

STATE OF SOUTH DAKOTA  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
**PROJECT P 0047(00)89**  
North Shore Rd, Eagle Dr & 228<sup>th</sup> St  
**BUFFALO COUNTY**

## Asphalt Concrete Resurfacing PCN 09VK

End Section 2 @ Eagle Dr  
Begin Section 3 @ 228<sup>th</sup> St  
Sta. 65+91.58

End Section 3 @ Keeble Dr. Int.  
Begin Section 4 @ Keeble Dr. Int.  
Sta. 101+88.11

END PROJECT  
End Section 4  
@ 228<sup>th</sup> St and SD 47 Jct  
Sta. 127+91.81

## BEGIN PROJECT

Begin Section 1  
@ North Shore Rd  
Sta. 0+00

GROSS LENGTH	12791.81 FEET	2.423 MILES
LENGTH OF EXCEPTIONS	0 FEET	0.000 MILES
NET LENGTH	12791.81 FEET	2.423 MILES

DESIGN DESIGNATION (228TH ST)	
AADT (2020)	320
AADT (2040)	490
DHV	74
D	50%
DHV T%	3.6%
AADT T%	8.0%
V	35 MPH

STORM WATER PERMIT  
None Required



# ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(00)89	2	21

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	131.0	SqYd
120E0100	Unclassified Excavation, Digouts	122	CuYd
210E0100	Shoulder Clearing	3.9	Mile
210E1005	Surface Preparation	0.681	Mile
260E1010	Base Course	517.2	Ton
260E1030	Base Course, Salvaged	71.0	Ton
320E1200	Asphalt Concrete Composite	4,976.3	Ton
320E7010	Grind 8" Sinusoidal Rumble Strip or Stripe in Asphalt Concrete	3.2	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	1.6	Mile
332E0010	Cold Milling Asphalt Concrete	2,015	SqYd
600E0300	Type III Field Laboratory	1	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	95	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	35	Gal
634E0010	Flagging	175.0	Hour
634E0020	Pilot Car	75.0	Hour
634E0110	Traffic Control Signs	494.1	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	8.1	Mile

## 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 ( $\geq 140$  °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> >

## 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.

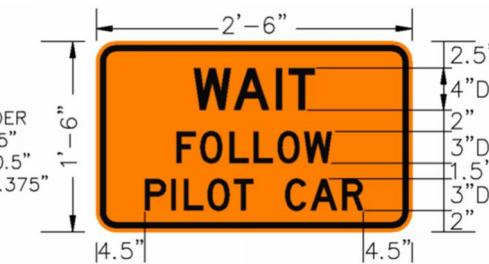
The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources 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.

		STATE OF SOUTH DAKOTA	PROJECT P 0047(00)89	SHEET 4	TOTAL SHEETS 21
<b><u>SURFACING THICKNESS DIMENSIONS</u></b>		<b><u>GENERAL TRAFFIC CONTROL</u></b>			
<p>The plans shown spread rates will be applied even though the thickness may vary from that shown in the plans.</p> <p>At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.</p>					
<b><u>SCOPE OF WORK</u></b>					
<p>Work on this project involves placement of Asphalt Concrete pavement, rumble stripes and pavement markings.</p>					
<b><u>SEQUENCE OF OPERATIONS</u></b>					
<p>Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.</p> <ol style="list-style-type: none"> <li>1. Install fixed location construction signing prior to start of work.</li> <li>2. Complete Surface Preparation on section 3.</li> <li>3. Complete paving operations.</li> <li>4. Complete Rumble Stripes</li> <li>5. Place Flush Seal.</li> <li>6. Install Permanent Pavement Markings.</li> <li>7. Remove fixed location construction project signing.</li> <li>8. Complete any remaining project cleanup.</li> </ol>					
<b><u>GENERAL NOTES</u></b>					
<p>The Contractor will be required to mow the inslopes with a rotary mower to a height of 6 inches for a distance of 14 feet from the edge of the roadway (or shoulder) for the length of the project. This work will be completed to the satisfaction of the Engineer after all construction activities are completed. All costs associated with this work will be incidental to the various contract items.</p>					
<b><u>UTILITIES</u></b>					
<p>The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.</p> <p>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.</p>					
<b><u>GENERAL TRAFFIC CONTROL</u></b>					
<p>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.</p> <p>All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.</p> <p>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.</p> <p>Unless otherwise stated in these plans, work will not be allowed during hours of darkness.</p> <p>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. If signs are laid down the stubs will be covered with a 48" cone. 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.</p> <p>All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.</p> <p>At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.</p> <p>BUMP (W8-1) signs will be placed in advance of areas that have been cold milled with a drop off more than 1" and are not resurfaced the same day and at locations determined by the Engineer. The BUMP sign assemblies will remain in place until the sections have been resurfaced.</p> <p>The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.</p> <p>A mobile work operation will be allowed provided the rumble stripe, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.</p>					
<b><u>FLAGGING</u></b>					
<p>Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.</p> <p>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.</p>					
					
<p>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".</p>					
<b><u>TYPE III FIELD LABORATORY</u></b>					
<p>The Contractor will provide high-speed broadband internet connection to the field lab. The multiport internet connection may be hardwired, through a cellular method, or other approved service that allows Wi-Fi connection. Prior to obtaining the internet connection, the Contractor will submit the internet connection's technical data to the Area Office to check for compatibility with the state's computer equipment. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. The internet service will be incidental to the contract unit price per each for "Type III Field Laboratory".</p>					

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(00)89	5	21

## SHOULDER CLEARING

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer, prior to cold milling or placement of the mainline surfacing. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the asphalt shoulder, to the satisfaction of the Engineer, following application of the flush seal.

Each shoulder will be measured for payment. Costs associated with this work will be included in the contract unit price per mile for "Shoulder Clearing".

## SURFACE PREPARATION

Prior to placement of the Asphalt Concrete Composite on Section 3, the Contractor will be required to prepare the existing surface according to the Surface Preparation specifications provided in Section 210, at locations determined by the Engineer.

The Contractor will ensure excess in place granular material is removed at locations (end of section 3, intersecting roads and entrances) to achieve the required elevation for the placement of the asphalt concrete. Payment for the removal of excess in place granular material will be incidental to the contract unit price per mile for Surface Preparation. This material may be reused as Base Course, Salvaged at the discretion of the Engineer.

## UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course. The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material for Sections 1, 2, and 4.

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Asphalt Concrete Composite per mile for backfill of Unclassified Excavation, Digouts for Sections 1, 2, and 4.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts per mile for the removal of asphalt and unstable material for Section 3.

Included in the Estimate of Quantities are 100 tons of Base Course per mile for backfill of Unclassified Excavation, Digouts for Section 3.

The digouts will be extended through the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

## COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was unknown.

Cold milling asphalt concrete will be done according to the typical section(s). In areas where maintenance patches have raised and/or widened the road, additional asphalt concrete will be milled to provide a uniform typical section from centerline to the edge of the finished shoulder. These areas also include farm, residential, field entrances and intersecting roads. Milling will be daylighted to the outside edge of the roadway. Any additional costs associated with this additional cold milling will be incidental to the contract unit price per square yard for "Cold Milling Asphalt Concrete".

Cold milling asphalt is estimated to produce 55.6 tons of cold milled asphalt concrete material.

The salvaged asphalt concrete material will become the property of the Contractor for disposal.

## ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 asphalt for prime placed at the rate of 0.30 gallons per square yard. The asphalt for prime will be applied to the in place granular material or Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder. Blotting sand for prime required for maintenance of traffic will be applied at a rate of 10 pounds per square yard.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

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

## FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing. Asphalt for flush seal will be applied at a rate of 0.05 gallons per square yard.

Application of flush seal may be eliminated by the Engineer. If the paved surface remains tight, the Engineer will notify the Contractor as soon as possible that the flush seal is unnecessary.

## PERFORMANCE GRADED ASPHALT BINDER

Performance Graded Asphalt Binder will conform to Section 890, AASHTO M 332, and the Combined State Binder Group Method of Acceptance for Asphalt Binders, available from the Department's Bituminous Engineer.

## BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the stockpile site(s) provided by the Contractor and may be used without further gradation testing.

All other requirements for Base Course, Salvaged will apply

## GRIND SINUSOIDAL RUMBLE STRIPES IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the shoulders of typical sections 2 & 3, as detailed in the plan set. Sinusoidal rumble stripes will be paid for at the contract unit price per mile for "Grind 8" Sinusoidal Rumble Strip or Stripe in Asphalt Concrete". It is estimated that 3.2 miles of sinusoidal rumble stripes will be required.

Sinusoidal rumble strip/stripe installation will be completed prior to application of the flush seal and permanent pavement markings. In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply a flush seal to the newly installed 8" sinusoidal rumble stripes at a width of 14" and a rate of 0.10 Gal/SqYd. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be incidental to the contract unit price per ton for asphalt concrete composite.

## GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the centerline of typical sections 2 & 3, as detailed in the plans. Sinusoidal centerline rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. Sinusoidal centerline rumble stripes will be paid for at the contract unit price per mile for "Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete". It is estimated that 1.6 miles of sinusoidal centerline rumble stripes will be required.

This sinusoidal centerline rumble stripes will be constructed according to the details of Standard Plate 320.40.

Asphalt for Flush Seal will be applied after the centerline rumble stripes have been installed and prior to the application of permanent pavement markings. The application width will extend 1 ft beyond the centerline of the roadway in each direction to create a total application rate of 0.10 Gal/SqYd on the centerline rumble stripes.

In the event the flush seal is eliminated from the contract, the Contractor will still be required to apply asphalt for flush seal to the newly installed centerline rumble stripes at a width of 24" and a rate of 0.10 Gal/SqYd. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be incidental to the contract unit price per ton for asphalt concrete composite.

