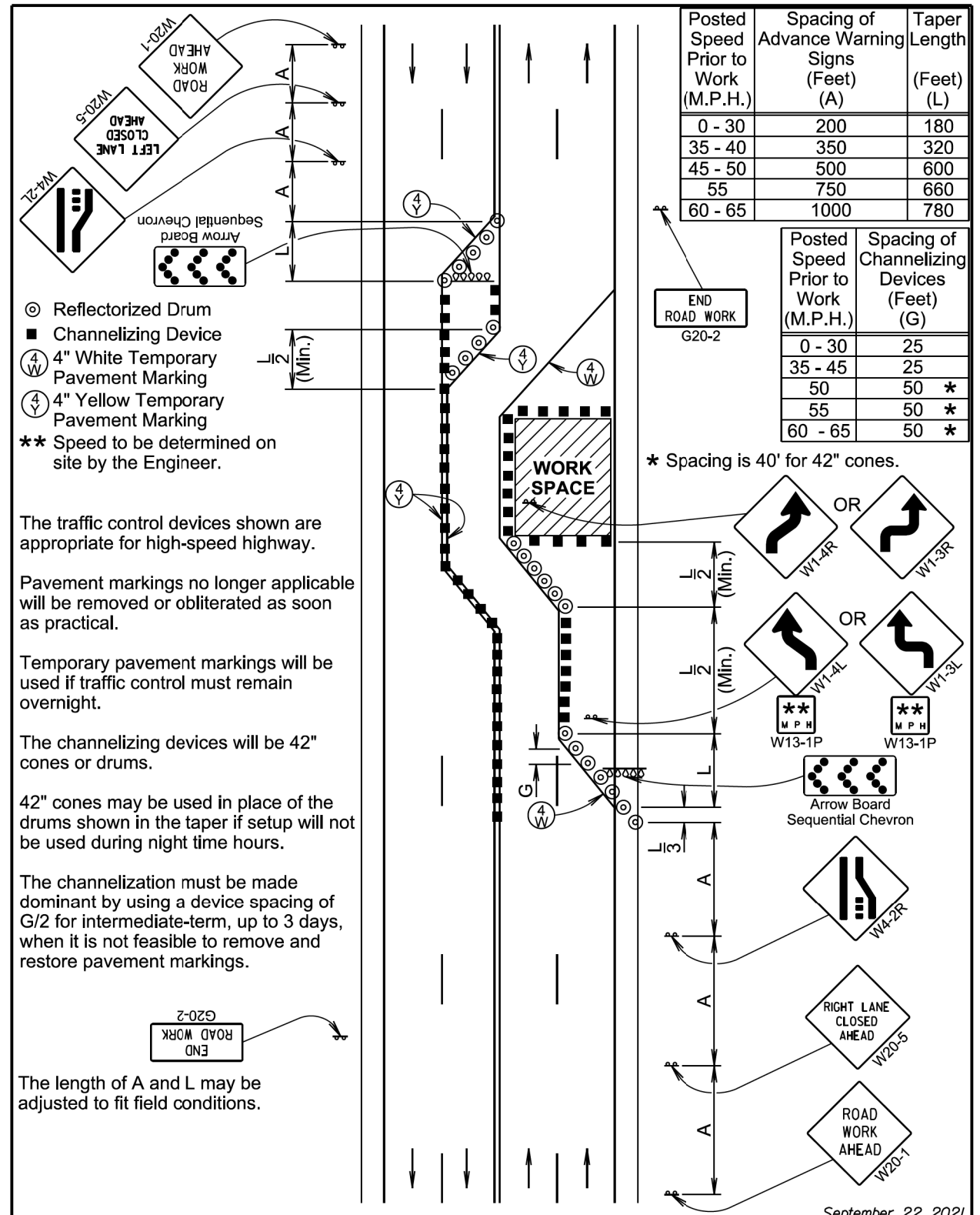
Adjustments in the height of the signal heads will be made as necessary to conform to the vertical alignment of the roadway.

The channelizing devices will be drums or 42" cones.

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

January 22, 2021

S D D O T	LANE CLOSURE USING TRAFFIC SIGNALS	PLATE NUMBER 634.26
	Published Date: 2024	Sheet 1 of 1



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

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 - 65	50 *

* Spacing is 40' for 42" cones.

- ⊙ Reflectorized Drum
- Channelizing Device
- ④ 4" White Temporary Pavement Marking
- ④ 4" Yellow Temporary Pavement Marking
- ** Speed to be determined on site by the Engineer.

The traffic control devices shown are appropriate for high-speed highway.

Pavement markings no longer applicable will be removed or obliterated as soon as practical.

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

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.

The channelization must be made dominant by using a device spacing of G/2 for intermediate-term, up to 3 days, when it is not feasible to remove and restore pavement markings.

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

September 22, 2021

S D D O T	HALF ROAD CLOSURE ON MULTILANE HIGHWAY	PLATE NUMBER 634.46
	Published Date: 2024	Sheet 1 of 1

Plotted From - TRRC12608

File - ...12024Design\Std Plans\634-2.dgn

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

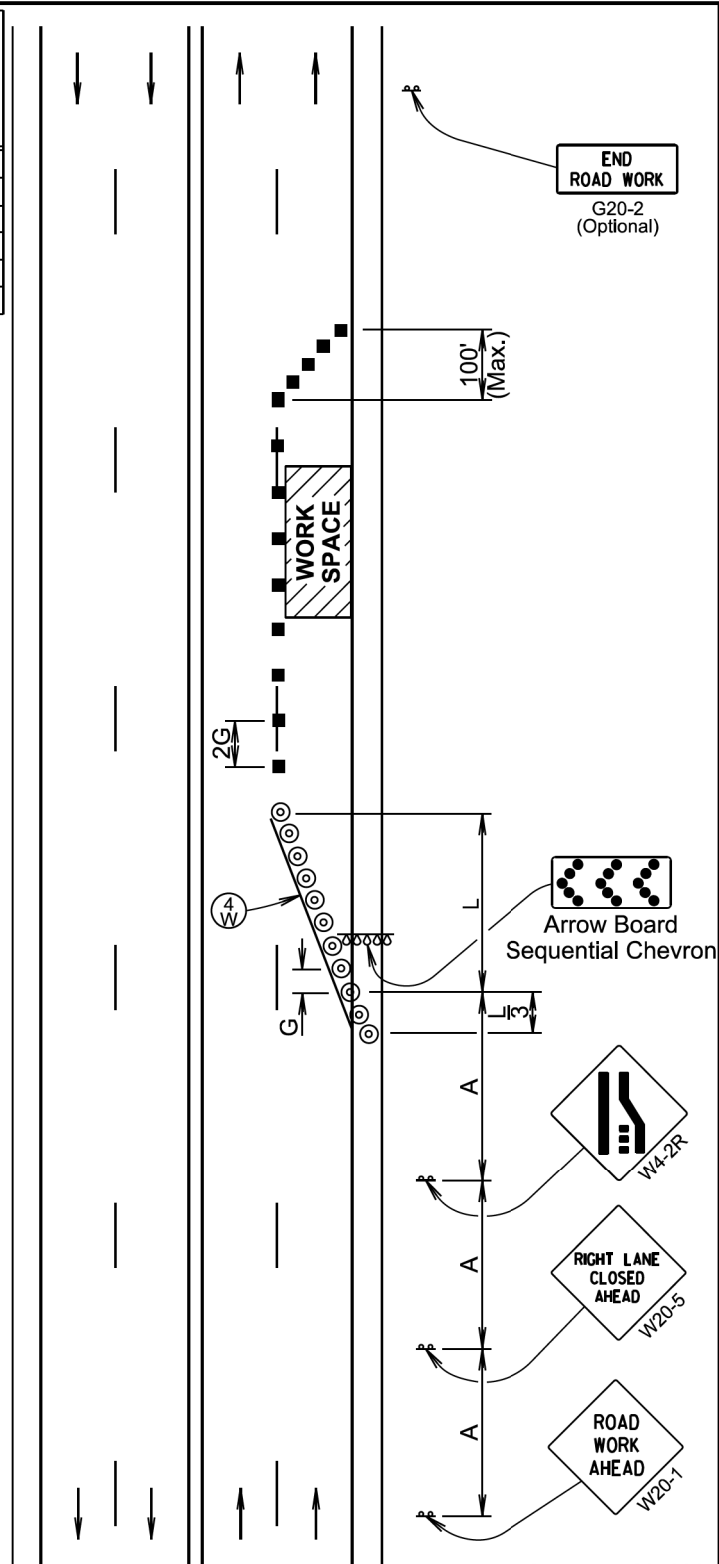
⊙ Reflectorized Drum
 ■ Channelizing Device
 (W) 4" White Temporary Pavement Marking

