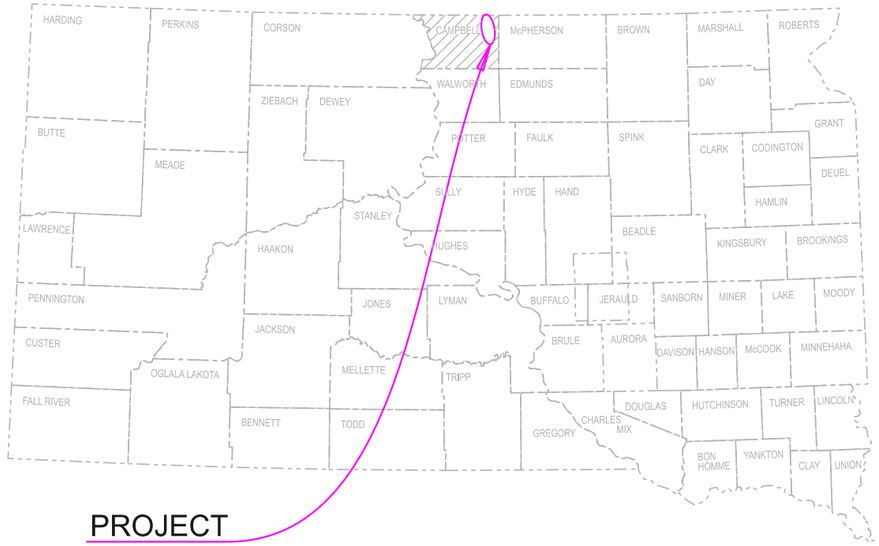

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT P 0271(06)189
S.D. HIGHWAY 271
CAMPBELL COUNTY

MILL, AC RESURFACING, PIPE WORK
PCN 06RG

SD DOT	PROJECT	SHEET
Plotting Date: 1/20/2026	P 0271(06)189	1 of 71

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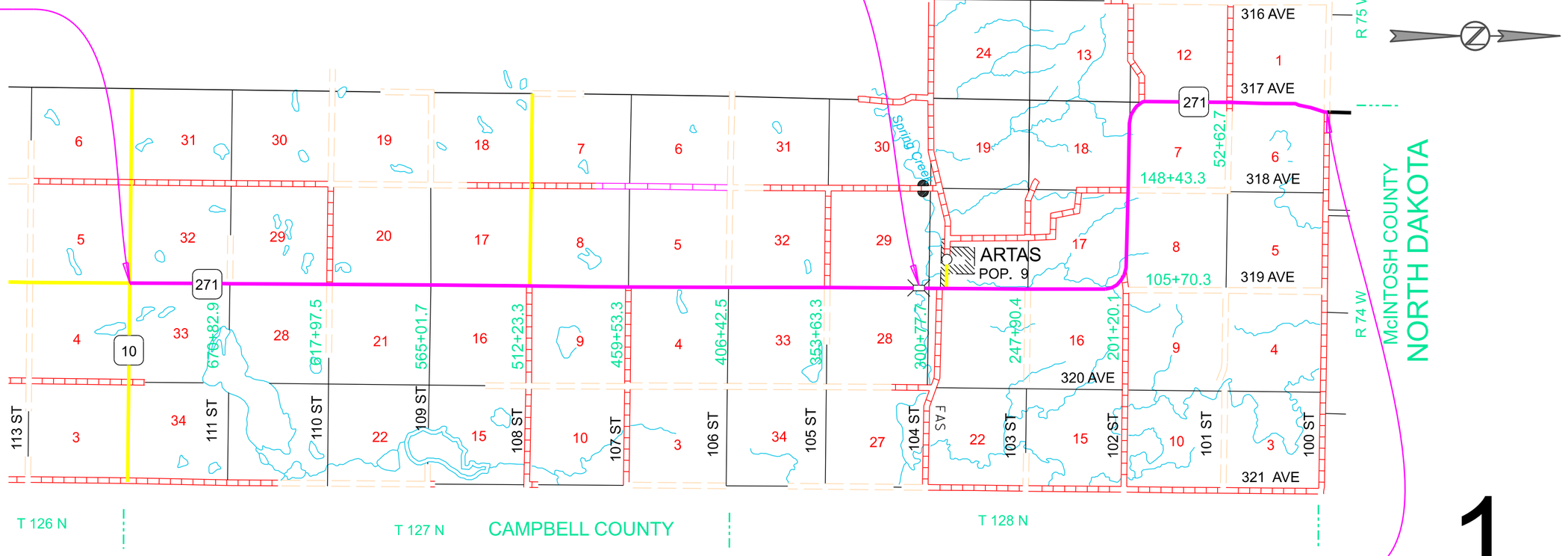
EXCEPTION
Str. 11-330-041
Sta. 303+36.1 to 304+85.9
Cont. Conc. Bridge
149.8 ft = 0.028 mi.
MRM 197.93 +0.000

END P 0271(06)189
Sta. 723+63.7
= Sta. 0+00 on 1670(1)
= Sta. 208+56.6 on F131(2)
= SE Corner of
Sec. 32 T 127 N R 74 W
MRM 189.91



BEGIN P 0271(06)189
Sta. 0+00.0 = Sta. 0+00 on S-1670(2)
= 511.5' East of the NW Cor.
Sec. 6 T 128 N R 74 W
MRM 203.70

DESIGN DESIGNATION

ADT (2024)	106
ADT (2044)	129
DHV	17
D	51%
T DHV	27.2%
T ADT	12.4
V	65 mph

STORM WATER PERMIT
(None Required)

Gross Length	72,363.7 Feet	13.705 Miles
Length of Exceptions	149.8 Feet	0.028 Miles
Net Length	72,213.9 Feet	13.677 Miles

1

March 4, 2026

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3210	Construction Staking	13.677	Mile
009E3280	Slope Staking	0.142	Mile
009E3301	Engineer Directed Surveying/Staking	40.0	Hour
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0500	Remove Pipe Culvert	62	Ft
110E1010	Remove Asphalt Concrete Pavement	1,481.0	SqYd
110E1690	Remove Sediment	3.3	CuYd
110E4290	Salvage Beam Guardrail	250.0	Ft
110E7150	Remove Sign for Reset	3	Each
110E7152	Remove Delineator for Reset	56	Each
110E7802	Remove Fence for Reset	100	Ft
120E0100	Unclassified Excavation, Digouts	683	CuYd
120E0600	Contractor Furnished Borrow Excavation	144	CuYd
120E4100	Reprofiling Ditch	1.0	Sta
120E6200	Water for Granular Material	56.0	MGal
210E1000	Shoulder Preparation	0.122	Mile
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	1,610.4	Ton
260E1030	Base Course, Salvaged	1,307.0	Ton
260E1050	Base Course, Salvaged Asphalt Mix	1,708.8	Ton
* 260E6000	Granular Material, Furnish	1,500.0	Ton
260E6000	Granular Material, Furnish	653.5	Ton
270E0020	Salvage and Stockpile Asphalt Mix Material	1,708.8	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	3,000.0	Ton
270E0220	Blend and Stockpile Granular Material	1,307.0	Ton
320E1200	Asphalt Concrete Composite	558.8	Ton
320E1800	Asphalt Concrete Blade Laid	2,025.6	Ton
320E7008	Grind 8" Rumble Strip or Stripe in Asphalt Concrete	27.3	Mile
320E7040	Grind 6" Transverse Rumble Strip in Asphalt Concrete	408.0	Ft
330E0100	SS-1h or CSS-1h Asphalt for Tack	143.2	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	50.0	Ton
330E2000	Sand for Flush Seal	741.2	Ton
332E0010	Cold Milling Asphalt Concrete	202,032	SqYd
450E4699	Tie Bolts for RCP	32	Each
450E5306	18" CMP Sloped End, Furnish	20	Each
450E5307	18" CMP Sloped End, Install	20	Each
450E5310	24" CMP Sloped End, Furnish	24	Each
450E5311	24" CMP Sloped End, Install	24	Each
450E5314	30" CMP Sloped End, Furnish	6	Each
450E5315	30" CMP Sloped End, Install	6	Each
450E5318	36" CMP Sloped End, Furnish	4	Each

ESTIMATE OF QUANTITIES (CONTINUED)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
450E5319	36" CMP Sloped End, Install	4	Each
450E5322	42" CMP Sloped End, Furnish	2	Each
450E5323	42" CMP Sloped End, Install	2	Each
450E8300	Culvert Joint Cleaning	286.0	Ft
450E8305	Repair Culvert Joint	286.0	Ft
450E8310	Chemical Grout Void Fill	80.0	Gal
450E8910	Cleanout for Culvert Treatment	30	Each
450E9518	18" Cured in Place Pipe	674	Ft
450E9524	24" Cured in Place Pipe	778	Ft
450E9526	30" Cured in Place Pipe	182	Ft
450E9528	36" Cured in Place Pipe	120	Ft
450E9530	42" Cured in Place Pipe	70	Ft
600E0300	Type III Field Laboratory	1	Each
620E0510	Type 1 Temporary Fence	100	Ft
620E1020	2 Post Panel	4	Each
620E4100	Reset Fence	100	Ft
630E0500	Type 1 MGS	100.0	Ft
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
632E2100	Reset Delineator	56	Each
632E2220	Guardrail Delineator	16	Each
632E3500	Reset Sign	3	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	618	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	206	Gal
634E0010	Flagging	420.0	Hour
634E0020	Pilot Car	200.0	Hour
634E0110	Traffic Control Signs	816.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	54.8	Mile
720E1010	PVC Coated Bank and Channel Protection Gabion	12.0	CuYd
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	1,500	Ft
734E0165	Remove and Reset Erosion Control Wattle	375	Ft
831E0110	Type B Drainage Fabric	38	SqYd
900E0010	Refurbish Single Mailbox	4	Each
900E1980	Storage Unit	1	Each

*** - Denotes Non-Participating**

ALTERNATE A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	1,349.4	Ton
320E1202	CLASS Q2R HOT MIXED ASPHALT CONCRETE	26,462.9	Ton
320E4000	Hydrated Lime	276.9	Ton

ALTERNATE B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	1,138.4	Ton
320E1202	CLASS Q2R HOT MIXED ASPHALT CONCRETE	27,073.2	Ton
320E4000	Hydrated Lime	290.9	Ton

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/3677d319/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 0.014 acre(s) of wetlands (includes temporary and permanent) becoming impacted.

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	642+00	N/A	N/A	0.001	0.001	0.002
2	570+58	N/A	N/A	0.001	0.001	0.002
3	512+70	N/A	N/A	0.001	0.001	0.002
4	446+31	N/A	N/A	0.001	0.001	0.002
5	432+14	N/A	N/A	0.001	0.001	0.002
6	361+80	N/A	N/A	0.001	0.001	0.002
7	88+39	N/A	N/A	0.001	0.001	0.002

Action Taken/Required:

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in the plans. 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 wetlands beyond the work limits and easements shown in the plans.

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 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

Spring Creek is classified as a warm water, marginal fishery with a total suspended solids standard of less than 150 mg/L 30-day average, less than 263 mg/L daily maximum.

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

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.

Action Taken/Required:

If construction dewatering is required and this project is not required to be covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the Contractor will obtain the General Permit for Temporary Discharge Activities from the DANR Surface Water Program, 605-773-3351.

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_TemporaryDischargeNOI2018Fillable.pdf

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_AddTemplnfoFillable.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 less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

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

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office 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.

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

COMMITMENT M: SECTION 4(F)/6(F) RESOURCES

COMMITMENT M1: SECTION 4(F) PROPERTY

Table of Adjacent Section 4(f) Property

Station	Section 4(f) Property
294+68 L/R	ESS 1 Historic Railroad Grade

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property:

The contractor will notify the Project Engineer if additional temporary or permanent easement is necessary to construct the project. Temporary occupancy and permanent incorporation of, and restriction of access to, the Section 4(f) property must be avoided unless there are no feasible or prudent alternatives to use of the land and the action includes all possible planning to minimize harm to the property. The Project Engineer will notify the Environmental Office as Section 4(f) use must be approved by the Federal Highway Administration.

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.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

The work required for this project includes, but is not limited to, the following items, listed in the general order of execution.

Pipe Work

1. Install Traffic Control Devices
2. Remove & Replace Topsoil (where necessary)
3. Remove and Reset delineators
4. Repair/Line Culverts/Install gabions
5. Install Erosion Control Measures on Disturbed Areas

Cold Milling & AC Resurfacing

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Work for widening for new guardrail
3. Cold Mill Asphalt Concrete
4. Unclassified Excavation for Digouts & Backfill Operations
5. Asphalt Blade Laid
6. Asphalt Concrete Paving Operations
7. Surfacing Placement Operations on Approaches/Intersecting Roads
8. Grind Rumble Strips
9. Permanent Signing
10. Place Flush Seal
11. Permanent Pavement Markings
12. Refurbish Mailboxes
13. Remove Project Temporary Signing
14. Complete Any Remaining Project Cleanup

The Contractor is expected to inspect the project site prior to bidding to evaluate the extent of work that will be required for construction.

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.

The Contractor will be aware that the existing utilities shown in the plans were surveyed prior to the design of this project and might have been relocated or replaced by a new utility facility prior to construction of this project, might be relocated or replaced by a new utility facility during the construction of this project, or might not require adjustment and may remain in its current location. The Contractor will contact each utility owner and confirm the status of all existing and new utility facilities. The utility contact information is provided elsewhere in the plans or bidding documents.

GENERAL TRAFFIC CONTROL

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

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

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

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

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

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

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.

REMOVE SIGN FOR RESET AND RESET SIGN

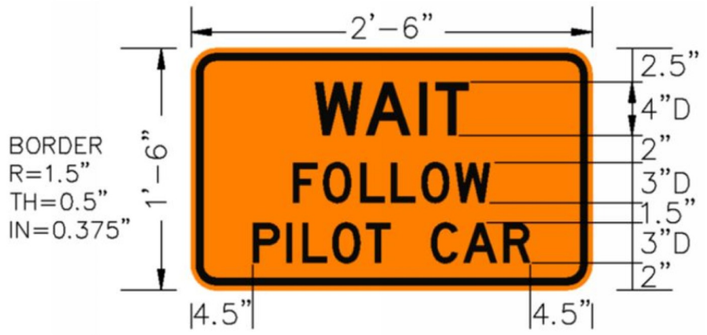
Signs that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the sign. Signs will be handled with care so that the existing signs, posts, and bases are not damaged during the relocation process. The Contractor will replace and pay for any reset signs damaged in their care.

All costs for removing and dismantling signs will be incidental to the contract unit price per each for "Remove Sign for Reset". All costs for resetting the existing signs will be incidental to the contract unit price per each for "Reset Sign". All quantities for Remove Sign for Reset and Reset Sign will be per assembly at the contract unit price per each.

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 3.6 miles.

It is estimated that 19 DO NOT PASS (R4-1) and 19 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 used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course or after application of the flush seal.

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

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

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

Quantities of Temporary Pavement Markings consist of:

One pass on top of the milled surface
One pass on top of the final lift of asphalt concrete
One pass prior to the flush seal, length as determined by the Engineer
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.

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 will be repaired by the Contractor to the satisfaction of the Engineer at no expense to the State. This includes the apparent routing of traffic onto the shoulders around the work zones.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, Base Course, Salvaged Asphalt Mix, Base Course, Salvaged and Asphalt Concrete spread rates and taking the weigh delivery tickets as the surfacing material arrives on the project and is placed onto the roadway.

The Contractor will compute the required spread rates for each typical surfacing section and create a spread chart prior to the start of material delivery and placement. The Engineer will review and check the Contractor's calculations and spread charts. The station to station spread will be written on each ticket as the surfacing material is delivered to the roadway.

At the end of each day's shift, the Contractor will verify the following:

- All tickets are present and accounted for,
- The quantity summary for each item is calculated,
- The amount of material wasted if any,
- Each day's ticket summary is marked with the corresponding 'computed by',
- The ticket summary is initialed and certified that the delivered and placed quantity is correct.

All daily tickets and the summary by item will be given to the Engineer no later than the following morning.

If the checker is not properly and accurately performing the required duties, the Contractor will correct the problem or replace the checker with an individual capable of performing the duties to the satisfaction of the Engineer. Failure to do so will result in suspension of the work.

The Department will perform depth checks. The Contractor will be responsible for placement of material to the correct depth unless otherwise directed by the Engineer. If the placed material is not within a tolerance of ±1/2 inch of the plan shown depth, the Contractor will correct the problem at no additional cost to the Department. Excess material above the tolerance will not be paid for. Achieving the correct depth may require picking up and moving material or other action as required by the Engineer. All costs for providing the Contractor furnished checker and performing all related duties will be incidental to the contract lump sum price for the "Checker". No allowances will be made to the contract lump sum price for Checker due to authorized quantity variations unless the quantities for the material being checked vary above or below the estimated quantities by more than 25 percent. Payment for the Checker will then be increased or decreased by the same proportion as the placed material quantity bears to the estimated material quantity.

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.

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".

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 24. 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. 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".

The final lift of asphalt paving will be completed within 7 days after the pavement has been cold milled. The blade laid asphalt will be considered the initial lift of asphalt. If any pavement repairs or digouts are required by the Engineer after that time frame they will be repaired by the Contractor at their own expense.

Cold milling asphalt is estimated to produce 10,614.0 tons of cold milled asphalt concrete material. An estimated 1708.8 tons of cold milled asphalt concrete material will be used on this project as Base Course, Salvaged Asphalt Mix and placed at locations identified by the Engineer to prevent a shoulder drop off following the placement of the asphalt concrete pavement. An estimated 653.5 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 5,050.7 tons for Alternate A or 5,214.1 tons for Alternate B 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. 1,500.0 tons of cold milled asphalt concrete material will be hauled and stockpiled according to the Blend, Haul, and Stockpile Granular Material Plan Note.

The remainder of the salvaged asphalt concrete material will be wasted as determined by the Engineer.

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.

PROTECTION OF BRIDGE JOINTS

The Contractor and Engineer will inspect all bridge expansion joints for preexisting damage prior to pavement removals. The Engineer will inspect all joints for work-related damage following removals and again following completion of final surfacing.

It may be necessary to use special methods and equipment to remove/place material as close as practical to structure appurtenances. Also, the Contractor will mask all expansion joints prior to any removal/placement of material near the joints. The joints will be protected throughout completion of the work. Once the masking has been removed any loose material contained within the joint will be cleaned from the joint. Any damage to the expansion joints along with any existing structure appurtenances will be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department. All costs related to this work will be incidental to various contract items.

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 Pierre Region and Mobridge Area offices.

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 75.6 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)

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 200 tons of Class Q2R Hot Mixed Asphalt Concrete, 2.0 tons of Hydrated Lime, and 9.2 tons of PG 58-34 Asphalt Binder per mile for Alt A, and 200 tons of Class Q2R Hot Mixed Asphalt Concrete, 2.0 tons of Hydrated Lime, and 7.4 tons of PG 58-34 Asphalt Binder per mile for Alt. B and 6.8 tons of SS-1h or CSS-1h Emulsified Asphalt for Tack for spot leveling, strengthening, and repair of the existing surface for the entire project.

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- Alternate A will conform to the requirements of Class Q2.

Virgin mineral aggregate for Class Q2R Hot Mixed Asphalt Concrete- Alternate B will consist of a minimum of 80 percent crushed limestone ledge rock and 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 – Alternate B:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q2R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q2 except as modified by the following:

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class Q2R	13.0

Pay Factor Attributes – Alternate B:

Air Voids:

	Air Voids (%):
Class Q2R	3.5 ± 1.0

All remaining requirements for Class Q2 will apply.

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.

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.

BLEND, HAUL, AND STOCKPILE GRANULAR MATERIAL

1,500.0 tons of salvaged asphalt concrete material produced from cold milling will be blended with 1500.0 tons of Granular Material, Furnish and will be hauled, blended and stockpiled in the NE ¼ of Section 6, Township 127 North, Range 76 West of the 5th P.M, Campbell County, South Dakota at the Herreid SDDOT Maintenance Shop. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

A computerized scale, portable platform scale, stationary commercial scale, stationary commercial plant, portable plant scale, or a belt scale along with a scale operator will be provided by the Contractor at the stockpile site to weigh the salvaged material prior to blending.

The salvaged asphalt concrete material will be crushed to meet the requirements of Section 884.2 D.3 prior to blending into the stockpile.

Salvaged asphalt concrete material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% 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 other costs for crushing, hauling, stockpiling, and blending salvaged asphalt concrete material and Granular Material, Furnish will be incidental to the contract unit price per ton for “Blend, Haul and Stockpile Granular Material”.

BLEND AND STOCKPILE GRANULAR MATERIAL

An estimated 653.5 tons (for informational purposes only) of salvaged asphalt concrete material produced from cold milling will be blended with 653.5 tons of Granular Material, Furnish and stockpiled at the Contractor’s furnished stockpile site to use as Base Course, Salvaged at locations identified in the plans.

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.

Salvaged asphalt mix material will be blended with Granular Material, Furnish at a rate of 50% salvaged asphalt mix material and 50% 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 blended material produced and stockpiled on this project and may be used without further gradation testing.

The Contractor will ensure the Base Course, Salvaged material contains no more than 50% salvaged asphalt mix material and at least 50% granular material (salvaged or virgin). Blended material will be to the satisfaction of the Engineer.

All other requirements for Base Course, Salvaged will apply.

BASE COURSE, SALVAGED ASPHALT MIX

Base Course, Salvaged Asphalt Mix estimated at a rate of 125 tons per mile per shoulder will be obtained from the salvaged asphalt concrete material produced from cold milling and placed at locations identified by the Engineer to prevent a shoulder drop off following the placement of the asphalt concrete pavement. The Base Course, Salvaged Asphalt Mix will be crushed to meet the requirements of Section 884.2 D.3 prior to placement.

Base Course, Salvaged Asphalt Mix will be compacted to the satisfaction of the Engineer.

At the time of compaction, the material placed on the shoulders will have a minimum of 4% moisture uniformly blended throughout the depth of material. The percent moisture may be adjusted by the Engineer. Included in the Estimate of Quantities is 1.5 MGal per mile of Water for Granular Material.

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 27.3 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.

TABLE OF 8” RUMBLE STRIPE

Station	to	Station	L/R	Quantity (Mile)
0+16	to	303+36	L	5.742
304+86	to	723+44	L	7.928
0+16	to	303+36	R	5.742
304+86	to	723+44	R	7.928
				27.3

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. It is estimated that 408.0 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.

REMOVE DELINEATORS FOR RESET AND RESET DELINEATORS

Delineators that are scheduled for reset will be dismantled and reassembled to the extent needed by the Contractor to properly reset the delineator. Delineators will be handled with care so that the existing signs and posts are not damaged during the relocation process. The Contractor will replace and pay for any reset delineators damaged in their care.

All costs for removing the delineators will be incidental to the contract unit price per each for "Remove Delineator for Reset". All costs for resetting the existing delineators will be incidental to the contract unit price per each for "Reset Delineator".

All quantities for Remove Delineators for Reset and Reset Delineators will be per assembly at the contract unit price per each.

PIPE NOTES

The Contractor is responsible for verifying the size of each pipe prior to ordering any pipe or pipe ends.

Refer to the "Table of Culvert Repair" for work pertaining to pipe culverts throughout the project.

All pipe culverts removed will become the property of the Contractor. They will be disposed of as per the Environmental Commitment Notes and will not be in view from the project upon completion of the project.

The excavation required to expose the existing pipe to allow for proper end section installment throughout the project will be incidental to the contract unit price for the corresponding end section installation contract item.

When necessary to remove a portion of the CMP culverts, they may be cut with a torch. If the pipe culvert is cut the damaged area will be painted with a galvanizing paint as approved by the Engineer. All costs associated with cutting and painting will be incidental to the contract unit price per foot for "Remove Pipe Culvert".

The gauge of the corrugated metal ends will be 16 gauge steel.

The Contractor is advised of the risk of lead exposure when cutting galvanized paint. The Contractor should plan their operations accordingly and inform employees of hazards of lead exposure.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal end sections will match the thickest gauge of corrugated metal pipe it is connected to.

CMP CULVERTS SAFETY ENDS

The cost of providing and installing the connection collar will be included in the unit price bid for culvert safety ends.

EMBANKMENT ADJACENT TO CULVERTS

The earth embankment adjacent to the existing pipe ends will be removed prior to removing the pipe end and upon completion of the pipe end installation, the earth embankment will be replaced adjacent to the culvert.

Cost for removing and replacing the earth embankment will be incidental to the corresponding CMP End Section contract items.

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.

Compaction of the Contractor Furnished Borrow Material for the guardrail embankment widening will be to satisfaction of the Engineer.

WATER FOR COMPACTION

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of "Contractor Furnished Borrow Excavation". The estimated quantity of Water for Embankment is 1.4 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Contractor Furnished Borrow Excavation".

REPROFILING DITCH

The Contractor will reprofile / shape the ditch around the culvert ends to restore drainage profile into/out of designated mainline pipe culvert locations. This work will require removing sedimentation along with hauling the removed material to mainline pipe culvert locations as fill for inslope cavities or as extra fill material needed around the installed end section(s) as determined by the Engineer. The quantities and locations of reprofiling may change depending on the degree of erosion / sedimentation that has taken place from time of the survey to the time of construction. Refer to "Table of Culvert Repair" for locations of reprofiling.

Field measurement of ditch reprofiling will not be made. All costs associated with clearing and reshaping of the existing ditch and around end sections, labor, excavation, hauling and placing material, equipment, and incidentals will be paid for at the contract unit price per station for "Reprofiling Ditch".

Any remaining material upon project completion will be the property of the Contractor for their disposal.

SALVAGE BEAM GUARDRAIL

Steel beam rail, end terminals, and hardware items will become the property of the State and will be removed, hauled, and neatly stacked at the Mobridge Area Office Maintenance Yard as approved by the Engineer. Posts and blocks will become the property of the Contractor and will be removed from the project limits.

Payment for removing, hauling, and stacking the guardrail items will be incidental to the contract unit price per foot for "Salvage Beam Guardrail".

TABLE OF GUARDRAIL

Location	Salvage Beam Guardrail (Ft)	Type 1 MGS (Ft)	Type 1 Retrofit Guardrail Transition (Each)	MGS MASH Flared End Terminal (Each)
Structure No. 11-330-041				
Begin Bridge Lt.	125	50	2	2
Begin Bridge Rt.	125	50	2	2
Totals:	250	100	4	4

REMOVE ASPHALT CONCRETE PAVEMENT

An estimated 455 Square Yards of in-place asphalt concrete surfacing will be removed from the existing highway in Section 2 according to the Guardrail Widening typical section. Care will be taken not to waste the in-place granular material. The remaining in-place granular material will be salvaged and incorporated with the added "Base Course" material for the shoulder widening.

Additional estimated quantities for "Remove Asphalt Concrete Pavement" for Digouts are included elsewhere in the Plans.

All costs for equipment, material and labor for sawcutting of the pavement prior to removal will be incidental to the contract unit price per square yard for "Remove Asphalt Concrete Pavement".

SHOULDER PREPARATION

Prior to placement of asphalt concrete on the shoulders, it is anticipated that the Contractor will be required to add approximately 243.0 tons of Base Course to the existing shoulders to meet the cross slope and inslope requirements shown in the typical sections. The Contractor will scarify, rework, shape, and blend the upper 4 inches of existing granular material with the Base Course. The blended granular material will be shaped and compacted with 4% moisture or as directed by the Engineer, to the typical sections, and in accordance with Section 260.3 D.

Included in the Estimate of Quantities are 3.6 MGals of Water for Granular Material for shaping and recompaction.

All costs associated with blending, scarifying, reworking, shaping, and compacting the existing granular material and Base Course will be incidental to the contract unit price per mile for "Shoulder Preparation".

REMOVE AND REPLACE TOPSOIL

Topsoil will also be salvaged and stockpiled prior to constructing the following: culvert extension/reset and guardrail widening. 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 depth of salvage will be approximately 4 inches in the disturbed areas. The estimated amount of topsoil to be removed and replaced is 422 CuYd.

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

EROSION CONTROL

The estimated area requiring erosion control is 0.76 acres. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for “Erosion Control”.

The limits of erosion control work will be determined by the Engineer during construction.

Fertilizing

The Contractor will apply an all-natural slow release fertilizer prior to seeding. 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 1,000 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 and temporary easements under cultivation.

Type C Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	16
Canada Wildrye	Mandan	2
	Total:	18

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 lump sum price for “Erosion Control”.

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

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 lump sum price for “Erosion Control”.

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

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment will be installed at locations noted in the “Table of Culvert Repairs”, Plans sheets 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.

Erosion control wattles will remain on the project to decompose.

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

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”

TABLE OF REFURBISH MAILBOX

Station	L/R	Single (Each)
309+60	R	1
480+10	R	1
579+79	R	1
632+85	R	1
	Totals:	4

Quantities for the Asphalt pads for the refurbished mailbox is included in the “Table of Approaches”

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.

TABLE OF FENCE QUANTITIES

			Right-of-Way Fence		Temporary Fence	Post Panels
			Remove Fence for Reset	Reset Fence	Type 1	2 Post Panel
Station	to Station	Side (L/R)	(Ft)	(Ft)	(Ft)	(Each)
303+28	303+50	L	25	25	25	1
303+28	303+50	R	25	25	25	1
304+55	304+80	L	25	25	25	1
304+55	304+80	R	25	25	25	1
		TOTALS:	100	100	100	4

TEMPORARY FENCE

The Contractor will verify the location of the temporary fence with the landowner prior to installation of the fence.

BRACE PANELS FOR ROW FENCE

The E-Z Brace or an approved equal may be utilized as an alternate horizontal brace in the brace panels if approved by the Engineer. The E-Z Brace will be attached to each wood post utilizing two 5/16” x 3” lag screws. Holes of appropriate diameter, based on wood post condition, will be drilled before placement of lag screws. The following is the contact regarding the E-Z Brace:

Charlie Mack
Macksteel E-Z Braces
415 20th Ave. SE.
Watertown, SD 57201
605-882-2177

REINFORCED CONCRETE PIPE JOINT REPAIR AND VOID GROUTING

The Contractor will provide a notarized statement, from the Manufacturer, that the products used for culvert joint repair meet the specified requirements, along with the Manufacturer's current product specification and installation instructions.

The Contractor will be an Approved Contractor of the Manufacturer of the specified product and will provide written certification from the Manufacturer attesting to their Approved Contractor status.

All product documentation and Contractor submittals must be submitted to the Engineer prior to or at the preconstruction conference. The Contractor must have the Engineer's approval prior to commencing any of this work.

The Contractor will follow the Manufacturer's installation instructions and specifications throughout the repair process.

Temperature of the specified products is critical from the point of pumping to the point of injection. All polyurethanes react faster at higher temperatures. Drum heaters and heated hoses are required when ambient or ground temperatures are below 70 degrees Fahrenheit. The optimum hose temperature will vary with the weather conditions and the particular job site conditions with the minimum hose temperature being 75 degrees Fahrenheit and the maximum hose temperature being 95 degrees Fahrenheit and the drum temperature not to exceed 90 degrees Fahrenheit.

The Contractor will provide worker and inspector safety protective gear in accordance with the manufacturer, including but not limited to chemical goggles, face shields, eye wash system and NBR gloves.

The Contractor will provide safe storage and handling of materials prior to delivery and at the project site. All material installation, handling and storage will be in accordance with the Manufacturer's recommendations.

The Contractor will visit the project to determine the extent of culvert joints to be cleaned and filled, prior to bidding.

Culvert Joint Cleaning and Repair Culvert Joint quantities will be based upon the following table showing circumference of joints based upon culvert size and shape.

Pipe Diameter	Round Pipe Circumference per Joint	Arch Pipe Circumference per Joint
(In)	(Ft)	(Ft)
36	9.4	
42	11.0	11.0
48	12.6	
54	14.1	
60	15.7	
66	17.3	
72	18.8	19.0
78	20.4	
84	22.0	

CULVERT JOINT CLEANING

This work will consist of cleaning of the culvert joints, washing the entire culvert and joints with a high-pressure washer, and if needed, wire brush cleaning of each joint to be repaired as directed by the Engineer. The entire culvert will be clean and dry and most notably the specified joints will be thoroughly cleaned to the satisfaction of the Engineer using a power washer with water pressure of at least 2500 psi. The culvert must be in a clean condition so that no deleterious material is trapped in the joints that are being repaired. The Contractor will dispose of all debris removed from the culverts during the cleaning operation as approved by the Engineer.

All costs for equipment, material and labor for the culvert joint cleaning work will be incidental to the contract unit price per foot for “Culvert Joint Cleaning”. Culvert Pipe Cleaning will be measured to the nearest 0.1 foot of joint which is cleaned for joint repair.

REPAIR CULVERT JOINT

The culvert joints will be repaired in accordance with the Chemical Grout Manufacturer’s directions to prevent future infiltration/exfiltration of soils and water and to keep the chemical grout from expanding back into the structure during injection.

The culvert joint will be repaired with a sealant comprised of water reactive hydrophilic polyurethane resin and dry oil free oakum. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure.

The Contractor will submit to the Engineer for approval a detailed procedure for the installation of the polyurethane grout.

The work will include, but is not limited to sealing each pipe joint with a hydrophilic polyurethane grout meeting the following specifications:

GEL FOAM II (Saturated Oakum Rope Joint Packing) as manufactured by Green Mountain International, LLC or equal.

ULTRA (Single Component Grout for Joint Injection) as manufactured by Green Mountain International, LLC or equal.

Excess grout and oakum will be trimmed from the interior face of the joint prior to applying the UV Protection (Gel Coat). The epoxy gel coat compound will be as recommended by the Manufacturer for both surface sealing and protecting the hydrophilic grout from UV exposure. The epoxy gel compound will be mixed and handled in accordance with the Manufacturer's recommendations and will meet the following requirements:

Epoxy gel sealant compounds manufactured by Green Mountain Grouts, LLC or equal.

All costs for all equipment, material and labor required to complete the work will be incidental to the contract unit price per foot for Repair Culvert Joint. Completion of the work includes initial saturated oakum rope packing of each joint, follow up injection of grout into the back side of each joint, trimming the excess grout and oakum from the interior face of the joint, application of the epoxy gel coat and site clean-up. Payment will be made per 0.1 foot of culvert joint repaired.

DUAL COMPONENT CHEMICAL GROUT FOR VOID FILLING

The external voids surrounding the culvert will be filled with an injected high expansion chemical grout compound. Holes will be strategically drilled as required and grout injected throughout the structure to effectively fill all voids that have developed outside of the structure due to the infiltration of external soils and materials into the culvert and “piping” (water running outside and under the structure due to separated joints). It is the Contractor's responsibility to locate reinforcing bars and conduit prior to drilling any grout holes. All grout will be injected under such pressure so as not to damage the existing drainage structure or roadway structure. All joints will be appropriately cleaned and sealed, with appropriate recommended cure time, prior to the injection of the void grouting. After completion of the void filling, all holes will be properly sealed.

The typical method consists of placing a layer of chemical grout behind or around the structure. The Contractor will submit for approval by the Engineer a detailed grouting plan showing the spacing, orientation and depth of the grout holes, as well as type of polyurethane grout to be used, range of gel times, equipment, mixing procedures, recommended injection pressure, technique for monitoring grout travel and any other pertinent information. The grouting plan should address the prevention of overfilling and prevention of damage to structures or roadway. The Contractor will submit this detailed procedure for the installation of the expansion grout to the Engineer for approval. The holes are drilled with a rotary percussion hammer drill using a sharp masonry bit with a minimum diameter of 3/8 inch to a maximum diameter of 5/8 inch. Care must be taken to prevent holes from causing damage to reinforcing bars or utility conduits. Drilled holes should be vacuumed and flushed. Use injection grout and methods as recommended by Manufacturer.

