STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	PH 0030(46)	1	11

Plotting Date: 04/27/2022

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

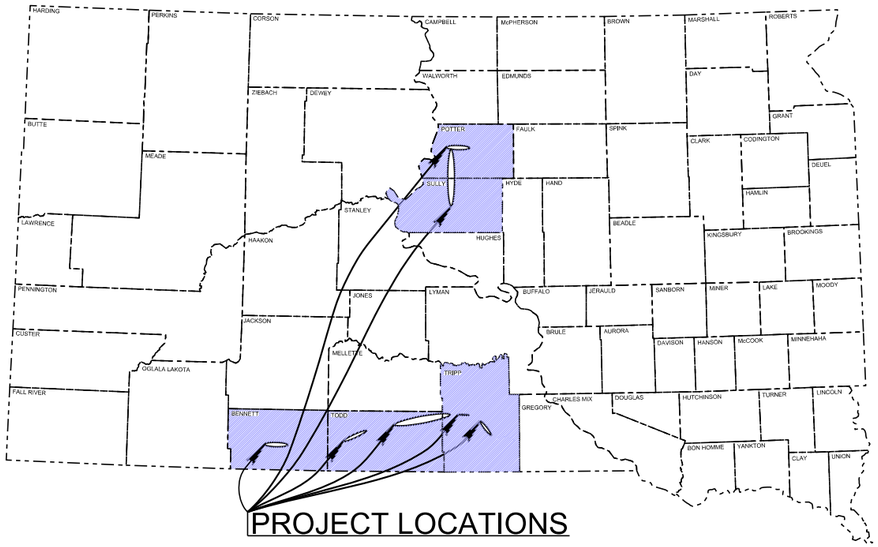
PLANS FOR PROPOSED

PROJECT PH 0030(46)
US HIGHWAYS 18, 83 & 212
BENNETT, TODD, TRIPP, SULLY & POTTER COUNTIES

CENTERLINE RUMBLE STRIPES

PCN 09FP

INDEX OF SHEETS



PROJECT LOCATIONS

DESIGN DESIGNATION
(US212 - Segment 1)

ADT (2023)	1423
ADT (2043)	1879
DHV	243
D	50%
T DHV	7.7%
T ADT	17.0%
V	65 MPH

DESIGN DESIGNATION
(US83 - Segment 2)

ADT (2023)	1401
ADT (2043)	2372
DHV	306
D	50%
T DHV	11.4%
T ADT	25%
V	65 MPH

DESIGN DESIGNATION
(US18 - Segment 3)

ADT (2023)	1654
ADT (2043)	2483
DHV	292
D	50%
T DHV	3.7%
T ADT	8.1%
V	65 MPH

DESIGN DESIGNATION
(US18 - Segment 4)

ADT (2023)	791
ADT (2043)	1154
DHV	136
D	50%
T DHV	5.8%
T ADT	12.7%
V	65 MPH

DESIGN DESIGNATION
(US18 - Segment 5)

ADT (2023)	1219
ADT (2043)	1749
DHV	206
D	50%
T DHV	8.0%
T ADT	17.6%
V	65 MPH

DESIGN DESIGNATION
(US18 - Segment 6)

ADT (2023)	1613
ADT (2043)	2189
DHV	258
D	50%
T DHV	7.9%
T ADT	17.4%
V	65 MPH

DESIGN DESIGNATION
(US18 - Segment 7)

ADT (2023)	1902
ADT (2043)	2581
DHV	304
D	50%
T DHV	5.8%
T ADT	12.7%
V	65 MPH

STORM WATER PERMIT

(No Permit Required)

END PROJECT
SEGMENT 2 - US 83
MRM 174.00+0.020

BEGIN PROJECT
SEGMENT 2 - US 83
MRM 154.00+0.988

END PROJECT
SEGMENT 5 - US 18
MRM 242.00+0.810

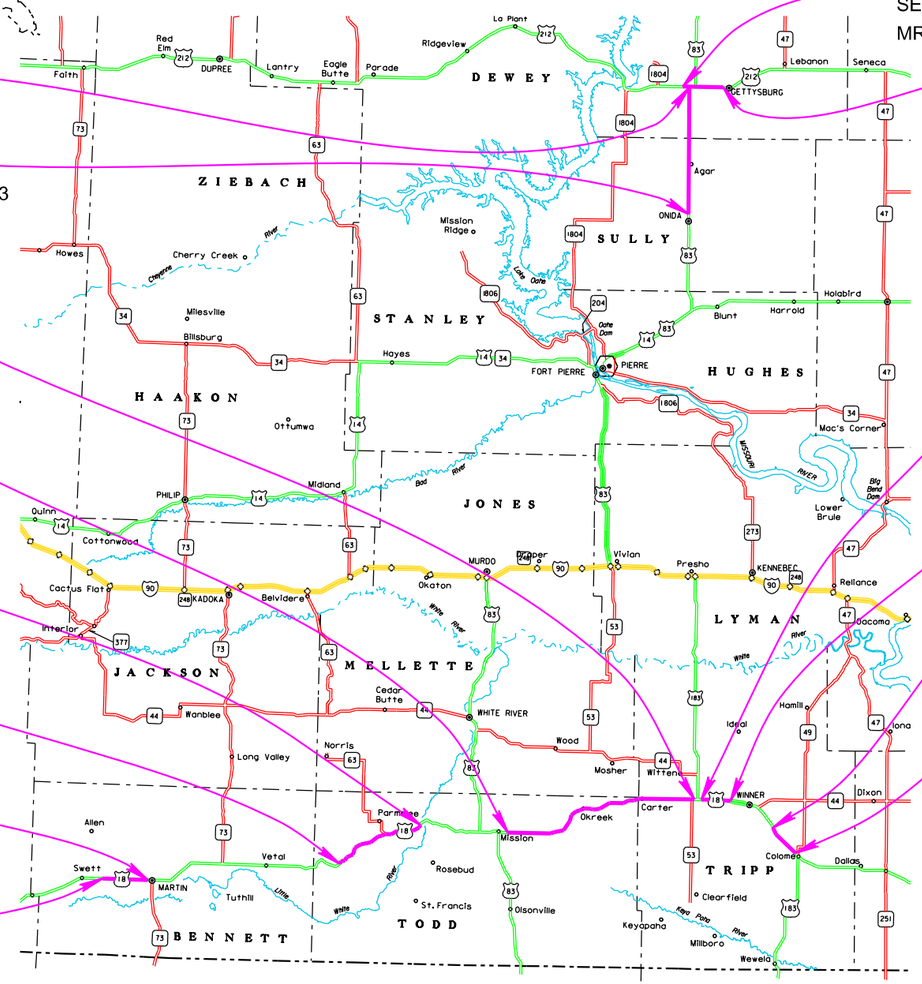
BEGIN PROJECT
SEGMENT 5 - US 18
MRM 211.00+0.885