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.

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

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



September 22, 2021

Published Date: 2024	S D D O T	4-LANE UNDIVIDED, RIGHT LANE CLOSED	PLATE NUMBER 634.47
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

* Spacing is 40' for 42" cones.

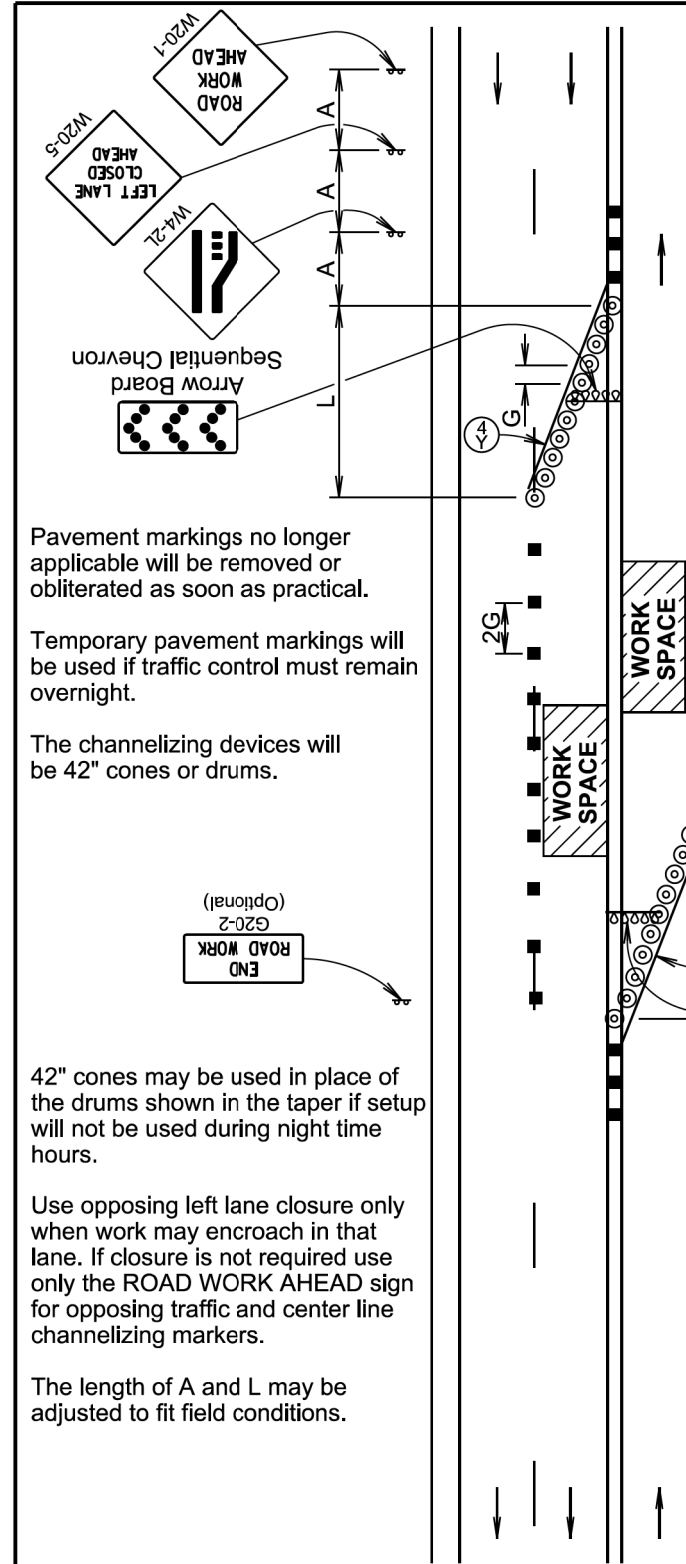
⊙ Reflectorized Drum
 ■ Channelizing Device
 (W) 4" White Temporary Pavement Marking

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.

Use opposing left lane closure only when work may encroach in that lane. If closure is not required use only the ROAD WORK AHEAD sign for opposing traffic and center line channelizing markers.