Injection can be monitored by either applicator's visual inspection or by pumping a specific amount of injection grout into each hole. The work will start at the inlet end of the pipe and proceed downstream to the outlet. Inject bottom row every other hole. When material appears at the adjacent port, discontinue injection at entry port and begin injection at the adjacent port. Continue injection process section by section from bottom of pipe to top of pipe in a continuous manner to next pipe section. Injection pressure will vary from 200 psi to 3000 psi depending on the width of the joint, thickness of the structure, and condition of the concrete.

The Contractor must supply the Engineer with three (3) prior job references of projects where they have successfully injected urethane resin for subgrade void filling applications, or soil stabilization.

In lieu of three (3) prior job references the Contractor will:

a) Obtain hands on training from the supplier on the installation procedures, and

b) Have the supplier on site to provide training to Contractor’s staff. Supplier will be present for at least two complete pipe culvert repairs and until the Engineer is satisfied that Contractor’s staff is competent in performing this work.

The chemical grout will be a dual component hydrophobic polyurethane grout compound which is non-flammable and non-toxic when cured.

The chemical grout mixture will have expansion properties listed in the data sheets of greater than eighteen (18) times its original volume and cure to rigid closed cell polyurethane foam. The grout will expand to fill any voids and must bond to the exterior surface of the structure. The chemical grout will be Mountain Grout U 4.0 dual component polyurethane grouts as manufactured by Green Mountain International LLC or equal.

All costs for equipment, material, and labor required to fill external voids surrounding the culvert will be incidental to the contract unit price per gallon for “Chemical Grout Void Fill”. Any overfilling of voids that results in damage to overlying pavement, highway user ride quality, or drainage structure integrity will be corrected and paid for by the Contractor. All corrections will be approved by the Engineer. Payment will be to the 0.1 gallon of chemical grout used, prior to expansion of the material.

A calibrated metering device will be used to measure the chemical grout and to assure proper mixing ratio of components.

After the grout cures, excess material will be removed flush with the pipe interior wall and the pipe left clean.

CURED IN PLACE PIPE (CIPP) LINER

See Special Provision for Glass Reinforced Plastic (GRP) Ultraviolet Light (UV) Cured in Place Pipe (CIPP) Liner.

CLEANOUT FOR CULVERT TREATMENT

Cleanouts of pipe culvert and cattle pass will be done in advance of the culvert lining and joint repair.

Material in existing pipe culvert will be cleaned out by water flushing or other approved methods.

Material removed from the pipe culvert will become property of the Contractor for disposal.

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

The pipe culvert will be cleaned to the satisfaction of the Engineer.

All costs to dewater, clean pipe, and dispose of removed materials will be incidental to the contract unit price per each for “Cleanout for Culvert Treatment”.

CULVERT LINING

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

The Contractor will submit to the Area Engineer a minimum of 2 week prior to the Preconstruction Meeting a detailed plan of how the pipe culvert cleaning and inspection will be staged. The plan will show how the Contractor is going to maintain traffic at each pipe culvert site, where equipment is going to be stored, the total length of the workspace if a lane of traffic needs to be closed to traffic, and the methods used to prevent material removed from the pipe culverts from entering the waterway. These plans will be approved by the Area Engineer prior to starting work on the pipe culvert cleaning and lining.

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

TABLE OF CONSTRUCTION STAKING

(See Special Provision for Contractor Staking)

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Construction Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Engineer Directed Surveying/Staking (Hour)
SD 271 Centerline	0+00	723+64	2	72,213	13.677	13.677		
Str.11-330-041 Guardrail Embankment	300+28	307+77		749	0.142		0.142	
					Totals	13.677	0.142	40.0

TABLE OF PROJECT STATIONING AND MATERIAL QUANTITIES

PROJECT STATIONING

P 0271(06)189 - PCN 06RG - SD 271 (MRM 189.91 + 0.000 to 203.70 + 0.000)

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	EXCEPTION LENGTHS	GROSS PROJECT LENGTHS
1	**Begin Project**	0+00.0	to	300+66.0		2 lane (no shoulders)	30066.0'	-	30066.0'
2		300+66.0		303+36.1		2 lane (4' shoulders)	270.1'		270.1'
Exception		303+36.1		304+85.9		Str. 11-330-041		149.8'	149.8'
2		304+85.9		310+96.0		2 lane (4' shoulders)	610.1'		610.1'
1		310+96.0		723+63.7	**End Project**	2 lane (no shoulders)	41267.7'		41267.7'
						TOTALS	72213.9' **13.677 Miles**	149.8' **0.028 Miles**	72363.7' **13.705 Miles**

MATERIAL QUANTITIES

Description	Contractor Furnished Borrow (CuYd)	Base Course (Ton)	Base Course, Salvaged Asphalt Mix (Ton)	Base Course, Salvaged (Ton)	Granular Material, Furnish (Ton)	*Granular Material, Furnish (Ton)	Asphalt Concrete Composite (Ton)	Asphalt Concrete Blade Laid (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Alternate A) (Ton)	PG 58-34 Asphalt Binder (Alternate A) (Ton)	Hydrated Lime (Alternate A) (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Alternate B) (Ton)	PG 58-34 Asphalt Binder (Alternate B) (Ton)	Hydrated Lime (Alternate B) (Ton)	SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
PCN 06RG								-	22,389.6	1,012.8	216.1	22,970.3	837.2	229.6	58.1	47.3	702.2
Asphalt Concrete Blade Laid								2,025.6	-	149.9	20.3		149.9	20.3	75.6	-	-
Table of Additional Quantities Totals =	144.0	1,610.4	1,708.8	1,307.0	653.5	1,500.0	558.8	-	4,073.3	186.7	40.5	4,102.9	151.3	41.0	9.5	2.7	39.0
Subtotal=	**144.0**	**1,610.4**	**1,708.8**	**1,307.0**	**653.5**	**1,500.0**	**558.8**	**2,025.6**	**26,462.9**	**1,349.4**	**276.9**	**27,073.2**	**1,138.4**	**290.9**	**143.2**	**50.0**	**741.2**

* Denotes Non-participating

RATES OF MATERIALS

SECTION 1 (per mile)

Cold Milling Asphalt Concrete is computed at the rate of 14,491 Square Yards, applied 24.7 feet wide.

Class Q2R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1252 Tons	1298 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	313 Tons	324 Tons
PG 58-34 Asphalt Binder	75 Tons	62 Tons
TOTAL MIX	**1642 Tons**	**1684 Tons**
Hydrated Lime	16 Tons	17 Tons
TOTAL MIX WITH HYDRATED LIME	**1658 Tons**	**1701 Tons**

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

Tack

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 5.6 tons applied 25.0 feet wide (Rate = 0.09 gallon per square yard), prior to application Asphalt Concrete Blade Laid.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 4.3 tons applied 29.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2.0” lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 3.5 tons applied 28.0 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52 tons applied 22.0 feet wide with 1’ centerline gap and 6” fog line gaps (Rate = 8 pounds per square yard).

SECTION 2 (per station)

Class Q2R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	23.71 Tons	24.58 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	5.93 Tons	6.14 Tons
PG 58-34 Asphalt Binder	1.42 Tons	1.17 Tons
TOTAL MIX	**31.06 Tons**	**31.89 Tons**
Hydrated Lime	0.30 Tons	0.32 Tons
TOTAL MIX WITH HYDRATED LIME	**31.36 Tons**	**32.21 Tons**

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

Tack

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 0.08 tons applied 29.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2.0” lift of Class Q2R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 0.07 tons applied 28.0 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 0.98 tons applied 22.0 feet wide with 1’ centerline gap and 6” fog line gaps (Rate = 8 pounds per square yard).

SUMMARY OF ASPHALT CONCRETE

Location	Alt. A Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	Alt. A Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)	Alt. B Class Q2R Hot Mixed Asphalt Concrete With Specified Density Compaction (Ton)	Alt. B Class Q2R Hot Mixed Asphalt Concrete Without Specified Density Compaction (Ton)
Section 1 & Section 2 - PCN 06RG				
24' Finished Roadway Width	21,768.0	-	22,332.6	-
2.0' Bevel	-	621.6	-	637.7
Totals =	21,768.0	621.6	22,332.6	637.7
Table of Additional Quantities Totals =	0.0	4,073.3	0.0	4,102.9
TOTALS =	**21,768.0**	**4,694.9**	**22,332.6**	**4,740.6**

TABLE OF ADDITIONAL QUANTITIES

Description	N.A.B.I. (FOR INFORMATION ONLY) Water for Embankment (MGal)	Water For Granular Material (MGal)	Remove Asphalt Concrete Pavement (SqYd)	Contractor Furnished Borrow (CuYd)	Shoulder Preparation (mile)	Cold Milling Asphalt Concrete (SqYd)	N.A.B.I. (FOR INFORMATION ONLY) Cold Milling Asphalt Concrete (Tons)	N.A.B.I. (FOR INFORMATION ONLY) Salvaged Asphalt Concrete for RAP (Alternate A) (Ton)	N.A.B.I. (FOR INFORMATION ONLY) Salvaged Asphalt Concrete for RAP (Alternate B) (Ton)	Unclassified Excavation, Digouts (CuYd)	Asphalt Concrete Composite (Ton)
PCN 06RG											
Transition (Begin and End of Project)						110	8.7				
Transition (Begin and End of Section 2)						220	5.8				
Transition (Begin and End of Bridge Approaches)						220	11.6				
All Asphalt											
3 Intersecting Road, Private, Commercial Entrances & Mailbox Turnouts (Refer to "Table of Approaches" sheets for locations)						379.5	29.9	12.3	12.7		
Asphalt Radius											
12 Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)		1				2502	197.0	84.4	87.5		
Asphalt Pad											
87 Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)		15				2474	194.8	102.9	105.6		
Section 2 (through exception)	1.4	4	468	144	0.122	440	34.7	53.9	55.8	8	220.8
Cold milling (for calculating Blend(, Haul) and Stockpile Granular Material & Salvaged Asphalt Mix Material)						195686	10131.5	4226.8	4375.3		
Blend(, Haul) & Stockpile Cold Milled Asphalt											
Shouldering		20									
Spot Leveling, Strengthening, & Repair								570.4	577.2		
Digouts		16	1013							675	338
PROJECT TOTALS =	**1.4**	**56**	**1481**	**144**	**0**	**202032**	**10614.0**	**5050.7**	**5214.1**	**683.0**	**558.8**

N.A.B.I. denotes Not a Bid Item
Tonnage shown in the tables above for Class Q2R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.
The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.
* Denotes Non-participating

TABLE OF ADDITIONAL QUANTITIES (continued)

Description	Base Course (Ton)	Base Course, Salvaged Asphalt Mix (Ton)	Base Course, Salvaged (Ton)	Salvage and Stockpile Asphalt Mix Material (Ton)	Granular Material, Furnish (Ton)	Blend and Stockpile Granular Material (Ton)	*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	Q2R Alternate. A			Q2R Alternate B			SS-1h or CSS-1h Asphalt For Tack (Ton)	SS-1h or CSS-1h Asphalt For Flush Seal (Ton)	Sand For Flush Seal (Ton)
									Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Class Q2R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)			
PCN 06RG																	
Transition (Begin and End of Project)																	
Transition (Begin and End of Section 2)																	
Transition (Begin and End of Bridge Approaches)																	
All Asphalt																	
3 Intersecting Road, Private, Commercial Entrances & Mailbox Turnouts (Refer to "Table of Approaches" sheets for locations)									64.9	3.0	0.6	66.7	2.4	0.7	0.2	0.1	2.3
Asphalt Radius																	
12 Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)			55.0						446.8	20.3	4.5	458.6	16.8	4.6	1.1	0.9	16.1
Asphalt Pad																	
87 Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)			1252.0						544.9	24.8	5.4	553.6	20.3	5.5	1.3	1.1	19.6
Section 2 (through exception)	260.0	20.8		20.8					282.6	12.9	2.7	289.9	10.7	2.9	0.08	0.6	1.0
Cold milling (for calculating Blend(, Haul) and Stockpile Granular Material & Salvaged Asphalt Mix Material)																	
Blend(, Haul) & Stockpile Cold Milled Asphalt					653.5	1307.0	1500.0	3000.0									
Shouldering		1688.0		1688.0													
Spot Leveling, Strengthening, & Repair									2734.1	125.7	27.3	2734.1	101.1	27.3	6.8	-	-
Digouts	1350.4																
PROJECT TOTALS =	**1610.4**	**1708.8**	**1307.0**	**1708.8**	**653.5**	**1307.0**	**1500.0**	**3000.0**	**4073.3**	**186.7**	**40.5**	**4102.9**	**151.3**	**41.0**	**9.5**	**2.7**	**39.0**

N.A.B.I. denotes Not a Bid Item
Tonnage shown in the tables above for Class Q2R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the plans.
The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.
* Denotes Non-participating

TABLE OF APPROACHES

SD DOT	PROJECT	SHEET
	P 0271(06)189	18 of 71

Plotting Date: 1/20/2026

Approach number	Station	Side	Type	None (N), Pad (P), Radius (R), or All (A)	1" Cold Milling Asphalt Concrete SqYd	3" Q2R Asphalt Concrete ALT. A Tons	3" Q2R Asphalt Concrete ALT. B Tons	Base Course, Salvaged Tons	Comment
1	0+00	R	Intersecting Road	P	30.6	5.1	5.2	10.0	100th Street (R=25')
2	0+00	L	Intersecting Road	R	241.7	40.2	41.3	5.0	100th Street/102th St. SE (R=50')
3	14+76	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
4	22+90	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
5	26+17	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
6	26+26	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
7	38+43	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
8	52+55	R	Intersecting Road	R	151.7	27.0	27.7	5.0	101th Street (R=35')
9	52+55	L	Intersecting Road	P	29.8	6.5	6.6	15.0	101th Street (R=25')
10	54+64	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
11	69+32	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
12	95+44	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
13	99+25	R	Intersecting Road	R	239.3	42.8	43.9	5.0	102nd Street (R=75 &50')
14	111+14	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
15	116+48	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
16	124+62	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
17	130+96	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
18	140+24	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
19	148+37	R	Intersecting Road	R	151.7	27.0	27.7	5.0	318th Avenue (R=35')
20	148+37	L	Intersecting Road	P	29.8	6.5	6.6	15.0	318th Avenue (R=25')
21	153+65	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
22	163+49	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
23	171+73	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
24	174+96	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
25	174+96	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
26	189+73	R	Intersecting Road	R	777.8	133.1	136.7	5.0	102nd Street (Section line) (R=40')
27	191+02	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
28	213+29	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
29	224+51	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
30	242+94	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
31	242+94	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
32	247+85	L	Intersecting Road	P	29.8	6.5	6.6	15.0	Section line (103nd St.)
33	254+92	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
34	268+99	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
35	274+04	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
36	291+21	A	Intersecting Road	R	151.7	27.0	27.7	-	Artas Road (R=35')
37	292+58	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
38	294+09	L	Intersecting Road	R	151.7	27.0	27.7	5.0	104th Street (R=35')
39	300+72	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
40	309+28	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
41	309+55	R	Mailbox	P	-	1.7	1.8	3.0	Mailbox pad (2.5' x 21' w/ 10' tapers)
42	309+41	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
43	314+66	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
44	320+81	P	Commercial	P	29.8	6.5	6.6	15.0	Cemetery
45	325+32	R	Commercial	R	29.8	14.7	15.1	5.0	Cemetery (R=25')
46	327+32	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
47	340+12	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
48	344+51	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
49	353+61	R	Intersecting Road	R	151.7	27.0	27.7	5.0	105th Street (R=35')
50	353+53	L	Intersecting Road	P	29.8	6.5	6.6	15.0	105th Street (R=25')
51	373+94	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
52	373+94	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
53	388+00	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
54	395+74	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
55	406+44	R	Intersecting Road	P	29.8	6.5	6.6	15.0	106th Street (Section line)
56	406+44	L	Intersecting Road	P	29.8	6.5	6.6	15.0	106th Street (Section line)
57	413+09	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
58	421+99	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
59	429+19	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
60	437+54	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
61	448+98	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
62	459+50	R	Intersecting Road	P	29.8	6.5	6.6	15.0	107th Street (Section line)
63	459+50	L	Intersecting Road	R	151.7	27.0	27.7	5.0	107th Street (R=35')
64	468+59	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
65	479+93	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
66	480+06	R	Mailbox	P	-	1.7	1.8	3.0	Mailbox pad (2.5' x 21' w/ 10' tapers)
67	479+88	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
68	486+15	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
69	497+48	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
70	497+48	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
71	512+15	R	Intersecting Road	A	151.7	27.0	27.7	-	108th Street (R=35') (Herried Road)
72	512+15	L	Intersecting Road	R	151.7	27.0	27.7	5.0	108th Street (R=35')
73	518+93	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
74	534+44	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
75	545+22	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
76	547+95	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
77	564+93	R	Intersecting Road	P	29.8	6.5	6.6	15.0	109th Street (Section line)
78	564+99	L	Intersecting Road	P	29.8	6.5	6.6	15.0	109th Street (Section line)
79	579+64	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
80	579+74	R	Mailbox	P		1.7	1.8	3.0	Mailbox pad (2.5' x 21' w/ 10' tapers)
81	579+64	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
82	591+63	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
83	591+54	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
84	594+06	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
85	617+92	R	Intersecting Road	R	151.7	27.0	27.7	5.0	110th Street (R=35')
86	617+92	L	Intersecting Road	P	29.8	6.5	6.6	15.0	110th Street (R=25')
87	631+02	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
88	631+17	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
89	632+79	R	Mailbox	P	-	1.7	1.8	3.0	Mailbox pad (2.5' x 21' w/ 10' tapers)
90	633+16	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
91	637+81	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
92	648+28	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
93	653+65	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
94	670+72	R	Intersecting Road	P	29.8	6.5	6.6	15.0	109th Street (Section line)
95	670+72	L	Intersecting Road	P	29.8	6.5	6.6	15.0	109th Street (Section line)
96	683+90	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
97	683+90	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
98	697+53	R	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
99	697+53	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
100	712+22	L	Field/Farm Ent.	P	29.8	6.5	6.6	15.0	
101	723+28	R	Intersecting Road (Radius)	A	111.1	18.5	19.0	-	SD 10 (R=50')
102	723+28	L	Intersecting Road (Radius)	A	116.7	19.4	20.0	-	SD 10 (R=50')
			Total		**5355.9**	**1056.6**	**1078.9**	**1307.0**	

TABLE OF EROSION AND SEDIMENT CONTROL QUANTITIES

Stationing	PROJECT TOTALS	709+58		670+52		642+00		626+00		604+54		570+58		559+82		542+85		512+70		488+30		459+20		446+31		432+14		415+46		406+30		Subtotal
MRM		190.00 + 0.231		190.00 + 0.97		191.00 + 0.531		191.00 + 0.834		192.00 + 0.234		192.00 + 0.878		193.00 + 0.088		193.00 + 0.41		193.00 + 0.981		194.00 + 0.435		194.00 + 0.988		195.00 + 0.236		195.00 + 0.505		195.00 + 0.821		196.00 + 0.006		
Structure Type		24" Round CMP		24" Round CMP		24" Round CMP		24" Round CMP		18" Round CMP		18" Round CMP		18" Round CMP		18" Round CMP		24" Round CMP		18" Round CMP		18" Round CMP		18" Round CMP		24" Round CMP		18" Round CMP		18" Round CMP		
P 0271(06)189 PCN 06RG Campbell County — Work		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 2' off end, install Sloped End section - Lt Trim 1' off end, install Sloped End section - Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP) Note: Plastic water line running through culvert		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		
Side		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	
Estimated Seeding Disturbed Area (SqFt)	34214	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	4500
Estimated Seeding Disturbed Area (SqYd)	3803.4	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	501
Estimated Seeding Disturbed Area (ac.)	0.761	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.09
Wattle (ft)	1500	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	600
Permanent Seed (lb) N.A.B.I.	14	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.5
Fertilizer (lb) N.A.B.I.	761	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	90
Fiber Mulching (lb) N.A.B.I.	2283	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	270

N.A.B.I.= Not a Bid Item

TABLE OF EROSION AND SEDIMENT CONTROL QUANTITIES

Stationing		PROJECT TOTALS	393+86		361+80		331+48		303+36.1 to 304+85.9		293+17		268+69		254+63		247+54		242+76		115+44		88+39		71+00		42+59		11+00				
MRM			196.00 + 0.211		196.00 + 0.851		197.00 + 0.426		197.93 0		198.00 + 0.168		198.00 + 0.604		198.00 + 0.869		199.00 + 0.009		199.00 + 0.1		201.00 + 0.51		202.00 + 0.018		202.00 + 0.348		202.00 + 0.886		203.00 + 0.491				
Structure Type			24" Round CMP		24" Round CMP		18" Round CMP		Bridge		24" Round CMP		30" Round CMP		30" Round CMP		24" Round CMP		36" Round CMP		30" Round CMP		24" Round CMP		36" Round CMP		42" Round CMP		24" Round CMP				
P 0271(06)189 PCN 06RG Campbell County	Work		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Guardrail widening		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section, Profile Ditch 50' each way - Lt & Rt Line pipe(CIPP)		Trim 2' off end, install Sloped End section - Lt Trim 2' off end, install Sloped End section, add gabion - Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section, add gabion - Lt Trim 1' off end, install Sloped End section - Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt Trim 2' off end, install Sloped End section - Rt Line pipe(CIPP)		Trim 2' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Additional	Subtotal
Side			Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt		
Estimated Seeding Disturbed Area (SqFt)		34214	150	150	150	150	150	150	10829	10985	150	150	150	150	150	150	2150	2150	150	150	150	150	150	150	150	150	150	150	150	150		29714
Estimated Seeding Disturbed Area (SqYd)		3803.4	16.7	16.7	16.7	16.7	16.7	16.7	1203.2	1220.6	16.7	16.7	16.7	16.7	16.7	16.7	238.9	238.9	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7		3302.4
Estimated Seeding Disturbed Area (ac.)		0.761	0.003	0.003	0.003	0.003	0.003	0.003	0.249	0.252	0.003	0.003	0.003	0.003	0.003	0.003	0.049	0.049	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003		0.671
Wattle (ft)		1500	20	20	20	20	20	20	60	140	20	20	20	20	20	20	60	60	20	20	20	20	20	20	20	20	20	20	20	20	100	900
Permanent Seed (lb) N.A.B.I.		14	0.05	0.05	0.05	0.05	0.05	0.05	4.48	4.54	0.05	0.05	0.05	0.05	0.05	0.05	0.88	0.88	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05		11.98
Fertilizer (lb) N.A.B.I.		761	3	3	3	3	3	3	249	252	3	3	3	3	3	3	49	49	3	3	3	3	3	3	3	3	3	3	3	3		671
Fiber Mulching (lb) N.A.B.I.		2283	9	9	9	9	9	9	747	756	9	9	9	9	9	9	147	147	9	9	9	9	9	9	9	9	9	9	9	9		2013

N.A.B.I.= Not a Bid Item

TABLE OF CULVERT REPAIRS

				709+58		688+52		670+52		652+00		642+00		634+64		632+50		626+00		604+54		585+20		570+58		559+82	
			MRM	190.00	+ 0.231	190.00	+ 0.629	190.00	+ 0.97	191.00	+ 0.341	191.00	+ 0.531	191.00	+ 0.67	191.00	+ 0.71	191.00	+ 0.834	192.00	+ 0.234	192.00	+ 0.601	192.00	+ 0.878	193.00	+ 0.088
			Existing Structure Type	24" Round CMP		30" Round CMP		24" Round CMP		18" Round CMP		24" Round CMP		24" Round CMP		48" Cattle Pass		24" Round CMP		18" Round CMP		18" Round CMP		18" Round CMP		18" Round CMP	
			Existing End Treatment	None		None		None		None		None		None		Flared		None		None		None		None		None	
P 0271(06)189 PCN 06RG Campbell County			PROJECT TOTALS	Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		No Work this project		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		No Work this project		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		No Work this project		Joint Repair		Remove and Reset Delineators - Lt and Rt Trim 2' off end, install Sloped End section - Lt Trim 1' off end, install Sloped End section - Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		56		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP) Note: Plastic water line running through culvert		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)	
Bid Item	Bid Item Description	Unit		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt.	Rt.	Lt.	Rt.
110E7152	Remove Delineator for Reset	(Each)	56	1	1			1	1			1	1					1	1	1	1			1	1	1	1
110E0500	Remove Pipe Culvert	(Ft)	62	1	1			1	1			1	1					2	1	1	1			1	1	1	1
120E4100	Reprofile Ditch	(Sta)	1																								
450E5306	18" CMP Sloped End, Furnish	(Each)	20																	1	1			1	1	1	1
450E5307	18" CMP Sloped End, Install	(Each)	20																	1	1			1	1	1	1
450E5310	24" CMP Sloped End, Furnish	(Each)	24	1	1			1	1			1	1					1	1								
450E5311	24" CMP Sloped End, Install	(Each)	24	1	1			1	1			1	1					1	1								
450E5314	30" CMP Sloped End, Furnish	(Each)	6																								
450E5315	30" CMP Sloped End, Install	(Each)	6																								
450E5318	36" CMP Sloped End, Furnish	(Each)	4																								
450E5319	36" CMP Sloped End, Install	(Each)	4																								
450E5322	42" CMP Sloped End, Furnish	(Each)	2																								
450E5323	42" CMP Sloped End, Install	(Each)	2																								
450E4699	Tie Bolts for RCP	(Each)	32													16											
450E8300	Culvert Joint Cleaning	(Ft)	286													143											
450E8305	Repair Culvert Joint	(Ft)	286													143											
450E8310	Chemical Grout Void Fill	(Gal)	80													40											
450E8910	Cleanout for Culvert Treatment	(Each)	30	1				1				1				1		1		1				1		1	
450E9518	18' Cured in Place Pipe	(Ft)	674																	70				70		68	
450E9524	24' Cured in Place Pipe	(Ft)	778	60				60				64						62									
450E9526	30' Cured in Place Pipe	(Ft)	182																								
450E9528	36' Cured in Place Pipe	(Ft)	120																								
450E9530	42' Cured in Place Pipe	(Ft)	70																								
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	12																								
632E2100	Reset Delineator	(Each)	56	1	1			1	1			1	1					1	1	1	1			1	1	1	1
831E0110	Type B Drainage Fabric	(SqYd)	38																								

TABLE OF CULVERT REPAIRS

Stationing				549+60		542+85		512+70		488+30		474+95		459+20		446+31		432+14		415+46		406+30		393+86		361+80	
MRM				193.00	+ 0.281	193.00	+ 0.41	193.00	+ 0.981	194.00	+ 0.435	194.00	+ 0.688	194.00	+ 0.988	195.00	+ 0.236	195.00	+ 0.505	195.00	+ 0.821	196.00	+ 0.006	196.00	+ 0.211	196.00	+ 0.851
Existing Structure Type				18" Round CMP		18" Round CMP		24" Round CMP		18" Round CMP		24" Round CMP		18" Round CMP		18" Round CMP		24" Round CMP		18" Round CMP		18" Round CMP		24" Round CMP		24" Round CMP	
Existing End Treatment				None		None		None		None		None		None		None		None		None		None		None	
P 0271(06)189 PCN 06RG Campbell County			PROJECT TOTALS	No Work this project		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		No Work this project		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)	
Bid Item	**Bid Item Description**	**Unit**		**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt.**	**Rt.**	**Lt.**	**Rt.**
110E7152	Remove Delineator for Reset	(Each)	**56**			1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1
110E0500	Remove Pipe Culvert	(Ft)	**62**			1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1
120E4100	Reprofile Ditch	(Sta)	**1**																								
450E5306	18" CMP Sloped End, Furnish	(Each)	**20**			1	1			1	1			1	1	1	1			1	1	1	1				
450E5307	18" CMP Sloped End, Install	(Each)	**20**			1	1			1	1			1	1	1	1			1	1	1	1				
450E5310	24" CMP Sloped End, Furnish	(Each)	**24**					1	1									1	1					1	1	1	1
450E5311	24" CMP Sloped End, Install	(Each)	**24**					1	1									1	1					1	1	1	1
450E5314	30" CMP Sloped End, Furnish	(Each)	**6**																								
450E5315	30" CMP Sloped End, Install	(Each)	**6**																								
450E5318	36" CMP Sloped End, Furnish	(Each)	**4**																								
450E5319	36" CMP Sloped End, Install	(Each)	**4**																								
450E5322	42" CMP Sloped End, Furnish	(Each)	**2**																								
450E5323	42" CMP Sloped End, Install	(Each)	**2**																								
450E4699	Tie Bolts for RCP	(Each)	**32**																								
450E8300	Culvert Joint Cleaning	(Ft)	**286**																								
450E8305	Repair Culvert Joint	(Ft)	**286**																								
450E8310	Chemical Grout Void Fill	(Gal)	**80**																								
450E8910	Cleanout for Culvert Treatment	(Each)	**30**			1		1		1				1		1		1		1		1		1		1	
450E9518	18' Cured in Place Pipe	(Ft)	**674**			64				80				68		68				64		64					
450E9524	24' Cured in Place Pipe	(Ft)	**778**					78										72						60		64	
450E9526	30' Cured in Place Pipe	(Ft)	**182**																								
450E9528	36' Cured in Place Pipe	(Ft)	**120**																								
450E9530	42' Cured in Place Pipe	(Ft)	**70**																								
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**12**																								
632E2100	Reset Delineator	(Each)	**56**			1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1
831E0110	Type B Drainage Fabric	(SqYd)	**38**																								

TABLE OF CULVERT REPAIRS

Stationing				331+48		293+17		268+69		254+63		247+54		242+76		217+48		203+63		182+38		165+13		156+50		153+40	
MRM				197.00 + 0.426		198.00 + 0.168		198.00 + 0.604		198.00 + 0.869		199.00 + 0.009		199.00 + 0.1		199.00 + 0.576		199.00 + 0.841		200.00 + 0.245		200.00 + 0.572		200.00 + 0.735		200.00 + 0.794	
Existing Structure Type				18" Round CMP		24" Round CMP		30" Round CMP		30" Round CMP		24" Round CMP		36" Round CMP		48" Round CMP		60" Round CMP		42" Round CMP		18" Round CMP		24" Round CMP		30" Round CMP	
Existing End Treatment				None		None		None		None		None		None		None		None		None		None		None	
P 0271(06)189 PCN 06RG Campbell County			PROJECT TOTALS	Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section, Profile Ditch 50' each way - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators Lt and Rt Trim 2' off end, install Sloped End section - Lt Trim 2' off end, install Sloped End section, add gabion - Rt Line pipe(CIPP)		No Work this project		No Work this project		No Work this project		No Work this project		No Work this project	
Bid Item	**Bid Item Description**	**Unit**		**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt.**	**Rt.**	**Lt.**	**Rt.**
110E7152	Remove Delineator for Reset	(Each)	**56**	1	1	1	1	1	1	1	1	1	1	1	1												
110E0500	Remove Pipe Culvert	(Ft)	**62**	1	1	1	1	1	1	1	1	1	1	2	2												
120E4100	Reprofile Ditch	(Sta)	**1**									0.5	0.5														
450E5306	18" CMP Sloped End, Furnish	(Each)	**20**	1	1																						
450E5307	18" CMP Sloped End, Install	(Each)	**20**	1	1																						
450E5310	24" CMP Sloped End, Furnish	(Each)	**24**			1	1					1	1														
450E5311	24" CMP Sloped End, Install	(Each)	**24**			1	1					1	1														
450E5314	30" CMP Sloped End, Furnish	(Each)	**6**					1	1	1	1																
450E5315	30" CMP Sloped End, Install	(Each)	**6**					1	1	1	1																
450E5318	36" CMP Sloped End, Furnish	(Each)	**4**											1	1												
450E5319	36" CMP Sloped End, Install	(Each)	**4**											1	1												
450E5322	42" CMP Sloped End, Furnish	(Each)	**2**																								
450E5323	42" CMP Sloped End, Install	(Each)	**2**																								
450E4699	Tie Bolts for RCP	(Each)	**32**																								
450E8300	Culvert Joint Cleaning	(Ft)	**286**																								
450E8305	Repair Culvert Joint	(Ft)	**286**																								
450E8310	Chemical Grout Void Fill	(Gal)	**80**																								
450E8910	Cleanout for Culvert Treatment	(Each)	**30**	1		1		1		1		1		1													
450E9518	18' Cured in Place Pipe	(Ft)	**674**	58																							
450E9524	24' Cured in Place Pipe	(Ft)	**778**			68						68															
450E9526	30' Cured in Place Pipe	(Ft)	**182**					58		58																	
450E9528	36' Cured in Place Pipe	(Ft)	**120**											60													
450E9530	42' Cured in Place Pipe	(Ft)	**70**																								
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**12**												6.0												
632E2100	Reset Delineator	(Each)	**56**	1	1	1	1	1	1	1	1	1	1	1	1												
831E0110	Type B Drainage Fabric	(SqYd)	**38**												19												

TABLE OF CULVERT REPAIRS

Stationing				119+50		118+00		115+44		88+39		71+00		42+59		11+00									
MRM				201.00 + 0.437		201.00 + 0.46		201.00 + 0.51		202.00 + 0.018		202.00 + 0.348		202.00 + 0.886		203.00 + 0.491									
Existing Structure Type				48" Cattle Pass		30" Round CMP		30" Round CMP		24" Round CMP		36" Round CMP		42" Round CMP		24" Round CMP									
Existing End Treatment				Flared		None		None		None		None		None		None									
P 0271(06)189 PCN 06RG Campbell County			PROJECT TOTALS	Joint Repair		No Work this project		Remove and Reset Delineators Lt and Rt Trim 1' off end, install Sloped End section, add gabion - Lt Trim 1' off end, install Sloped End section - Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators Lt and Rt Trim 1' off end, install Sloped End section - Lt Trim 2' off end, install Sloped End section - Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 2' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)		Remove and Reset Delineators, trim 1' off end, install Sloped End section - Lt & Rt Line pipe(CIPP)									
Bid Item	**Bid Item Description**	**Unit**		**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**									
110E7152	Remove Delineator for Reset	(Each)	**56**					1	1	1	1	1	1	1	1	1	1								
110E0500	Remove Pipe Culvert	(Ft)	**62**					1	1	1	1	1	2	2	2	1	1								
120E4100	Reprofile Ditch	(Sta)	**1**																						
450E5306	18" CMP Sloped End, Furnish	(Each)	**20**																						
450E5307	18" CMP Sloped End, Install	(Each)	**20**																						
450E5310	24" CMP Sloped End, Furnish	(Each)	**24**							1	1					1	1								
450E5311	24" CMP Sloped End, Install	(Each)	**24**							1	1					1	1								
450E5314	30" CMP Sloped End, Furnish	(Each)	**6**					1	1																
450E5315	30" CMP Sloped End, Install	(Each)	**6**					1	1																
450E5318	36" CMP Sloped End, Furnish	(Each)	**4**									1	1												
450E5319	36" CMP Sloped End, Install	(Each)	**4**									1	1												
450E5322	42" CMP Sloped End, Furnish	(Each)	**2**											1	1										
450E5323	42" CMP Sloped End, Install	(Each)	**2**											1	1										
450E4699	Tie Bolts for RCP	(Each)	**32**	16																					
450E8300	Culvert Joint Cleaning	(Ft)	**286**	143																					
450E8305	Repair Culvert Joint	(Ft)	**286**	143																					
450E8310	Chemical Grout Void Fill	(Gal)	**80**	40																					
450E8910	Cleanout for Culvert Treatment	(Each)	**30**	1				1		1		1		1		1									
450E9518	18' Cured in Place Pipe	(Ft)	**674**																						
450E9524	24' Cured in Place Pipe	(Ft)	**778**							60						62									
450E9526	30' Cured in Place Pipe	(Ft)	**182**					66																	
450E9528	36' Cured in Place Pipe	(Ft)	**120**									60													
450E9530	42' Cured in Place Pipe	(Ft)	**70**											70											
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**12**					6.0																	
632E2100	Reset Delineator	(Each)	**56**					1	1	1	1	1	1	1	1	1	1								
831E0110	Type B Drainage Fabric	(SqYd)	**38**					19																	