END PROJECT
SEGMENT 4 - US 18
MRM 196.00+0.370

BEGIN PROJECT
SEGMENT 4 - US 18
MRM 182.00+0.495

END PROJECT
SEGMENT 3 - US 18
MRM 148.00+0.169

BEGIN PROJECT
SEGMENT 3 - US 18
MRM 141.00+0.833



BEGIN PROJECT
SEGMENT 1 - US 212
MRM 218.00+0.961

END PROJECT
SEGMENT 1 - US 212
MRM 224.00+0.244

BEGIN PROJECT
SEGMENT 6 - US 18
MRM 243.00+0.630

END PROJECT
SEGMENT 6 - US 18
MRM 249.00+0.336

BEGIN PROJECT
SEGMENT 7 - US 18
MRM 254.00+0.067

END PROJECT
SEGMENT 7 - US 18
MRM 262.00+0.934

May 21, 2025

Revised 4/15/25 SML

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
380E6302	Reseal PCC Pavement Joint - Hot Pour	475,432	Ft
380E6450	Saw Joint in PCC Pavement	475,432.0	Ft
380E6548	Grind Sinusoidal Centerline Rumble Stripe in PCC Pavement	90.0	Mile
633E0010	Cold Applied Plastic Pavement Marking, 4"	12,357	Ft
633E0030	Cold Applied Plastic Pavement Marking, 24"	287	Ft
633E0040	Cold Applied Plastic Pavement Marking, Arrow	4	Each
633E1201	High Build Waterborne Pavement Marking Paint with Reflective Elements, White	5,012	Gal
633E1206	High Build Waterborne Pavement Marking Paint with Reflective Elements, Yellow	1,311	Gal
633E1262	High Build Waterborne Pavement Marking Paint, 24" Yellow	523	Ft
633E1272	High Build Waterborne Pavement Marking Paint, Arrow	4	Each
633E1286	High Build Waterborne Pavement Marking Paint, Message	1	Each
634E0010	Flagging	1,800.0	Hour
634E0020	Pilot Car	800.0	Hour
634E0110	Traffic Control Signs	274.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0320	Temporary Flexible Vertical Markers (Tabs)	90.0	Mile

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

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

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

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

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

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

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: HISTORICAL 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.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES (CONTINUED)

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.

SCOPE OF WORK

Work on this project includes installation of Centerline Rumble Stripes and Permanent Pavement Marking.

SEQUENCE OF OPERATION

1. Install traffic control for 3-mile closure.
2. Grind sinusoidal centerline rumble stripes.
3. Repeat 3-mile process until project completion.
4. Place temporary pavement markings before the end of each day.
5. Sawcut and seal centerline longitudinal joint.
6. Install permanent pavement marking paint.

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.

COORDINATION BETWEEN CONTRACTORS

The Contractor will be aware that the following projects that will be let in the surrounding areas include:

- Project NH-P 0033(46) – PCN 09L7, Asphalt Surface Treatment, various locations in the Winner Area.
- Project IM 0033(45) – PCN 09KT, Rout & Seal, various locations in the Winner Area.
- Project NH 0018(239)244 – PCN08H9, LSDC Overlays on US18 - 0.5 E of US183N over Cottonwood Ck, 1.4 W of Winner over Dog Ear Ck, 5 SE of Winner over Ck, 3.9 E of US183N over Big Hollow Ck & 2 SE of Winner over Sand Ck.
- Project NH 0083(92)138 & NH 0212(212)219 – PCN 08YD & 09AX, AC Surfacing of Shoulders & Guardrail – US83 – From US14 to US212 – 35.2 miles & US83 – From US212 North 0.1 miles – 0.1 miles (**Border States, Jim Rentz # 701-237-4860**)

Most of these projects have not been let to date. Upon letting the Winner & Pierre Area Office will provide Contractor information. The Contractor will schedule the work so as not to interfere with or hinder the progress of the work performed on these projects by other Contractors.

Conflicting traffic control devices may need to be temporarily adjusted or removed as directed by the Engineer at no additional cost to the contract. If the projects are occurring simultaneously, the work zones will be extended to the rumble Stripes project.

GENERAL TRAFFIC CONTROL

Traffic will be maintained on the driving lanes through the work area by use of one set of flaggers and a pilot car during the centerline rumble stripe grinding operation. The Contractor will be limited to 3-mile flagger set up, once the 3-mile area is complete the Contractor will be permitted to advance additional miles. Temporary pavement markings must be applied by the end of each working day.

After the completion of sinusoidal rumble stripe grinding and temporary pavement marking, the centerline joint will be cleaned, sawed and sealed. During the sealing, traffic will be maintained by pilot car and flagging operation.
A mobile operation will be used for permanent pavement marking application.

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.

