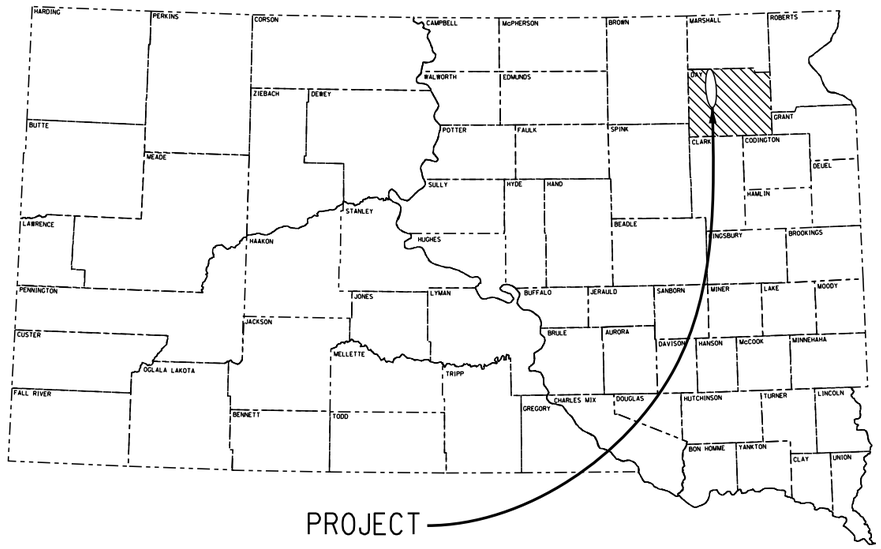


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT P 0027(16)198
S.D. HIGHWAY 27
DAY COUNTY

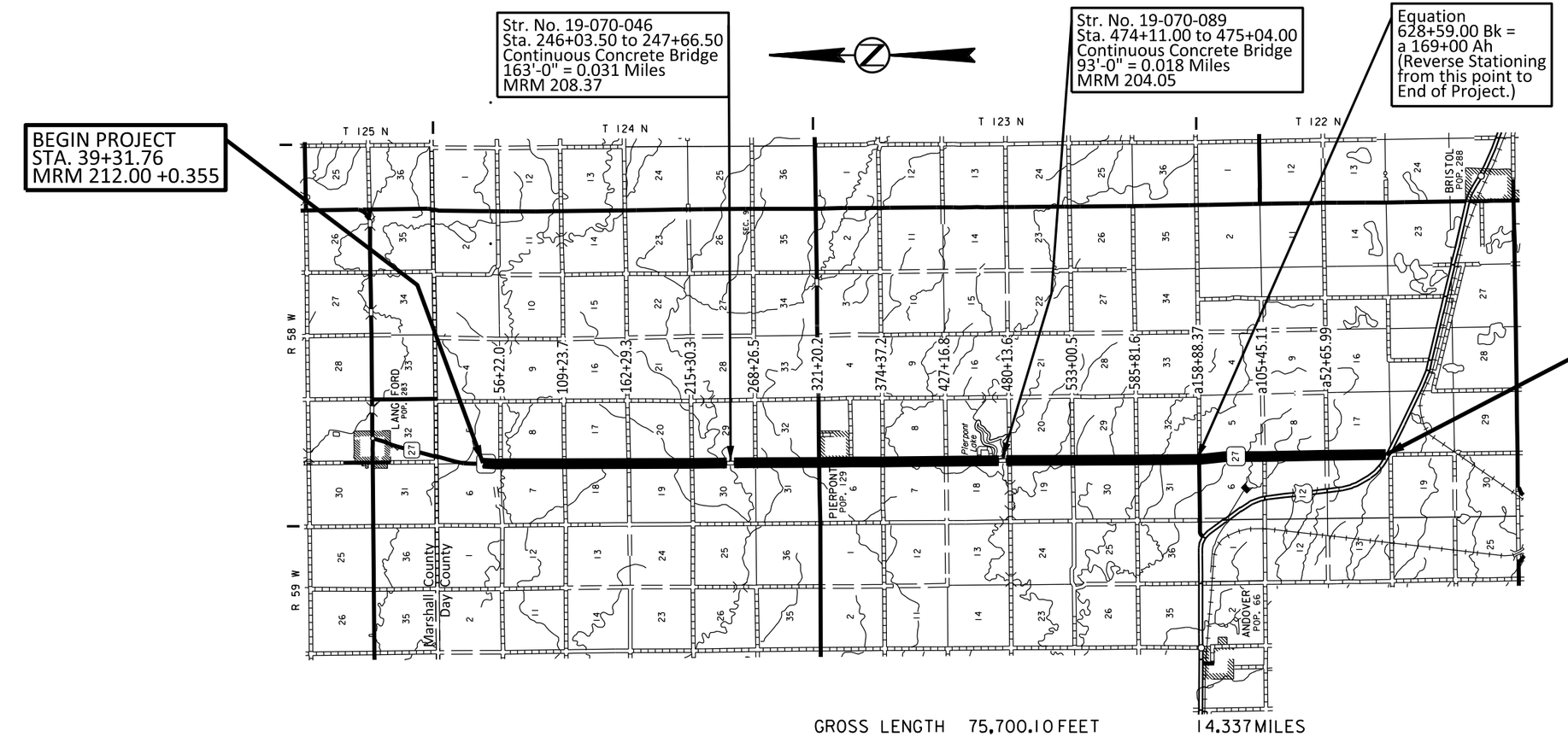
COLD MILLING, AC RESURFACING, PIPE WORK, GUARDRAIL
PCN 09HV

Revised
07/28/2025 1:30:38 PM

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	1	70

Plotting Date: 07/28/2025

INDEX OF SHEETS



GROSS LENGTH	75,700.10 FEET	14.337 MILES
LENGTH OF EXCEPTIONS	256.00 FEET	0.048 MILES
NET LENGTH	75,444.10 FEET	14.289 MILES

DESIGN DESIGNATION

AADT (2022)	331
AADT (2042)	513
DHV	57
D	50%
DHV T%	12.5%
AADT T%	27.5%
V	65 M.P.H.

STORM WATER PERMIT
Major Receiving
Body of Water: Unnamed Streams
Area Disturbed: 1.81
Total Project Area: 259.79 Acres
Approx. Begin Lat/Long: 45.578039N 97.836167W

4

October 15, 2025

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

Revised
08/21/2025 2:16:55 PM

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0027(16)198	2	70

GENERAL QUANTITIES – 09HV

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0510	Remove Pipe End Section	1	Each
110E0700	Remove 3 Cable Guardrail	1,208	Ft
110E0730	Remove Beam Guardrail	650.0	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	4	Each
110E0800	Remove W Beam Guardrail End Terminal	8	Each
110E1010	Remove Asphalt Concrete Pavement	2,171.6	SqYd
110E7500	Remove Pipe for Reset	120	Ft
110E7510	Remove Pipe End Section for Reset	21	Each
110E7690	Remove Drop Inlet for Reset	2	Each
110E7700	Remove Drop Inlet Frame and Grate Assembly for Reset	2	Each
120E0010	Unclassified Excavation	232	CuYd
120E0100	Unclassified Excavation, Digouts	715	CuYd
120E0600	Contractor Furnished Borrow Excavation	2,708	CuYd
210E1000	Shoulder Preparation	22.224	Mile
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	3,996.2	Ton
260E1030	Base Course, Salvaged	9,800.0	Ton
260E6000	Granular Material, Furnish	3,920.0	Ton
270E0220	Blend and Stockpile Granular Material	9,800.0	Ton
320E0005	PG 58-34 Asphalt Binder	1,595.2	Ton
320E1200	Asphalt Concrete Composite	357.2	Ton
320E1202	Class Q2R Hot Mixed Asphalt Concrete	30,939.1	Ton
320E1800	Asphalt Concrete Blade Laid	2,143.3	Ton
320E4000	Hydrated Lime	330.0	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	25.2	Mile
320E7010	Grind 8" Sinusoidal Rumble Strip or Stripe in Asphalt Concrete	3.4	Mile
320E7028	Grind Centerline Rumble Stripe in Asphalt Concrete	12.4	Mile
320E7030	Grind Sinusoidal Centerline Rumble Stripe in Asphalt Concrete	1.3	Mile
320E7040	Grind 6" Transverse Rumble Strip in Asphalt Concrete	442.0	Ft
330E0100	SS-1h or CSS-1h Asphalt for Tack	155.3	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	53.3	Ton
330E2000	Sand for Flush Seal	737.7	Ton
332E0010	Cold Milling Asphalt Concrete	238,597	SqYd
450E2008	18" RCP Flared End, Furnish	1	Each
450E2009	18" RCP Flared End, Install	1	Each
450E4699	Tie Bolts for RCP	102	Each
* 450E8900	Cleanout Pipe Culvert	3	Each
450E9000	Reset Pipe	120	Ft
450E9001	Reset Pipe End Section	21	Each
600E0300	Type III Field Laboratory	1	Each
630E0500	Type 1 MGS	450.0	Ft
630E1501	Type 1 Retrofit Guardrail Transition	8	Each
630E2018	MGS MASH Tangent End Terminal	8	Each
632E2220	Guardrail Delineator	32	Each
633E0030	Cold Applied Plastic Pavement Marking, 24"	12	Ft
633E1200	High Build Waterborne Pavement Marking Paint, White	646	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	119	Gal
633E5015	Grooving for Cold Applied Plastic Pavement Marking, 24"	12	Ft
634E0010	Flagging	500.0	Hour
634E0020	Pilot Car	200.0	Hour
634E0110	Traffic Control Signs	943.7	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	71.5	Mile
670E6900	Reset Drop Inlet	2	Each
670E7000	Reset Drop Inlet Frame and Grate Assembly	2	Each
700E0210	Class B Riprap	19.0	Ton
730E0100	Cover Crop Seeding	2.0	Bu
730E0212	Type G Permanent Seed Mixture	47	Lb
731E0100	Fertilizing	3,600	Lb
732E0100	Mulching	3.0	Ton
732E0250	Fiber Mulching	5,700	Lb
734E0154	12" Diameter Erosion Control Wattle	400	Ft
734E0165	Remove and Reset Erosion Control Wattle	80	Ft
734E0325	Surface Roughening	2.0	Acre
734E0602	Low Flow Silt Fence	650	Ft
734E0610	Mucking Silt Fence	10	CuYd
734E0620	Repair Silt Fence	200	Ft
831E0110	Type B Drainage Fabric	32	SqYd
900E0010	Refurbish Single Mailbox	6	Each
900E0030	Remove and Reset Historical Marker	1	Each
900E1980	Storage Unit	1	Each

*** - Denotes Non-Participating**

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the Proposal. The Standard Specifications for Roads and Bridges is available for download and viewing at https://dot.sd.gov/doing-business/contractors/standard-specifications.

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 A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 1.16 acre of wetlands (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	202+78	0.00	0.00	0.04	0.00	0.04
1a	202+78	0.00	0.00	0.00	0.04	0.04
2	514+27	0.00	0.00	0.13	0.00	0.13
2a	514+27	0.00	0.00	0.00	0.1	0.1
3	561+70	0.00	0.00	0.67	0.00	0.67
4	561+70	0.00	0.00	0.00	0.07	0.07
5	115+58	0.00	0.00	0.04	0.00	0.04
5a	115+58	0.0	0.00	0.00	0.05	0.05
6	51+47	0.00	0.00	0.02	0.00	0.25
TOTAL:						**1.16**

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement of 0.08 acre of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any

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 D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

The Pierpont Lake is classified as a warmwater permanent fishery, immersion recreation water, limited contact recreation water, fish and wildlife propagation, recreation and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to sure that the 30-day average total suspended solids criterion of 90mg/L and the daily maximum total suspended solids criterion of 158 mg/L are not violated.

Action Taken/Required:

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

Refer to Commitment D1: Surface Water Quality for stream classification.

Action Taken/Required:

If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_AddTempInfoFillable.pdf >

COMMITMENT D2: SURFACE WATER DISCHARGE (CONTINUED)

The Contractor will provide a copy of the approved permit or the submitted dewatering information to the Project Engineer prior to proceeding with any dewatering activities. The approved permit or submitted dewatering information must be kept on-site and as part of the project records.

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Ereporting.aspx >

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance and/or work in a waterway.

Action Taken/Required:

The DANR General Permit for Stormwater Discharges Associated with Construction Activities is required for construction activity disturbing one or more acres of earth and work in a waterway. The SDDOT is the owner of this permit and will submit the NOI to DANR 15 days prior to project start in order to obtain coverage under the General Permit. Work can begin once the DANR letter of approval is received.

The Contractor must adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State."

The Contractor will complete the DANR Contractor Certification Form prior to the pre-construction meeting. The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the permit for this project. Work may not begin on this project until this form is signed and submitted to DANR.

The form can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2018Fillable.pdf >

The Contractor is advised that permit coverage may also be required for off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

Storm Water Pollution Prevention Plan

The Storm Water Pollution Prevention Plan (SWPPP) will be developed prior to the submittal of the NOI and will be implemented for all construction activities for compliance with the permit. The SWPPP must be kept on-site and updated as site conditions change. Erosion control measures and best management practices will be implemented in accordance with the SWPPP.

The DOT 298 Form will be used for site inspections and to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents and retained for a minimum of three years.

The inspection will include disturbed areas of the construction site that have not been finally stabilized, areas used for storage materials, structural control measures, and locations where vehicles enter or exit the site. These areas will be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP will be observed to ensure that they are operating correctly, and sediment is not tracked off the site.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT: < https://dot.sd.gov/doing-business/environmental/stormwater >

DANR:< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/stormwater/default.aspx >

EPA: < https://www.epa.gov/npdes >

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 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES (CONTINUED)

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

COMMITMENT L: CONTAMINATED MATERIAL

Contaminated soil and/or known gas stations, undergrounds storage tanks, etc. are located within the project limits. Petroleum contaminated soil may be located at the following sites:

Description	Station	L / R
Full Circle Agriculture – 13010 SD Hwy 27, Pierpont, SD 57468	320+00	R

Action Taken/Required:

The Contractor will give written notice, with a copy to the Area Engineer and DANR, 30 days prior to the start of work. In addition, the Contractor will give written notice to the Engineer 7 days prior to the commencement of the work so the Engineer may notify DANR of the day work will start.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the USACE for the permanent actions associated with this project.

Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 404 Permit.

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources, storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.

SCOPE OF WORK

Work on this project involves pipe work, guardrail, cold milling and resurfacing of asphalt concrete and installing pavement markings on SD 27.

SEQUENCE OF OPERATIONS

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.

The Contractor will perform the work as follows:

1. Install Temporary Traffic Control Signs
2. Pipe Work
3. Mill Asphalt Concrete
4. Pave Asphalt Concrete
5. Remove and Install Guardrail
6. Install Permanent Pavement Markings
7. Remove Temporary Traffic Control Signs

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

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.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

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.

Traffic will be maintained on the driving lanes. Use of the shoulder as a driving lane will not be permitted. Any damage to the shoulder due to rerouted traffic or Contractor's equipment will be repaired at no expense to the Department.

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

GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the sections have been resurfaced.

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.

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, 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.

FLAGGING

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

Additional flagger warning signs and flagger hours have been included in the Estimate of Quantities for use on intersecting roads. These flaggers will be used as directed by the Engineer and will be used primarily during daytime hours. Also included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.

It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be 1.5 miles.

It is estimated that 11 DO NOT PASS (R4-1) and 10 PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary flexible vertical markers (tabs) will be required on the top lift of asphalt concrete surfacing.

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 milled surface
One pass on top of blade laid asphalt concrete
One pass on top of the final lift of asphalt concrete
One pass after centerline rumble strips
One pass after the flush seal

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.

TEMPORARY PAVEMENT MARKING (CONTINUED)

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.

TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

The Contractor will need to install LOOSE GRAVEL (W8-7) signs with advisory speed plaques (W13-1P) in areas where loose sand is present during the flush seal operation. LOOSE GRAVEL signs have been included in these plans for this.

PRESS RELEASE ANNOUNCEMENTS

The SDDOT will prepare a press release to be released 5 days prior to any phase change or any other major change that affects traffic flow. The SDDOT will be responsible to keep law enforcement, emergency services, and the traveling public notified of changes in project access. The Contractor will provide the Engineer with pertinent information 7 days prior to any phase change or any other major change that affects traffic flow.

UTILITIES

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.

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.

TYPE III FIELD LABORATORY

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".

STORAGE UNIT

The Contractor will provide a storage unit such as a portable storage container or a semi-trailer meeting the minimum size requirements from the table below:

Project Total Asphalt Concrete Tonnage	Minimum Internal Size (Cu Ft)	Minimum External Size (L x W x H)
Less than 50,000 ton	1,166	20' x 8' x 8.6' std
More than 50,000 ton	2,360	40' x 8' x 8.6' std
All Gyratory Controlled QC/QA Projects	2,360	40' x 8' x 8.6' std

The storage unit is intended for use only by the Engineer for the duration of the project. The QC lab personnel or the Contractor will not be allowed to use the storage container while it is on the project, without permission of the Engineer.

The storage unit will be on site and operational prior to asphalt concrete production. Upon completion of asphalt concrete production, the Engineer will notify the Contractor when the storage unit can be removed from the project. The storage unit use will not exceed 30 calendar days from the completion of asphalt concrete production. The storage unit will remain the property of the Contractor.

The storage unit will be weather proof and will be set in a level position. The storage unit will be able to be locked with a padlock.

The storage unit will be placed adjacent to the QA lab, as approved by the Engineer.

The following will apply when the storage unit provided on the project is a portable storage container:

1. The portable storage container will be constructed of steel.
2. The portable storage container will be set such that it is raised above the surrounding ground level to keep water from ponding under or around the storage container.

The following will apply when the storage unit provided on the project is a semi-trailer:

1. A set of steps and hand railings will be provided at the exterior door.
2. If the floor of the semi-trailer is 18 inches or more above the ground, a landing will be constructed at the exterior door. The minimum dimensions for the landing will be 4 feet by 5 feet. The top of the landing will be level with the threshold or opening of the doorway.
3. The semi-trailer may be connected to the QA lab by a stable elevated walkway. The walkway will be a minimum of 48 inches wide and contain handrails installed at 32 inches above the deck of the walkway. The walkway will be constructed such that it is stable and the deck does not deform during use and allows for proper door operation. Walkway construction will be approved by the Engineer.

All cost for furnishing, maintaining, and removing the storage unit including labor, equipment, and materials including any necessary walkways, landings, stairways, and handrails will be included in the contract unit price per each for "Storage Unit".

RCP AND RCBC REPAIRS FOR MAINLINE PIPE CULVERTS

The Contractor is encouraged to thoroughly investigate the culvert repair sites prior to bidding. Prior to working on the sites that are inundated with water, a complete dewatering plan will be submitted for approval to the Engineer. No separate payment for dewatering will be made.

Resetting and replacement of RCP will be completed prior to asphalt operations.

All pipe and end treatments designated for removal will become the property of the Contractor for his disposal.

The RCBC located at 59+20 has a failure at centerline in the south barrel. This is not reflected on the Table of Mainline Culvert Work. Grouting and culvert cleanout may be needed as directed by the Engineer.

Prior to culvert repair work the Contractor will remove and stockpile all of the in place topsoil from the construction areas. On completion of construction operations this salvaged topsoil will be spread evenly over the newly constructed embankment inslopes. Removal and replacement of topsoil will be incidental to the various culvert contract items.

TABLE OF MAINLINE PIPE CULVERT REPAIR

Pipe culvert lengths shown in the SD 27 Table of Mainline Culvert Work were obtained from the original grading plans and were not verified in the field.

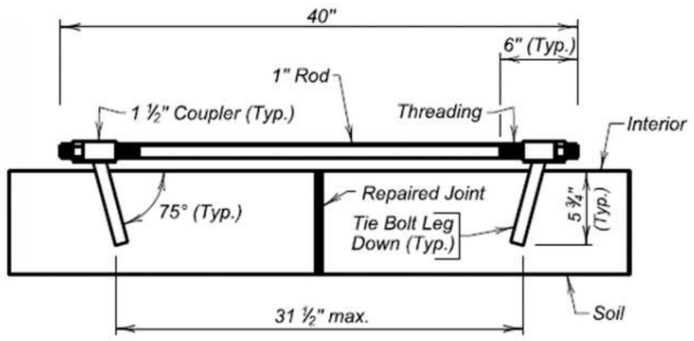
It is the Contractors responsibility to investigate each pipe culvert pipe repair site to determine the pipe culvert size and length, along with other information needed to prepare a bid.

Locating of culverts may require more than a visual inspection. Metal detectors, probing rods and excavation may be required to locate the culverts. Stationing from grading plans for the culverts and nearby section line roadways are shown in the plans to help locate the culverts, however the exact installation location may not match what was shown in the grading plans.

TIE BOLTS FOR REINFORCED CONCRETE PIPE AND CATTLE PASSES

Joints for the concrete pipe and cattle passes, as listed in the SD 27 Table of Mainline Culvert Work will have tie bolts installed on the inside of the culvert. The Contractor will drill holes at an angle as to cause the legs of the tie bolt to bind against the outside face of the hole upon tie bolt tightening. Bending of the tie bolt legs may need to be done to achieve this. Prior to inserting the tie bolt, the Contractor will fill the hole with epoxy resin. The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, (Equivalent to ASTM C881, Type IV). The Contractor will allow the resin to properly set-up prior to the final tightening of the tie bolts.

Cost for drilling tie bolt holes, epoxy resin, connections, and furnishing and installing the tie bolts for reinforced concrete pipe and cattle pass will be incidental to the contract unit price per each for “Tie Bolts for RCP”.



REMOVE AND RESET INLET

The existing drop inlet at Sta. 473+85.5 L/R will be removed and reset. New curb and gutter will match in place. All costs associated with this work will be covered in bid items “Remove Drop Inlet for Reset”, “Remove Drop Inlet Frame and Grate Assembly for Reset”, “Reset Drop Inlet”, “Reset Drop Inlet Frame and Grate Assembly”.

If the end of any section to be removed does not fall on an existing joint, a sawed joint must be made to provide a vertical face for the new joint. The inlet frame and grate assembly will be removed for reset. All work associated with the inlet and grate removal and reset will be paid for under: “Remove Drop Inlet Frame and Grate Assembly for Reset” and “Reset Drop Inlet Frame and Grate Assembly”.

Existing foundation material will be shaped and compacted to a firm uniform bearing surface, conforming to the existing section or established grades as set by the Engineer. Unsuitable foundation material will be removed and replaced as directed.

Cost for labor, equipment, material and incidentals required for excavation will be incidental to the contract unit prices for the various items.

The Contractor will satisfactorily restore disturbed areas adjacent to the new concrete placement to the satisfaction of the Engineer. Cost for this restoration work will be incidental to the contract unit prices for the various items.

Standard specifications for sawing, removing and replacing concrete curb and/or gutter, and material composition will apply except that the cost of such will be included in the contract unit price per each for “Remove Drop Inlet for Reset”.

HISTORICAL MARKER REMOVE AND RESET

A historical marker located at Sta 315+28.50 will be removed and reset to conform to the details on standard plate 120.20. The turnout area for the historical marker will also be milled and resurfaced. The quantities for milling and resurfacing have been included in the plans.

All costs for the removal and reset of the historical marker will be incidental to the contract unit price per each for “Remove and Reset Historical Marker”.

INTERSECTING ROADS AND ENTRANCES

In areas where granular material has been placed adjacent to the existing asphalt concrete, the Contractor will be required to remove the granular material to a depth below the existing asphalt concrete to allow for the placement of the new asphalt concrete. New asphalt concrete will be placed flush with the existing asphalt concrete. The existing granular material removed will be placed on the entrances, intersecting roads or other locations as directed by the Engineer.

All costs to remove and place the granular material including labor, equipment and incidentals will be incidental to the various related contract items.

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 throughout the project.

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.

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.

A copy of the surfacing/subgrade investigation for this project is available from the Aberdeen Region and Aberdeen Area Offices.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor will provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The borrow material will be approved by the Engineer. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site will be the responsibility of the Contractor.

Contractor furnished borrow will be used as directed by the Engineer for guardrail embankment.

REMOVE AND REPLACE TOPSOIL

Topsoil will be salvaged and stockpiled prior to construction activities involving culverts repairs and guardrail embankment activities. Limits of this work, depth of salvage, and stockpile location will be directed by the Engineer. Following completion of construction topsoil will be spread evenly over the disturbed areas.

The estimated amount of topsoil to be removed and replaced is 725 CuYd.

All costs associated with removing and replacing the topsoil will be incidental to the contract as lump sum for “Remove and Replace Topsoil”.

SHOULDER PREPARATION

Prior to placement of asphalt concrete on the shoulders, the upper 4” of existing granular shoulder material will be scarified, reworked, shaped, watered, and compacted to obtain a uniform and stable surface according to Section 260.3 D. The cross slope and inslope requirements will meet what is shown in the typical sections. The final shaping of the granular material on the shoulder must be completed after the Cold Milling Asphalt Concrete operation. Cost for this work will be incidental to the contract unit price per mile for “Shoulder Preparation”.

Water needed for compaction will be incidental to the contract unit price per mile for “Shoulder Preparation”.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 23. This value was obtained from testing during construction of the in-place asphalt concrete.

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.

COLD MILLING ASPHALT CONCRETE (CONTINUED

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 12,139.2 tons of cold milled asphalt concrete material. An estimated 5,880 tons of cold milled asphalt concrete material will be blended with Granular Material, Furnish and will be used on this project as Base Course, Salvaged at the locations identified in the plans. An estimated 5,837 tons of cold milled asphalt concrete material will be used on this project as RAP in the Class Q2R Hot Mixed Asphalt Concrete mixture. The Contractor is responsible to assure enough asphalt concrete salvage is available for the Class Q2R Hot Mixed Asphalt Concrete.

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

RAP achieved for project use and/or other uses is based on the dimensions given in the typical section(s). Field conditions will vary from that given in the typical section(s). Therefore, the Contractor may be required to adjust the mill depth, as necessary, to provide the quantity of RAP specified by the plans, if approved by the Engineer.

BLEND AND STOCKPILE GRANULAR MATERIAL

An Estimated 5,880 tons (for informational purposes only) of excess Salvaged Asphalt Mix material produced by cold milling will be blended with 3,920 tons of Granular Material, Furnish and stockpiled at the Contractor’s furnished stockpile site.

The Contractor will use a portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale to control the blending and weighing of the salvage material with Contractor furnished granular material.

The Salvaged Asphalt Mix material will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Excess Salvaged Asphalt Mix material and salvaged granular material will be blended with Granular Material, Furnish at a rate of 60% salvaged asphalt mix material and 40% Granular Material, Furnish to obtain stockpile material. Material will be uniformly blended to the satisfaction of the Engineer.

No further gradation testing of the blended material will be required.

All costs for crushing the Salvaged Asphalt Mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for “Blend and Stockpile Granular Material”.

BASE COURSE, SALVAGED

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

Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

Base Course, Salvaged placed on the shoulders, entrances, intersecting roads, and approaches will be compacted according to Section 260.3.D of the Specifications except that a pneumatic tired roller with an effective roller weight of at least 250 pounds per square inch of roller width will be required.

GRANULAR MATERIAL, FURNISH

Granular material will be furnished by the Contractor for use in blending with the salvaged asphalt mix material from this project.

The granular material will be Base Course meeting the requirements of Section 882.

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Mineral Aggregate:

Asphalt concrete aggregates will consist of reclaimed asphalt pavement (RAP) and virgin aggregate.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2.

The Class Q2R Hot Mixed Asphalt Concrete will include 20 percent RAP in the mixture. RAP will be obtained from the material produced by cold milling on this project.

Mix Design Criteria:

Gyratory Controlled QC/QA Mix Design requirements for the Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2.

All remaining requirements for Class Q2 will apply.

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 1270.2 tons of Class Q2R Hot Mixed Asphalt Concrete, 12.6 tons of Hydrated Lime, 59.2 tons of PG 58-34 Asphalt Binder, and 2.4 tons of SS-1h or CSS-1h Asphalt for Tack (Rate = 0.09 Gal./SqYd) per mile for spot leveling, strengthening, and repair of the existing surface throughout the project.

ASPHALT CONCRETE COMPOSITE

Section 324 will apply except that Class Q2R Hot Mixed Asphalt Concrete as specified elsewhere in the plans may be used as Asphalt Concrete Composite.

Plans specified locations for Asphalt Concrete Composite will be paid for at the contract unit price per ton for “Asphalt Concrete Composite” regardless of the class of asphalt concrete used at such locations.

ASPHALT CONCRETE BLADE LAID

Included in the Estimate of Surfacing Quantities are 150 tons of Asphalt Concrete Blade Laid, 1.5 tons of Hydrated Lime, and 11.1 tons of PG 58-34 Asphalt Binder per mile and will be tight bladed on the existing surface 24 feet wide prior to the overlay. Gaps at centerline will not be permitted.

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q2R Hot Mixed Asphalt Concrete mix. Mineral Aggregate for tight bladed material will meet the gradation requirements of the Job Mix Formula. Fine Aggregate Angularity and Sand Equivalent requirements will be the same as the Class Q2R Hot Mixed Asphalt Concrete mix. Quality testing is not required on the coarse aggregate (+No. 4 sieve) in this mixture.

The Asphalt Concrete Blade Laid Lift will be designed using an N_{design} Gyratory Compactive Effort of 65. The asphalt binder content will be determined so that the air voids of Asphalt Concrete Blade Laid Lift are between 3.0% and 5.0%.

Included in the Estimate of Surfacing Quantities are 78.3 tons of SS-1h or CSS-1h Asphalt for Tack for use prior to the application of the Blade Laid lift. (Rate = 0.09 Gal./SqYd)

SURFACING THICKNESS DIMENSIONS

The plans shown spread rates will be applied even though the thickness may vary from that shown in the plans.

At those locations where material must be placed to achieve a required elevation, the depth/quantity may be varied to achieve the required elevation.

TABLE OF SUPERELEVATION

STATION TO STATION	REMARKS
Sta. a1+27.14 to Sta. a138+09.28	Normal Crown Section
Sta. a138+09.28 to Sta. a140+99.28	Superelevation Transition
Sta. a140+99.28 to Sta. a149+89.28	0° 24' Curve Lt. 0.0200’/’ Superelevation Rate Point of Rotation 12' Lt.
Sta. a149+89.28 to Sta. a152+79.28	Superelevation Transition
Sta. a152+78.28 to Sta. a153+55.40	Normal Crown Section
Sta. a153+55.40 to Sta. a156+55.40	Superelevation Transition
Sta. a156+55.40 to Sta. a165+09.98	0° 24' Curve Rt. 0.0200’/’ Superelevation Rate Point of Rotation 12' Rt.
Sta. a165+09.99 to Sta. a166+99.98	Superelevation Transition

FLUSH SEAL

Application of flush seal will be completed within 10 working days following completion of the asphalt concrete surfacing.

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.

SAND FOR FLUSH SEAL

The sand application will be placed at widths shown in the RATES OF MATERIALS section.

MAILBOXES

The Contractor will reset the existing mailboxes on new posts with the necessary support hardware for single mailbox assemblies. The local

Postmaster will determine the recommended mounting height of the mailboxes throughout the project. The Contractor will coordinate with the Engineer on the proper postal representative to contact.

All costs for removing existing mailboxes, providing temporary mailboxes, and resetting mailboxes with new posts and necessary support hardware will be incidental to the contract unit price per each for “Refurbish Single Mailbox”

Type	Station	R/L
Single	130+45.04	L
Single	241+80.56	L
Single	264+70.96	L
Single	264+77.36	L
Single	a71+75.94	L
Single	a51+00.90	L

GRIND RUMBLE STRIPES IN ASPHALT CONCRETE

Asphalt concrete rumble stripes will be constructed on the shoulders. Rumble stripes will be paid for at the contract unit price per mile for Grind 8” Rumble Strip or Stripe in Asphalt Concrete. It is estimated that 25.2 miles of asphalt concrete rumble stripes will be required.

Rumble 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” rumble stripes at a width of 14” and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

GRIND SINUSOIDAL RUMBLE STRIPS/STRIPES IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the shoulders, 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 3.4 miles of sinusoidal rumble stripes will be required.

Sinusoidal rumble 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 at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

GRIND CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Rumble stripes will be constructed on the centerline, as detailed in the plans. Centerline rumble stripe installation will be completed prior to application of the flush seal and permanent pavement markings. Rumble stripes will be paid for at the contract unit price per mile for “Grind Centerline Rumble Stripe in Asphalt Concrete”. No centerline rumble stripes will be placed between Sta. 321+20.20 and Sta. 352+78.70. It is estimated that 12.4 miles of centerline rumble stripes will be required.

Centerline rumble stripes will be constructed according to the details of Standard Plate 320.18 outside the limits shown in the Table of Sinusoidal Centerline Rumble Stripes.

GRIND SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE

Sinusoidal rumble stripes will be constructed on the centerline, 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 1.3 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.

TABLE OF SINUSOIDAL CENTERLINE RUMBLE STRIPES

Location of Sinusoidal Rumble Stripes	Length (feet)	Length (miles)
Sta. 122+90.00 to Sta. 138+95.12	1,605.1	0.304
Sta. 237+15.92 to Sta. 248+98.64	1,182.7	0.224
Sta. 368+84.24 to Sta. 386+58.32	1,774.1	0.336
Sta. a42+08.58 to Sta. a53+49.06	1,140.5	0.216
Sta. a66+00.42 to Sta. a78+78.18	1,277.8	0.242
TOTAL	6980.2	1.322

GRIND 6” TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE

Advance intersection warning transverse rumble strips will be constructed on the mainline pavement, as detailed in the plan set. Transverse rumble strips will be paid for at the contract unit price per foot for “Grind 6” Transverse Rumble Strip in Asphalt Concrete”. It is estimated that 442.0 feet of transverse rumble strips will be required.

Transverse rumble strips 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 transverse rumble strips at a width that extends 3” beyond the perimeter of the total area of the transverse rumble strips and at the same rate as specified in this plan set. No adjustment in payment will be made and SS-1h or CSS-1h Asphalt for Flush Seal will be paid at the contract unit price per ton.

CENTERLINE RUMBLE STRIPES – ASPHALT FOR FLUSH SEAL

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 paid at the contract unit price per ton.

PAVEMENT MARKING PAINT

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.

Cold weather waterborne paint will not be required after October 15th per Supplemental Specification Section 633.3 B.