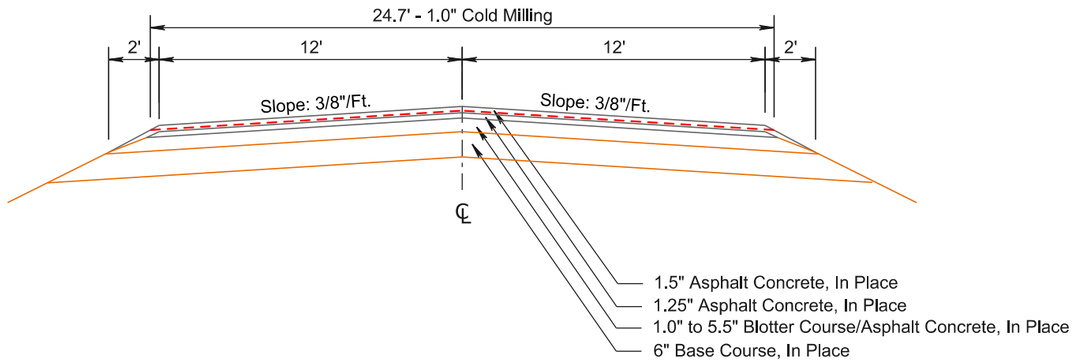
TYPICAL SECTIONS

SECTION 1

SD 271

Sta. 0+00 to Sta. 300+66
Sta. 310+96 to Sta. 723+63.7

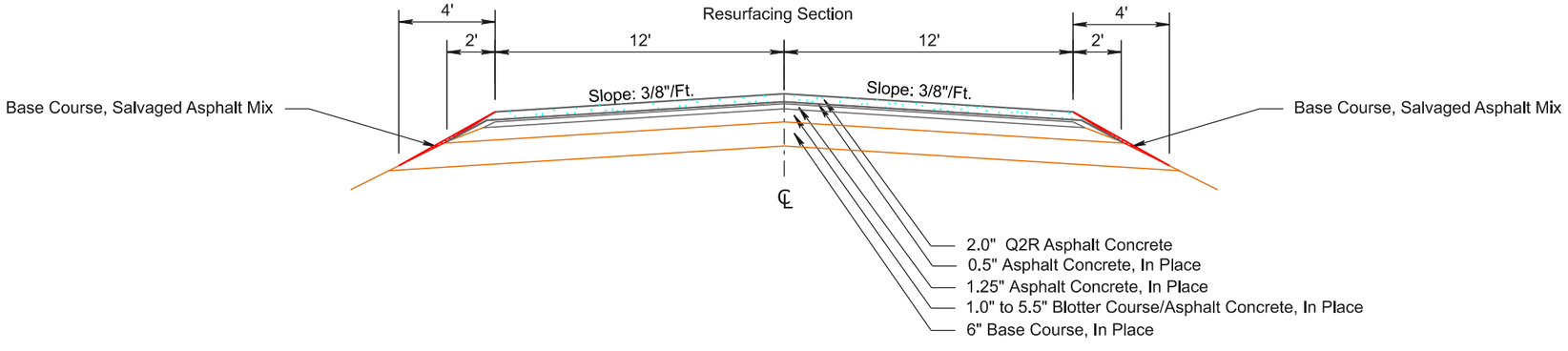
In Place & Cold Milling Section



SD 271

Sta. 0+00 to Sta. 300+66
Sta. 310+96 to Sta. 723+63.7

Resurfacing Section



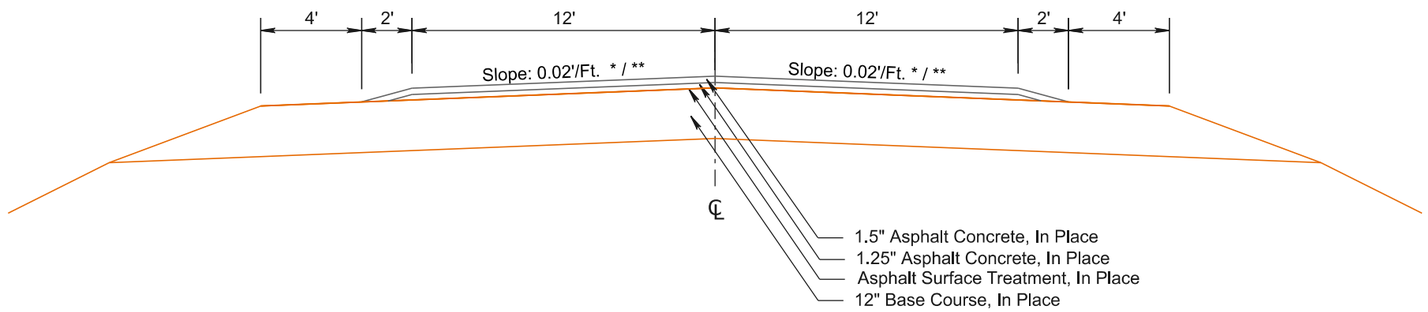
TYPICAL SECTIONS

SECTION 2

SD 271

Sta. 300+66 to Sta. 310+96 (Through Exception)

In Place



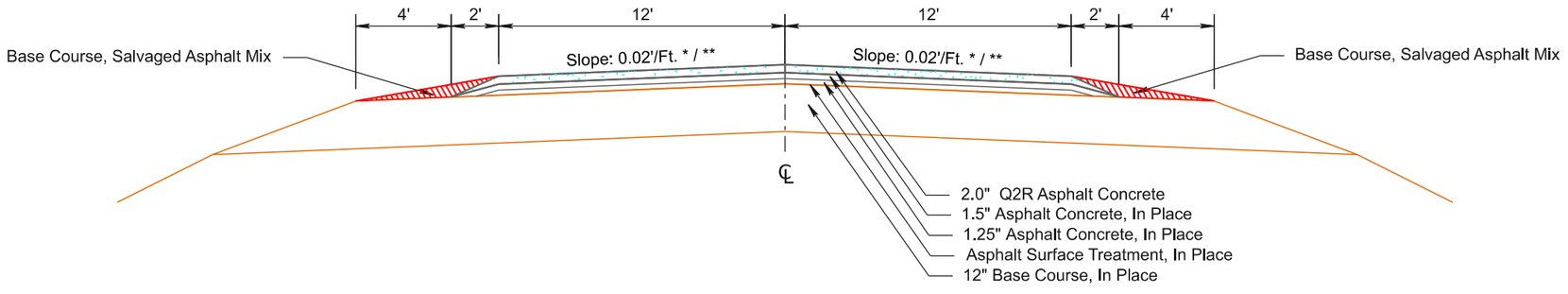
* Transtion Cross Slope from 3/8"/Ft. to 2.0%
Station 300+66 to 300+96

** Transtion Cross Slope from 2.0% to 3/8"/Ft.
Station 310+66 to 310+96

SD 271

Sta. 300+66 to Sta. 310+96 (Through Exception)

Resurfacing Section



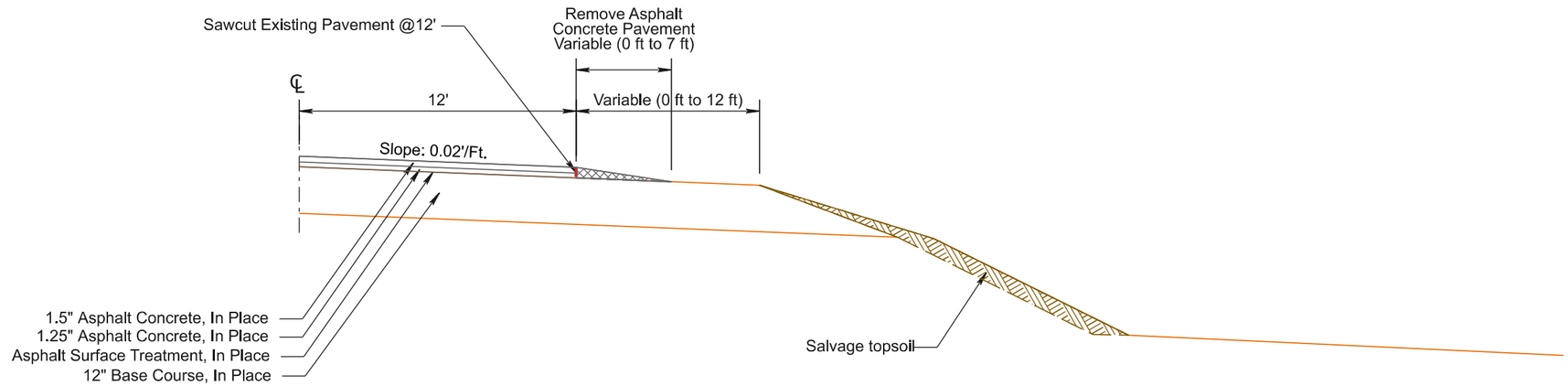
TYPICAL SECTIONS

SD DOT	PROJECT	SHEET
Plotting Date: 1/20/2026	P 0271(06)189	27 of 71

Guardrail Widening In Place (Mirror section for NB)

SD 271

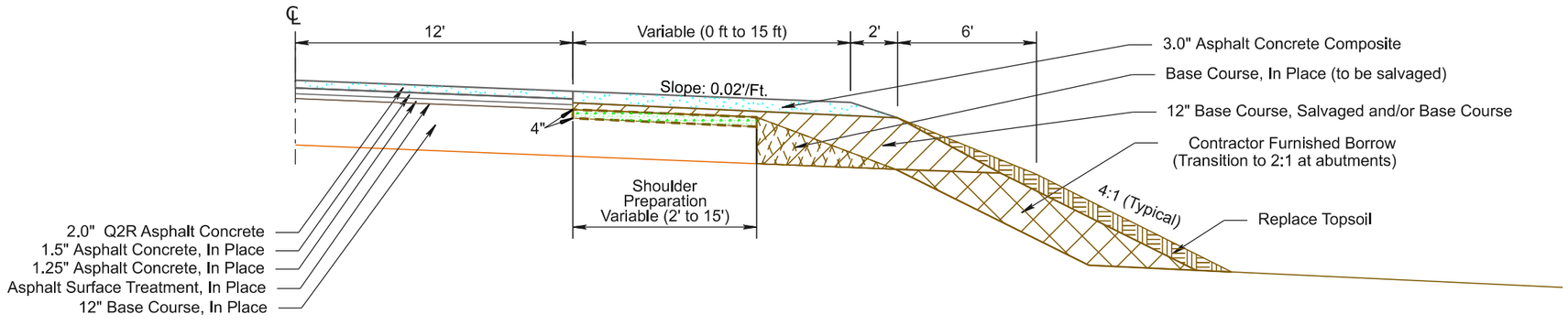
Sta. 300+28 to Sta. 303+28
Sta. 304+78 to Sta. 307+78



Guardrail Widening Surfacing Section (Mirror section for NB)

SD 271

Sta. 300+28 to Sta. 303+28
Sta. 304+78 to Sta. 307+78



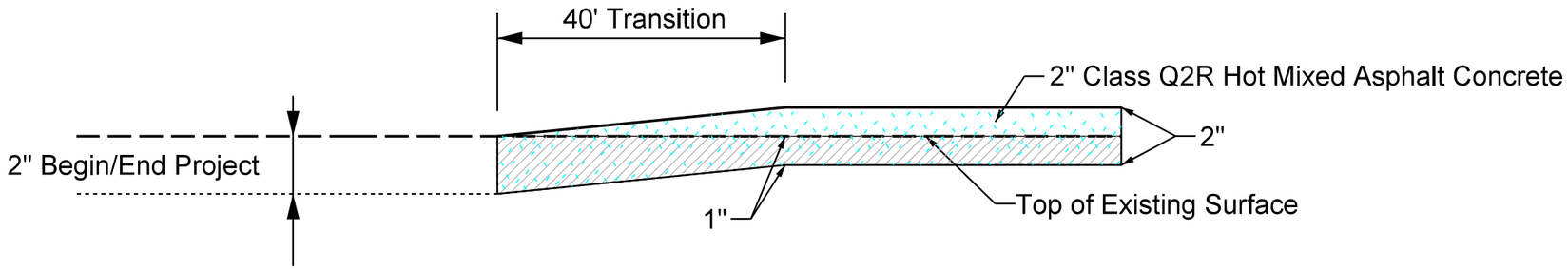
Surfacing Transition Layouts

SD DOT	PROJECT	SHEET
Plotting Date: 1/20/2026	P 0271(06)189	28 of 71

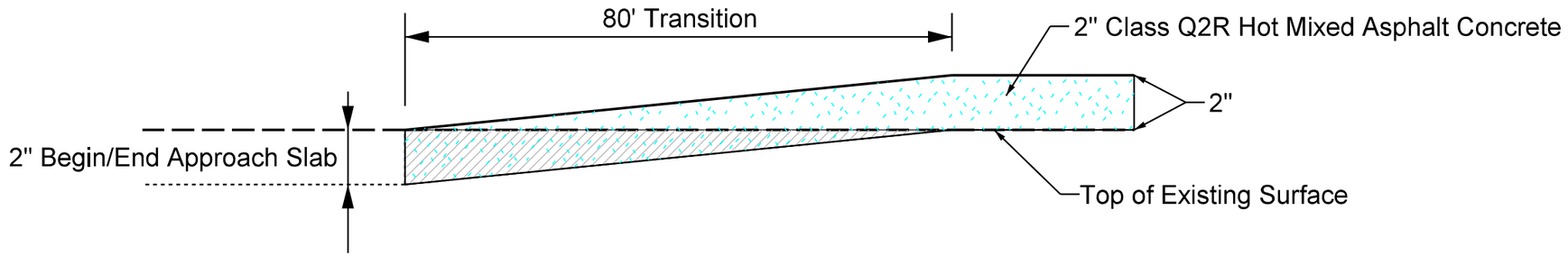
2" Class Q2R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete

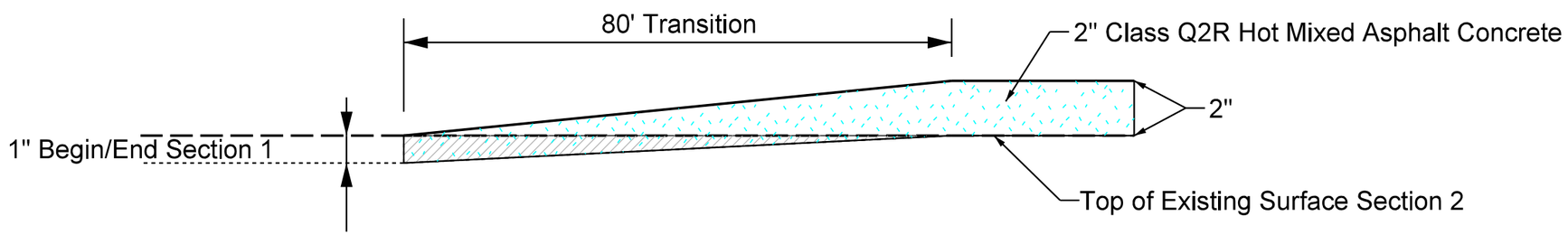
Transitions Beginning and End of Project



Transitions at Bridge Approaches

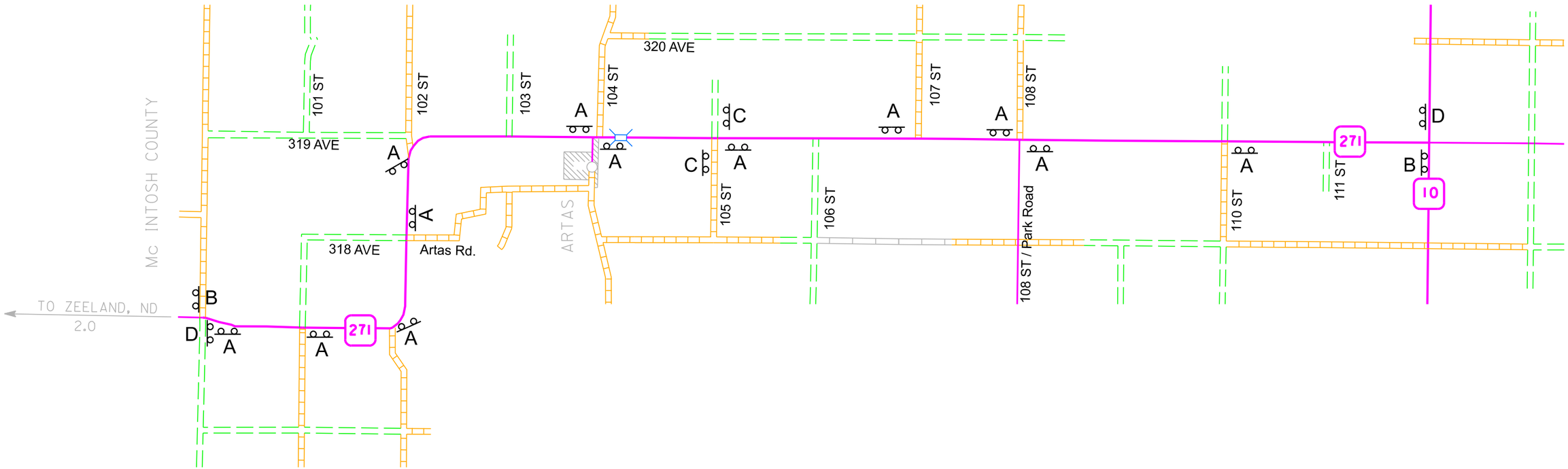


Transitions at Section 2



FIXED LOCATION SIGNS

SD DOT	PROJECT	SHEET
Plotting Date: 1/20/2026	P 0271(06)189	29 of 71



A — ROAD WORK AHEAD — W20-1 (48"X48")

B — END ROAD WORK — G20-2 (36"X18")

C — ROAD WORK NEXT 7 MILES — G20-1 (36"X18")

D — ROAD WORK NEXT 14 MILES — G20-1 (36"X18")

Notes:

Sign locations will be verified in the field by the Engineer prior to installation.

Addtional W20-1 signs are included in the Estimate of Quantities for use on mainline per the applicable Standard Plate(s).

Fixed location signs to remain in place until the completion of permanent pavement markings.

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
BM1	197+81.6	609.9' L	45' north of 102nd Street and 15' west of 319th Avenue	758080.131	2019107.346	1968.33
Q66	292+16.4	1588.9' R	103.2 ft west of Main Street and 121.1' south of Railway Ave.at Artas (PID QR0362)	748320.575	2017571.397	1814.19
G8578	373+78.9	34.0' R	15' N of approach and 57' west of SD 271	740163.800	2019165.741	1914.30
BM1A	459+12.4	56.6' L	34.3' north of 107th St and 56.6' east of SD 271	731631.450	2019328.295	1883.31
BM1B	510+65.1	155.0'R	150' N of 108th Street and 155' W of SD 271 near NW corner post of Rural Water fence	726477.687	2019137.173	1856.08

HORIZONTAL ALIGNMENT DATA

(SD 271_AS_BUILT)

Type	Station			Northing	Easting
POB	0+00.00			768539.07	2009584.49
		TL= 1.06	S00°42'02"W		
PC	0+01.06			768538.01	2009584.48
PI	2+03.09	R = 1146.00	Delta = 19°59'45" R	768336.00	2009582.00
PT	4+01.01			768147.01	2009510.61
		TL= 959.54	S20°41'47"W		
PC	13+60.54			767249.39	2009171.49
PI	16+23.99	R = 1432.50	Delta = 20°50'30" L	767002.94	2009078.38
PT	18+81.62			766739.50	2009079.05
		TL= 3380.94	S00°08'43"E		
PI	52+62.56			763358.56	2009087.61
		TL= 4159.82	S00°02'31"W		
PC	94+22.38			759198.75	2009084.57
PI	105+66.06	R = 1146.00	Delta = 89°53'02" L	758055.07	2009083.73
PT	112+20.19			758051.91	2010227.41
		TL= 3620.57	S89°50'31"E		
PI	148+40.76			758041.93	2013847.97
		TL= 3846.64	S89°57'13"E		
PC	186+87.40			758038.81	2017694.60
PI	201+13.33	R = 1432.50	Delta = 89°44'11" R	758037.65	2019120.53
PT	209+30.98			756611.73	2019125.93
		TL= 1223.34	S00°13'01"E		
PI	221+54.31			755388.40	2019130.56
		TL= 2635.47	S00°17'47"E		
PI	247+89.78			752752.97	2019144.19
		TL= 5284.78	S00°12'31"E		
PI	300+74.56			747468.23	2019163.43
		TL= 2641.14	S00°22'15"E		

Type	Station			Northing	Easting
PI	327+15.70			744827.14	2019180.53
		TL= 5273.43	S00°14'11"E		
PI	379+89.13			739553.75	2019202.28
		TL= 2650.33	S00°18'49"E		
PI	406+39.46			736903.47	2019216.79
		TL= 3239.84	S00°34'32"E		
PI	438+79.30			733663.79	2019249.34
		TL= 2071.21	S00°37'48"E		
PI	459+50.51			731592.71	2019272.11
		TL= 2547.42	S00°15'49"E		
PI	484+97.93			729045.31	2019283.83
		TL= 2722.61	S00°11'13"E		
PI	512+20.54			726322.72	2019292.71
		TL= 2629.01	S00°09'25"E		
PI	538+49.54			723693.73	2019299.92
		TL= 2649.41	S00°10'20"E		
PI	564+98.95			721044.33	2019307.88
		TL= 2635.82	S00°25'48"E		
PI	591+34.77			718408.59	2019327.67
		TL= 2660.12	S00°28'56"E		
PI	617+94.88			715748.56	2019350.06
		TL= 2649.61	S00°11'40"E		
PI	644+44.49			713098.97	2019359.04
		TL= 2635.80	S00°03'12"E		
PI	670+80.29			710463.17	2019361.50
		TL= 5281.48	S00°07'35"E		
POE	723+61.77			705181.70	2019373.16

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. North Zone (ITRF to NAD 83/2011); epoch 2010.00; Geoid 12B; SF =0.99992570
The elevations shown on this sheet are based on NAVD 88.

TABLE OF SUPERELEVATED CURVES

STATION		TO	STATION		REMARKS
Sta	-1+85.34	to	Sta.	0+47.66	Superelevation Transition
Begin Project 0+00					**0.041 Superelevation Rate at BOP**
Sta	0+47.66	to	Sta.	3+54.41	5º 00’ Curve Rt. 0.06 Superelevation Rate Point of Rotation - 12’ Rt.
Sta	3+54.41	to	Sta.	5+87.41	Superelevation Transition
Sta	5+87.41	to	Sta.	11+66.14	Normal Crown Section
Sta	11+66.14	to	Sta.	14+09.14	Superelevation Transition
Sta	14+09.14	to	Sta.	18+33.02	4º 00’ Curve Lt. 0.06 Superelevation Rate Point of Rotation - 12’ Lt.
Sta	18+33.02	to	Sta.	20+76.02	Superelevation Transition
Sta	20+76.02	to	Sta.	92+35.98	Normal Crown Section
Sta	92+35.98	to	Sta.	94+68.98	Superelevation Transition
Sta	94+68.98	to	Sta.	111+73.59	5º 00’ Curve Lt. 0.06 Superelevation Rate Point of Rotation - 12’ Lt.
Sta	111+73.59	to	Sta.	114+06.59	Superelevation Transition
Sta	114+06.59	to	Sta.	184+93.00	Normal Crown Section
Sta	184+93.00	to	Sta.	187+36.00	Superelevation Transition
Sta	187+36.00	to	Sta.	208+82.38	4º 00’ Curve Rt. 0.06 Superelevation Rate Point of Rotation - 12’ Rt.
Sta	208+82.38	to	Sta.	211+25.38	Superelevation Transition
Sta	211+25.38	to	Sta.	300+66.00	Normal Crown Section
Sta	300+66.00	to	Sta.	301+29.00	Crown Transition
Sta	301+29.00	to	Sta.	310+33.00	2% Crown Section
Sta	310+33.00	to	Sta.	310+96.00	Crown Transition
Sta	310+96.00 .	to	Sta.	723+63.70	Normal Crown Section

LEGEND

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Plotting Date: 1/20/2026

- Anchor
- Antenna
- Approach
- Assumed Corner
- Azimuth Marker
- BBQ Grill/ Fireplace
- Bearing Tree
- Bench Mark
- Box Culvert
- Bridge
- Brush
- Buildings
- Bulk Tank
- Cattle Guard
- Cemetery
- Centerline
- Cistern
- Clothes Line
- Control Point
- Commercial Sign Double Face
- Commercial Sign One Post
- Commercial Sign Overhead
- Commercial Sign Two Post
- Concrete Symbol
- Creek Edge
- Curb/Gutter
- Curb
- Dam Grade/Dike/Levee
- Deck Edge
- Ditch Block
- Doorway Threshold
- Drainage Profile
- Drop Inlet
- Edge Of Asphalt
- Edge Of Concrete
- Edge Of Gravel
- Edge Of Other
- Edge Of Shoulder
- Elec. Trans./Power Jct. Box
- Fence Barbwire
- Fence Chainlink
- Fence Electric
- Fence Misc.
- Fence Rock
- Fence Snow
- Fence Wood
- Fence Woven
- Fire Hydrant
- Flag Pole
- Flower Bed
- Gas Valve Or Meter
- Gas Pump Island
- Grain Bin
- Guardrail
- Guide Sign One Post
- Guide Sign Two Post
- Gutter
- Guy Pole
- Haystack
- Hedge
- Highway ROW Marker
- Interstate Close Gate
- Iron Pin
- Irrigation Ditch
- Lake Edge
- Lawn Sprinkler
- Mailbox
- Manhole Electric
- Manhole Gas
- Manhole Misc
- Manhole Sanitary Sewer
- Manhole Storm Sewer
- Manhole Telephone
- Manhole Water
- Merry-Go-Round
- Microwave Radio Tower
- Misc. Line
- Misc. Property Corner
- Misc. Post
- Overhang Or Encroachment
- Overhead Utility Line — OH —
- Parking Meter
- Pedestrian Push Button Pole
- Pipe With End Section
- Pipe With Headwall
- Pipe Without End Section
- Playground Slide
- Playground Swing
- Power And Light Pole
- Power And Telephone Pole
- Power Meter
- Power Pole
- Power Pole And Transformer
- Power Tower Structure
- Propane Tank
- Property Pipe
- Property Pipe With Cap
- Property Stone
- Public Telephone
- Railroad Crossing Signal
- Railroad Milepost Marker
- Railroad Profile
- Railroad R.O.W. Marker
- Railroad Signs
- Railroad Switch
- Railroad Track
- Railroad Trestle
- Rebar
- Rebar With Cap
- Reference Mark
- Regulatory Sign One Post
- Regulatory Sign Two Post
- Retaining Wall
- Riprap
- River Edge
- Rock And Wire Baskets
- Rockpiles
- Satellite Dish
- Septic Tank
- Shrub Tree
- Sidewalk
- Sign Face
- Sign Post
- Slough Or Marsh
- Spring
- Stream Gauge
- Street Marker
- Subsurface Utility Exploration Test Hole
- Telephone Fiber Optics — T/F —
- Telephone Junction Box
- Telephone Pole
- Television Cable Jct Box
- Television Tower
- Test Wells/Bore Holes
- Traffic Signal
- Trash Barrel
- Tree Belt
- Tree Coniferous
- Tree Deciduous
- Tree Stumps
- Triangulation Station
- Underground Electric Line — P —
- Underground Gas Line — G —
- Underground High Pressure Gas Line — HG —
- Underground Sanitary Sewer — S —
- Underground Storm Sewer — S —
- Underground Tank
- Underground Telephone Line — T —
- Underground Television Cable — TV —
- Underground Water Line — W —
- Warning Sign One Post
- Warning Sign Two Post
- Water Fountain
- Water Hydrant
- Water Meter
- Water Tower
- Water Valve
- Water Well
- Weir Rock
- Windmill
- Wingwall
- Witness Corner

- State and National Line
- County Line
- Section Line
- Quarter Line
- Sixteenth Line
- Sixty-Fourth Line
- Property Line
- Construction Line
- ROW Line
- New ROW Line
- Cut and Fill Limits
- Control of Access
- New Control of Access
- Proposed ROW (After Property Disposal)

- Drainage Arrow

EROSION AND SEDIMENT CONTROL LEGEND

- Erosion Control Wattles on Slopes
- Floating Silt Curtain

GUARDRAIL EMBANKMENT CONSTRUCTION AND SURFACING

SD DOT	PROJECT	SHEET
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Plotting Date: 1/20/2026

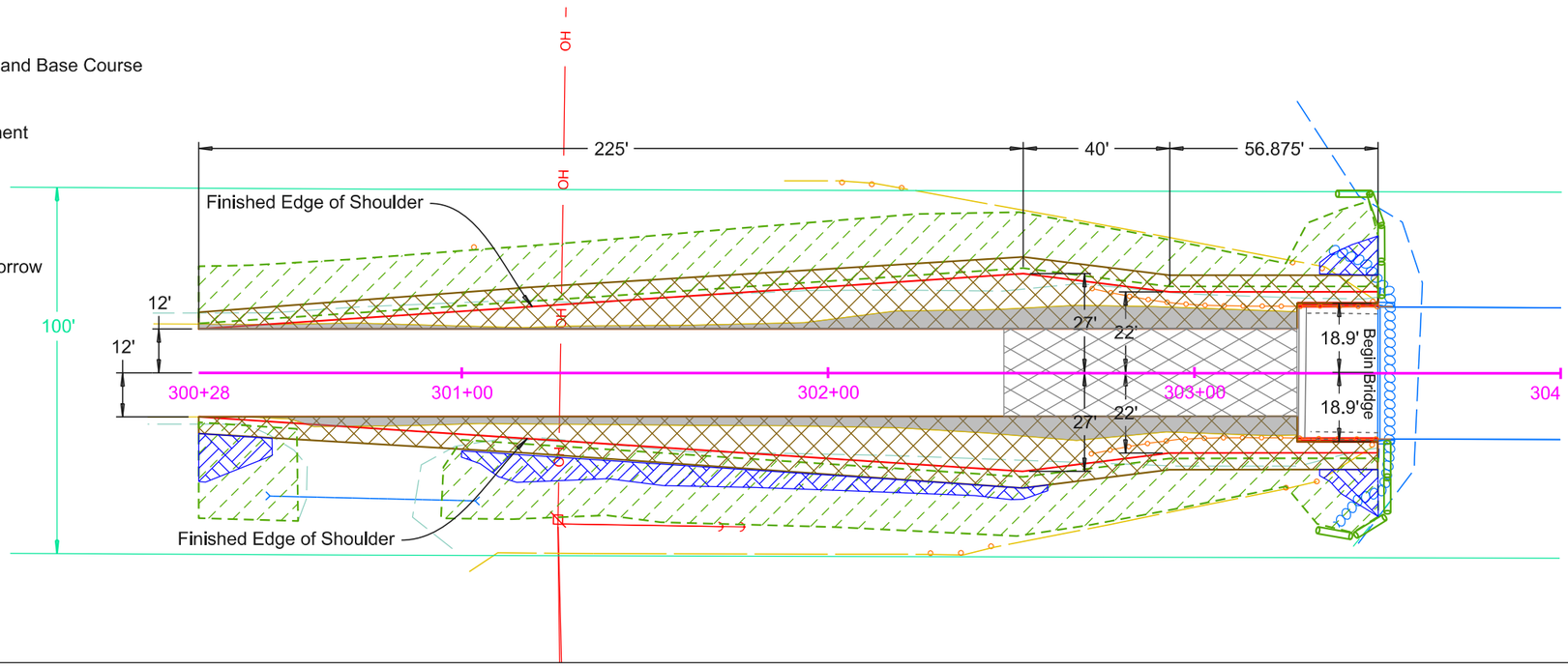
Erosion Control

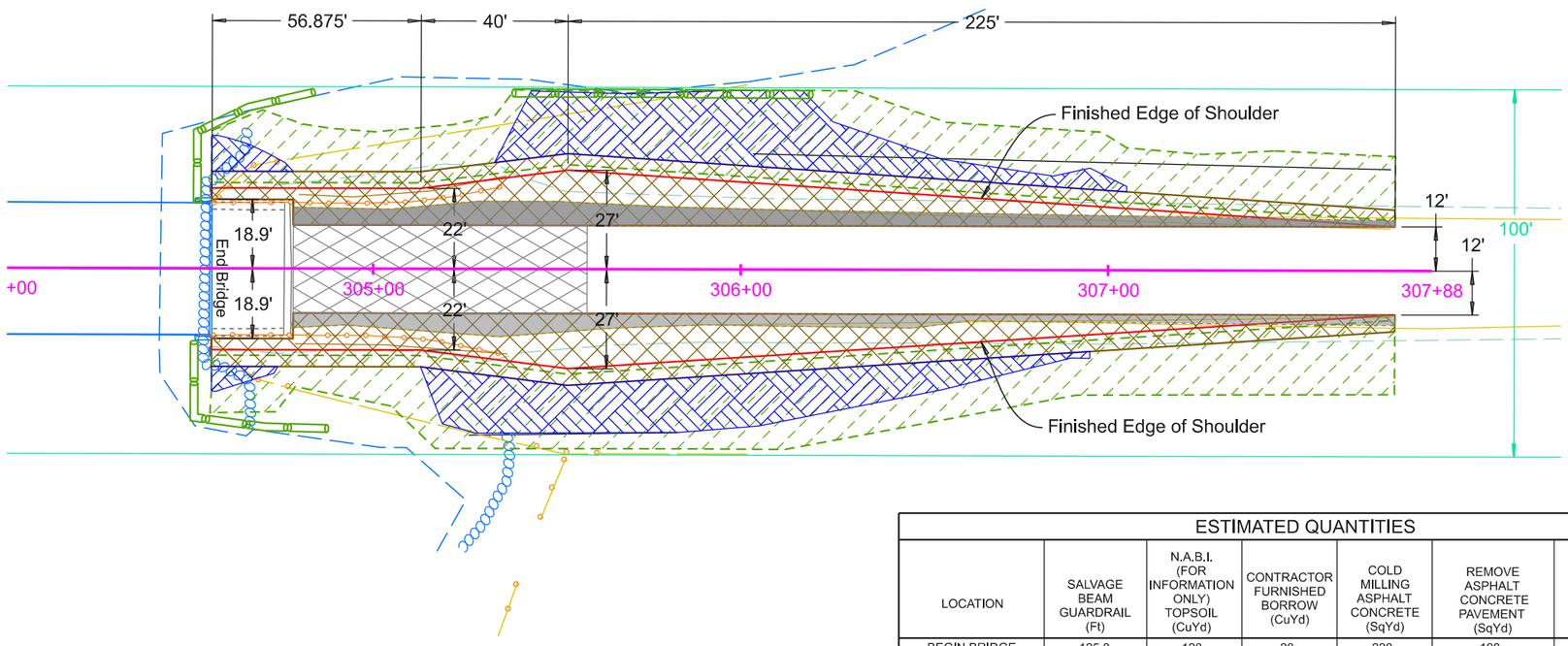
Base Course (In-place) and Base Course

Remove Asphalt Pavement

Cold Milling Transition

Contractor Furnished Borrow





ESTIMATED QUANTITIES

LOCATION	SALVAGE BEAM GUARDRAIL (Ft)	N.A.B.I. (FOR INFORMATION ONLY) TOPSOIL (CuYd)	CONTRACTOR FURNISHED BORROW (CuYd)	COLD MILLING ASPHALT CONCRETE (SqYd)	REMOVE ASPHALT CONCRETE PAVEMENT (SqYd)	SHOULDER PREPARATION (Mile)	BASE COURSE (tons)	ASPHALT CONCRETE COMPOSITE (tons)
BEGIN BRIDGE	125.0	120	20	220	198	0.061	109.9	108.4
END BRIDGE	125.0	150	124	220	247	0.061	133.1	108.4

