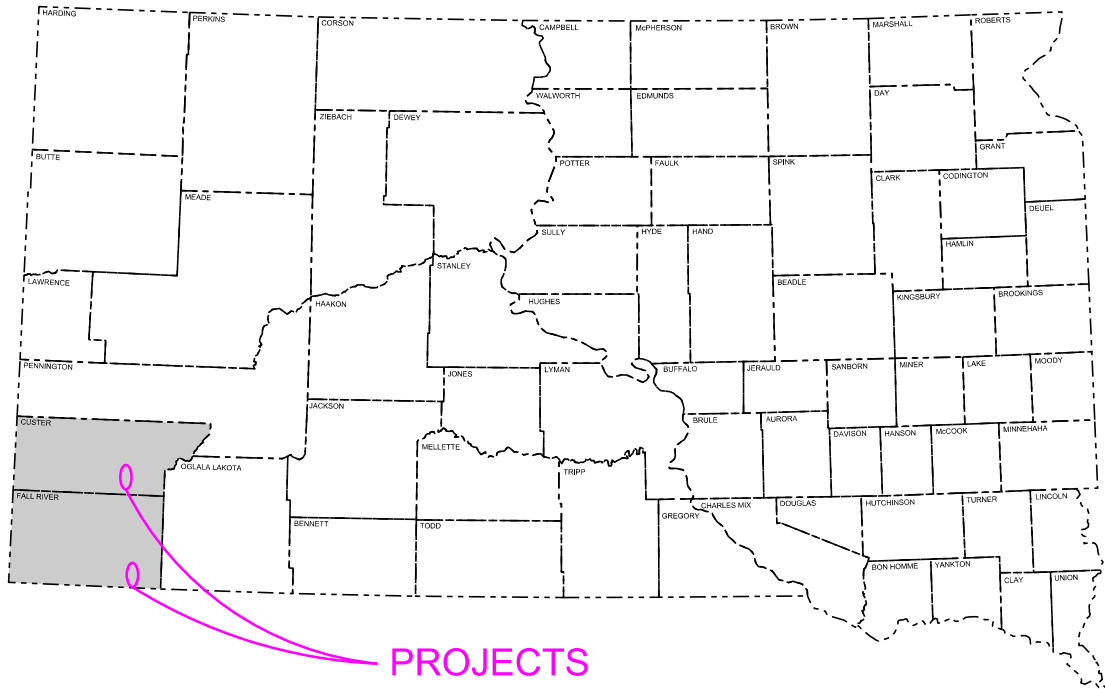


Plot Scale - 1:200

Plotted From - TRRC12608

Plotted From -



STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED

PROJECTS 079 S-492 & 385 N-492  
SD HIGHWAY 79 & US HIGHWAY 385  
CUSTER & FALL RIVER COUNTIES

CONCRETE REPAIR  
PCN i76d & i76e

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	1	12

Plotting Date: 03/30/2023

INDEX OF SHEETS

1	General Layout with Index
2-6	Estimate with General Notes & Tables
7	Typical Sections
8-12	Utility Layouts

079 S-492 PCN i76d  
SD Highway 79S  
MRM 45+0.005

079 S-492 PCN i76d  
SD Highway 79S  
MRM 38+0.844

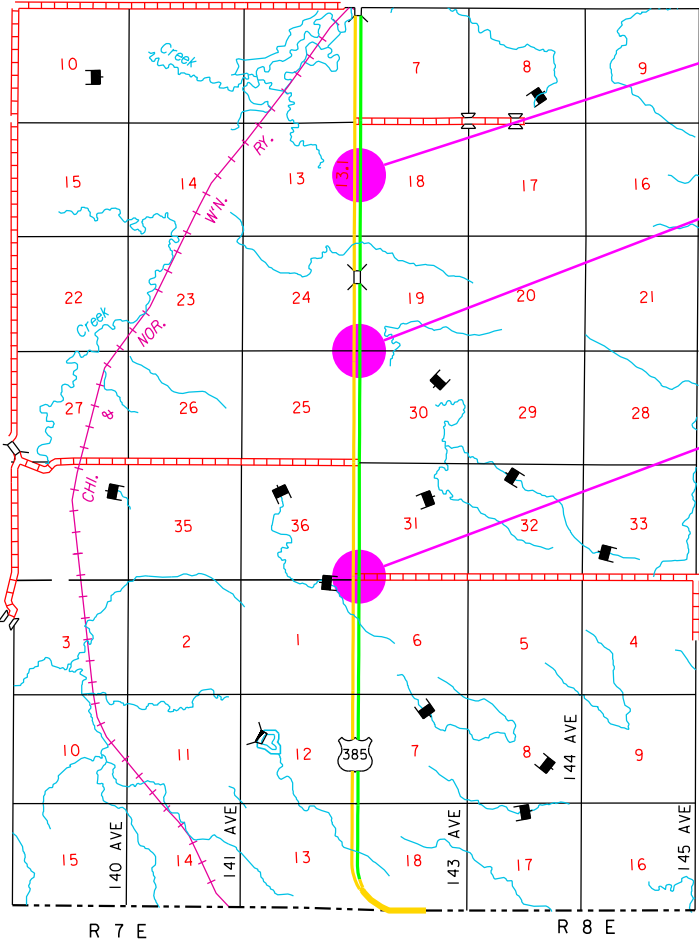
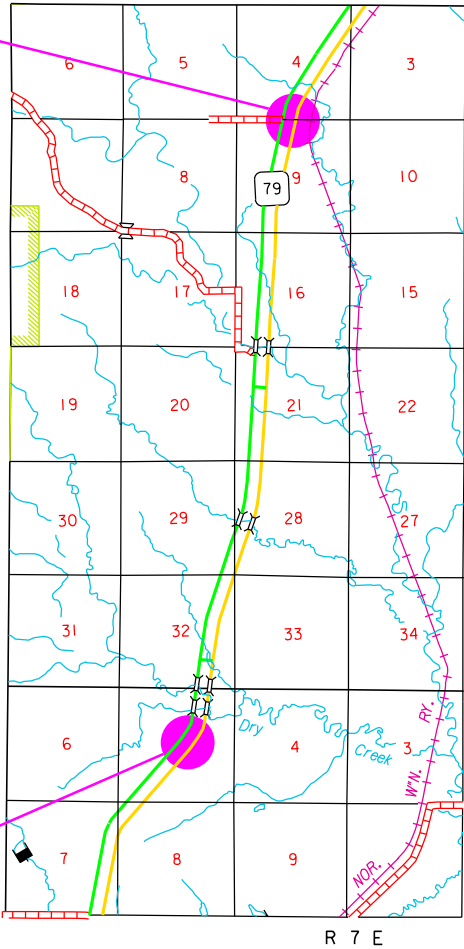
DESIGN DESIGNATION - 79S