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of the fog or flush seal. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

Reflective media will consist of glass beads. 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^2/lux for white and 170 mc/m^2/lux for yellow.

MARKINGS WITHIN SINUSOIDAL CENTERLINE RUMBLE STRIPES

Sinusoidal rumble stripes exist on SD 27.

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.

SEDIMENT CONTROL

Sediment control may be required if water is flowing through the pipe culvert at the time of cleaning. Otherwise, sediment control is not anticipated.

The Contractor will implement appropriate sediment control measures prior to water flushing to prevent discharges beyond the project boundaries.

Wattles and Silt Fence have been provided in the Estimate of Quantities and will be used to capture pipe cleanout material. Placement of the wattles and Silt Fence will be as directed by the Engineer.

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species

claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract unit price per pound for the corresponding permanent seed mixture.

The Mycorrhizal Inoculum provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

FERTILIZING

The Contractor will apply an all-natural slow release fertilizer prior to seeding or placing sod. The all-natural fertilizer will have a minimum guaranteed analysis of 4-4-4 and be USDA Certified BioBased. It should provide a minimum of 4% (N) nitrogen with a minimum water insoluble nitrogen (WIN) fraction of 2.07%, a minimum of 4% (P2O5) available phosphate, a minimum of 4% (K2O) soluble potash, and a maximum carbon to nitrogen ratio (C:N ratio) of 5:1. The all-natural fertilizer will be free of weed-seed and pathogens accomplished through thermophilic composting, and not mechanical or chemical sterilization, to assure presence of beneficial soil microbiology. The fertilizer will have a near neutral pH, a low salt index, a low biological oxygen demand, contain organic humic and fulvic acids, and have high aerobic organism counts. The fertilizer will also be stable, free of bad odors, and be unattractive as a food source for animals. It should also be in a granular form that is easily spread.

The fertilizer will be applied at a rate of 2,000 pounds per acre in accordance with the manufacturer’s recommended method of application.

The Fertilizer provided will be from the approved product list. The approved product list may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways, temporary easements under cultivation, and areas designated to be sod.

Type G Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk, Chief, Nebraska 54	3
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	3
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

COVER CROP SEEDING

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding will be determined by the Engineer during construction.

SURFACE ROUGHENING

Surface roughening will be done after topsoil placement and before permanent seeding, fertilizing, and mulching applications. Refer to Standard Plate 734.25 for details.

TABLE OF SURFACE ROUGHENING

Station	Location	Area (Acre)
244+00 to 246+00 L/R	Inslope	.5
247+70 to 249+70 L/R	Inslope	.5
472+11 to 474+11 L/R	Inslope	.5
475+04 to 477+04 L/R	Inslope	.5
	Total:	2.0

MULCHING (GRASS HAY OR STRAW) FOR TEMPORARY STABILIZATION

Grass Hay or Straw Mulch for temporary stabilization is to be used on this project at locations noted in the table and at locations determined by the Engineer during construction. Two applications of Grass Hay or Straw Mulch on areas that receive temporary Grass Hay or Straw Mulch will not be required if the Engineer determines that there is sufficient Mulch remaining at the time permanent seeding takes place.

An additional 1 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched into the soil at a 3-inch depth.

TABLE OF MULCHING (GRASS HAY OR STRAW) FOR TEMPORARY STABILIZATION APPLIED AT 2 TONS/ACRE

Station	Location	Quantity (Ton)
244+00 to 246+00 L/R	Inslope	.5
247+70 to 249+70 L/R	Inslope	.5
472+11 to 474+11 L/R	Inslope	.5
475+04 to 477+04 L/R	Inslope	.5
	Additional Quantity:	1
	Total Quantity for Temporary Stabilization:	3

FIBER MULCHING

Fiber mulch will be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier will be synthetic.

Fiber mulch will be applied at the rate of 3,000 pounds per acre.

The Contractor will allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract unit price per pound for “Fiber Mulching”.

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF FIBER MULCHING

Station	Location	Quantity (Lb)
244+00 to 246+00 L/R	Inslope	1350
247+70 to 249+70 L/R	Inslope	1350
472+11 to 474+11 L/R	Inslope	1350
475+04 to 477+04 L/R	Inslope	1350
	Additional Quantity:	300
	Total:	5700

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds.

An estimated quantity of erosion control wattles will remain on the project until vegetation has been established. It is estimated that some of the erosion control wattles will remain on the project to decompose.

An additional quantity of 12” Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control and as an alternative to high flow silt fence at wetland areas adjacent to the highway.

The erosion control wattle provided will be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

https://apps.sd.gov/HC60ApprovedProducts/main.aspx

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
246+00 L/R	Inslope	12	80
247+70 L/R	Inslope	12	80
474+11 L/R	Inslope	12	80
475+04 L/R	Inslope	12	80
	Additional Quantity:	12	80
		Total:	400

LOW FLOW SILT FENCE

The low flow silt fence fabric provided will be from the approved product list. The approved product list for low flow silt fence may be viewed at the following internet site:

http://apps.sd.gov/HC60ApprovedProducts/main.aspx

Low flow silt fence will be placed at the locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.04 for details.

TABLE OF LOW FLOW SILT FENCE

Route and MRM	Location	Quantity (Ft)
SD 27 – 204.04 L & R	Protect Wetland	100
SD 27 – 204.05 L & R	Protect Wetland	100
SD 27 – 208.35 L & R	Protect Wetland	100
SD 27 – 208.39 L & R	Protect Wetland	100
	Additional Quantity:	250
	Total:	650

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0027(16)198	13	70

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers left of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES (Stormwater Permit))*

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

To promote stormwater management awareness specific for this project, the Contractor's Erosion Control Supervisor should provide correspondence of how the SWPPP will be implemented. The Contractor's Erosion Control Supervisor is responsible for providing this information at the preconstruction meeting, and subsequently completing an attendance log, which should identify site-specific implementation of the SWPPP and the names of the personnel who attended the preconstruction meeting. Documentation of the preconstruction meeting will be filed with the SWPPP documents.

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 2
- **5.3 (3b): Total Area to be Disturbed** 1.8
- **5.3 (3c): Maximum Area Disturbed at One Time**1
- **5.3 (3d): Existing Vegetative Cover (%)** 80
- **5.3 (3d): Description of Vegetative Cover**Native and Introduced East River Grasses
- **5.3 (3e): Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification G574A, G193E, G583F
- **5.3 (3f): Name of Receiving Water Body/Bodies** Unnamed streams
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements (**see sheet).

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install stabilized construction entrance(s).	
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Install utilities, storm sewers, curb and gutter.	
Install inlet and culvert protection after completing storm drainage and other utility installations.	
Final grading.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report. Include the technical reasoning for selecting each control. (check all that apply)

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
☐ Natural Buffers (within 50 ft of Waters of State)	
☒ Silt Fence	
☒ Erosion Control Wattles	
☐ Temporary Berm / Windrow	
☐ Floating Silt Curtain	
☐ Stabilized Construction Entrances	
☐ Entrance/Exit Equipment Tire Wash	
☐ Other:	

Structural Erosion and Sediment Controls

Description	Estimated Start Date
☒ Silt Fence	
☒ Temporary Berm/Windrow	
☒ Erosion Control Wattles	
☐ Temporary Sediment Barriers	
☐ Erosion Bales	
☐ Temporary Slope Drain	
☐ Turf Reinforcement Mat	
☐ Riprap	
☐ Gabions	
☐ Rock Check Dams	
☐ Sediment Traps/Basins	
☐ Culvert Inlet Protection	
☐ Transition Mats	
☐ Median/Area Drain Inlet Protection	
☐ Curb Inlet Protection	
☐ Interceptor Ditch	
☐ Concrete Washout Facility	
☐ Work Platform	
☐ Temporary Water Barrier	
☐ Temporary Water Crossing	
☐ Permanent Stormwater Ponds	
☐ Permanent Open Vegetated Swales	
☐ Natural Depressions to allow for Infiltration	
☐ Sequential Systems that combine several practices	
☐ Other:	

Dust Controls

Description	Estimated Start Date
☐ Tarps & Wind impervious fabrics	
☐ Watering	
☐ Stockpile location/orientation	
☐ Dust Control Chlorides	
☐ Other	

Dewatering BMPs

Description	Estimated Start Date
☐ Sediment Basins	
☐ Dewatering bags	
☐ Weir tanks	
☐ Temporary Diversion Channel	
☐ Other:	

Stabilization Practices (See Detail Plan Sheets)

(Stabilization measures will begin the following work day whenever earth disturbing activity on any portion of the site has temporarily or permanently ceased. Temporary stabilization will be completed as soon as practicable but no later than 14 days after initiating soil stabilization activities (**3.18**))

Description	Estimated Start Date
☐ Vegetation Buffer Strips	
☐ Temporary Seeding (Cover Crop Seeding)	
☒ Permanent Seeding	
☐ Sodding	
☐ Planting (Woody Vegetation for Soil Stabilization)	
☐ Mulching (Grass Hay or Straw)	
☒ Fiber Mulching (Wood Fiber Mulch)	
☐ Soil Stabilizer	
☐ Bonded Fiber Matrix	
☐ Fiber Reinforced Matrix	
☐ Erosion Control Blankets	
☒ Surface Roughening (e.g. tracking)	
☐ Other:	

Wetland Avoidance

Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☐ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^1/_3$ of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

Stormwater management will be handled by temporary controls outlined in "DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES" above, and any permanent controls needed to meet permanent stormwater management needs in the post construction period will be shown in the plans and noted as permanent.

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➢ **Material Management**

- Housekeeping
  - Only needed products will be stored on-site by the Contractor.
  - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
  - Products must be stored in original containers and labeled.
  - Material mixing will be conducted in accordance with the manufacturer's recommendations.
  - When possible, all products will be completely used before properly disposing of the container off-site.
  - The manufacturer's directions for disposal of materials and containers will be followed.
  - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
  - Dust generated will be controlled in an environmentally safe manner.

- Hazardous Materials
  - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
  - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
  - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
  - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
  - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
  - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

➢ **Spill Control Practices**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator.

➢ **Spill Response**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SDDANR.
- Personnel with primary responsibility for spill response and cleanup will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➢ **Waste Disposal**

- All liquid waste materials will be collected and stored in approved sealed containers. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal and notices stating proper practices will be posted. The Contractor is responsible for ensuring waste disposal procedures are followed.

➢ **Hazardous Waste**

- All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the Contractor will be responsible for seeing that these practices are followed.

➢ **Sanitary Waste**

- Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units which must be secured to prevent tipping and serviced in a timely manner by a licensed waste management Contractor or as required by any local regulations.

5.3 (9): CONSTRUCTION SITE POLLUTANTS

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the heading “POLLUTION PREVENTION PROCEDURES” (check all that apply).

- ☐ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☐ Metals
- ☐ Bituminous Materials
- ☐ Petroleum Based Products
- ☐ Diesel Exhaust Fluid
- ☐ Cleaning Solvents
- ☐ Wood
- ☐ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

Product Specific Practices

- **Petroleum Products**
  All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.

- **Fertilizers**
  Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to stormwater. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.

- **Paints**
  All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer’s instructions and any applicable state and local regulations.

- **Concrete Trucks**
  Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any stormwater outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

5.3 (10): NON-STORMWATER DISCHARGES

The following non-stormwater discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

5.3 (11): INFEASIBILITY DOCUMENTATION

If it is determined to be infeasible to comply with any of the requirements of the Stormwater Permit, the infeasibility determination must be thoroughly documented in the SWPPP.

7.0: SPILL NOTIFICATION

In the event of a spill, the Contractor’s site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to SDDANR immediately **if any one of the following** conditions exists:
  - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
  - The release or spill causes an immediate danger to human health or safety
  - The release or spill exceeds 25 gallons
  - The release or spill causes a sheen on surface water
  - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
  - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
  - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
  - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.

- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.

5.4: SWPPP CERTIFICATIONS

➢ **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

➢ **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature (See the General Permit, Section 7.4 (1))

➢ **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature

CONTACT INFORMATION

The following personnel are duly authorized representatives and have signatory authority for modifications made to the SWPPP:

➢ **Contractor Information**:

- Prime Contractor Name: _____
- Contractor Contact Name: _____
- Address: _____
- _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **Erosion Control Supervisor**

- Name: _____
- Address: _____
- _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **SDDOT Project Engineer**

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____State: _____Zip: _____
- Office Phone: _____Field: _____
- Cell Phone: _____Fax: _____

➢ **SDDANR Contact Spill Reporting**
- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➢ **SDDANR Contact for Hazardous Materials.**
- (605) 773-3153

➢ **National Response Center Hotline**
- (800) 424-8802.

➢ **SDDANR Stormwater Contact Information**
- SDDANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

5.5: REQUIRED SWPPP MODIFICATIONS

➢ **5.5 (1): Conditions Requiring SWPPP Modification**

The SWPPP must be modified, including the site map(s), in response to any of the following conditions:

- When a new operator responsible for implementation of any part the SWPPP begins work on the site.
- When changes to the construction plans, sediment and erosion control measures, or any best management practices on site that are no longer accurately reflected in the SWPPP. This includes changes made in response to corrective actions triggered by inspections.
- To reflect areas on the site map where operational control has been transferred (including the date of the transfer) or has been covered under a new permit since initiating coverage under this general permit.
- If inspections by site staff, local officials, SDDANR, or U.S. EPA determine that SWPPP modifications are necessary for compliance with the Stormwater Permit.
- To reflect any revisions to applicable federal, state, or local requirements that affect the control measures implemented at the site.
- If approved by the Secretary, to reflect any changes in chemical water treatment systems or controls, including the use of a different water treatment chemical, age rates, different areas, or methods of application.

➢ **5.5 (2): Deadlines for SWPPP Modification**

Any required revisions to the SWPPP must be completed within 7 calendar days following any of the items listed above.

➢ **5.5 (3): Documentation of Modifications to the Plan**

All SWPPP modification records are required to be maintained showing the dates of when the modification occurred. The records must include the name of the person authorizing each change and a brief summary of all changes.

➢ **5.5 (4): Certification Requirements**

All modifications made to the SWPPP must be signed and certified as required in Section 7.4.

➢ **5.5 (5): Required Notice to Other Operators**

If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the needed changes. Copies of the DOT 298 forms and the SWPPP will be retained on site in a designated place for review throughout the course of the project. A copy of the DOT 298 form will be given to the Contractor Erosion Control Supervisor and a copy will be emailed to the SDDOT Environmental Section in accordance with the DOT 298 Form.

RATES OF MATERIALS

The Estimate of Quantities is based on the following quantities of materials per mile.

Section 1: Each Shoulder Lift
Sta. a1+27.14 to Sta. a138+09.00

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate: 80%.....	202 Tons
Salvaged Asphalt Concrete: 20%.....	50 Tons
PG 58-34 Asphalt Binder.....	12 Tons
Total Mix (148 lb/ft^3).....	264 Tons
Hydrated Lime: 1.0%.....	3 Tons
Total	267 Tons

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

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **1.2** tons applied **5.5** feet wide.
(Rate = 0.09 gal./sq.yd.)

Section 1: Mainline Lift
Sta. a1+27.14 to Sta. a138+09.00

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate: 80%.....	1564 Tons
Salvaged Asphalt Concrete: 20%.....	391 Tons
PG 58-34 Asphalt Binder.....	96 Tons
Total Mix (148 lb/ft^3).....	2051 Tons
Hydrated Lime: 1.0%.....	21 Tons
Total	2072 Tons

The exact proportion of these materials will be determined on construction

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **5.2** tons applied **35.0** feet wide.
(Rate = 0.06 gal./sq.yd.)

Blade Laid

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **5.6** tons applied **25.0** feet wide.
(Rate = 0.09 gal./sq.yd.)

Flush Seal

SS-1h or CCS-1h Emulsified Asphalt for Flush Seal will be at the rate of **4.5** tons applied **36.0** feet wide.
(Rate = 0.05 gal./sq.yd.)

Sand for Flush Seal will be at the rate of **51.6** tons applied **22.0** feet wide.
(Rate = 8 lb./sq.yd.).

Section 3: Mainline Lift
Sta. 628+59.00 to Sta. 39+31.76 (Reversed)

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate: 80%.....	1380 Tons
Salvaged Asphalt Concrete: 20%.....	345 Tons
PG 58-34 Asphalt Binder.....	85 Tons
Total Mix (148 lb/ft^3).....	1810 Tons
Hydrated Lime: 1.0%.....	18 Tons
Total	1828 Tons

The exact proportion of these materials will be determined on construction

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **4.5** tons applied **30.0** feet wide.
(Rate = 0.06 gal./sq.yd.)

Blade Laid

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **5.6** tons applied **25.0** feet wide.
(Rate = 0.09 gal./sq.yd.)

Flush Seal

SS-1h or CCS-1h Emulsified Asphalt for Flush Seal will be at the rate of **3.6** tons applied **29.0** feet wide.
(Rate = 0.05 gal./sq.yd.)

Sand for Flush Seal will be at the rate of **5.6** tons applied **22.0** feet wide.
(Rate = 8 lb./sq.yd.).

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

Section 2: Mainline Lift
Sta. 138+09.00 to Sta. 169+00.00

CLASS Q2R HOT MIXED ASPHALT CONCRETE

Crushed Aggregate: 80%.....	26.68 Tons
Salvaged Asphalt Concrete: 20%.....	7.17 Tons
PG 58-34 Asphalt Binder.....	1.77 Tons
Total Mix (148 lb/ft^3).....	37.62 Tons
Hydrated Lime: 1.0%.....	0.38 Tons
Total	38.00 Tons

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

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **0.1** tons applied **34.0** feet wide.
(Rate = 0.06 gal./sq.yd.)

Blade Laid

SS-1h or CCS-1h Emulsified Asphalt for Tack will at the rate of **0.1** tons applied **25.0** feet wide.
(Rate = 0.09 gal./sq.yd.)

Flush Seal

SS-1h or CCS-1h Emulsified Asphalt for Flush Seal will be at the rate of **0.1** tons applied **38.0** feet wide.
(Rate = 0.05 gal./sq.yd.)

Sand for Flush Seal will be at the rate of **1.0** tons applied **22.0** feet wide.
(Rate = 8 lb./sq.yd.).

TABLE OF ENTRANCES, DRIVEWAYS, AND INTERSECTING ROADS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	18	70
Plotting Date: 06/16/2025			

MRM	DISP	Rt/Lt	DESCRIPTION	PAD TYPE	COMMENTS	BASE COURSE	CLASS Q2R HOT MIXED ASPHALT CONCRETE (Ton)	2" COLD MILLING ASPHALT CONCRETE (SqYd)
198.010	0.221	RT	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
198.010	0.247	LT	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
198.010	0.417	Lt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
198.010	0.417	Rt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
198.010	0.487	Rt	Grass section line	Asphalt	Asphalt to gravel	15	2.8	
198.010	0.508	Lt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
198.010	0.732	Lt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
198.010	0.778	Rt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
198.010	0.894	Rt	Farm/House	Asphalt	Asphalt to gravel	15	2.8	
198.010	0.894	Lt	Mail Box	Asphalt			12.9	
198.010	0.979	Rt	138th Str	Asphalt to ROW	Asphalt to gravel	15	18.4	
198.010	0.979	Lt	Grass section line	Asphalt	Asphalt to gravel	15	3.1	
199.000	0.106	Lt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
199.000	0.295	Lt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
199.000	0.365	Rt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
199.000	0.365	Lt	Farm/House	Asphalt	Asphalt to gravel	15	3.4	
199.000	0.480	Lt	Farm	Asphalt	Asphalt to gravel	15	3.7	
199.000	0.771	Rt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
199.000	0.771	Lt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
199.000	0.961	Lt	137th St	Asphalt to ROW	Asphalt to gravel	15	16.5	
199.000	0.961	Rt	Section Line	Asphalt	Asphalt to gravel	15	3.1	
200.000	0.205	Lt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
200.000	0.205	Rt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
200.000	0.456	Lt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
200.000	0.456	Rt	Field Ent	Asphalt	Asphalt to grass	15	2.8	
200.000	0.699	Lt	Field Ent	Asphalt	Asphalt to gravel	15	2.8	
200.000	0.964	Lt	12A Int Road	Asphalt to ROW	Asphalt to Asphalt		21.6	196
200.000	0.964	Rt	Int. Road	Asphalt to ROW	Asphalt to Gravel	15	17.2	
201.000	0.127	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
201.000	0.462	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
201.000	0.512	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
201.000	0.698	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
201.000	0.698	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
201.000	0.949	Lt	135th St	Asphalt to ROW	Asphalt to gravel	15	20.2	
201.000	0.949	Rt	135th St	Asphalt to ROW	Asphalt to gravel	15	18.6	
202.000	0.151	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
202.000	0.448	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
202.000	0.448	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
202.000	0.630	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
202.000	0.699	Rt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
202.000	0.949	Lt	134th St	Asphalt to ROW	Asphalt to gravel	15	17.2	
202.000	0.949	Rt	134th St	Asphalt to ROW	Asphalt to gravel	15	19.6	
203.000	0.200	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
203.000	0.200	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
203.000	0.676	Lt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
203.000	0.676	Rt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
203.000	0.936	Rt	133rd St	Asphalt to ROW	Asphalt to gravel	15	17.8	
203.000	0.936	Lt	133rd St	Asphalt to ROW	Asphalt to gravel	15	19.5	
204.000	0.230	Rt	Lake Entrance	Asphalt to ROW	Asphalt to gravel	15	14.7	
204.000	0.395	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
204.000	0.430	Rt	Lake Entrance	Asphalt to ROW	Asphalt to gravel	15	16.4	
204.000	0.535	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
204.000	0.951	Rt	132nd St	Asphalt to ROW	Asphalt to gravel	15	15.2	
204.000	0.951	Lt	132nd St	Asphalt	Asphalt to gravel	15	4.6	
205.000	0.436	Lt	Farm	Asphalt to ROW	Asphalt to gravel	15	10.7	
205.000	0.461	Lt	Farm	Asphalt to ROW	Asphalt to gravel	15	8.9	
205.000	0.473	Rt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
205.000	0.771	Lt	Farm	Asphalt	Asphalt to gravel	15	4.0	
205.000	0.871	Lt	Farm	Asphalt	Asphalt to gravel	15	4.3	
205.000	0.974	Rt	131st St	Asphalt to ROW	Asphalt to gravel	15	18.8	
205.000	0.974	Lt	131st St	Asphalt to ROW	Asphalt to gravel	15	17.8	

MRM	DISP	Rt/Lt	DESCRIPTION	PAD TYPE	COMMENTS	BASE COURSE	CLASS Q2R HOT MIXED ASPHALT CONCRETE (Ton)	2" COLD MILLING ASPHALT CONCRETE (SqYd)
205.000	1.001	Lt	Farm Ent	Asphalt to ROW	Asphalt to gravel	20	15.2	
206.000	0.066	Lt	Farm Ent	Asphalt	Asphalt to gravel	20	6.7	
206.000	0.159	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
206.000	0.469	Rt	1st St W	Asphalt to ROW	Asphalt to gravel	15	20.5	
206.000	0.469	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
206.000	0.500	Rt	House	Asphalt	Asphalt to gravel	15	4.0	
206.000	0.540	Rt	2nd St W	Asphalt to ROW	Asphalt to gravel	15	17.4	
206.000	0.575	Rt	House	Asphalt	Asphalt to gravel	15	10.4	
206.000	0.610	Rt	Main St W	Asphalt to ROW	Asphalt to chip seal		22.8	207
206.000	0.610	Lt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
206.000	0.685	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
206.000	0.750	Rt	4th St W	Asphalt to ROW	Asphalt to gravel	15	19.4	
206.000	0.786	Lt	Business	Asphalt	Asphalt to gravel	15	4.3	
206.000	0.831	Lt	Business	Asphalt	Asphalt to gravel	15	4.6	
206.000	0.975	Lt	Day County 4	Asphalt to ROW	Asphalt to Asphalt		59.2	538
206.000	0.975	Rt	Day County 4	Asphalt to ROW	Asphalt to Asphalt		49.5	450
207.000	0.038	Rt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
207.000	0.069	Lt	Historic Marker	Asphalt	Asphalt		32.8	298
207.000	0.174	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
207.000	0.334	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
207.000	0.334	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
207.000	0.594	Rt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
207.000	0.594	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
207.000	0.719	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
207.000	0.914	Lt	Cemetary	Asphalt to ROW	Asphalt to gravel	15	11.3	
207.000	0.970	Lt	129th St	Asphalt to ROW	Asphalt to gravel	15	15.1	
207.000	0.970	Rt	129th St	Asphalt to ROW	Asphalt to gravel	15	16.1	
208.000	0.091	Rt	Field Ent/Mail box	Asphalt	Asphalt to gravel	15	4.0	
208.000	0.091	Lt	House	Asphalt	Asphalt to gravel	15	4.0	
208.000	0.451	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
208.000	0.522	Rt	Mail Box	Asphalt	Asphalt		14.9	
208.000	0.522	Lt	Farm	Asphalt to ROW	Asphalt to gravel	15	16.0	
208.000	0.667	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
208.000	0.967	Lt	128th St	Asphalt to ROW	Asphalt to gravel	15	21.7	
208.000	0.967	Rt	128th St	Asphalt to ROW	Asphalt to gravel	15	17.9	
209.000	0.336	Lt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
209.000	0.336	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
209.000	0.641	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
209.000	0.743	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
209.000	0.992	Lt	127th St	Asphalt to ROW	Asphalt to gravel	15	15.3	
209.000	0.992	Rt	127th St	Asphalt to ROW	Asphalt to gravel	15	16.9	
210.000	0.218	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
210.000	0.218	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
210.000	0.424	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
210.000	0.479	Lt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
210.000	0.579	Rt	Farm	Asphalt to ROW	Asphalt to gravel	15	15.8	
210.000	0.634	Rt	House/Mail box	Asphalt to ROW	Asphalt to asphalt		21.5	195
210.000	0.984	Rt	126 St	Asphalt to ROW	Asphalt to gravel	15	29.4	
210.000	0.984	Lt	126 st	Asphalt to ROW	Asphalt to gravel	15	21.2	
211.000	0.404	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
211.000	0.404	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
211.000	0.485	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
211.000	0.485	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
211.000	0.759	Rt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
211.000	0.759	Lt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
211.000	0.990	Rt	125th St	Asphalt to ROW	Asphalt to gravel	15	20.9	
211.000	0.990	Lt	Field Ent	Asphalt	Asphalt to gravel	15	4.0	
212.000	0.147	Rt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
212.000	0.147	Lt	Field Ent	Asphalt	Asphalt to grass	15	4.0	
					Totals	1690	1095.2	1884.0

TABLE OF ADDITIONAL QUANTITIES

LOCATIONS:	UNCLASSIFIED EXCAVATION CuYd	BASE COURSE Ton	COLD MILLING ASPHALT CONCRETE SqYd	REMOVE ASPHALT CONCRETE PAVEMENT SqYd	COLD MILLED MATERIAL PRODUCED (NABI.) Ton	CLASS Q2R HOT MIXED ASPHALT CONCRETE Ton	PG 58-34 ASPHALT BINDER Ton	HYDRATED LIME Ton	SALVAGED ASPHALT CONCRETE (RAP) (NABI.) Ton	VIRG. AGGR. (NABI.) Ton	SS-1h/ CSS-1h ASPH. FOR TACK Ton
Begin Project			126.7		6.7						
Str. No. 19-070-046			253.3		13.3						
Guardrail Pad Str. No. 19-070-046	116.1	438.7		540.0		87.5	4.1	0.9	16.5	66.0	
Str. No. 19-070-089			253.3		13.3						
Guardrail Pad Str. No. 19-070-089	116.1	438.7		560.0		87.5	4.1	0.9	16.5	66.0	
Entrances, Driveways, and Intersecting Roads refer to TABLE OF ENTRANCES, DRIVEWAYS, AND INTERSECTING ROADS		1,690.0	1,884.0		207.2	1,095.2	51.0	10.8	206.7	826.7	2.4
End Project			115.6		6.1						
Totals	232.2	2,567.4	2,632.9	1,100.0	246.6	1,270.2	59.2	12.6	239.7	958.7	2.4

TABLE OF PROJECT STATIONING

SECTION	STATION	TO	STATION	LENGTH (Ft)	SECTION LENGTH (Ft)	SECTION LENGTH (Miles)
1	a1+27.14	to	a138+09.00	13681.9	13681.86	2.591
2	a138+09.00	to	a169+00.00	3091.0	3091.00	0.585
3	39+31.76	to	246+03.50	20671.7	58671.24	11.112
	247+66.50	to	474+11.00	22644.5		
	475+04.00	to	628+59.00	15355.0		
				TOTAL:	75444.10	14.289

TABLE OF MATERIAL QUANTITIES

	UNCLASSIFIED EXCAVATION, DIGOUTS	BASE COURSE	COLD MILLING ASPHALT CONCRETE	COLD MILLED MATERIAL PRODUCED (NABI.)	REMOVE ASPHALT CONCRETE PAVEMENT	ASPHALT CONCRETE COMPOSITE	ASPHALT CONCRETE BLADE LAID	PG 58-34 ASPHALT BINDER	HYDRATED LIME	VIRG. AGGR. (NABI.)	CLASS Q2R HOT MIXED ASPHALT CONCRETE	PG 58-34 ASPHALT BINDER	HYDRATED LIME	SALVAGED ASPHALT CONCRETE (RAP) (NABI.)	VIRG. AGGR. (NABI.)	CLASS Q2R HOT MIXED ASPHALT CONCRETE	PG 58-34 ASPHALT BINDER	HYDRATED LIME	SALVAGED ASPHALT CONCRETE (RAP) (NABI.)	VIRG. AGGR. (NABI.)	SS-1h/ CSS-1h ASPH. FOR TACK	SS-1h/ CSS-1h ASPH. FOR FLUSH SEAL	SAND FOR FLUSH SEAL
							<----------Blade Laid---------->				<----------Spot Leveling---------->					<----------Main Line---------->							
SECTION	CuYd	Ton	SqYd	Ton	SqYd	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton	Ton
1	130	259.1	39,525.4	1,992.1	194.3	64.8	388.7	28.8	3.9	356.0	259.1	12.2	2.6	48.9	195.5	5,369.1	248.8	54.4	1,013.2	4,052.7	13.2	11.4	133.8
2	29	58.5	10,646.8	536.6	43.9	14.6	87.8	6.5	0.9	80.4	58.5	2.8	0.6	11.0	44.1	1,174.6	54.7	11.7	221.6	886.5	2.9	2.7	30.2
3	556	1,111.2	185,792.3	9,363.9	833.4	277.8	1,666.8	123.3	16.7	1,526.8	1,111.2	52.2	11.1	209.6	838.3	20,312.7	944.5	200.0	3,833.6	15,334.5	48.7	39.2	573.7
Sub totals	715	1,428.8	235,964.5	11,892.6	1,071.6	357.2	2,143.3	158.6	21.5	1,963.2	1,428.8	67.2	14.3	269.5	1,077.9	26,856.4	1,248.0	266.1	5,068.4	20,273.7	64.9	53.3	737.7
Table of Additional Quantities		2,567.4	2,632.9	246.6	1,100.0											1,270.2	59.2	12.6	239.7	958.7	2.4		
Blade Laid																					78.3		
Section 1 Shoulder																1,383.7	62.2	15.5	259.1	1,046.9	6.2		
Spot Leveling																					3.6		
Totals	715	3,996.2	238,597.4	12,139.2	2,171.6	357.2	2,143.3	158.6	21.5	1,963.2	1,428.8	67.2	14.3	269.5	1,077.9	29,510.3	1,369.4	294.2	5,567.2	22,279.3	155.3	53.3	737.7

NABI - Item is not a bid item. Quantity provided for information only.

SUMMARY OF ASPHALT CONCRETE

LOCATIONS:	Class Q2R Hot Mixed Asphalt Concrete with Specified Density Compaction TONS	Class Q2R Hot Mixed Asphalt Concrete without Specified Density Compaction TONS	Asphalt Concrete Blade Laid Project Wide TONS
Section 1 (24' Wide Mainline, 2.5' Shoulder 2.5' Sluff)	4,090.7	1,278.4	388.7
Section 2 (24' Wide Mainline, 2.5' Shoulder, 2' Sluff)	909.4	265.2	87.8
Section 3	20,312.7	-	1,666.8
Spot leveling, shoulder, strengthening, and repair of existing surface	-	2,812.5	-
Table of Additional Quantities	-	1,270.2	-
TOTAL	**25,312.8**	**5,626.3**	**2,143.3**

Total Class Q2R Hot Mixed Asphalt Concrete:	30939.1	*Tons*
Total Asphalt Concrete Blade Laid:	2143.3	*Tons*

Mainline = With specified density
Shoulder and Sluff = Without specified density

TABLE OF GUARDRAIL REMOVAL AND INSTALLATION

		110E0700	110E0730	110E0740	110E0800	630E0500	630E1501	630E2018	632E2220
		Remove 3 Cable Guardrail (FT)	Remove Beam Guardrail (FT)	Remove 3 Cable Guardrail Anchor Assembly (Each)	Remove W Beam Guardrail End Terminal (Each)	Type 1 MGS (FT)	Type 1 Retrofit Guardrail Transition (Each)	MGS MASH Tangent End Terminal (Each)	Guardrail Delineator (Each)
STR. NO. 19-070-089	Begin Bridge NB	302	100.0	1	1	100.0	1	1	4
	Begin Bridge SB	302	100.0	1	1	100.0	1	1	4
	End Bridge NB	-	62.5	-	1	12.5	1	1	4
	End Bridge SB	-	62.5	-	1	12.5	1	1	4
STR. NO. 19-070-046	Begin Bridge NB	302	100.0	1	1	100.0	1	1	4
	Begin Bridge SB	302	100.0	1	1	100.0	1	1	4
	End Bridge NB	-	62.5	-	1	12.5	1	1	4
	End Bridge SB	-	62.5	-	1	12.5	1	1	4
	TOTAL	**1208**	**650.0**	**4**	**8**	**450.0**	**8**	**8**	**32**

The above quantities are included in the Estimate of Quantities.