## TEMPORARY PAVEMENT MARKING

Temporary flexible vertical markers (tabs) will be installed on one side of the centerline rumble for the temporary pavement marking. No passing zones will be marked in accordance with Specifications. DO NOT PASS (R4-1) and PASS WITH CARE (R4-2) signs will also be used in addition to the temporary flexible vertical markers (tabs) placed per Specifications to mark no passing zones.

The total length of no passing zone on this project is estimated to be 0.8 miles.

It is estimated that 5 DO NOT PASS and 5 PASS WITH CARE signs will be required.

Temporary flexible vertical markers (tabs) will be used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course or after application of the flush seal.

Temporary pavement marking paint will not be allowed on the final lift of asphalt surfacing. Temporary pavement marking paint will not be allowed on the chip seal, fog seal, or flush seal. Temporary flexible vertical markers (tabs) must be used on the final lift of asphalt surfacing. The Contractor may use tabs with covers, uncovering them for the chip seal, fog seal, or flush seal. As an alternative, the Contractor may install new tabs for the fog seal or flush seal.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs after each installation as detailed below at no additional cost to the State.

Quantities of Temporary Pavement Markings consist of:

- One pass on top of the first lift of asphalt concrete (Section 3)
- One pass on top of the final lift of asphalt concrete (Sections 1-3)
- One pass on top of centerline rumble stripes (Sections 2-3)
- One pass prior to the flush seal, length as determined by the Engineer (Sections 1-3)
- One pass after the flush seal (Sections 1-3)

If the Engineer determines that an additional pass prior to the flush seal is not required, this application of the temporary pavement marking will be eliminated. If the flush seal is eliminated for the project, the application of the temporary pavement marking on top of the flush seal as well as the additional pass prior to the flush seal will be eliminated.

No adjustment in the contract unit price for "Temporary Pavement Marking" will be made because of a variation in quantities.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

## HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to Section 980.1 B.

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

## RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 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.

## RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

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

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

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

## MARKINGS WITHIN SINUSOIDAL CENTERLINE RUMBLE STRIPES

The sinusoidal centerline rumble stripes are recessed below the pavement surface, so pavement marking grooving will not be required at these locations.

Sinusoidal rumble stripes will receive an asphalt surface treatment to seal the centerline joint and minimize the depth of water held on centerline.

Retroreflectivity readings will not be taken for pavement markings within the sinusoidal rumble stripe. Restriping of pavement markings to meet the specified application rate requirements and to provide a quality retroreflective line will be at the expense of the Contractor with no additional cost to the Department. Sections to be restriped will be determined by the Engineer.

**RATES OF MATERIALS**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0047(00)89	7	21

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

**Section 1**

STA. 0+00 to 17+43.45

**ASPHALT CONCRETE COMPOSITE –  
2.0" Mainline Lift**

Asphalt Concrete Composite..... 30.09 Tons  
Total **30.09 Tons**

The exact proportion of these materials will be determined on construction.

**Section 2**

STA. 17+43.45 to 65+91.58

**ASPHALT CONCRETE COMPOSITE –  
1.5" Mainline Lift**

Asphalt Concrete Composite..... 27.57 Tons  
Total **27.57 Tons**

The exact proportion of these materials will be determined on construction.

**Section 3**

STA. 65+91.58 to 101+88.11

**ASPHALT CONCRETE COMPOSITE –  
2" Top Mainline Lift**

Asphalt Concrete Composite..... 38.00 Tons  
Total **38.00 Tons**

The exact proportion of these materials will be determined on construction.

**ASPHALT CONCRETE COMPOSITE –  
2" Bottom Mainline Lift**

Asphalt Concrete Composite..... 38.00 Tons  
Total **38.00 Tons**

The exact proportion of these materials will be determined on construction.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0047(00)89	8	21

Plotting Date: 12/12/2025

### TABLE OF ADDITIONAL QUANTITIES

LOCATIONS:	BASE COURSE TON	BASE COURSE TON	ASPHALT CONCRETE COMPOSITE TON	COLD MILLING ASPHALT CONCRETE (SQYD)					
					BASE COURSE TON	ASPHALT CONCRETE COMPOSITE TON	COLD MILLING ASPHALT CONCRETE (SQYD)	BASE COURSE TON	ASPHALT CONCRETE COMPOSITE TON
Begin Project at SD 47 just East of the Dam (AC for radius at intersection)	-	-	14.0	275					
Intersecting Roads @ Sta. 17+43.45 (North Shore Rd & Eagle Dr & parking lot ent.) (Cold Mill as detailed elsewhere in these plans)	-	-	60.0	1078					
80' transition on North Shore Rd to full 2" depth of cold milling (Cold Mill as detailed elsewhere in these plans)	-	-	-	204					
60' transition on Eagle Dr to full 2" depth of cold milling (Cold Mill as detailed elsewhere in these plans)	-	-	-	203					
Sta. 65+91.58, 228th St going West (Pave AC 75' west of center of intersection)	15	40	42.0	-					
Fix radius at intersection of SD34/SD47 and 228th ST (Cold Mill 2", Pave 2") Patch other areas along section 4 determined necessary by the Engineer	-	-	35.0	240					
Intersecting Roads/Unimproved Section Line Roads/ Residential, Commercial, Farm, and Field Entrances (See table of intersections and Entrances)	260	31	100.0	15					
<b>TOTALS</b>	<b>275</b>	<b>71</b>	<b>251.0</b>	<b>2015</b>					
The tonnage shown in the Table of Additional Quantities for Asphalt Concrete Composite is based on an average compacted thickness of the mainline lift thickness for the typical section the location is in.									
Application will be at the rate shown on the plans or as directed by the Engineer.									
The above quantities are included in the Estimate of Quantities.									

### TABLE OF INTERSECTIONS AND ENTRANCES (FOR INFORMATIONAL PURPOSES ONLY)

No.	HWY	APPROX. STA.	SIDE	SECTION	DESCRIPTION	COLD MILLING ASPHALT CONCRETE SQYD	BASE COURSE TON	BASE COURSE TON	ASPHALT CONCRETE TON	
1	N Shore Rd	17+43.40	L	1	PARKING LOT ENTRANCE					
2	N Shore Rd	17+43.45	L	1	NORTH SHORE RD to USACE					
3	Eagle Dr	20+81.00	R	2	RESIDENTIAL DRIVEWAY			10	6.6	
4	Eagle Dr	23+98.00	R	2	MEADOW LARK LN			15	7.0	
5	Eagle Dr	25+31.00	R	2	RESIDENTIAL DRIVEWAY			10	7.0	
6	Eagle Dr	27+12.00	R	2	SPARROW LN			10	10.0	
7	Eagle Dr	28+62.00	R	2	RESIDENTIAL DRIVEWAY			10	6.0	
8	Eagle Dr	31+91.00	R	2	RESIDENTIAL DRIVEWAY			10	6.4	
9	Eagle Dr	35+19.00	R	2	RESIDENTIAL DRIVEWAY			10	6.0	
10	Eagle Dr	41+73.00	R	2	RESIDENTIAL DRIVEWAY		2.0	10	2.3	
11	Eagle Dr	42+77.00	L	2	FIELD ENTRANCE		1.5	10	1.7	
12	Eagle Dr	46+44.00	L	2	RESIDENTIAL DRIVEWAY			10	6.7	
13	Eagle Dr	53+32.00	L	2	RESIDENTIAL DRIVEWAY		1.5	10	1.7	
14	Eagle Dr	57+27.00	L	2	RESIDENTIAL DRIVEWAY			10	4.8	
15	Eagle Dr	62+63.00	L	2	RESIDENTIAL DRIVEWAY		1.5	10	1.7	
16	Eagle Dr	65+91.58	L	2	228TH ST GOING WEST					
17	228th St	74+40.00	L	3	FIELD ENTRANCE		1.5	10	1.7	
18	228th St	75+66.00	R	3	RESIDENTIAL DRIVEWAY		2.0	10	2.3	
19	228th St	80+41.00	L	3	RESIDENTIAL DRIVEWAY		2.0	10	2.3	
20	228th St	82+71.00	L	3	RESIDENTIAL DRIVEWAY		2.0	10	2.3	
21	228th St	83+73.00	R	3	RESIDENTIAL DRIVEWAY		1.5	10	1.7	
22	228th St	85+38.00	R	3	RESIDENTIAL DRIVEWAY		3.5	15	3.7	
23	228th St	85+65.00	L	3	RESIDENTIAL DRIVEWAY		3.5	15	3.7	
24	228th St	88+58.00	R	3	RESIDENTIAL DRIVEWAY		2.0	10	2.3	
25	228th St	93+84.00	L	3	RESIDENTIAL DRIVEWAY		2.0	10	2.3	
26	228th St	93+84.00	R	3	FIELD ENTRANCE		1.5	10	1.7	
27	228th St	101+88.11	R	4	KEEBLE DR					
28	228th St	103+52.00	L	4	RESIDENTIAL DRIVEWAY					
29	228th St	106+60.00	R	4	RESIDENTIAL DRIVEWAY					
30	228th St	107+61.00	R	4	RESIDENTIAL DRIVEWAY					
31	228th St	108+98.00	R	4	RESIDENTIAL DRIVEWAY					
32	228th St	112+92.00	R	4	SWIFT HORSE RD					
33	228th St	112+92.00	L	4	RESIDENTIAL DRIVEWAY					
34	228th St	124+56.00	L	4	CHURCH ENTRANCE					
35	228th St	127+91.81	L	4	SD 34					
36	228th St	127+91.81	R	4	SD 47					
					SUBTOTAL:	0	28.0	245	91.9	
					Miscellaneous locations to be determined by the Engineer.		15	3.0	15	8.1
					TOTAL:	15	31.0	260	100	

The above quantities are included in the table of additional quantities.