AADT (2022)	2196
AADT (2042)	3582
DHV	0
D	50%
DHV T%	8.2%
AADT T%	18%
V	70 mph

DESIGN DESIGNATION-385N

AADT (2022)	602
AADT (2042)	895
DHV	0
D	50%
DHV T%	9%
AADT T%	19.7%
V	70 mph

STORM WATER PERMIT  
None Required



385 N-492 PCN i76e  
US Highway 385N  
MRM 6+0.480

385 N-492 PCN i76e  
US Highway 385N  
MRM 4+0.947

385 N-492 PCN i76e  
US Highway 385N  
MRM 2+0.975

ESTIMATE OF QUANTITIES

079 S-492 – PCN i76d

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	288.9	SqYd
380E6000	Dowel Bar	78	Each
380E6110	Insert Steel Bar in PCC Pavement	144	Each
633E0010	Cold Applied Plastic Pavement Marking, 4"	25	Ft
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	100	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	100	Ft
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	25	Ft
633E5100	Grooving for Durable Pavement Marking, 4"	200	Ft
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	456.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0420	Type C Advance Warning Arrow Board	2	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	1	Each

385 N-492 – PCN i76e

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
380E5030	Nonreinforced PCC Pavement Repair	433.3	SqYd
380E6000	Dowel Bar	130	Each
380E6110	Insert Steel Bar in PCC Pavement	216	Each
633E0010	Cold Applied Plastic Pavement Marking, 4"	38	Ft
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	150	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	150	Ft
633E5000	Grooving for Cold Applied Plastic Pavement Marking, 4"	38	Ft
633E5100	Grooving for Durable Pavement Marking, 4"	300	Ft
634E0010	Flagging	40.0	Hour
634E0110	Traffic Control Signs	456.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	3	Each
634E0420	Type C Advance Warning Arrow Board	3	Each
634E1215	Contractor Furnished Portable Changeable Message Sign	1	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 E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06. Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	3	12

EXISTING PCC PAVEMENT

SD 385 - The existing pavement on SD 385 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 ¼” diameter steel bars spaced 12” apart.

SD 79 - The existing pavement on SD 79 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.

NONREINFORCED PCC PAVEMENT REPAIR

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

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

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

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

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

Asphalt shoulders along PCCP will be removed 1 foot wide. 6 inches of Asphalt Concrete Composite will be used to repair asphalt shoulders. Existing granular base material will be used for the base of the asphalt shoulder repair.

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.

RESTORATION OF GRAVEL CUSHION

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.

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

STEEL BAR INSERTION

The Contractor will insert the Steel Bars (No. 9 x 18 inch epoxy coated deformed tie bars transverse, No. 5 x 30 inch epoxy coated deformed tie bars longitudinally and 1 ¼" 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.

COLD APPLIED PLASTIC PAVEMENT MARKING

Cold Applied Plastic Pavement Marking will be used for centerline skip lines.

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

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

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	4	12

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.

High Build Waterborne Pavement Marking Paint applied after October 15 must be formulated as cold-weather waterborne paint. Cold weather waterborne paint will meet the requirements of Section 980.1 C.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 22.5 Gals/Mile  
Glass Beads = 8 Lbs/Gal.

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

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

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

If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m<sup>2</sup>/lux for white and 170 mc/m<sup>2</sup>/lux for yellow.

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.



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

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

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.

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.

All excavations below the existing pavement thickness will be backfilled prior to the end of the workday.

TRAFFIC CONTROL FOR PCCP REPAIRS

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

Access to approaches will be maintained at all times.

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

Holes adjacent to centerline in the lane open to traffic created during removal and replacement of PCC pavement repair areas will be filled with gravel cushion material.

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.

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

CONTRACTOR FURNISHED PORTABLE CHANGEABLE MESSAGE SIGN

One week prior to starting work affecting the traveling public, portable changeable message signs (PCMS) will be installed at locations as directed by the Engineer 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.

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.

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.

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	5	12

TRAFFIC CONTROL SIGNS

SD 79S - PCN i76d

		EXPRESSWAY / INTERSTATE			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 65	6	36" x 48"	12.0	72.0
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 70	2	36" x 48"	12.0	24.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	4	48" x 48"	16.0	64.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	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			
		456.0			

US 385N – PCN i76e

		EXPRESSWAY / INTERSTATE			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 65	6	36" x 48"	12.0	72.0
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 70	2	36" x 48"	12.0	24.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	4	48" x 48"	16.0	64.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	4	48" x 48"	16.0	64.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	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			
		456.0			