N.A.B.I. - Not a Bid Item

GUARDRAIL INSTALLATION

Structure # 11-330-041 on SD 271 at MRM 197.93
0.4 miles SE of Artas over Spring Creek

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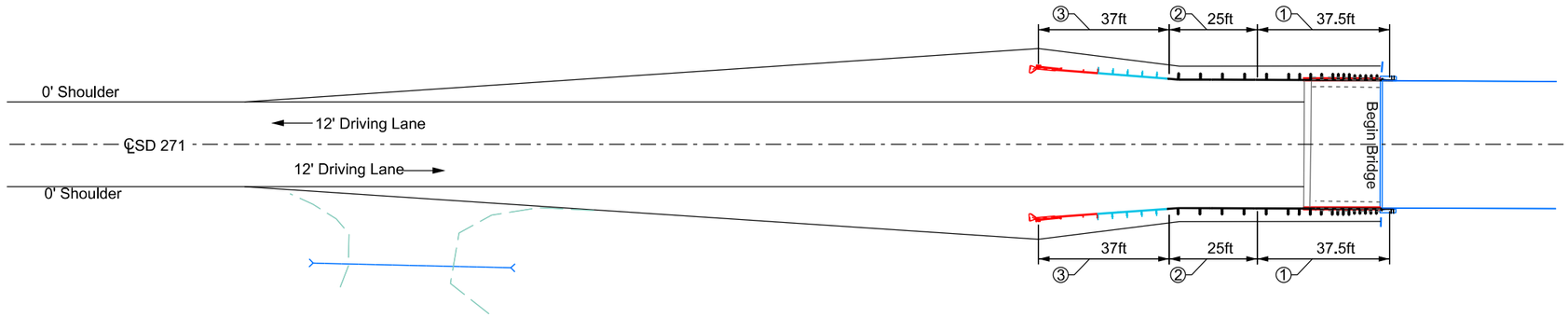
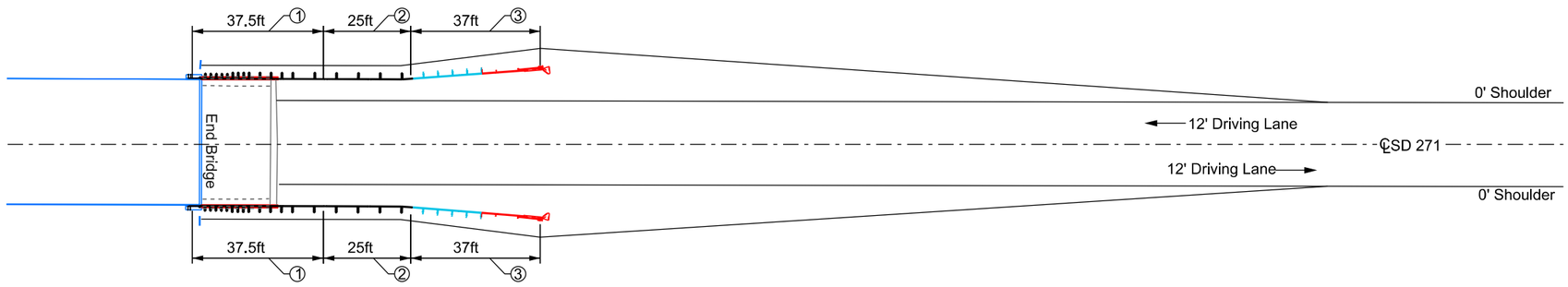
Plotting Date: 1/20/2026





ESTIMATED QUANTITIES

Location	Type 1 Retrofit Guardrail Transition (Each)	Type 1 MGS (Ft)	MGS MASH Flared End Terminal (Each)
Begin Bridge	2	50	2
End Bridge	2	50	2

INSTALLATION ITEMS

① Type 1 Retrofit Guardrail Transition
② Type 1 MGS
③ MGS MASH Flared End Terminal

DRAWING NOT TO SCALE

PERMANENT SIGNING

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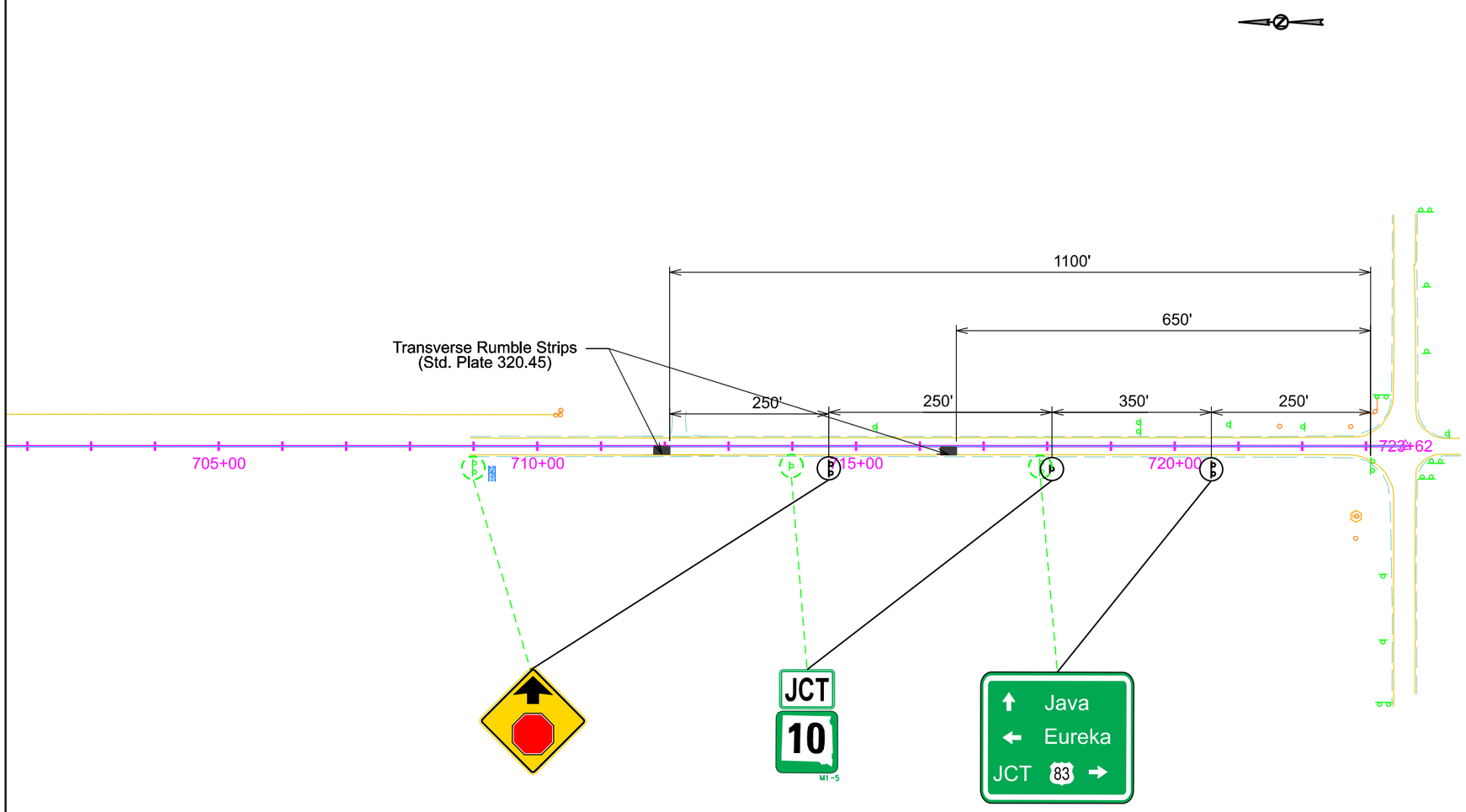
Plotting Date: 1/20/2026



Legend

Remove for Reset

Reset Sign

TABLE OF PERMANENT SIGNING

EXISTING MRM		EXISTING STATION	OFFSET (FT)	SIGN								POST						DESCRIPTION	REMARKS
				Width (in)	Height (in)	Number	Facing Traffic	New Sign	Remove for Reset	Square Footage	Sheeting Type	New Post	Remove for Reset	Length (ft)	Size (in)	#	Shear Slip Base		
189.91	+ 0.006	723+12	30	48	48	R1-1	SB											STOP	No work (for information only)
190	+ 0.079	717+93	30	60	48	D1-3	SB		Remove for Reset				Remove for Reset	12.0	2.0	2	NO	DESTINATION BOARD - 3 LINES W/ ARROWS	"Remove for Reset" Sign, posts and bases
190	+ 0.155	714+04	30	21	15	M2-1	SB		Remove for Reset				Remove for Reset	12.0	2.0	1	NO	JUNCTION AUXILIARY	"Remove for Reset" Signs, post and base
				24	24	M1-5	SB		Remove for Reset				Remove for Reset					ROUTE MARKER "SD 10"	
190	+ 0.245	709+04	30	48	48	W3-1	SB		Remove for Reset				Remove for Reset	12.0	2.0	2	NO	STOP AHEAD (SYMBOL)	"Remove for Reset" Sign, posts and bases

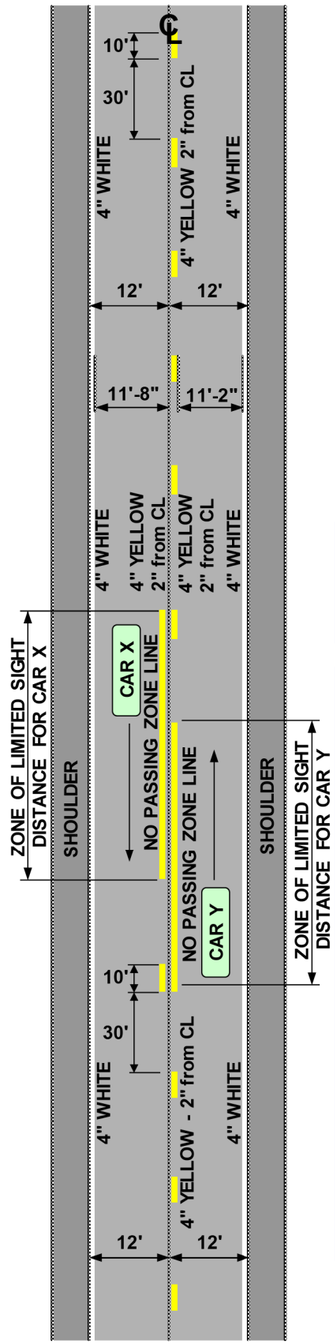
RESET MRM		RESET STATION	OFFSET (FT)	SIGN								POST						DESCRIPTION	REMARKS
				Width (in)	Height (in)	Number	Facing Traffic	New Sign	Reset	Square Footage	Sheeting Type	New Post	Reset	Length (ft)	Size (in)	#	Shear Slip Base		
189.91	+ 0.006	723+12	30	48	48	R1-1	SB											STOP	No work (for information only)
190	+ 0.017	720+62	30	60	48	D1-3	SB		RESET				RESET	12.0	2.0	2	NO	DESTINATION BOARD - 3 LINES W/ ARROWS	Reset "Remove for Reset" sign with removed hardware
190	+ 0.064	718+12	30	21	15	M2-1	SB		RESET				RESET	12.0	2.0	1	NO	JUNCTION AUXILIARY	Reset "Remove for Reset" signs with removed hardware
				24	24	M1-5	SB		RESET				RESET					ROUTE MARKER "SD 10"	
190	+ 0.112	715+62	30	48	48	W3-1	SB		RESET				RESET	12.0	2.0	2	NO	STOP AHEAD (SYMBOL)	Reset "Remove for Reset" sign with removed hardware

PROJECT SIGN TABULATION

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-1	BUMP	2	48" x 48"	16.0	32.0
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	2	48" x 48"	16.0	32.0
W8-11	UNEVEN LANES	4	48" x 48"	16.0	64.0
W8-15	GROOVED PAVEMENT	4	48" x 48"	16.0	64.0
W8-15P	MOTORCYCLE (plaque)	4	24" x 18"	3.0	12.0
W13-1P	ADVISORY SPEED (plaque)	4	30" x 30"	6.3	25.2
W20-1	ROAD WORK AHEAD	16	48" x 48"	16.0	256.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	4	48" x 48"	16.0	64.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
G20-1	ROAD WORK NEXT 7 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 14 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
SPECIAL	"WAIT FOLLOW PILOT CAR"	4	48" x 36"	12.0	48.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			**816.2**

PROJECT PAINT TABULATION

TWO LANE ROADWAY



PAVEMENT MARKING

Typical pavement marking as shown on this sheet will be applied throughout the entire length of two lane roadway.

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 and advance warning arrow board.

Application rates will be as follows:

Two Lane Roadway (Rates for one line)
Dashed Yellow Centerline Rate = 6.2 Gals./Pass-Mile
Solid Yellow Centerline Rate = 22.5 Gals./Pass-Mile
Solid White Edgeline Rate = 22.5 Gals./Pass-Mile

4" Yellow Skip Centerline (when not adjacent to a 4" Yellow No Passing Zone) will be placed consistently to the south or east side of centerline.

ESTIMATED QUANTITIES (BASED ON ONE APPLICATION)	
HIGH BUILD	**QUANTITY**
WHITE	**618 GALLONS**
YELLOW	**206 GALLONS**

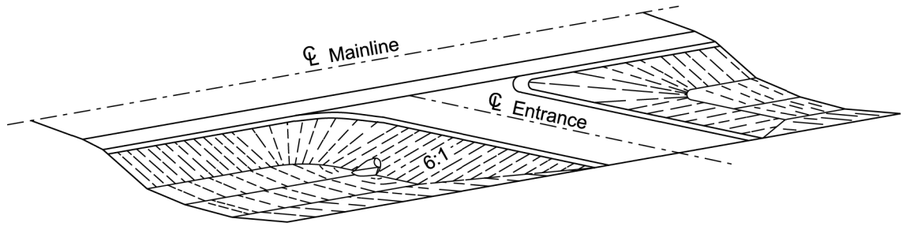
Included in the above quantities are:

Additional White (1 Application)			Additional Yellow (1 Application)		
Description		Gallons	Description		Gallons
4" Lines	-	-	Transitions	- -	-
8" Lines	-	-	4" Skip Lines	-	-
12" Gore Lines	-	-	8" Lines	-	-
Crosswalks	- -	-	12" Lines	-	-
24" Stop Lines	18'	1	24" Hatches	-	-
24" Hatches	-	-	Solid Areas	-	-
Solid Areas	-	-	Additional Yellow:		-
Arrows					
Left Arrows	-	-			
Right Arrows	-	-			
Straight Arrows	-	-			
Combo Arrows	-	-			
Lane Drop Arrows	-	-			
Messages					
STOP	-	-			
STOP AHEAD	-	-			
R X R with Bars	-	-			
SCHOOL X-ING	-	-			
Additional White:		1			

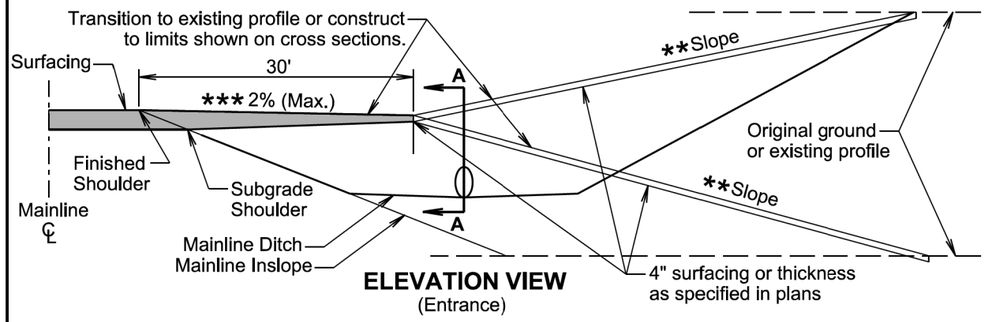
Additional Quantities

Rates of Coverage:	SqFt/Gal
4", 8" and 12" Lines -	60
24" Lines and Bars -	40
Arrows, Messages and Solid Areas -	25

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



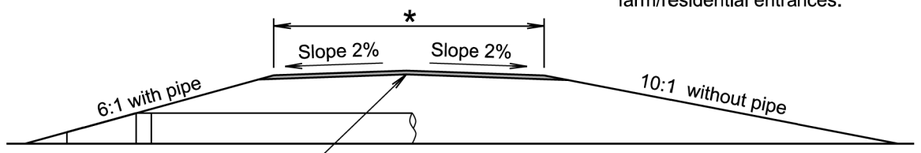
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

The transition area between the mainline inslope and the entrance or intersecting road inslope will be rounded to eliminate an abrupt transition.

The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

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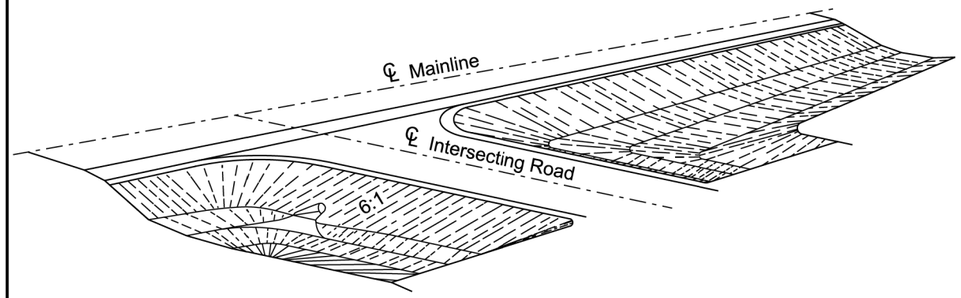
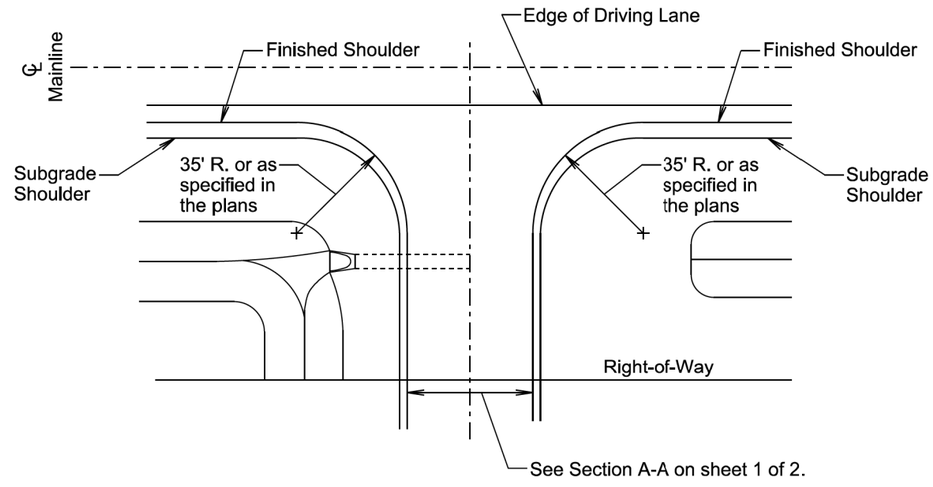


PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

GENERAL NOTES:

The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

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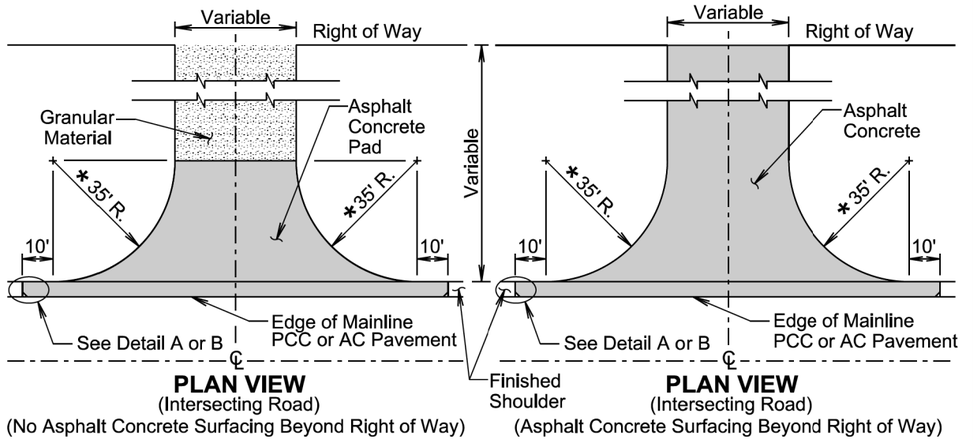
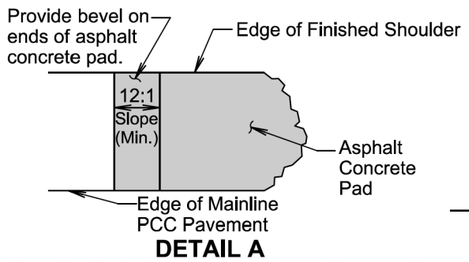
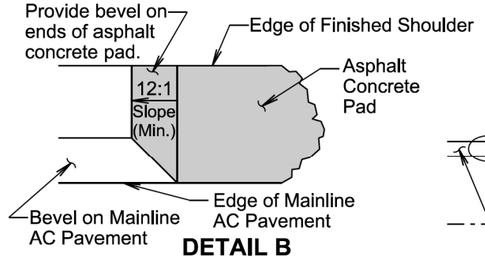
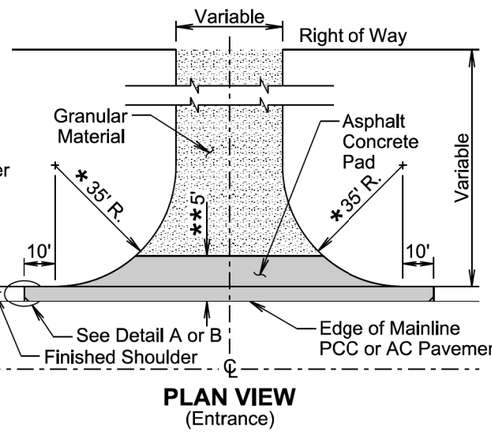








GENERAL NOTES:

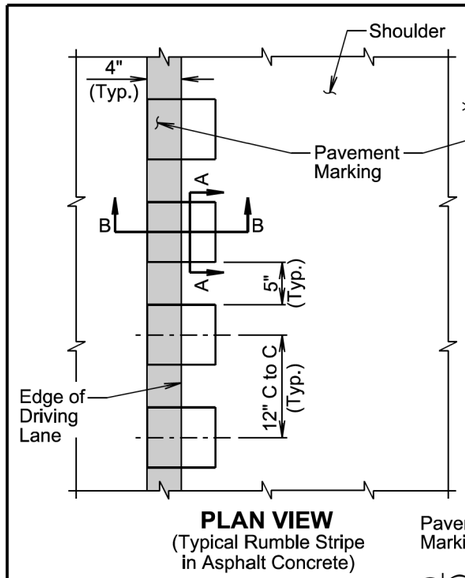
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

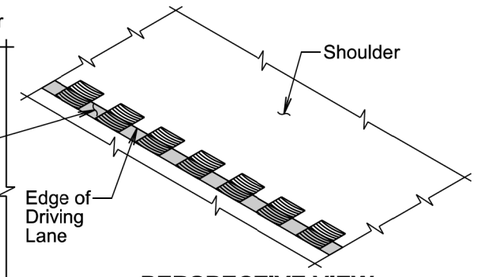
* For new construction, 35' radius typical or as specified in the plans. For resurfacing projects, radius is variable depending on existing conditions.

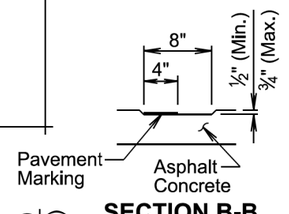
** For shoulder widths < 4', the Asphalt Concrete Pad width must be 5'. For shoulders widths of 4' or more, pave the full width of the shoulder only.

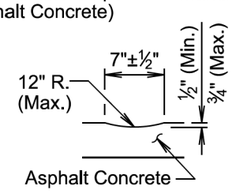
August 27, 2020

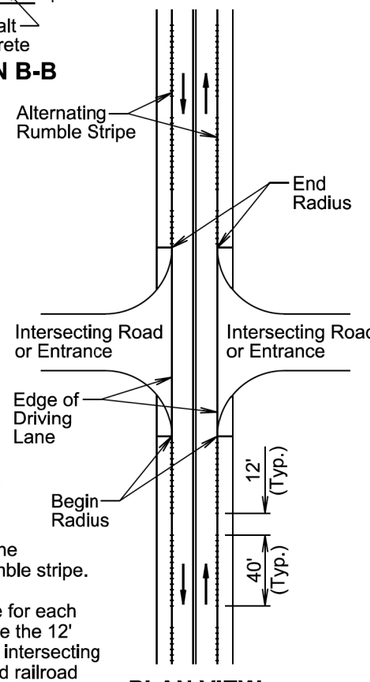
Published Date: 2026	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (SHOULDERS: GRANULAR MATERIAL OR COLD RECYCLED MATERIAL)	PLATE NUMBER 320.01 Sheet 1 of 1











GENERAL NOTES:

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

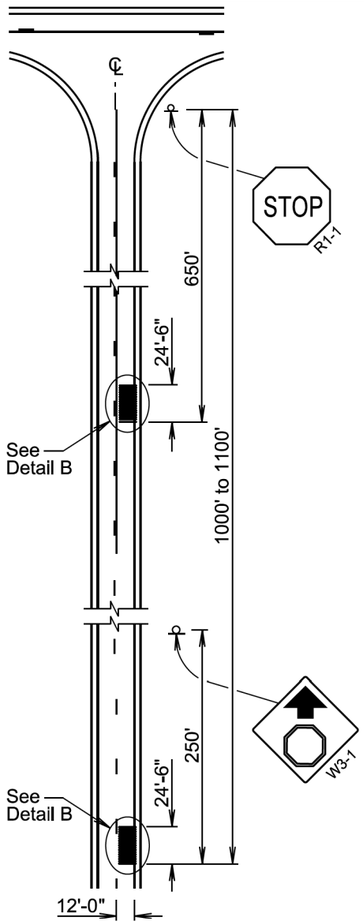
A rumble stripe will not be constructed through intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings. The lengths of the 40' segments with continuous indentations and the 12' segments without a rumble stripe adjacent to the intersecting roads, entrances,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

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

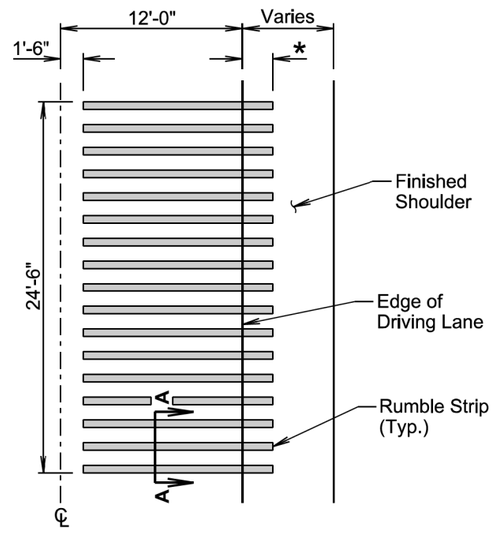
Measurement of the rumble stripe will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble stripe will include the 12' long segments without rumble stripes and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad crossings without rumble stripes. Payment for constructing the rumble stripe will be at the contract unit price per mile for "Grind 8" Rumble Strip or Stripe in Asphalt Concrete".

September 14, 2019

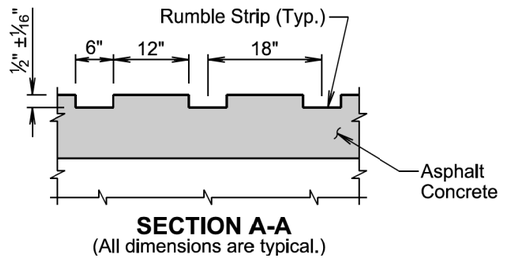
Published Date: 2026	SDDOT	8" RUMBLE STRIPE IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.20 Sheet 1 of 1



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.

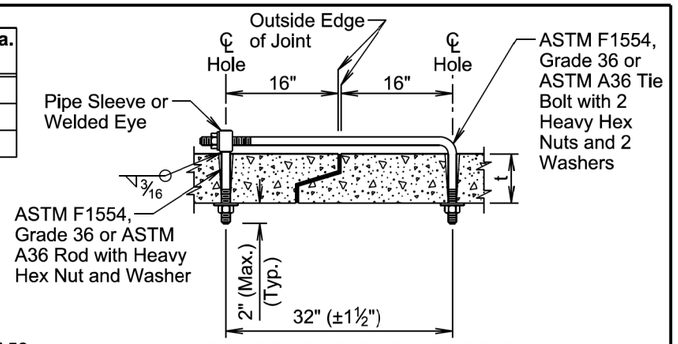
* The transverse rumble strips will extend into the finished shoulder as approved by the Engineer.

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

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



ADJUSTABLE EYE BOLT TIE

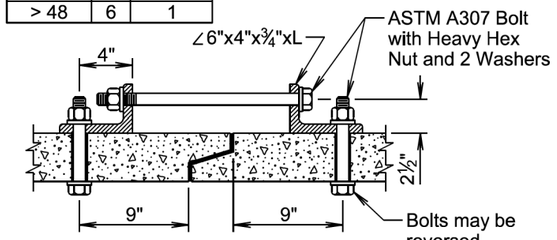
GENERAL NOTES:

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.

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



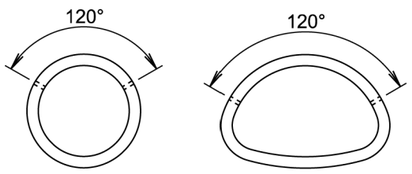
ANGLE AND BOLT TIE

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:

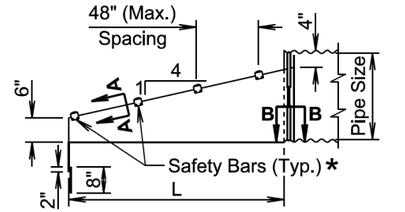
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

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.

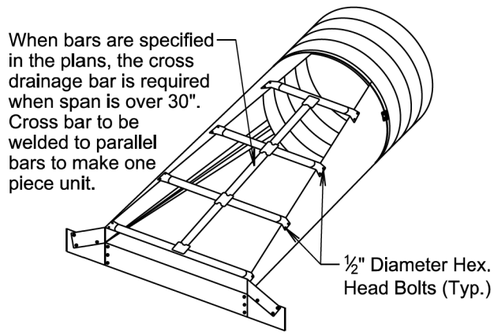
April 8, 2025

Published Date: 2026	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18 Sheet 1 of 1

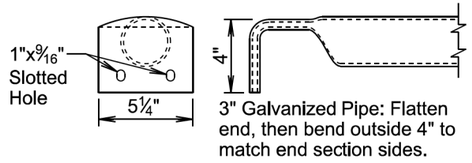


* Number of bars required will vary depending on the length of the end section.

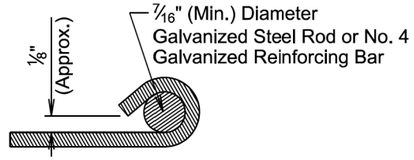
ELEVATION VIEW



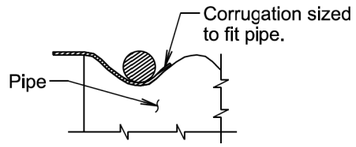
ISOMETRIC VIEW



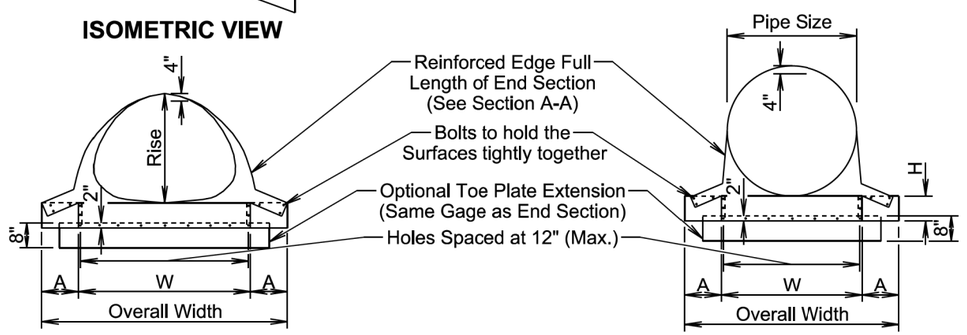
DETAIL OF SAFETY BARS



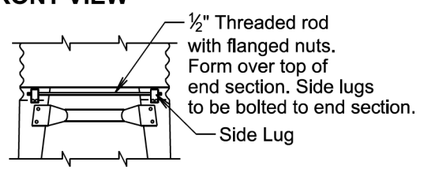
SECTION A-A



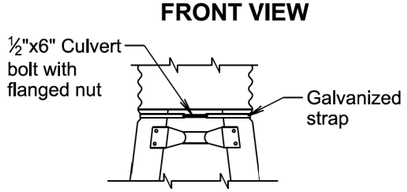
SECTION B-B



FRONT VIEW **FRONT VIEW**



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21"x15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 1 of 2

ARCH C.M.P. SLOPED ENDS										
Equiv. Dia. (Inch)	(Inches)		(Min.) Thick.		Dimensions (Inches)				L Dimensions	
	Span	Rise	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	4:1	20
21	24	18	.064	16	8	6	30	46	4:1	32
24	28	20	.064	16	8	6	34	50	4:1	40
30	35	24	.079	14	12	9	41	65	4:1	56
36	42	29	.109	12	12	9	48	72	4:1	76
42	49	33	.109	12	16	12	55	87	4:1	92
48	57	38	.109	12	16	12	63	95	4:1	112
54	64	43	.109	12	16	12	70	102	4:1	132
60	71	47	.109	12	16	12	77	109	4:1	148
72	83	57	.109	12	16	12	89	121	4:1	188

CIRCULAR C.M.P. SLOPED ENDS								
Pipe Dia. (Inch)	(Min.) Thick.		Dimensions (Inches)				L Dimensions	
	Inch	Gage	A	H	W	Overall Width	Slope	Length (Inch)
15	.064	16	8	6	21	37	4:1	20
18	.064	16	8	6	24	40	4:1	32
21	.064	16	8	6	27	43	4:1	44
24	.064	16	8	6	30	46	4:1	56
30	.109	12	12	9	36	60	4:1	80
36	.109	12	12	9	42	66	4:1	104
42	.109	12	16	12	48	80	4:1	128
48	.109	12	16	12	54	86	4:1	152
54	.109	12	16	12	60	92	4:1	176
60	.109	12	16	12	66	98	4:1	200

GENERAL NOTES:

Safety bars will be provided when specified in the plans.