The tonnage shown in the above table for Asphalt Concrete Composite is based on an average compacted thickness of the mainline lift thickness for the typical section the location is in, except locations shaded above. These shaded locations are currently gravel and the tonnage are based on an average compacted thickness of 3.0 inches.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0047(00)89	9	21

Plotting Date: 12/12/2025

### TABLE OF PROJECT STATIONING

SECTION	STATION	TO	STATION	LENGTH	GROSS	GROSS	NET	NET
					(Ft)	(Ft)	(Miles)	(Miles)
1	0+00.00	to	17+43.45	1743.5	1743.45	0.330	1743.45	0.330
2	17+43.45	to	65+91.58	4848.1	4848.13	0.918	4848.13	0.918
3	65+91.58	to	101+88.11	3596.5	3596.53	0.681	3596.53	0.681
4	101+88.11	to	127+91.81	2603.7	2603.70	0.493	2603.70	0.493
TOTAL:				12791.81	2.423	12791.81	2.423	

### TABLE OF MATERIAL QUANTITIES

	UNCLASSIFIED EXCAVATION, DIGOUTS	REMOVE ASPHALT CONCRETE PAVEMENT	BASE COURSE	ASPHALT CONCRETE COMPOSITE	ASPHALT CONCRETE COMPOSITE	BASE COURSE	BASE COURSE SALVAGED	ASPHALT CONCRETE COMPOSITE	COLD MILLING ASPHALT CONCRETE	
<-----Digouts----->					Spot Leveling	<-----Main Line----->				
SECTION	CuYd	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	SqYd	
1	17	25	33.0	8.3	16.5	-	-	524.6	-	
2	46	69	91.8	23.0	45.9	-	-	1336.6	-	
3	34	-	68.1	-	-	-	-	2733.4	-	
4	25	37	49.3	12.3	24.7	-	-	-	-	
<b>Sub totals</b>	<b>122</b>	<b>131</b>	<b>242.2</b>	<b>43.6</b>	<b>87.1</b>	<b>-</b>	<b>-</b>	<b>4594.6</b>	<b>-</b>	
<b>Additional Quantities</b>	-	-	-	-	-	275.0	71.0	251.0	2015.0	
<b>Totals</b>	<b>122</b>	<b>131</b>	<b>242.2</b>	<b>43.6</b>	<b>87.1</b>	<b>275.0</b>	<b>71.0</b>	<b>4845.6</b>	<b>2015.0</b>	

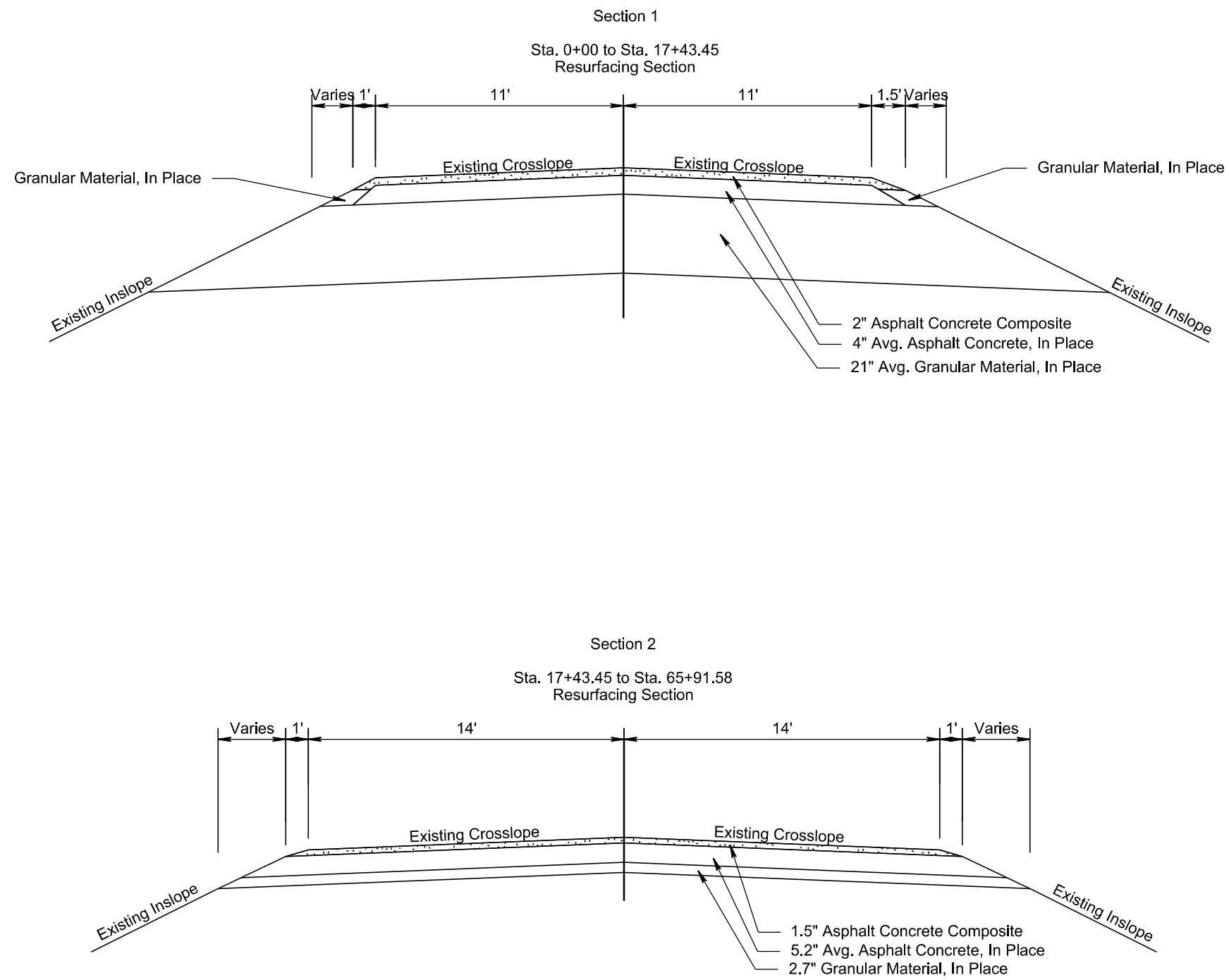
# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT P 0047(00)89	HEET 10	TOTAL SHEETS 21
Plotting Date: 12/12/2025			