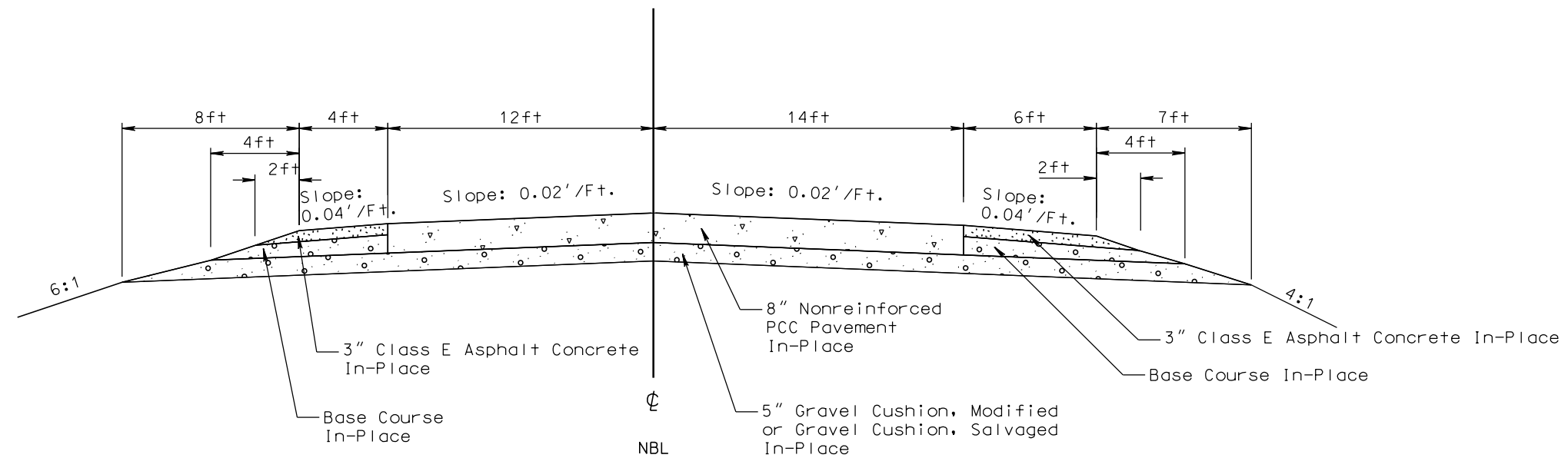
Table of Concrete Repair																	
County	Route	MRM	Disp.	Lane	Length	Width	No. 5 Deformed Tie Bar	No. 9 Deformed Tie Bar	1 ¼" Bar	Insert Steel Bar in PCC Pavement	Dowel Bar	Nonreinforced PCC Pavement Repair	Cold Applied Plastic Pavement Marking, 4"	Grooving for Cold Applied Plastic Pavement Marking, 4"	High Build Waterborne Pavement Marking Paint, 4" White	High Build Waterborne Pavement Marking Paint, 4" Yellow	Grooving for Durable Pavement Marking, 4"
					(Ft)	(Ft)	(Each)	(Each)	(Each)	(Each)	(Each)	(SqYd)	(Ft)	(Ft)	(Ft)	(Ft)	(Ft)
PCN i76d																	
Custer	079 S	38	+0.844	Both	60	26	24		52	76	52	173.3	15	15	60	60	120
Custer	079 S	45	+0.005	Both	40	26	16		52	68	26	115.6	10	10	40	40	80
Total										144	78	288.9	25	25	100	100	200
PCN i76e																	
Fall River	385 N	2	+0.975	Both	15	26	6	26	26	58		43.3	3.75	3.75	15	15	30
Fall River	385 N	4	+0.947	Both	60	26	24		52	76	52	173.3	15	15	60	60	120
Fall River	385 N	6	+0.480	Both	75	26	30	26	26	82	78	216.7	18.75	18.75	75	75	150
Total										216	130	433.3	37.5	37.5	150	150	300

# IN-PLACE TYPICAL SECTIONS

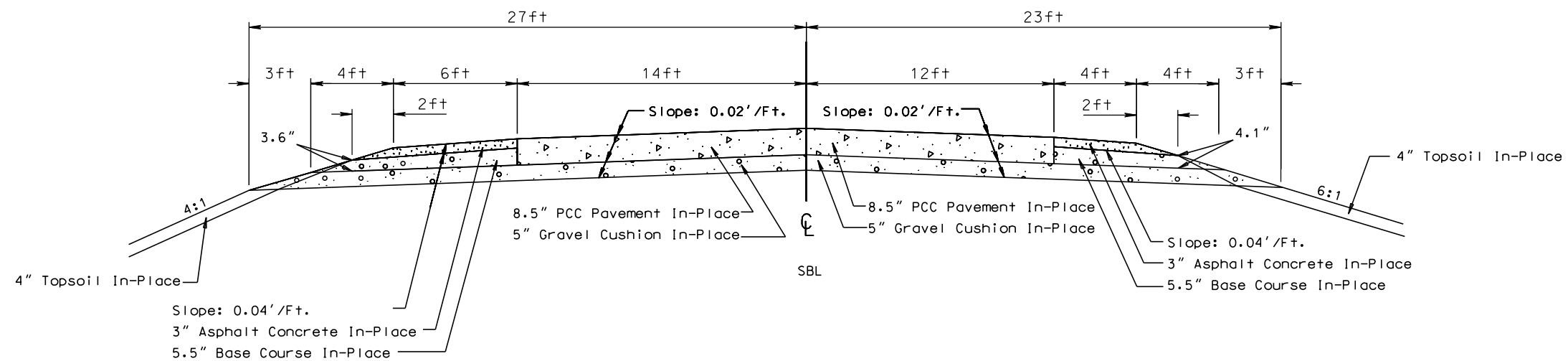
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	7	12