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, signposts, and breakaway bases will be removed within 7 calendar days following pavement marking.

TRAFFIC CONTROL SIGNS

Traffic control signs have been included in a table for 2 flagger setups. Payment will only be for those signs used.

FLAGGING

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

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

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".

WEIGH IN MOTION (WIM) SITES

The SDDOT Office of Inventory Management & Research has two permanent Weigh in Motion (WIM) arrays located in project limits. One on US 18, MRM 215.00 + 0.750, and another on US 83, MRM 165.00 + 0.135.

The Contractor will not damage the existing loops, plates, scales, pull boxes, conduit, or electronics cabinet. Any pull boxes, conduit, plates, scales, cabinet, or loops damaged during the construction project will be replaced by the Contractor at the Contractors expense. The WIM array is visible on the roadway. If necessary, SDDOT Office of Inventory Management & Research will aide in locating the WIM. Contact 605-773-6644, or 605-773-3278 to notify the office and request assistance to locate the WIM.

GRIND CENTERLINE RUMBLE STRIPES

Portions of US 83 & US 212 have centerline mastic repair material in place (See Table). The Contractor will not grind rumble stripes in the mastic material locations. The Engineer will provide the exact start and end locations for the rumble stripe installation. The Contractor will be responsible for marking minor exceptions, such as approaches and bridges. Rumble stripes will not be installed within 50 feet of any railroad crossings.

The Contractor is responsible for inspecting project locations prior to letting to identify potential problems for installing the rumble stripes. Any damage to the existing shoulders and/or roadway during the construction of rumble stripes will be repaired by the Contractor at no cost to the State of South Dakota.

The Contractor will demonstrate to the Engineer on an initial 50' test section that the equipment and method will provide the desired ground rumble strip and surface inside each depression. If the desired results are not being provided, as determined by the Engineer, the Contactor will provide different equipment or method until satisfactory installation is completed. Any damage to the PCC concrete will be replaced by the Contractor at no addition cost to the State.

Construct rumble stripes in a uniform position according to the dimensions and at locations shown in the plans. Indentations must comply with the specified dimensions in the plans within 0.06 inch in depth and 10 percent in length and width. The depressions must have well defined edges and not snag or tear the existing pavement. Rumble stripes will be constructed in a way that does not spall the centerline joint of the existing pavement. Do not construct rumble stripes on structures or approach slabs.

The rumble stripe installation equipment requires a cutting head consisting of diamond blades. The grinding process will produce a surface uniform in appearance with longitudinal line-type texture. The line-type texture will contain corrugations parallel to the centerline and present a narrow ridge corduroy type appearance. The peaks of the ridges will be 3/8 inch ± 1/16 inch higher than the bottom of the grooves with evenly spaced ridges. It is the Contractor's responsibility to select the number of blades per foot to be used to provide the proper surface finish for the aggregate type and concrete present on the project.

If the grinding process requires the use of water, the Contractor will establish a positive means for vacuuming the grinding residue from the pavement surface leaving the surface in a clean, near-dry condition. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. Residue will not be permitted to flow across lanes used by public traffic. Residue and wastewater will not be expelled on the roadway or shoulder surface. Residue will be disposed of in a manner that will prevent residue, whether in solid or slurry form, from reaching any waterway in a concentrated state. Residue may continuously flow on adjacent dry vegetated roadway slopes or ditches within the right-of-way. If the Engineer determines that the slurry is going to enter a waterway, drainage facility, or curb & gutter section, the slurry will be placed in storage tanks and deposited in settling basins, spread over flat vegetated areas, or filtered by other means approved by the Engineer at no additional cost. The Contractor will satisfactorily remove grinding material or wastes prior to returning traffic to the roadway.

All costs associated with rumble stripe grinding work will be incidental to the contract unit price per mile for ''Grind Sinusoidal Centerline Rumble Stripe in PCC Pavement".

HWY 212 & HWY 83 Mastic at corner & sides of concrete panels.

US HWY 212	
MRM 224 - 224.018	19 mastic areas equal or less than 1', 1 mastic area 2' MRM 224.005.
MRM 224 - 223	41 mastic areas equal or less than 1', 1 mastic area 6' MRM 223.372.
MRM 223 - 222	32 mastic areas equal or less than 1', 1 mastic area 2' MRM 222.957.
MRM 222 - 221	26 mastic areas equal or less than 1'.
MRM 221 - 220	31 mastic areas equal or less than 1'.
MRM 220 - 219	31 mastic areas equal or less than 1'.
US HWY 83	
MRM 174 - 174.1	0 mastic areas
MRM 174 - 173	49 mastic areas equal or less than 1', 3 mastic areas 3' MRM
MRM 173 - 172	56 mastic areas equal or less than 1', 3 mastic areas 3' MRM 172.195, 172.17, 172.161, 12 mastic areas 6' MRM 172.907, 172.8, 172.565, 172.385, 172.367, 172.33, 172.324, 172.322, 172.204, 172.073, 172.065, 172.044.
MRM 172 - 171	36 mastic areas equal or less than 1', 3 mastic areas 3' MRM 171.941, 171.923, 1761.914, 2 mastic areas 6' MRM 171.937, 171.682.
MRM 171 - 170	63 mastic areas equal or less than 1', 10 mastic areas 3' MRM 170.782, 170.756, 170.751, 170.732, 170.722, 170.707, 170.693, 170.152, 170.151, 170.062. 11 mastic areas 6' MRM 170.979, 170.8, 170.776, 170.767, 170.758, 170.741, 170.643, 170.155, 170.146, 170.143, 170.032.
MRM 170 - 169	47 mastic areas equal or less than 1', 4 mastic areas 3' MRM 169.973, 169.843,169.467, 169.37. 3 mastic areas 6' MRM 169.991, 169.959, 169.028.
MRM 169 - 168	41 mastic areas equal or less than 1', 4 mastic areas 3' MRM 168.989, 168.65,168.648, 168.368. 2 mastic areas 6' MRM 167.972, 167.978.
MRM 168 - 167	34 mastic areas equal or less than 1', 2 mastic areas 6' MRM 167.972, 167.978.
MRM 167 - 166	49 mastic areas equal or less than 1', 2 mastic areas 3' MRM 166.905, 166.842.
MRM 166 - 165	1 mastic area equal or less than 1'.
MRM 165 - 152	0 mastic areas

SINUSOIDAL CENTERLINE RUMBLE STRIPE/ROADWAY CLEANING

The Contractor will remove all loose materials from the driving surface of the roadway on the daily basis. Loose material may be used as fill material adjacent to the paved shoulder. It will be Contractor's responsibility to ensure the loose material doesn't enter any vegetated areas and/or waterways.