Sloped ends will be fabricated from galvanized steel and will conform to the requirements of the Specifications.

Safety bars will be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5x.216 in conformance with ASTM A500, grade B or C.

Slotted holes for safety bar attachment will be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter will be made with Type #1 straps. All other sizes will be attached with Type #2 rods and lugs.

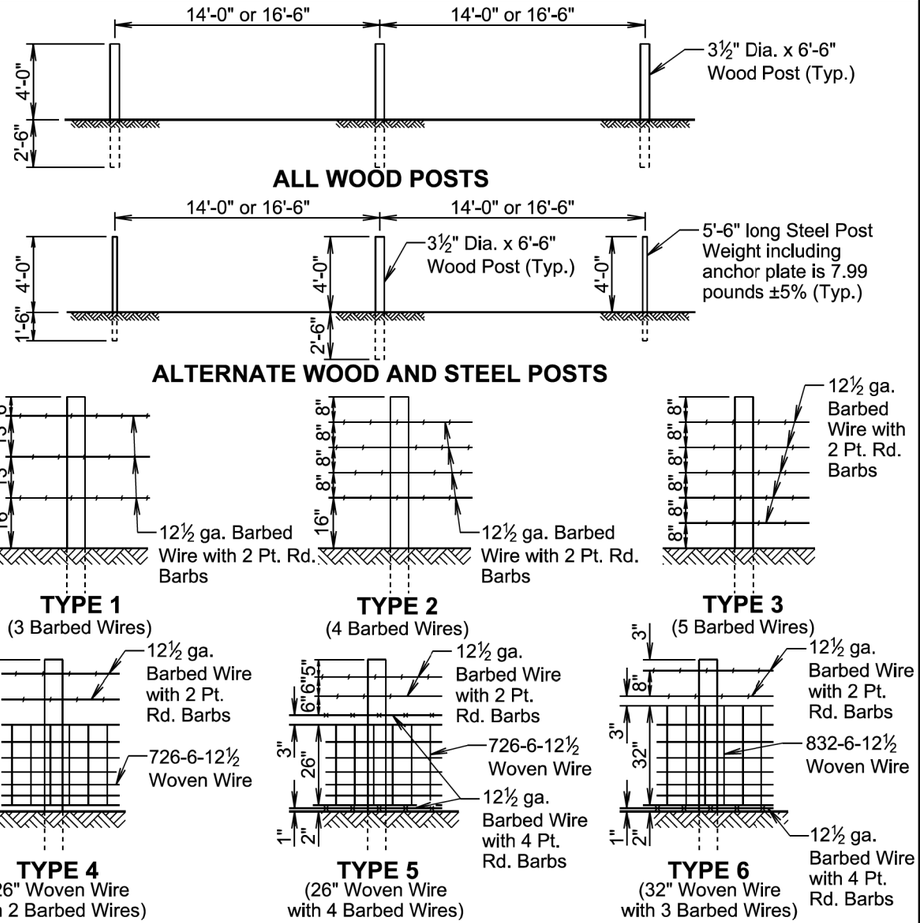
When stated in the plans, optional toe plate extension will be punched and bolted to end section apron lip with ⅜" diameter galvanized bolts. Steel for toe plate extension will be same gauge as end section. Dimensions will be overall width less 6" by 8" high.

Installation will be performed in accordance with the Specifications.

Cost of all work and materials required for fabrication and installation of sloped ends will be incidental to the bid items for the various sizes of sloped ends.

April 8, 2025

Published Date: 2026	SDDOT	C.M.P. SLOPED ENDS	PLATE NUMBER 450.37
			Sheet 2 of 2



TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

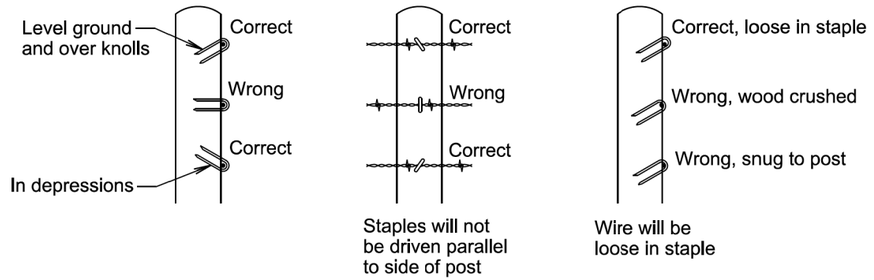
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All radius of curvature stated for fence are at centerline of roadway.

April 8, 2025

Published Date: 2026	RIGHT-OF-WAY FENCE	PLATE NUMBER 620.01 Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence will consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire will be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts will be used for brace panels. Gates will be of the type designated in the plans or as otherwise directed by the Engineer. Fence will be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects will be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

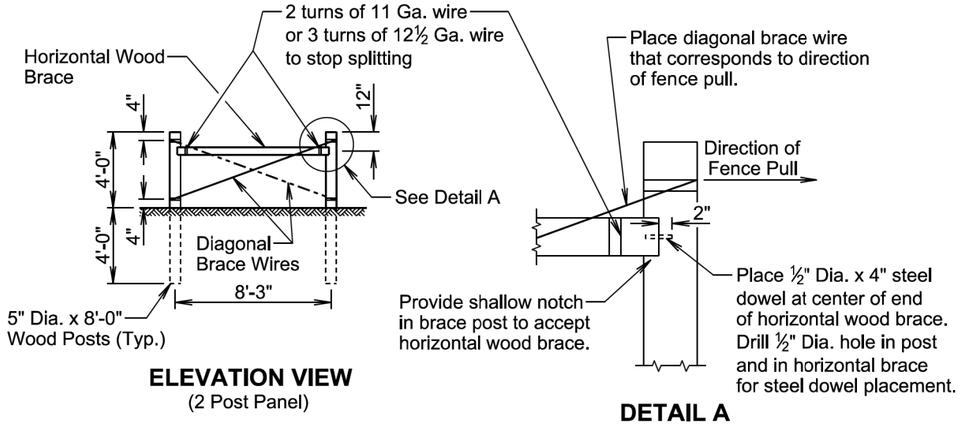
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs will be fabricated from zinc coated 14 ga. wire. Two point barbs will be wrapped twice around one main strand at four-inch spacings and the four point barbs will be interlocked and wrapped around both main strands at five-inch spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

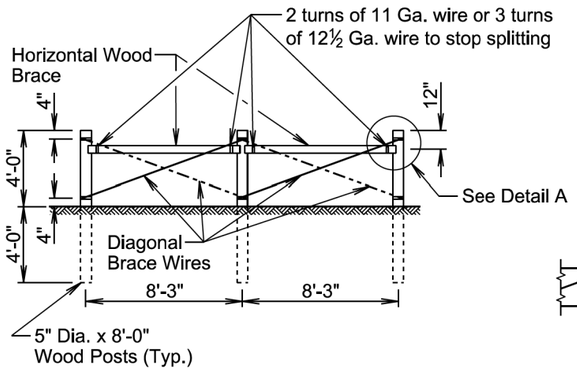
June 26, 2019

Published Date: 2026	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02 Sheet 1 of 1

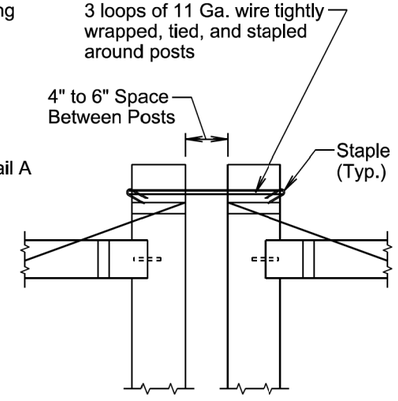


ELEVATION VIEW
(2 Post Panel)

DETAIL A



ELEVATION VIEW
(3 Post Panel)



DETAIL B

GENERAL NOTES:

Two Post Panels will be installed at least every 1320' between corners.

Two Post Panels will be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces will consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires will be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires will be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
RADIUS OF CURVE	SPACING OF 2 POST PANEL
Greater than 1800 Ft.	** 1320'
Less than 1800 Ft.	** At P.C., P.T., and at every 1320' between P.C. and P.T.

** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

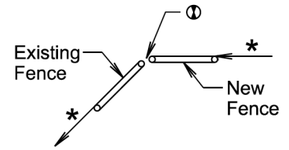
① See Detail B on Sheet 1 of 3.

GENERAL NOTE:

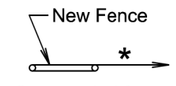
All radius of curvature stated for fence are at centerline of roadway.

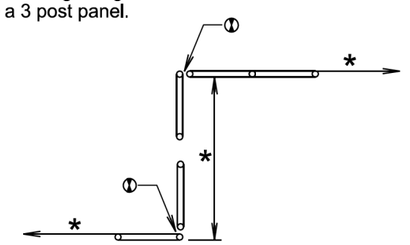
If fence length is less than 600' to next corner use a 2 post panel.

* If fence length is greater than 600' to next corner use a 3 post panel.

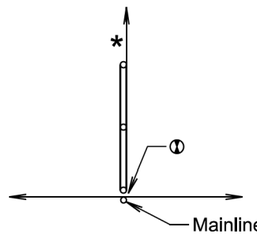


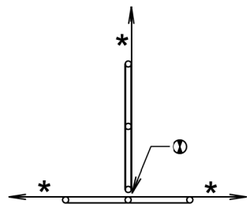
BEGIN OR END FENCE
(Where new fence ties into existing fence)



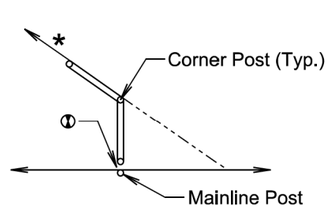


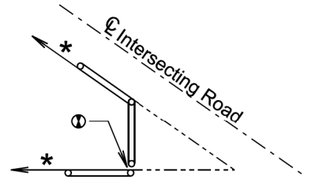
SHORT JOGS IN FENCE

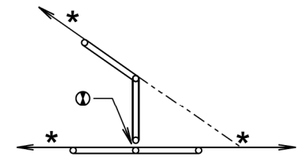




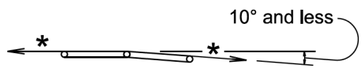
CROSS FENCE



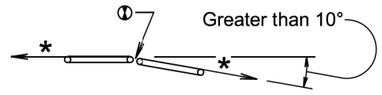




SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

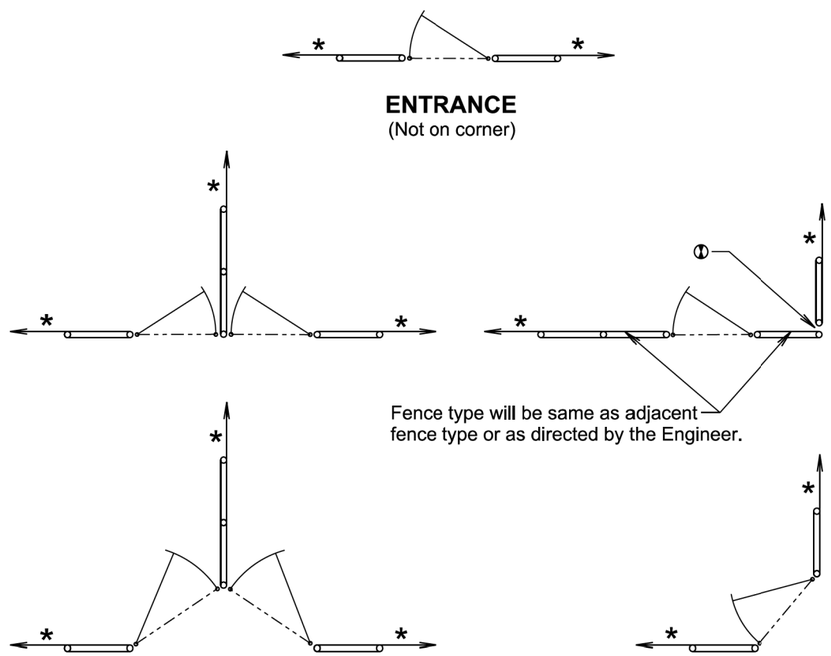


Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3

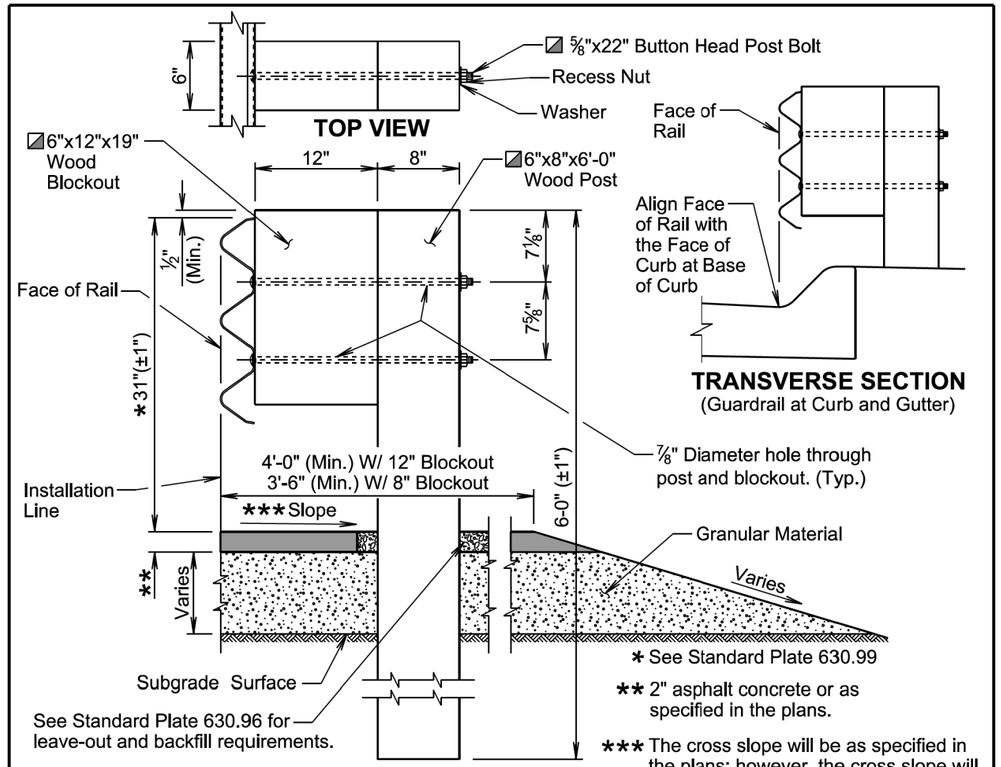


* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

March 31, 2024

Published Date: 2026	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 3 of 3



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.

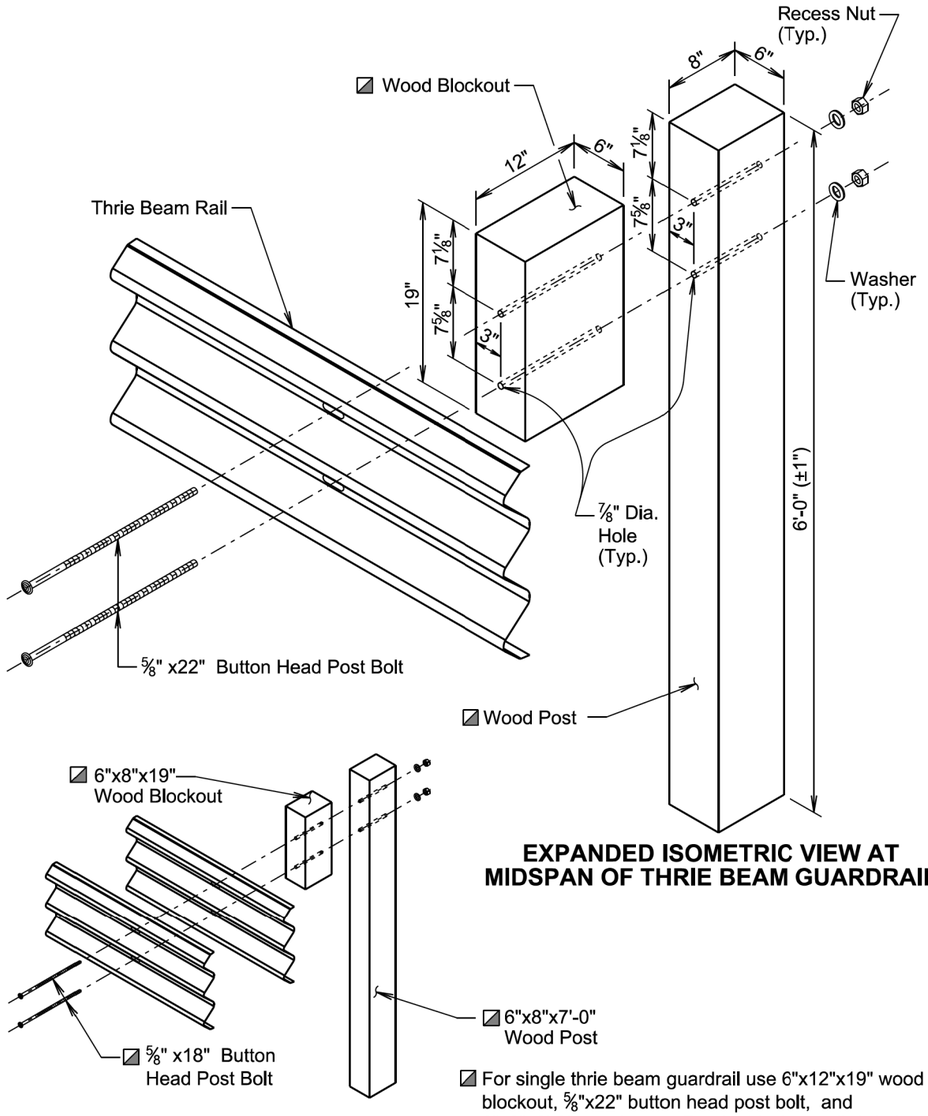
☑ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

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.

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 1 of 5



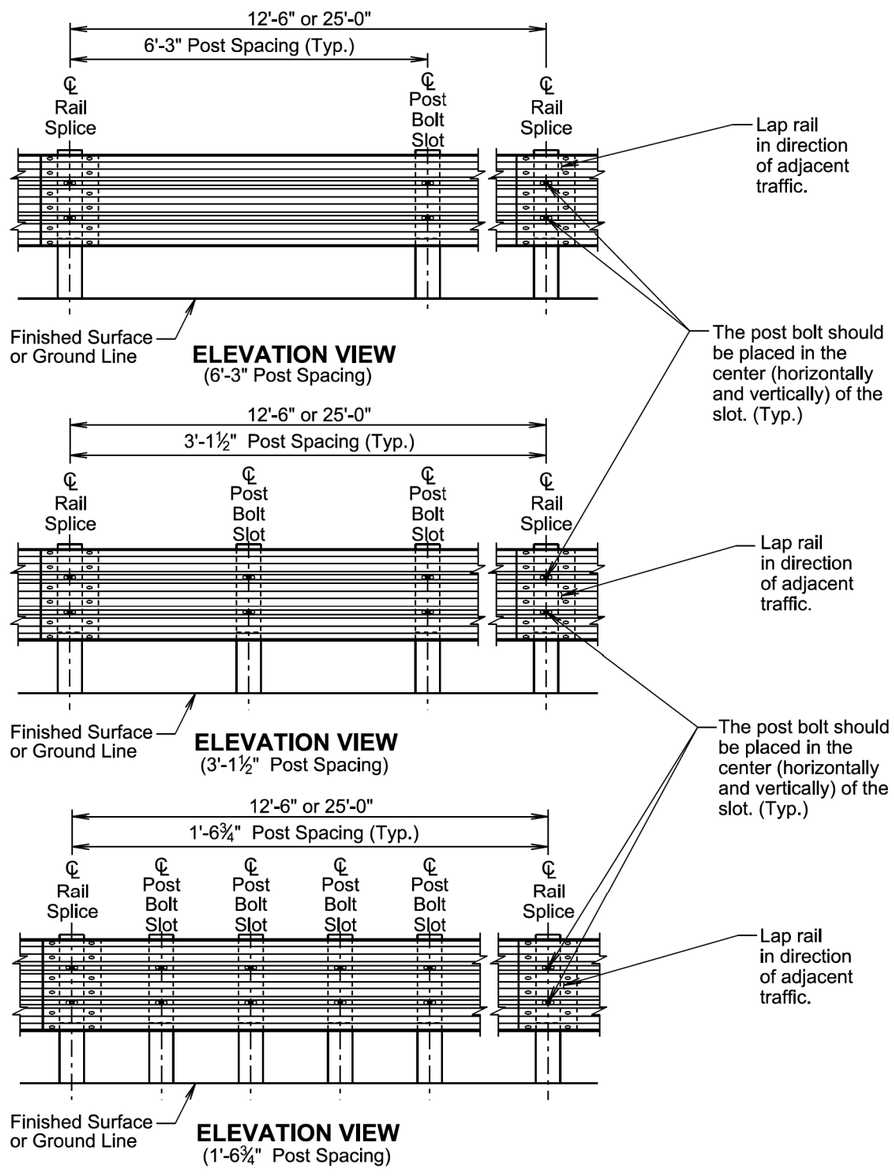
EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

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.

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 2 of 5



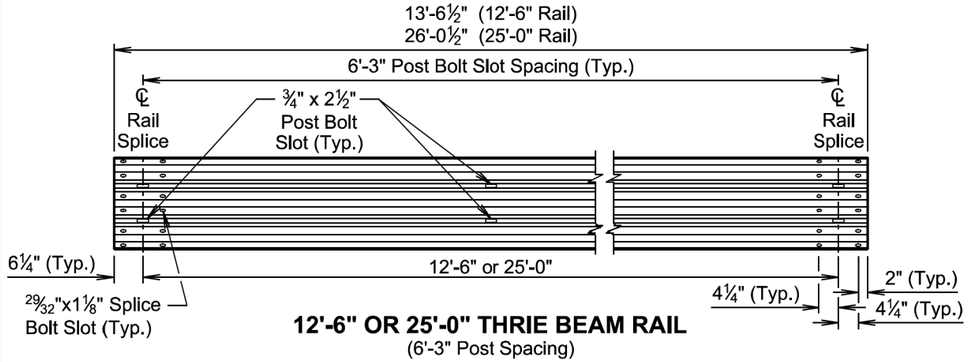
ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

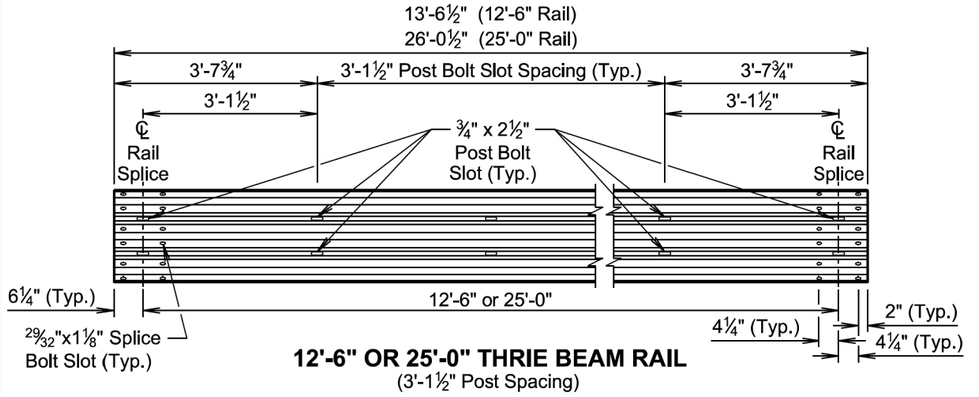
ELEVATION VIEW
(1'-6¾" Post Spacing)

April 8, 2025

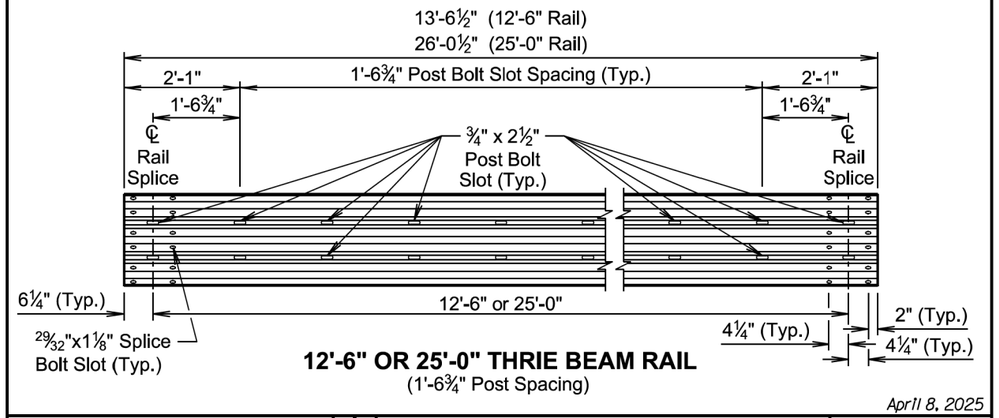
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 3 of 5



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



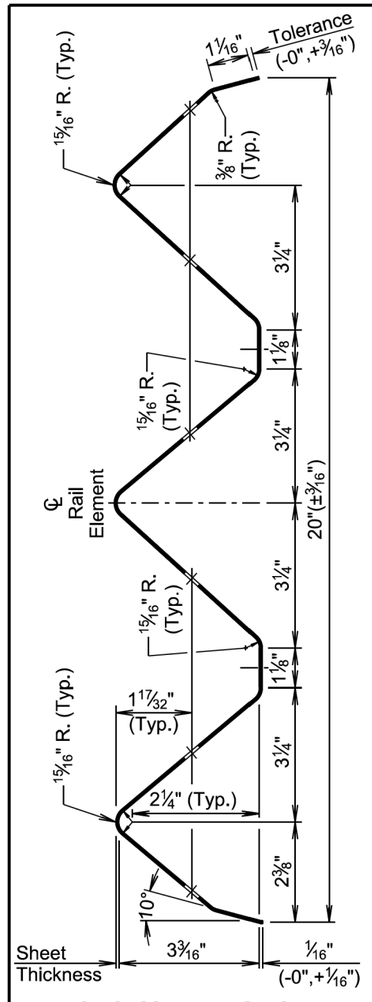
12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1½" Post Spacing)



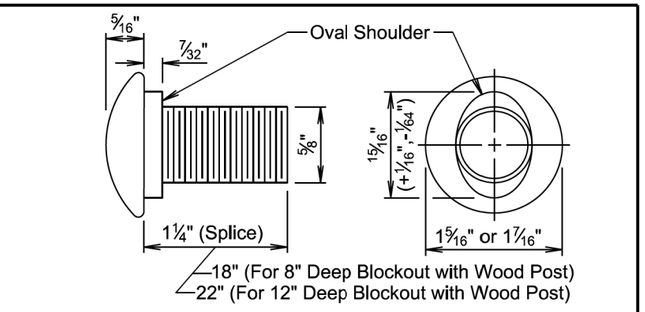
12'-6" OR 25'-0" THRIE BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

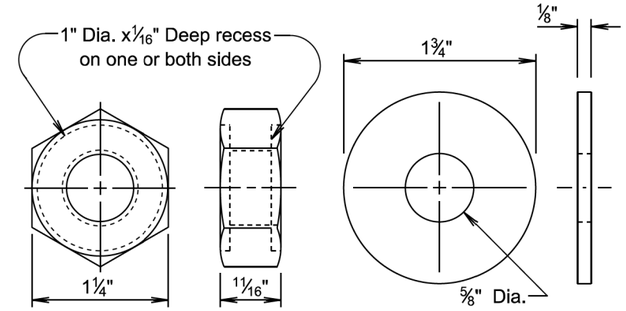
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 4 of 5



SECTION THROUGH THRIE BEAM RAIL

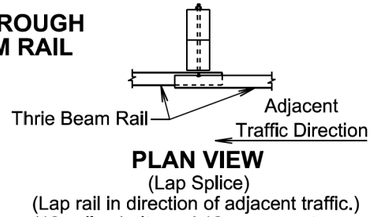


SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)

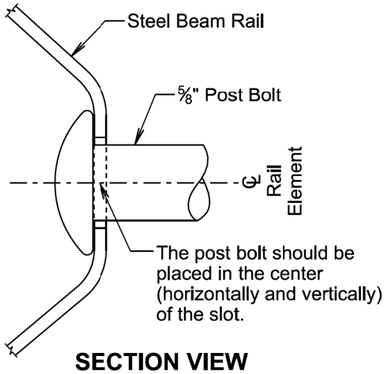


RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)

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)

April 8, 2025

Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 5 of 5

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.

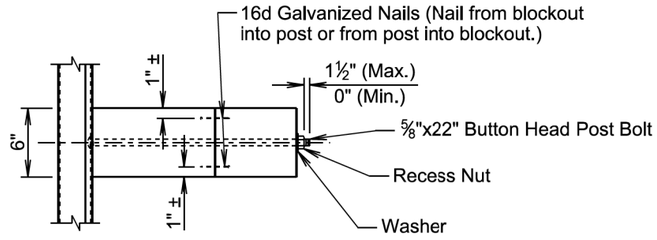
All W beam rail will be Type 1 and Class A (12 Ga.) unless specified otherwise in the plans.

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.

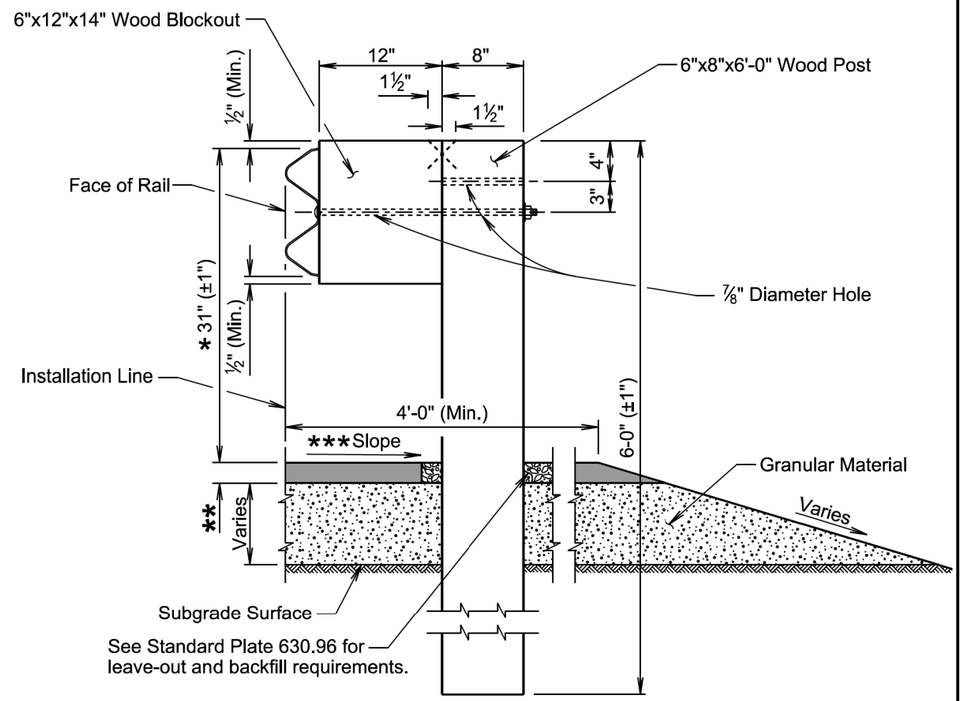
Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or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

April 8, 2025



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



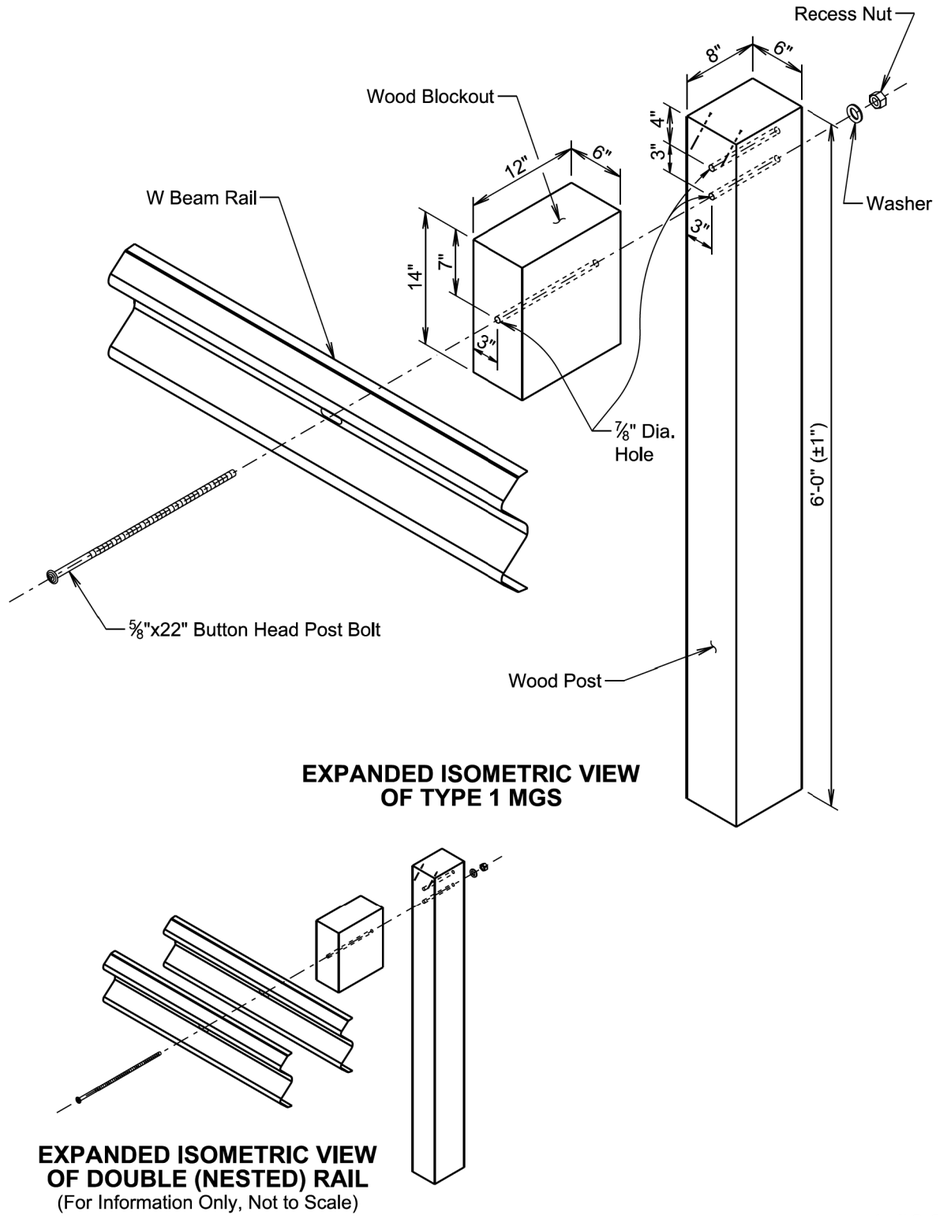
TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

* 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.