Plotting Date: 03/15/2023

US Highway 385 N  
In-Place Cross Section



SD Highway 79 S  
In-Place Cross Section

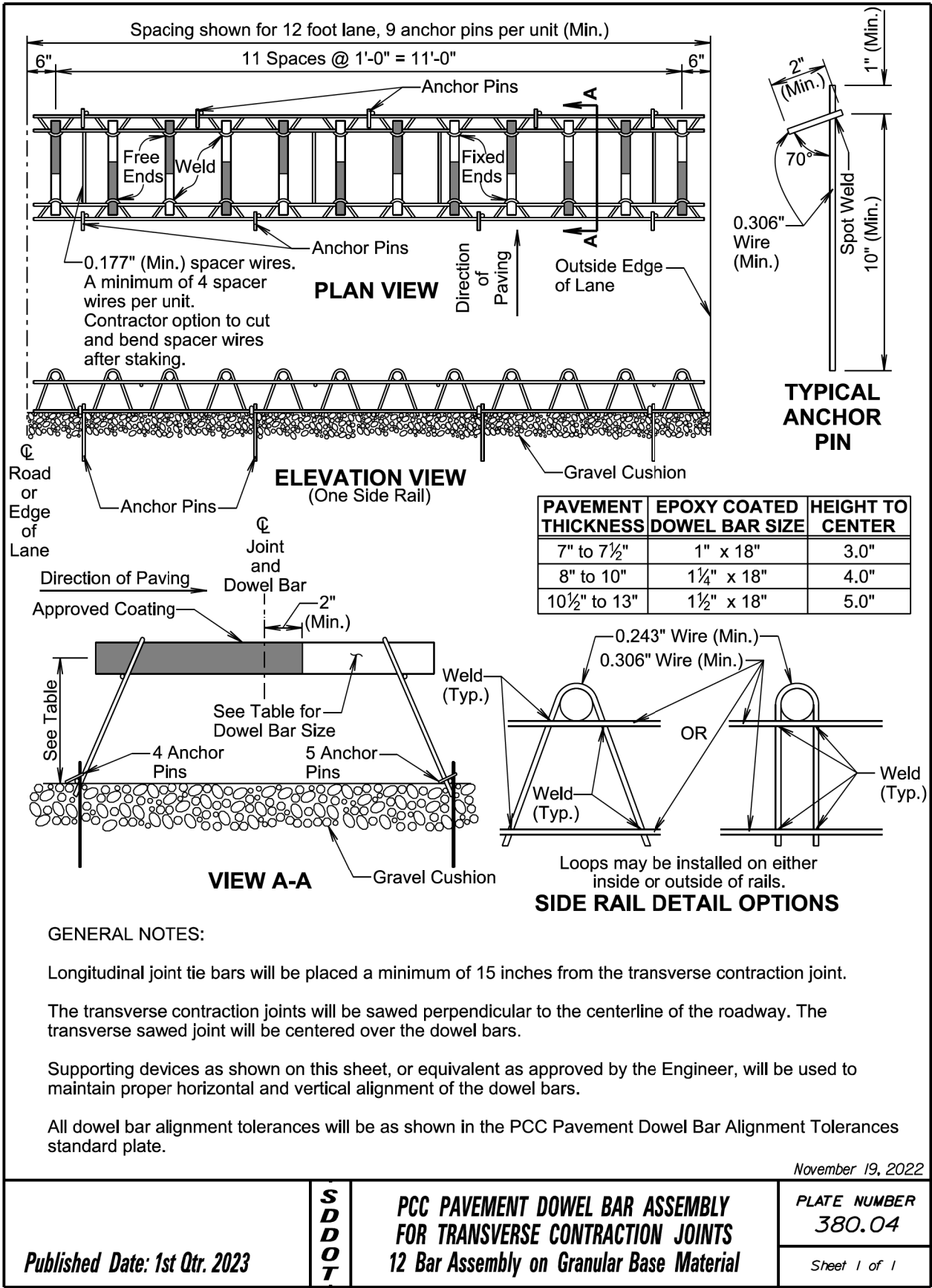
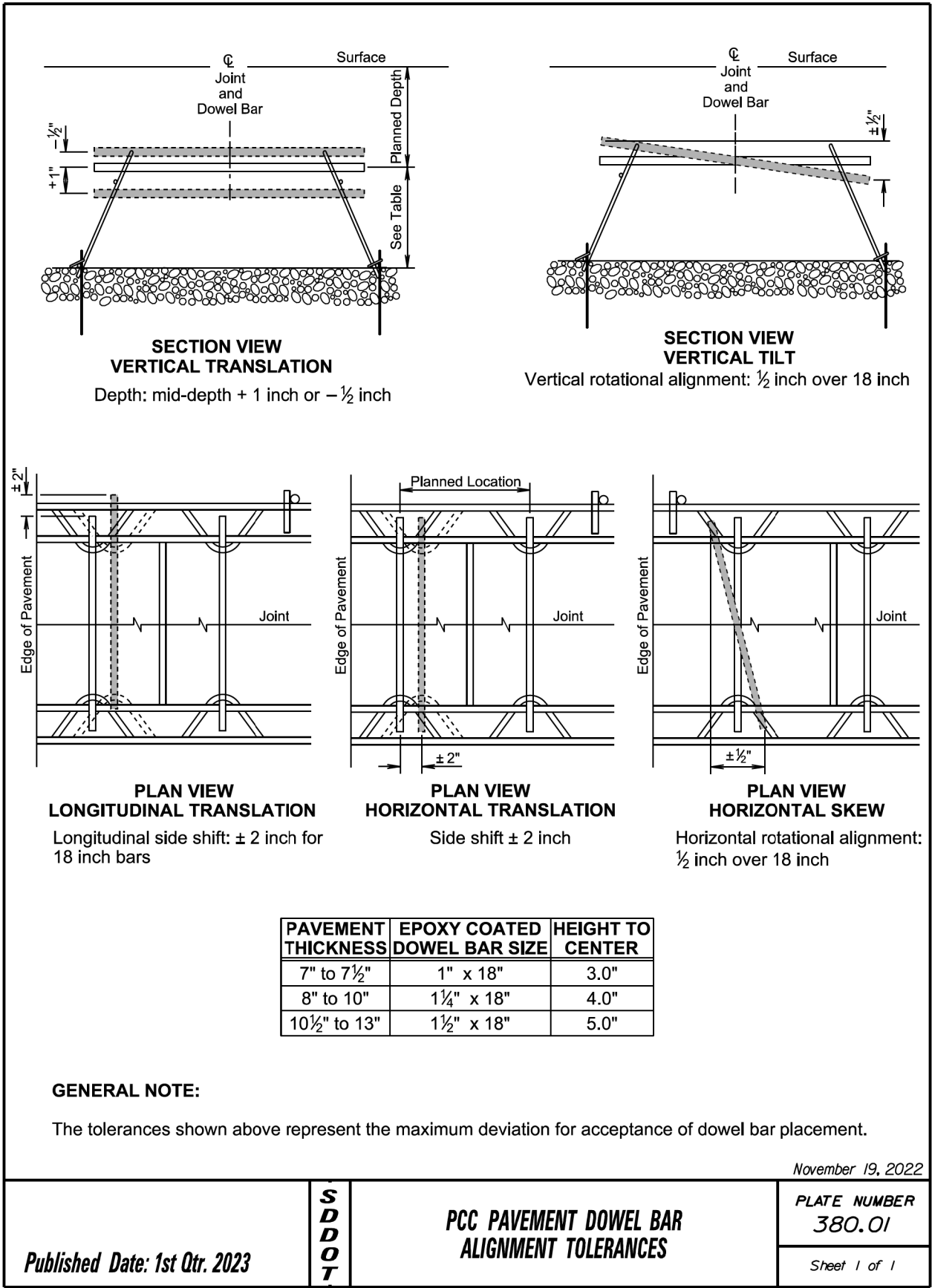