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



August 31, 2022

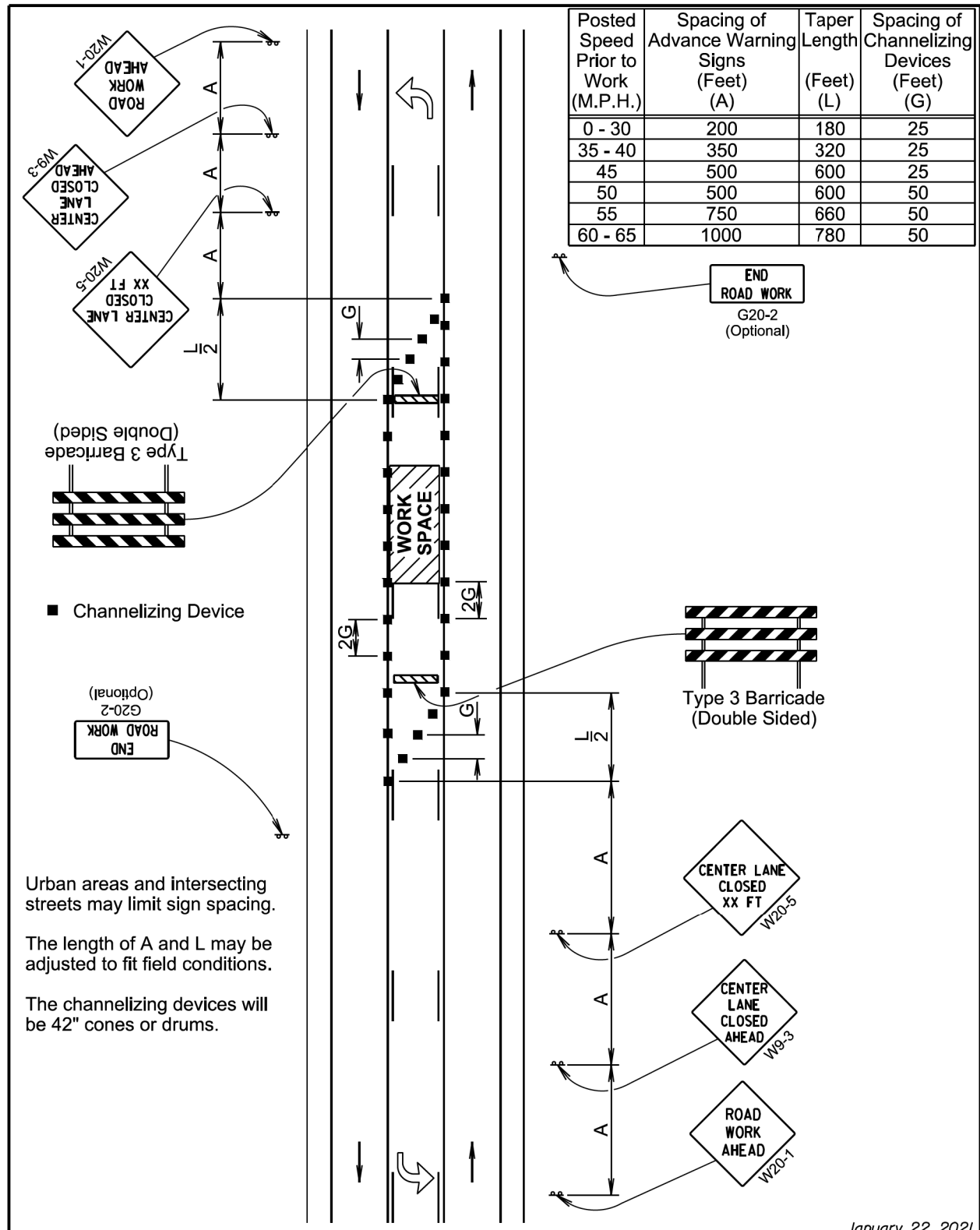
Published Date: 2024	S D D O T	4-LANE UNDIVIDED, LEFT LANE CLOSED	PLATE NUMBER 634.48
			Sheet 1 of 1

Plot Scale - 1:200

Plotted From - TRRC12608

File - ...I.design\Std Plts\634-2A.dgn

Plot Scale - 1:200



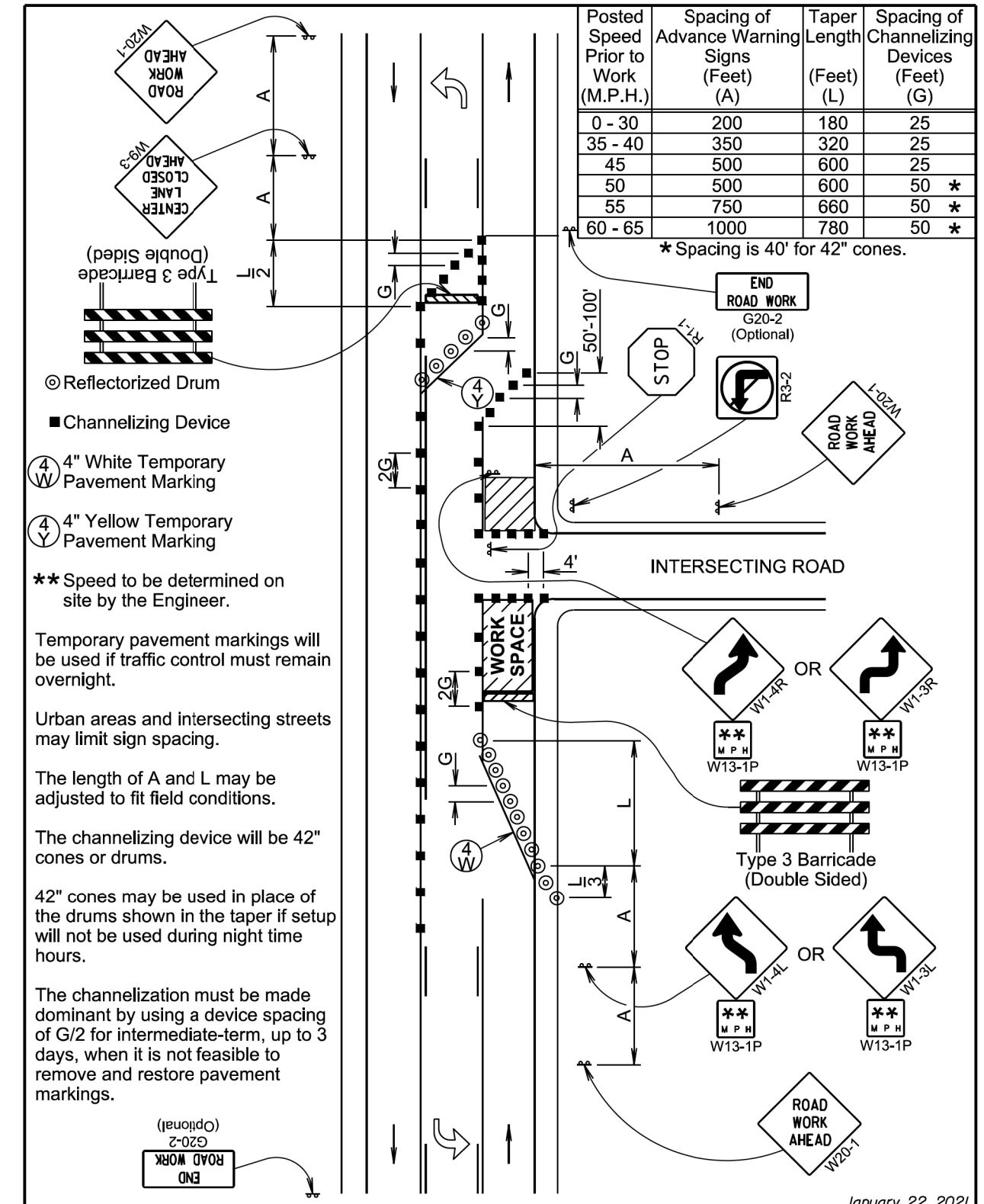
Urban areas and intersecting streets may limit sign spacing.