April 8, 2025

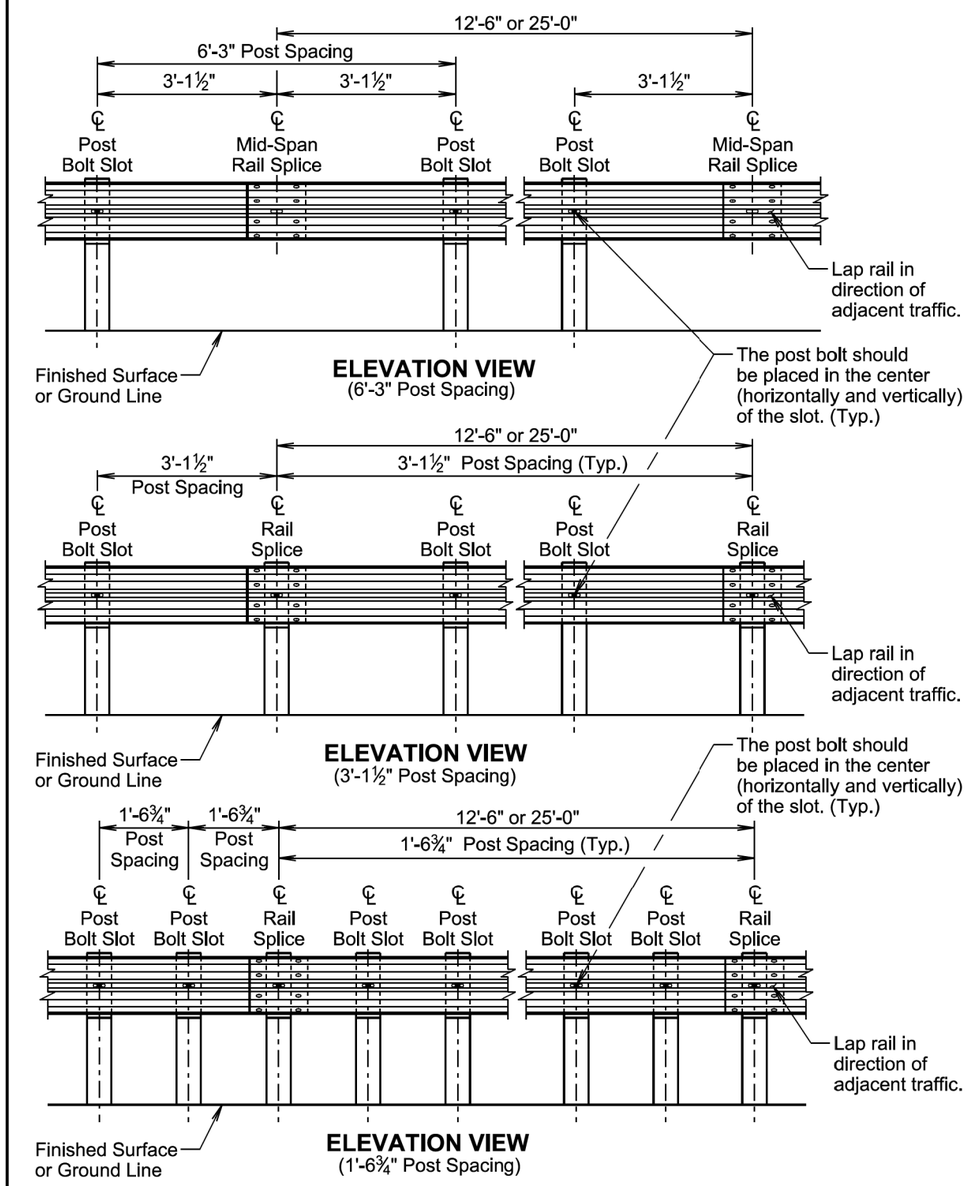


EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS

EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) RAIL
(For Information Only, Not to Scale)

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6



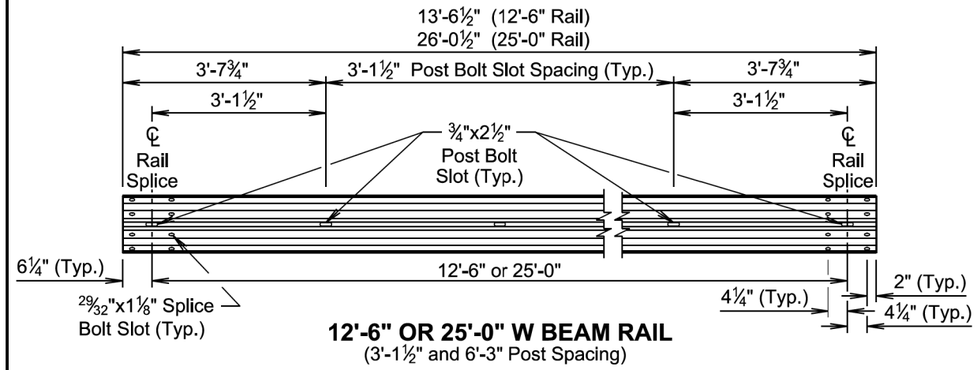
ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

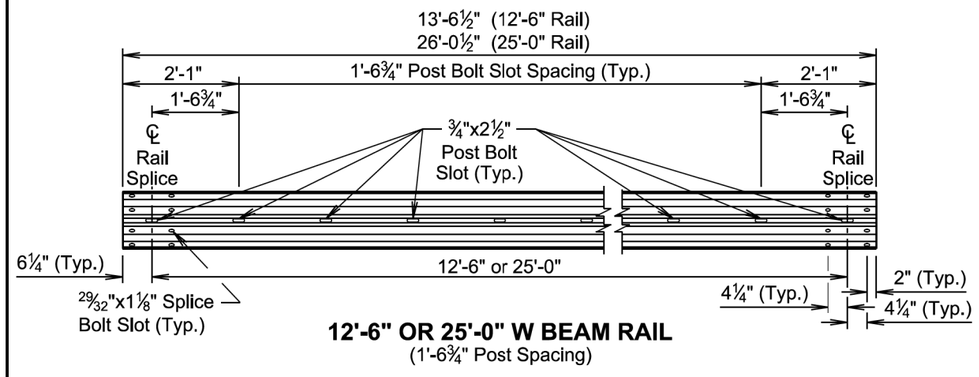
ELEVATION VIEW
(1'-6¾" Post Spacing)

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 4 of 6



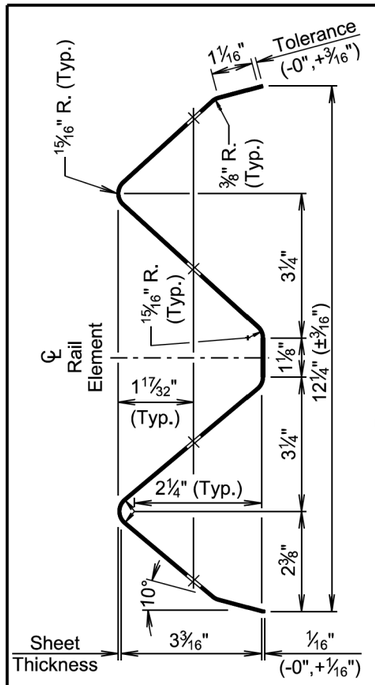
12'-6" OR 25'-0" W BEAM RAIL
(3'-1½" and 6'-3" Post Spacing)



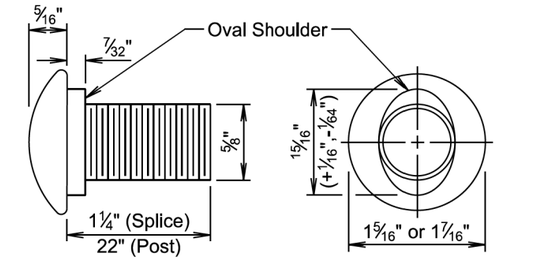
12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

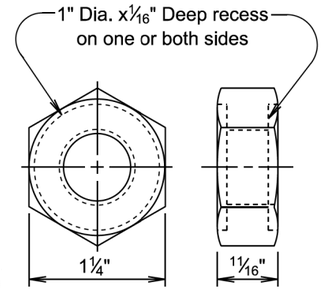
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



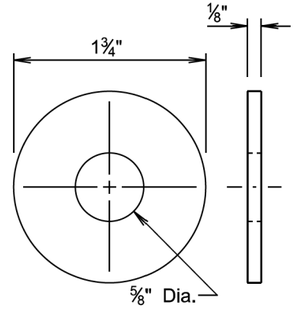
SECTION THROUGH W BEAM RAIL



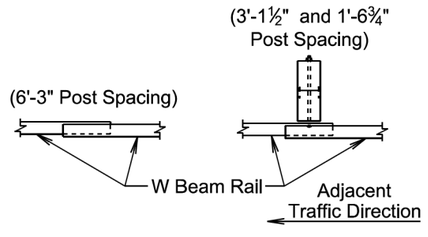
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



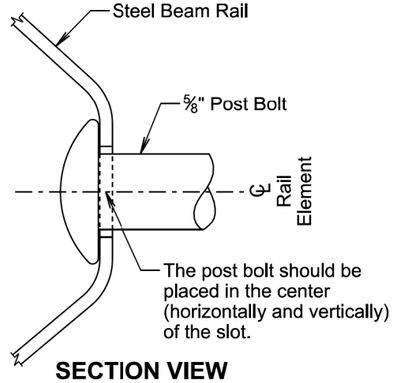
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



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)

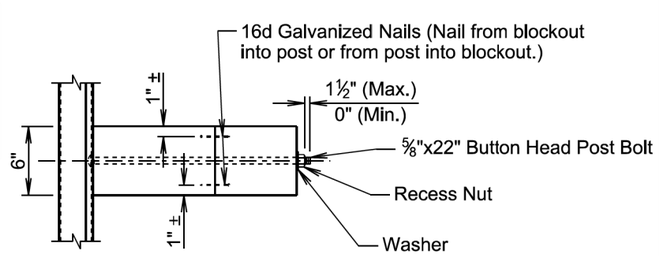


SECTION VIEW
(At Post Bolt)

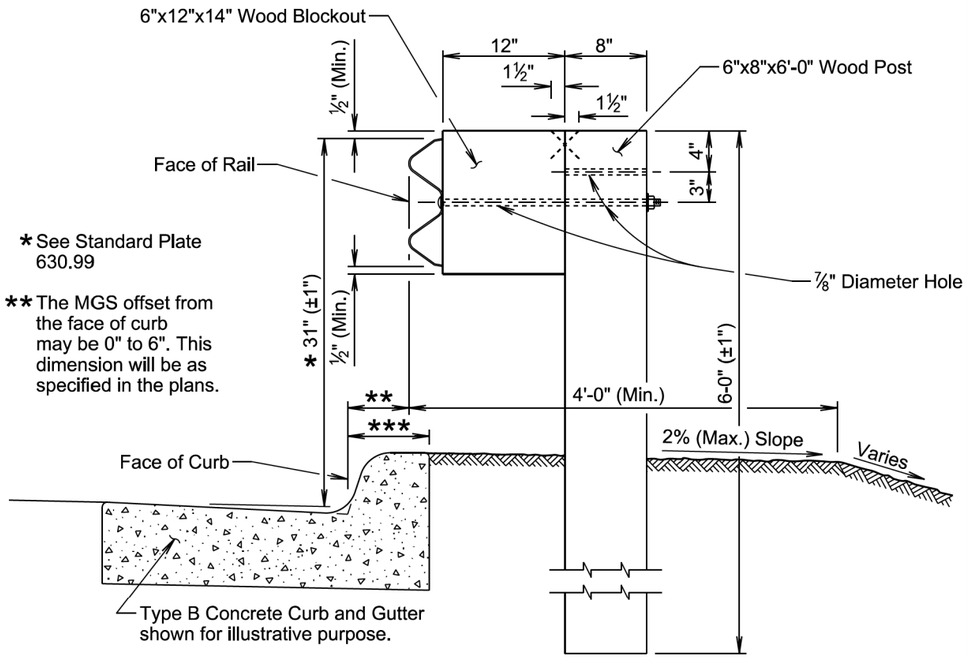
April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6

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

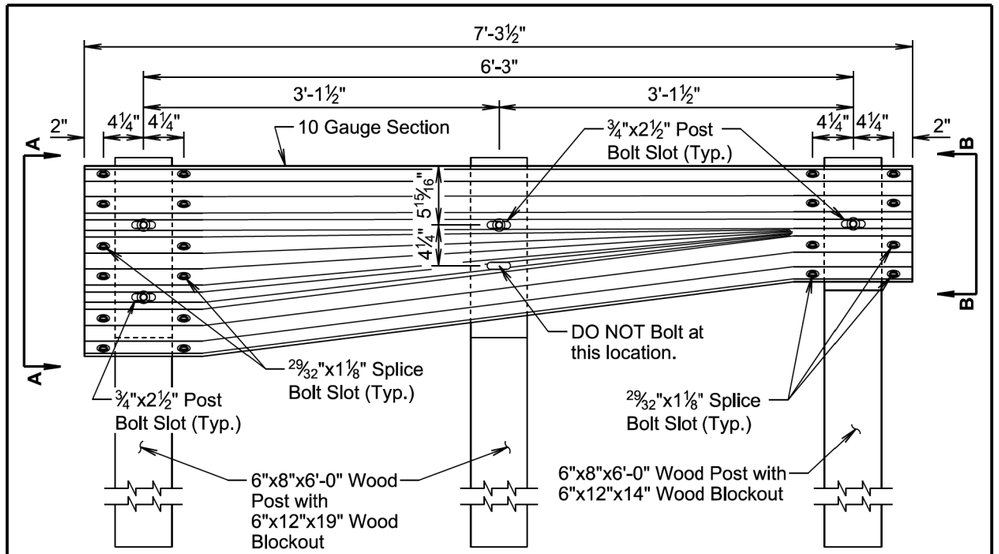
GENERAL NOTES:

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

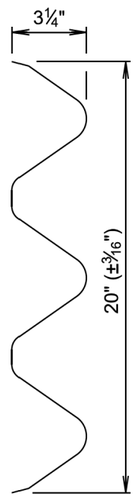
When PCC pavement or asphalt concrete pavement is adjacent to the post, see standard plate 630.96 for leave-out and backfill requirements.

April 8, 2025

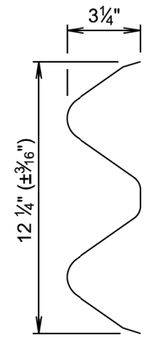
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS) AT CURB AND GUTTER	PLATE NUMBER 630.22 Sheet 1 of 1



ELEVATION VIEW



VIEW A-A



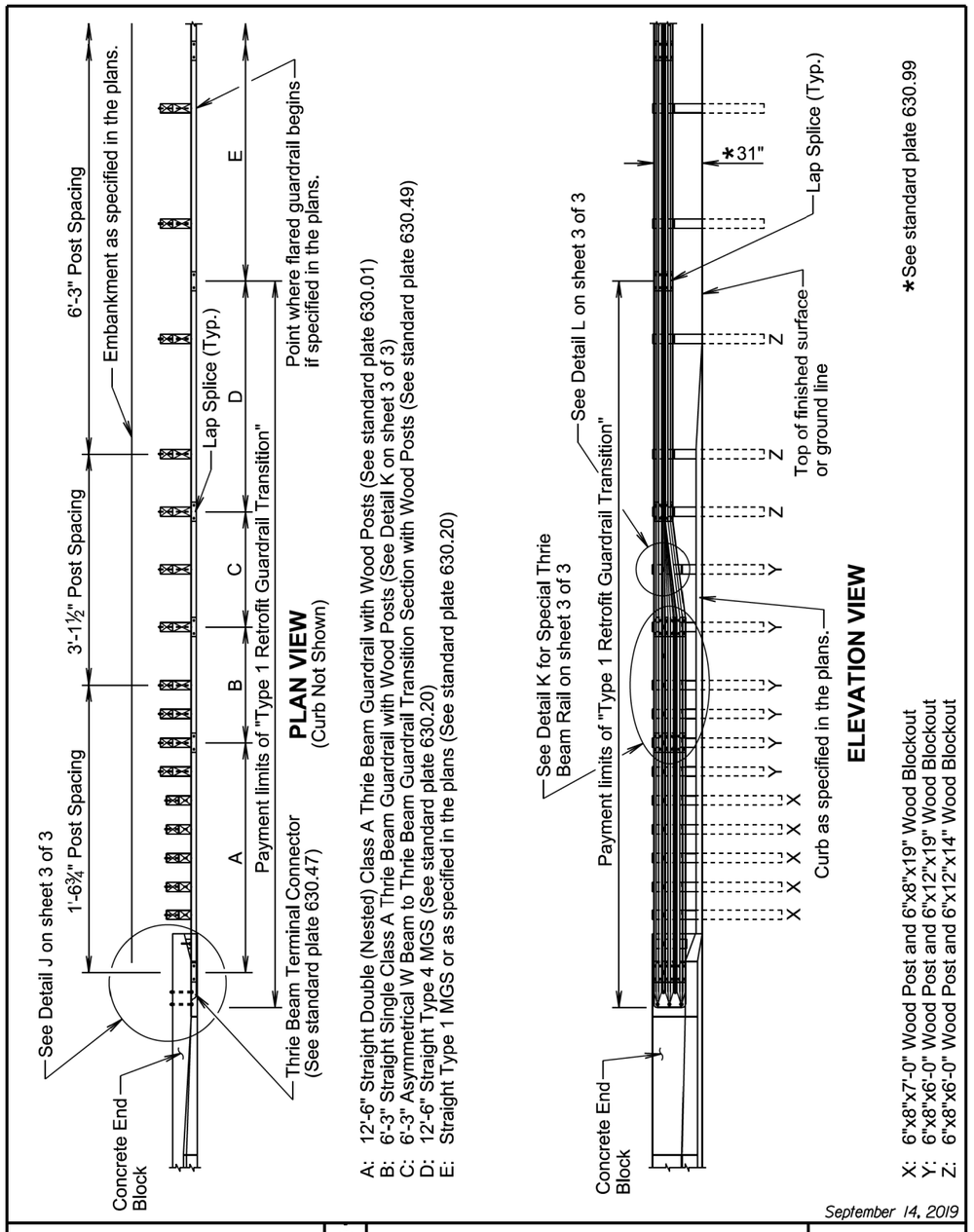
VIEW B-B

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.

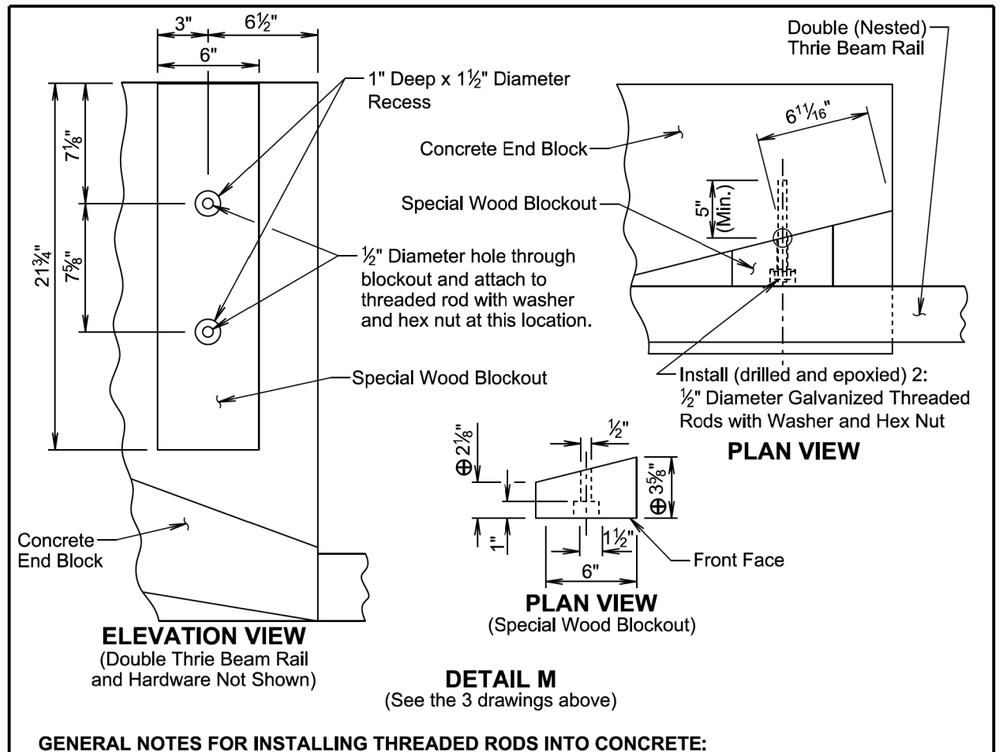
September 14, 2019

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



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.

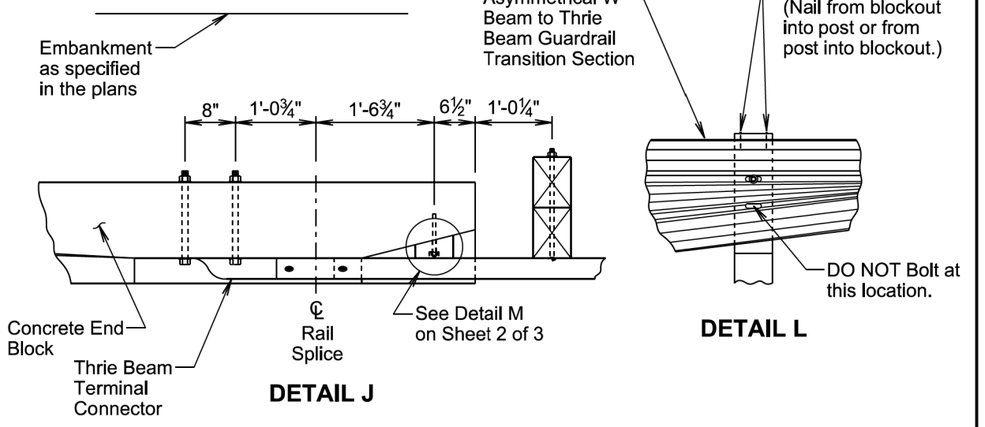
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

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.

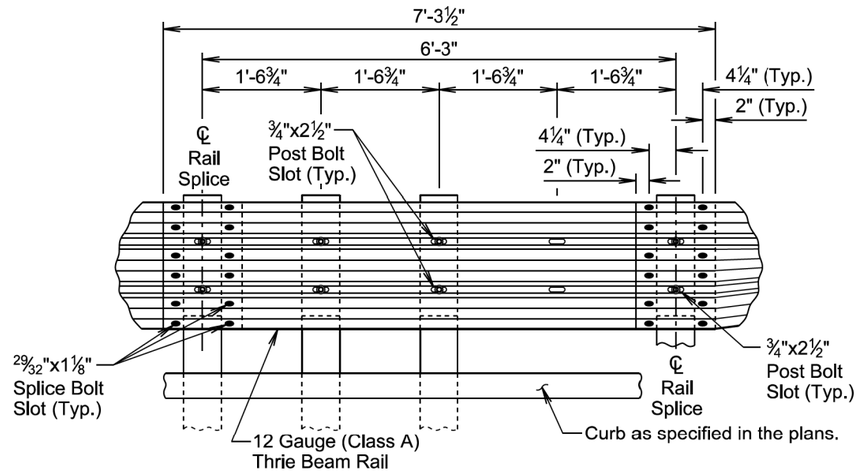
September 14, 2019

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



DETAIL L

DETAIL J



DETAIL K
(Special Thrie Beam Rail)

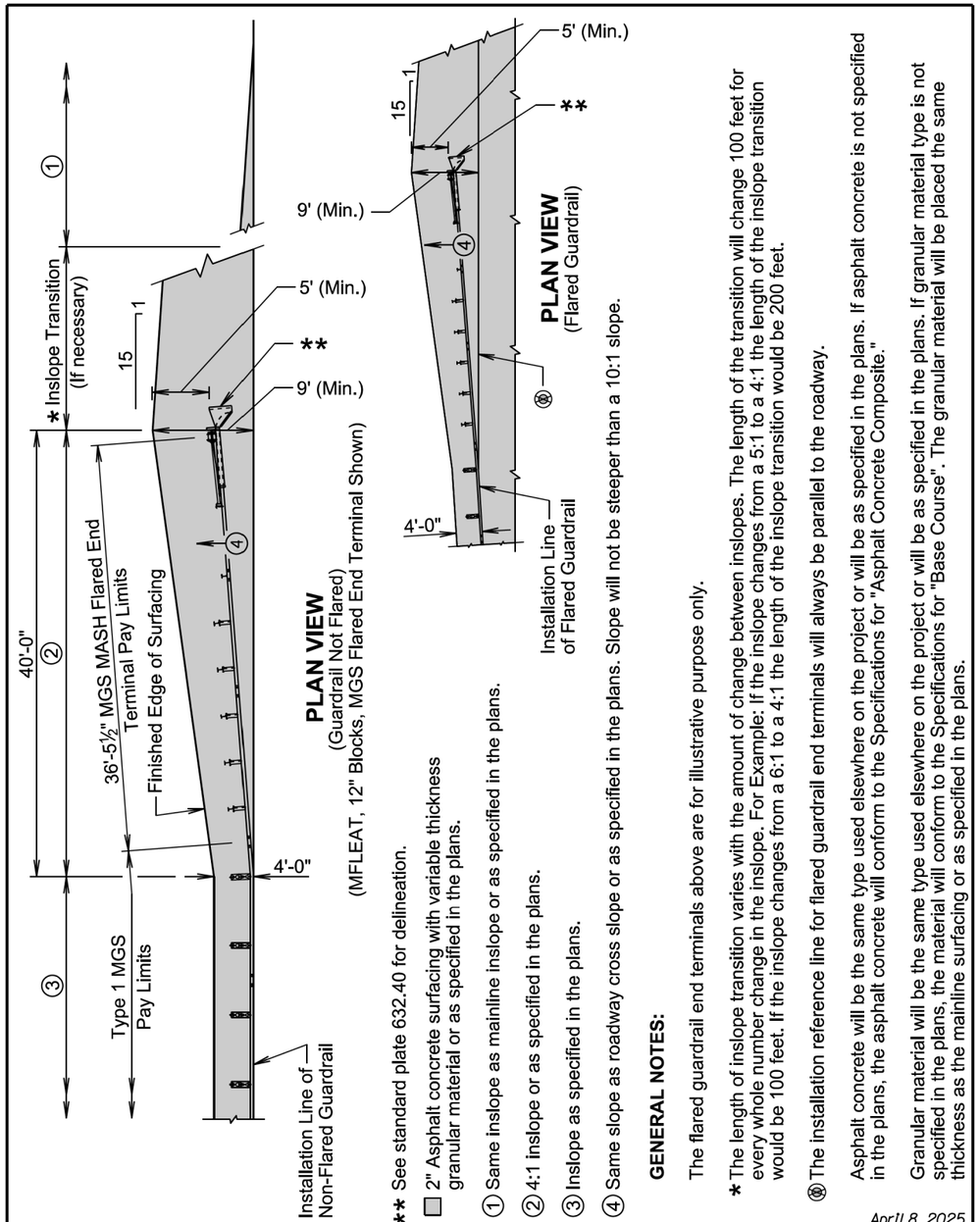
GENERAL NOTES:

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



** 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.

GENERAL NOTES:

The flared guardrail end terminals above are for illustrative purpose only.

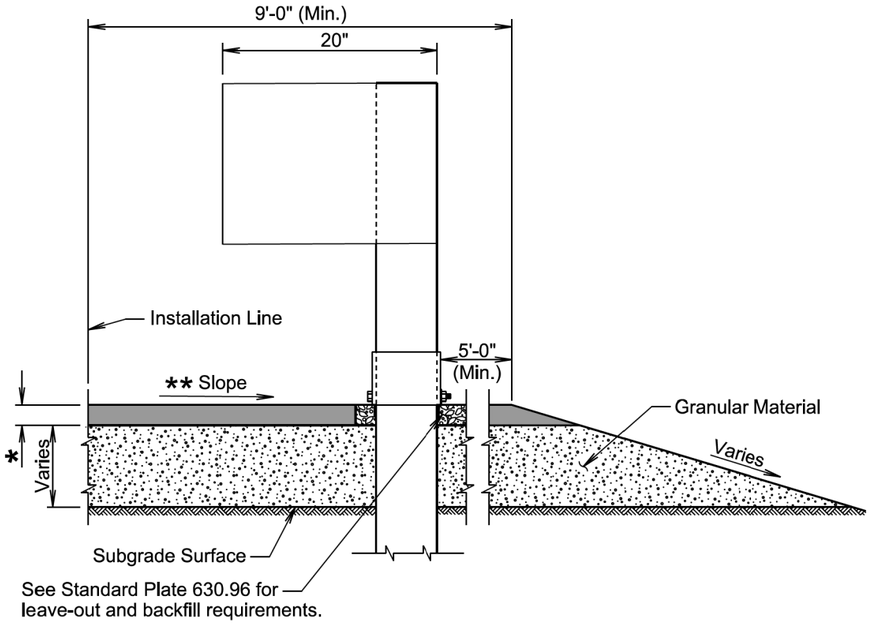
* The length of inslope transition varies with the amount of change between inslopes. The length of the transition will change 100 feet for every whole number change in the inslope. For Example: If the inslope changes from a 5:1 to a 4:1 the length of the inslope transition would be 200 feet. If the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

Ⓦ The installation reference line for flared guardrail 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 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. 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.

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87
			Sheet 1 of 2



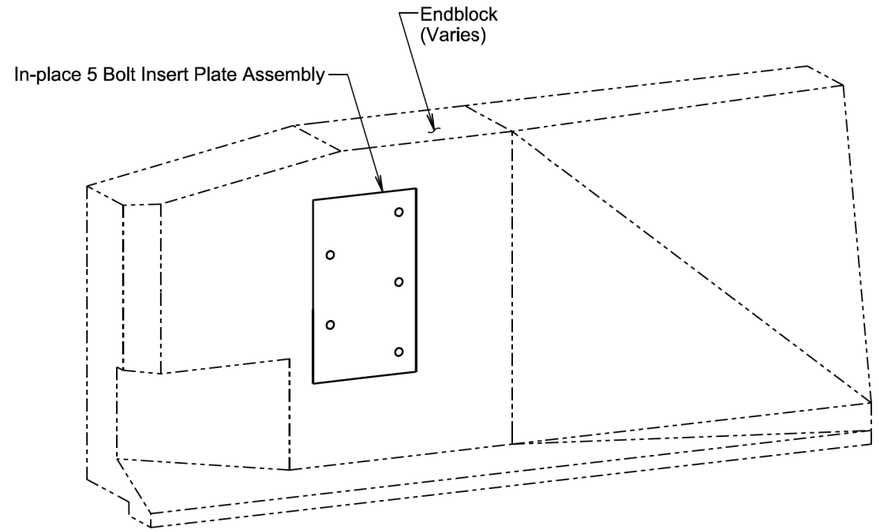
TRANSVERSE SECTION
(MFLEAT MGS Flared End Terminal Shown)

* 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.

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87
			Sheet 2 of 2



ISOMETRIC VIEW

GENERAL NOTES:

Bolts, nuts, and washers are furnished with each new assembly. Where guardrail is to be reset, bolts will be salvaged and reset for guardrail installation. Any hardware damaged or lost from the Contractor's operation will be replaced at no additional cost to the State.

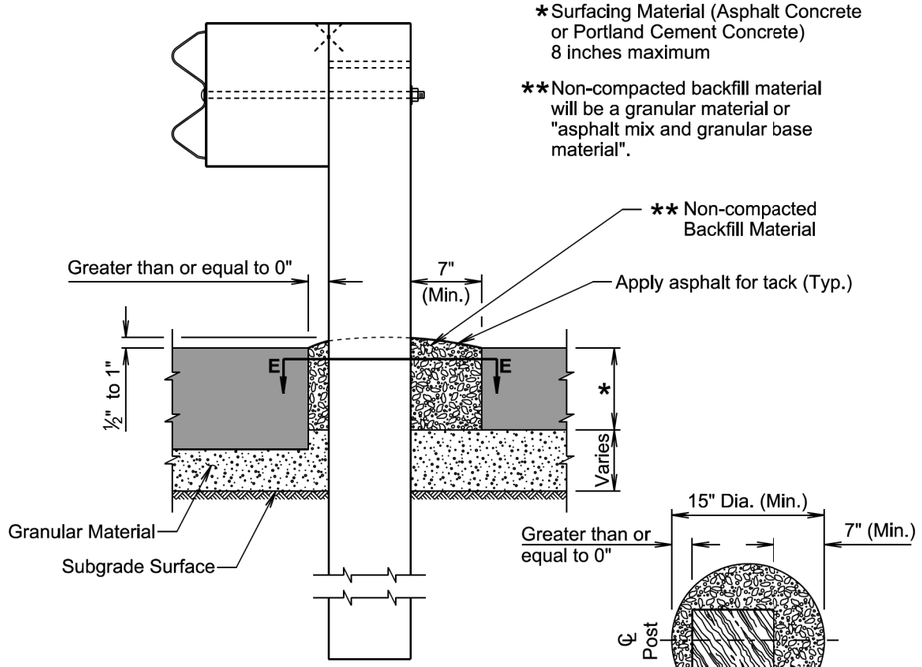
New bolts, if required, will be galvanized and conform to the requirements of ASTM A307, F3125 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

Bolt heads will be placed on the traffic side of the endblock. Bolt projection at the back side of the insert will not exceed 1 inch beyond the nut.

All costs for salvaging, resetting, and refurnishing lost hardware will be incidental to the contract unit price for the respective guardrail contract item.

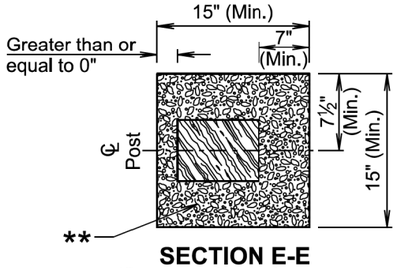
April 8, 2025

Published Date: 2026	SDDOT	GUARDRAIL ATTACHMENT TO BRIDGE ENDBLOCKS	PLATE NUMBER 630.93
			Sheet 1 of 1



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.