PLOT SCALE - 1:10

PLOT NAME - 2

FILE - ... \IN-PLACE TYPICALS.DGN

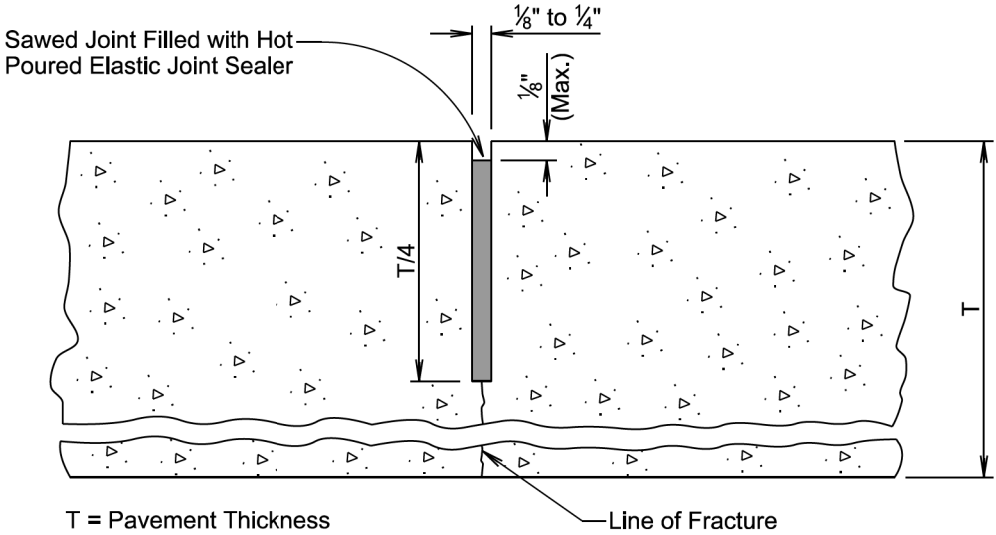
PLOTTED FROM - TRRC12608





STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	9	12

Plotting Date: 03/15/2023



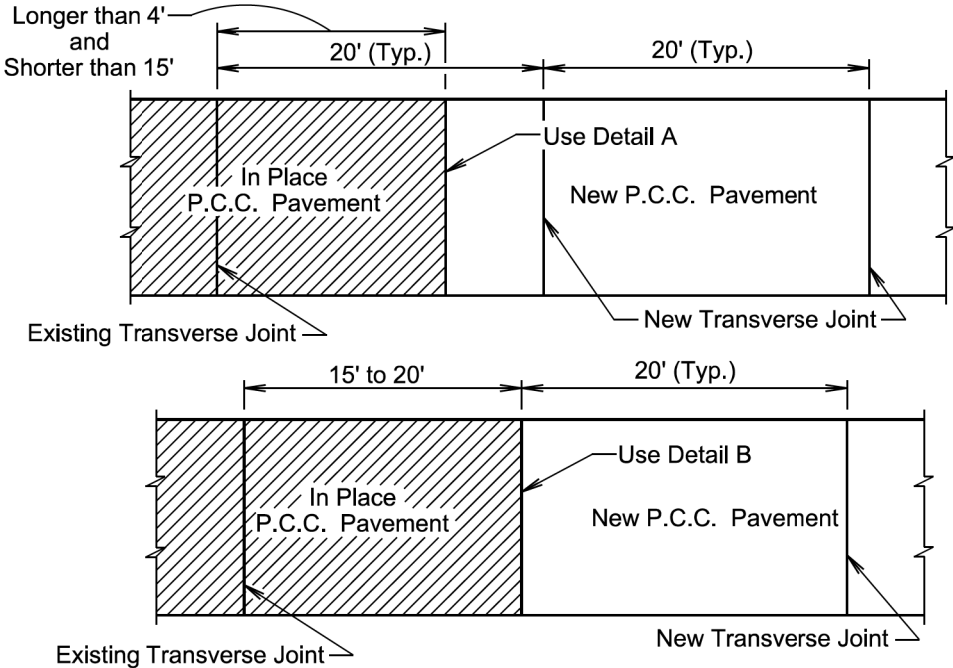
**GENERAL NOTES:**

If an early entrance saw cut does not develop the full transverse crack, then the saw cut to control cracking will be a minimum 1/4 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.

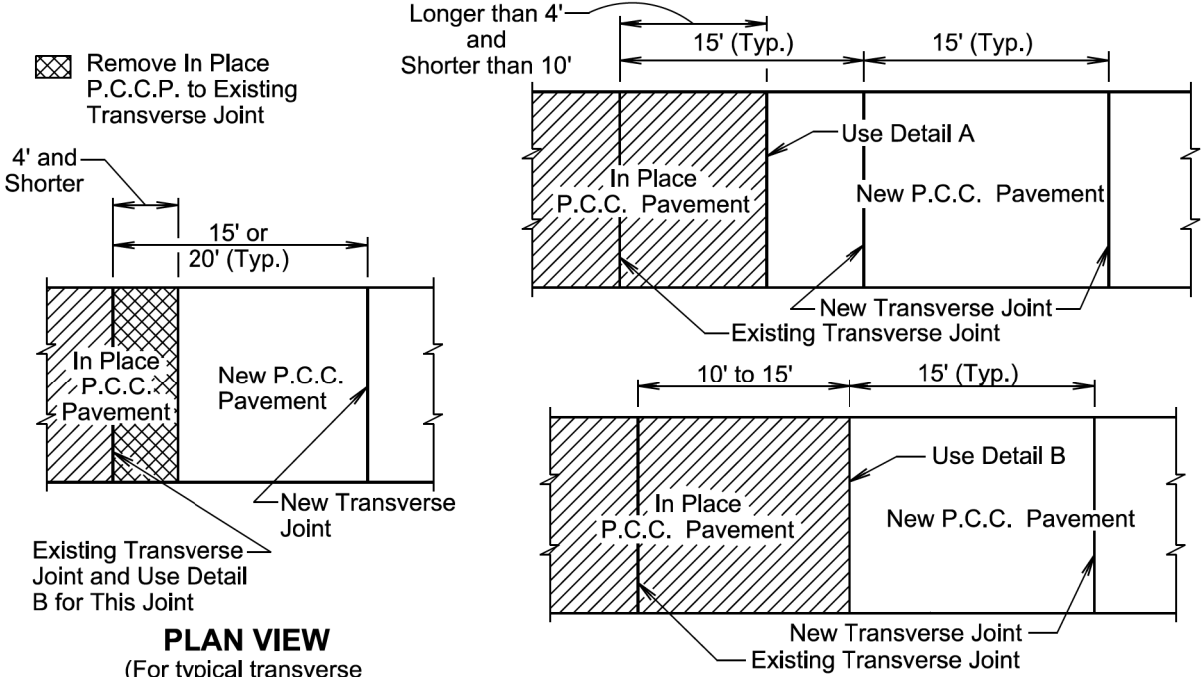
November 19, 2022

<i>Published Date: 1st Qtr. 2023</i>	<b>S D D O T</b>	<b>PCC PAVEMENT TRANSVERSE CONTRACTION JOINT WITH OR WITHOUT DOWEL BAR ASSEMBLY</b>	PLATE NUMBER 380.12
			Sheet 1 of 1