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

The channelizing devices will be 42" cones or drums.

January 22, 2021

S D D O T	3-LANE, CENTER LANE CLOSED	PLATE NUMBER 634.52
	Published Date: 2024	Sheet 1 of 1



Urban areas and intersecting streets may limit sign spacing.

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

The channelizing device 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.

The channelization must be made dominant by using a device spacing of G/2 for intermediate-term, up to 3 days, when it is not feasible to remove and restore pavement markings.

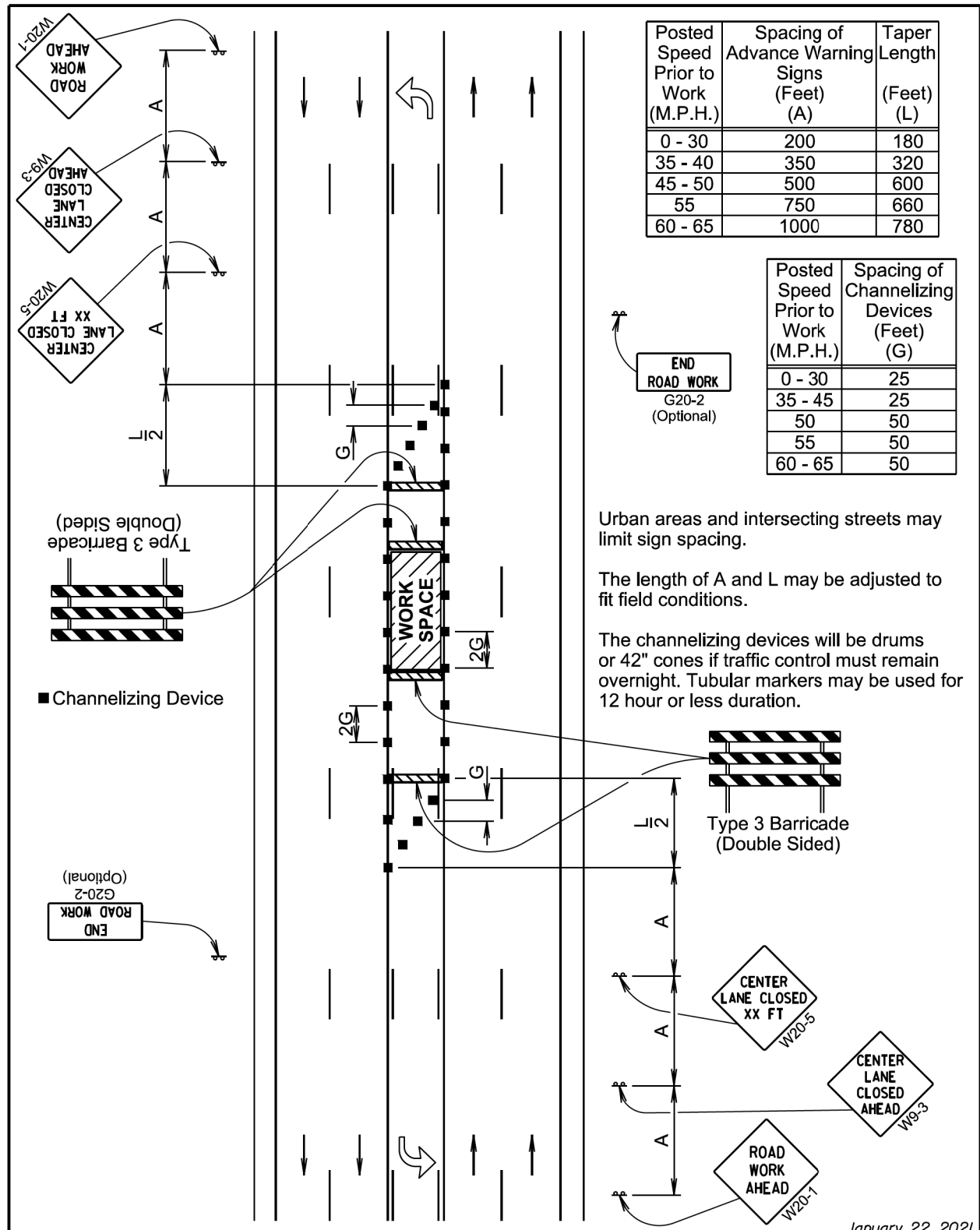
January 22, 2021

S D D O T	3-LANE, OUTSIDE LANE CLOSED	PLATE NUMBER 634.53
	Published Date: 2024	Sheet 1 of 1