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Culvert Inventory #	MRM	+ Disp	Station	Side	Per Original Plans: In Place Culvert Size and Type		Per Original Plans: Culvert Length (Ft)	Per Original Plans: Culvert End Type	Per Original Plans: Direction of Flow	Per Original Plans: Drainage Area (Acre)	Incidental Work, Grading (LS)	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install: 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert (Each)	Tie Bolts for RCP (Each)	Riprap: Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
1		211.94	0.00	59+20	L	2-10'x10'	RCBC	60	Flared	West													No Work Required.
					R				Flared														
2	138944	211.00	0.54	79+83.5	L	24"	RCP	80	Flared	West													Reset FE & 16' on East End
					R				Flared				16		1		16	1					
3	138933	211.00	0.46	84+00	L	60"	**RCPA**	72	Flared	West	180												No Work Required.
					R				Flared														
4	138892	211.00	0.11	102+24	L	54"	RCP	76	Flared	West	220		18		1		18	1					Reset FE & 18' on both ends.
					R				Flared				18		1		18	1					
5	138911	210.00	0.97	110+08	L	42"	**RCPA**	56	Flared		120?	1											Clean out ditch to the Northwest upto the section line culvert.
					R				Flared														
6	138900	210.00	0.55	132+67	L	42"	**RCPA**	58	Flared	West													Place 12'x15'x2' Riprap on Rt.
					R				Flared												19	32	
7	138889	210.00	0.38	141+15	L	48"	**RCPA**	54	Flared		200												No Work Required.
					R				Flared														
8N	138888	210.00	0.14	153+80	L	30"	**RCPA**	64	Flared		108												No Work Required.
					R				Flared														

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Inventory Culvert #	MRM	+ Disp	Station	Side	Per Original Plans: In Place Culvert Size and Type		Culvert Length (Ft)	Culvert End Type	Direction of Flow	Drainage Area Acre	Incidental Work, Grading LS	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install: 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert Each	Tie Bolts for RCP (Each)	Riprap: Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
8S	138888	210.00	0.14	153+80	L	30"	**RCPA**	64	Flared		108												No Work Required.
					R				Flared														
9	138887	209.00	0.61	182+26	L	24"	RCP	60	Flared	West	70		6		1		6	1					Reset FE & 6' on both ends.
					R				Flared				6		1		6	1					
10	138886	209.00	0.23	202+78	L	60"	RCP	114	Flared	West	350		18		1		18	1		26			Reset FE & 12' on West End. Reset FE & 18' on East End. Tie untied joints.
					R				Flared				12		1		12	1					
11	138885	208.37	0.47	221+00	L	18"	RCP	56	Flared						1			1					Reset West FE and Replace East FE.
					R				Flared					1		1							
12	138884	208.37	0.43	223+50	L	24"	RCP	50	Flared														No Work Required.
					R				Flared														
13	138883	208.00	0.08	261+78	L	24"	RCP	58	Flared		60												No Work Required.
					R				Flared														
14	138882	207.00	0.77	278+65	L	42"	RCP	64	Flared		80												No Work Required.
					R				Flared														
15	138881	207.00	0.38	299+34	L	24"	RCP	72	Flared	West					1			1					Reset both FE's.
					R				Flared						1			1					

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Inventory Culvert #	MRM	+ Disp	Station	Side	Per Original Plans: In Place Culvert Size and Type		Per Original Plans: Culvert Length (Ft)	Per Original Plans: Culvert End Type	Per Original Plans: Direction of Flow	Per Original Plans: Drainage Area Acre	Incidental Work, Grading LS	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install: 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert Each	Tie Bolts for RCP (Each)	Riprap: Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
16	13880	207.00	0.24	306+94	L	72"	RCPA	86	Flared	West	700												No Work Required.
					R				Flared														
17	13879	207.00	0.03	317+81	L	24"	RCP	62	Flared	West													No Work Required.
					R				Flared														
18	13878	206.00	0.93	323+21	L	42"	RCP	60	Flared														No Work Required.
					R				Flared														
19	13944	206.00	0.73	333+86	L	24"	RCP	60	Flared	West													Reset Rt FE.
					R				Flared						1			1					
20	13943	206.00	0.60	340+83	L	24"	RCP	50	Flared														Reset Rt FE.
					R				Flared						1			1					
21	13942	206.00	0.52	344+72	L	24"	RCP	60	Flared	West			4		1		4	1					Reset FE & 4' on both sides.
					R				Flared				4		1		4	1					
22	13941	206.00	0.45	348+41	L	24"	RCP	58	Flared						1			1					Reset both FE's.
					R				Flared						1			1					
23	13990	205.00	0.64	391+62	L	2-6'X6'	RCBC	82	Flared	West	43 SqMi ?												No Work Required.
					R				Flared														

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Culvert Inventory #	MRM	+ Disp	Station	Side	Per Original Plans: In Place Culvert Size and Type		Per Original Plans: Culvert Length (Ft)	Per Original Plans: Culvert End Type	Per Original Plans: Direction of Flow	Per Original Plans: Drainage Area Acre	Incidental Work, Grading LS	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert Each	Tie Bolts for RCP (Each)	Riprap Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
24	139889	205.00	0.18	416+39	L	36"	RCP	108	Flared		75												No Work Required.
					R				Flared														
25	139888	205.05	0.67	438+67	L	24"	RCP	64	Flared	West					1			1					Reset both FE's.
					R				Flared						1			1					
26	139887	204.05	0.41	452+54	L	30"	Cast Iron & RCP on ends.		Sloped														No Work Required.
					R				Sloped														
27	139886	204.05	0.34	456+00	L	24"	RCP	50	Flared														No Work Required.
					R				Flared														
29	139885	203.00	0.29	514+27	L	72"	RCP	84	Flared	West	670		18		1		18	1		22			Tie 11 untied joints
					R				Flared														
29N	137778	203.00	0.02	528+53	L	48"	**RCPA**	68	Flared	West	520												No Work Required.
					R				Flared														
29S	137778	203.00	0.02	528+53	L	48"	**RCPA**	68	Flared	West	520												No Work Required.
					R				Flared														
30	137777	202.00	0.40	561+70	L	30"	RCP	66	Flared	West					1			1					Reset both FE's.
					R				Flared						1			1					

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Inventory Culvert #	MRM	+ Disp		Station	Side	Per Original Plans: In Place Culvert Size and Type		Culvert Length (Ft)	Culvert End Type	Direction of Flow	Drainage Area (Acre)	Incidental Work, Grading (LS)	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install: 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert Each	Tie Bolts for RCP (Each)	Riprap: Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
31N	137766	202.00	0.32		565+85	L	54"	**RCPA**	56	Flared		670								1				Clean Culverts and video.
						R				Flared														
31M	137766	202.00	0.32		565+85	L	54"	**RCPA**	56	Flared		670								1				Clean Culverts and video.
						R				Flared														
31S	137766	202.00	0.32		565+85	L	54"	**RCPA**	56	Flared		670								1				Clean Culverts and video.
						R				Flared														
32	137755	201.00	0.93		586+40	L	30"	RCP	70	Flared	West	30												No Work Required.
						R				Flared														
33	137744	201.00	0.64		601+62	L	24"	RCP	74	Flared	West													No Work Required.
						R				Flared														
34	137733	201.00	0.56		607+09	L	2-8'x8'	RCBC	83	Flared														No Work Required.
						R				Flared														
35	137722	201.00	0.37		616+38	L	48"	**RCPA**	58	Flared		150?												No Work Required.
						R				Flared														
36	137711	200.00	0.77	a	148+81	L	54"	RCP	146	Flared	NW	150												No Work Required.
						R				Flared														

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Culvert Inventory #	MRM	+ Disp		Station	Side	Per Original Plans: In Place Culvert Size and Type		Culvert Length (Ft)	Culvert End Type	Direction of Flow	Drainage Area (Acre)	Incidental Work, Grading (LS)	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install: 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert Each	Tie Bolts for RCP (Each)	Riprap: Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
37	137700	200.00	0.52	a	135+95	L	30"	RCP	68	Sloped	West	53												No Work Required.
						R				Sloped														
38	137699	200.00	0.14	a	115+58	L	60"	RCP	106	Flared		375									22			Tie 11 untied joints.
						R				Flared														
39	137688	199.00	0.69	a	91+52	L	54"	RCP	74	Flared	West	166									18			Tie 9 untied joints.
						R				Flared														
40	137677	199.00	0.61	a	87+41	L	36"	RCP	84	Flared	West	135												No Work Required.
						R				Flared														
41	137666	199.00	0.33	a	72+58	L	24"	RCP	84	Sloped	West	29												No Work Required.
						R				Sloped														
42	137655	198.05	0.92	a	51+47	L	66"	RCP	76	Flared	West	293									14			Tie 7 untied joints.
						R				Flared														
43	137644	198.05	0.85	a	47+68	L	24"	RCP	98	Sloped	West	14												No Work Required.
						R				Sloped														
44	137633	198.05	0.65	a	37+32	L	30"	RCP	88	Sloped	West	60												No Work Required.
						R				Sloped														

SD27 TABLE OF MAINLINE CULVERT WORK

Culvert #	Inventory Culvert #	MRM	+ Disp	Station	Side	Per Original Plans: In Place Culvert Size and Type		Culvert Length (Ft)	Culvert End Type	Direction of Flow	Drainage Area (Acre)	Incidental Work, Grading (LS)	Remove Pipe: for Reset (Ft)	Remove Pipe: End Section (Each)	Remove Pipe: End Section for Reset (Each)	Furnish and Install: 18" RCP Flared End (Each)	Reset Pipe (Ft)	Reset Pipe End Section (Each)	Clean-out Pipe Culvert Each	Tie Bolts for RCP (Each)	Riprap: Class B (Ton)	Type B Drainage Fabric (SqYd)	Repair Comments
45	137762	198.05	0.44	a 26+10	L	24"	RCP	82	Sloped	West	5												No Work Required.
					R				Sloped														
46	137761	198.05	0.35	a 21+30	L	24"	RCP	76	Sloped	West	145												No Work Required.
					R				Sloped														
47	137760	198.05	0.17	a 11+58	L	24"	RCP	84	Sloped	West	5												No Work Required.
					R				Sloped														
48	21735	198.05	0.03	a 4+25	L	24"	RCP	162	Flared	West													No Work Required.
					R				Flared														
										TOTAL		Lump Sum	120	1	21	1	120	21	3	102	19	32	

Left and Right based upon project station, thus Left is West/North side and Right is East/South side.

Culvert type and size obtained from a combination of visual inspection and original construction plans. Additional repair may be required at time of construction.

Cleanout/shaping of ditch at culvert ends will be incidental to the contract lump sum price for Incidental Work, Grading.

In place Culvert Markers will be removed and reset when performing Culvert Work. Cost to remove and reset Culvert Markers will be incidental to the various culvert contract items.

Initial Inspection held on 11-8-19 from Begin project to MRM 212.96. MRM 212.96 to End project inspected on 11-20-19. Above table produced from that inspection.

Followup inspection on 7-7-20.

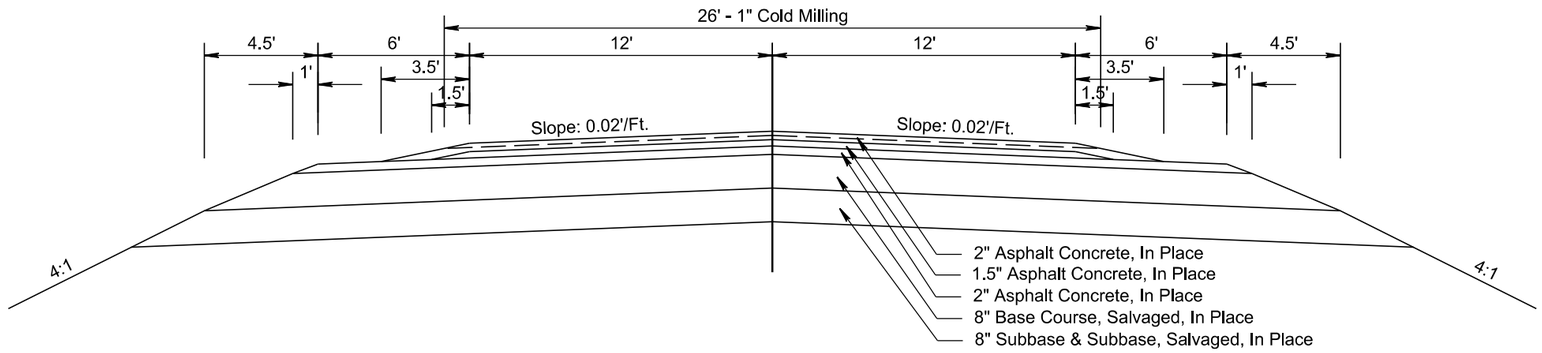
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0027(16)198	30	70

Plotting Date: 06/11/2025

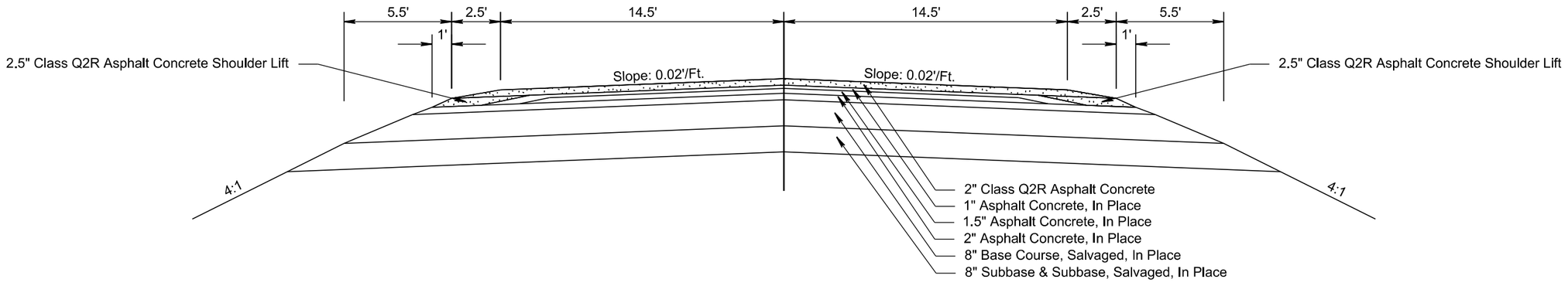
Section 1

Sta. a1+27.14 to Sta. a138+09.00
In Place & Cold Milling Section



Section 1

Sta. a1+27.14 to Sta. a138+09.00
Resurfacing Section



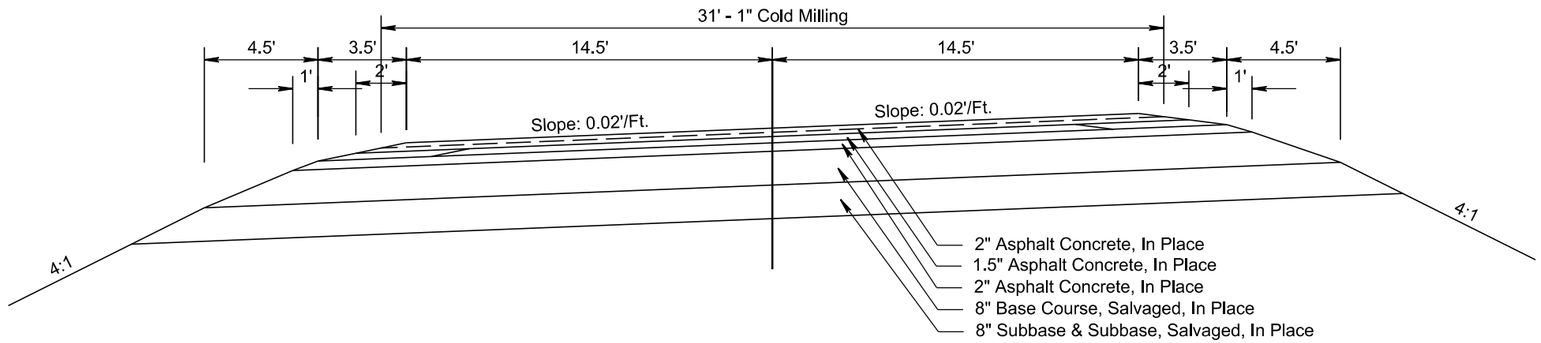
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0027(16)198	31	70

Plotting Date: 06/11/2025

Section 2

Sta. a138+09.00 to Sta. a169+00.00
In Place & Cold Milling Section

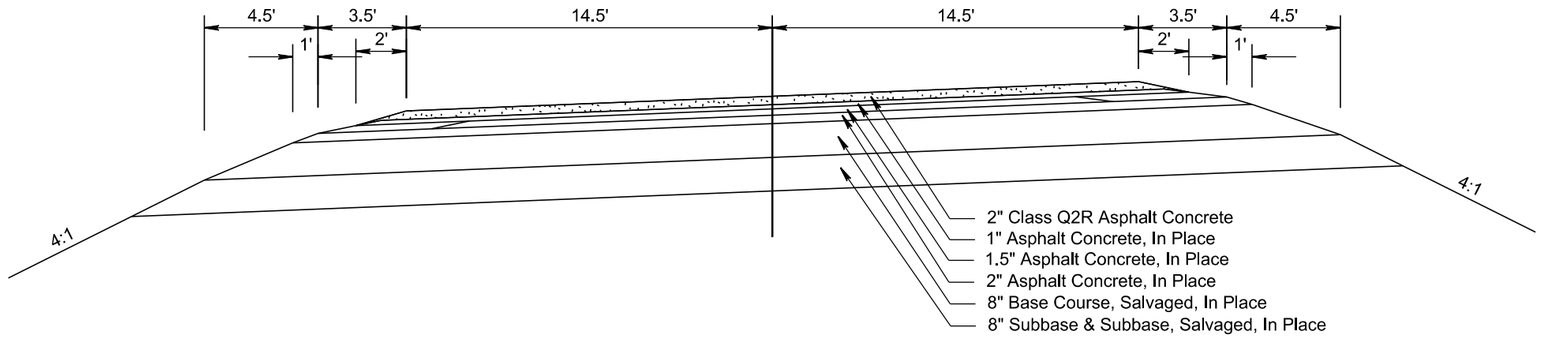


Equation:

Sta. a169+00.00 Bk =
Sta. 628+59.00 Ah.

Section 2

Sta. a138+09.00 to Sta. a169+00.00
Resurfacing Section



PLOT SCALE - 1:6.00001

PLOTTED FROM - TRAB10200

PLOT NAME - 2

FILE - ...\09HV_TYPSECT_TJ01.DGN

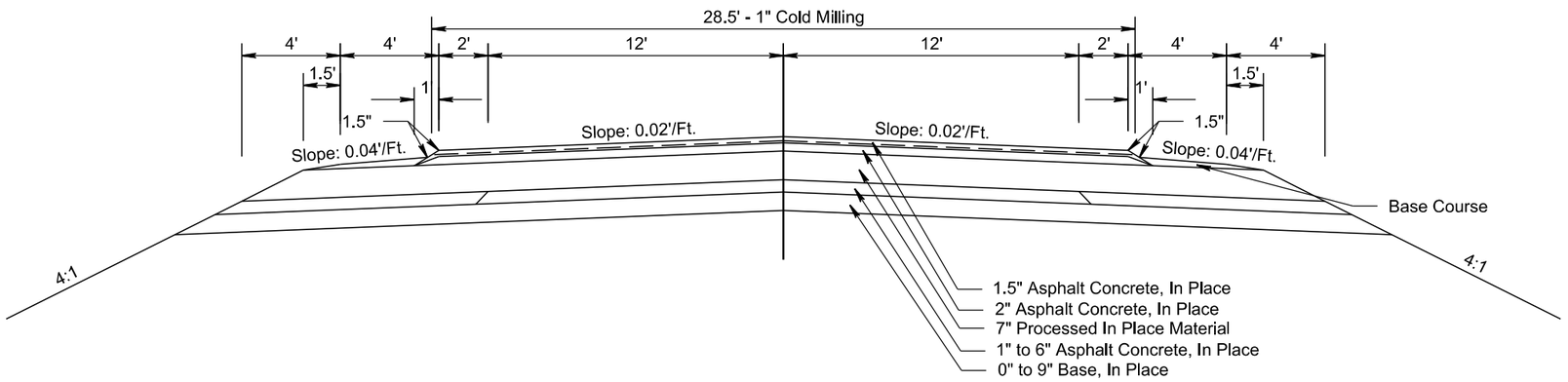
TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0027(16)198	32	70

Plotting Date: 06/11/2025

Section 3

*Sta. 628+59.00 to Sta. 39+31.76 (Reversed)
In Place & Cold Milling Section

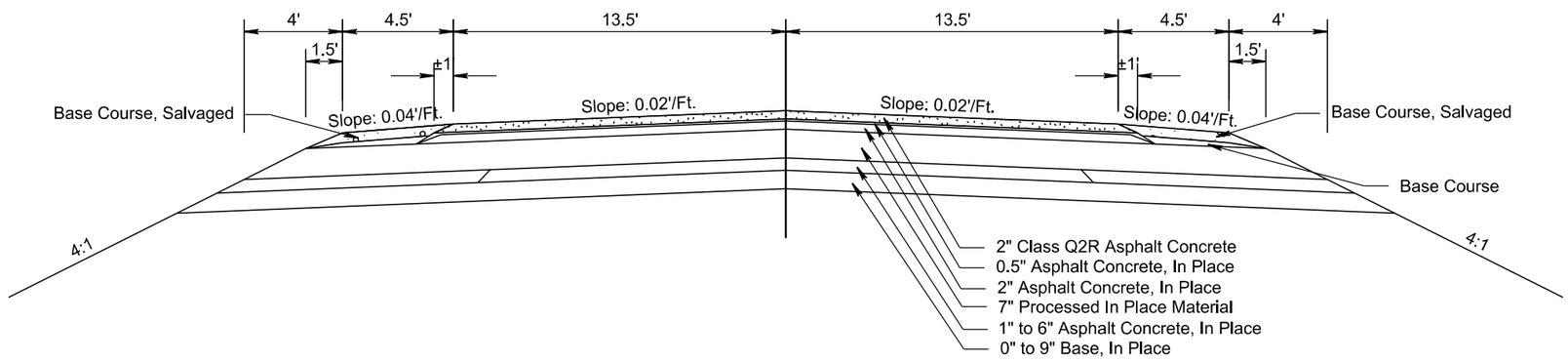


Equation:

Sta. a169+00.00 Bk =
Sta. 628+59.00 Ah.

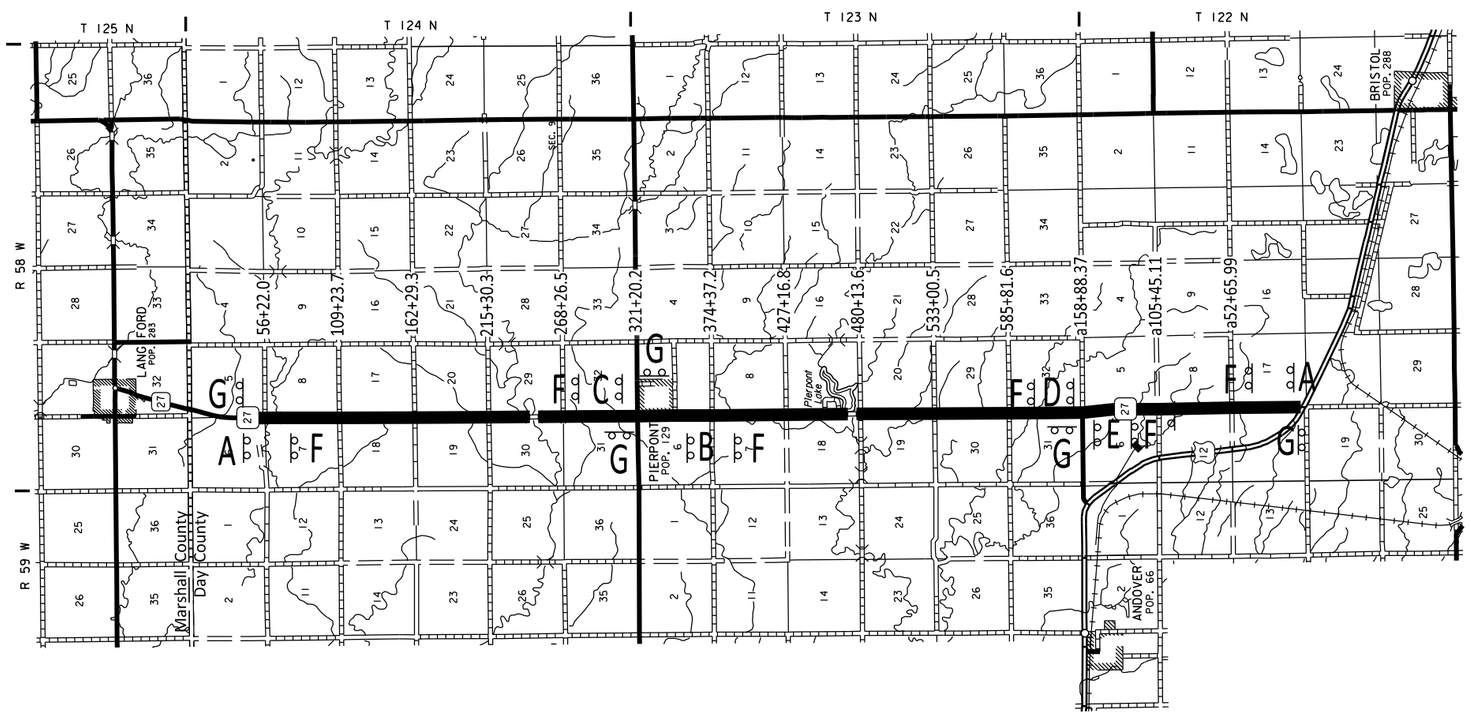
Section 3

*Sta. 628+59.00 to Sta. 39+31.76 (Reversed)
Resurfacing Section



*Bridge exceptions:
Sta 246+03.50 to 247+66.50
Sta 474+11.00 to 475+04.00

FIXED LOCATION GROUND MOUNTED BREAKAWAY SUPPORT SIGNS



A

ROAD WORK
NEXT 14 MILES

G20-1

D

ROAD WORK
NEXT 11 MILES

G20-1

B

ROAD WORK
NEXT 8 MILES

G20-1

E

ROAD WORK
NEXT 3 MILES

G20-1

C

ROAD WORK
NEXT 5 MILES

G20-1

F

GROOVED PAVEMENT *

W8-15P

Next Miles

W7-3aP

GROOVED PAVEMENT signs must only be visible when the condition exists. Signs will be covered or removed when the grooved road condition is not present.

G

END ROAD WORK

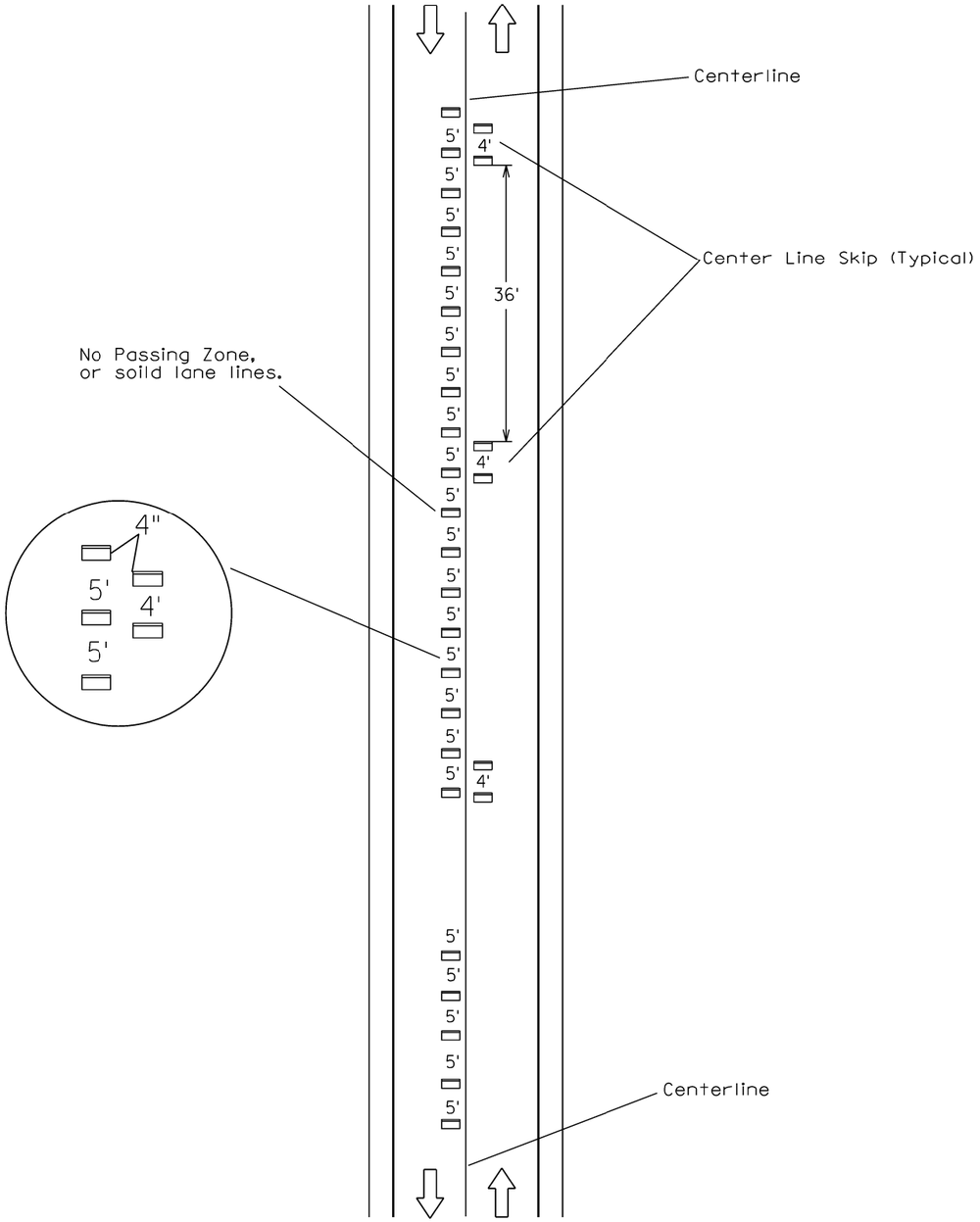
G20-2

ROAD WORK AHEAD

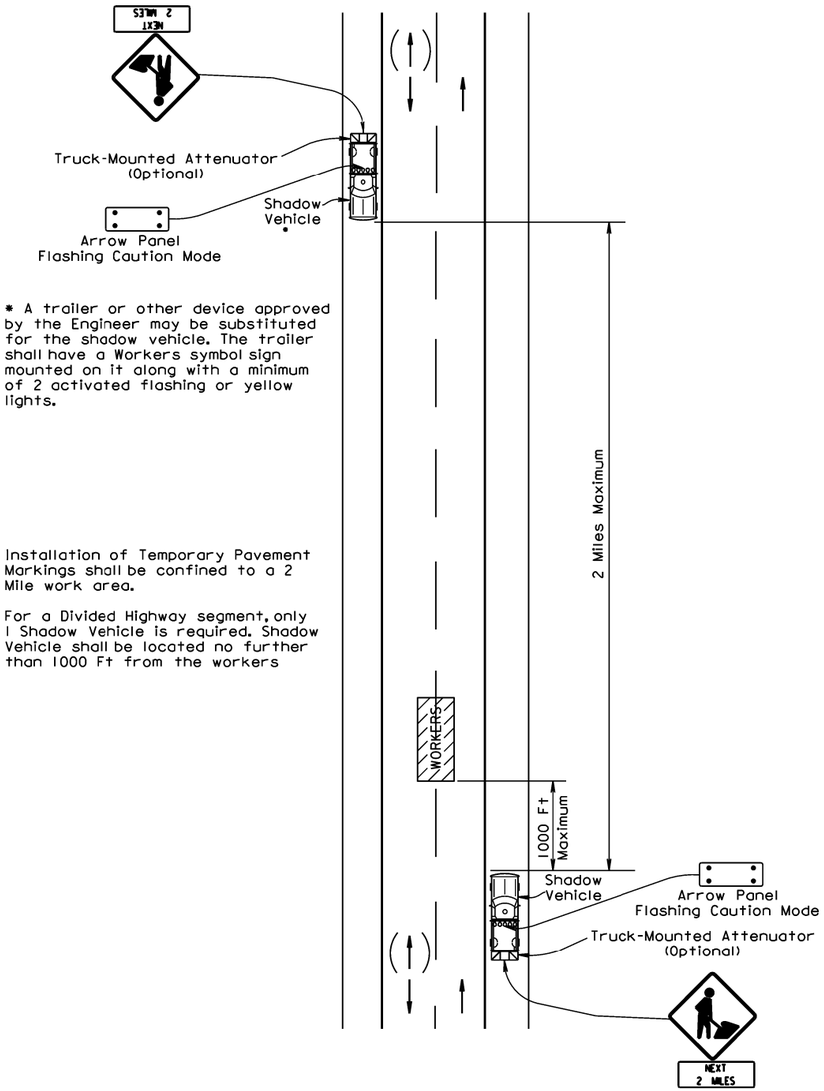
W20-1 ROAD WORK AHEAD signs will be mounted on portable supports, and will be placed on intersecting roadways as directed by the Engineer. ROAD WORK AHEAD signs will be moved as necessary to keep current with the work activities.

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

GUIDES FOR TRAFFIC CONTROL DEVICES TEMPORARY ROAD MARKER INSTALLATION



GUIDES FOR TRAFFIC CONTROL DEVICES APPLICATION OF TEMPORARY PAVEMENT MARKING TABS



* A trailer or other device approved by the Engineer may be substituted for the shadow vehicle. The trailer shall have a Workers symbol sign mounted on it along with a minimum of 2 activated flashing or yellow lights.

Installation of Temporary Pavement Markings shall be confined to a 2 Mile work area.