All costs associated with roadway cleaning of rumble stripe grinding work will be incidental to the contract unit price per mile for ''Grind Sinusoidal Centerline Rumble Stripe in PCC Pavement".

SAW AND SEAL CENTERLINE LONGITUDINAL JOINT

Existing longitudinal joints will be sawed, cleaned and resealed with Hot Poured Elastic Joint Sealer.

Joints will not be sealed unless they are thoroughly clean and dry. Cleaning will be accomplished by sandblasting and other tools as necessary. Just prior to sealing, each joint will be blown out using a jet of compressed air to remove all traces of dust.

Any additional cost to perform this work will be at no additional cost to the State. The Contractor will be responsible to verify joint widths prior to establishing the contract unit price.

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

All costs for sawing and cleaning the centerline longitudinal joint will be incidental to the contract unit price per foot for "Saw Joint in PCC Pavement". All costs for sealing the centerline longitudinal joint will be included in the contract unit price per foot for "Reseal PCC Pavement Joint– Hot Pour".

TEMPORARY PAVEMENT MARKINGS

A quantity of 90.0 miles of Temporary Pavement Markings has been included in the plans to mark centerline where grinding centerline rumble stripes has altered the centerline pavement markings.

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 21.7 miles.

It is estimated that 77 DO NOT PASS and 77 PASS WITH CARE signs will be required.

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.

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

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.

Cost for furnishing and applying of the Temporary Pavement Marking Paint will be included in the contract unit price per mile for "Temporary Flexible Vertical Markers (Tabs)".

PERMANENT PAVEMENT MARKINGS

The Contractor will be required to repaint all existing centerline markings and turn lane transitions, gore areas, and turn arrows. Additional quantities are included in the estimate of quantity to paint the additional pavement marking. The cost to duplicate the existing locations will be incidental the contract unit price for the various contract bid items.

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

Application of permanent pavement marking paint will be completed within 14 calendar days following the completion of the rumble stripe installation.

The Contractor must clean the ground pavement surface prior to applying the permanent pavement marking paint using high pressure air blast.

COLD APPLIED PLASTIC PAVEMENT MARKING

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

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

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

Reflective media consisting of glass beads as well as wet-reflective optics will be adhered to the paint.

The wet-reflective optics will contain either clear, white, amber, or yellow tinted beads composed of glass or a composite consisting of a core made from ceramic or glass with an outer layer of microcrystalline ceramic or glass beads. The wet-reflective optics will provide a 50/50 blend of dry to wet ratio of optics. All beads bonded to wet-reflective optics will have a minimum index of refraction of 1.8 for dry retroreflectivity and 2.4 for wet retroreflectivity when tested using the liquid oil immersion method.

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

The Department will take retroreflectivity readings on the pavement marking lines no sooner than 3 days and no later than 30 days after the completion of all line applications required for an individual highway route using a portable retroreflectometer conforming to 30-meter geometry. Retroreflectivity readings will be taken on a test location with cleaning being limited to light hand brooming.

Pavement markings not conforming to the retroreflectivity requirements will be removed and replaced. If replacement of markings cannot be applied within the same year, the Contractor will schedule subject work to be completed no later than June 15th in the following year. Upon replacement, the retroreflectivity testing process will be done again requiring new readings.

The Department will randomly select one test location per mile of each edge line including ramps and one test location per mile of centerline (solid and/or skip line will be considered as one centerline). Three retroreflectivity readings will be taken at each test location. The three readings will be averaged and become the reading for that test location.

Initial readings:

Pavement Marking Color	Minimum Value
White	350 mc/m^2/lux
Yellow	275 mc/m^2/lux

All pavement markings not conforming to the requirements provided in these plans will be considered deficient and will be removed and replaced. Additional retroreflectivity readings will be taken by the Department to determine the limits of removal. The removal will be accomplished using suitable sand blasting or grinding equipment unless the Engineer authorizes other means. The removal process will remove at least 90% of the deficient line, with no excessive scarring of the existing pavement. The removal width will be one inch wider all around the nominal width of the pavement marking to be removed. Removal and replacement of the pavement markings will be at the Contractor's expense, with no cost incurred by the State.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 27.8 Gals/Mile
Dashed 4" line = 7.6 Gal/Mile
Glass Beads = 5.3 Lbs/Gal.
Composite Reflective Elements = 2.1 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.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W3-4	BE PREPARED TO STOP	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
G20-2	END ROAD WORK	4	36" x 18"	4.5	18.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			274.0

COLD APPLIED PLASTIC PAVEMENT MARKING TABLE

ITEM	LOCATION	QUANTITY
Cold Applied Plastic Pavement Marking, 4'' Yellow	Segment 5- US18 & SD53S Jct.	6202 Ft
Cold Applied Plastic Pavement Marking, 24'' Yellow	Segment 5- US18 & SD53S Jct.	269 Ft
Cold Applied Plastic Pavement Marking, 4'' White	Segment 5- US18 & SD53S Jct.	4175 Ft
Arrows	Segment 5- US18 & SD53S Jct.	4 Each
Cold Applied Plastic Pavement Marking, 4'' Yellow	Segment 6- US 18 & US 183	1320 Ft
Cold Applied Plastic Pavement Marking, 24'' Yellow	Segment 6- US 18 & US 183	18 Ft
Cold Applied Plastic Pavement Marking, 4'' White	Segment 6- US 18 & US 183	660 Ft