PLOT SCALE - 1:6.00001

PLOTTED FROM - TRAB17382

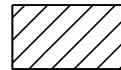
PLOT NAME - 3



# TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT P 0047(00)89	11	21
Plotting Date: 12/12/2025			

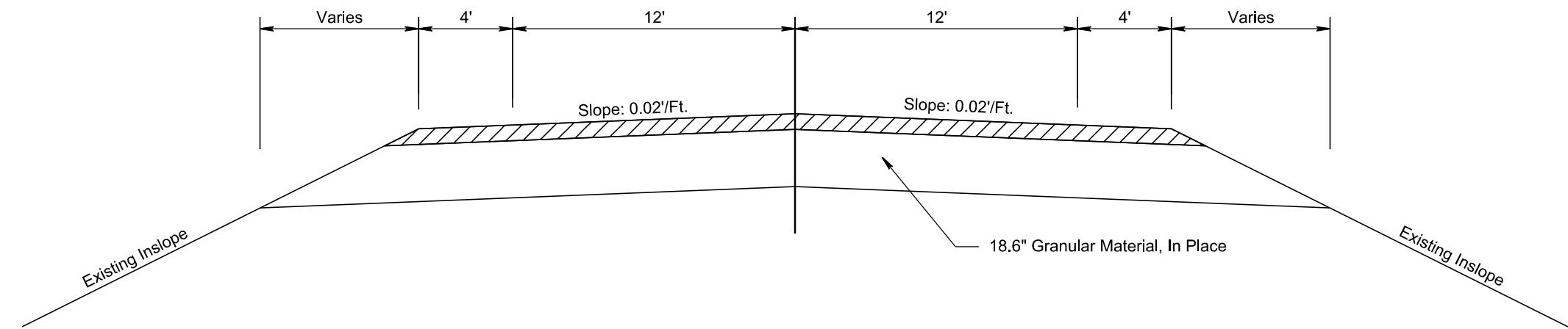
PLOT SCALE - 1:6.00001



4" Surface Preparation

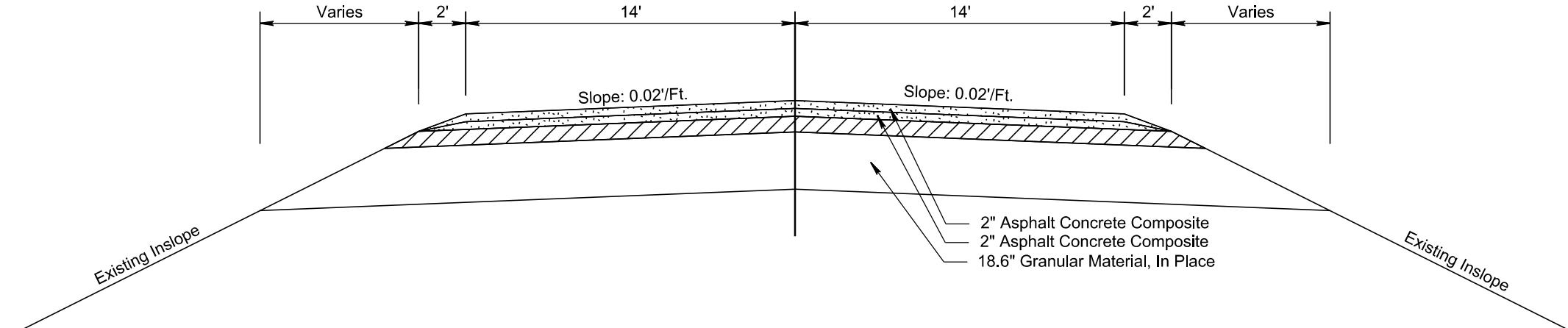
Section 3

Sta. 65+91.58 to Sta. 101+88.11  
In Place Section



Section 3

Sta. 65+91.58 to Sta. 101+88.11  
Surfacing Section



# IN-PLACE SURFACING SECTION

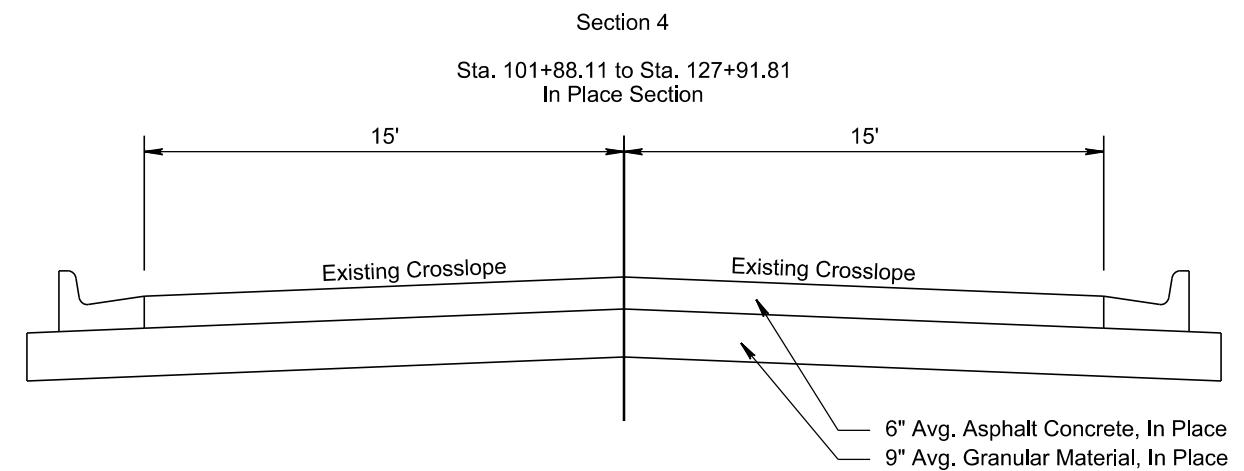
STATE OF SOUTH DAKOTA	PROJECT P 0047(00)89	SHEET 12	TOTAL SHEETS 21
Plotting Date: 12/12/2025			

PLOT SCALE - 1:6.00001

PLOTTED FROM - TRAB17382

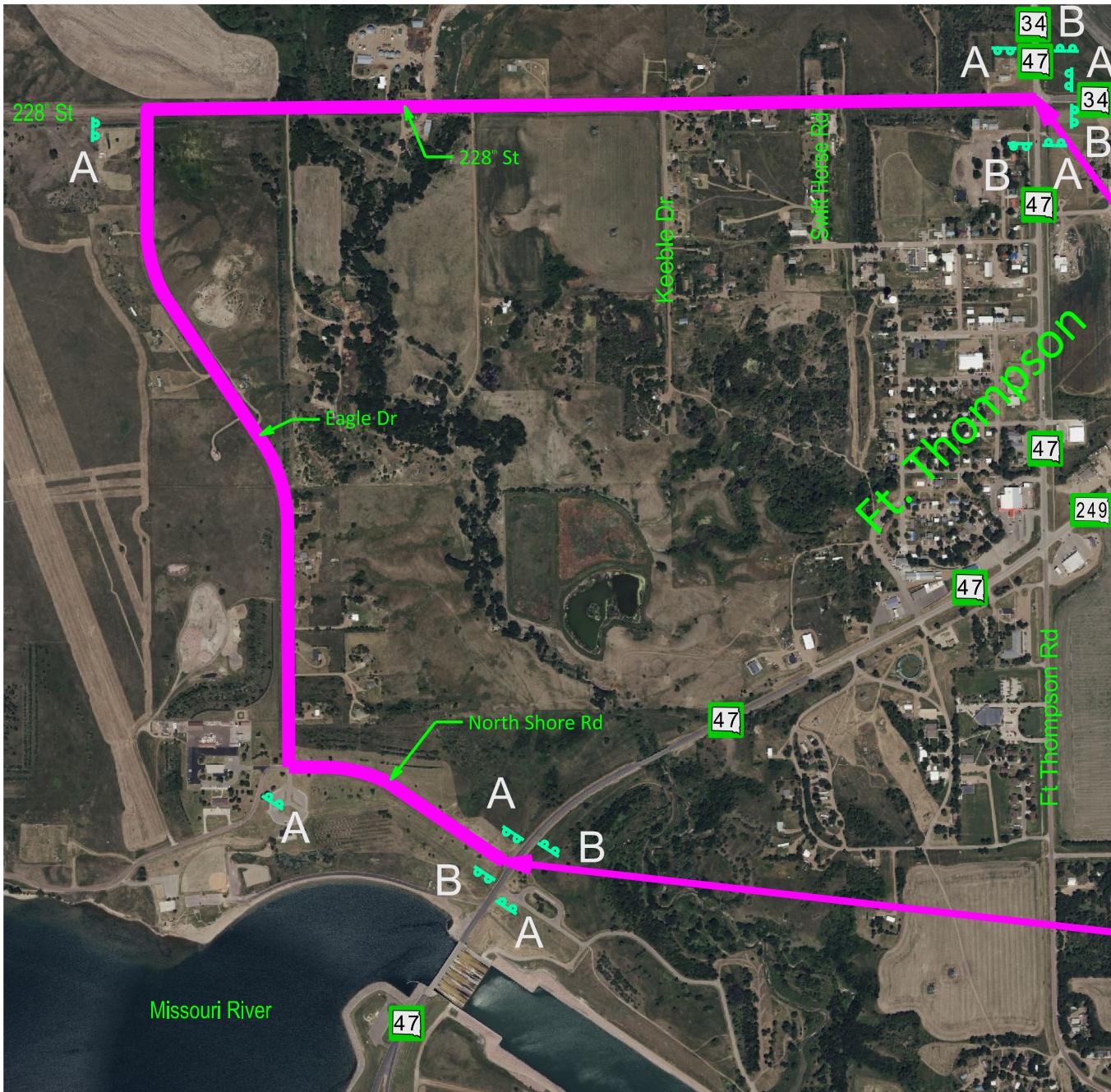
FILE - ... \BUFF09\K\09\K-TYPSECT-T001.D0N

PLOT NAME - 5



# FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS

STATE OF SOUTH DAKOTA	PROJECT NO. P 0047(00)89	Sheet No. 13	Total Sheets 21
-----------------------------	--------------------------------	--------------------	-----------------------



**BEGIN PROJECT**  
Begin Section 1  
@ North Shore Rd  
Sta. 0+00

**END PROJECT**  
End Section 4  
@ 228<sup>th</sup> St and SD 47 Jct  
Sta. 127+91.81



W20-1 ROAD WORK AHEAD signs will be mounted on portable supports, and will be placed on intersecting roadways as directed by the Engineer.  
ROAD WORK AHEAD signs will be moved as necessary to keep current with work activities.

EXACT LOCATION OF SIGNS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

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

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

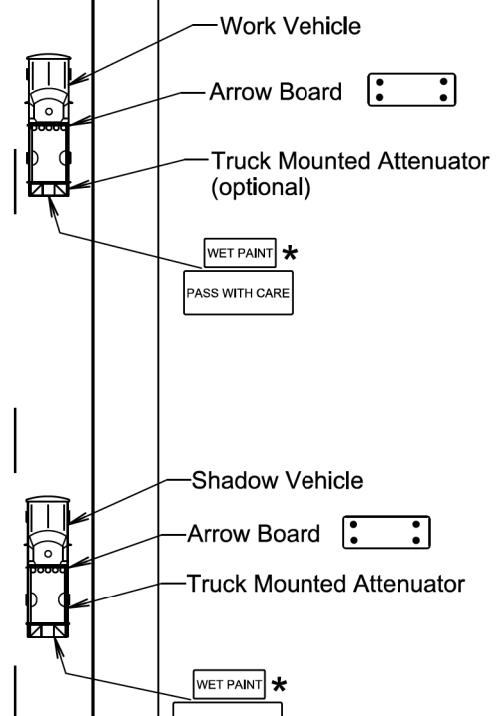
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

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

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

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



January 22, 2021

Published Date: 2026



MOBILE OPERATIONS ON 2-LANE ROAD

PLATE NUMBER	634.06
--------------	--------

Sheet 1 of 1



A

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

Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

Published Date: 2026



UNEVEN ROAD SURFACE

PLATE NUMBER	634.22
--------------	--------

Sheet 1 of 1



A

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

■ Flagger

■ Channelizing Device

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

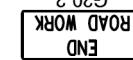
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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

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

The channelizing devices will be drums or 42" cones.