For a Divided Highway segment, only 1 Shadow Vehicle is required. Shadow Vehicle shall be located no further than 1000 Ft from the workers

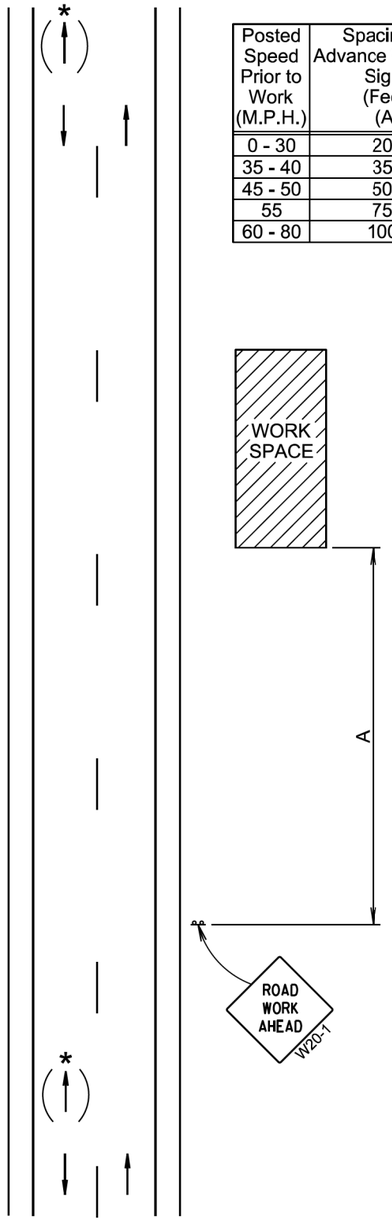
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

The ROAD WORK AHEAD sign may be replaced with other appropriate signs, such as the SHOULDER WORK sign. The SHOULDER WORK sign may be used for work adjacent to the shoulder.

* If the work space is on a divided highway, an advance warning sign should also be placed on the left side of the directional roadway.

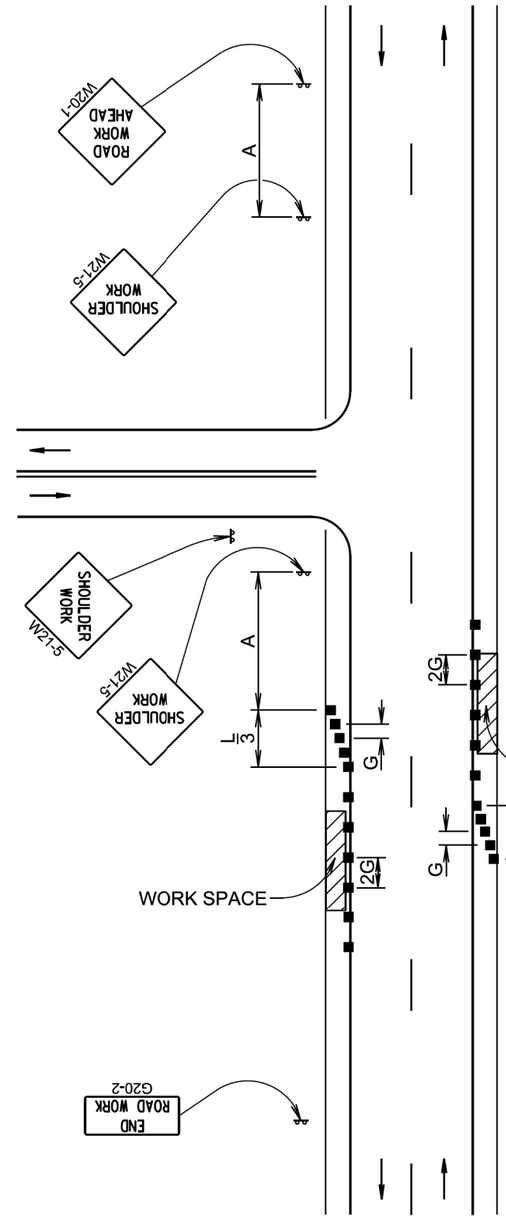
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.



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

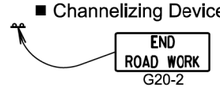
January 22, 2021

Published Date: 2026	SDDOT	WORK BEYOND THE SHOULDER	PLATE NUMBER 634.01
			Sheet 1 of 1



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

■ Channelizing Device



The channelizing devices will be drums or 42" cones if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

A SHOULDER WORK sign should be placed on the left side of a divided or one-way roadway only if the left shoulder is affected.

The SHOULDER WORK sign on an intersecting roadway is not required if drivers emerging from that roadway will encounter another advance warning sign before they reach a work activity area.

January 22, 2021

Published Date: 2026	SDDOT	WORK ON SHOULDERS	PLATE NUMBER 634.03
			Sheet 1 of 1

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

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

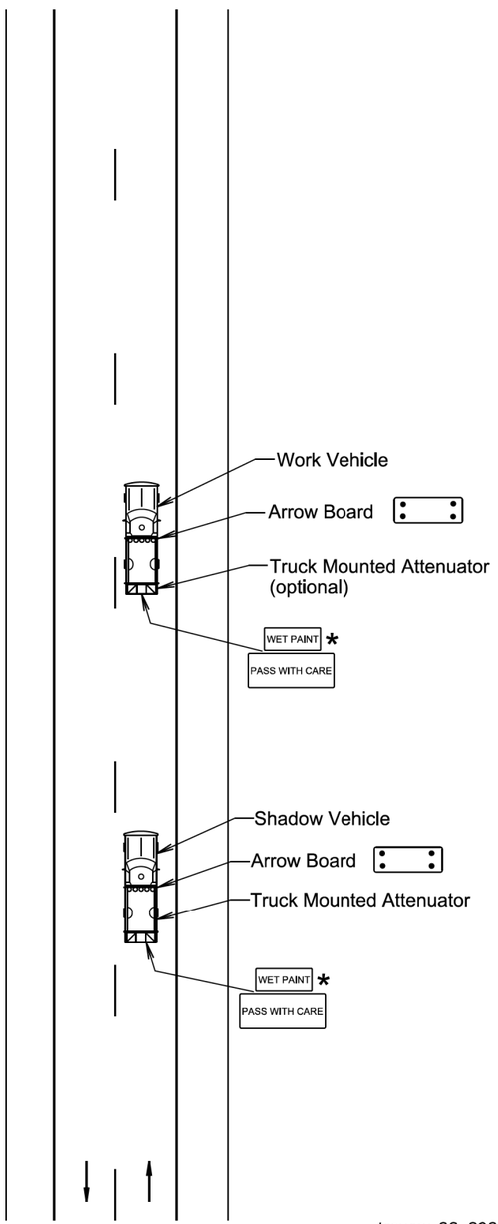
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

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

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

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



January 22, 2021

Published Date: 2026

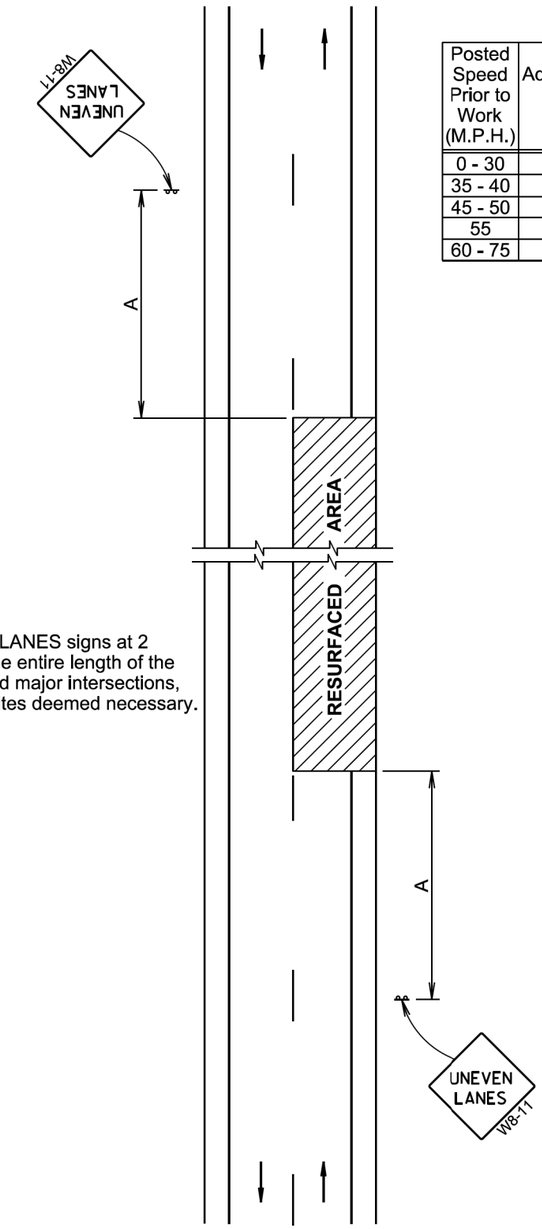
SDDOT

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)
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.

January 22, 2021

Published Date: 2026

SDDOT

UNEVEN ROAD SURFACE

PLATE NUMBER 634.22

Sheet 1 of 1

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

Flagger

■ Channelizing Device

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

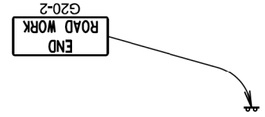
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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

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

The channelizing devices will be drums or 42" cones.

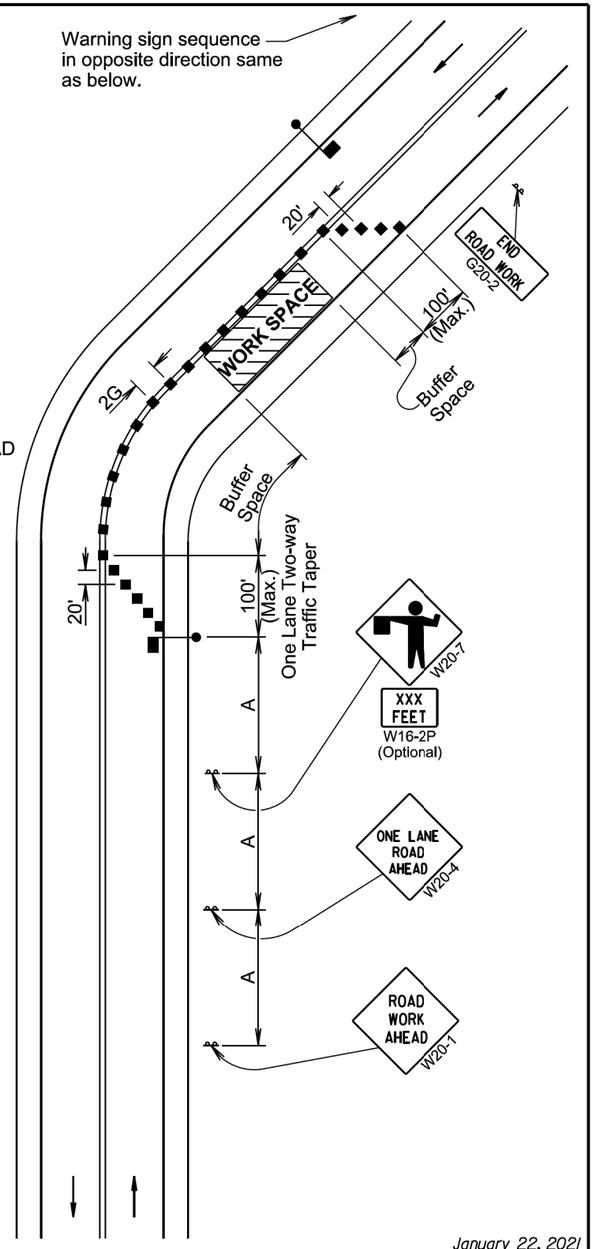
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

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

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



January 22, 2021

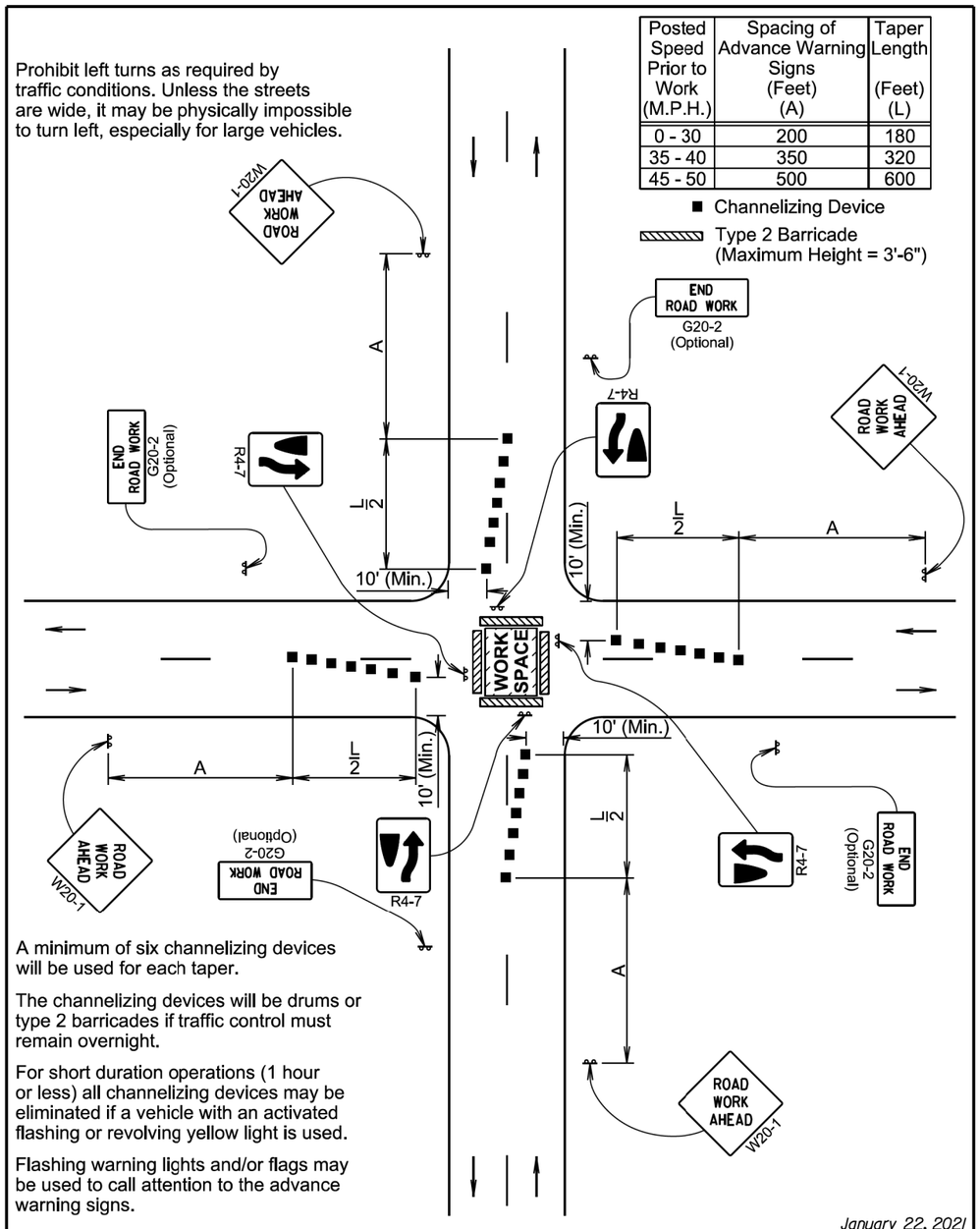
Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1

Prohibit left turns as required by traffic conditions. Unless the streets are wide, it may be physically impossible to turn left, especially for large vehicles.

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

■ Channelizing Device

Type 2 Barricade (Maximum Height = 3'-6")



A minimum of six channelizing devices will be used for each taper.

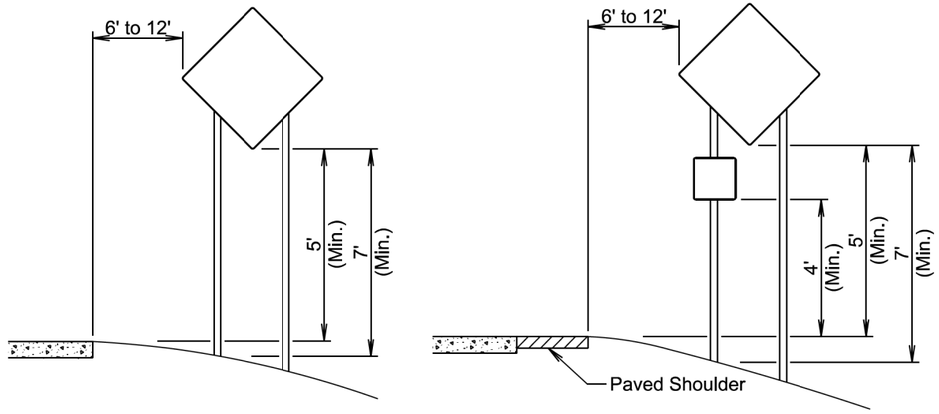
The channelizing devices will be drums or type 2 barricades if traffic control must remain overnight.

For short duration operations (1 hour or less) all channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

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

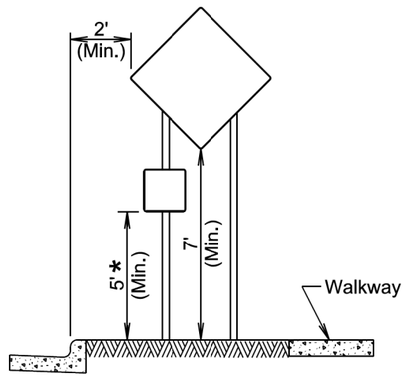
January 22, 2021

Published Date: 2026	SDDOT	CLOSURE IN CENTER OF INTERSECTION	PLATE NUMBER 634.35
			Sheet 1 of 1

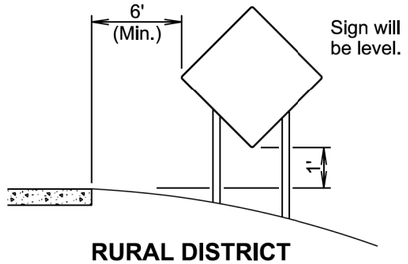


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

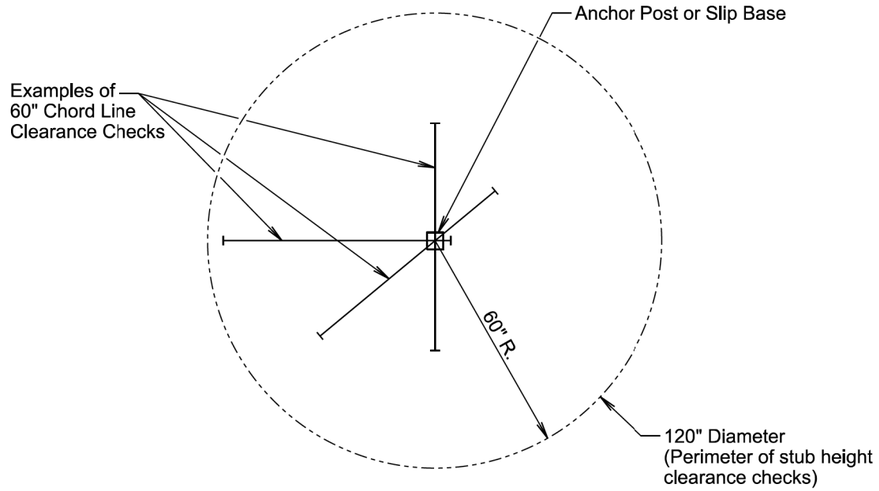


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

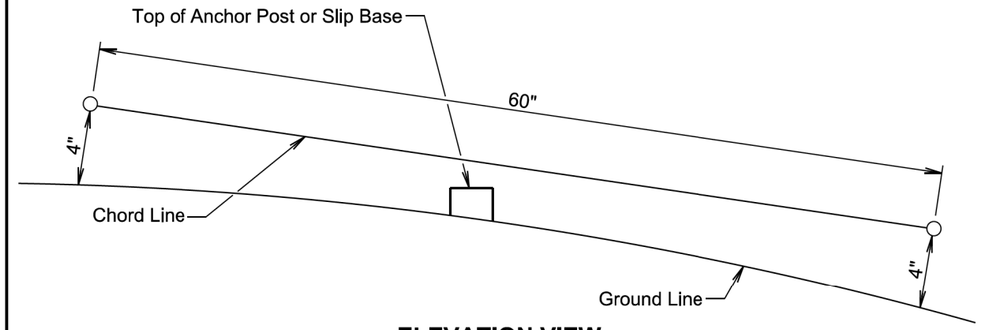
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	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: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

ITEMIZED LIST FOR 09HV TRAFFIC CONTROL SIGNS

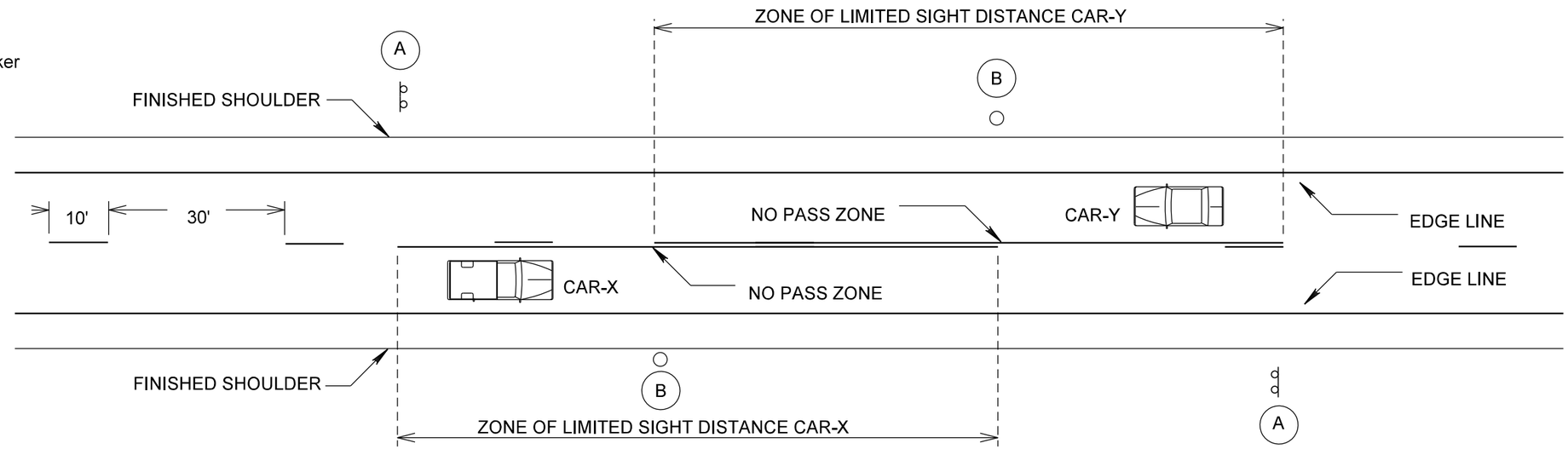
		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R4-7c	(Narrow) KEEP RIGHT (symbol)	4	18" x 30"	3.8	15.2
W3-4	BE PREPARED TO STOP	2	48" x 48"	16.0	32.0
W7-3aP	NEXT 14 MILES (plaque)	2	36" x 30"	7.5	15.0
W7-3aP	NEXT 11 MILES (plaque)	1	36" x 30"	7.5	7.5
W7-3aP	NEXT 8 MILES (plaque)	1	36" x 30"	7.5	7.5
W7-3aP	NEXT 5 MILES (plaque)	1	36" x 30"	7.5	7.5
W7-3aP	NEXT 3 MILES (plaque)	1	36" x 30"	7.5	7.5
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
W8-11	UNEVEN LANES	14	48" x 48"	16.0	224.0
W8-15	GROOVED PAVEMENT	6	48" x 48"	16.0	96.0
W8-15P	MOTORCYCLE (plaque)	6	24" x 18"	3.0	18.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
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
W21-1	WORKERS (symbol)	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
W21-5a	LEFT or RIGHT SHOULDER CLOSED	2	48" x 48"	16.0	32.0
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	6	30" x 18"	3.8	22.8
G20-1	ROAD WORK NEXT 14 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 11 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 8 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 5 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT3 MILES	1	36" x 18"	4.5	4.5
G20-2	END ROAD WORK	5	36" x 18"	4.5	22.5
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			**943.7**

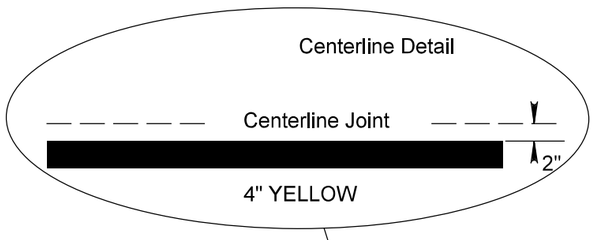
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	40	70

Plotting Date: 12/11/2024

TYPICAL PAVEMENT MARKING LAYOUT

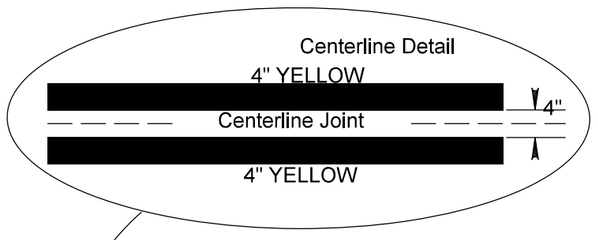
B End of Zone Marker

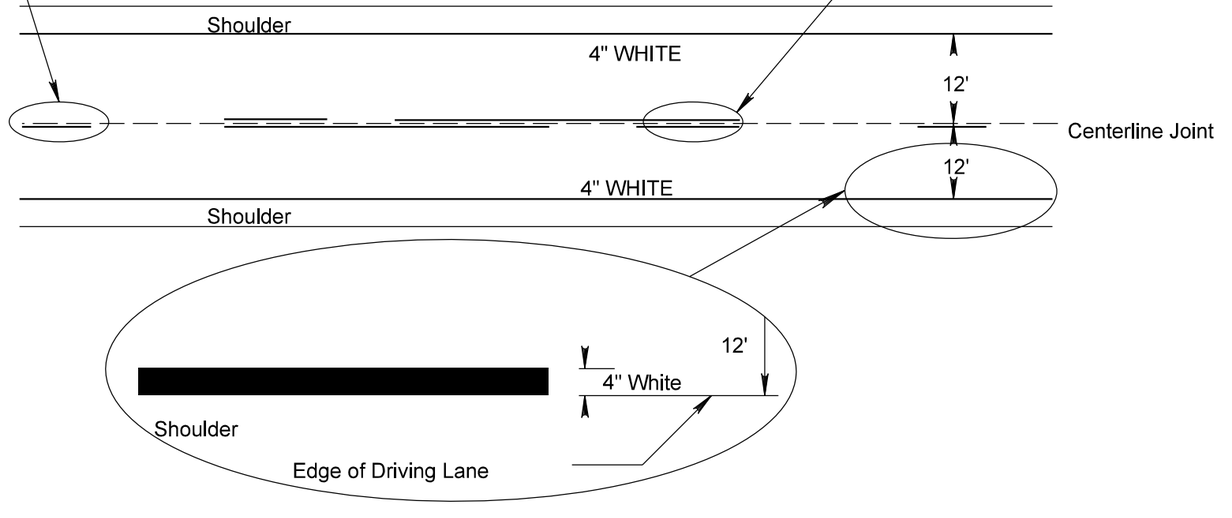




NOTE: A TWO "GUN" SYSTEM WILL BE USED TO OBTAIN THIS PATTERN.

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





FURNISHING AND APPLYING HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

1. The typical pavement markings as shown on this sheet will be applied throughout the entire length of the project.

2. 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.

3. Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights or advance warning arrow panel.

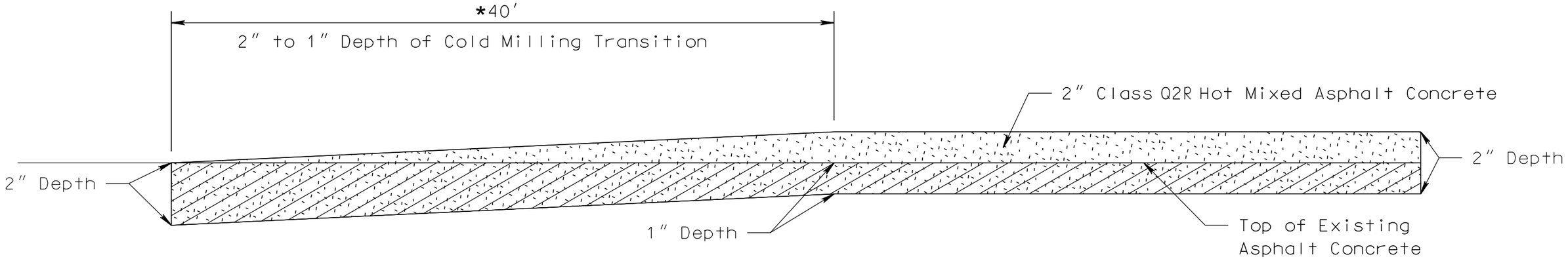
SURFACING TRANSITION LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P 0027(16)198	41	70

Plotting Date: 11/19/2024

2" Class Q2R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete



* ≤ 65 mph Transition length = 40' per inch of elevation change
> 65 mph Transition length = 60' per inch of elevation change

PLOT SCALE - 1:24

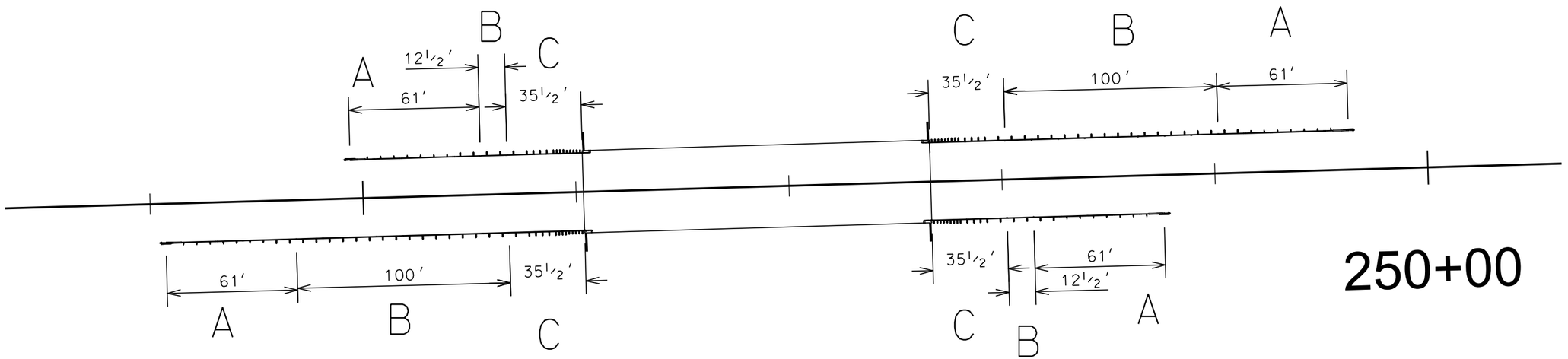
PLOT NAME - 1

FILE - ...\COLD MILLING TRANSITIONS.DGN

PLOTTED FROM - TRPR19388A

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	42	70
Plotting Date: 05/22/2025			

Guardrail Layout
Str. No. 19–070–046



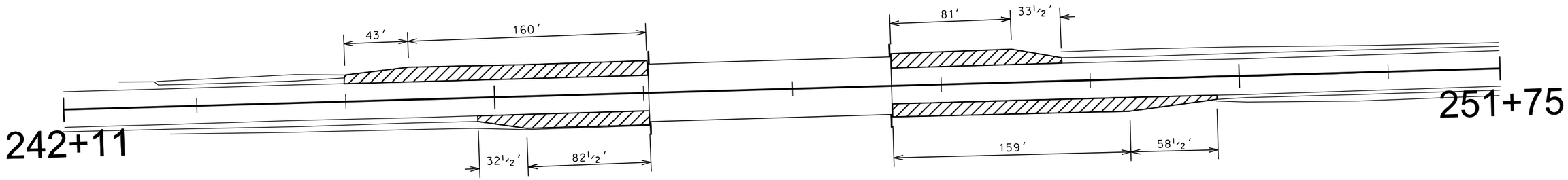
A – MGS MASH Tangent End Terminal

B– Type 1 MGS

C – Type 1 Retrofit Guardrail Transition

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	43	70
Plotting Date: 06/13/2025			

Guardrail Remove Asphalt Concrete Pavement
Str. No. 19–070–046

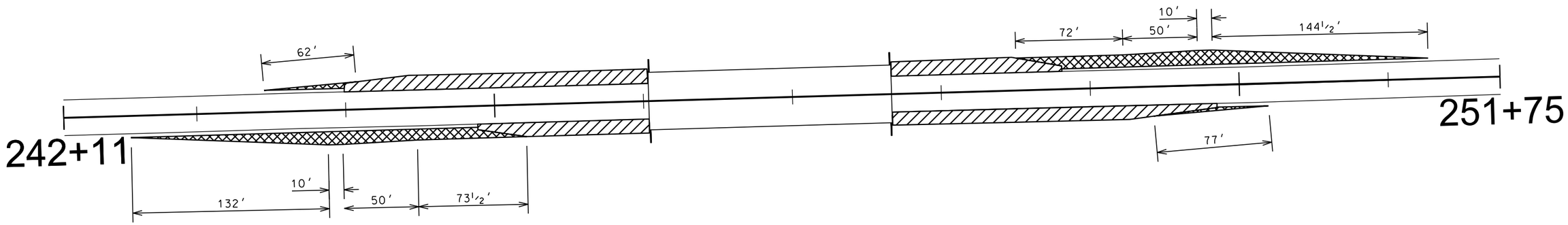


245+00

250+00

Remove Asphalt Concrete Pavement

Guardrail Embankment and Asphalt Concrete
Str. No. 19–070–046

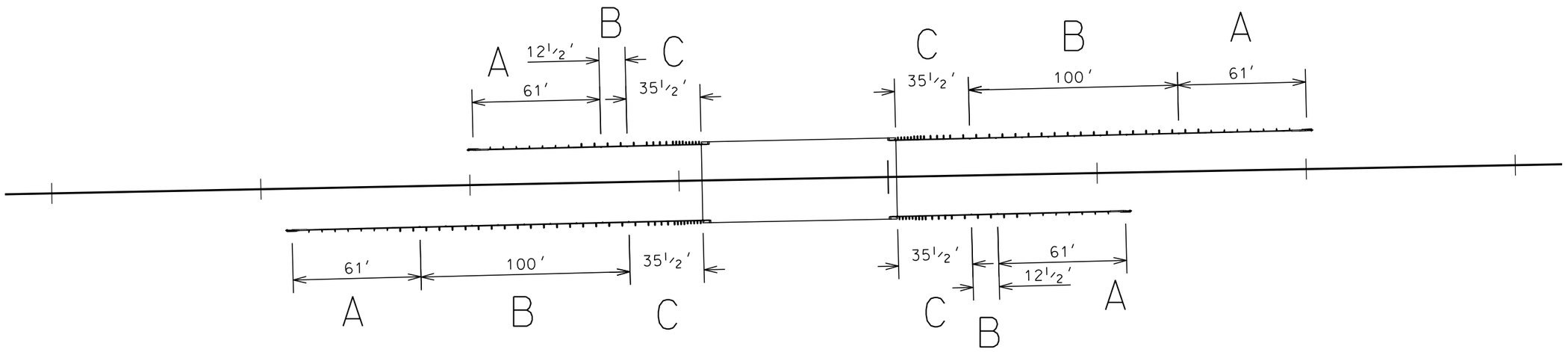


2″ Class Q2R Asphalt Concrete

Unclassified Excavation
Guardrail Embankment – 20.5″ of base course and
2″ Class Q2R Asphalt Concrete