**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)

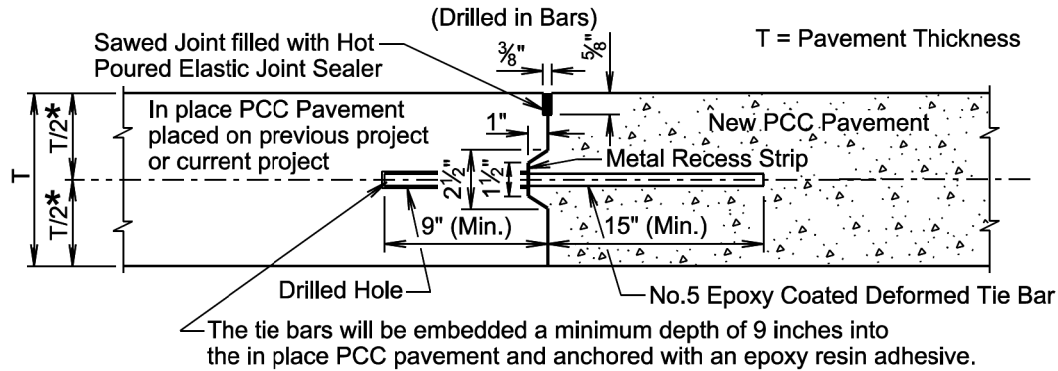
November 19, 2022

<i>Published Date: 1st Qtr. 2023</i>	<b>S D D O T</b>	<b>PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS</b>	PLATE NUMBER 380.15
			Sheet 2 of 2

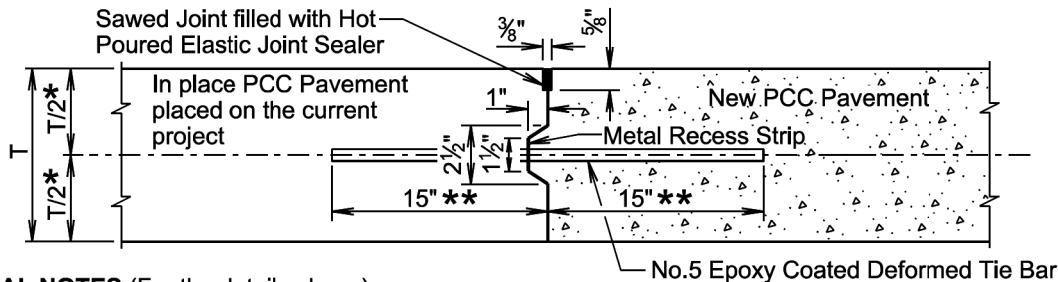
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392		

Plotting Date: 03/15/2023

LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS



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:

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

TIE BAR SPACING 30" MAXIMUM	
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.

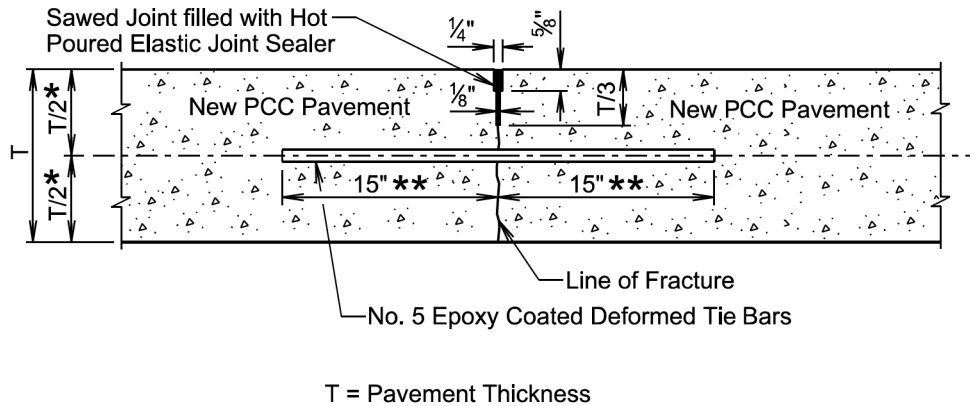
\* The vertical placement tolerance for any part of the tie bar will be  $\pm T/6$ .

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

November 19, 2022

Published Date: 1st Qtr. 2023	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS  
(Poured Monolithically)



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  $\pm 3$  inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 1st Qtr. 2023	S D D O T	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 2 of 2

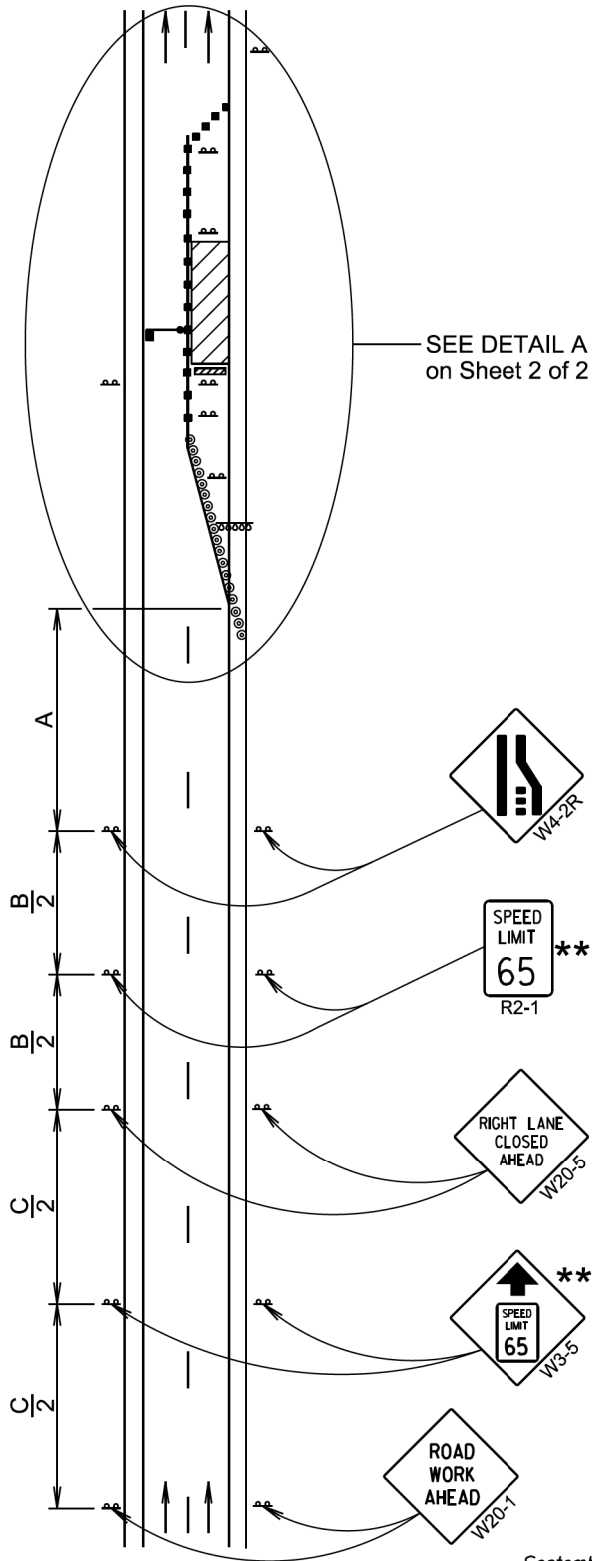
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet)		
	(A)	(B)	(C)
0 - 30	200		
35 - 40	350		
45 - 50	500		
55	750		
60 - 65	1000		
	(A)	(B)	(C)
70 - 80	1000	1500	2640

\*\* Speed appropriate for location.