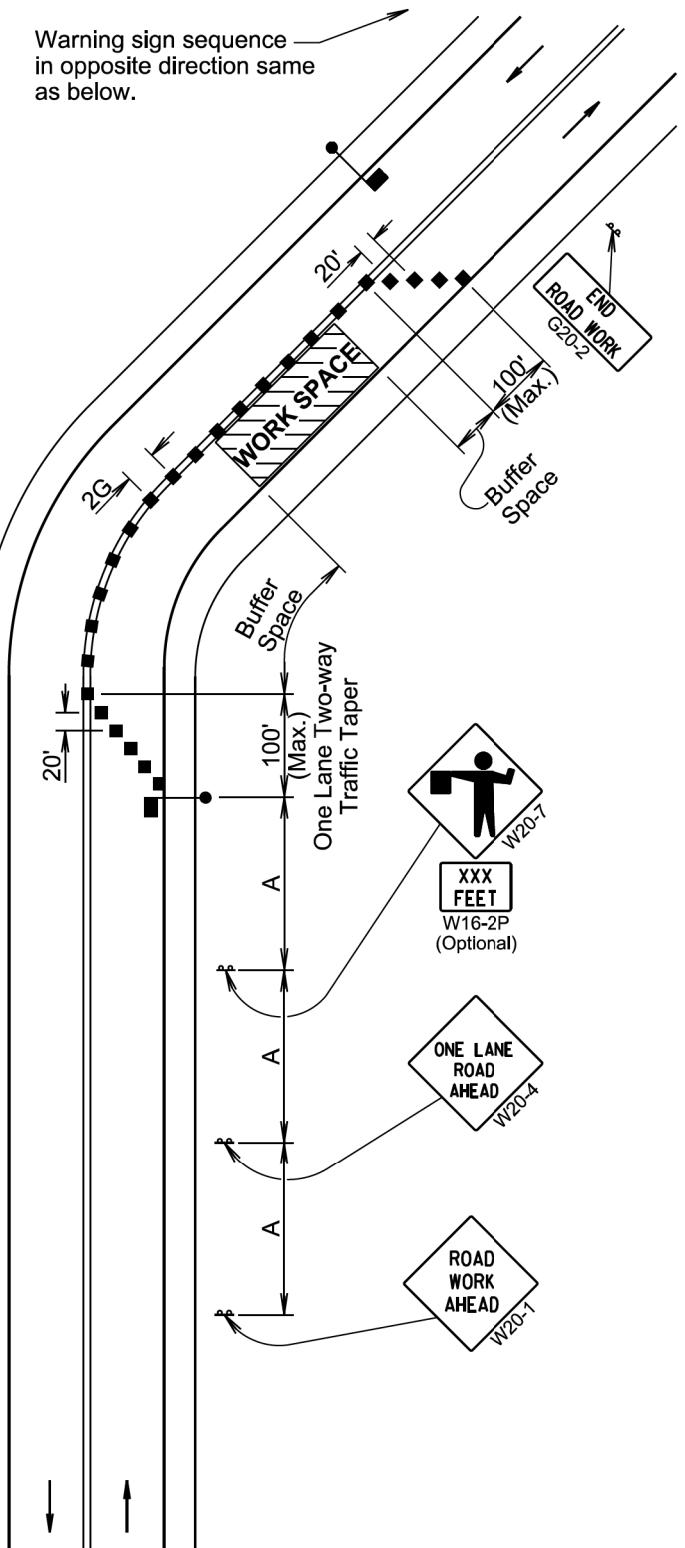
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

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

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



January 22, 2021

Published Date: 2026



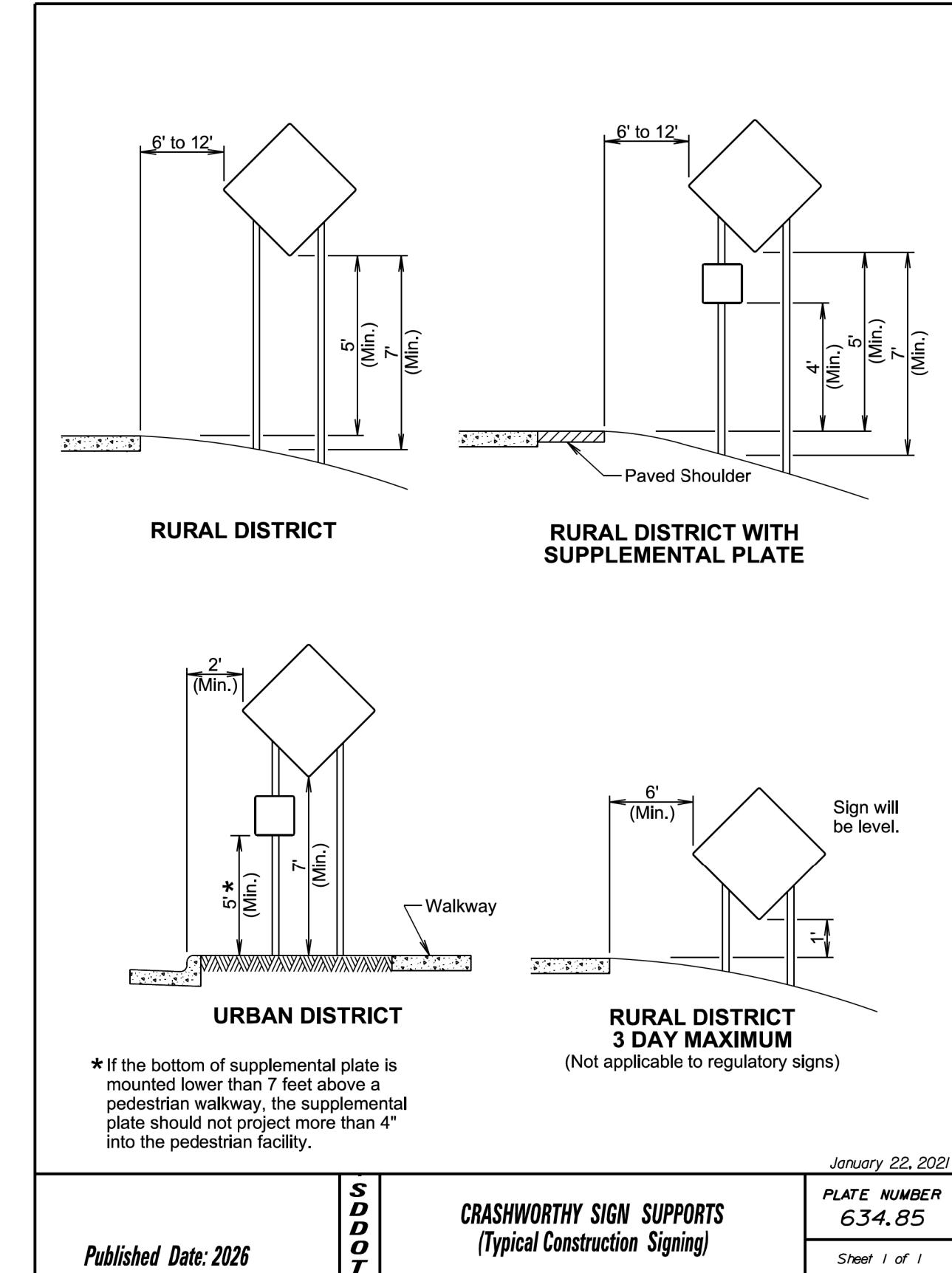
LANE CLOSURE WITH FLAGGER PROVIDED

PLATE NUMBER  
634.23

Sheet 1 of 1

STATE OF SOUTH DAKOTA	PROJECT P 0047(00)89	SHEET 15	TOTAL SHEETS 21
-----------------------	-------------------------	-------------	--------------------

Plotting Date: 12/12/2025



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

January 22, 2021

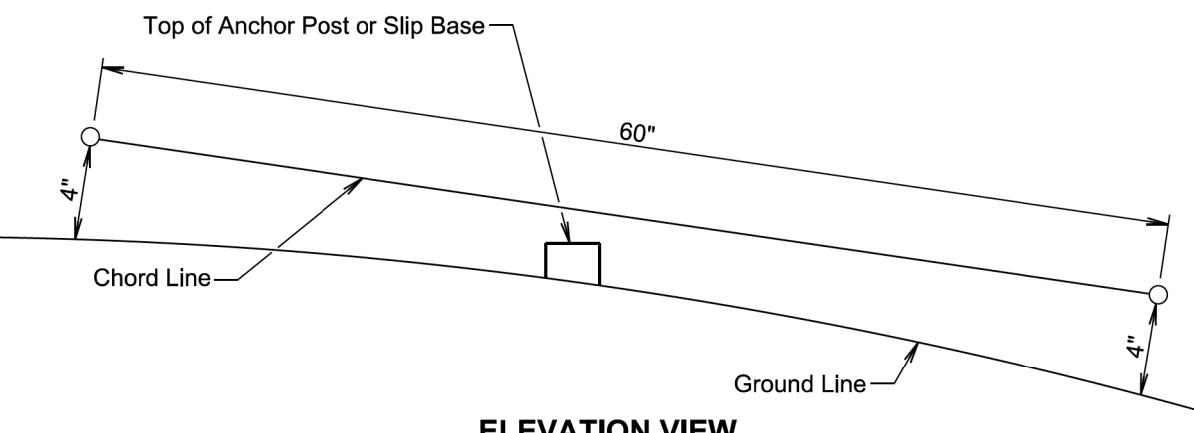
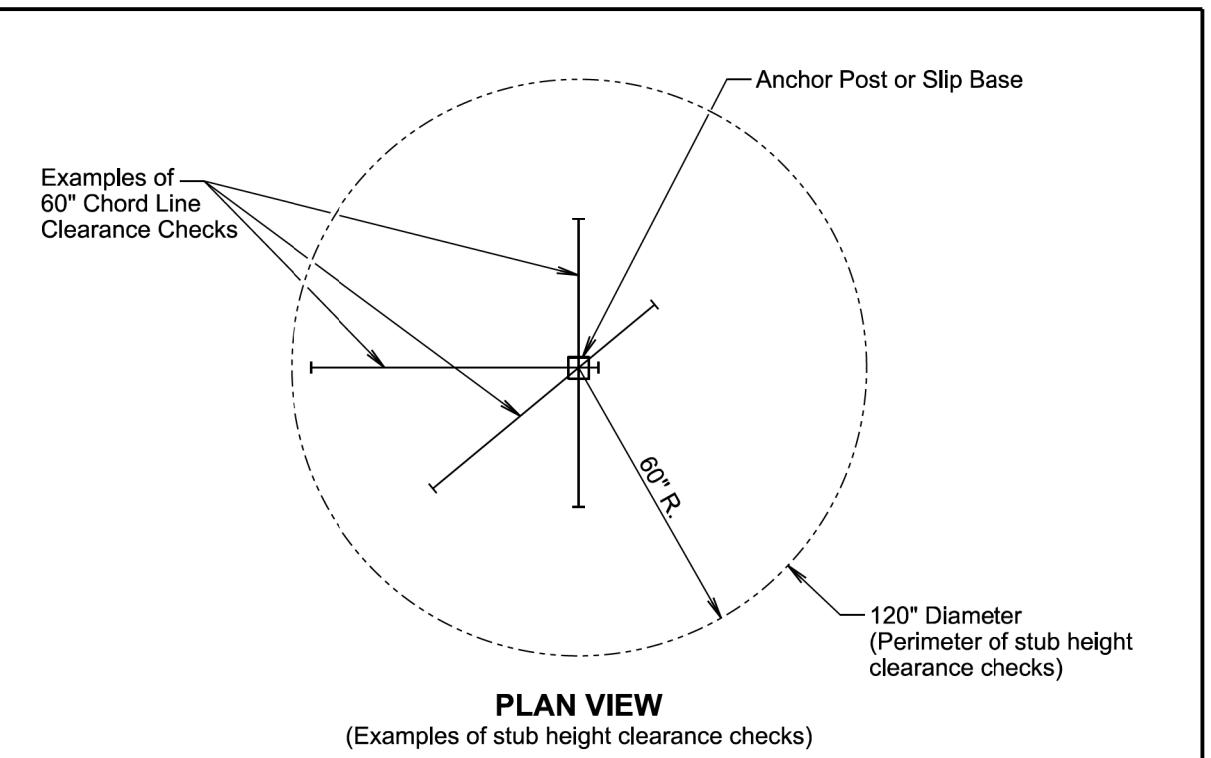
Published Date: 2026