Breakdown of Segments (For Information Only)

Segment	Hwy	Begin MRM	Begin Disp.	Begin Mileage	End MRM	End Disp.	End Mileage	Exceptions (Mile)	Gross Length (Mile)	Net Miles
1	212	218.00	0.961	218.033	224.00	0.244	223.430	0.000	5.397	5.397
2	83	154.00	0.988	84.657	174.00	0.020	103.597	0.000	18.940	18.940
3	18	141.00	0.833	121.248	148.00	0.169	127.586	0.000	6.338	6.338
4	18	182.00	0.495	161.312	196.00	0.370	175.177	0.000	13.865	13.865
5	18	211.00	0.885	190.316	242.00	0.810	221.242	0.000	30.926	30.926
6	18	243.00	0.630	222.053	249.00	0.336	227.753	0.000	5.700	5.700
7	18	254.00	0.067	231.070	262.00	0.934	239.948	0.000	8.878	8.878
								Total Project Less Exceptions:		**90.044**

Estimate of Quantites (For Information Only)

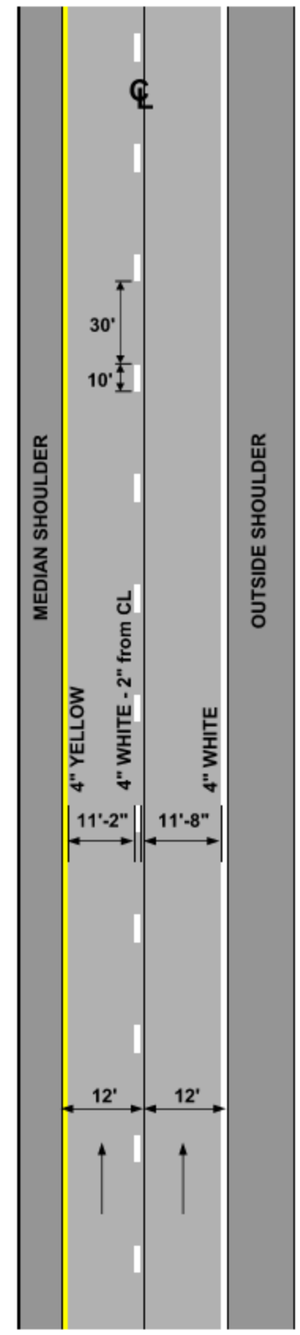
Segment	Hwy	Length (Miles)	Grind Sinusoidal Centerline Rumble Stripe in PCC (Miles)	High Build Waterborne Pavement Marking Paint w/ Reflective Elements, Yellow (Gal)	High Build Waterborne Pavement Marking Paint w/ Reflective Elements, White (Gal)	High Build Waterborne Pavement Marking Paint, 24" Yellow (Ft)	High Build Waterborne Pavement Marking Paint, Arrow (Each)	High Build Waterborne Pavement Marking Paint, Message (Each)	Cold Applied Plastic Pavement Marking, 4" (Ft)	Cold Applied Plastic Pavement Marking, 24" (Ft)	Cold Applied Plastic Pavement Marking, Arrow (Each)	Saw Joint/Reseal in PCC (Ft)	Comments
1	US 212	5.397	5.397	112	306	421	2	1	-	-	-	28,496	Message ="ONLY"
2	US 83	18.940	18.940	169	1,053	102	2	-	-	-	-	100,003	
3	US 18	6.338	6.338	63	352	-	-	-	-	-	-	33,465	
4	US 18	13.865	13.865	259	771	-	-	-	-	-	-	73,207	
5	US 18	30.926	30.926	504	1,719		-	-	10,377	269	4	163,289	
6	US 18	5.700	5.700	110	317	-	-	-	1,980	18	-	30,096	
7	US 18	8.878	8.878	94	494	-	-	-	-	-	-	46,876	
		Total:	90.0	1,311	5,012	523	4	1	12,357	287	4	475,432	

EXISTING CONCRETE PAVEMENT INFORMATION:

Segment	Hwy	Location	Begin Disp	End MRM	End Disp.	County	Location	Concrete Type	Joint Skew?	Intersection
1	212	218.00	0.961	224.00	0.244	Potter	West of Jct US 83 & US 212 to Gettysburg	Limestone	No	Jct US 212 & US 83 S & Jct US 212 & US 83 N
2	83	154.00	0.988	174.00	0.020	Sully/Potter	Onida North to Jct US 83 & US 212	Limestone	No	Jct US 212 & US 83 S Taper
3	18	141.00	0.833	148.00	0.169	Bennett	Swett to Martin	Limestone	No	No
4	18	182.00	0.495	196.00	0.370	Todd	East of Vetal to Parmalee	Limestone	No	Jct. 63 N & US18 (Tape)
5	18	211.00	0.885	242.00	0.810	Todd/Tripp	Mission to US18 & SD53 Jct.	Limestone	No	Jct US18 & SD 53 S (Tape)
6	18	243.00	0.630	249.00	0.336	Tripp	Jct US 18 & US 183 to Winner	Quartzite	No	No
7	18	254.00	0.067	262.00	0.934	Tripp	South of Winner to Colome	Quartzite	No	No
8	18	263.00	0.890	272.00	0.806	Tripp	Colome to Dallas	Quartzite	No	No