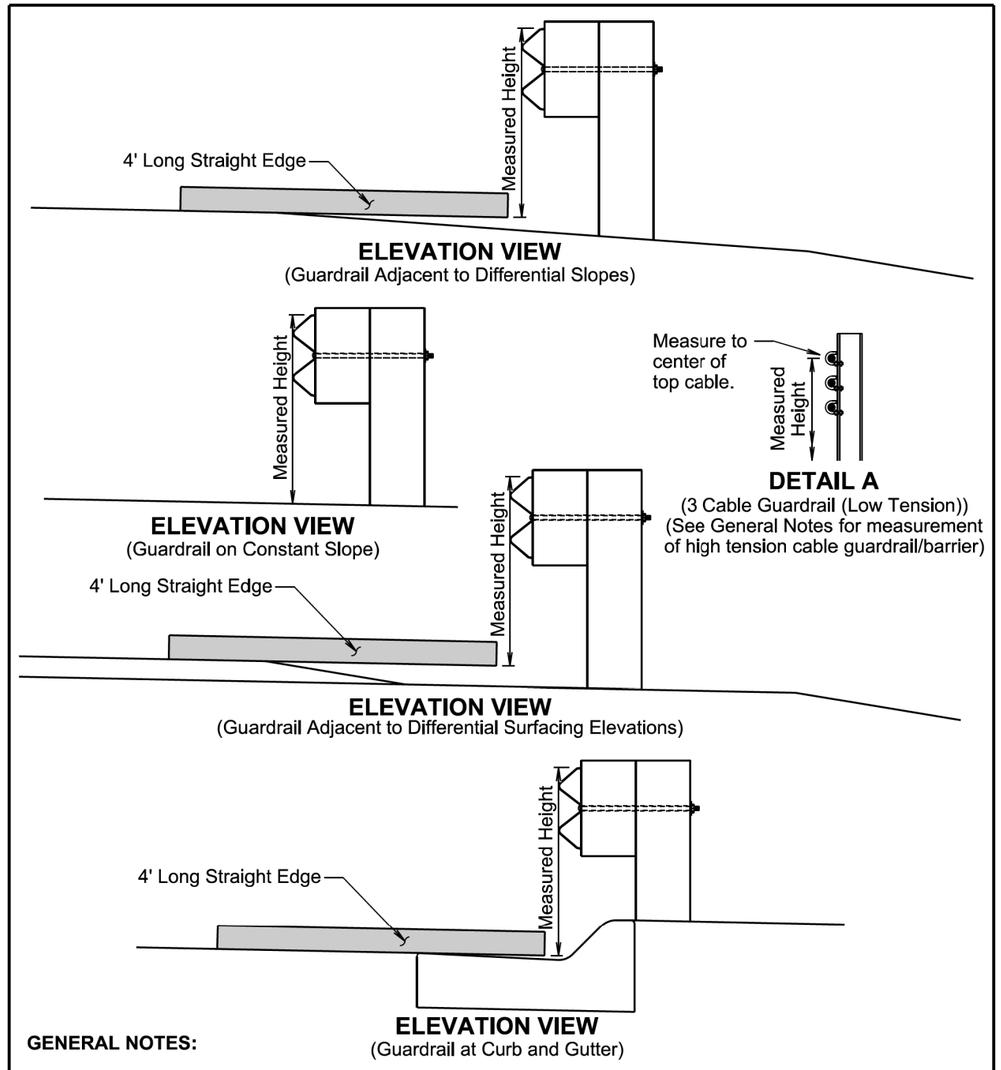
The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

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:

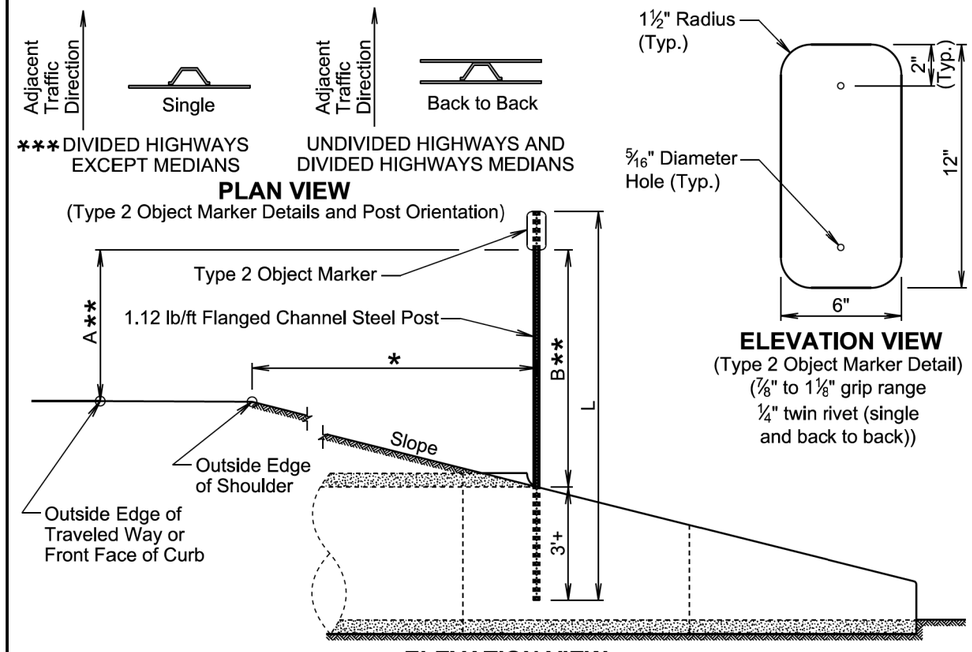
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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



TYPE 2 OBJECT MARKER POST LENGTHS									
OFFSET (*)		1'	2'	3'	4'	5'	6'	7'	8'	Greater Than 8'
		POST LENGTH (L)								
SLOPE	3:1	8'-6"	8'-9"	9'-3"	9'-6"	9'-9"	10'-3"	10'-6"	10'-9"	8'-0"
	4:1	8'-6"	8'-9"	9'-0"	9'-3"	9'-9"	9'-9"	10'-0"	10'-3"	8'-0"
	5:1	8'-3"	8'-6"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	9'-9"	8'-0"
	6:1	8'-3"	8'-6"	8'-9"	8'-9"	9'-0"	9'-3"	9'-3"	9'-6"	8'-0"

GENERAL NOTES:

*** The type 2 object marker may be installed back to back when specified in the plans.

Post Length L was calculated based on a shoulder width of 6 feet at a crosslope of 4 percent and L was rounded up to the nearest 3 inches.

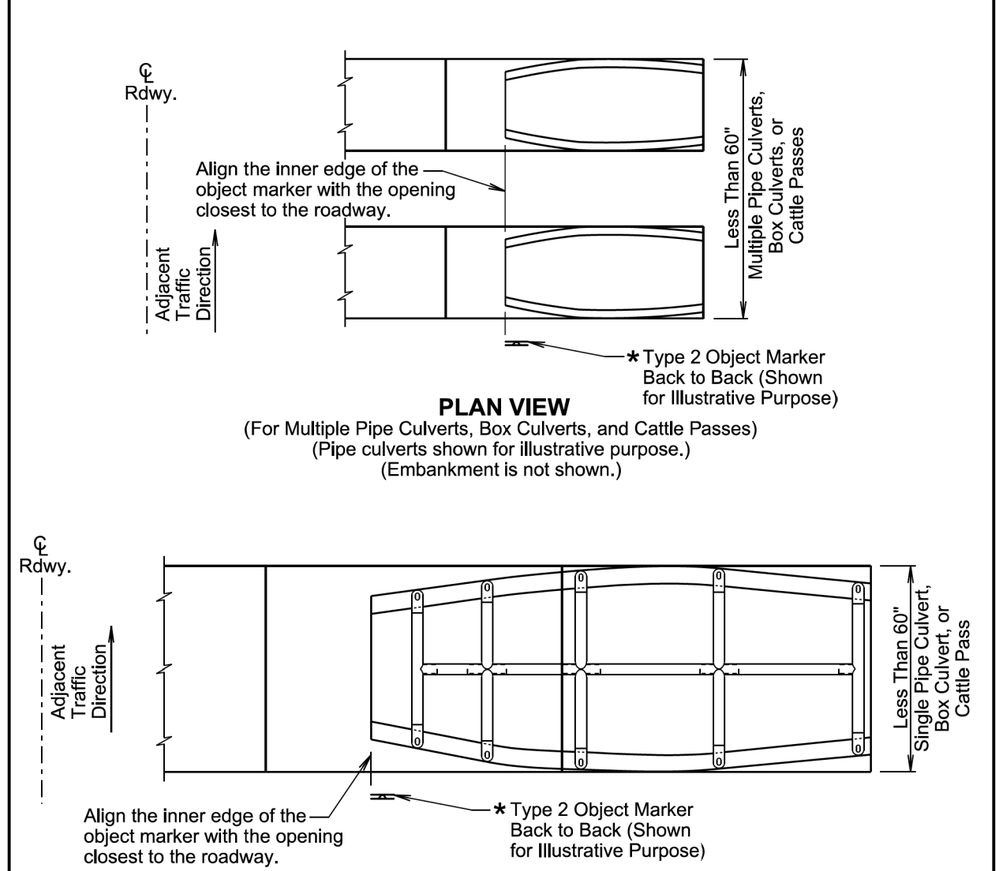
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

The type 2 object marker and the 1.12 lb/ft flanged channel steel post will be in conformance with Specifications Section 982.2 J.

Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER (DIRECT DRIVE)	PLATE NUMBER 632.01 Sheet 1 of 1



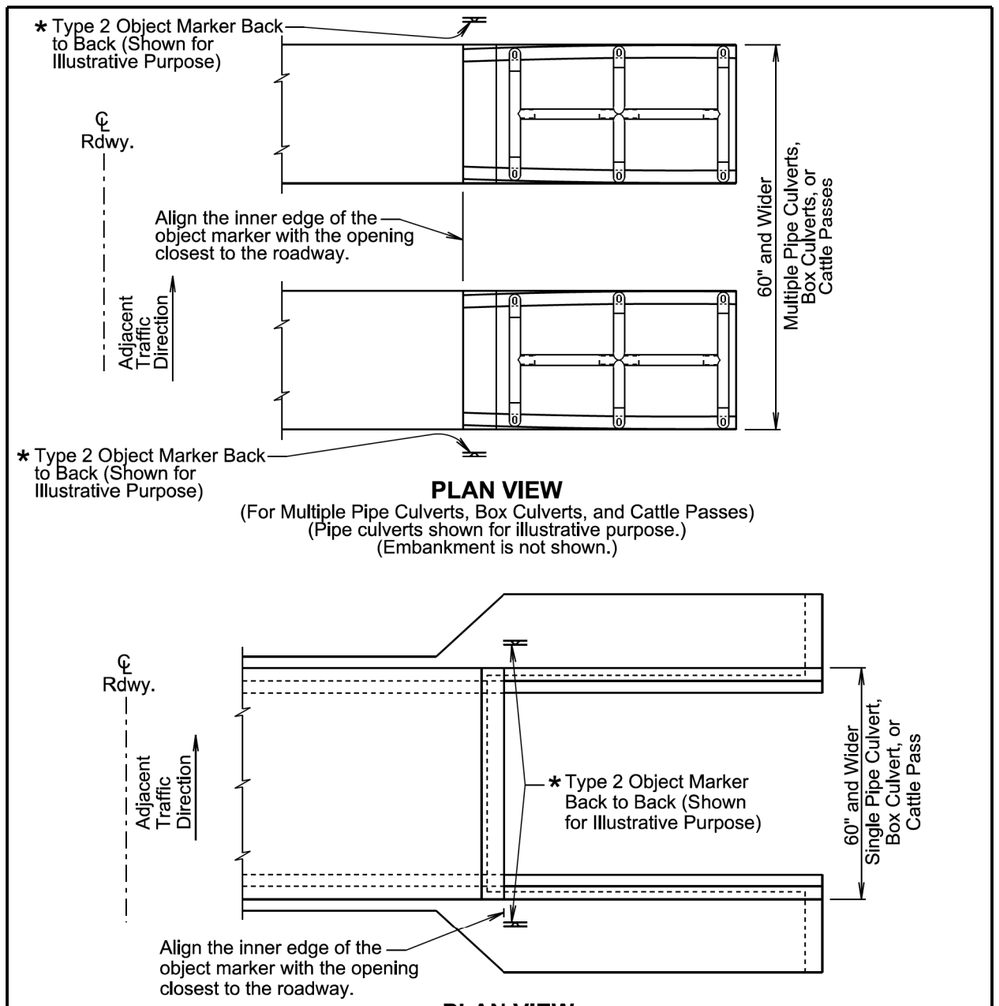
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (Less than 60" Overall Width)	PLATE NUMBER 632.03 Sheet 1 of 1



PLAN VIEW
(For Multiple Pipe Culverts, Box Culverts, and Cattle Passes)
(Pipe culverts shown for illustrative purpose.)
(Embankment is not shown.)

PLAN VIEW
(For Single Pipe Culvert, Box Culvert, and Cattle Pass)
(Box culvert shown for illustrative purpose.)
(Embankment is not shown.)

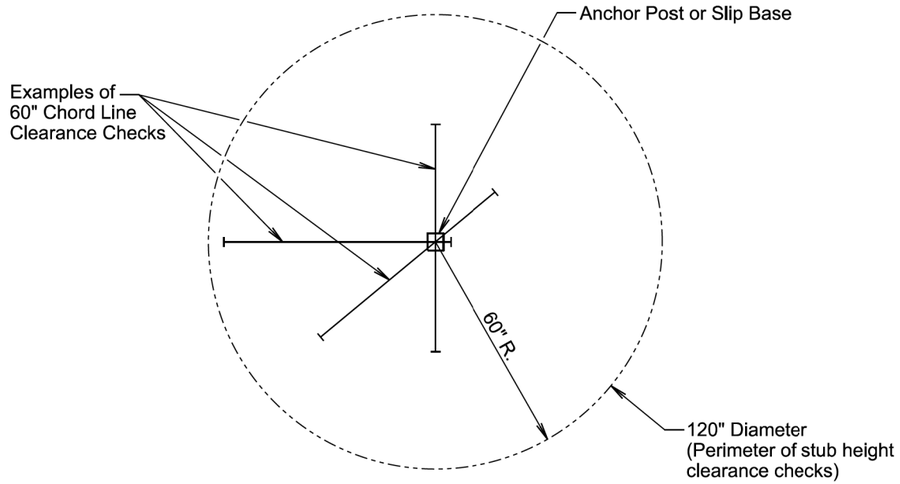
GENERAL NOTES:

This standard plate will be used in conjunction with standard plate 632.01.

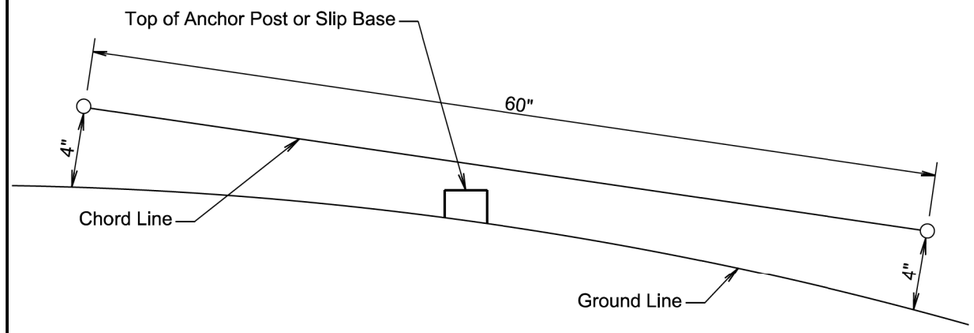
* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2026	SDDOT	TYPE 2 OBJECT MARKER AT PIPE CULVERTS, BOX CULVERTS, AND CATTLE PASSES (60" and Greater Overall Width)	PLATE NUMBER 632.04 Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

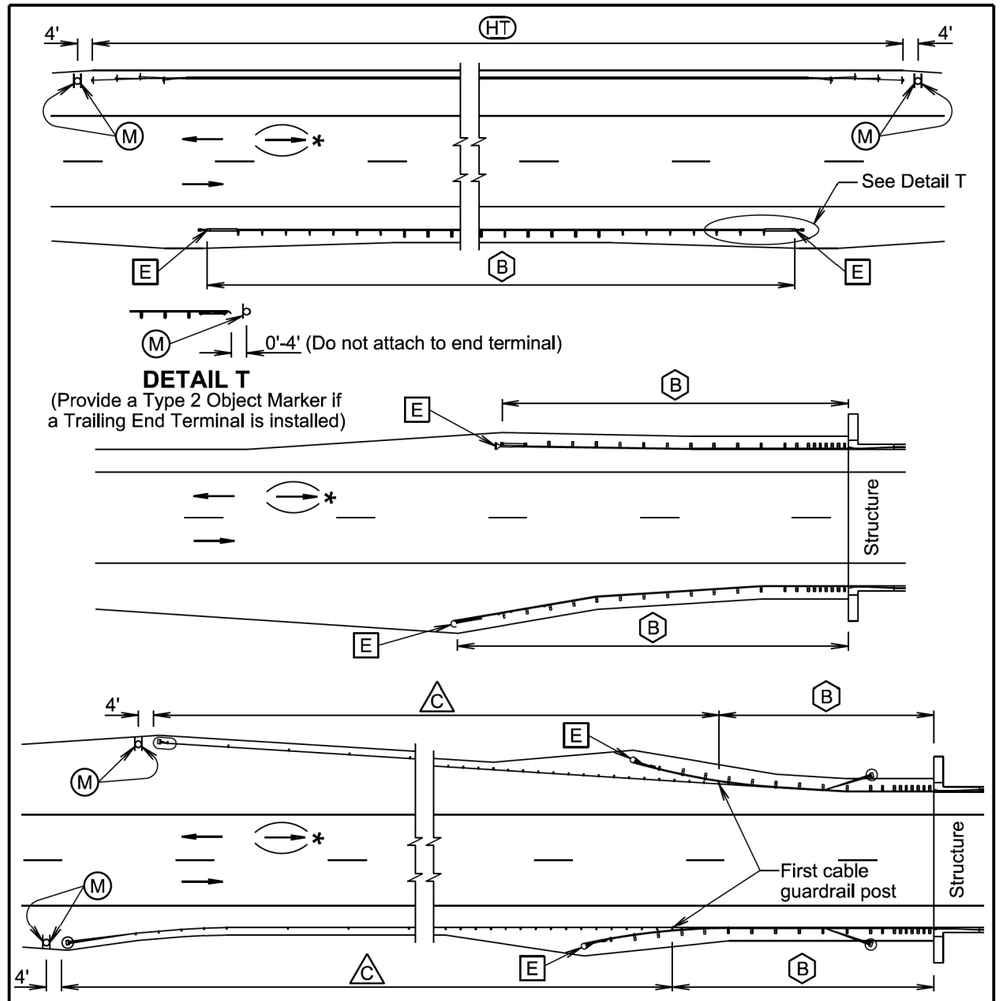
GENERAL NOTES:

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.

January 22, 2021

Published Date: 2026	SDDOT	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 632.18 Sheet 1 of 1



DETAIL T
(Provide a Type 2 Object Marker if a Trailing End Terminal is installed)

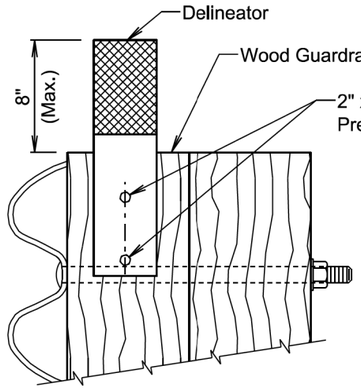
PLAN VIEW
(Typical Guardrail Layouts)

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

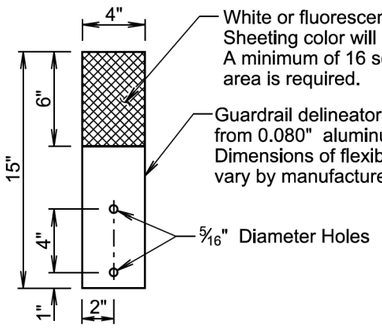
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

April 8, 2025

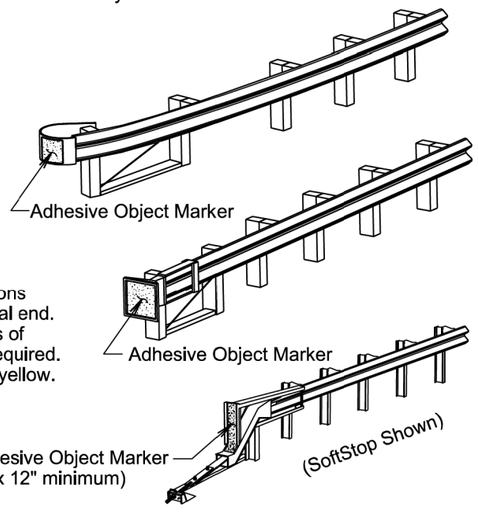
Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40 Sheet 1 of 4

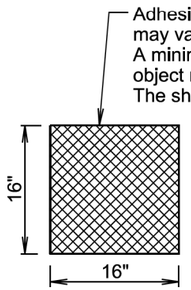


Ⓑ STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



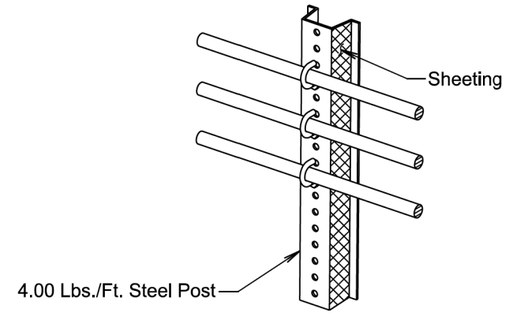


ADHESIVE OBJECT MARKER

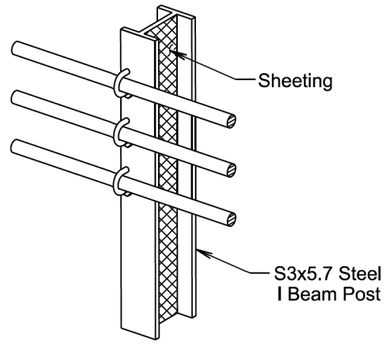
Ⓔ GUARDRAIL END TERMINAL OBJECT MARKER

April 8, 2025

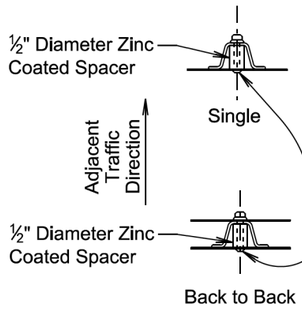
Published Date: 2026	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



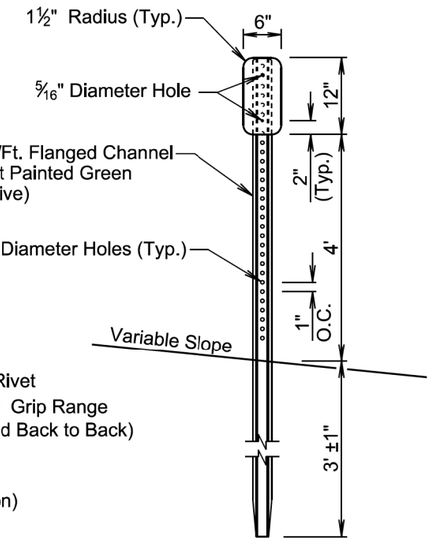
Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



Ⓒ 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".

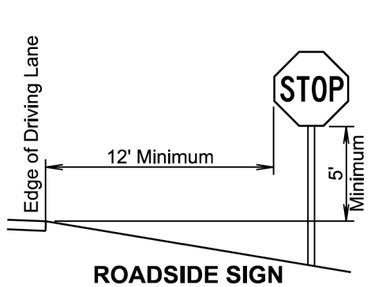
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

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.

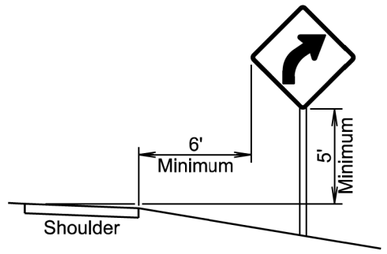
A type 2 object marker will be placed such that the edges of the type 2 object marker and the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, or the trailing end terminal that are nearest to the roadway will be installed in line with the same lateral offset from the traveled 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

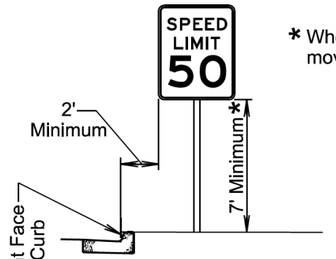
Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4



ROADSIDE SIGN IN RURAL AREA

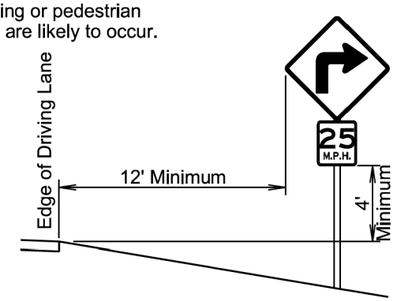


ROADSIDE SIGN IN RURAL AREA
(If shoulder width is greater than 6 foot)

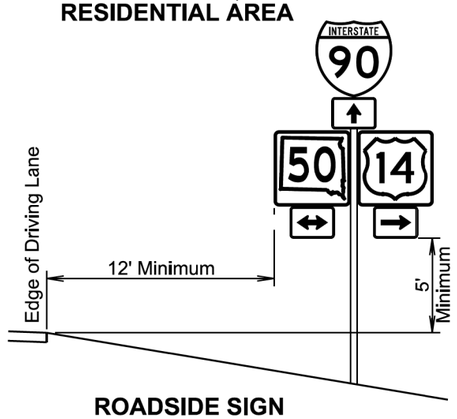


ROADSIDE SIGN IN BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

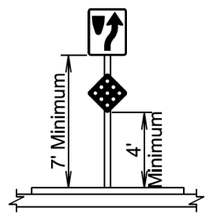
* Where parking or pedestrian movements are likely to occur.



WARNING SIGN ADVISORY SPEED PLAQUE IN RURAL AREA



ROADSIDE SIGN IN RURAL AREA



SIGN ON NOSE OF MEDIAN

April 8, 2025

Published Date: 2026	SDDOT	OFFSETS FOR SIGN INSTALLATION	PLATE NUMBER 632.90
			Sheet 1 of 1

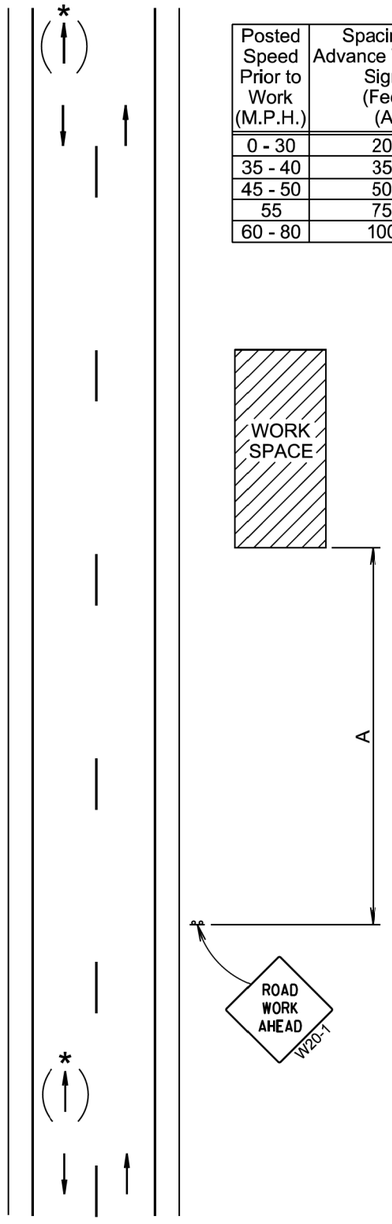
The signs illustrated are not required if the work space is behind a barrier, more than 2 feet behind the curb, or 15 feet or more from the edge of any roadway.

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

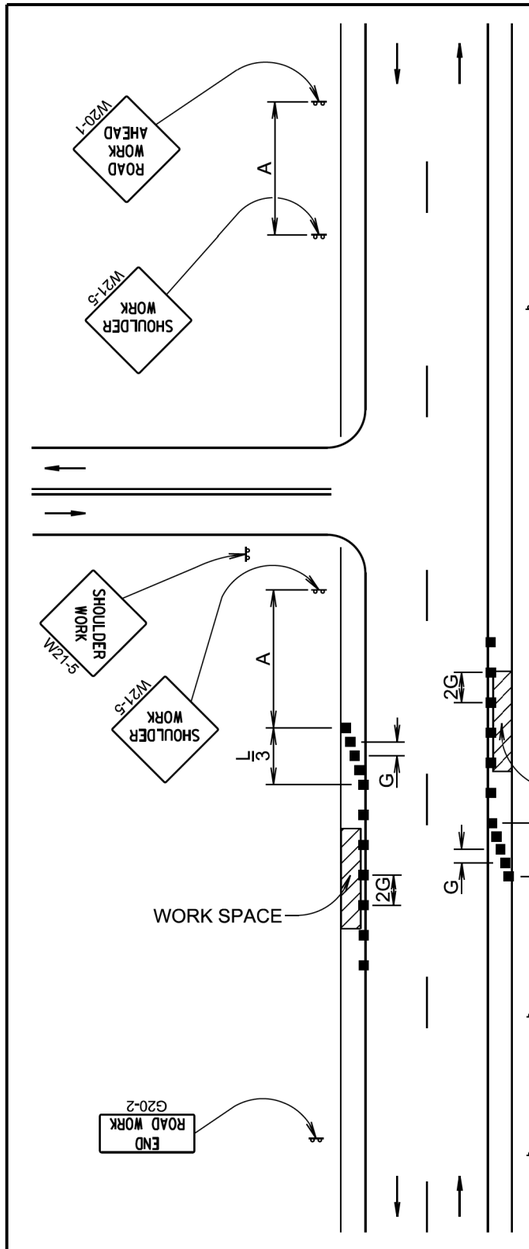
Published Date: 2026

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.

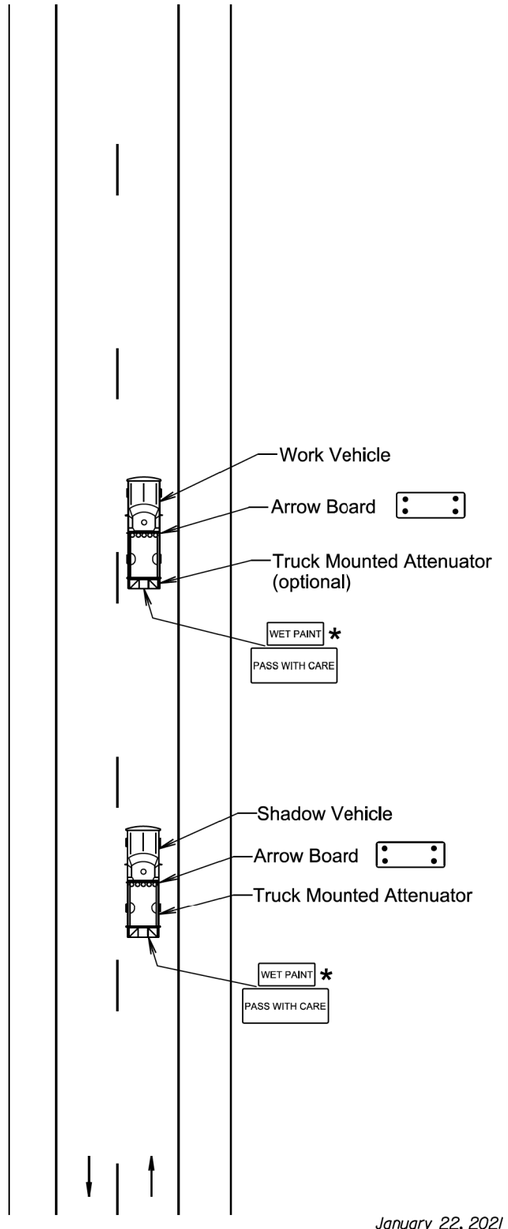
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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".

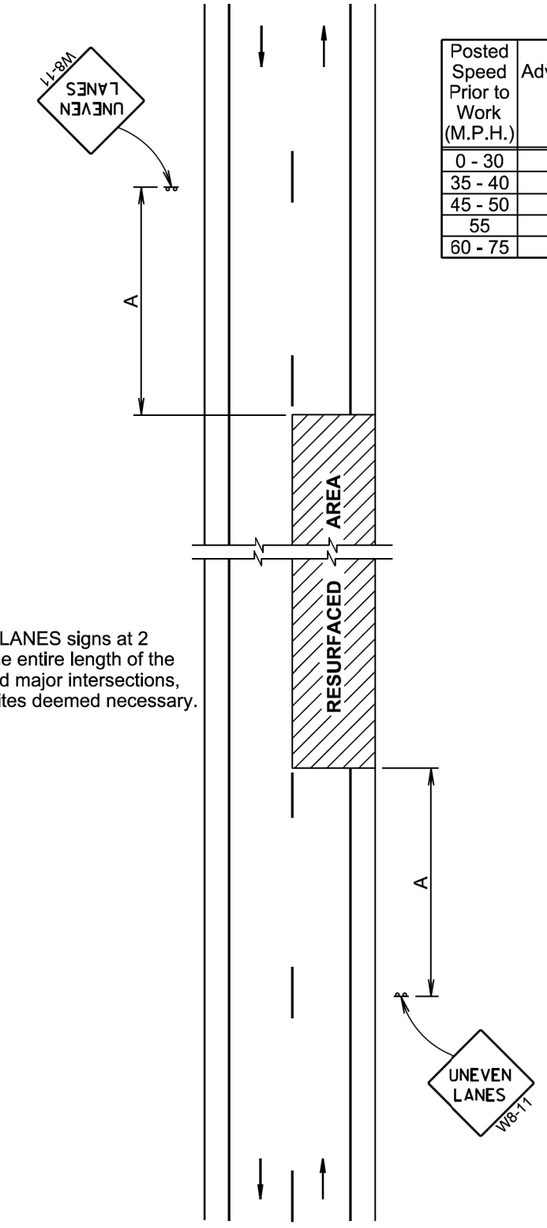


January 22, 2021

Published Date: 2026	SDDOT	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER 634.06
			Sheet 1 of 1

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.

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



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.