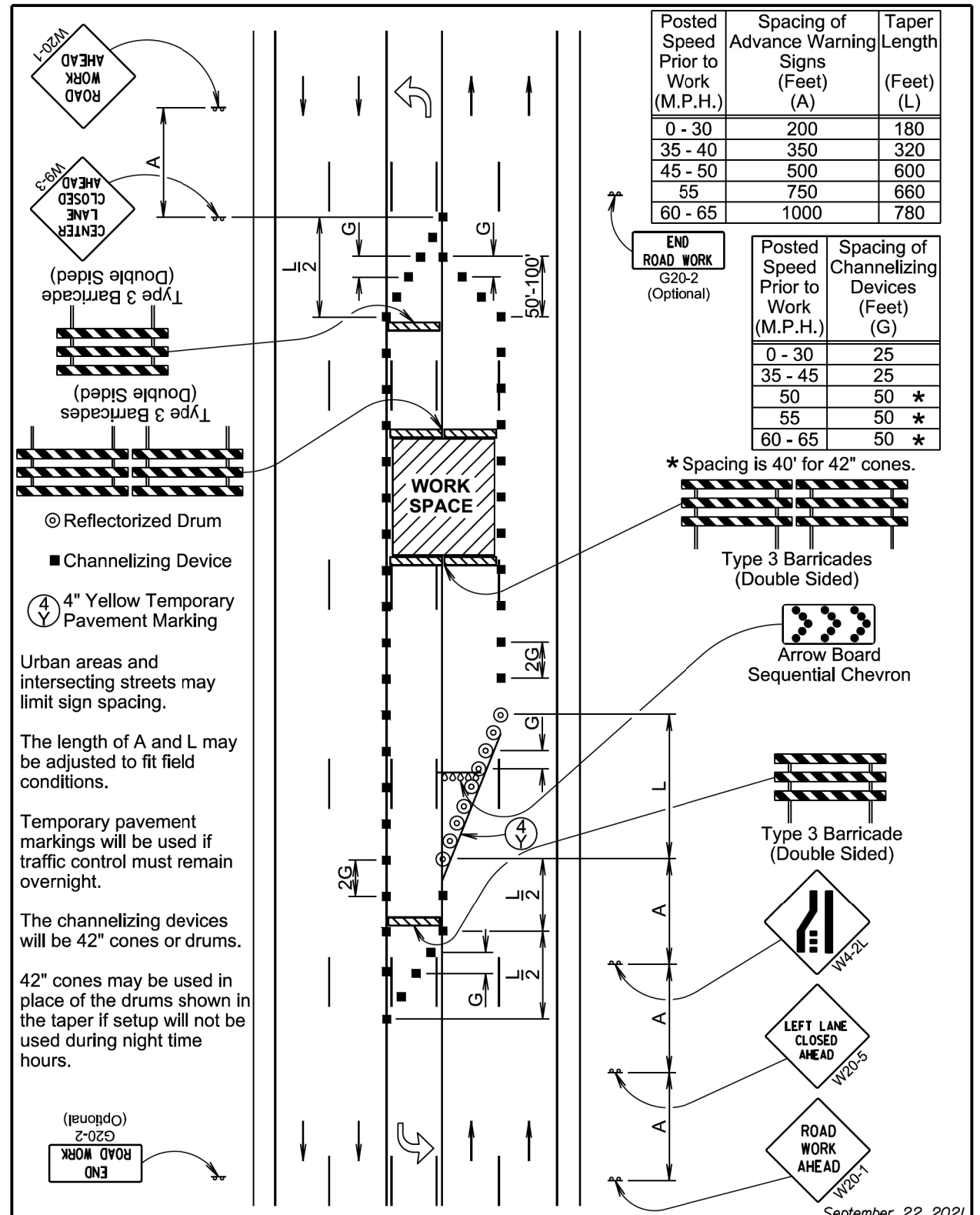
- Plotted From - TRRC12608

File - ...design\Std Plts\634-2B.dgn

Plot Scale - 1:200



S D D O T	5-LANE, CENTER LANE CLOSED	PLATE NUMBER 634.55
	Published Date: 2024	Sheet 1 of 1

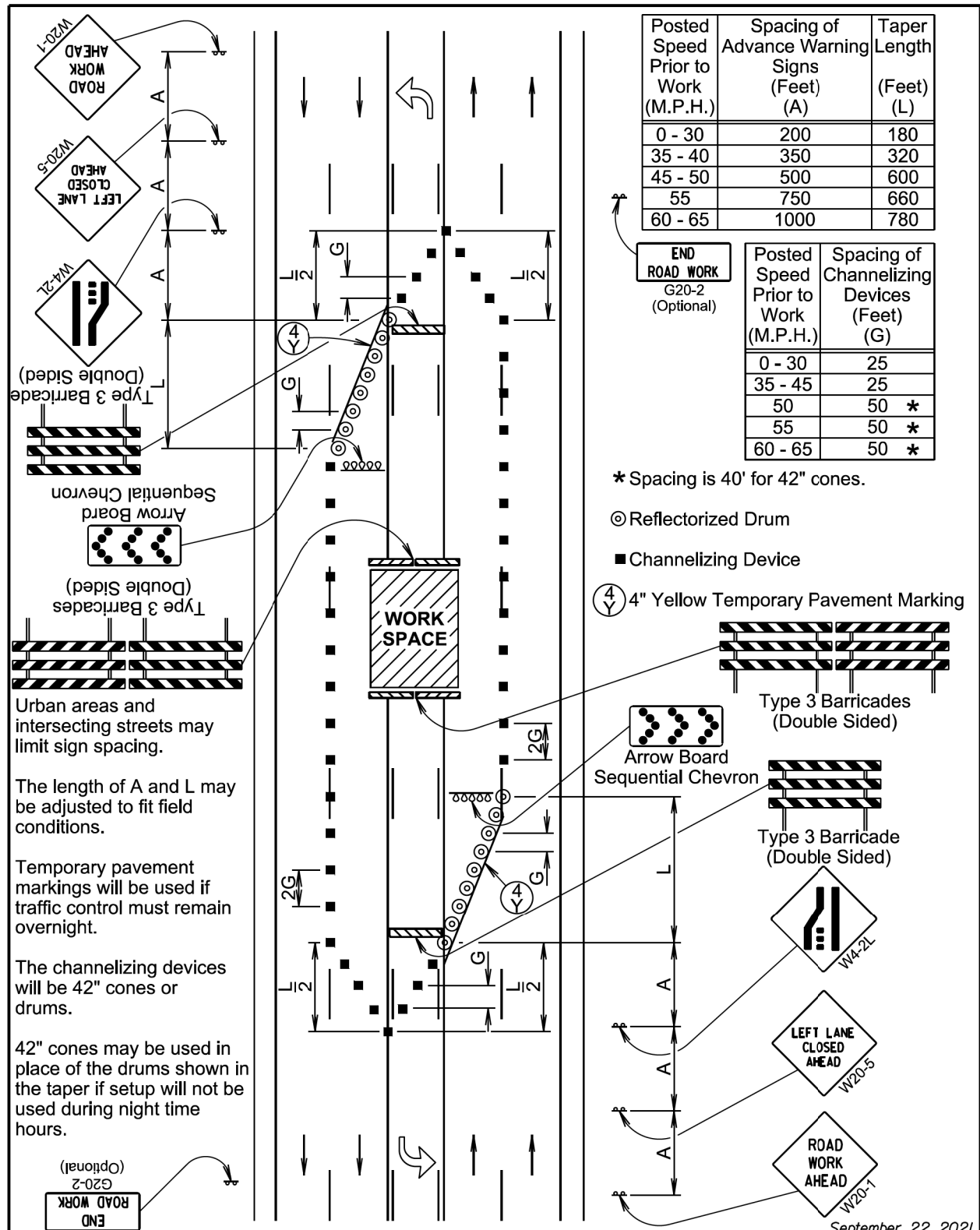


S D D O T	5-LANE, INSIDE 2 LANES CLOSED	PLATE NUMBER 634.56
	Published Date: 2024	Sheet 1 of 1

- Plotted From - TRRC12608

File - ...I.design\Std Plts\634-2c.dgn

Plot Scale - 1:200



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

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 - 65	50 *

- * Spacing is 40' for 42" cones.
- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" Yellow Temporary Pavement Marking

Urban areas and intersecting streets may limit sign spacing.

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

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

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.