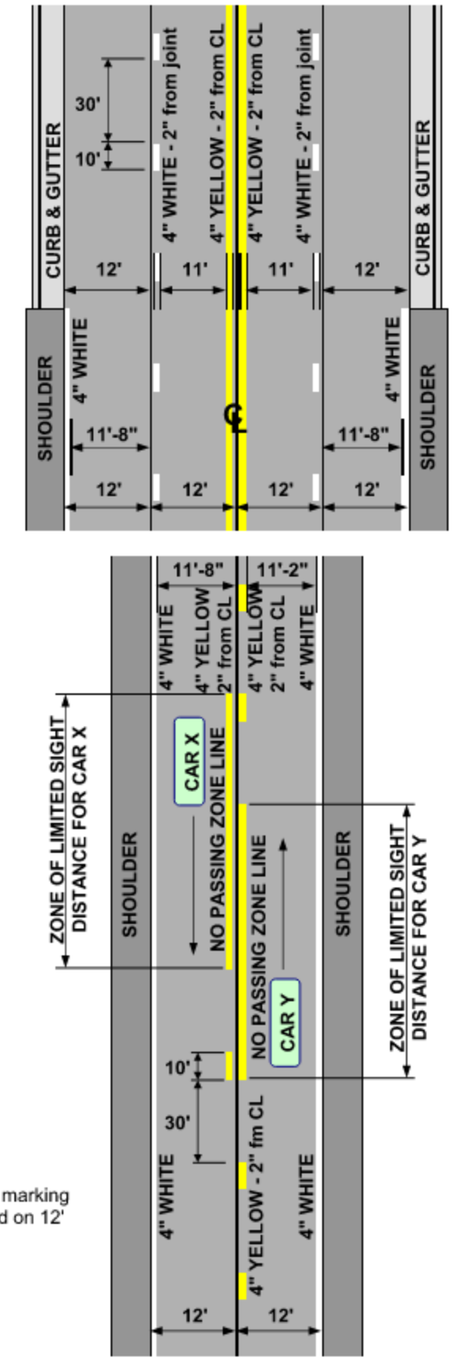
PAVEMENT MARKING

DIVIDED ROADWAY (ONE DIRECTION SHOWN)



PAVEMENT MARKING

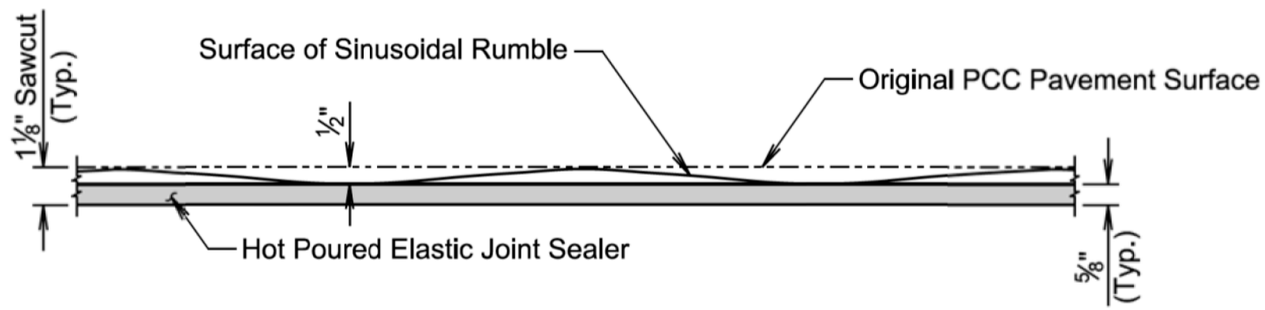
UNDIVIDED ROADWAY



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

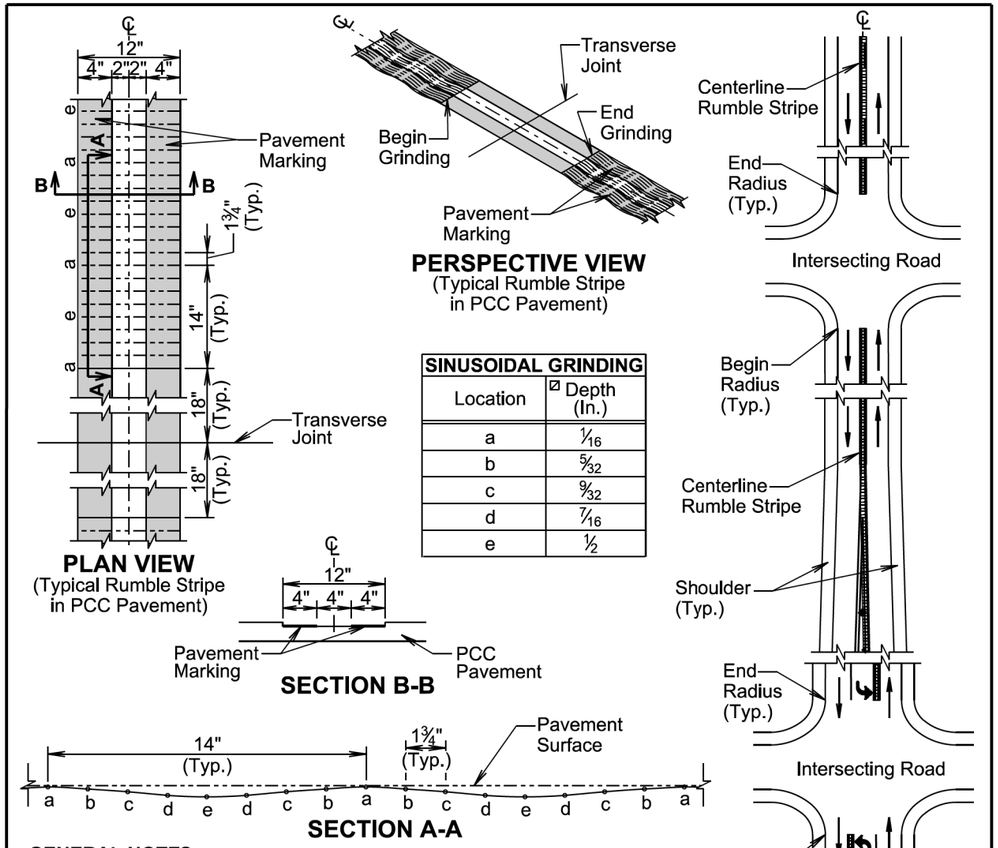
LONGITUDINAL JOINT AT CENTERLINE OF PORTLAND CEMENT CONCRETE PAVEMENT WITH SINUSOIDAL CENTERLINE RUMBLE STRIPE

Sheet 1 of 1



SECTIONAL VIEW
(Section along Longitudinal Joint at Centerline)

NOTE: The width of the sawcut will be the current width of the existing longitudinal joint.