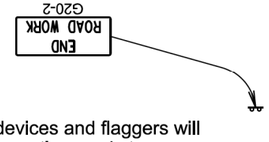
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

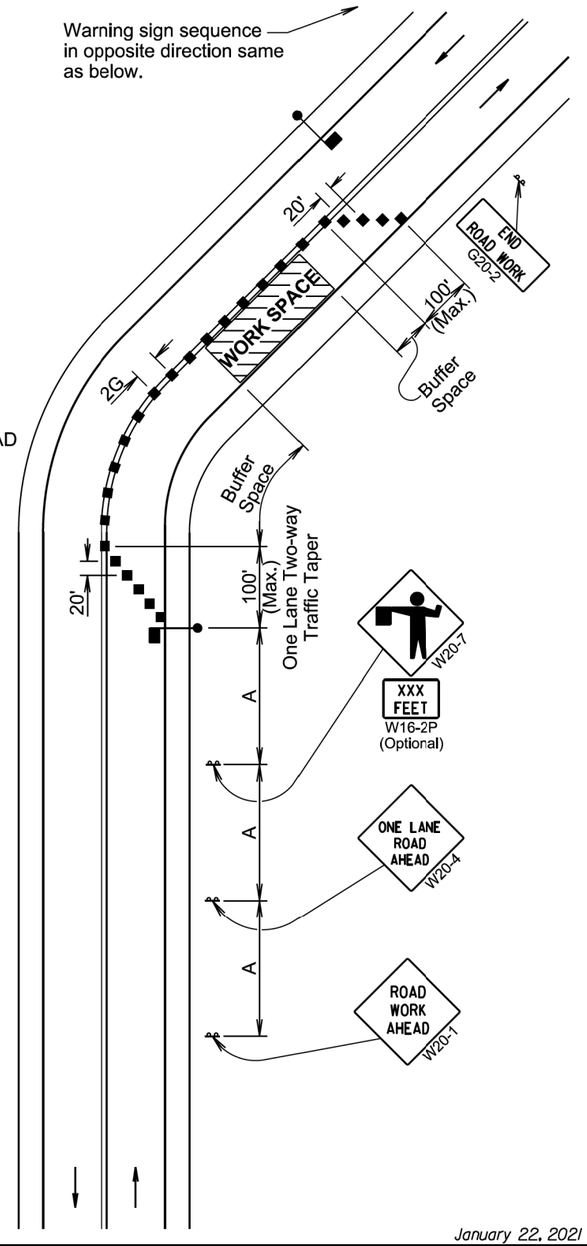
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

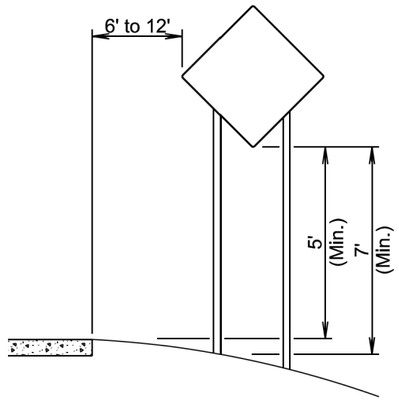
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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

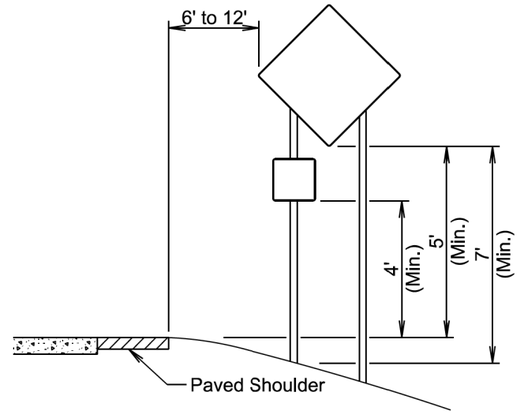


January 22, 2021

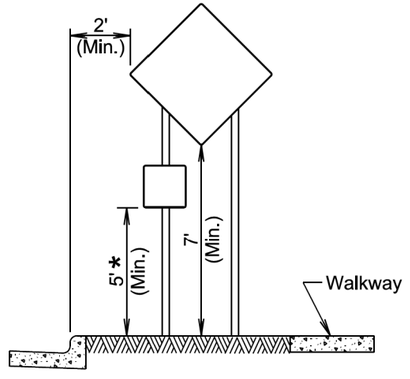
Published Date: 2026	SDDOT	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
			Sheet 1 of 1



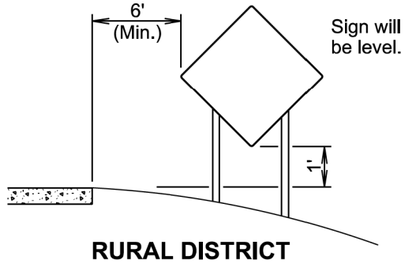
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

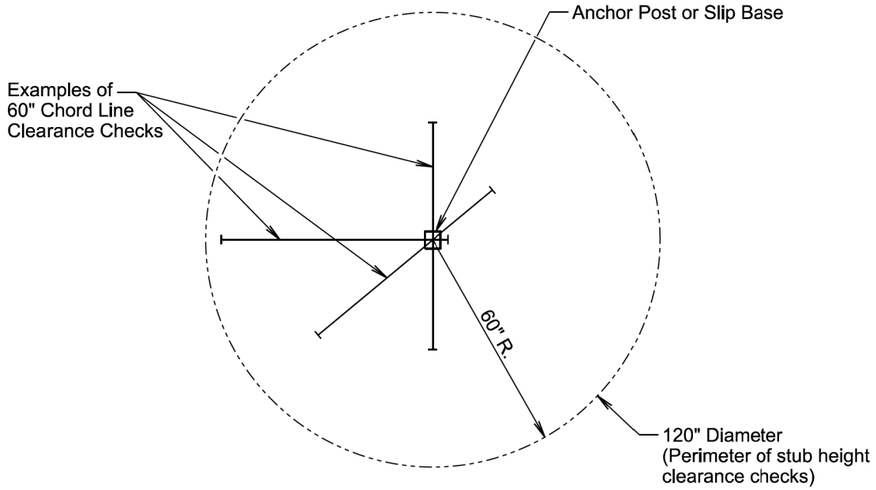


RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

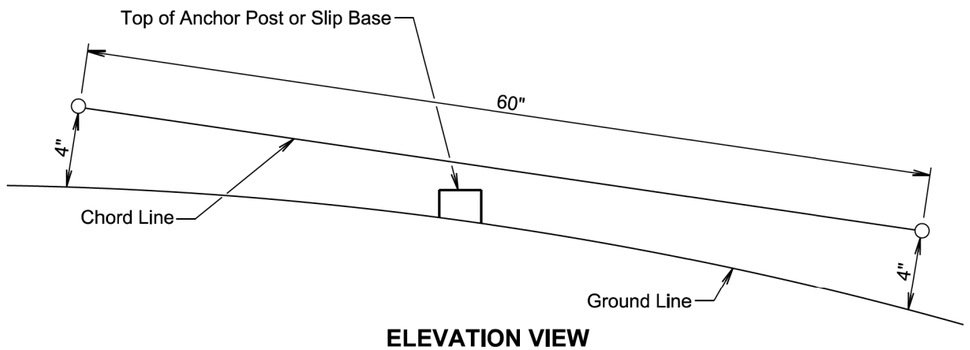
*If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

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:

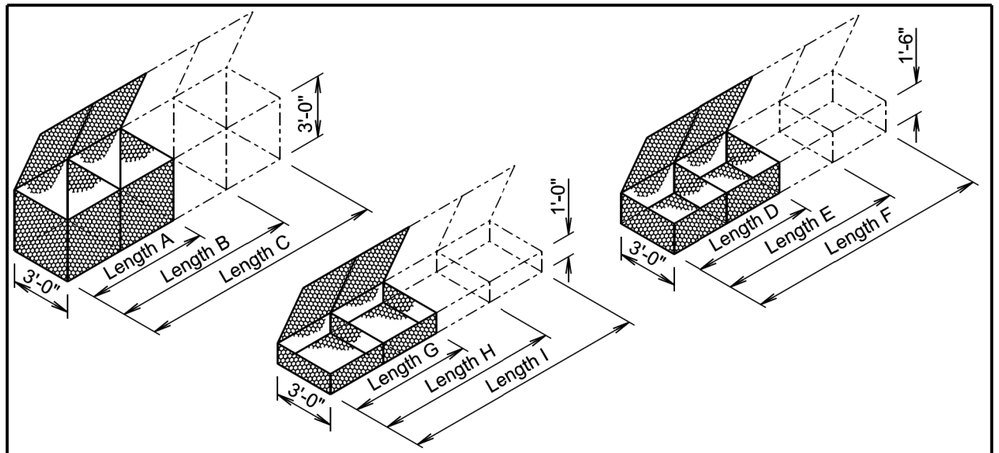
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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*



GABION DETAILS

STANDARD SIZES					
SIZE	LENGTH	WIDTH	HEIGHT	NUMBER OF CELLS	CAPACITY (Cu. Yd.)
A	6'-0"	3'-0"	3'-0"	2	2.0
B	9'-0"	3'-0"	3'-0"	3	3.0
C	12'-0"	3'-0"	3'-0"	4	4.0
D	6'-0"	3'-0"	1'-6"	2	1.0
E	9'-0"	3'-0"	1'-6"	3	1.5
F	12'-0"	3'-0"	1'-6"	4	2.0
G	6'-0"	3'-0"	1'-0"	2	0.7
H	9'-0"	3'-0"	1'-0"	3	1.0
I	12'-0"	3'-0"	1'-0"	4	1.3

GENERAL NOTES: Above dimensions subject to mill tolerances.

Lacing and internal connecting wire will be 0.0866 inch diameter steel wire ASTM A641, Class 3 soft temper measured after galvanizing and for PVC coated gabions will be 0.0866 inch diameter steel wire measured after galvanizing but before PVC coating.

The lacing procedure is as follows:

1. Cut a length of lacing wire approximately 1½ times the distance to be laced but not exceeding 5 feet.
2. Secure the wire terminal at the corner by looping and twisting.
3. Proceed lacing with alternating single and double loops at a spacing not to exceed 6 inches.
4. Securely fasten the other lacing wire terminal.

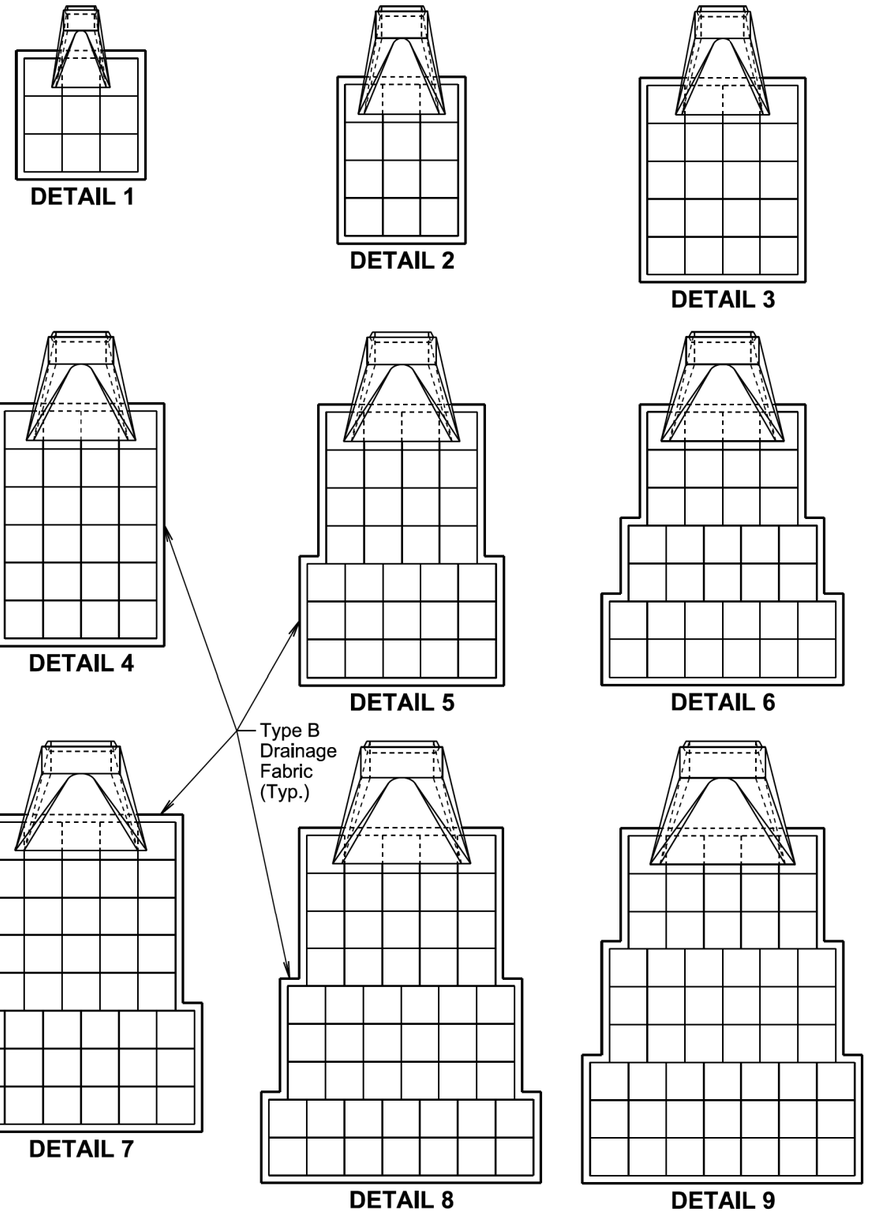
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92, Class 3 coating. Fasteners will also be in accordance with ASTM A764, Class II, Type III.

Interlocking fasteners for PVC coated gabions will be high tensile 0.120 inch diameter stainless steel wire conforming to ASTM A313, Type 302, Class 1. The spacing of the interlocking fasteners during all phases of assembly and construction will not exceed 6 inches.

All fasteners will be placed where the mesh weaves around the selvage wire at the vertical and horizontal joints.

February 14, 2020

Published Date: 2026	SDDOT	***BANK AND CHANNEL PROTECTION GABIONS***	*PLATE NUMBER* 720.01 / *Sheet 1 of 1*



February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 1 of 2

*** ESTIMATED QUANTITIES**

	Detail	Pipe Diameter (Inches)	Gabion (Cu. Yd.)	Type B Drainage Fabric (Sq. Yd.)
RCP, RCP Arch, CMP, and CMP Arch	1	12, 18, and 24	4.5	15
	2	30 and 36	6.0	19
	3	42	10.0	29
	4	48 and 54	12.0	34
	5	60	15.5	43
	6	66	17.0	47
	7	72	21.5	57
	8	78	26.0	68
	9	84	27.0	70

GENERAL NOTES:

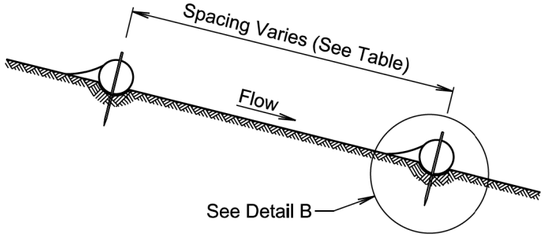
Gabions at outlets of CMP and RCP will be placed under the end section a distance of 2 feet from the outlet end. For CMP end section installations, the upper fabric of the gabions will be modified to accommodate the metal end section as approved by the Engineer.

* Gabion and type B drainage fabric quantities on this standard plate are based on standard gabion sizes D, E, and F as depicted on standard plate 720.01.

Type B drainage fabric will be placed under the gabions and around the exterior sides (perimeter) of the gabions as approved by the Engineer. The type B drainage fabric will be in conformance with Section 831 of the Specifications. Measurement and payment of the type B drainage fabric will be in conformance with Section 720 of the Specifications.

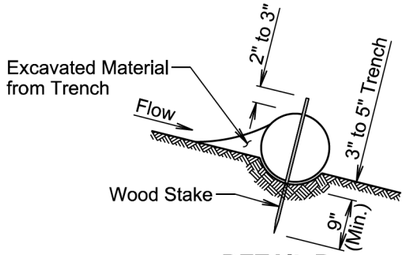
February 14, 2020

Published Date: 2026	SDDOT	BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS	PLATE NUMBER 720.03
			Sheet 2 of 2

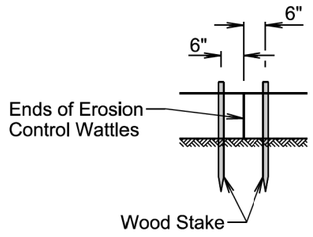


ELEVATION VIEW
(Cut or Fill Slope Installation)

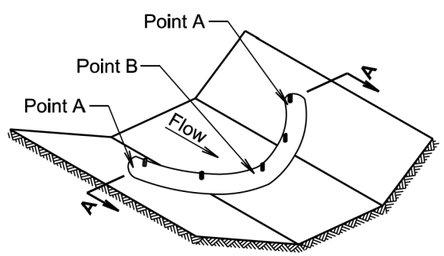
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



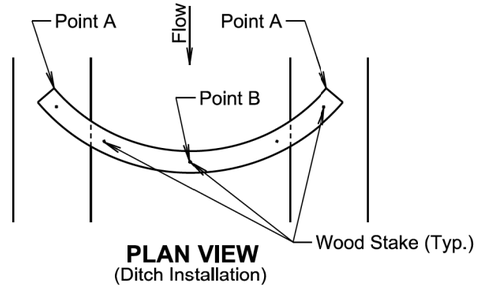
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

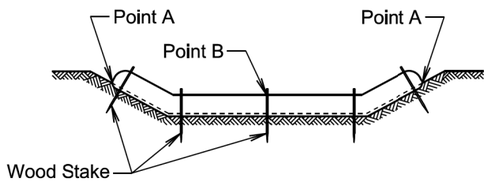


ISOMETRIC VIEW
(Ditch Installation)



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.

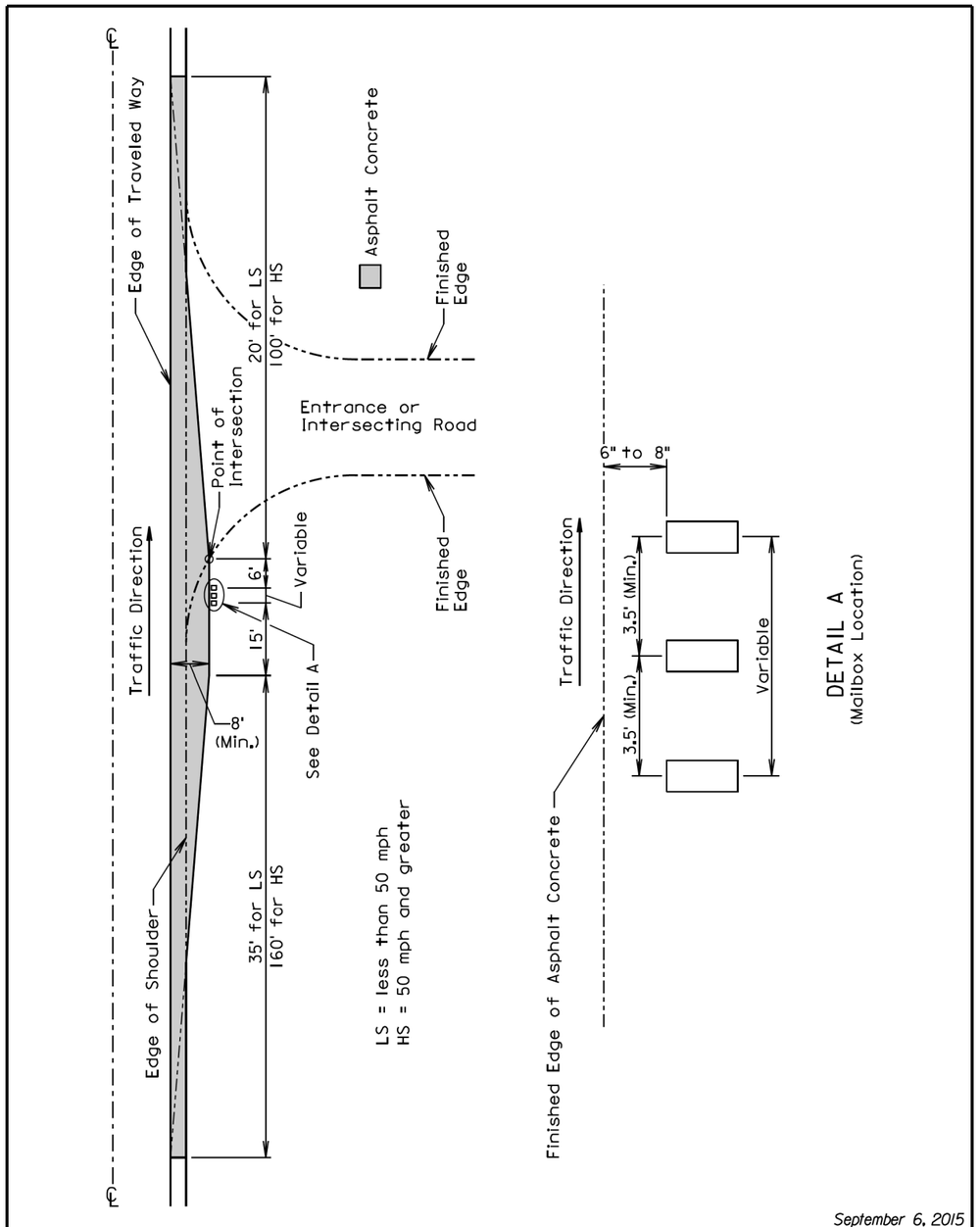
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

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".

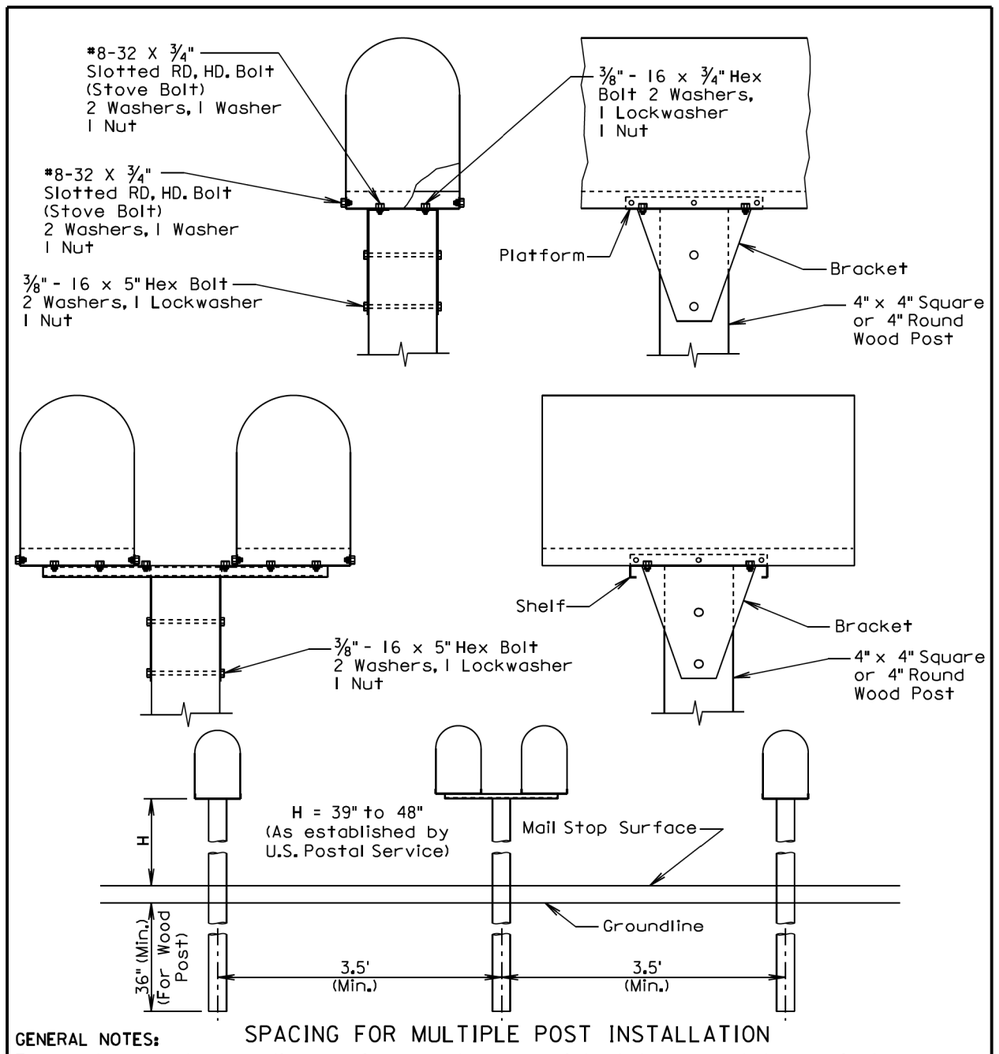
February 14, 2020

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



September 6, 2015

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



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

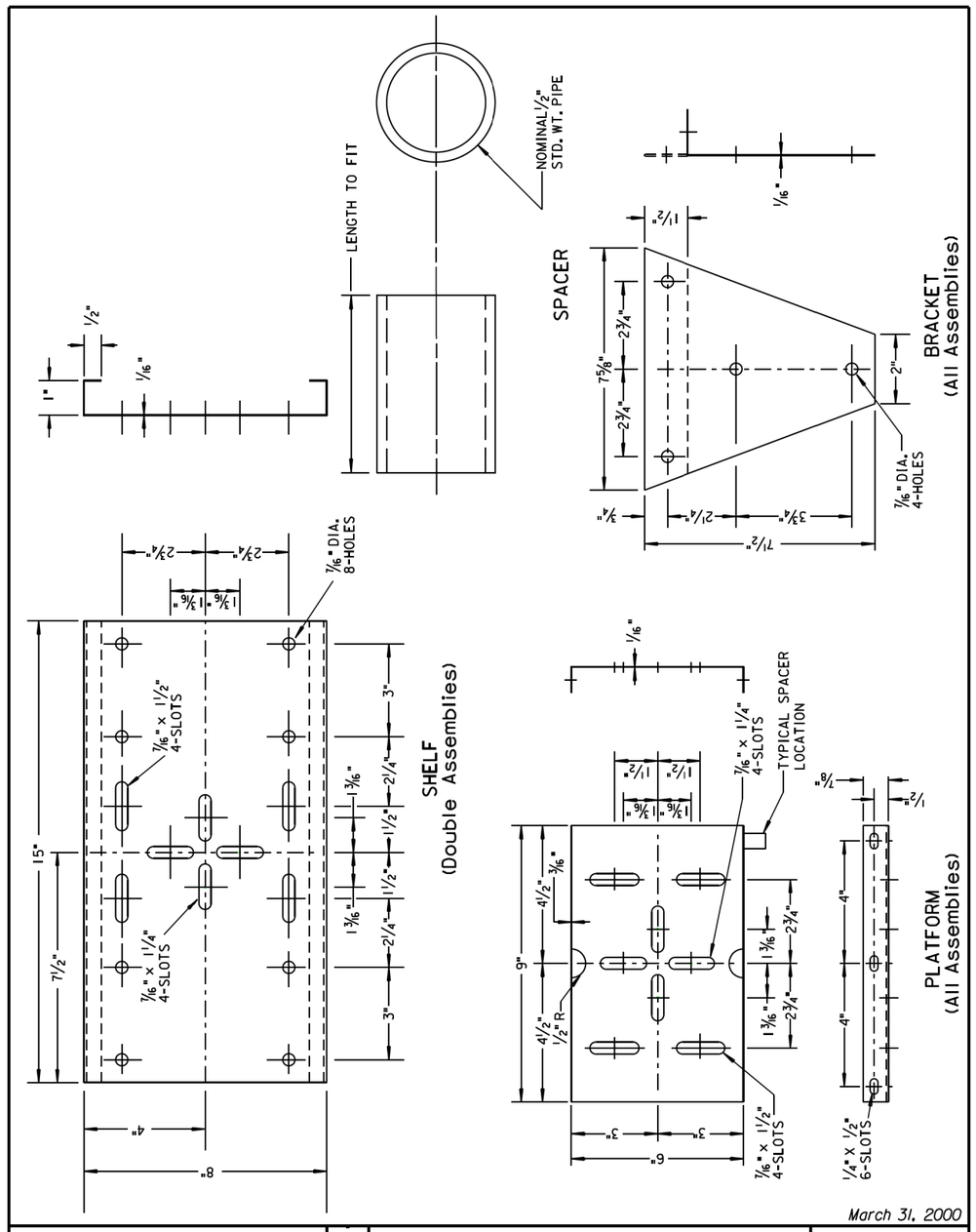
The post support assemblies provided should be consistant throughout the project. Single and double mailboxes may be in any sequence.

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

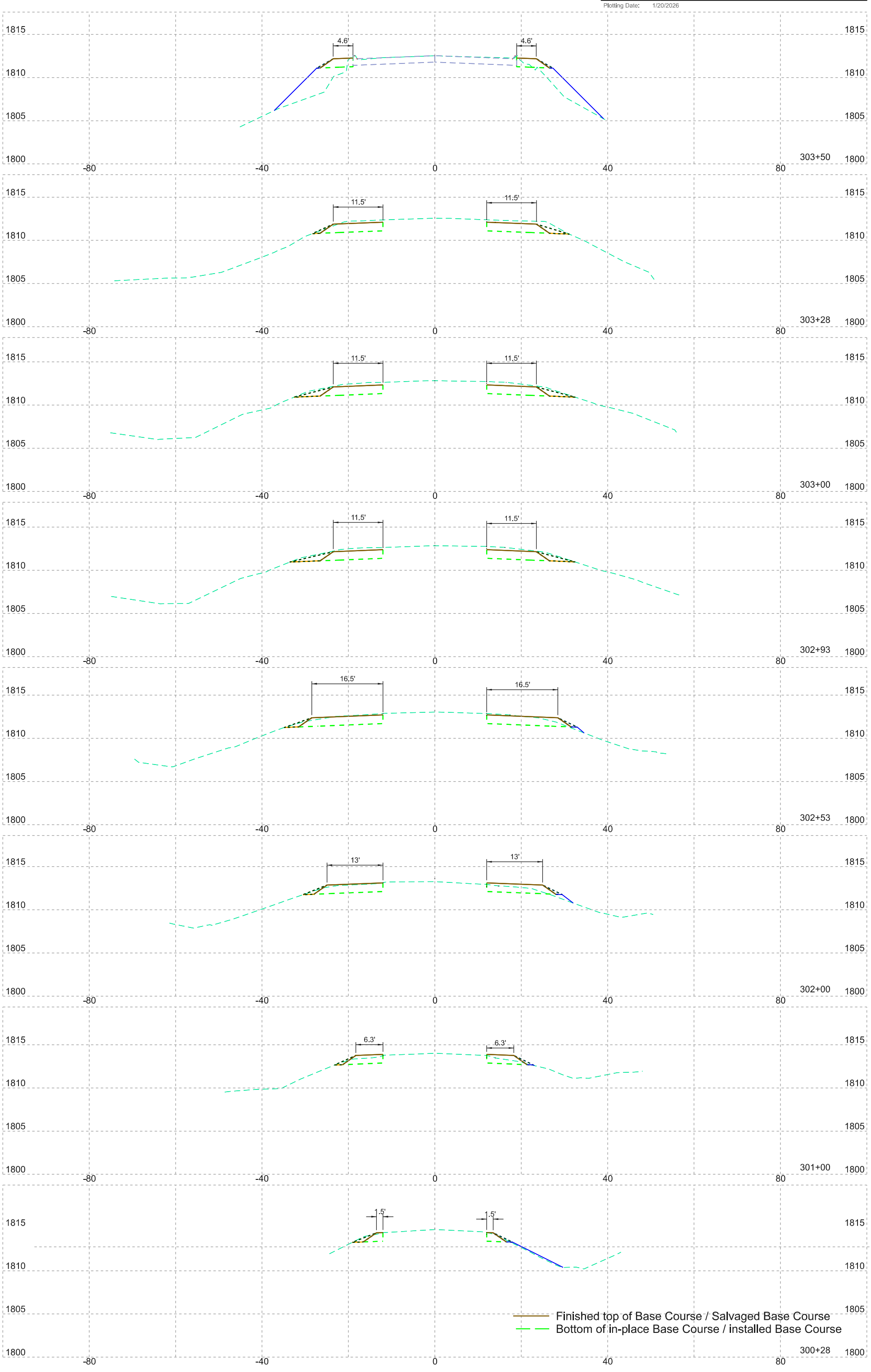


March 31, 2000

Published Date: 2026	SDDOT	***MAILBOX SUPPORT HARDWARE***	***PLATE NUMBER*** 900.03 Sheet 1 of 1

SD DOT	PROJECT	SHEET
	P 0271(06)189	69 of 71

Plotting Date: 1/20/2026



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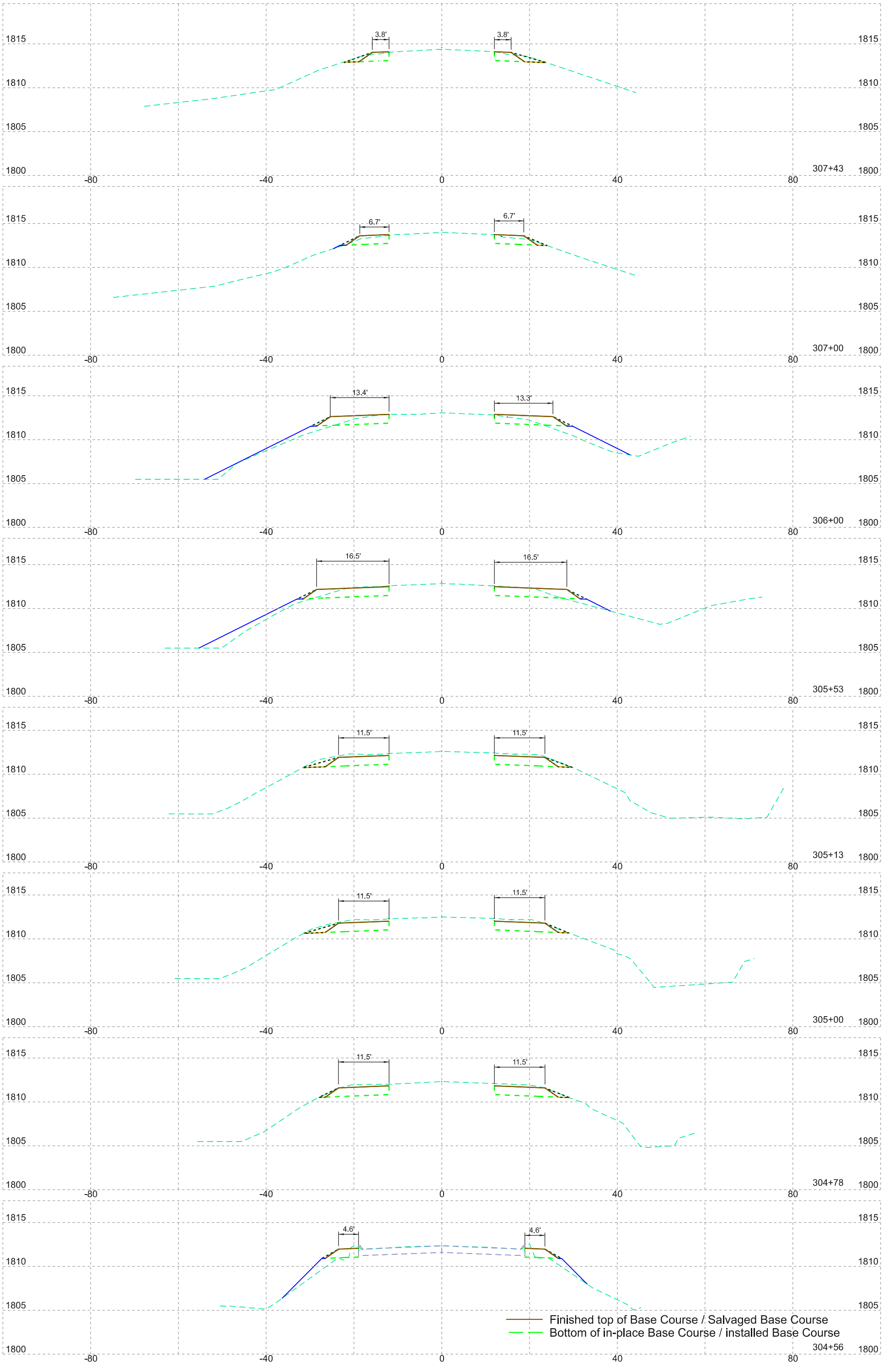

SD DOT	PROJECT	SHEET
	P 0271(06)189	71 of 71

Plotting Date: 1/20/2026