CRASHWORTHY SIGN SUPPORTS  
(Typical Construction Signing)

PLATE NUMBER  
634.85

Sheet 1 of 1

**GENERAL NOTES:**

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

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

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

January 22, 2021

Published Date: 2026	<b>SDOT</b>	<b>BREAKAWAY SUPPORT STUB CLEARANCE</b>	PLATE NUMBER 634.99
			Sheet 1 of 1

**ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS**

		CONVENTIONAL ROAD		
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN
W8-1	BUMP	8	48" x 48"	16.0
W8-11	UNEVEN LANES	2	48" x 48"	16.0
W20-1	ROAD WORK AHEAD	11	48" x 48"	16.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0
W21-2	FRESH OIL	2	48" x 48"	16.0
SPECIAL	WAIT FOLLOW PILOT CAR	2	30" x 18"	3.8
G20-2	END ROAD WORK	5	36" x 18"	4.5

CONVENTIONAL ROAD  
TRAFFIC CONTROL SIGNS SQFT **494.1**

# INTERSECTION LAYOUT

STATE OF SOUTH DAKOTA	PROJECT NO. P 0047(00)89	sheet no. 17	total sheets 21
Plotting Date: 12/12/2025			

PLOT SCALE - 1:43000

PLOTTED FROM - TRAB17882

FILE - \*.\*\INTERSECTION LAYOUT.DGN

PLOT NAME - 6



# TRANSITION LAYOUTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0047(00)89	18	21

Plotting Date: 12/12/2025

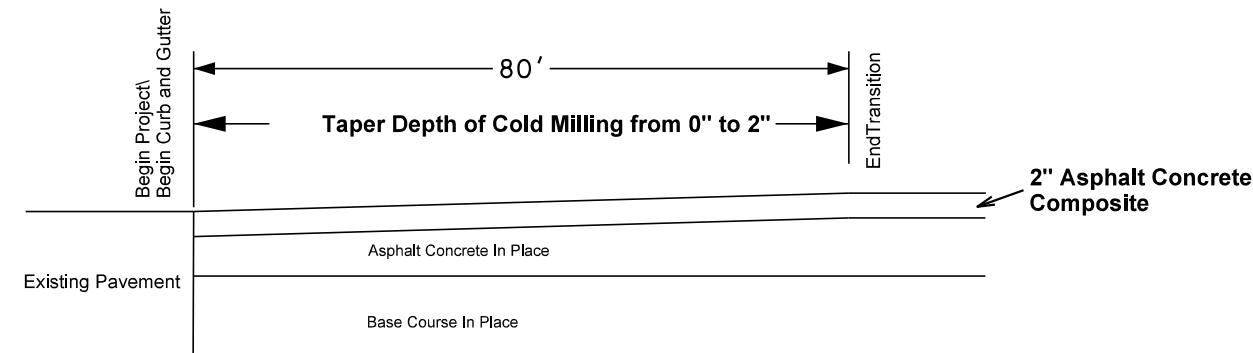
PLOT SCALE - 1:33600

PLOT NAME - 7

FILE - ... \BUFF09\K\09\K-COLD\_MILLING.DON

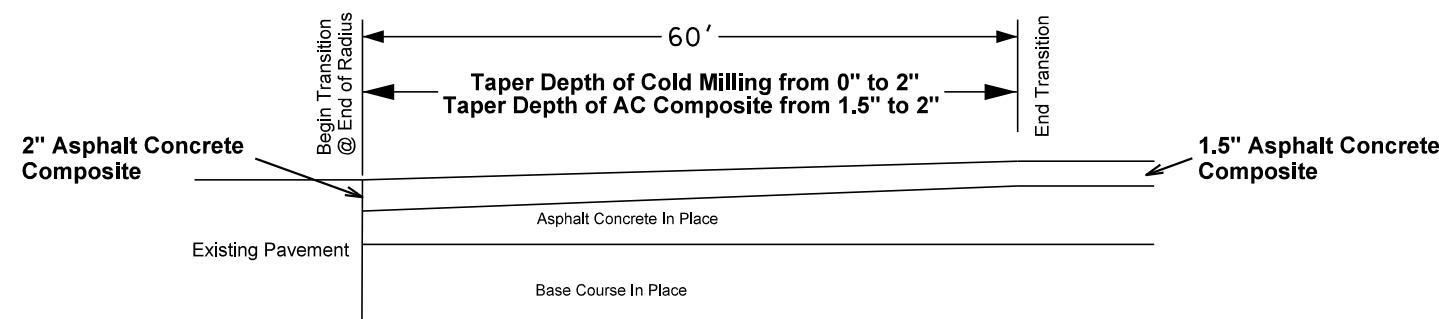
## TRANSITION SECTION

**Begin Project &  
Transition East of Eagle Dr Intersection**



## TRANSITION SECTION

**Transition North of N Shore Rd Intersection**



Note: Width of Cold Milling Asphalt Concrete at Transitions  
will match adjacent surfacing width.

Cost for tapering the width and depth of cold milling at Transitions  
will be incidental to the contract unit price per square yard for  
Cold Milling Asphalt Concrete.