Published Date: 2024

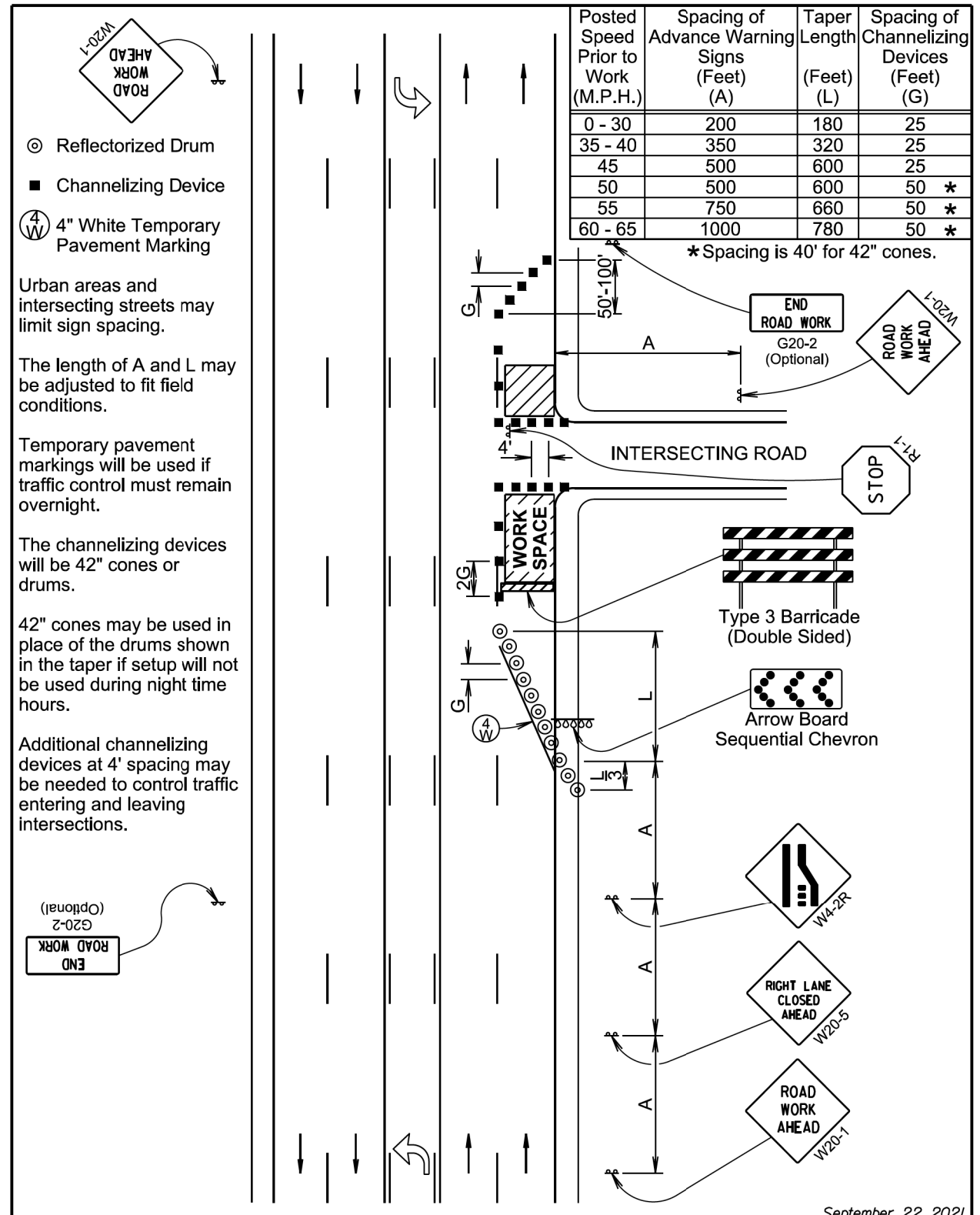
SDDOT

5-LANE, CENTER 3 LANES CLOSED

PLATE NUMBER 634.57

Sheet 1 of 1

September 22, 2021



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *

- ⊙ Reflectorized Drum
- Channelizing Device
- Ⓞ 4" White Temporary Pavement Marking

Urban areas and intersecting streets may limit sign spacing.

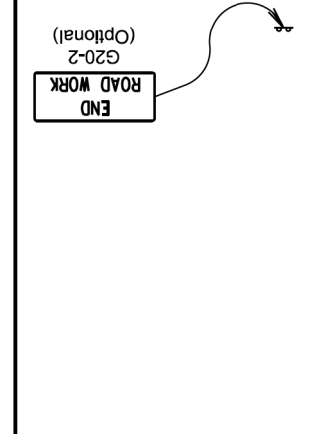
The length of A and L may be adjusted to fit field conditions.

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

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.

Additional channelizing devices at 4' spacing may be needed to control traffic entering and leaving intersections.



Published Date: 2024

SDDOT

5-LANE, OUTSIDE LANE CLOSED

PLATE NUMBER 634.60

Sheet 1 of 1

September 22, 2021

Plotted From - TRRC12608

File - ...I.design\Std Plots\634-2D.dgn

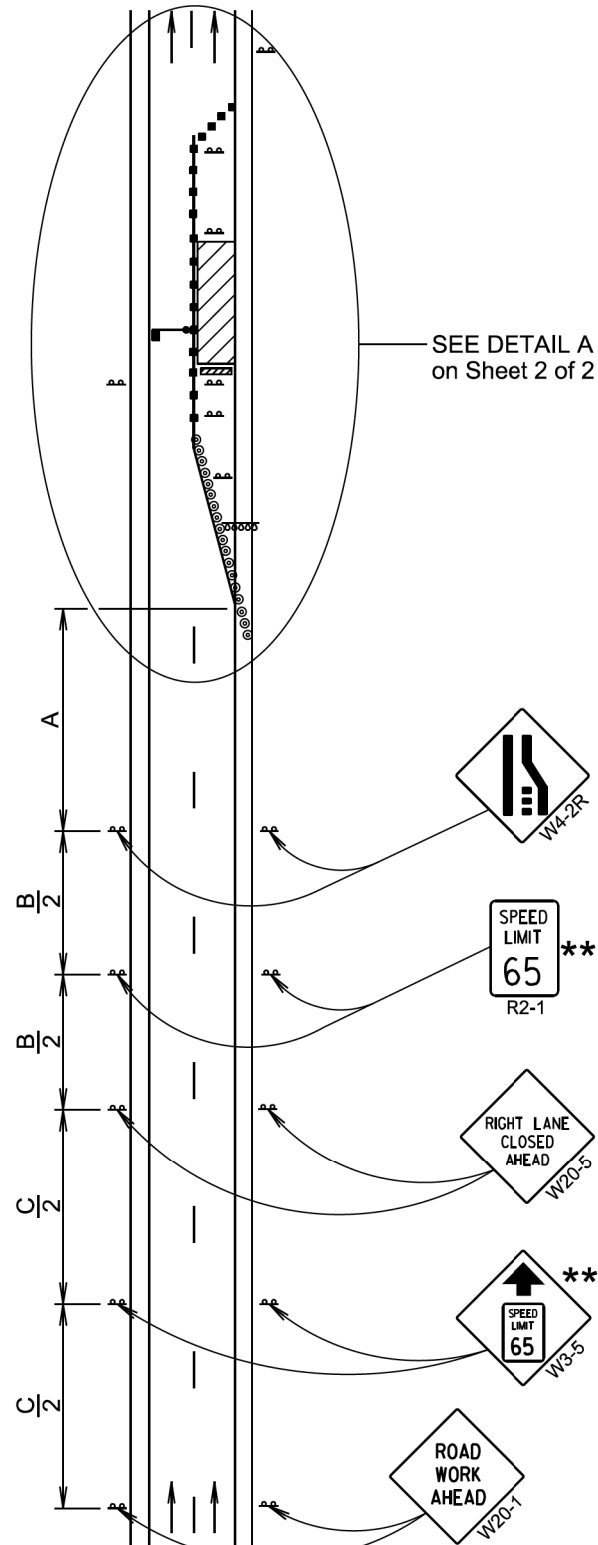
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)		
	(A)	(B)	(C)
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
70 - 80	1000	1500	2640

** 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.



September 22, 2021

S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 2024	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.