- ◉ Reflectorized Drum
- Channelizing Device

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

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



September 22, 2021

Published Date: 1st Qtr. 2023	S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
			Sheet 1 of 2

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

\* Spacing is 40' for 42" cones.

\*\* Speed appropriate for location.

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

Flagger (As Necessary)

◉ Reflectorized Drum

■ Channelizing Device

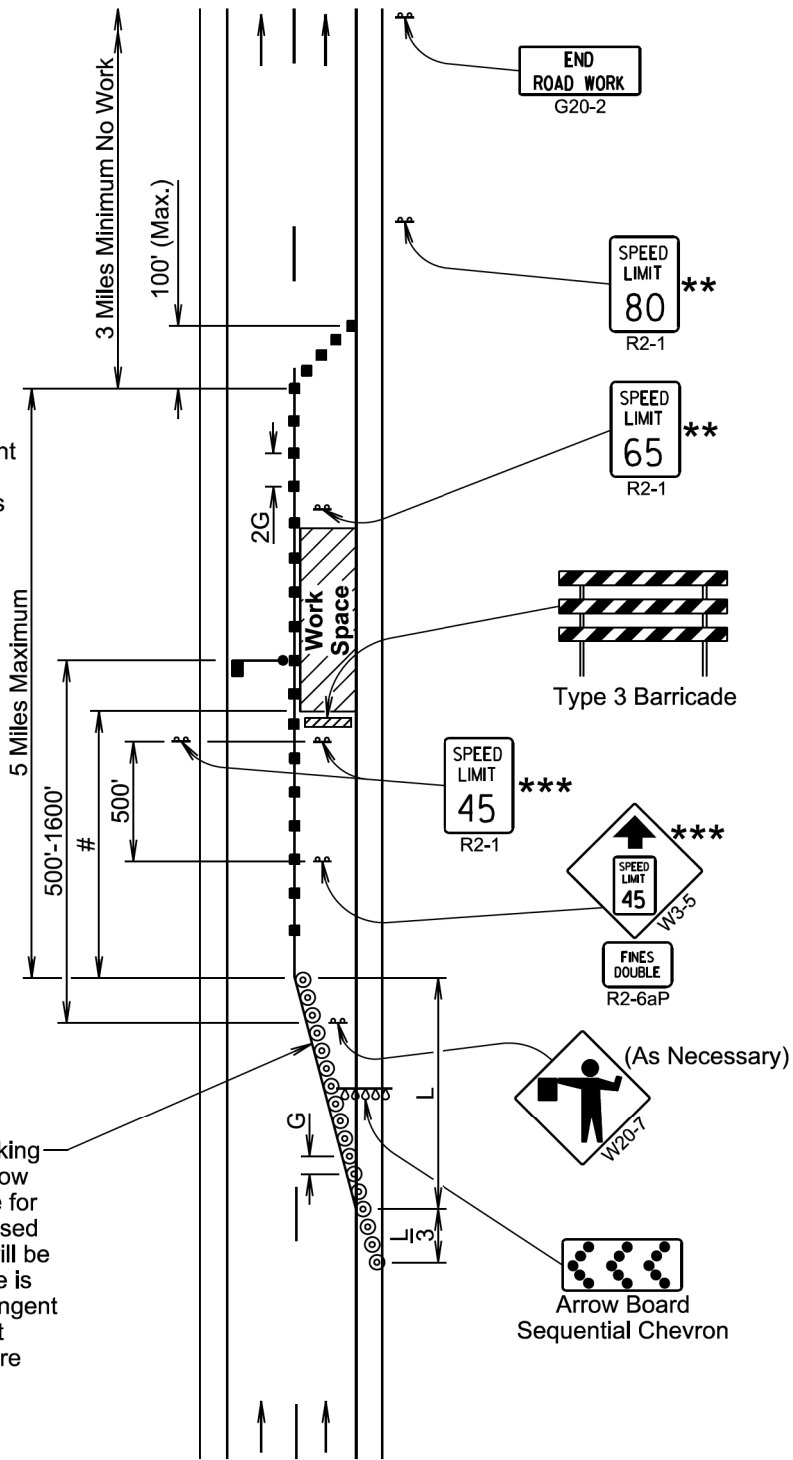
# The Work Space will be a minimum of 500' from the end of the taper.

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.



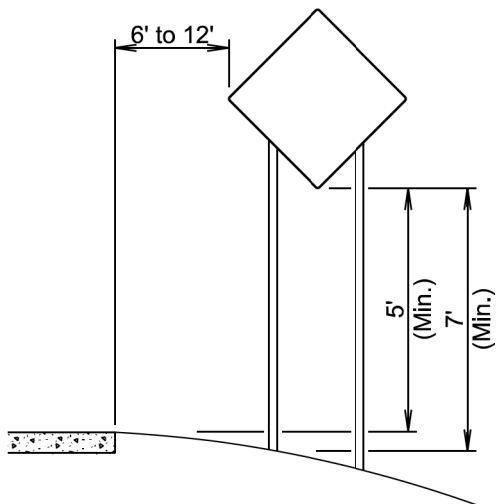
DETAIL A

September 22, 2021

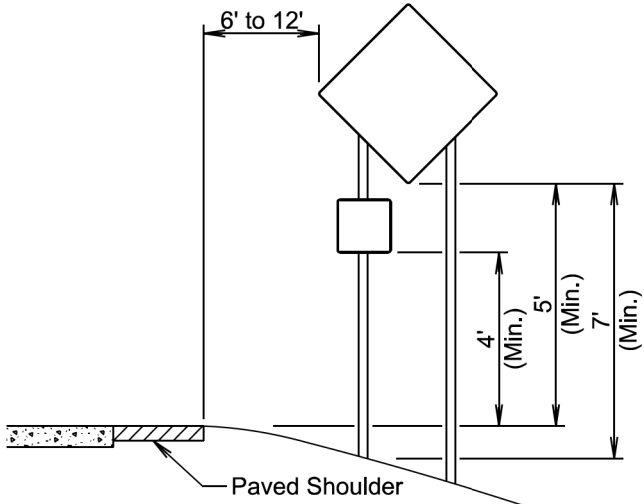
Published Date: 1st Qtr. 2023	S D D O T	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63
			Sheet 2 of 2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	079 S-492 & 385 N-392	12	12