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	45	70
Plotting Date: 05/22/2025			

Guardrail Layout
Str. No. 19–070–089



475+00

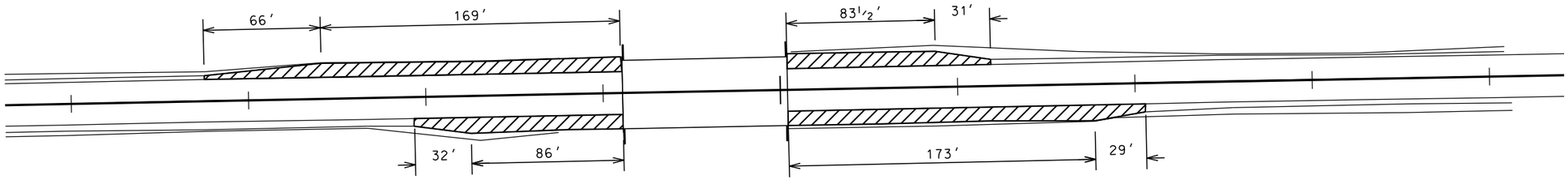
A – MGS MASH Tangent End Terminal

B– Type 1 MGS

C – Type 1 Retrofit Guardrail Transition

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	46	70
Plotting Date: 06/13/2025			

Guardrail Remove Asphalt Concrete Pavement
Str. No. 19–070–089



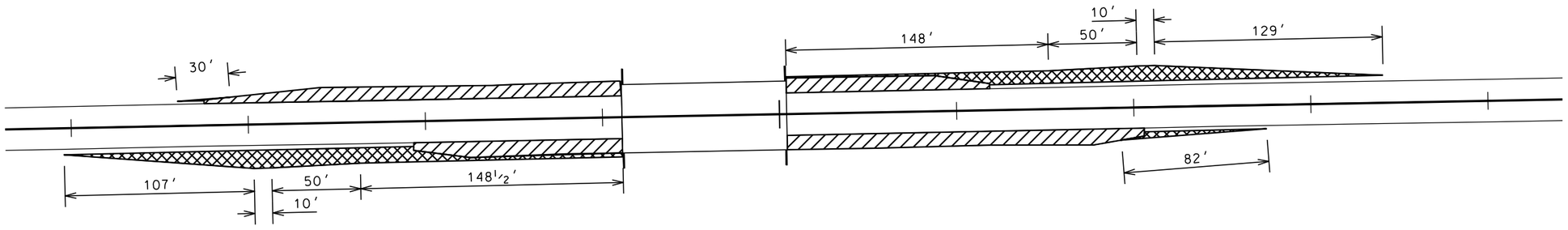
475+00

Remove Asphalt Concrete Pavement

PLOT SCALE - 1:69.1998

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P 0027(16)198	47	70
Plotting Date: 06/13/2025			

Guardrail Embankment and Asphalt Concrete
Str. No. 19–070–089



475+00

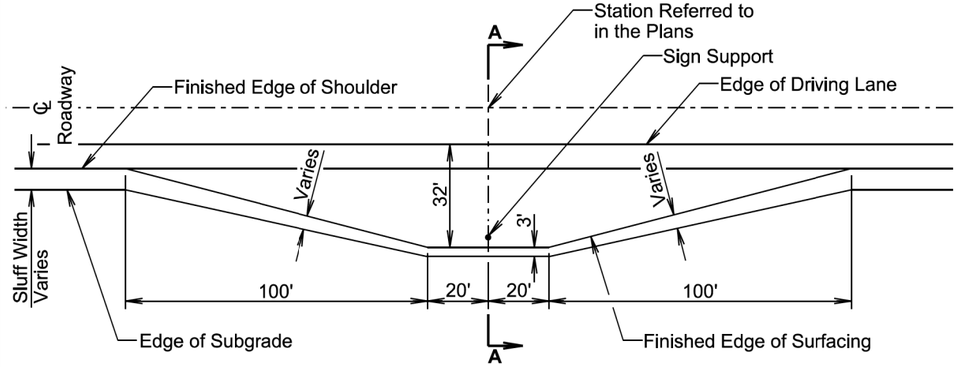
2″ Class Q2R Asphalt Concrete

Unclassified Excavation
Guardrail Embankment – 20.5″ of base course and
2″ Class Q2R Asphalt Concrete

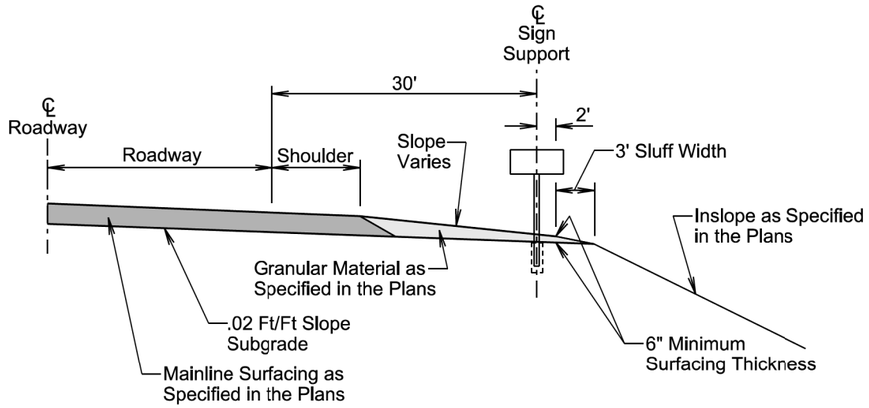
PLOTTED FROM - TRAB10200

PLOT NAME - 7

FILE -...\09HV_GUARDRAIL_LAYOUT.DGN



PLAN VIEW



SECTION A-A

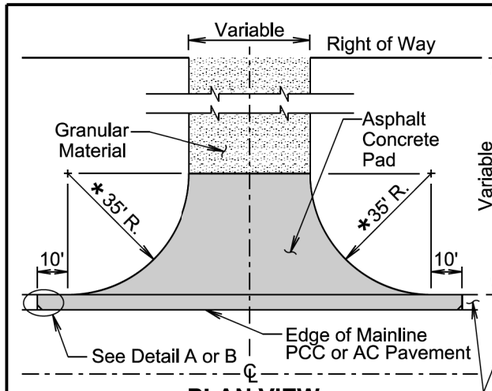
GENERAL NOTES:

The finished cross slope of the turnout from the edge of the shoulder to the outside edge of the finished surface will vary depending upon the mainline surfacing thickness.

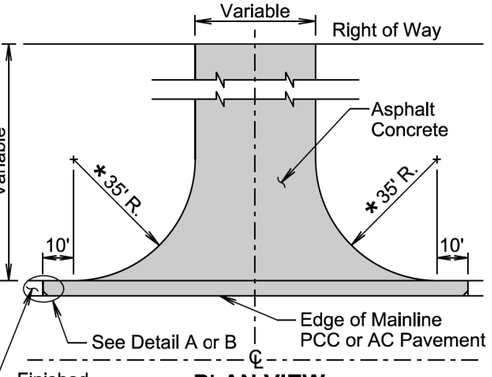
The minimum surfacing thickness within the turnout will be 6" as depicted in Section A-A.

September 14, 2018

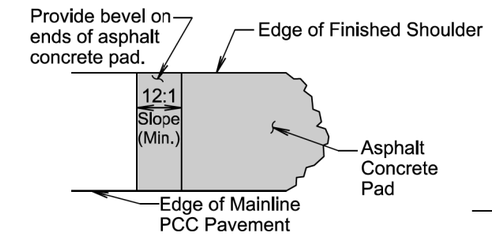
Published Date: 2026	SDDOT	HISTORICAL MARKER TURNOUT	PLATE NUMBER 120.20
			Sheet 1 of 1



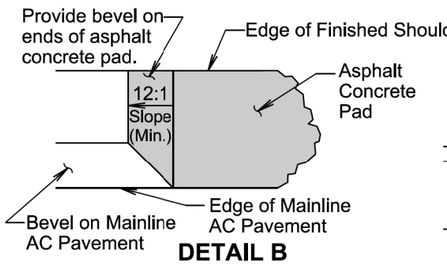
PLAN VIEW
(Intersecting Road)
(No Asphalt Concrete Surfacing Beyond Right of Way)



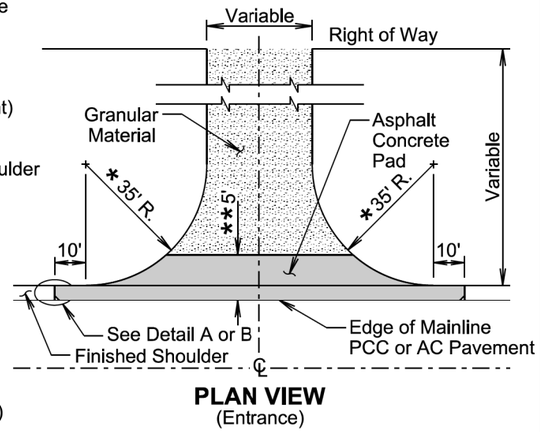
PLAN VIEW
(Intersecting Road)
(Asphalt Concrete Surfacing Beyond Right of Way)



DETAIL A
(Typ. For Projects with Mainline PCC Pavement)



DETAIL B
(Typ. For Projects with Mainline AC Pavement)



PLAN VIEW
(Entrance)

GENERAL NOTES:

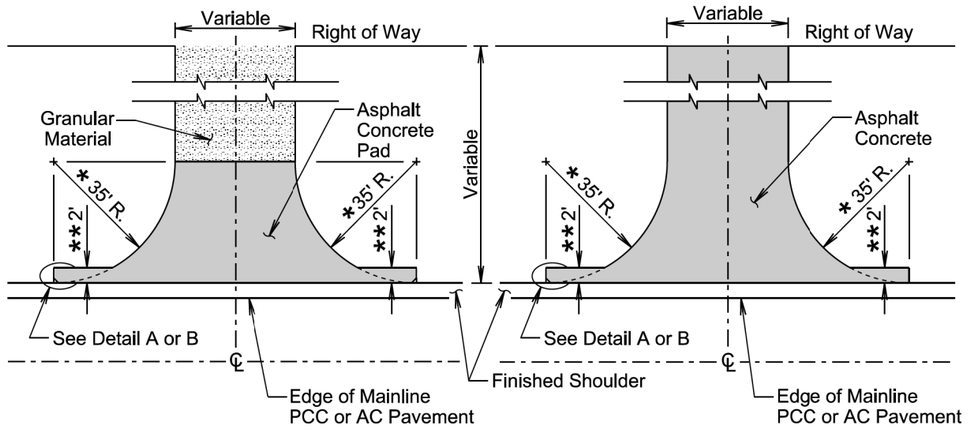
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

** For shoulder widths < 4', the Asphalt Concrete Pad width must be 5'. For shoulders widths of 4' or more, pave the full width of the shoulder only.

August 27, 2020

Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (SHOULDERS: GRANULAR MATERIAL OR COLD RECYCLED MATERIAL)	PLATE NUMBER 320.01
			Sheet 1 of 1



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:

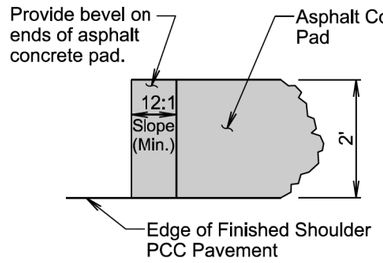
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

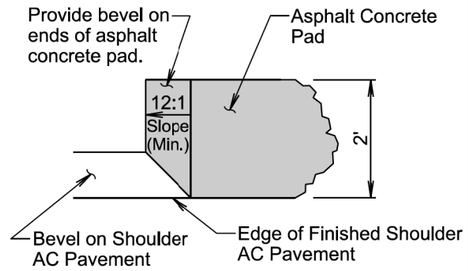
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete 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

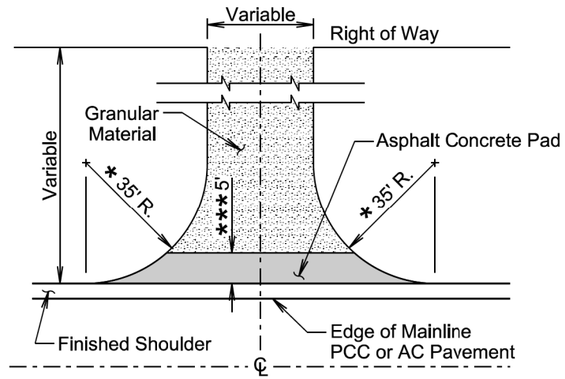
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



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



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

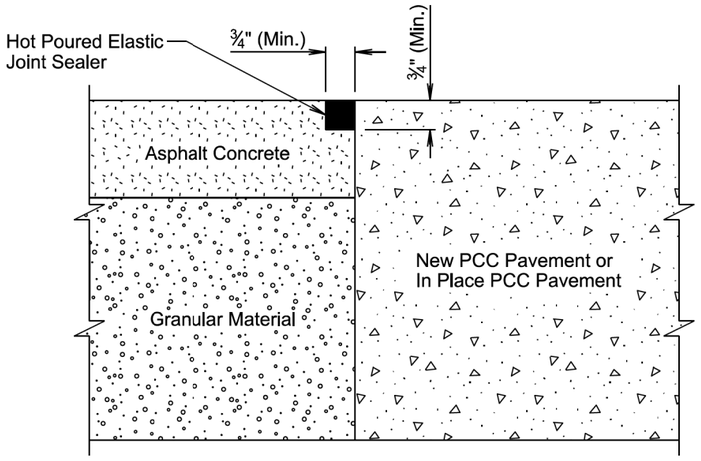


PLAN VIEW
(Entrance)

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

August 27, 2020

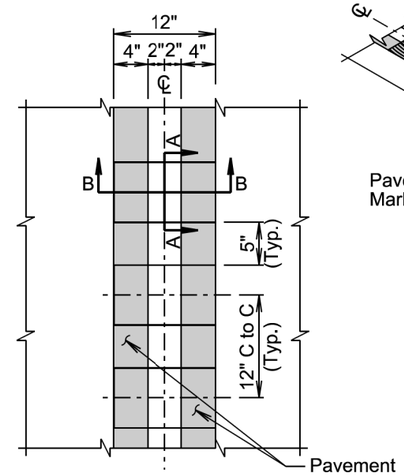
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2



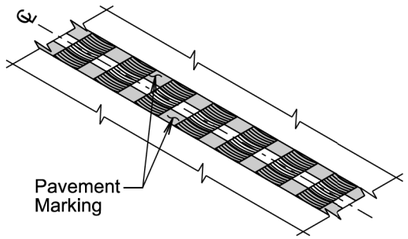
TRANSVERSE SECTION
(Asphalt Concrete Shoulder Joint)

September 14, 2019

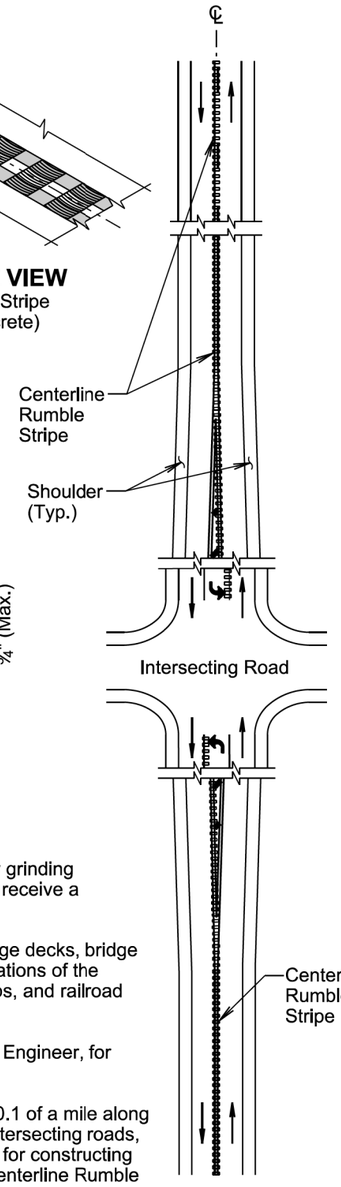
Published Date: 2026	SDDOT	ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT	PLATE NUMBER 320.15
			Sheet 1 of 1



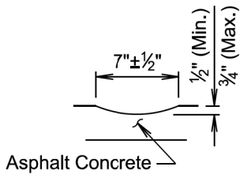
PLAN VIEW
(Typical Rumble Stripe in Asphalt Concrete)



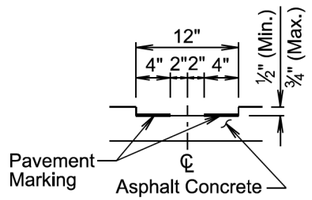
PERSPECTIVE VIEW
(Typical Rumble Stripe in Asphalt Concrete)



PLAN VIEW



SECTION A-A



SECTION B-B

GENERAL NOTES:

A rumble stripe will be constructed on the centerline of the roadway by grinding continuous indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

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

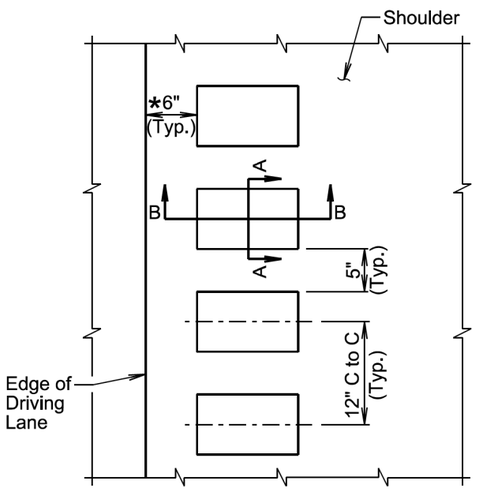
Prior to constructing the rumble stripe the Contractor will submit to the Engineer, for approval, the proposed method of constructing the rumble stripe.

Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, 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 Centerline Rumble Stripe in Asphalt Concrete".

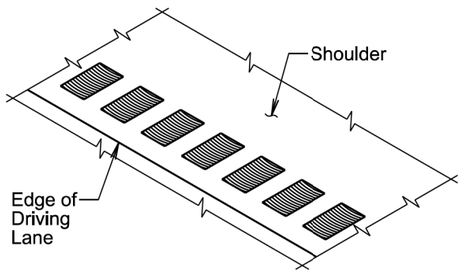
November 19, 2020

Published Date: 2026	SDDOT	12" CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.18
			Sheet 1 of 1

PLOT SCALE - 1:200
PLOT NAME - 3
FILE - ...\STDPLATEPAGESEED_09HV_32015_32018.DGN
PLOTTED FROM - TRAB10200

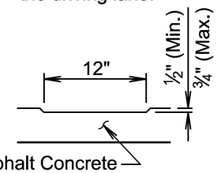


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

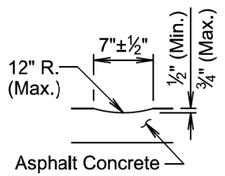


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

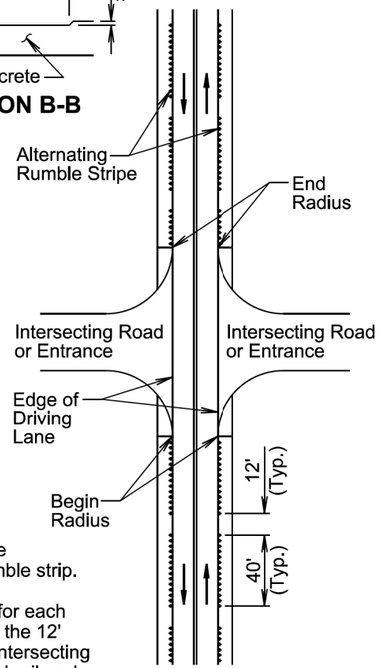
* When PCC pavement width from centerline to edge of pavement is 12', the rumble strip may be placed a maximum of 2' from the edge of the driving lane.



SECTION B-B



SECTION A-A



PLAN VIEW

GENERAL NOTES:

A rumble strip will be constructed on all of the asphalt concrete shoulders by grinding alternating patterns of 40' continuous indentations in the asphalt concrete. The rumble strip will receive a flush seal or asphalt surface treatment as specified in the plans.

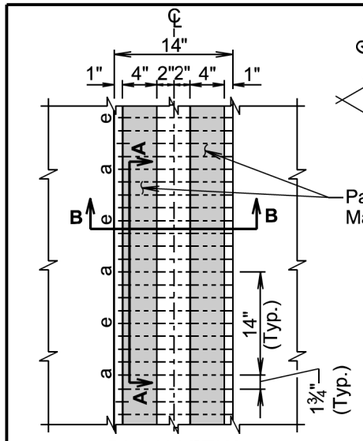
A rumble strip will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble strip adjacent to the intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings will be adjusted as approved by the Engineer.

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

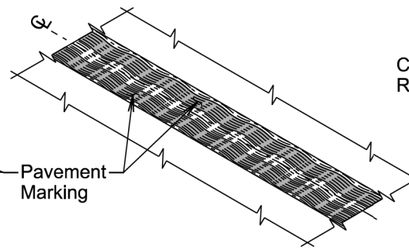
Measurement of the rumble strip will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip will include the 12' long segments without rumble strips and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble strips. Payment for constructing the rumble strip will be at the contract unit price per mile for "Grind 12" Rumble Strip or Stripe in Asphalt Concrete".

September 14, 2019

Published Date: 2026	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1

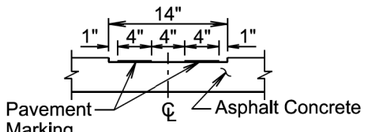


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

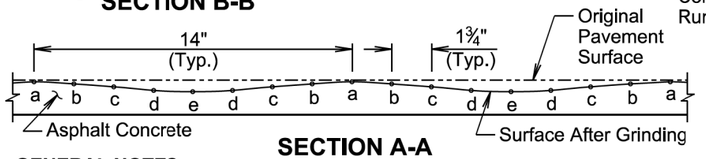


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

SINUSOIDAL GRINDING	
Location	* Depth (In.)
a	1/16
b	5/32
c	9/32
d	7/16
e	½



SECTION B-B



SECTION A-A

GENERAL NOTES:

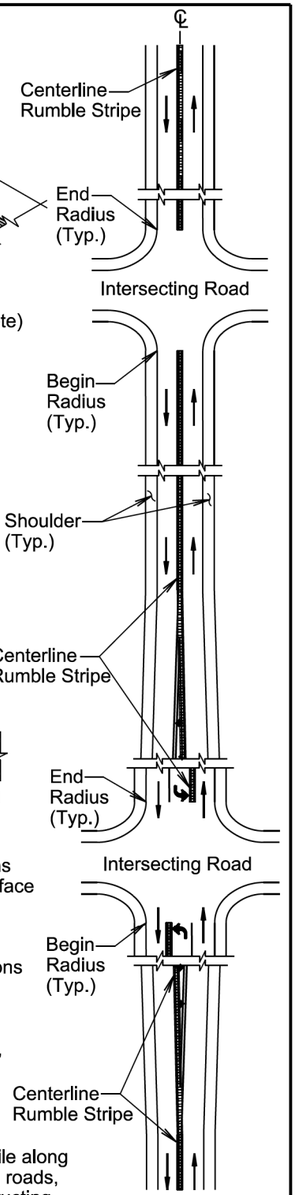
A rumble stripe will be constructed by grinding continuous sinusoidal indentations in the asphalt concrete. The rumble stripe will receive a flush seal or asphalt surface treatment as specified in the plans.

A rumble stripe will not be constructed through intersecting roads, bridge decks, bridge approach slabs, and railroad crossings. The beginning and ending locations of the rumble stripe at intersecting roads, bridge decks, bridge approach slabs, and railroad crossings 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 sinusoidal rumble stripe construction grinding tolerance will be ± 1/16 inch.

Measurement and payment of the rumble stripe will be to the nearest 0.1 of a mile along the centerline and will include segments without the rumble stripe at intersecting roads, 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 Asphalt Concrete".

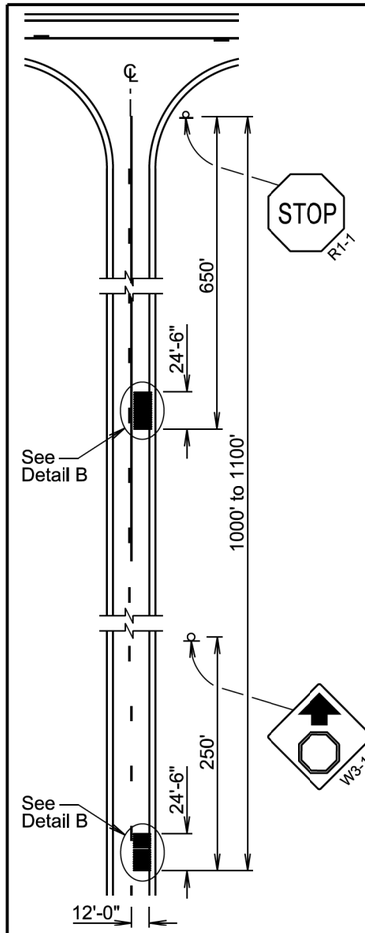


PLAN VIEW

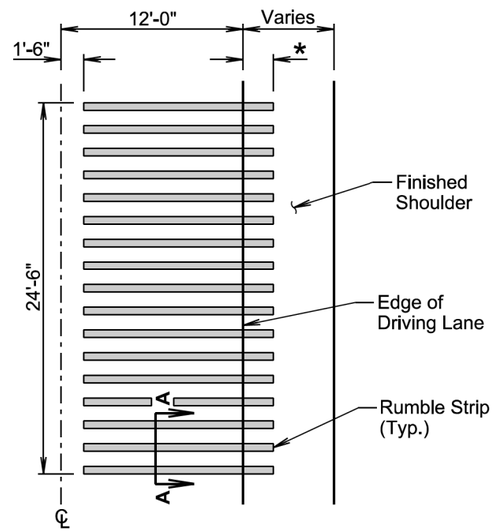
September 14, 2019

Published Date: 2026	SDDOT	SINUSOIDAL CENTERLINE RUMBLE STRIPE IN ASPHALT CONCRETE	PLATE NUMBER 320.40
			Sheet 1 of 1

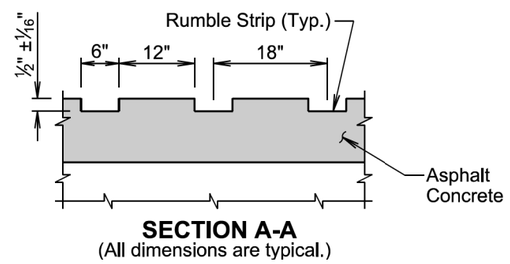
PLOT SCALE - 1:200
PLOT NAME - 4
PLOTTED FROM - TRAB10200
FILE - ...\STDPLATEPAGESEED_09HV_32024_32040.DGN



PLAN VIEW



DETAIL B
PLAN VIEW



SECTION A-A
(All dimensions are typical.)

GENERAL NOTES:

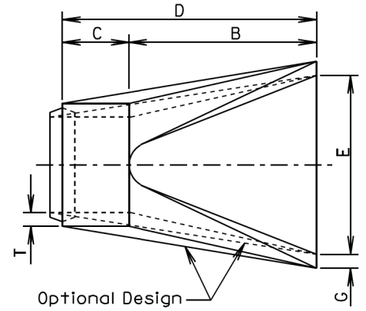
Transverse rumble strips will be constructed by grinding, routing, or cutting recessed indentations into the asphalt concrete as approved by the Engineer. The transverse rumble strips will receive a flush seal or fog seal as specified in the plans.

* The transverse rumble strips will extend into the finished shoulder as approved by the Engineer.

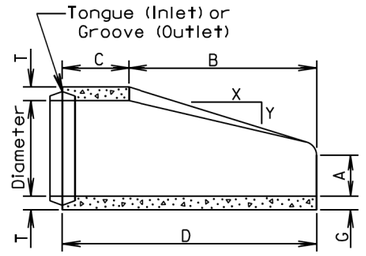
Measurement of the recessed transverse rumble strips will be to the nearest foot. Payment for constructing the recessed transverse rumble strips will be at the contract unit price per foot for "Grind 6" Transverse Rumble Strip in Asphalt Concrete".

January 22, 2021

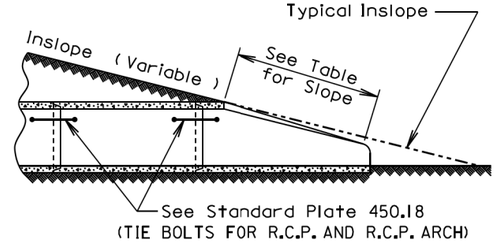
Published Date: 2026	SDDOT	*TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE HIGHWAY ADJACENT TO STOP CONTROLLED INTERSECTION*	*PLATE NUMBER* 320.45 *Sheet 1 of 1*



TOP VIEW



LONGITUDINAL SECTION

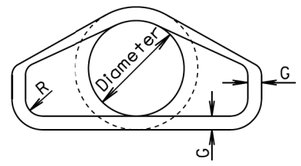


SLOPE DETAIL

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48⅞	72⅞	24	2	1½
15	740	2.4:1	2¼	6	27	46	73	30	2¼	1½
18	990	2.3:1	2½	9	27	46	73	36	2½	1½
21	1280	2.4:1	2¾	9	36	37½	73½	42	2¾	1½
24	1520	2.5:1	3	9½	43½	30	73½	48	3	1½
27	1930	2.5:1	3¼	10½	49½	24	73½	54	3¼	1½
30	2190	2.5:1	3½	12	54	19¾	73¾	60	3½	1½
36	4100	2.5:1	4	15	63	34¾	97¾	72	4	1½
42	5380	2.5:1	4½	21	63	35	98	78	4½	1½
48	6550	2.5:1	5	24	72	26	98	84	5	1½
54	8240	2:1	5½	27	65	33¼	98¼	90	5½	1½
60	8730	1.9:1	6	35	60	39	99	96	5	1½
66	10710	1.7:1	6½	30	72	27	99	102	5½	1½
72	12520	1.8:1	7	36	78	21	99	108	6	1½
78	14770	1.8:1	7½	36	90	21	111	114	6½	1½
84	18160	1.6:1	8	36	90½	21	111½	120	6½	1½
90	20900	1.5:1	8½	41	87½	24	111½	132	6½	6

June 26, 2015

Published Date: 2026	SDDOT	*R. C. P. FLARED ENDS*	*PLATE NUMBER* 450.10 *Sheet 1 of 1*

PLOT SCALE - 1:200

PLOTTED FROM - TRAB10200

PLOT NAME - 1

FILE - ...\STOPLATEPAGESEED_09HV_32045_45002.DGN

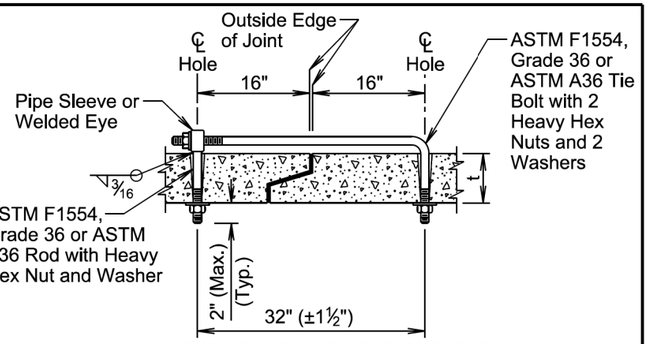
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼

GENERAL NOTES:

Tie bolts will conform to ASTM F1554, Grade 36 or ASTM A36. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

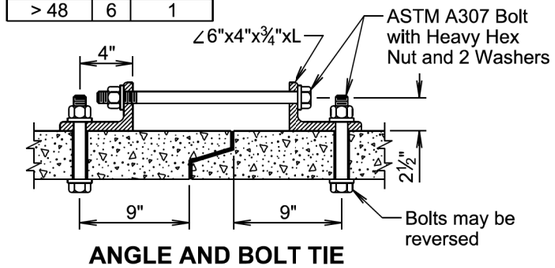
Pipe Sleeve will conform to ASTM A53, Grade B or ASTM A500, Grade B or C.

Galvanize adjustable eye bolt tie assembly in accordance with ASTM A153.



ADJUSTABLE EYE BOLT TIE

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



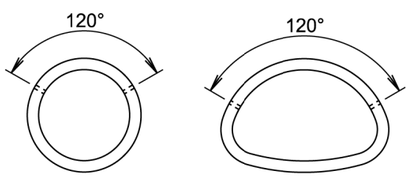
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles will conform to ASTM A36.