● Flagger (As Necessary)

⊙ ReflectORIZED Drum

■ Channelizing Device

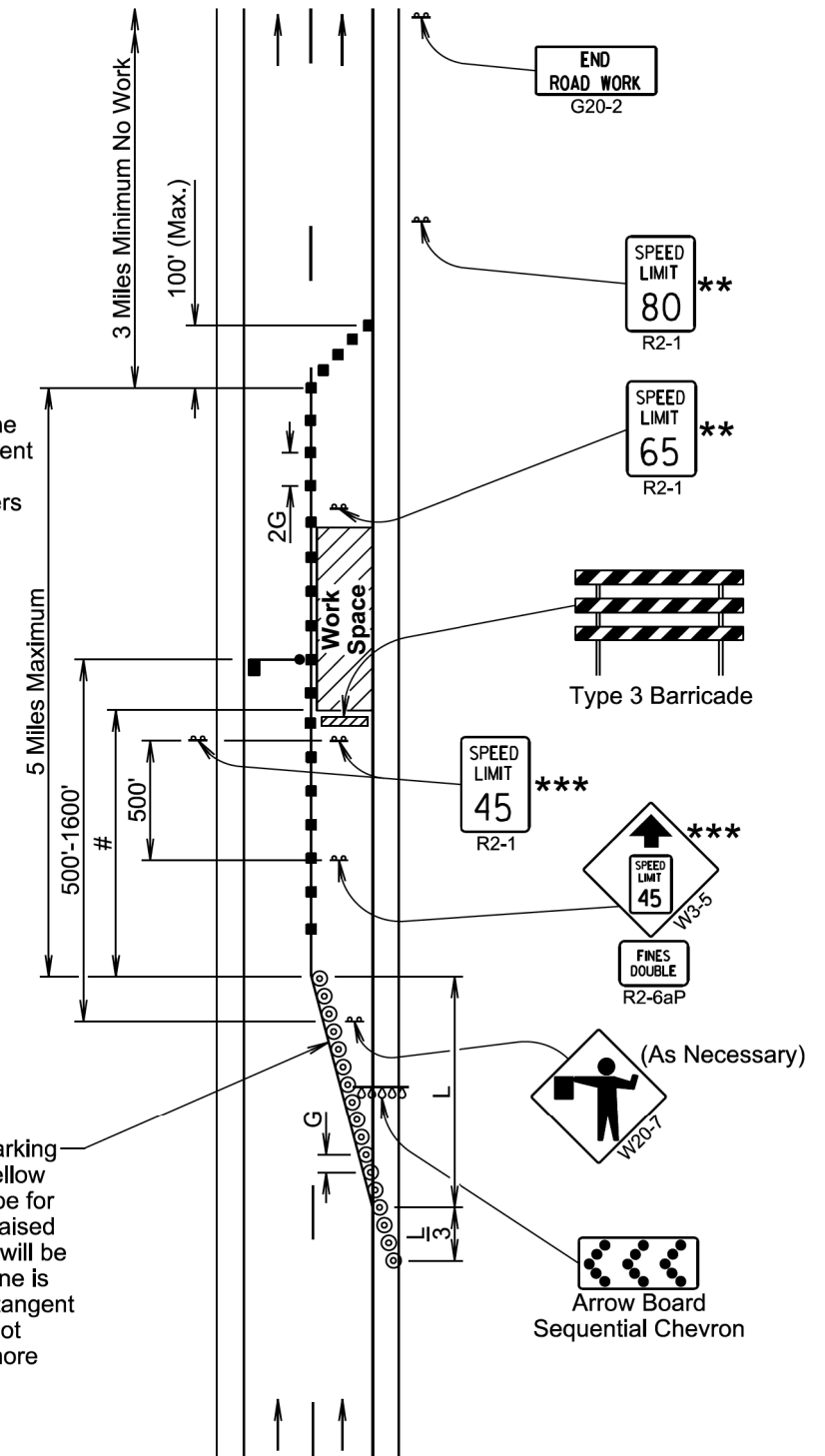
The Work Space will be a minimum of 500' from the end of the taper.

The FLAGGER sign will be used whenever there is a Flagger present.

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.