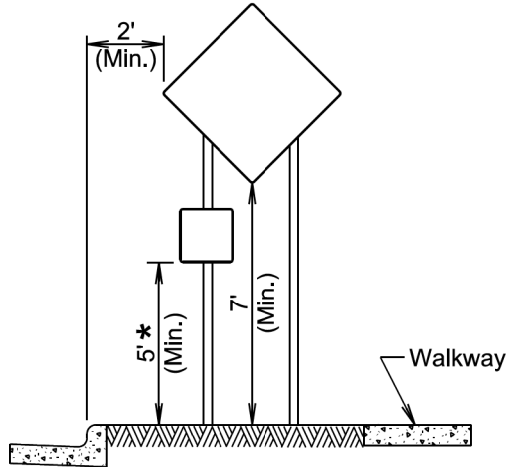
Plotting Date: 03/15/2023



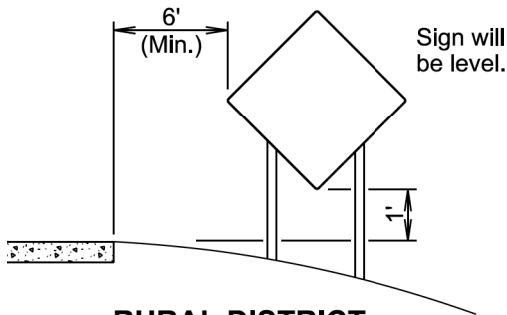
RURAL DISTRICT



RURAL DISTRICT WITH  
SUPPLEMENTAL PLATE



URBAN DISTRICT

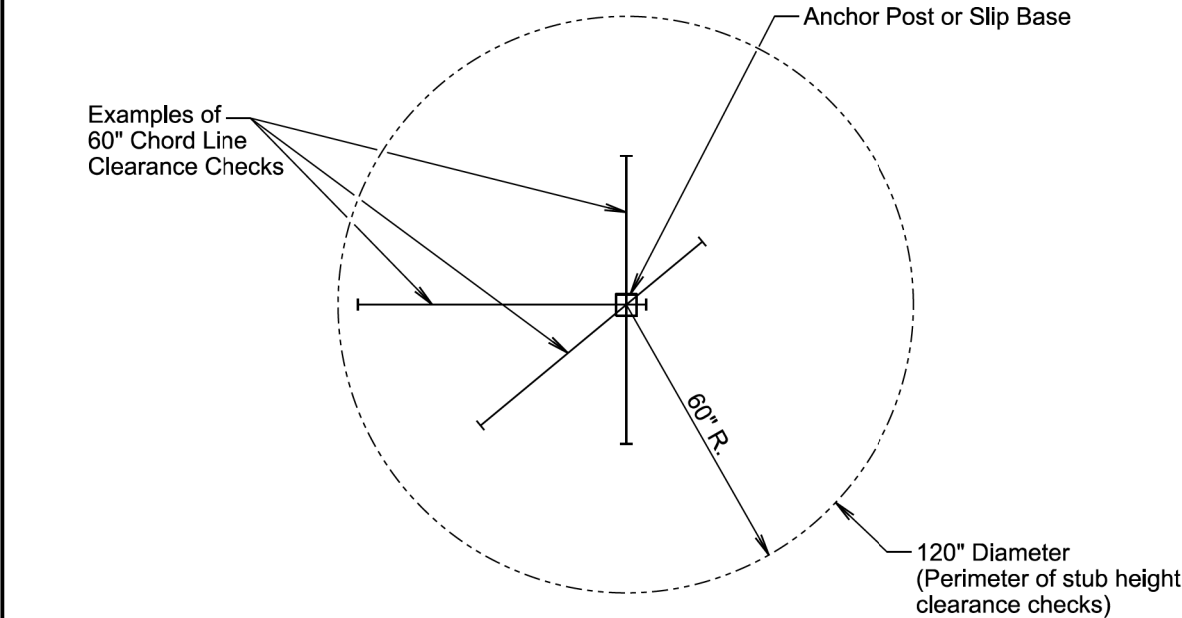


RURAL DISTRICT  
3 DAY MAXIMUM  
(Not applicable to regulatory signs)

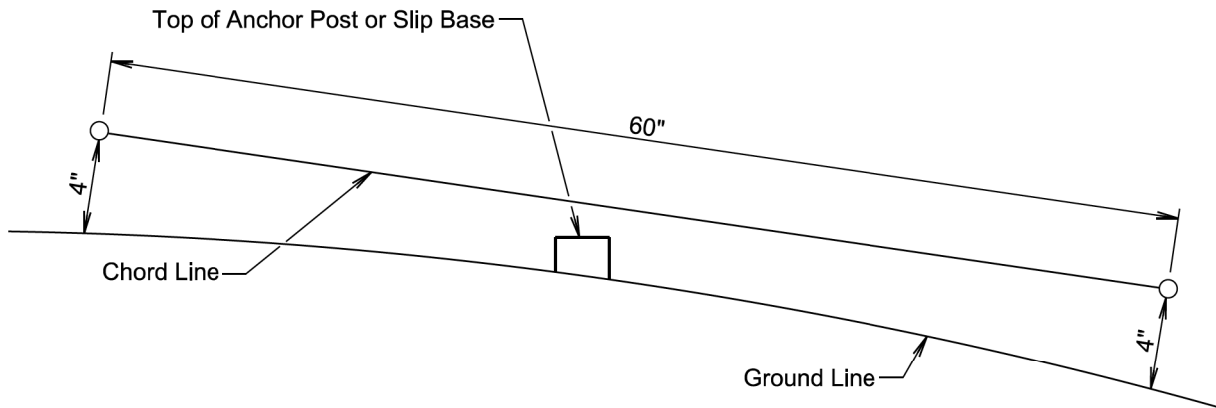
\* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 1st Qtr. 2023	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW  
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

January 22, 2021

Published Date: 1st Qtr. 2023	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1