SINUSOIDAL GRINDING	
Location	⊠ Depth (In.)
a	1/16
b	5/32
c	9/32
d	7/16
e	1/2

GENERAL NOTES:

A rumble stripe will be constructed by grinding continuous sinusoidal indentations in the PCC pavement with diamond blades.

A rumble stripe will not be constructed through intersecting roads, transverse joints, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at these locations will be adjusted as approved by the Engineer.

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

The longitudinal centerline joint will be resealed as detailed elsewhere in the plans.

⊠ The sinusoidal rumble stripe construction grinding tolerance will be ±1/16 inch.

Measurement of the rumble stripe will be to the nearest 0.1 of a mile along the centerline. Measurement and payment of the rumble stripe will include segments without the rumble stripe at intersecting roads, transverse joints, bridge decks, bridge approach slabs, and railroad crossings. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind Sinusoidal Centerline Rumble Stripe in PCC Pavement".

November 19, 2022

Published Date: 2025	SDDOT	SINUSOIDAL CENTERLINE RUMBLE STRIPE IN PCC PAVEMENT	PLATE NUMBER 380.56
			Sheet 1 of 1

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

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

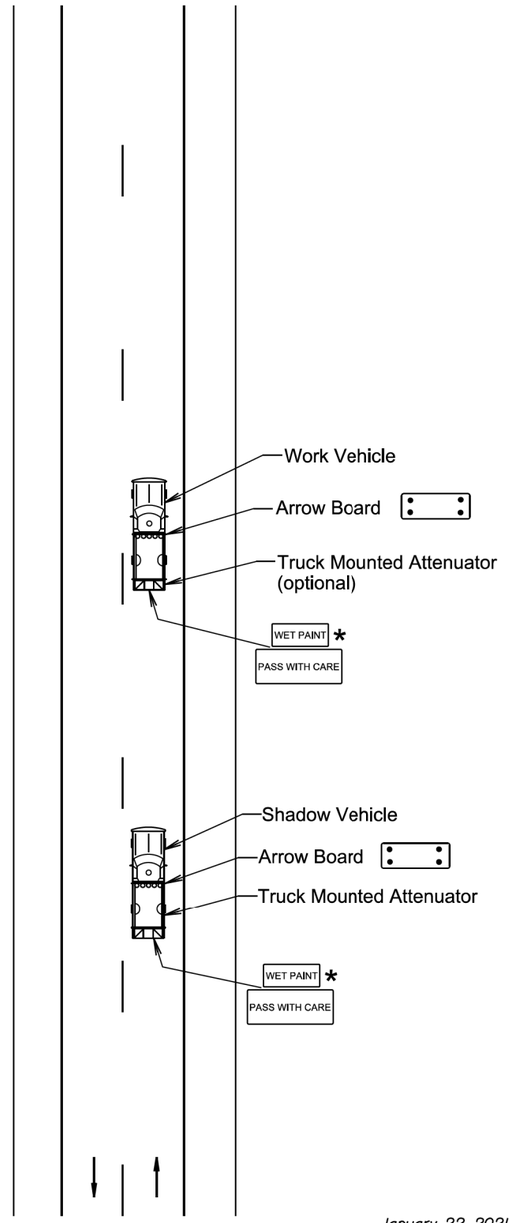
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

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

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

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



January 22, 2021

Published Date: 2025	SDDOT	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER 634.06
			Sheet 1 of 1

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

Flagger

Channelizing Device

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

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

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

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

The channelizing devices will be drums or 42" cones.

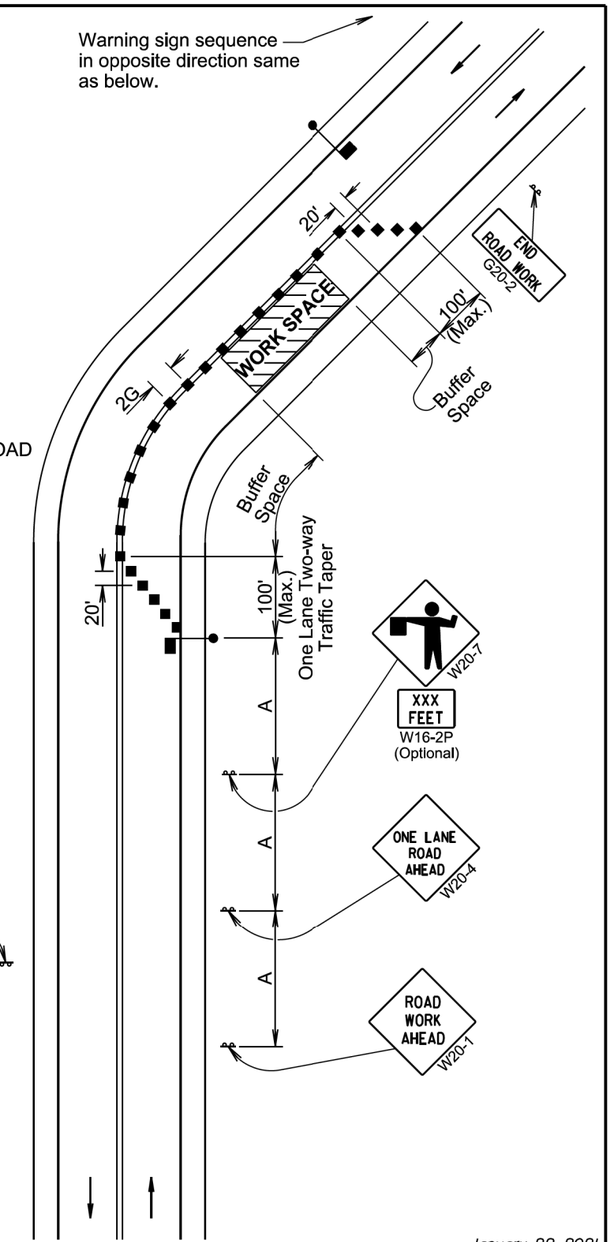
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.