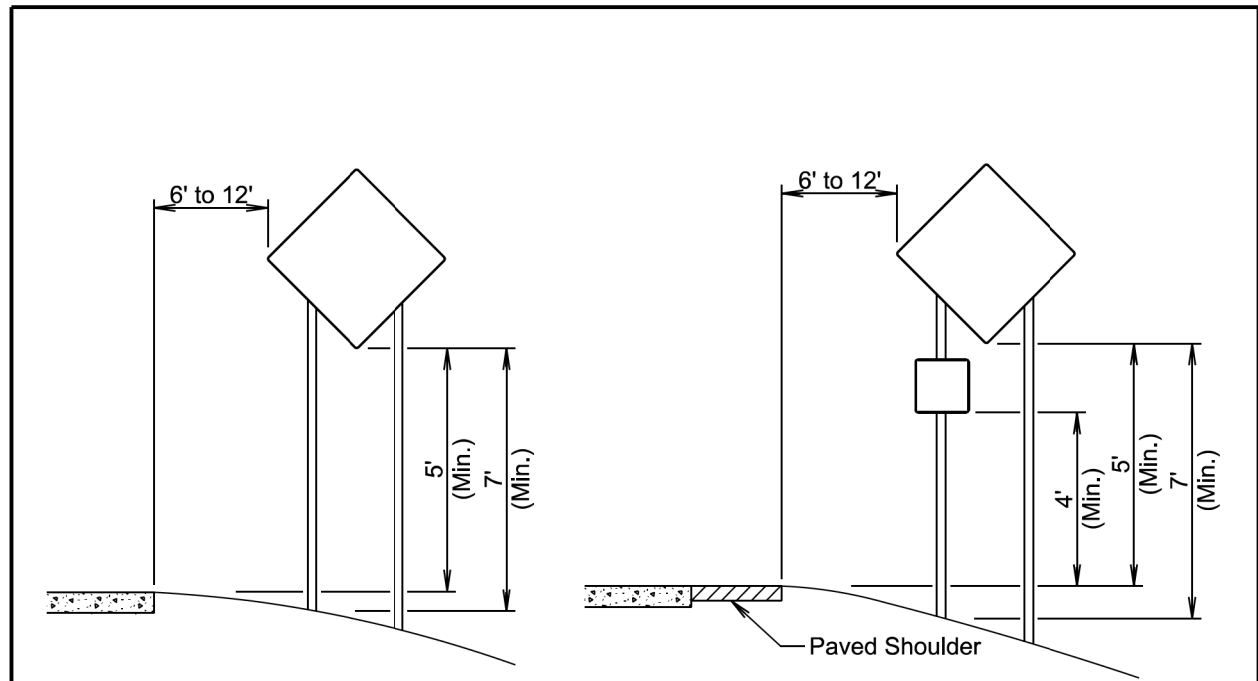


DETAIL A

September 22, 2021

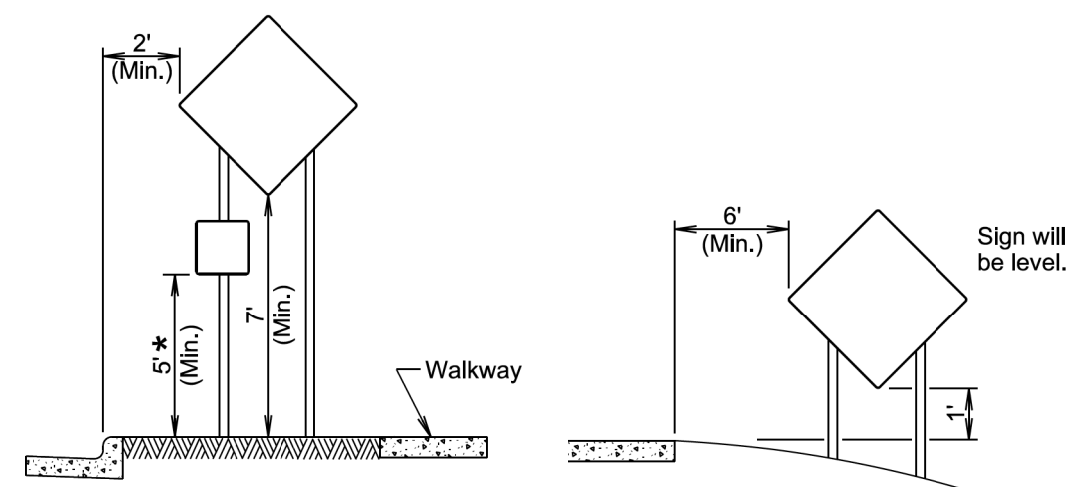
S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
	Published Date: 2024	Sheet 2 of 2

Plot Scale - 1:200



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



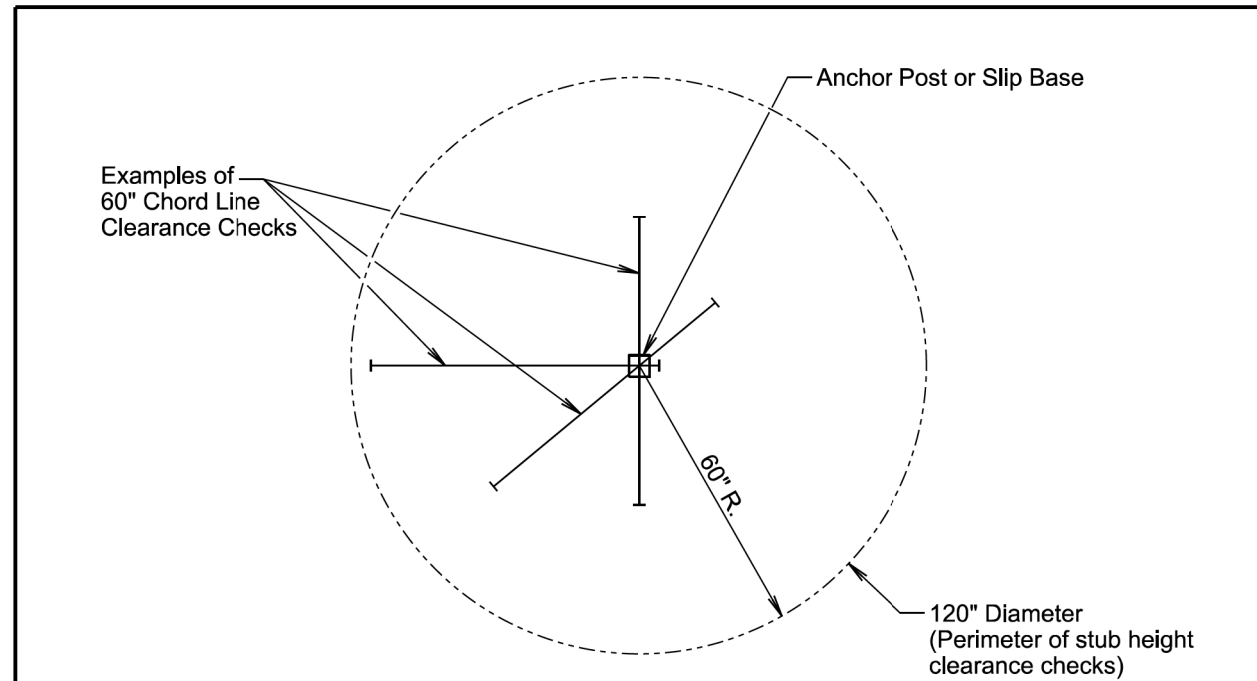
URBAN DISTRICT

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

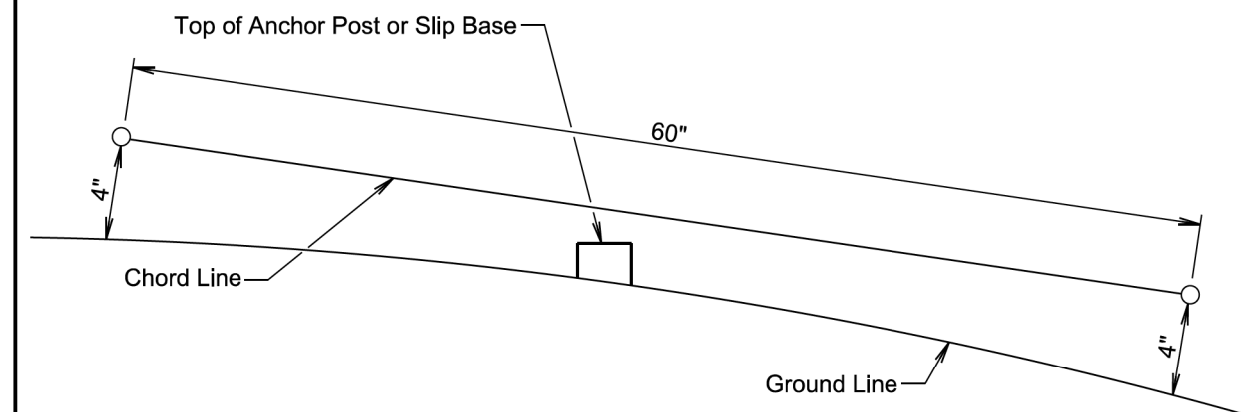
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2024	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.

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			Sheet 1 of 1

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