PLOTTED FROM - TRAB17382

# TYPICAL PAVEMENT MARKING LAYOUT

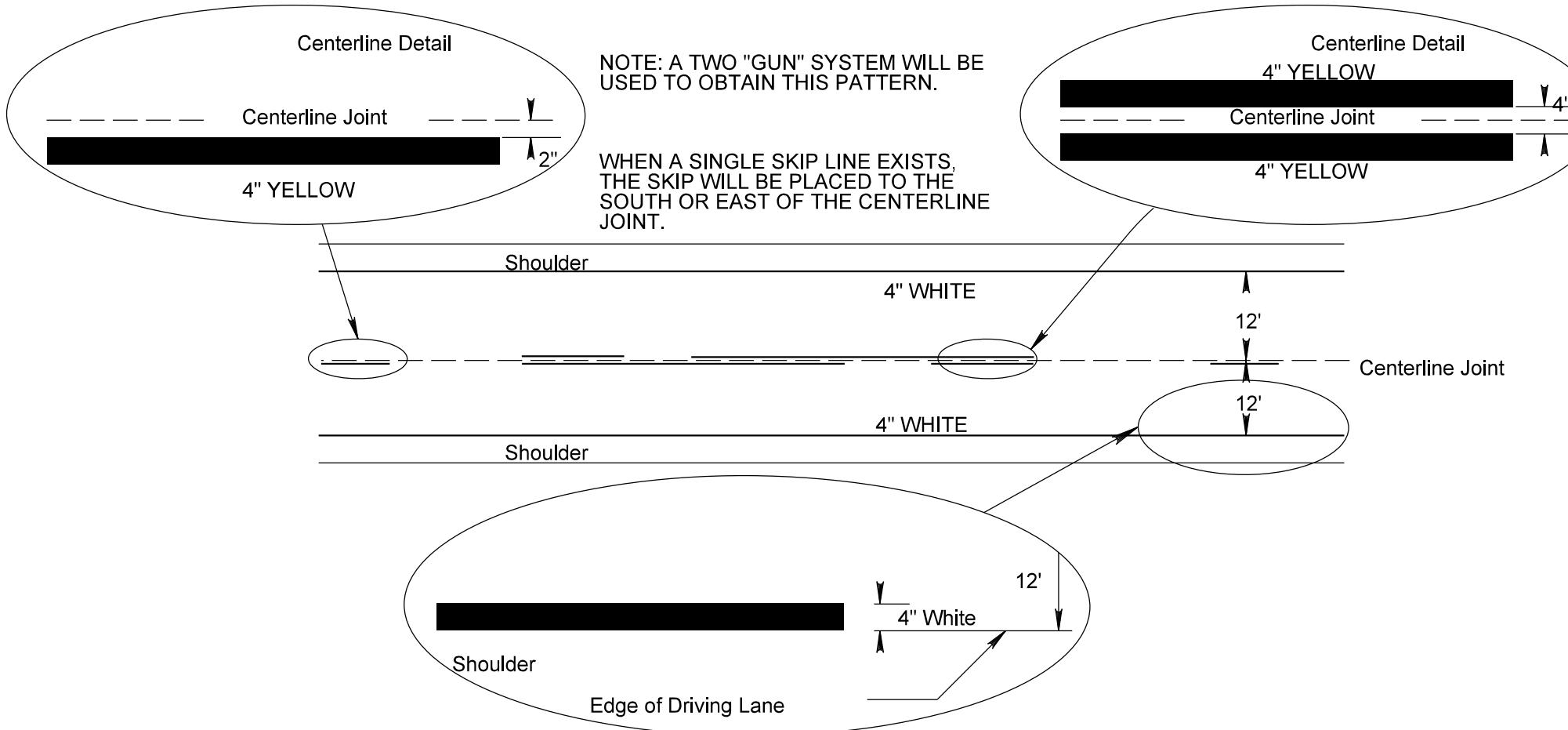
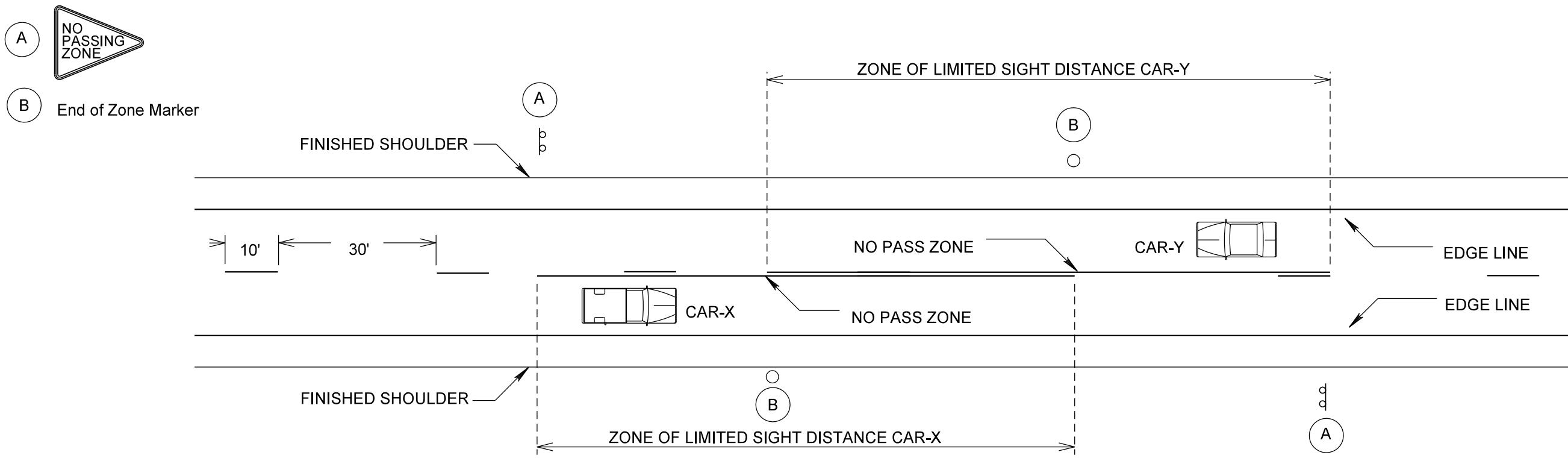
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0047(00)89	19	21
<b>Plotting Date:</b> 02-22-22			

Plotting Date: 02-22-22

PLOT SCALE - 1:22

PLOT NAME - 8

FILE - . . . \PAVEMENTMARKINGDETAILSNEW.DGN

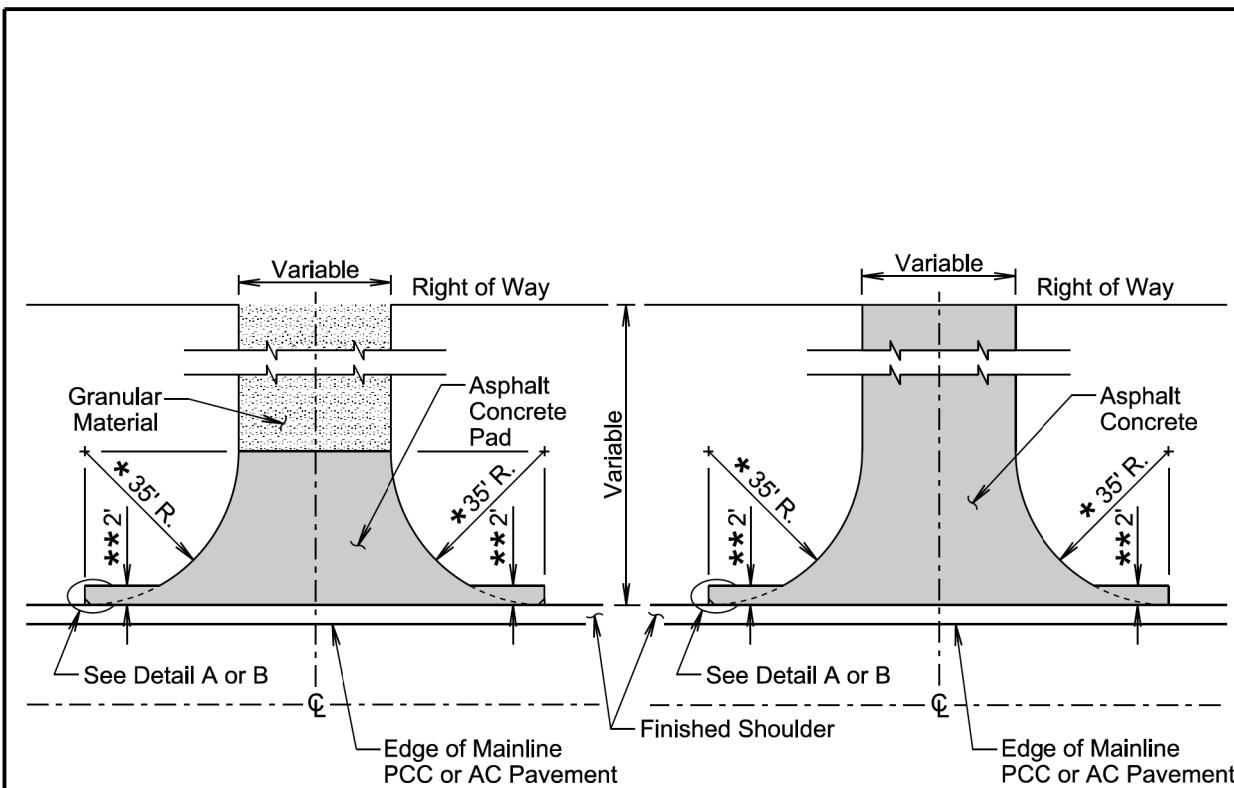


## FURNISHING AND APPLYING HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

1. The approximate paint application rates will be as follows:

Undivided Roadway  
Dashed 4" Line  
6.2 Gallons/Pass-Mile

Solid 4" Line  
22.5 Gallons/Pass-Mile
2. The typical pavement markings as shown on this sheet will be applied throughout the entire length of the project, except in section 1 where lane widths are 11' wide.
3. Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, will not be used as the beginning and ending NO PASSING ZONE lines.
4. Traffic Control will be incidental to the cost of application. The stripper and advance or trailing warning vehicle will be equipped with flashing amber lights or advance warning arrow panel.



**PLAN VIEW**  
(Intersecting Road)  
(No Asphalt Concrete Surfacing  
Beyond Right of Way)

**PLAN VIEW**  
(Intersecting Road)  
(Asphalt Concrete Surfacing  
Beyond Right of Way)

**GENERAL NOTES:**

The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

\* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

\*\* The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete pads if the Engineer, in the Engineer's sole discretion, determines the pads are infeasible to construct due to site specific reasons including, but not limited to; existing inslope configuration, borrow and material availability, and right-of-way constraints.

August 27, 2020

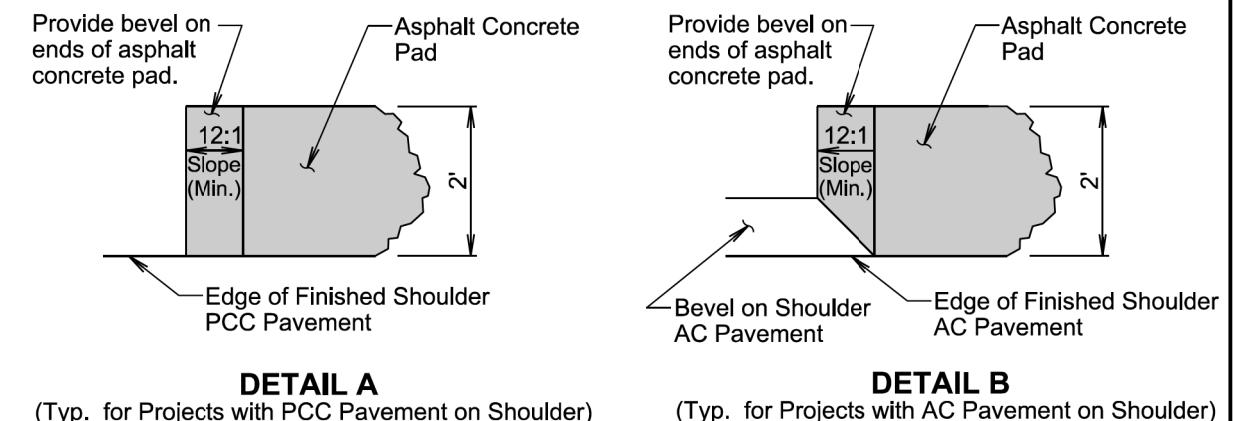
Published Date: 2026



**SURFACING OR RESURFACING OF INTERSECTING  
ROADS AND ENTRANCES (MAINLINE AND  
SHOULDERS: PCC OR AC PAVEMENT)**

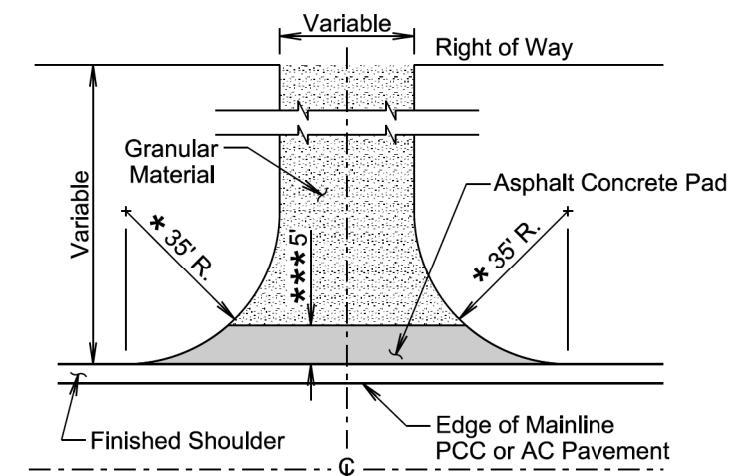
PLATE NUMBER  
320.04

Sheet 1 of 2



**DETAIL A**  
(Typ. for Projects with PCC Pavement on Shoulder)

**DETAIL B**  
(Typ. for Projects with AC Pavement on Shoulder)



**PLAN VIEW**  
(Entrance)

\*\*\* Not required if finished shoulder width is 4' or greater.