END ROAD WORK G20-2

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

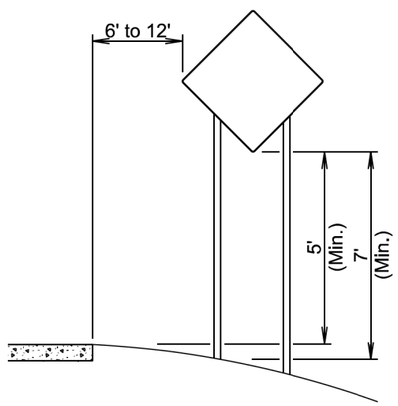
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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

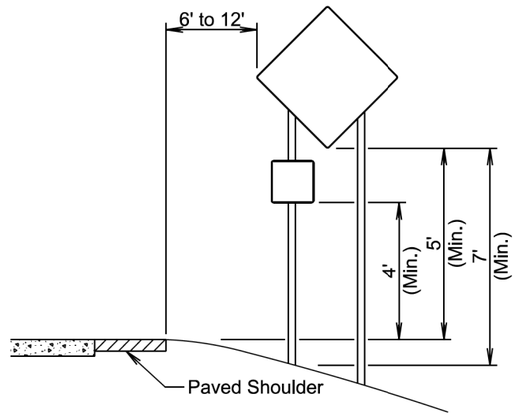


January 22, 2021

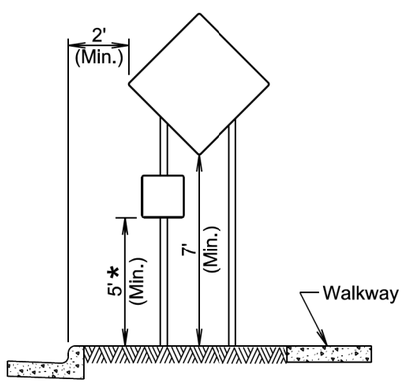
Published Date: 2025	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1



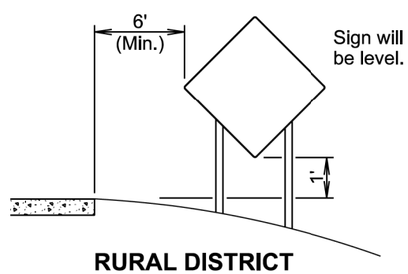
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

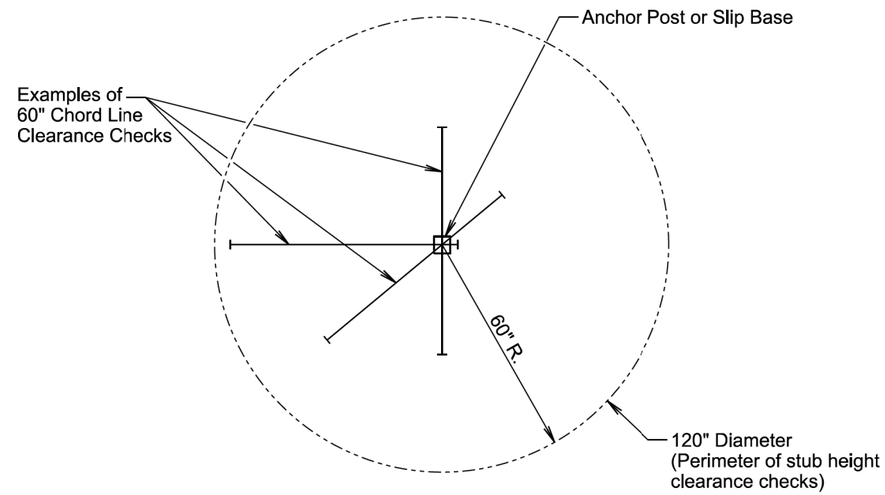


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

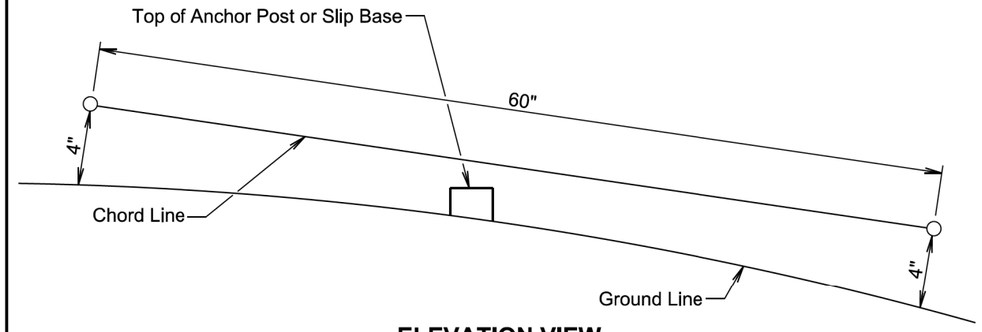
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	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: 2025	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1