Bolts will conform to ASTM A307. Nuts will be heavy hex conforming to ASTM A563. Washers will conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW (Circular)

END VIEW (Arch)

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch will be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manholes, and junction boxes will be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts will be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

April 8, 2025

Published Date: 2026

SDDOT

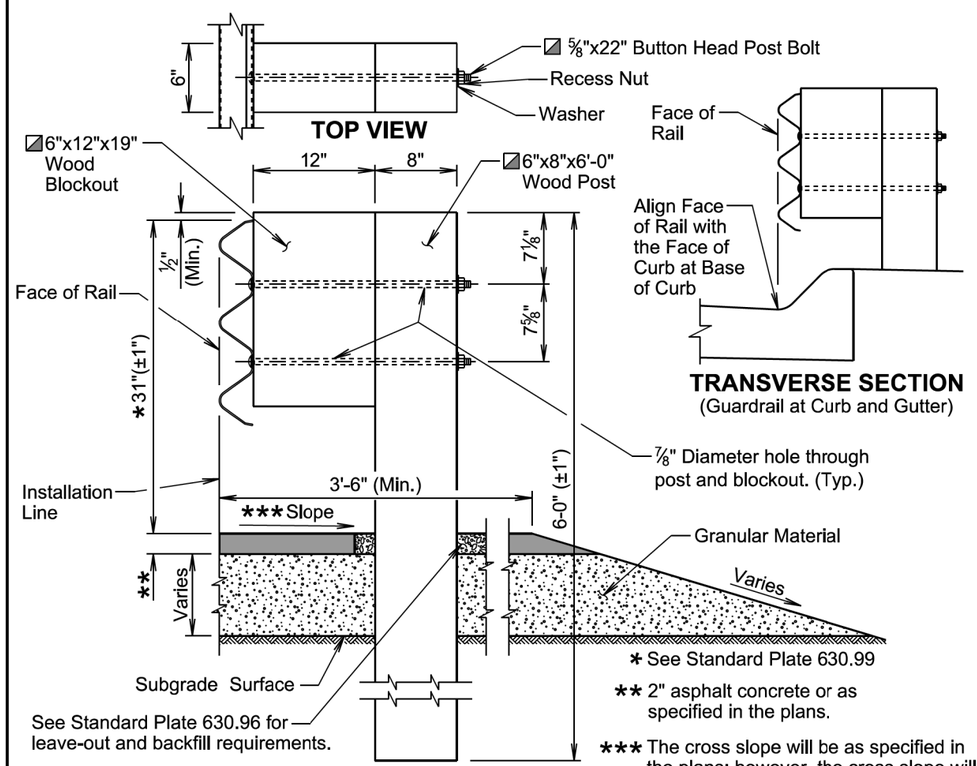
TIE BOLTS FOR R.C.P. AND R.C.P. ARCH

PLATE NUMBER 450.18

Sheet 1 of 1

THRIE BEAM GUARDRAIL

Sheet 1 of 5



TRANSVERSE SECTION

GENERAL NOTES:

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

Topsoil is not shown in the transverse section drawing.

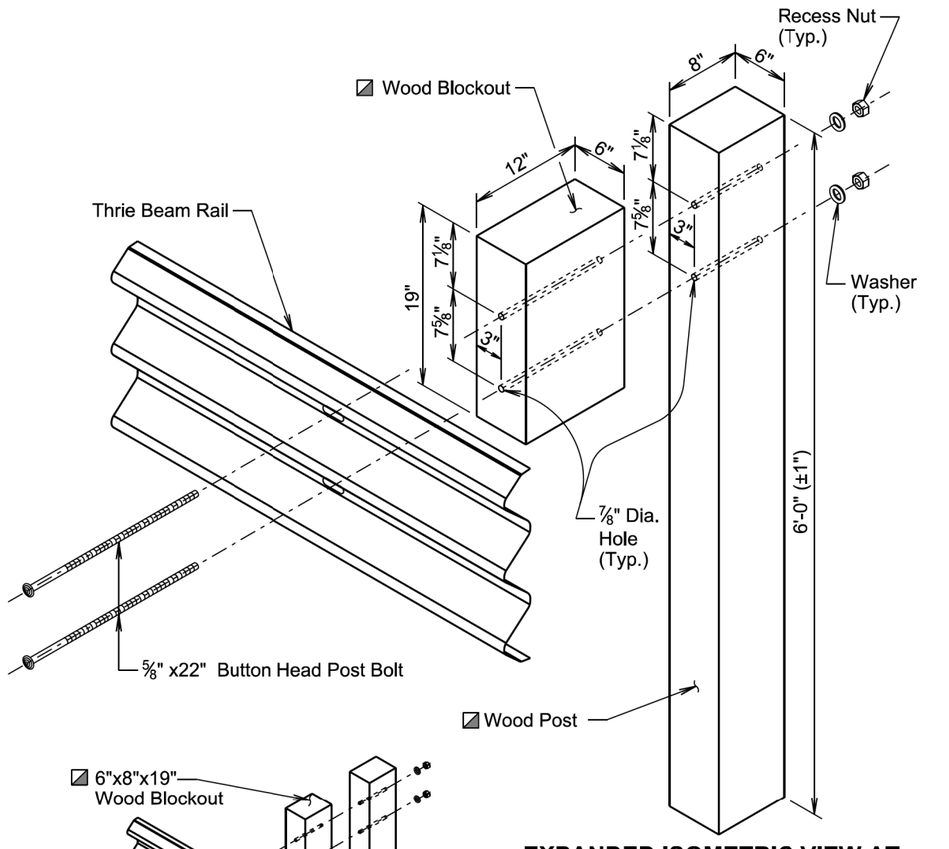
☑ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

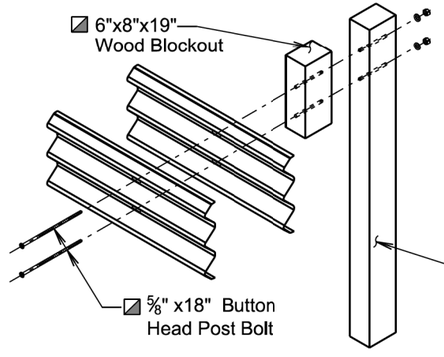
The top of post and top of block will have a true square cut. The top of block will be a maximum of ±½ inch from the top of the post.

THRIE BEAM GUARDRAIL

Sheet 2 of 5



EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

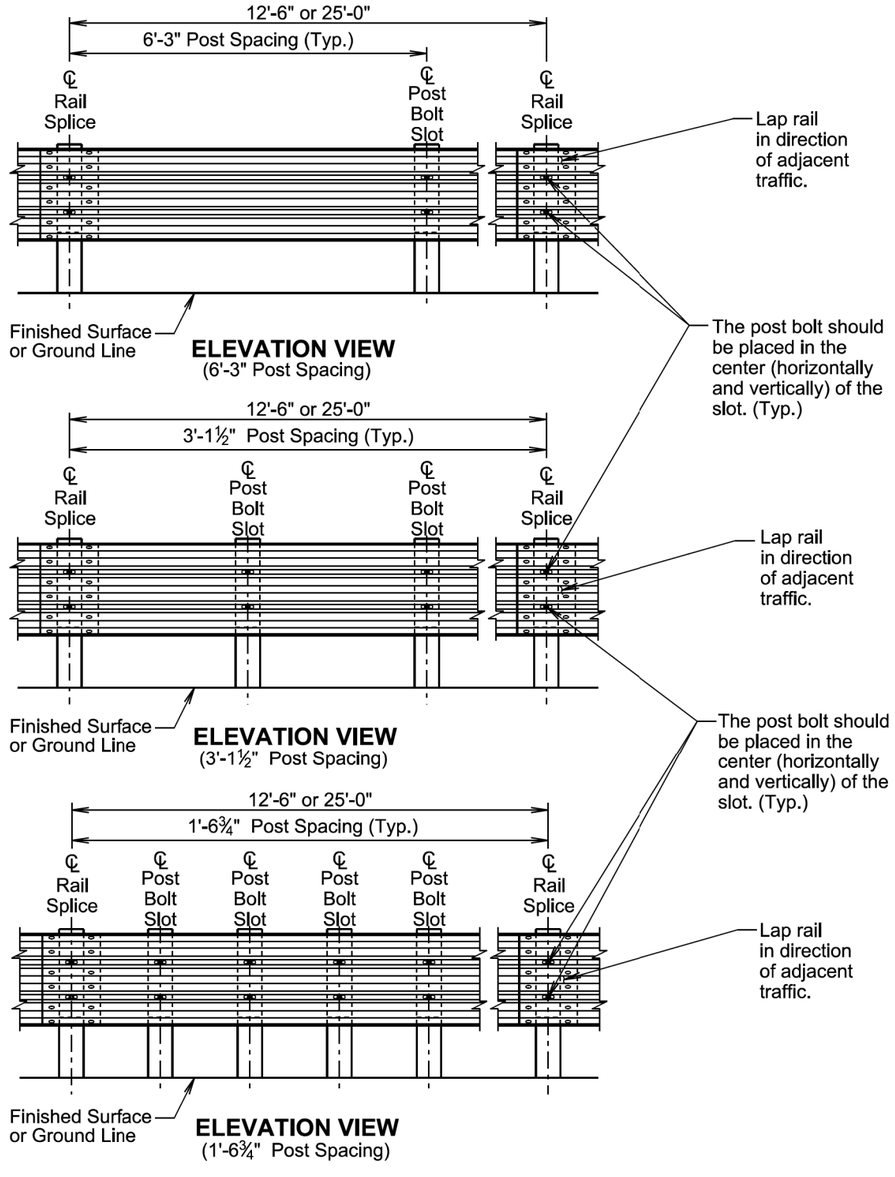


EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) THRIE BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

- For single thrie beam guardrail use 6"x12"x19" wood blockout, ⅝"x22" button head post bolt, and 6"x8"x6'-0" wood post. For double (nested) thrie beam guardrail use 6"x8"x19" wood blockout, ⅝"x18" button head post bolt, and 6"x8"x7'-0" wood post.

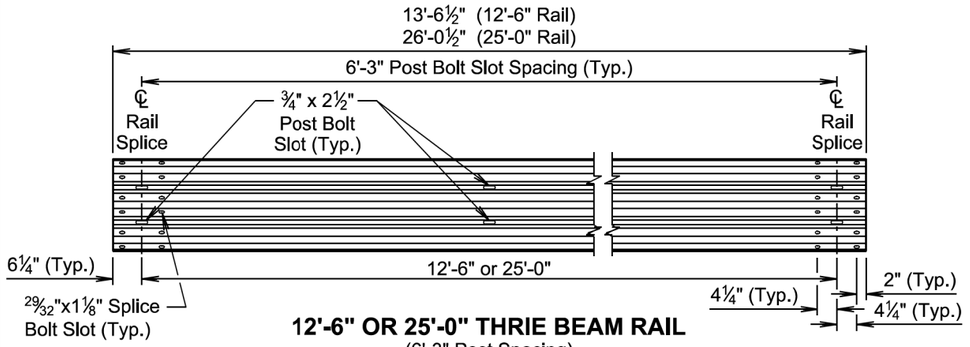
THRIE BEAM GUARDRAIL

Sheet 3 of 5

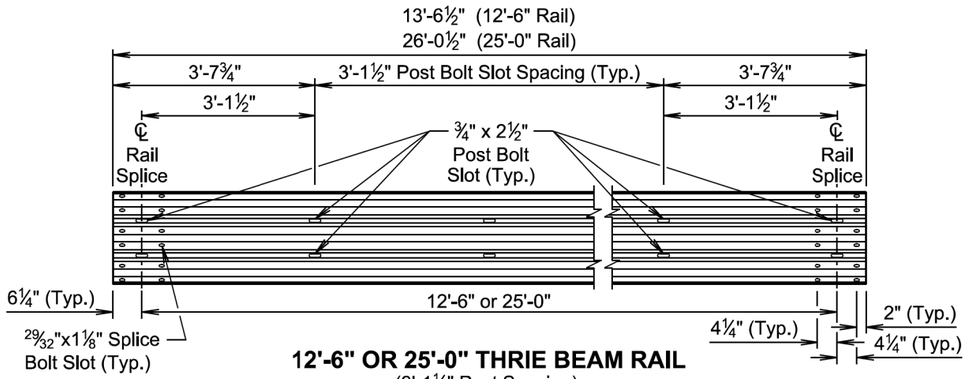


THRIE BEAM GUARDRAIL

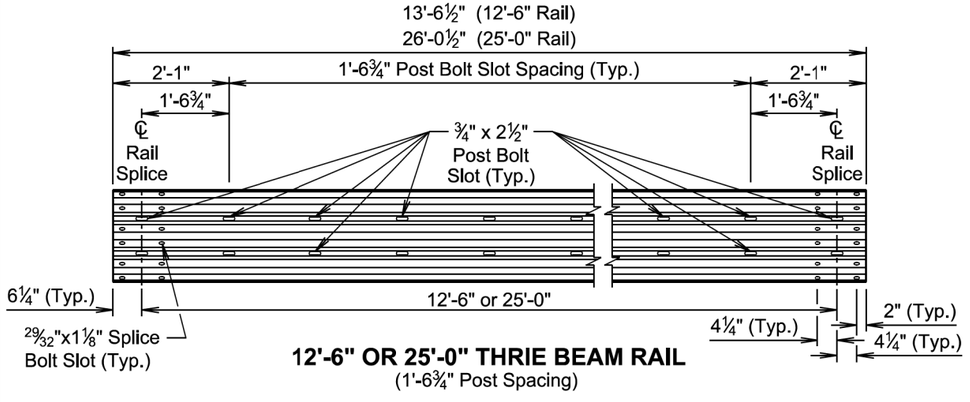
Sheet 4 of 5



12'-6" OR 25'-0" THRIE BEAM RAIL
(6'-3" Post Spacing)



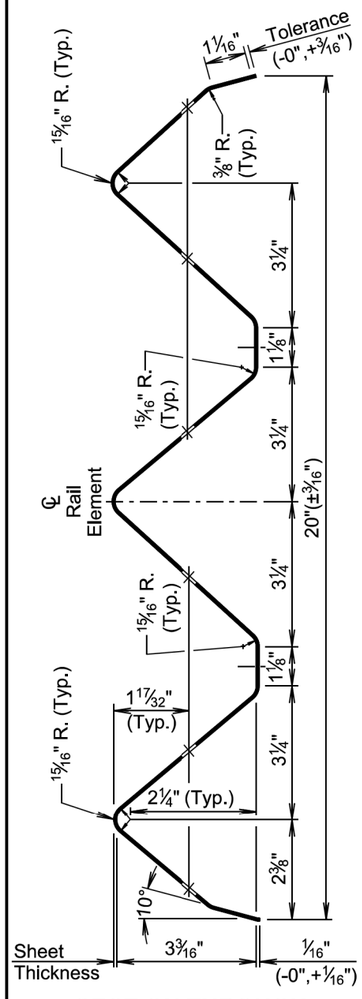
12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1½" Post Spacing)



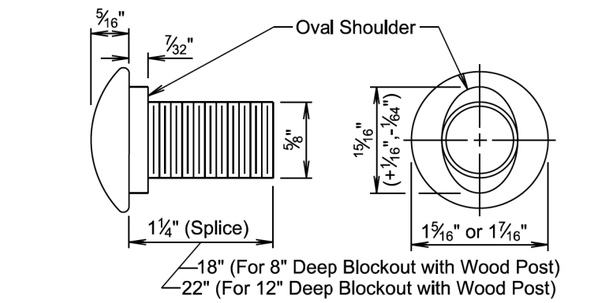
12'-6" OR 25'-0" THRIE BEAM RAIL
(1'-6¾" Post Spacing)

THRIE BEAM GUARDRAIL

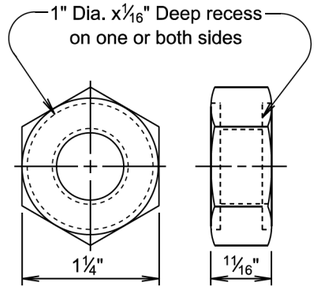
Sheet 5 of 5



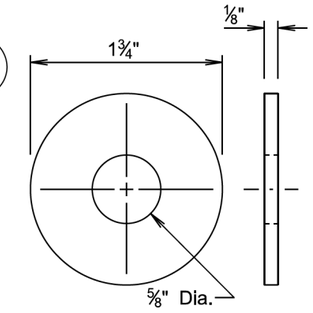
SECTION THROUGH THRIE BEAM RAIL



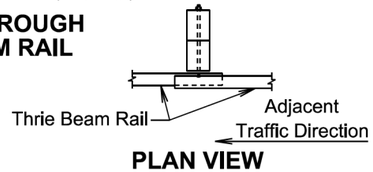
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



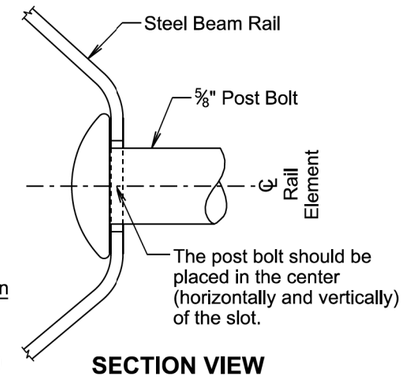
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 1 and 2.)



PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(12 splice bolts and 12 recess nuts per splice, NO washers)



SECTION VIEW
(At Post Bolt)

MIDWEST GUARDRAIL SYSTEM (MGS)

Sheet 1 of 6

TYPE AND DETAILS OF MGS						
Type of MGS	W Beam Rail Single or Double (Nested)	Blockout Size	Blockout Material	Post Size	Post Material	Post Spacing
1	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"
1C	Single	6"x12"x14"	Wood	6"x8"x7'-6"	Wood	6'-3"
2	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	3'-1½"
3	Single	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	1'-6¾"
4	Double	6"x12"x14"	Wood	6"x8"x6'-0"	Wood	6'-3"

STANDARD PLATE REFERENCE	
Type of MGS	See Standard Plate(s)
1	630.20, 630.22
1C	630.20, 630.25
2	630.20
3	630.20
4	630.20

GENERAL NOTES:

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite".

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

Topsoil is not shown in the transverse section drawing on sheet 2 of 6.

All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

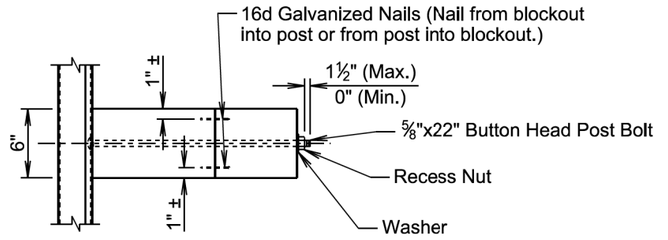
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

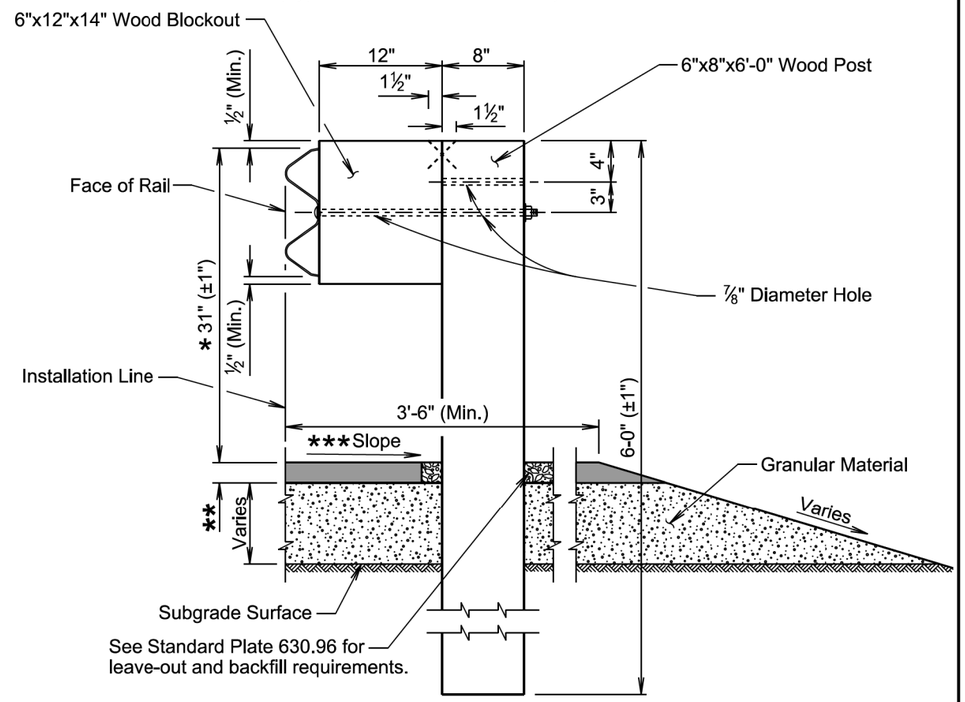
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

MIDWEST GUARDRAIL SYSTEM (MGS)

Sheet 2 of 6



TOP VIEW
(Type 1, 2, or 3 MGS Installation)



TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

* See Standard Plate 630.99

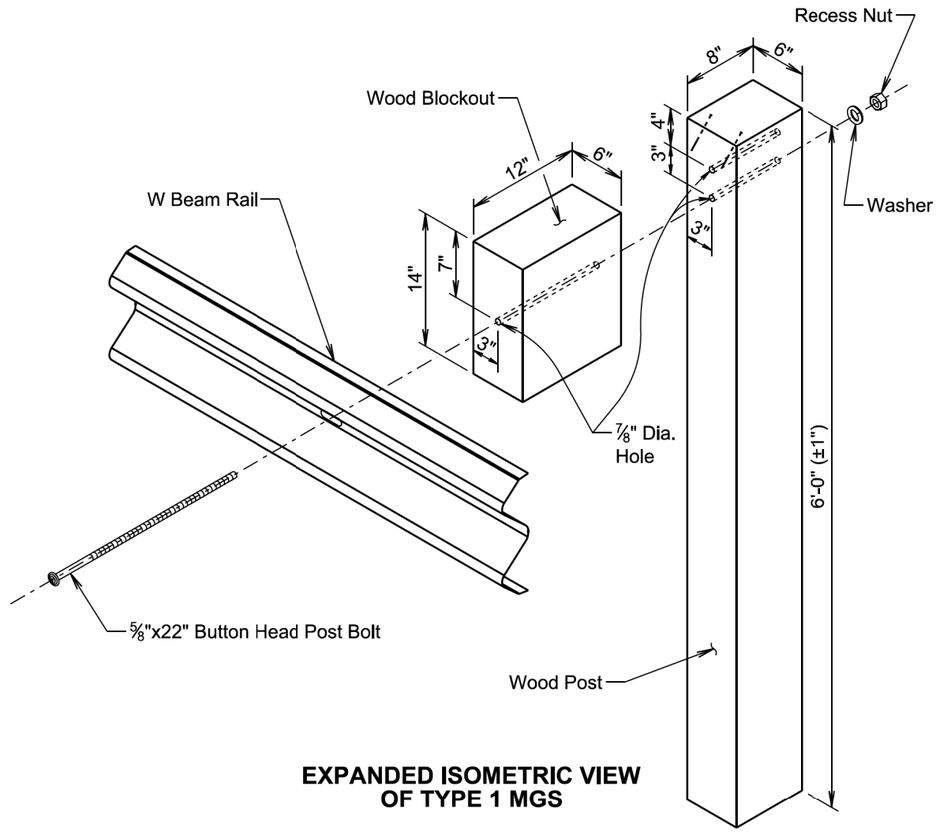
** 2" asphalt concrete or as specified in the plans.

*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

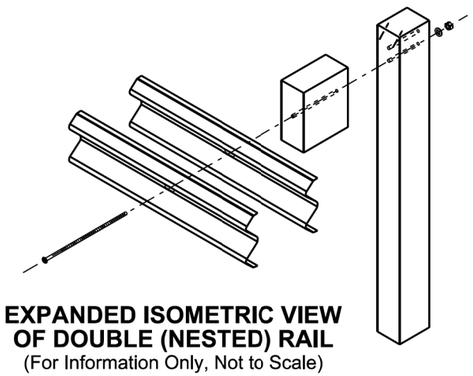
PLOT SCALE - 1:200
PLOTTED FROM - TRAB1020.00
PLOT NAME - 17
FILE - ...\GRAIL SPECIAL PLATES.DGN

MIDWEST GUARDRAIL SYSTEM (MGS)

Sheet 3 of 6



EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS

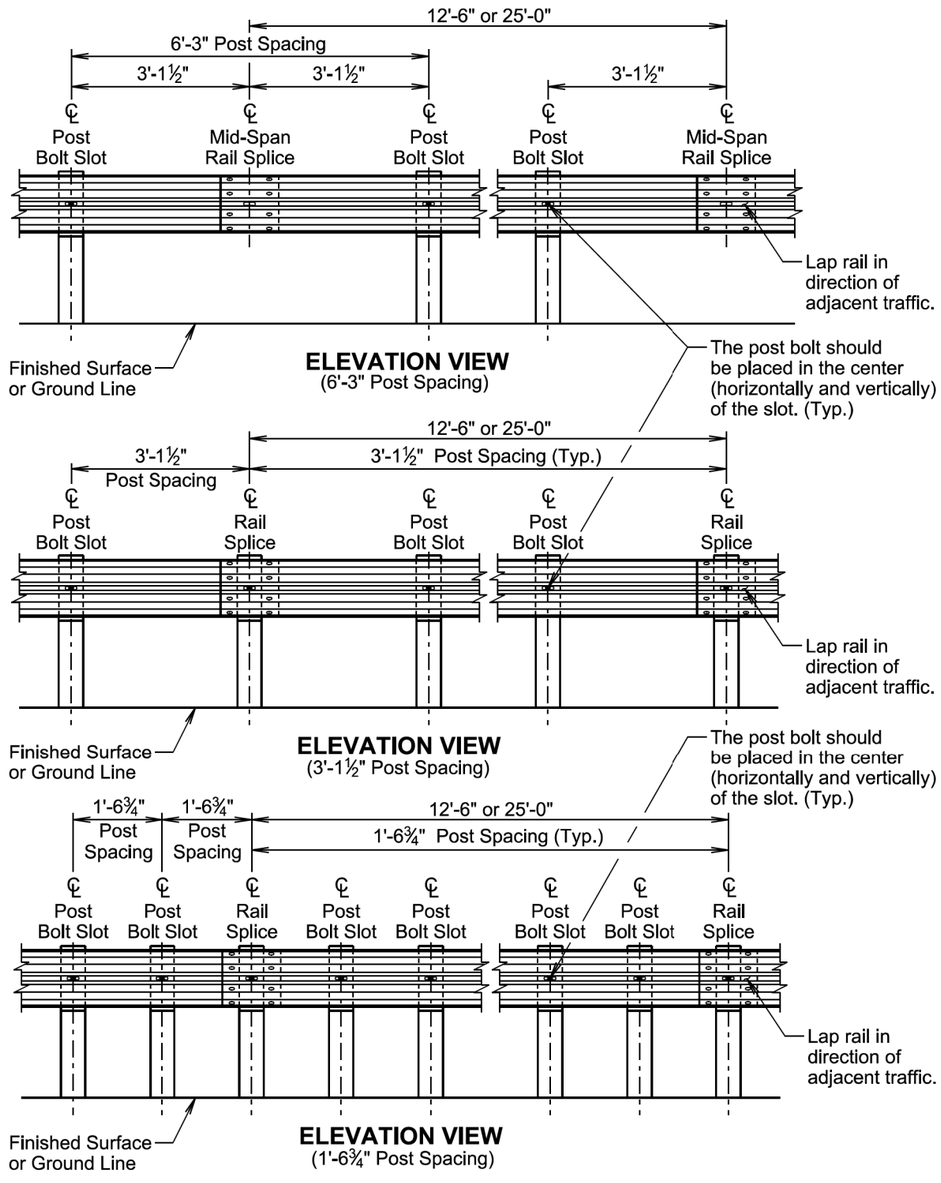


EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) RAIL

(For Information Only, Not to Scale)

MIDWEST GUARDRAIL SYSTEM (MGS)

Sheet 4 of 6



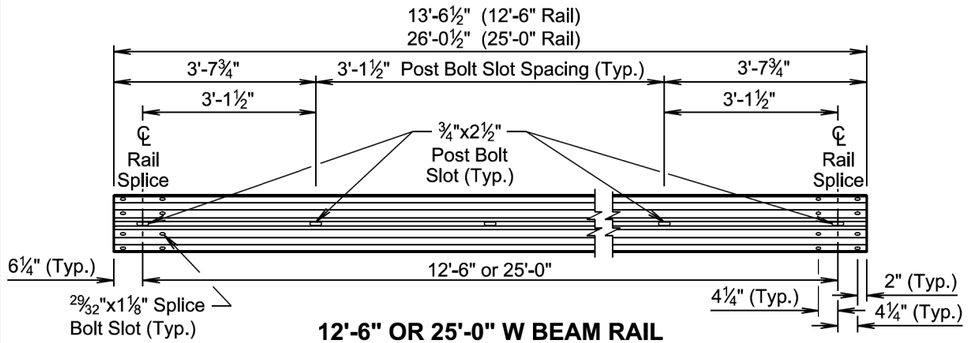
ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

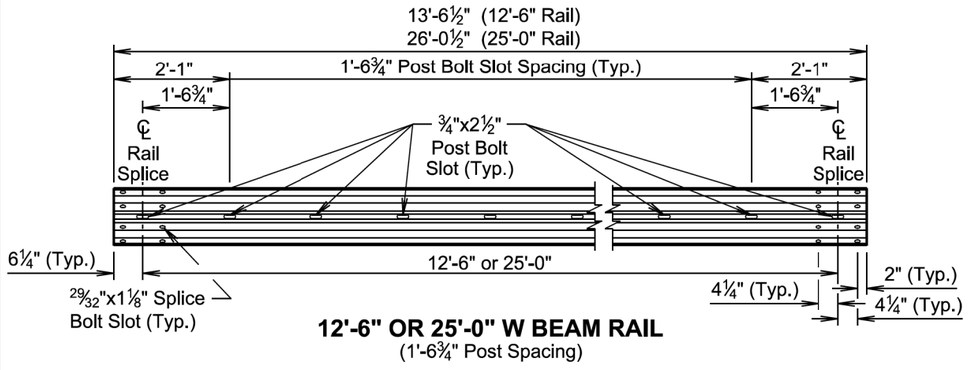
ELEVATION VIEW
(1'-6¾" Post Spacing)

MIDWEST GUARDRAIL SYSTEM (MGS)

Sheet 5 of 6



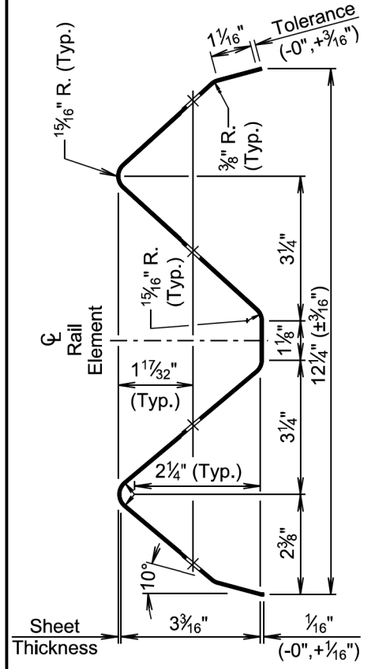
12'-6" OR 25'-0" W BEAM RAIL
(3'-1½" and 6'-3" Post Spacing)



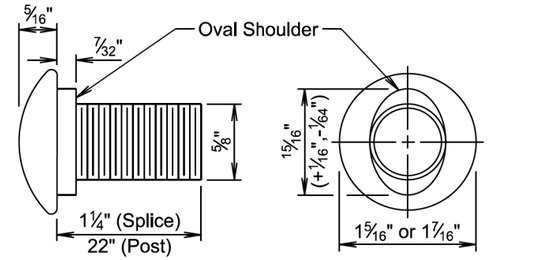
12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

MIDWEST GUARDRAIL SYSTEM (MGS)

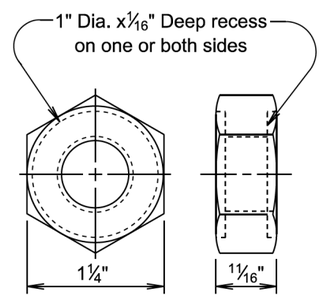
Sheet 6 of 6



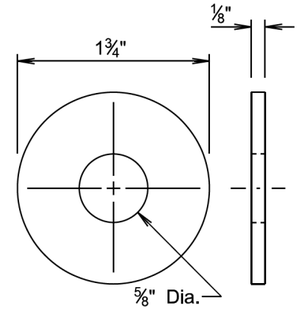
SECTION THROUGH W BEAM RAIL



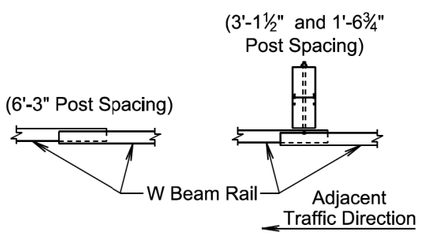
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



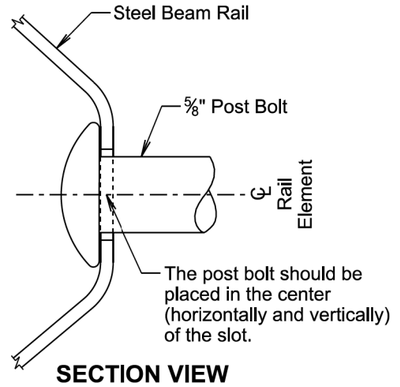
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 2 and 3.)