August 27, 2020

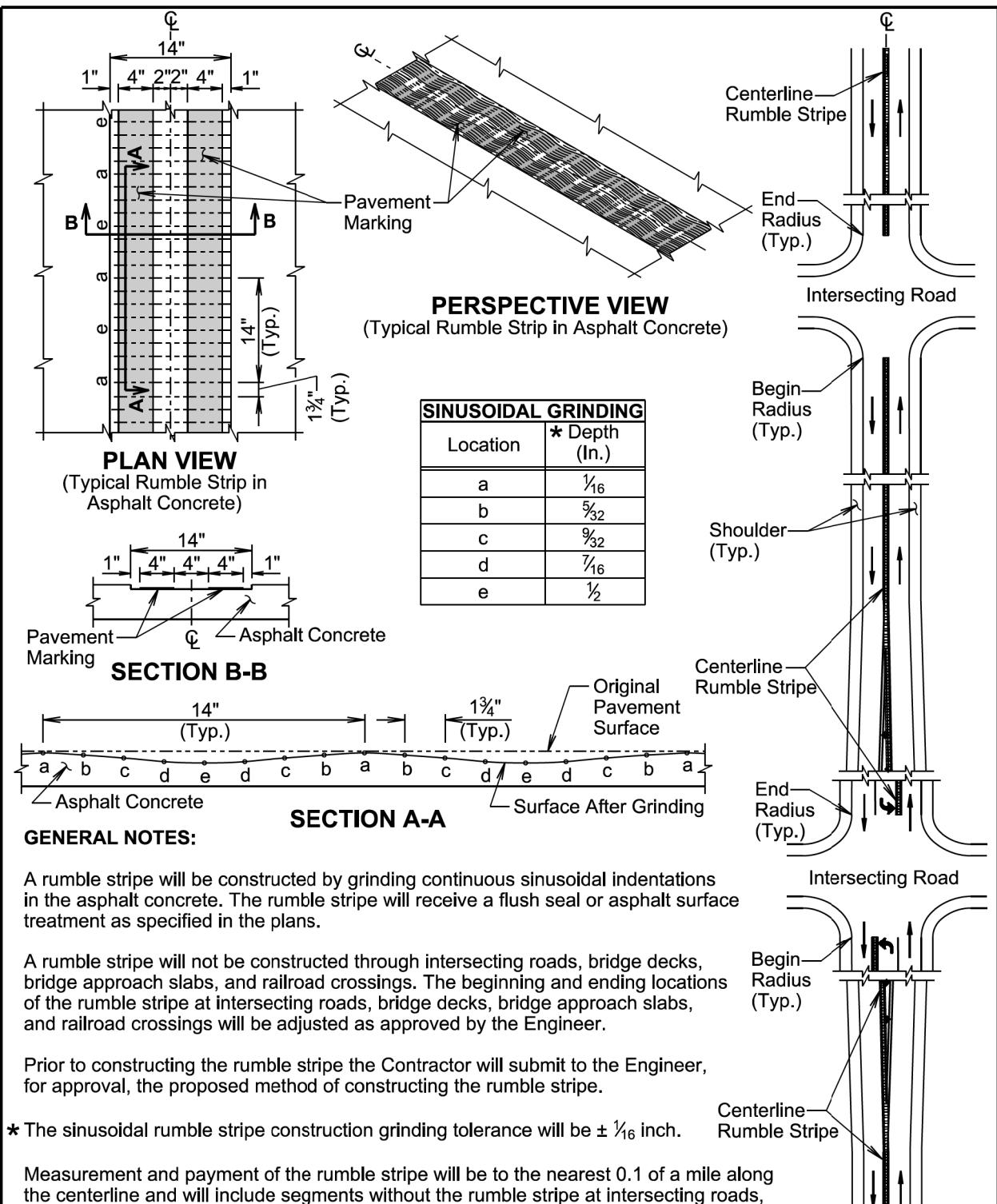
Published Date: 2026



**SURFACING OR RESURFACING OF INTERSECTING  
ROADS AND ENTRANCES (MAINLINE AND  
SHOULDERS: PCC OR AC PAVEMENT)**

PLATE NUMBER  
320.04

Sheet 2 of 2

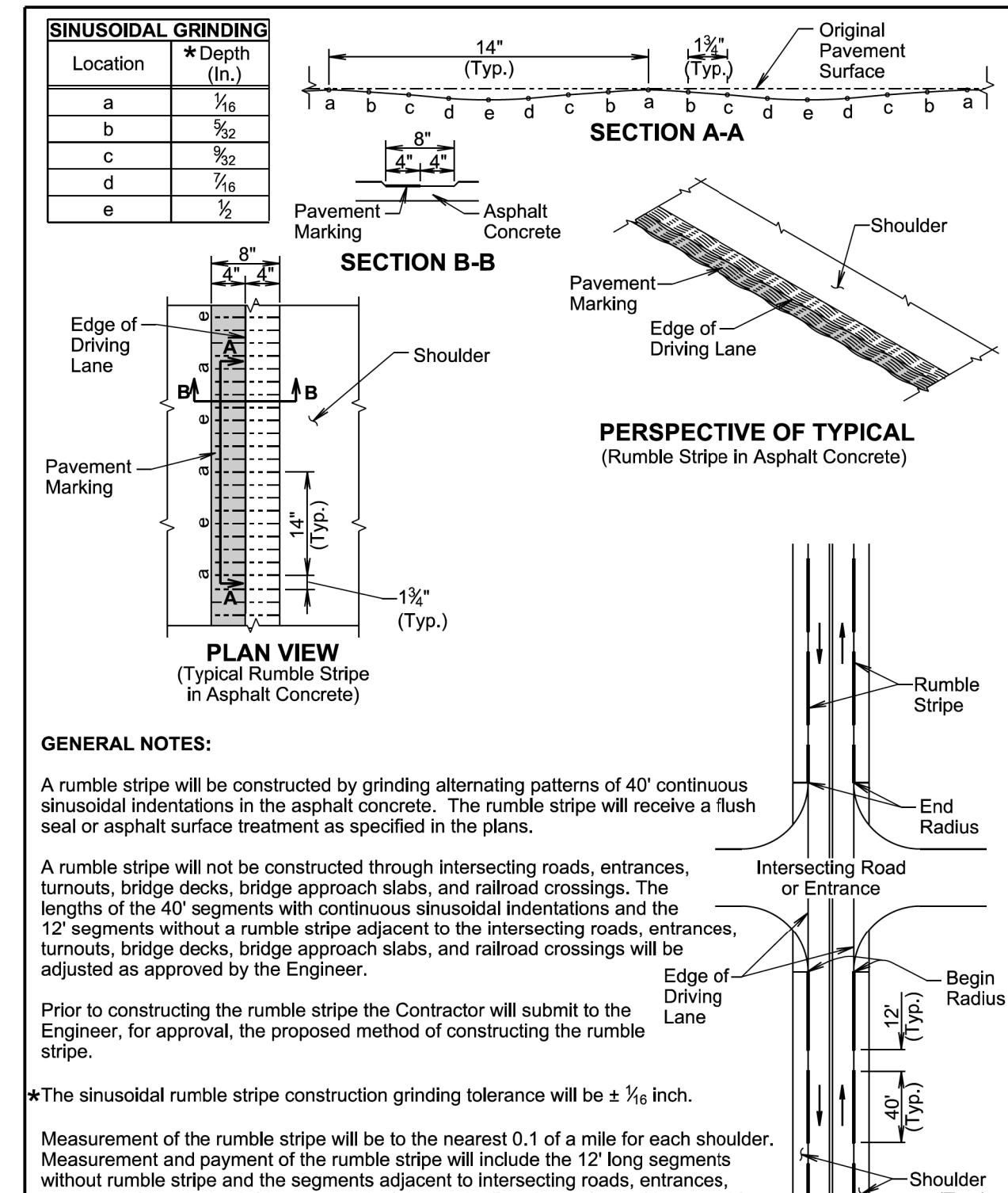


Published Date: 2026

**S**  
**D**  
**D**  
**O**  
**T**

**SINUSOIDAL CENTERLINE RUMBLE STRIPE  
IN ASPHALT CONCRETE**

PLATE NUMBER  
320.40  
Sheet 1 of 1



Published Date: 2026

**S**  
**D**  
**D**  
**O**  
**T**

**8" SINUSOIDAL RUMBLE STRIPE IN  
ASPHALT CONCRETE ON NONDIVIDED  
HIGHWAY SHOULDERS**

PLATE NUMBER  
320.50  
Sheet 1 of 1