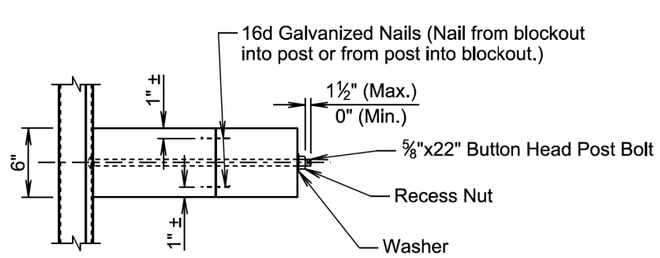


PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(8 splice bolts and 8 recess nuts per splice, NO washers)

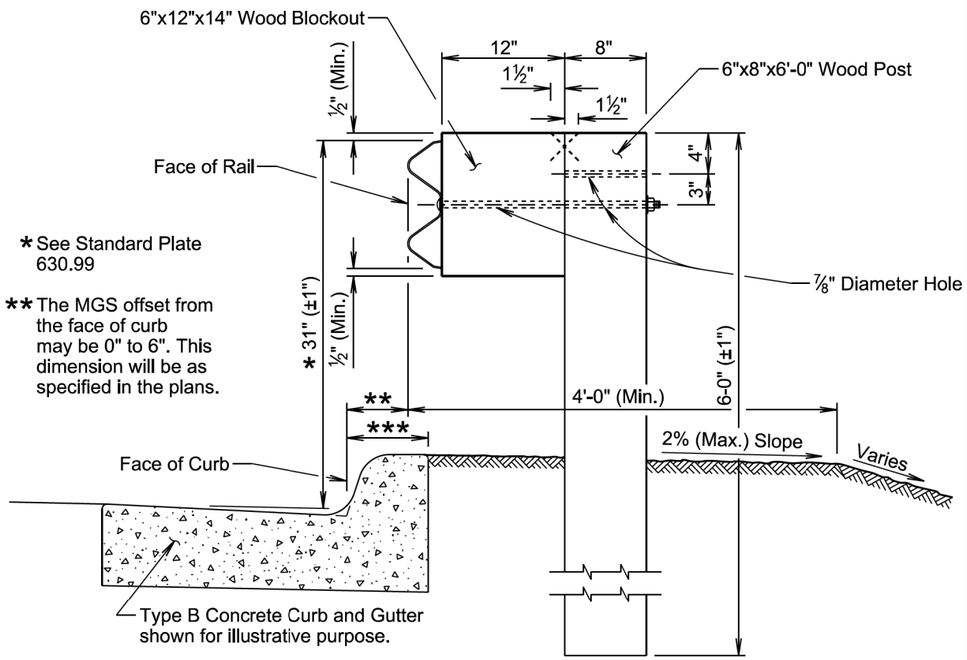


SECTION VIEW
(At Post Bolt)

CONCRETE CURB AND GUTTER TYPE	DIMENSION *** (in.)
B and BL	8
D	12
F and FL	10
R	11



TOP VIEW



* See Standard Plate 630.99

** The MGS offset from the face of curb may be 0" to 6". This dimension will be as specified in the plans.

TRANSVERSE SECTION

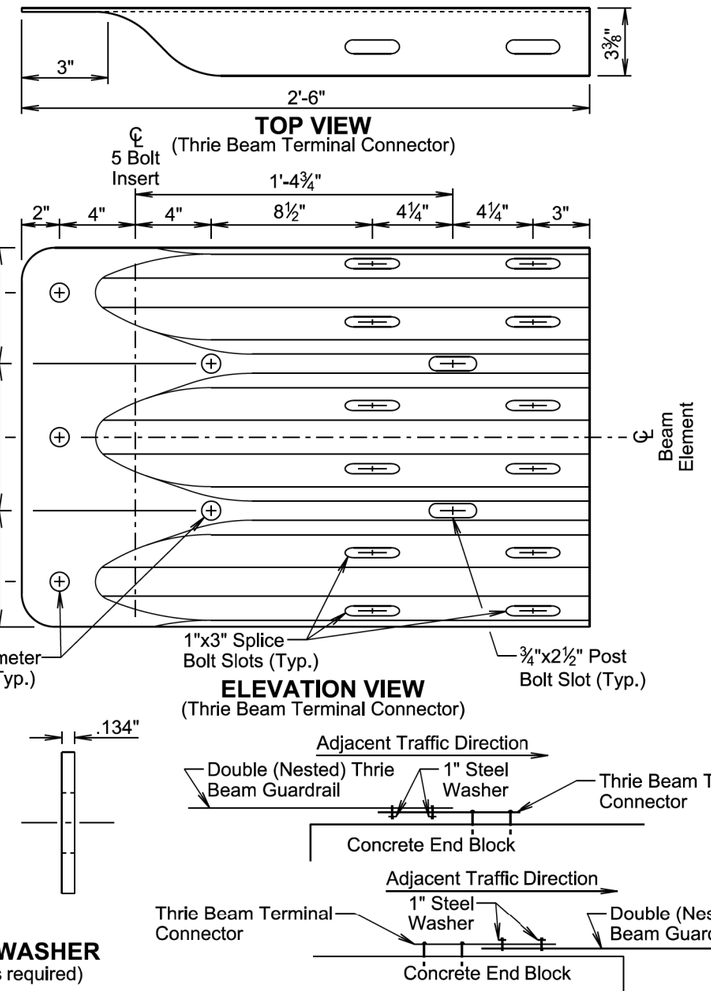
GENERAL NOTES:

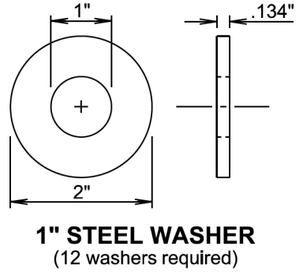
The guardrail on this standard plate is Type 1 MGS. See standard plate 630.20 for specifications regarding Type 1 MGS.

When PCC pavement or asphalt concrete pavement is adjacent to the post, see standard plate 630.96 for leave-out and backfill requirements.

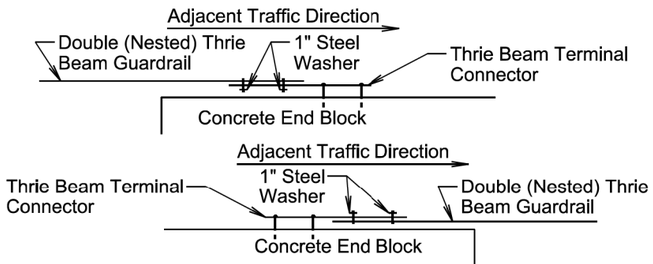
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS) AT CURB AND GUTTER	PLATE NUMBER 630.22
			Sheet 1 of 1





1" STEEL WASHER
(12 washers required)



PLAN VIEWS
(Typical Locations of 1" Steel Washers)
(Washers are required at these lap splices)

GENERAL NOTES:

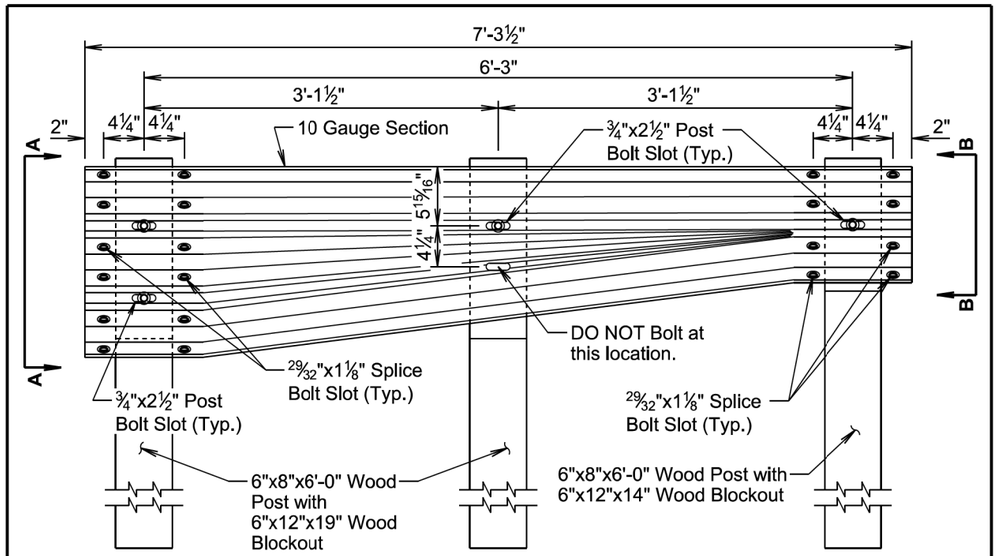
Thrie Beam Terminal Connectors will be 10 gauge.

When the thrie beam terminal connector is used to connect the rail to the bridge or concrete end block, 1" steel washers will be used at the lap splice and the washers will be in direct contact with the 3" slots of the thrie beam terminal connector. See the drawings above for the typical locations of the 1" steel washers.

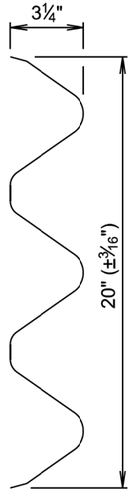
There will be no separate payment for furnishing and installing the thrie beam terminal connector. All costs for furnishing and installing the thrie beam terminal connector will be incidental to the contract unit price of the respective guardrail item it is attached to.

September 14, 2019

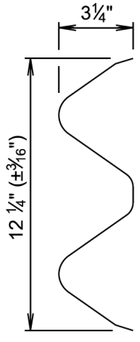
Published Date: 2026	SDDOT	THRIE BEAM TERMINAL CONNECTOR	PLATE NUMBER 630.47
			Sheet 1 of 1



ELEVATION VIEW



VIEW A-A



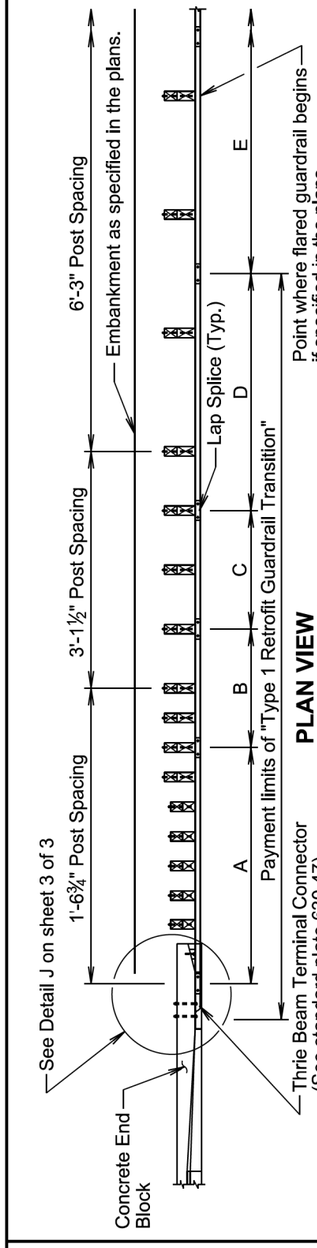
VIEW B-B

GENERAL NOTES:

All costs for furnishing and installing the asymmetrical W beam to thrie beam guardrail transition including labor, equipment, and materials including two posts, two blocks, asymmetrical W beam to thrie beam transition section, and hardware will be incidental to the contract unit price per each for the corresponding guardrail transition contract item.

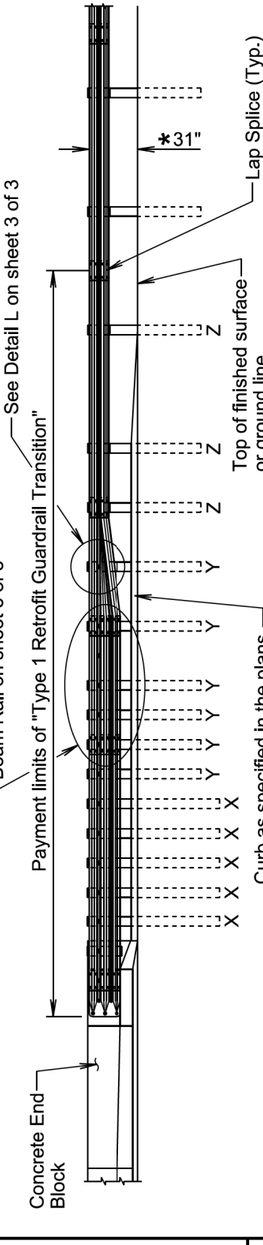
September 14, 2019

Published Date: 2026	SDDOT	ASYMMETRICAL W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.49
			Sheet 1 of 1



PLAN VIEW
(Curb Not Shown)

A: 12'-6" Straight Double (Nested) Class A Thrie Beam Guardrail with Wood Posts (See standard plate 630.01)
B: 6'-3" Straight Single Class A Thrie Beam Guardrail with Wood Posts (See Detail K on sheet 3 of 3)
C: 6'-3" Asymmetrical W Beam to Thrie Beam Guardrail Transition Section with Wood Posts (See standard plate 630.49)
D: 12'-6" Straight Type 4 MGS (See standard plate 630.20)
E: Straight Type 1 MGS or as specified in the plans (See standard plate 630.00)



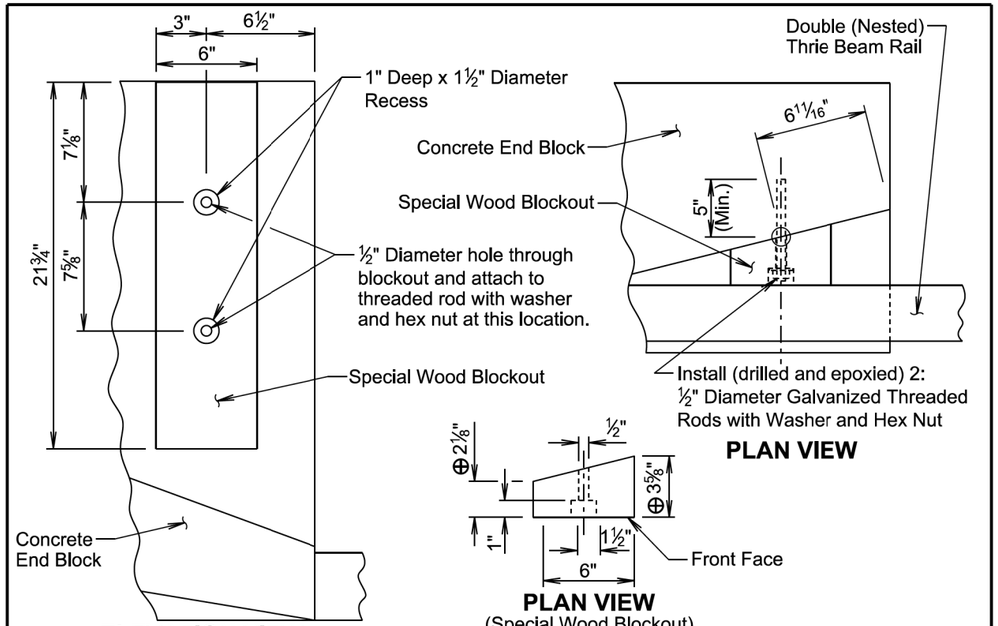
ELEVATION VIEW

*See standard plate 630.99

X: 6"x8"x7'-0" Wood Post and 6"x8"x19" Wood Blockout
Y: 6"x8"x6'-0" Wood Post and 6"x12"x19" Wood Blockout
Z: 6"x8"x6'-0" Wood Post and 6"x12"x14" Wood Blockout

September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 1 of 3



GENERAL NOTES FOR INSTALLING THREADED RODS INTO CONCRETE:

⊕ The dimensions shown are estimated based on original construction plans of the concrete end block. The special wood blockout will be cut as necessary such that the front face of the special wood blockout will align with the vertical front face of the concrete end block ±½".

The threaded rods will be ½" diameter and conform to ASTM F1554, Grade 55. The threaded rods will be embedded a minimum of 5" into the concrete.

The diameter of the drilled holes will not be less than ⅛" greater or more than ⅜" greater than the diameter of the threaded rods or as per the Manufacturer's recommendations. The holes will not be drilled using core bits. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to ensure that all debris or loose material has been removed prior to the epoxy injection.

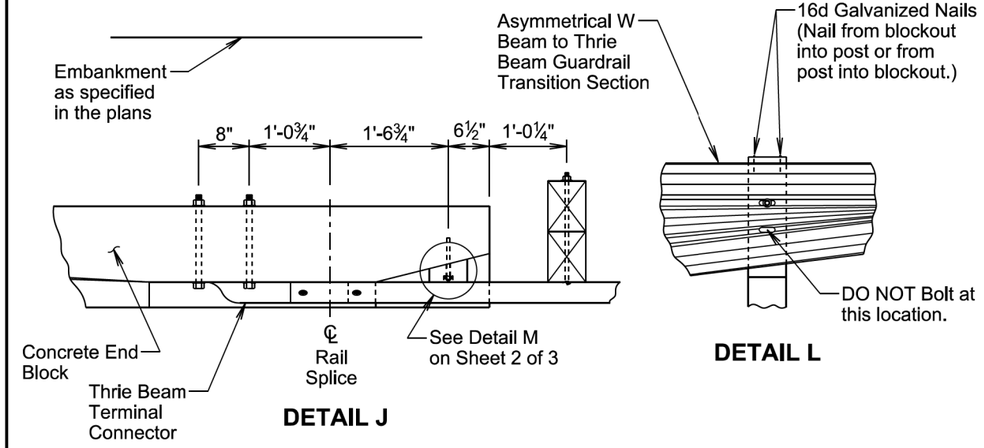
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

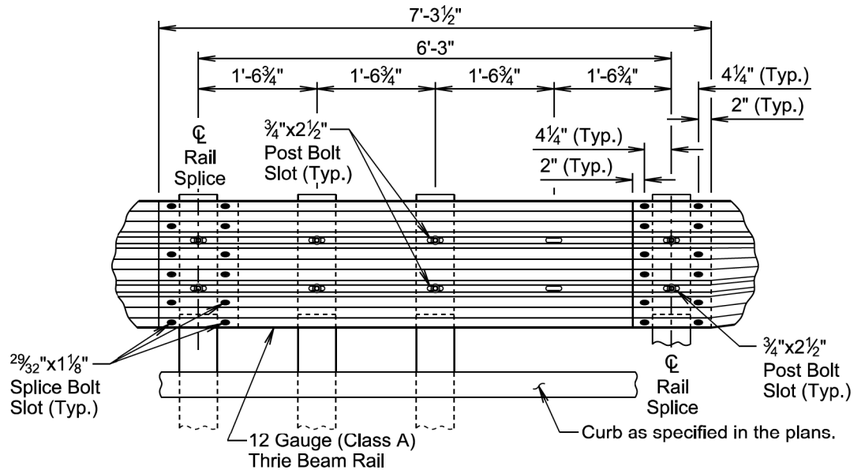
Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel rod. Rotate the steel rod during installation to eliminate voids and ensure complete bonding of the rod. Insertion of the rods by the dipping or painting methods will not be allowed.

Loads will not be applied to the epoxy grouted threaded rods until the epoxy resin has had sufficient time to cure as specified by the epoxy resin Manufacturer.

September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 2 of 3





GENERAL NOTES:

Throughout the type 1 retrofit guardrail transition, slots in the rails will be provided as specified in the plans and by the Manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

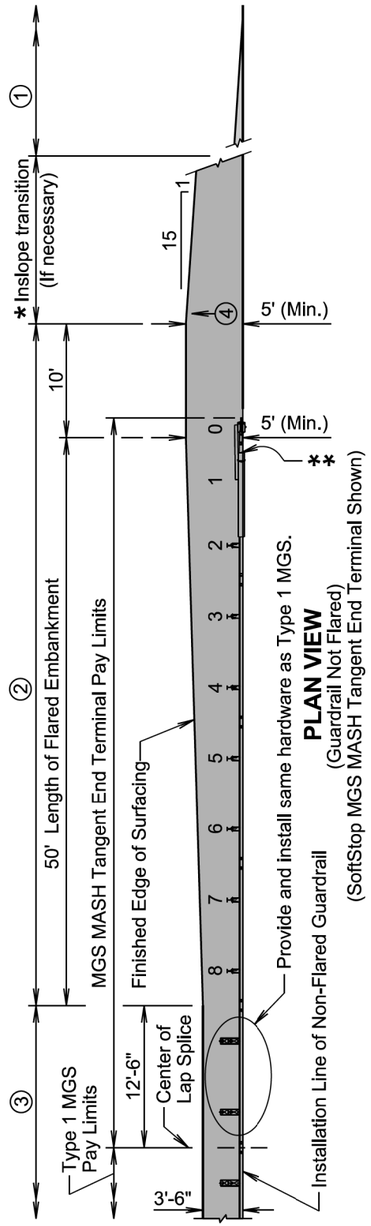
All costs for furnishing and installing the type 1 retrofit guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, special blockout, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Retrofit Guardrail Transition".

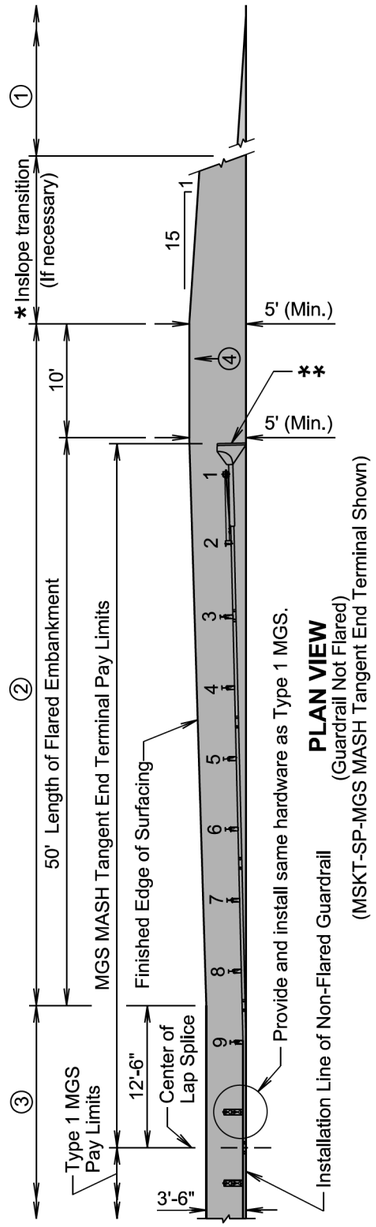
September 14, 2019

Published Date: 2026	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51
			Sheet 3 of 3

EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL

Sheet 1 of 3





** See standard plate 632.40 for delineation.

▢ 2" Asphalt concrete surfacing with variable thickness granular material or as specified in the plans.

① Same inslope as mainline inslope or as specified in the plans.

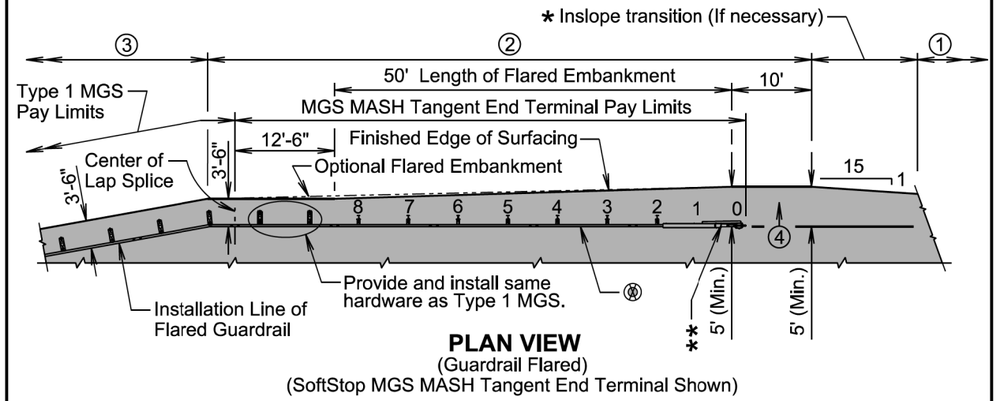
② 4:1 inslope or as specified in the plans.

③ Inslope as specified in the plans.

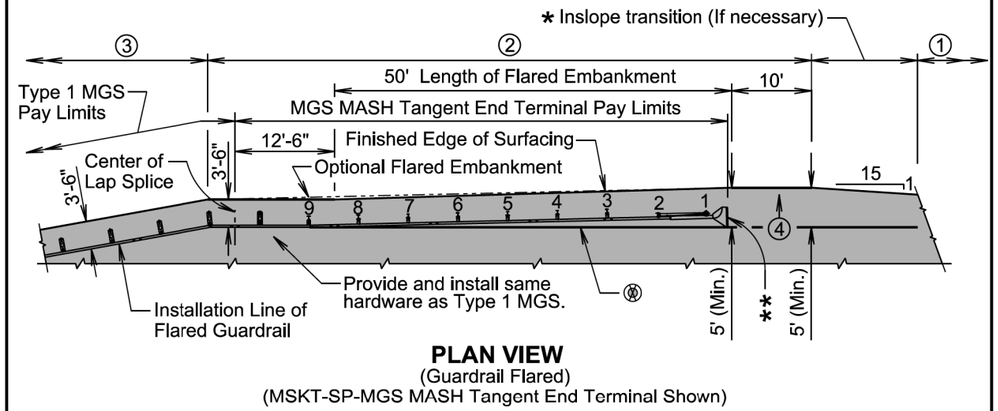
④ Same slope as roadway cross slope or as specified in the plans. Slope will not be steeper than a 10:1 slope.

EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL

Sheet 2 of 3



PLAN VIEW
(Guardrail Flared)
(SoftStop MGS MASH Tangent End Terminal Shown)



PLAN VIEW
(Guardrail Flared)
(MSKT-SP-MGS MASH Tangent End Terminal Shown)

GENERAL NOTES:

The MGS MASH tangent end terminals above are for illustrative purpose only. Pay limit length of the MGS MASH tangent end terminal is 62'-6".

* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100' for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 100'. If the inslope changes from a 6:1 to a 4:1 the length of the inslope transition would be 200'.

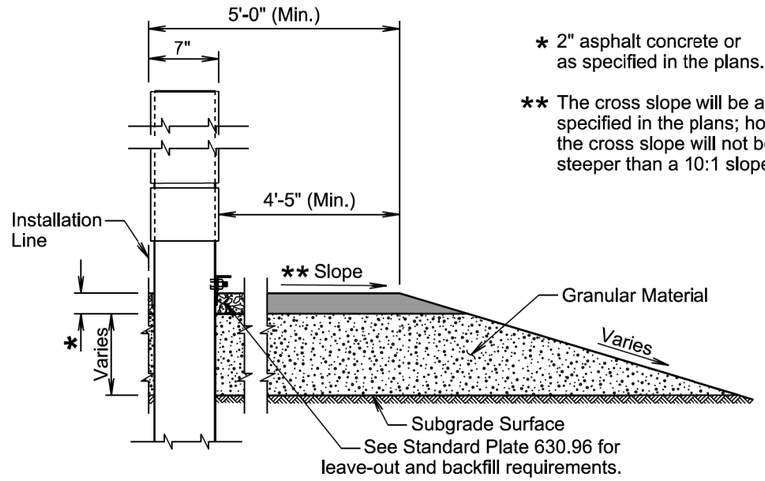
Ⓜ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the asphalt concrete will conform to the Specifications for "Asphalt Concrete Composite."

Granular material will be the same type used elsewhere on the project or will be as specified in the plans. If granular material type is not specified in the plans, the material will conform to the Specifications for "Base Course". The granular material will be placed the same thickness as the mainline surfacing or as specified in the plans.

EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL

Sheet 3 of 3

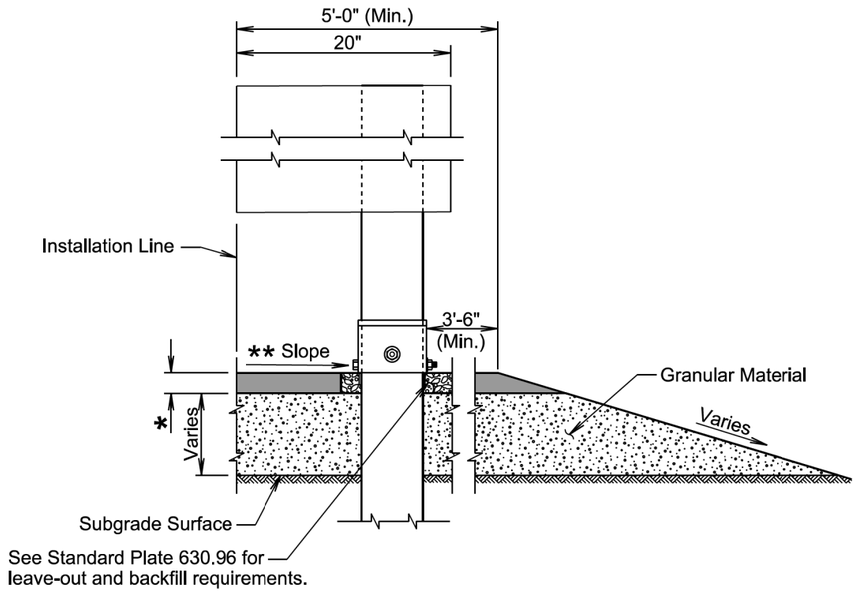


* 2" asphalt concrete or as specified in the plans.

** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

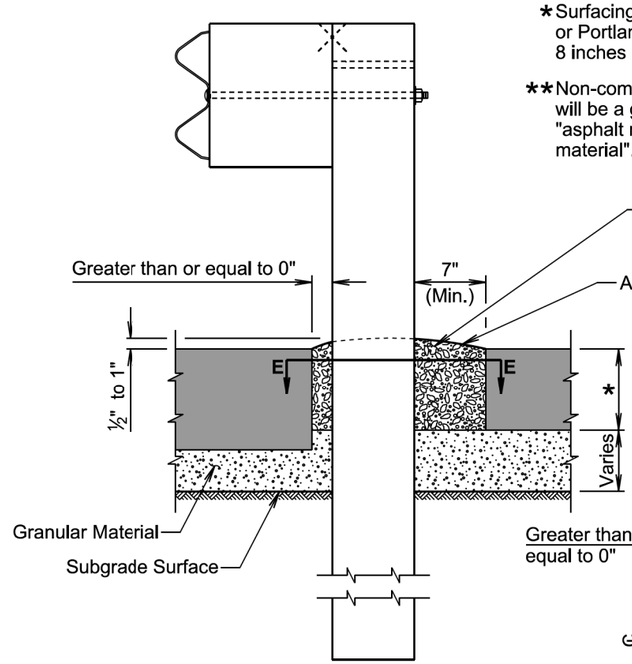
TRANSVERSE SECTION

(SoftStop MGS MASH Tangent End Terminal Shown)



TRANSVERSE SECTION

(MSKT-SP-MGS MASH Tangent End Terminal Shown)

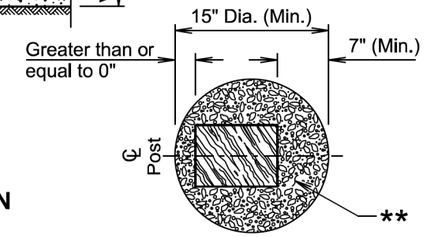


* Surfacing Material (Asphalt Concrete or Portland Cement Concrete) 8 inches maximum

** Non-compacted backfill material will be a granular material or "asphalt mix and granular base material".

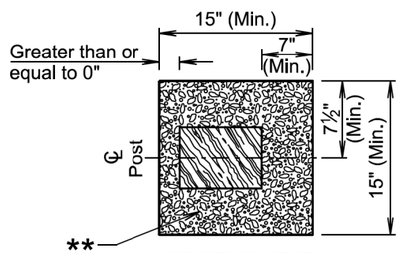
TRANSVERSE SECTION

(Wood post shown for illustrative purpose only)



SECTION E-E

(Round option for leave-out and backfill limits)
(Wood post shown for illustrative purpose only)



SECTION E-E

(Square option for leave-out and backfill limits)
(Wood post shown for illustrative purpose only)

GENERAL NOTES:

The leave-out limits may be increased to accommodate construction equipment and tolerances.

When posts are installed in augured or dug holes, the backfill material will be compacted to the bottom of the pavement surfacing material to the satisfaction of the Engineer. The backfill material for the thickness of the pavement surfacing material will be non-compacted.

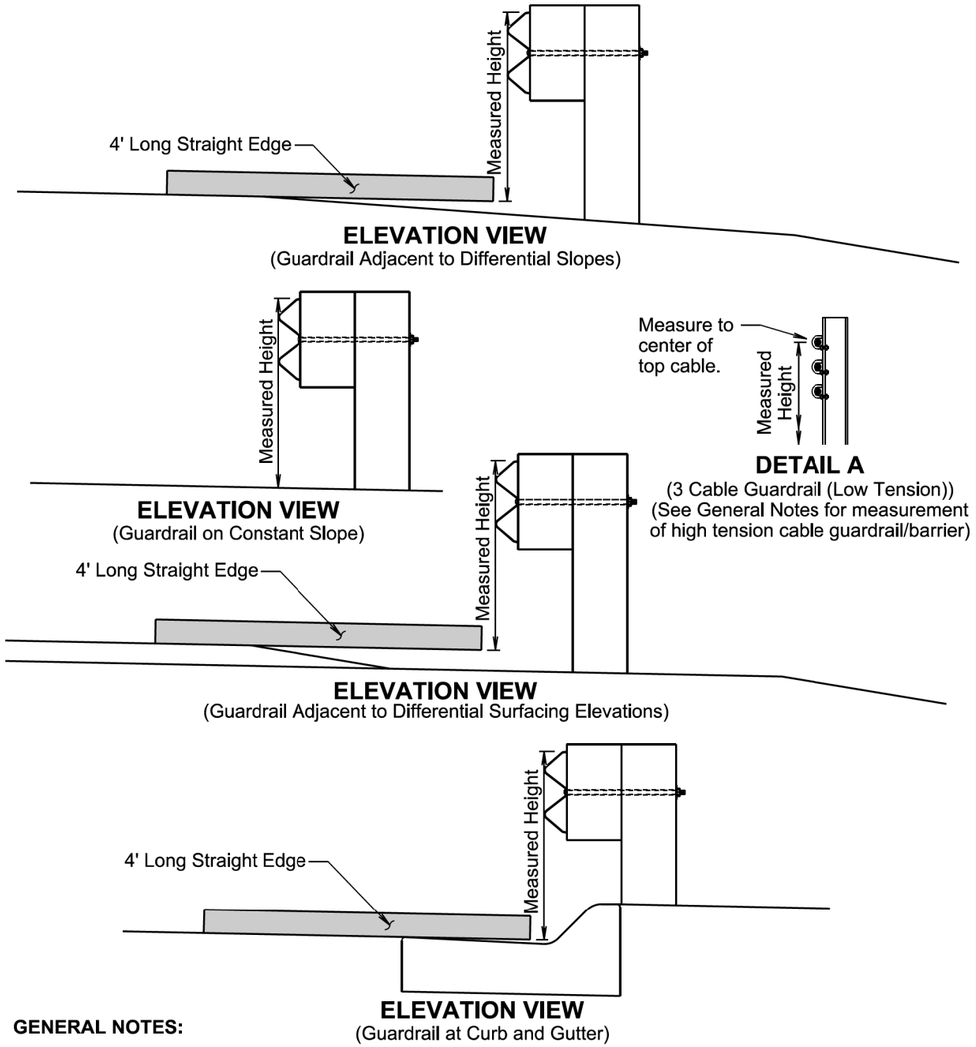
The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

Asphalt for tack will be applied to the surface of the backfill material at the rate of 0.15 to 0.20 gallons per square yard.

All costs for constructing the leave-out including labor, equipment, and materials which includes the backfill material and tack coat will be incidental to the contract unit price for the respective guardrail contract item.

November 19, 2021

Published Date: 2026	SDDOT	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
			Sheet 1 of 1



GENERAL NOTES:

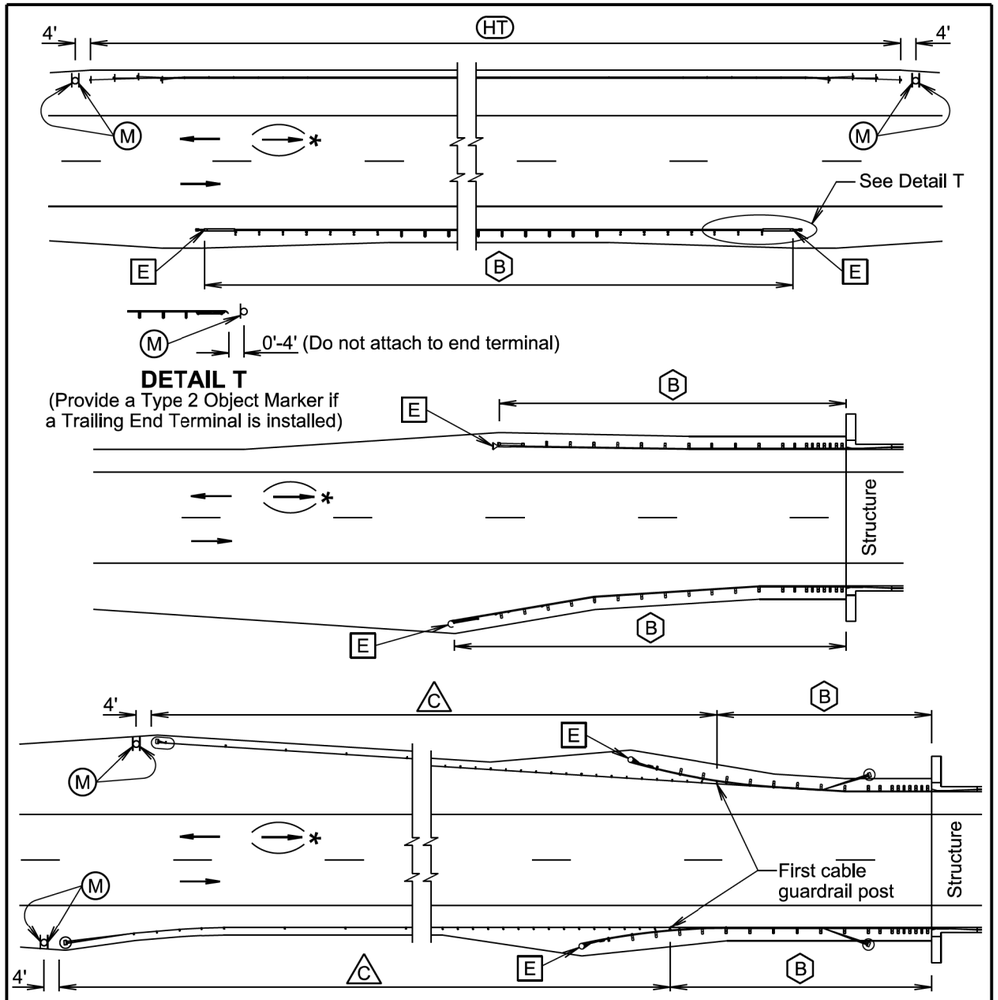
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

The height of high tension cable guardrail/barrier will be measured in accordance with the Manufacturer's installation instructions.

September 14, 2019

Published Date: 2026	SDDOT	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.99 Sheet 1 of 1



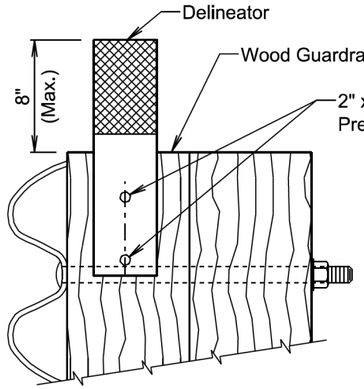
PLAN VIEW
(Typical Guardrail Layouts)

- (B) Steel Beam Guardrail Delineation
- (HT) High Tension Cable Guardrail Delineation
- (E) Guardrail End Terminal Object Marker
- (M) Type 2 Object Marker
- (C) 3 Cable Guardrail (Low Tension) Delineation

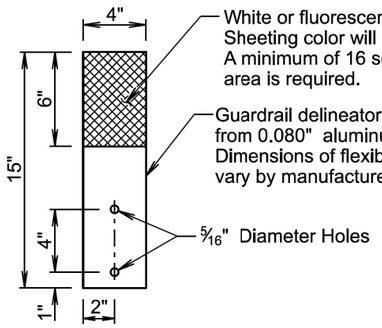
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

April 8, 2025

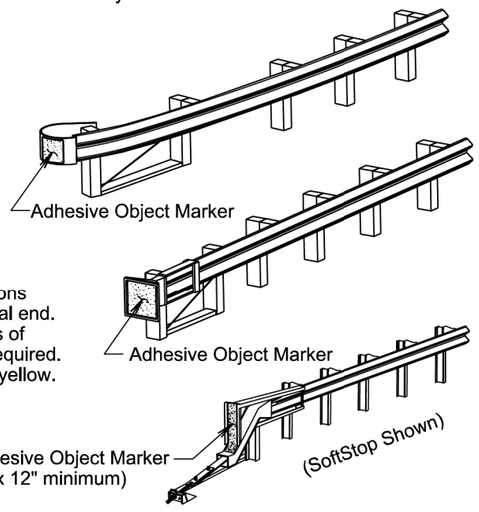
Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40 Sheet 1 of 4



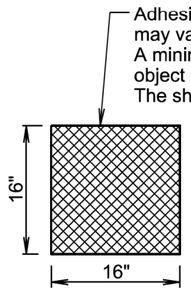
Ⓑ STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



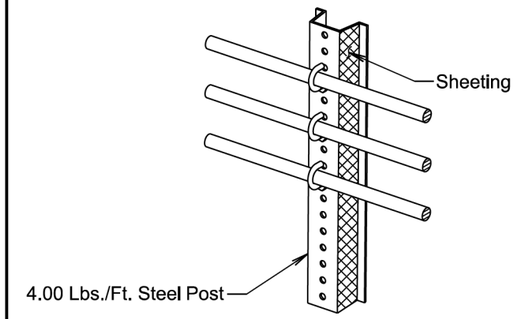
Ⓔ GUARDRAIL END TERMINAL OBJECT MARKER



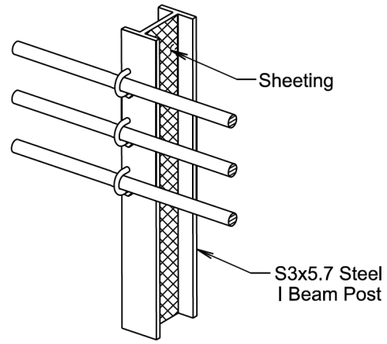
ADHESIVE OBJECT MARKER

April 8, 2025

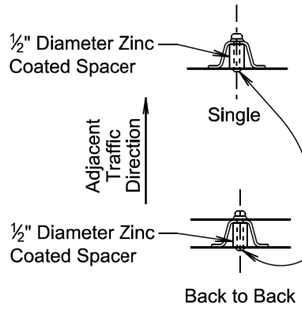
Published Date: 2026	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



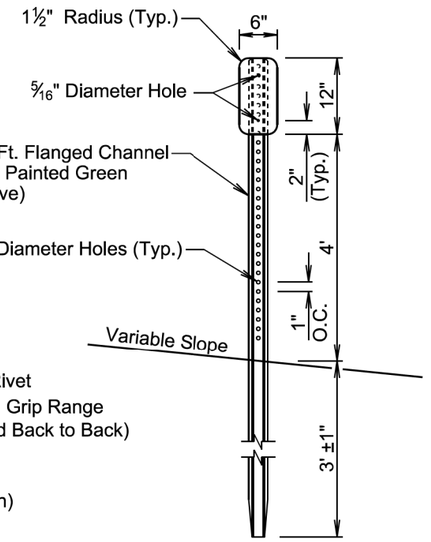
Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)



ELEVATION VIEW
Ⓜ (Type 2 Object Marker)
(For Marking 3 Cable Guardrail (Low Tension) Anchor, High Tension Cable Guardrail Anchor, and Trailing End Terminal)

April 8, 2025

Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 3 of 4

GENERAL NOTES:

The delineation of high tension cable guardrail will be reflective sheeting placed back to back on every third post cap or cable spacer. Maximum spacing of delineation will not exceed 35 feet. The sheeting will be type XI in conformance with ASTM D4956. The color of the reflective sheeting will be the same as the nearest pavement marking.

The delineators for steel beam guardrail and sheeting on 3 cable guardrail (low tension) posts will be covered with a minimum of 16 square inches of reflective sheeting. The reflective sheeting will be type XI in conformance with ASTM D4956. Along two-way roadways the sheeting will be on both sides of the delineators and guardrail posts and will be white in color. For one-way roadways the sheeting will only be required on the side facing traffic and the color will be the same as the nearest pavement marking, yellow on the left side of the roadway and white on the right side.

When steel beam guardrail is attached to a bridge the first delineator will be attached to the post nearest the bridge.

At bridges with guardrail less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object marker. The spacing between the delineators will be approximately one third of the length of the guardrail.

At bridges with guardrail 200 feet and greater in length, including bridges that have steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

Steel beam guardrail that is not attached to a bridge and is less than 200 feet in length, a minimum of 4 delineators will be placed in addition to the end terminal yellow object markers. The spacing between the delineators will be approximately one third of the length of the guardrail.

Steel beam guardrail that is not attached to a bridge and is 200 feet and greater in length, including steel beam guardrail transitioning to 3 cable guardrail (low tension), the delineators will be placed at a spacing of approximately 50 feet. Delineation will extend throughout the length of the guardrail system.

All costs for furnishing and installing single or back to back guardrail delineation on 3 cable guardrail and steel beam guardrail will be included in the contract unit price per each for "Guardrail Delineator".

All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

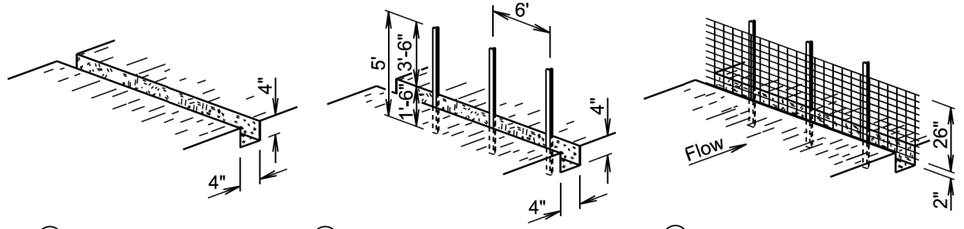
An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface area. Other end terminals (SoftStop) will require an adhesive object marker with a minimum size of 6" x 12". The reflective sheeting will be fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the adhesive object marker will be incidental to various contract items.

A type 2 object marker will be placed such that the edges of the type 2 object marker and the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, or the trailing end terminal that are nearest to the roadway will be installed in line with the same lateral offset from the traveled way at the location as noted on sheet 1 of this standard plate. The type 2 object marker (6" x 12") will have fluorescent yellow type XI sheeting in conformance with ASTM D4956. All costs for furnishing and installing the type 2 object marker including the steel post, 6" x 12" reflective panel, and hardware will be included in the contract unit price per each for "Type 2 Object Marker" for single-sided and "Type 2 Object Marker Back to Back" for back to back type 2 object markers.

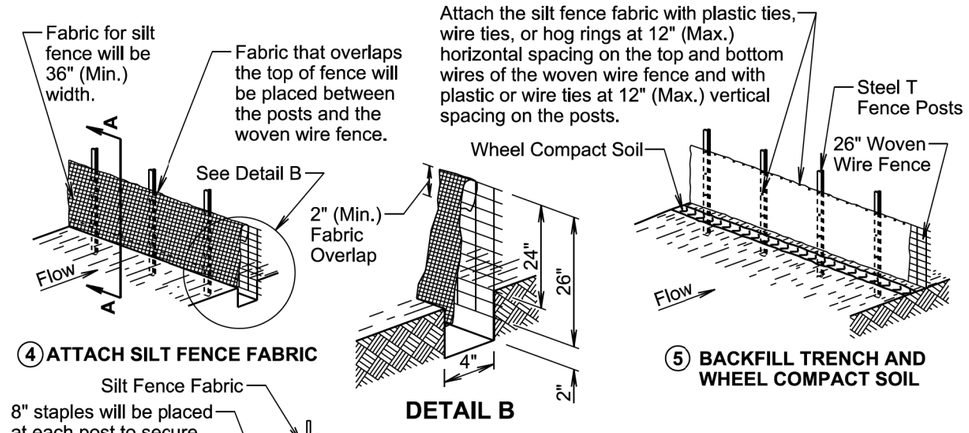
April 8, 2025

Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4

MANUAL LOW FLOW SILT FENCE INSTALLATION



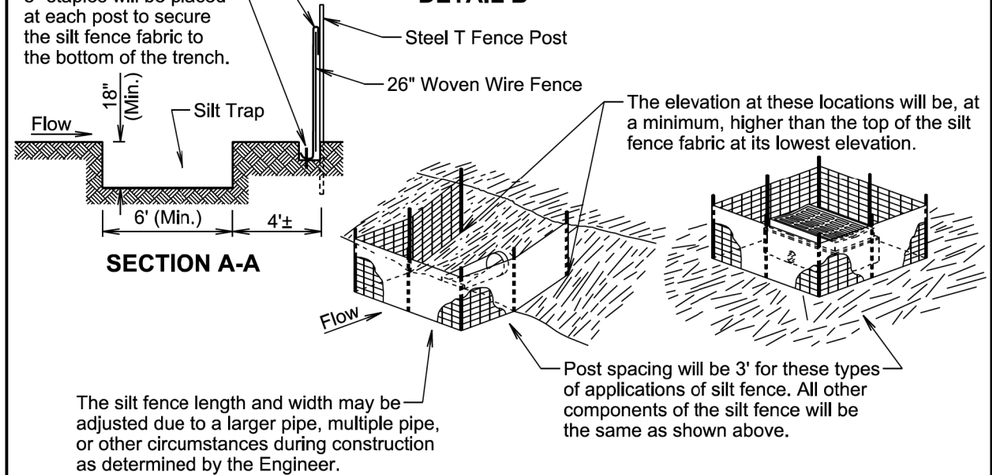
① EXCAVATE TRENCH ② DRIVE STEEL T FENCE POSTS ③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



④ ATTACH SILT FENCE FABRIC

DETAIL B

⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL



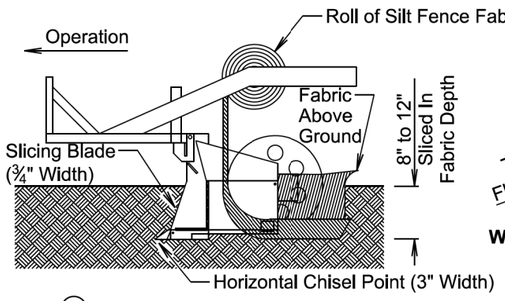
SECTION A-A

February 14, 2020

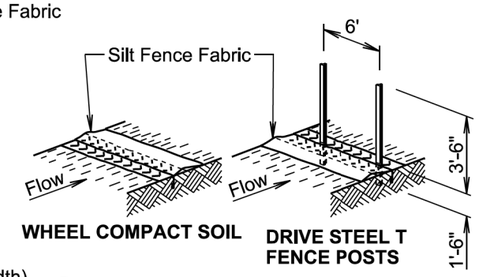
Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 1 of 2

PLOT SCALE - 1:200
PLOTTED FROM - TRAB10200
PLOT NAME - 10
FILE - ...\STDPLATEPAGESEED_09HV_MULTI SHEET.DGN

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

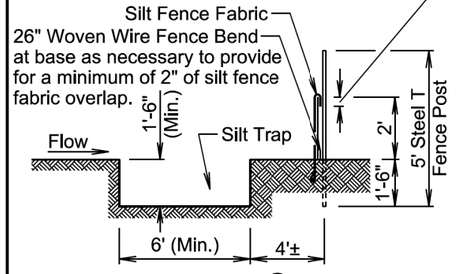


(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

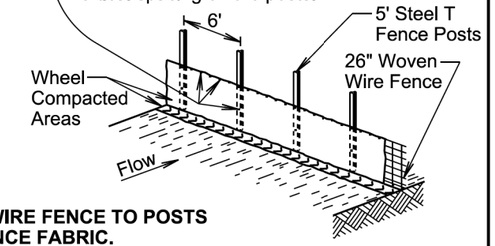


(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

Silt fence fabric will be overlapped a minimum of 2" at top of woven wire fence.

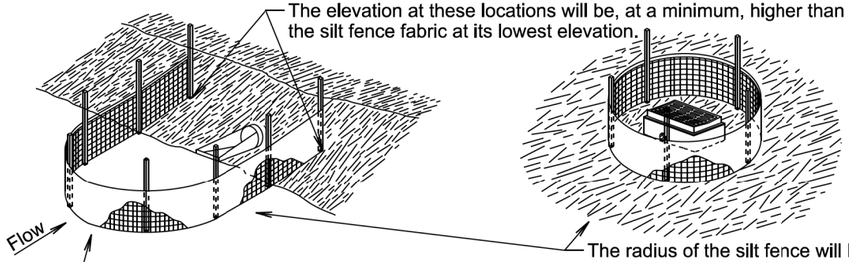


Attach the silt fence fabric with plastic ties, wire ties, or hog rings at 12" (Max.) horizontal spacing on the top and bottom wires of the woven wire fence and with plastic or wire ties at 12" (Max.) vertical spacing on the posts.



(3) ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.

The elevation at these locations will be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.



The silt fence length and width may be adjusted due to a larger pipe, multiple pipe, or other circumstances during construction as determined by the Engineer.

The radius of the silt fence will be the minimum capable by the slicing machine. The post spacing will be 3' for these types of applications of silt fence. All the other components of the silt fence will be the same as shown above.

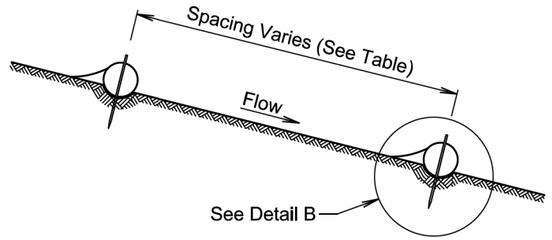
GENERAL NOTES:

A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".

If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

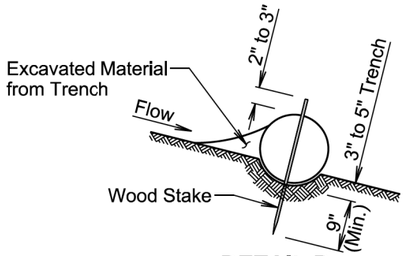
February 14, 2020

Published Date: 2026	SDDOT	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

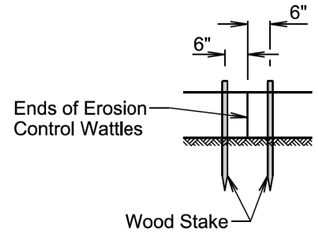


ELEVATION VIEW
(Cut or Fill Slope Installation)

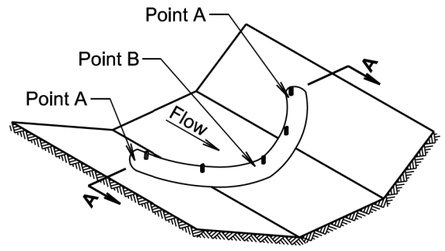
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



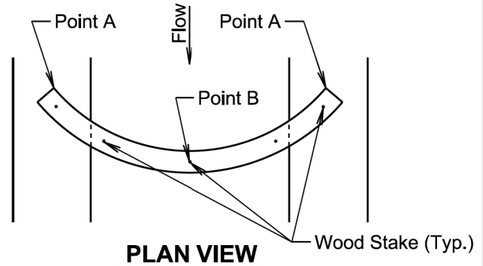
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

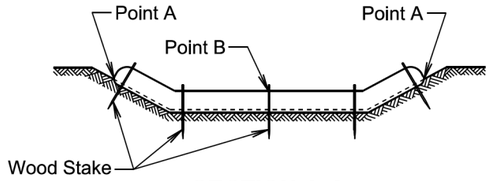


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles will be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor will dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes will be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes will be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles will be 3' to 4'.

Where installing running lengths of wattles, the Contractor will butt the second wattle tightly against the first and will not overlap the ends. See Detail C.

The Contractor and Engineer will inspect the erosion control wattles in accordance with the storm water permit. The Contractor will remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

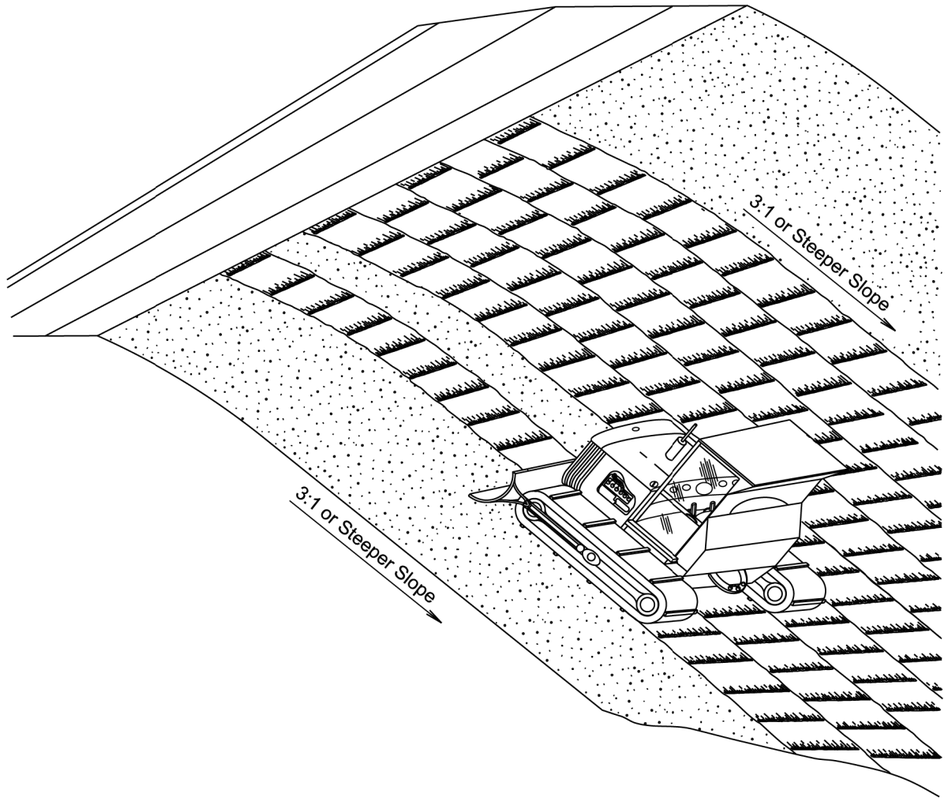
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

Published Date: 2026	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2



GENERAL NOTES:

Where practical, surface roughening will be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

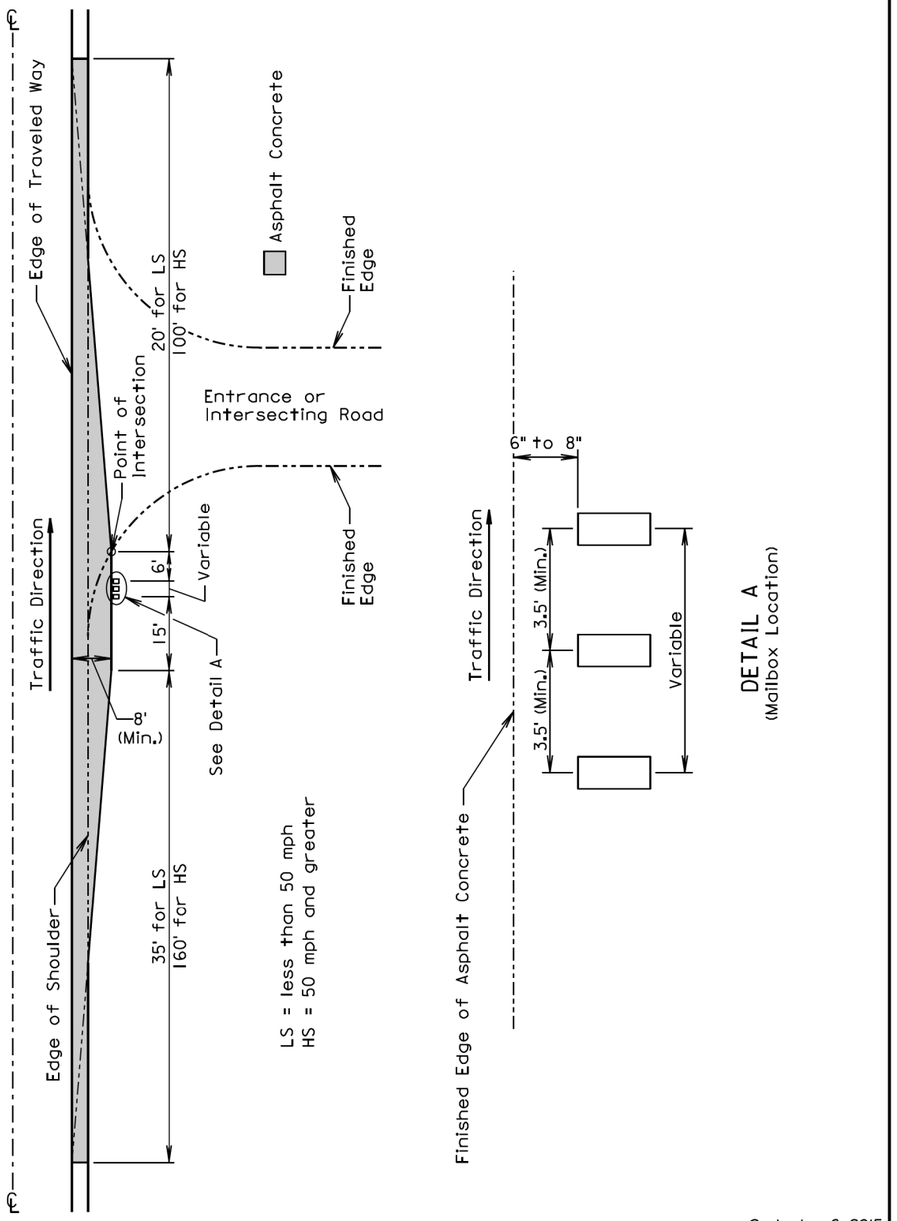
The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.

Measurement for surface roughening will be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials will be incidental to the contract unit price per acre for "Surface Roughening".

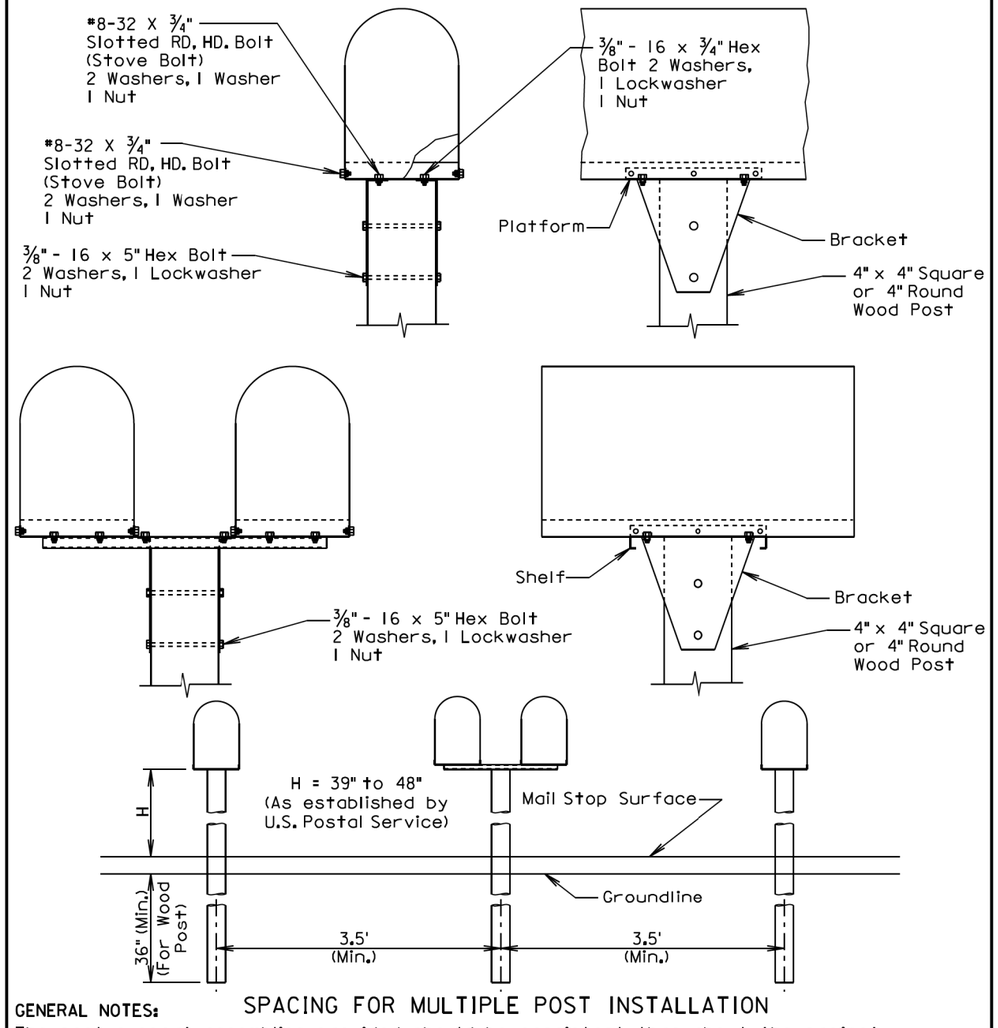
February 14, 2020

Published Date: 2026	SDDOT	SURFACE ROUGHENING	PLATE NUMBER 734.25
			Sheet 1 of 1



September 6, 2015

Published Date: 2026	SDDOT	MAILBOX TURNOUT	PLATE NUMBER 900.01
			Sheet 1 of 1



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

The post support assemblies provided should be consistant throughout the project.

Single and double mailboxes may be in any sequence.

Post support assemblies shall be one from the approved products list, a 4"x4" or 4" round wood post, or an alternate post support assembly that meets the test level 3 crash testing requirements of NCHRP 350 or MASH.

Alternate mailbox support assemblies shall be approved by the Engineer prior to installation. The Contractor shall provide the Engineer written certification that the mailbox support assembly has met the crash testing requirements and will be installed in accordance with the manufacturer's installation instructions.

September 6, 2013

Published Date: 2026	SDDOT	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
			Sheet 1 of 1

Published Date: 2026

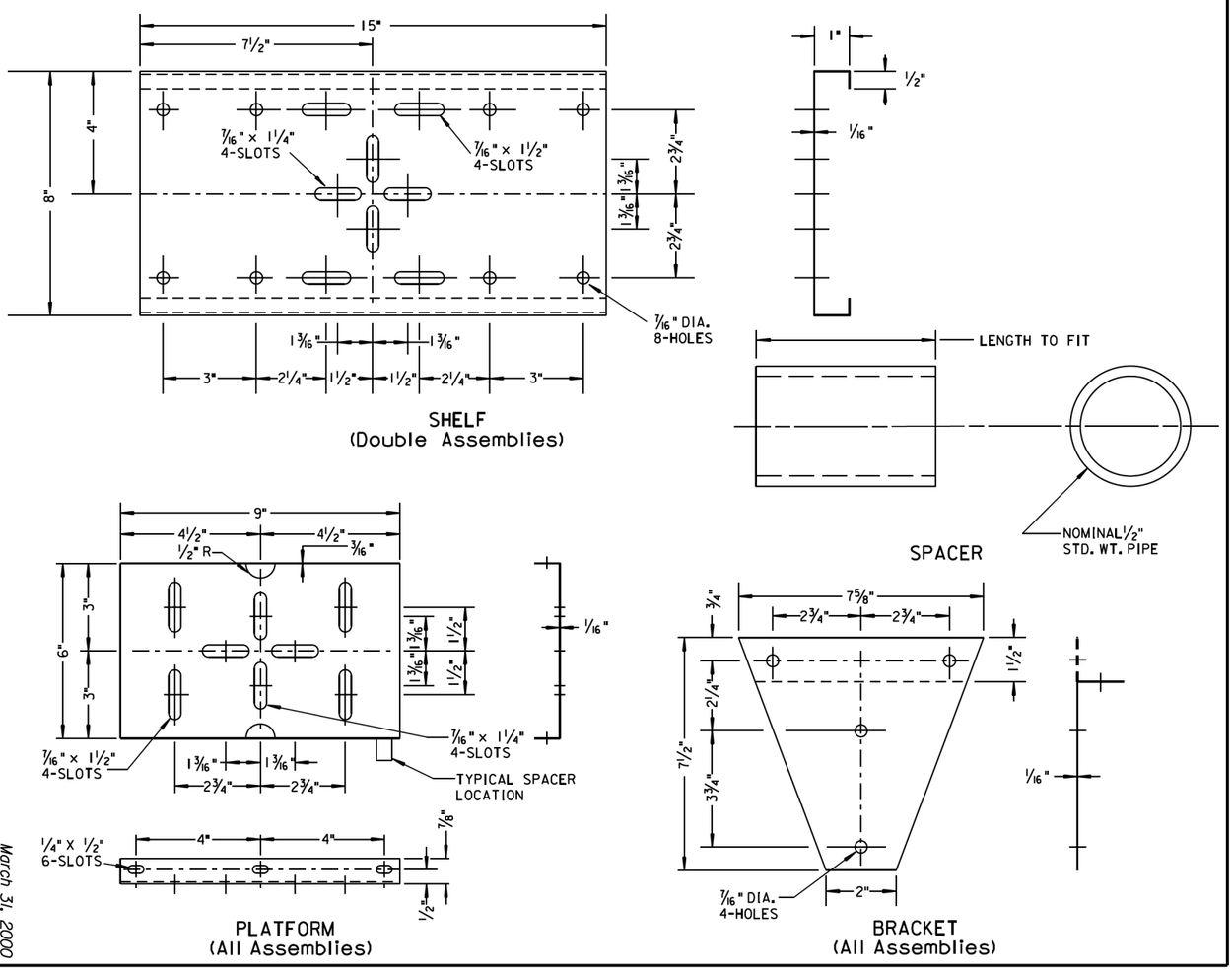
SDDOT

MAILBOX SUPPORT HARDWARE

PLATE NUMBER 900.03

March 31, 2000

Sheet 1 of 1



STATE OF SOUTH DAKOTA

PROJECT P 0027(16)198

SHEET NO. 70

TOTAL SHEETS 70

Plotting Date: 06/18/2025